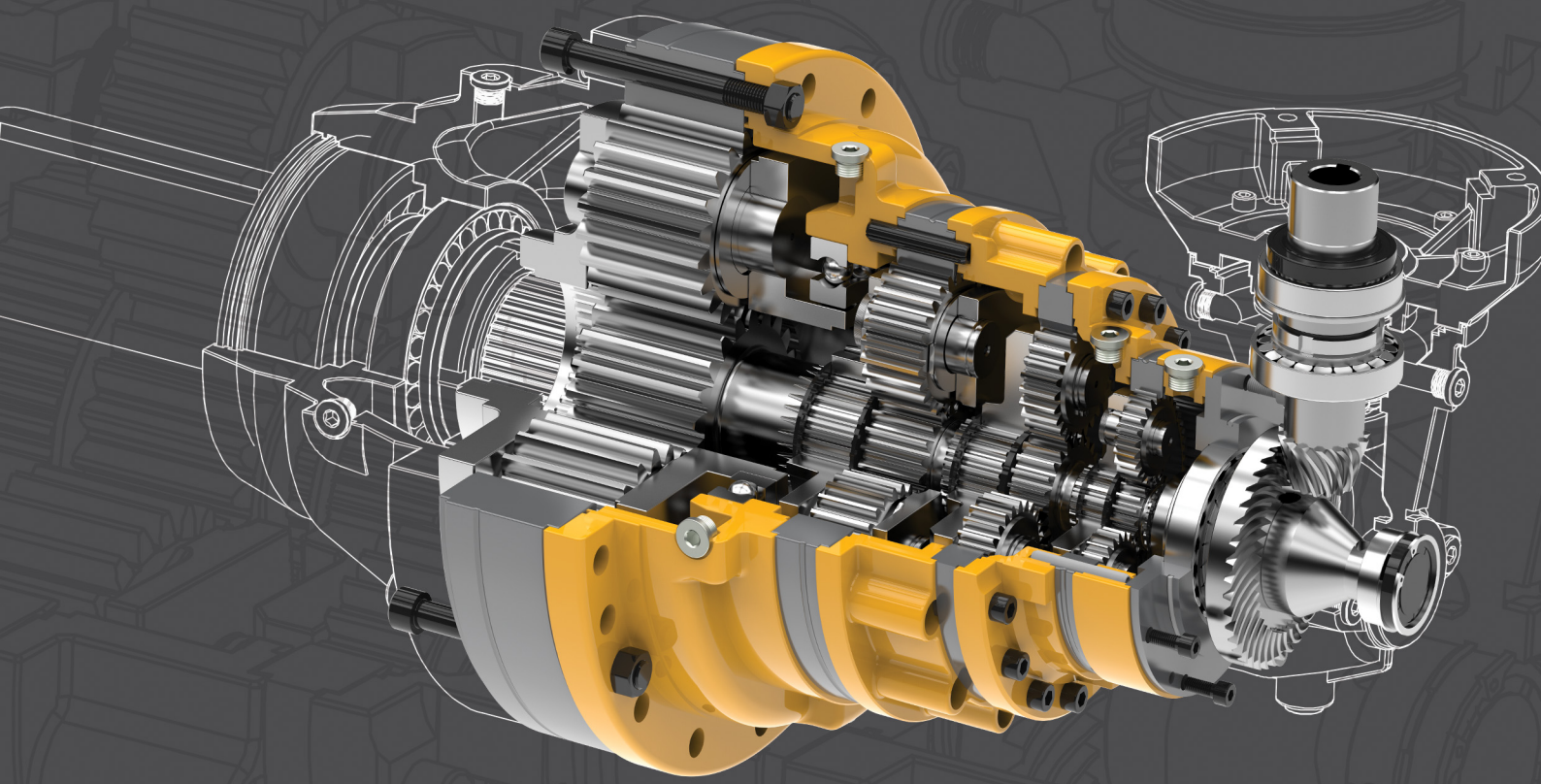
pds

Planet Redüktör



İÇİNDEKİLER / CONTENTS / INHALTUNG

BİLGİ /INFORMATION / INFORMATIONEN

Moment Değerleri	Torque Values	Drehmomentwerte

Tip / Size / Größe	i	T_{2Nom}-T_{2max} Moment / Torque / Drehmoment	Sayfa / Page / Seite
PD / PDA 101	3,55 - 1485,5	1100 - 2220	45
PD / PDA 103	3,55 - 1485,5	1700 - 3400	56
PD / PDA 105	3,77 - 2369,3	3520 - 7040	67
PD / PDA 107	3,77 - 2369,3	5110 - 10220	78
PD / PDA 109	3,66 - 2968,9	7020 - 14040	89
PD / PDA 111	3,55 - 2229,7	12210 - 24420	98
PD / PDA 113	3,55 - 2229,7	18020 - 36040	108
PD / PDA 115	13 - 1216,2	18020 - 36040	119
PD / PDA 117	4 - 1774	28060 - 56120	130
PD / PDA 119	14,2 - 1425	30760 - 61520	140
PD / PDA 121	4 - 1554,5	37500 - 61875	150
PD / PDA 123	4 - 1982	60800 - 121600	160
PD / PDA 125	3,83 - 1402,3	69310 - 138620	169
PD / PDA 127	4,09 - 1665,2	99000 - 198000	178
PD / PDA 129	3,83- 5305,2	140900 - 211350	186
PD / PDA 131	3,91 - 9793,3	184000 - 276000	194
PD / PDA 133	3,68 - 9790,9	215000 - 322500	202
PD / PDA 135	4 - 5568,8	339900 - 441870	210
PD / PDA 137	4 - 5780,7	339900 - 441870	218
PD / PDA 139	3,84 - 6667,6	572300 - 743990	226
PD / PDA 141	3,84 - 20367,5	662600 - 854750	232
PD / PDA 143	4,32 - 33865,1	1172864 - 1524723	238
PD / PDA 145	4,32 - 27102,4	1172864 - 1524723	241

** Katalogda yer alan tüm bilgiler bilgilendirme amaçlıdır.*
** All information in the catalog is for informational purposes.*
** Alle informationen im katalog dienen zu informatı on szwecken.*

*** Katalogda yer alan tüm ölçüler aksi belirtilmediği sürece milimetre cinsindendir.*
*** All dimensions in the catalog are given in millimeters, except when otherwise stated.*
*** Alle maße im katalog sind in milimetern angegeben, sofern nicht anders angegeben.*

****Bu katalogda verilen bilgiler, önceden haber ver meksizin kısmen veya tamamen değiştirme veya iptal etme hakkını saklı tutarız.*
****We reserve the right to make changes in catalogue without giving information .*
****Das ganze Katalog oder ein teil des Kataloges kann verandert werden, ohne in kenntnis zu setzen.*

BİLGİ / INFORMATION / INFORMATIONEN

Semboller — Symbols — Symbole

Sembol / Symbols	Birim / Unit	Tanım	Description	Beschreibung
C_{rt}		Enerji değişimi sabiti	Energy exchange coefficient	Energieaustausch-Koeffizient
$k_{r,1}, k_{r,2}$		Radyal yük düzeltme sabiti	Corrective coefficients of the shafts	Korrekturkoeffizienten der Wellen
$f_{h,1}, f_{h,2}$		Süre faktörü	Energy exchange coefficient	Energieaustausch-Koeffizien
$F_{r,1}, F_{r,2}$	N	Giriş ve çıkış milleri üzerinde müsade edilen radyal yük	Permitted radial load on the input output shafts	Zulässige Radiallast auf die Antriebsabtriebswellen
$F_{a,2}$	N	Çıkış mili üzerinde izin verilen eksenel yük	Permitted axial load on output shaft	Zulässige axiale Belastung der Abtriebswelle
η		Dinamik verim	Dynamic efficiency	Dynamische Effizienz
h_r	h	İstenen süre	Duration required	Erforderliche Dauer
f_s		Servis Faktörü	Service factor	Service-Faktor
i		Çevrim Oranı	Reduction Ratio	Reduktionsverhältnis
i_r		İstenen çevrim oranı	Reduction ratio required	Erforderliches Verringerungsverhältnis
K_t		Isı faktörü	Temperture factor	Temperierungsfaktor
K_v		Hız faktörü	Speed factor	Geschwindigkeitsfaktor
n_1	min-1	Giriş devri	Input speed	Antriebsdrehzahl
n_{1max}	min-1	Azami giriş devri	Maximum input speed	Maximale Eingangsgeschwindigkeit
n_2	min-1	Çıkış devri	Output speed	Abtriebsgeschwindigkeit
n_{2req}	min-1	Eşdeğer çıkış hızı	Equivalent output speed	Äquivalente Abtriebsdrehzahl
P_1, P_2	kW	Giriş/çıkış güçleri	Input/output power	Ein-/Ausgangsleistung
P_t	kW	Isıl güç	Termal Power	Termale Leistung
P'_t	kW	Düzeltilmiş ısıl güç	Corrected termal power	Korrigierte thermische Leistung
q	l/min	Yedek soğutucu için yağ debisi	Oil flow rate for auxilary cooling device	Öldurchflussmenge für zusätzliche Kühlvorrichtung
$t_1, t_2 \ldots t_i$		Yük altında kalış yüzdesi	Duration percentage of load level	Dauer Prozentsatz der Belastungsstufe
T_2	Nm	İletilebilecek çıkış momenti	Transmissible output torque	Übertragbares Ausgangsdrehmoment
T_{2c}	Nm	Düzeltilmiş çıkış momenti	Corrected output torque	Korrigiertes Abtriebsdrehmoment
T_{2max}	Nm	Maksimum çıkış momenti	Maximum output torque	Maximales Abtriebsdrehmoment
T_{2n}	Nm	Ortalama çıkış momenti	Nominal output torque	Nominelles Abtriebsdrehmoment
T_{2r}	Nm	İstenilen çıkış momenti	Required output torque	Erforderliches Abtriebsdrehmoment
T_{2req}	Nm	İstenilen eşdeğer çıkış momenti	Required equivalent output torque	Erforderliches äquivalentes Abtriebsdrehmoment
F_f	Nm	Fren momenti	Braking torque	Bremsmoment
t_a	°C	Ortam sıcaklığı	Ambient temperature	Umgebungstemperatur
t_r	°C	Çalışma sıcaklığı	Operating temperature	Betriebstemperatur
t_s	°C	Soğutma cihazının çıkış tarafındaki yağ sıcaklığı	Oil temperature at the outlet of the cooling circuit	Öltemperatur am Ausgang des Kühlkreislaufs

BİLGİ / INFORMATION / INFORMATIONEN

Teknik Özellikler

Planet redüktörlerin güç transferinde kullanılması, basit yapı ve küçük alanlarda uygulama talepleri için verilebilecek en modern cevap niteliğindedir. Planet dişli sistemler, işletim cihazlarının içine güç iletmek için tasarlanmıştır.
Planet Dişli Sistemli redüktörler her türlü makine ve techizat tahriki için dizayn edilmiştir. Planet dişli kutuları direk veya dolaylı olarak bir elektrik veya hidrolik motora akuple edilebilir. Planet dişli kutuları bir çok uygulamalarda kullanılabilir, bazıları endüstriyel ya da mobil, bazıları mekanik endüstri uygulamaları olmak üzere, kimya ve plastik sanayi, gıda endüstrisi, yapı ve inşaat, madencilik, tarım ve ormancılık, nakliye ve kaldırma, denizcilik sektörü, rüzgar jeneratörleri ve enerji sektörlerinde kullanılmaktadır.

Technical Characteristics

The use of planetary gear unıts in the field of power transmission is the modern answer to the demand for compactness , constructive simplicity and product reliability.The Planetary Drive Systems gearboxes are designed for transmitting power inside operating devices. Gear boxes can be connected directly or indirectly to either an electric motor or hydraulic motor. The planetary gearboxes are used for many different type of applications ,both industrial or mobile some of which are mechanical industry , the chemical and plastics industry , the food industry , building and constructions ,mining , agriculture and foresty,transporting and lifting , marine sector , windgenerators and energy.

Technische Beschreıbung

Der Einsatz von Planetengetrieben im Bereich der Kraftübertragung ist die moderne Antwort auf die Forderung nach Kompaktheit, konstruktiver Einfachheit und Produktzuverlässigkeit. Die Getriebe der Planetenantriebssysteme sind für die Kraftübertragung innerhalb von Betriebsgeräten konzipiert. Die Getriebe können direkt oder indirekt entweder an einen Elektro- oder Hydraulikmotor angeschlossen werden. Die Planetengetriebe werden für viele verschiedene Arten von Anwendungen eingesetzt, sowohl industrielle als auch mobile, von denen einige in der mechanischen Industrie, der Chemie- und Kunststoffindustrie, der Lebensmittelindustrie, im Bauwesen, im Bergbau, in der Land- und Forstwirtschaft, im Transport- und Hebewesen, in der Schifffahrt, in Windkraftanlagen und in der Energiewirtschaft zu finden sind.

Dizayn Özellikleri

* Yüksek moment değerleri
* M, H ve FV modellerinde konik seri rulmanların kullanılması ile yüksek eksenel ve radyal yük taşıma kapasiteleri.
* Yüksek verim elde edilir. (Kademe başına η :0,98)
* Dişli kutuları içinde parçalar frezeli geçişler kullanılarak yüksek emniyetli olarak yapılmaktadır.
* Planet redüktörlerin her geçiş kademesindeki taşıyıcı kafesler DIN 5480 ve DIN 5482 standardındadır ve evolvent profilli kamalı mil ile geçişler kullanılarak hem merkezleme yapılmakta, hem de güç aktarımında yüksek emniyetli tork aktarımı yapılmaktadır. Bu şekilde planet dişlileri arasında en uygun yük dağılımı sağlanmaktadır.

More Design Features

* High torque density
* High overhang and axial load capacity due to heavy duty tapered roller bearings featured on M, H and FV versions.
* High efficiency is obtained. (η: 0,98 per stage)
* Inner parts are coupled to each others with splined connectors rather than keys.
* The carrier cages in every transition stage of planetary gearboxes are in DIN 5480 and DIN 5482 standards and high safety torque transfer is performed in both centering and power transmission by using evolvent profiled splined shafts. In this way, the most suitable load distribution is provided between the planetary gears.

Weitere Konstruktionsmerkmale

* Hohes Drehmoment
* Hoher Überhang und hohe axiale Belastbarkeit durch hochbelastbare Kegelrollenlager in den Ausführungen M, H und FV.
* Hoher Wirkungsgrad wird erreicht. (η: 0,98 pro Stufe)
* Die inneren Teile sind miteinander mit Spline-Verbindern statt mit Keilen verbunden.
* Die Trägerkäfige in jeder Übergangsstufe von Planetengetrieben entsprechen den Normen DIN 5480 und DIN 5482, und die hochsichere Drehmomentübertragung erfolgt sowohl bei der Zentrierung als auch bei der Kraftübertragung durch die Verwendung von evolventisch profilierten Keilwellen. Auf diese Weise wird die bestmögliche Lastverteilung zwischen den Planetenrädern erreicht.

BİLGİ / INFORMATION / INFORMATIONEN

Sembollerin Açıklaması

T_{2n}(Nm)

Nominal Çıkış Momenti

Bu değer dişli kutusunun emniyetli olarak sabit yük ve emniyet katsayısı 1 ve farklı ömür saatleri ile nakledebileceği hesaplanan moment değeridir. Bu değerler dişliler için ISO DP 6336 ve rulman için ISO 281 standartlarına göredir.

T_2(Nm)

Çıkış Momenti

Giriş gücüne göre dişli kutusunun çıkış mili üzerinde verebileceği net moment değeridir. Bu değer 10000 saat ömür giriş gücü emniyet katsayısı ve dişli kutusu verimi göz önüne alınarak hesaplanır.

$T_{2max.}$(Nm)

Maksimum Çıkış Momenti

Kısa süreli veya ara sıra meydana gelen yüksek yüklerde en uzun gerilimli elemanlara kalıcı bir zarar vermeden redüktör dişlisi çıkışında uygulanabilen maksimum moment değeridir.

T_{2r}(Nm)

İstenilen Çıkış Momenti

Uygulamanın işletim verilerine dayanarak redüktörün çıkış torkunun değeridir.

Explanation of Symbols

T_{2n}(Nm)

Nominal Output Torque

This is the torque output the gearbox candeliver safely, based on; uniform loadingand safety factor f_s= 1 , and with different theoretical life times .T_{2n} (Nm) values are incompliance with following standarts; ISO DP 6336 for gears ISO281 for bearings.

T_2(Nm)

Output Torque

This is the net torque delivered to the out-put shaft ,with installed power P_1, f_s safety factor which will yield a theoretical lifetime of 10000 hours . This torque value takes gearbox efficiency into consideration.

$T_{2max.}$(Nm)

Maximum Output Torque

It is maximum torque value applicable in reduction gear output for short lengths of time or for occasional peaks,without any permanent damage to the most stressed elements.

T_{2r}(Nm)

Required Output Torque

It is the value of output torque one intends applying to the reduction gear based on the operating data of the application.

Erklärung der Symbole

T_{2n}(Nm)

Nominales Abtriebsdrehmoment

Dies ist das Ausgangsdrehmoment, das das Getriebe auf der Grundlage eines einheitlichen Belastungs- und Sicherheitsfaktors sicher abgeben kann. T_{2n} (Nm)-Werte stimmen nicht mit den folgenden Normen überein: ISO DP 6336 für Zahnräder ISO281 für Lager.

T_2(Nm)

Abtriebsdrehmoment

Dies ist das Nettodrehmoment, das an die Abtriebswelle abgegeben wird, bei installierter Leistung P_1, Sicherheitsfaktor f_s, was eine theoretische Lebensdauer von 10000 Stunden ergibt. Dieser Drehmomentwert berücksichtigt den Wirkungsgrad des Getriebes.

$T_{2max.}$(Nm)

Maximales Abtriebsdrehmoment

Es handelt sich um den maximalen Drehmomentwert, der bei der Ausgabe von Untersetzungsgetrieben für kurze Zeit oder für gelegentliche Spitzenwerte ohne dauerhafte Schäden an den am meisten beanspruchten Elementen anwendbar ist.

T_{2r}(Nm)

Erforderliches Abtriebsdrehmoment

Es ist der Wert des Ausgangsdrehmoments, den man auf das Untersetzungsgetriebe anwenden will, basierend auf den Betriebsdaten der Anwendung.

BİLGİ / INFORMATION / INFORMATIONEN

Sembollerin Açıklaması

T_{2c}(Nm)

Düzenlenmiş Çıkış Momenti
Gerekli torka ve servis faktörüne göre hesaplanır ve belirli bir uygulama için redüktör dişlisinin seçildiği değerdir.

n_1[min^{-1}]

Giriş Devri
Dişli kutusuna bağlanan motorun devri veya giriş mili üzerindeki devir.

n_2[min^{-1}]

Çıkış Devri
Giriş hızı ve dişli kutusu tahvil oranı ile bulunan redüktörün çıkış mili hızıdır.

i

Tahvil Oranı
Giriş devri ile çıkış devri arasındaki gerçek oranı gösterir.

Mevcut tahvil oranları, her redüktör dişlisi boyutu için teknik veri tablosunda verilmiştir. Diğer tahvil oranları talep üzerine elde edilebilir.

Explanation of Symbols

T_{2c}(Nm)

Corrected Output Torque
It is the calculated on the basis of torque required and on the service factor and is the value on the basis of which the reduction gear is chosen suitable for a given application.

n_1[min^{-1}]

Input Speed
It is the speed of motor connected to the reducer input, or in the case of an indirect connection ,of gearbox input shaft.

n_2[min^{-1}]

Output Speed
It is the speed of gearbox output shaft, as a function of the input speed n_1 and the actual reduction ratio İ.

i

Reduction Ratio
It indicates the actual ratio between the reduction gears input speed n_1 and output speed n_2.

$$i = \frac{n_1}{n_2}$$

The reduction ratios available are given in the technical data table for each reduction gear size. Other reduction ratios can be obtained on request.

Erklärung der Symbole

T_{2c}(Nm)

Korrigiertes Abtriebsdrehmoment
Sie wird auf der Grundlage des erforderlichen Drehmoments und des Betriebsfaktors berechnet und ist der Wert, auf dessen Grundlage das Untersetzungsgetriebe passend für eine bestimmte Anwendung ausgewählt wird.

n_1[min^{-1}]

Antriebsdrehzahl
Es ist die Drehzahl des Motors, der an den Eingang des Untersetzungsgetriebes angeschlossen ist, oder im Falle eines indirekten Anschlusses an die Eingangswelle des Getriebes

n_2[min^{-1}]

Abtriebsdrehzahl
Sie ist die Drehzahl der Getriebeausgangswelle in Abhängigkeit von der Antriebsdrehzahl n_1 und dem tatsächlichen Untersetzungsverhältnis İ.

i

Untersetzungsverhältnis
Sie gibt das tatsächliche Verhältnis zwischen der Antriebsdrehzahl n_1 und der Abtriebsdrehzahl n_2 des Untersetzungsgetriebes an.

Die verfügbaren Untersetzungsverhältnisse sind in der Tabelle der technischen Daten für jede Untersetzungsgetriebegröße angegeben. Andere Untersetzungsverhältnisse sind auf Anfrage erhältlich.

BİLGİ / INFORMATION / INFORMATIONEN

Sembollerin Açıklaması

$n_{1max}[min^{-1}]$

Maksimum Giriş Hızı
Kısa süreli veya aralıklı olarak izin verilen maksimum giriş hızını gösterir. Redüktörün giriş hızı , dişlinin çevresel hızı, rulmanları ve keçelerle sınırlıdır.

$f_{h,1}, f_{h,2}$

Giriş/Çıkış Süre Faktörü
Giriş/çıkış devri ile arzu edilen süre çarpımıdır.

$f_{h1} = n_1 . h_1 \qquad f_{h2} = n_2 . h_r$

P_1 (kW)

Giriş Gücü
Bir motorun doğrudan veya dolaylı bağlantısıyla (ilave iletim parçaları ile) redüktöre girişte uygulanan güçtür.

$$P_2 = \frac{T_{2r} . N_2}{9559}$$

η

Verim
Çıkış gücü P_2 ile giriş gücü P_1 arasındaki oranla verilen birimsiz katsayıdır.

$$\eta = \frac{P_1}{P_2}$$

Planet sistemlerde bu değer her bir kademe için 0,97-0,98 civarındadır.

Explanation of Symbols

$n_{1max}[min^{-1}]$

Maximum Input Speed
It indicates the maximum permitted input speed for short lengths of time or intermittently; the reduction gears input speed is limited by the peripheral speed of the gears by the bearings and by the seals.

$f_{h,1}, f_{h,2}$

Input/output Duration Factor
It is the product of the input/output speed for the duration required.

P_1 (kW)

Input Power
It is the power applied in input to the reduction gear by either a direct or indirect connection (with additional transmission parts)of a motor.

η

Efficiency
It is a dimensionless coefficient given by the ratio between the output power P_2 and input power P_1 ;

It is usually high in planetary transmission average values are 0,98-0,97 for each reduction stage.

Erklärung der Symbole

$n_{1max}[min^{-1}]$

Maximale Antriebsgeschwindigkeit
Sie gibt die maximal zulässige Antriebsdrehzahl für kurze Zeit oder intermittierend an : die Antriebsdrehzahl des Untersetzungsgetriebes wird durch die Umfangsgeschwindigkeit der Zahnräder durch die Lager und durch die Dichtungen begrenzt.

$f_{h,1}, f_{h,2}$

Antriebs-/Abtriebsdauer Faktor
Sie ist das Produkt der An- und Abtriebsgeschwindigkeit für die erforderliche Dauer.

P_1 (kW)

Eingangsleistung
Es handelt sich um die Leistung, die durch eine direkte oder indirekte Verbindung (mit zusätzlichen Übertragungsteilen) eines Motors in das Untersetzungsgetriebe eingespeist wird.

η

Wirkungsgrad
Es handelt sich um einen dimensionslosen Koeffizienten, der durch das Verhältnis zwischen der Abtriebsleistung P_2 und der Antriebsleistung P_1 gegeben ist;

Er ist bei Planetengetrieben gewöhnlich hoch; die Durchschnittswerte liegen bei 0,98-0,97 für jede Untersetzungsstufe.

BİLGİ/ INFORMATION / INFORMATIONEN

Sembollerin Açıklaması

f_s

Servis Faktörü

Servis faktörü tahrik edilecek ekipman için bir çarpım sabitidir. Bu faktör uyulama yükleme koşullarını dikkate alır. Aşırı yüklemelerin duruş ve kalkış anlarında meydana getirdiği şoklar dikkate alınarak hesaplanmalıdır. Aşağıdaki tablo bu değerleri çalışma durumuna göre vermektedir.

Explanation of Symbols

f_s

Service Factor

Sevice factor fs is a multiplication coefficient introduced into formula for selecting the drive .This factor takes into account the application load conditions.The effect of shocks generated by intermittent motion and overloads during starts and stops must be calculated, introducing a service factor f_s. Below table indicates the service factors fs in relation to the type of operation.

Erläuterung der Symbole

f_s

Service-Faktor

Der Servicefaktor fs ist ein Multiplikationskoeffizient, der in die Formel für die Auswahl des Antriebs eingeführt wird. Dieser Faktor berücksichtigt die Lastbedingungen der Anwendung. Die Auswirkungen von Stößen, die durch intermittierende Bewegung und Überlastungen bei Starts und Stopps erzeugt werden, müssen unter Einführung eines Servicefaktors fs berechnet werden. Die nachstehende Tabelle zeigt die Betriebsfaktoren fs in Abhängigkeit von der Betriebsart.

	Yük Sınıflaması / Load Classification / Last-Klassifizierung								
	U Düzgün / Uniform / Gleichmassig			M Orta / Moderate / Mittelschwer			H Ağır / Heavy/ Schwer		
Günlük çalışma süresi (saat) / Daily working time (hour)/ Tägliche Arbeitszeit (Stunde)									
Duruş - Kalkış Sayısı / Number of Stop - Start / Anzahl der Stopps - Start	0 - 4	4 - 8	8 - 24	0 - 4	4 - 8	8 - 24	0 - 4	4 - 8	8 - 24
< 5	0,85	1,0	1,5	0,95	1,3	1,9	1,25	1,9	2,4
5-50	1,0	1,0	1,7	1,15	1,6	1,9	1,6	2,1	2,5
> 50	1,3	1,7	1,9	1,55	1,9	2,2	1,9	2,5	2,9
	f_s								

$F_{a,2}$

Çıkış Eksenel Yük

Çıkış mili yatağı üzerinde itme veya çekme yönünde bir eksenel yüke izin verilmiş olup bunun eksantrik olmaması gerekmektedir.

$F_{a,2}$

Output Axial Load

An axial load, incoming or outgoing, is allowed on all types of output support provided it is not applied eccentrically in relation to the output shaft.

$F_{a,2}$

Ausgangs-Axialbelastung

Eine einlaufende oder auslaufende Axialbelastung ist bei allen Arten von Abtriebslagerungen zulässig, sofern sie nicht exzentrisch zur Abtriebswelle aufgebracht wird.

BİLGİ / INFORMATION / INFORMATIONEN

P_t (kW)

Termal Güç

Termal güç sürekli çalışma durumunda, çarpmalı yağlama ile redüktör yağ sıcaklığı 90°C yi aşmayacak şekilde transfer edebileceği maksimum güçtür. Redüktör teknik sayfalarındaki değerler;

* Devamlı çalışma
* Giriş devri 1500 d/d
* Yağ ISO VG 150
* Ortam sıcaklığı 20°C
* Dişli kutusu yatay pozisyonda
* Soğutma düşünülmeksizin tablolanmıştır. Eğer kullanılmak istenen güç termal gücü aşıyor ise bu durumda soğutmaya ihtiyaç duyulur. Pt değerleri ayaklı tiplerde %15 fazla alınabilir. (PD 111 - PD 113 tiplerinde)

P_t (kW)

Thermal Power

The thermal power is the maximum power the planetary gearbox can transmit in continuous duty with oil splash lubrication and without exceeding an oil temperature of 90°C. The P_t values shown in the single product technical card indicate the maximum values at the below conditions.

* Continuous duty
* Input speed 1500 min^{-1}
* Oil ISO VG 150
* Ambient temperature 20°C.
* Gearbox in horizontal position
* Not subject to air recirculation. If the required power exceeds the values indicated in the gearbox technical information , a lubricant cooling system is needed. P_t value can be given %15 higher from given value for foot version planetary gearboxes from PD111- PD 113 serie

P_t (kW)

Thermische Leistung

Die thermische Leistung ist die maximale Leistung, die das Planetengetriebe im Dauerbetrieb mit Ölspritzschmierung und ohne Überschreiten einer Öltemperatur von 90%DC übertragen kann. Die in der technischen Einzelproduktkarte angegebenen Pt-Werte geben die Maximalwerte bei den unten aufgeführten Bedingungen an.

* Dauerbetrieb
* Antriebsdrehzahl 1500 min^{-1}
* Öl ISO VG 150
* Umgebungstemperatur 20°C.
* Getriebe in horizontaler Lage
* Nicht luftumwälzend. Wenn die erforderliche Leistung die in den technischen Informationen des Getriebes angegebenen Werte überschreitet, ist eine Schmiermittelkühlung System benötigt wird. Der P_t-Wert kann bei Planetengetrieben der Serie PD111- PD 113 in Fußausführung um %15 höher als der angegebene Wert angegeben werden.

Giriş gücü müsade edilen ısıl gücü aşıyor veya dişli kutusu ufak bir hacim içinde çalışıyor ve hava akışı çok zayıf ise, bir yağ soğutma düzeneği tavsiye edilir.

If the power applied in input to the gearbox exceeds the permitted thermal power or if the gearbox is working inside a small compartment or with only a small change of air,we suggest an oil recirculation type cooling device.

Wenn die am Eingang des Getriebes angelegte Leistung die zulässige thermische Leistung überschreitet oder wenn das Getriebe in einem kleinen Raum oder mit nur geringem Luftwechsel arbeitet, schlagen wir eine Kühlvorrichtung mit Ölrückführung vor.

F_{r1},F_{r2}

Giriş/Çıkış Radyal Yük

Giriş ve çıkış milleri üzerindeki radyal yüklerin her bir tip planet redüktör bilgi kartındaki değerden daha küçük veya eşdeğer olduğunu kontrol edin. Eğer radyal yük listedeki değerden büyük ise redüktör giriş/çıkış mil tipini, büyüklüğünü veya rulman aranjmanını değiştirmek gerekir. Kontrol etmek için aşağıdaki işlemleri yapın; Girişteki F_{r1} ve çıkıştaki F_{r2} radyal yüklerini tanımlayın.

F_{r1},F_{r2}

Input/Output Radial Load

Check that radial loads exerted on input and output shafts are lower than or equal to values indicated in the tables on gearbox technical charts for each type of gearbox. In case they are greater the indicted value,change either gearbox output version,gearbox size or systembearing arrangement .
To check proceed as follows ;Define radial loads F_{r1} at input and F_{r2} at output.

F_{r1},F_{r2}

Radiale Belastung am Antrieb/Abtrieb

Kontrollieren Sie, dass die auf die Antriebs- und Abtriebswellen ausgeübten Radialbelastungen kleiner oder gleich den Werten sind, die in den Tabellen der technischen Getriebetabellen für jeden Getriebetyp angegeben sind. Falls sie größer als der angezeigte Wert sind, ändern Sie entweder die Getriebeausgangsversion, die Getriebegröße oder die Systemlagerung.
Zur Kontrolle gehen Sie wie folgt vor ; Definieren Sie die Radialbelastungen F_{r1} am Antrieb und F_{r2} am Abtrieb.

BİLGİ / INFORMATION / INFORMATIONEN

$T_{1,2req}$: Giriş ve Çıkış için istenen moment Nm
d: Mil üzerine monte edilen parçanın çapı mm
K_r: Radyal yük stres sabiti;
K_r: 1 zincir dişli
K_r: 1,25 dişli aktarım
K_r: 1,5 - 2 V kayışlı aktarım

$T_{1,2req}$: Required torque for input and output Nm
d: Diameter of the part mounted on the shaft mm
K_r: Radial load stress constant;
K_r: 1 chain transmission
K_r: Gear transmission
K_r: 1,5 - 2 V-belt transmission

$T_{1,2req}$: Erforderliches Drehmoment für An- und Abtrieb Nm
d: Durchmesser des auf der Welle montierten Teils mm
K_r: Radiale Belastungsspannungskonstante
K_r: 1 Kettenübertragung
K_r: Zahnradgetriebe
K_r: 1,5-2 Keilriemen-Getriebe

$$F_{r1}, F_{r2} = \frac{2000 \times T_{1,2req} \times Kr}{d}$$

Daha uzun kullanım ömrü için, tablodaki kullanım ömrü faktörüne bakınız.

For extended lifetime requirements, look up lifetime factor fs in table

Für Anforderungen an die verlängerte Lebensdauer siehe Lebensdauerfaktor fs in der Tabelle

Ömür faktörü/Lifetime/Dauer	2500 h	5000 h	10000 h	15000 h	25000 h	50000 h	100000 h
f_S	0,66	0,81	1,00	1,13	1,32	1,62	2,00

Mil üzerindeki emniyet yükü konumu x i tanımlayın. Şanzıman tarafından katlanabilen F_{x1-2} yükünü gösteren grafikle bu değeri kontrol edin. Aşağıdakilerin karşılandığını kontrol ediniz:

Define the trust load position x onto shaft. Check this value with value with the chart indicating the load F_{x1-2} bearable by the gearbox. Check that the following is satisfied:

Definieren Sie die Position der Axiallast x auf der Welle. Überprüfen Sie diesen Wert mit dem Wert aus der Tabelle, der die vom Getriebe ertragbare Last F_{x1-2} angibt. Prüfen Sie, ob Folgendes erfüllt ist:

$$F_{c1-2} \leq F_{x1-2} \times f_{s1-2}$$

f_{s1-2}, gerekli f_{s1} ve f_{s2} ömür faktörlerine bağlı olarak radyal ve itme-çekme yükü düzeltici faktördür.

Where f_{s1-2} are the radial and thrust load corrective factor depending on the required life factor f_{s1} and f_{s2}.

Wobei f_{s1-2} der Korrekturfaktor für die Radial- und Axiallast in Abhängigkeit vom geforderten Lebensdauerfaktor f_{s1} und f_{s2} ist.

BİLGİ / INFORMATION / INFORMATIONEN

Yük Sınıflaması — Load Classification — Last-Klassifizierung

U Sabit / Uniform / Gleichmassig - **M** Orta / Moderate / Mittelschwer - **H** Ağır / Heavy / Schwer

Kompresörler, Fanlar	Blowers, Ventilators	Gebläse, Ventilatoren	
Üfleyiciler	Blowers	Gebläse	U
Soğutma kule fanları	Cooling tower fans	Kühlturm-Ventilatoren	M
İndüklenmiş cereyanlı fanlar	Induced draught fans	Gebläse mit Saugzug	M
Döner piston üfleyicileri	Rotary piston blowers	Drehkolbengebläse	M
Turbo üfleyiciler	Turbo blowers	Turbo-Gebläse	U

Kompresörler	Compressors	Kompressoren	
Pistonlu kompresörler	Piston compressors	Kolbenkompressoren	H
Turbo kompresörler	Turbo compressors	Turbokompressoren	M

Kimya Endüstrisi	Chemical Industry	Chemische Industrie	
Sıvı materyal hazırlayıcılar	Stirrers (liquid materials)	Rührer (flüssige Materialien)	U
Yarı sıvı materyal hazırlayıcılar	Stirrers (semi-liquid materials)	Rührer (halbflüssige Materialien)	M
Ağır santrifüj	Centrifugal machines (Heavy)	Zentrifugalmaschinen (schwer)	M
Hafif santrifüj	Centrifugal machines (light)	Schleudermaschinen (leicht)	U
Soğutma tamburu	Cooling drums	Kühltrommeln	M
Kurutma tamburu	Drying drums	Trocknen von Trommeln	M
Karıştırıcılar	Mixers	Mixer	M

Taşıyıcılar	Conveyors	Förderer	
Düz konveyörler	Slat conveyors	Plattenbandförderer	M
Asansör konveyörler	Ballast elevators	Ballastaufzüge	M
Bant konveyörler	Belt pocket conveyors	Gürteltaschenförderer	M
Bant konveyörler (dökme malz.)	Belt conveyors (bulk material)	Bandförderer (Schüttgut)	M
Bant konveyörler (tane malz.)	Belt conveyors (piece goods)	Bandförderer (Stückgut)	H
Kova konveyörler	Bucket conveyors for flours	Becherförderer für Mehle	U
Zincir konveyör	Chain conveyör Circular	Kettenfördererör Kreisförmig	M
Dairesel konveyörler	Conveyors	Förderer	M
Vinç	HoistsInclined hoist	HebezeugeSchrägaufzug	H
Eğimli vinç	Steel conveyor belt	Stahl-Förderband	H
Çelik bantlı konveyör	Passanger lifts	Personenaufzüge	M
İnsan asansörleri	Screw conveyors	Schneckenförderer	M
Vidalı konveyörler	Concave belt conveyor	Konkaver Bandförderer	M
İç bükey bant konveyör	Winches hauling	Winden beim Ziehen	M
Vinç konveyör	Conveyor crane	Förderer-Kran	M

Vinçler	Cranes	Kräne	
Derik Vinçler	Derricking jib gear	Derrickendes Fockgeschirr	M
Kaldırma mekanizması	Hoist mechanism	Hebemechanismus	U
Dönme mekanizması	Slewing mechanism	Schwenkmechanismus	M
Yürüyüş mekanizması	Travelling mechanism	Fahrmechanismus	H

Uygulamalar	Dredgers	Schwimmbagger	
Kova konveyörler	Bucket conveyors	Becherförderer	M
Kova dişliler	Bucket wheels	Schaufelräder	M
Kesme kafaları	Cutter heads	Fräsköpfe	M
Manevra vinci	Manoeuvring winch	Manövrierbare Winde	M
Pompalar	Pumps	Pumpen	H
Dönüş dişlileri	Slewing gear	Drehwerk	U
Caterpiller yürütme	Travelling gear (tracked vehicle)	Fahrwerk (Kettenfahrzeug)	M
Ray yürütme	Travelling gear (rails)	Fahrwerk (Schienen)	M

BİLGİ / INFORMATION / INFORMATIONEN

Yük Sınıflaması	Load Classification	Belastungskennwert	
U Sabit / Uniform / Gleichmassig - **M** Orta / Moderate / Mittelschwer - **H** Ağır / Heavy / Schwer			
İnşaat Makinaları	**Building Machinery**	**Baumaschinen**	
Beton mikserleri	Concrete mixers	Betonmischer	M
Vinçler	Hoists	Hebezeuge	M
Yol yapım makinaları	Road construction machines	Straßenbaumaschinen	M
Çamaşırhane	**Laundries**	**Wäschereien**	
Merkezkaç	Tumblers	Tumbler	M
Yıkama makinaları	Washing machines	Waschmaschinen	M
Pres makinaları	Pressing machines	Pressen-Maschinen	M
Yiyecek Endüstrisi Makinaları	**Food Industry Machinery**	**Maschinen für die Lebensmittelindustrie**	
Şişeleme ve teneke dolum mak.	Bottling and container filling mach.	Abfüllmaschinen	U
Kamış kırıcı	Cane crushers	Rohrbrecher	M
Kamış bıçakları	Cane knives	Zuckerrohr-Messer	H
Kamış değirmenleri	Cane mills	Zuckerrohrmühlen	M
Yoğurma makinaları	Kneading machines	Knetmaschinen	M
Ezme	Mash tubs (crystallizers)	Maischewannen (Kristallisatoren)	H
Paketleme makinaları	Packaging machines	Verpackungsmaschinen	U
Pancar kesiciler	Sugar beet cutters	Zuckerrübenschneider	M
Pancar yıkama	Sugar beet washing machines	Zuckerrüben-Waschmaschinen	M
Jeneratör ve Transformatörler	**Generators and Transformars**	**Generatoren und Transformatoren**	
Frekans transformatörler	Frequecy transformers	Frequenzumwandler	H
Jeneratörler	Generators	Generatoren	H
Kaynak makinası jeneratörleri	Generators for welding mach.	Generatoren für Schweißmaschinen.	H
Metal Silindirleri	**Metal Rollers**	**Metall-Rollen**	
Hadde makasları	Shears for rolling mills	Scheren für Walzwerke	H
Zincir tahriki	Chain transfers	Ketten-Transfers	M
Soğuk haddeleme	Cold rolling mills	Kaltwalzwerke	H
Devamlı döküm hattı	Continuos casting plant	Stranggussanlage	H
Soğutma yatakları	Cooling beds	Kühlbetten	M
Kırpma makasları	Cropping shears	Schopfschere	H
Ağır ve orta plaka eziciler	Heavy and medium plate mills	Grob- und Mittelblechwalzwerke	H
Kabuk soyucular	Descaling machines	Entkalkungsgeräte	H
Manipülatör	Manipulators	Manipulatoren	H
Külçe iticileri	Ingot pushers	Ingot-Drücker	H
Rulo düzeltici	Plate tilters	Platten-Filter	M
Ağır ezici levhalar	Roller tables (heavy)	Rollentische (schwer)	H
Hafif ezici levhalar	Roller tables (light)	Rollentische (leicht)	H
Tüp kaynak makinaları	Tube welding machines	Rohrschweißmaschinen	M
Şerit ve tel sarma makinaları	Winding machines (strip and wire)	Wickelmaschinen (Band und Draht)	M
Tel çekme makinaları	Wire drawing banches	Drahtziehbänke	M
Metal İşleri Makinaları	**Machines For Working Metal**	**Maschinen zur Metallbearbeitung**	
Sayaç milleri	Counter shafts,shafts in line	Vorgelagerte Wellen, Wellen in Reihe	U
Sıcak ezme	Press for hot-pressing	Presse zum Heißpressen	H
Çekiçleme	Hammers	Hämmer	H
Yardımcı kılavuz tezgahları	Auxiliary guides,machine tools	Hilfsführungen,Werkzeugmaschinen	U
Ana kılavuz tezgahları	Main guides,machine tools	Hauptführungen,Werkzeugmaschinen	M
Metal işleme makinası	Machine for metal planning	Maschine für die Metallplanung	H
Sac düzeltici	Rectifier for metal sheet	Gleichrichter für Metallblech	H
Presler	Presses	Presse	H
Dövme presleri	Presses for forging	Pressen zum Schmieden	H
Makaslar	Shears	Schere	M
Katlanır metal makinası	Machine for folding metals	Maschine zum Falzen von Metallen	M

BİLGİ / INFORMATION / INFORMATIONEN

Yük Sınıflaması	Load Classification	Belastungskennwert

U Sabit / Uniform / Gleichmassig - M Orta / Moderate / Mittelschwer - H Ağır / Heavy / Schwer

Pompalar	Pumps	Pumpen	
Santrifüj pompalar, hafif sıvı	Centrifugal pumps(light liquids)	Kreiselpumpen (leichte Flüssigkeiten)	U
Santrifüj pompalar, yoğun sıvı	Centrifugal pumps(viscous liquids)	Kreiselpumpen (viskose Flüssigkeiten)	H
Piston pompalar	Piston pumps	Kolbenpumpen	H
Dalgıç pompalar	Plunger pumps	Plunger-Pumpen	H
Basınçlı pompalar	Presure pumps	Druckpumpen	H

Petrol Endüstrisi	Oil industry	Öl-Industrie	
Boru hattı pompaları	Pipeline pumps	Pipeline-Pumpen	M
Döner delme ekipmanları	Rotary drilling equipment	Rotierende Bohrgeräte	H

Kağıt Makinaları	Paper Machines	Papiermaschinen	
Pres makinası	Calendars	Kalender	H
Kol	Couches	Liegen	H
Kurutma silindirleri	Drying cylinders	Trockenzylinder	H
Cam silindirler	Glazing cylinders	Verglasungszylinder	H
Kağıt hamuru makinası	Pulpers	Stofflöser	H
Taşlama	Pulp grinders	Zellstoff-Schleifmaschinen	H
Emiş makaraları	Suction rolls	Saugwalzen	H
Emiş presleri	Suction presses	Saugpressen	H
Yaş presler	Wet presses	Nass-Pressen	H
Kıyma makinası	Willows	Weiden	H

Kauçuk Makinaları	Rubber Machinery	Gummi-Maschinen	
Pres makinası	Calendars	Kalender	M
Ekstruder	Extruders	Extruder	H
Karıştırıcılar	Mixers	Mixer	M
Buldog değirmenler	Pug mills	Mops-Mühlen	H
Döner değirmen	Rolling mills	Walzwerke	H

Plastik Makinaları	Plastic Industry Machinery	Maschinen für die Kunststoffindustrie	
Pres makinası	Calendars	Kalender	M
Kırıcılar	Crushers	Brecher	M
Ekstrüderler	Extruders	Extruder	M
Karıştırıcılar	Mixers	Mixer	M

Tekstil Makinaları	Textile Machines	Textilmaschinen	
Dozajlama	Batchers	Batchers	M
Dokuma tezgahı	Looms	Webstühle	M
Baskı boyama makinası	Printing and dyeing machines	Druck- und Färbemaschinen	M
Boyama tankı	Tanning vats	Gerberei-Fässer	M
Kıyma tezgahı	Willows	Krempelwolf	M

Taş ve Kil Makinaları	Stone and Clay Machines	Stein- und Tonmaschinen	
Çekiç değirmenler	Hammer mills	Hammermühlen	H
Çırpıcı değirmenler	Beater mills	Schlagmühlen	H
Kırıcılar	Breakers	Unterbrecher	H
Tuğla presleri	Brick presses	Ziegelpressen	H
Döner fırınlar	Rotary ovens	Dreh-Öfen	H
Tüp değirmenler	Tube mills	Rohrwalzwerke	H

Su Arıtma	Water Treatment	Wasseraufbereitung	
Aeratör	Aerators	Belüfter	M
Vidalı pompalar	Screw pumps	Schraubenpumpen	M

BİLGİ / INFORMATION / INFORMATIONEN

Redüktör Seçimi

Planet dişlili bir redüktör ana tahrik ile güç aktarılan sistem arasına yerleştirilecek ise aşağıdaki bilgilere ihtiyacımız vardır.
* Giriş hızı (d/dk)
* İstenilen çıkış hızı (d/dk)
* İstenilen çıkış momenti (Nm)
* Çalışma ömrü (h)
* Çalışma periyodu f_s (çalışma koşulları ve uygulamalara bağlıdır.)

Verilen bu bilgilerle çevrim oranını buluruz;

Gearbox Selection

In a mechanical transmission system, a planetary unit is a device positioned between the prime mover and the driven equipment. It is necessary to know for selection;
* Input speed n_1 (min^{-1})
* Required output speed n_{2r} (min^{-1})
* Required output torque T_{2r} (Nm)
* Duration required H_r (h)
* Service factor f_s based on application and conditions of use

With given values we can determine ratio;

Auswahl des Getriebes

In einem mechanischen Getriebesystem ist eine Planeteneinheit eine Vorrichtung, die zwischen der Antriebsmaschine und dem angetriebenen Gerät angeordnet ist. Für die Auswahl ist es notwendig, dies zu wissen;
* Antriebsdrehzahl n_1 (U/min^{-1})
* Erforderliche Abtriebsdrehzahl n_{2r} (U/min^{-1})
* Erforderliches Abtriebsdrehmoment T_{2r} (Nm)
* Erforderliche Dauer H_r (h)
* Betriebsfaktor fs basierend auf Anwendung und Nutzungsbedingungen

Mit gegebenen Werten können wir das Verhältnis bestimmen;

$$i_r = \frac{n_1}{n_2}$$

Hesaplanmış çıkış momenti

The corrected output torque ;

Das korrigierte Abtriebsdrehmoment ;

$$T_{2c} = T_{2r} . f_s$$

Çalışma ömrü ;

and the duration factor ;

und den Dauerfaktor ;

$$f_{h2} = n_{2r} . h_r$$

Daha sonra planet redüktörün seçim parametrelerini aşağıdaki gibi doğrulamalıyız;
I) Giriş devri ≤ $n_{1\,max}$
II) Hesaplanmış çıkış momenti ≤ T_2
III) Miller üzerindeki yükler ≤ F_r , F_a
IV) Termal güç ≤ P_t (Sürekli çalışma)
V) Ortam sıcaklığı I ve V kolaylıkla doğrulanır. II, III, ve IV takiben doğrulanır.

Subsequently we verify some distinctive parameters of the planetary unit as follows;
I) Input rotation speed ≤ n_{1max}
II) Working torque ≤ T_2
III) Loads on output shafts ≤ F_r, F_a
IV) Horsepower to be transmitted ≤ P_t
(If under continuous duty)
V) Ambient temperature Relations I and v can be easily verified; as for relations II, III, IV we must proceed as follows;

Anschliessend verifizieren wir einige charakteristische Parameter der Planeteneinheit wie folgt;
I) Antriebsdrehzahl ≤ n_{1max}
II) Arbeitsdrehmoment ≤ T_2
III) Belastungen der Abtriebswellen ≤ F_r, F_a
IV) Zu übertragende Pferdestärken ≤ P_t
(Wenn im Dauerbetrieb)
V) Die Umgebungstemperaturbeziehungen I und v können leicht überprüft werden; bei den Beziehungen II, III, IV müssen wir wie folgt vorgehen;

Örnek

Aynı eksende çalışacak bir planet redüktör seçmek istiyoruz. Şartlar aşağıdaki gibi;

Giriş devri: 1500 d/dk
İstenilen çıkış devri: 25 d/dk
İstenilen çıkış momenti: 10000 Nm
Ömür süresi: 10000 saat
Servis faktörü: 1.3

Example

We want to select inline planetary reduction unit which operates with below conditions;

Input speed : n_1= 1500 min^{-1}
Rq. Output speed : n_{2r} = 25 min^{-1}
Rq. Output torque : T_{2r} = 10000 Nm Duration : h_r = 10000 h
Service factor : S_f = 1.3

Beispiel

Wir möchten eine Inline-Planetenreduktionseinheit auswählen, die mit folgenden Bedingungen arbeitet;

Antriebsdrehzahl : n_1= 1500 U/min^{-1}
Rq. Abtriebsdrehzahl : n_{2r} = 25 U/min^{-1}
Rq. Abtriebsdrehmoment : T_{2r} = 10000 Nm Dauer : h_r = 10000 h
Dienstleistungsfaktor : S_f = 1,3

BİLGİ / INFORMATION / INFORMATIONEN

Çevrim oranı için gereken değer;

$i_r=\frac{n_1}{n_{2r}}(1500/25=60)$

Düzenlenmiş çıkış momenti;

$T_{2c}=T_{2r}.f_s=10000.1,3=13000Nm$

Ömür faktörü eşittir;

$f_{h2}=n_{2r}.h_r=25.4000=100000$

Nominal tork tablosundan, nominal tork T_{2n} değeri T_{2c} değerinden büyük olan bir redüktör tipi boyutu seçin; bu durumda uygun boyut PD 113 tür. PD 113 boyutunun teknik veri tablosunda, kolonda n_2 ye göre gerekli değere 57.5 oranında bir üç kademeli (S3) doğrusal dişli kutusu vardır. $n_2 \cdot h = 10000 > f_{h,2}$ uygulanabilir . T_2 torkunun değerini 13750 Nm olarak görebilirsiniz.

The reduction ratio required ;

$i_r=\frac{n_1}{n_{2r}}(1500/25=60)$

While corrected output torque ;

$T_{2c}=T_{2r}.f_s=10000.1,3=13000Nm$

and duration factor is equvalent to ;

$f_{h2}=n_{2r}.h_r=25.4000=100000$

From nominal torque table select a gearbox type size that has a nominal torque value T_{2n} greater than T_{2c} ; in this case the suitable size is PD 113 In the technical data table of the PD 113 size,there is a triple stage linear gearbox (S3) with a ratio 57.5 close to required value in the column relative to n_2 . $h = 10000 > f_{h,2}$ You can see the value of the applicable torque T_2 which is 13750 Nm.

Das erforderliche Reduktionsverhältnis ;

$i_r=\frac{n_1}{n_{2r}}(1500/25=60)$

Während korrigiertes Abtriebsdrehmoment ;

$T_{2c}=T_{2r}.f_s=10000.1,3=13000Nm$

und Dauerfaktor gleichwertig ist mit ;

$f_{h2}=n_{2r}.h_r=25.4000=100000$

Wählen Sie aus der Tabelle des Nenndrehmoments eine Getriebegröße aus, deren Nenndrehmoment T_{2n} größer als T_{2c} ist; in diesem Fall ist die geeignete Größe PD 113 In der Tabelle der technischen Daten der Größe PD 113 befindet sich ein dreistufiges Lineargetriebe (S3) mit einer Übersetzung von 57,5 nahe dem erforderlichen Wert in der Spalte relativ zu $n_2 \cdot h = 10000 > f_{h,2}$ Sie können den Wert des anwendbaren Drehmoments T_2 sehen, der 13750 Nm beträgt.

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 113 S1	3.55	20360	18020	15330	13570	2000	36040	40
	4.28	17740	15700	13360	11830	2000	31400	40
	5.60	13570	12010	10220	9050	2000	24020	40
	6.75	10320	9130	7770	6880	2000	18260	40
PD 113 S2	13.4	20360	18020	15330	13570	2800	36040	40
	16.2	17740	15700	13360	11830	2800	31400	23
	22.1	17740	15700	13360	11830	2800	31400	23
	28.9	13570	12010	10220	9050	2800	24020	23
	33.6	13570	12010	10220	9050	2800	24020	23
	40.5	10320	9130	7770	6880	2800	18260	23
	48.9	10320	9130	7770	6880	2800	18260	23
PD 113 S3	57.6	20360	18020	15330	13570	2800	36040	15
	69.4	11740	15700	13360	11830	2800	31400	15

Böylece seçilen dişli kutusu momenti T_{2c} den büyüktür. Verilen şartlar sağlanmıştır.

Since this value is greater than torque T_{2c} the gearbox size selected is suitable for the conditions.

Da dieser Wert größer als das Drehmoment T_{2c} ist, ist die gewählte Getriebegröße für diese Bedingungen geeignet.

BİLGİ / INFORMATION / INFORMATIONEN

Kontrol	Checks	Kontrollen
Redüktör çalışma parametrelerine göre seçilmiştir, redüktör dişlisinin uygulama ile tam uyumluluğunu kanıtlamak için aşağıdaki kontrollere devam etmeniz önerilir.	The gearbox has been selected based on operating parameters , it is advisable to proceed with the following checks to prove complete compatibility of the reduction gear with the application.	Das Getriebe wurde auf der Grundlage von Betriebsparametern ausgewählt. Es ist ratsam, die folgenden Überprüfungen durchzuführen, um die vollständige Kompatibilität des Untersetzungsgetriebes mit der Anwendung nachzuweisen.
Maksimum giriş hızını kontrol	Checking max. input speed	Überprüfung der max. Antriebsdrehzahl.
Her redüktör modeli için müsade edilen maksimum giriş devirleri kataloğumuzun ilerleyen sayfalarında bulabilirsiniz. PDA modellerimizde giriş devirleri devamlı çalışma durumunda ses seviyesinin ve yağın çarpmasından dolayı sıcaklığın aşırı artmaması için 1500 d/dk yı aşmamalıdır. Hızlı giriş devirleri için PDS firması olarak 1500 d/dk nın üzerindeki hızları, devamlı çalışma durumunda yağın aşırı ısınmasını engellemek için tavsiye etmemekteyiz.	The value of maximum input speed of each gearbox both for in line and angular types are tabulated on technical data tables.For angular types max. input speed must not exceed 1500 min^{-1} in continuous operation to prevent increasing sound level and the temperature due to oil splash.For fast input PDS offer to you not exceeding 1500 min^{-1} in continuous working in order to avoid overheat the oil.	Die Werte der maximalen Antriebsdrehzahl jedes Getriebes, sowohl für die Reihen- als auch für die Winkelgetriebe, sind in den Tabellen mit den technischen Daten tabellarisch aufgeführt. Bei den Winkelgetrieben darf die maximale Antriebsdrehzahl 1500 U/min^{-1} im Dauerbetrieb nicht überschreiten, um eine Erhöhung des Schallpegels und der Temperatur durch Ölspritzer zu vermeiden, und bei den Schnellgetrieben bietet Ihnen PDS an, 1500 U/min^{-1} im Dauerbetrieb nicht zu überschreiten, um eine Überhitzung des Öls zu vermeiden.
Genel olarak, yük koşulları n_{1max} değerine yakın bir hızda uzun çalışma süreleri gerektirdiğinde veya n_{1max} değerinden daha yüksek hıza sahip pikler yüklerde PDS teknik servisine başvurun.	In general, when load conditions entail long periods of operation at a speed close to n_{1max} or peaks with speed higher than n_{1max}, contact the PDS technical service.	Wenn Lastbedingungen lange Betriebszeiten bei einer Drehzahl nahe n_{1max} oder Spitzen mit Drehzahlen über n_{1max} erfordern, wenden Sie sich im Allgemeinen an den technischen Dienst von PDS.
Maksimum moment kontrolü, Çalıştırma esnasında izin verilen veya ara sıra oluşan en yüksek tork değeri, seçilen redüktörün teknik tablolarındaki ilgili sütunda verilen T_{2max} değerini aşmamalıdır. Yük seviyesi sürekli ve ani tork değişimi, yön değiştirme ve uzun süreli çalışmalarda izin verilen maksimum T_{2max} değerine yakın ise, daha büyük bir planet dişli tipi seçilmesi önerilir.	Checking maximum torque, that is, the level of torque permitted during start-up or occasional peaks,must never exceed T_{2max} which is given in the relative column in the technical tables for the gearbox selected. When the load conditionsentail frequent startups, direction reversals or long periods of operation at a torque close toT_{2max} it is advisable to select a bigger size gearbox type.	Die Kontrolle des maximalen Drehmoments, d.h. des beim Anfahren oder bei gelegentlichen Spitzen zulässigen Drehmoments, darf niemals T_{2max} überschreiten, das in der entsprechenden Spalte der technischen Tabellen für das ausgewählte Getriebe angegeben ist. Wenn die Lastbedingungen häufige Anläufe, Richtungsumkehrungen oder lange Betriebszeiten mit einem Drehmoment nahe T_{2max} erfordern, ist es ratsam, einen größeren Getriebetyp zu wählen.

BİLGİ / INFORMATION / INFORMATIONEN

Eşdeğer Moment

Çalışma şartları değişken ise dişli kutusu farklı moment ve çıkış hızları altındadır. Bu durumda eşdeğer moment aşağıdaki formül ile hesaplanır.

Equivalent torque

If operating conditions are variable,which is, the gearbox is under different torque levels and/or output speeds, we have to calculate the equivalent output torque with the below formula.

Äquivalentes Drehmoment

Wenn die Betriebsbedingungen variabel sind, d.h. das Getriebe verschiedenen Drehmomentniveaus und/oder Abtriebsdrehzahlen ausgesetzt ist, müssen wir das äquivalente Abtriebsdrehmoment mit der untenstehenden Formel berechnen.

$$T_{eq} = \left(\frac{n_1 . T_1^p + n_2 . T_2^p + \dots}{n_1 + n_2 + \dots} \right)^{1/p}$$

n_i : i için çevrim sayısı ,
T_i : i için tork değeri,
p : Woehler-damage çizgisinin eğimi, aşağıdaki tabloya bakınız.

n_i : is the number of cycles for bin i,
T_i : is the torque for bin i,
p : is the slope of Woehler-damage line see below table

n_i : ist die Anzahl der Zyklen für bin i,
T_i : ist das Drehmoment für bin i,
p : ist die Neigung der Wöhler-Schadenslinie siehe untenstehende Tabelle

p üssü ve ömür değeri n_{Lref}

Exponent p and number of load cycles n_{Lref}

Exponent p und Anzahl der Lastzyklen n_{Lref}

Isıl işlem / Heat treatment/Wärmebehandlung	Aşınma/Pitting/Pitting		Diş dibi/Tooth root/Zahnwurzel	
	p^a	$n_{L\ ref}$	p^a	$n_{L\ ref}$
Karbonlanmış doku/Case carburized /Einsatzhärten	6,610	5×10^7	8,738	3×10^6
Sementasyon/Through hardened /Durchgehärtet	6,610	5×10^7	6,225	3×10^6
Nitrasyon/Nitrided/Nitriert	5,709	2×10^6	17,035	3×10^6
Nitro karbünizasyon/Nitro-carburized /Nitro-gekohlt	15,715	2×10^6	84,003	3×10^6

PDS Planet redüktörler dişlerinde genellikle sementasyon işlemi uygulandığı için ISO 6336-6 standardına göre p değeri 6,61 olarak hesap edilir. Özel projelerde, yapılan uygulamalara göre bu değer değişebilir.

Since through hardened process is generally applied in PDS Planetary gearboxes, p value is calculated as 6,61 according to ISO 6336-6 standard. In special projects, this value may change depending on the applications.

Da bei PDS-Planetengetrieben im Allgemeinen das Durchhärteverfahren angewendet wird, wird der p-Wert gemäß ISO 6336-6 als 6,61 berechnet. Bei speziellen Projekten kann sich dieser Wert je nach Anwendung ändern.

BİLGİ / INFORMATION / INFORMATIONEN

Aşağıdaki yöntem, woehler hasar hattının, bazı sınır streslerin altındaki gerilimlerde meydana gelen tüm hasarları göz ardı ederek basitleştirdiği bir tasarım durumu için geçerlidir. Tasarım yapılana kadar dayanma sınırının gerilme bakımından konumu dişli ile ilgili olarak bilgi olmaksızın, dayanım sınırı dişli tasarımı değiştikçe çevrim şartlarına bağlı olarak değişmemesi gerçeğine dayanır.

The following method applies for a design case where the woehler-damage line is simplified by ignoring all damage which occurs at stresses below some limit stress. It is based upon the fact that while the position of the endurance limit in terms of stress is not known in relation to the gear until the design is available, the position of that endurance limit in terms of cycles does not change as the gear design changes.

Die folgende Methode gilt für einen Bemessungsfall, bei dem die Wöhler-Schadenslinie vereinfacht wird, indem alle Schäden ignoriert werden, die bei Spannungen unterhalb einer gewissen Grenzspannung auftreten. Sie beruht auf der Tatsache, dass, während die Position der Dauerfestigkeitsgrenze in Bezug auf die Beanspruchung in Bezug auf das Zahnrad nicht bekannt ist, bis die Konstruktion vorliegt, sich die Position dieser Dauerfestigkeit in Bezug auf die Zyklen nicht ändert, wenn sich die Zahnradkonstruktion ändert.

$$T_i^p \cdot n_i = T_j^p \cdot n_j$$

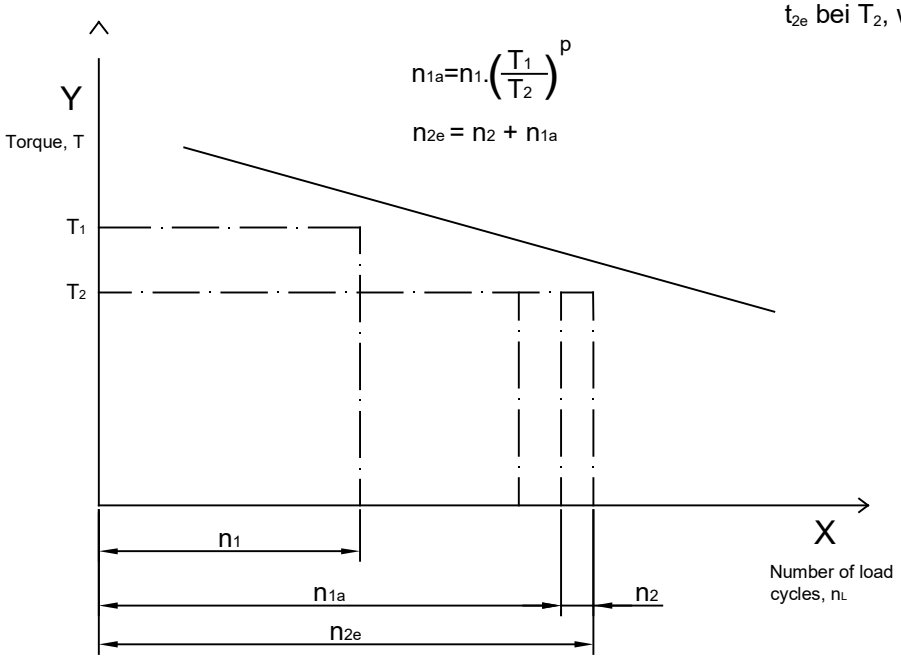
T_1 torku için çevrim t_1 , T_2 deki tork ise t_{2e} çevrimine eşdeğerdir.

The cycles t_1 at torque T_1 are equivalent to t_{2e} at T_2, where ;

Die Zyklen t_1 bei einem Drehmoment T_1 sind äquivalent zu t_{2e} bei T_2, wobei ;

$$n_{1a} = n_1 \cdot \left(\frac{T_1}{T_2}\right)^p$$

$$n_{2e} = n_2 + n_{1a}$$



Örnek

Aşağıdaki şartlarda çalışan bir redüktör için eş değer momentini bulalım.

Example

A gearbox is working with below cycle, find the equivalent torque.

Beispiel

Ein Getriebe arbeitet mit unterem Zyklus, finden Sie das äquivalente Drehmoment.

Aralık/Level/Stüfe	T	n
1	15000	15
2	12000	35
3	8500	50

Eşdeğer moment/Equivalent torque/Äquivalentes Drehmoment

$$T_{eq} = \left(\frac{n_1 . T_1^p + n_2 . T_2^p + n_3 . T_3^p}{n_1 + n_2 + n_3}\right)^{1/p}$$

$$T_{eq} = \left(\frac{15 . 15000^{6,6} + 35 . 12000^{6,6} + 50 . 8500^{6,6}}{15 + 35 + 50}\right)^{1/6,6}$$

$$T_{eq} = 12098{,}66 \text{ Nm}$$

BİLGİ / INFORMATION / INFORMATIONEN

Radyal Ve Aksiyel Yük Kontrolü

Gerekli yatak ömrü ve yük konumunu bilen bir giriş veya çıkış mili versiyonunun kabul edilebilir radyal yükünü nasıl belirleyebiliriz.

Radyal yüklerin eğrileri, çıkış desteği tipine bağlı olarak her bir küçültme dişlisi boyutuna göre bölümlerde verilmiştir.

Gereken ömür faktörü $f_{h,2}$, 10^5 'den farklıysa (eğrilerin elde edildiği değer), bu durumda radyal yük düzeltme katsayısı ($k_{r,2}$) ilgili diyagramdan bulunarak radyal yük ile çarpılır. Uygulamayı düşündüğünüz radyal yük geçerli yükten büyükse, daha büyük redüktör seçmeniz gerekir.

Uygulanan radyal yükü ve yük konumunu bilen bir giriş veya çıkış mili versiyonunun rulman servis ömrünün belirlenmesi.

X, pozisyonunda bir radyal yükün ($F_{r,2}$ nin) uygulanmasına bağlı olarak ömür faktörünü hesaplamak istersek, $k_{r,2}$, uygulanan yük ile x cinsinden uygulanabilir maksimum yük arasındaki oran olarak hesaplanmalıdır (eğriden, çıktı desteği dikkate alınır). Ömür faktörünün bir fonksiyonu olarak $k_{r,2}$ sağlayan eğriye bu değerle girerek, çıkış desteğinin süresini n_2 . h cinsinden bulmak mümkündür.

Örnek 1

Radyal yükün konumunu x = 60 mm ve gereken süre faktörünü n_2. h = 500000 biliyoruz , PD117 MS redüktörün çıkış miline uygulanabilen $F_{r,2}$ radyal yükünü bulalım.

Checking Radial And Axial Loads

How we can determine the admissible radial load of an input or output shaft version knowing the required bearing life time and the load position.

The curves of the radial loads are given in the sections relative to each reduction gear size, based on the type of output support.

If the duration factor required $f_{h,2}$ is different from 10^5 (value on the basis of which the curves are obtained) you have to multiply the maximum applicable load by a corrective coefficient $k_{r,2}$, which is found by way of the relative curves.If the radial load you intend applying is greater than the applicable load, you have to go to the next higher size gearbox.

How to determine the bearing service life of an input or output shaft version knowing the applied radial load and its load position.

Wanting to calculate the duration factor consequential to the application of a radial load $F_{r,2}$ in position x, $k_{r,2}$ has to be calculated as the ratio between the applied load and the maximum applicable load in x (gleaned from the curve relative to the output support considered); entering with this value on the curve that provides $k_{r,2}$ as a function of the duration factor, it is possible to find the duration of the output support in terms of n_2 . h

Example 1

Knowing the position of the radial load x=60 mm and the duration factor required n_2 . h = 500000, we want to know the radial load $F_{r,2}$ that can be applied on the output shaft of the PD117 MS gearbox.

Prüfen von radialen und axialen Belastungen

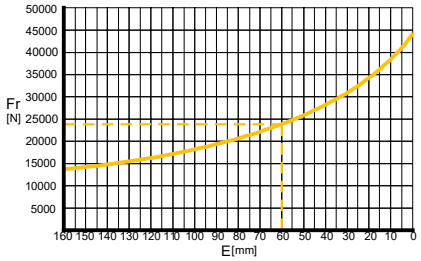
Wie können wir die zulässige Radiallast einer An- oder Abtriebswellenausführung bestimmen, wenn wir die erforderliche Lagerlebensdauer und die Lastposition kennen.
Die Kurven der Radialbelastungen sind in den Abschnitten in Bezug auf jede Untersetzungsgetriebegröße angegeben, basierend auf der Art der Abtriebslagerung.

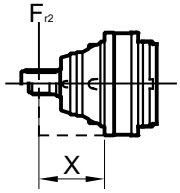
Wenn der geforderte Lebensdauerfaktor $f_{h,2}$ von 10^5 verschieden ist (Wert, auf dessen Grundlage die Kurven erhalten werden), müssen Sie die maximale anwendbare Belastung mit einem Korrekturfaktor $k_{r,2}$ multiplizieren, der anhand der relativen Kurven ermittelt wird.Wenn die von Ihnen beabsichtigte Radialbelastung größer als die anwendbare Belastung ist, müssen Sie zum nächsthöheren Getriebe gehen.
Wie bestimmt man die Lagerlebensdauer einer An- oder Abtriebswellenausführung mit Kenntnis der aufgebrachten Radiallast und ihrer Belastungsposition.

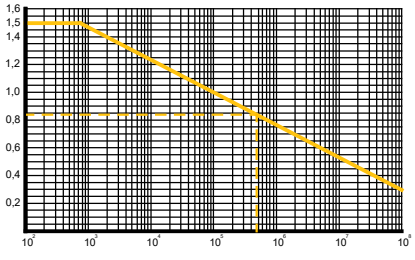
Will man den Zeitdauerfaktor berechnen, der sich aus der Anwendung einer Radialbelastung $F_{r,2}$ in der Position x ergibt, muss $k_{r,2}$ als Verhältnis zwischen der angewendeten Belastung und der maximal anwendbaren Belastung in x berechnet werden (aus der Kurve in Bezug auf die betrachtete Abtriebsunterstützung ermittelt); durch Eingabe dieses Wertes auf der Kurve, die $k_{r,2}$ als Funktion des Zeitdauerfaktors liefert, ist es möglich, die Dauer der Abtriebsunterstützung in Form von n_2 . h zu finden.

Beispiel 1

Unter Kenntnis der Position der Radiallast x=60 mm und des erforderlichen Dauerfaktors n_2 . h = 500000 wollen wir die Radiallast $F_{r,2}$ wissen, die auf die Ausgangswelle des PD117 MS-Getriebes aufgebracht werden kann.







BİLGİ / INFORMATION / INFORMATIONEN

Radyal yük grafiğinde, 60 mm de, 24000 N' a eşit olan nominal değeri bulabiliriz. Bu değer, 10^5 'den farklı ömür faktörünü hesaba katmak için $k_{r,2}$ ile düzeltilmelidir. İkinci grafikte, apsis ekseninden $n_2 . h = 500000$ nin karşılık değeri $k_{r,2}=0,84$ dir. Böylece, maksimum radyal yük x konumuna eşit olarak uygulanabilir;

In the radial load graph we can find the nominalapplicable value at 60mm, equal to 24000 N. This value has to be corrected by means of $k_{r,2}$ in order to take into account the duration factor different from 10^5 ; in the second graph, where the abscissa $n_2 . h = 500000$ is, we can find the $k_{r,2}$ value we are looking for, equal to 0,84. So, the maximum radial load can be applied in position x equal to ;

Im Radialkraftdiagramm finden wir den nominell anwendbaren Wert bei 60 mm, der 24000 N entspricht. Dieser Wert muss mit $k_{r,2}$ korrigiert werden, um den von 10^5 verschiedenen Dauerfaktor zu berücksichtigen; im zweiten Diagramm, wo die Abszisse $n_2 . h = 500000$ ist, finden wir den gesuchten $k_{r,2}$ Wert, der 0,84 entspricht. Die maximale Radiallast kann also in der Position x gleich ;

$$F_{r,2} = F_{r,nom} \times k_{2,r} = 24000 \times 0,82 = 20160 \text{ N}$$

Örnek 2

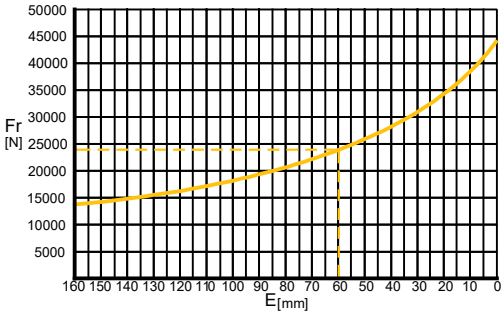
60 mm mesafedeki uygulanan yükün 17500 N olduğunu biliyoruz. Bu durumda çıkış PD 117 MS için yatağının ömür sabitini bilmek istiyoruz.

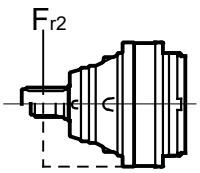
Example 2

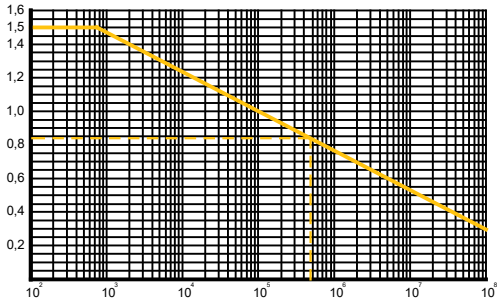
Knowing the position of the radial load x=60 mm and its $F_{r,2}$=1750 N value, we want to know the output supports duration factor for the PD 117 MS reduction gear

Beispiel 2

Da wir die Position der Radiallast x=60 mm und ihren Wert $F_{r,2}$=1750 N kennen, wollen wir den Dauerfaktor der Abtriebsunterstützung für das Untersetzungsgetriebe PD 117 MS wissen







X cinsinden uygulanabilecek normal yük 24000 N dur. Buradan düzeltme katsayısı $k_{r,2}$ bulunur.

From the ratio between the nominal load applicable in x, equal to 24000 N, and the load applied, we have the corrective coefficient $k_{r,2}$.

Aus dem Verhältnis zwischen der in x anwendbaren Nennlast, gleich 24000 N, und der aufgebrachten Last ergibt sich der Korrekturfaktor $k_{r,2}$.

$$k_{r,2} = F_{r,2} / F_{r,2\,nom} = 17500 / 24000 = 0,73$$

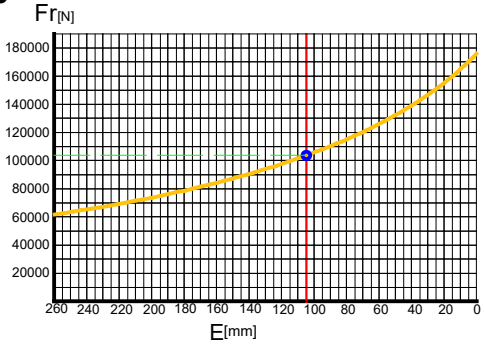
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen $n_2 . h$ değerlerinde verir.

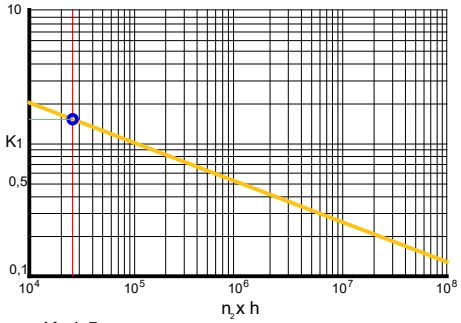
The following curves show the radial loads and the K factors to obtain the required $n_2 . h$ value.

Die folgenden Kurven zeigen die Radialbelastungen und die K-Faktoren zu den erforderlichen $n_2 . h$ Wert erhalten.

M-FV

Örnek 3





n_2:10,75 d/dk h:1500

n_2 x h: 10,75 x 1500 = 16.175 = 1,6 x 10^4

F_r x K: 105.000 x 1,5 = 157.500 N

K: 1,5

	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

BİLGİ / INFORMATION / INFORMATIONEN

TERMAL GÜÇ VE SOĞUTMA SİSTEMLERİ

Planet redüktörlerin çalışması sırasında dişlilerde, rulmanlarda keçelerdeki sürtünmelerden ve yağ çalkantılarından enerji kayıpları meydana gelir. Bu kayıp enerjinin tamamı ısı enerjisine dönüşür. Redüktör gövdesi üzerinden ortama bu ısının bir miktarı atılır, geri kalan ısı enerjisi ise gövde üzerinden atılamadığı için redüktörün ısınmasına yol açar. Bu ısıdan dolayı sıcaklık 95 °C nin üzerine çıktığında yağ karbonlaşarak yağlama görevini yerine getiremez. Bu yüzden redüktör üzerinde oluşacak ısının kontrol altında tutulması gerekir. Redüktörün gövde içerisinde kabul edilebilir bir çalışma sıcaklığını korumak redüktörün ömrü için önemlidir. Dolayısıyla redüktör seçiminde yalnızca aktaracağı tork değeri değil, termal güç değeri de göz önünde bulundurulmalıdır. Bu kontrolleri termal güç (P_T) değerlerine bakarak yapmak mümkündür. Bu değerler belirli kabuller altında verilmiştir.

THERMAL POWER AND COOLING SYSTEM

During the operation of planetary reducers, energy losses occur from gears, bearings, friction in the seals and oil fluctuations. All of this lost energy turns into heat energy. Some of this heat is thrown to the environment via the gearbox body, and the remaining heat energy causes the gearbox to heat up as it cannot be removed from the body. Due to this heat, when the temperature rises above 95 °C, the oil cannot carbonate and perform its lubricating task. Therefore, the heat that will occur on the reducer should be kept under control. Maintaining an appropriate operating temperature inside the body of the gear unit is important for the life of the gear unit. Therefore, not only the torque value to be transferred, but also the thermal power value should be taken into consideration in the selection of the gearbox. It is possible to make these checks by looking at the thermal power (P_T) values. These values are given under certain assumptions.

THERMISCHE KRAFT UND KÜHLSYSTEM

Während des Betriebs von Planetenuntersetzungsgetrieben entstehen Energieverluste durch Getriebe, Lager, Reibung in den Dichtungen und Ölschwankungen. All diese verlorene Energie verwandelt sich in Wärmeenergie. Ein Teil dieser Wärme wird über das Getriebegehäuse an die Umgebung abgegeben, und die verbleibende Wärmeenergie führt zu einer Erwärmung des Getriebes, da sie nicht aus dem Gehäuse abgeführt werden kann. Aufgrund dieser Wärme kann das Öl, wenn die Temperatur über 95 °C steigt, nicht karbonatisieren und seine Schmierungsaufgabe erfüllen. Daher sollte die Wärme, die am Untersetzungsgetriebe entsteht, unter Kontrolle gehalten werden. Die Aufrechterhaltung einer angemessenen Betriebstemperatur im Inneren des Getriebekörpers ist wichtig für die Lebensdauer des Getriebes. Daher sollte bei der Auswahl des Getriebes nicht nur der Wert des zu übertragenden Drehmoments, sondern auch der Wert der thermischen Leistung berücksichtigt werden. Es ist möglich, diese Überprüfungen anhand der Werte der thermischen Leistung (P_T) vorzunehmen. Diese Werte werden unter bestimmten Annahmen angegeben.

Sembol/Symbol/Symbol	Açıklama/Explanation/Erläuterung
B_{ref}	Termal faktör, Ortam sıcaklığı /Thermal factor, Ambient temperature/ Thermischer Faktor, Umgebungstemperatur
B_A	Termal faktör, Rakım / Thermal factor, Altitude/Thermischer Faktor, Höhe
B_T	Termal faktör, Maksimum yağ tankı sıcaklığı / Thermal factor, Maximum oil tank temperature/Thermischer Faktor, Maximale Öltanktemperatur
B_D	Termal faktör, 1 saat başına çalışma süresi / Thermal factor, Working time per 1 hour/Wärmefaktor, Arbeitszeit pro 1 Stunde
B_V	Termal faktör, Hava hızı / Thermal factor, Air speed/Wärmefaktor, Luftgeschwindigkeit
$i=n_1/n_2$	Dişli oranı / Gear ratio/Übersetzungsverhältnis
n_1 (1/dak)	Giriş hızı / İnput speed/Antriebsdrehzahl
n_2 (1/dak) η	Çıkış hızı / Output speed/Abtriebsdrehzahl
η	Redüktör verimi / Reducer efficiency/Wirkungsgrad des Reduktors
P_1 (kW)	Giriş gücü / İnput power/Eingangsleistung
P_{1m} (kW)	Giriş gücü, nominal / İnput power , nominal/Eingangsleistung , nominal...
P_T (kW)	Dişli kutusunu termal değeri / Thermal value of gearbox/Thermischer Wert des Getriebes
P_T' (kW)	Düzenlenmiş termal güç değeri / Corrected thermal power/Korrigierte Wärmeleistun
T_2 (Nm)	Çıkış torku / Output torque/Abtriebsdrehmoment
V_0 (L)	Toplam yağ hacmi / Total oil volume / Gesamter Ölvolumenstrom
V_e (L)	Genleşen yağ hacmi / Expanding oil volume / Ausdehnendes Ölvolumen
V_t (L)	Tank hacmi / Tank volume / Tankvolumen
Δt (°C)	Çalışma sıcaklığı ile ortam sıcaklığı arasındaki fark / Difference between operating temperature and ambient temperature / Differenz zwischen Betriebstemperatur und Umgebungstemperatu
C_{rt}	Enerji değişim sabiti / Energy exchange constant / Energieaustauschkonstante
P_s (kW)	Gerekli soğutucu gücü / Required coolant power / Benötigte Kühlmittelleistung
q (L/dak)	Yağ debisi / Oil flow / Öldurchflussmenge
t_r (°C)	Soğutma sistemine giren yağın sıcaklığı / The temperature of the oil entering the cooling system / Die Temperatur des in das Kühlsystem eintretenden Ölsytem
t_s (°C)	Soğutma sisteminden çıkan yağın sıcaklığı / The temperature of the oil leaving the cooling system/Die Temperatur des aus dem Kühlsystem austretenden Ölsytem

Termal Değer Hesaplamalarında Kullanılan Kısaltmalar / Abbreviations Used in Thermal Value Calculations / In thermischen Wertberechnungen verwendete Abkürzungen

BİLGİ / INFORMATION / INFORMATIONEN

Verim	Efficiency	Wirkungsgrad
Aşağıdaki yaklaşık değerler verim olarak kullanılabilir.	The following approximate values can be used as efficiency.	Die folgenden Näherungswerte können als Effizienz verwendet werden.
Planet kademelerine göre verim tablosu	Efficiency chart by planetary ranges	Wirkungsgrad-Tabelle nach Planetenbereichen

Planet redüktör/Planetary reducer/Planetenreduzierer	η
1- Kademe/Stage/Stufe	0,98
2- Kademe/Stage/Stufe	0,96
3- Kademe/Stage/Stufe	0,94
4- Kademe/Stage/Stufe	0,92
5- Kademe/Stage/Stufe	0,90

Termal güç aktarım değeri kontrolü	**Thermal power transfer value control**	**Steuerung des thermischen Leistungsübertragungswertes**
B_{ref} ve B_A doğal soğutmalarda ve fanlı soğutmalarda, B_v ise sadece doğal soğutmalara uygulanabilir.	B_{ref} and B_A can be applied in natural and fan cooling, B_v can only be applied to natural cooling.	B_{ref} und B_A können bei natürlicher Kühlung und Gebläsekühlung angewendet werden, B_v kann nur bei natürlicher Kühlung angewendet werden
Standart maksimum izin verilebilir redüktör gövdesi sıcaklığı 95 °C'dir. Daha düşük bir redüktör gövdesi sıcaklığı, B_T değeri üzerinden termal kapasitede bir azalma olmasını gerektirir. 95 °C'lik maksimum izin verilebilir redüktör gövdesi sıcaklığı aşıldığında termal kapasite artacaktır ve bu bazı uygulamalarda kabul edilebilir bir redüktör performansı sağlayabilir. Ancak 95 °C'nin üstünde çalışmasının keçelerin ömrünü azaltacağı, dişli ve rulmanların yüzeylerindeki bozulmayı artıracağı ve bakım sıklığında artışa sebep olacağı unutulmamalıdır. 95 °C'lik maksimum izin verilebilir redüktör gövdesi sıcaklığının aşılması söz konusu olduğunda redüktör üreticisine danışılmalıdır.	The standard maximum permissible gear unit body temperature is 95 °C. A lower reducer body temperature requires a reduction in thermal capacity over the B_T value. Thermal capacity will increase when the maximum gear unit body temperature of 95 °C is exceeded and this may provide acceptable reducer performance in some applications. However, it should be remembered that operating above 95 °C will decrease the life of the seals, increase the deterioration of the surfaces of the gears and bearings and increase the frequency of maintenance. If the maximum gearbox body temperature of 95 °C is exceeded, the gearbox manufacturer should be consulted.	Die maximal zulässige Getriebegehäusetemperatur beträgt standardmäßig 95 °C. Eine niedrigere Getriebegehäusetemperatur erfordert eine Reduzierung der Wärmekapazität über den BT-Wert hinaus. Die Wärmekapazität nimmt zu, wenn die maximale Getriebegehäusetemperatur von 95 °C überschritten wird, und dies kann in einigen Anwendungen eine akzeptable Leistung des Untersetzungsgetriebes ermöglichen. Es ist jedoch zu bedenken, dass ein Betrieb über 95 °C die Lebensdauer der Dichtungen verkürzt, die Abnutzung der Oberflächen der Zahnräder und Lager erhöht und die Wartungshäufigkeit erhöht. Wenn die maximale Getriebegehäusetemperatur von 95 °C überschritten wird, sollte der Getriebehersteller konsultiert werden.

BİLGİ / INFORMATION / INFORMATIONEN

Termal Faktör/Thermal Factor/Wärmefaktor

Ortam sıcaklığı/ Ambient temperature/ Umgebungstemperatur (B_{ref})		Rakım/Altitude/Höhe (B_A)		Maks. redüktör gövdesi sıcaklığı/Maximum gearbox body temperature/Maximale Getriebekörpertemperatur (B_T)		Bir saatteki çalışma süresi/Working time per 1 hour/Arbeitszeit pro 1 Stunde (B_D)		Ortamdaki hava hızı/ Ambient airspeed/ Umgebungsluftgeschwindigkeit (B_V)	
°C	B_{ref}	m	B_A	°C	B_T	%	B_D	m/s	≥ B_V
10	1,11	0-deniz seviyesi	1	60	0,38	100	1,00	≤ 0,5	0,75
15	1,06	750	0,95	65	0,46	80	1,05	>0,5 ≤ 1,4	1,00
20	1,00	1500	0,90	70	0,55	60	1,15	>1,4 < 3,7	1,40
25	0,94	2250	0,85	75	0,63	40	1,35	≥ 3,7	1,90
30	0,88	3000	0,81	80	0,72	20	1,80		
35	0,82	3750	0,76	85	0,81				
40	0,75	4500	0,72	90	0,90				
45	0,68	5250	0,68	95	1,00				
50	0,60								

Termal faktörler ISO/TR 14179-1:2001 e göre belirlenmiştir.

Thermal factors are determined according to ISO / TR 14179-1: 2001.

Thermische Faktoren werden gemäß ISO / TR 14179-1: 2001 bestimmt.

Yağ soğutma sisteminin gücü (P_S)

Power of the oil cooling system (P_S)

Leistung des kühlsystems (P_S)

$$P_s = \frac{(P_1 - P_T') \times C_{rt}}{860}$$

Soğutma sistemi yağ debisi (q)

Oil flow of the cooling system (q)

Ölfluss des Kühlsystems (q)

$$q = \frac{(P_1 - P_T') \times C_{rt} \times 0{,}07}{t_r - t_s}$$

Burada C_{rt}, redüktör dişlisinin konfigürasyonuna ve doldurma tipine bağlı olarak aşağıdaki tabloda bulunan bir katsayıdır (daha fazlası yağlama tablolarında gösterilmiştir).

where C_{rt} is a coefficient that is found in the following table, based on the configuration of the reduction gear and on the filling up type (illustrated further on in the lubricating tables)

wobei der Koeffizient C_{rt} anhand der Konfiguration vom Planetengetriebe und der Art der Füllung der Tabelle unten entnommen werden kann (siehe auch Kapitel Schmierung.)

C_{rt}	Yarım dolu Filled halfway Halb gefüllt	Tam dolu Filled to the top Ganz gefüllt
S1	21	25
S2	43	52
S3	62	77
S4	84	97

BİLGİ / INFORMATION / INFORMATIONEN

Örnek hesaplama verileri | Sample calculation data | Beispielberechnung daten

Başlangıç bilgisi / Starting information/ Informationen zum Start	Sembol (birim)/Symbol (unit)/Symbol (einheit)	Değer/Value/Wert
İstenilen montaj/Desired assembly/Gewünschte Baugruppe	-	Flanştan montajlı/Flange mounted/Flanschmontiert (PD 113 S3 FS)
Çalıştırılan makine/Machine run/Maschinenlauf	-	Kütük konveyörü, rakor bağlantılı/Log conveyor, with coupling connection/Holzförderer, mit Kupplungsanschluss
Giriş gücü (nominal)/Input power(nominal)/Antriebsleistung (nominal)	P1m (kW)	Elektrik motoru 55 kW, 1500 d/dk, direk başlatmalı rakor bağlantılı/Electric motor 55 kW, 1500 rpm, direct start, with connection fitting/Elektromotor 55 kW, 1500 U/min^{-1}, Direktstart, mit Anschlussarmatur
Gerekli çıkış torku/Required torque/Erforderliches Drehmoment	T_2 (Nm)	15700
Çıkış hızı/Output speed/Abtriebsdrehzahl	n_2 (1/dak)	15,82
Giriş hızı/Input speed/Antriebsdrehzahl	n_1 (1/dak)	1500
Çalışma süresi/Operation time/Betriebszeit	s/g	8
Bir saatteki başlatmalar/Starts in one hour/Beginnt in einer Stunde	-	3
Ortam sıcaklığı/Ambient temperature/Umgebungstemperatur	(°C)	40
Rakım/Altitude/Höhe	(m)	750
Maksimum izin verilen dişli sıcaklığı/Maximum permissible gear temperature/Maximal zulässige Getriebetemperatur	(°C)	80
Bir saatteki çalışma süresi/Working time per 1 hour/Arbeitszeit pro 1 Stunde	(%)	100
İstenen oran/Desired rate/Gewünschte Rate	$i=n_1/n_2$	1500/15,82=94,80

Giriş gücü ve çıkış torku arasındaki ilişki şu formülle belirlenebilir.

The relationship between input power and output torque can be determined by the formula.

Das Verhältnis zwischen Antriebsleistung und Abtriebsdrehmoment kann durch die Formel bestimmt werden.

$$P_1 = \frac{T_2 \times n_2}{9550 \times \eta} \quad , \quad T_2 = \frac{P_1 \times 9550 \times \eta}{n_2}$$

Çıkış torkunun giriş gücüne dönüşümü:

Conversion of output torque to input power:

Umrechnung von Abtriebsdrehmoment in Antriebsleistung:

$$P_1 = \frac{T_2 \times n_2}{9550 \times \eta} \rightarrow P_1 = \frac{15700 \times 15,82}{9550 \times 0,97} = 26,81 \text{ kW}$$

30 kW lık elektrik motoru seçilir.

An electric motor of 30 kW is selected.

Es wird ein Elektromotor von 30 kW ausgewählt.

Giriş şaftındaki güç, güç değeri tablosundan alınmıştır ve sıcaklık faktörleriyle (B_{ref}, B_A, B_T, B_D, B_V) çarpılmış olan termal güçten düşük olmalıdır.

The power in the input shaft is taken from the power rating table and must be lower than the thermal power multiplied by temperature factors (B_{ref}, B_A, B_T, B_D, B_V) .

Die Leistung in der Eingangswelle wird aus der Leistungstabelle entnommen und muss kleiner sein als die thermische Leistung multipliziert mit Temperatur faktoren (B_{ref}, B_A, B_T, B_D, B_V) .

$$P_1 \leq P_T' = P_T \times B_{ref} \times B_A \times B_T \times B_D \times B_V$$

Seçim örneği (Termal güç aktarım değeri kontrolü)

PDS Katalog tablolarından PD 113 S3 için P_T değeri 15 kW tır. Gerçek değer, ilgili tablodaki termal faktörler kullanılarak hesaplanabilir.

Termal değer için kullanılan tablo değerleri:

- Ortam sıcaklığı : 40°C → Br_{ef}=0,75
- Hava hızı: 1,4 m/s → B_V=1
- Maks. redüktör gövdesi sıcaklığı: 95°C → B_T=1
- Çalışma süresi: %100 → B_D=1
- Rakım: 750 mm → B_A=0,95
- Redüktör etrafındaki hava akışı kısıtlanmamıştır (hava akışını bloklayan muhafazalar veya yapılar redüktörün termal değerini azaltacaktır).
- Güneş ışığına veya diğer ısı kaynaklarına karşı yeterli koruma vardır.

Selection example (Thermal power transfer value control)

From the PDS Catalog tables, the P_T value for PD 113 S3 is 15 kW. The actual value can be calculated using the thermal factors in the respective table.

Table values used for thermal value:

- Ambient temperature: 40°C →B_{ref}=0,75
- Air speed: 1,4 m/s → B_V=1
- Maximum reducer body temperature: 95°C → B_T=1
- Operation time: %100 → B_D=1
- Altitude: 750 mm → B_A=0,95
- Air flow around the reducer is not restricted. (Enclosures or structures blocking the air flow will reduce the thermal value of the reducer).
- There is adequate protection against sunlight or other heat sources.

Auswahlbeispiel (Steuerung des thermischen Leistungsübertragungswertes)

Aus den Tabellen des PDS-Katalogs ergibt sich für PD 113 S3 ein P_T Wert von 15 kW. Der tatsächliche Wert kann mit Hilfe der thermischen Faktoren in der jeweiligen Tabelle berechnet werden.

Für den Wärmewert verwendete Tabellenwerte:

- Umgebungstemperatur: 40°C →B_{ref}=0,75
- Luftgeschwindigkeit: 1,4 m/s → B_V=1
- Maximale Temperatur des
- Reduzierkörpers: 95°C → B_T=1
- Betriebszeit: %100 → B_D=1
- Höhe: 750 mm → B_A=0,95
- Der Luftstrom um das Reduzierstück wird nicht eingeschränkt. (Gehäuse oder Strukturen, die den Luftstrom blockieren, verringern den thermischen Wert des Reduzierers).
- Es besteht ausreichender Schutz vor Sonnenlicht oder anderen Wärmequellen.

$$P_1 \le P_T' = P_T \times B_{ref} \times B_A \times B_T \times B_D \times B_V \rightarrow$$

$$30 \le P_T' = 15 \times 0{,}75 \times 0{,}95 \times 1 \times 1 \times 1 = 10{,}69 \text{ kW}$$

$$\rightarrow 30 \text{ kW} \ge 10{,}69 \text{ kW}$$

Olduğundan ; redüktörün termal değeri yeterli değildir ve ek soğutma gereklidir.

Since it is; The thermal value of the gearbox is not sufficient and additional cooling is required.

Da der thermische Wert des Getriebes nicht ausreichend ist, ist eine zusätzliche Kühlung erforderlich.

Soğutma sistemi gücü (P_S) ve yağ debisi (q) :

PD 113 S3 FS 109,2 H200 kodlu redüktörün termal güç kontrolü:

Cooling system power (P_S) and oil flow (q):

PD 113 S3 FS 109.2 H200 coded gearbox thermal power control:

Leistung des Kühlsystems (P_S) und Ölfluss (q):
PD 113 S3 FS 109.2 H200 codierte Steuerung der thermischen Leistung des Getriebes:

$$\mathbf{P_s} = \frac{(P_1\text{-}P_T') \times C_{rt}}{860} = \frac{(30\text{-}10{,}69) \times 62}{860} = 1{,}392 \text{ kW}$$

C_{rt} değeri tablodan alınmıştır.

Yağ sirkülasyonunda yardımcı soğutma sistemine giren yağın sıcaklığı t_r: 95°C, çıkan yağın sıcaklığı ise t_s: 65°C olduğu varsayılarak yağ debisi hesaplanır.

C_{rt} value is taken from the table.

The oil flow rate is calculated by assuming that the oil entering the auxiliary cooling system in oil circulation is 95 °C and the temperature of the leaving oil is 65 °C.

Der Crt-Wert wird aus der Tabelle entnommen.
Die Öldurchflussmenge wird unter der Annahme berechnet, dass das in das Hilfskühlsystem eintretende Öl im Ölkreislauf 95 °C und die Temperatur des austretenden Öls 65 °C beträgt.

$$\mathbf{q} = \frac{(P_1\text{-}P_T') \times C_{rt} \times 0{,}07}{t_r\text{-}t_s} = \frac{(30\text{-}10{,}69) \times 62 \times 0{,}07}{95\text{-}65} = 2{,}793 \text{ L/dak}$$

Bu sonuca göre ; en az 1,392 kW gücünde ve 2,793 L/dak debiye sahip yardımcı soğutma sistemi seçilmelidir.

According to this result; An auxiliary cooling system with a minimum power of 1,392 kW and a flow rate of 2,793 L/min should be selected.

Entsprechend diesem Ergebnis sollte ein Hilfskühlsystem mit einer Mindestleistung von 1.392 kW und einem Volumenstrom von 2.793 L / min gewählt werden.

BİLGİ / INFORMATION / INFORMATIONEN

Yağlama

Dişli kutularının verimli çalışması için doğru bir yağlama gereklidir. Bundan dolayı aşağıdaki kriterler çalışma esnasında kontrol edilmelidir.

•Bütün yağ tapalarının önerilen çalışma pozisyonuna göre uygun monte edilip edilmediği kontrol edilmelidir.
Doğrusal veya açısal yapılandırmaya bakılmaksızın yatay olarak monte edilmiş üniteleri en üst seviyedeki merkezi hatta kadar doldurun. Yağ seviyesini görsel olarak kontrol etmek için, orta çizginin hemen üzerinde bulunan tapayı sökün.
Dik açılı üniteler için konik dişli, yağın serbestçe dolaşabileceği şekilde bağlanır. Her halükarda, dolum işlemini her iki uçta da aynı anda yapmayın ve ünite yerdeyken doğru montaj konumuna göre yapın. Bu, işlemi hızlandıracak ve yağın bir odadan diğerine ne kadar süre geçeceğine bakılmaksızın doğru miktarda yağın verilmesini sağlayacaktır.

•Dik olarak montaj edilmesi gereken modellere daha özel bir ihtimam gösterilmelidir. Bu durumda ünite tamamıyla doldurulmalıdır. Bu gibi durumlarda yağ genleşme kabı kullanımı tavsiye edilir ki ayrı olarak talep edilmesi halinde temin edilir. Bu tank dişli kutusu ünitesinin en uç noktasına monte edilerek genleşen yağ miktarını rezerve etmesi sağlanır. Dişli kutusu soğumaya başladığında bu yağ tekrar redüktör içine giderek yağ kaybını önleyerek zaman içinde olası tahribatları engeller.

•Devamlı çalışma şartları altında ve fazla yağ ile çalışan dişli kutularında daha düşük vizkositeli yağlar kullanılmalıdır.
Dişli kutularının ilk çalışma zamanlarında temas yüzeylerine bağlı olarak metal parçalarına rastlanabilir. Hiç kuşkusuz bu metal parçaları dişli kutusu içinde hem dişli grupları hem de rulmanlar için bazı olumsuzluklar meydana getirebilirler. Bunu önlemek için:
-Redüktör yağını ilk 100 saat sonunda değiştirin.
-Manyetik tapaları düzenli olarak temizleyin.
-Tavsiye edilen yağ listesi devam eden sayfalarda bulabilirsiniz.

Lubrication

Correct lubrication is required to run drives efficiently. Therefore, check the following conditions during installation:
Make sure that all plugs are correctly mounted with respect to the installation position specified in the order and according to the MOUNTING POSITIONS

• Fill horizontally mounted units up to the central line regardless of a linear or angular configuration. To visually check the oil level, unscrew the plug located just above the center line.
• For right angle units, the bevel gear is connected so that the oil is free to circulate. In anycase, carry out the filling operation on both ends but not simultaneously, and while the unit is on the ground, based on the correct mounting position. This will speed up the operation and ensure that the correct quantity of oil is introduced regardless of how long it would take for the oil to go from one chamber to the other.

•Particular attention should be paid to vertically mounted units which must be completely filled by means of elbows and extensions supplied with the unit. For these positions it is recommended to use an expansion tank, which can be supplied separately on request. This tank must be positioned above the highest point of the drive and is designed to collect any oil expansions or to ensure that the units mounted in hard to reach places can be topped up.

• Units running under continuous duty conditions may overheat due to the large quantity of oil they contain. In these cases, use oil with a lower viscosity.
During the first hours of operation of the reduction gears, due to the contact between surfaces that have not been runin, you will find metallic particles in the oil. Undoubtedly the separticles have a negative effect on the life of gears and bearings.To reduce the number of metallic particles in the oil we recommend:
-Changing the oil after the first 100 hours of operation;
-Cleaning the magnetic plugs regularly;The recommended lubricants are listed below;

Schmierung

Für den effizienten Betrieb von Antrieben ist eine korrekte Schmierung erforderlich.
Überprüfen Sie daher bei der Installation die folgenden Bedingungen:
Vergewissern Sie sich, dass alle Stopfen in Bezug auf die in der Bestellung angegebene Einbauposition und gemäß den MONTAGE-POSITIONEN korrekt montiert sind.
Füllen Sie horizontal montierte Einheiten unabhängig von einer linearen oder winkligen Konfiguration bis zur Mittellinie auf. Um den Ölstand visuell zu überprüfen, schrauben Sie den Stopfen, der sich direkt über der Mittellinie befindet, heraus.
Bei rechtwinkligen Einheiten ist das Kegelradgetriebe so angeschlossen, dass das Öl frei zirkulieren kann. Führen Sie in jedem Fall den Füllvorgang an beiden Enden, aber nicht gleichzeitig, und während die Einheit auf dem Boden steht, auf der Grundlage der korrekten Einbaulage durch. Dadurch wird der Vorgang beschleunigt und sichergestellt, dass die richtige Ölmenge eingefüllt wird, unabhängig davon, wie lange es dauern würde, bis das Öl von einer Kammer in die andere gelangt.fließen.
Besonderes Augenmerk sollte auf vertikal montierte Einheiten gelegt werden, die mit Hilfe von Krümmern und Verlängerungen, die mit der Einheit geliefert werden, vollständig gefüllt werden müssen. Für diese Positionen wird die Verwendung eines Ausdehnungsgefäßes empfohlen, das auf Anfrage separat geliefert werden kann. Dieser Tank muss oberhalb des höchsten Punktes des Antriebes positioniert werden und dient dazu, eventuelle Ölausdehnungen aufzufangen oder sicherzustellen, dass die an schwer zugänglichen Stellen montierten Einheiten nachgefüllt werden können.
Einheiten, die unter Dauerbetriebsbedingungen laufen, können sich aufgrund der großen Ölmenge, die sie enthalten, überhitzen. Verwenden Sie in diesen Fällen Öl mit einer niedrigeren Viskosität.
Während der ersten Betriebsstunden der Untersetzungsgetriebe werden Sie aufgrund des Kontakts zwischen nicht eingelaufenen Oberflächen metallische Partikel im Öl finden. Zweifellos wirken sich die Trennpartikel negativ auf die Lebensdauer der Zahnräder und Lager aus. Um die Anzahl der Metallpartikel im Öl zu reduzieren, empfehlen wir, diese zu verringern:
-Wechsel des Öls nach den ersten 100 Betriebsstunden;
-Regelmäßige Reinigung der Magnetstopfen;Die empfohlenen Schmiermittel sind unten aufgeführt;

BİLGİ / INFORMATION / INFORMATIONEN

Yağ Değişimi

•İlk yağ değişimi redüktör işletmeye alındığı zamandan itibaren 100 saatir.
•Daha sonraki değişimler ise 2000 saat veya yılda bir kezdir, hangisi önce gelirse.
•Değişim esnasında yağ kalıntılarından kurtulmak için yağın sıcak olmasında fayda vardır.
•Bütün tapalar temizlenmelidir.
•Yeni yağı koymadan önce yağ üreticisinin tavsiye edeceği sıvı bir deterjanla dişli kutusu temizlenmelidir.
•Redüktör çalışmadığı durumlarda belli periyodlar içinde yağ kaçakları ve seviyesi kontrol edilmelidir. Gerekirse aynı tip yağ ile tamamlanmalıdır.

Oil Changes

•The first oil change should be done after 100 hours of duty
•Subsequent oil changes should take place after 2000 hours or at least once a year.
•To avoid sludge deposits, change the oil while the drive is still hot.
•Clean all plugs.
•Before adding the new oil, the unit should be flushed with a liquid detergent recommended by the lubricant supplier.
•Periodically check for oil leaks and the oil level while the unit is idling.If needed, top up using the same type of oil,

Schmierung

Der erste Ölwechsel sollte nach 100 Betriebsstunden durchgeführt werden
Nachfolgende Ölwechsel sollten nach 2000 Stunden oder mindestens einmal im Jahr stattfinden.
Um Schlammablagerungen zu vermeiden, sollte das Öl gewechselt werden, solange der Antrieb noch heiß ist.
Alle Stopfen reinigen.
Vor der Zugabe des neuen Öls sollte die Einheit mit einem vom Schmierstofflieferanten empfohlenen flüssigen Reinigungsmittel gespült werden.
Regelmäßig im Leerlauf auf Ölleckagen und den Ölstand prüfen und bei Bedarf Öl derselben Sorte nachfüllen,

Genel amaçlı yağlar — General purpose lubricants — Schmiermittel für allgemeine Zwecke

	Mineral yağ Mineral oils Mineralöle			Poliglikol sentetik yağlar (PG) Polyglycol synthetic oils(PG) Synthetische Polyglykolöle (PG)
Ortam sıcaklığı Ambient Temp. Umgebungs temp	**-20°C / +10°C**	**+10°C / +30°C**	**+30°C / +60°C**	**-20°C / +60°C**
Üretici Manufacturer Hersteller	**ISO VG 150**	**ISO VG 220**	**ISO VG 320**	**ISO VG 220-320**
BP	Energol GR-XP 150	Energol GR-XP 220	Energol GR-XP 320	Enersyn HTX 220/320
CASTROL	Alpha SP 150	Alpha SP 220	Alpha S 320	Alphasyn PG 220/320
ESSO	Spartan EP 150	Spartan EP 220	Spartan EP 320	Glycolube 220/320
KLUBER	Klüberoil GEM 1-150	Klüberoil GEM 1-220	Klüberoil GEM 1-320	Klübersynth GH 6-220/320
MOBIL	Mobilgear XMP 150	Mobilgear XMP 220	Mobilgear XMP 320	Glygoyle 30 / Glygoyle HE 320
SHELL	Omala S2 G 150	Omala S2 G 220	Omala S2 G 320	Omala S4 WE 220/320 (Tivela S220 /320)
PETROL OFİSİ	Gravis M 150	Gravis M 220	Gravis M 320	Gravis SP 220/320
TOTAL	Carter EP150	Carter EP 220	Carter EP 320	Carter SY 220/320

Genellikle Planet redüktörler yağsız olarak sevk edilirler.

Generally, Planetary Drives are supplied without lubricant.

Im Allgemeinen werden Planetengetriebe ohne Schmiermittel geliefert.

BİLGİ / INFORMATION / INFORMATIONEN

Kullanılacak olan diğer sentetik yağların NBR tip yağ keçesi ile uyumlu olduğu kontrol edilmelidir.

If other synthetic lubricants are used always check their compatibility with the NBR oil seals used in the reduction gear.

Wenn andere synthetische Schmiermittel verwendet werden, ist stets deren Verträglichkeit mit den im Untersetzungsgetriebe verwendeten NBR-Öldichtungen zu prüfen.

Farklı tiplerdeki sentetik yağlar birbirine karıştırılmamalıdır.

Do not mix different kinds of synthetic lubricant together.

Verschiedene Arten von synthetischen Schmiermitteln dürfen nicht miteinander vermischt werden.

Planet redüktörün çalışma koşulları, yağ sıcaklığının önemli ölçüde yükselmesine (>60°C) neden olacak şekilde uzun süreli çalışma gerektiriyorsa, bileşenlerin daha az aşınmasını garanti etmek ve değiştirme arasındaki aralıkları uzatmak için sentetik bir yağ kullanmanızı öneririz. Planet redüktör içindeki yağlayıcının maksimum sıcaklığı 90 ° C'nin üzerine çıkmamalıdır.

If the operating conditions of the planetary gearbox entail prolonged periods of operation such to cause the oil temperature to rise considerably (>60°C) we suggest using a synthetic oil to guarantee less wear of the components and to prolongthe intervals between replacingthem. Maximum temperature of the lubricant inside the planetary gearbox must not go above 90°C.

Wenn die Betriebsbedingungen des Planetengetriebes längere Betriebszeiten mit sich bringen, so dass die Öltemperatur erheblich ansteigt (>60°C), empfehlen wir die Verwendung eines synthetischen Öls, um einen geringeren Verschleiß der Komponenten zu gewährleisten und die Wechselintervalle zu verlängern. Die maximale Temperatur des Schmiermittels im Inneren des Planetengetriebes darf 90°C nicht überschreiten.

Montaj ve tapa pozisyonları

Aşağıdaki resimlerde montaj pozisyonlarını bulabilirsiniz. Sipariş esnasında montaj pozisyonu da bildirilmelidir. Bu şekilde uygun tapalama ve yağ miktarı seçilir.

Mounting positions and plugs position

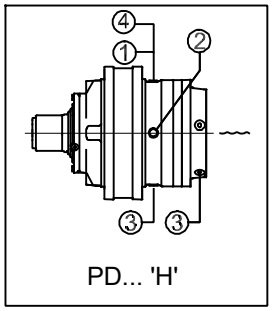
You can see the possible mounting positions in the figures below. The relative initial must be specified when ordering the reduction gear. The layout and type of plugs as well as the minimum lubricant level are also indicated, as per the legend.

Einbaulagen und Steckerposition

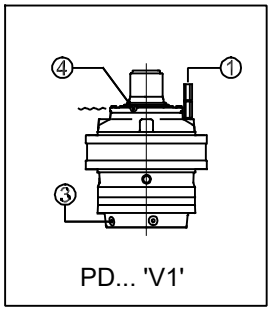
In den Abbildungen unten sehen Sie die möglichen Montagepositionen. Bei der Bestellung des Untersetzungsgetriebes muss der relative Anfangswert angegeben werden. Auch die Anordnung und Art der Stopfen sowie der Mindestschmierstoffstand sind gemäß der Legende angegeben.

BİLGİ/ INFORMATION / INFORMATIONEN

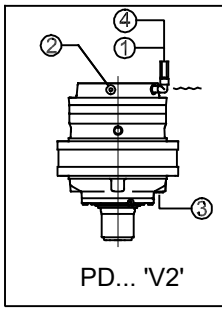
Montaj Pozisyonları Mounting Positions Montageposition



PD... 'H'

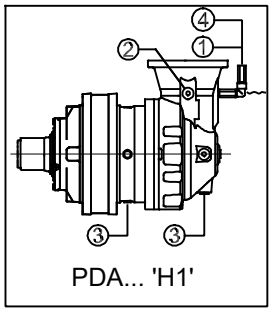


PD... 'V1'

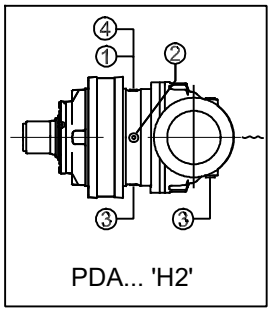


PD... 'V2'

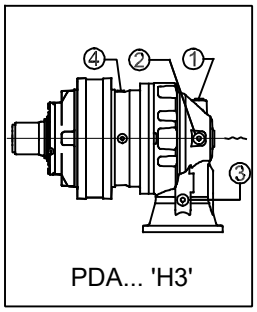
1	Havalık / Vent plug Entlüftungstopfen
2	Seviye / Level plug Ölstandstopfen
3	Boşaltma / Drainage Ablassstopfen
4	Doldurma / Filling Einfüllstopfen



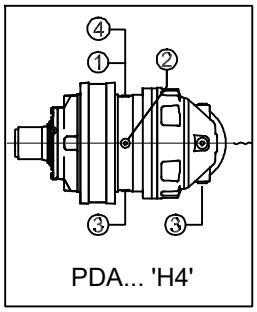
PDA... 'H1'



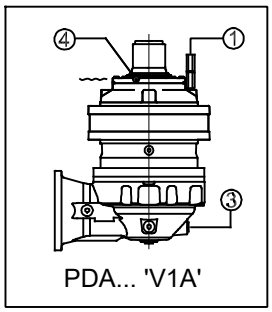
PDA... 'H2'



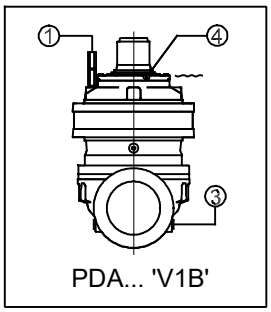
PDA... 'H3'



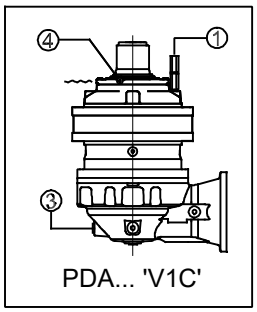
PDA... 'H4'



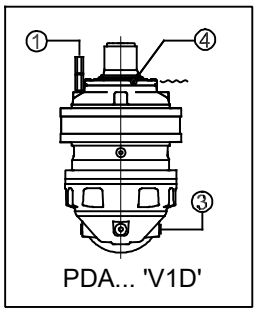
PDA... 'V1A'



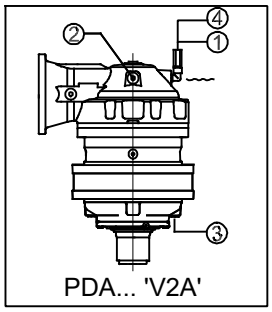
PDA... 'V1B'



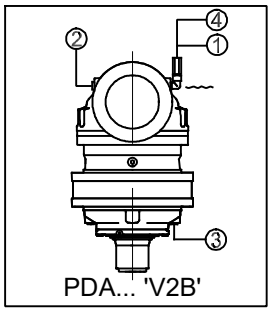
PDA... 'V1C'



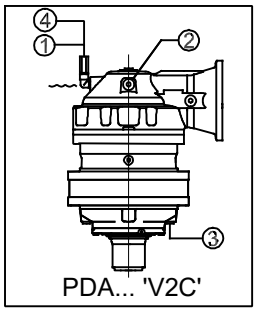
PDA... 'V1D'



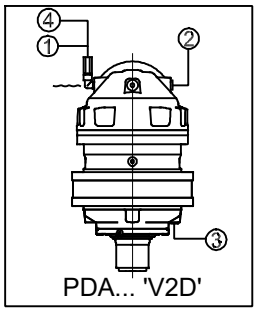
PDA... 'V2A'



PDA... 'V2B'



PDA... 'V2C'



PDA... 'V2D'

Sipariş esnasında montaj pozisyonunu dikkatlice belirtilmesi doğru tapa yerleşimi için gereklidir.

Please specify the mounting position carefully with the order for the correct pluging.

Bitte geben Sie die Position Montage sorgfältig mit dem Auftrag für die korrekte pluging.

BİLGİ/ INFORMATION / INFORMATIONEN

Genleşme Tankı

Dikey montaj uygulamalarında, genleşen yağın toplanması için genleşme kabı kullanılması tavsiye edilir. Bu düzenek talep halinde servis edilir.

Genleşme tankı redüktör üzerine öyle yerleştirilmelidir ki, yağ seviyesi tüp üzerindeki ufak göstergelerden görünecek şekilde montaj pozisyonuna göre en üst seviyede ve daima nefeslik tapasının altında olmalıdır.

Expansion Tank

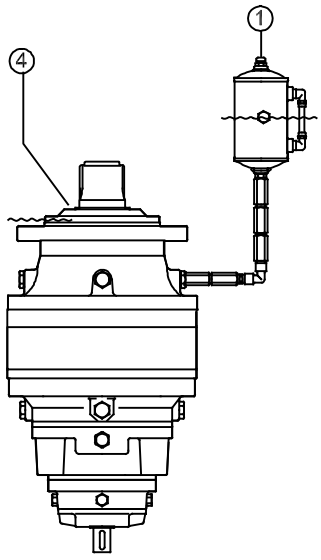
For vertical applications, it is recommended to use an expansion tank that can absorb any oil expansions and/or ensure topping up in hard to reach places. This fitting can be supplied on request.

The expansion tank must always be placed sothe level of oil, which can be seen by means of a small transparent tube placed in parallel withthe tank for instance (standard in some kits), isabove the highest point you wish to lubricate and, hence, above the venting plugs (4).

Ausdehnungsbehälter

Bei vertikalen Anwendungen empfiehlt sich die Verwendung eines Ausdehnungsbehälters, der eventuelle Ölausdehnungen aufnehmen kann und/oder das Nachfüllen an schwer zugänglichen Stellen gewährleistet. Diese Armatur kann auf Anfrage geliefert werden.

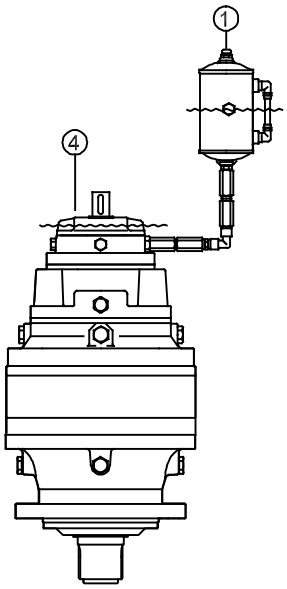
Der Ausgleichsbehälter muss immer so platziert werden, dass der Ölstand, der z.B. durch ein kleines transparentes Rohr parallel zum Behälter sichtbar ist (serienmäßig in einigen Bausätzen), über dem höchsten Punkt liegt, den Sie schmieren möchten, und somit über den Entlüftungsstopfen (4).



1 Doldurma ve havalandırma
Filling up and venting
Füllen und Entlüften

4 Doldururken havalandırma
Venting while filling up
Entlüften beim Tanken

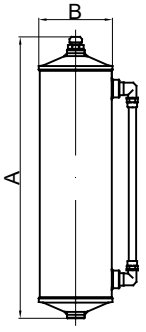
Minimum seviye
Minimum level
Minimales Niveau



Tank kitlerinin satış kodları ve teknik özellikleri için lütfen aşağıdaki tabloya ve ilgili şekle bakınız.

Please refer to the following table and relative figure for the sales codes and technical specifications of the tank kits.

Die Verkaufsnummern und technischen Spezifikationen der Tanksätze entnehmen Sie bitte der folgenden Tabelle und der entsprechenden Abbildung.



YGT...

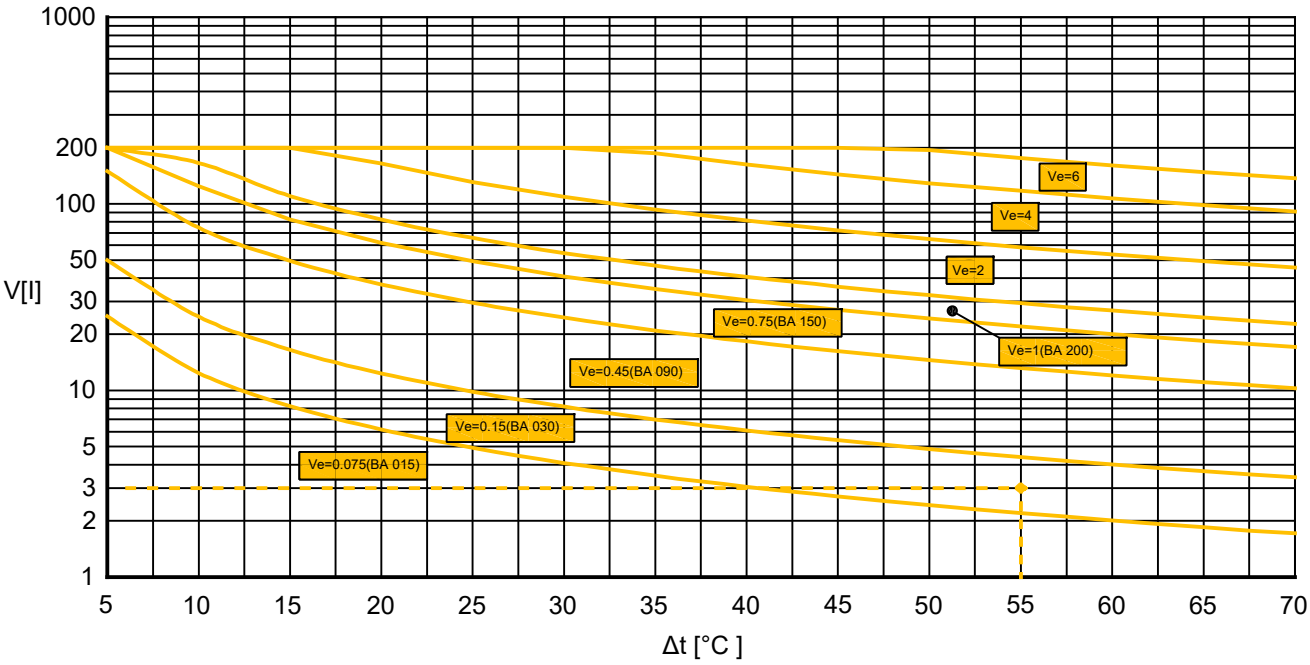
Tip/Type/Typ	A (mm)	ØB (mm)	Kapasite / Capacity Fassung-vermögen [ml]
YGT 100	100	102	724
YGT 150	150	102	1086
YGT 250	250	102	1810

BİLGİ/ INFORMATION / INFORMATIONEN

Genleşme tankının seçimi genleşen yağ miktarının hacmine Ve'ye bağlı olarak yapılır. Bu seçim aşağıdaki gibi yapılır. Grafikte, Δt farkını planet dişli kutusunun içindeki yağ sıcaklığı ile ortam sıcaklığının farkı alınır ve redüktör içindeki gerekli yağ hacmi Ve ekseni ile Δ sıcaklık farkı ekseni birleştirilir. Bulunan nokta genleşen yağ miktarı Ve'yi verir. Ve, tank bu hacmin iki misli olarak seçilir.

The choice of tank should be based on the volume of expanded oil Ve; this can be found in the following way: in the following graph, find the point which has Δt difference between thereduction gear's oil temperature and ambient temperature as the abscissa and volume V ofoil necessary to fill the reduction gear as the ordinate. On the basis of the area in which thepoint falls, you find the volume of expanded oilVe and the tank is sized for double the volumecalculated.

Die Wahl des Behälters sollte auf der Grundlage des Volumens des expandierten Öls Ve erfolgen; dieses kann auf folgende Weise ermittelt werden: In der folgenden Grafik finden Sie den Punkt, an dem Δt die Differenz zwischen der Öltemperatur des Untersetzungsgetriebes und der Umgebungstemperatur als Abszisse und das zum Füllen des Untersetzungsgetriebes erforderliche Volumen V ofoil als Ordinate vorliegt. Ausgehend von der Fläche, in die der Punkt fällt, finden Sie das Volumen des expandierten Öls Ve und der Tank ist für das doppelte berechnete Volumen dimensioniert.



Örnek

3 litre yağ kapasitesi olan bir planet dişli redüktör, 80°C de çalışıyor ve ortam sıcaklığı 25°C olan şartlarda bulunuyor. Δt = 80-25 = 55°C dereceyi Δt ekseninden 3 litreyi de V ekseninden alarak kesiştirelim. Bulunan noktanın genleşen yağ miktarı V= 0,15 litre alanında olduğu grafikten bulunur. Bu durumda tavsiye edilen tank hacmi iki misli olarak 0,30 litre seçilir ve ideal tank B_A 030 dur. Devam eden sayfalarda montaj şekline göre redüktörlerin yağ miktarları verilmiştir.

Example

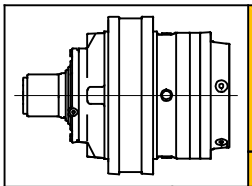
Consider a reduction gear with an oil capacity of 3 litres at an operating temperature of 80°C and with an ambient temperature of 25°C. Finding the abscissa Δt = 80-25 = 55°C and ordinate V = 3 litres point on the graph, it belongs to the area with an expanded volume of Ve = 0,15 litres. The tank recommended should have a volume double that of Ve - that is 0.30 litres - so the ideal tank is the B_A 030. On the following pages you will find the volumes of oil, purely indicative, necessary to fill up according to the assembly position.

Beispiel

Erwägen Sie ein Untersetzungsgetriebe mit einem Ölinhalt von 3 Litern bei einer Betriebstemperatur von 80°C und einer Umgebungstemperatur von 25°C. Findet man die Abszisse Δt = 80-25 = 55°C und die Ordinate V = 3 Liter Punkt auf dem Diagramm, gehört es zu dem Bereich mit einem erweiterten Volumen von Ve = 0,15 Liter. Der empfohlene Tank sollte ein Volumen haben, das doppelt so groß ist wie das von Ve - also 0,30 Liter - so dass der ideale Tank der B_A 030 ist. Auf den folgenden Seiten finden Sie die Ölvolumina, rein indikativ, die je nach Einbaulage zum Auffüllen erforderlich sind.

BİLGİ / INFORMATION / INFORMATIONEN

Yağ Miktarı — Oil Quantity — Ölmenge



		Montaj pozisyonları (It) 'H' Mounting positions (It) 'H' Einbaulagen (It) 'H'							
		MS - MC	FS - FC	HS - HC	SD	SF	S	FVS - C	DKM
PD 101	S1	-	0,8	0,8	0,8	0,8	-	1,6	0,8
	S2	-	1,1	1,1	1,1	1,1	-	1,9	1,1
	S3	-	1,3	1,3	1,3	1,3	-	2,1	1,3
	S4	-	1,6	1,6	1,6	1,6	-	2,4	1,6
PD 103	S1	-	0,9	0,9	0,9	0,9	-	1,7	0,9
	S2	-	1,2	1,2	1,2	1,2	-	2,0	1,2
	S3	-	1,4	1,4	1,4	1,4	-	2,2	1,4
	S4	-	1,7	1,7	1,7	1,7	-	2,5	1,7
PD 105	S1	-	1,4	1,6	1,2	1,4	1,4	3,8	1,4
	S2	-	1,7	1,9	1,5	1,7	1,7	4,1	1,7
	S3	-	1,9	2,1	1,7	1,9	1,9	4,3	1,9
	S4	-	2,2	2,4	2,0	2,2	2,2	4,6	2,2
PD 107	S1	-	1,5	1,7	1,3	1,5	1,5	3,9	1,5
	S2	-	1,9	2,1	1,7	1,9	1,9	4,3	1,9
	S3	-	2,1	2,3	1,9	2,1	2,1	4,5	2,1
	S4	-	2,4	2,6	2,2	2,4	2,4	4,8	2,4
PD 109	S1	-	-	2,5	2,5	2,5	-	7,6	2,5
	S2	-	-	3	3,0	3,0	-	8,0	3,0
	S3	-	-	3,2	3,2	3,2	-	8,3	3,2
	S4	-	-	3,5	3,5	3,5	-	8,5	3,5
PD 111	S1	-	3,0	-	3,0	2,9	2,3	11,2	3,0
	S2	-	3,5	-	3,5	3,5	2,8	11,7	3,5
	S3	-	3,9	-	3,9	3,8	3,2	12,1	3,9
	S4	-	4,1	-	4,1	4,1	3,4	12,3	4,1
PD 113	S1	3,2	2,6	-	2,6	3,3	2,6	11,5	2,6
	S2	3,8	3,2	-	3,2	3,8	3,2	12,1	3,2
	S3	4,1	3,5	-	3,5	4,2	3,5	12,4	3,5
	S4	4,4	3,8	-	3,8	4,4	3,8	12,7	3,8
PD 115	S2	4,3	3,7	-	3,7	4,4	3,7	12,6	3,7
	S3	4,8	4,2	-	4,2	4,8	4,2	13,1	4,2
	S4	5,0	4,4	-	4,4	5,1	4,4	13,3	4,4

Giriş gövdesi aşağıdaki GM28-GM42-GM65-GM80-GM90-GM100 gövdelerden herhangi biri ise yukarıdaki tablodan seçilmiş olan yağ miktarına aşağıdaki değerler eklenir.

If the reduction gear inlet body is any of the following GM28-GM42-GM65-GM80-GM90-GM100 bodies, the following values are added to the oil quantity selected from the table above.

Wenn es sich bei dem Einlasskörper des Untersetzungsgetriebes um einen der folgenden GM28-GM42-GM65-GM80-GM90-GM100 Körper handelt, werden die folgenden Werte zu der aus der obigen Tabelle ausgewählten Ölmenge addiert.

GM28-GM42	GM65	GM80	GM90-GM100
0,3	0,7	1	1,4

Katalogda verilmiş olan tüm değerler litre (L) cinsindendir.

All values given in the catalog are in liters (L).

Alle im Katalog angegebenen Werte sind in Litern (L) angegeben.

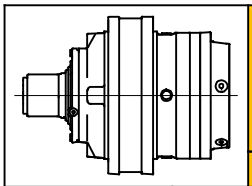
Planet redüktörlerimiz talep edilmediği sürece yağsız sevk edilecektir.

Generally, Planetary Drives are supplied without lubricant.

Im Allgemeinen werden Planetenantriebe ohne Schmiermittel geliefert.

BİLGİ / INFORMATION / INFORMATIONEN

Yağ Miktarı — Oil Quantity — Ölmenge



		Montaj pozisyonları (It) 'H' Mounting positions (It) 'H' Einbaulagen (It) 'H'							
		MS - MC	FS - FC	HS - HC	SD	SF	S	FVS - C	DKM
PD 117	S1	6,6	6,5	-	4,2	-	4,1	6,6	4,2
	S2	7,6	7,5	-	5,2	-	5,1	7,6	5,2
	S3	8,1	8	-	5,7	-	5,5	8,1	5,7
	S4	8,3	8,2	-	5,9	-	5,8	8,3	5,9
PD 119	S2	7,5	7,4	-	5,1	-	5,0	7,5	-
	S3	8,1	8	-	5,7	-	5,5	8,1	-
	S4	8,4	8,3	-	6,0	-	5,9	8,4	-
PD 121	S1	5,7	-	-	3,7	-	3,7	5,7	-
	S2	7,2	-	-	5,3	-	5,3	7,2	-
	S3	7,8	-	-	5,8	-	5,8	7,8	-
	S4	8,1	-	-	6,2	-	6,2	8,1	-
PD 123	S1	9,2	9,2	-	7,8	-	7,8	9,2	-
	S2	10,8	10,8	-	9,3	-	9,3	10,8	-
	S3	11,3	11,3	-	9,9	-	9,9	11,3	-
	S4	11,7	11,7	-	10,2	-	10,2	11,7	-
PD 125	S1	10,6	10,6	-	9,2	-	9,2	10,6	-
	S2	13,6	13,6	-	12,1	-	12,1	13,6	-
	S3	14,6	14,6	-	13,1	-	13,1	14,6	-
	S4	15,0	15	-	13,6	-	13,6	15,0	-
PD 127	S1	14,8	-	-	14,8	-	14,8	14,8	-
	S2	17,8	-	-	17,8	-	17,8	17,8	-
	S3	18,8	-	-	18,8	-	18,8	18,8	-
	S4	19,2	-	-	19,2	-	19,2	19,2	-
PD 129	S1	15,2	-	-	15,2	-	15,2	15,2	-
	S2	19,7	-	-	19,7	-	19,7	19,7	-
	S3	21,2	-	-	21,2	-	21,2	21,2	-
	S4	21,8	-	-	21,8	-	21,8	21,8	-
PD 133	S1	27,9	-	-	27,9	-	27,9	27,9	-
	S2	32,4	-	-	32,4	-	32,4	32,4	-
	S3	34,0	-	-	34,0	-	34,0	34,0	-
	S4	34,5	-	-	34,5	-	34,5	34,5	-

Giriş gövdesi aşağıdaki GM28-GM42-GM65-GM80-GM90-GM100 gövdelerden herhangi biri ise yukarıdaki tablodan seçilmiş olan yağ miktarına aşağıdaki değerler eklenir.

If the reduction gear inlet body is any of the following GM28-GM42-GM65-GM80-GM90-GM100 bodies, the following values are added to the oil quantity selected from the table above.

Wenn es sich bei dem Einlasskörper des Untersetzungsgetriebes um einen der folgenden GM28-GM42-GM65-GM80-GM90-GM100 Körper handelt, werden die folgenden Werte zu der aus der obigen Tabelle ausgewählten Ölmenge addiert.

GM28-GM42	GM65	GM80	GM90-GM100
0,3	0,7	1	1,4

Katalogda verilmiş olan tüm değerler litre (L) cinsindendir.

All values given in the catalog are in liters (L).

Alle im Katalog angegebenen Werte sind in Litern (L) angegeben.

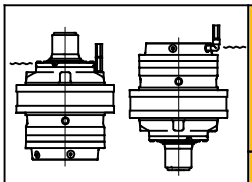
Planet redüktörlerimiz talep edilmediği sürece yağsız sevk edilecektir.

Generally, Planetary Drives are supplied without lubricant.

Im Allgemeinen werden Planetenantriebe ohne Schmiermittel geliefert.

BİLGİ / INFORMATION / INFORMATIONEN

Yağ Miktarı — Oil Quantity — Ölmenge



		Montaj pozisyonları (lt) 'V1, V2' Mounting positions (lt) 'V1, V2' Einbaulagen (lt) 'V1, V2'							
		MS - MC	FS - FC	HS - HC	SD	SF	S	FVS - C	DKM
PD 101	S1	-	1,6	1,6	1,6	1,6	-	2,4	1,6
	S2	-	2,1	2,1	2,1	2,1	-	2,9	2,1
	S3	-	2,6	2,6	2,6	2,6	-	3,4	2,6
	S4	-	3,1	3,1	3,1	3,1	-	3,9	3,1
PD 103	S1	-	1,8	1,8	1,8	1,8	-	2,6	1,8
	S2	-	2,3	2,3	2,3	2,3	-	3,1	2,3
	S3	-	2,8	2,8	2,8	2,8	-	3,6	2,8
	S4	-	3,3	3,3	3,3	3,3	-	4,1	3,3
PD 105	S1	-	2,8	3,2	2,4	2,8	2,8	4,9	2,8
	S2	-	3,3	3,7	2,9	3,3	3,3	5,4	3,3
	S3	-	3,8	4,2	3,4	3,8	3,8	5,9	3,8
	S4	-	4,3	4,7	3,9	4,3	4,3	6,4	4,3
PD 107	S1	-	3,0	3,4	2,6	3,0	3,0	5,1	3,0
	S2	-	3,7	4,1	3,3	3,7	3,7	5,8	3,7
	S3	-	4,2	4,6	3,8	4,2	4,2	6,3	4,2
	S4	-	4,7	5,1	4,3	4,7	4,7	6,8	4,7
PD 109	S1	-	-	5	5,0	5,0	-	10,5	5,0
	S2	-	-	5,9	5,9	5,9	-	11,4	5,9
	S3	-	-	6,4	6,4	6,4	-	11,9	6,4
	S4	-	-	6,9	6,9	6,9	-	12,4	6,9
PD 111	S1	-	5,9	-	5,9	5,8	4,5	15,3	5,9
	S2	-	7,0	-	7,0	6,9	5,6	16,4	7,0
	S3	-	7,7	-	7,7	7,6	6,3	17,1	7,7
	S4	-	8,2	-	8,2	8,1	6,8	17,6	8,2
PD 113	S1	6,4	5,2	-	5,2	6,5	5,2	16,0	5,2
	S2	7,5	6,3	-	6,3	7,6	6,3	17,1	6,3
	S3	8,2	7,0	-	7,0	8,3	7,0	17,8	7,0
	S4	8,7	7,5	-	7,5	8,8	7,5	18,3	7,5
PD 115	S2	8,6	7,4	-	7,4	8,7	7,4	18,2	7,4
	S3	9,5	8,3	-	8,3	9,6	8,3	19,1	8,3
	S4	10,0	8,8	-	8,8	10,1	8,8	19,6	8,8

Giriş gövdesi aşağıdaki GM28-GM42-GM65-GM80-GM90-GM100 gövdelerden herhangi biri ise yukarıdaki tablodan seçilmiş olan yağ miktarına aşağıdaki değerler eklenir.

If the reduction gear inlet body is any of the following GM28-GM42-GM65-GM80-GM90-GM100 bodies, the following values are added to the oil quantity selected from the table above.

Wenn es sich bei dem Einlasskörper des Untersetzungsgetriebes um einen der folgenden GM28-GM42-GM65-GM80-GM90-GM100 Körper handelt, werden die folgenden Werte zu der aus der obigen Tabelle ausgewählten Ölmenge addiert.

GM28-GM42	GM65	GM80	GM90-GM100
0,6	1,4	2	2,8

Katalogda verilmiş olan tüm değerler litre (L) cinsindendir.

All values given in the catalog are in liters (L).

Alle im Katalog angegebenen Werte sind in Litern (L) angegeben.

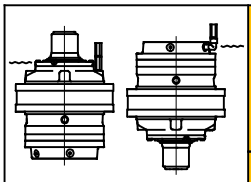
Planet redüktörlerimiz talep edilmediği sürece yağsız sevk edilecektir.

Generally, Planetary Drives are supplied without lubricant.

Im Allgemeinen werden Planetenantriebe ohne Schmiermittel geliefert.

BİLGİ / INFORMATION / INFORMATIONEN

Yağ Miktarı — Oil Quantity — Ölmenge



		Montaj pozisyonları (It) 'V1, V2' Mounting positions (It) 'V1, V2' Einbaulagen (It) 'V1, V2'							
		MS - MC	FS - FC	HS - HC	SD	SF	S	FVS - C	DKM
PD 117	S1	13,2	13,0	-	8,4	-	8,1	13,2	8,4
	S2	15,2	15,0	-	10,4	-	10,1	15,2	10,4
	S3	16,1	15,9	-	11,3	-	11,0	16,1	11,3
	S4	16,6	16,4	-	11,8	-	11,5	16,6	11,8
PD 119	S2	15,0	14,8	-	10,2	-	9,9	15,0	-
	S3	16,1	15,9	-	11,3	-	11,0	16,1	-
	S4	16,8	16,6	-	12,0	-	11,7	16,8	-
PD 121	S1	11,3	-	-	7,4	-	7,4	11,3	-
	S2	14,4	-	-	10,5	-	10,5	14,4	-
	S3	15,5	-	-	11,6	-	11,6	15,5	-
	S4	16,2	-	-	12,3	-	12,3	16,2	-
PD 123	S1	18,4	18,4	-	15,5	-	15,5	18,4	-
	S2	21,5	21,5	-	18,6	-	18,6	21,5	-
	S3	22,6	22,6	-	19,7	-	19,7	22,6	-
	S4	23,3	23,3	-	20,4	-	20,4	23,3	-
PD 125	S1	21,2	21,2	-	18,3	-	18,3	21,2	-
	S2	27,1	27,1	-	24,2	-	24,2	27,1	-
	S3	29,1	29,1	-	26,2	-	26,2	29,1	-
	S4	30,0	30,0	-	27,1	-	27,1	30,0	-
PD 127	S1	29,6	-	-	29,6	-	29,6	29,6	-
	S2	35,5	-	-	35,5	-	35,5	35,5	-
	S3	37,5	-	-	37,5	-	37,5	37,5	-
	S4	38,4	-	-	38,4	-	38,4	38,4	-
PD 129	S1	30,3	-	-	30,3	-	30,3	30,3	-
	S2	39,3	-	-	39,3	-	39,3	39,3	-
	S3	42,4	-	-	42,4	-	42,4	42,4	-
	S4	43,5	-	-	43,5	-	43,5	43,5	-
PD 133	S1	55,8	-	-	55,8	-	55,8	55,8	-
	S2	64,8	-	-	64,8	-	64,8	64,8	-
	S3	67,9	-	-	67,9	-	67,9	67,9	-
	S4	69,0	-	-	69,0	-	69,0	69,0	-

Giriş gövdesi aşağıdaki GM28-GM42-GM65-GM80-GM90-GM100 gövdelerden herhangi biri ise yukarıdaki tablodan seçilmiş olan yağ miktarına aşağıdaki değerler eklenir.

If the reduction gear inlet body is any of the following GM28-GM42-GM65-GM80-GM90-GM100 bodies, the following values are added to the oil quantity selected from the table above.

Wenn es sich bei dem Einlasskörper des Untersetzungsgetriebes um einen der folgenden GM28-GM42-GM65-GM80-GM90-GM100 Körper handelt, werden die folgenden Werte zu der aus der obigen Tabelle ausgewählten Ölmenge addiert.

GM28-GM42	GM65	GM80	GM90-GM100
0,6	1,4	2	2,8

Katalogda verilmiş olan tüm değerler litre (L) cinsindendir.

All values given in the catalog are in liters (L).

Alle im Katalog angegebenen Werte sind in Litern (L) angegeben.

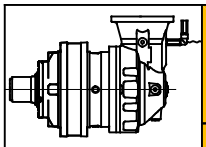
Planet redüktörlerimiz talep edilmediği sürece yağsız sevk edilecektir.

Generally, Planetary Drives are supplied without lubricant.

Im Allgemeinen werden Planetenantriebe ohne Schmiermittel geliefert.

BİLGİ / INFORMATION / INFORMATIONEN

Yağ Miktarı — Oil Quantity — Ölmenge



		Montaj pozisyonları (lt) 'H1, V1, V2' Mounting positions (lt) 'H1, V1, V2' Einbaulagen (lt) 'H1, V1, V2'							
		MS - MC	FS - FC	HS - HC	SD	SF	S	FVS - C	DKM
PDA 101	S2	-	2,9	2,9	2,9	2,9	-	3,7	2,9
	S3	-	3,4	3,4	3,4	3,4	-	4,2	3,4
	S4	-	3,9	3,9	3,9	3,9	-	4,7	3,9
PDA 103	S2	-	3,1	3,1	3,1	3,1	-	3,9	3,1
	S3	-	3,6	3,6	3,6	3,6	-	4,4	3,6
	S4	-	4,1	4,1	4,1	4,1	-	4,9	4,1
PDA 105	S2	-	4,1	4,5	3,7	4,1	4,1	6,2	4,1
	S3	-	4,6	5,0	4,2	4,6	4,6	6,7	4,6
	S4	-	5,1	5,5	4,7	5,1	5,1	7,2	5,1
PDA 107	S2	-	6,2	6,6	5,8	6,2	6,2	8,3	6,2
	S3	-	5,0	5,4	4,6	5,0	5,0	7,1	5,0
	S4	-	5,5	5,9	5,1	5,5	5,5	7,6	5,5
PDA 109	S2	-	-	11,3	11,3	11,3	-	16,8	11,3
	S3	-	-	7,2	7,2	7,2	-	12,7	7,2
	S4	-	-	7,7	7,7	7,7	-	13,2	7,7
PDA 111	S2	-	13,5	-	13,5	13,4	12,1	22,9	13,5
	S3	-	10,2	-	10,2	10,1	8,8	19,6	10,2
	S4	-	9,0	-	9,0	8,9	7,6	18,4	9,0
PDA 113	S2	14,0	12,8	-	12,8	14,1	12,8	23,6	12,8
	S3	10,7	9,5	-	9,5	10,8	9,5	20,3	9,5
	S4	9,5	8,3	-	8,3	9,6	8,3	19,1	8,3
PDA 115	S3	14,9	13,7	-	13,7	15,0	13,7	24,5	13,7
	S4	10,8	9,6	-	9,6	10,9	9,6	20,4	9,6
PDA 117	S2	26,2	26,0	-	21,4	-	21,1	26,2	21,4
	S3	21,5	21,3	-	16,7	-	16,4	21,5	16,7
	S4	19,3	19,1	-	14,5	-	14,2	19,3	14,5
PDA 119	S3	22,6	22,4	-	17,8	-	17,5	22,6	-
	S4	19,3	19,1	-	14,5	-	14,2	19,3	-
PDA 121	S2	24,3	-	-	20,4	-	20,4	24,3	-
	S3	22,0	-	-	18,1	-	18,1	22,0	-
	S4	18,7	-	-	14,8	-	14,8	18,7	-
PDA 123	S2	45,4	45,4	-	42,5	-	42,5	45,4	-
	S3	29,1	29,1	-	26,2	-	26,2	29,1	-
	S4	25,8	25,8	-	22,9	-	22,9	25,8	-
PDA 125	S2	48,2	48,2	-	45,3	-	45,3	48,2	-
	S3	40,1	40,1	-	37,2	-	37,2	40,1	-
	S4	35,4	35,4	-	32,5	-	32,5	35,4	-
PDA 127	S3	48,5	-	-	48,5	-	48,5	48,5	-
	S4	43,8	-	-	43,8	-	43,8	43,8	-
PDA 129	S3	66,3	-	-	66,3	-	66,3	66,3	-
	S4	50	-	-	50,0	-	50,0	50,0	-
PDA 133	S3	91,8	-	-	91,8	-	91,8	91,8	-
	S4	75,5	-	-	75,5	-	75,5	75,5	-

Giriş gövdesi aşağıdaki GM28-GM42-GM65-GM80-GM90-GM100 gövdelerden herhangi biri ise yukarıdaki tablodan seçilmiş olan yağ miktarına aşağıdaki değerler eklenir.

If the reduction gear inlet body is any of the following GM28-GM42-GM65-GM80-GM90-GM100 bodies, the following values are added to the oil quantity selected from the table above.

Wenn es sich bei dem Einlasskörper des Untersetzungsgetriebes um einen der folgenden GM28-GM42-GM65-GM80-GM90-GM100 Körper handelt, werden die folgenden Werte zu der aus der obigen Tabelle ausgewählten Ölmenge addiert.

GM28-GM42	GM65	GM80	GM90-GM100
0,6	1,4	2	2,8

Katalogda verilmiş olan tüm değerler litre (L) cinsindendir.

All values given in the catalog are in liters (L).

Alle im Katalog angegebenen Werte sind in Litern (L) angegeben.

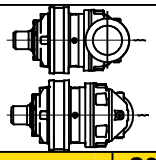
Planet redüktörlerimiz talep edilmediği sürece yağsız sevk edilecektir.

Generally, Planetary Drives are supplied without lubricant.

Im Allgemeinen werden Planetenantriebe ohne Schmiermittel geliefert.

BİLGİ / INFORMATION / INFORMATIONEN

Yağ Miktarı — Oil Quantity — Ölmenge



		Montaj pozisyonları (It) 'H2, H4' Mounting positions (It) 'H2, H4' Einbaulagen (It) 'H2, H4'							
		MS - MC	FS - FC	HS - HC	SD	SF	S	FVS - C	DKM
PDA 101	S2	-	1,5	1,5	1,5	1,5	-	2,3	1,5
	S3	-	1,7	1,7	1,7	1,7	-	2,5	1,7
	S4	-	2,0	2,0	2,0	2,0	-	2,8	2,0
PDA 103	S2	-	1,6	1,6	1,6	1,6	-	2,4	1,6
	S3	-	1,8	1,8	1,8	1,8	-	2,6	1,8
	S4	-	2,1	2,1	2,1	2,1	-	2,9	2,1
PDA 105	S2	-	2,1	2,3	1,9	2,1	2,1	4,5	2,1
	S3	-	2,3	2,5	2,1	2,3	2,3	4,7	2,3
	S4	-	2,6	2,8	2,4	2,6	2,6	5,0	2,6
PDA 107	S2	-	3,1	3,3	2,9	3,1	3,1	5,5	3,1
	S3	-	2,5	2,7	2,3	2,5	2,5	4,9	2,5
	S4	-	2,8	3,0	2,6	2,8	2,8	5,2	2,8
PDA 109	S2	-	-	5,7	5,7	5,7	-	10,7	5,7
	S3	-	-	3,6	3,6	3,6	-	8,7	3,6
	S4	-	-	3,9	3,9	3,9	-	8,9	3,9
PDA 111	S2	-	6,8	-	6,8	6,7	6,1	15,0	6,8
	S3	-	5,1	-	5,1	5,1	4,4	13,3	5,1
	S4	-	4,5	-	4,5	4,5	3,8	12,7	4,5
PDA 113	S2	7,0	6,4	-	6,4	7,1	6,4	15,3	6,4
	S3	5,4	4,8	-	4,8	5,4	4,8	13,7	4,8
	S4	4,8	4,2	-	4,2	4,8	4,2	13,1	4,2
PDA 115	S3	7,5	6,9	-	6,9	7,5	6,9	15,8	6,9
	S4	5,4	4,8	-	4,8	5,5	4,8	13,7	4,8
PDA 117	S2	13,1	13,0	-	10,7	-	10,6	13,1	10,7
	S3	10,8	10,7	-	8,4	-	8,2	10,8	8,4
	S4	9,7	9,6	-	7,3	-	7,1	9,7	7,3
PDA 119	S3	11,3	11,2	-	8,9	-	8,8	11,3	-
	S4	9,7	9,6	-	7,3	-	7,1	9,7	-
PDA 121	S2	12,2	-	-	10,2	-	10,2	12,2	-
	S3	11,0	-	-	9,1	-	9,1	11,0	-
	S4	9,4	-	-	7,4	-	7,4	9,4	-
PDA 123	S2	22,7	22,7	-	21,3	-	21,3	22,7	-
	S3	14,6	14,6	-	13,1	-	13,1	14,6	-
	S4	12,9	12,9	-	11,5	-	11,5	14,5	-
PDA 125	S2	24,1	24,1	-	22,7	-	22,7	24,1	-
	S3	20,1	20,1	-	18,8	-	18,8	20,1	-
	S4	17,7	17,7	-	16,3	-	16,3	17,7	-
PDA 127	S3	24,3	-	-	24,3	-	24,3	24,3	-
	S4	21,9	-	-	21,9	-	21,9	21,9	-
PDA 129	S3	33,2	-	-	33,2	-	33,2	33,2	-
	S4	25,0	-	-	25,0	-	25,0	25,0	-
PDA 133	S3	45,9	-	-	45,9	-	45,9	45,9	-
	S4	37,8	-	-	37,8	-	37,8	37,8	-

Giriş gövdesi aşağıdaki GM28-GM42-GM65-GM80-GM90-GM100 gövdelerden herhangi biri ise yukarıdaki tablodan seçilmiş olan yağ miktarına aşağıdaki değerler eklenir.

If the reduction gear inlet body is any of the following GM28-GM42-GM65-GM80-GM90-GM100 bodies, the following values are added to the oil quantity selected from the table above.

Wenn es sich bei dem Einlasskörper des Untersetzungsgetriebes um einen der folgenden GM28-GM42-GM65-GM80-GM90-GM100 Körper handelt, werden die folgenden Werte zu der aus der obigen Tabelle ausgewählten Ölmenge addiert.

GM28-GM42	GM65	GM80	GM90-GM100
0,3	0,7	1	1,4

Katalogda verilmiş olan tüm değerler litre (L) cinsindendir.

All values given in the catalog are in liters (L).

Alle im Katalog angegebenen Werte sind in Litern (L) angegeben.

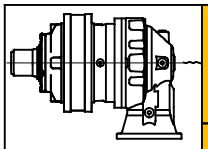
Planet redüktörlerimiz talep edilmediği sürece yağsız sevk edilecektir.

Generally, Planetary Drives are supplied without lubricant.

Im Allgemeinen werden Planetenantriebe ohne Schmiermittel geliefert.

BİLGİ / INFORMATION / INFORMATIONEN

Yağ Miktarı — Oil Quantity — Ölmenge



		Montaj pozisyonları (It) 'H3' Mounting positions (It) 'H3' Einbaulagen (It) 'H3'							
		MS - MC	FS - FC	HS - HC	SD	SF	S	FVS - C	DKM
PDA 101	S2	-	2,0	2,0	2,0	2,0	-	2,8	2,0
	S3	-	2,2	2,2	2,2	2,2	-	3,0	2,2
	S4	-	2,5	2,5	2,5	2,5	-	3,3	2,5
PDA 103	S2	-	2,1	2,1	2,1	2,1	-	2,9	2,1
	S3	-	2,3	2,3	2,3	2,3	-	3,1	2,3
	S4	-	2,6	2,6	2,6	2,6	-	3,4	2,6
PDA 105	S2	-	2,6	2,8	2,4	2,6	2,6	5,0	2,6
	S3	-	2,8	3,0	2,6	2,8	2,8	5,2	2,8
	S4	-	3,1	3,3	2,9	3,1	3,1	5,5	3,1
PDA 107	S2	-	3,7	3,9	3,5	3,7	3,7	6,1	3,7
	S3	-	3,0	3,2	2,8	3,0	3,0	5,4	3,0
	S4	-	3,3	3,5	3,1	3,3	3,3	5,7	3,3
PDA 109	S2	-	-	6,6	6,6	6,6	-	11,6	6,6
	S3	-	-	4,1	4,1	4,1	-	9,2	4,1
	S4	-	-	4,4	4,4	4,4	-	9,4	4,4
PDA 111	S2	-	8,7	-	8,7	8,2	8,0	16,9	8,7
	S3	-	5,7	-	5,7	5,6	5,0	13,9	5,7
	S4	-	5,0	-	5,0	5,0	4,3	13,2	5,0
PDA 113	S2	9,0	8,4	-	8,4	9,0	8,4	17,3	8,4
	S3	5,9	5,3	-	5,3	6,0	5,3	14,2	5,3
	S4	5,3	4,7	-	4,7	5,3	4,7	13,6	4,7
PDA 115	S3	8,4	7,8	-	7,8	8,4	7,8	16,7	7,8
	S4	5,9	5,3	-	5,3	6,0	5,3	14,2	5,3
PDA 117	S2	15,4	15,3	-	13,0	-	12,8	15,4	13,0
	S3	11,7	11,6	-	9,3	-	9,1	11,7	9,3
	S4	10,2	10,1	-	7,8	-	7,7	10,2	7,8
PDA 119	S3	13,3	13,2	-	10,9	-	10,7	13,3	-
	S4	10,2	10,1	-	7,8	-	7,7	10,2	-
PDA 121	S2	14,4	-	-	12,5	-	12,5	14,4	-
	S3	13,0	-	-	11,0	-	11,0	13,0	-
	S4	9,9	-	-	8,0	-	8,0	9,9	-
PDA 123	S2	23,6	23,6	-	22,1	-	22,1	23,6	-
	S3	16,5	16,5	-	15,1	-	15,1	16,5	-
	S4	15,4	15,4	-	13,9	-	13,9	15,4	-
PDA 125	S2	25,0	25,0	-	23,5	-	23,5	25,0	-
	S3	22,3	22,3	-	20,9	-	20,9	22,3	-
	S4	18,6	18,6	-	17,2	-	17,2	18,6	-
PDA 127	S3	26,5	-	-	26,5	-	26,5	26,5	-
	S4	22,8	-	-	22,8	-	22,8	22,8	-
PDA 129	S3	34,0	-	-	34,0	-	34,0	34,0	-
	S4	27,0	-	-	27,0	-	27,0	27,0	-
PDA 133	S3	46,8	-	-	46,8	-	46,8	46,8	-
	S4	39,7	-	-	39,7	-	39,7	39,7	-

Giriş gövdesi aşağıdaki GM28-GM42-GM65-GM80-GM90-GM100 gövdelerden herhangi biri ise yukarıdaki tablodan seçilmiş olan yağ miktarına aşağıdaki değerler eklenir.

If the reduction gear inlet body is any of the following GM28-GM42-GM65-GM80-GM90-GM100 bodies, the following values are added to the oil quantity selected from the table above.

Wenn es sich bei dem Einlasskörper des Untersetzungsgetriebes um einen der folgenden GM28-GM42-GM65-GM80-GM90-GM100 Körper handelt, werden die folgenden Werte zu der aus der obigen Tabelle ausgewählten Ölmenge addiert.

GM28-GM42	GM65	GM80	GM90-GM100
0,6	1,4	2	2,8

Katalogda verilmiş olan tüm değerler litre (L) cinsindendir.

All values given in the catalog are in liters (L).

Alle im Katalog angegebenen Werte sind in Litern (L) angegeben.

Planet redüktörlerimiz talep edilmediği sürece yağsız sevk edilecektir.

Generally, Planetary Drives are supplied without lubricant.

Im Allgemeinen werden Planetenantriebe ohne Schmiermittel geliefert.

BİLGİ/ INFORMATION / INFORMATIONEN

Yardımcı Soğutma

Yardımcı soğutma sisteminin temel bileşenleri şunlardır; bir yağ-hava ısı eşanjörü, bir dişli pompa (sabit deplasman tipi), bir elektrik motoru, bir döner filtre (60 mm filtreleme derecesine sahip), pompa ile eş eksenli bir fan ve redüktöre takılacak iki termostat ; biri minimum sistem başlatma sıcaklığı için bir set, bu da soğutma ünitesinin 60 °C sıcaklığa ulaşana kadar çalışmasını önler. Bir diğeri ise maksimum sıcaklığa ayarlanmıştır, bu sıcaklık aşılırsa bir alarm verilebilir veya redüktör durdurulur, aynı zamanda sistem basıncı da ölçülür.

Ek olarak, dikey eksenli montaj pozisyonları için ve elbette, redüktör tamamen yağlayıcı ile doldurulduğunda, bir genleşme tankı monte edilmelidir.
Bu durumlarda YGT 250 genleşme deposunu kullanmanızı öneririz.

Talep edilmesi halinde isteğe bağlı parçalar temin edilebilir.
- Yağ geçişini gösteren bir akış ölçer,
- Bir elektrik kontağının anahtarlanmasıyla redüktör içindeki aşırı basınçları gösteren bir basınç şalteri;
- Sürekli kontrol ünitesi sıcaklığının ayarlanabilmesi için kullanılan baypas valfi
- Farklı filtreleme seçenekleri (10,25,90 ve 125µm);
- Termostat farklı çalışma sıcaklıkları için (40°C veya 50°C)

Elektrik kontaklarının ve hidrolik devrenin ve bunun için gereken tüm malzemelerin bağlantısı müşterinin sorumluluğundadır.

En uygun sistemin seçimi, dağıtmanız gereken termal güç Ps'sine ve redüksiyon dişlisi içindeki yağın sıcaklığı (t_R) ile ortam sıcaklığı arasındaki farkına (Δt) dayanarak yapılmalıdır. Size yardımcı olması için bu grafiği kullanınız.
$\Delta t = t_R - t_a$
t_R:Redüktör içindeki istenen yağ sıcaklığı
t_a:Ortam sıcaklığı

Auxilary Cooling

Fundamental components of the auxiliary cooling system are: an oil-air heat exchanger, a gear pump (constant displacement type), an electric motor, a spin-on filter (with a filtering degree of 60 mm), a fan coaxial with the pump and two thermostats to install on the reduction gear, one set for the minimum system start-up temperature, which prevents the cooling unit starting until a temperature of 60°C is reached, and the other set for a maximum temperature which, when exceeded, can trigger an alarm and/or stop the reduction gear working and a gauge to see delivery pressure.

In addition, for the assembly positions with a vertical axis and, of course, wherever the reduction gear is filled up completely with lubricant, an expansion tank has to be mounted.
In these cases we recommend using the YGT 250 expansion tank.

On request optional components can be supplied, such as:
- A flow meter so as to have a visual of the oil's passage;
- A pressure switch to indicate overpressures inside the reduction gear by the switching of an electrical contact;
- Control unit with continuous adjustment of the temperature by means of a bypass valve;
- Filter with a different filtering degree (10,25,90 or 125µm);
- Thermostat with different start-up temperature (either 50°C or 40°C)

Connection of the electrical contacts and hydraulic circuit and all the material needed for it are the responsibility of the customer.

The choice of the most suitable system must be made based on the thermal power Ps you need to dissipate and on the Δt difference between the temperature of the oil inside the reduction gear t_R and ambient temperatureta, using this graph to help you.

Hilfskühlung

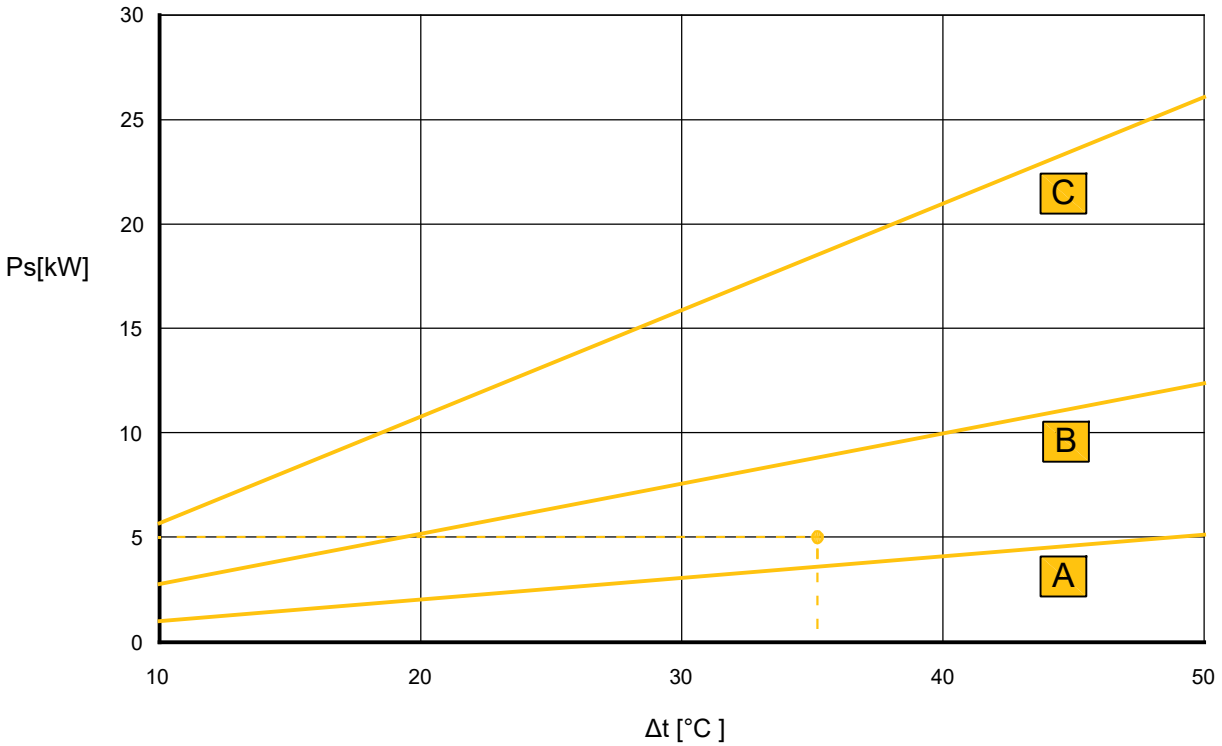
Die wesentlichen Bestandteile des Hilfskühlsystems sind: ein Öl-Luft-Wärmetauscher, eine Zahnradpumpe (Konstantverdränger), ein Elektromotor, ein Wechselfilter (mit einem Filtergrad von 60 mm), ein zur Pumpe koaxialer Lüfter und zwei Thermostate zur Installation auf dem Untersetzungsgetriebe, von denen einer auf die minimale Systemanlauftemperatur eingestellt ist, die das Anlaufen des Kühlaggregats bis zum Erreichen einer Temperatur von 60°C verhindert, und der andere auf eine maximale Temperatur, bei deren Überschreitung ein Alarm ausgelöst und/oder der Betrieb des Untersetzungsgetriebes unterbrochen werden kann, sowie ein Manometer zur Anzeige des Förderdrucks.

Darüber hinaus muss für die Montagepositionen mit vertikaler Achse und natürlich überall dort, wo das Untersetzungsgetriebe vollständig mit Schmiermittel gefüllt ist, ein Ausdehnungsgefäß montiert werden.
In diesen Fällen empfehlen wir den Einsatz des Ausdehnungsgefäßes YGT 250.

Auf Wunsch können optionale Komponenten geliefert werden, wie z.B:
- Ein Durchflussmesser, um den Durchfluss des Öls sichtbar zu machen;
- Ein Druckschalter zur Anzeige von Überdrücken im Inneren des Untersetzungsgetriebes durch Schalten eines elektrischen Kontakts;
- Steuereinheit mit kontinuierlicher Einstellung der Temperatur durch Mittel eines Bypass-Ventils;
- Filter mit unterschiedlichem Filtergrad (10,25,90 oder 125µm);
- Thermostat mit unterschiedlichem Anlauf Temperatur (entweder 50°C oder 40°C)

Der Anschluss der elektrischen Kontakte und des Hydraulikkreislaufs sowie alle dafür benötigten Materialien liegen in der Verantwortung des Kunden.
Die Wahl des am besten geeigneten Systems muss auf der Grundlage der Wärmeleistung Ps, die Sie abführen müssen, und der Δt Differenz zwischen der Temperatur des Öls im Inneren des Untersetzungsgetriebes t_R und der Umgebungstemperaturta getroffen werden, wobei Ihnen diese Grafik als Hilfe dient.

BİLGİ/ INFORMATION / INFORMATIONEN



Örnek

Yardımcı bir soğutma sistemin termal güç Ps=5 kW için kullanıldığını düşünelim. Redüktör çalışma sıcaklığı 65°C ortam sıcaklığı 30°C'dir. Bu durumda sıcaklık farkı Δ_t=65-30=35°C bulunur. Δ_t ekseninde 35 ile Ps eksenindeki 5 kesiştirilirse bulunan noktanın B bölgesinde olduğu görülürki uygun soğutma B tipidir.

Yardımcı soğutma sisteminin hidrolik bağlantısı, yağı en düşük noktadan (montaj pozisyonları şekillerindeki nokta (3)) alıp en uzak noktaya iletebilecek şekilde yapılmalıdır. Giriş deliği, pompanın akışından kurtulmak için yeterince büyük değilse, kavitasyon riskine karşı garanti etmek için iki veya daha fazla giriş noktası öngörülmelidir. Örneğin, çok kademeli redüktörlerde, dağıtım için iki veya daha fazla bağlantı deliği kullanılabilir.

Example

An auxiliary cooling system has to be sized to get rid of a thermal power of Ps = 5 kW from a reduction gear working at an operating temperature of 65°C with an ambient temperature of 30°C. Finding the abscissa Δ_t=65-30=35°C and ordinate Ps = 5 kW, point on the graph, it comes in the area marked with B. This means that the suitable system is, in fact, the B.

The hydraulic connection of the auxiliary cooling system must be done so as to intake the oil (and any detritus) from the lowest point (point (3) in the assembly positions figures) and have the delivery from a point far enough away from the intake to facilitate changing the oil from inside the reduction gear. If the intake hole is not big enough to get rid of the pump's flow, two or more intake points must be foreseen to guarantee against the risk of cavitation. Two or more connection holes may also be used for delivery, for example, in the case of multi-stage reduction gears.

Beispiel

Ein Hilfskühlsystem muss so dimensioniert sein, dass es eine Wärmeleistung von Ps = 5 kW von einem Untersetzungsgetriebe, das bei einer Betriebstemperatur von 65°C bei einer Umgebungstemperatur von 30°C arbeitet. Findet man die Abszisse Δt=65-30=35°C und die Ordinate Ps = 5 kW, Punkt auf der Grafik, kommt sie in den mit B markierten Bereich. Dies bedeutet, dass das geeignete System tatsächlich das B ist.

Der hydraulische Anschluss des Hilfskühlsystems muss so erfolgen, dass das Öl (und eventueller Detritus) vom tiefsten Punkt (Punkt (3) in den Abbildungen der Montagepositionen) angesaugt wird und die Abgabe von einem Punkt erfolgt, der weit genug vom Ansaugstutzen entfernt ist, um den Ölwechsel vom Inneren des Untersetzungsgetriebes aus zu erleichtern. Wenn die Ansaugbohrung nicht groß genug ist, um den Förderstrom der Pumpe loszuwerden, müssen zwei oder mehr Ansaugpunkte vorgesehen werden, um die Kavitationsgefahr zu vermeiden. Zwei oder mehr Anschlussbohrungen können auch zur Förderung verwendet werden, z.B. bei mehrstufigen Untersetzungsgetrieben.

BİLGİ / INFORMATION / INFORMATIONEN

Soğutma Sistemi Montaj Örnekleri

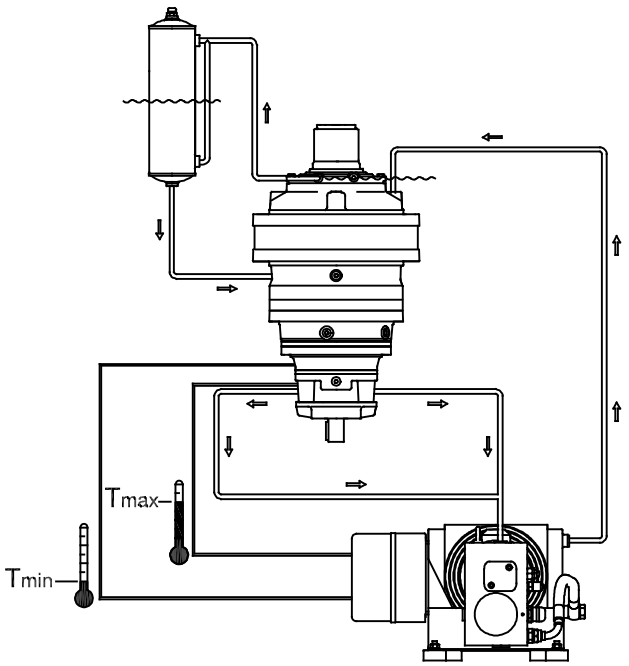
Yardımcı soğutma sisteminin montaj pozisyonlarına göre bağlantı şekillerine birkaç örnek görülmektedir. Burada, sistemin çalışmasını düzenleyen termostatların emme ve dağıtım hidrolik bağlantılarını da görebilirsiniz. Dağıtım borularının büyüklüğü arasındaki mesafeyi hesaba katarak soğutma ünitesi ve redüksiyon dişlisi, (30°C -90°C) çalışma sıcaklığı aralığında 2-3 barlık genel hat basınç düşüşünü aşmamaya dikkat ediniz.

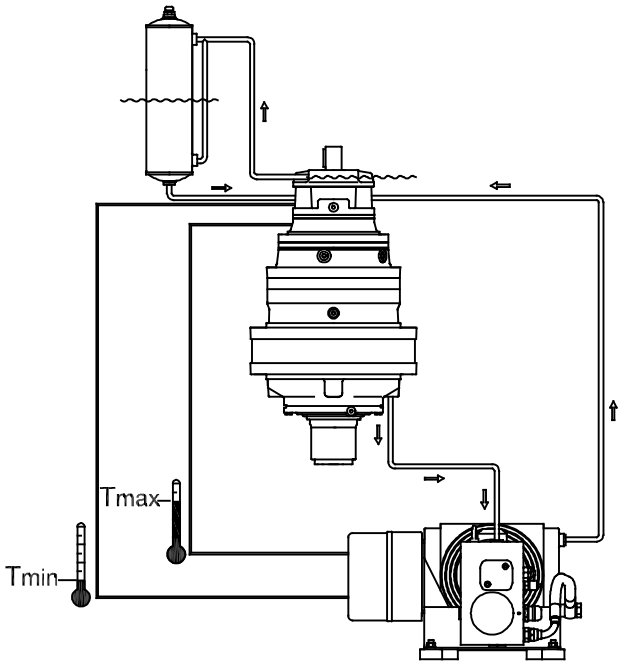
Cooling System Mounting Examples

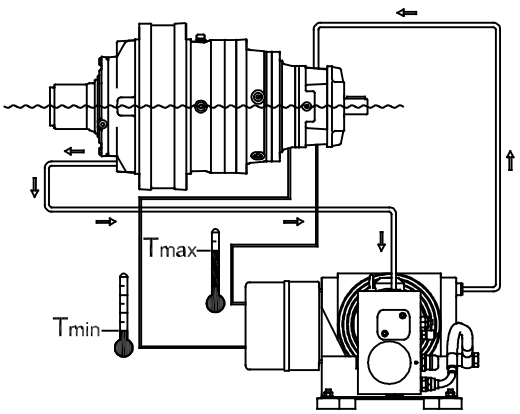
The figure gives a few examples of connecting the auxiliary cooling system to the reduction gear, where you can see
the intake and delivery hydraulic connections of the thermostats that regulate system operation.
The size of the delivery pipes must take
into account the distance between the
cooling unit and the reduction gear, being careful not to exceed an overall line pressure drop of 2-3 bar in the operating temperature range (30°C -90°C).

Kühlanlage Einbaumöglichkeiten

Die Abbildung zeigt einige Beispiele für den Anschluss der Hilfskräfte Kühlsystem zum Untersetzungsgetriebe, wo man die hydraulischen Einlass- und Auslassanschlüsse Anschlüsse der Thermostate, die den Betrieb des Systems regeln, sehen kann.
Die Größe der Druckleitungen muss den Abstand zwischen dem Kühlaggregat und dem Untersetzungsgetriebe berücksichtigen, wobei darauf zu achten ist, dass ein Gesamtdruckabfall der Leitung von 2-3 bar im Betriebstemperaturbereich (30°C -90°C) nicht überschritten wird.







BİLGİ/ INFORMATION / INFORMATIONEN

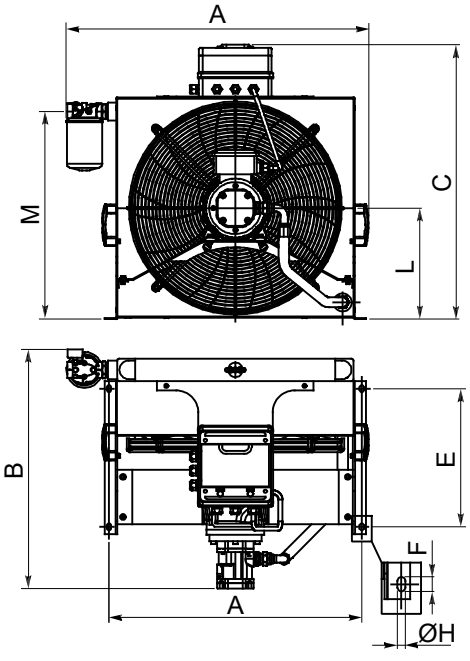
Eşanjör — Heat Exchanger — Wärmeaustauscher

		A	B	C
Yağ Debisi Oil Flow Rate Öl-Durchflussrate	[l/min]	8	10	23
Isıl Güç Kapasitesi Thermal Power Dissipated Thermische Verlustleistung (per/where/für Dt=t_R-T_a=40°C)	[kW]	4	10	20
Hava Debisi Air Flow Rate Luftdurchsatz	[m³/h]	200	4080	4500
Güç Tüketimi Power Consumption Leistungsaufnahme	[kW]	5	0,75	1,1
Maksimum Basınç Maximum Pressure Maximaler Druck	[bar]	6	6	6
Voltaj Power Voltage Leistung Spannung	[V]	230/400	230/400	230/400
Güç Frekansı Power Frequency Leistung Frequenz	[Hz]	50/60	50/60	50/60
Koruma Sınırı Protection level Schutzniveau	IP	55	55	55
PDS KODU PDS Riduttori Code PDS-Getriebe-Code	[-]	EA	EB	EC

Eşanjör yardımı ile kazanılan ısıl güç ISO VG 150 yağ vizkozitesi ile deniz seviyesindeki değerlerdir.

Power dissipated by the exhanger with oil viscosity:ISO VG 150 at 0 metres above sea level

Verlustleistung des Wärmetauschers mit Ölviskosität: ISO VG 150 in 0 m Höhe über dem Meeresspiegel



	A	B	C	D	E	F	ØH	L	M
EA	465	537	418,5	347	280	20	9	179,5	273,5
EB	682	549	616,5	555	300	20	9	278,5	471,5
EC	830	657	755	695	380	20	9	305	570,5

D,E,F,H: 4 sabitleme deliğin boyutları
D,E,F,H: Dimensions for the 4 fixing holes
D,E,F,H: Abmessungen für die 4 Befestigungslöcher

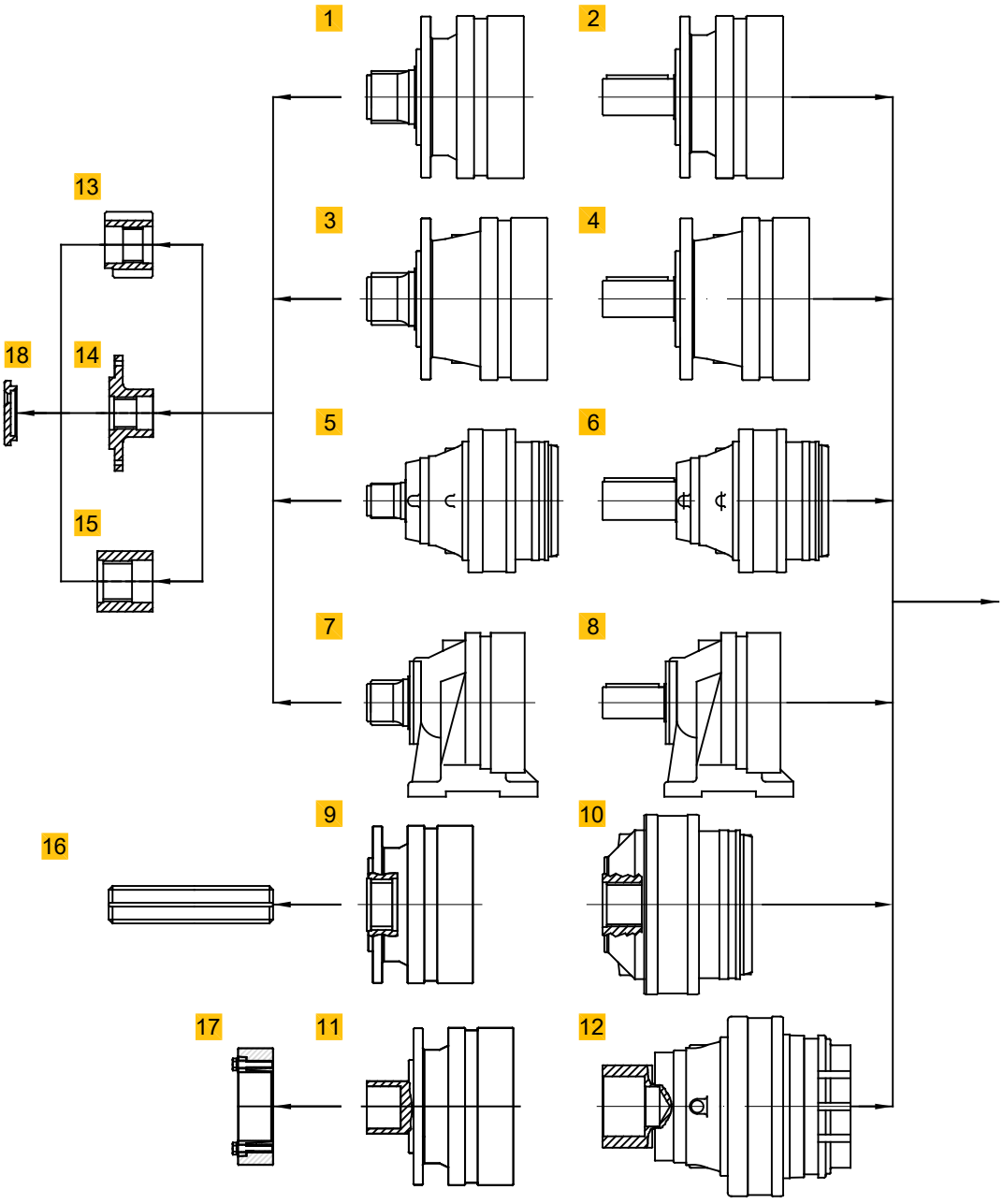
Redüktör Seçenekleri | Gearbox Options | Getriebe Optionen

Çıkış Tipleri / Output Types / Output-Typen

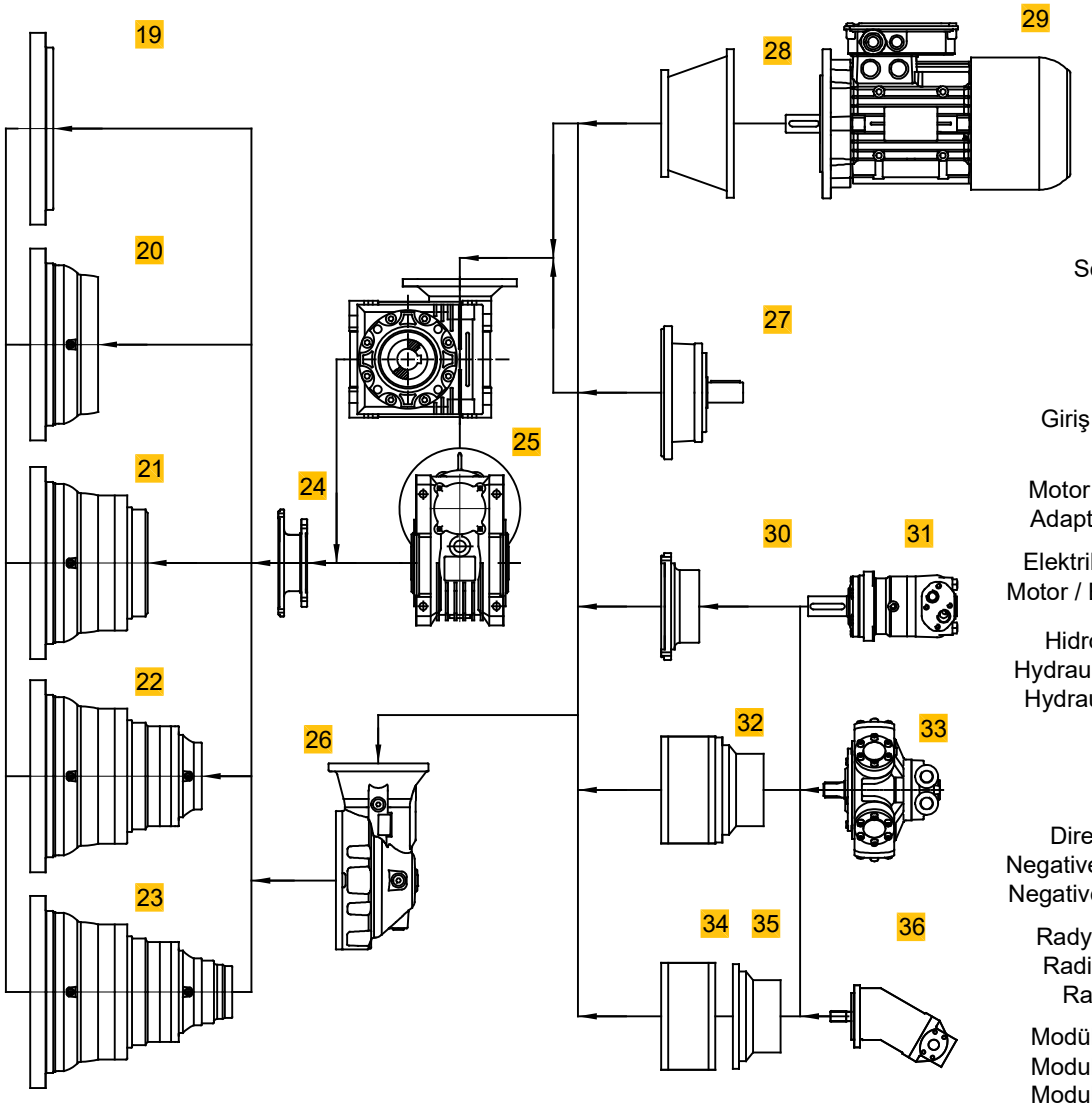
1 FS
2 FC
3 HS
4 HC
5 MS
6 MC
7 FVS
8 FVC
9 SF
10 S
11 SDF
12 SD

Aksesuarlar / Accessories / Zubehör

13 PA / PB
14 FL
15 FK
16 FM
17 SB
18 SP



Redüktör Seçenekleri | Gearbox Options | Getriebe Optionen



Redüktör kademeleri / Reduction Stages/ Stufenanzahl

S1 19
S2 20
S3 21
S4 22
S5 23

Adaptör / Adapter / 24

Sonsuz vida / Worm gear / Schneckengetriebe 25

Ayna Mahruti / Bevel gear / Kegelradgetriebe 26

Giriş mili / Input shaft / Antriebswelle 27

Motor Adaptorü / Motor Adapter / Motor Adapter 28

Elektrik Motoru / Electric Motor / Elektrischer Motor 29

Hidromotor adaptörü / Hydraulıcmotor adapter / Hydraulikmotor-Adapter 30

Orbit motor / Orbital motor / Orbitaler motor 31

Direk fren adaptörü / Negative brake adapter / Negativer Bremsadapter 32

Radyal piston motor / Radial piston motor / Radialkolbenmotor 33

Modüler fren adaptörü/ Modular break adapter/ Modularer Bremsadapter 34

Hidromotor adaptör / Hydraulıcmotor adapter / Hydraulikmotor adapter 35

Aksiyel piston motor / Axial piston motor / Axialkolbenmotor 36

BİLGİ/ INFORMATION / INFORMATIONEN

Sipariş Kodlaması — Ordering Code — Um Encoding

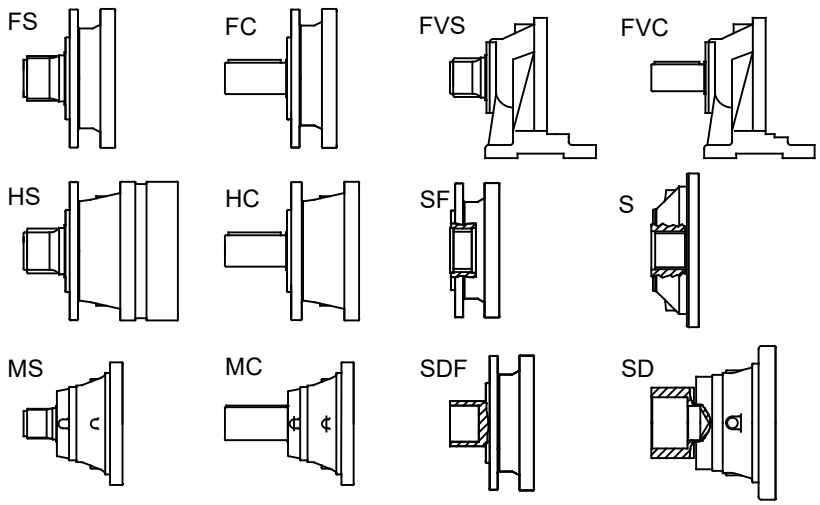
REDÜKTÖR / GEAR UNIT / GETRIEBE

P	D			1	0	1		S1		F	V	S		1	5	.	2	0

Tahvil oranı / Gear Ratio / Getriebeverhältniss

Teknik sayfalara bakınız / See technical sheets / Siehe technische Blätter

Çıkış tipi / Output version / Abtriebsversion



Redüktör kademesi / Reductions / N°Stufen

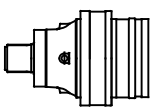
S1 , S2 , S3 , S4 , S5 , S6 ...

Redüktör boyutu / Gearbox frame size / Getriebebaugrösse

101,103,105,107,109,111,113,115,117,119,121,123,125,127,129, 131,133,135,137,139,141,143,145

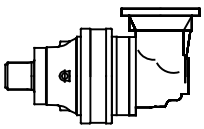
Redüktör tipi / Type of reduction unit / Bauform der Getriebestufen

PD



Planet dişli redüktör
Inline gearbox
Inline Getriebe

PDA



Ayna mahruti girişli planet dişli redüktör
Bevel stages planetary gear unit
Kegelstufen-Planetengetriebe

BİLGİ/ INFORMATION / INFORMATIONEN

Sipariş Kodlaması — Ordering Code — Um Encoding

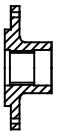
AKSESUARLAR / FITTINGS / BAUTEILE

G	M			V	1			P	B					

Çıkış Aksesuarları / Output Fittings / Abtriebs-Armaturen

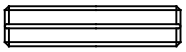
PA / PB 

SP 

FL 

FK 

SB 

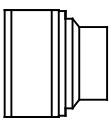
FM 

Çıkış aksesuarları için ilerideki teknik sayfalara bakınız. / For detailed information of output accesories see data pages. / Detaillierte Informationen zum Ausgabezubehör finden Sie auf den Datenseiten.

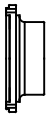
MONTAJ POZİSYONU / MOUNTING POSITION / EINBAULAGEN

27

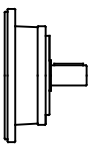
GİRİŞ / INPUT / EINGANG



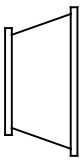
FNA 244



HMA 248



GM 250

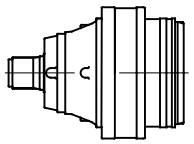


H 252

SRA 

253

PD 101



	i	T_2[Nm] n2xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 101 S1	3.55	1244	1100	945	832	2800	2220	12
	4.28	1244	1100	945	832	2800	2220	12
	5.60	901	800	683	601	2800	1590	12
	6.75	799	700	606	539	2800	1402	12
	8.67	512	450	388	343	2800	925	12
PD 101 S2	12.6	1244	1100	945	832	2800	2220	8
	15.2	1244	1100	945	832	2800	2220	8
	19.9	1244	1100	945	832	2800	2220	8
	24.0	1244	1100	945	832	2800	2220	8
	28.9	1244	1100	945	832	2800	2220	8
	31.4	901	800	683	601	2800	1590	8
	37.8	901	800	683	601	2800	1590	8
	45.6	799	700	606	539	2800	1402	8
	58.5	799	700	606	539	2800	1402	8
PD 101 S3	45.0	1244	1100	945	832	2800	2220	5
	54.2	1244	1100	945	832	2800	2220	5
	65.3	1244	1100	945	832	2800	2220	5
	70.8	1244	1100	945	832	2800	2220	5
	78.7	1244	1100	945	832	2800	2220	5
	85.3	1244	1100	945	832	2800	2220	5
	102.8	1244	1100	945	832	2800	2220	5
	111.5	1244	1100	945	832	2800	2220	5
	134.4	1244	1100	945	832	2800	2220	5
	162.0	1244	1100	945	832	2800	2220	5
	172.6	1244	1100	945	832	2800	2220	5
	208.0	901	1100	683	601	2800	1590	5
	211.6	901	800	683	601	2800	1590	5
	250.7	1244	1100	945	832	2800	2220	5
	255.2	901	800	683	601	2800	1590	5
	271.7	901	800	683	601	2800	1590	5
	307.6	799	700	606	539	2800	1402	5
	327.6	901	800	683	601	2800	1590	5
	394.9	799	700	606	539	2800	1402	5
PD 101 S4	337.1	1244	1100	945	832	2800	2220	1.5
	365.7	1244	1100	945	832	2800	2220	1.5
	396.5	1244	1100	945	832	2800	2220	1.5
	440.7	1244	1100	945	832	2800	2220	1.5
	477.9	1244	1100	945	832	2800	2220	1.5
	531.1	1244	1100	945	832	2800	2220	1.5
	575.9	1244	1100	945	832	2800	2220	1.5
	624.4	1244	1100	945	832	2800	2220	1.5
	694.2	1244	1100	945	832	2800	2220	1.5
	752.6	1244	1100	945	832	2800	2220	1.5
	836.6	1244	1100	945	832	2800	2220	1.5
	907.1	1244	1100	945	832	2800	2220	1.5
	966.4	1244	1100	945	832	2800	2220	1.5
	1093.5	1244	1100	945	832	2800	2220	1.5
	1144.4	1244	1100	945	832	2800	2220	1.5
	1185.4	901	800	683	601	2800	1590	1.5
	1317.8	1244	1100	945	832	2800	2220	1.5
	1404.0	1244	1100	945	832	2800	2220	1.5
	1522.0	901	800	683	601	2800	1590	1.5
	1692.0	1244	1100	683	832	2800	2220	1.5

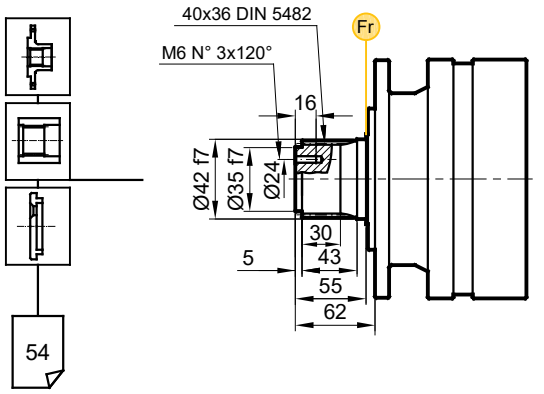
PDA 101

	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PDA 101 S2	10.4	1244	1100	945	832	2800	2220	8
	12.6	1244	1100	945	832	2800	2220	8
	16.4	901	800	683	601	2800	1590	8
	19.8	799	700	606	539	2800	1402	8
PDA 101 S3	37.0	1244	1100	945	832	2800	2220	5
	44.6	1244	1100	945	832	2800	2220	5
	53.8	1244	1100	945	832	2800	2220	5
	58.4	1244	1100	945	832	2800	2220	5
	70.3	1244	1100	945	832	2800	2220	5
	84.8	1244	1100	945	832	2800	2220	5
	91.9	901	800	683	601	2800	1590	5
	110.8	901	800	683	601	2800	1590	5
	133.5	799	700	606	539	2800	1402	5
	171.4	799	700	606	539	2800	1402	5
PDA 101 S4	131.7	1244	1100	945	832	2800	2220	1.5
	158.7	1244	1100	945	832	2800	2220	1.5
	191.3	1244	1100	945	832	2800	2220	1.5
	207.4	1244	1100	945	832	2800	2220	1.5
	230.5	1244	1100	945	832	2800	2220	1.5
	250.0	1244	1100	945	832	2800	2220	1.5
	301.3	1244	1100	945	832	2800	2220	1.5
	326.7	1244	1100	945	832	2800	2220	1.5
	363.1	1244	1100	945	832	2800	2220	1.5
	393.8	1244	1100	945	832	2800	2220	1.5
	474.7	1244	1100	945	832	2800	2220	1.5
	505.6	1244	1100	945	832	2800	2220	1.5
	514.6	901	800	683	601	2800	1590	1.5
	609.4	1244	1100	945	832	2800	2220	1.5
	734.5	1244	1100	945	832	2800	2220	1.5
	796.3	901	800	683	601	2800	1590	1.5
	959.9	901	800	683	601	2800	1590	1.5
	1157.0	799	700	606	539	2800	1402	1.5
	1232.4	901	800	683	601	2800	1590	1.5
	1485.5	799	700	606	539	2800	1402	1.5

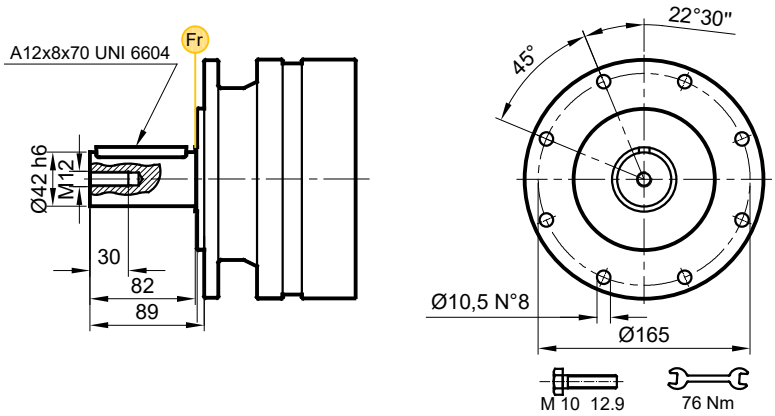
⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

PD/PDA 101

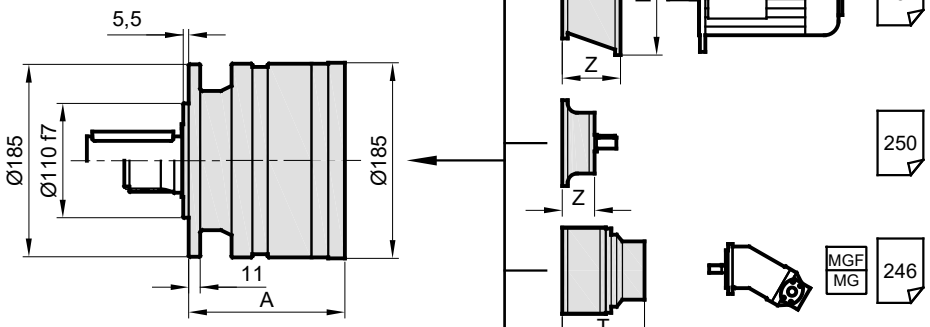
FS



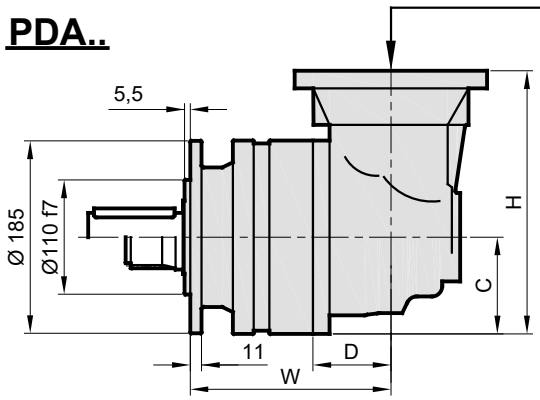
FC

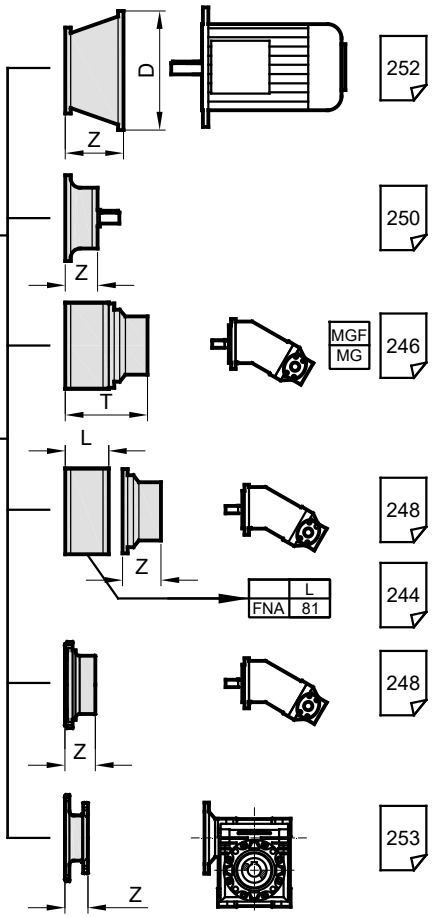


PD..



PDA..

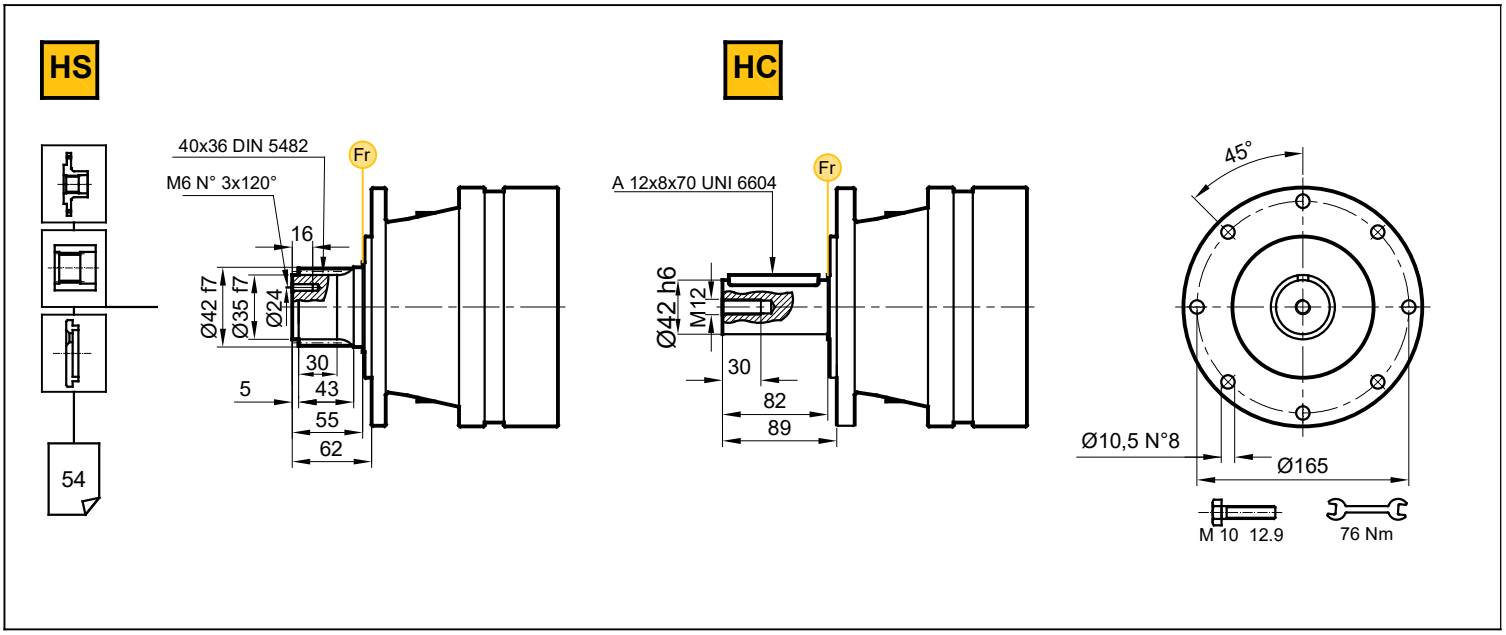


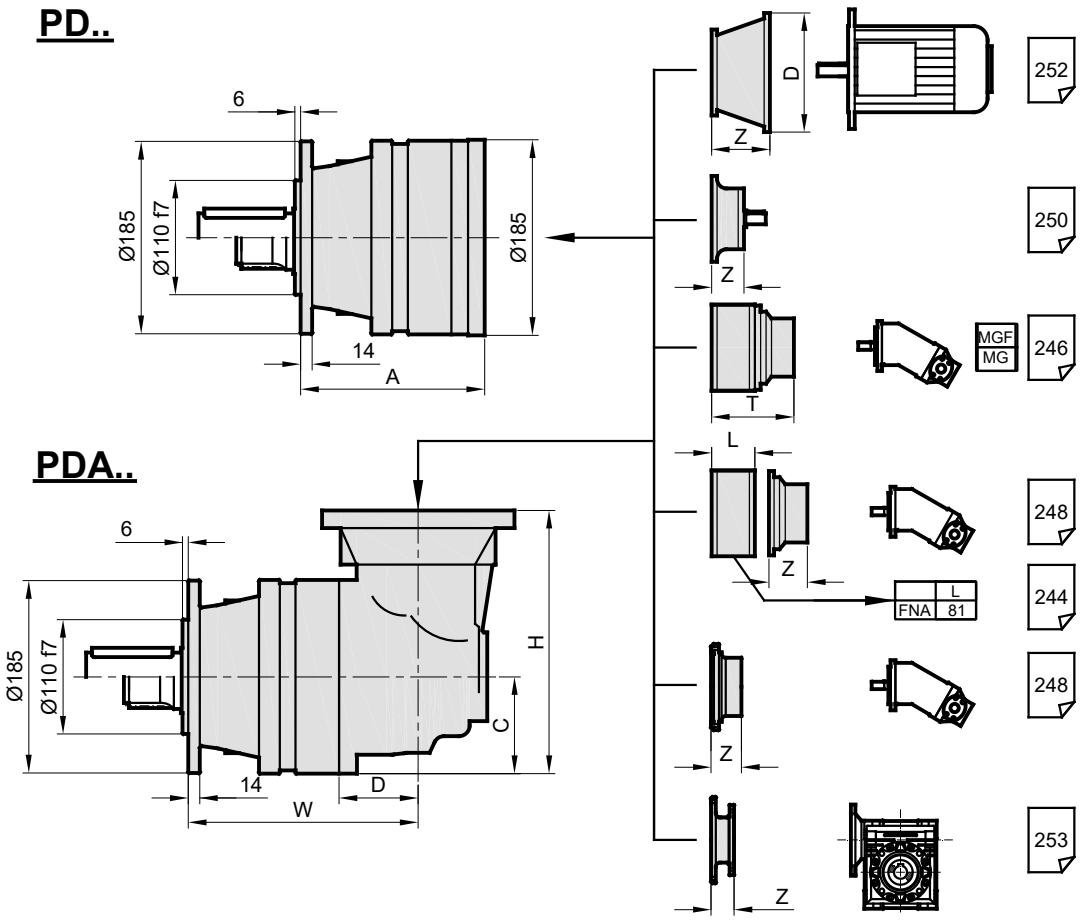


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	105	13,9	-
S2	180	75	92,5	253,5	153	20,1	31,1
S3	228	75	92,5	253,5	201	26,4	37,3
S4	276	75	92,5	253,5	249	32,7	43,6

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 101

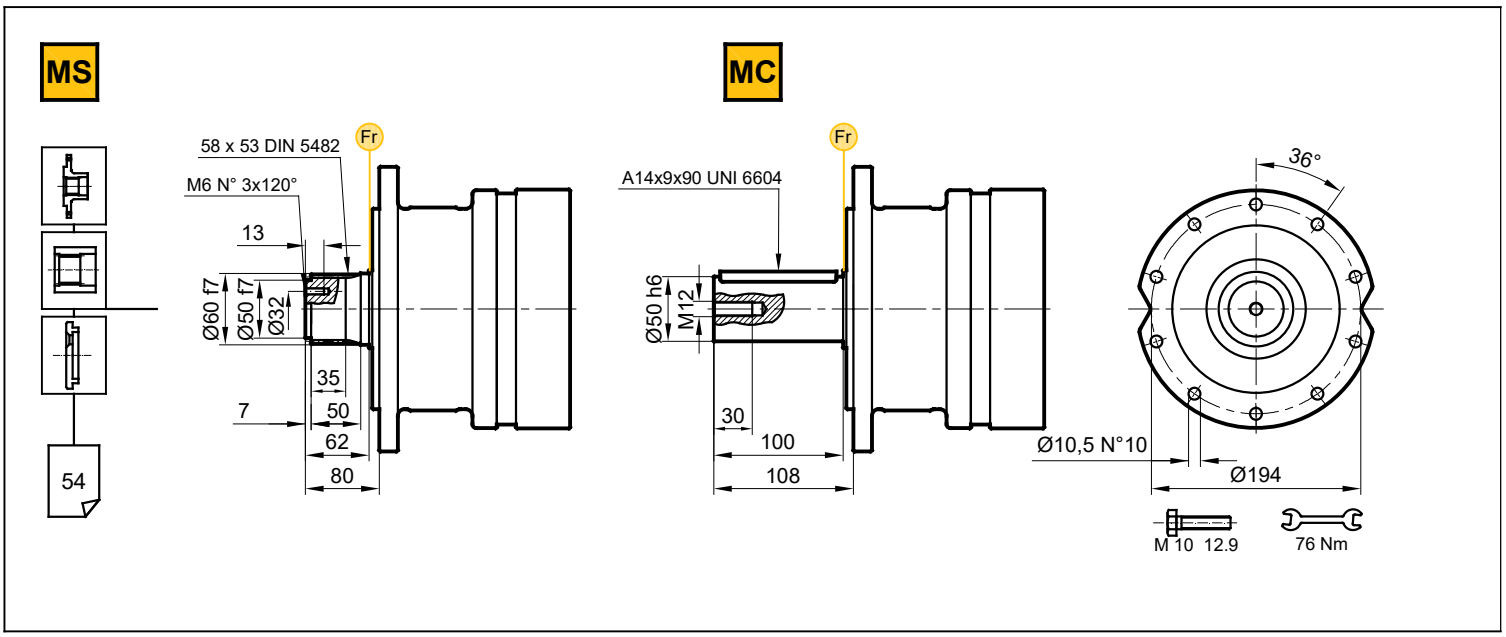


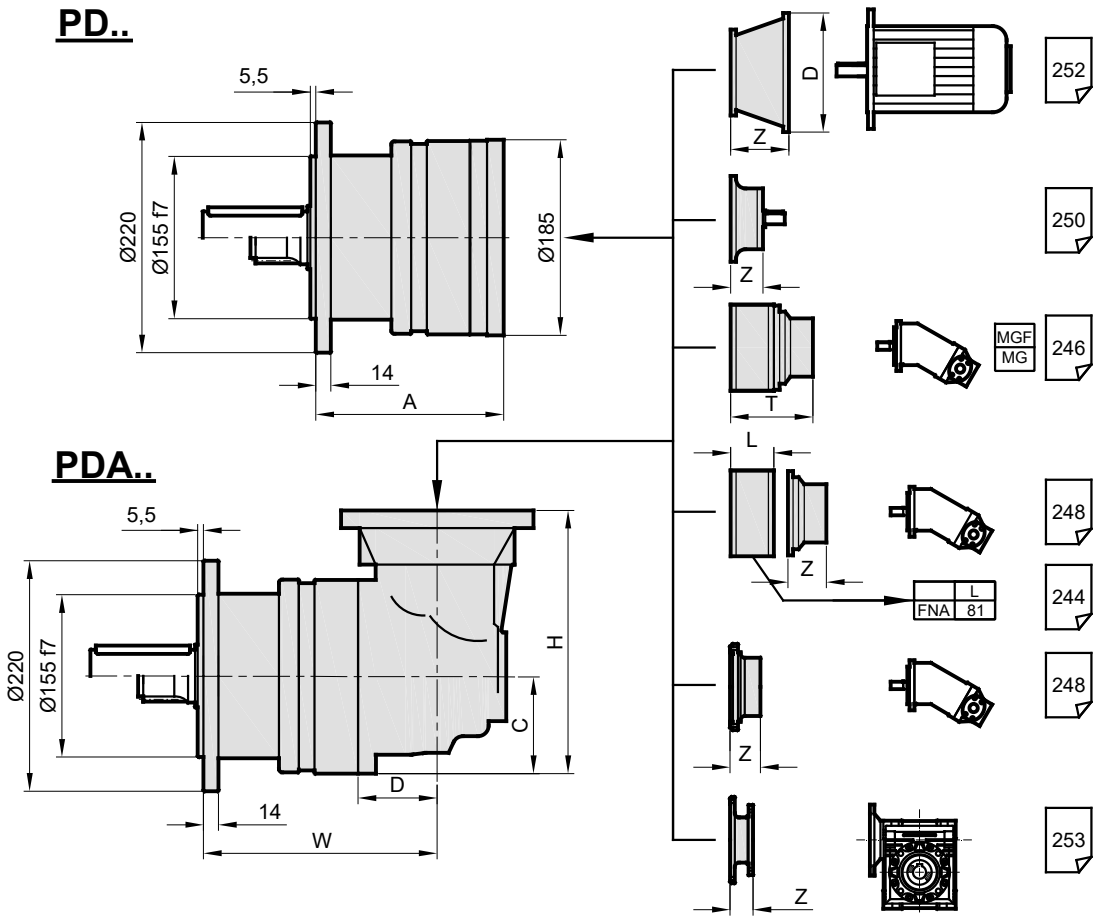


Stage	W	D	C	H	A	PD H	PDA H
S1	-	-	-	-	135	15,4	-
S2	210	75	92,5	253,5	183	21,7	32,6
S3	258	75	92,5	253,5	231	28,1	38,9
S4	306	75	92,5	253,5	279	34,3	45,3

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 101



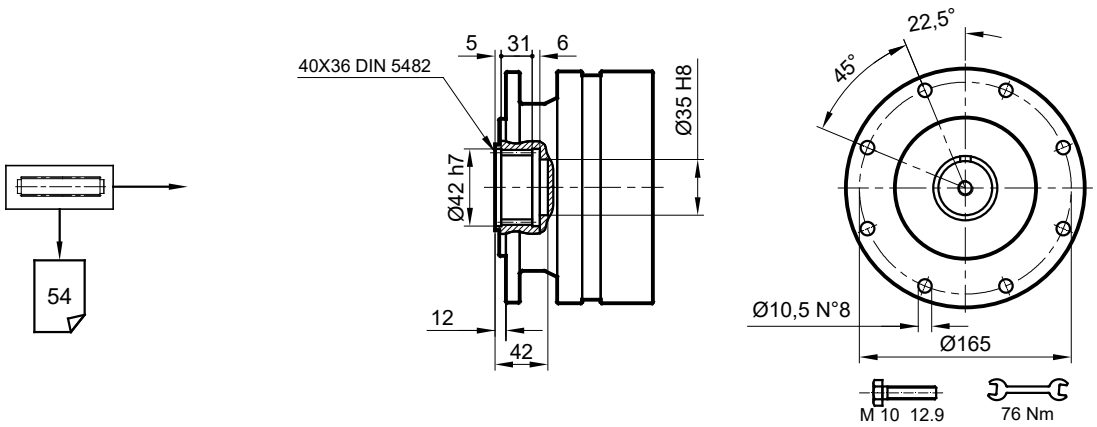


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	135	17,8	-
S2	210	75	92,5	253,5	183	24,1	35
S3	258	75	92,5	253,5	231	30,4	41,3
S4	306	75	92,5	253,5	279	36,7	47,6

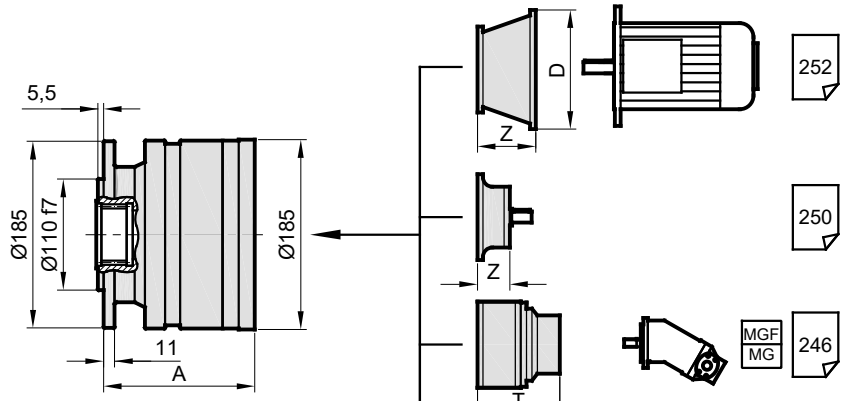
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 101

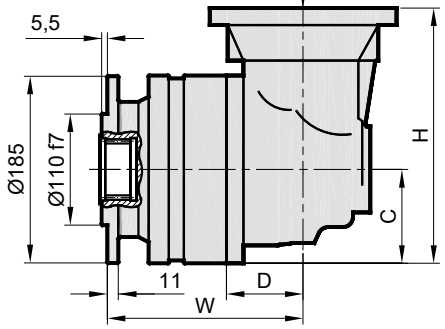
SF



PD..



PDA..

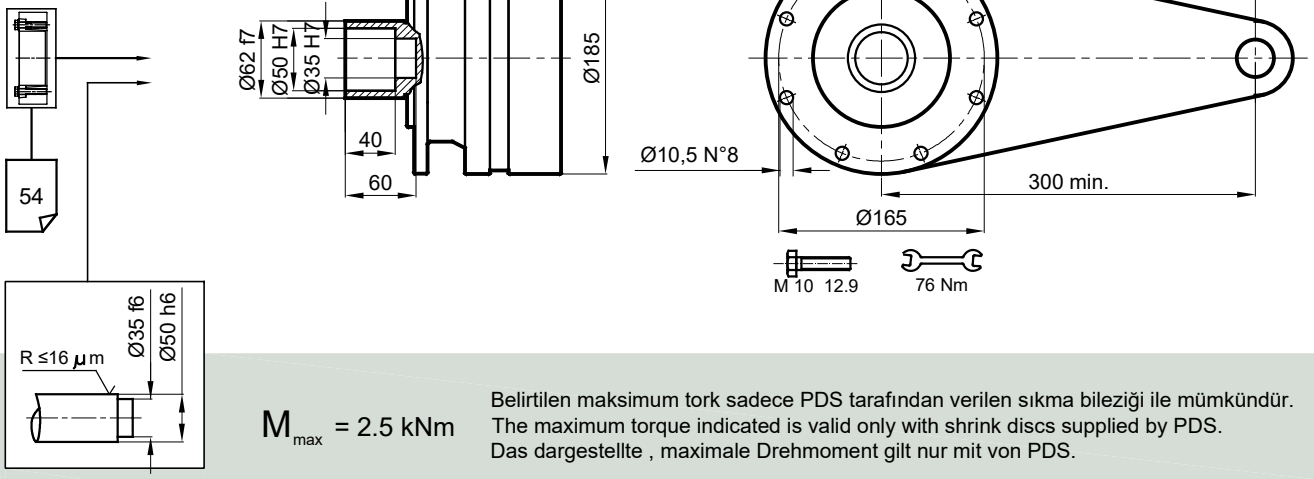


Stage	W	D	C	H	A	PD SF	PDA SF
S1	-	-	-	-	105	12,1	-
S2	180	75	92,5	253,5	153	17,9	29,3
S3	228	75	92,5	253,5	201	24,8	35,1
S4	276	75	92,5	253,5	249	31	42

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 101

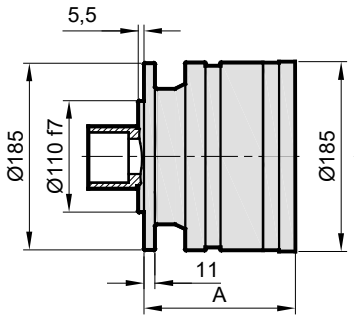
SDF



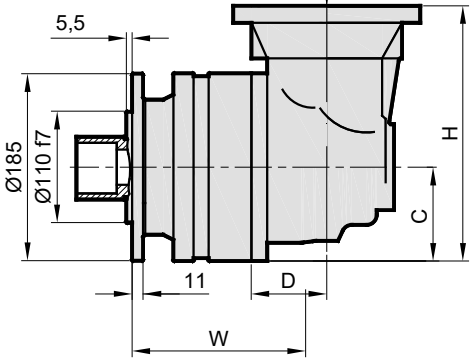
M_{max} = 2.5 kNm

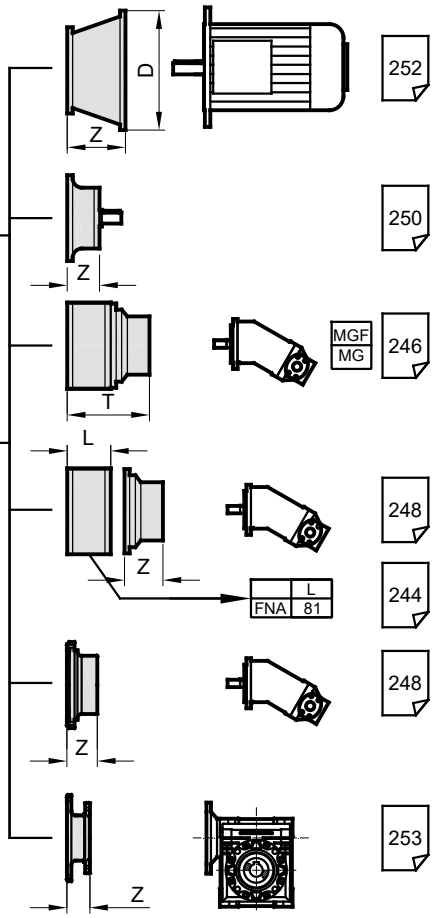
Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..



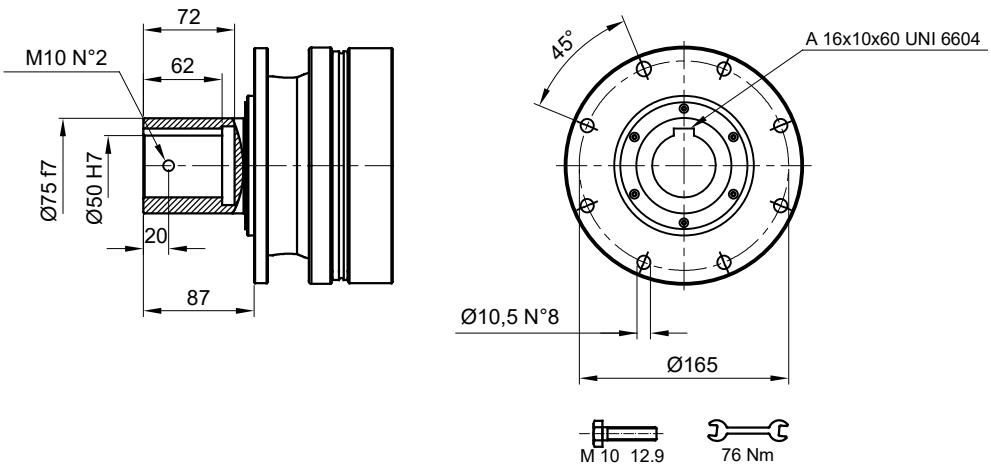


Stage	W	D	C	H	A	PD SDF	PDA SDF
S1	-	-	-	-	105	13,5	-
S2	180	75	92,5	253,5	153	19,7	30,7
S3	228	75	92,5	253,5	201	26	36,9
S4	276	75	92,5	253,5	249	32,3	43,1

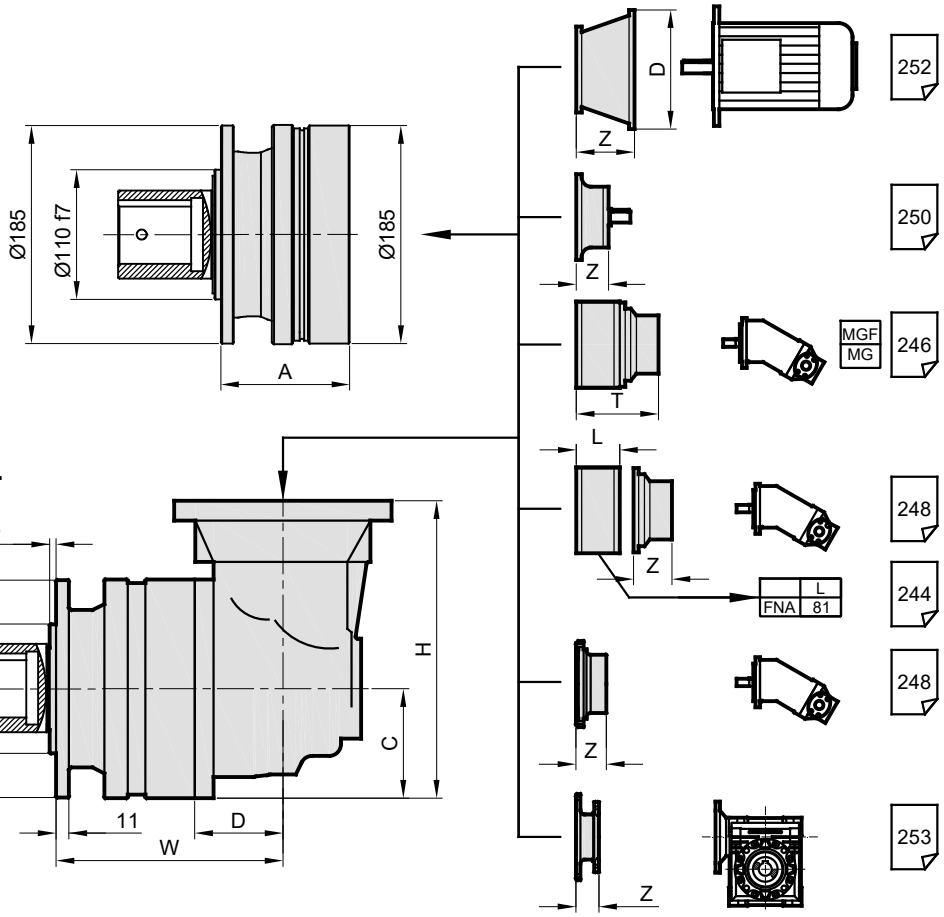
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 101

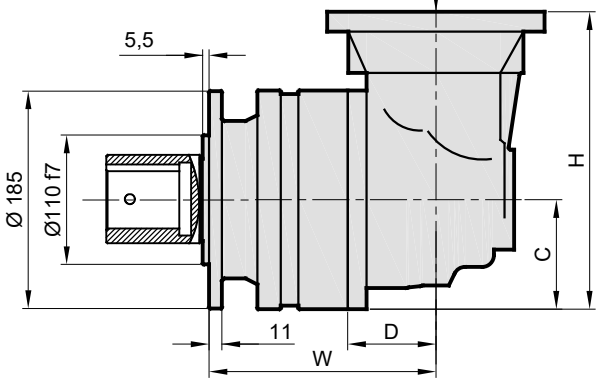
DKM



PD..



PDA..

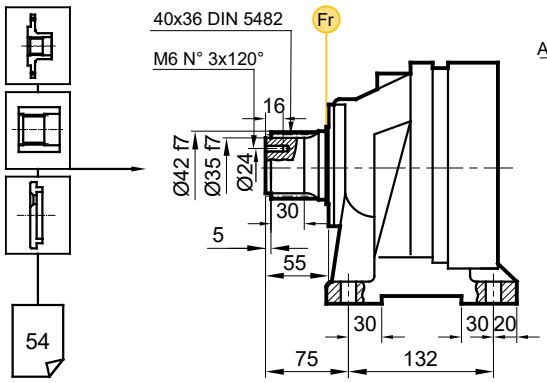


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	105	14,3	-
S2	180	75	92,5	253,5	153	20,6	31,5
S3	228	75	92,5	253,5	201	26,9	37,8
S4	276	75	92,5	253,5	249	33,2	44,1

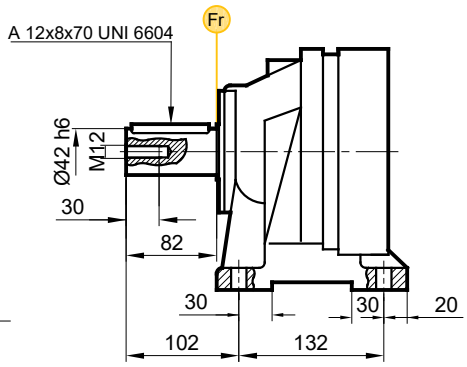
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

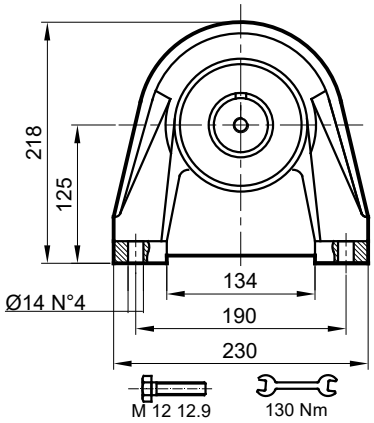
PD/PDA 101

FVS

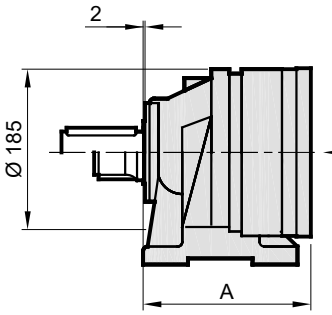


FVC

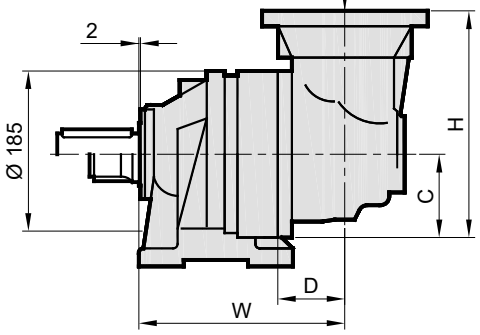


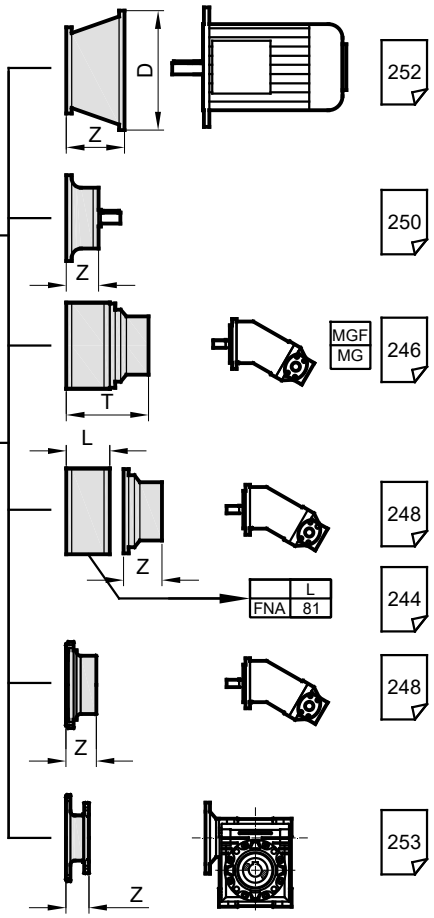


PD..



PDA..



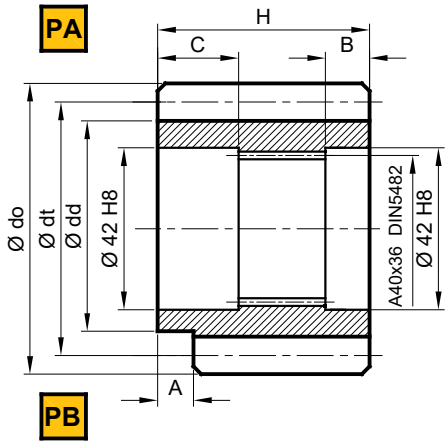


Stage	W	D	C	H	A	PD / FVC	PDA / FVC
S1	-	-	-	-	144	17,6	-
S2	220	75	92,5	253,5	192	23,9	34,8
S3	268	75	92,5	253,5	240	30,2	41,1
S4	316	75	92,5	253,5	288	36,5	47,4

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

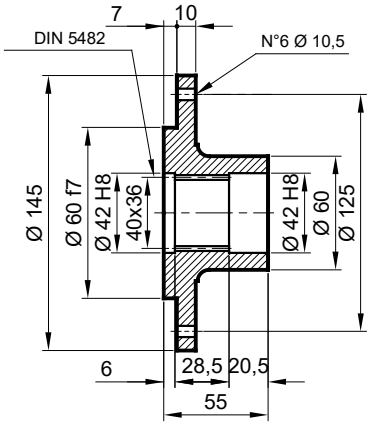
PD/PDA 101

P *Pinyon / Pinion / Ritzel*

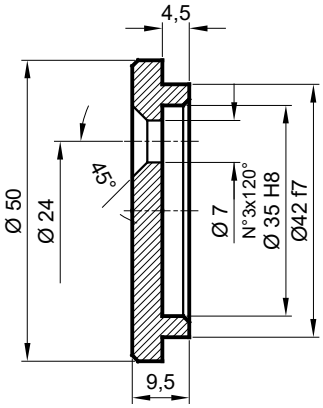


	m	z	x	dt	dd	do	H	A	B	C	Malzeme Material Material
PA	5	14	0,500	70	62,5	62,5	65	0	10	53	42CrMo4
PA	6	12	0,250	72	61	62,5	59	14	4	54	42CrMo4
PB	6	14	0,500	84	73	62,5	65	0	10	54	42CrMo4

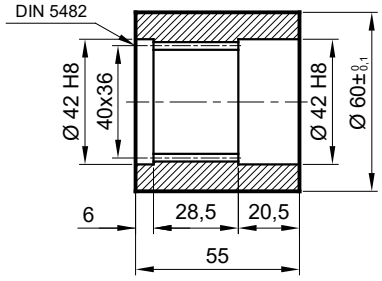
FL Flanş / *Flange* / Flansch



SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



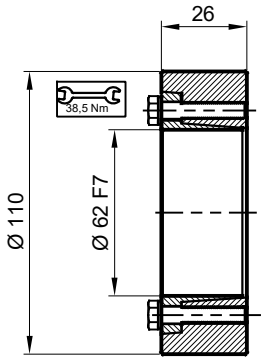
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse



Malzeme / Material
Material

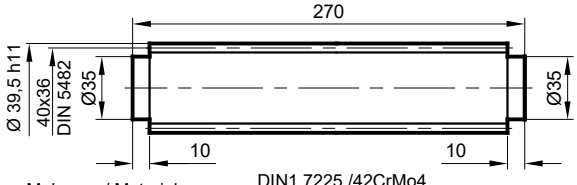
DIN 1.7225
42CrMo4

SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
2,5 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN1.7225 /42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

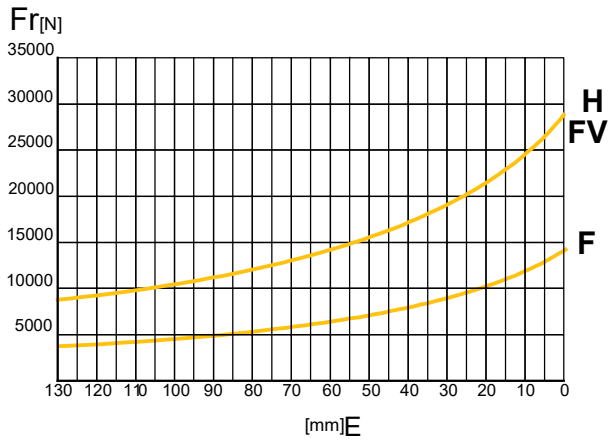
PD/PDA 101

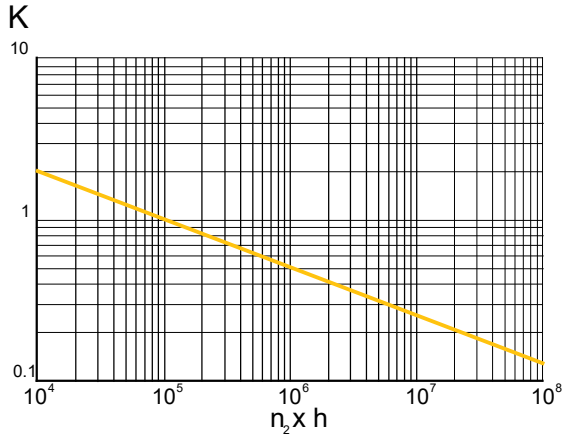
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

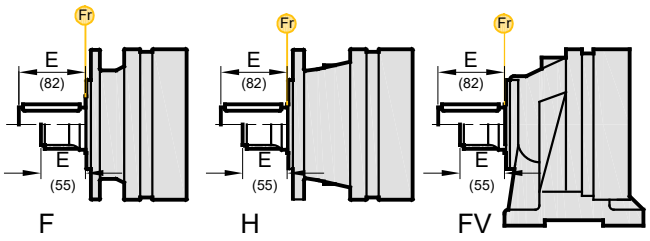
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

F-H-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
F-H	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

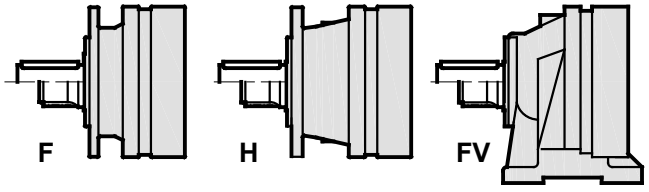


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

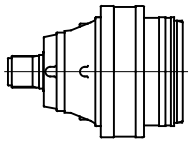
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

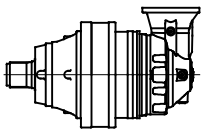
Fa [N]	F	H-FV	
	16000	18000	←
	16000	18000	→



PD 103

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 103 S1	3.55	1920	1700	1450	1280	2800	3400	12
	4.28	1920	1700	1450	1280	2800	3400	12
	5.60	1370	1210	1030	910	2800	2420	12
	6.75	1130	1000	850	750	2800	2000	12
	8.67	740	650	560	490	2800	1300	12
PD 103 S2	12.6	1920	1700	1450	1280	2800	3400	8
	15.2	1920	1700	1450	1280	2800	3400	8
	19.9	1920	1700	1450	1280	2800	3400	8
	24.0	1920	1700	1450	1280	2800	3400	8
	28.9	1920	1700	1450	1280	2800	3400	8
	31.4	1370	1210	1030	910	2800	2420	8
	37.8	1370	1210	1030	910	2800	2420	8
	45.5	1130	1000	850	750	2800	2000	8
	58.5	1130	1000	850	750	2800	2000	8
PD 103 S3	45.0	1920	1700	1450	1280	2800	3400	5
	54.2	1920	1700	1450	1280	2800	3400	5
	65.3	1920	1700	1450	1280	2800	3400	5
	70.8	1920	1700	1450	1280	2800	3400	5
	78.7	1920	1700	1450	1280	2800	3400	5
	85.3	1920	1700	1450	1280	2800	3400	5
	102.8	1920	1700	1450	1280	2800	3400	5
	111.5	1920	1700	1450	1280	2800	3400	5
	134.4	1920	1700	1450	1280	2800	3400	5
	162.0	1920	1700	1450	1280	2800	3400	5
	172.6	1920	1700	1450	1280	2800	3400	5
	208.0	1920	1700	1450	1280	2800	3400	5
	211.7	1370	1210	1030	910	2800	2420	5
	250,7	1920	1700	1450	1280	2800	3400	5
	255.2	1370	1210	1030	910	2800	2420	5
	271.8	1370	1210	1030	910	2800	2420	5
	307.6	1130	1000	0850	750	2800	2000	5
	327.6	1370	1210	1030	910	2800	2420	5
	394.9	1130	1000	850	750	2800	2000	5
PD 103 S4	337.1	1920	1700	1450	1280	2800	3400	1.5
	365.7	1920	1700	1450	1280	2800	3400	1.5
	396.5	1920	1700	1450	1280	2800	3400	1.5
	440.7	1920	1700	1450	1280	2800	3400	1.5
	477.9	1920	1700	1450	1280	2800	3400	1.5
	531.1	1920	1700	1450	1280	2800	3400	1.5
	575.9	1920	1700	1450	1280	2800	3400	1.5
	624.4	1920	1700	1450	1280	2800	3400	1.5
	694.2	1920	1700	1450	1280	2800	3400	1.5
	752.6	1920	1700	1450	1280	2800	3400	1.5
	836.6	1920	1700	1450	1280	2800	3400	1.5
	907.1	1920	1700	1450	1280	2800	3400	1.5
	966.4	1920	1700	1450	1280	2800	3400	1.5
	1093.5	1920	1700	1450	1280	2800	3400	1.5
	1144.4	1920	1700	1450	1280	2800	3400	1.5
	1185.4	1370	1210	1030	910	2800	2420	1.5
	1317.8	1920	1700	1450	1280	2800	3400	1.5
	1404.0	1920	1700	1450	1280	2800	3400	1.5
	1522.0	1370	1210	1030	910	2800	2420	1.5
	1692.0	1920	1700	1450	1280	2800	3400	1.5

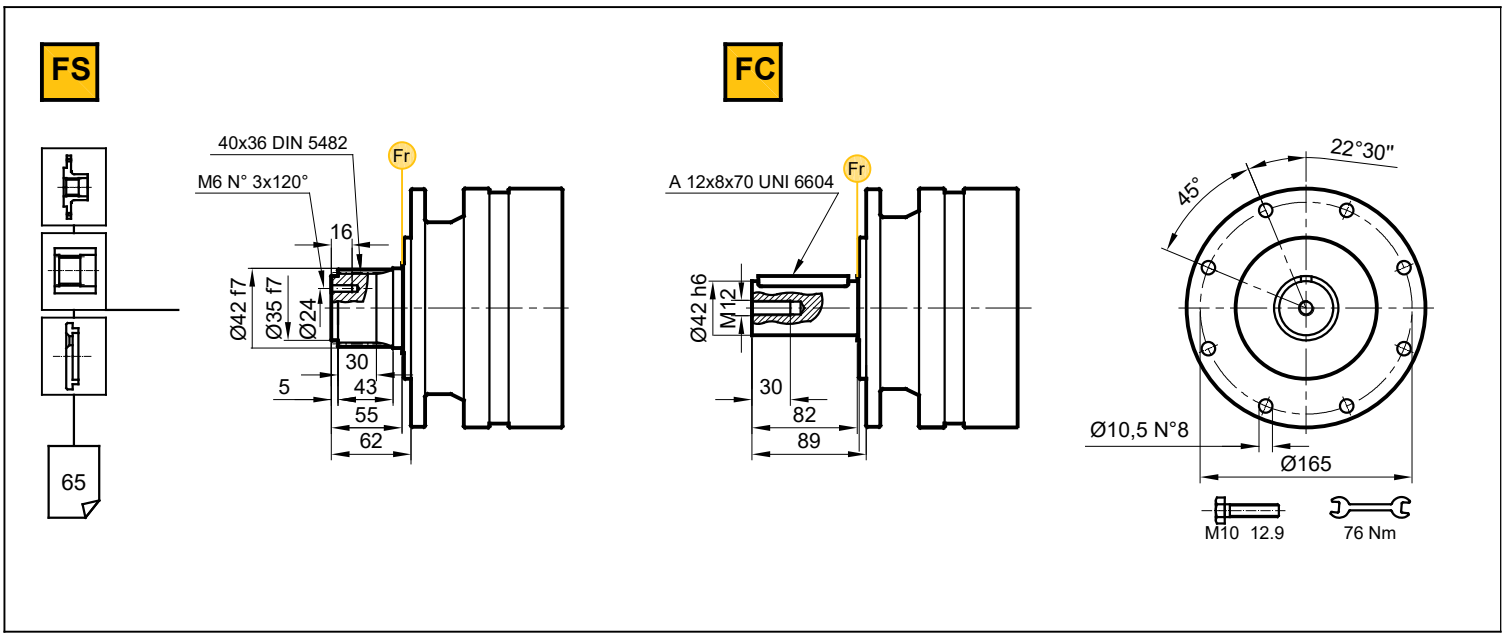
PDA 103



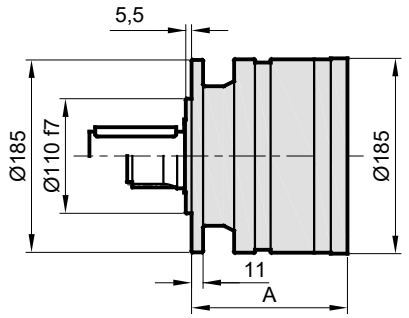
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 103 S2	10.4	1920	1700	1450	1280	2800	3400	8
	12.6	1920	1700	1450	1280	2800	3400	8
	16.4	1370	1210	1030	910	2800	2420	8
	19.8	1130	1000	850	750	2800	2000	8
PDA 103 S3	37.0	1920	1700	1450	1280	2800	3400	5
	44.6	1920	1700	1450	1280	2800	3400	5
	53.8	1920	1700	1450	1280	2800	3400	5
	58.3	1920	1700	1450	1280	2800	3400	5
	70.3	1920	1700	1450	1280	2800	3400	5
	84.8	1920	1700	1450	1280	2800	3400	5
	91.9	1370	1210	1030	910	2800	2420	5
	110.8	1370	1210	1030	910	2800	2420	5
	133.5	1130	1000	850	750	2800	2000	5
	171.4	1130	1000	850	750	2800	2000	5
PDA 103 S4	131.7	1920	1700	1450	1280	2800	3400	1.5
	158.7	1920	1700	1450	1280	2800	3400	1.5
	191.3	1920	1700	1450	1280	2800	3400	1.5
	207.4	1920	1700	1450	1280	2800	3400	1.5
	230.5	1920	1700	1450	1280	2800	3400	1.5
	250.0	1920	1700	1450	1280	2800	3400	1.5
	301.3	1920	1700	1450	1280	2800	3400	1.5
	326.7	1920	1700	1450	1280	2800	3400	1.5
	363.1	1920	1700	1450	1280	2800	3400	1.5
	393.8	1920	1700	1450	1280	2800	3400	1.5
	474.7	1920	1700	1450	1280	2800	3400	1.5
	505,6	1920	1700	1450	1280	2800	3400	1.5
	514.6	1370	1210	1030	910	2800	2420	1.5
	572.0	1920	1700	1450	1280	2800	3400	1.5
	609.4	1920	1700	1450	1280	2800	3400	1.5
	734.5	1920	1700	1450	1280	2800	3400	1.5
	796.3	1370	1210	1030	910	2800	2420	1.5
	959.9	1370	1210	1030	910	2800	2420	1.5
	1157.0	1130	1000	850	750	2800	2000	1.5
	1232.4	1370	1210	1030	910	2800	2420	1.5
	1485.5	1130	1000	850	750	2800	2000	1.5

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

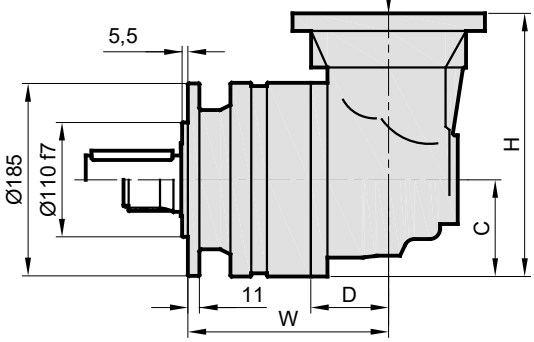
PD/PDA 103

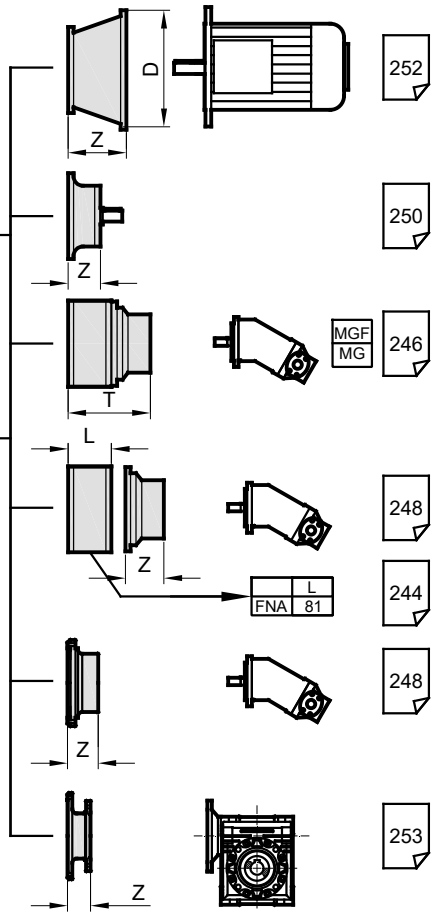


PD..



PDA..

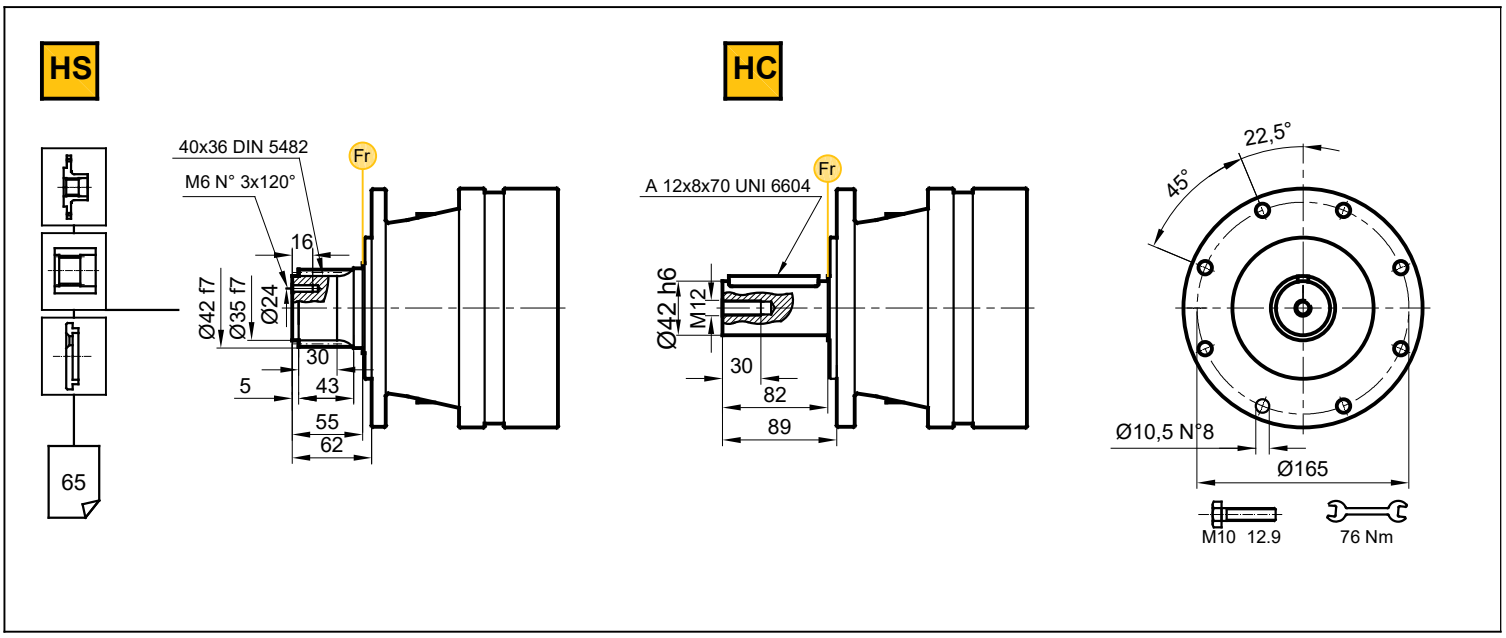


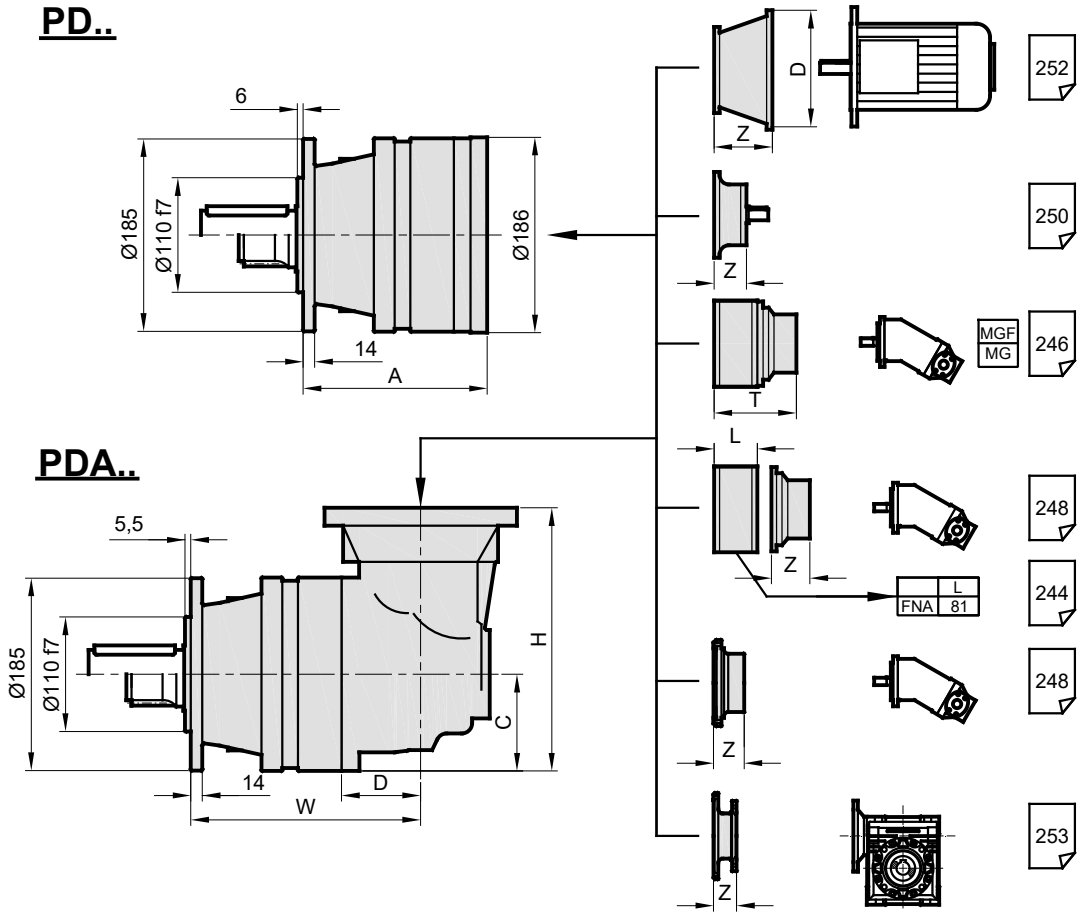


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	118	15,4	-
S2	193	75	92,5	253,5	166	21,6	32,6
S3	241	75	92,5	253,5	214	27,9	38,8
S4	289	75	92,5	253,5	262	34,2	45,1

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 103

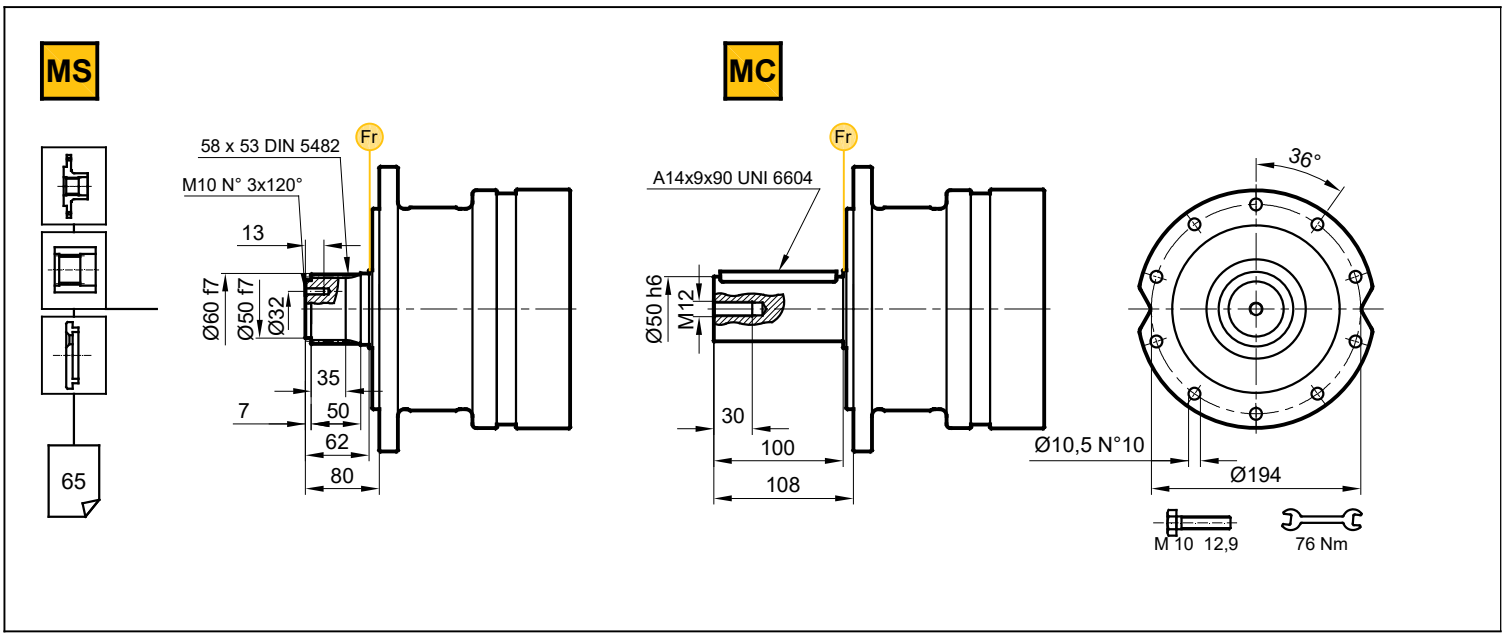


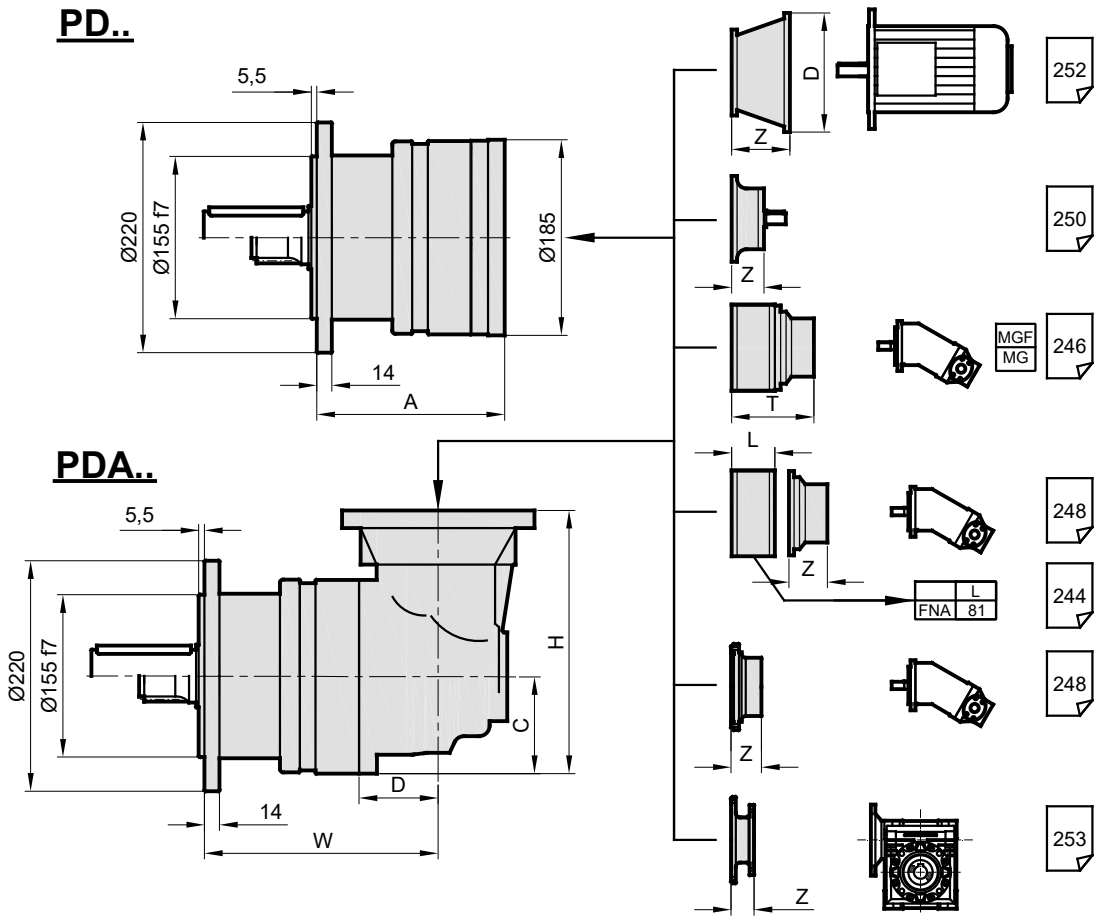


Stage	W	D	C	H	A	PD H	PDA H
S1	-	-	-	-	148	16,9	-
S2	223	75	92,5	253,5	196	23,2	34,1
S3	271	75	92,5	253,5	244	29,6	40,4
S4	319	75	92,5	253,5	292	35,8	46,8

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 103



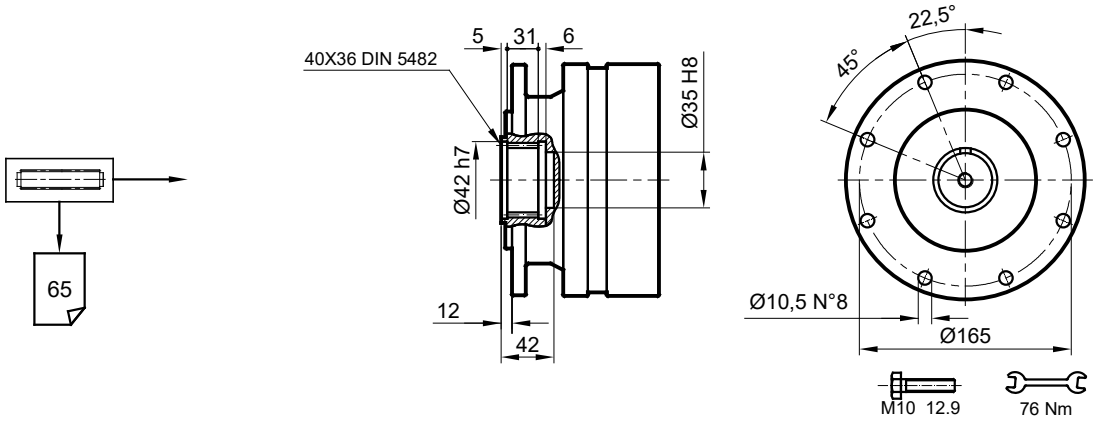


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	148	19,3	-
S2	223	75	92,5	253,5	196	25,6	36,5
S3	271	75	92,5	253,5	244	31,9	42,8
S4	319	75	92,5	253,5	292	38,2	49,1

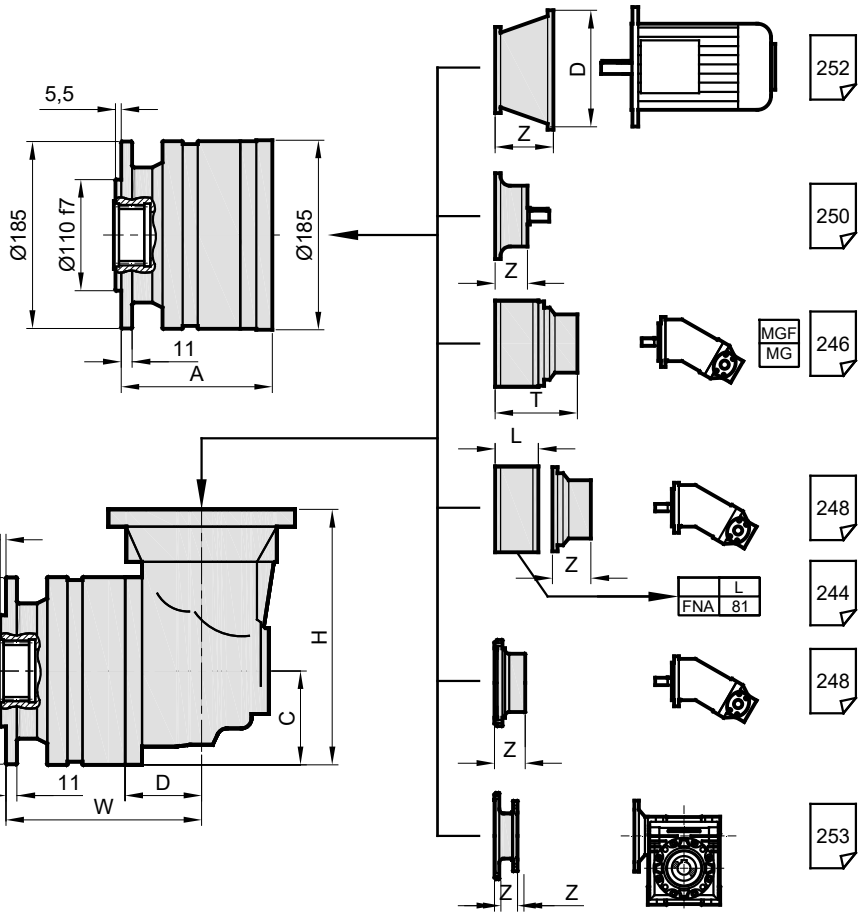
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 103

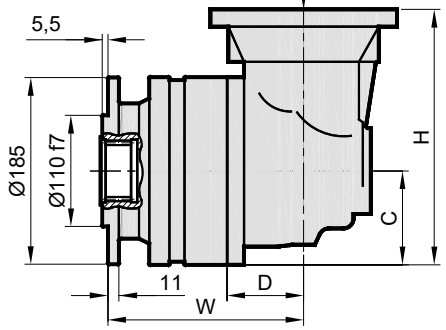
SF



PD..



PDA..

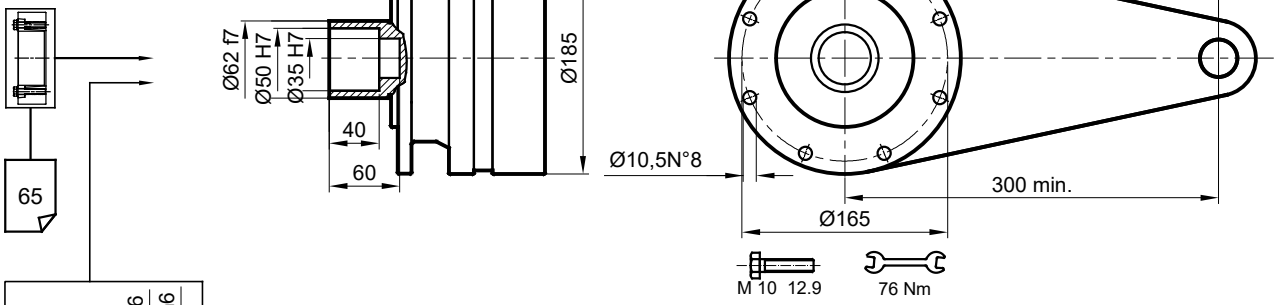


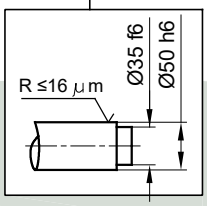
Stage	W	D	C	H	A	PD / SF	PDA / SF
S1	-	-	-	-	118	13,6	-
S2	193	75	92,5	253,5	166	19,4	30,8
S3	241	75	92,5	253,5	214	26,3	36,6
S4	289	75	92,5	253,5	262	32,5	43,5

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 103

SDF

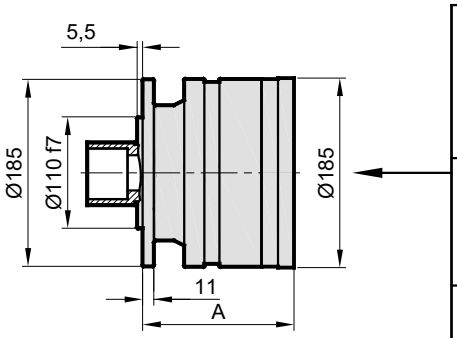


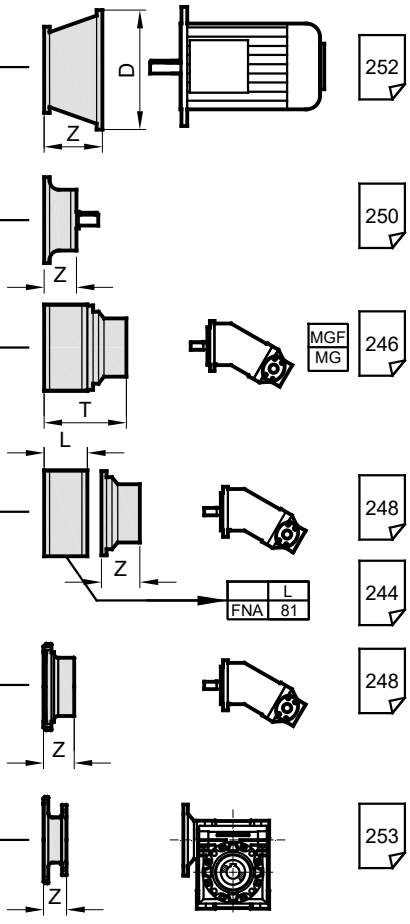


M_{max} = 2.5kNm

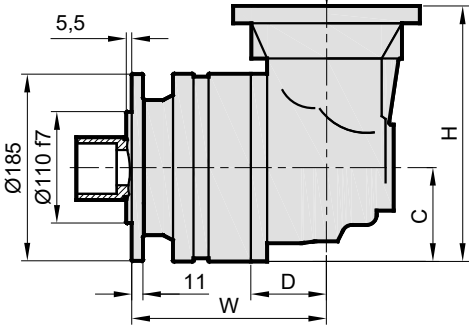
Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..





PDA..

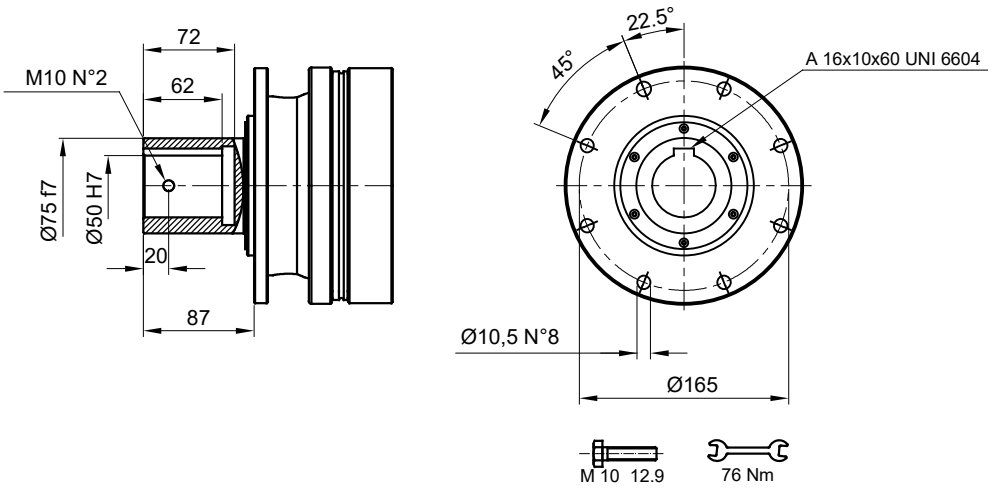


Stage	W	D	C	H	A	PD SDF	PDA SDF
S1	-	-	-	-	118	15	-
S2	193	75	92,5	253,5	166	21,3	32,2
S3	241	75	92,5	253,5	214	27,5	38,4
S4	289	75	92,5	253,5	262	33,8	44,6

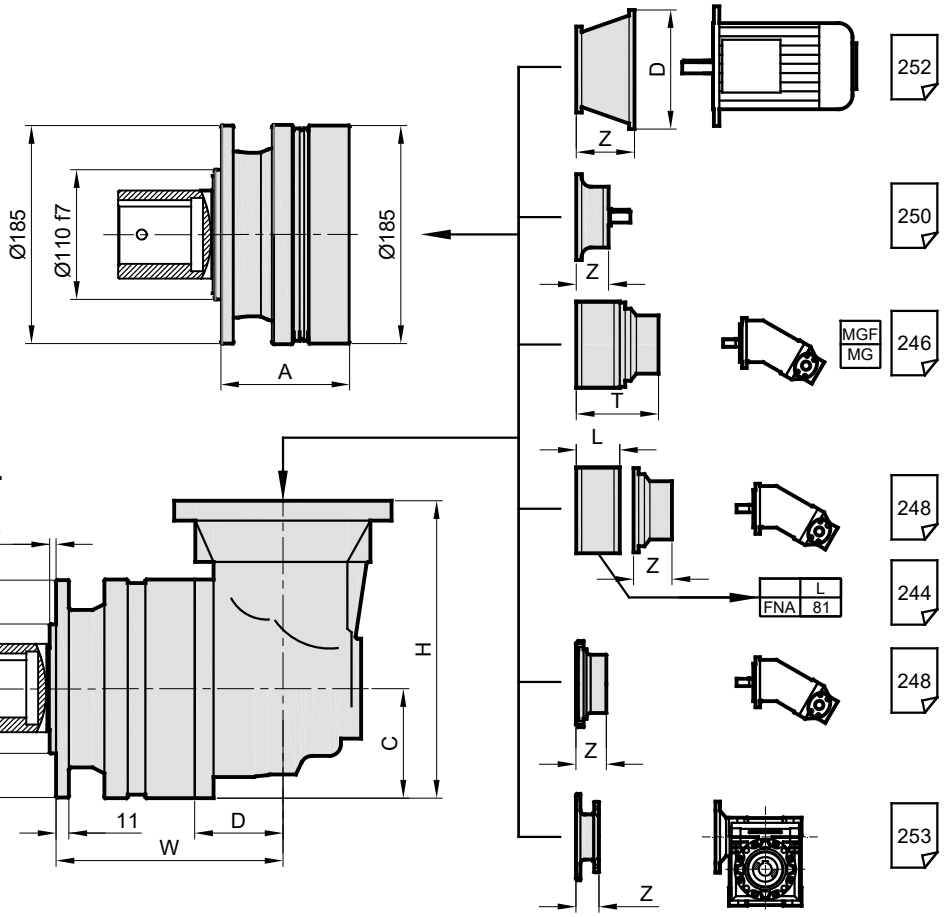
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 103

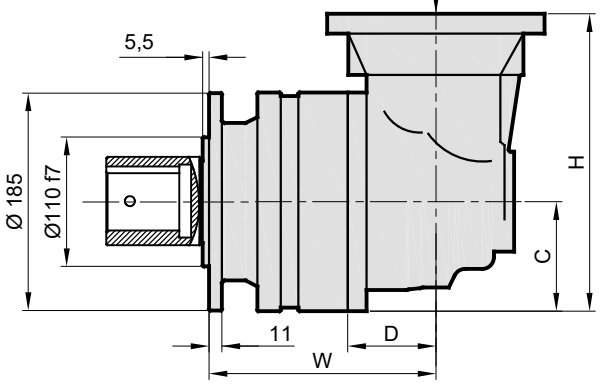
DKM



PD..



PDA..

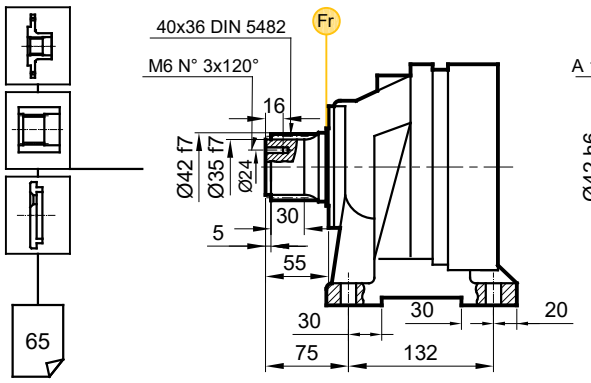


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	118	15,8	-
S2	193	75	92,5	253,5	166	22,1	33
S3	241	75	92,5	253,5	214	28,4	39,3
S4	289	75	92,5	253,5	262	34,7	45,6

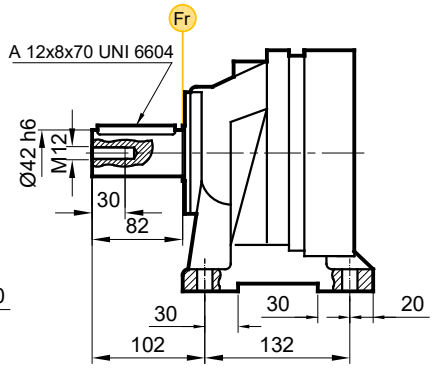
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

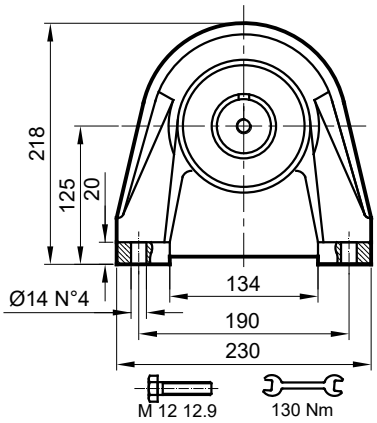
PD/PDA 103

FVS



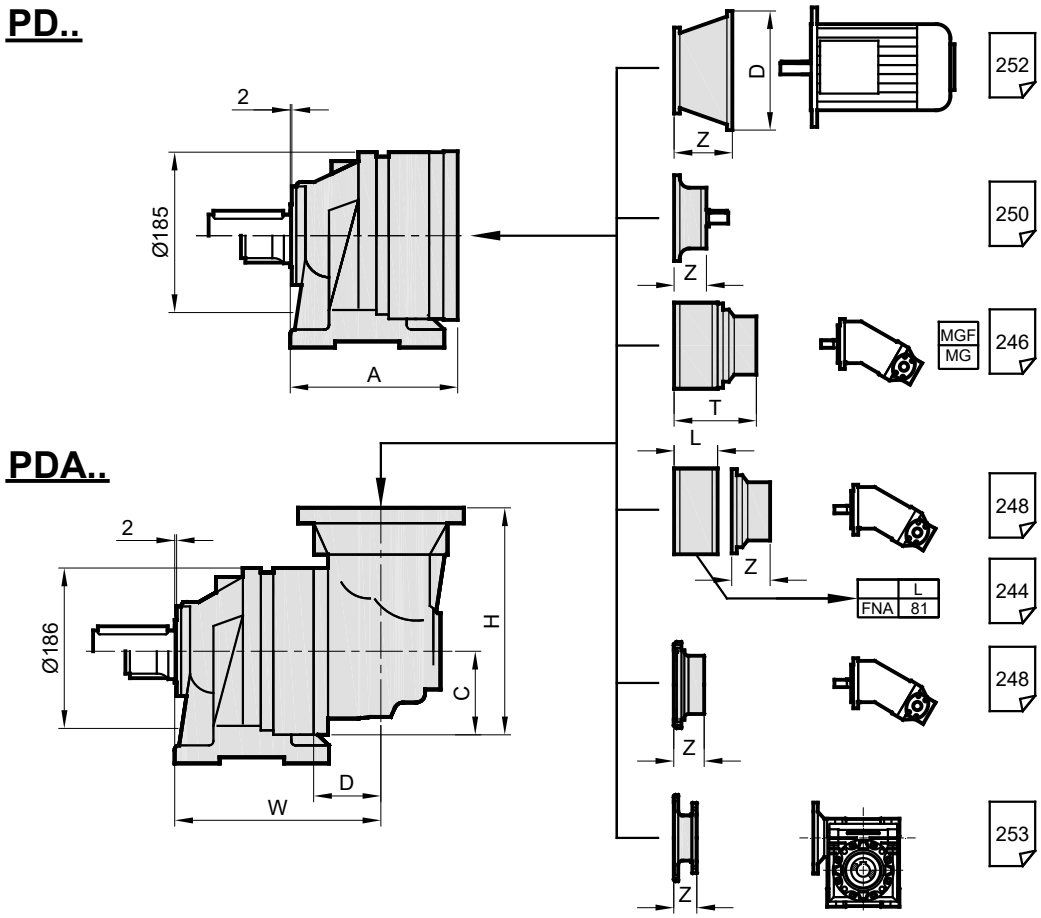
FVC





PD..

PDA..

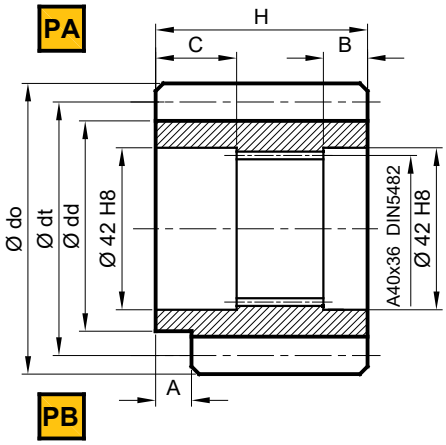


Stage	W	D	C	H	A	PD FVC	PDA FVC
S1	-	-	-	-	157	19,1	-
S2	233	75	92,5	253,5	205	25,4	36,3
S3	281	75	92,5	253,5	253	31,7	42,6
S4	329	75	92,5	253,5	301	38	48,9

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

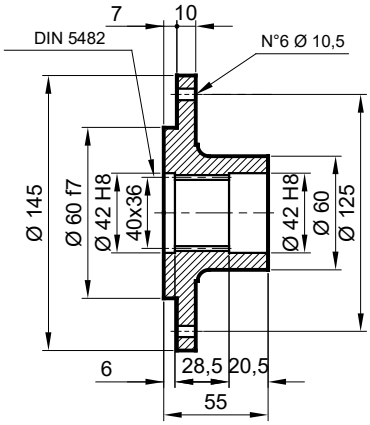
PD/PDA 103

P *Pinyon / Pinion / Ritzel*

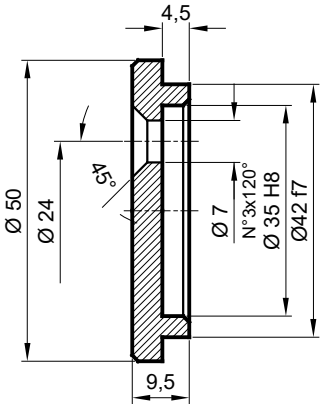


	m	z	x	dt	dd	do	H	A	B	C	Malzeme Material Material
PA	5	14	0,500	70	62,5	62,5	65	0	10	53	42CrMo4
PA	6	12	0,250	72	61	62,5	59	14	4	54	42CrMo4
PB	6	14	0,500	84	73	62,5	65	0	10	54	42CrMo4

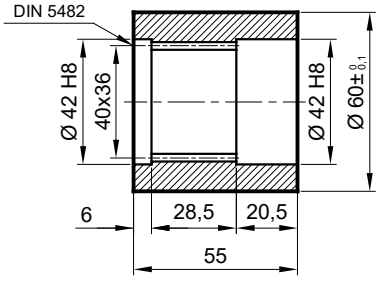
FL Flanş / *Flange* / Flansch



SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



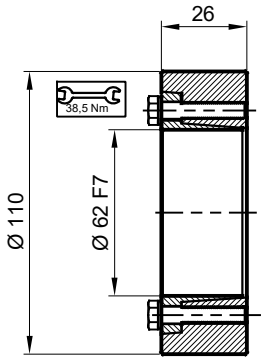
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse



Malzeme /Material
Material

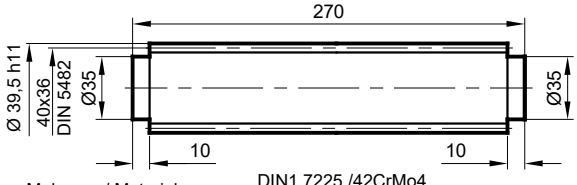
DIN 1.7225
42CrMo4

SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
2,5 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN1.7225 /42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

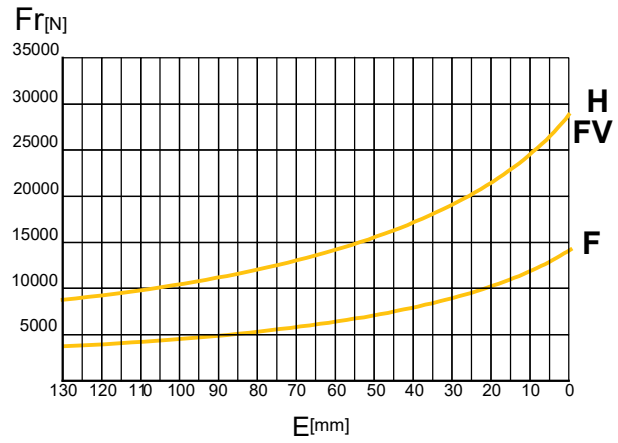
PD/PDA 103

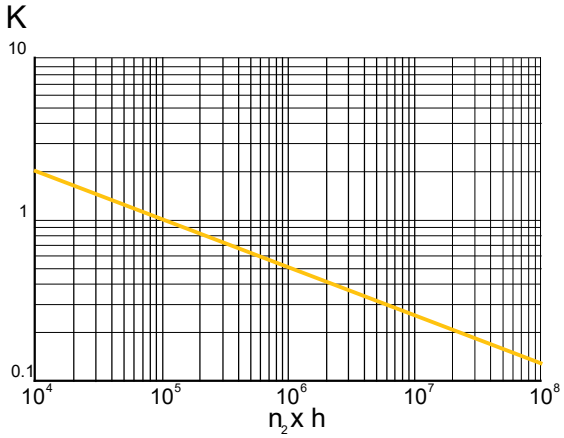
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

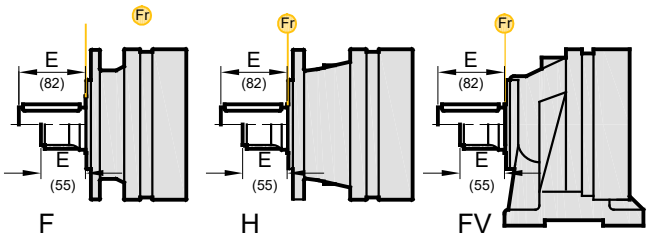
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

F-H-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
F-H	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

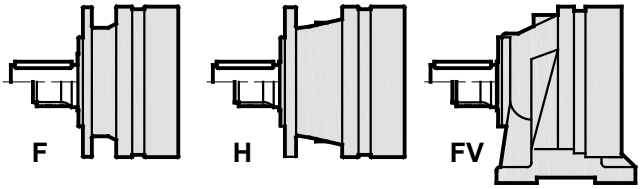


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

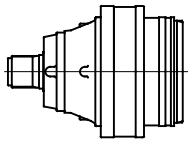
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	F	H-FV	
	16000	18000	←
	16000	18000	→

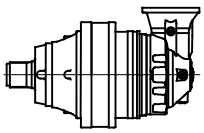


PD 105



	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 105 S1	3.77	3980	3520	3000	2650	2800	7040	20
	4.12	3600	3190	2710	2400	2800	6380	20
	5.16	3010	2660	2260	2000	2800	5320	20
	6.00	2520	2230	1900	1680	2800	4460	20
	7.25	1950	1730	1470	1300	2800	3460	20
PD 105 S2	13.4	3980	3520	3000	2650	2800	7040	12
	16.2	3980	3520	3000	2650	2800	7040	12
	18.4	3010	2660	2260	2000	2800	5320	12
	23.1	3600	3190	2710	2400	2800	6380	12
	28.9	3010	2660	2260	2000	2800	5320	12
	34.9	3010	2660	2260	2000	2800	5320	12
	40.5	2520	2230	1900	1680	2800	4460	12
	48.9	1950	1730	1470	1300	2800	3460	12
	62.8	1950	1730	1470	1300	2800	3460	12
PD 105 S3	47.8	3980	3520	3000	2650	2800	7040	8
	52.2	3600	3190	2710	2400	2800	6380	8
	57.6	3980	3520	3000	2650	2800	7040	8
	62.9	3600	3190	2710	2400	2800	6380	8
	75.2	3980	3520	3000	2650	2800	7040	8
	82.1	3600	3190	2710	2400	2800	6380	8
	90.7	3980	3520	3000	2650	2800	7040	8
	99.0	3600	3190	2710	2400	2800	6380	8
	119.3	3600	3190	2710	2400	2800	6380	8
	129.4	3600	3190	2710	2400	2800	6380	8
	149.4	3010	2660	2260	2000	2800	5320	8
	155.9	3600	3190	2710	2400	2800	6380	8
	162.0	3010	2660	2260	2000	2800	5320	8
	173.5	2520	2230	1900	1680	2800	4460	8
	195.3	3010	2660	2260	2000	2800	5320	8
	235.4	3010	2660	2260	2000	2800	5320	8
	273.4	2520	2230	1900	1680	2800	4460	8
	302.2	3010	2660	2260	2000	2800	5320	8
	330.3	1950	1730	1470	1300	2800	3460	8
	424.1	1950	1730	1470	1300	2800	3460	8
PD 105 S4	351.9	3600	3190	2710	2400	2800	6380	4
	365.8	3010	2660	2260	2000	2800	5320	4
	388.5	3980	3520	3000	2650	2800	7040	4
	413.9	3980	3520	3000	2650	2800	7040	4
	424.2	3600	3190	2710	2400	2800	6380	4
	468.2	3980	3520	3000	2650	2800	7040	4
	511.3	3600	3190	2710	2400	2800	6380	4
	554.3	3600	3190	2710	2400	2800	6380	4
	611.9	3980	3520	3000	2650	2800	7040	4
	668.3	3600	3190	2710	2400	2800	6380	4
	737.6	3980	3520	3000	2650	2800	7040	4
	805.4	3600	3190	2710	2400	2800	6380	4
	857.9	3600	3190	2710	2400	2800	6380	4
	907.4	3010	2660	2260	2000	2800	5320	4
	1052.5	3600	3190	2710	2400	2800	6380	4
	1121.1	3600	3190	2710	2400	2800	6380	4
	1318.3	3010	2660	2260	2000	2800	5320	4
	1589.0	3010	2660	2260	2000	2800	5320	4
	1845.3	2520	2230	1900	1680	2800	4460	4
	2369.3	2520	2230	1900	1680	2800	4460	4

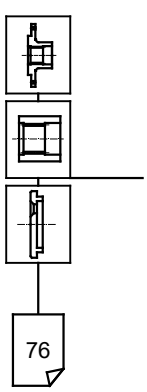
PDA 105

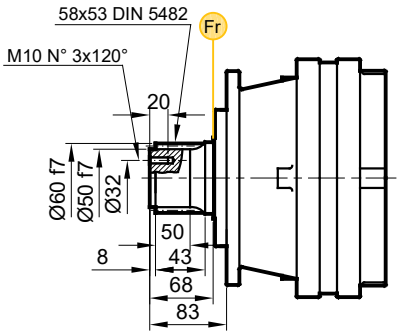
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 105 S2	12.1	3600	3190	2710	2400	2800	6380	12
	15.1	3010	2660	2260	2000	2800	5320	12
	17.6	2520	2230	1900	1680	2800	4460	12
	21.2	1950	1730	1470	1300	2800	3460	12
PDA 105 S3	39.4	3980	3520	3000	2650	2800	7040	8
	47.4	3980	3520	3000	2650	2800	7040	8
	53.8	3010	2660	2260	2000	2800	5320	8
	67.7	3600	3190	2710	2400	2800	6380	8
	75.3	2520	2230	1900	1680	2800	4460	8
	84.8	3010	2660	2260	2000	2800	5320	8
	91.0	1950	1730	1470	1300	2800	3460	8
	102.2	3010	2660	2260	2000	2800	5320	8
	118.7	2520	2230	1900	1680	2800	4460	8
	143.4	1950	1730	1470	1300	2800	3460	8
	184,1	1950	1730	1470	1300	2800	3460	8
PDA 105 S4	139.9	3980	3520	3000	2650	2800	7040	4
	168.6	3980	3520	3000	2650	2800	7040	4
	184.1	3600	3190	2710	2400	2800	6380	4
	220.4	3980	3520	3000	2650	2800	7040	4
	240.7	3600	3190	3710	2400	2800	6380	4
	265.6	3980	3520	3000	2650	2800	7040	4
	290.1	3600	3190	2710	2400	2800	6380	4
	320.2	3980	3520	3000	2650	2800	7040	4
	349.6	3600	3190	2710	2400	2800	6380	4
	421.9	2520	2230	1900	1680	2800	4460	4
	448.8	3600	3190	2710	2400	2800	6380	4
	474.7	3010	2660	2260	2000	2800	5320	4
	508.5	2520	2230	1900	1680	2800	4460	4
	551.3	2520	2230	1900	1680	2800	4460	4
	614.4	1950	1730	1470	1300	2800	3460	4
	664.5	2520	2230	1900	1680	2800	4460	4
	734.7	3010	2660	2260	2000	2800	5320	4
	801.0	2520	2230	1900	1680	2800	4460	4
	1242.7	1950	1730	1470	1300	2800	3460	4

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

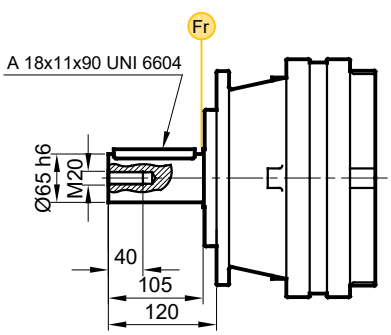
PD/PDA 105

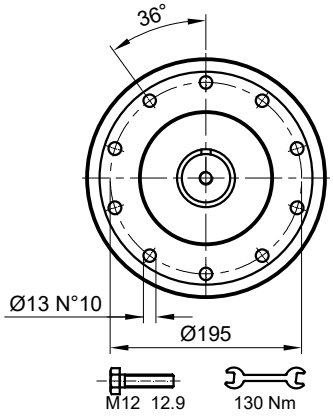
FS



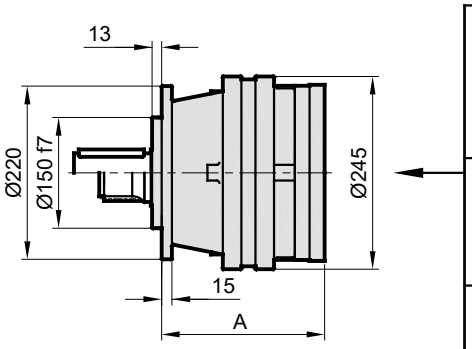


FC

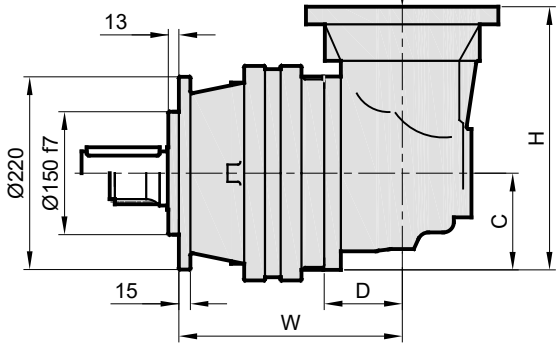


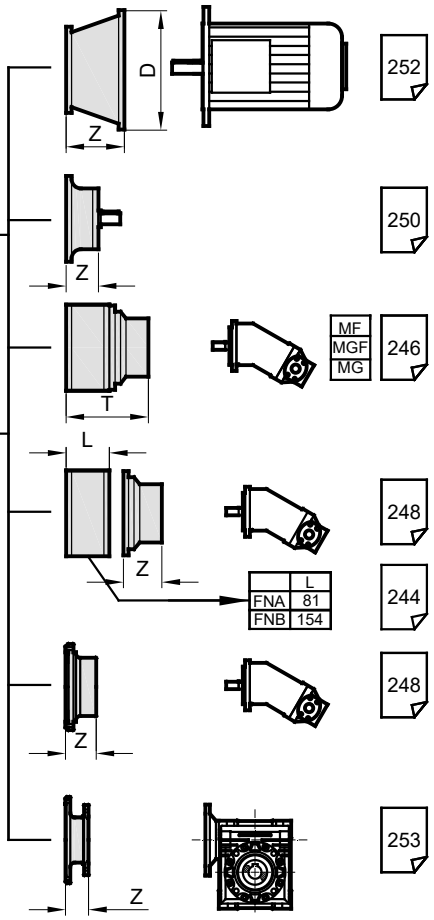


PD..



PDA..

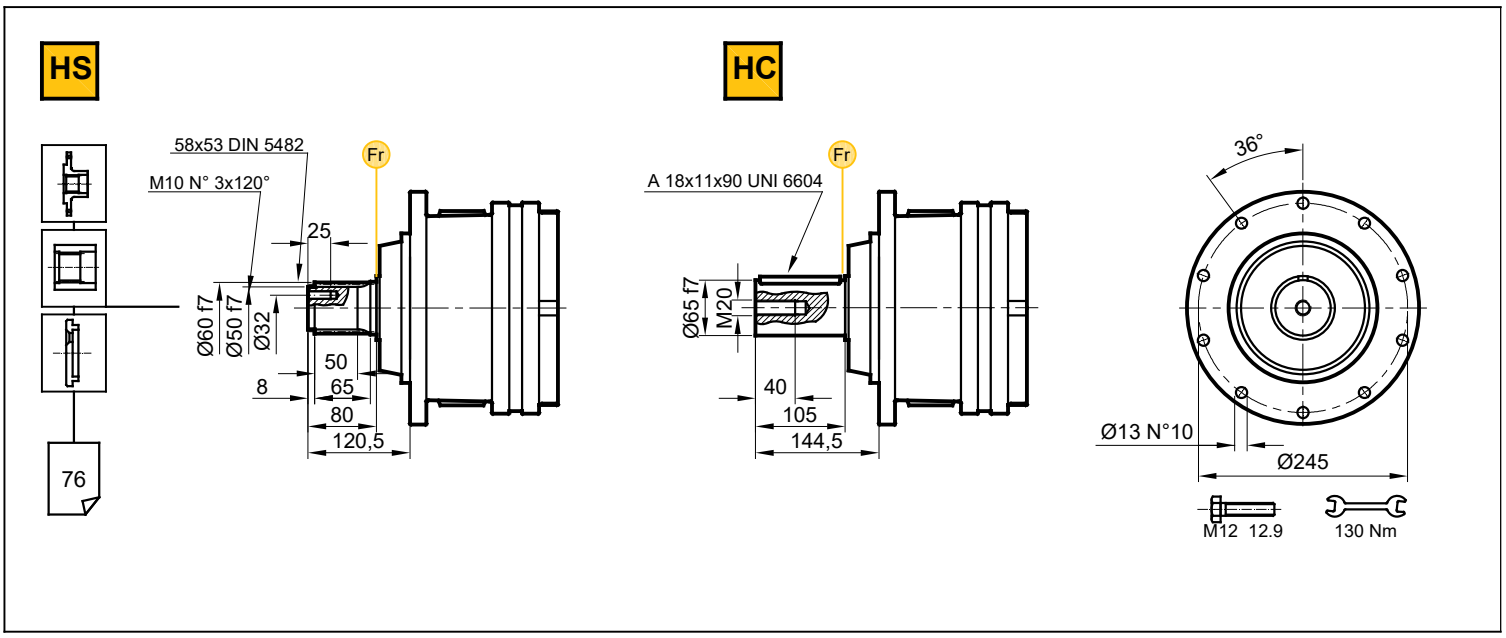




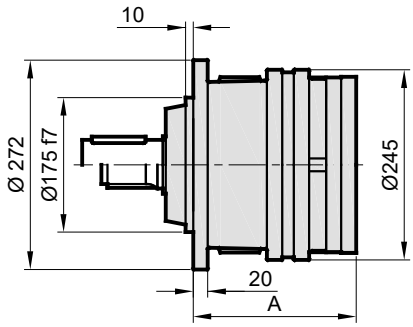
Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	167	32,2	-
S2	242,5	75	92,5	253,5	215	38,6	49,6
S3	290,5	75	92,5	253,5	263	45,1	56,1
S4	338,5	75	92,5	253,5	311	51,8	62,8

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

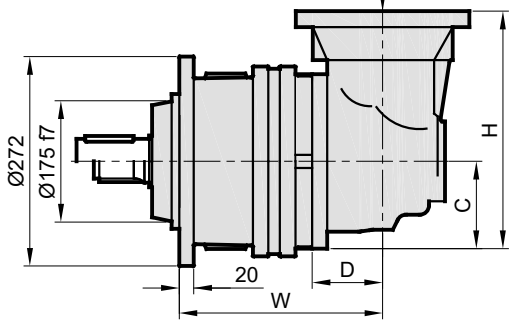
PD/PDA 105

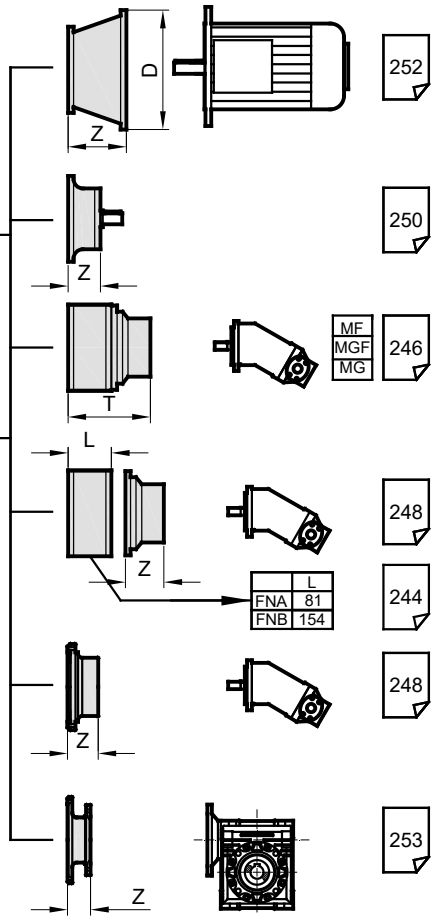


PD..



PDA..



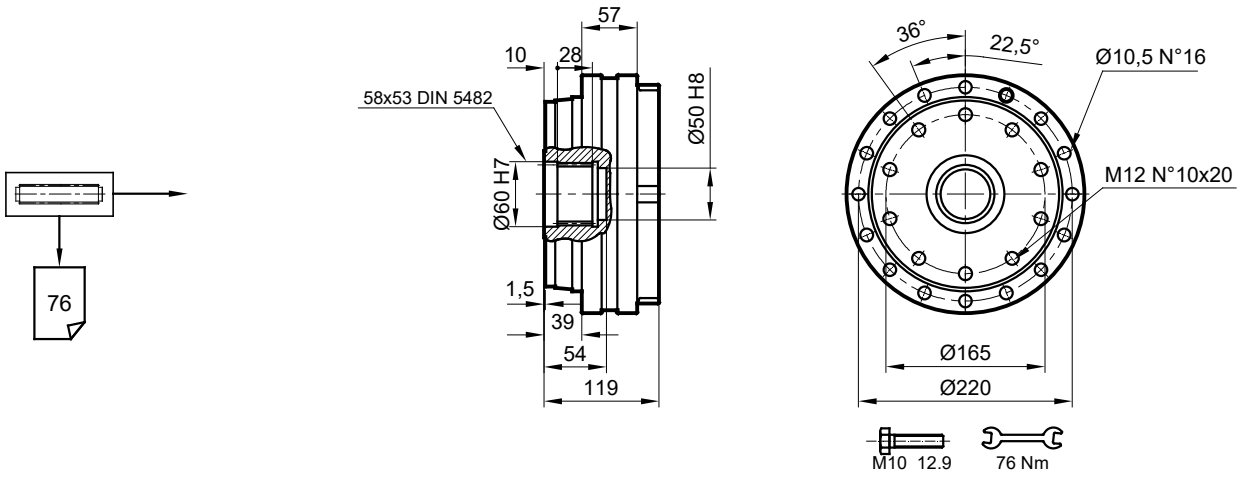


Stage	W	D	C	H	A	PD H	PDA H
S1	-	-	-	-	174	38,3	-
S2	249	75	92,5	253,5	222	44,7	55,7
S3	297	75	92,5	253,5	270	51,2	62,2
S4	345	75	92,5	253,5	318	57,9	68,9

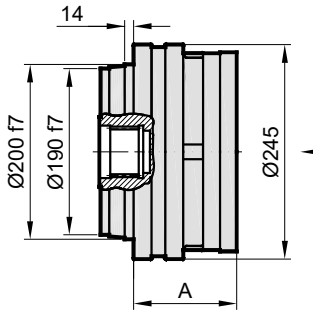
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 105

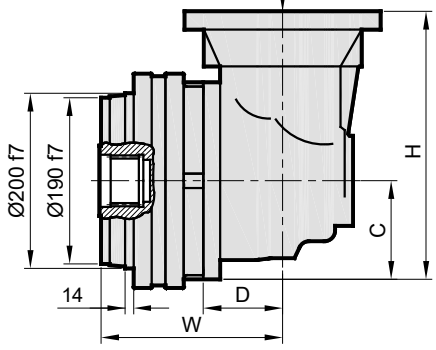
S

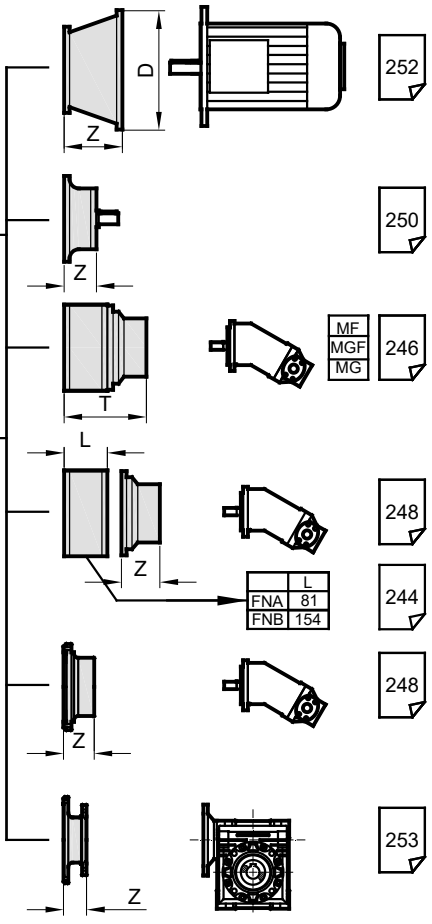


PD..



PDA..



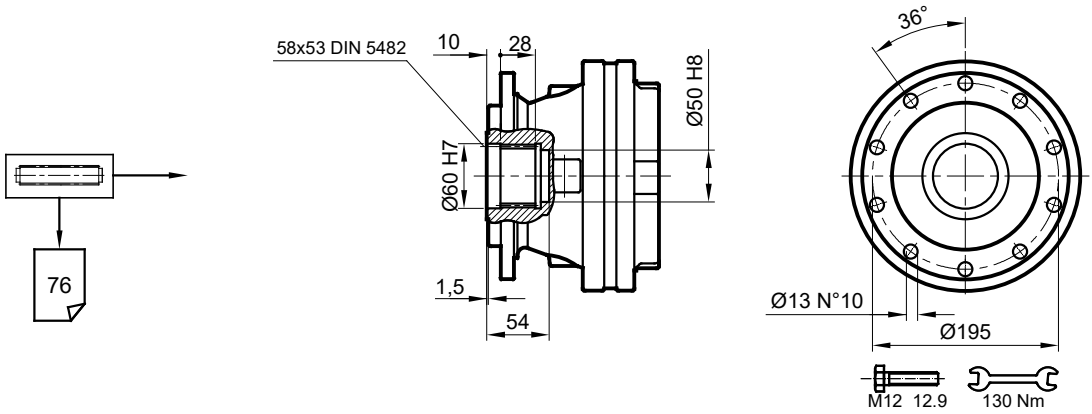


Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	80	19,5	-
S2	193	75	92,5	253,5	128	25,9	36,9
S3	241	75	92,5	253,5	176	32,4	43,4
S4	289	75	92,5	253,5	224	39,1	50,1

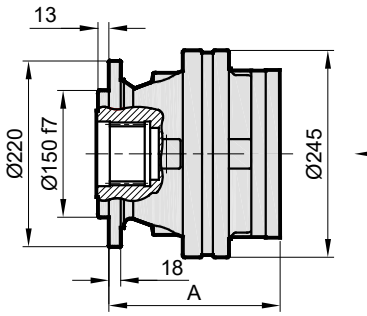
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 105

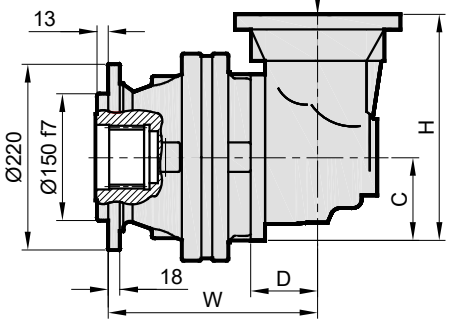
SF

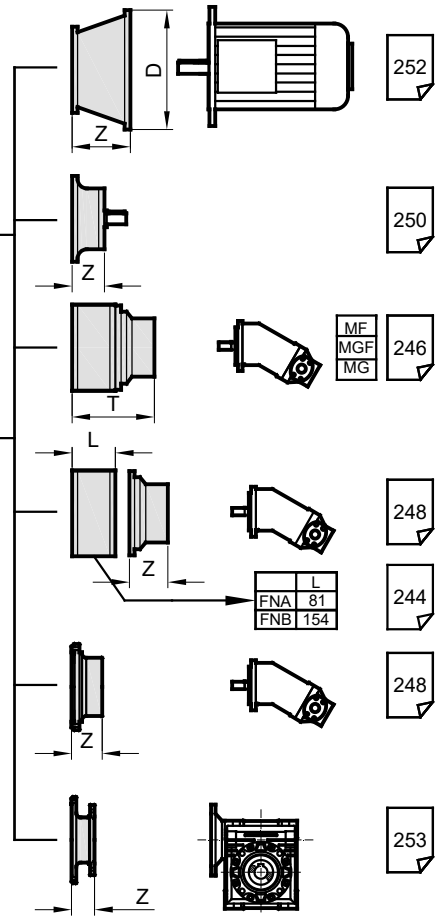


PD..



PDA..



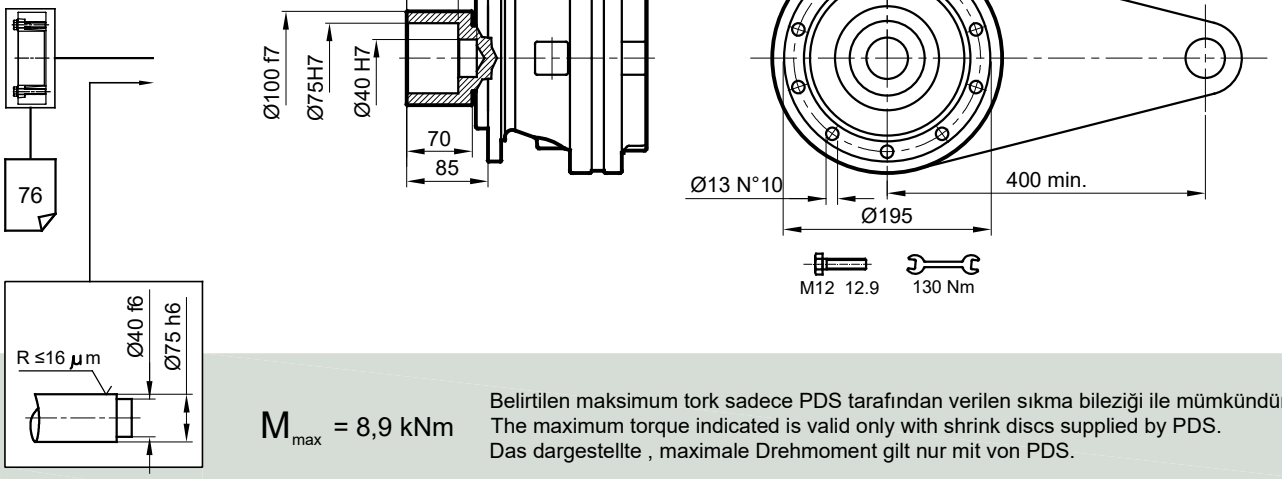


Stage	W	D	C	H	A	PD SF	PDA SF
S1	-	-	-	-	167	28,7	-
S2	242,5	75	92,5	253,5	215	35,1	46,1
S3	290,5	75	92,5	253,5	263	41,6	52,6
S4	338,5	75	92,5	253,5	311	48,3	59,3

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 105

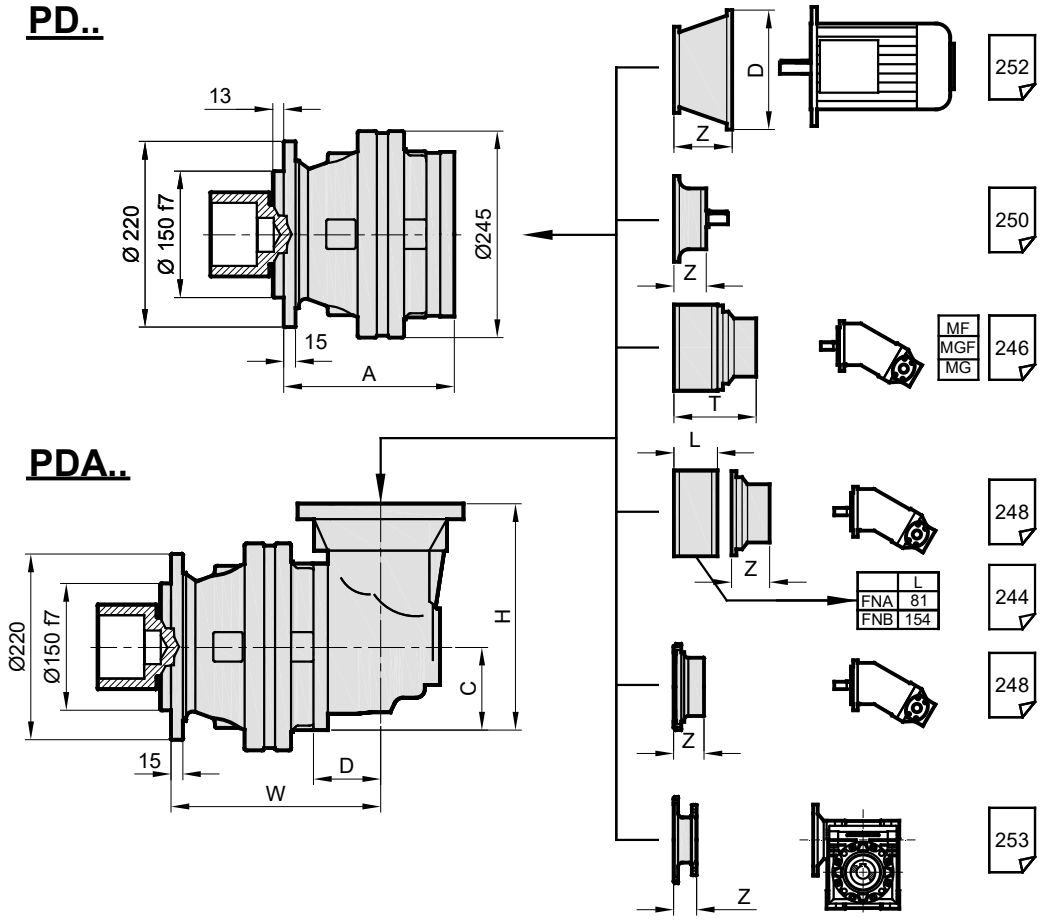
SDF



M_{max} = 8,9 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



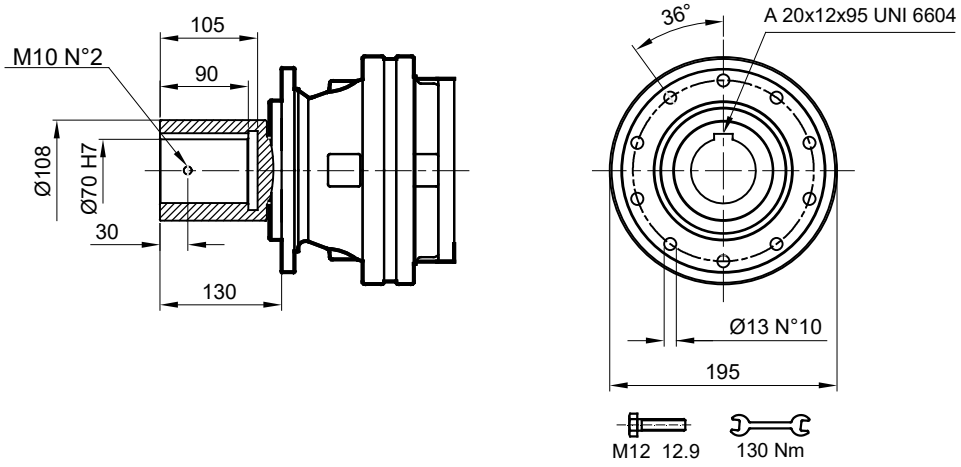
PDA..

Stage	W	D	C	H	A	PD / SDF	PDA / SDF
S1	-	-	-	-	167	31,8	–
S2	242,5	75	92,5	253,5	215	38,2	49,2
S3	290,5	75	92,5	253,5	263	44,7	55,7
S4	338,5	75	92,5	253,5	311	51,4	62,4

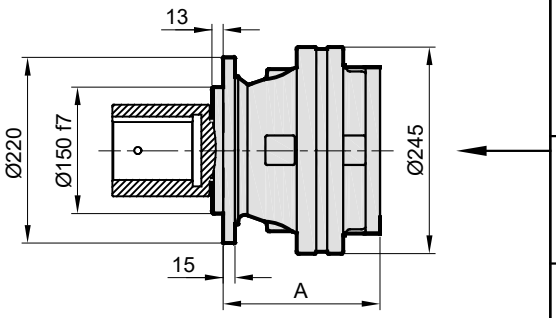
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 105

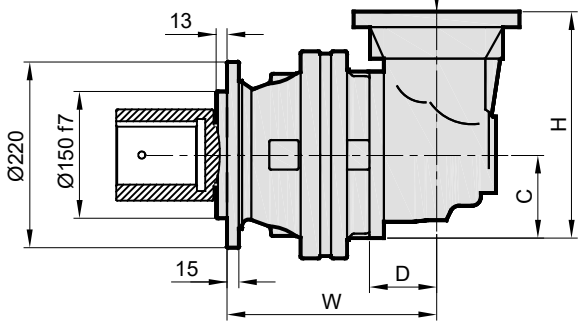
DKM

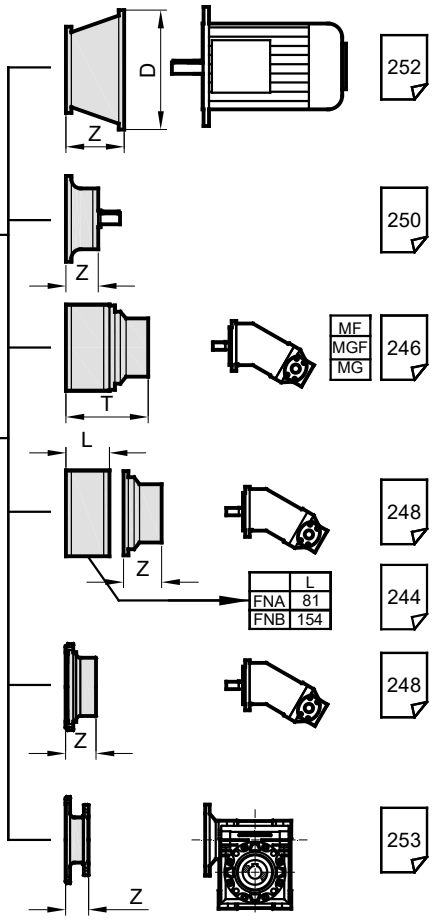


PD..



PDA..



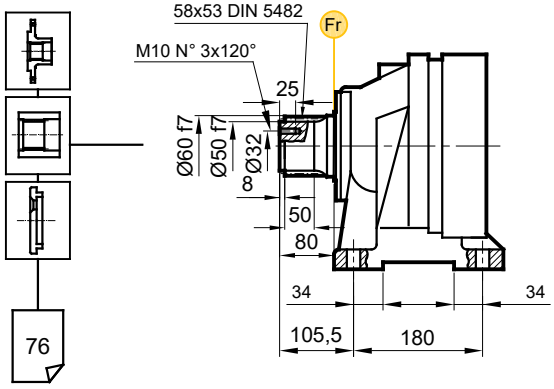


Stage	W	D	C	H	A	PD DKM	PDA DKM
S1	-	-	-	-	167	34,5	-
S2	242,5	75	92,5	253,5	215	40,9	51,9
S3	290,5	75	92,5	253,5	263	47,4	58,4
S4	338,5	75	92,5	253,5	316	54,1	65,1

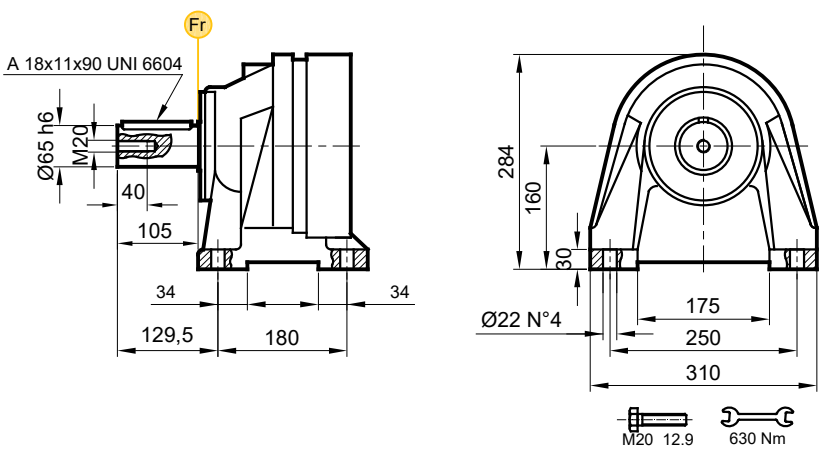
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 105

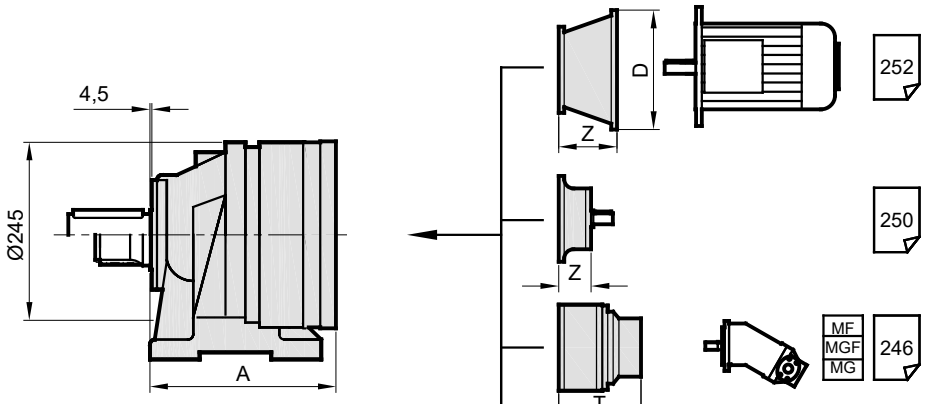
FVS



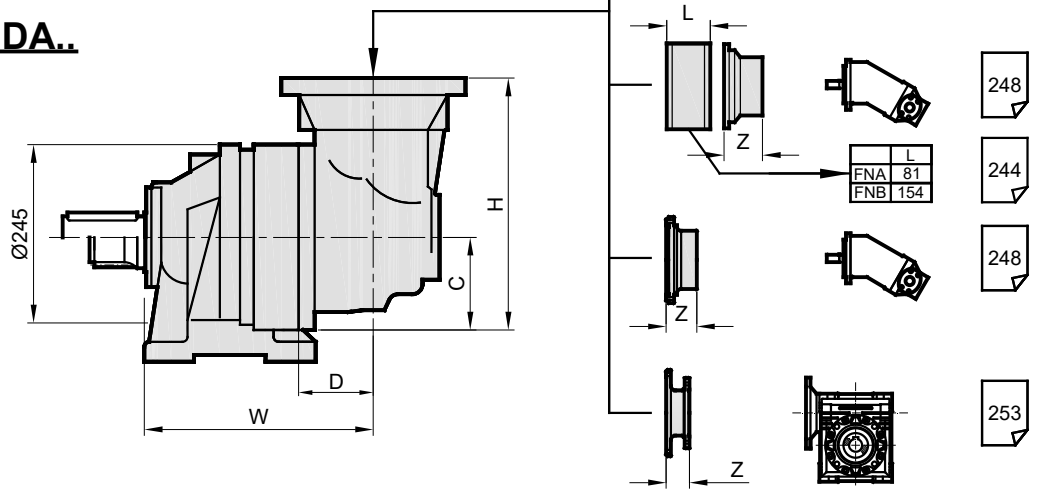
FVC



PD..



PDA..

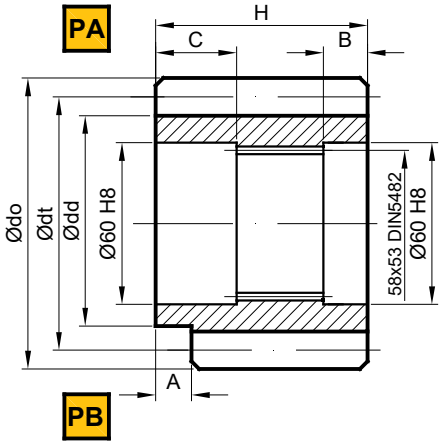


Stage	W	D	C	H	A	PD FVC	PDA FVC
S1	-	-	-	-	215	46	-
S2	290	75	92,5	253,5	263	52,4	63,4
S3	338	75	92,5	253,5	311	58,9	69,9
S4	386	75	92,5	253,5	359	65,6	76,6

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 105

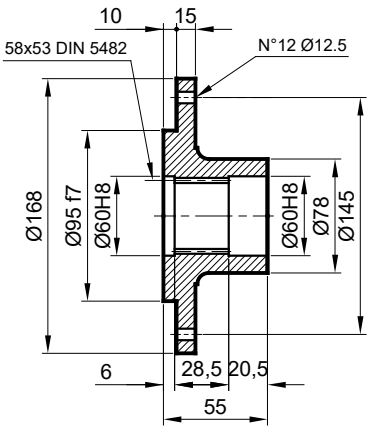
P *Pinyon / Pinion / Ritzel*



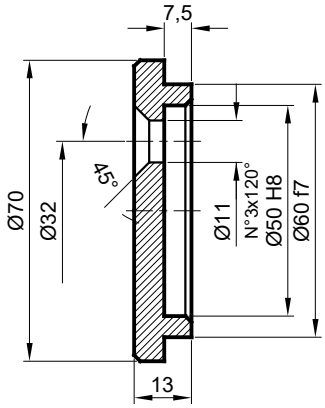
	m	z	x	dd	dt	do	H	A	B	C	Malzeme *Material* Material
PA	8	13	0	88	104	120	68	0	8.5	22.5	42CrMo4
PA	8	11	0.85	74.8	88	110.8	68	0	8.5	22.5	42CrMo4
PA	8	12	0.1	88	96	112.8	68	0	8	21	42CrMo4
PB	10	14	0.24	117.4	140	162.4	116	13	9.5	22.5	42CrMo4
PA	8	15	0	100	120	136	68	0	8.5	22.5	42CrMo4
PA	6	14	0.6	72.6	84	99.6	95	0	23	21	42CrMo4
PA	10	11	1.21	97.1	110	142.1	90	0	8	22.5	42CrMo4

FL Flanş / *Flange* / Flansch

	A	B
FS	68	37
HS	80	49



SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe

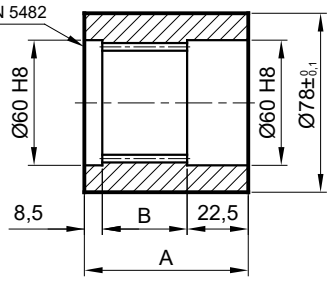


FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

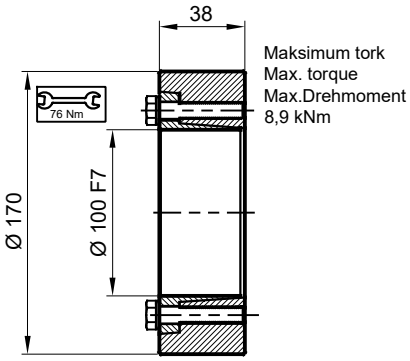
Malzeme /Material Material

DIN 1.7225
42CrMo4

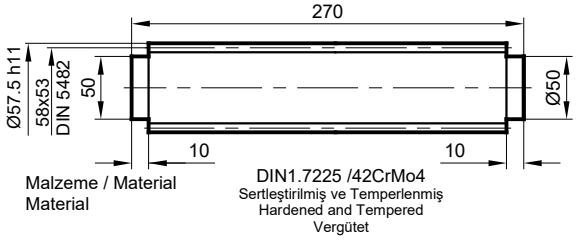
	A	B
FS	68	37
HS	80	49



SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



FM Frezeli Mil / Splined rod Außenverzahnte Welle



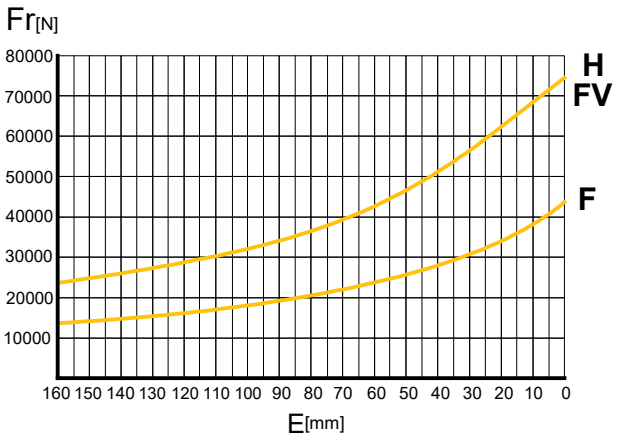
PD/PDA 105

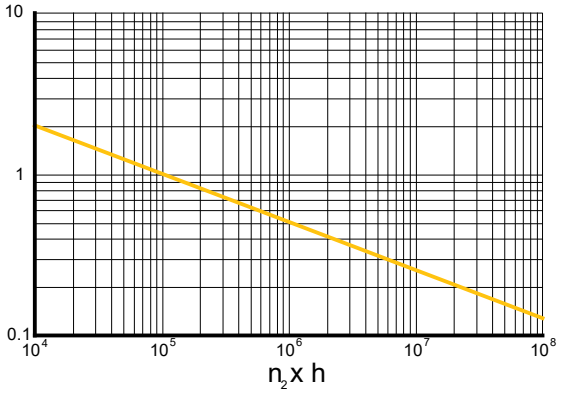
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

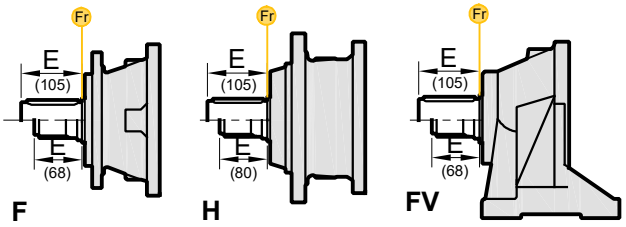
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

F-H-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
F-H	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

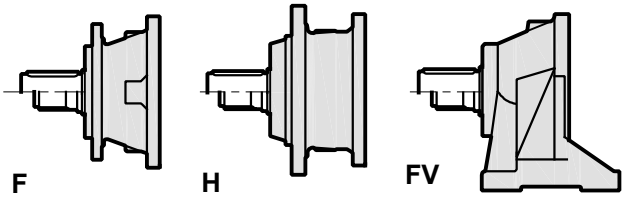


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

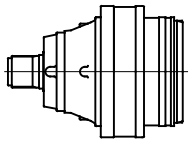
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

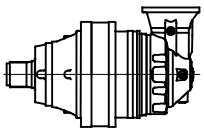
Fa [N]	F	H-FV	
	32000	32000	←
	32000	48000	→



PD 107

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 107 S1	3.77	5770	5110	4350	3850	2800	10220	20
	4.12	5260	4660	3970	3510	2800	9320	20
	5.16	4300	3810	3240	2870	2800	7620	20
	6.00	3770	3340	2840	2520	2800	6680	20
	7.25	2950	2610	2220	1970	2800	5220	20
PD 107 S2	13.4	5770	5110	4350	3850	2800	10220	15
	16.2	5770	5110	4350	3850	2800	10220	15
	18.4	4300	3810	3240	2870	2800	7620	15
	23.1	5260	4660	3970	3510	2800	9320	15
	28.9	4300	3810	3240	2870	2800	7620	15
	34.9	4300	3810	3240	2870	2800	7620	15
	40.5	3770	3340	2840	2520	2800	6680	15
	48.9	2950	2610	2220	1970	2800	5220	15
	62.8	2950	2610	2220	1970	2800	5220	15
PD 107 S3	52.2	5260	4660	3970	3510	2800	9320	10
	57.6	5770	5110	4350	3850	2800	10220	10
	62.9	5260	4660	3970	3510	2800	9320	10
	75.2	5770	5110	4350	3850	2800	10220	10
	82.1	5260	4660	3970	3510	2800	9320	10
	90.6	5770	5110	4350	3850	2800	10220	10
	99.0	5260	4660	3970	3510	2800	9320	10
	119.3	5260	4660	3970	3510	2800	9320	10
	129.4	5260	4660	3970	3510	2800	9320	10
	149.4	4300	3810	3240	2870	2800	7620	10
	155.9	5260	4660	3970	3510	2800	9320	10
	162.0	4300	3810	3240	2870	2800	7620	10
	173.5	3770	3340	2840	2520	2800	6680	10
	195.3	4300	3810	3240	2870	2800	7620	10
	235.4	4300	3810	3240	2870	2800	7620	10
	273.4	3770	3340	2840	2520	2800	6680	10
	302.3	4300	3810	3240	2870	2800	7620	10
	330.3	2950	2610	2220	1970	2800	5220	10
	424.1	2950	2610	2200	1970	2800	5220	10
PD 107 S4	351.9	5260	4660	3970	3510	2800	9320	6
	365.8	4300	3810	3240	2870	2800	7620	6
	388.5	5770	5110	4350	3850	2800	10220	6
	413.9	5770	5110	4350	3850	2800	10220	6
	424.2	5260	4660	3970	3510	2800	9320	6
	468.2	5770	5110	4350	3850	2800	10220	6
	511.3	5260	4660	3970	3510	2800	9320	6
	554.3	5260	4660	3970	3510	2800	9320	6
	611.9	5770	5110	4350	3850	2800	10220	6
	668.3	5260	4660	3970	3510	2800	9320	6
	737.6	5770	5110	4350	3850	2800	10220	6
	805.4	5260	4660	3970	3510	2800	9320	6
	857.9	5260	4660	3970	3510	2800	9320	6
	907.4	4300	3810	3240	2870	2800	7620	6
	1052.5	5260	4660	3970	3510	2800	9320	6
	1121.1	5260	4660	3970	3510	2800	9320	6
	1318.3	4300	3810	3240	2870	2800	7620	6
	1589.0	4300	3810	3240	2870	2800	7620	6
	1845.3	3770	3340	2840	2520	2800	6680	6
	2369.3	3770	3340	2840	2520	2800	6680	6

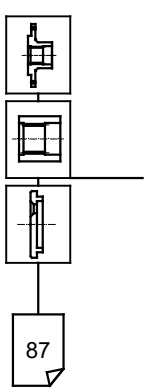
PDA 107

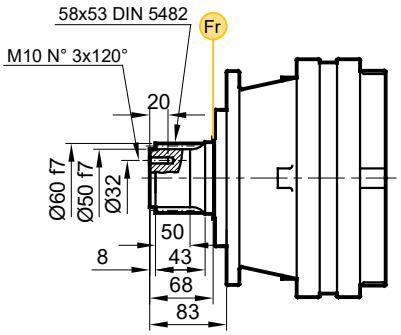
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 107 S2	13.0	5770	5110	4350	3850	2800	10220	15
	14.2	5260	4660	3970	3510	2800	9320	15
	17.8	4300	3810	3240	2870	2800	7620	15
	20.6	3770	3340	2840	2520	2800	6680	15
PDA 107 S3	39.4	5770	5110	4350	3850	2800	10220	10
	47.4	5770	5110	4350	3850	2800	10220	10
	53.8	4300	3810	3240	2870	2800	7620	10
	67.7	5260	4660	3970	3510	2800	9320	10
	75.3	3770	3340	2840	2520	2800	6680	10
	84.8	4300	3810	3240	2870	2800	7320	10
	91.0	2950	2610	2220	1970	2800	5220	10
	102.2	4300	3810	3240	2870	2800	7620	10
	118.7	3770	3340	2840	2520	2800	6680	10
	143.4	2950	2610	2220	1970	2800	5220	10
PDA 107 S4	139.9	5770	5110	4350	3850	2800	10220	6
	168.6	5770	5110	4350	3850	2800	10220	6
	184.1	5260	4660	3970	3510	2800	9320	6
	220.4	5770	5110	4350	3850	2800	10220	6
	240.7	5260	4660	3970	3510	2800	9320	6
	265.6	5770	5110	4350	3850	2800	10220	6
	290.0	5260	4660	3970	3510	2800	9320	6
	320.2	5770	5110	4350	3850	2800	10220	6
	349.6	5260	4660	3970	3510	2800	9320	6
	421.9	3770	3340	2840	2520	2800	6680	6
	448.8	5260	4660	3970	3510	2800	9320	6
	474.7	4300	3810	3240	2870	2800	7620	6
	508.5	3770	3340	2840	2520	2800	6680	6
	551.3	3770	3340	2840	2520	2800	6680	6
	614.4	2950	2610	2220	1970	2800	5220	6
	664.5	3770	3340	2840	2520	2800	6680	6
	734.7	4300	3810	3240	2870	2800	7620	6
	801.0	3770	3340	2840	2520	2800	6680	6
	1242.7	2950	2610	2220	1970	2800	5220	6

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

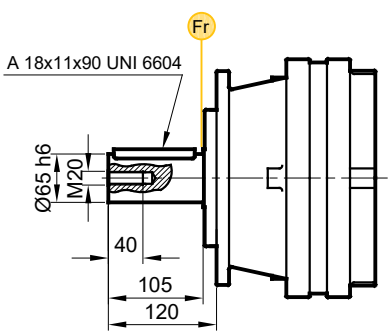
PD/PDA 107

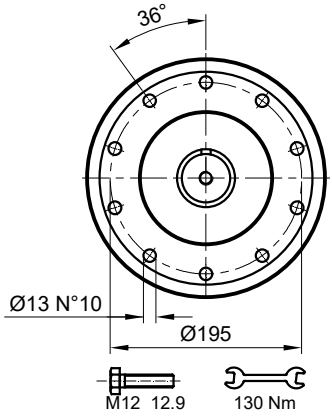
FS



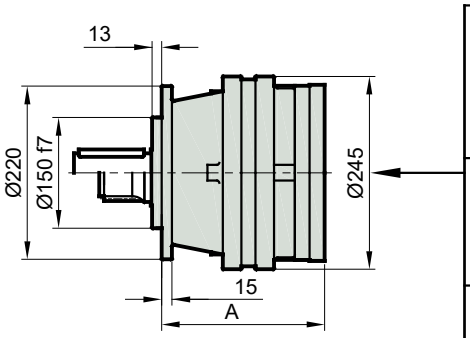


FC

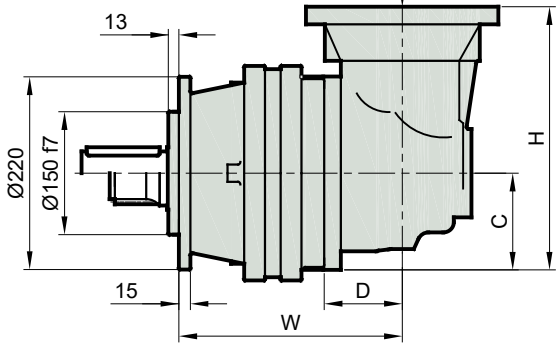


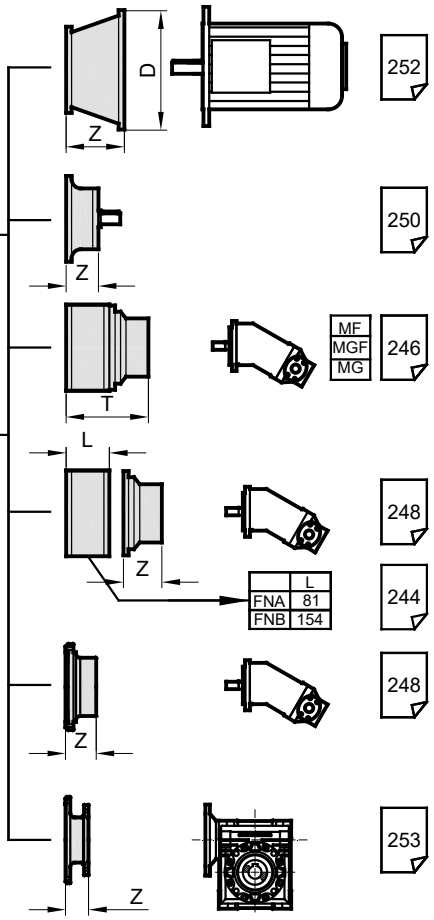


PD..



PDA..

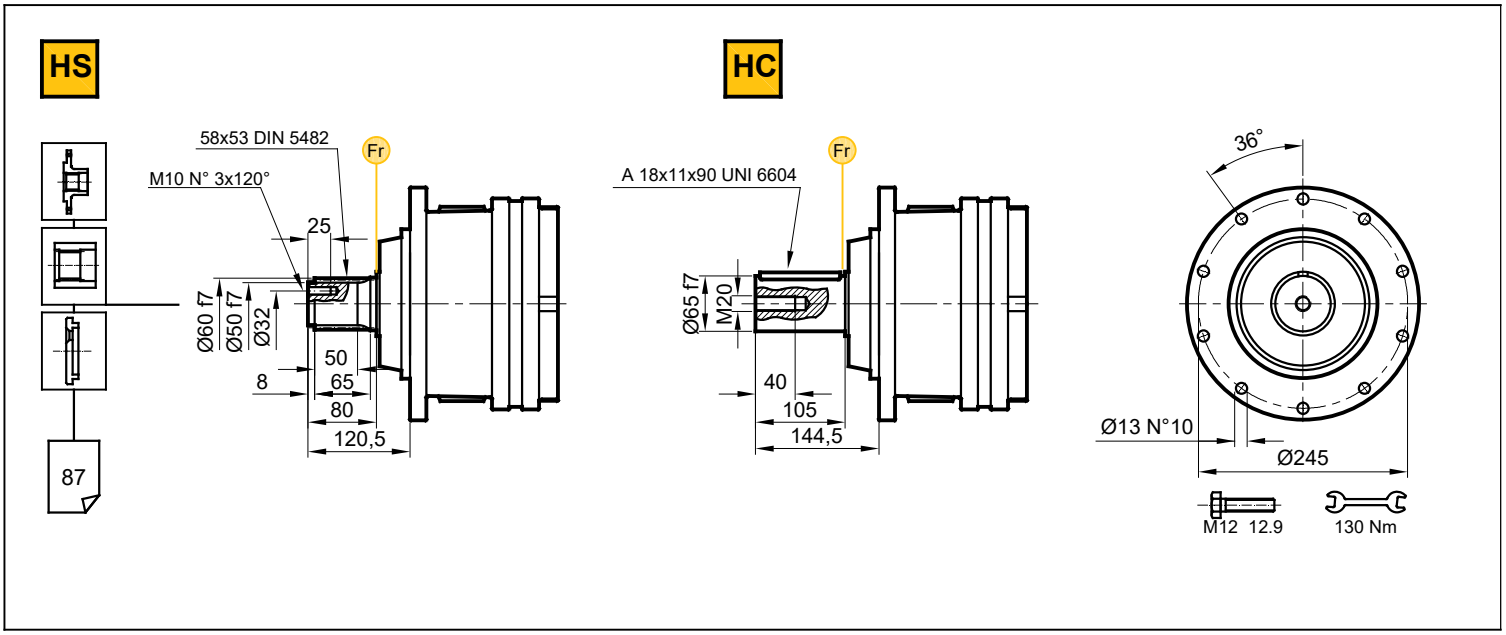


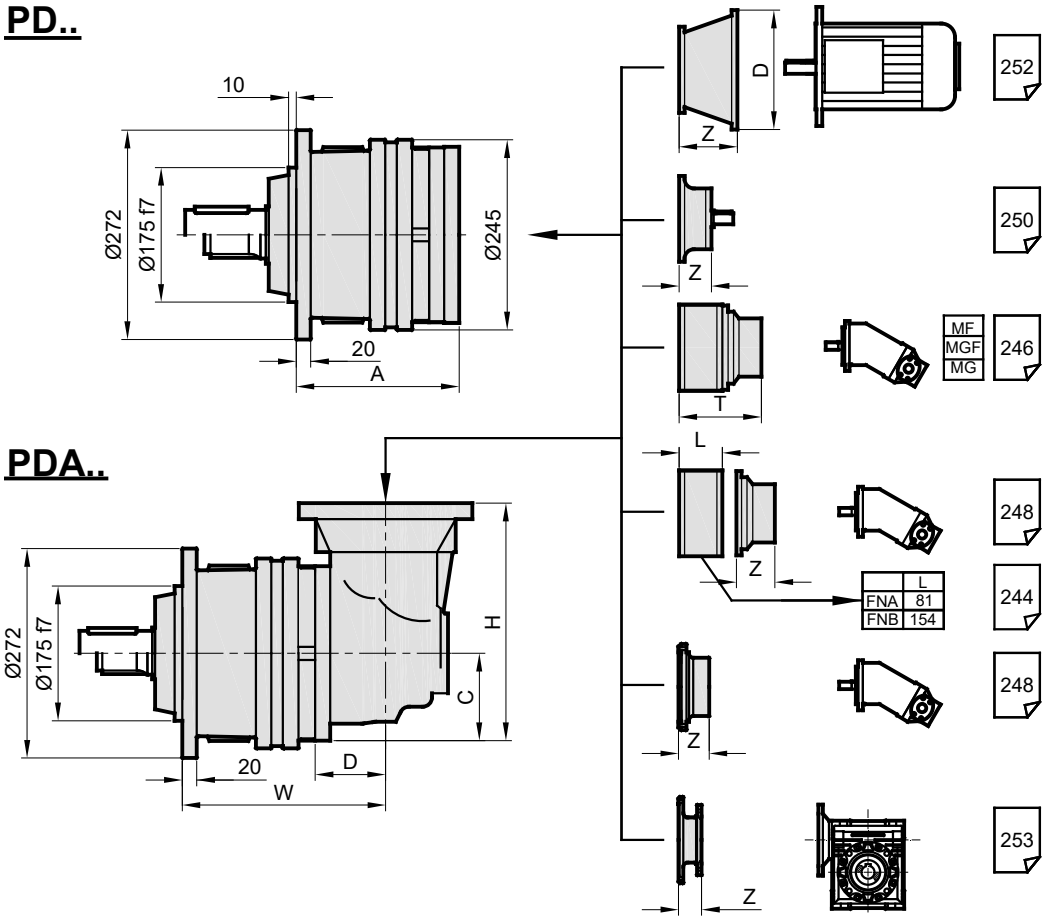


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	178	36,1	-
S2	244,5	103	122	319	239	40,4	64,8
S3	315,5	75	92,5	253,5	287	50,5	61,5
S4	363,5	75	92,5	253,5	335	57,2	68,2

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 107



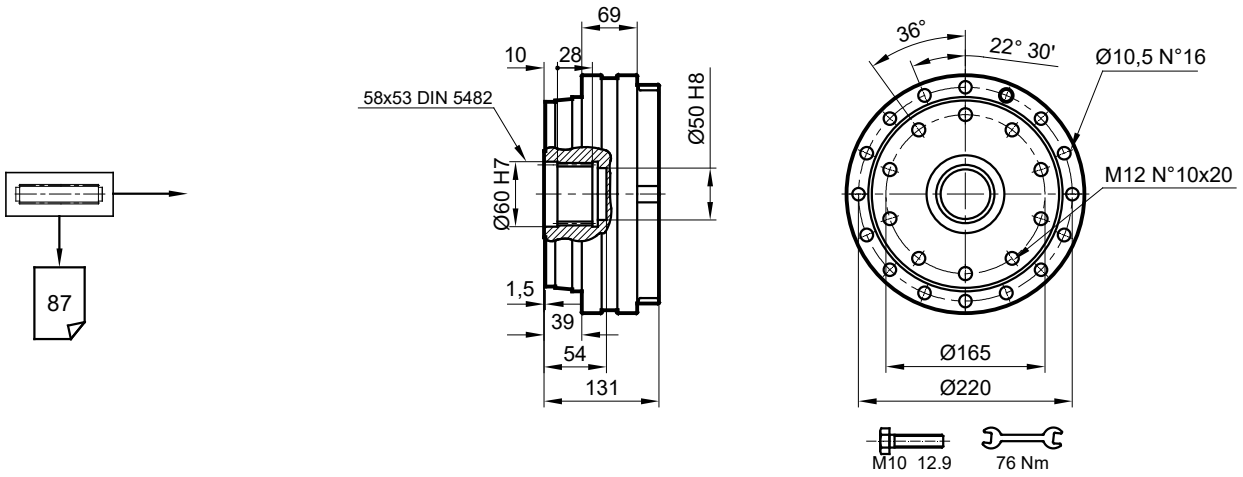


Stage	W	D	C	H	A	PD H	PDA H
S1	-	-	-	-	186	42,2	-
S2	251	103	122	319	247	46,5	70,9
S3	322	75	92,5	253,5	295	56,6	67,6
S4	370	75	92,5	253,5	343	63,3	74,3

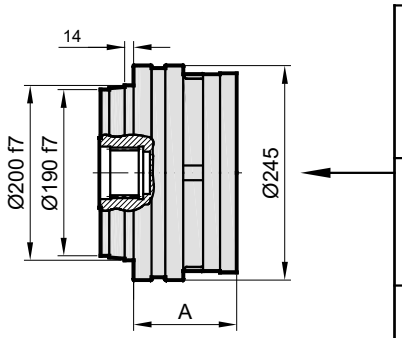
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 107

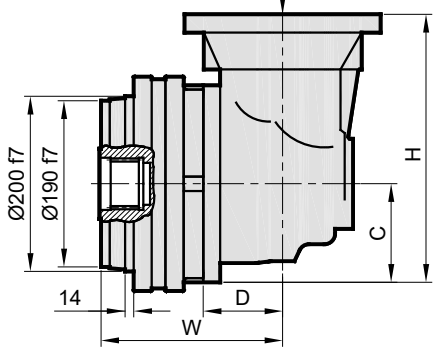
S

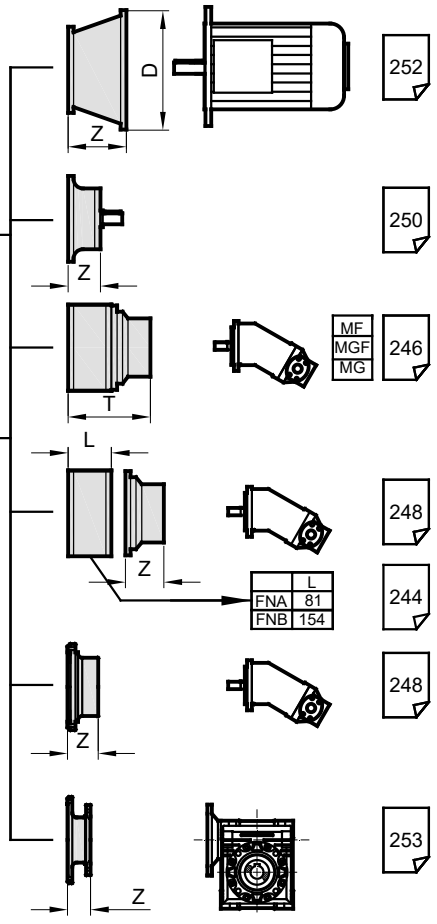


PD..



PDA..



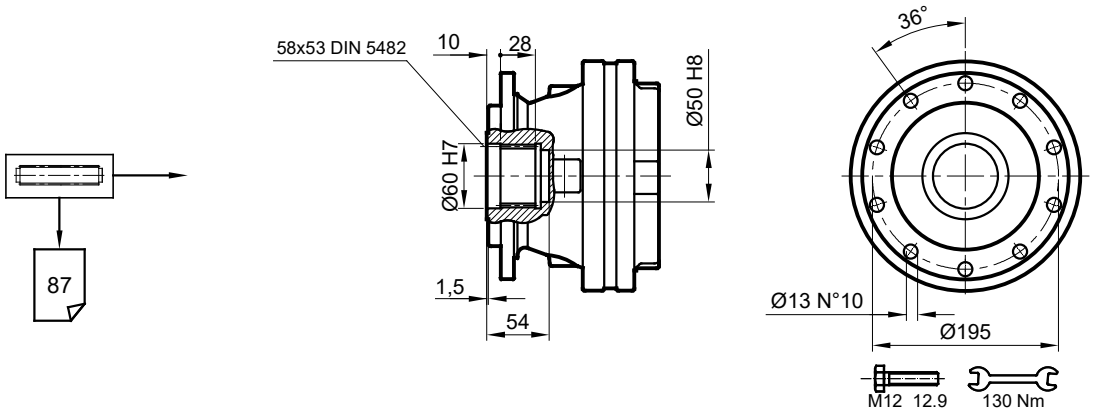


Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	129,5	21,9	-
S2	194,5	103	122	319	190,5	26,2	50,6
S3	266	75	92,5	253,5	238,5	36,3	47,3
S4	314	75	92,5	253,5	286,5	43	54

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

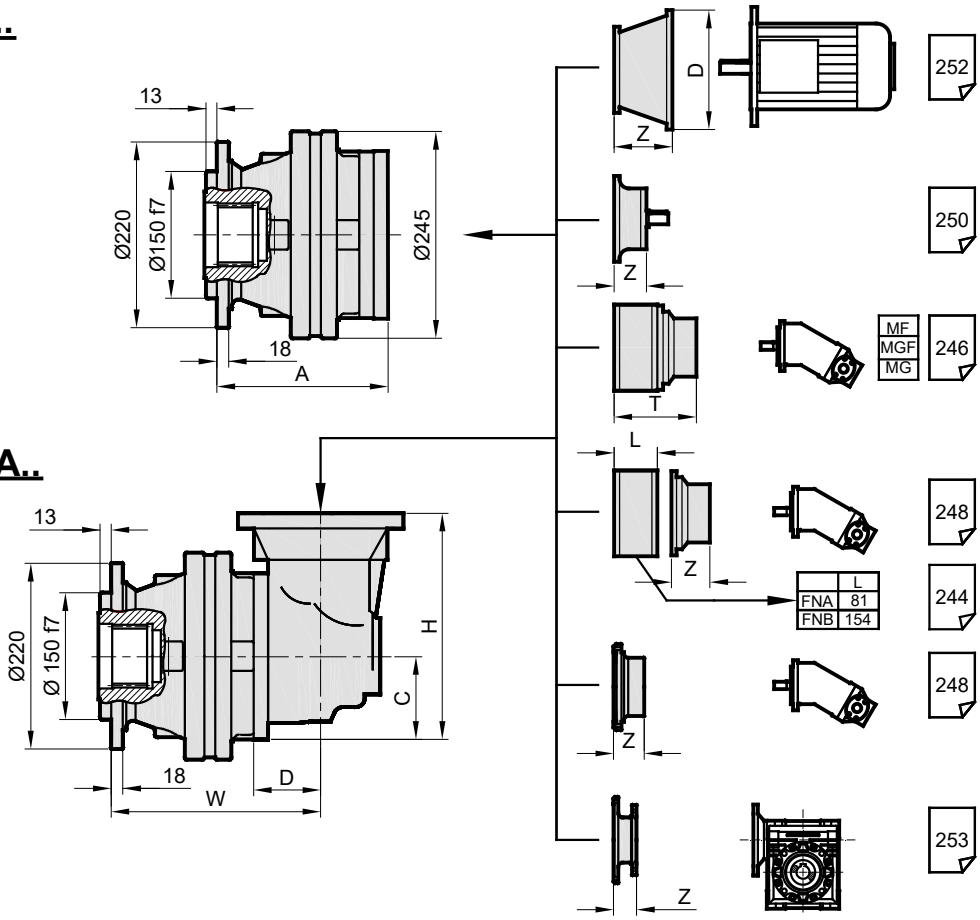
PD/PDA 107

SF



PD..

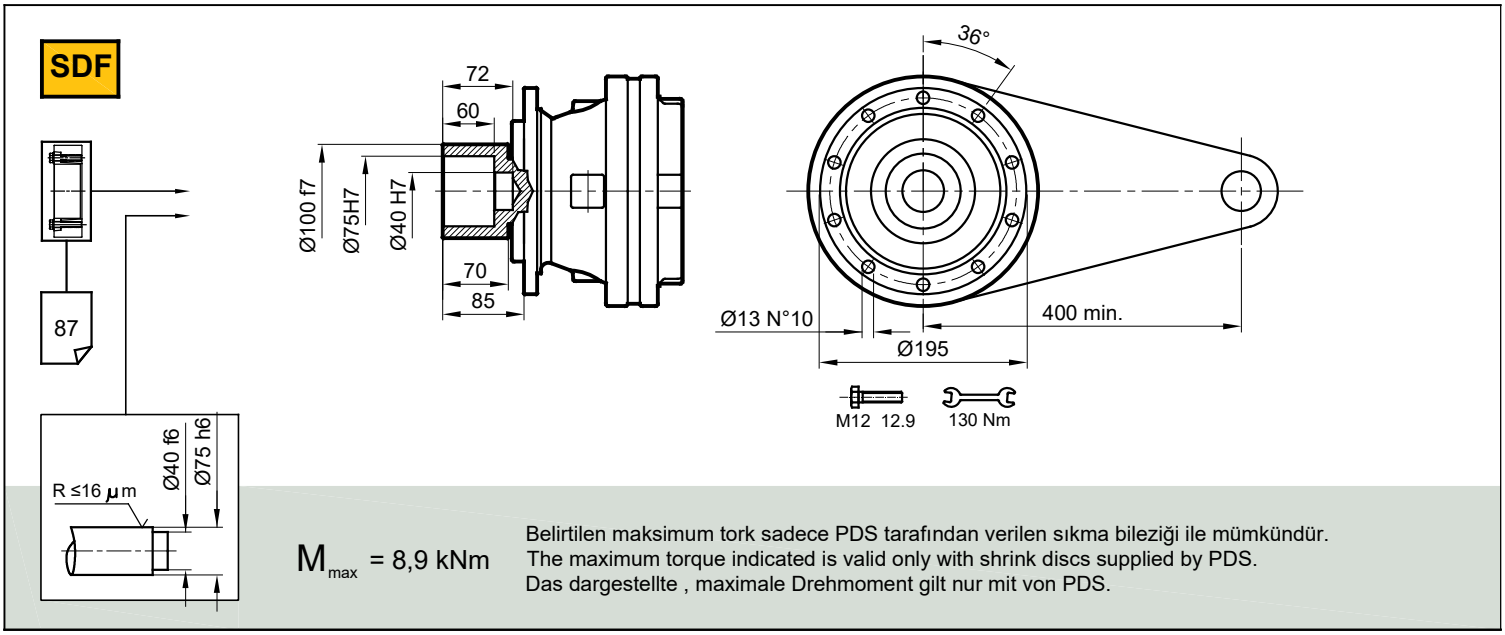
PDA..

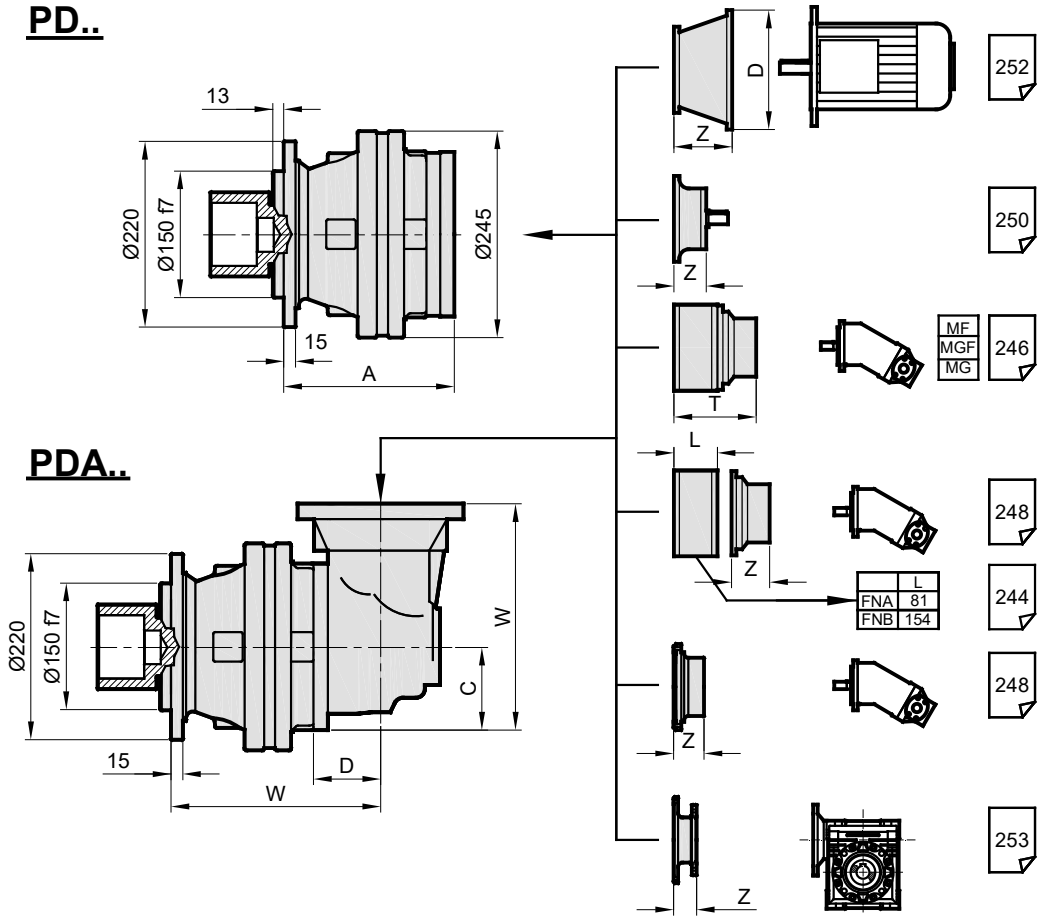


Stage	W	D	C	H	A	PD SF	PDA SF
S1	-	-	-	-	179	32,6	-
S2	244,5	103	122	319	240	36,9	61,3
S3	315,5	75	92,5	253,5	288	47	58
S4	363,5	75	92,5	253,5	336	53,7	64,7

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 107



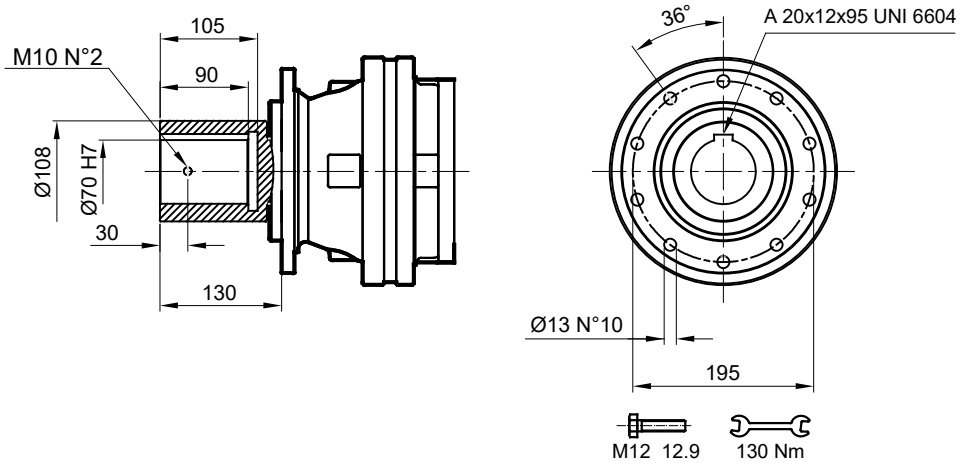


Stage	W	D	C	H	A	PD SDF	PDA SDF
S1	-	-	-	-	179	35,7	–
S2	244,5	103	122	319	240	40	64,4
S3	315,5	75	92,5	253,5	288	50,1	61,1
S4	363,5	75	92,5	253,5	336	56,8	67,8

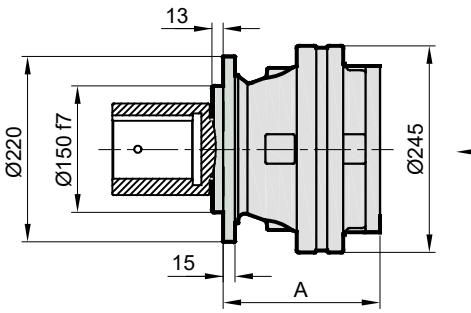
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 107

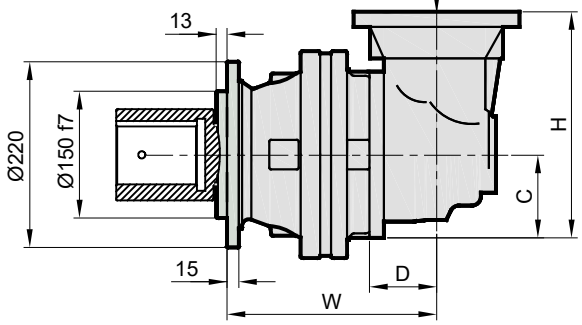
DKM

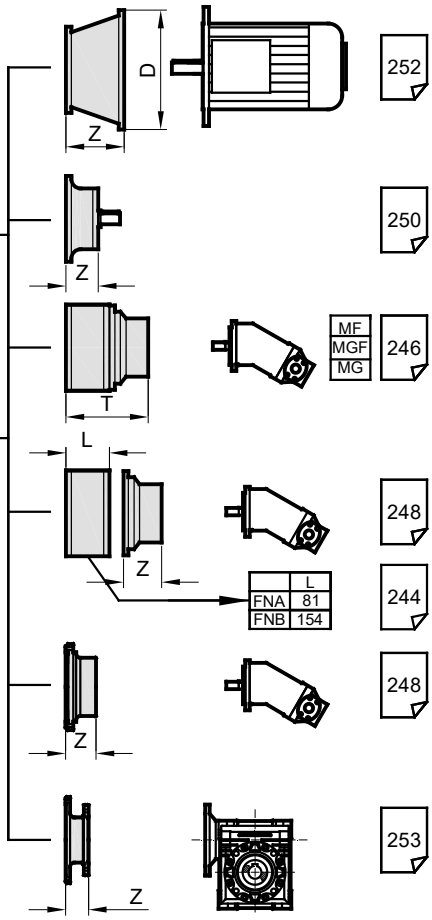


PD..



PDA..



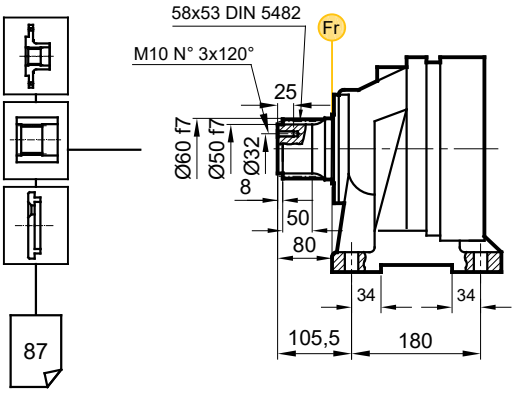


Stage	W	D	C	H	A	PD DKM	PDA DKM
S1	-	-	-	-	179	38,4	-
S2	244,5	103	122	319	140	42,7	67,1
S3	315,5	75	92,5	253,5	288	52,8	63,8
S4	363,5	75	92,5	253,5	336	59,5	70,5

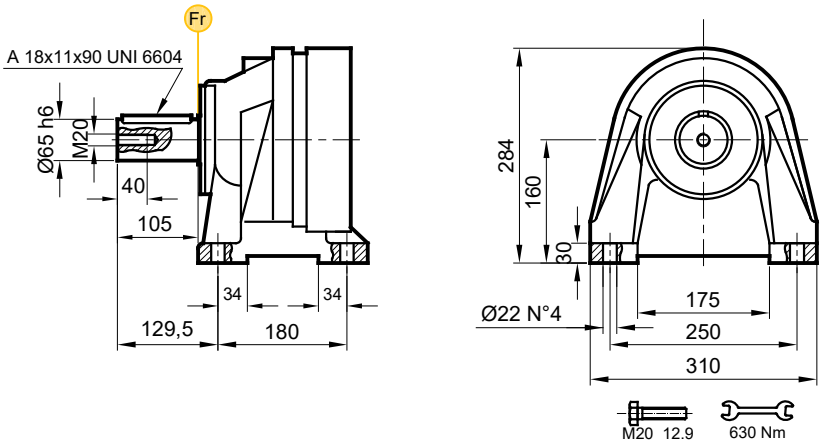
	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 107

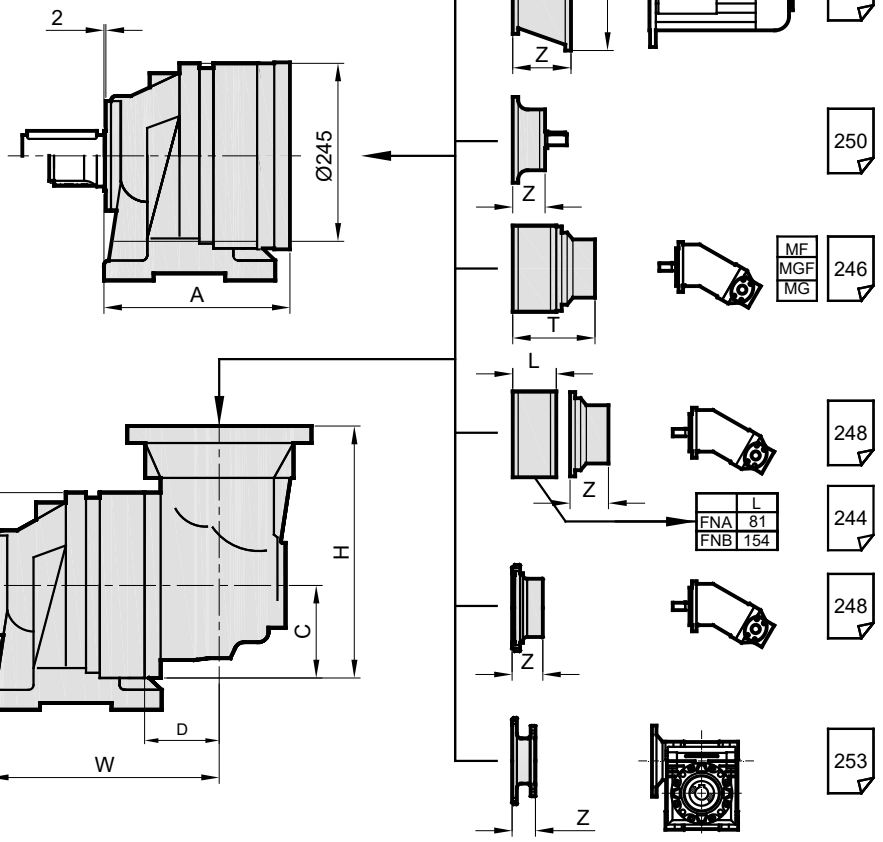
FVS



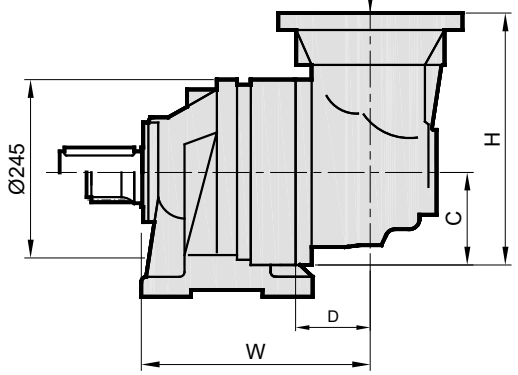
FVC



PD..



PDA..

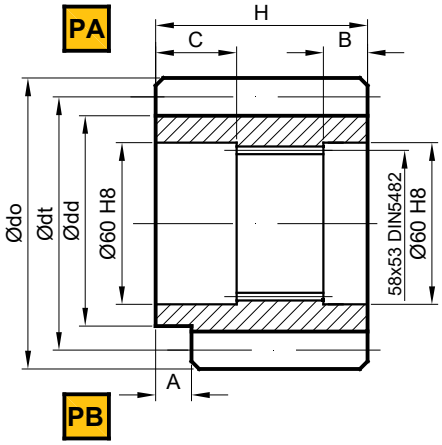


Stage	W	D	C	H	A	PD FVC	PDA FVC
S1	-	-	-	-	225	49,9	-
S2	290,5	103	122	319	286	54,2	78,6
S3	362	75	92,5	253,5	334	64,3	75,3
S4	410	75	92,5	253,5	382	71	82

	H71		H80 / 90		H100 / 112		H132		H160 / 180	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z
S1	185	35,5	201	61,5	247	71	300	104	350	120,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5
S3	185	35,5	201	61,5	-	-	300	104	350	120,5
S4	185	35,5	201	61,5	-	-	300	104	350	120,5

PD/PDA 107

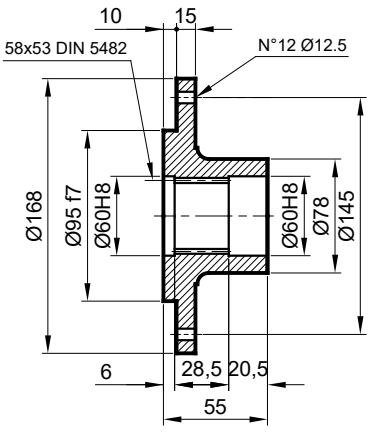
P *Pinyon / Pinion / Ritzel*



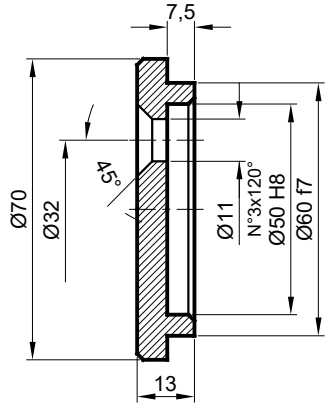
	m	z	x	dd	dt	do	H	A	B	C	Malzeme Material Material
PA	8	13	0	88	104	120	68	0	8.5	22.5	42CrMo4
PA	8	11	0.85	74.8	88	110.8	68	0	8.5	22.5	42CrMo4
PA	8	12	0.1	88	96	112.8	68	0	8	21	42CrMo4
PB	10	14	0.24	117.4	140	162.4	116	13	9.5	22.5	42CrMo4
PA	8	15	0	100	120	136	68	0	8.5	22.5	42CrMo4
PA	6	14	0.6	72.6	84	99.6	95	0	23	21	42CrMo4
PA	10	11	1.21	97.1	110	142.1	90	0	8	22.5	42CrMo4

FL Flanş / *Flange* / Flansch

	A	B
FS	68	37
HS	80	49



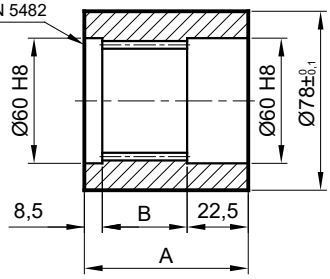
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



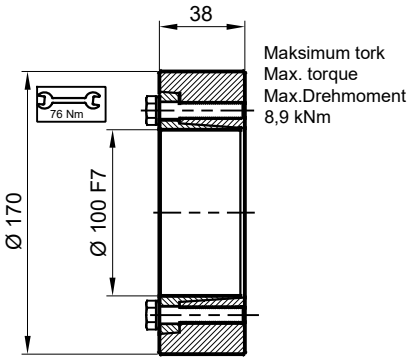
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material Material
DIN 1.7225
42CrMo4

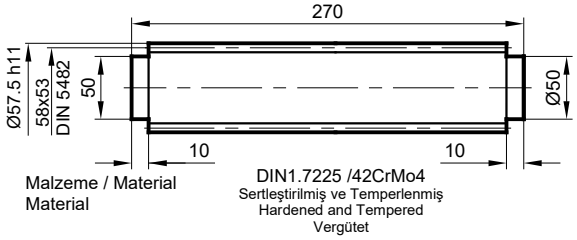
	A	B
FS	68	37
HS	80	49



SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



FM Frezeli Mil / Splined rod Außenverzahnte Welle



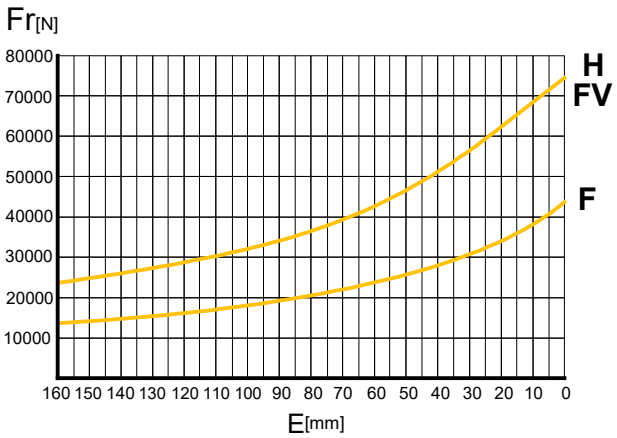
PD/PDA 107

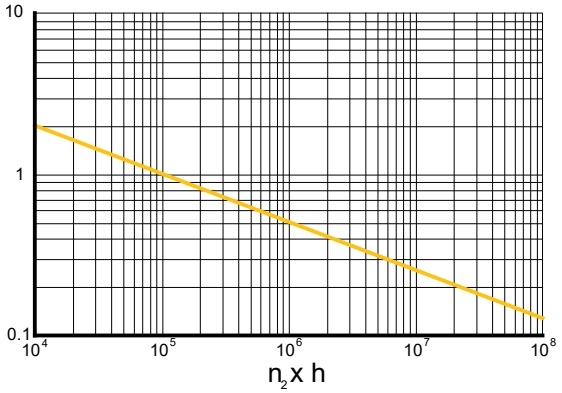
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

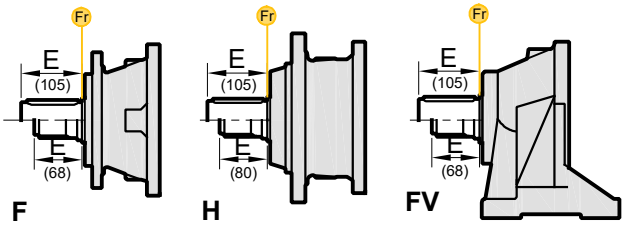
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

F-H-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
F-H	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

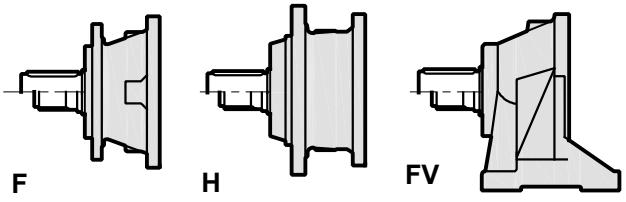


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

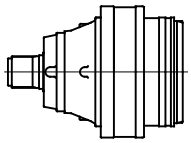
AXIAL LOADS (Fa)
The values of the awial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	F	H-FV	
	32000	32000	←
	32000	48000	→



PD 109

	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PD 109 S1	3.66	7930	7020	5970	5290	2800	14040	30
	4.42	7240	6410	5450	4830	2800	12820	30
	5.00	6360	5630	4790	4240	2800	11260	30
	5.80	5380	4760	4050	3590	2800	9520	30
	7.00	4350	3850	3280	2900	2800	7700	30
PD 109 S2	13.9	7930	7020	5970	5290	2800	14020	18
	15,1	7930	7020	5970	5290	2800	14020	18
	18.9	7930	7020	5970	5290	2800	14020	18
	20.6	6360	5630	4790	4240	2800	11260	18
	22.9	7240	6410	5450	4830	2800	12820	18
	26.6	7240	6410	5450	4830	2800	12820	18
	30.0	6360	5630	4790	4240	2800	11260	18
	36.3	6360	5630	4790	4240	2800	11260	18
	42.1	5380	4760	4050	3590	2800	9520	18
	50.8	4350	3850	3280	2900	2800	7700	18
PD 109 S3	53.8	7930	7020	5970	5290	2800	14040	14
	64.8	7930	7020	5970	5290	2800	14040	14
	71.7	7240	6410	5450	4830	2800	12820	14
	78.2	7930	7020	5970	5290	2800	14040	14
	88.3	6360	5630	4790	4240	2800	11260	14
	93.7	7240	6410	5450	4830	2800	12820	14
	102.1	7930	7020	5970	5290	2800	14040	14
	112.9	7240	6410	5450	4830	2800	12820	14
	127.9	7930	7020	5970	5290	2800	14040	14
	139.2	6360	5630	4790	4240	2800	11260	14
	148.5	7930	7020	5970	4830	2800	12820	14
	154.5	7240	6410	5450	5290	2800	14040	14
	174.4	6360	5630	4790	4240	2800	11260	14
	194.9	5380	4760	4050	3590	2800	9520	14
	216.7	7240	6410	5450	4830	2800	12820	14
	244.7	6360	5630	4790	4240	2800	11260	14
	283.8	5380	4760	4050	3590	2800	9520	14
	342.6	4350	3850	3280	2900	2800	7700	14
PD 109 S4	301.2	7930	7020	5970	5290	2800	14040	8
	332.4	7930	7020	5970	5290	2800	14040	8
	347.8	7930	7020	5970	5290	2800	14040	8
	400.7	7930	7020	5970	5290	2800	14400	8
	434.4	7930	7020	5970	5290	2800	14400	8
	474.3	7930	7020	5970	5290	2800	14400	8
	523.6	7930	7020	5970	5290	2800	14400	8
	571.7	7930	7020	5970	5290	2800	14400	8
	632.4	7240	6410	5450	4830	2800	12820	8
	661.8	7240	6410	5450	4830	2800	12820	8
	747.2	6360	5630	4790	4240	2800	11260	8
	768.6	7240	6410	5450	4830	2800	12820	8
	832.3	7240	6410	5450	4830	2800	12820	8
	869.9	6360	5630	4790	4240	2800	11260	8
	976.5	6360	5630	4790	4240	2800	11260	8
	1048.5	6360	5630	4790	4240	2800	11260	8
	1177.0	6360	5630	4790	4240	2800	11260	8
	1366.9	6360	5630	4790	4240	2800	11260	8
	1651.6	6360	5630	4790	4240	2800	11260	8
	2968.9	4350	3850	3280	2900	2800	7700	8

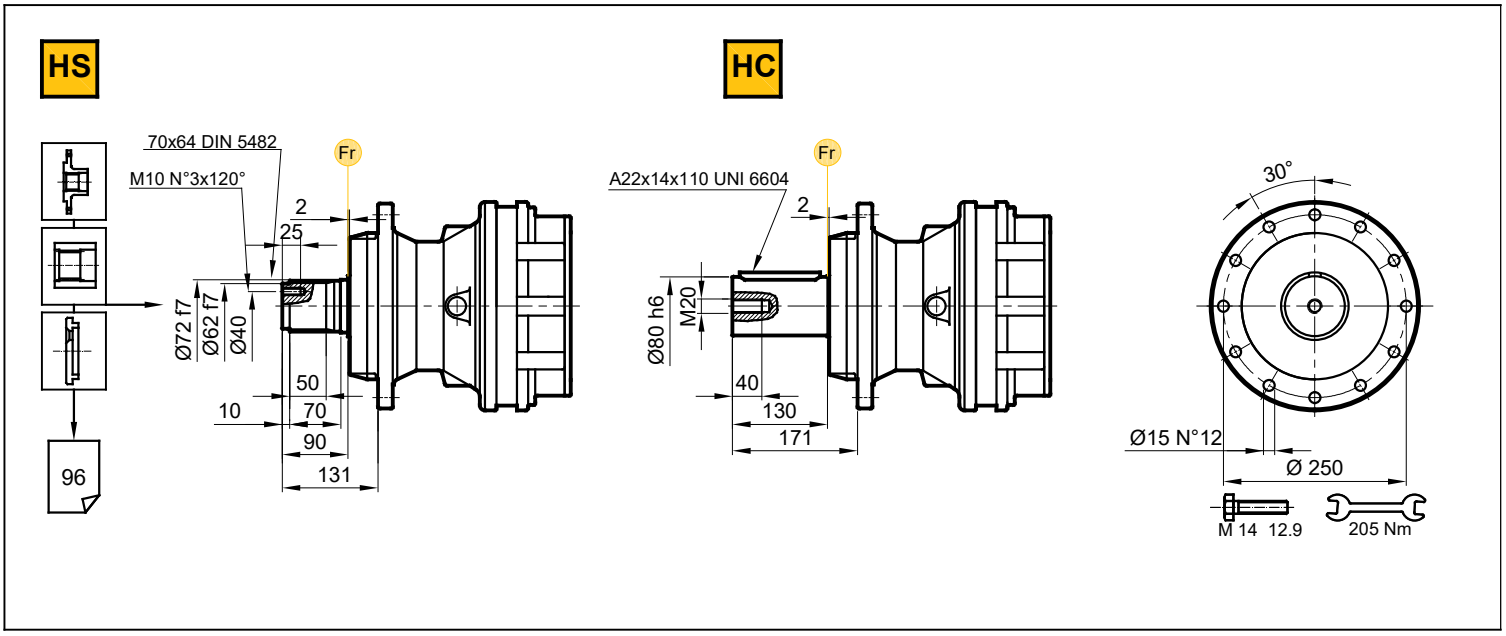
PDA 109

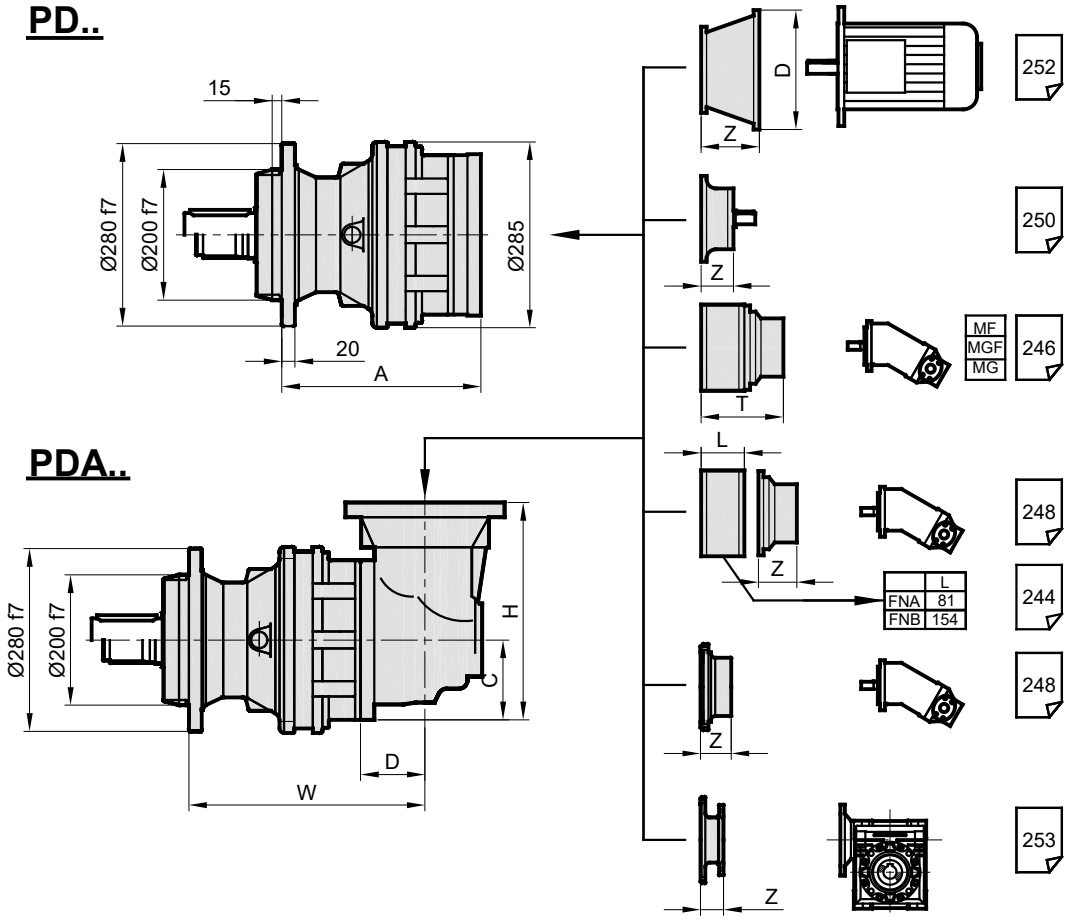
	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PDA 109 S2	12.3	7930	7020	5970	5290	2800	14040	18
	14.9	7240	6410	5450	4830	2800	12820	18
	16.8	6360	5630	4790	4240	2800	11260	18
	19.5	5380	4760	4050	3590	2800	9520	18
	20.5	7240	6410	5450	4830	2800	12820	18
	23.1	6360	5630	4790	4240	2800	11260	18
	26.8	5380	4760	4050	3590	2800	9520	18
	32.4	4350	3850	3280	2900	2800	7700	18
PDA 109 S3	53.5	7240	6410	5450	4830	2800	12820	14
	60.4	6360	5630	4790	4240	2800	11260	14
	67.1	7240	6410	5450	4830	2800	12820	14
	77.9	7240	6410	5450	4830	2800	12820	14
	87.9	6360	5630	4790	4240	2800	11260	14
	94.1	7240	6410	5450	4830	2800	12820	14
	106.2	6360	5630	4790	4240	2800	11260	14
	123.2	5380	4760	4050	3590	2800	9520	14
	148.7	4350	3850	3280	2900	2800	7700	14
PDA 109 S4	157.6	7930	7020	5970	5290	2800	14040	8
	174.3	7240	6410	5450	4830	2800	12820	8
	190.3	7240	6410	5450	4830	2800	12820	8
	210.1	7240	6410	5450	4830	2800	12820	8
	229.2	7930	7020	5970	5290	2800	14040	8
	248.2	7930	7020	5970	5290	2800	14040	8
	274.5	7240	6410	5450	4830	2800	12820	8
	299.1	7930	7020	5970	5290	2800	14040	8
	330.9	7240	6410	5450	4830	2800	12820	8
	361.3	7240	6410	5450	4830	2800	12820	8
	392.6	5380	4760	4050	3590	2800	9520	8
	452.5	7240	6410	5450	4830	2800	12820	8
	510.9	6360	5630	4790	4240	2800	11260	8
	556.4	5380	4760	4050	3590	2800	9520	8
	593.3	6360	5630	4790	4240	2800	11260	8
	656.0	6360	5630	4790	4240	2800	11260	8
	716.9	6360	5630	4790	4240	2800	11260	8
	831.6	5380	4760	4050	3590	2800	9520	8
	920.5	6360	5630	4790	4240	2800	11260	8
	1067.8	5380	4760	4050	3590	2800	11260	8

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max} = T_2 \times 2}$

R01-2020

PD/PDA 109



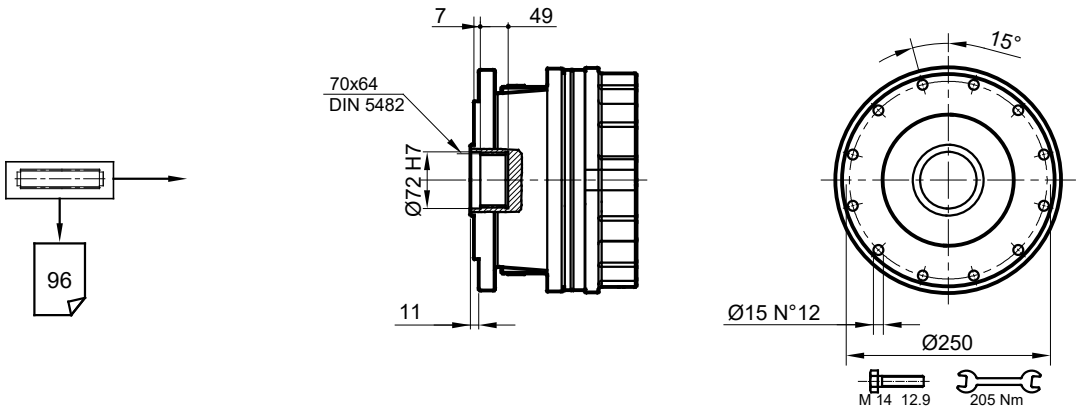


Stage	W	D	C	H	A	PD H	PDA H
S1	-	-	-	-	250,5	65	-
S2	314	118,5	140	390	310,5	77	115
S3	386	75	92,5	253,5	358,5	83	94
S4	434	75	92,5	253,5	406,5	90	101

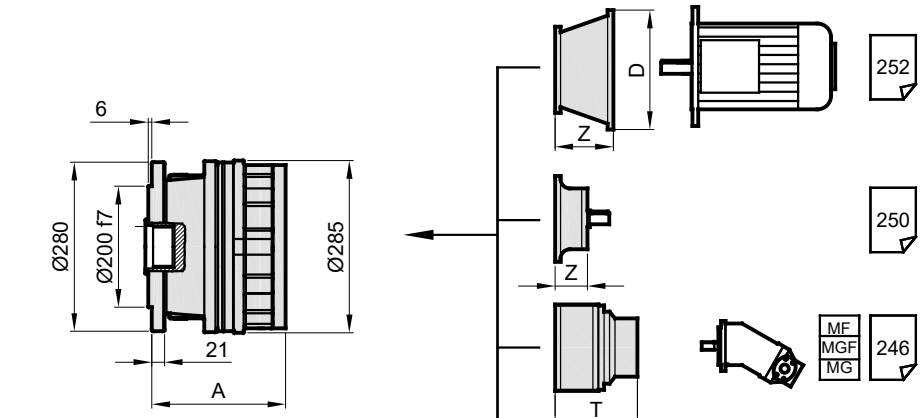
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 109

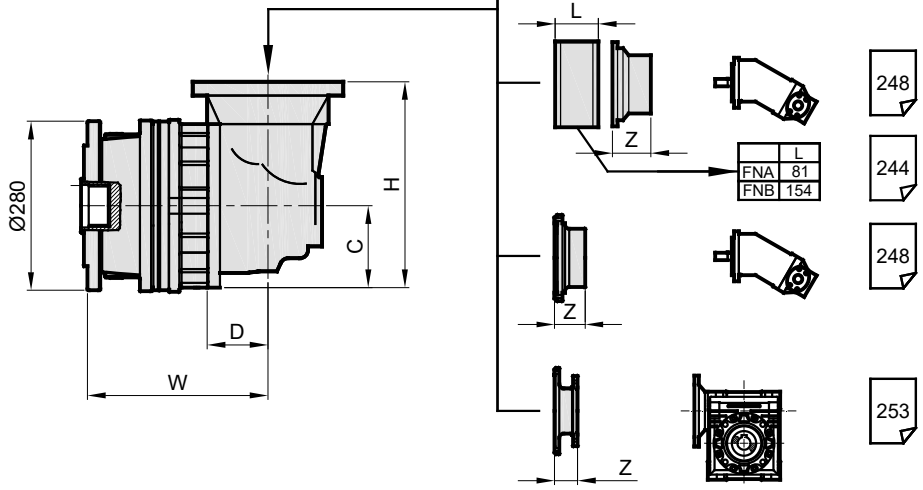
SF



PD..



PDA..

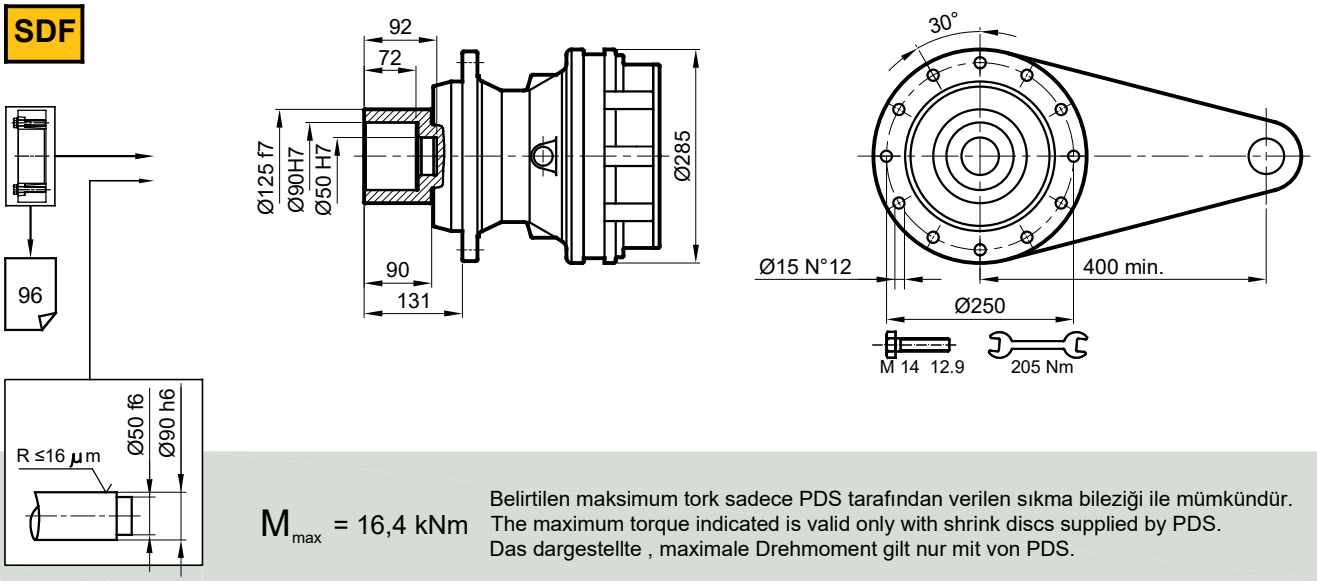


Stage	W	D	C	H	A	PD SF	PDA SF
S1	-	-	-	-	196	47	-
S2	259,5	118,5	140	390	256	60	97
S3	331,5	75	92,5	253,5	304	66	77
S4	379,5	75	92,5	253,5	352	73	84

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 109

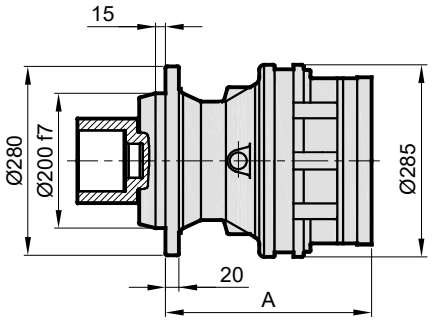
SDF



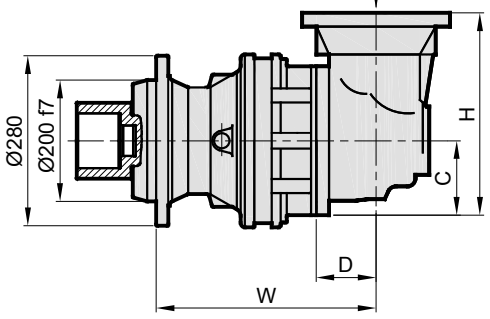
M_{max} = 16,4 kNm

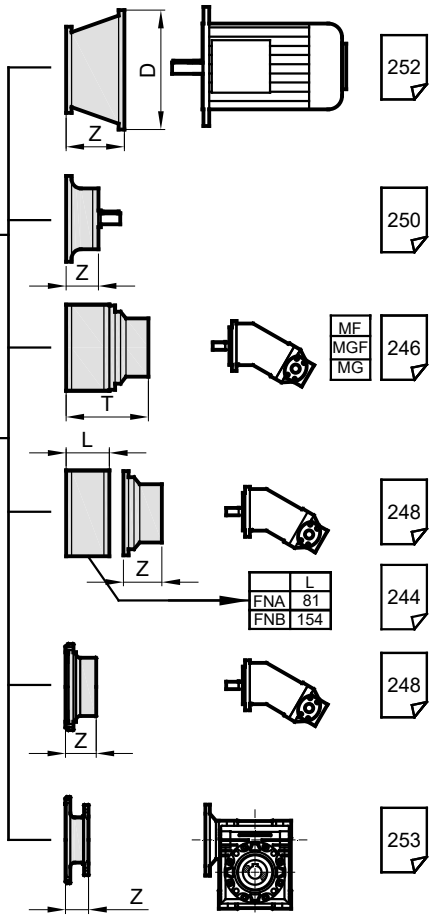
Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..



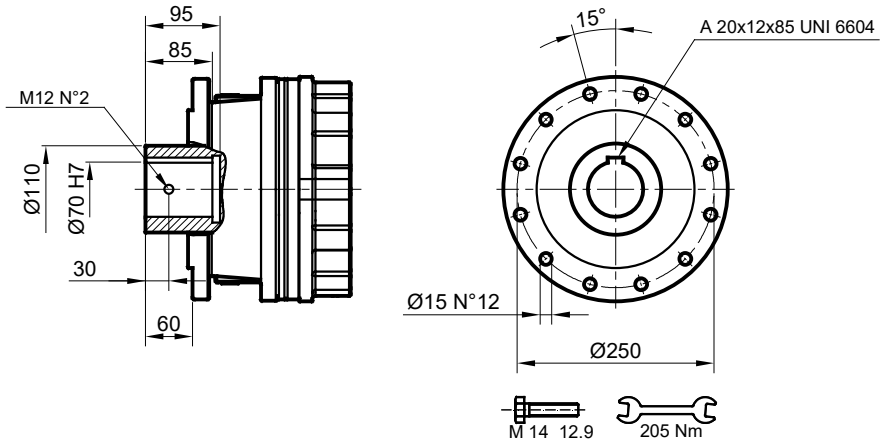


Stage	W	D	C	H	A	PD SDF	PDA SDF
S1	-	-	-	-	250,5	64	-
S2	314	118,5	140	390	310,5	76	114
S3	386	75	92,5	253,5	358,5	83	94
S4	434	75	92,5	253,5	406,5	89	100

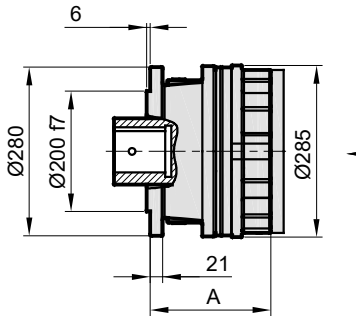
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 109

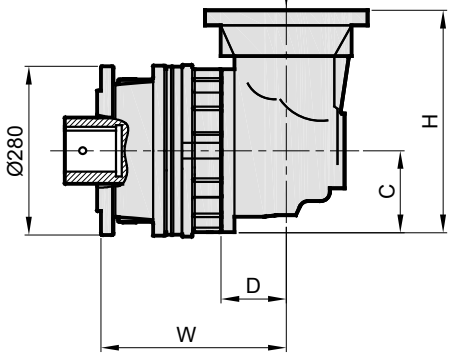
DKM

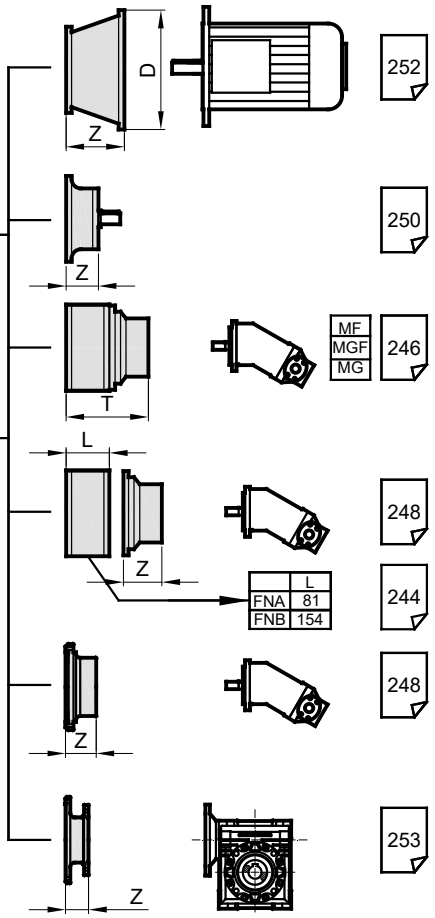


PD..



PDA..



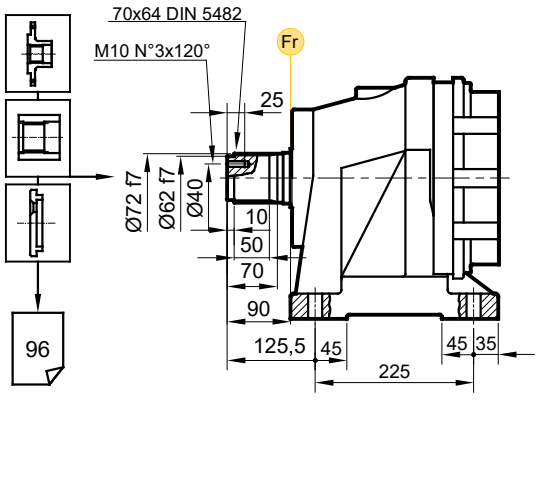


Stage	W	D	C	H	A	PD DKM	PDA DKM
S1	-	-	-	-	196	51	-
S2	259,5	118,5	140	390	256	63	100
S3	331,5	75	92,5	253,5	304	69	80
S4	379,5	75	92,5	253,5	352	76	87

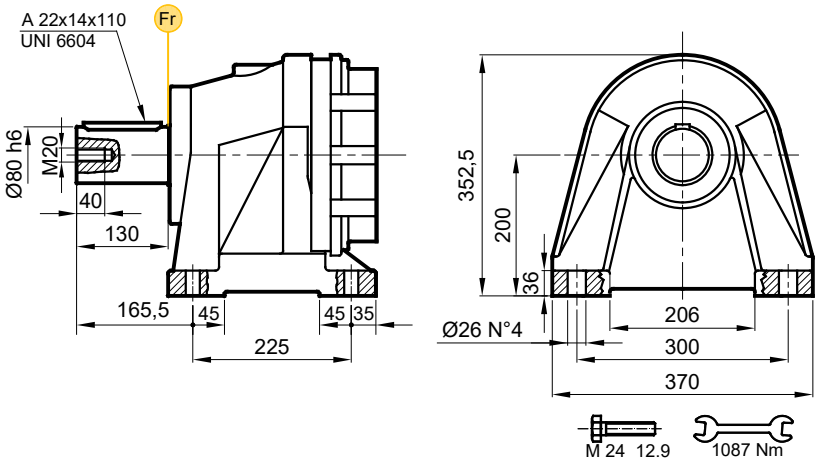
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 109

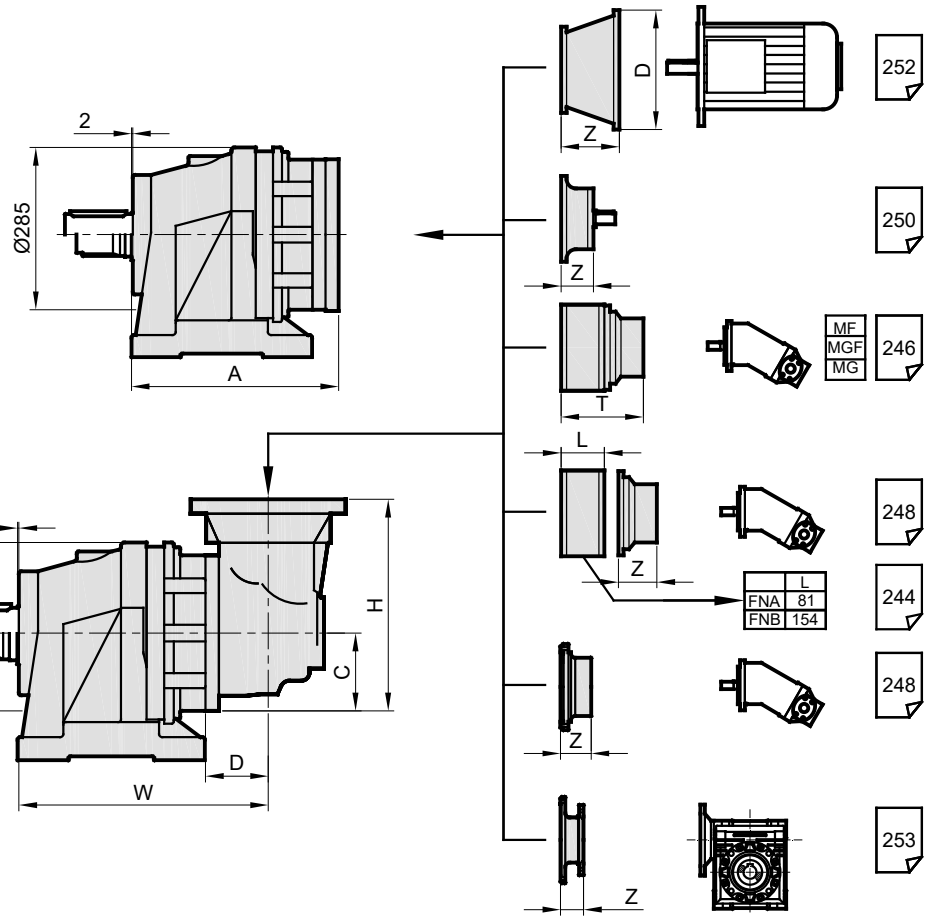
FVS



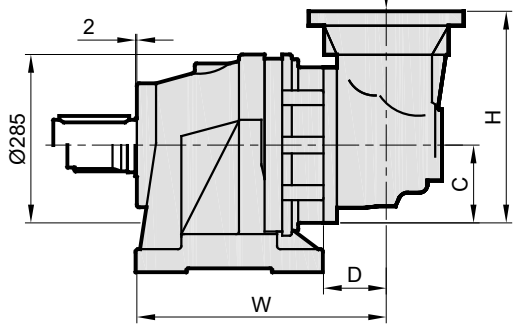
FVC



PD..



PDA..

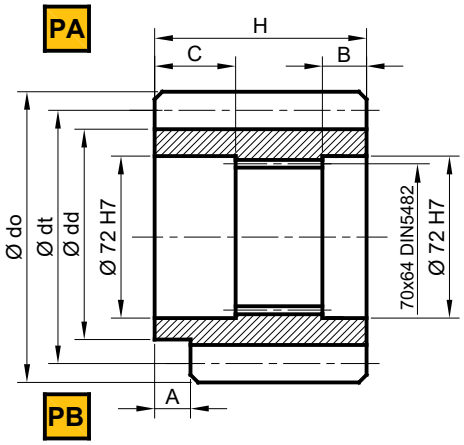


Stage	W	D	C	H	A	PD FVC	PDA FVC
S1	-	-	-	-	291,5	114	-
S2	355	118,5	140	390	351,5	126	164
S3	427	75	92,5	253,5	399,5	133	144
S4	475	75	92,5	253,5	447,5	140	151

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

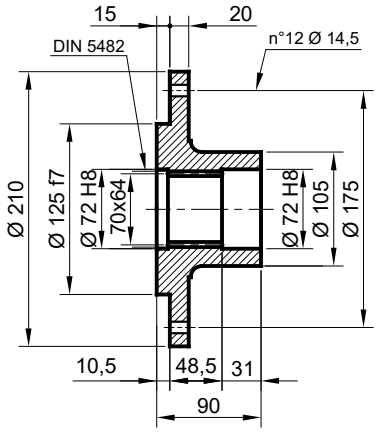
PD/PDA 109

P *Pinyon / Pinion / Ritzel*

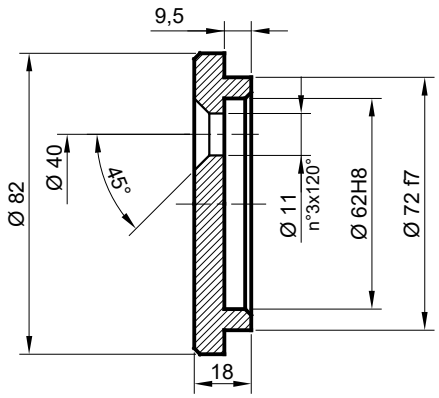


	m	z	x	dd	dt	do	H	A	B	C	Malzeme Material Material
PA	10	11	1,21	72,9	110	142,1	90	0	10	31	42CrMo4
PB	10	11	1,21	72,9	110	142,1	90	9	18,5	31	42CrMo4
PA	10	12	0	95	120	140	90	0	10	31	42CrMo4
PA	10	13	0	95	120	155	90	0	10	30	42CrMo4

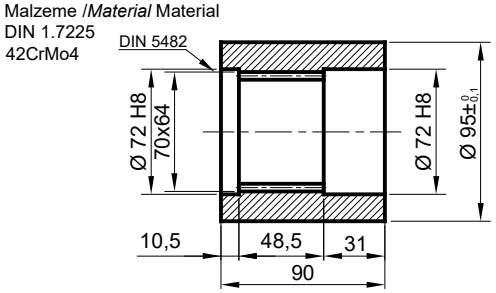
FL Flanş / *Flange* / Flansch



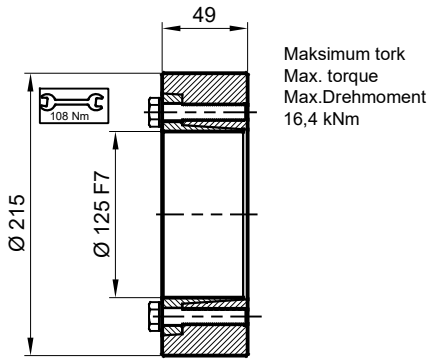
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



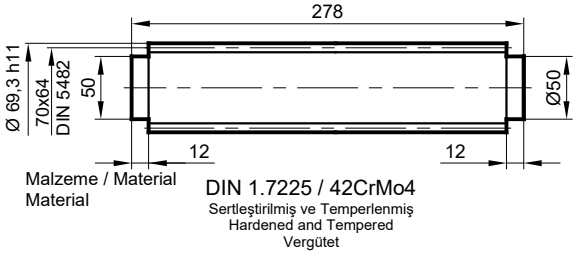
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse



SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



FM Frezeli Mil / Splined rod Außenverzahnte Welle



R01-2020

PD/PDA 109

RADYAL YÜK(Fr)

Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

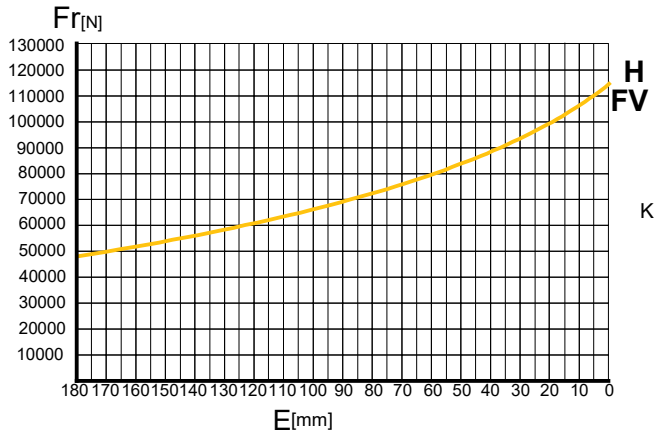
RADIAL LOADS(Fr)

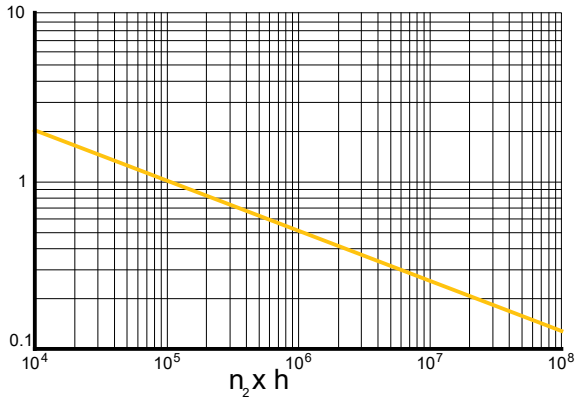
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

RADIALLAST (Fr)

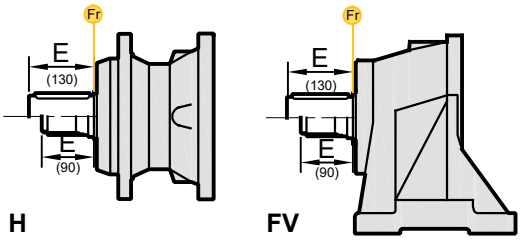
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

H-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
F	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



AKSİYEL YÜKLER (Fa)

Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

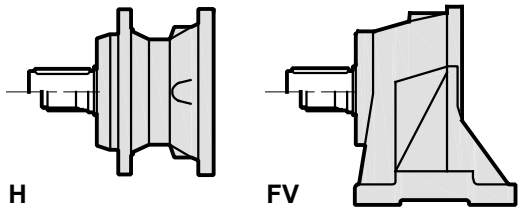
AXIAL LOADS (Fa)

The values of the axial loads in the table refer to the output versions and load directions of application.

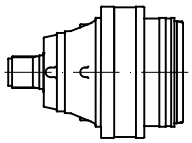
AXIALLAST (Fa)

Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

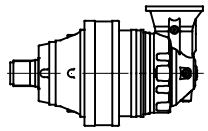
Fa [N]	H	FV	
	40000	40000	←
	60000	60000	→



PD 111

	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PD 111 S1	3.55	13800	12210	10390	9200	2000	24420	40
	4.28	11860	10500	8940	7910	2000	21000	40
	5.60	9220	8160	6940	6150	2000	16320	40
	6.75	7040	6230	5300	4690	2000	12460	40
	8.66	4980	4410	3750	3320	2000	8820	40
PD 111 S2	13.4	13800	12210	10390	9200	2800	24420	23
	16.2	11860	10500	8940	7910	2800	21000	23
	18.3	13800	12210	10390	9200	2800	24420	23
	22.1	11860	10500	8940	7910	2800	21000	23
	25.7	11860	10500	8940	7910	2800	21000	23
	28.9	9220	8160	6940	6150	2800	16320	23
	33.6	9220	8160	6940	6150	2800	16320	23
	40.5	7040	6230	5300	4690	2800	12460	23
	48.9	7040	6230	5300	4690	2800	12460	23
PD 111 S3	57.5	13800	12210	10390	9200	2800	24420	15
	62.8	13800	12210	10390	9200	2800	24420	15
	75.2	13800	12210	10390	9200	2800	24420	15
	82.1	1380	12210	10390	9200	2800	24420	15
	94.8	11860	10500	8940	7910	2800	21000	15
	109.2	11860	10500	8940	7910	2800	21000	15
	118.4	9220	8160	6940	6150	2800	16320	15
	123.9	11860	10500	8940	7910	2800	21000	15
	129.3	9220	8160	6940	6150	2800	16320	15
	143.9	11860	10500	8940	7910	2800	21000	15
	155.9	9220	8160	6940	6150	2800	16320	15
	173.5	11860	10500	8940	7910	2800	21000	15
	188.1	9220	8160	6940	6150	2800	16320	15
	195.3	9220	8160	6940	6150	2800	16320	15
	209.7	11860	10500	8940	7910	2800	21000	15
	226.8	9220	8160	6940	6150	2800	16320	15
	235.4	7040	6230	5300	4690	2800	12460	15
	274.0	9220	8160	6940	6150	2800	16320	15
	330.3	7040	6230	5300	4690	2800	12460	15
PD 111 S4	351.9	13800	12210	10390	9200	2800	24420	11
	388.5	13800	12210	10390	9200	2800	24420	11
	421.2	13800	12210	10390	9200	2800	24420	11
	440.8	13800	12210	10390	9200	2800	24420	11
	459.9	13800	12210	10390	9200	2800	24420	11
	507.7	13800	12210	10390	9200	2800	24420	11
	531.3	13800	12210	10390	9200	2800	24420	11
	554.4	13800	12210	10390	9200	2800	24420	11
	576.1	13800	12210	10390	9200	2800	24420	11
	611.9	11860	10500	8940	7910	2800	21000	11
	640.4	11860	10500	8940	7910	2800	21000	11
	724.4	9220	8160	6940	6150	2800	16320	11
	806.3	11860	10500	8940	7910	2800	21000	11
	907.3	9220	8160	6940	6150	2800	16320	11
	1008.7	11860	10500	8940	7910	2800	21000	11
	1093.6	9220	8160	6940	6150	2800	16320	11
	1270.1	9220	8160	6940	6150	2800	16320	11
	1530.9	9220	8160	6940	6150	2800	16320	11
	1849.8	9220	8160	6940	6150	2800	16320	11
	2229.7	7040	6230	5300	4690	2800	12460	11

PDA 111

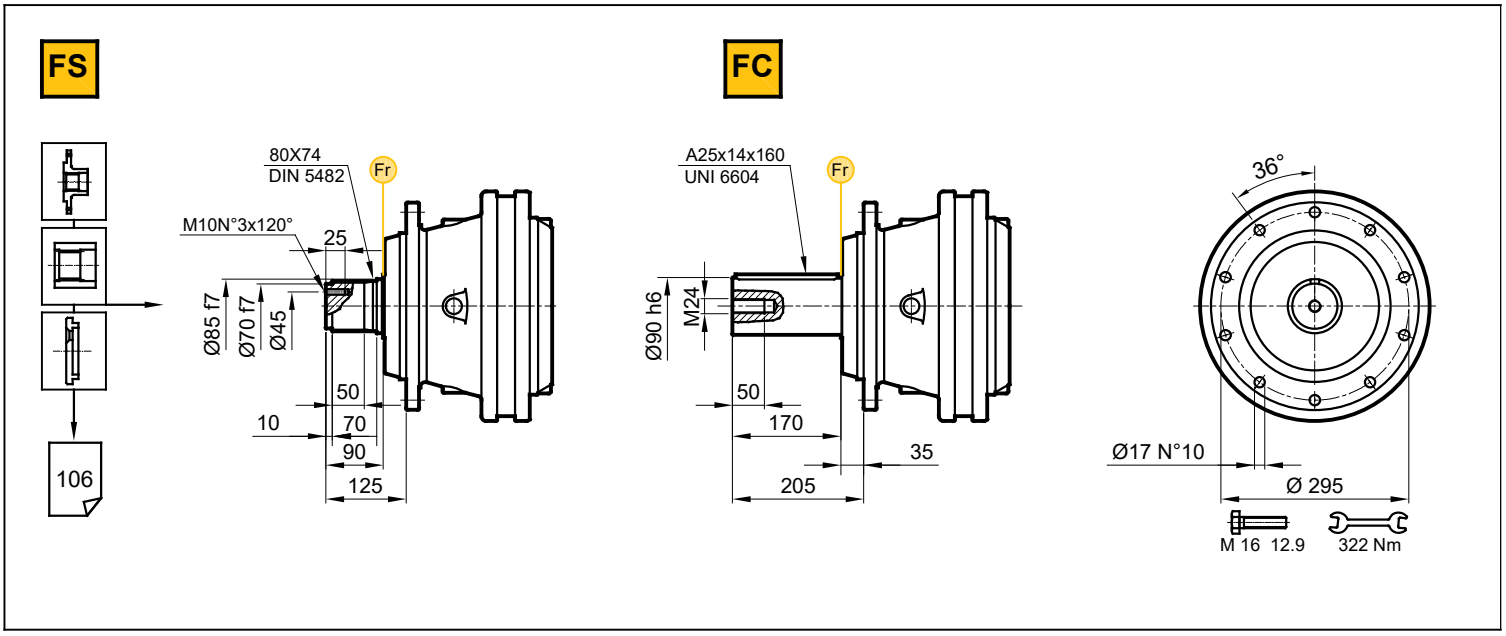


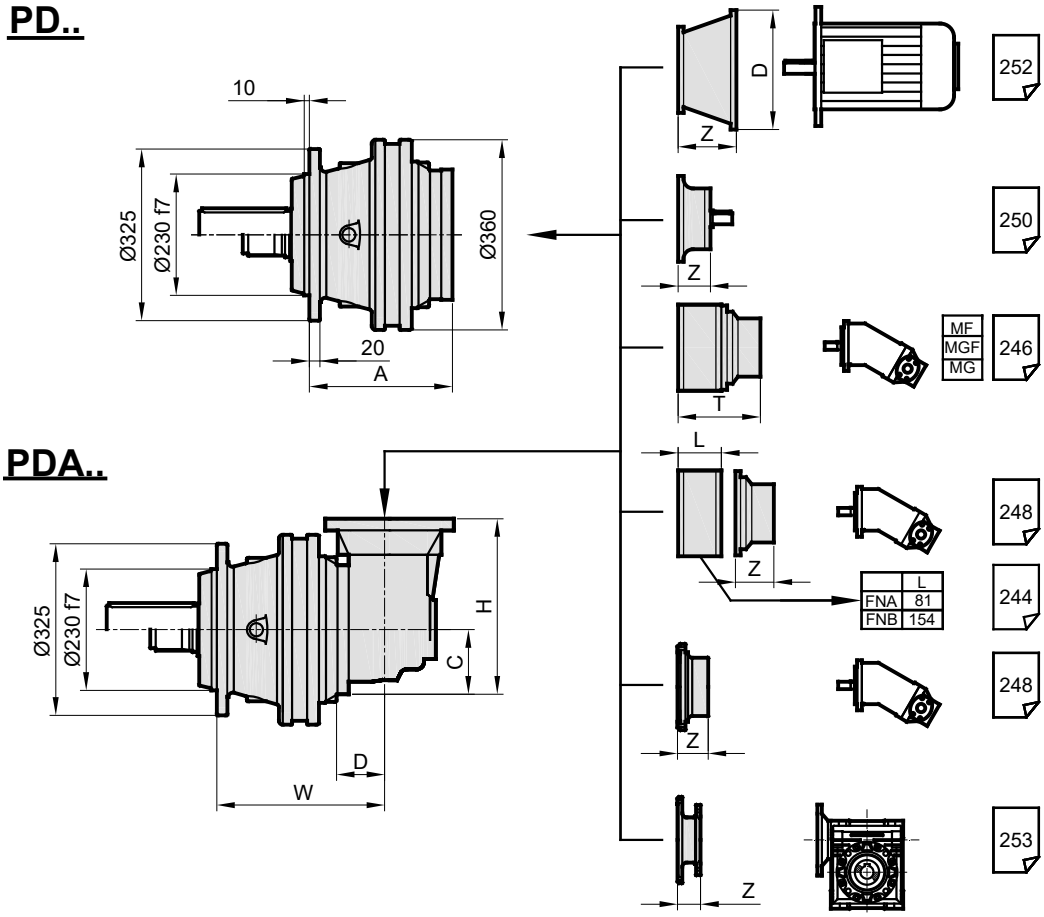
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 111 S2	9.9	13800	12210	10390	9200	2800	24420	23
	11.9	11860	10500	8940	7910	2800	21000	23
	15.2	13800	12210	10390	9200	2800	24420	23
	18.4	11860	10500	8940	7910	2800	21000	23
	24.0	9220	8160	6940	6150	2800	16320	23
	28.9	7040	6230	5300	4690	2800	12460	23
PDA 111 S3	33.7	13800	12210	10390	9200	2800	24420	15
	37.2	11860	10500	8940	7910	2800	21000	15
	40.7	11860	10500	8940	7910	2800	21000	15
	42.3	13800	12210	10390	9200	2800	24420	15
	46.2	13800	12210	10390	9200	2800	24420	15
	50.5	13800	12210	10390	9200	2800	24420	15
	55.7	11860	10500	8940	7910	2800	21000	15
	60.8	11860	10500	8940	7910	2800	21000	15
	66.6	9220	8160	6940	6150	2800	16320	15
	79.5	9220	8160	6940	6150	2800	16320	15
	88.4	11860	10500	8940	7910	2800	21000	15
	99.5	9220	8160	6940	6150	2800	16320	15
	106.9	11860	10500	8940	7910	2800	21000	15
	115.6	9220	8160	6940	6150	2800	16320	15
	139.7	9220	8160	6940	6150	2800	16320	15
PDA 111 S4	152.8	13800	12210	10390	9200	2800	24420	11
	168.6	13800	12210	10390	9200	2800	24420	11
	184.1	13800	12210	10390	9200	2800	24420	11
	191.4	13800	12210	10390	9200	2800	24420	11
	203.2	11860	10500	8940	7910	2800	21000	11
	220.4	13800	12210	10390	9200	2800	24420	11
	230.6	13800	12210	10390	9200	2800	24420	11
	240.6	13800	12210	10390	9200	2800	24420	11
	265.7	13800	12210	10390	9200	2800	24420	11
	278.0	11860	10500	8940	7910	2800	21000	11
	290.1	13800	12210	10390	9200	2800	24420	11
	301.4	13800	12210	10390	9200	2800	24420	11
	320.2	11860	10500	8940	7910	2800	21000	11
	349.6	11860	10500	8940	7910	2800	21000	11
	363.3	13800	12210	10390	9200	2800	24420	11
	379.0	9220	8160	6940	6150	2800	16320	11
	390.0	11860	10500	8940	7910	2800	21000	11
	411.1	11860	10500	8940	7910	2800	21000	11
	437.9	11860	10500	8940	7910	2800	21000	11
	474.7	9220	8160	6940	6150	2800	16320	11
	508.5	11860	10500	8940	7910	2800	21000	11
	550.7	7040	6230	5300	4690	2800	12640	11
	614.4	11860	10500	8940	7910	2800	21000	11
	664.5	9220	8160	6940	6150	2800	16320	11
	734.7	9220	8160	6940	6150	2800	16320	11
	801.0	7040	6230	5300	4690	2800	12640	11
	885.6	7040	6230	5300	4690	2800	12640	11
	967.9	7040	6230	5300	4690	2800	12640	11

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

R01-2020

PD/PDA 111



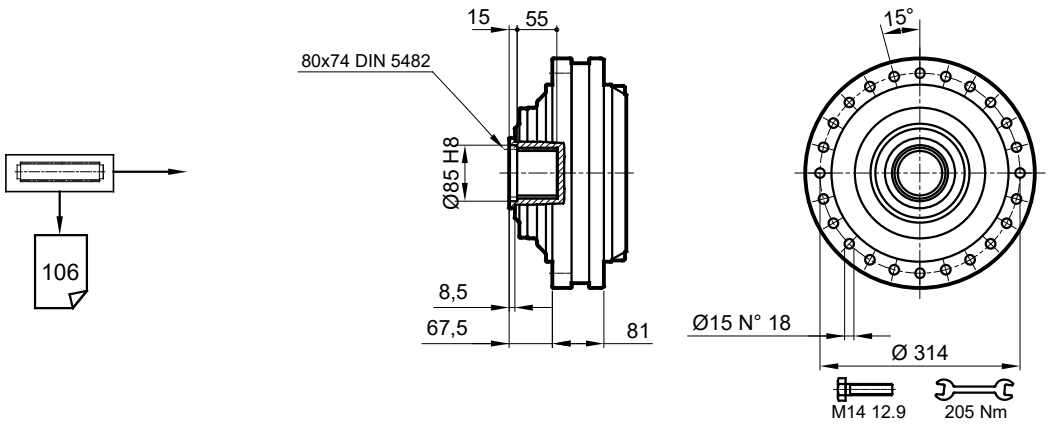


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	226	96	-
S2	298	121	172,5	457	298	112	157
S3	364,5	103	122	319	359	121	140
S4	436	75	92,5	253,5	407	127	138

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

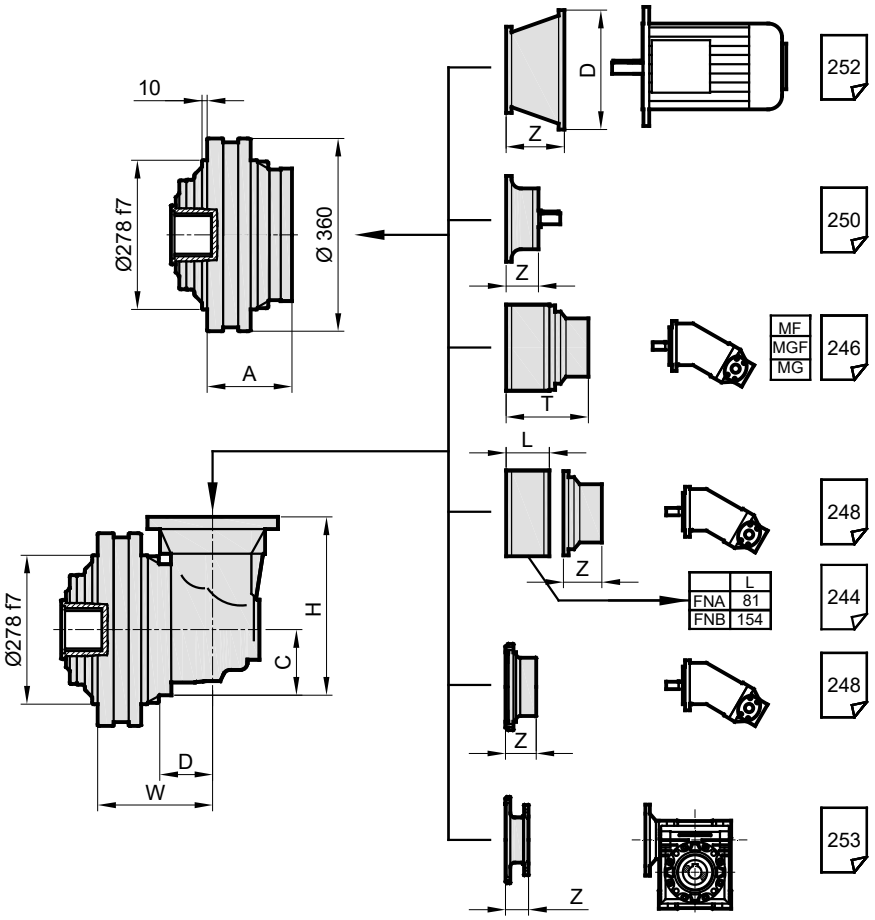
PD/PDA 111

S



PD..

PDA..

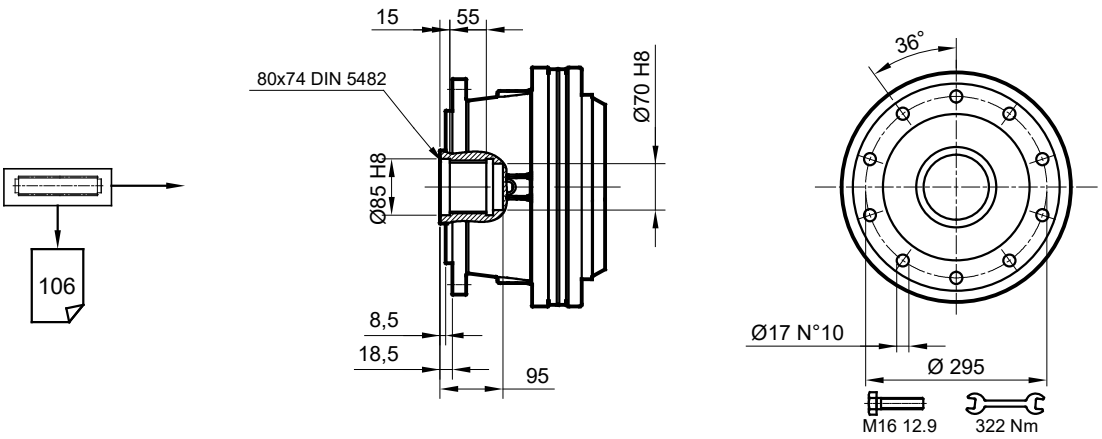


Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	112	60	-
S2	184	121	172,5	457	184	76	121
S3	249	103	122	319	245	84	104
S4	320	75	92,5	253,5	293	91	102

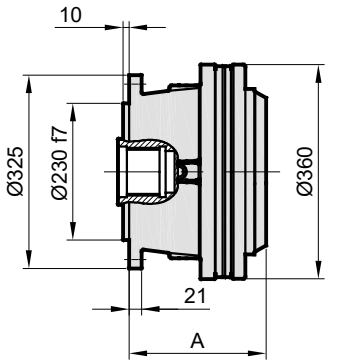
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 111

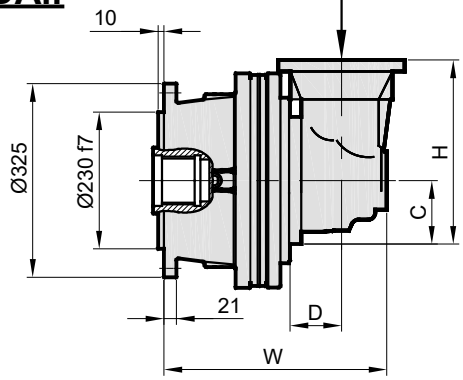
SF

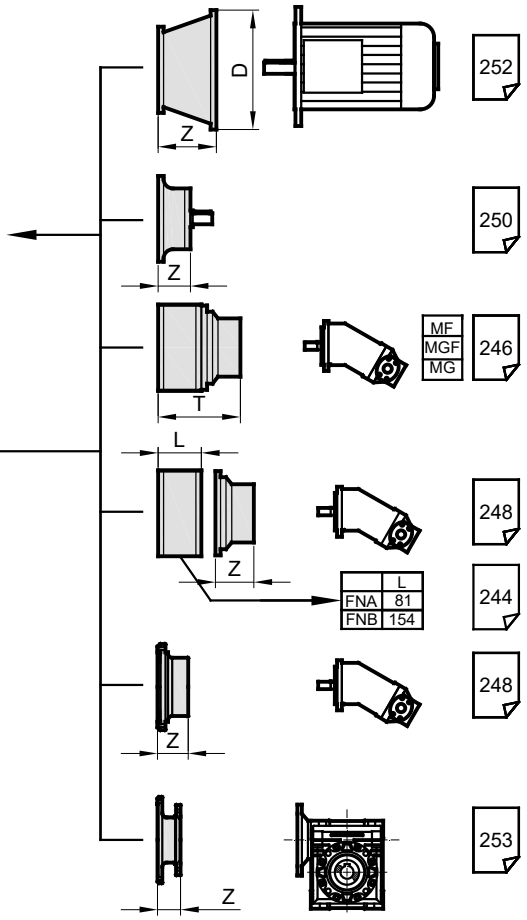


PD..



PDA..

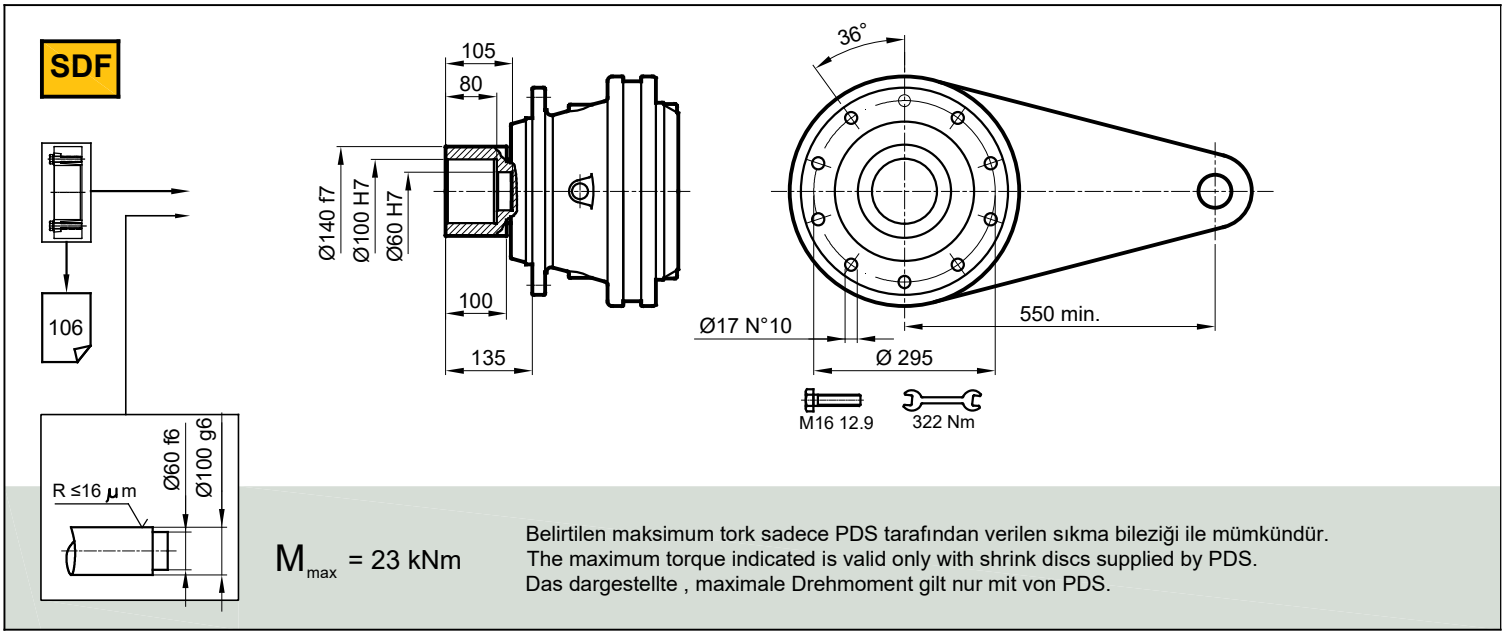




Stage	W	D	C	H	A	PD SF	PDA SF
S1	-	-	-	-	226,5	81	-
S2	298,5	121	172,5	457	298,5	98	143
S3	363,5	103	122	319	359,5	106	126
S4	435	75	92,5	253,5	407,5	112	123

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

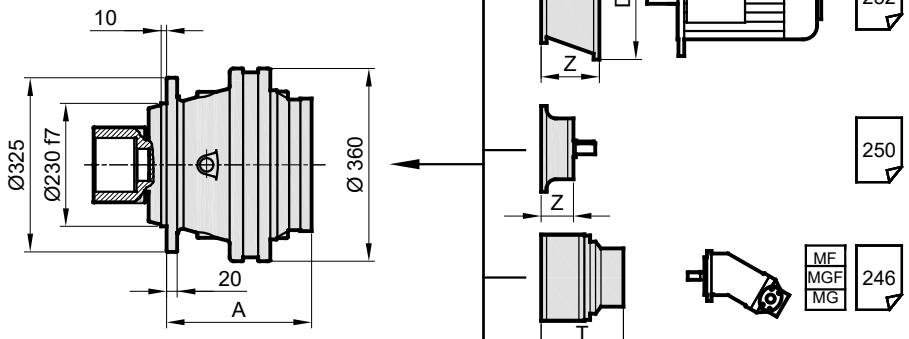
PD/PDA 111



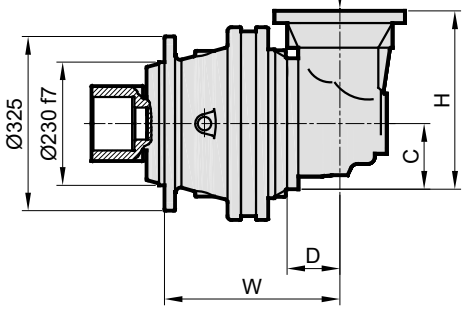
M_{max} = 23 kNm

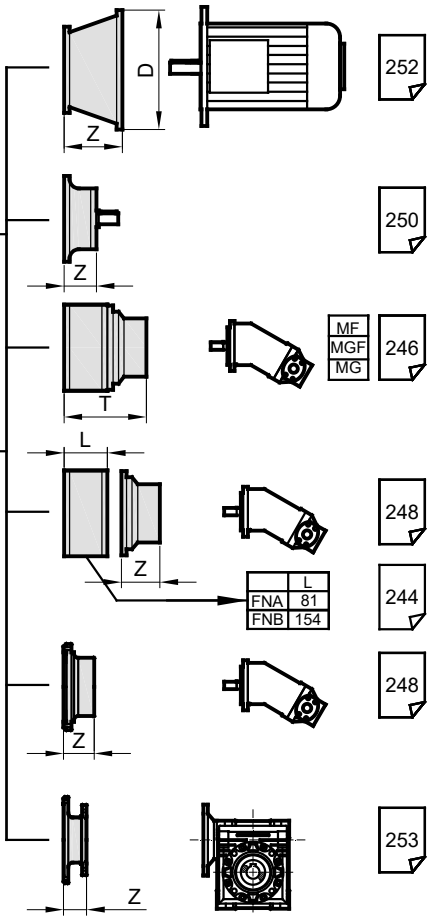
Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..



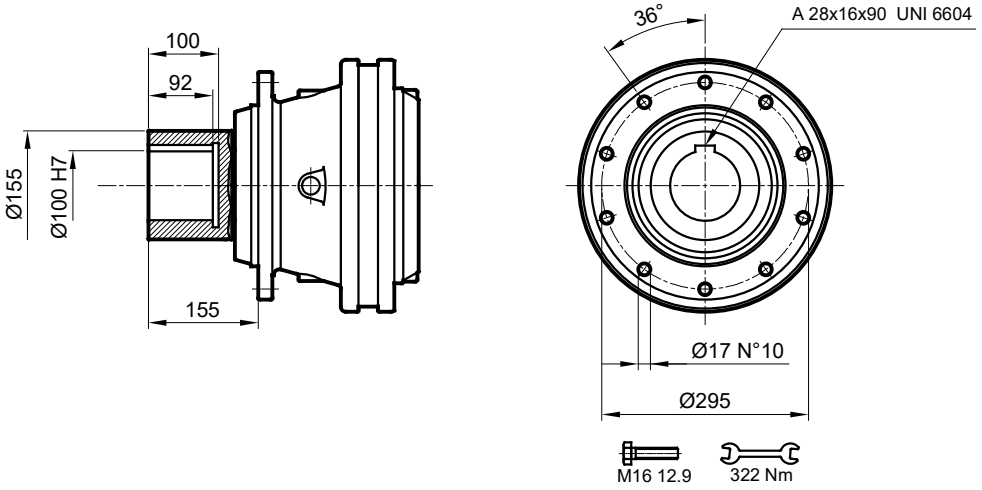


Stage	W	D	C	H	A	PD SDF	PDA SDF
S1	-	-	-	-	226	91	-
S2	298	121	172,5	457	298	107	152
S3	364,5	103	122	319	359	115	135
S4	436	75	92,5	253,5	407	122	133

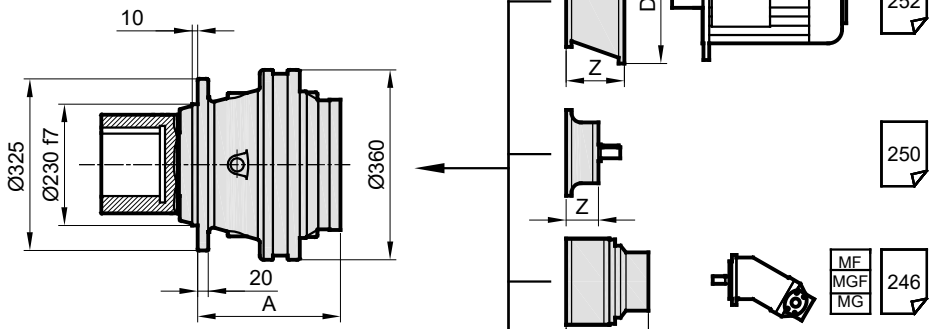
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 111

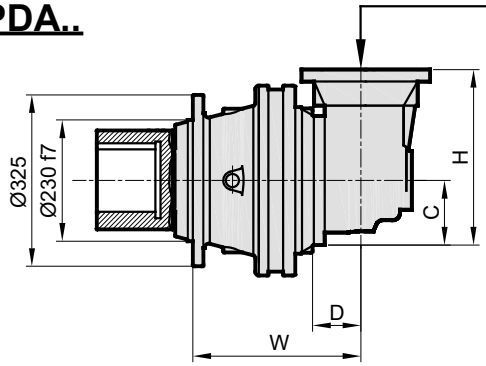
DKM

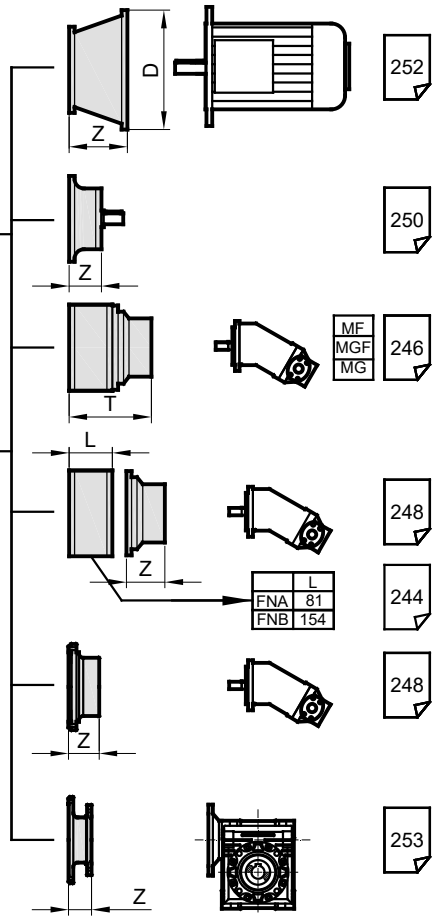


PD..



PDA..

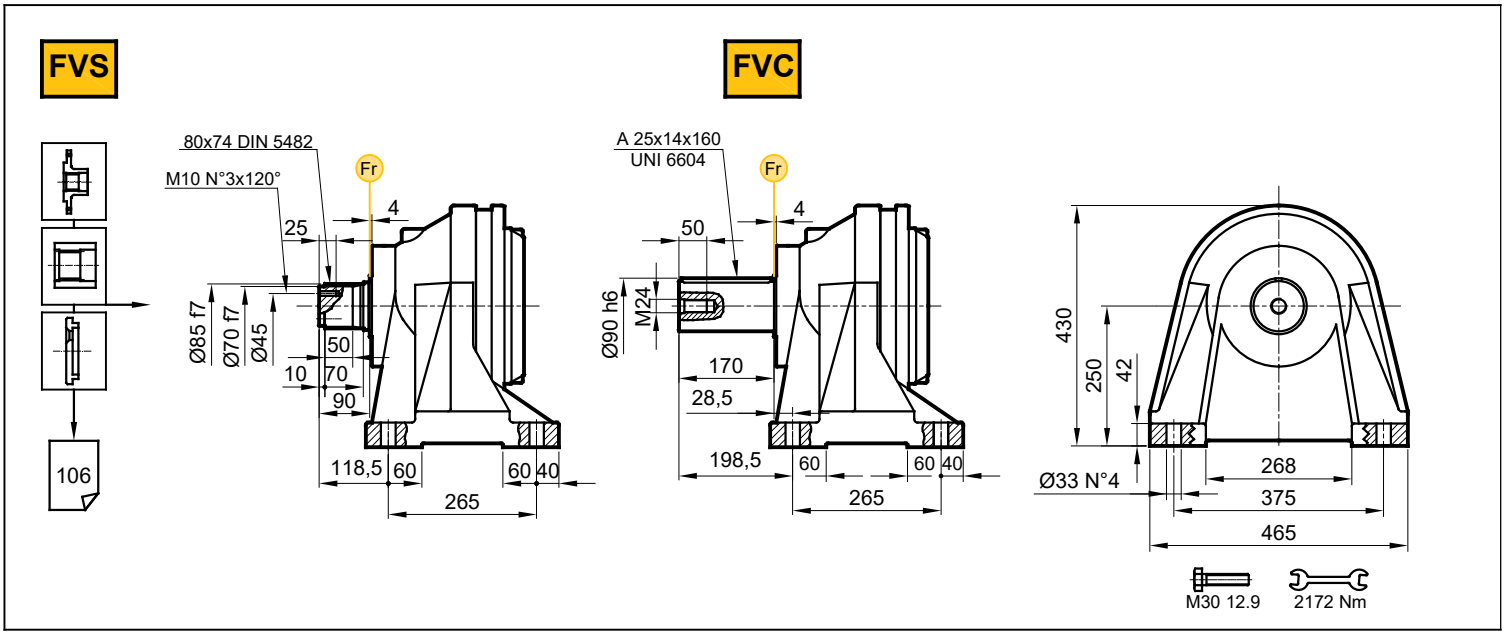




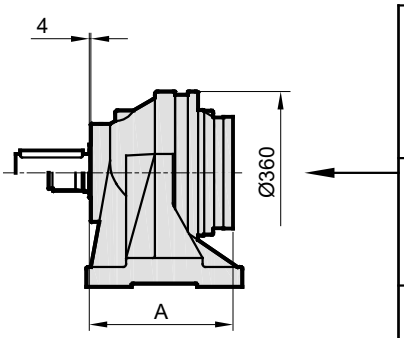
Stage	W	D	C	H	A	PD DKM	PDA DKM
S1	-	-	-	-	226	95	-
S2	298	121	172,5	457	298	111	157
S3	364,5	103	122	319	359	119	139
S4	436	75	92,5	253,5	407	126	137

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

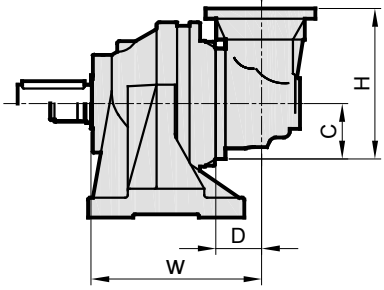
PD/PDA 111

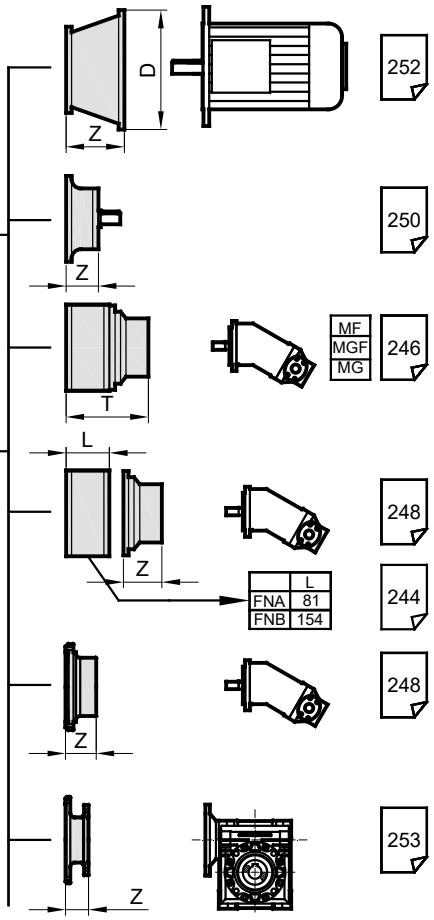


PD..



PDA..



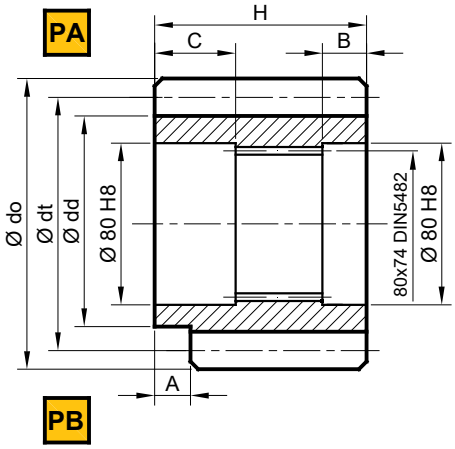


Stage	W	D	C	H	A	PD FVC	PDA FVC
S1	-	-	-	-	272	152	-
S2	344	121	172,5	457	344	168	213
S3	409	103	122	319	405	176	196
S4	480	75	92,5	253,5	453	183	194

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

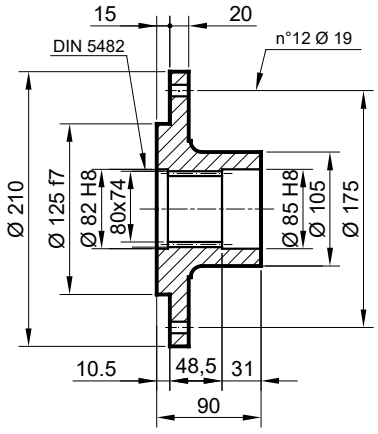
PD/PDA 111

P *Pinyon / Pinion / Ritzel*

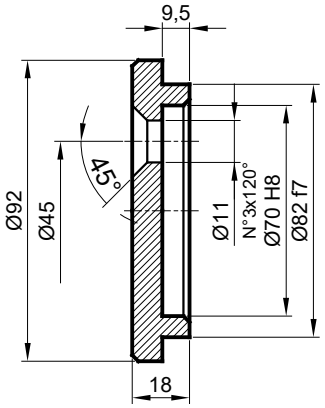


	m	z	x	dt	dd	do	H	A	B	C	Malzeme Material Material
PA	10	12	0	120	95	140	90	0	10	31	42CrMo4
PA	10	14	0	140	95	160	90	0	10	31	42CrMo4
PB	12	14	2,5	168	135,5	194,5	90	25	25	31	42CrMo4

FL Flanş / *Flange* / Flansch

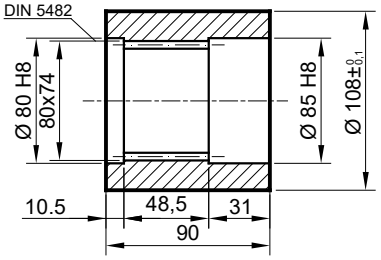


SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe

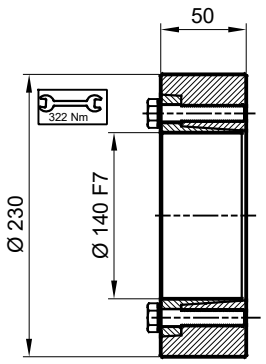


FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /*Material* Material
DIN 1.7225
42CrMo4

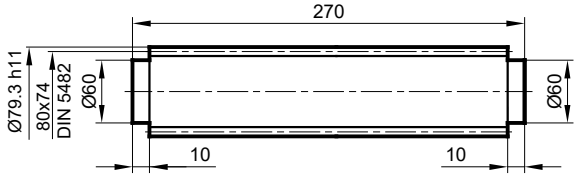


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
23 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN 1.7225 / 42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

R01-2020

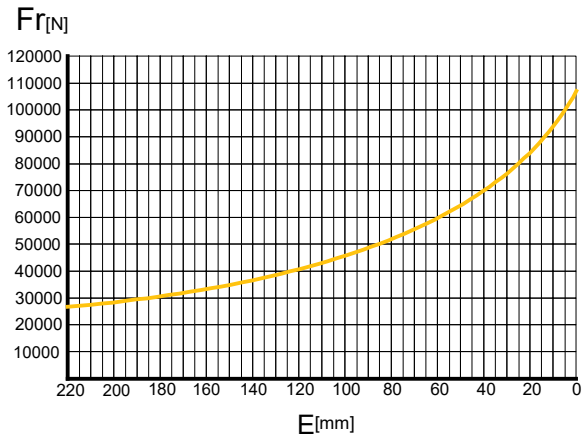
PD/PDA 111

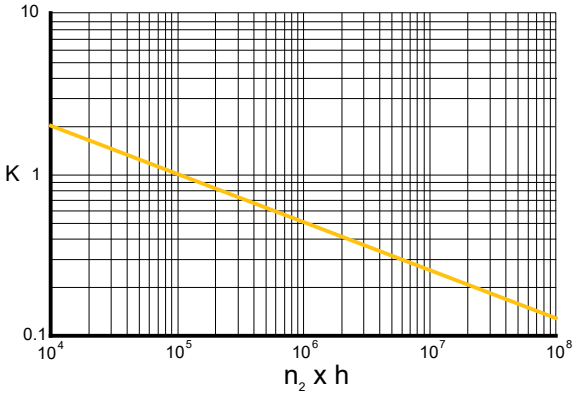
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

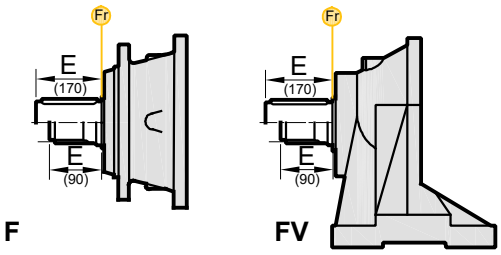
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

F-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
F	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

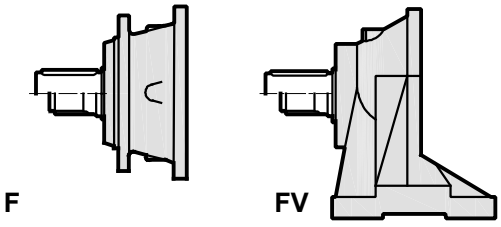


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

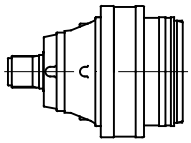
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	F	FV	
	40000	40000	←
	65000	65000	→

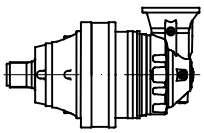


PD 113



	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 113 S1	3.55	20360	18020	15330	13570	2000	36040	40
	4.28	17740	15700	13360	11830	2000	31400	40
	5.60	13570	12010	10220	9050	2000	24020	40
	6.75	10320	9130	7770	6880	2000	18260	40
	8,67	7470	6615	5625	4980	2000	13230	40
PD 113 S2	13.4	20360	18020	15330	13570	2800	36040	23
	16.2	17740	15700	13360	11830	2800	31400	23
	22.1	17740	15700	13360	11830	2800	31400	23
	28.9	13570	12010	10220	9050	2800	24020	23
	33.6	13570	12010	10220	9050	2800	24020	23
	40.5	10320	9130	7770	6880	2800	18260	23
	48.9	10320	9130	7770	6880	2800	18260	23
PD 113 S3	57.6	20360	18020	15330	13570	2800	36040	15
	69.4	17740	15700	13360	11830	2800	31400	15
	75.7	17740	15700	13360	11830	2800	31400	15
	94.9	17740	15700	13360	11830	2800	31400	15
	109.3	17740	15700	13360	11830	2800	31400	15
	118.5	13570	12010	10220	9050	2800	24020	15
	124.0	17740	15700	13360	11830	2800	31400	15
	129.4	13570	12010	10220	9050	2800	24020	15
	142.8	13570	12010	10220	9050	2800	24020	15
	155.9	13570	12010	10220	9050	2800	24020	15
	188.2	13570	12010	10220	9050	2800	24020	15
	195.3	13570	12010	10220	9050	2800	24020	15
	200.2	13750	12010	10220	9050	2800	24020	15
	226.8	13570	12010	10220	9050	2800	24020	15
	235.4	10320	9130	7770	6880	2800	18260	15
	274.1	13570	12010	10220	9050	2800	24020	15
	330.3	10320	9130	7770	6880	2800	18260	15
	351.9	13570	12010	10220	9050	2800	24020	15
PD 113 S4	246.6	20360	18020	15330	13570	2800	36040	11
	388.5	20360	18020	15330	13570	2800	36040	11
	413.9	20360	18020	15330	13570	2800	36040	11
	468.2	17740	15700	13360	11830	2800	31400	11
	498.8	20360	18020	15330	13570	2800	36040	11
	507.7	20360	15700	13360	11830	2800	31400	11
	531.3	17740	15700	13360	11830	2800	31400	11
	554.3	17740	15700	13360	11830	2800	31400	11
	601.2	17740	15700	13360	11830	2800	31400	11
	611.9	17740	15700	13360	11830	2800	31400	11
	640.4	17740	15700	13360	11830	2800	31400	11
	724.4	13570	12010	10220	9050	2800	24020	11
	805.4	17740	15700	13360	11830	2800	31400	11
	907.3	13570	12010	10220	9050	2800	24020	11
	1008.7	17740	15700	13360	11830	2800	31400	11
	1093.6	13570	12010	10220	9050	2800	24020	11
	1270.1	13570	12010	10220	9050	2800	24020	11
	1530.9	13570	12010	10220	9050	2800	24020	11
	1849.8	13570	12010	10220	9050	2800	24020	11
	2229.7	10320	9130	7770	6880	2800	18260	11

PDA 113

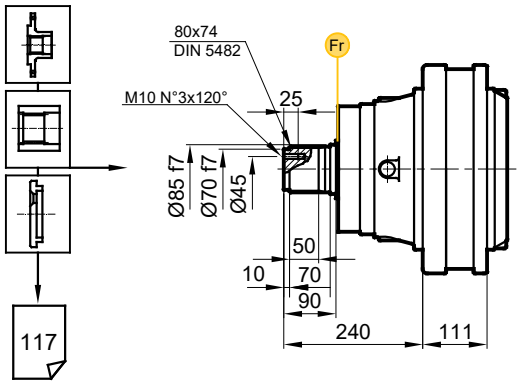


	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 113 S2	9.9	20360	18020	15330	13570	2800	36040	23
	11.9	17740	15700	13360	11830	2800	31400	23
	15.6	13570	12010	10220	9050	2800	24020	23
	18.4	17740	15700	13360	11830	2800	31400	23
	24.0	13570	12010	10220	9050	2800	24020	23
	28.9	10320	9130	7770	6880	2800	18260	23
PDA 113 S3	30.9	20360	18020	15330	13570	2800	36040	15
	37.2	17740	15700	13360	11830	2800	31400	15
	46.2	20360	18020	15330	13570	2800	36040	15
	50.9	17740	15700	13360	11830	2800	31400	15
	55.7	17740	15700	13360	11830	2800	31400	15
	60.8	17740	15700	13360	11830	2800	31400	15
	66.6	13570	12010	10220	9050	2800	24020	15
	76.2	17740	15700	13360	11830	2800	31400	15
	80.2	10320	9130	7770	6880	2800	18260	15
	87.7	10320	9130	7770	6880	2800	18260	15
	93.4	13570	12010	10220	9050	2800	24020	15
	115.6	13570	12010	10220	9050	2800	24020	15
	120.0	10320	9130	7770	6880	2800	18260	15
	139.7	13570	12010	10220	9050	2800	24020	15
	168.4	10320	9130	7770	6880	2800	18260	15
PDA 113 S4	139.9	20360	18020	15330	13570	2800	36040	11
	168.6	20360	18020	15330	13570	2800	36040	11
	203.2	17740	15700	13360	11830	2800	31400	11
	221.9	17740	15700	13360	11830	2800	31400	11
	265.6	17740	15700	13360	11830	2800	31400	11
	290.0	17740	15700	13360	11830	2800	31400	11
	320.2	17740	15700	13360	11830	2800	31400	11
	349.6	17740	15700	13360	11830	2800	31400	11
	379.0	13570	12010	10220	9050	2800	24020	11
	418.4	13570	12010	10220	9050	2800	24020	11
	437.9	17740	15700	13360	11830	2800	31400	11
	456.9	13570	12010	10220	9050	2800	24020	11
	474.7	13570	12010	10220	9050	2800	24020	11
	537.2	13570	12010	10220	9050	2800	24020	11
	551.3	13570	12010	10220	9050	2800	24020	11
	664.5	13570	12010	10220	9050	2800	24020	11
	803.0	13570	12010	10220	9050	2800	24020	11
	967.9	10320	9130	7770	6880	2800	18260	11
	1031.0	13570	12010	10220	9050	2800	24020	11

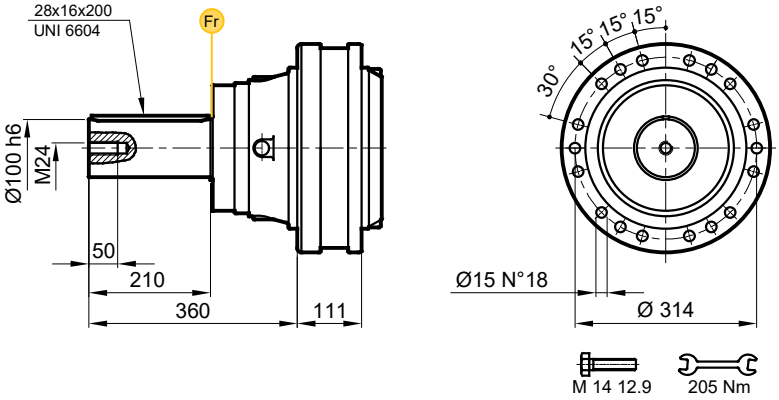
⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

PD/PDA 113

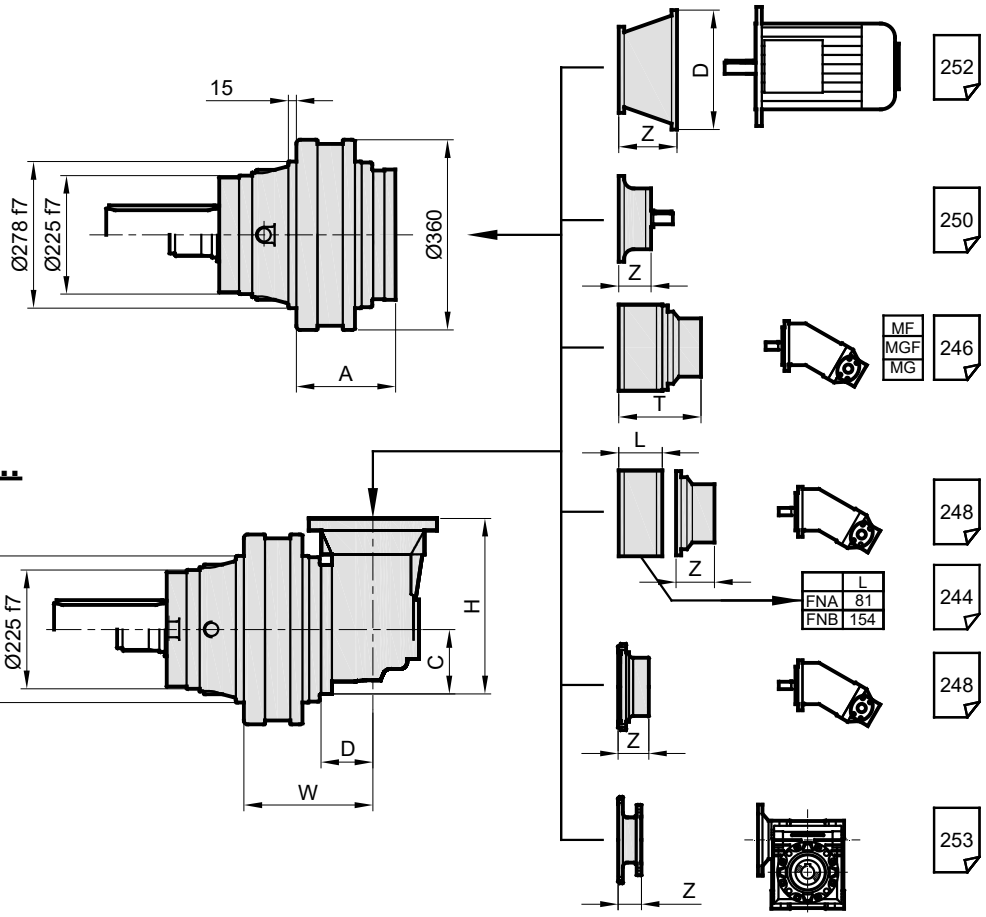
MS



MC



PD..



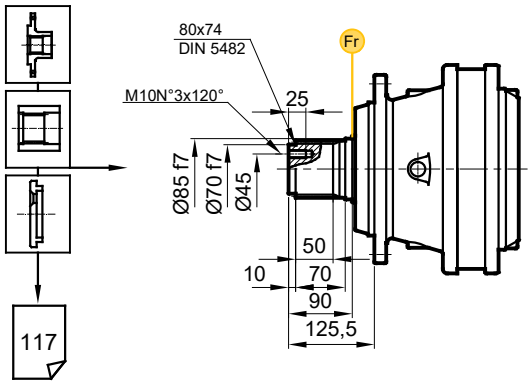
PDA..

Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	142	109	-
S2	214	121	172,5	457	214	125	170
S3	279	103	122	319	275	133	153
S4	350	75	92,5	253,5	323	140	151

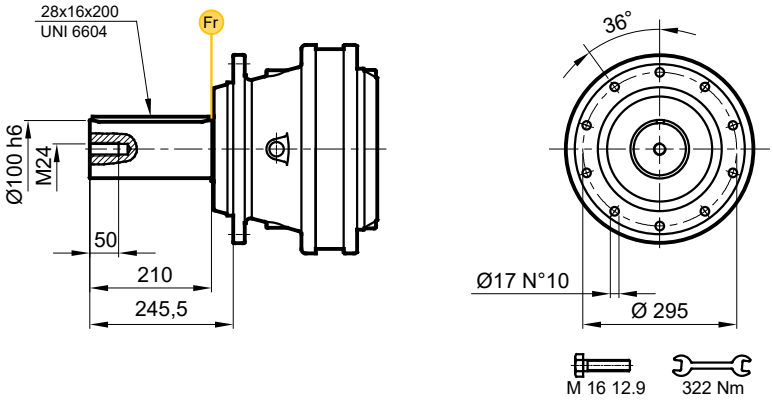
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 113

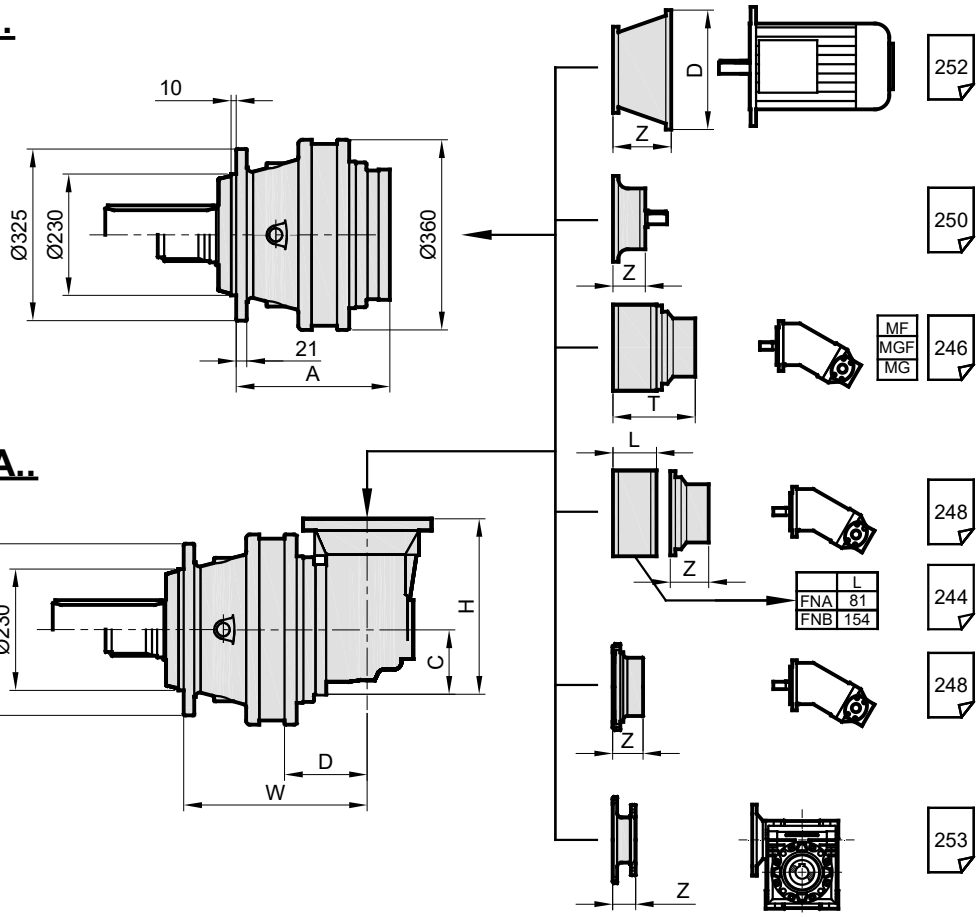
FS



FC



PD..



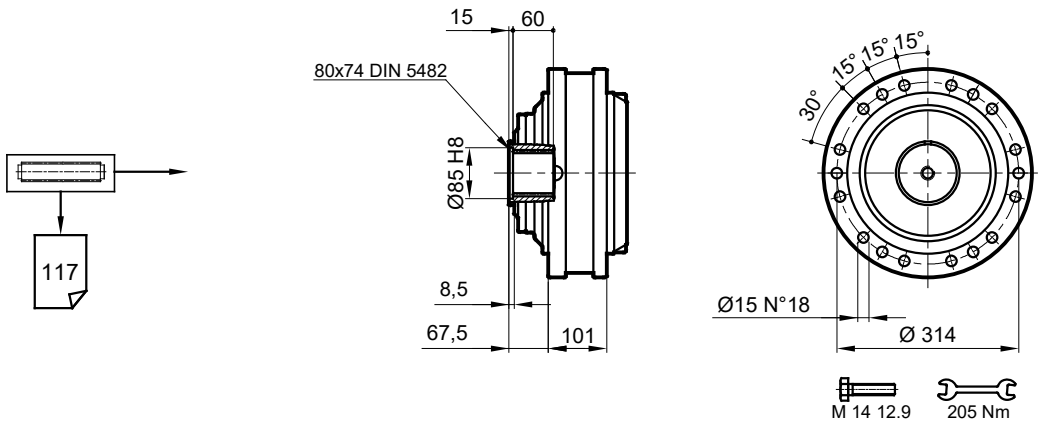
PDA..

Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	246	108	-
S2	318	121	172,5	457	318	124	170
S3	383	103	122	319	379	132	152
S4	454	75	92,5	253,5	427	139	150

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

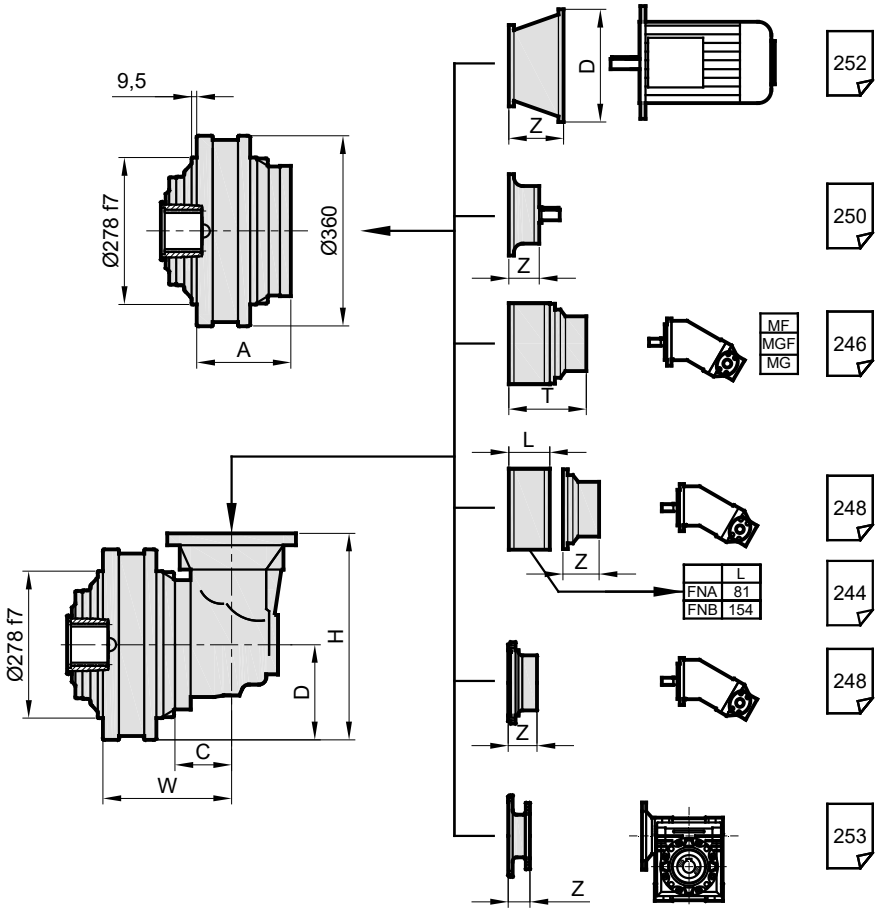
PD/PDA 113

S



PD..

PDA..

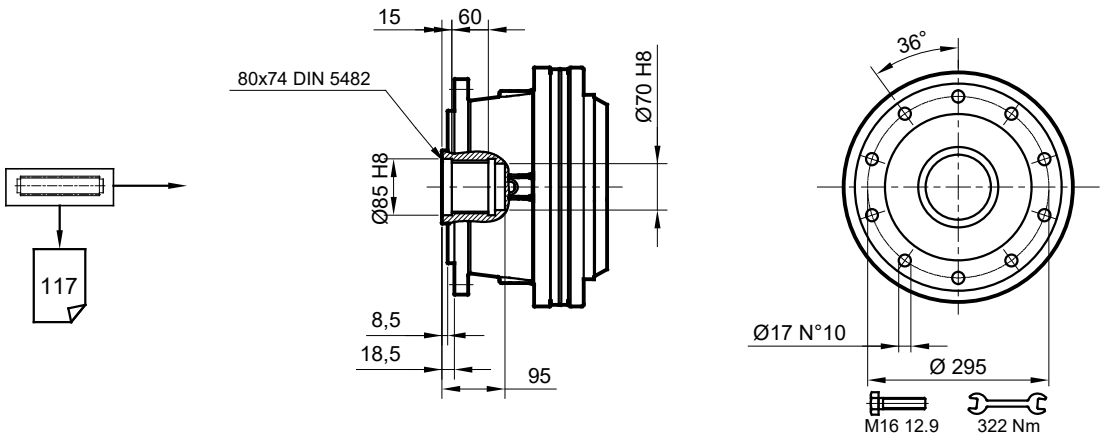


Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	132	67	-
S2	204	121	172,5	457	204	83	129
S3	269	103	122	319	265	92	112
S4	340	75	93	252	313	98	109

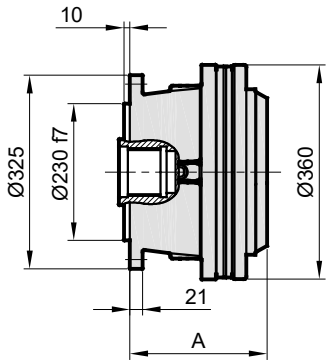
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 113

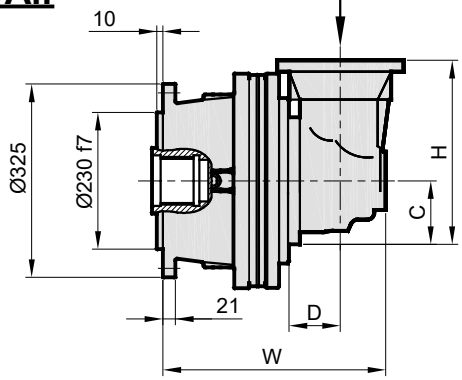
SF

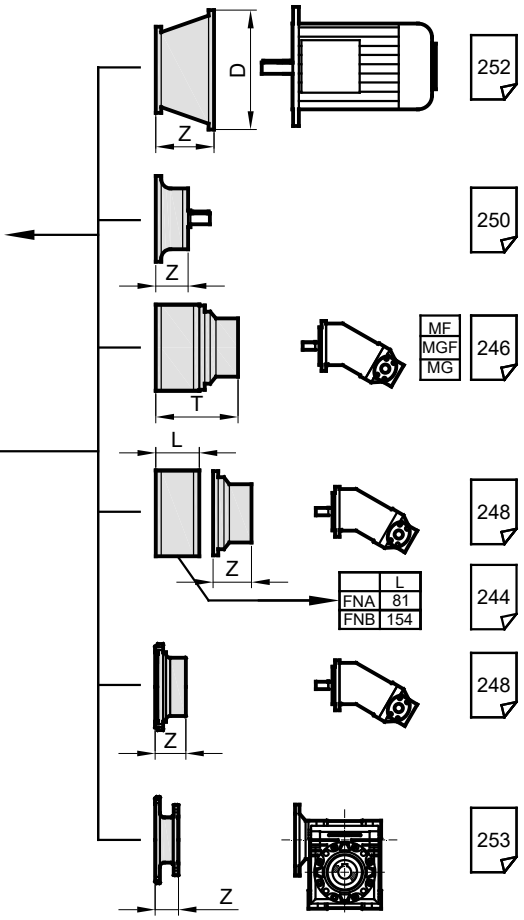


PD..



PDA..

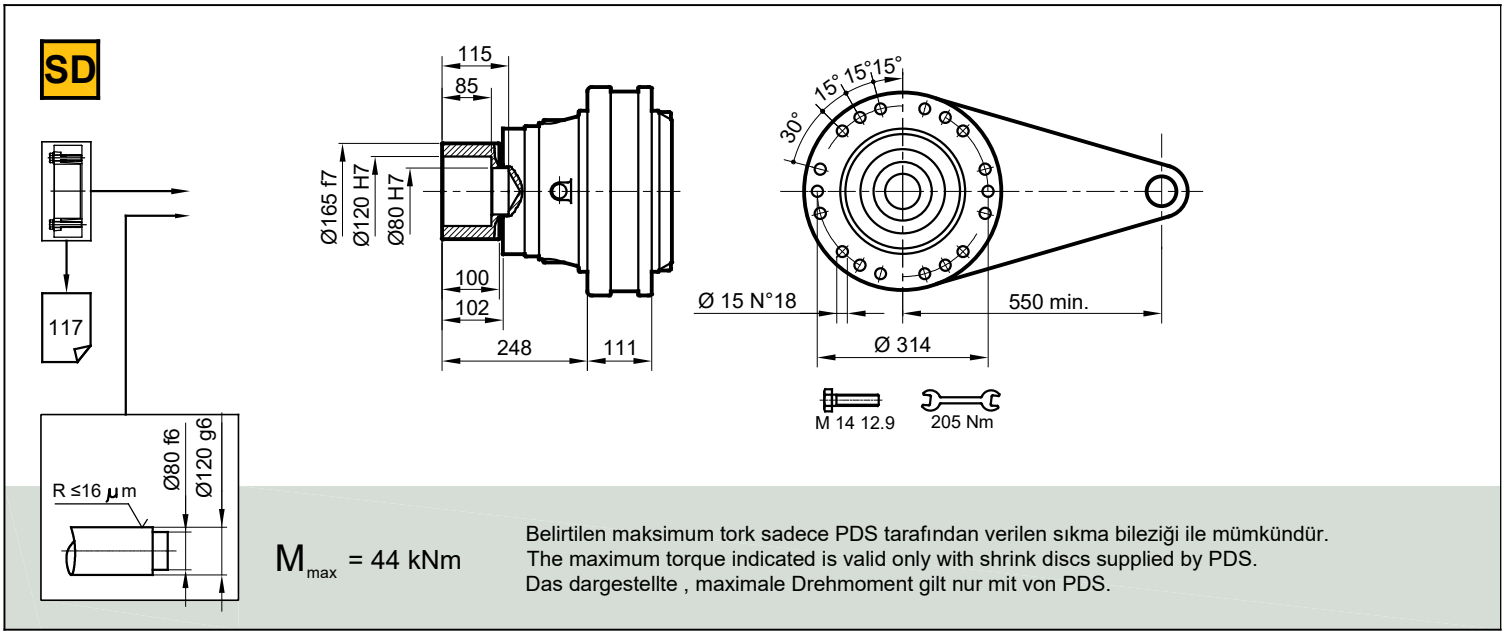




Stage	W	D	C	H	A	PD SF	PDA SF
S1	-	-	-	-	246,5	92	-
S2	318,5	121	172,5	457	318,5	108	153
S3	383,5	103	122	319	379,5	116	136
S4	455	75	92,5	253,5	427,5	123	134

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

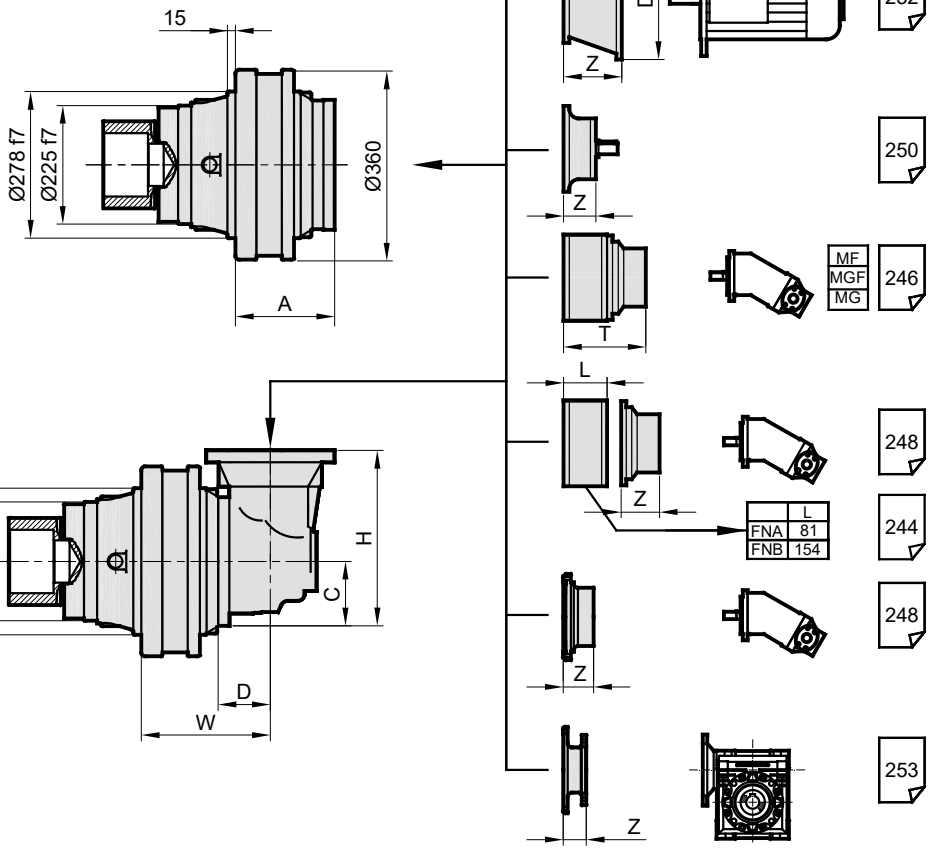
PD/PDA 113



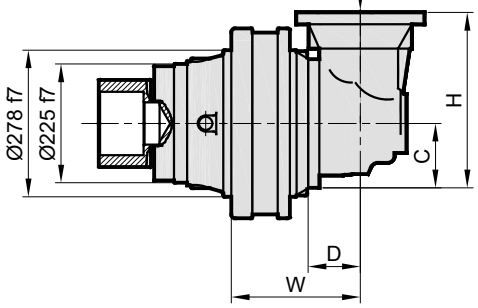
M_{max} = 44 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..

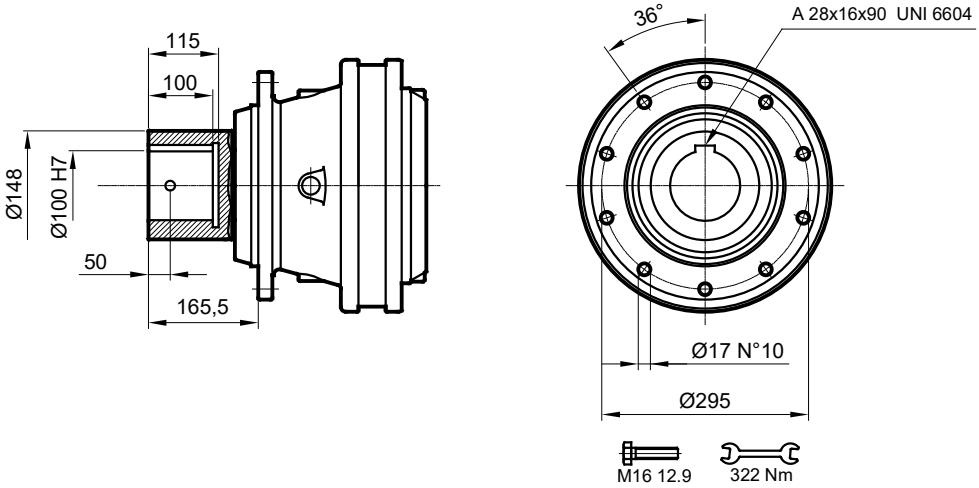


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	142	104	-
S2	214	121	172,5	457	214	120	165
S3	279	103	122	319	275	128	148
S4	350	75	92,5	253,5	323	135	146

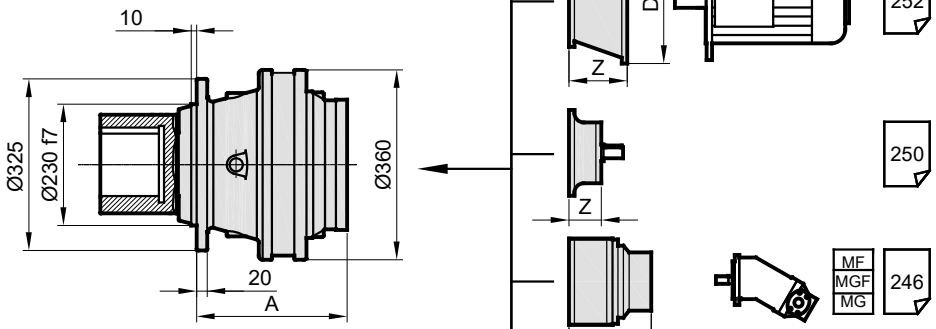
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 113

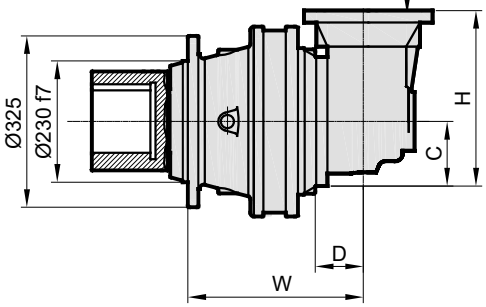
DKM

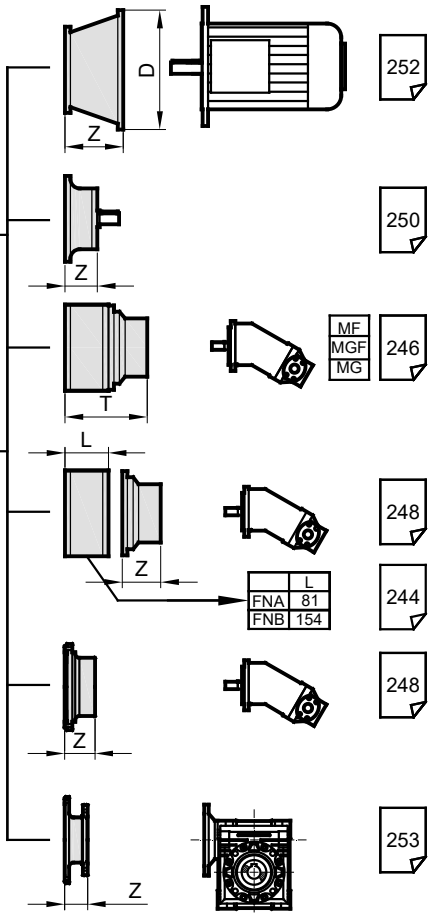


PD..



PDA..



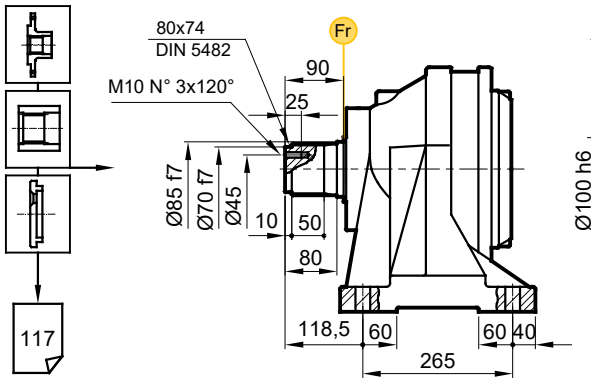


Stage	W	D	C	H	A	PD DKM	PDA DKM
S1	-	-	-	-	246	105	-
S2	318	121	172,5	457	318	121	167
S3	383	103	122	319	379	129	149
S4	454	75	92,5	253,5	427	136	147

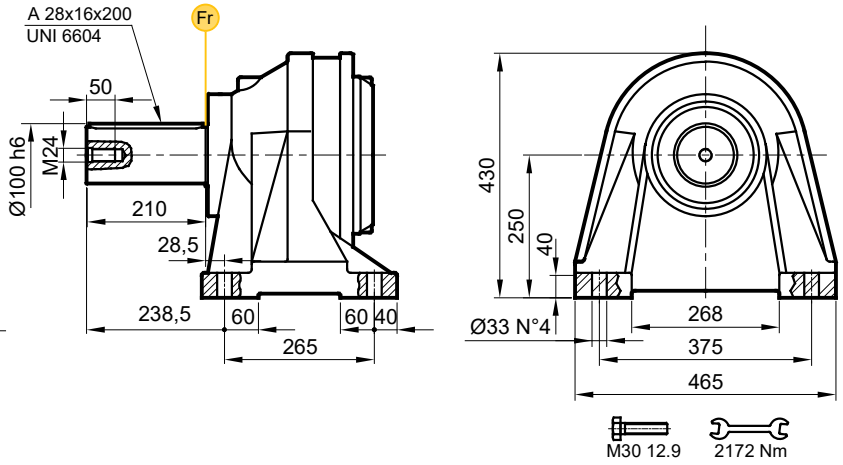
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 113

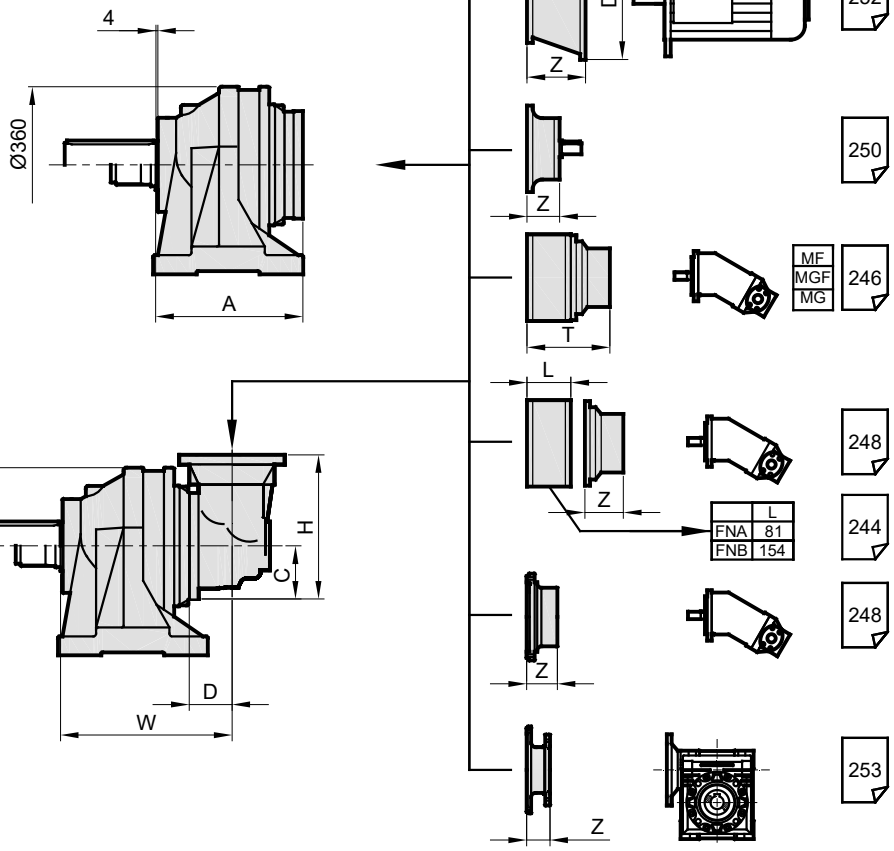
FVS



FVC



PD..



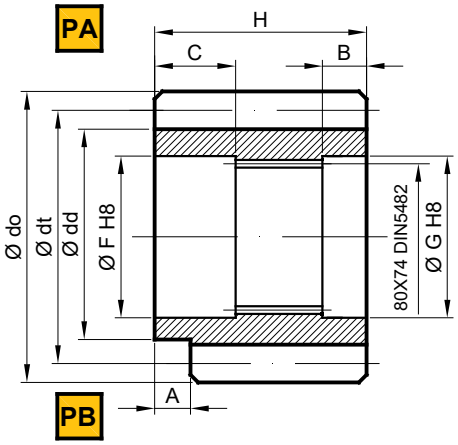
PDA..

Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	297	167	-
S2	369	121	172,5	457	369	183	229
S3	434	103	122	319	430	191	211
S4	505	75	92,5	253,5	478	198	209

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S3	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	32,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

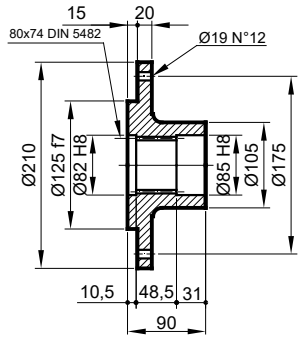
PD/PDA 113

P *Pinyon / Pinion / Ritzel*



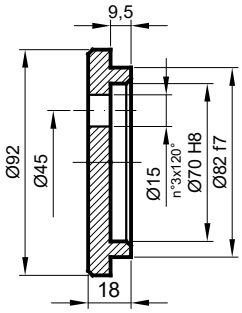
		m	z	x	dd	dt	do	H	A	B	C	F	G	Malzeme Material Material
PA	M	10	12	0	95	120	140	90	0	10	31	85	80	42CrMo4
PA	M	10	14	0	115	140	160	90	0	10	31	85	80	42CrMo4
PA	P	14	13	1	161	182	224	122	0	24	33	105	105	42CrMo4
PB	M	12	14	0,5	144	168	198	90	13	25	31	85	80	42CrMo4

FL Flanş / *Flange* / Flansch



MS

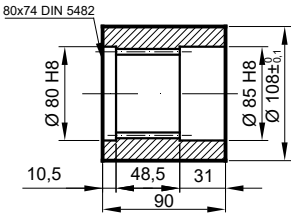
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



MS

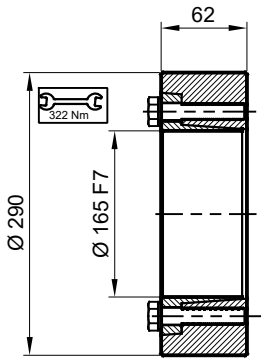
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material Material
DIN 1.7225 / 42CrMo4



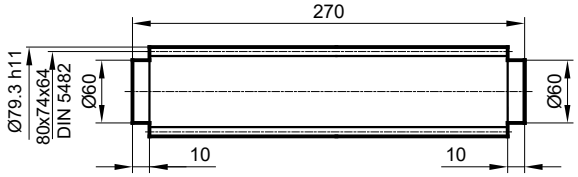
FS

SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
44 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN 1.7225 / 42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

R01-2020

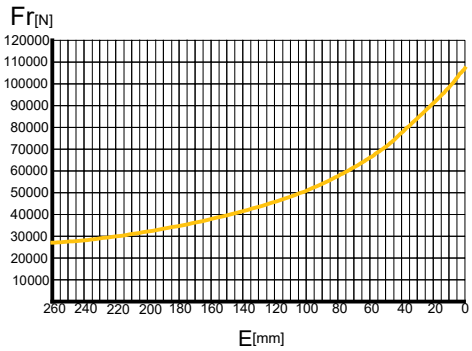
PD/PDA 113

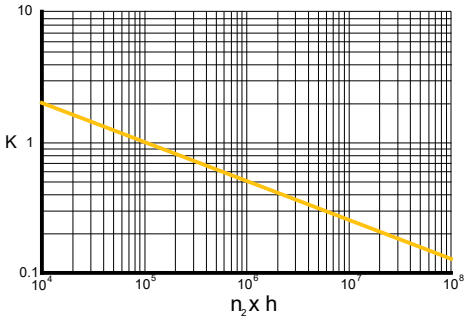
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

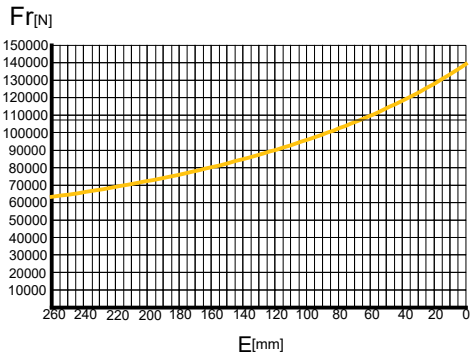
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

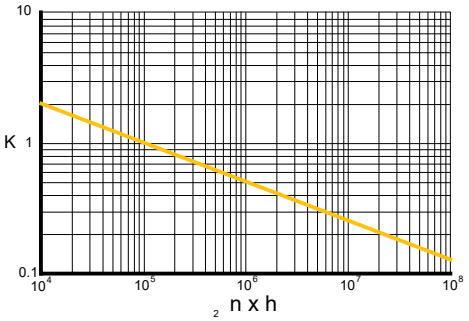
M-FV



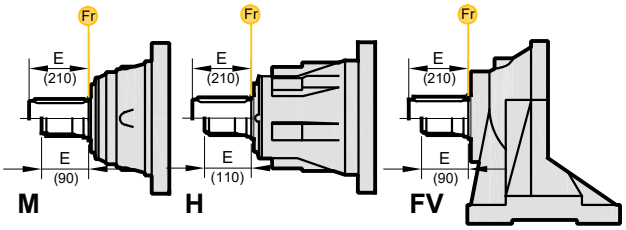


H





	nxh				
	10^5	10^4	10^6	10^7	10^8
M-H	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

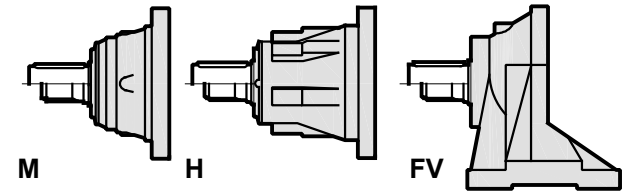


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

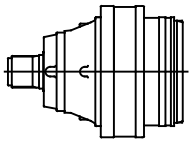
AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M-CPC	H	
	45000	85000	←
	65000	85000	→



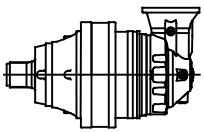
R01-2020

PD 115



	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 115 S2	13.0	20360	18020	15330	13570	2800	36040	25
	15.8	20360	18020	15330	13570	2800	36040	25
	19.0	17740	15700	13360	11830	2800	31400	25
	21.4	17740	15700	13360	11830	2800	31400	25
	24.9	17740	15700	13360	11830	2800	31400	25
	30.0	17740	15700	13360	11830	2800	31400	25
	39.2	13570	12010	10220	9050	2800	24020	25
	47.3	10320	9130	7770	6880	2800	18260	25
PD 115 S3	49.3	20360	18020	15330	13570	2800	36040	17
	53.8	20360	18020	15330	13570	2800	36040	17
	59.5	20360	18020	15330	13570	2800	36040	17
	65.0	20360	18020	15330	13570	2800	36040	17
	67.4	20360	18020	15330	13570	2800	36040	17
	73.3	20360	18020	15330	13570	2800	36040	17
	81.3	20360	18020	15330	13570	2800	36040	17
	88.4	17740	15700	13360	11830	2800	31400	17
	94.5	20360	18020	15330	13570	2800	36040	17
	98.0	17740	15700	13360	11830	2800	31400	17
	106.7	20360	18020	15330	13570	2800	36040	17
	114.2	20360	18020	15330	13570	2800	36040	17
	128.9	20360	18020	15330	13570	2800	36040	17
	149.1	17740	15700	13360	11830	2800	31400	17
	155.3	17740	15700	13360	11830	2800	31400	17
	180.2	17740	15700	13360	11830	2800	31400	17
	194.9	13570	12010	10220	9050	2800	24020	17
	217.5	17740	15700	13360	11830	2800	31400	17
PD 115 S4	175.1	20360	18020	15330	13570	2800	36040	13
	191.2	20360	18020	15330	13570	2800	36040	13
	238.8	20360	18020	15330	13570	2800	36040	13
	287.8	20360	18020	15330	13570	2800	36040	13
	301.2	20360	18020	15330	13570	2800	36040	13
	348.6	20360	18020	15330	13570	2800	36040	13
	363.0	20360	18020	15330	13570	2800	36040	13
	377.2	20360	18020	15330	13570	2800	36040	13
	393.6	20360	18020	15330	13570	2800	36040	13
	438.4	20360	18020	15330	13570	2800	36040	13
	489.2	20360	18020	15330	13570	2800	36040	13
	549.1	20360	18020	15330	13570	2800	36040	13
	582.1	20360	18020	15330	13570	2800	36040	13
	620.0	20360	18020	15330	13570	2800	36040	13
	677.9	20360	18020	15330	13570	2800	36040	13
	720.0	20360	18020	15330	13570	2800	36040	13
	770.6	20360	18020	15330	13570	2800	36040	13
	818.8	20360	18020	15330	13570	2800	36040	13
	849.7	17740	15700	13360	11830	2800	31400	13
	928.7	17740	15700	13360	11830	2800	31400	13
	987.2	17740	15700	13360	11830	2800	31400	13
	1112.9	17740	15700	13360	11830	2800	31400	13
	1216.2	17740	15700	13360	11830	2800	31400	13

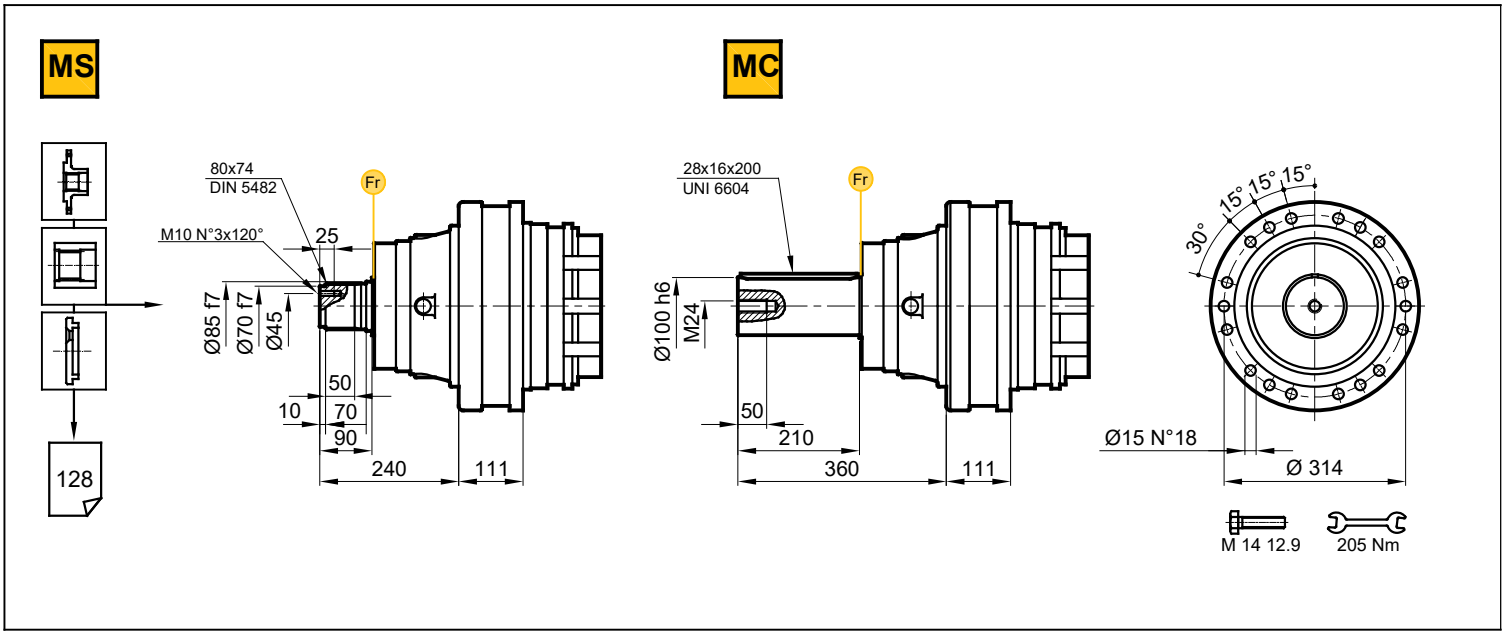
PDA 115

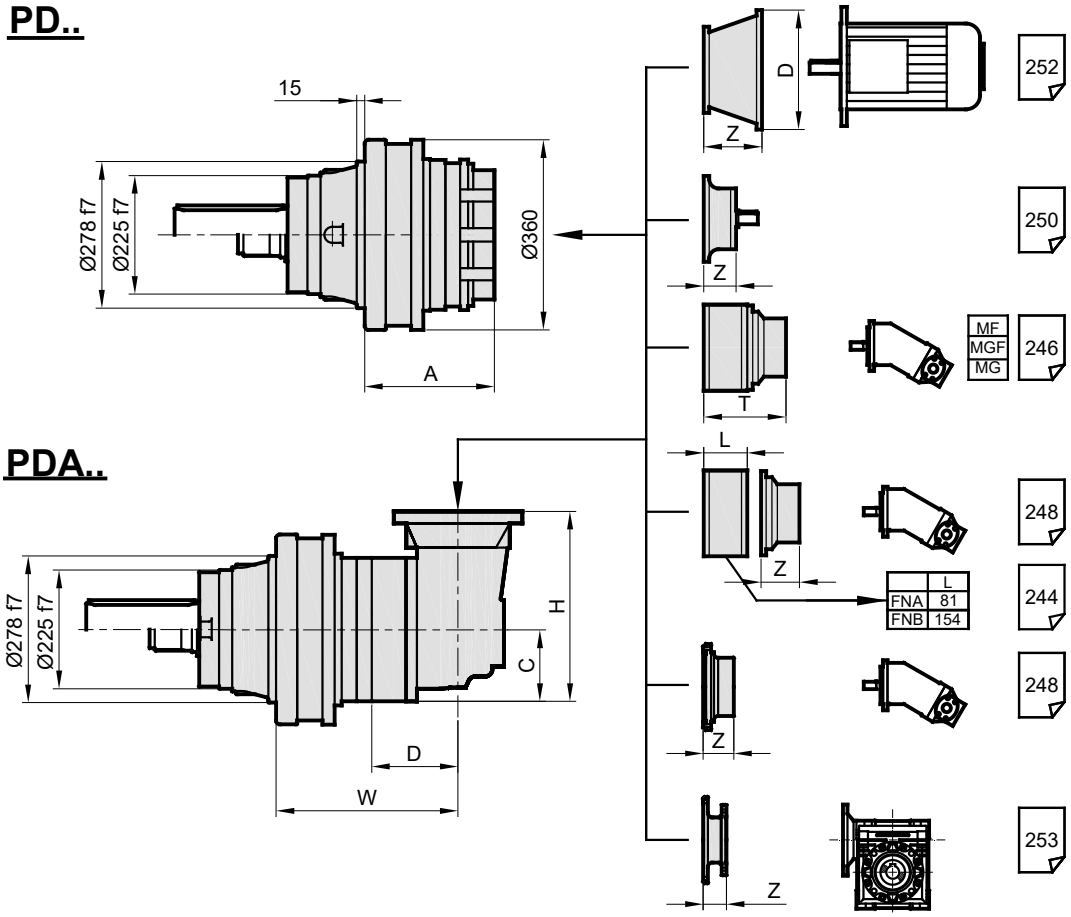


	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 115 S3	40.3	20360	18020	15330	13570	2800	36040	17
	54.9	20360	18020	15330	13570	2800	36040	17
	60.3	20360	18020	15330	13570	2800	36040	17
	72.8	20360	18020	15330	13570	2800	36040	17
	76.8	17740	15700	13360	11830	2800	31400	17
	82.2	20360	18020	15330	13570	2800	36040	17
	99.1	17740	15700	13360	11830	2800	31400	17
	115.0	17740	15700	13360	11830	2800	31400	17
	121.1	13570	12010	10220	9050	2800	24020	17
	138.7	17740	15700	13360	11830	2800	31400	17
	146.0	10320	9130	7770	6880	2800	18260	17
	150.2	13570	12010	10220	9050	2800	24020	17
	181.3	13570	12010	10220	9050	2800	24020	17
	218.5	10320	9130	7770	6880	2800	36040	17
PDA 115 S4	144.3	20360	18020	15330	13570	2800	36040	13
	157.6	20360	18020	15330	13570	2800	36040	13
	174.3	20360	18020	15330	13570	2800	36040	13
	190.3	20360	18020	15330	13570	2800	36040	13
	214.9	23060	18020	15330	13570	2800	36040	13
	238.4	23060	18020	15330	13570	2800	36040	13
	276.8	23060	18020	15330	13570	2800	36040	13
	300.4	17740	15700	13360	11830	2800	31400	13
	333.8	17740	15700	13360	11830	2800	31400	13
	362.5	17740	15700	13360	11830	2800	31400	13
	376.2	17740	15700	13360	11830	2800	31400	13
	403.1	17740	15700	13360	11830	2800	31400	13
	455.1	17740	15700	13360	11830	2800	31400	13
	492.2	13570	12010	10220	9050	2800	24020	13
	527.9	17740	15700	13360	11830	2800	31400	13
	594.8	13570	12010	10220	9050	2800	24020	13
	637.2	17740	15700	13360	11830	2800	31400	13
	690.0	13570	12010	10220	9050	2800	24020	13
	715.3	10320	9130	7770	6880	2800	18260	13
	832.7	13570	12010	10220	9050	2800	24020	13
	1003.7	10320	9130	7770	6880	2800	18260	13

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

PD/PDA 115

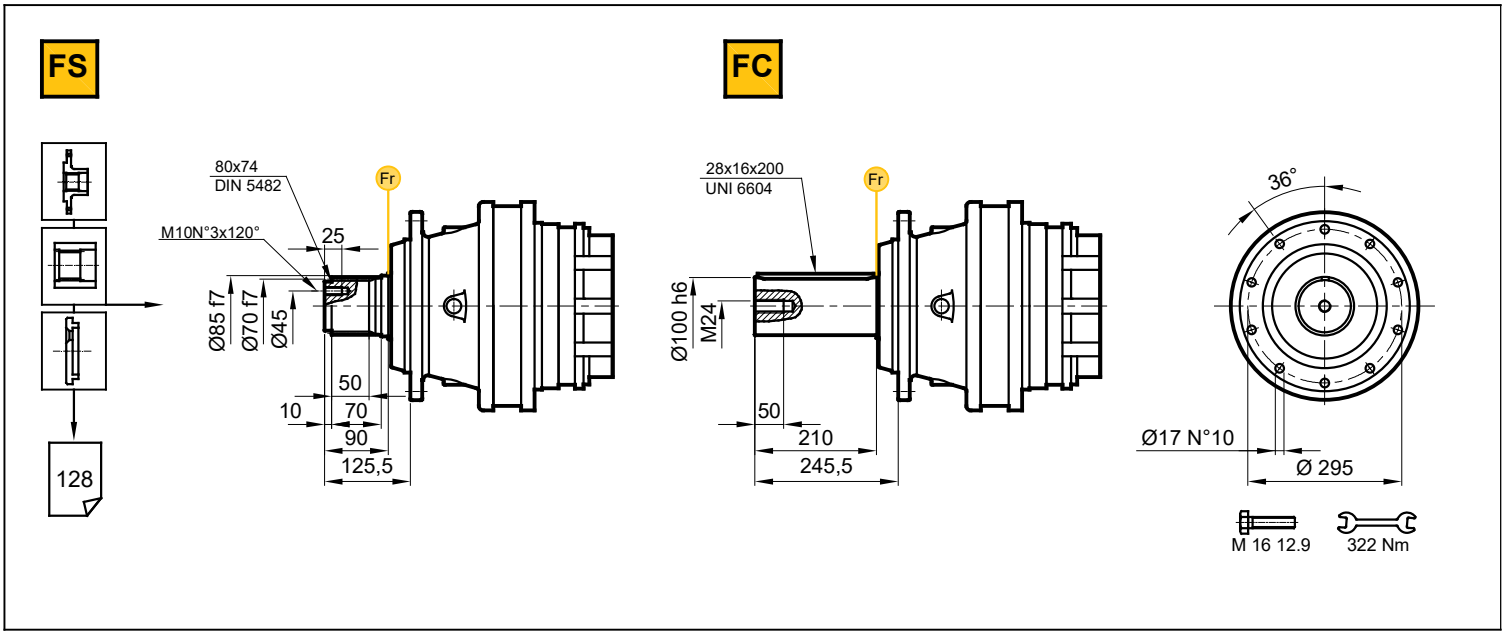


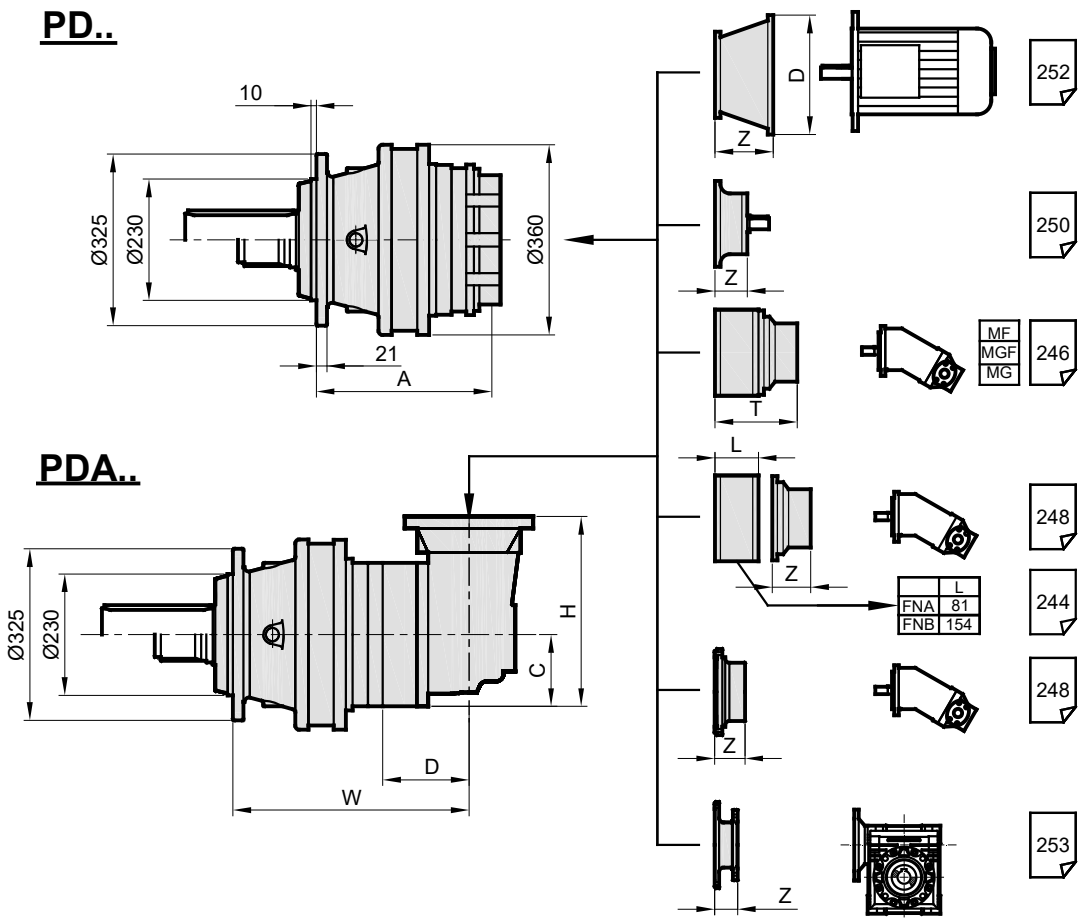


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	-	-	-
S2	-	-	-	-	241,5	137	-
S3	305	118,5	140	390	301,5	149	187
S4	377	75	92,5	253,5	349,5	156	167

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 115



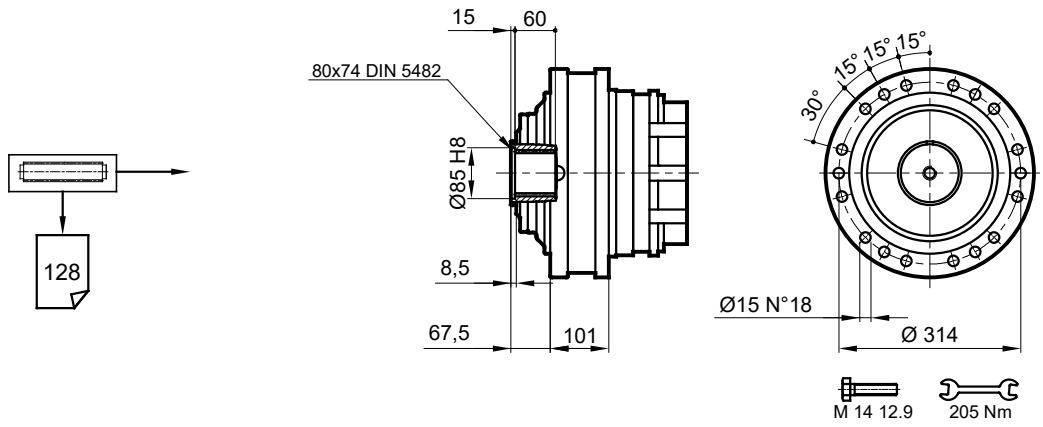


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	-	-	-
S2	-	-	-	-	345,5	136	-
S3	409	118,5	140	390	405,5	149	186
S4	481	75	92,5	253,5	453,5	155	166

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

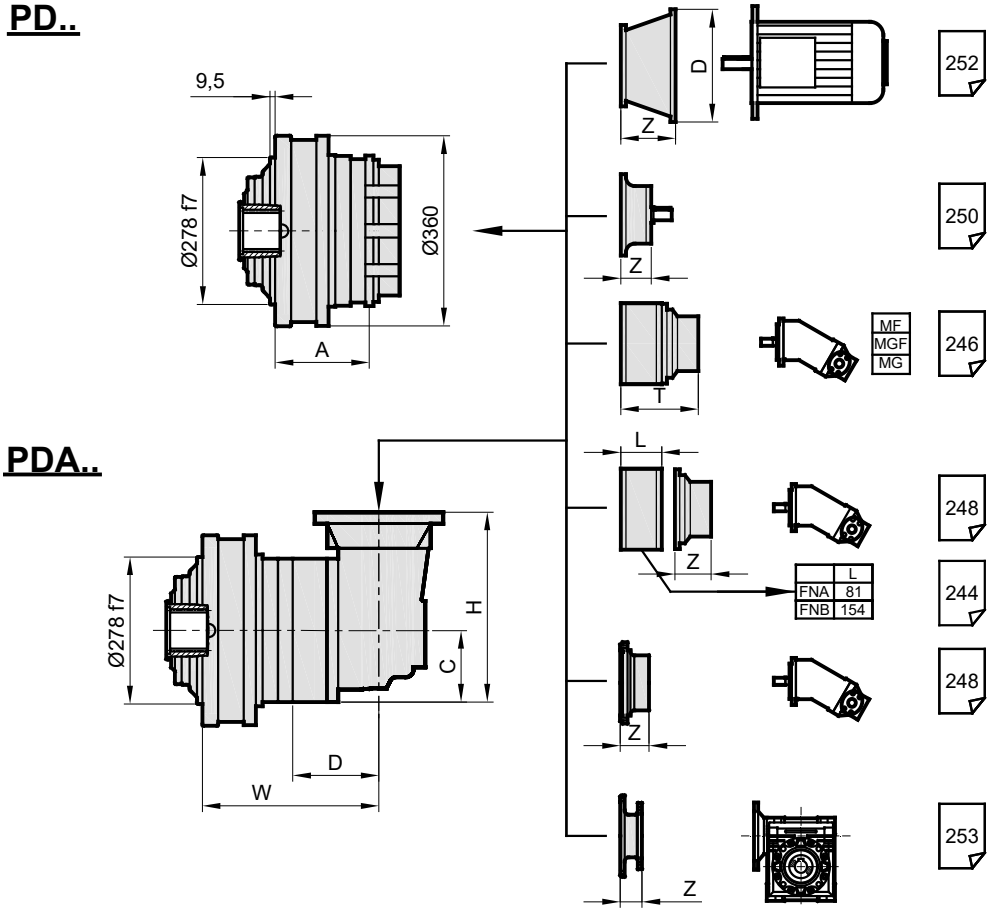
PD/PDA 115

S



PD..

PDA..

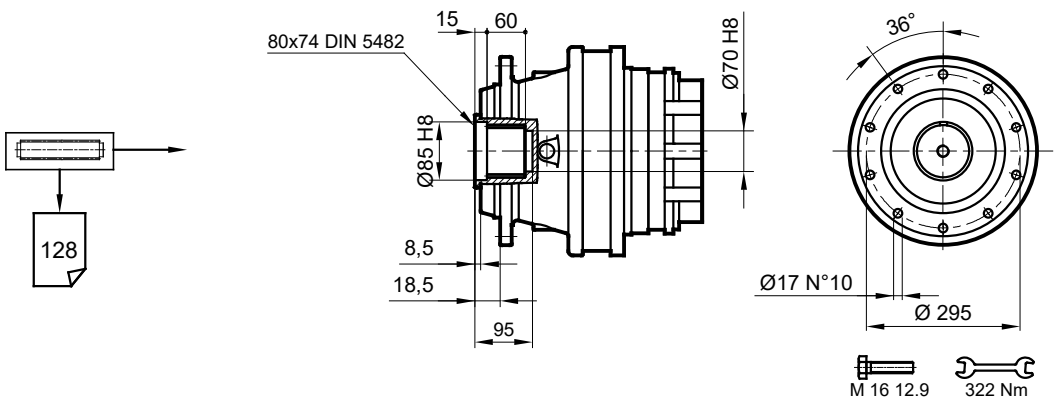


Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	-	-	-
S2	-	-	-	-	231,5	95	-
S3	295	118,5	140	390	291,5	108	145
S4	367	75	92,5	253,5	339,5	168	125

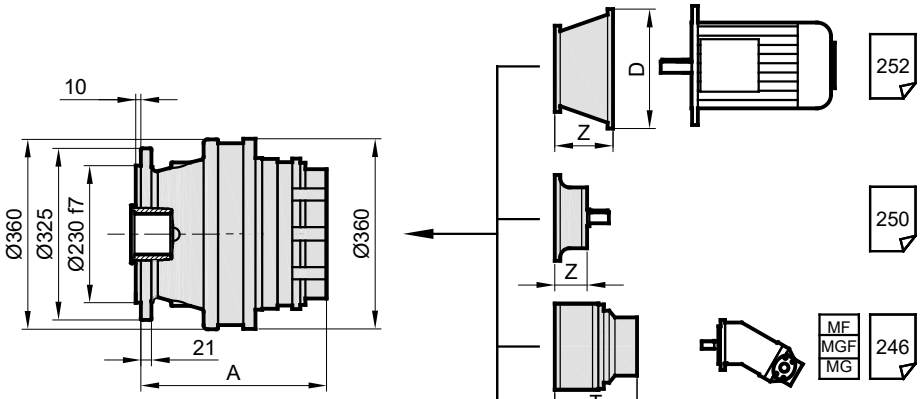
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 115

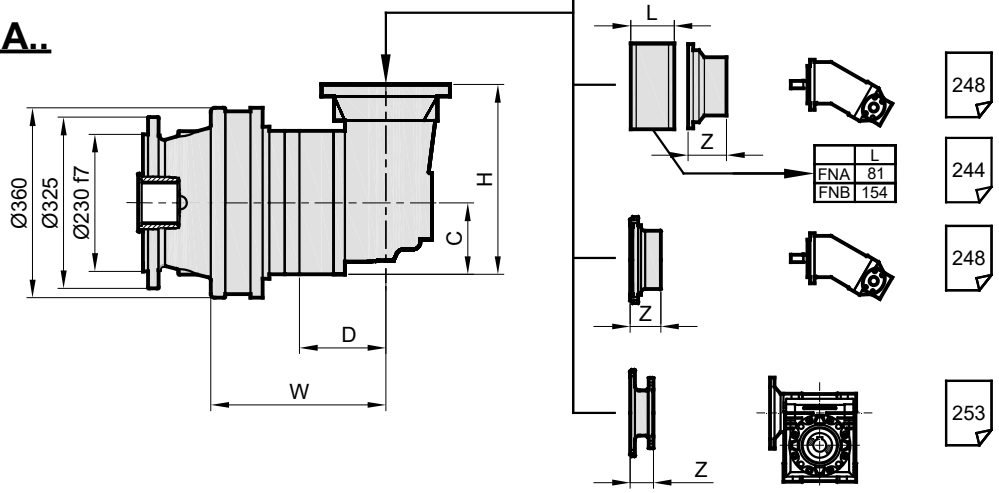
SF



PD..



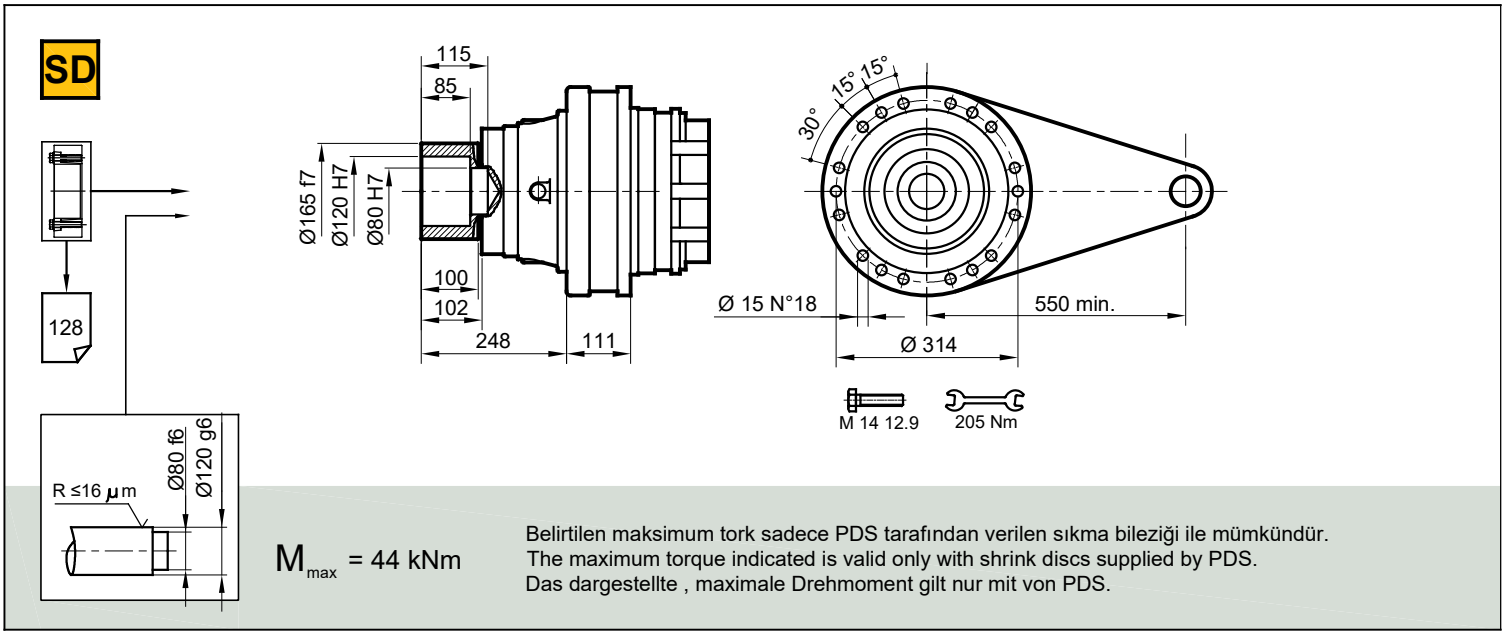
PDA..



Stage	W	D	C	H	A	PD SF	PDA SF
S1	-	-	-	-	-	-	-
S2	-	-	-	-	346	120	-
S3	409,5	118,5	140	390	406	132	170
S4	481,5	75	92,5	253,5	454	139	150

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

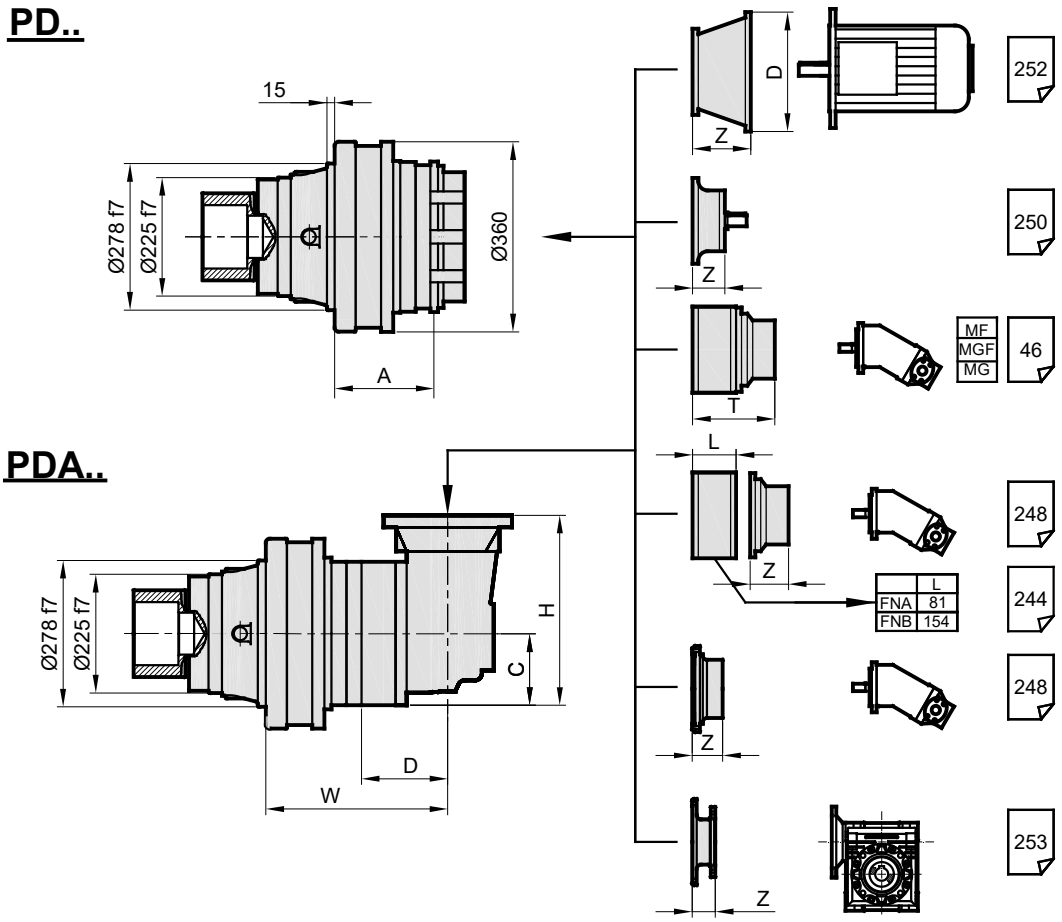
PD/PDA 115



M_{max} = 44 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



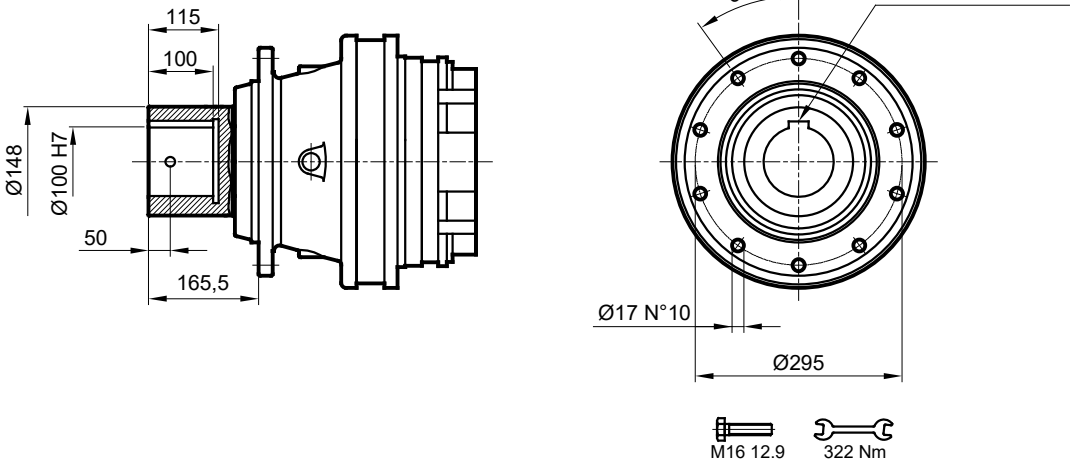
PDA..

Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	-	-	-
S2	-	-	-	-	241,5	132	-
S3	305	118,5	140	390	301,5	144	182
S4	377	75	92,5	253,5	349,5	151	162

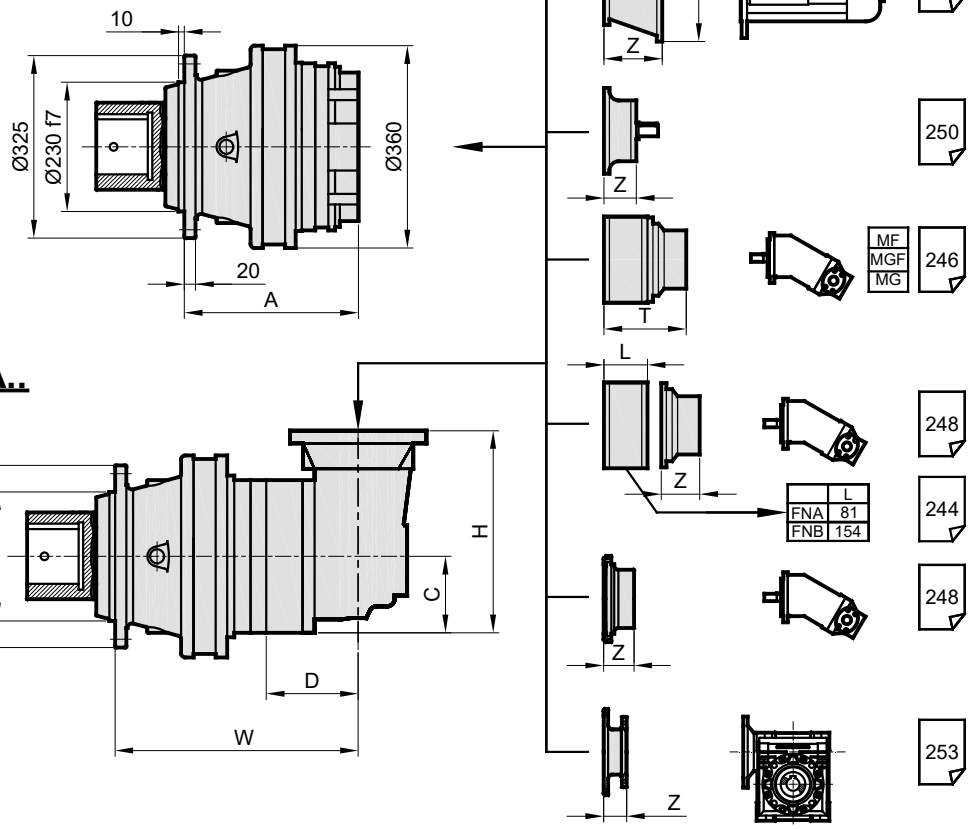
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 115

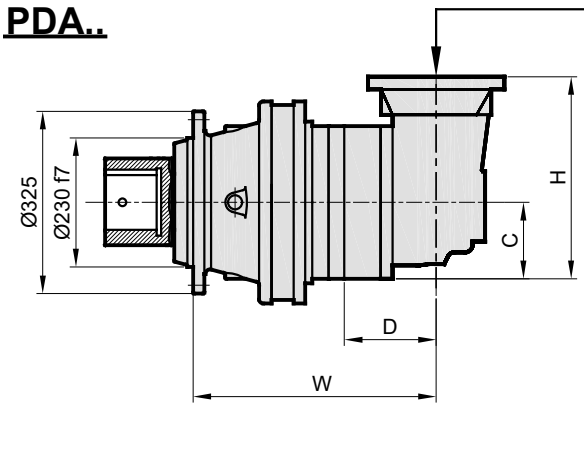
DKM



PD..



PDA..

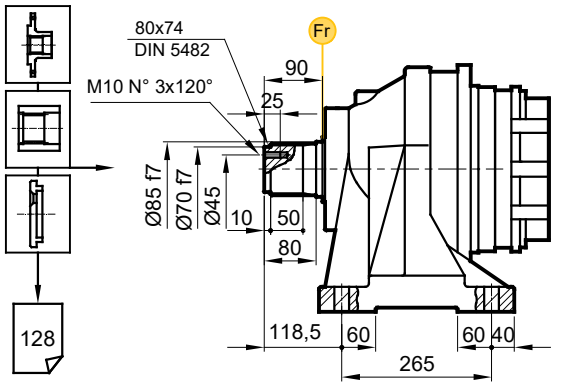


Stage	W	D	C	H	A	PD DKM	PDA DKM
S1	-	-	-	-	-	-	-
S2	-	-	-	-	345,5	133	-
S3	409	118,5	140	390	405,5	146	183
S4	481	75	92,5	253,5	453,5	152	163

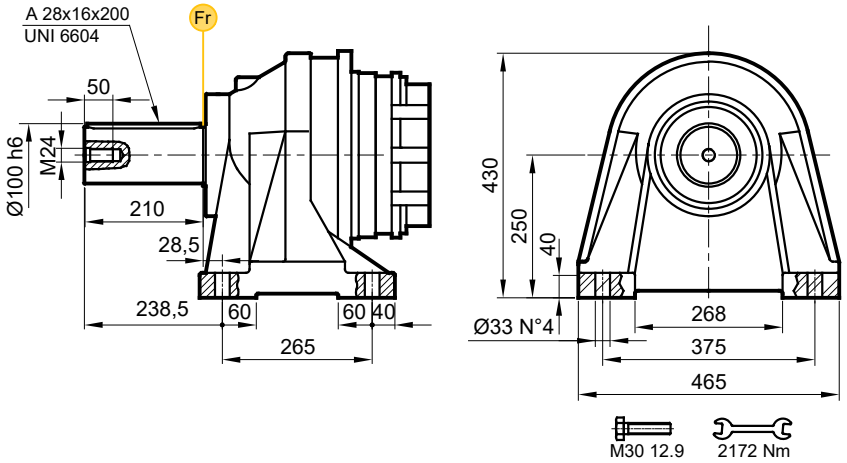
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 115

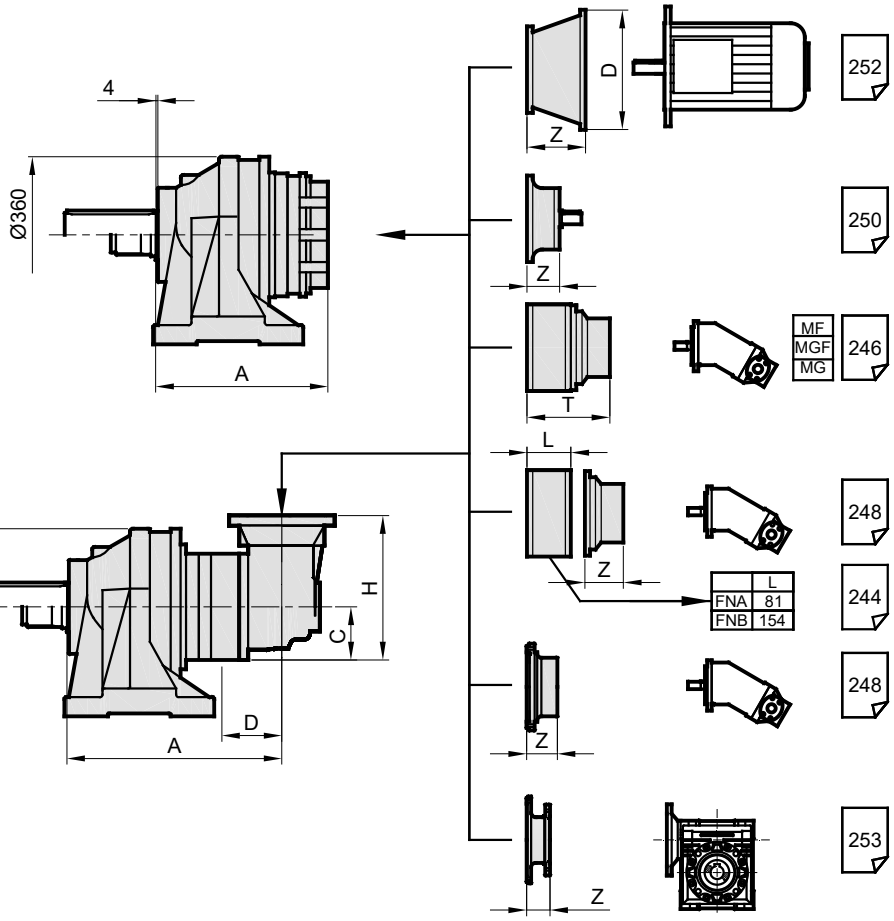
FVS



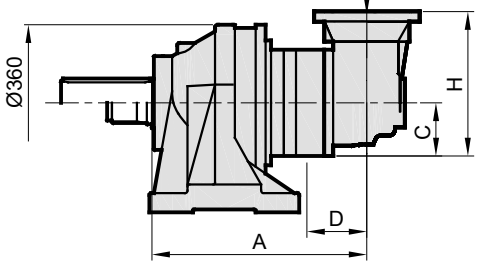
FVC



PD..



PDA..

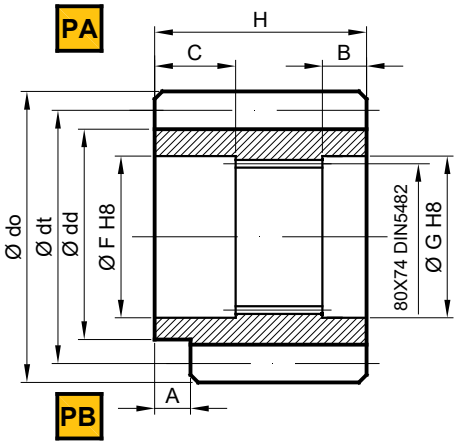


Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	-	-	-
S2	-	-	-	-	396,5	195	-
S3	460	118,5	140	390	456,5	207	245
S4	532	75	92,5	253,5	504,5	214	225

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

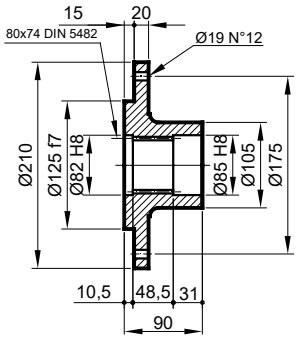
PD/PDA 115

P *Pinyon / Pinion / Ritzel*

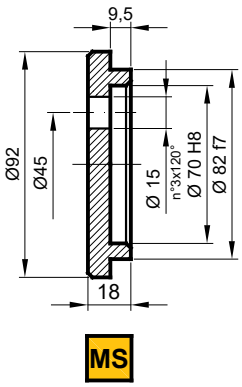


		m	z	x	dd	dt	do	H	A	B	C	F	G	Malzeme Material Material
PA	M	10	12	0	95	120	140	90	0	10	31	85	80	42CrMo4
PA	M	10	14	0	115	140	160	90	0	10	31	85	80	42CrMo4
PA	P	14	13	1	161	182	224	122	0	24	33	105	105	42CrMo4
PB	M	12	14	0,5	144	168	198	90	13	25	31	85	80	42CrMo4

FL Flanş / *Flange* / Flansch

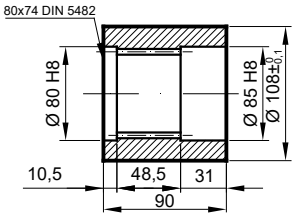


SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe

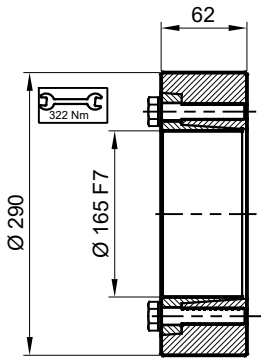


FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /*Material* Material
DIN 1.7225 / 42CrMo4

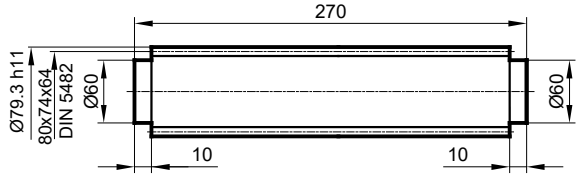


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
44 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN 1.7225 / 42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

R01-2020

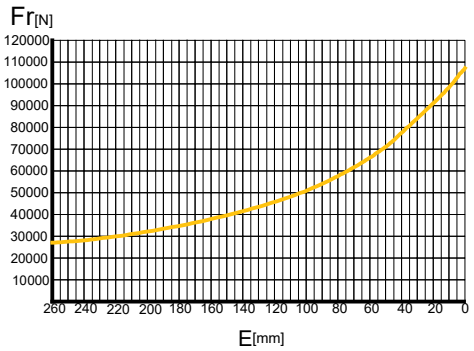
PD/PDA 115

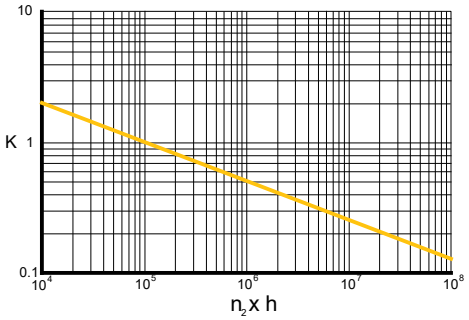
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

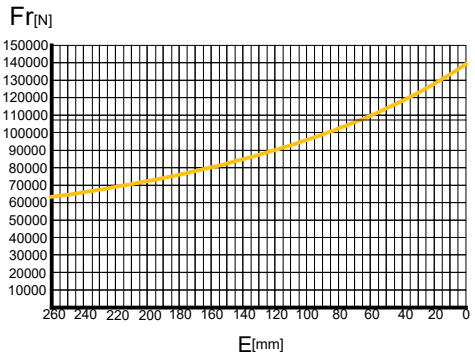
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

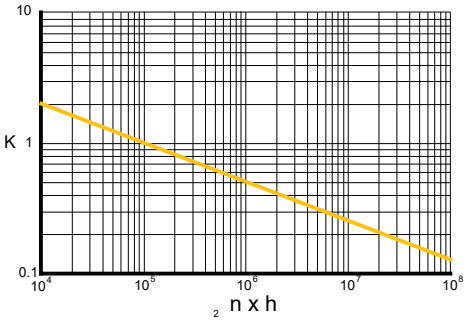
M-FV



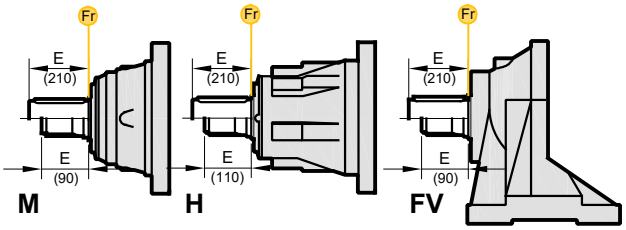


H





	nxh				
	10^5	10^4	10^6	10^7	10^8
M-H	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

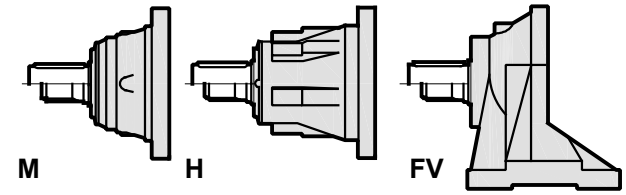


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

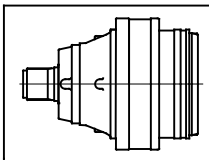
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

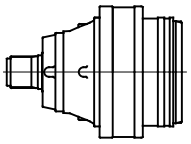
Fa [N]	M-CPC	H	
	45000	85000	←
	65000	85000	→



PD 117

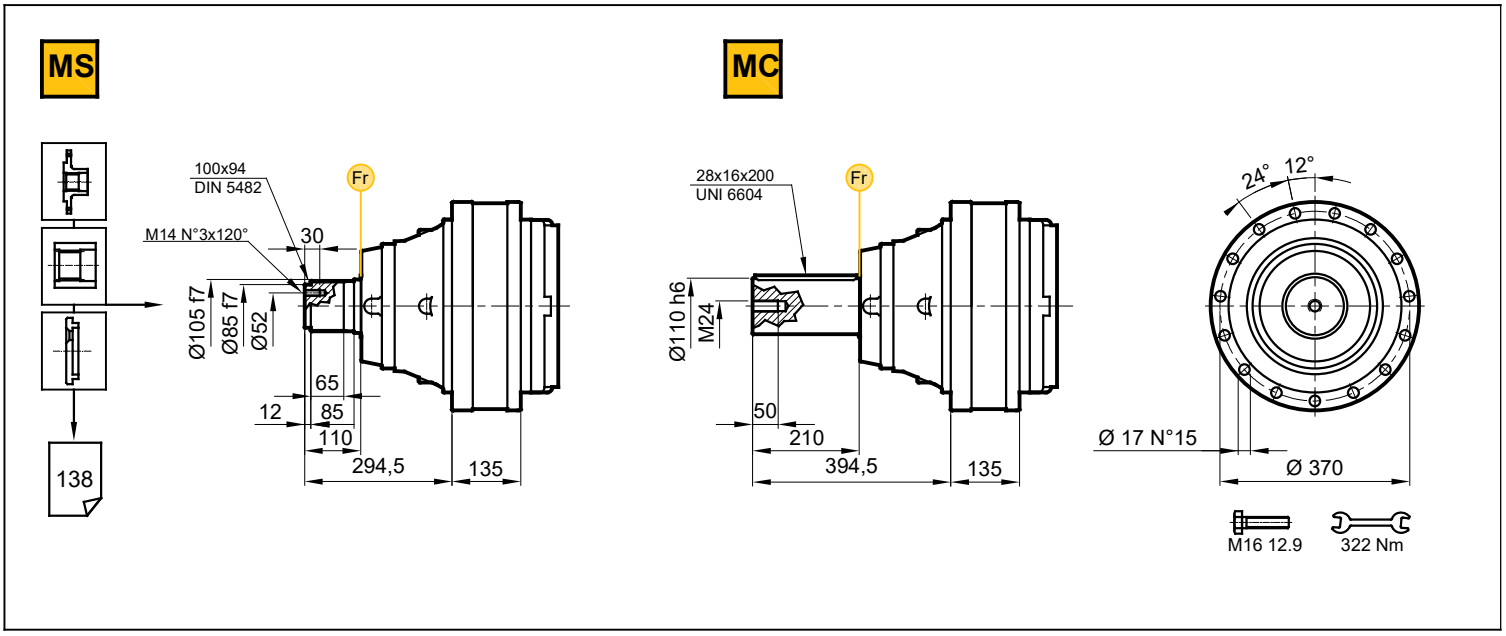
	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PD 117 S1	4.00	31700	28060	23680	21140	1500	56120	50
	5.20	26870	23780	20240	17910	1500	47560	50
	6.25	20730	18350	15620	13820	1500	36700	50
PD 117 S2	14.7	31700	28060	23680	21140	2800	56120	30
	19.1	26870	23780	20240	17910	2800	47560	30
	23.0	26870	23780	20240	17910	2800	47560	30
	26.0	26870	23780	20240	17910	2800	47560	30
	30.2	26870	23780	20240	17910	2800	47560	30
	36.2	20730	18350	15620	13820	2800	36700	30
	43.7	20730	18350	15620	13820	2800	36700	30
PD 117 S3	55.4	31700	28060	23680	21140	2800	56120	20
	60.5	31700	28060	23680	21140	2800	56120	20
	72.0	26870	23780	20240	17910	2800	47560	20
	88.0	31700	28060	23680	21140	2800	56120	20
	95.0	26870	23780	20240	17910	2800	47560	20
	107.3	26870	23780	20240	17910	2800	47560	20
	114.4	26870	23780	20240	17910	2800	47560	20
	124.4	26870	23780	20240	17910	2800	47560	20
	134.3	26870	23780	20240	17910	2800	47560	20
	156.0	26870	23780	20240	17910	2800	47560	20
	167.0	26870	23780	20240	17910	2800	47560	20
	188.5	26870	23780	20240	17910	2800	47560	20
	218.6	26870	23780	20240	17910	2800	47560	20
	226.5	20730	18350	15620	13820	2800	36700	20
	262.8	20730	18350	15620	13820	2800	36700	20
	317.2	20730	18350	15620	13820	2800	36700	20
PD 117 S4	338.8	31700	28060	23680	21140	2800	56120	15
	374.0	31700	28060	23680	21140	2800	56120	15
	408.4	31700	28060	23680	21140	2800	56120	15
	424.3	31700	28060	23680	21140	2800	56120	15
	493.2	31700	28060	23680	21140	2800	56120	15
	511.5	31700	28060	23680	21140	2800	56120	15
	594.0	31700	28060	23680	21140	2800	56120	15
	656.7	31700	28060	23680	21140	2800	56120	15
	752.2	26870	23780	20240	17910	2800	47560	15
	762.7	31700	28060	23680	21140	2800	56120	15
	803.1	26870	23780	20240	17910	2800	47560	15
	873.6	26870	23780	20240	17910	2800	47560	15
	935.0	26870	23780	20240	17910	2800	47560	15
	1013.3	26870	23780	20240	17910	2800	47560	15
	1127.0	26870	23780	20240	17910	2800	47560	15
	1272.4	26870	23780	20240	17910	2800	47560	15
	1354.5	20730	18350	15620	13820	2800	36700	15
	1476.0	26870	23780	20240	17910	2800	47560	15
	1529.3	20730	18350	15620	13820	2800	36700	15
	1774.0	20730	18350	15620	13820	2800	36700	15

PDA 117

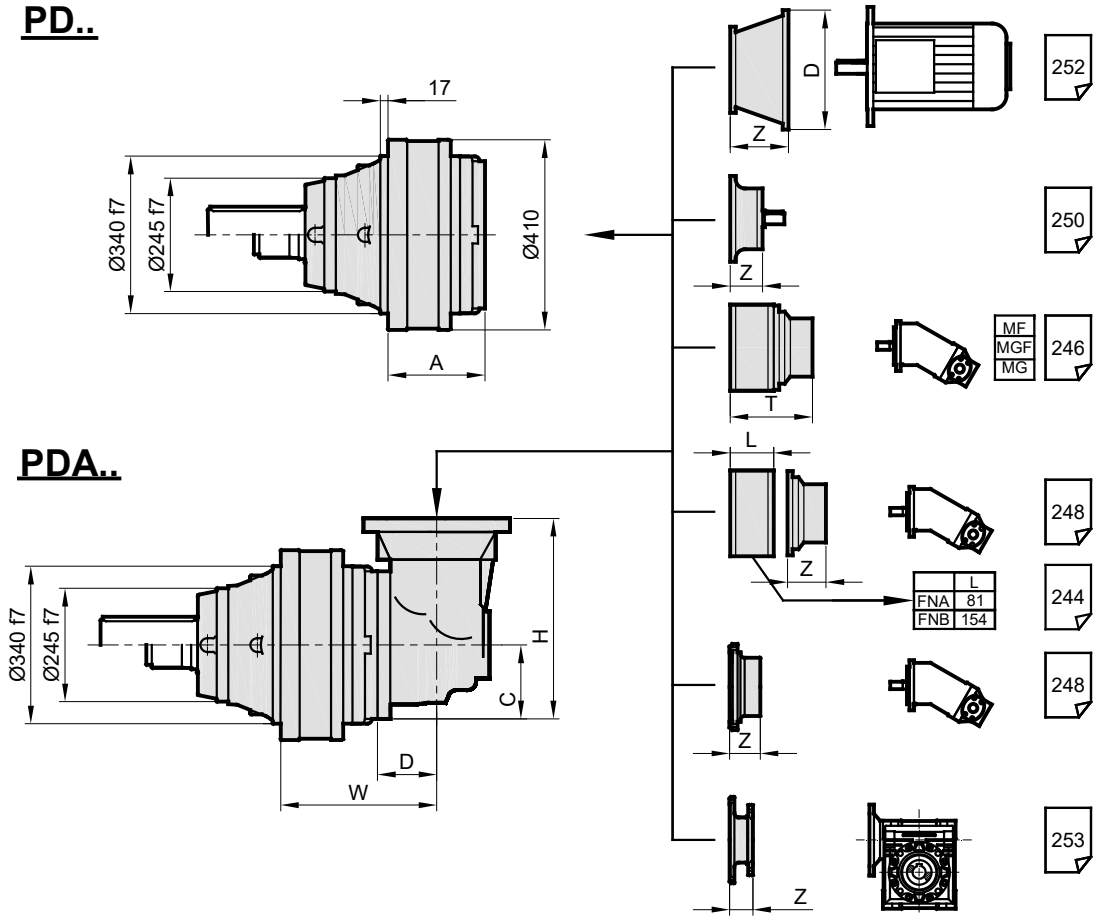
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 117 S2	14.2	31700	28060	23680	21140	2000	56120	30
	18.5	31700	28060	23680	21140	2000	56120	30
	22.1	20730	18350	15620	13820	2000	36700	30
	24.1	26870	23780	20240	17910	2000	47560	30
	28.9	20730	18350	15620	13820	2000	36700	30
PDA 117 S3	49.3	31700	28060	23680	21140	2800	56120	20
	64.1	26870	23780	20240	17910	2800	47560	20
	67.8	31700	28060	23680	21140	2800	56120	20
	77.4	26870	23780	20240	17910	2800	47560	20
	87.4	26870	23780	20240	17910	2800	47560	20
	101.3	26870	23780	20240	17910	2800	47560	20
	106.5	26870	23780	20240	17910	2800	47560	20
	120.2	26870	23780	20240	17910	2800	47560	20
	139.5	26870	23780	20240	17910	2800	47560	20
	144.5	20730	18350	15620	13820	2800	36700	20
	167.7	20730	18350	15620	13820	2800	36700	20
	202.3	20730	18350	15620	13820	2800	36700	20
PDA 117 S4	162.3	31700	28060	23680	21140	2800	56120	15
	222.0	31700	28060	23680	21140	2800	56120	15
	230.4	26870	23780	20240	17910	2800	47560	15
	257.8	31700	28060	23680	21140	2800	56120	15
	287.8	26870	23780	20240	17910	2800	47560	15
	314.2	26870	23780	20240	17910	2800	47560	15
	364.5	26870	23780	20240	17910	2800	47560	15
	393.6	26870	23780	20240	17910	2800	47560	15
	456.6	26870	23780	20240	17910	2800	47560	15
	489.2	26870	23780	20240	17910	2800	47560	15
	530.2	26870	23780	20240	17910	2800	47560	15
	640.7	26870	23780	20240	17910	2800	47560	15
	769.1	20730	18350	15620	13820	2800	36700	15
	929.4	20730	18350	15620	13820	2800	36700	15

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max} = T_2 \times 2}$

PD/PDA 117



PD..

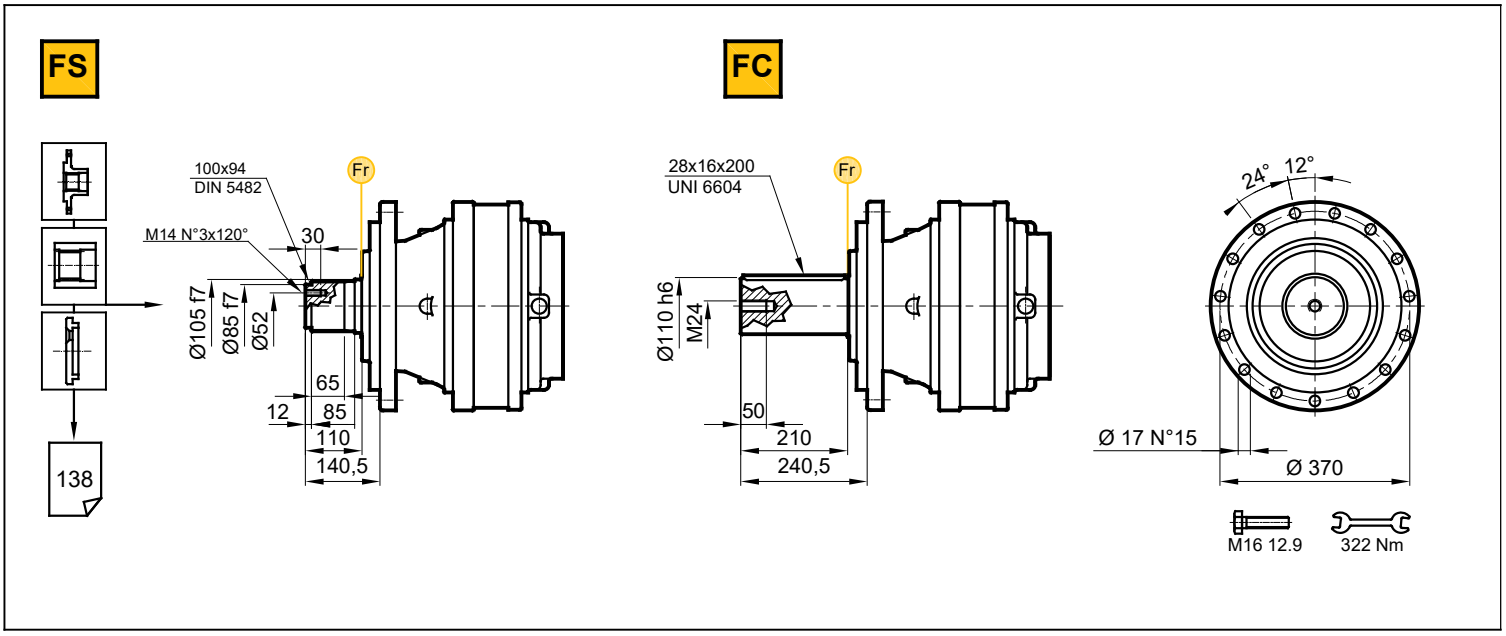


PDA..

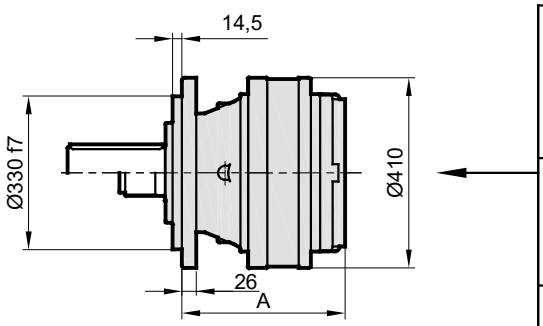
Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	219	200	-
S2	342	225,2	205	569	312,5	226	317
S3	376,5	118,5	140	390	373	239	276
S4	449	75	92,5	253,5	421,5	245	256

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

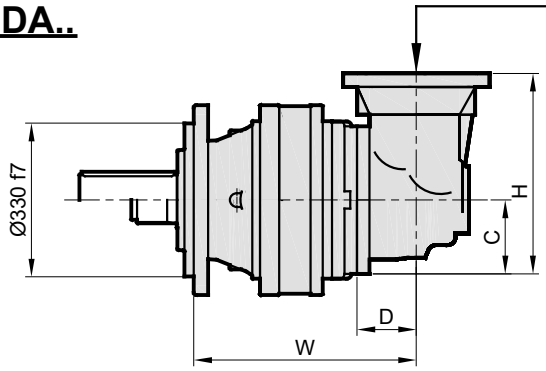
PD/PDA 117

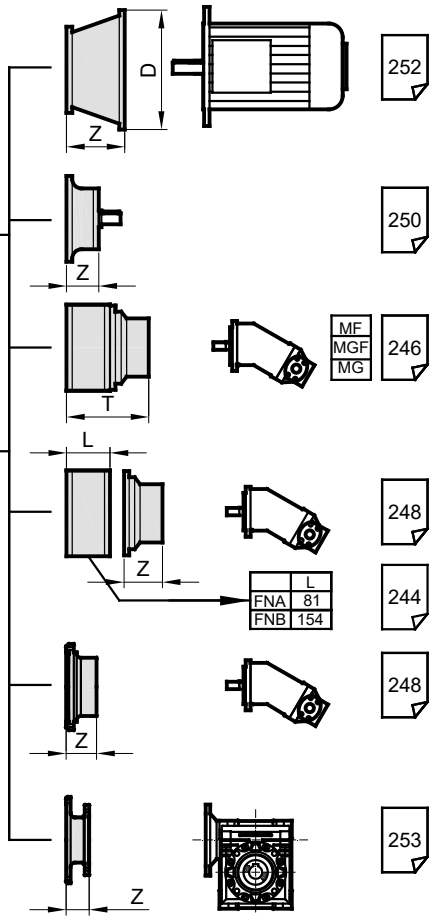


PD..



PDA..



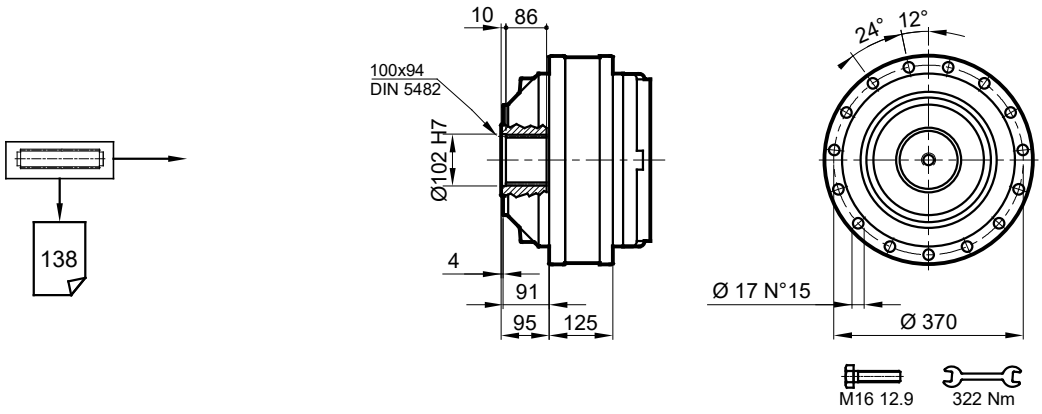


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	373	220	-
S2	496	225,2	205	569	466,5	247	337
S3	530,5	118,5	140	390	527	259	297
S4	603	75	92,5	253,5	575,5	266	277

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

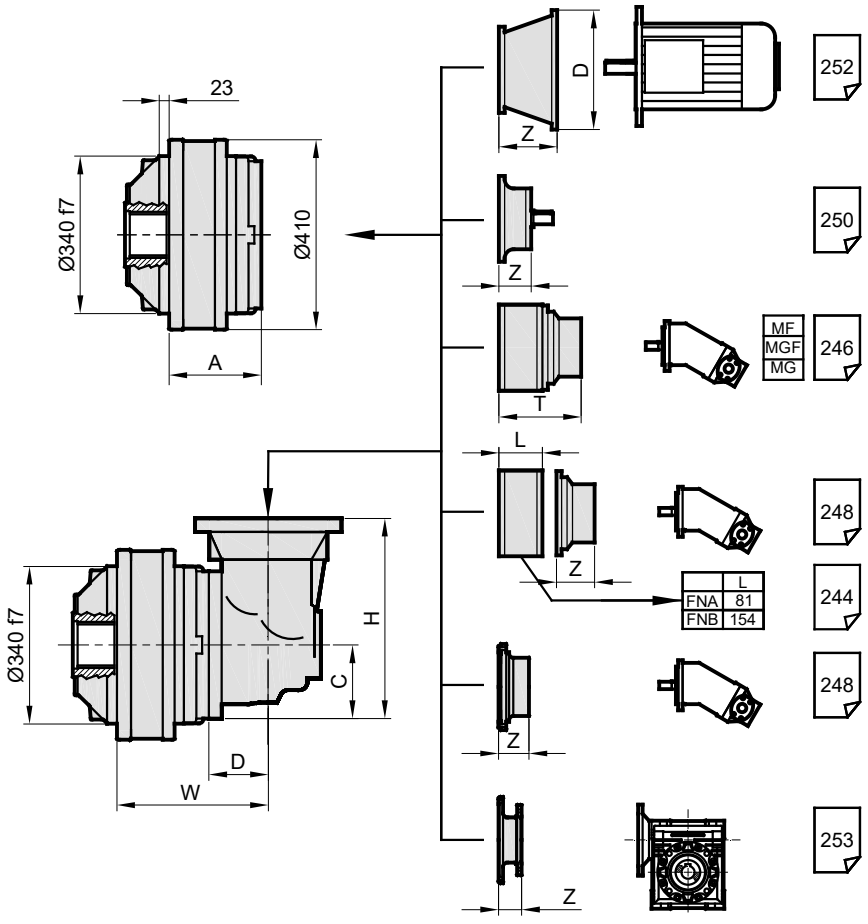
PD/PDA 117

S



PD..

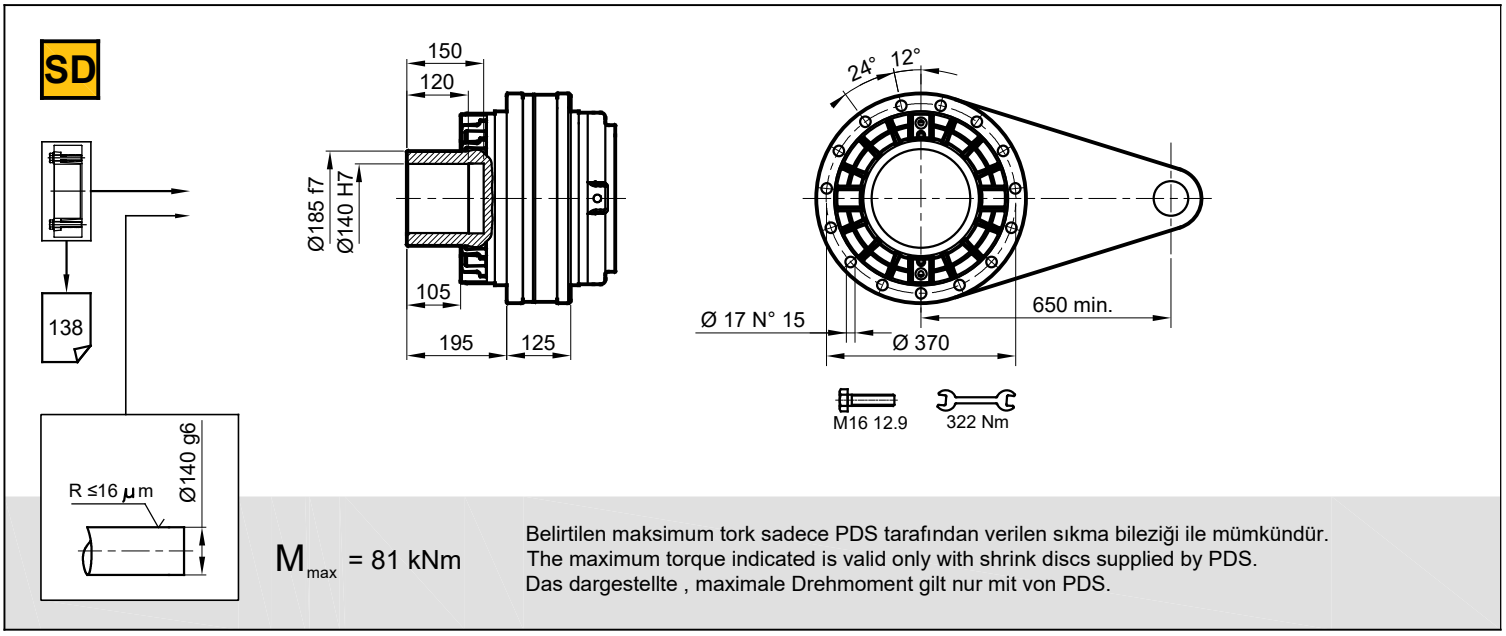
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	209	150	-
S2	332	225,2	205	569	302,5	177	267
S3	366,5	118,5	140	390	363	189	227
S4	439	75	92,5	253,5	411,5	196	207

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

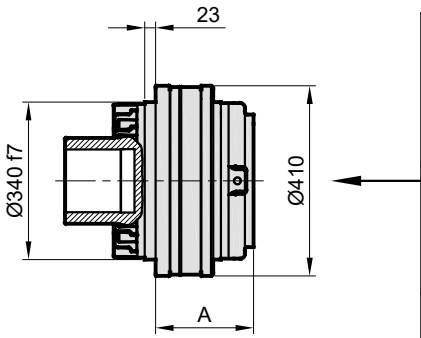
PD/PDA 117



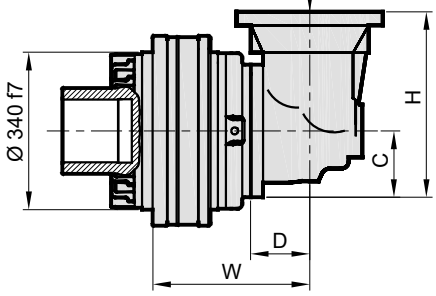
M_{max} = 81 kNm

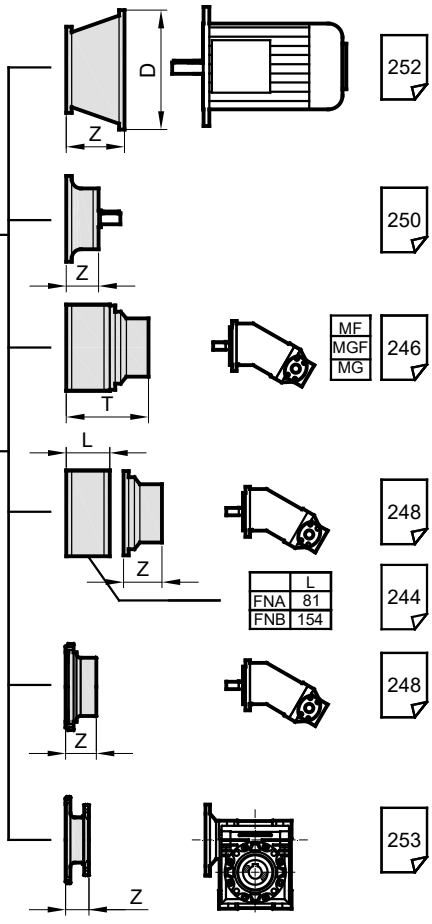
Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..



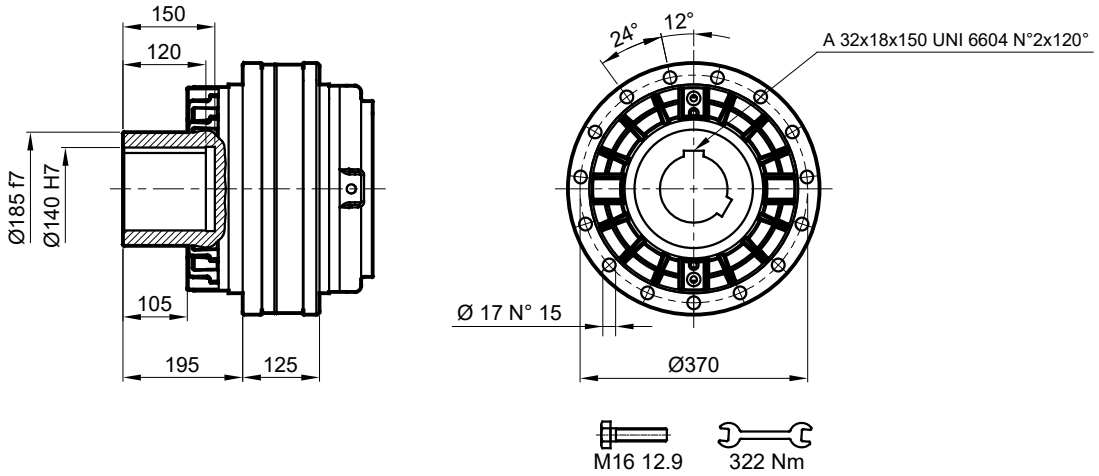


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	209	171	-
S2	332	225,2	205	569	302,5	197	288
S3	366,5	118,5	140	390	363	210	247
S4	439	75	92,5	253,5	411,5	216	227

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

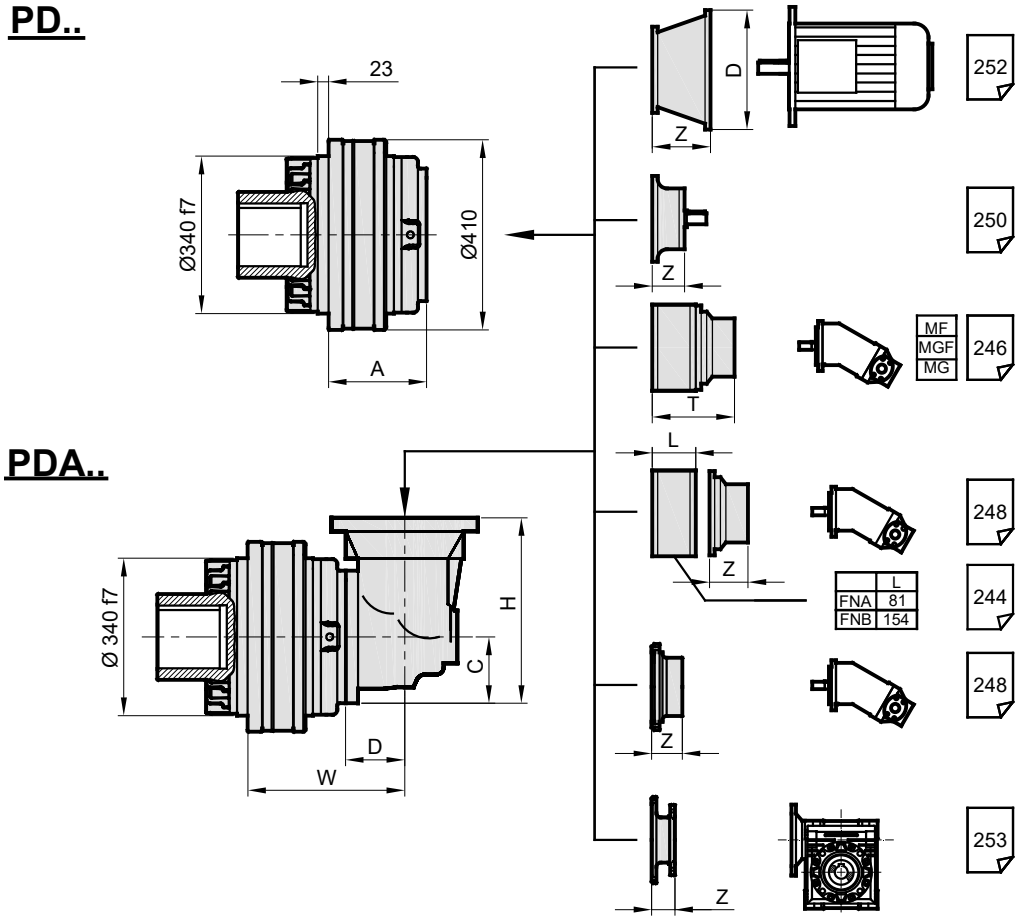
PD/PDA 117

DKM



PD..

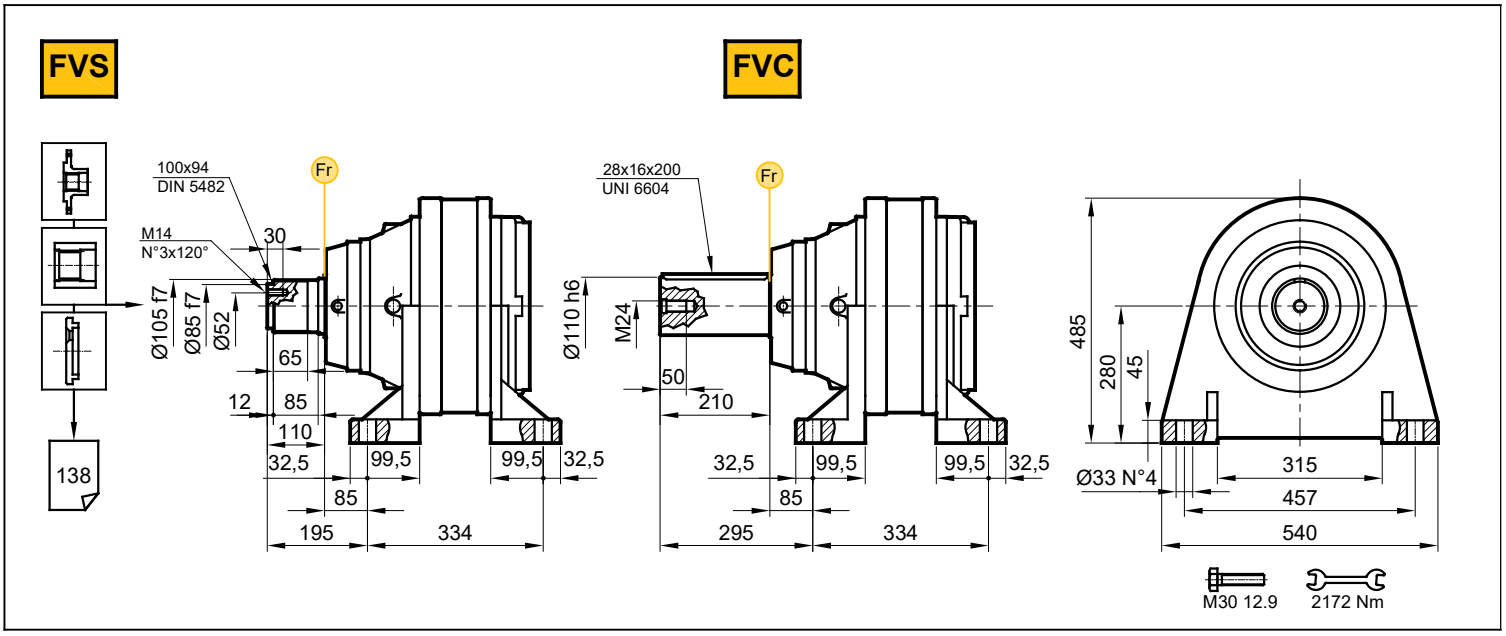
PDA..

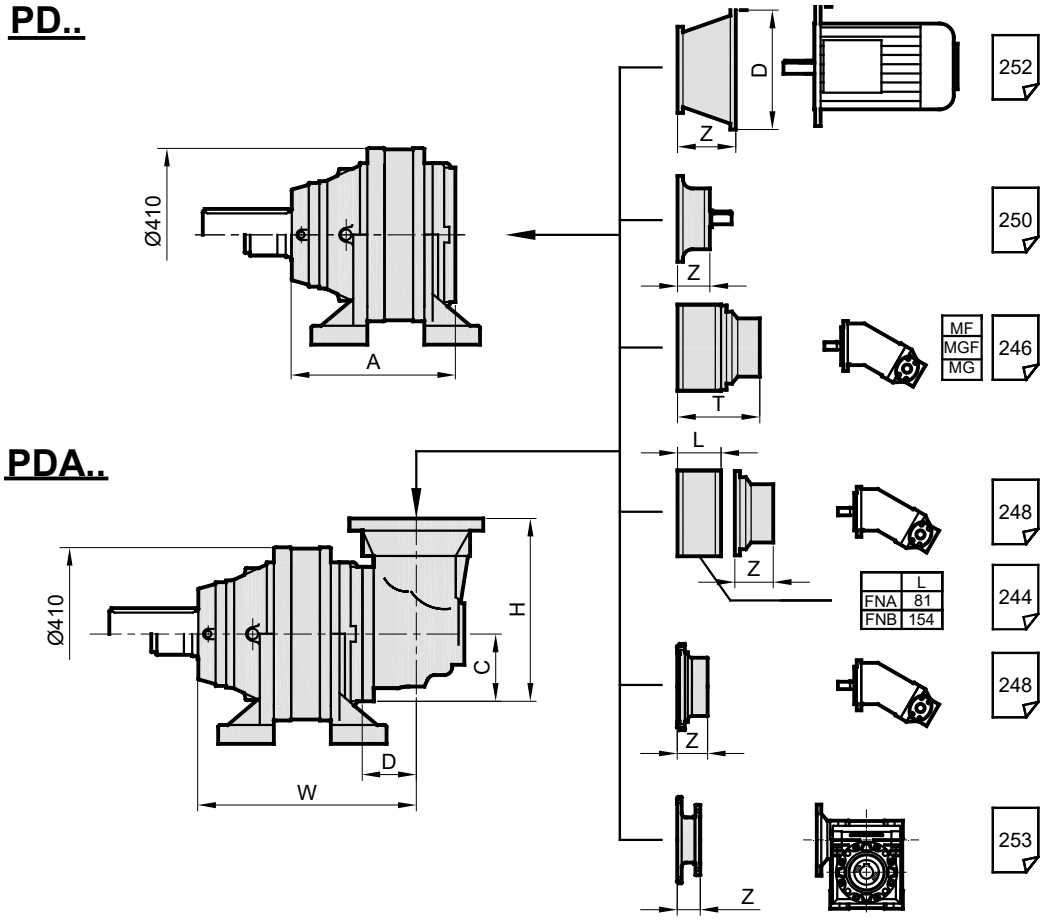


Stage	W	D	C	H	A	PD DKM	PDA DKM
S1	-	-	-	-	209	175	-
S2	332	225,2	205	569	302,5	201	443
S3	366,5	118,5	140	390	363	214	252
S4	439	75	92,5	253,5	411,5	221	232

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 117



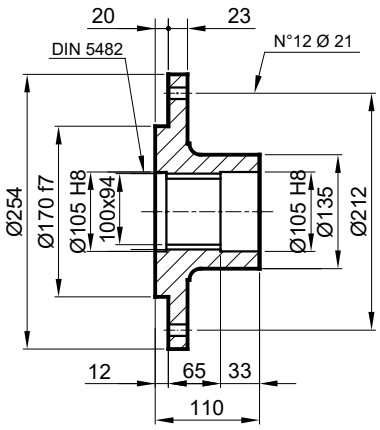


Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	403,5	260	-
S2	526	225,2	205	569	497	286	376
S3	561	118,5	140	390	557,5	298	336
S4	633	75	92,5	253,5	606	305	316

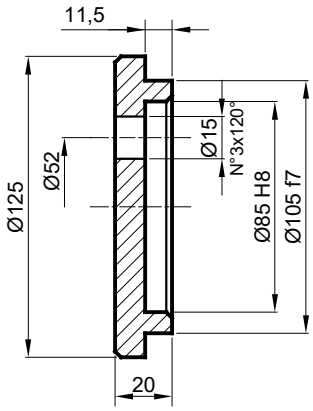
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 117

FL Flanş / *Flange* / Flansch



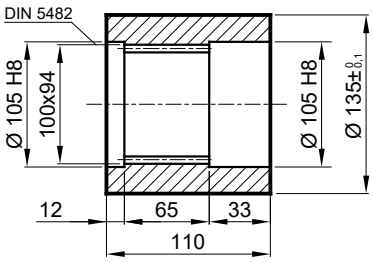
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



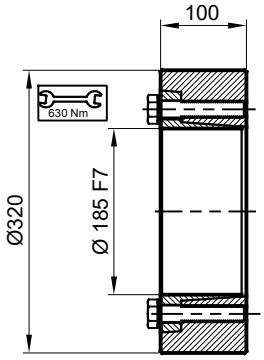
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material /Material

DIN 1.7225
42CrMo4

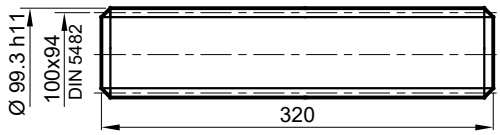


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
81 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN 1.7225 / 42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

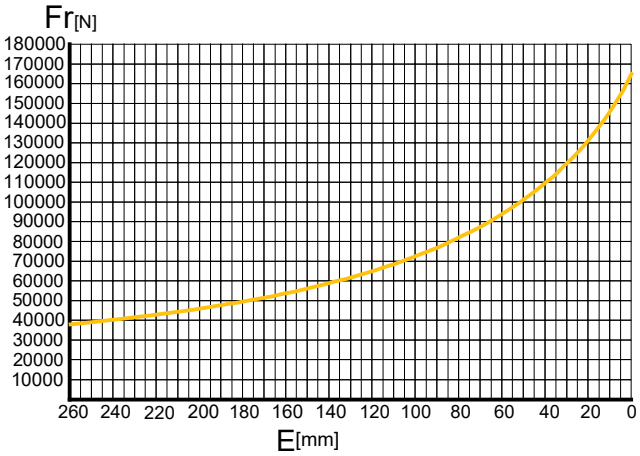
PD/PDA 117

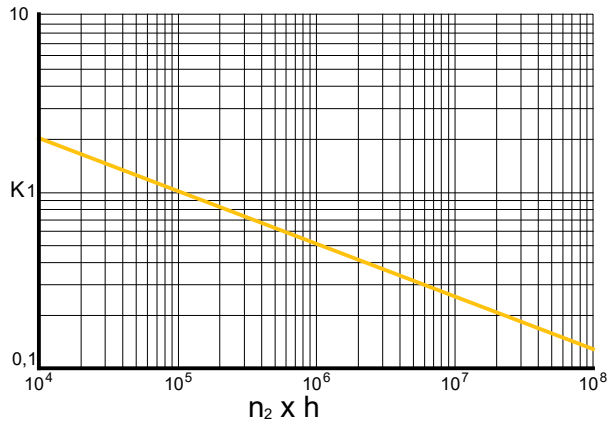
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

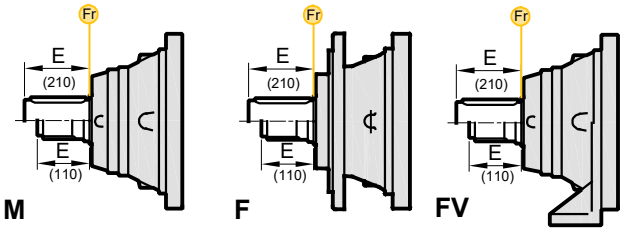
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

M-F-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
M-F	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

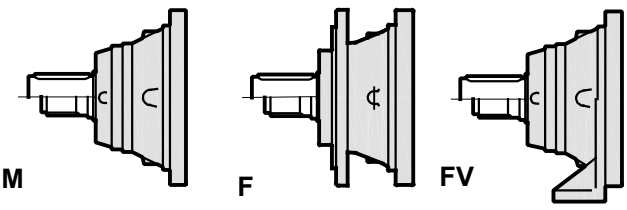


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

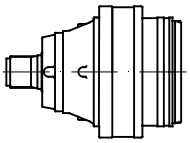
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

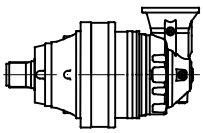
Fa [N]	M-F	FV	
	75000	75000	←
	95000	95000	→



PD 119

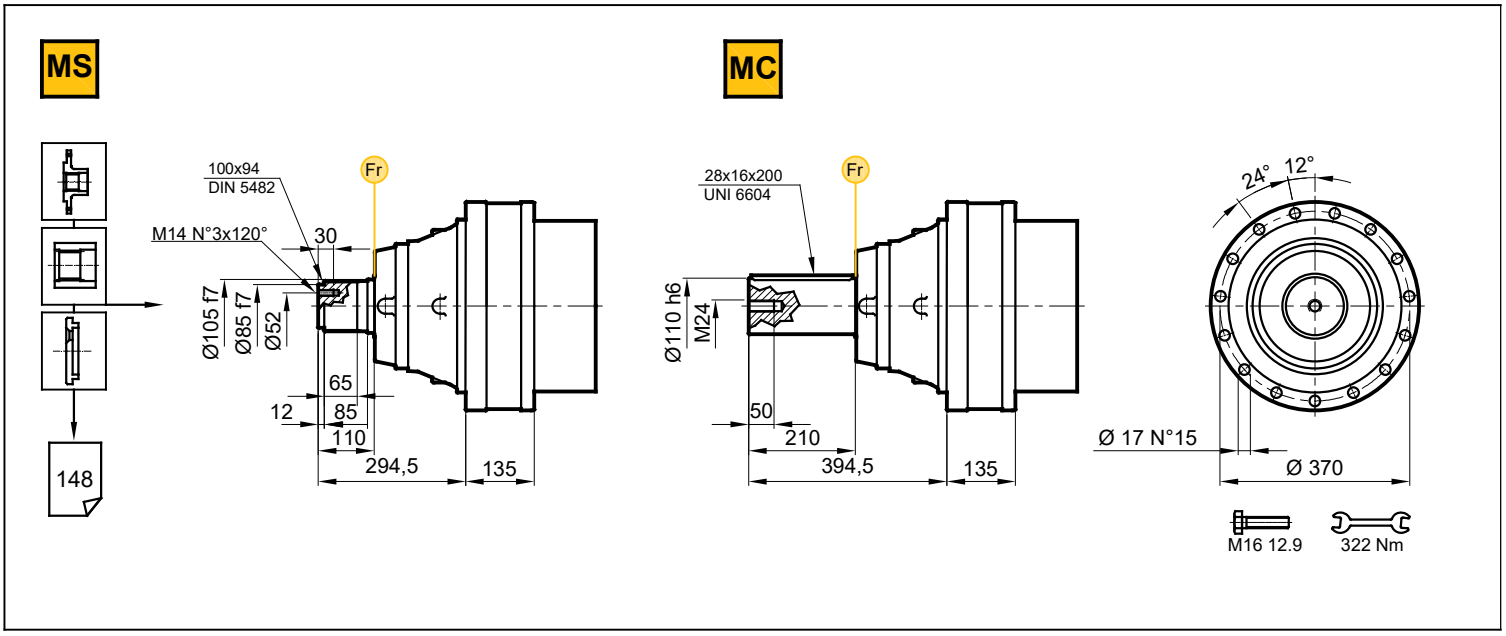
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 119 S2	14.2	34750	30760	26180	23170	2000	61520	34
	17.1	34750	30760	26180	23170	2000	61520	34
	22.4	34750	30760	26180	23170	2000	61520	34
	29.1	26870	23780	20240	17910	2000	47560	34
	35.1	26870	23780	20240	17910	2000	47560	34
PD 119 S3	53.7	34750	30760	26180	23170	2800	61520	23
	64.7	34750	30760	26180	23170	2800	61520	23
	70.7	34750	30760	26180	23170	2800	61520	23
	73.5	34750	30760	26180	23170	2800	61520	23
	88.6	34750	30760	26180	23170	2800	61520	23
	92.4	34750	30760	26180	23170	2800	61520	23
	102.9	34750	30760	26180	23170	2800	61520	23
	115.7	34750	30760	26180	23170	2800	61520	23
	124.3	34750	30760	26180	23170	2800	61520	23
	134.4	34750	30760	26180	23170	2800	61520	23
	162.4	34750	30760	26180	23170	2800	61520	23
	174.7	26870	23780	20240	17910	2800	47560	23
	181.3	26870	23780	20240	17910	2800	47560	23
PD 119 S4	191.0	34750	30760	26180	23170	2800	61520	17
	208.6	34750	30760	26180	23170	2800	61520	17
	251.4	34750	30760	26180	23170	2800	61520	17
	277.5	34750	30760	26180	23170	2800	61520	17
	300.9	34750	30760	26180	23170	2800	61520	17
	314.9	34750	30760	26180	23170	2800	61520	17
	328.5	34750	30760	26180	23170	2800	61520	17
	362.6	34750	30760	26180	23170	2800	61520	17
	379.5	34750	30760	26180	23170	2800	61520	17
	396.0	34750	30760	26180	23170	2800	61520	17
	437.1	34750	30760	26180	23170	2800	61520	17
	477.3	34750	30760	26180	23170	2800	61520	17
	495.9	34750	30760	26180	23170	2800	61520	17
	517.4	34750	30760	26180	23170	2800	61520	17
	532.5	34750	30760	26180	23170	2800	61520	17
	576.0	34750	30760	26180	23170	2800	61520	17
	597.8	34750	30760	26180	23170	2800	61520	17
	623.7	34750	30760	26180	23170	2800	61520	17
	694.2	34750	30760	26180	23170	2800	61520	17
	752.6	34750	30760	26180	23170	2800	61520	17
	781.2	34750	30760	26180	23170	2800	61520	17
	838.8	34750	30760	26180	23170	2800	61520	17
	1015.5	26870	23780	20240	17910	2800	47560	17
	1164.8	34750	30760	26180	23170	2800	61520	17
	1254.8	26870	23780	20240	17910	2800	47560	17
	1425.0	26870	23780	20240	17910	2800	47560	17

PDA 119

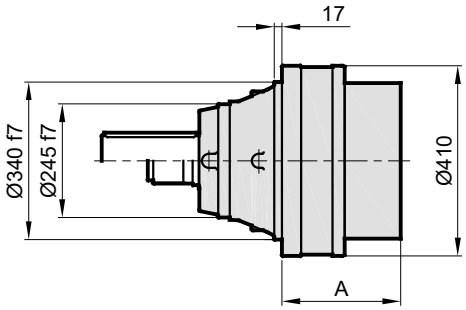
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 119 S3	39.5	34750	30760	26180	23170	2800	61520	23
	47.7	34750	30760	26180	23170	2800	61520	23
	51.4	26870	23780	20240	17910	2800	47560	23
	60.9	34750	30760	26180	23170	2800	61520	23
	73.4	34750	30760	26180	23170	2800	61520	23
	81.0	26870	23780	20240	17910	2800	47560	23
	96.0	34750	30760	26180	23170	2800	61520	23
	124.8	26870	23780	20240	17910	2800	47560	23
	150.4	26870	23780	20240	17910	2800	47560	23
PDA 119 S4	123.6	34750	30760	26180	23170	2800	61520	17
	134.9	34750	30760	26180	23170	2800	61520	17
	169.0	34750	30760	26180	23170	2800	61520	17
	196.3	34750	30760	26180	23170	2800	61520	17
	237.2	34750	30760	26180	23170	2800	61520	17
	252.8	34750	30760	26180	23170	2800	61520	17
	293.5	34750	30760	26180	23170	2800	61520	17
	304.6	34750	30760	26180	23170	2800	61520	17
	317.9	34750	30760	26180	23170	2800	61520	17
	353.8	34750	30760	26180	23170	2800	61520	17
	398.1	34750	30760	26180	23170	2800	61520	17
	427.5	34750	30760	26180	23170	2800	61520	17
	462.3	34750	30760	26180	23170	2800	61520	17
	498.1	26870	23780	20240	17910	2800	47560	17
	517.6	26870	23780	20240	17910	2800	47560	17
	558.7	34750	30760	26180	23170	2800	61520	17
	601.0	26870	23780	20240	17910	2800	47560	17
	623.8	26870	23780	20240	17910	2800	47560	17
	724.5	26870	23780	20240	17910	2800	47560	17
	875.4	26870	23780	20240	17910	2800	47560	17

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max} = T_2 \times 2}$

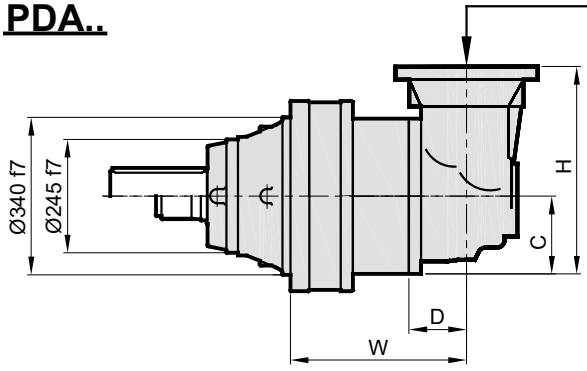
PD/PDA 119

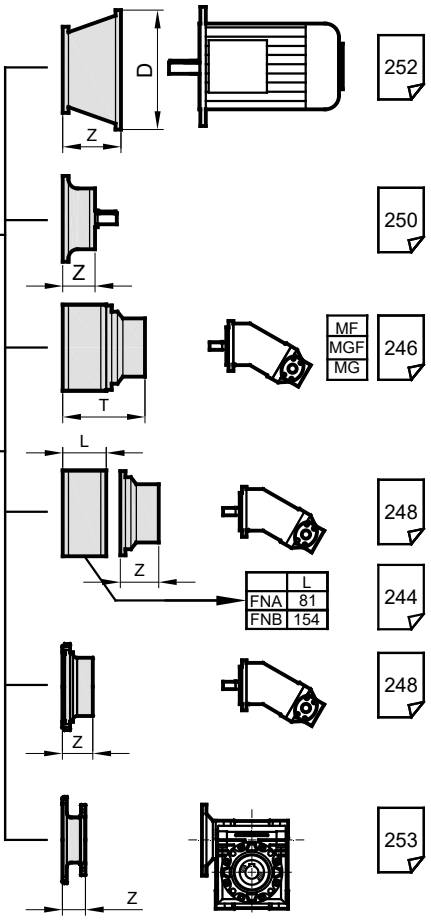


PD..



PDA..

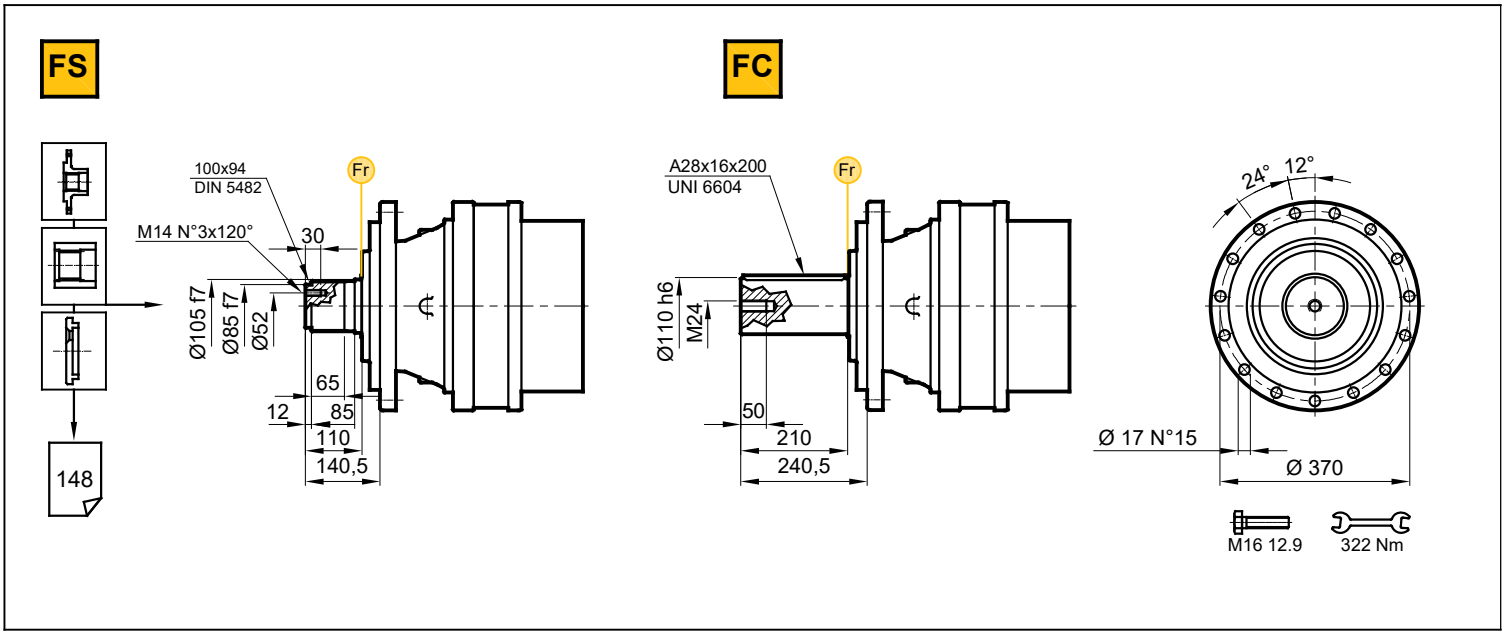




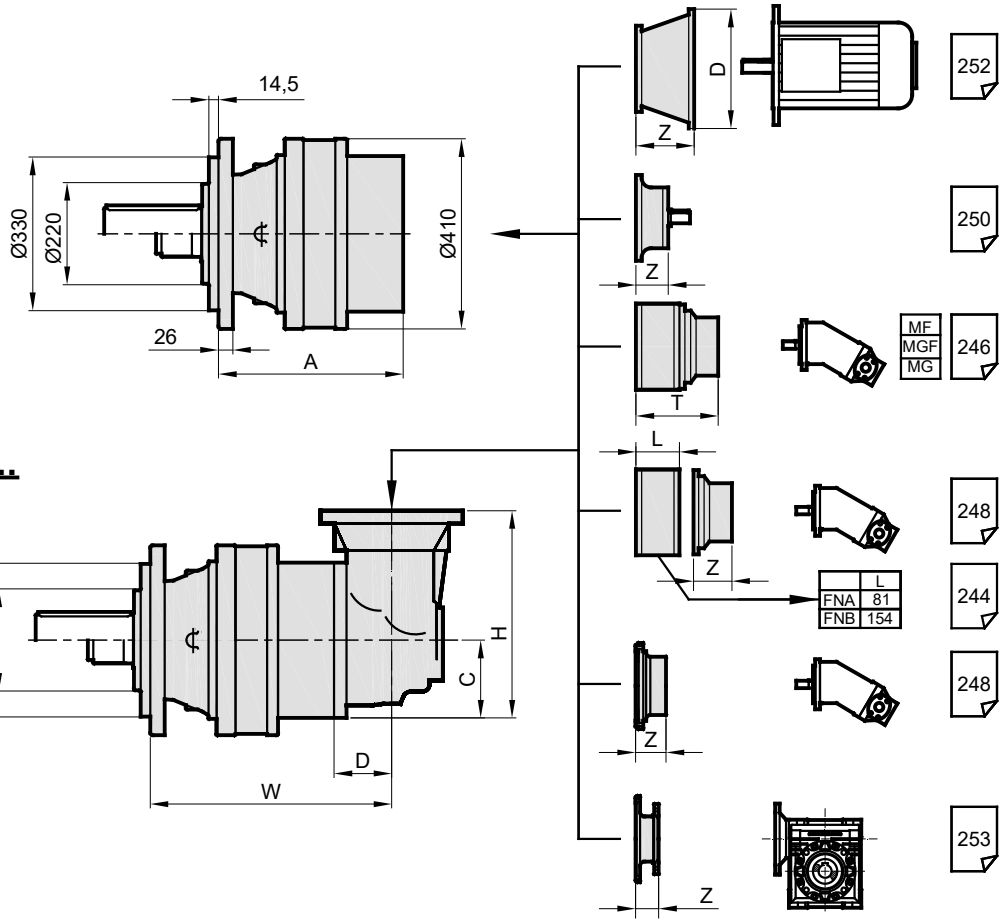
Stage	W	D	C	H	A	PD M	PDA M
S2	-	-	-	-	319	237	-
S3	391	121	172,5	457	391	253	300
S4	456	103	122	319	452	261	282

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

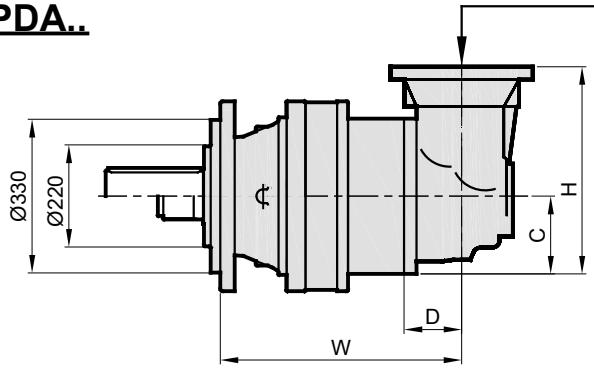
PD/PDA 119



PD..



PDA..

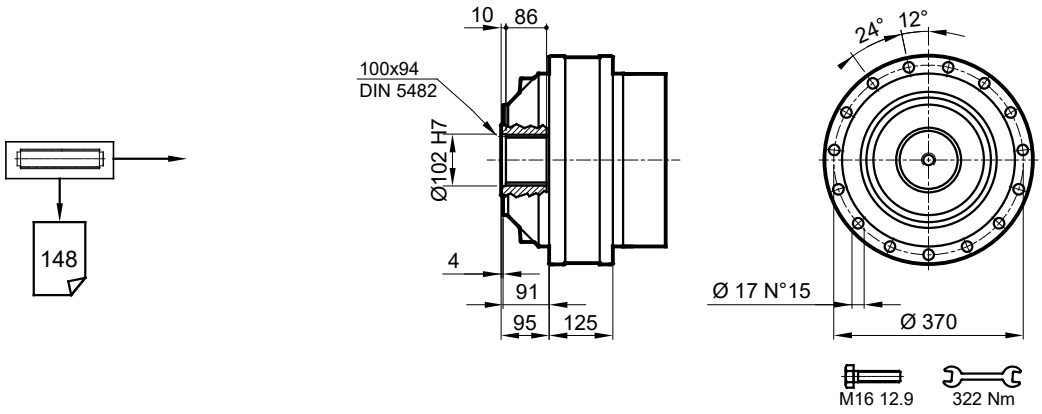


Stage	W	D	C	H	A	PD F	PDA F
S2	-	-	-	-	473	260	-
S3	545	121	172,5	457	545	276	323
S4	610	103	122	319	606	284	305

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

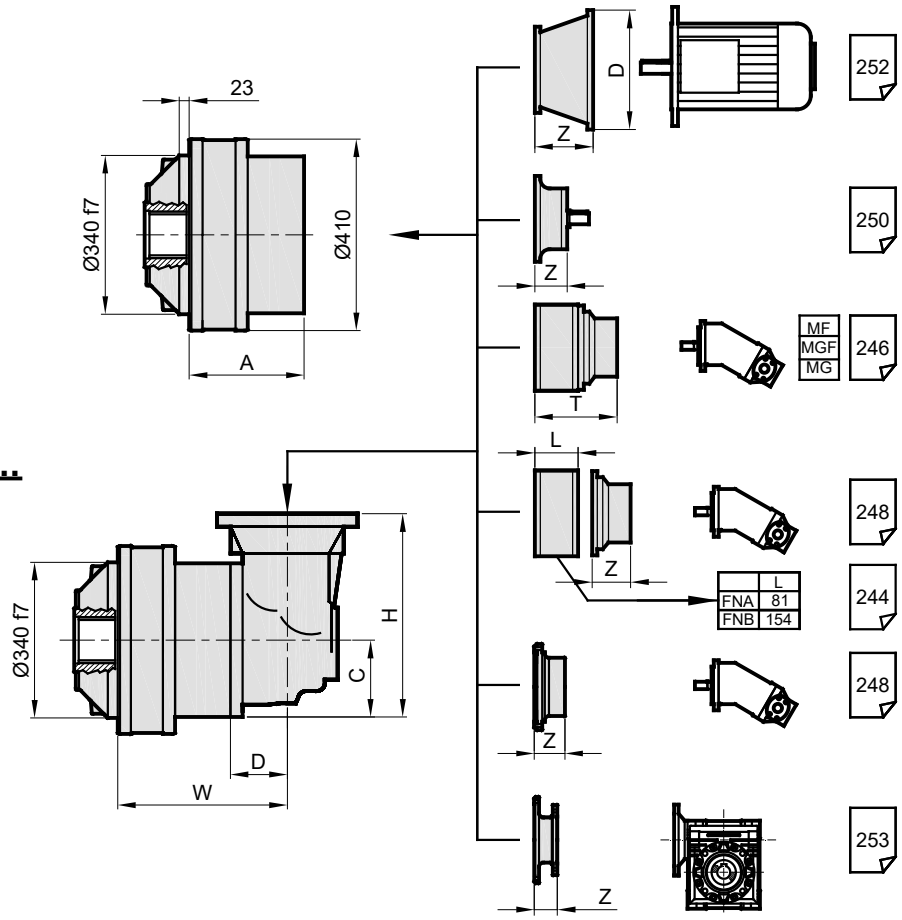
PD/PDA 119

S



PD..

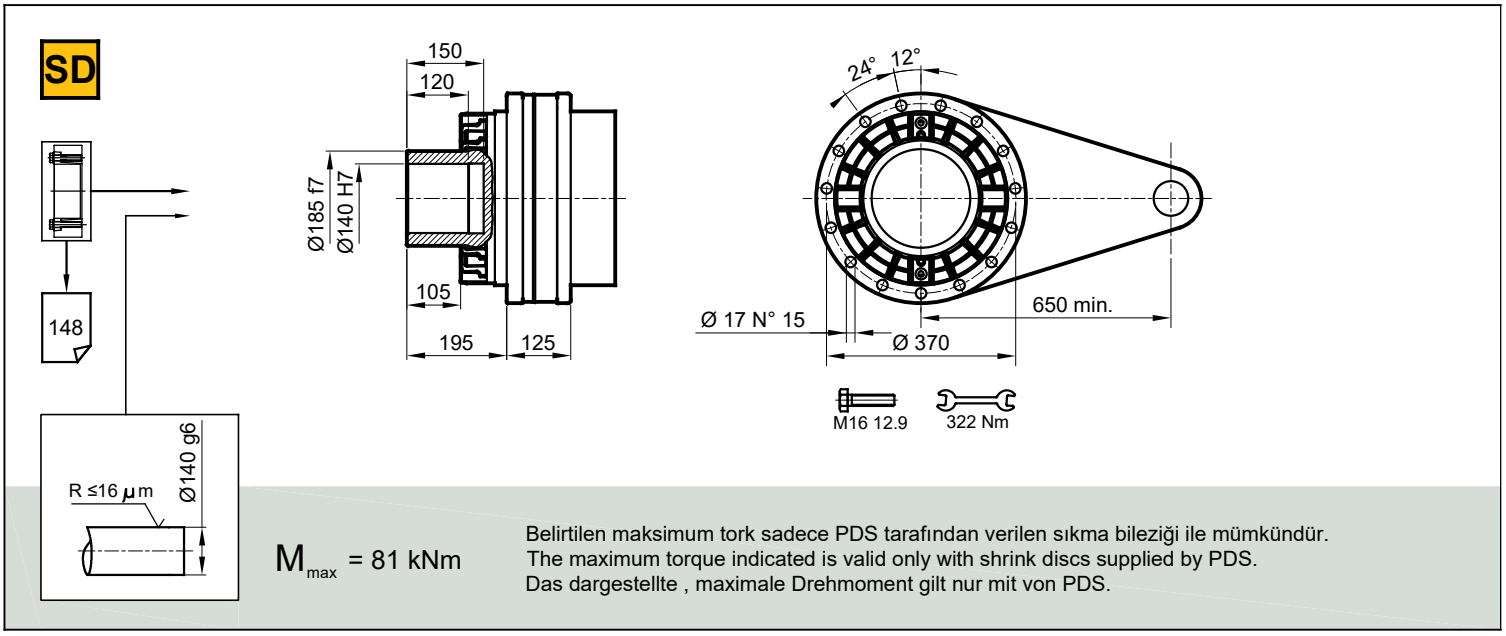
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S2	-	-	-	-	309	188	-
S3	381	121	172,5	457	381	204	251
S4	446	103	122	319	442	212	233

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

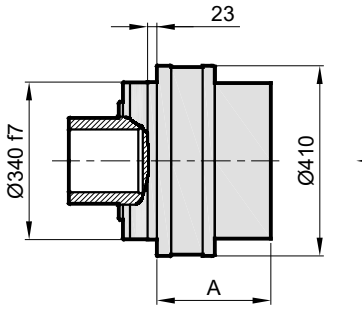
PD/PDA 119



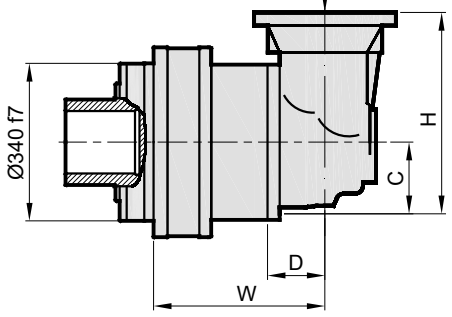
M_{max} = 81 kNm

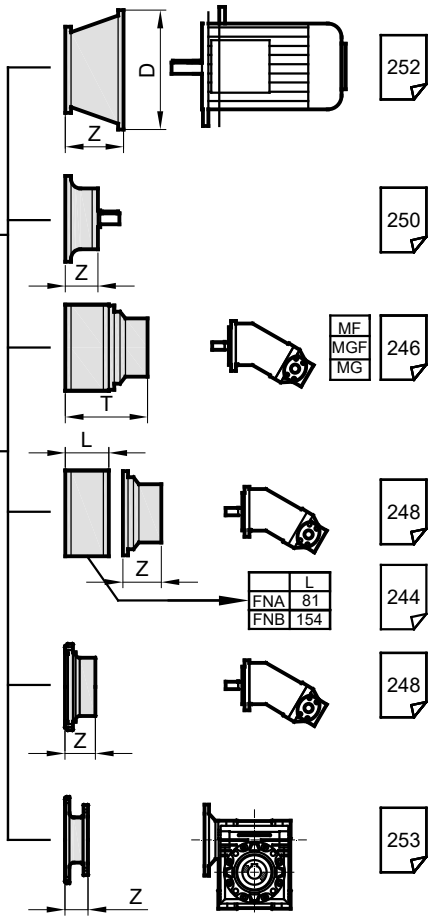
Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..



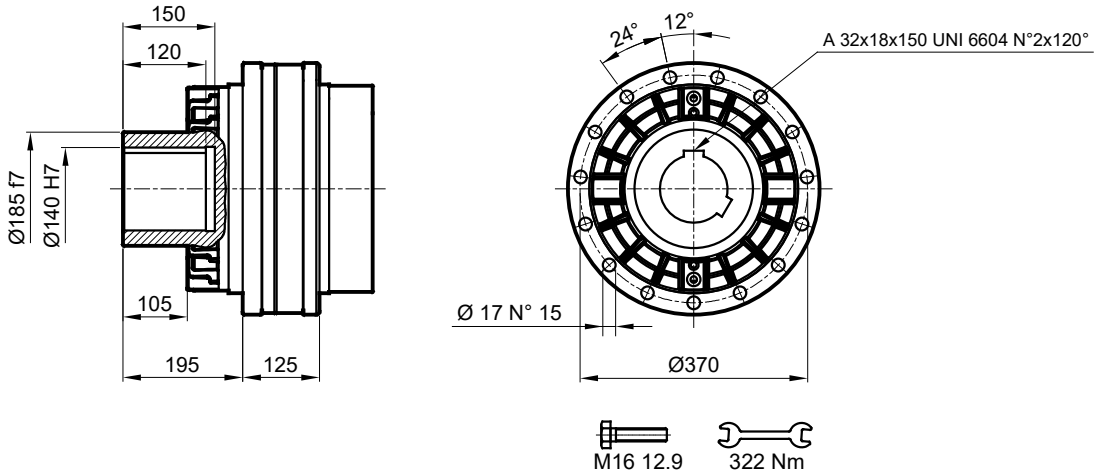


Stage	W	D	C	H	A	PD / SD	PDA / SD
S2	-	-	-	-	309	207	-
S3	381	121	172,5	457	381	224	270
S4	446	103	122	319	442	232	253

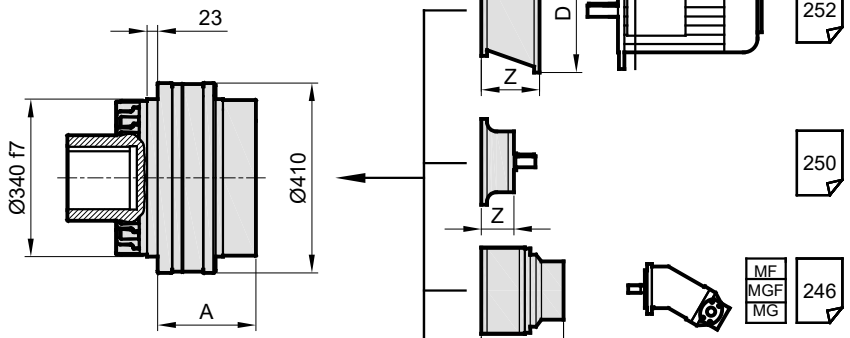
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 119

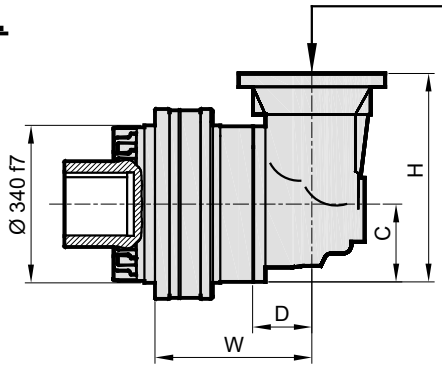
DKM

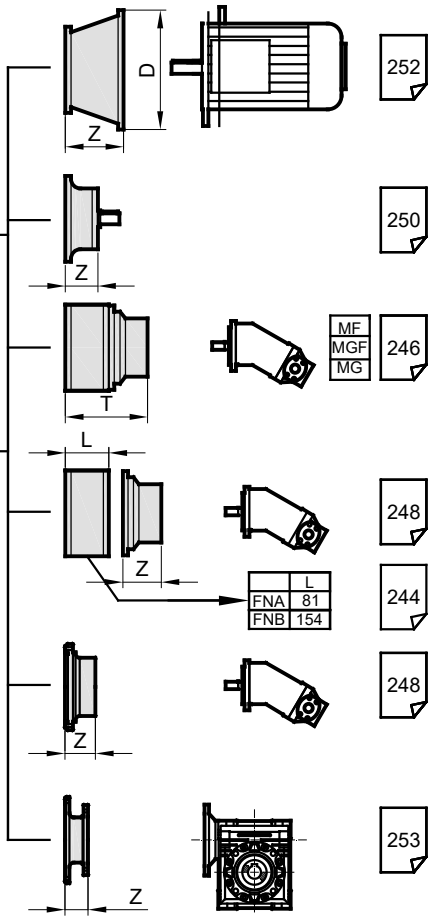


PD..



PDA..

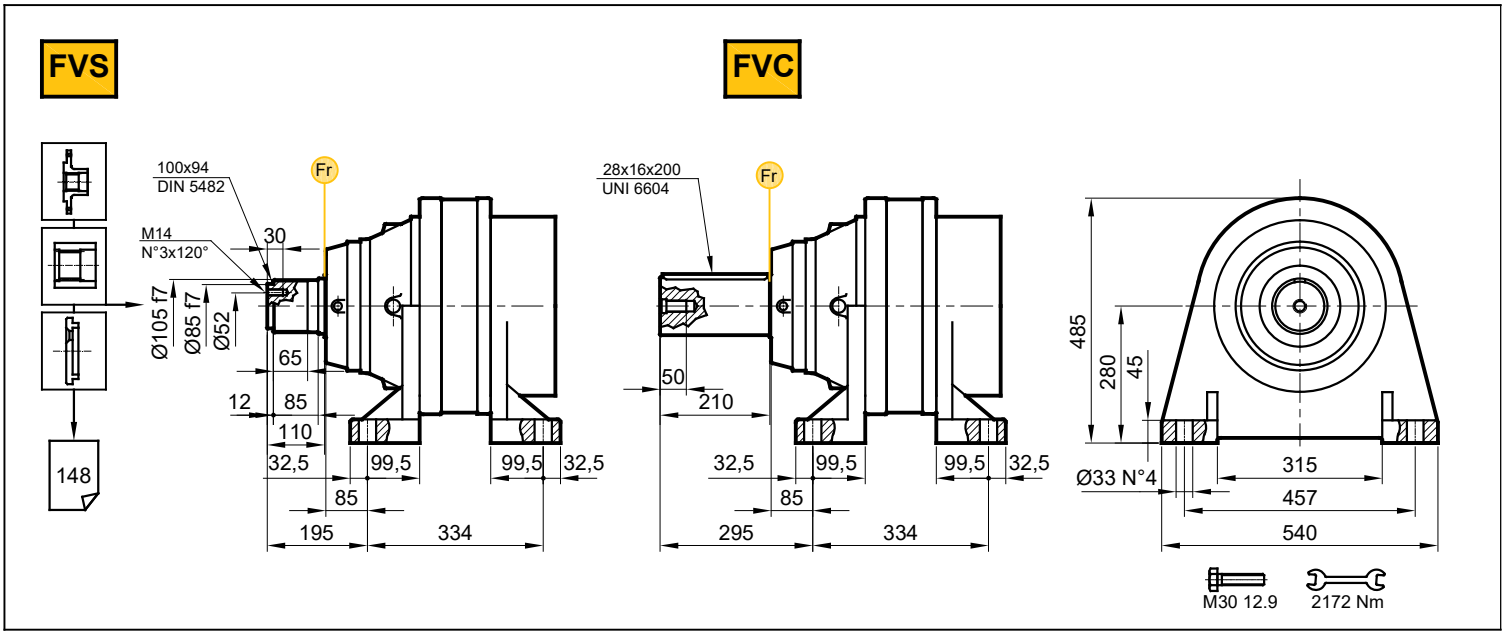


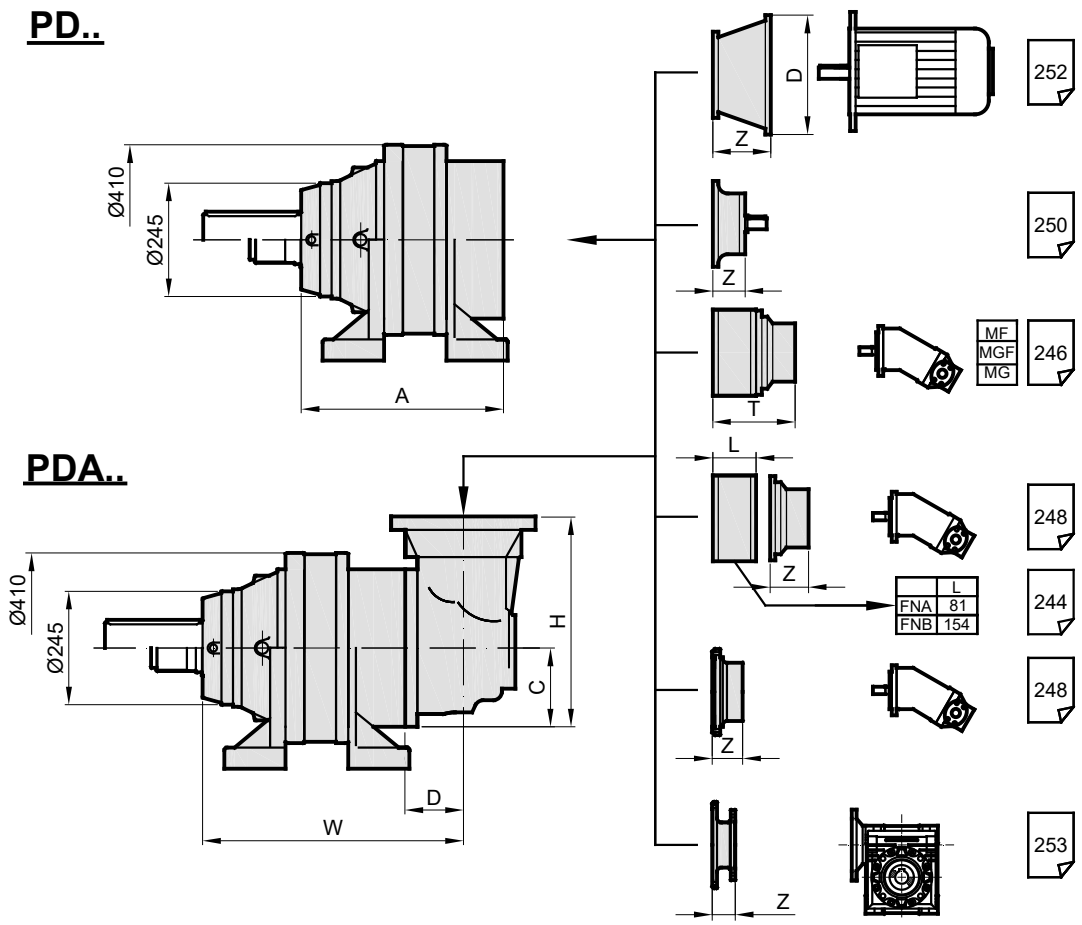


Stage	W	D	C	H	A	PD DKM	PDA DKM
S2	-	-	-	-	309	226	-
S3	381	121	172,5	457	381	242	289
S4	446	103	122	319	442	251	271

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104		120,5	-	-	-	-	-	-

PD/PDA 119



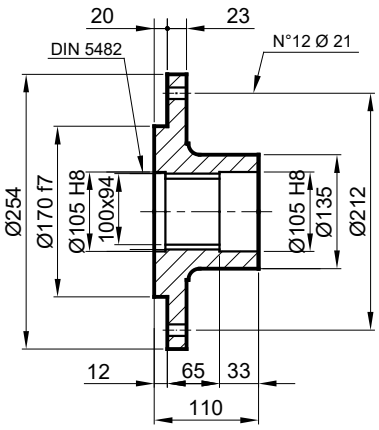


Stage	W	D	C	H	A	PD FV	PDA FV
S2	-	-	-	-	503,5	296	-
S3	575,5	121	172,5	457	575,5	313	359
S4	640,5	103	122	319	636,5	251	342

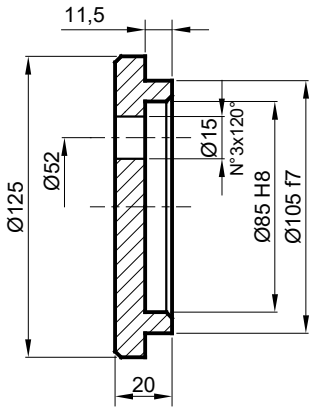
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 119

FL Flanş / *Flange* / Flansch



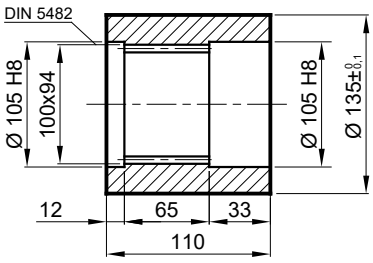
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



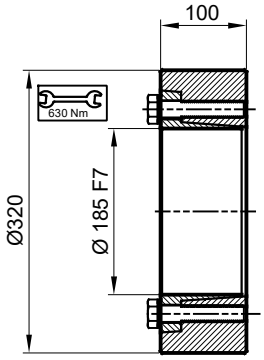
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /*Material* Material

DIN 1.7225
42CrMo4

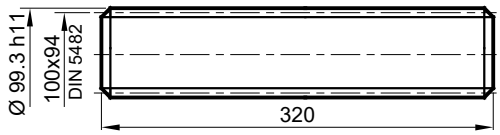


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
81 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN 1.7225 / 42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

PD/PDA 119

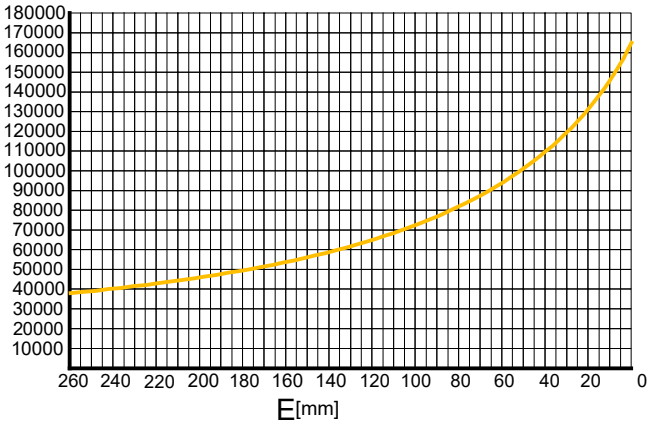
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

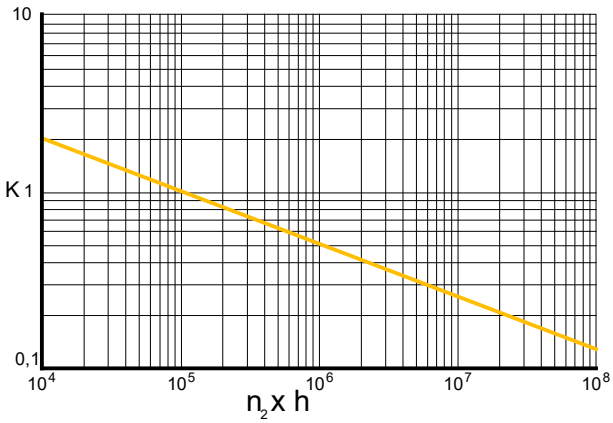
RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

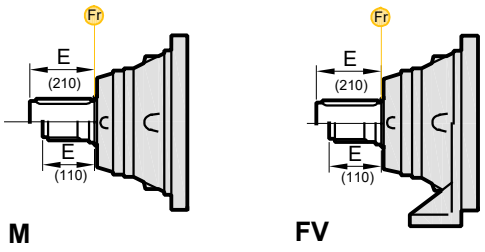
M-FV

Fr[N]





	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

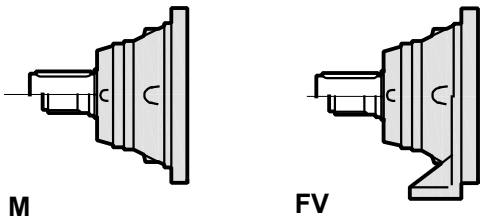


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

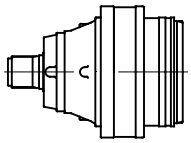
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M	FV	
	75000	75000	←
	95000	95000	→



PD 121

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 121 S1	4.00	42370	37500	31910	28250	1500	61875	54
	4.71	36110	31960	27200	24070	1500	52764	54
	5.85	26710	23640	20120	17800	1500	47280	54
PD 121 S2	14.2	42370	37500	31910	28250	2000	61875	34
	17.1	42370	37500	31910	28250	2000	61875	34
	20.2	36110	31960	27200	24070	2000	52764	34
	22.4	42370	37500	31910	28250	2000	61875	34
	26.4	36110	31960	27200	24070	2000	52764	34
	31.8	36110	31960	27200	24070	2000	52764	34
PD 121 S3	53.7	42370	37500	31910	28250	2800	61875	23
	58.7	42370	37500	31910	28250	2800	61875	23
	64.8	42370	37500	31910	28250	2800	61875	23
	70.7	42370	37500	31910	28250	2800	61875	23
	83.2	36110	31960	27200	24070	2800	52764	23
	88.6	42370	37500	31910	28250	2800	61875	23
	99.6	36110	31960	27200	24070	2800	52764	23
	108.7	36110	31960	27200	24070	2800	52764	23
	121.3	36110	31960	27200	24070	2800	52764	23
	136.2	36110	31960	27200	24070	2800	52764	23
	158.1	36110	31960	27200	24070	2800	52764	23
	164.1	36110	31960	27200	24070	2800	52764	23
	191.1	36110	31960	27200	24070	2800	52764	23
PD 121 S4	208.6	42370	37500	31910	28250	2800	61875	17
	230.2	42370	37500	31910	28250	2800	61875	17
	251.4	42370	37500	31910	28250	2800	61875	17
	277.5	42370	37500	31910	28250	2800	61875	17
	303.0	42370	37500	31910	28250	2800	61875	17
	328.5	42370	37500	31910	28250	2800	61875	17
	362.7	42370	37500	31910	28250	2800	61875	17
	379.5	42370	37500	31910	28250	2800	61875	17
	437.1	42370	37500	31910	28250	2800	61875	17
	496.0	42370	37500	31910	28250	2800	61875	17
	583.5	36110	31960	27200	24070	2800	52764	17
	677.7	36110	31960	27200	24070	2800	52764	17
	703.2	36110	31960	27200	24070	2800	52764	17
	762.5	36110	31960	27200	24070	2800	52764	17
	816.7	36110	31960	27200	24070	2800	52764	17
	986.8	36110	31960	27200	24070	2800	52764	17
	1067.3	36110	31960	27200	24070	2800	52764	17
	1289.7	36110	31960	27200	24070	2800	52764	17
	1554.5	36110	31960	27200	24070	2800	52764	17

PDA 121

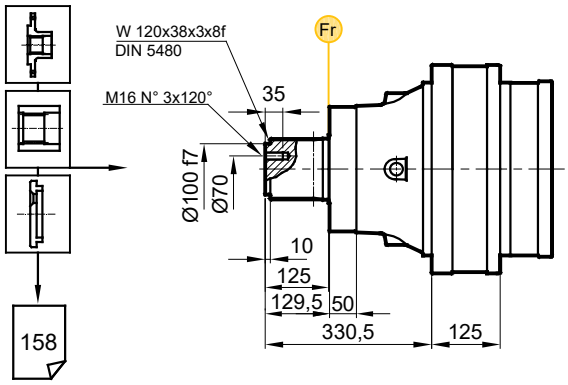
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 121 S2	14.2	42370	37500	31910	28250	2000	61875	34
	16.7	36110	31960	27200	24070	2000	52734	34
	18.5	42370	37500	31910	28250	2000	64875	34
	21.8	36110	31960	27200	24070	2000	52734	34
PDA 121 S3	39.5	42370	37500	31910	28250	2800	61875	23
	47.7	42370	37500	31910	28250	2800	61875	23
	56.1	36110	31960	27200	24070	2800	52734	23
	60.9	42370	37500	31910	28250	2800	61875	23
	73.4	42370	37500	31910	28250	2800	61875	23
	86.4	36110	31960	27200	24070	2800	52734	23
	96.0	42370	37500	31910	28250	2800	61875	23
	112.9	36110	31960	27200	24070	2800	52734	23
PDA 121 S4	123.6	42370	37500	31910	28250	2800	61875	17
	148.9	42370	37500	31910	28250	2800	61875	17
	162.6	42370	37500	31910	28250	2800	61875	17
	175.2	36110	31960	27200	24070	2800	52724	17
	184.8	42370	37500	31910	28250	2800	61875	17
	194.6	42370	37500	31910	28250	2800	61875	17
	203.7	42370	37500	31910	28250	2800	61875	17
	222.7	42370	37500	31910	28250	2800	61875	17
	243.2	42370	37500	31910	28250	2800	61875	17
	266.2	42370	37500	31910	28250	2800	61875	17
	276.0	36110	31960	27200	24070	2800	52724	17
	291.1	42370	37500	31910	28250	2800	61875	17
	309.1	42370	37500	31910	28250	2800	61875	17
	317.9	42370	37500	31910	28250	2800	61875	17
	342.5	36110	31960	27200	24070	2800	52724	17
	373.5	42370	37500	31910	28250	2800	61875	17
	398.1	42370	37500	31910	28250	2800	61875	17
	412.8	36110	31960	27200	24070	2800	52724	17
	462.3	42370	37500	31910	28250	2800	61875	17
	558.7	42370	37500	31910	28250	2800	61875	17
	657.2	36110	31960	27200	24070	2800	52724	17
	792.2	36110	31960	27200	24070	2800	52724	17

⚠ $(n_2 \times h = 20000)$

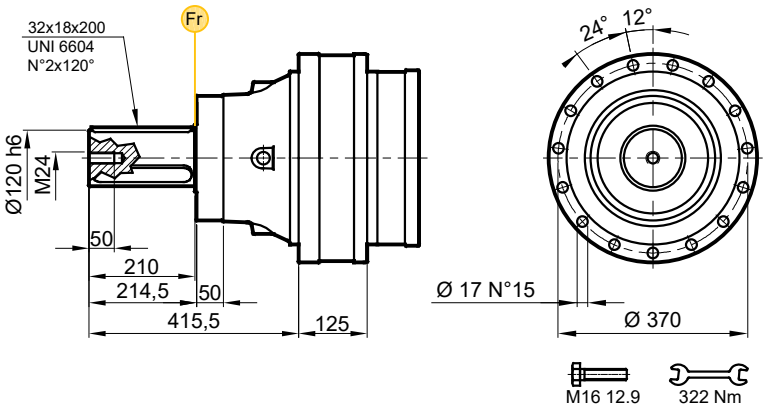
$T_{2max} = T_2 \times 1{,}65$

PD/PDA 121

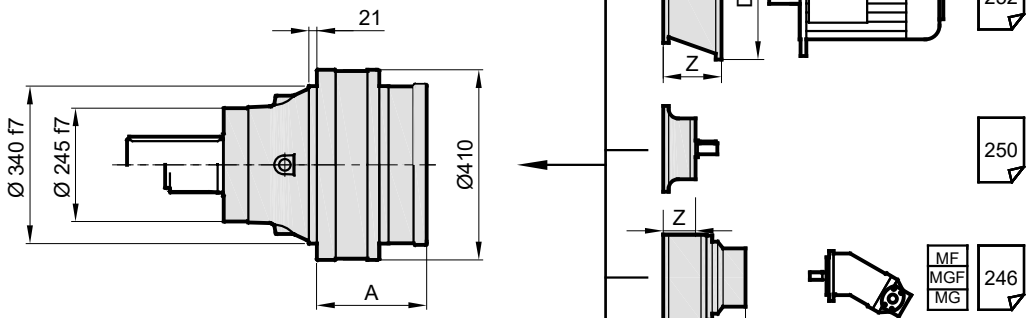
MS



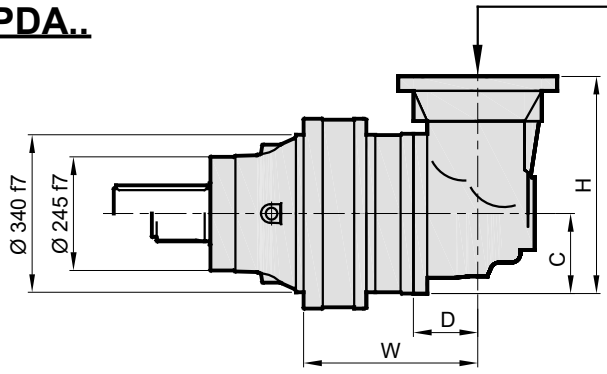
MC

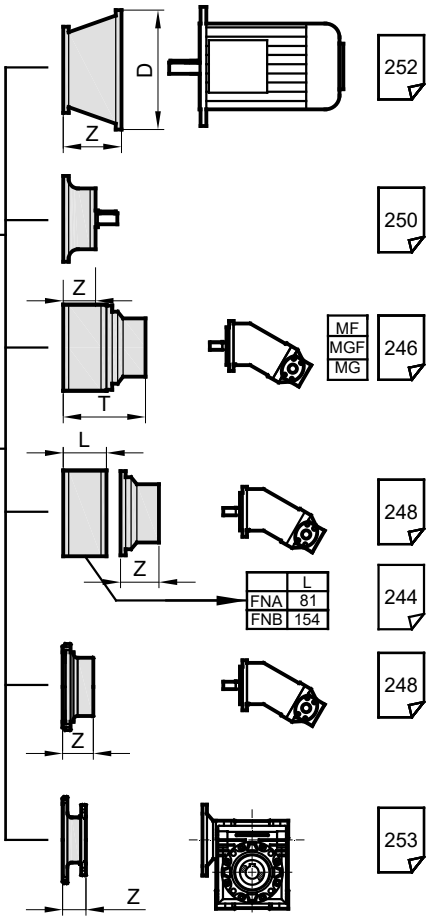


PD..



PDA..

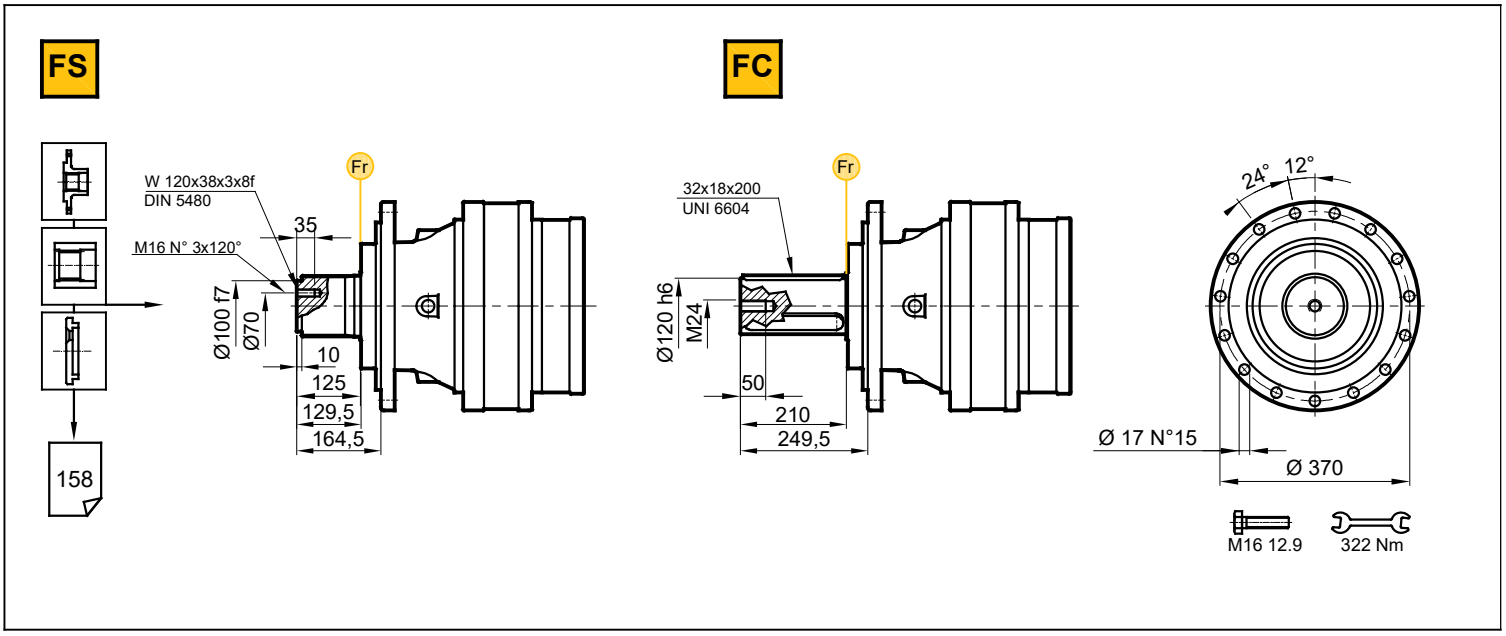




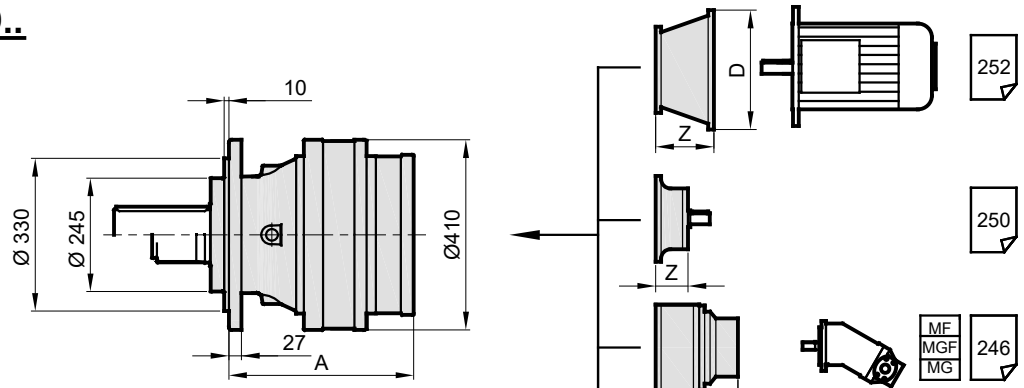
Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	233	206	-
S2	340	225,2	205	569	340,5	252	323
S3	411	121	172,5	457	413	268	315
S4	476	103	122	319	474,5	276	297

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

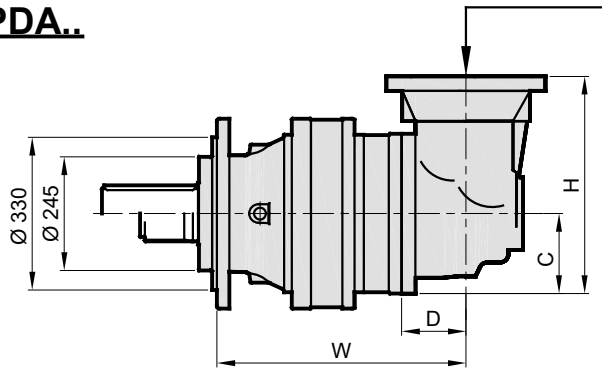
PD/PDA 121



PD..



PDA..

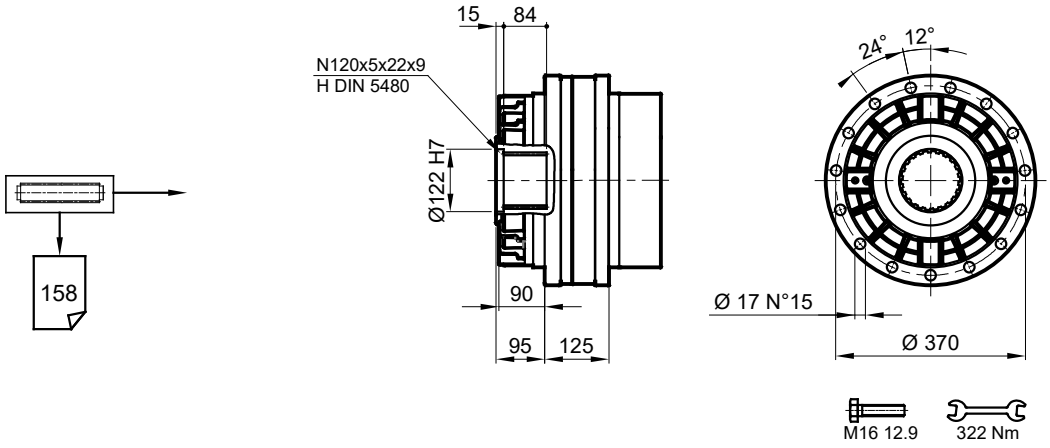


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	398,5	229	-
S2	506	225,2	205	569	506	274	345
S3	576,5	121	172,5	457	578,5	291	338
S4	642	103	122	319	640	299	320

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

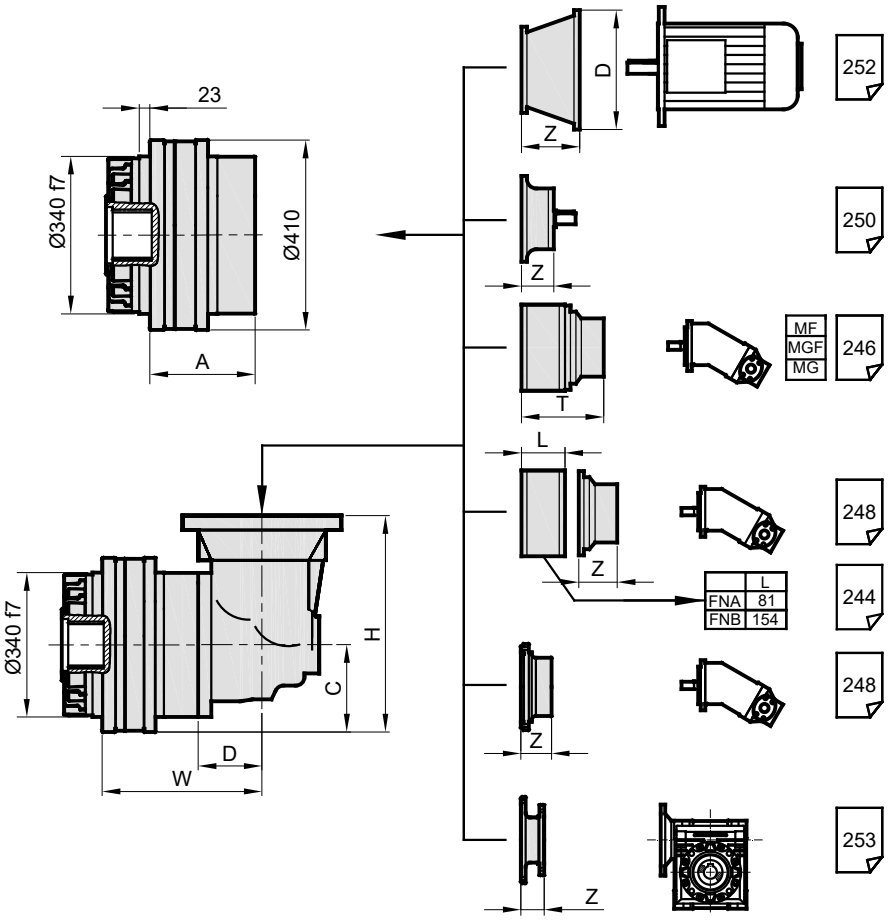
PD/PDA 121

S



PD..

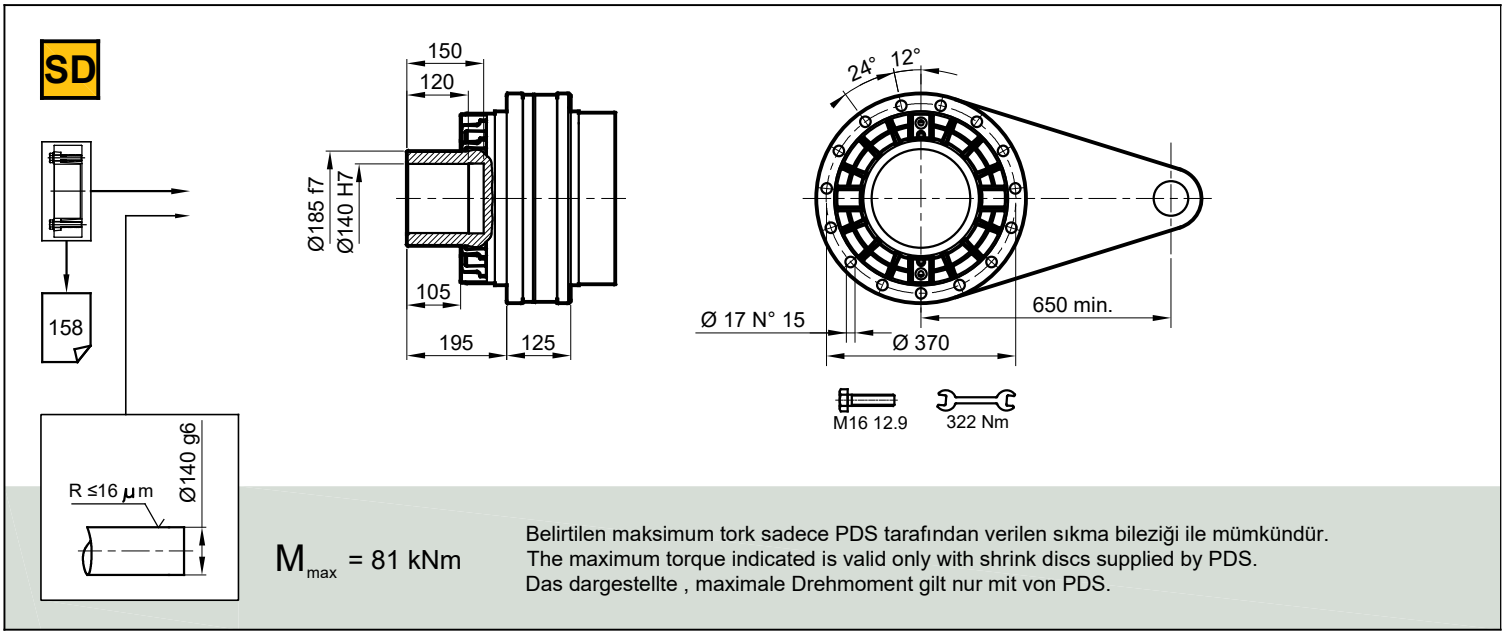
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	223	157	-
S2	330	225,2	205	569	330,5	202	273
S3	401	121	172,5	457	403	218	265
S4	466	103	122	319	464,5	227	247

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

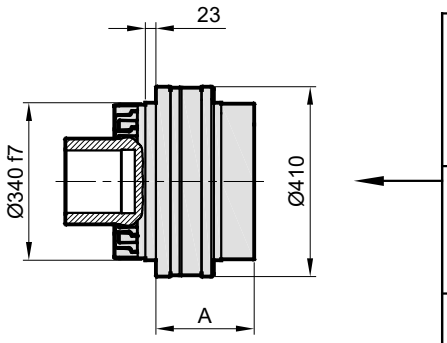
PD/PDA 121



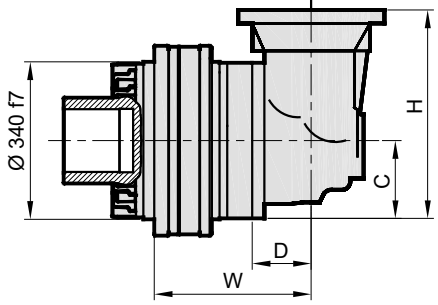
M_{max} = 81 kNm

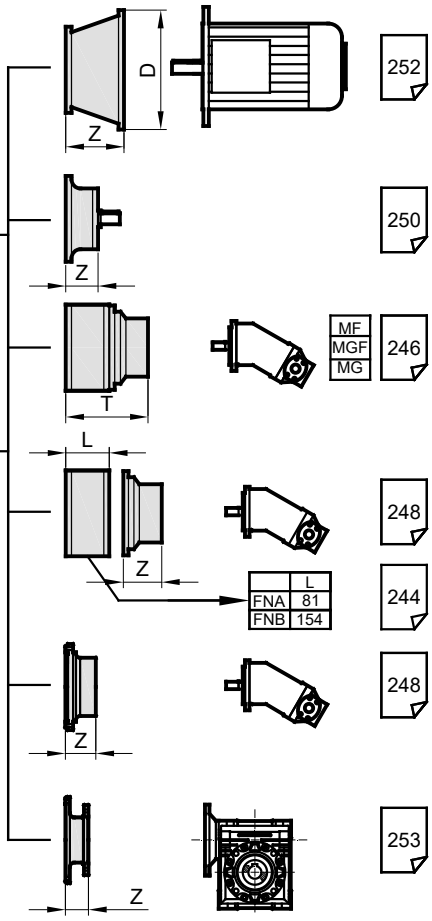
Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..



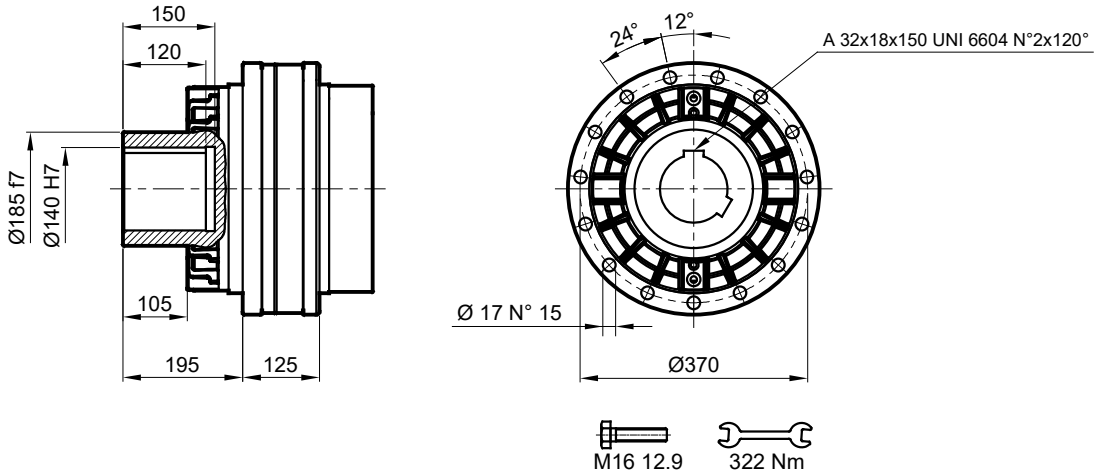


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	223	170	-
S2	330	225,2	205	569	330,5	216	286
S3	401	121	172,5	457	403	232	278
S4	466	103	122	319	464,5	240	261

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

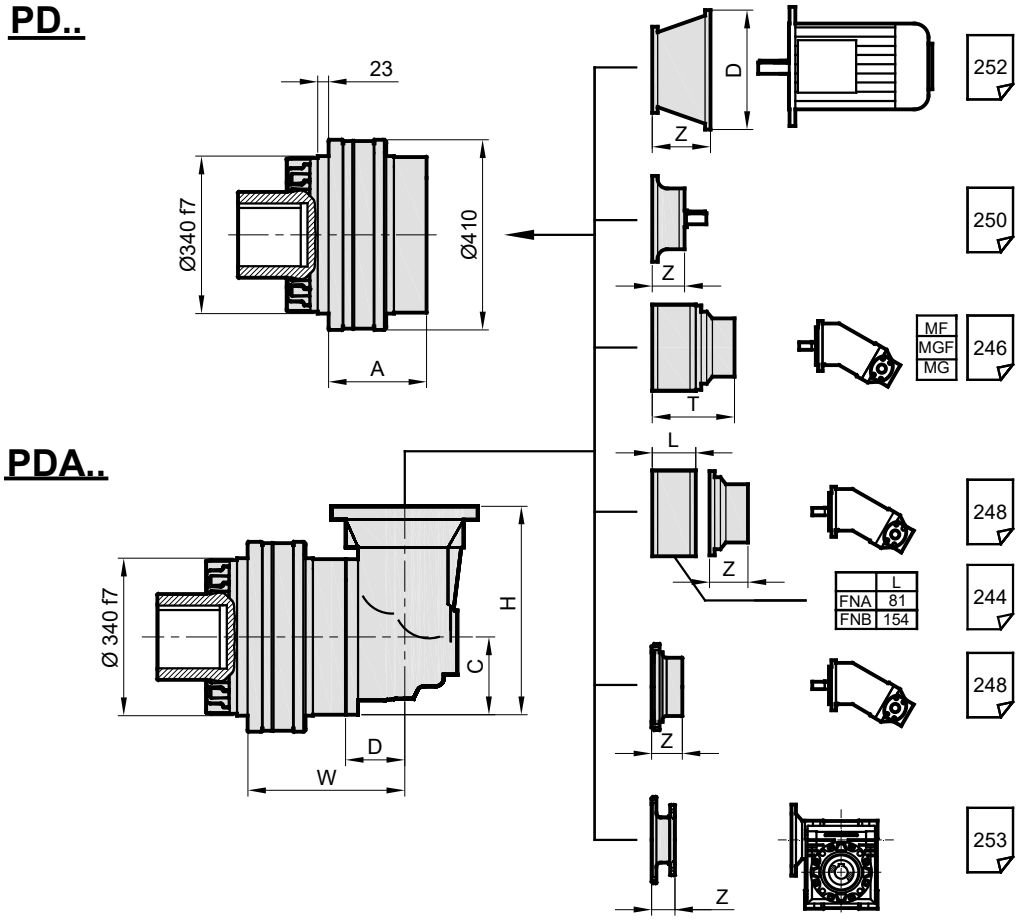
PD/PDA 121

DKM



PD..

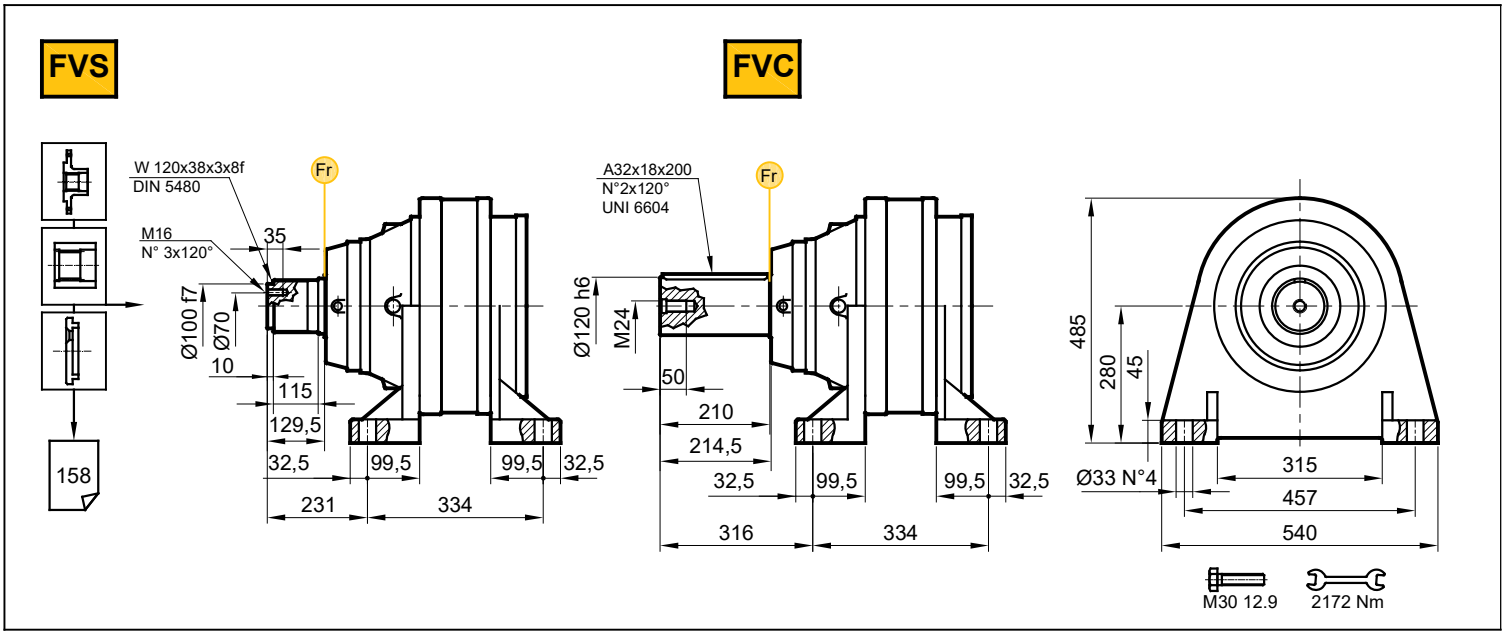
PDA..

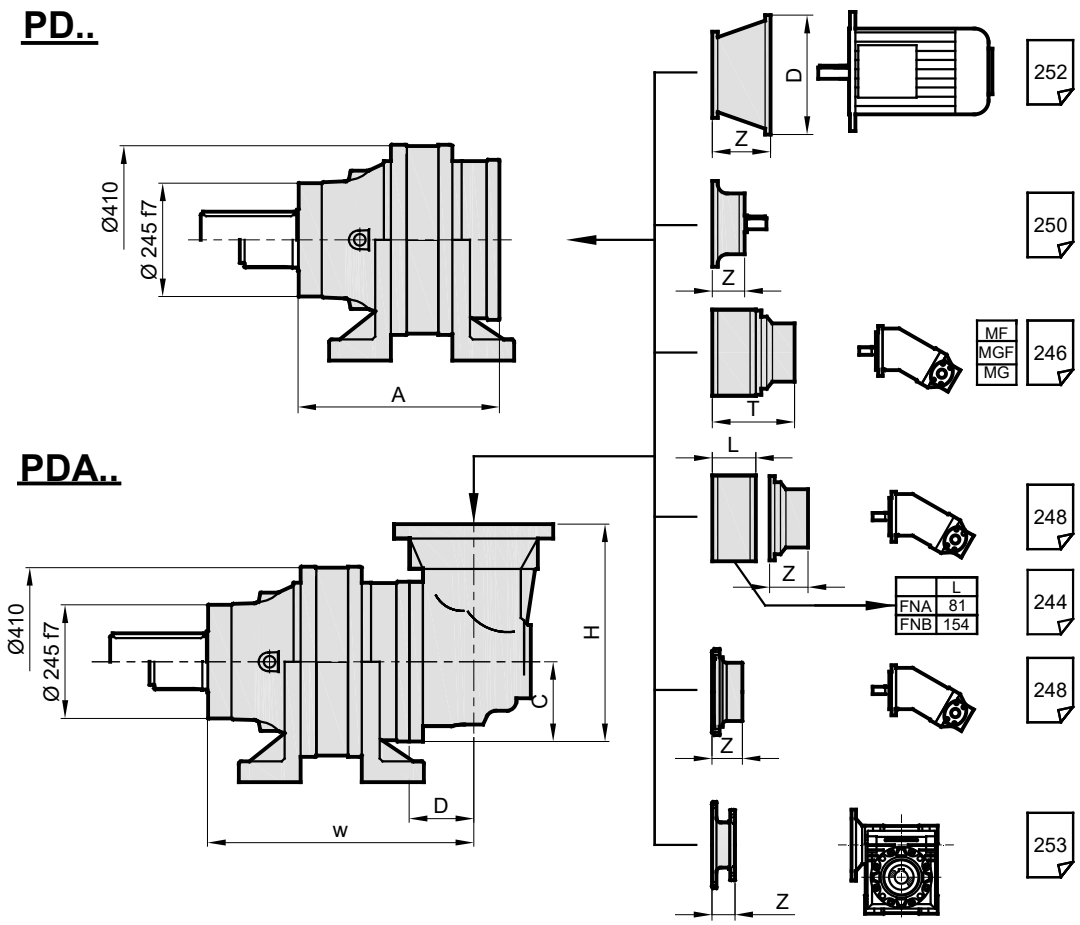


Stage	W	D	C	H	A	PD DKM	PDA DKM
S1	-	-	-	-	223	186	-
S2	330	225,2	205	569	330,5	231	302
S3	401	121	172,5	457	403	247	294
S4	466	103	122	319	464,5	256	276

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 121



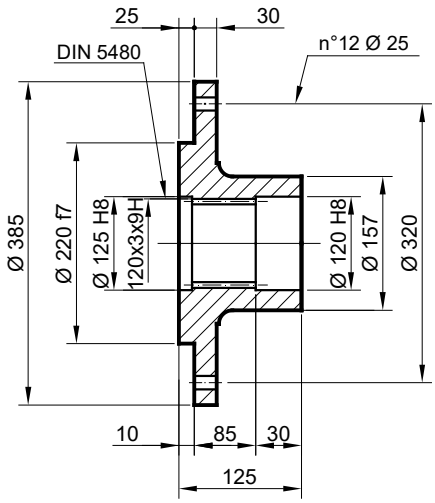


Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	438	266	-
S2	545	225,2	205	569	545,5	312	382
S3	616	121	172,5	457	618	328	374
S4	681	103	122	319	679,5	336	357

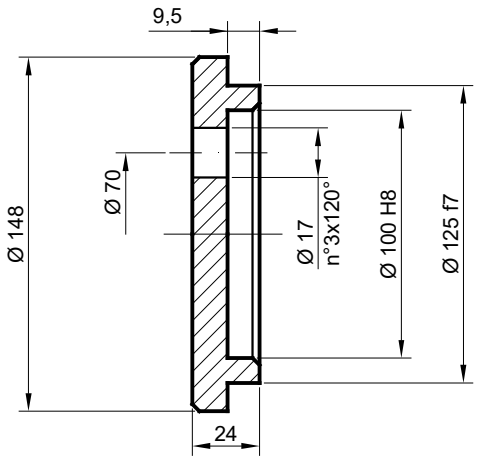
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	-	-
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	350	120,5	-	-	-	-	-	-

PD/PDA 121

FL Flanş / *Flange* / Flansch



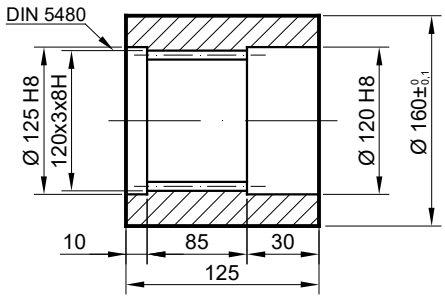
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



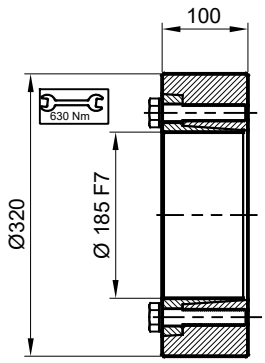
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material Material

DIN 1.7225
42CrMo4

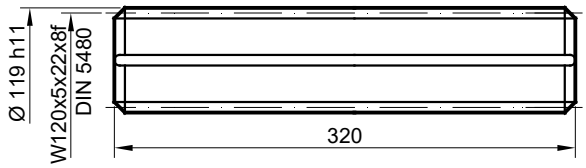


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
81 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN 1.7225 / 42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

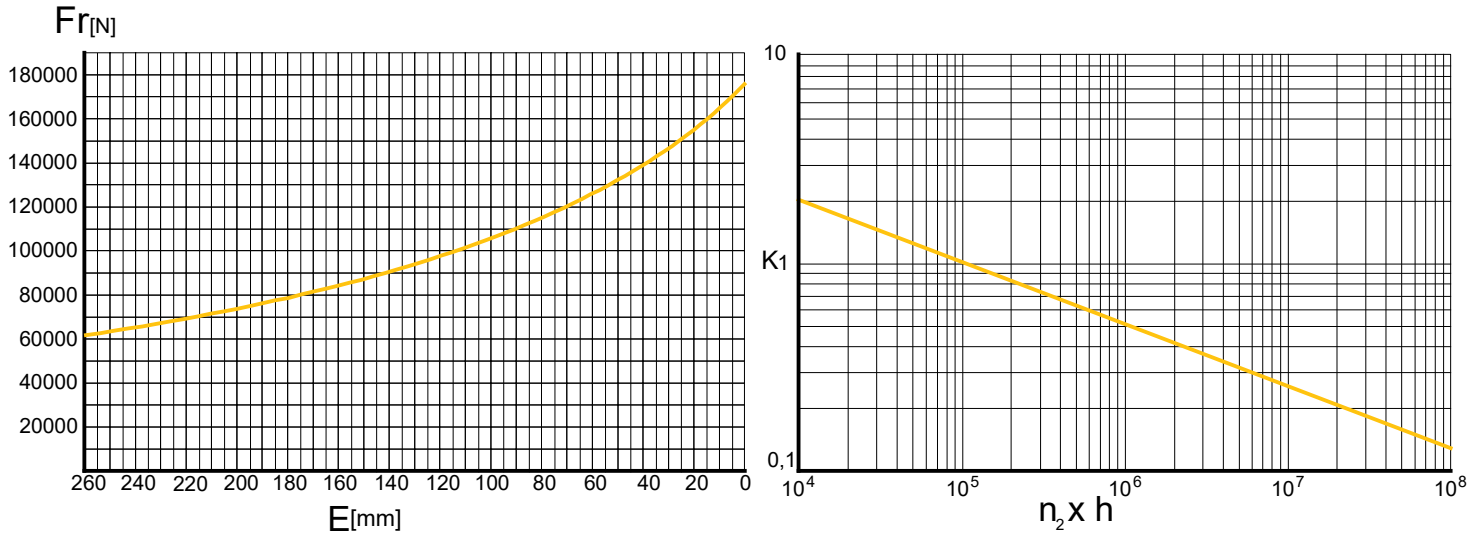
PD/PDA 121

RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

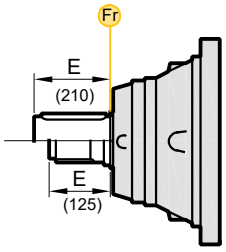
RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

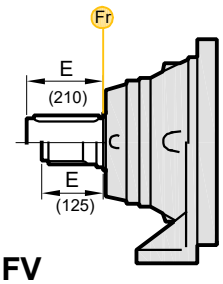
M-FV



	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



M



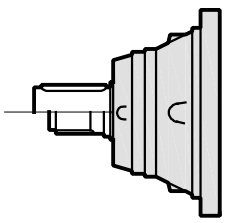
FV

AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

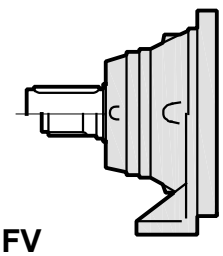
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M	FV	
	80000	80000	←
	100000	100000	→

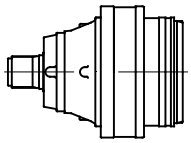


M

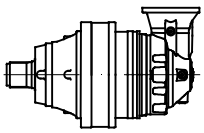


FV

PD 123

	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PD 123 S1	4.00	68690	60800	51740	45800	1200	121600	60
	5.10	50280	44500	37870	33520	1200	89000	60
	6.00	40110	35500	30210	26740	1200	71000	60
PD 123 S2	14.0	68690	60800	51740	45800	2000	121600	38
	16.9	68690	60800	51740	45800	2000	121600	38
	21.7	50280	44500	37870	33520	2000	89000	38
	28.4	50280	44500	37870	33520	2000	121600	38
	33.6	40110	35500	30210	26740	2000	71000	38
	40.5	40110	35500	30210	26740	2000	71000	38
PD 123 S3	53.1	68690	60800	51740	45800	2800	121600	25
	63.9	68690	60800	51740	45800	2800	121600	25
	74.2	50280	44500	37870	33520	2800	89000	25
	87.5	68690	60800	51740	45800	2800	121600	25
	93.0	50280	44500	37870	33520	2800	89000	25
	107.1	50280	44500	37870	33520	2800	89000	25
	116.9	50280	44500	37870	33520	2800	89000	25
	130.2	50280	44500	37870	33520	2800	89000	25
	138.6	40110	35500	30210	26740	2800	71000	25
	157.3	50280	44500	37870	33520	2800	89000	25
	170.1	50280	44500	37870	33520	2800	89000	25
	205.5	50280	44500	37870	33520	2800	89000	25
	247.8	50280	44500	37870	33520	2800	89000	25
	293.6	40110	35500	30210	26740	2800	71000	25
PD 123 S4	324.4	68690	60800	51740	45800	2800	121600	20
	358.1	68690	60800	51740	45800	2800	121600	20
	391.0	68690	60800	51740	45800	2800	121600	20
	431.6	68690	60800	51740	45800	2800	121600	20
	471.3	68690	60800	51740	45800	2800	121600	20
	520.8	50280	44500	37870	33520	2800	89000	20
	557.7	50280	44500	37870	33520	2800	89000	20
	590.3	68690	60800	51740	45800	2800	121600	20
	604.8	50280	44500	37870	33520	2800	89000	20
	673.9	50280	44500	37870	33520	2800	89000	20
	730.8	50280	44500	37870	33520	2800	89000	20
	789.4	50280	44500	37870	33520	2800	89000	20
	878.6	50280	44500	37870	33520	2800	89000	20
	952.5	50280	44500	37870	33520	2800	89000	20
	1061.7	50280	44500	37870	33520	2800	89000	20
	1151.0	50280	44500	37870	33520	2800	89000	20
	1258.2	40110	35500	30210	26740	2800	71000	20
	1387.4	50280	44500	37870	33520	2800	89000	20
	1672.3	50280	44500	37870	33520	2800	89000	20
	1982.0	40110	35500	30210	26740	2800	71000	20

PDA 123

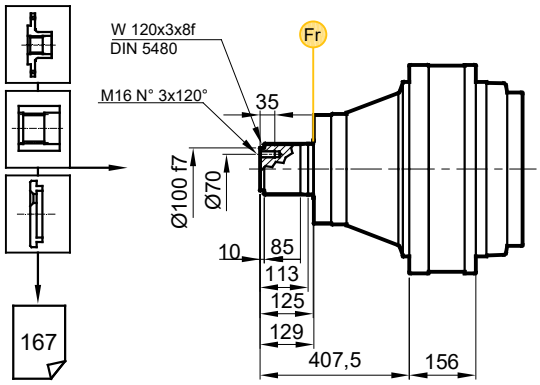


	i	T_2 [Nm] $n_2$xh				n_{1max} [min]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 123 S2	16.0	68690	60800	51740	45800	2000	121600	38
	20.6	50280	44500	37870	33520	2000	89000	38
	24.4	40110	35500	30210	26740	2000	71000	38
PDA 123 S3	39.0	68690	60800	51740	45800	2800	121600	25
	47.1	68690	60800	51740	45800	2800	121600	25
	50.0	50280	44500	37870	33520	2800	89000	25
	60.2	68690	60800	51740	45800	2800	121600	25
	72.5	68690	60800	51740	45800	2800	121600	25
	93.0	50280	44500	37870	33520	2800	89000	25
	121.5	50280	44500	37870	33520	2800	89000	25
	144.0	40110	35500	30210	26740	2800	71000	25
	173.5	40110	35500	30210	26740	2800	71000	25
PDA 123 S4	182.5	68690	60800	51740	45800	2800	121600	20
	201.1	68690	60800	51740	45800	2800	121600	20
	240.2	68690	60800	51740	45800	2800	121600	20
	281.9	50280	44500	37870	33520	2800	89000	20
	300.8	68690	60800	51740	45800	2800	121600	20
	368.4	50280	44500	37870	33520	2800	89000	20
	402.3	50280	44500	37870	33520	2800	89000	20
	444.1	50280	44500	37870	33520	2800	89000	20
	503.9	50280	44500	37870	33520	2800	89000	20
	585.1	50280	44500	37870	33520	2800	89000	20
	607.4	50280	44500	37870	33520	2800	89000	20
	693.5	40110	35500	30210	26740	2800	71000	20
	707.1	50280	44500	37870	33520	2800	89000	20
	852.3	50280	44500	37870	33520	2800	89000	20
	924.2	40110	35500	30210	26740	2800	71000	20
	1073.3	40110	35500	30210	26740	2800	71000	20
	1296.9	40110	35500	30210	26740	2800	71000	20

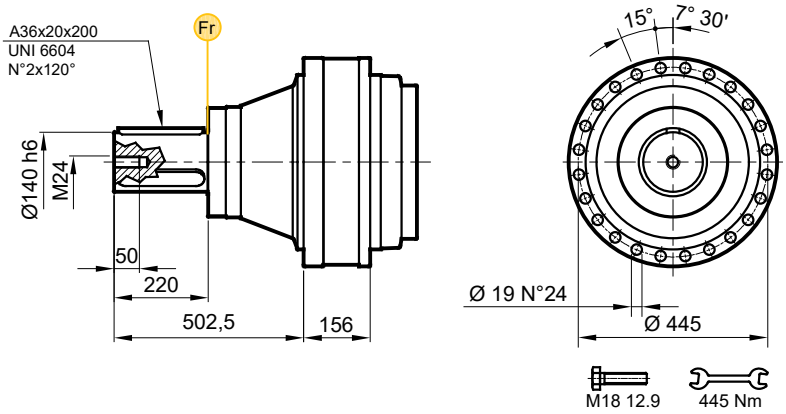
⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

PD/PDA 123

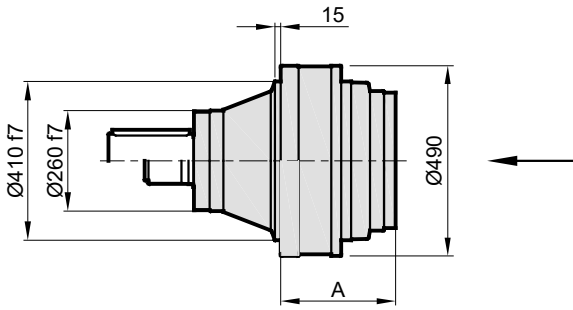
MS



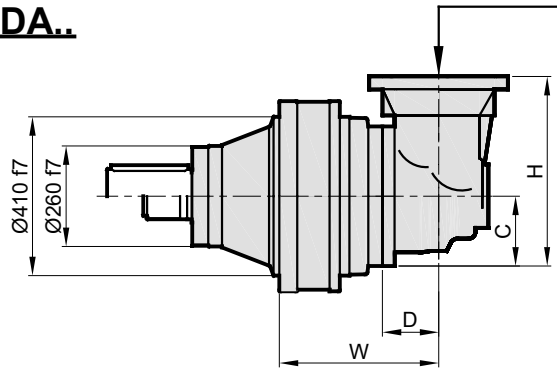
MC

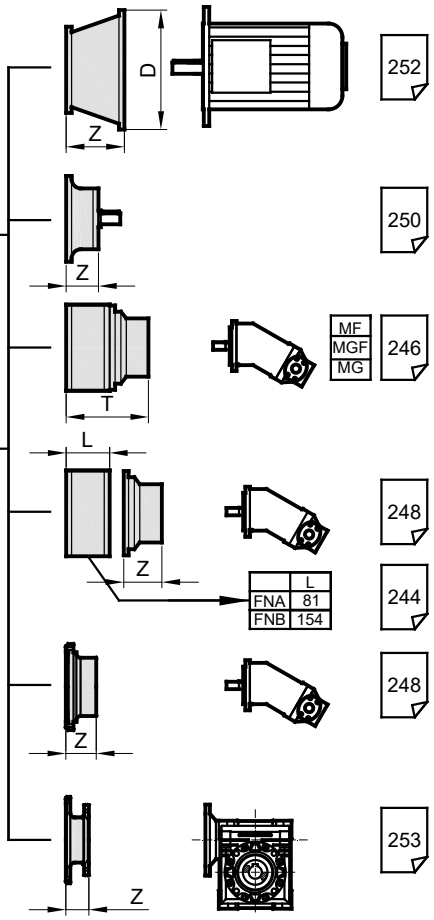


PD..



PDA..



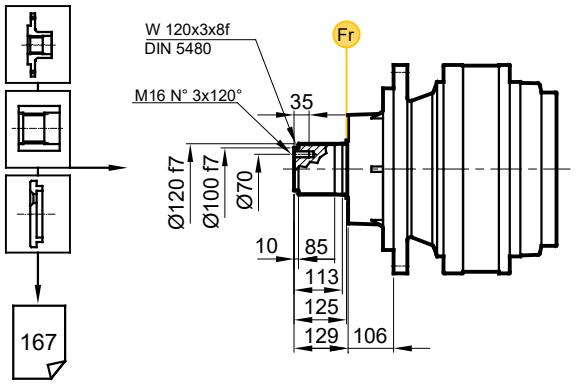


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	268	352	-
S2	415,5	279,5	245	536,5	375	402	508
S3	417,5	121	172,5	457	447	418	464
S4	425,5	103	122	319	508	426	447

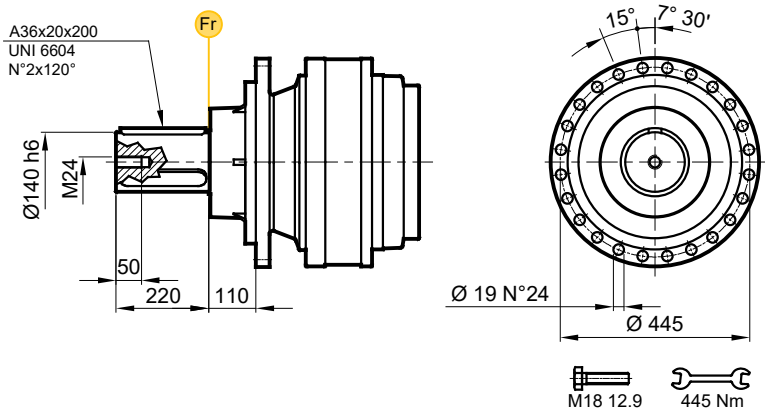
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	-	-	-	-	-	-	-	-

PD/PDA 123

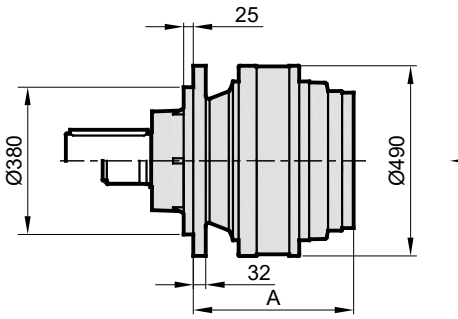
FS



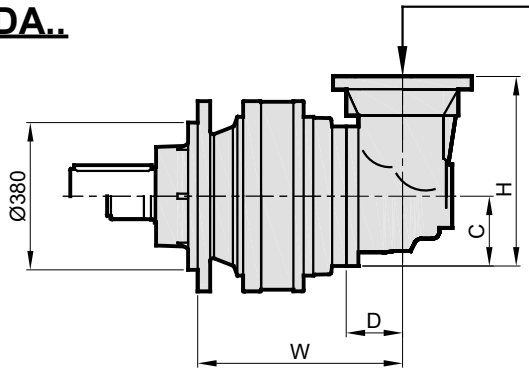
FC

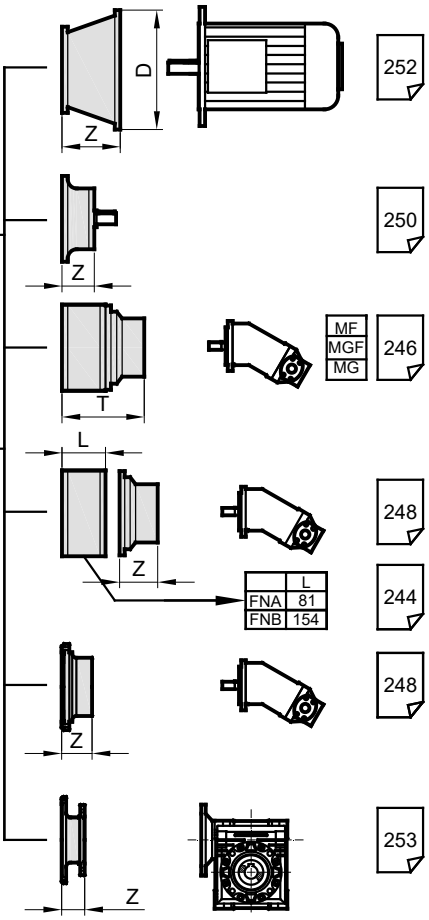


PD..



PDA..



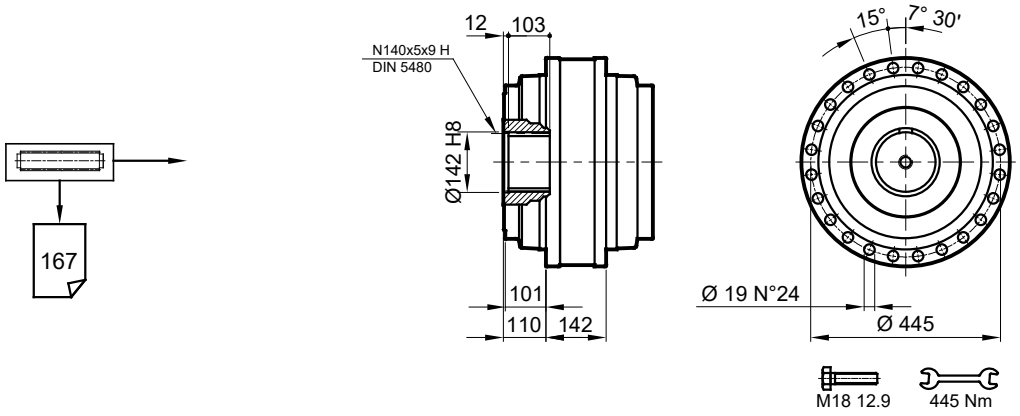


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	440,5	397	-
S2	588	279,5	245	536,5	547,5	448	554
S3	590	121	172,5	457	619,5	464	509
S4	598	103	122	319	680,5	472	493

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	-	-	-	-	-	-	-	-

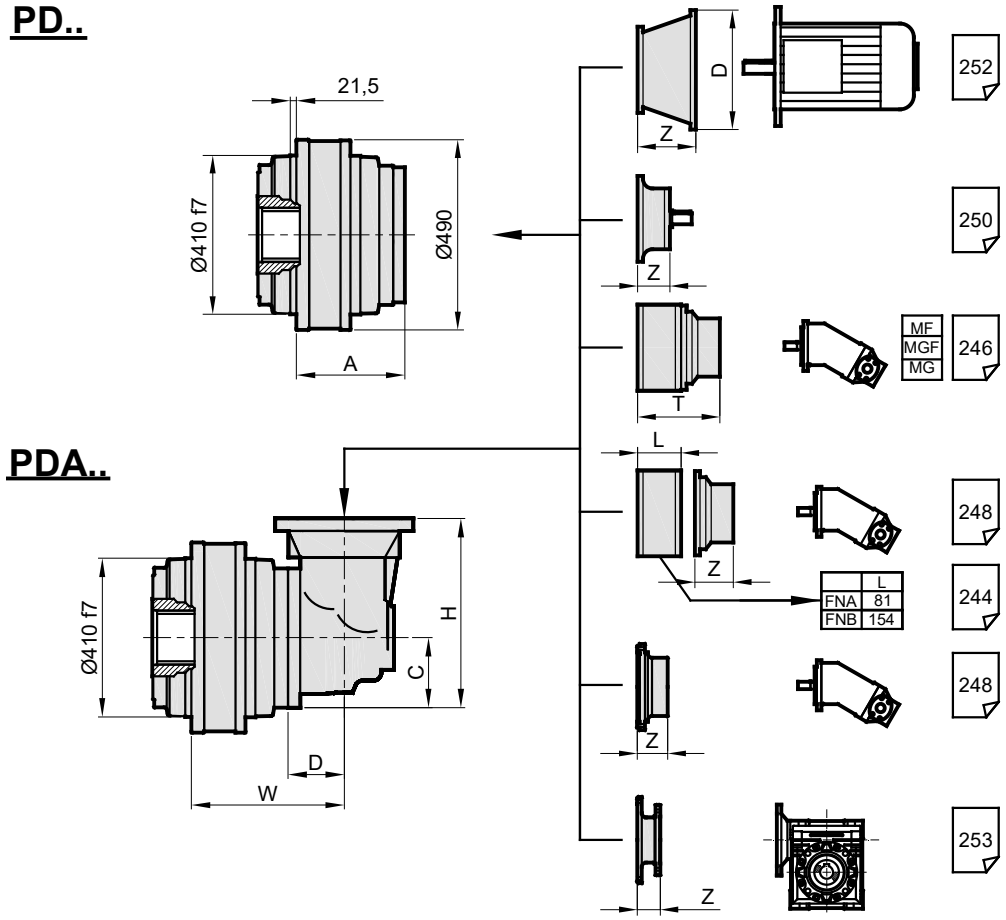
PD/PDA 123

S



PD..

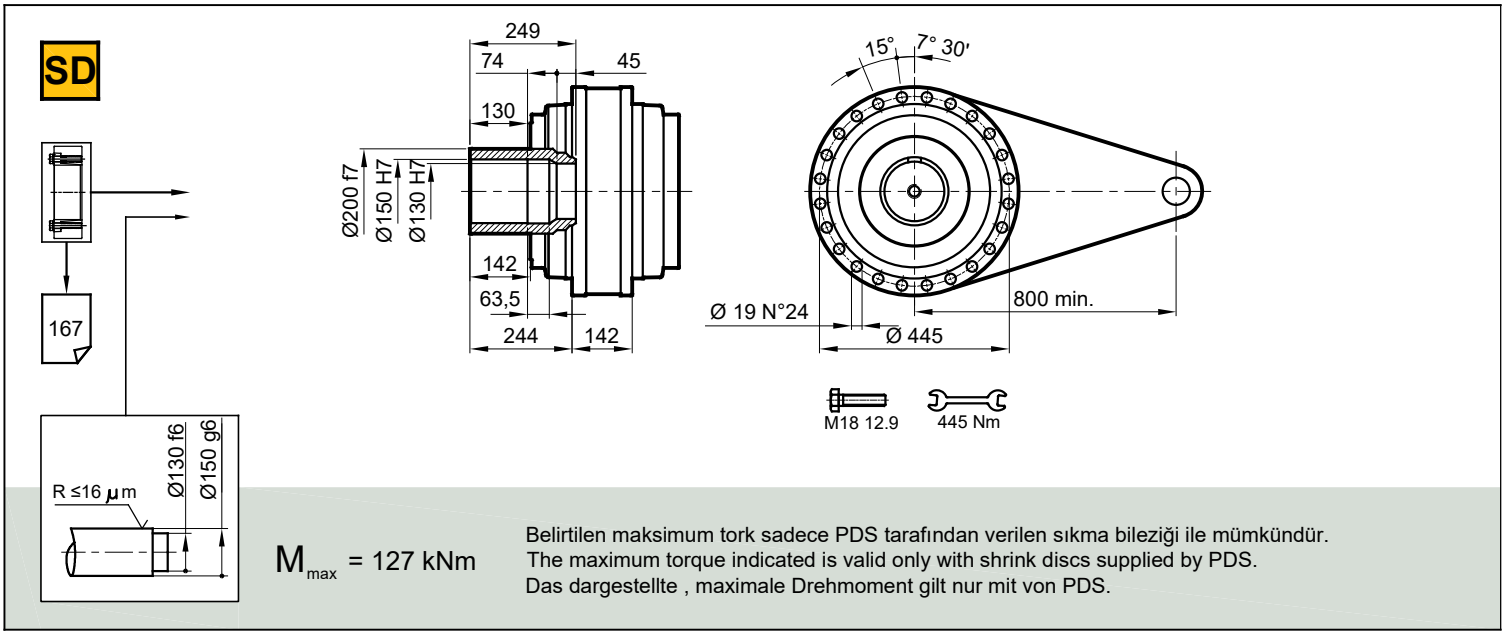
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	254	257	-
S2	401,5	279,5	245	536,5	361	307	414
S3	403,5	121	172,5	457	433	323	369
S4	411,5	103	122	319	494	332	352

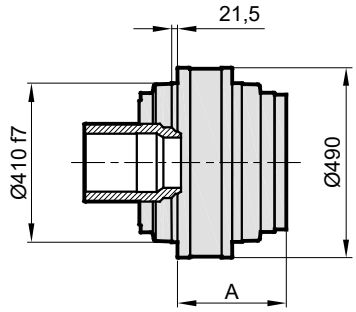
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	-	-	-	-	-	-	-	-

PD/PDA 123

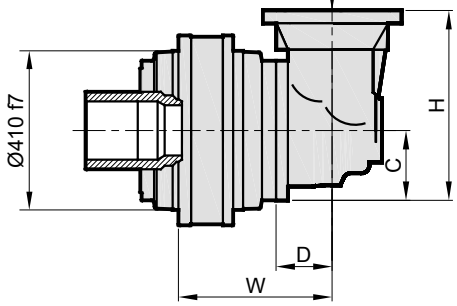


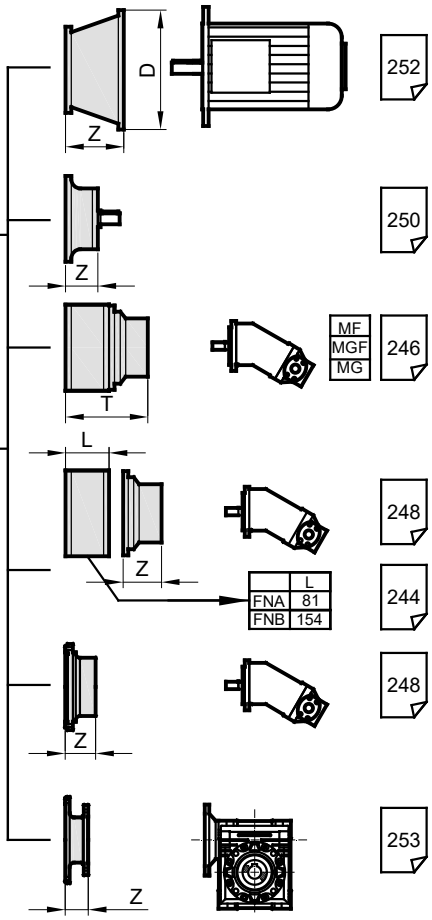
Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..

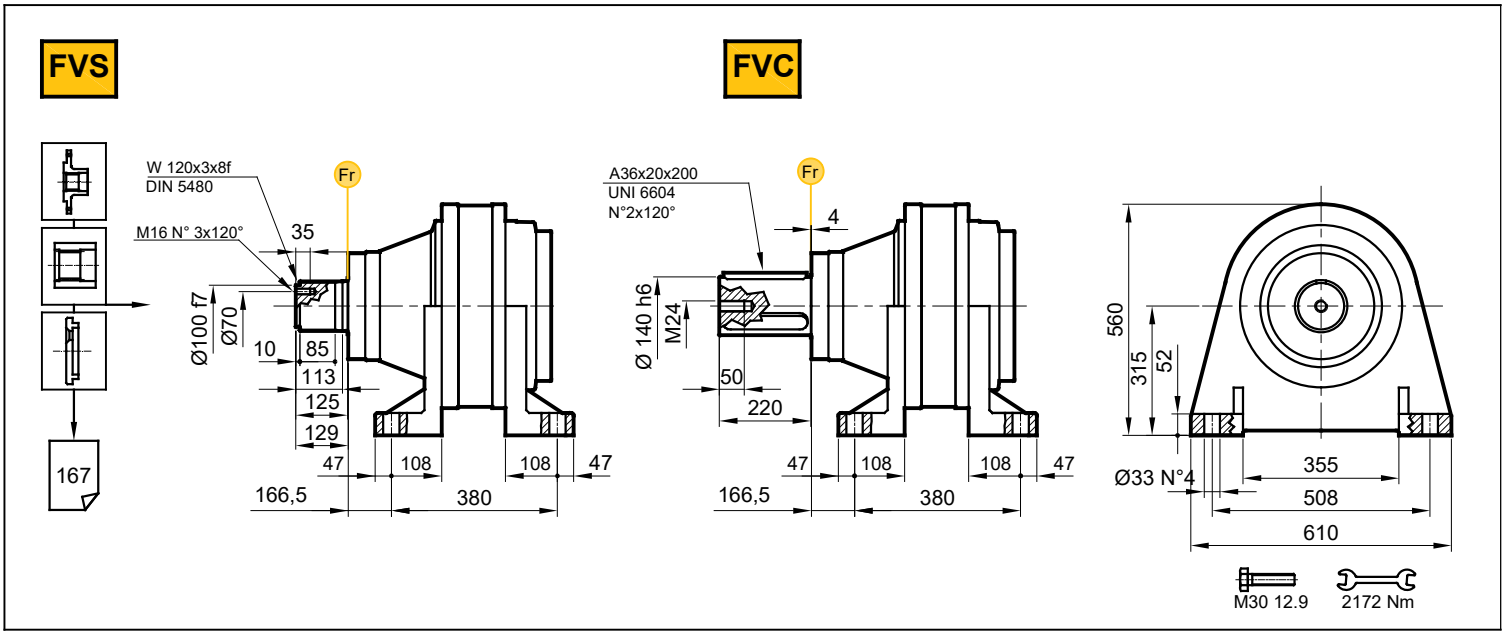


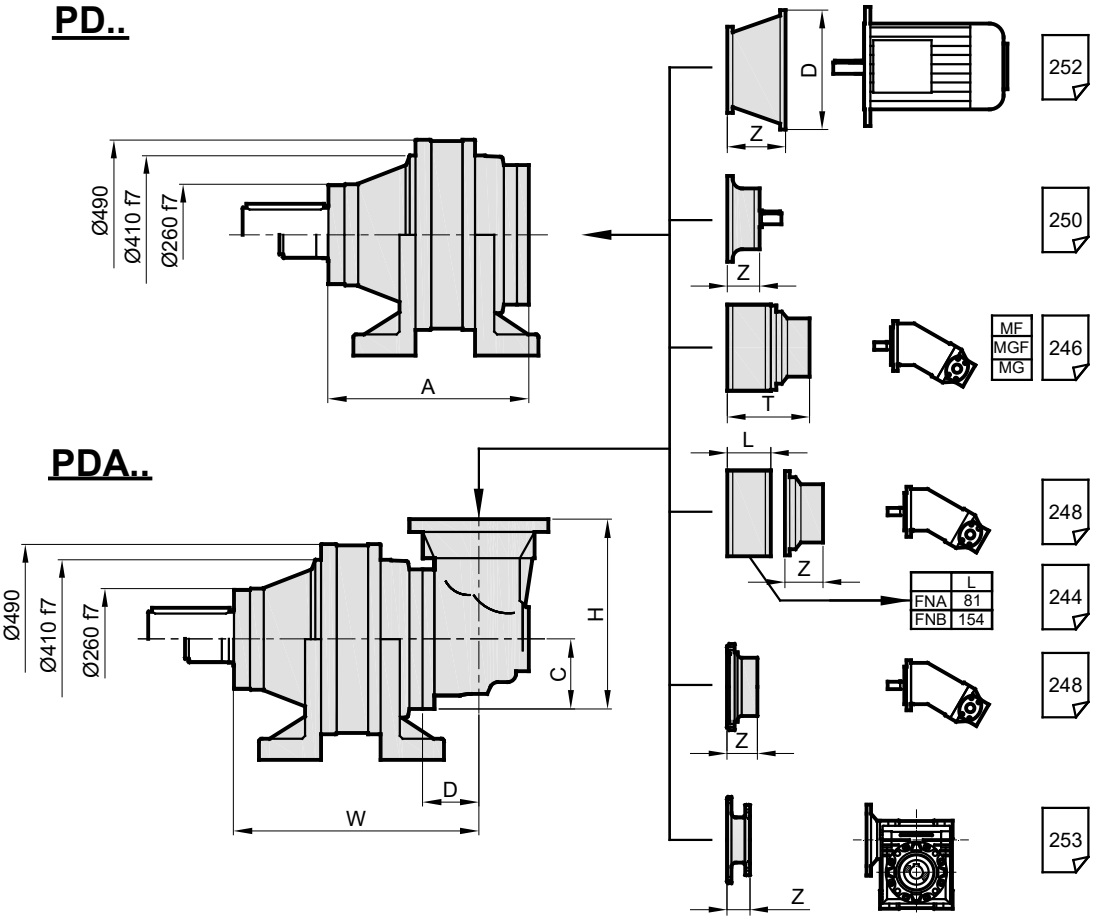


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	254	272	-
S2	401,5	279,5	245	536,5	361	322	429
S3	403,5	121	172,5	457	433	338	384
S4	411,5	103	122	319	494	346	367

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	-	-	-	-	-	-	-	-

PD/PDA 123



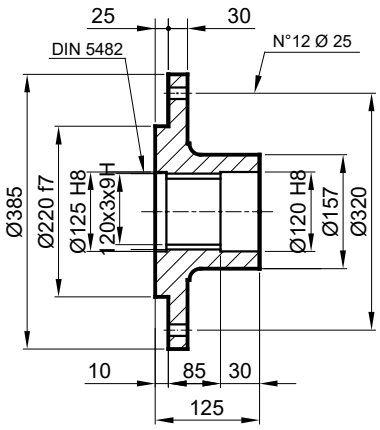


Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	551	438	-
S2	698	279,5	245	536,5	658	488	595
S3	701	121	172,5	457	730	504	550
S4	709	103	122	319	791	513	533

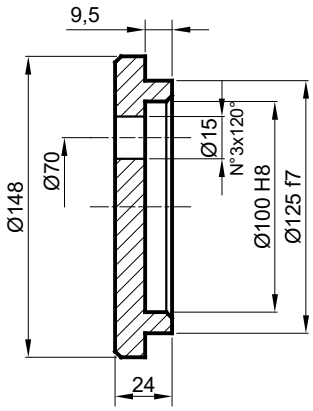
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	185	35,5	201	61,5	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S4	185	35,5	201	61,5	247	71	300	104	-	-	-	-	-	-	-	-

PD/PDA 123

FL Flanş / *Flange* / Flansch



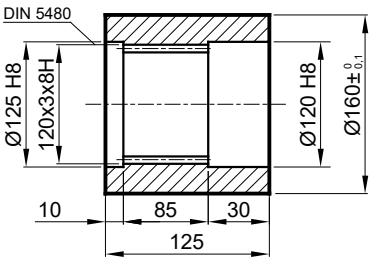
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



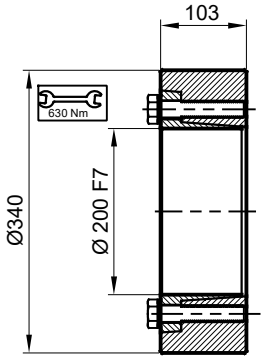
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material Material

DIN 1.7225
42CrMo4

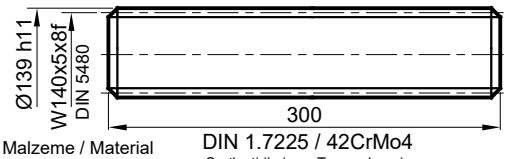


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
127 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN 1.7225 / 42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

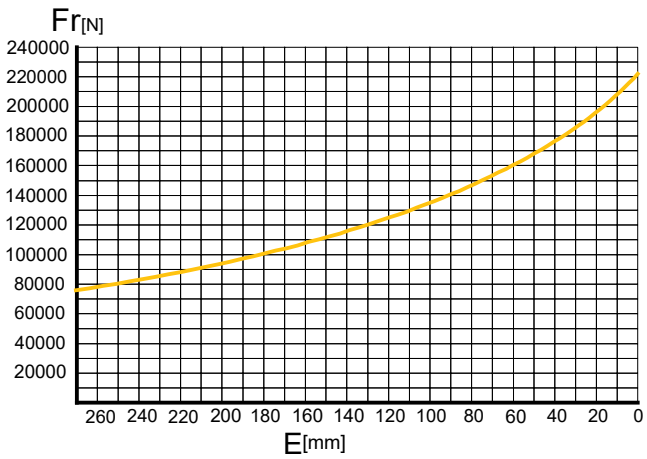
PD/PDA 123

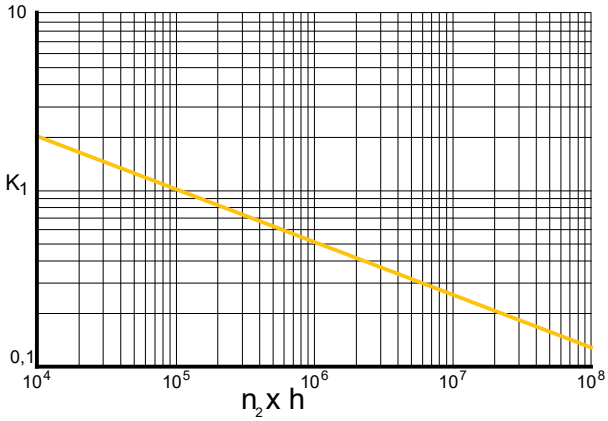
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

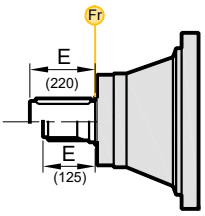
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

M-FV

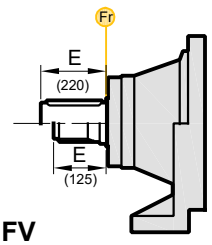




	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



M



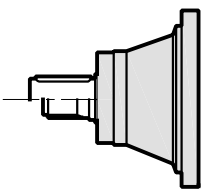
FV

AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

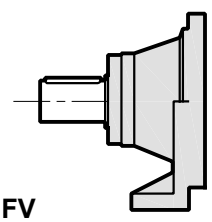
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M	FV	
	80000	80000	←
	120000	120000	→

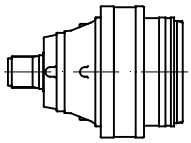


M

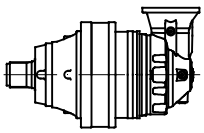


FV

PD 125

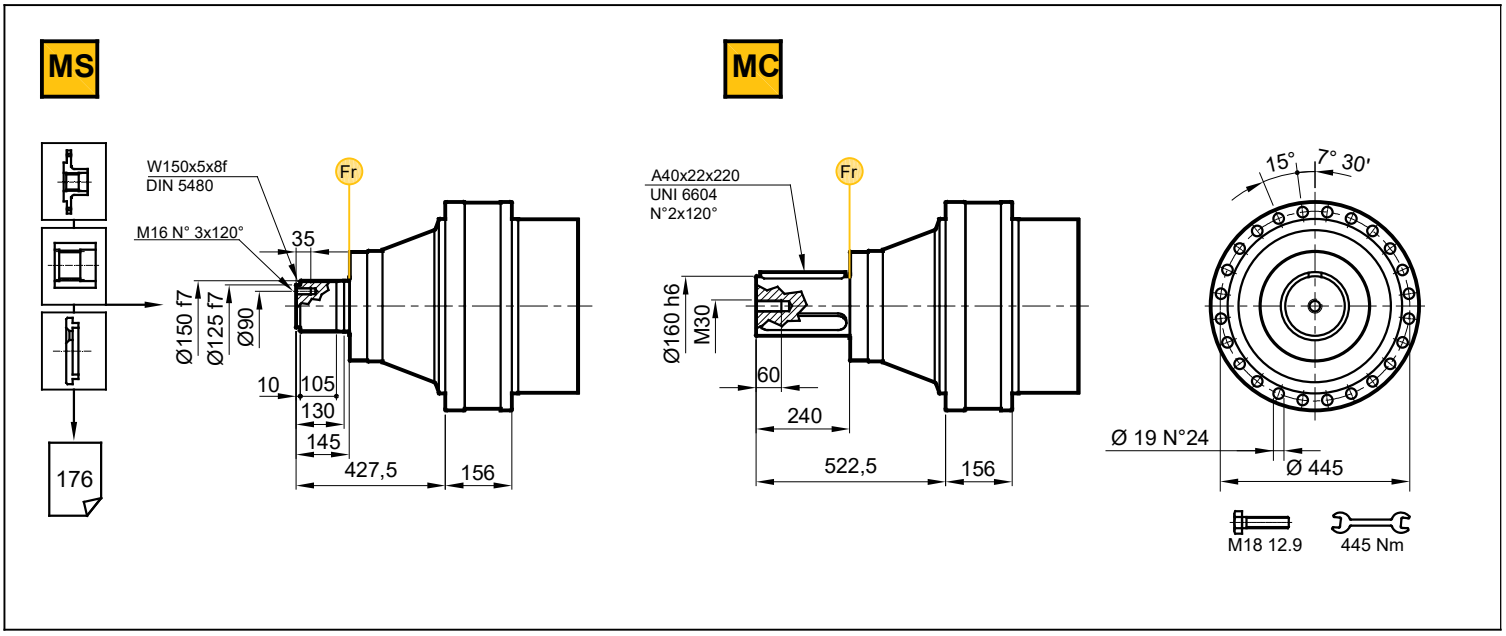
	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PD 125 S1	3.83	78310	69310	58980	52210	1000	138620	60
	4.42	67630	59850	50940	45100	1000	119700	60
PD 125 S2	15.3	78310	69310	58980	52210	1500	138620	50
	19.9	78310	69310	58980	52210	1500	138620	50
	23.9	78310	69310	58980	52210	1500	138620	50
	27.6	67630	59850	50940	45100	1500	119700	50
PD 125 S3	56.1	78310	69310	58980	52210	2500	138620	35
	67.8	78310	69310	58980	52210	2500	138620	35
	73.0	78310	69310	58980	52210	2500	138620	35
	88.8	78310	69310	58980	52210	2500	138620	35
	99.5	78310	69310	58980	52210	2500	138620	35
	115.4	78310	69310	58980	52210	2500	138620	35
	123.8	67630	59850	50940	45100	2500	119700	35
	138.7	78310	69310	58980	52210	2500	138620	35
	167.4	78310	69310	58980	52210	2500	138620	35
	193.4	67630	59850	50940	45100	2500	119700	35
PD 125 S4	212.0	78310	69310	58980	52210	2800	138620	25
	231.5	78310	69310	58980	52210	2800	138620	25
	256.0	78310	69310	58980	52210	2800	138620	25
	279.6	78310	69310	58980	52210	2800	138620	25
	300.9	78310	69310	58980	52210	2800	138620	25
	335.3	78310	69310	58980	52210	2800	138620	25
	363.5	78310	69310	58980	52210	2800	138620	25
	395.4	78310	69310	58980	52210	2800	138620	25
	406.8	78310	69310	58980	52210	2800	138620	25
	455.2	78310	69310	58980	52210	2800	138620	25
	514.0	78310	69310	58980	52210	2800	138620	25
	554.8	78310	69310	58980	52210	2800	138620	25
	596.9	78310	69310	58980	52210	2800	138620	25
	643.6	78310	69310	58980	52210	2800	138620	25
	690.5	78310	69310	58980	52210	2800	138620	25
	721.2	78310	69310	58980	52210	2800	138620	25
	836.6	78310	69310	58980	52210	2800	138620	25
	1009.7	78310	69310	58980	52210	2800	138620	25
	1213.6	78310	69310	58980	52210	2800	138620	25
	1402.3	67630	59850	50940	45100	2800	119700	25

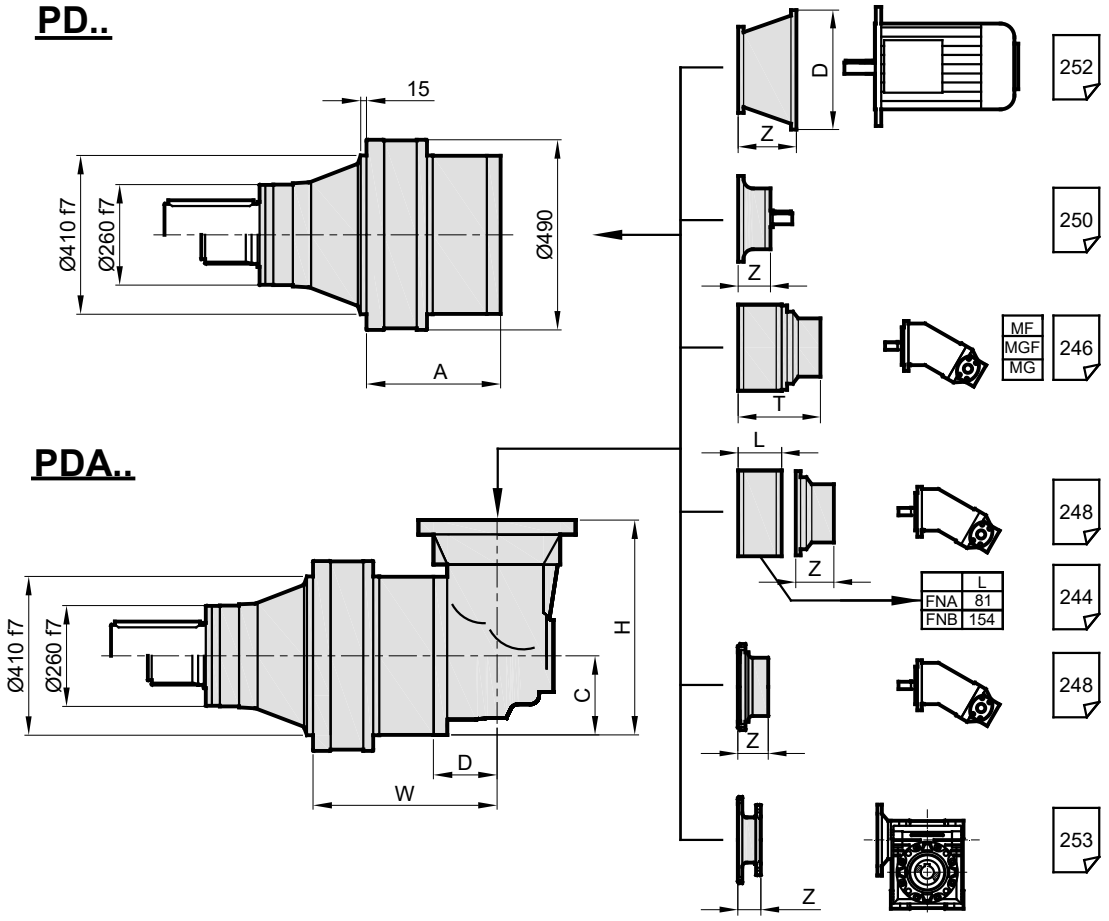
PDA 125

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 125 S3	54.2	78310	69310	58980	52210	2500	138620	35
	70.8	78310	69310	58980	52210	2500	138620	35
	92.0	78310	69310	58980	52210	2500	138620	35
	110.6	78310	69310	58980	52210	2500	138620	35
	127.8	62450	59850	50940	45100	2500	119700	35
PDA 125 S4	188.6	78310	69310	58980	52210	2800	138620	25
	227.7	78310	69310	58980	52210	2800	138620	25
	257.1	78310	69310	58980	52210	2800	138620	25
	298.3	78310	69310	58980	52210	2800	138620	25
	313.5	78310	69310	58980	52210	2800	138620	25
	334.3	78310	69310	58980	52210	2800	138620	25
	387.7	78310	69310	58980	52210	2800	138620	25
	407.5	78310	69310	58980	52210	2800	138620	25
	460.1	78310	69310	58980	52210	2800	138620	25
	489.8	78310	69310	58980	52210	2800	138620	25
	533.7	78310	69310	58980	52210	2800	138620	25
	572.5	62450	59850	50940	45100	2800	119700	25
	641.5	78310	69310	58980	52210	2800	138620	25
	744.3	62450	59850	50940	45100	2800	119700	25
	894.6	62450	59850	50940	45100	2800	119700	25

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 2}$

PD/PDA 125

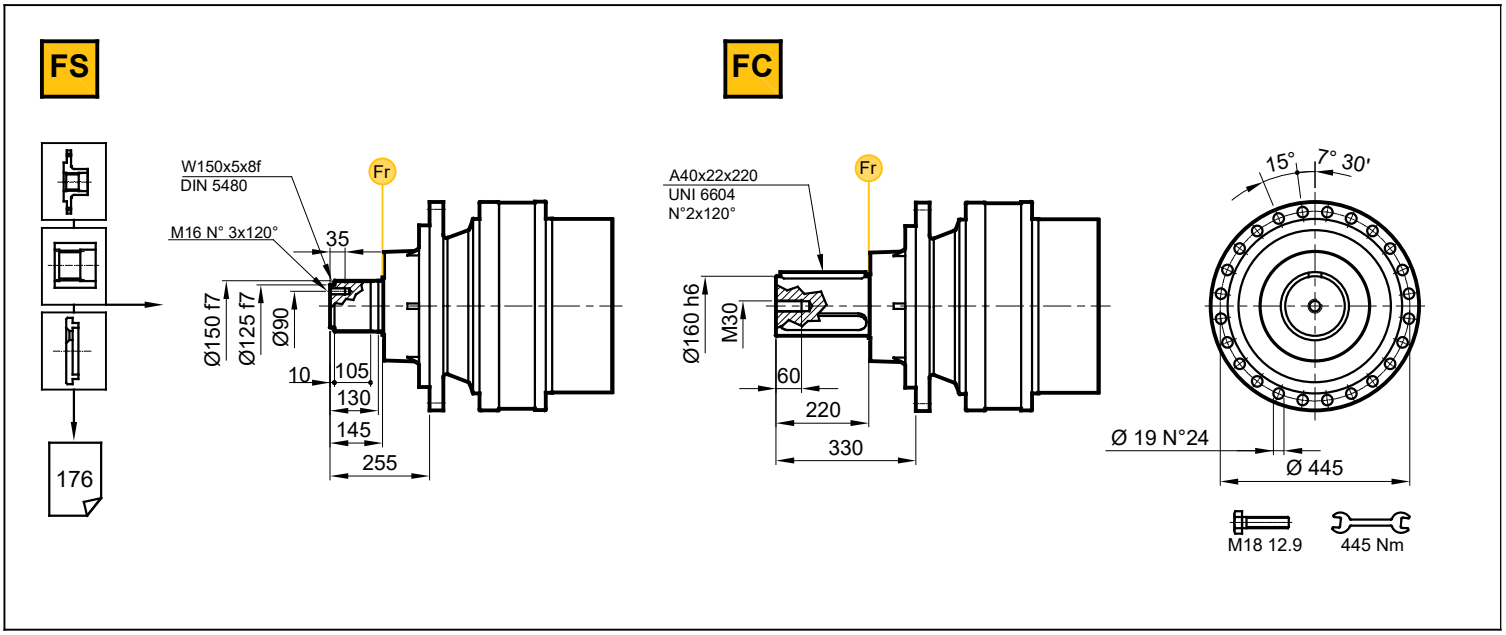


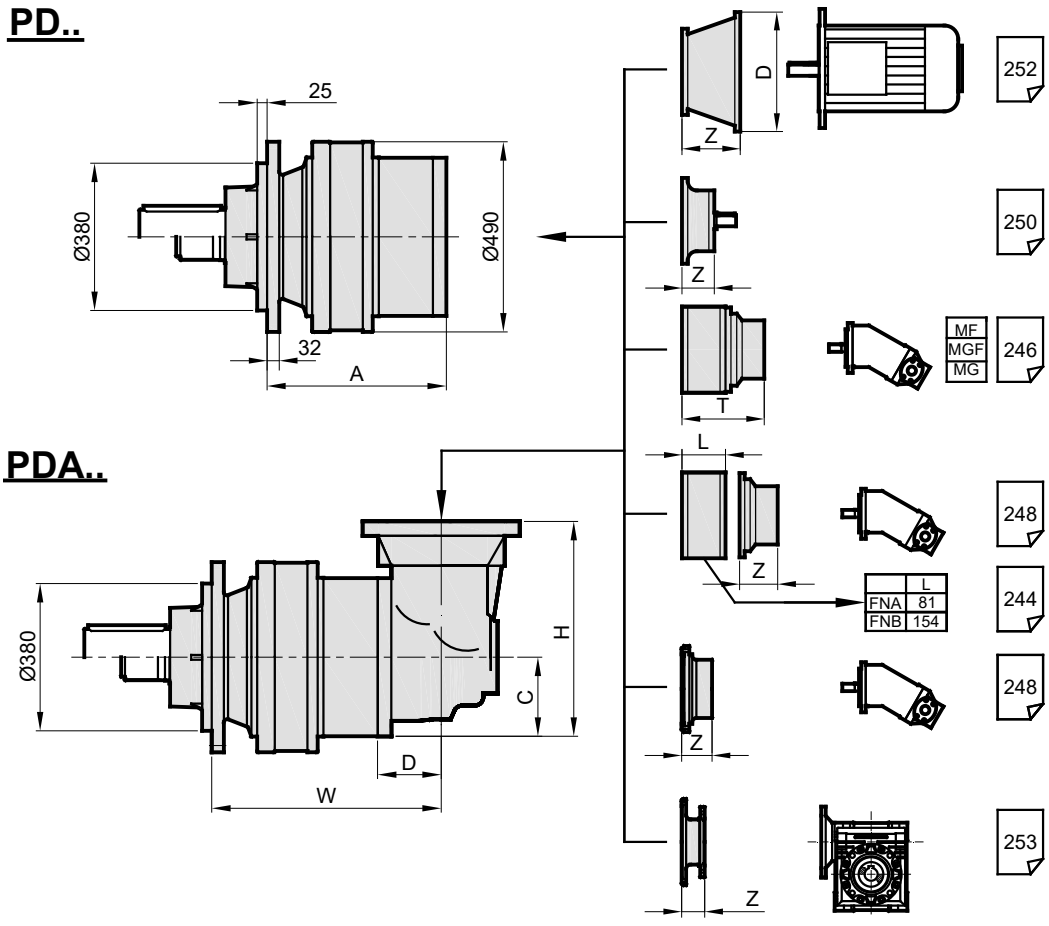


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	306	386	-
S2	-	-	-	-	489	506	-
S3	611	225	205	569	582	532	622
S4	645,5	118,5	140	390	642	544	582

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 125



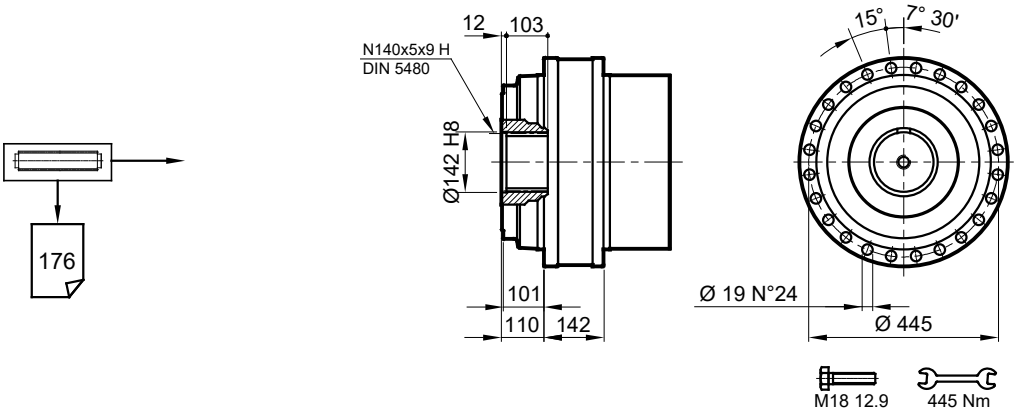


Stage	W	D	C	H	A	PD F	PDA F
S1	-	-	-	-	478,5	420	-
S2	-	-	-	-	661,5	540	-
S3	784	225	205	569	754,5	566	656
S4	818	118,5	140	390	814,5	578	616

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

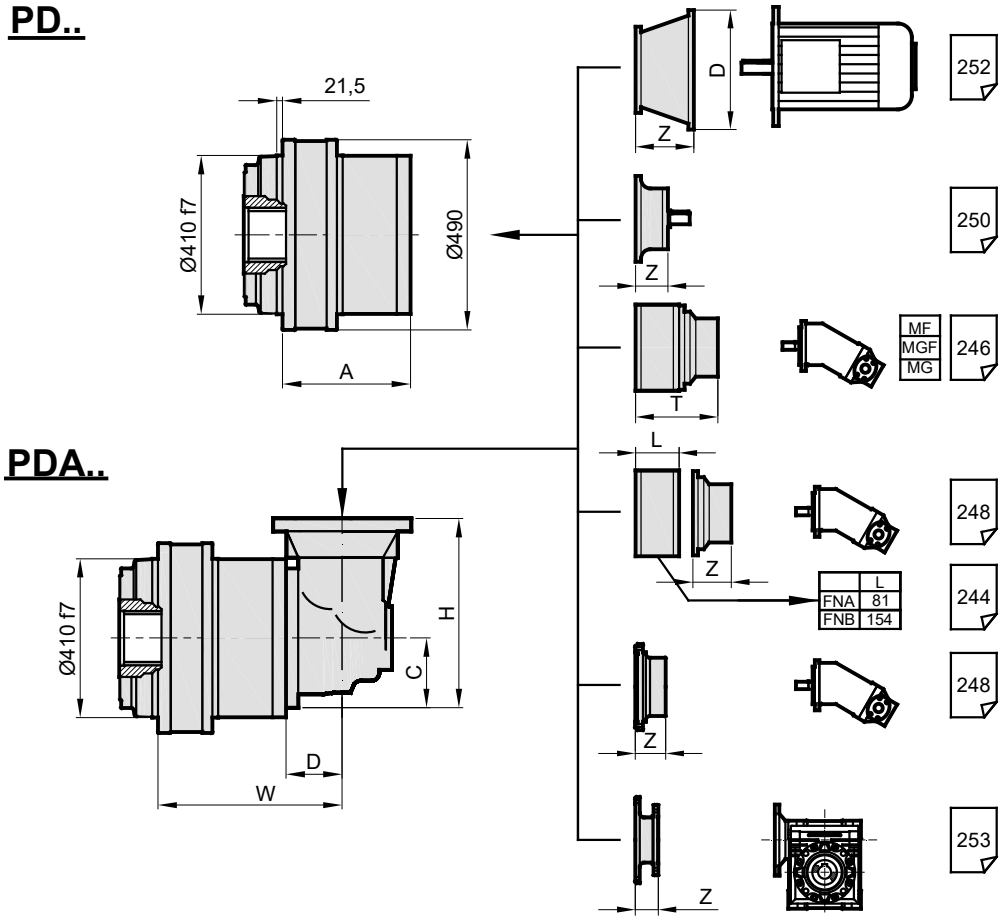
PD/PDA 125

S



PD..

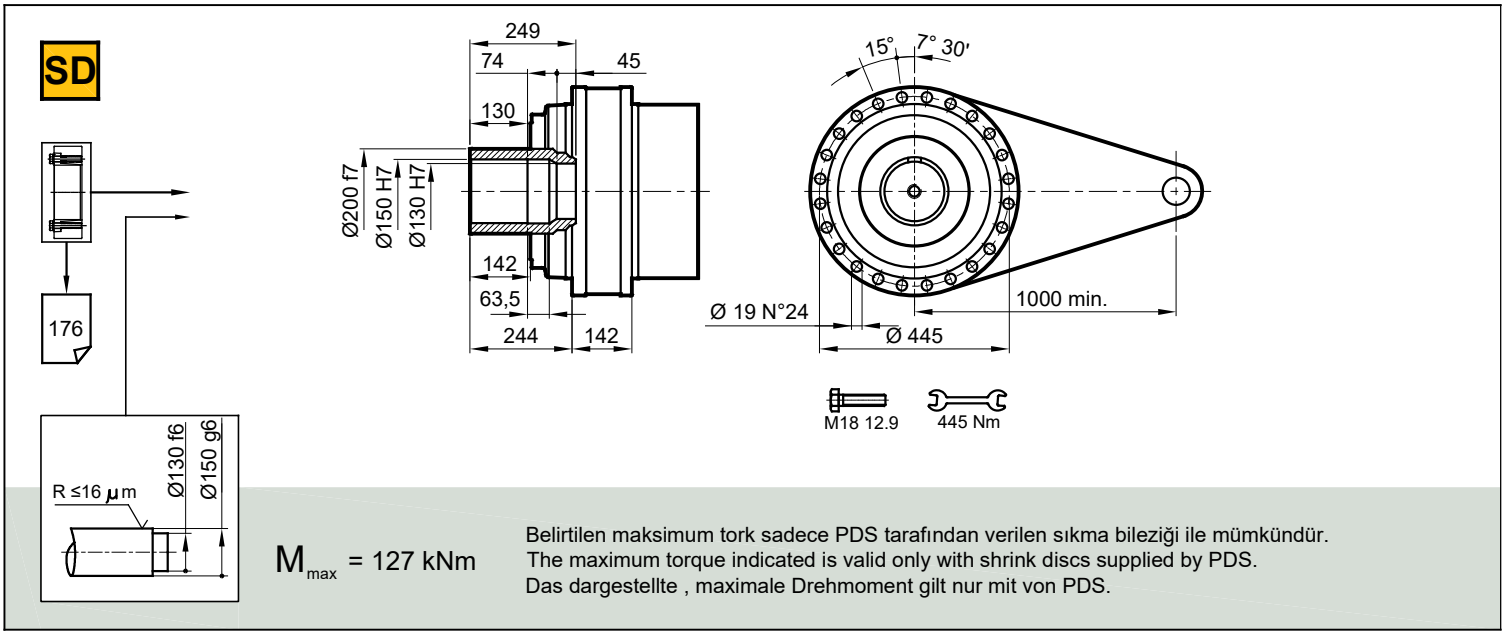
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	292	279	-
S2	-	-	-	-	475	399	-
S3	597	225	205	569	568	425	515
S4	631,5	118,5	140	390	628	437	475

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

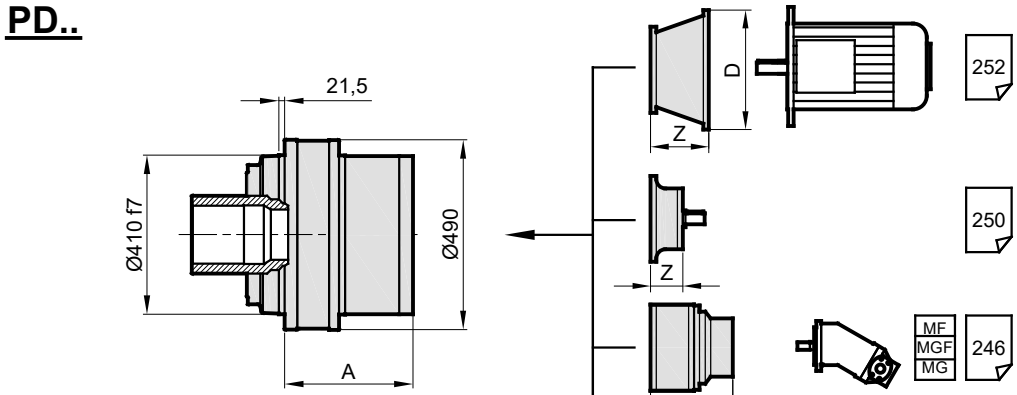
PD/PDA 125



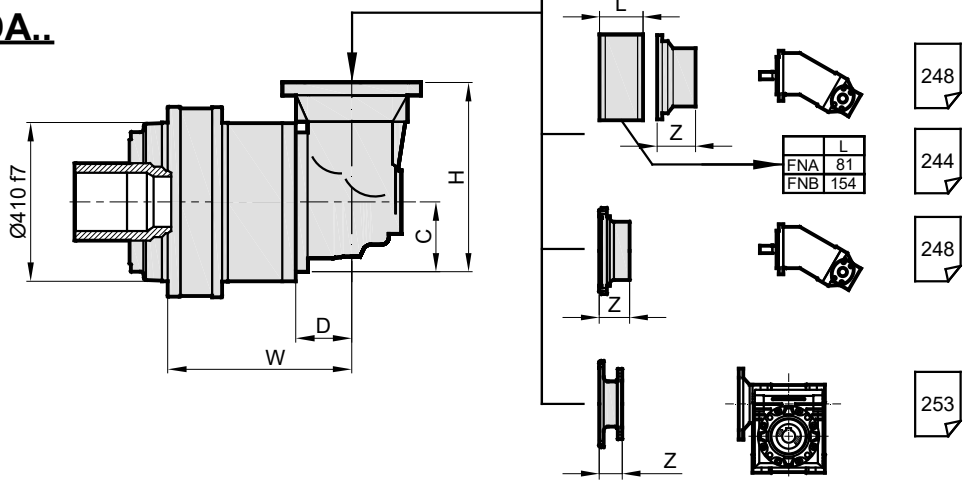
M_{max} = 127 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



PDA..

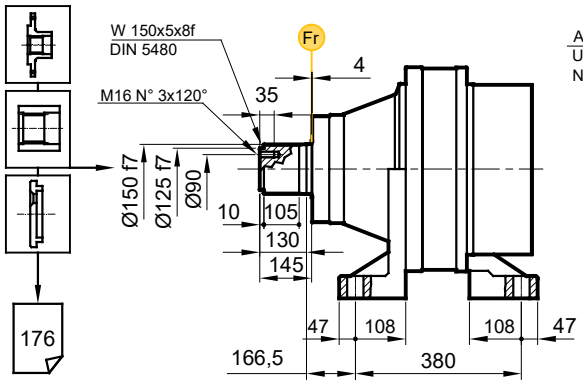


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	292	294	-
S2	-	-	-	-	475	413	-
S3	597	225	205	569	568	440	530
S4	631,5	118,5	140	390	628	452	490

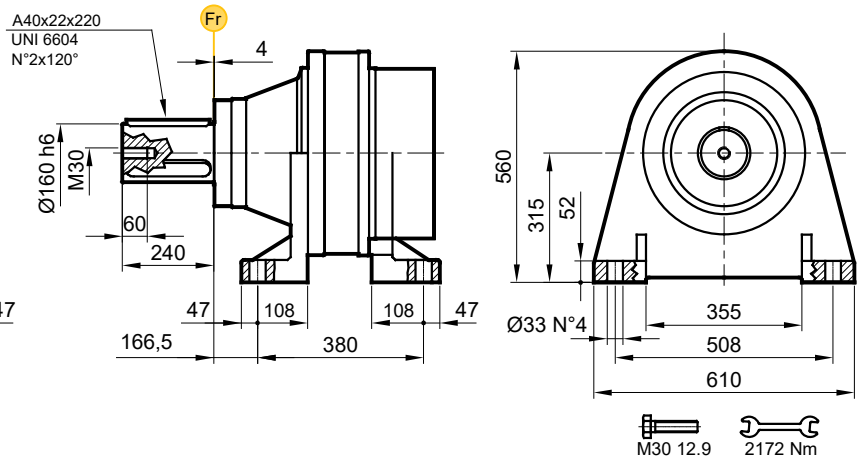
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 125

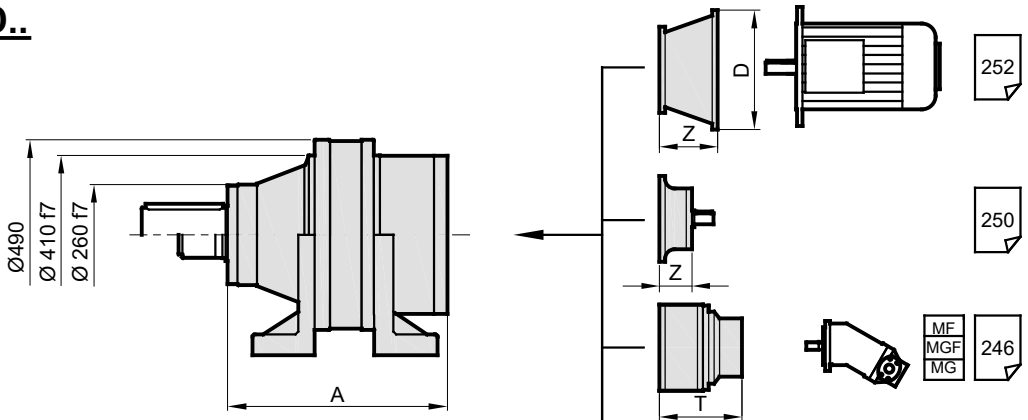
FVS



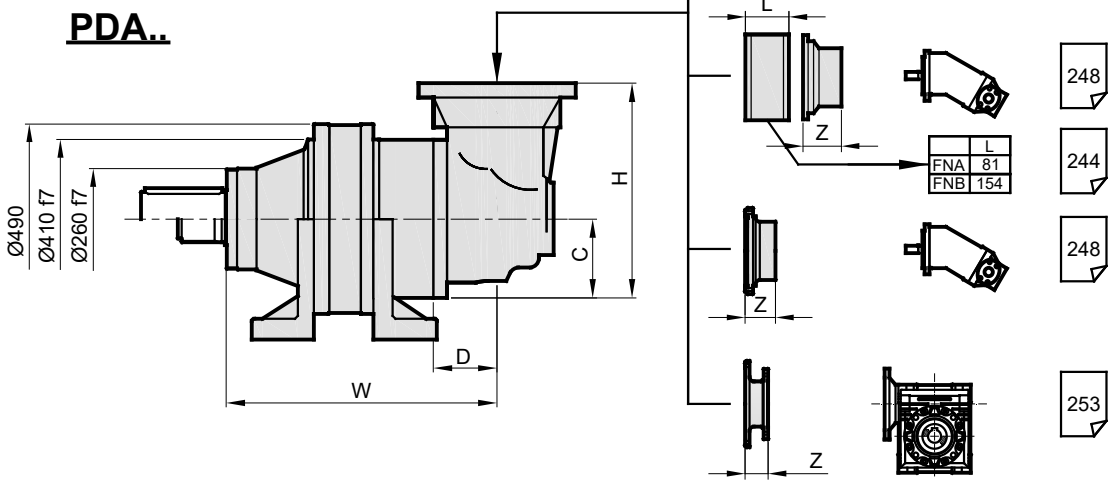
FVC



PD..



PDA..

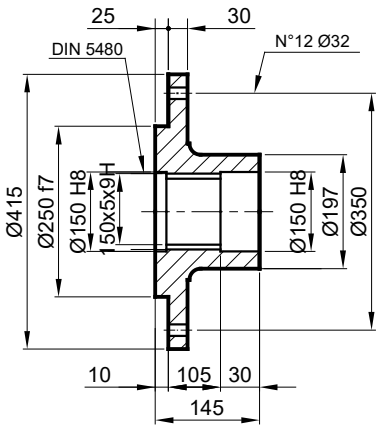


Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	589	472	-
S2	-	-	-	-	772	592	-
S3	894	225	205	569	865	618	708
S4	928	118,5	140	390	925	630	668

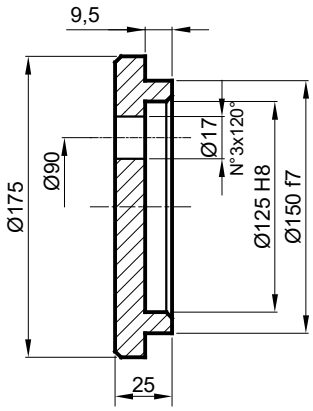
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 125

FL Flanş / *Flange* / Flansch



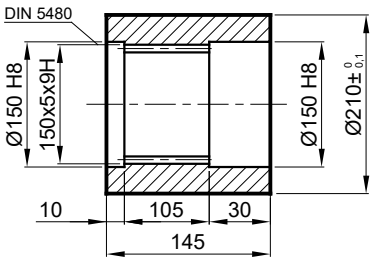
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



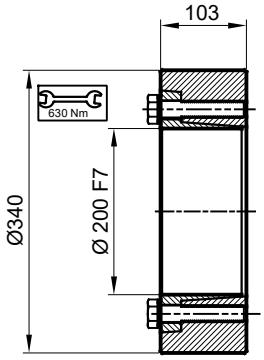
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material Material

DIN 1.7225
42CrMo4

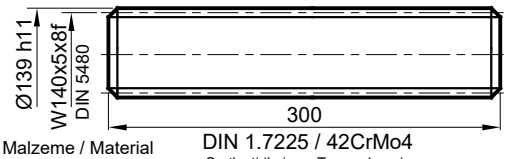


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
127 kNm

FM Frezeli Mil / Splined rod Außenverzahnte Welle



Malzeme / Material
Material

DIN 1.7225 / 42CrMo4
Sertleştirilmiş ve Temperlenmiş
Hardened and Tempered
Vergütet

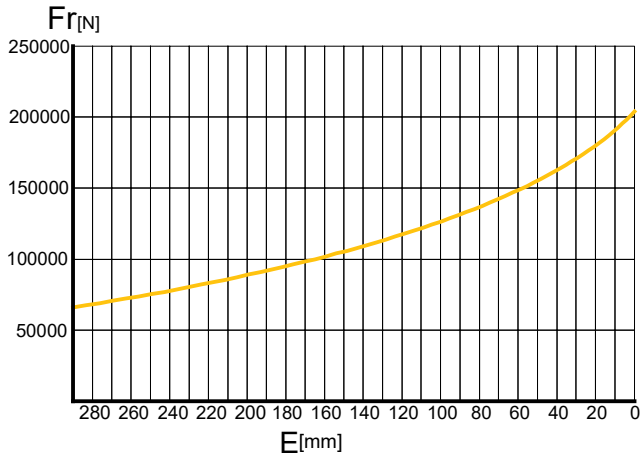
PD/PDA 125

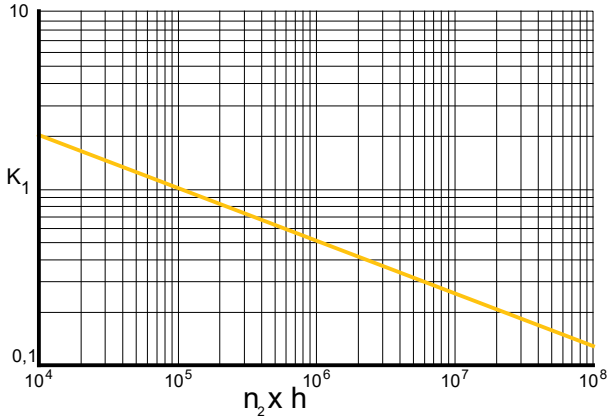
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

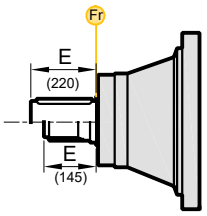
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

M-FV

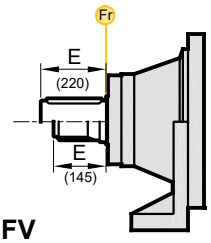




	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



M



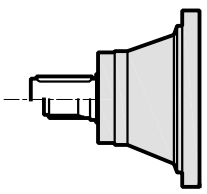
FV

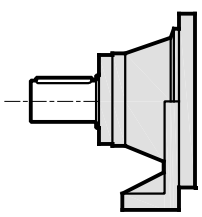
AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

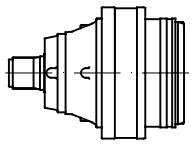
AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M	FV	
	50000	50000	←
	100000	100000	→



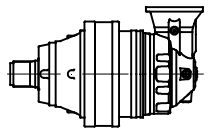


PD 127



	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PD 127 S1	4.09	111850	99000	84250	74570	750	198000	80
	5.25	88840	78630	66920	59230	750	157260	80
PD 127 S2	16.4	111850	99000	84250	74570	1500	198000	65
	21.0	88840	78630	66920	59230	1500	157260	65
	27.3	88840	78630	66920	59230	1500	157260	65
	32.8	88840	78630	66920	59230	1500	157260	65
PD 127 S3	60.0	111850	99000	84250	74570	2500	198000	45
	72.5	111850	99000	84250	74570	2500	198000	45
	77.0	88840	78630	66920	59230	2500	157260	45
	93.0	88840	78630	66920	59230	2500	157260	45
	105.0	88840	78630	66920	59230	2500	157260	45
	120.9	88840	78630	66920	59230	2500	157260	45
	136.5	88840	78630	66920	59230	2500	157260	45
	158.3	88840	78630	66920	59230	2500	157260	45
	164.1	88840	78630	66920	59230	2500	157260	45
	190.3	88840	78630	66920	59230	2500	157260	45
	229.7	88840	78630	66920	59230	2500	157260	45
PD 127 S4	247.4	111850	99000	84250	74570	2800	198000	30
	273.7	111850	99000	84250	74570	2800	198000	30
	298.9	111850	99000	84250	74570	2800	198000	30
	309.9	111850	99000	84250	74570	2800	198000	30
	359.9	111850	99000	84250	74570	2800	198000	30
	397.8	88840	78630	66920	59230	2800	157260	30
	434.9	111850	99000	84250	74570	2800	198000	30
	460.1	88840	78630	66920	59230	2800	157260	30
	502.4	88840	78630	66920	59230	2800	157260	30
	525.3	111850	99000	84250	74570	2800	198000	30
	555.3	88840	78630	66920	59230	2800	157260	30
	598.2	88840	78630	66920	59230	2800	157260	30
	630.0	88840	78630	66920	59230	2800	157260	30
	674.3	88840	78630	66920	59230	2800	157260	30
	705.3	88840	78630	66920	59230	2800	157260	30
	750.8	88840	78630	66920	59230	2800	157260	30
	788.3	88840	78630	66920	59230	2800	157260	30
	819.0	88840	78630	66920	59230	2800	157260	30
	883.1	88840	78630	66920	59230	2800	157260	30
	950.0	88840	78630	66920	59230	2800	157260	30
	1065.8	88840	78630	66920	59230	2800	157260	30
	1148.0	88840	78630	66920	59230	2800	157260	30
	1385.5	88840	78630	66920	59230	2800	157260	30
	1665.2	88840	78630	66920	59230	2800	157260	30

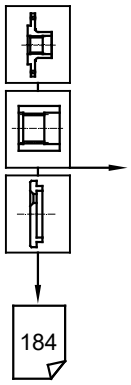
PDA 127

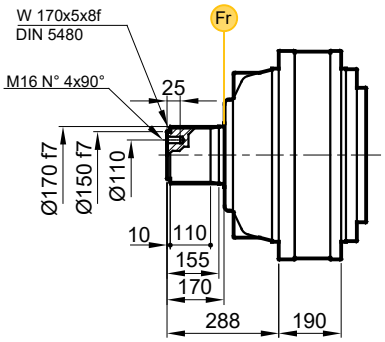
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 127 S3	57.9	111850	99000	84250	74570	2500	198000	45
	75.7	111850	99000	84250	74570	2500	198000	45
	96.6	88840	78630	66920	59230	2500	157260	45
	116.2	88840	78630	66920	59230	2500	157260	45
	126.3	88840	78630	66920	59230	2500	157260	45
	151.8	88840	78630	66920	59230	2500	157260	45
PDA 127 S4	185.4	111850	99000	84250	74570	2800	198000	30
	201.6	111850	99000	84250	74570	2800	198000	30
	223.9	111850	99000	84250	74570	2800	198000	30
	243.4	111850	99000	84250	74570	2800	198000	30
	277.4	111850	99000	84250	74570	2800	198000	30
	309.3	88840	78630	66920	59230	2800	157260	30
	335.1	111850	99000	84250	74570	2800	198000	30
	373.6	88840	78630	66920	59230	2800	157260	30
	406.2	88840	78630	66920	59230	2800	157260	30
	449.0	88840	78630	66920	59230	2800	157260	30
	488.3	88840	78630	66920	59230	2800	157260	30
	559.2	88840	78630	66920	59230	2800	157260	30
	672.1	88840	78630	66920	59230	2800	157260	30

⚠ $(n_2 \times h = 20000)$ → $T_{2max}=T_2 \times 2$

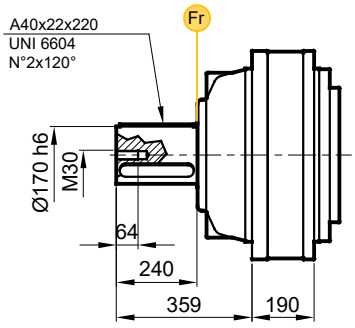
PD/PDA 127

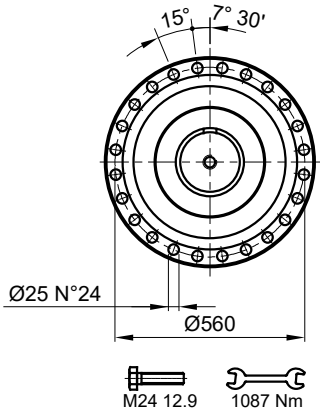
MS



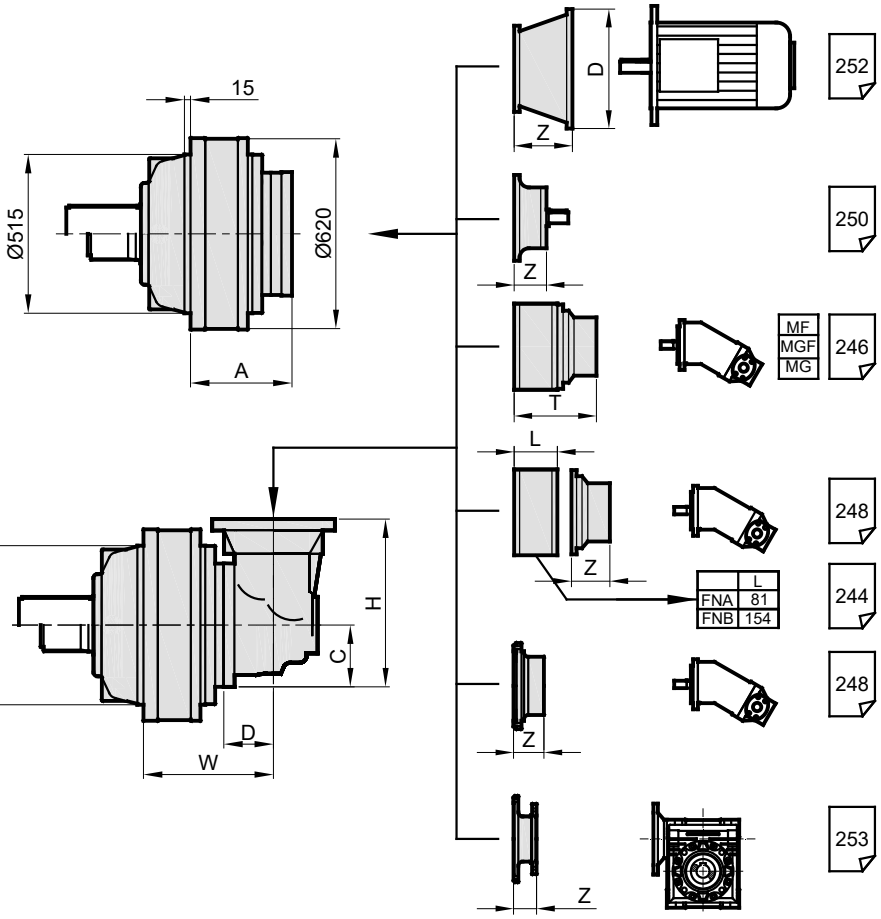


MC

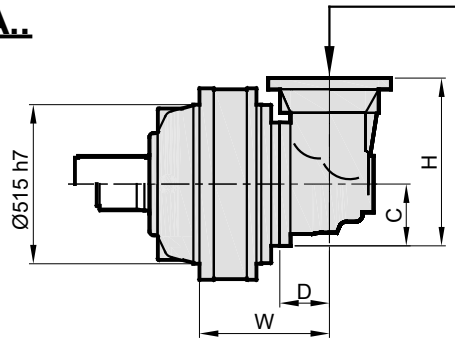




PD..



PDA..

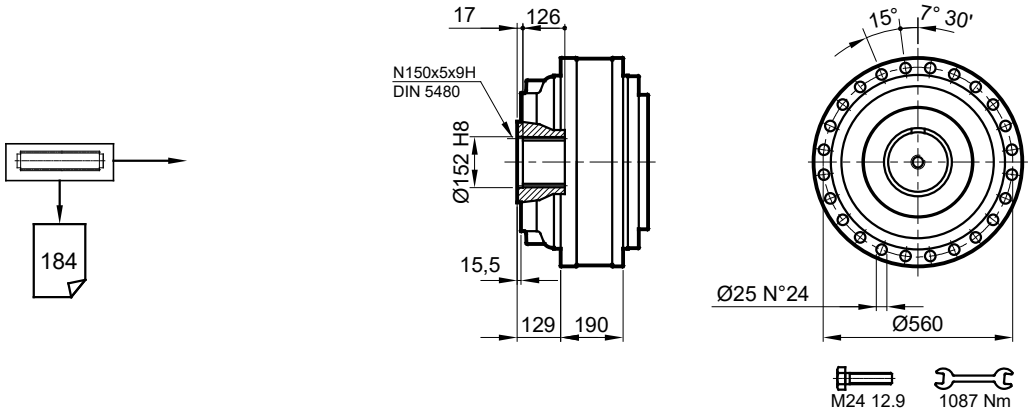


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	308	501	-
S2	-	-	-	-	491	621	-
S3	613	225	205	569	584	647	737
S4	647,5	118,5	140	390	644	660	698

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

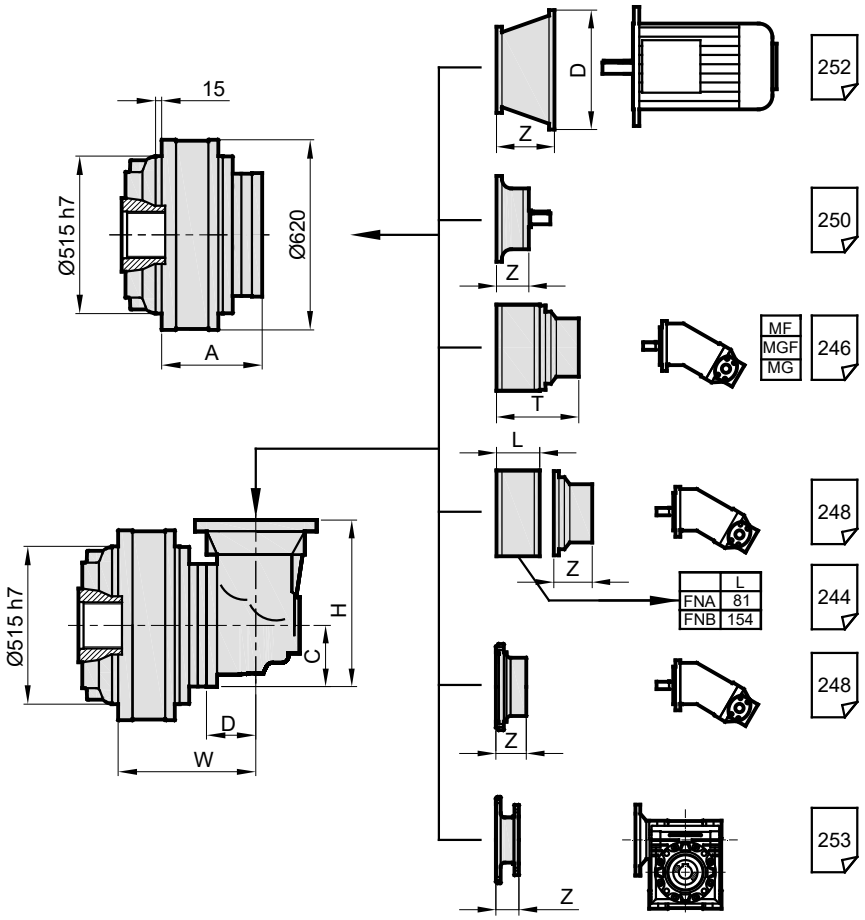
PD/PDA 127

S



PD..

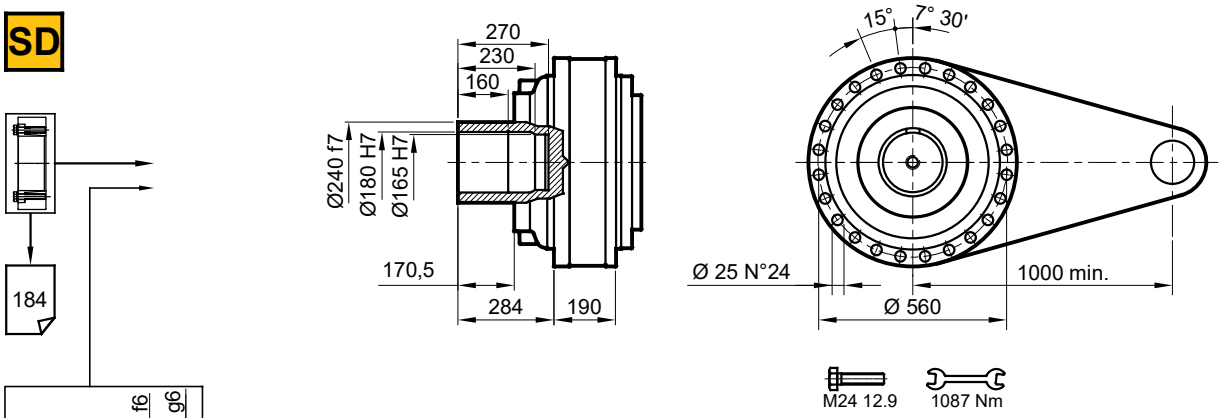
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	308	440	-
S2	-	-	-	-	491	560	-
S3	613	225	205	569	584	586	676
S4	647,5	118,5	140	390	644	599	637

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 127

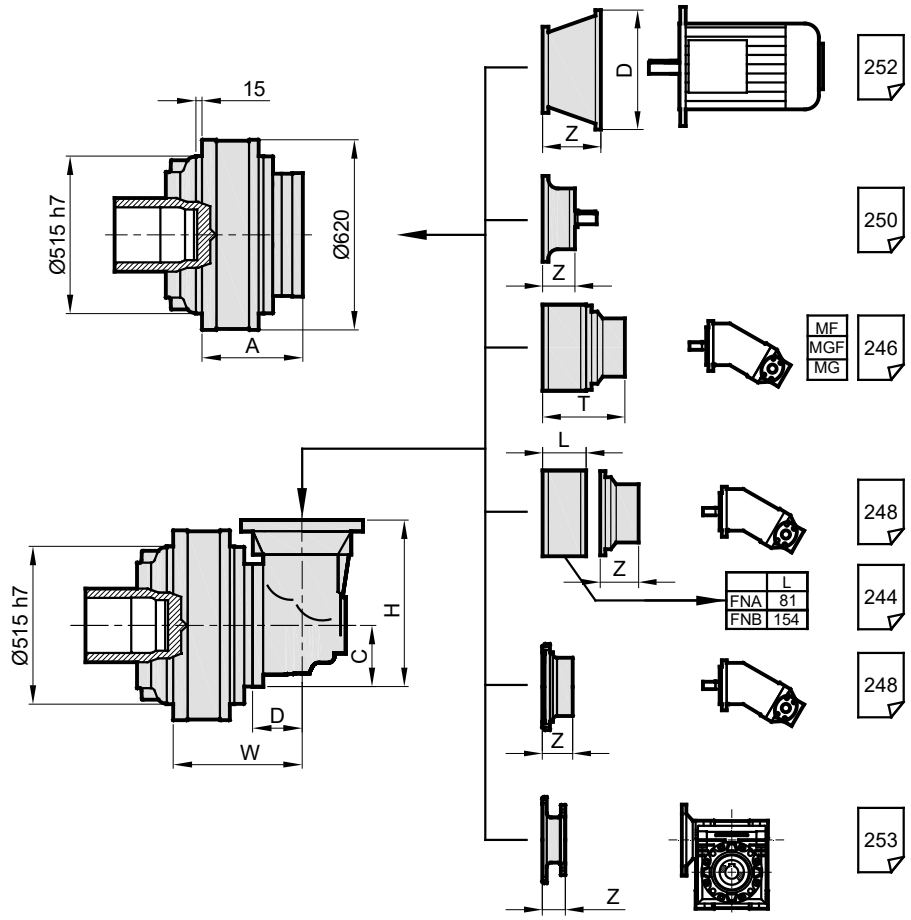


M_{max} = 190 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..

PDA..

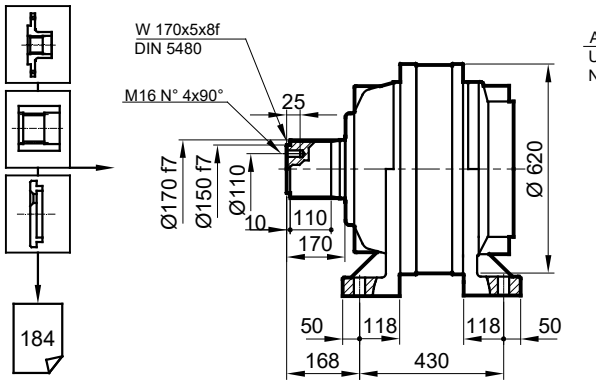


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	308	460	-
S2	-	-	-	-	491	580	-
S3	613	225	205	569	584	606	695
S4	647,5	118,5	140	390	644	619	657

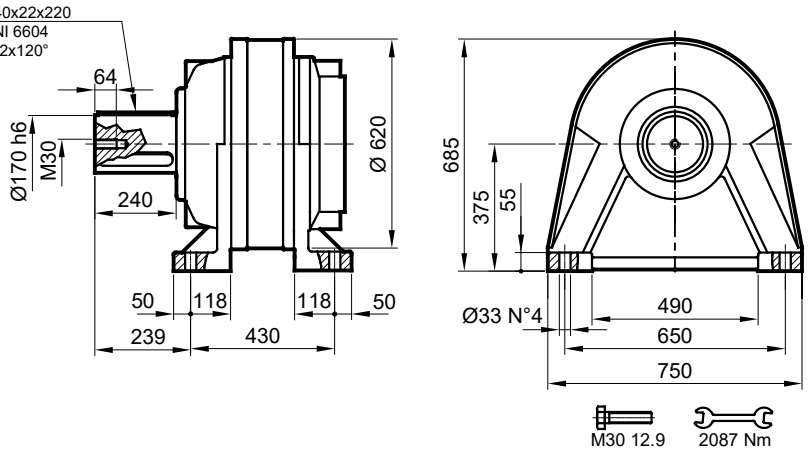
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 127

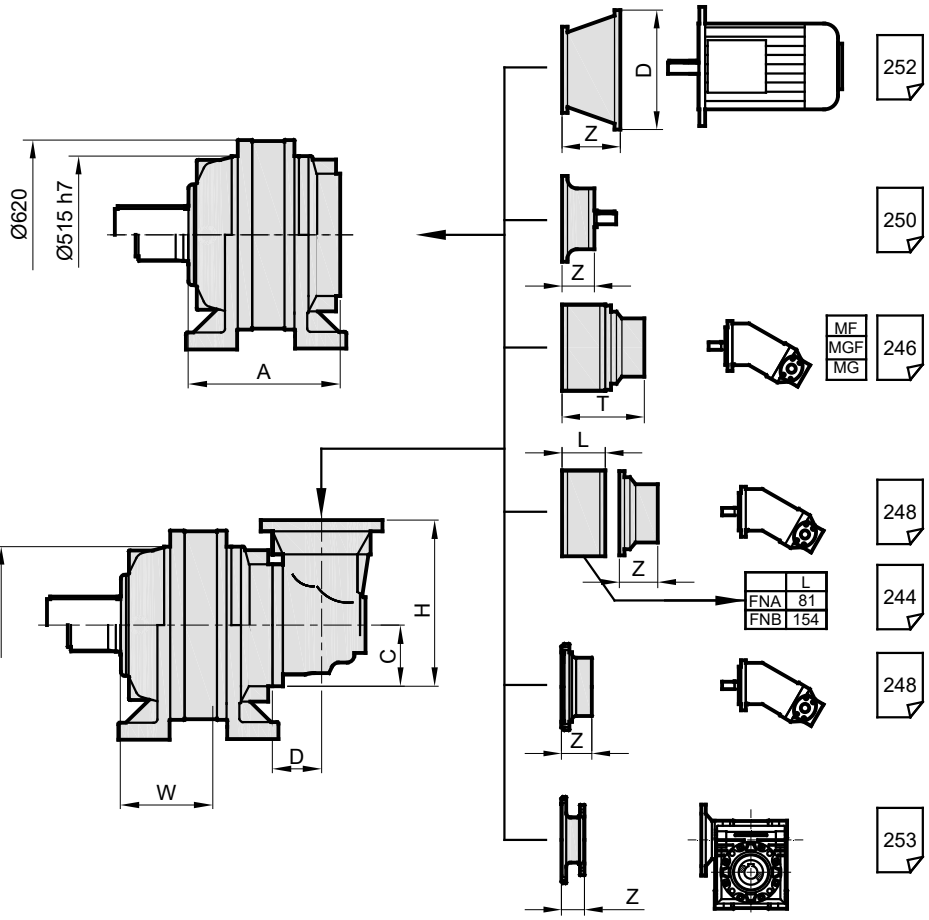
FVS



FVC



PD..



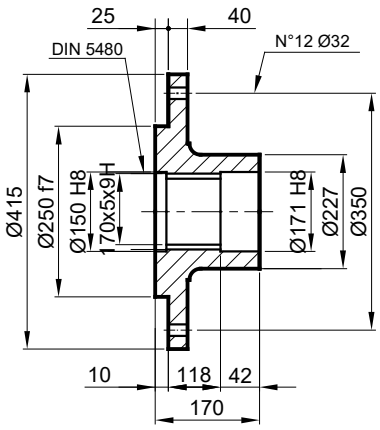
PDA..

Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	427	635	-
S2	-	-	-	-	610	755	-
S3	732	225	205	569	703	781	871
S4	766,5	118,5	140	390	763	794	832

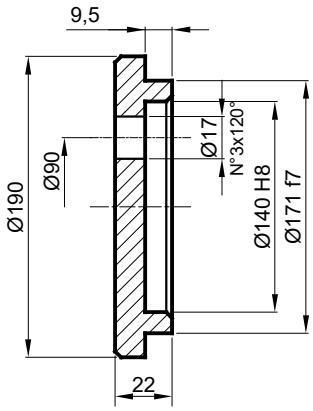
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 127

FL Flanş / *Flange* / Flansch

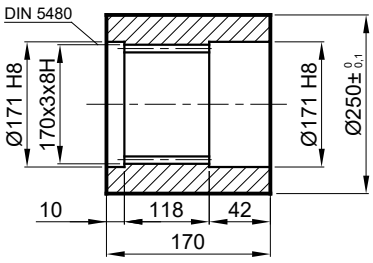


SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe

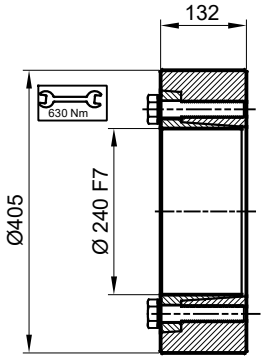


FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material Material
DIN 1.7225
42CrMo4



SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
190 kNm

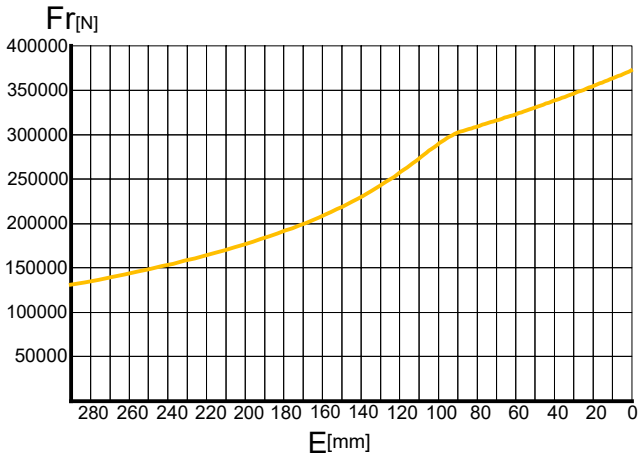
PD/PDA 127

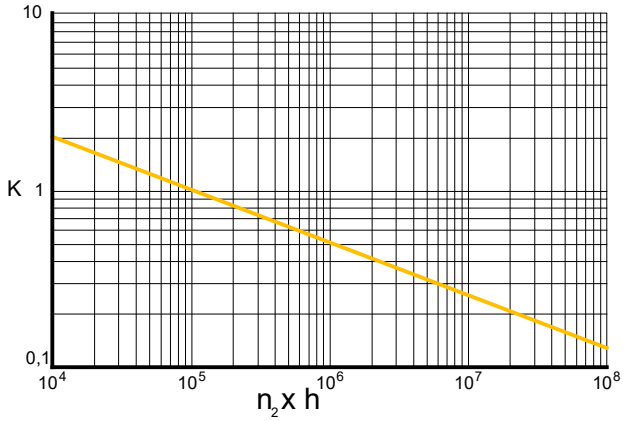
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

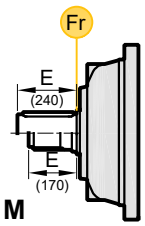
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

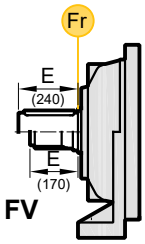
M-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



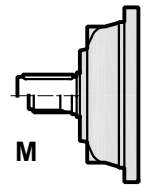


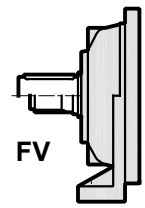
AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

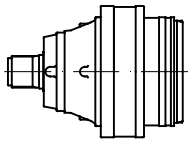
AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M	FV	
	40000	40000	←
	70000	70000	→

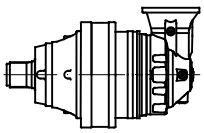




PD 129

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 129 S1	3.83	156600	140900	122700	115000	200	211350	75
	4.40	144800	130300	113400	110000	200	195450	75
PD 129 S2	15.1	156600	140900	122700	115000	1500	211350	60
	19.4	156600	140900	122700	115000	1500	211350	60
	22.3	144800	130300	113400	110000	1500	195450	60
	26.4	144800	130300	113400	110000	1500	195450	60
PD 129 S3	53.8	156600	140900	122700	115000	2000	211350	40
	64.9	156600	140900	122700	115000	2000	211350	40
	74.5	144800	130300	113400	110000	2000	195450	40
	84.8	156600	140900	122700	115000	2000	211350	40
	97.3	144800	130300	113400	110000	2000	195450	40
	113.1	144800	130300	113400	110000	2000	195450	40
	131.0	156600	140900	122700	115000	2000	211350	40
	150.4	144800	130300	113400	110000	2000	195450	40
PD 129 S4	203.4	156600	140900	122700	115000	2800	211350	30
	245.1	156600	140900	122700	115000	2800	211350	30
	267.6	156600	140900	122700	115000	2800	211350	30
	278.2	156600	140900	122700	115000	2800	211350	30
	314.1	156600	140900	122700	115000	2800	211350	30
	335.2	156600	140900	122700	115000	2800	211350	30
	360.6	144800	130300	113400	110000	2800	195450	30
	389.3	156600	140900	122700	115000	2800	211350	30
	410.6	156600	140900	122700	115000	2800	211350	30
	448.3	156600	140900	122700	115000	2800	211350	30
	470.4	156600	140900	122700	115000	2800	211350	30
	508.8	156600	140900	122700	115000	2800	211350	30
	584.0	144800	130300	113400	110000	2800	195450	30
	652.1	156600	140900	122700	115000	2800	211350	30
	786.0	156600	140900	122700	115000	2800	211350	30
	850.5	144800	130300	113400	110000	2800	195450	30
	1069.2	144800	130300	113400	110000	2800	195450	30
PD 129 S5	830.0	144800	130300	113400	110000	2800	195450	21
	871.5	156600	140900	122700	115000	2800	211350	21
	951.6	156600	140900	122700	115000	2800	211350	21
	1000.3	144800	130300	113400	110000	2800	195450	21
	1050.3	156600	140900	122700	115000	2800	211350	21
	1139.0	156600	140900	122700	115000	2800	211350	21
	1243.6	156600	140900	122700	115000	2800	211350	21
	1346.1	156600	140900	122700	115000	2800	211350	21
	1459.7	156600	140900	122700	115000	2800	211350	21
	1593.9	156600	140900	122700	115000	2800	211350	21
	1672.5	156600	140900	122700	115000	2800	211350	21
	1759.5	156600	140900	122700	115000	2800	211350	21
	1841.0	156600	140900	122700	115000	2800	211350	21
	1920.9	156600	140900	122700	115000	2800	211350	21
	2185.8	156600	140900	122700	115000	2800	211350	21
	2318.4	156600	140900	122700	115000	2800	211350	21
	2510.4	156600	140900	122700	115000	2800	211350	21
	2627.7	156600	140900	122700	115000	2800	211350	21
	2801.4	156600	140900	122700	115000	2800	211350	21
	3175.2	156600	140900	122700	115000	2800	211350	21
	3790.0	156600	140900	122700	115000	2800	211350	21
	4069.4	156600	140900	122700	115000	2800	211350	21
	5305.2	156600	140900	122700	115000	2800	211350	21

PDA 129



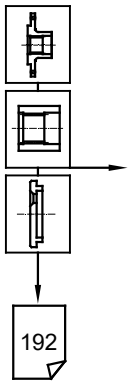
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 129 S4	149.7	156600	140900	122700	115000	2500	211350	28
	180.4	156600	140900	122700	115000	2500	211350	28
	207.0	144800	130300	113400	110000	2500	195450	28
	231.2	156600	140900	122700	115000	2500	211350	28
	278.0	156600	140900	122700	115000	2500	211350	28
	302.1	156600	140900	122700	115000	2500	211350	28
	356.3	156600	140900	122700	115000	2500	211350	28
	409.0	144800	130300	113400	110000	2500	195450	28
	465.7	156600	140900	122700	115000	2500	211350	28
	502.7	144800	130300	113400	110000	2500	195450	28
	561.3	156600	140900	122700	115000	2500	211350	28
	644.3	144800	130300	113400	110000	2500	195450	28
PDA 129 S5	722.5	156600	140900	122700	115000	2800	211350	20
	771.0	156600	140900	122700	115000	2800	211350	20
	804.5	156600	140900	122700	115000	2800	211350	20
	843.2	156600	140900	122700	115000	2800	211350	20
	896.7	156600	140900	122700	115000	2800	211350	20
	920.7	156600	140900	122700	115000	2800	211350	20
	988.2	156600	140900	122700	115000	2800	211350	20
	1080.7	156600	140900	122700	115000	2800	211350	20
	1170.2	156600	140900	122700	115000	2800	211350	20
	1226.4	156600	140900	122700	115000	2800	211350	20
	1317.2	144800	130300	113400	110000	2800	195450	20
	1386.6	156600	140900	122700	115000	2800	211350	20
	1424.2	156600	140900	122700	115000	2800	211350	20
	1556.6	156600	140900	122700	115000	2800	211350	20
	1618.2	156600	140900	122700	115000	2800	211350	20
	1690.7	144800	130300	113400	110000	2800	195450	20
	1720.9	156600	140900	122700	115000	2800	211350	20
	1812.2	156600	140900	122700	115000	2800	211350	20
	1931.5	156600	140900	122700	115000	2800	211350	20
	2184.3	156600	140900	122700	115000	2800	211350	20
	2243.1	156600	140900	122700	115000	2800	211350	20
	2328.2	156600	140900	122700	115000	2800	211350	20
	2465.2	144800	130300	113400	110000	2800	195450	20
	2574.6	144800	130300	113400	110000	2800	195450	20
	2627.6	144800	130300	113400	110000	2800	195450	20
	2710.4	156600	140900	122700	115000	2800	211350	20
	2925.8	144800	130300	113400	110000	2800	195450	20
	3111.0	144800	130300	113400	110000	2800	195450	20
	3266.9	156600	140900	122700	115000	2800	211350	20
	3678.1	144800	130300	113400	110000	2800	195450	20
	3749.9	144800	130300	113400	110000	2800	195450	20
	4444.3	144800	130300	113400	110000	2800	195450	20

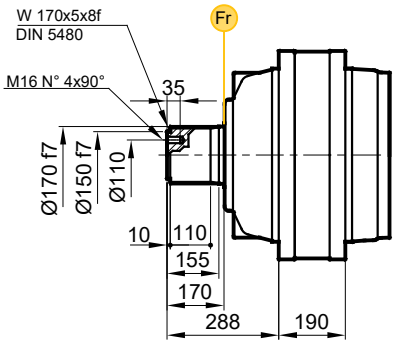
⚠ $(n_2 \times h = 20000)$

$T_{2max} = T_2 \times 1,5$

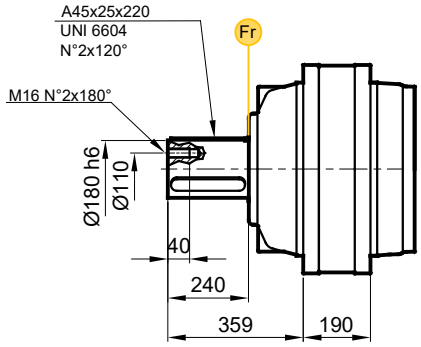
PD/PDA 129

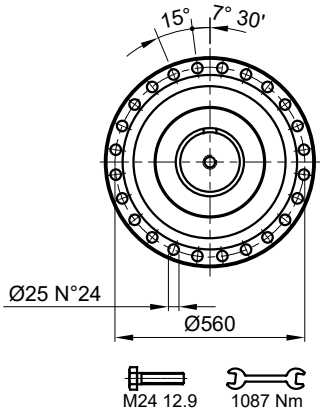
MS



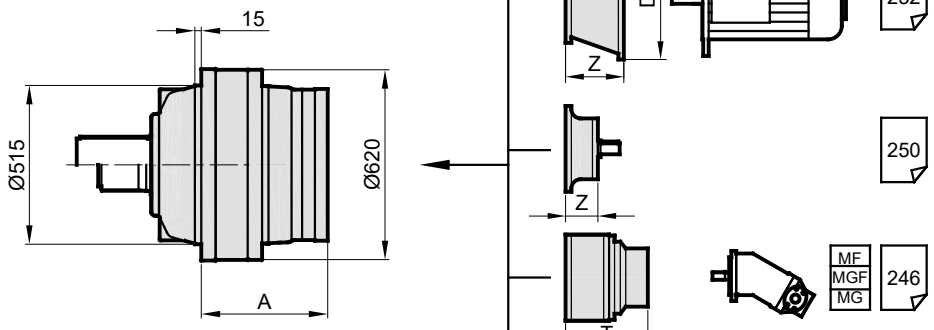


MC

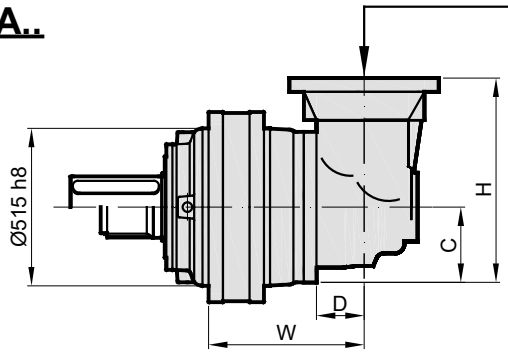


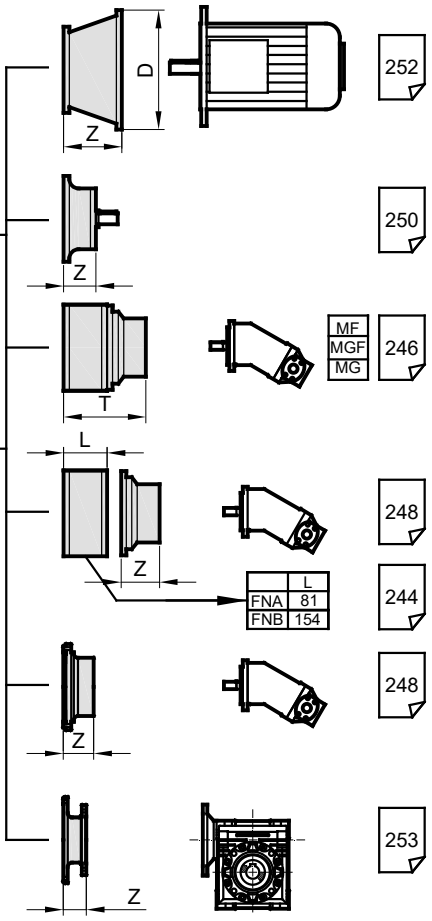


PD..



PDA..



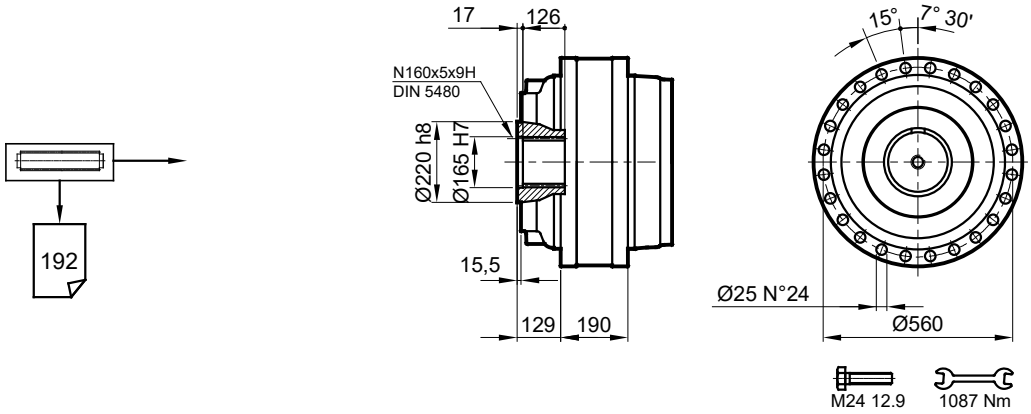


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	317	537	-
S2	-	-	-	-	545	736	-
S3	-	-	-	-	652	786	-
S4	692,5	121	172,5	457	724	803	848
S5	724	103	122	319	785	811	832

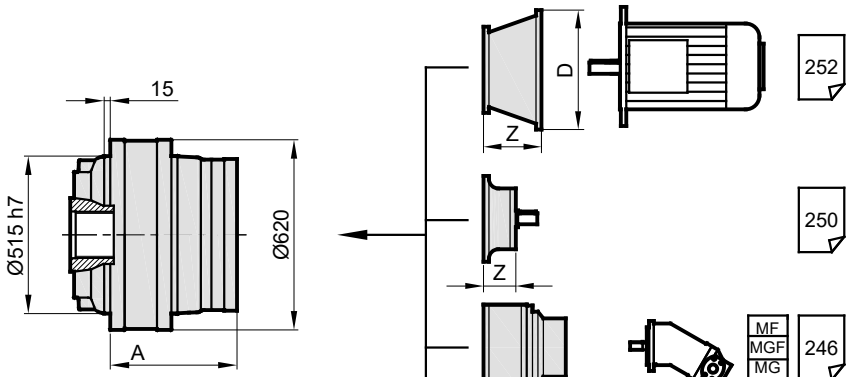
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 129

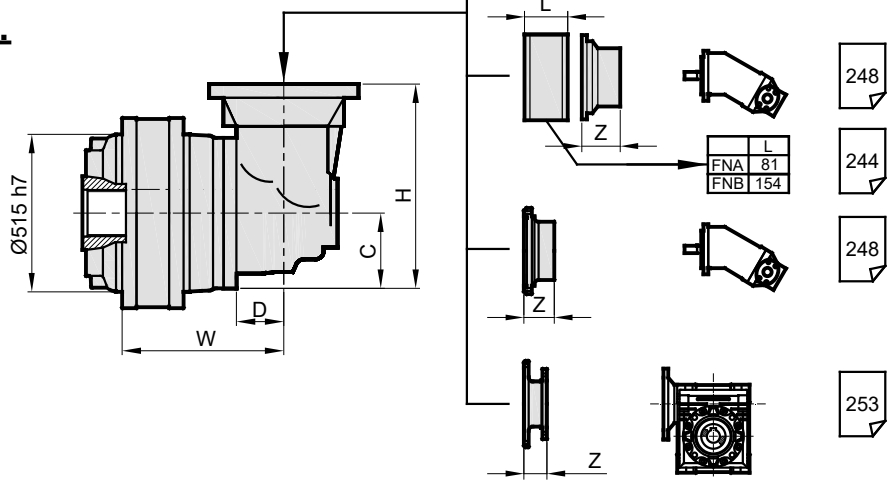
S



PD..



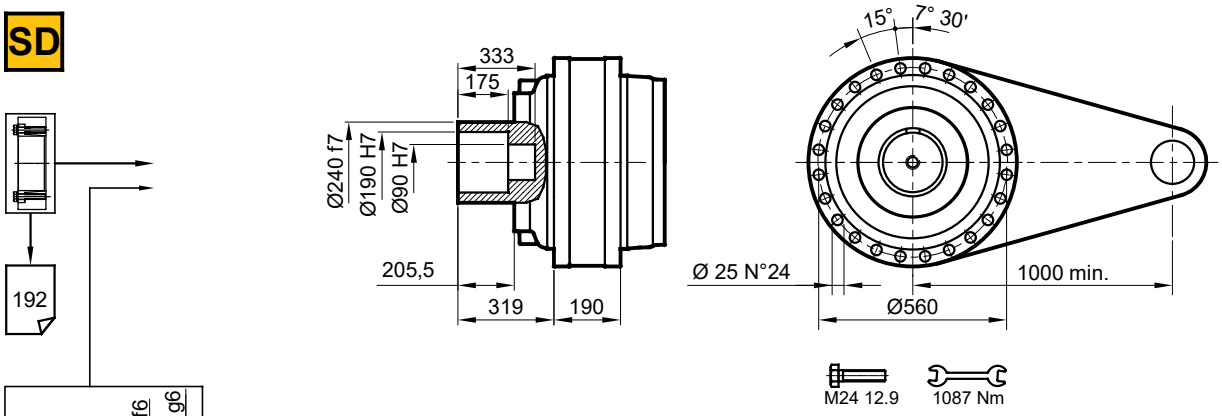
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	317	463	-
S2	-	-	-	-	545	662	-
S3	-	-	-	-	652	712	-
S4	692,5	121	172,5	457	724	729	775
S5	724	103	122	319	785	759	759

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 129

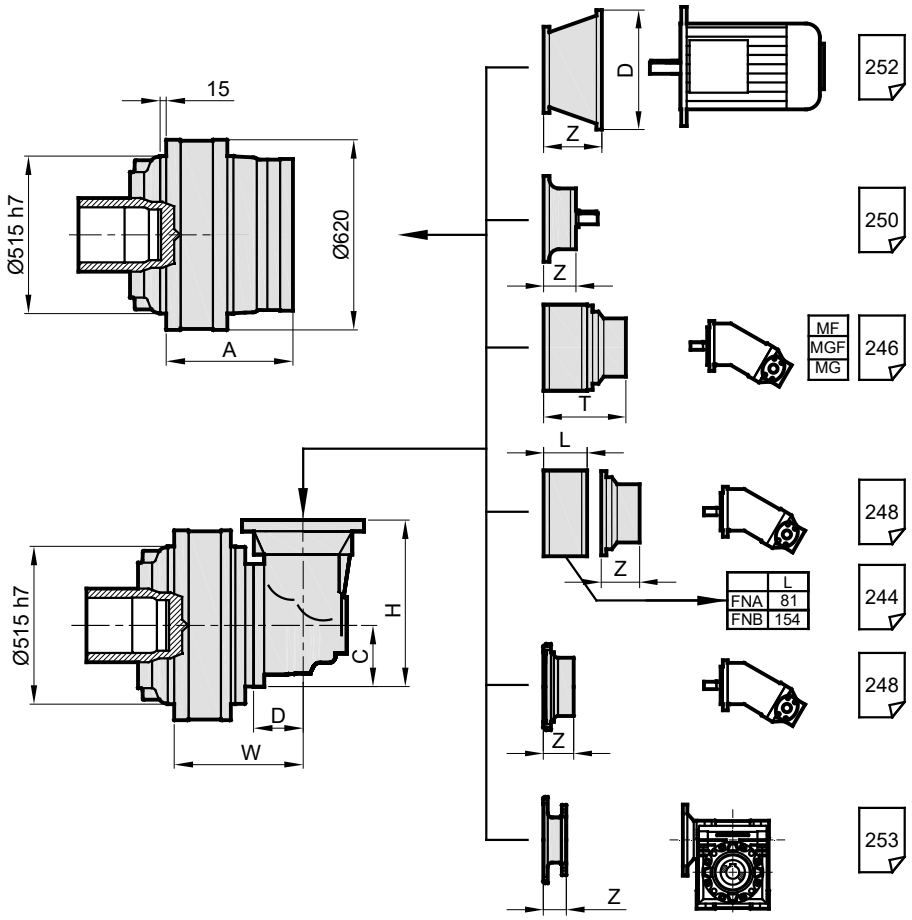


M_{max} = 190 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..

PDA..

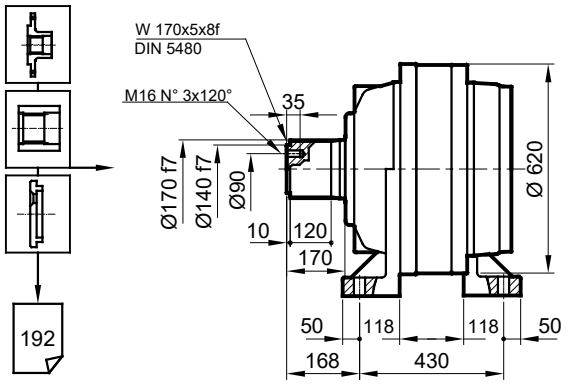


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	317	509	-
S2	-	-	-	-	545	708	-
S3	-	-	-	-	652	759	-
S4	692,5	121	172,5	457	724	775	821
S5	724	103	122	319	785	784	805

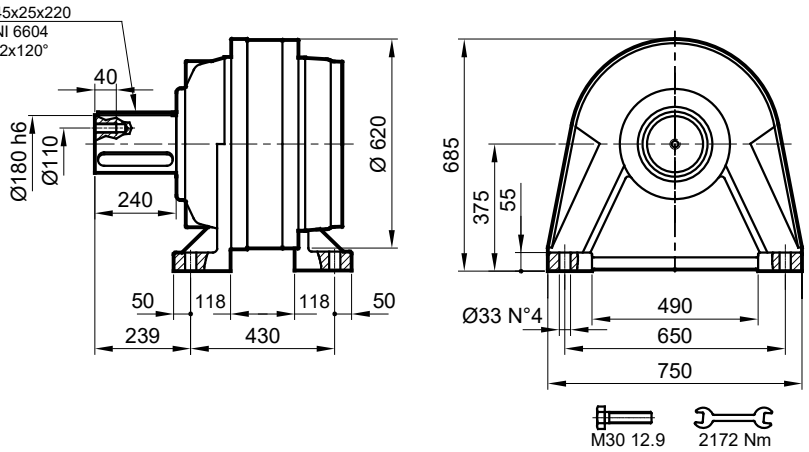
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 129

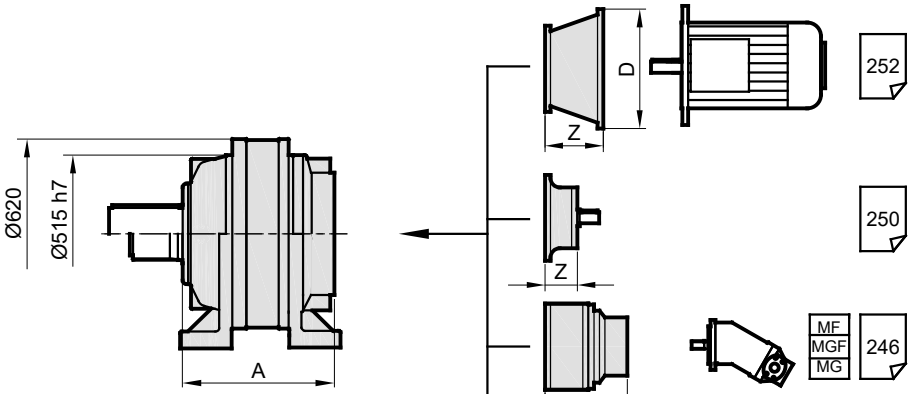
FVS



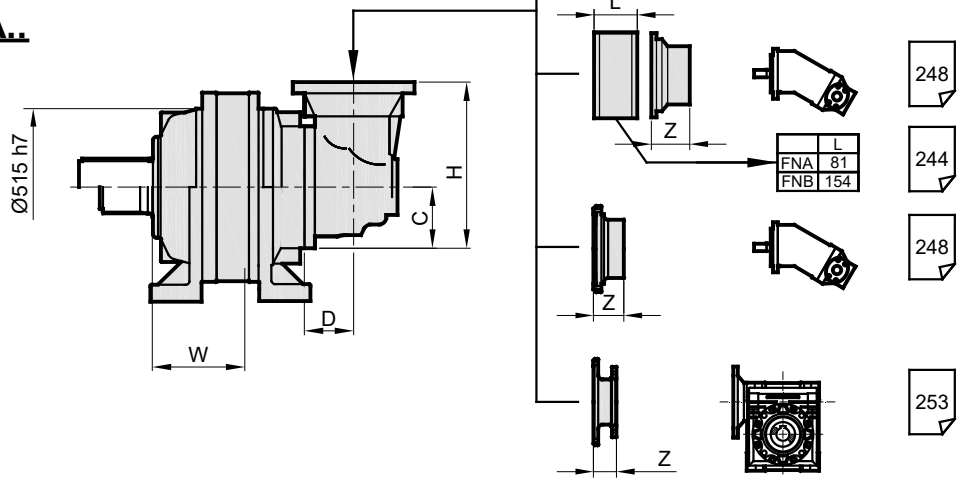
FVC



PD..



PDA..

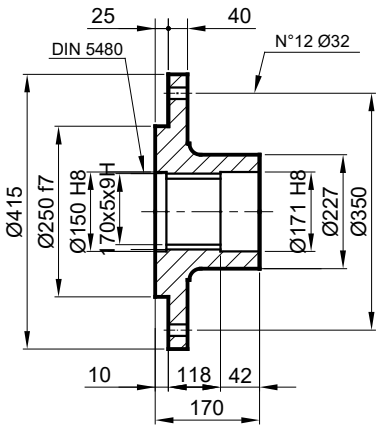


Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	436	670	-
S2	-	-	-	-	664	869	-
S3	-	-	-	-	771	912	-
S4	811,5	121	172,5	457	843	990	982
S5	843	103	122	319	904	945	966

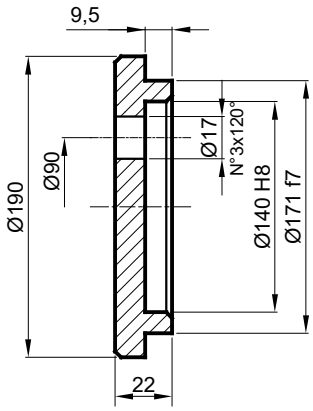
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 129

FL Flanş / *Flange* / Flansch

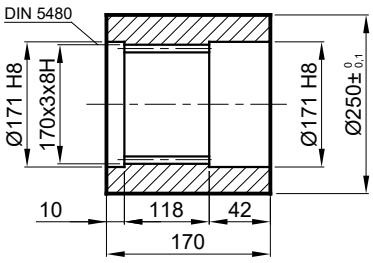


SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe

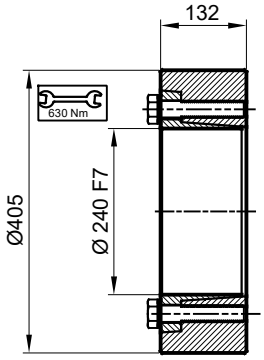


FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material Material
DIN 1.7225
42CrMo4



SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
190 kNm

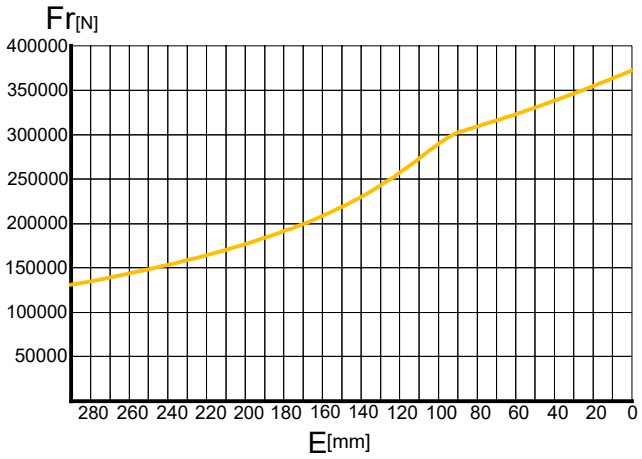
PD/PDA 129

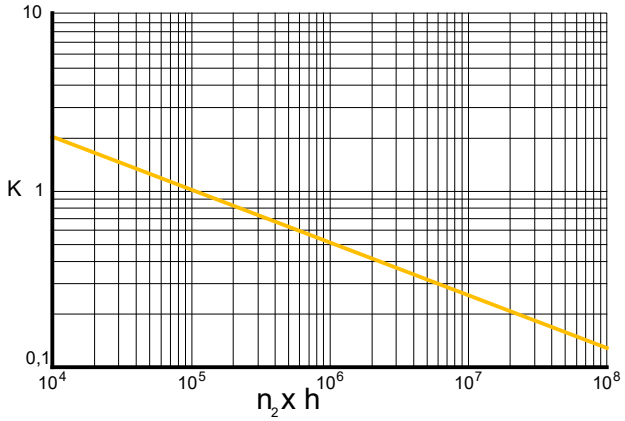
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

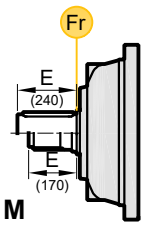
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

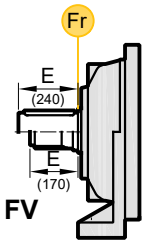
M-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



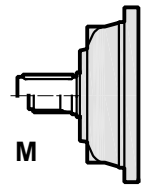


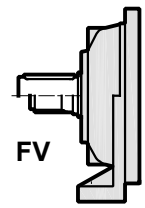
AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

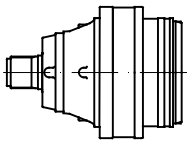
AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M	FV	
	40000	40000	←
	70000	70000	→

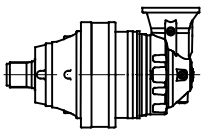




PD 131

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 131 S1	3.91	204000	184000	160000	153000	200	276000	83
	4.94	159000	143000	125000	125000	200	214500	83
PD 131 S2	15.47	204000	184000	160000	153000	1200	276000	67
	19.81	204000	184000	160000	153000	1200	276000	67
	25.01	159000	143000	125000	125000	1200	214500	67
PD 131 S3	29.65	159000	143000	125000	125000	2000	214500	47
	55.02	204000	184000	160000	153000	2000	276000	47
	66.32	204000	184000	160000	153000	2000	276000	47
	74.79	204000	184000	160000	153000	2000	276000	47
	86.66	204000	184000	160000	153000	2000	276000	47
	95.75	204000	184000	160000	153000	2000	276000	47
	107.21	159000	143000	125000	125000	2000	214500	47
	120.91	159000	143000	125000	125000	2000	214500	47
	133.71	204000	184000	160000	153000	2000	276000	47
	166.02	159000	143000	125000	125000	2000	214500	47
	200.12	159000	143000	125000	125000	2000	214500	47
PD 131 S4	250.53	204000	184000	160000	153000	2800	276000	37
	327.36	204000	184000	160000	153000	2800	276000	37
	386.42	204000	184000	160000	153000	2800	276000	37
	438.64	204000	184000	160000	153000	2800	276000	37
	487.96	159000	143000	125000	125000	2800	214500	37
	519.93	204000	184000	160000	153000	2800	276000	37
	574.48	204000	184000	160000	153000	2800	276000	37
	624.68	159000	143000	125000	125000	2800	214500	37
	684.72	159000	143000	125000	125000	2800	214500	37
	725.43	159000	143000	125000	125000	2800	214500	37
	793.33	159000	143000	125000	125000	2800	214500	37
	840.50	159000	143000	125000	125000	2800	214500	37
	969.43	204000	184000	160000	153000	2800	276000	37
	1038.88	159000	143000	125000	125000	2800	214500	37
	1203.68	159000	143000	125000	125000	2800	214500	37
	1450.86	159000	143000	125000	125000	2800	214500	37
PD 131 S5	1531.94	204000	184000	160000	153000	2800	276000	27
	1604.90	159000	143000	125000	125000	2800	214500	27
	1727.69	204000	184000	160000	153000	2800	276000	27
	1811.16	204000	184000	160000	153000	2800	276000	27
	1907.19	204000	184000	160000	153000	2800	276000	27
	2001.73	204000	184000	160000	153000	2800	276000	27
	2091.27	159000	143000	125000	125000	2800	214500	27
	2181.66	159000	143000	125000	125000	2800	214500	27
	2363.88	204000	184000	160000	153000	2800	276000	27
	2476.47	159000	143000	125000	125000	2800	214500	27
	2608.36	204000	184000	160000	153000	2800	276000	27
	2792.91	159000	143000	125000	125000	2800	214500	27
	2960.82	204000	184000	160000	153000	2800	276000	27
	3900.44	159000	143000	125000	125000	2800	214500	27
	5145.91	159000	143000	125000	125000	2800	214500	27
	5888.65	159000	143000	125000	125000	2800	214500	27
	6979.14	159000	143000	125000	125000	2800	214500	27
	8124.82	159000	143000	125000	125000	2800	214500	27
	9793.30	159000	143000	125000	125000	2800	214500	27

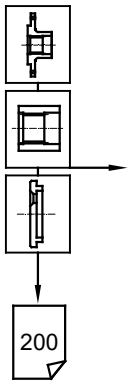
PDA 131

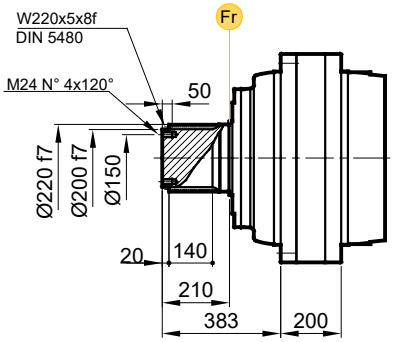
	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PDA 131 S3	60.02	159000	143000	125000	125000	2500	214500	45
	72.11	204000	184000	160000	153000	2500	276750	45
	76.83	159000	143000	125000	125000	2500	214500	45
	91.06	159000	143000	125000	125000	2500	214500	45
	116.74	159000	143000	125000	125000	2500	214500	45
	138.35	159000	143000	125000	125000	2500	214500	45
PDA 131 S4	256.76	204000	184000	160000	153000	2500	276750	35
	328.69	204000	184000	160000	153000	2500	276750	35
	390.80	159000	143000	125000	125000	2500	214500	35
	440.74	159000	143000	125000	125000	2500	214500	35
	500.30	159000	143000	125000	125000	2500	214500	35
	564.22	159000	143000	125000	125000	2500	214500	35
	653.72	159000	143000	125000	125000	2500	214500	35
	787.97	159000	143000	125000	125000	2500	214500	35
	933.89	159000	143000	125000	125000	2500	214500	35
PDA 131 S5	1183.67	204000	184000	160000	153000	2800	276750	25
	1334.92	204000	184000	160000	153000	2800	276750	25
	1440.05	159000	143000	125000	125000	2800	214500	25
	1550.23	204000	184000	160000	153000	2800	276750	25
	1685.69	159000	143000	125000	125000	2800	214500	25
	1759.71	204000	184000	160000	153000	2800	276750	25
	1880.74	159000	143000	125000	125000	2800	214500	25
	1996.18	159000	143000	125000	125000	2800	214500	25
	2205.01	159000	143000	125000	125000	2800	214500	25
	2407.67	159000	143000	125000	125000	2800	214500	25
	2656.68	159000	143000	125000	125000	2800	214500	25
	3085.18	159000	143000	125000	125000	2800	214500	25
	3949.56	159000	143000	125000	125000	2800	214500	25
	4576.05	159000	143000	125000	125000	2800	214500	25
	5423.46	159000	143000	125000	125000	2800	214500	25
	6537.21	159000	143000	125000	125000	2800	214500	25
	7899.13	159000	143000	125000	125000	2800	214500	25

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 1,5}$

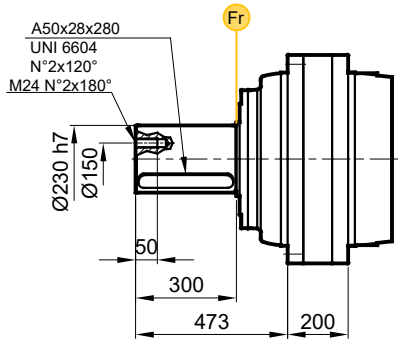
PD/PDA 131

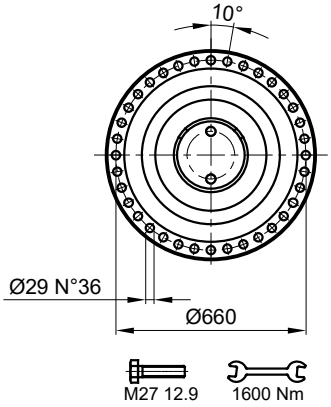
MS



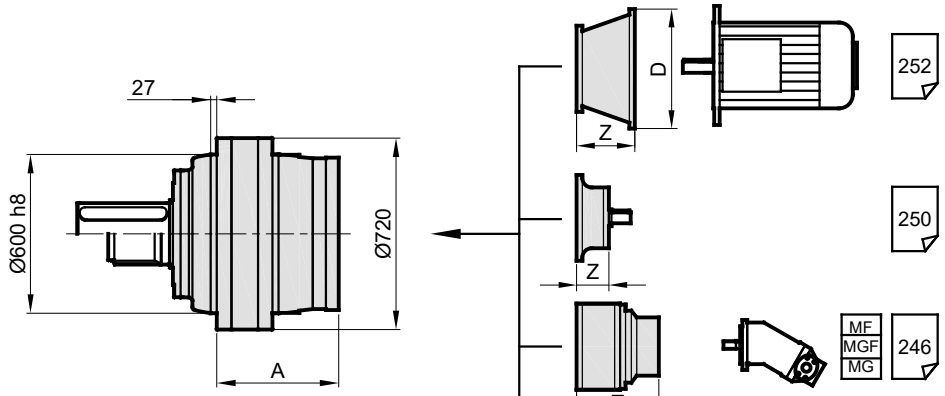


MC

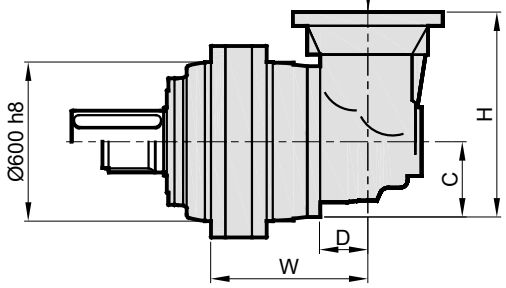


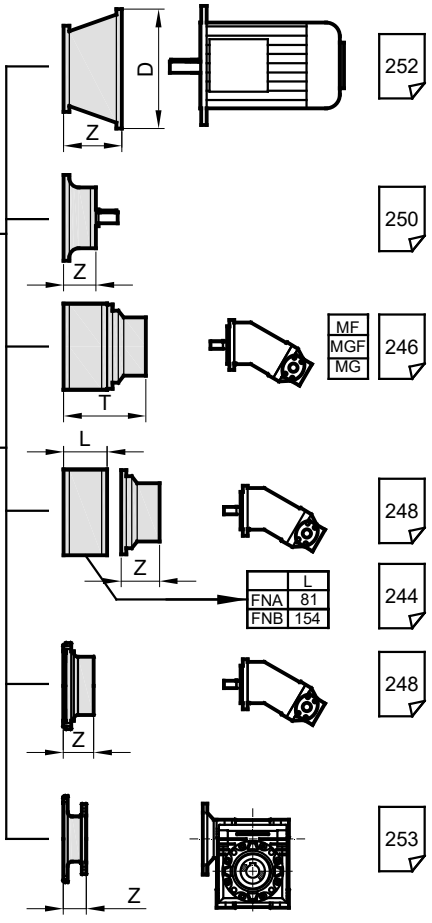


PD..



PDA..



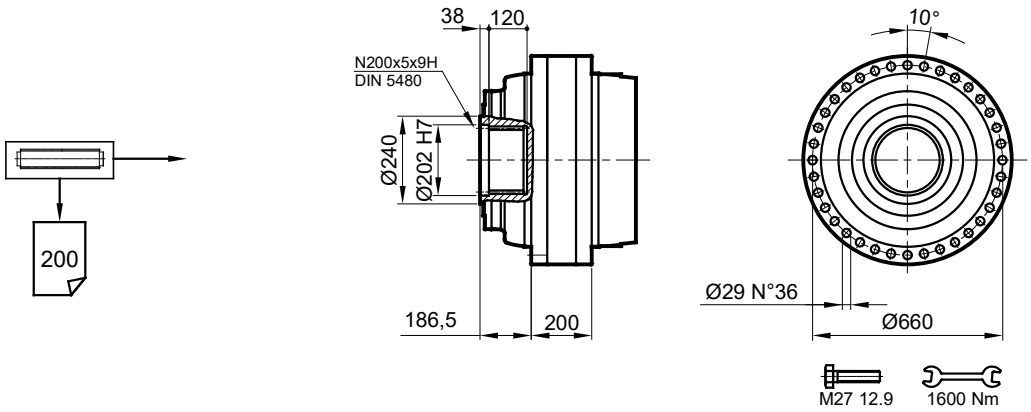


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	336	763	-
S2	-	-	-	-	564	962	-
S3	-	-	-	-	671	1012	-
S4	743	121	172,5	457	743	1029	1071
S5	808	103	122	319	804	1038	1054

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

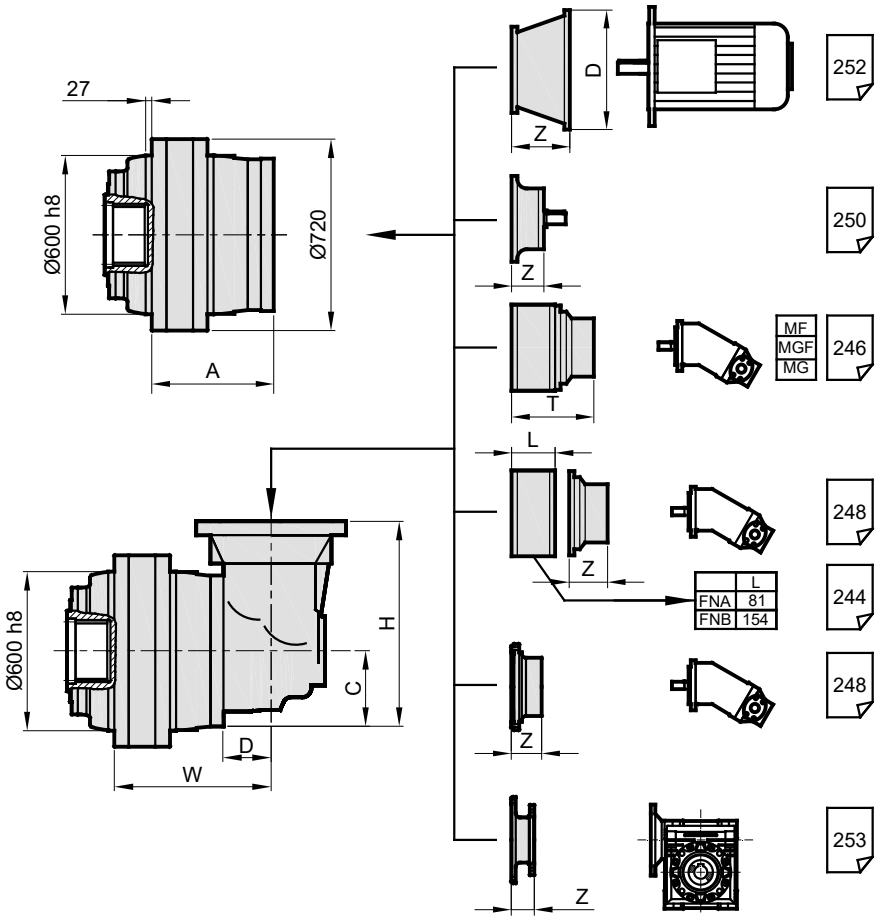
PD/PDA 131

S



PD..

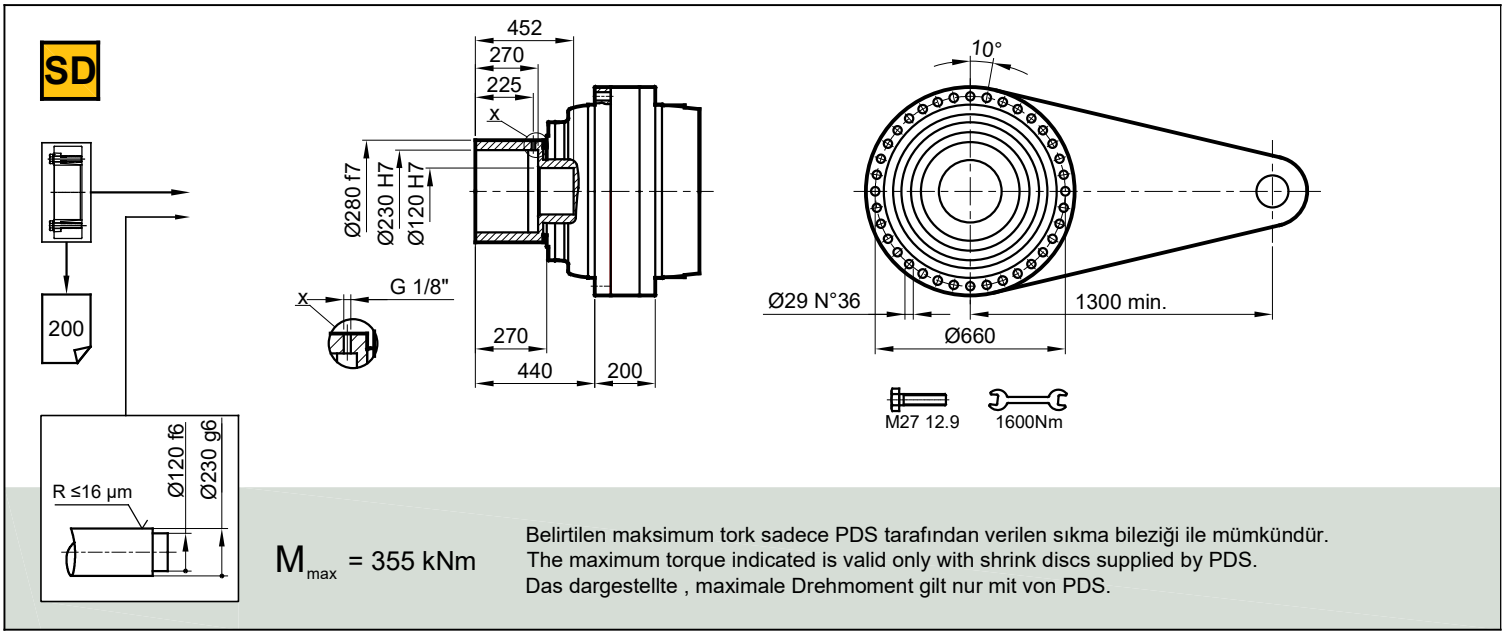
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	336	626	-
S2	-	-	-	-	564	825	-
S3	-	-	-	-	671	875	-
S4	743	121	172,5	457	743	892	934
S5	808	103	122	319	804	901	917

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

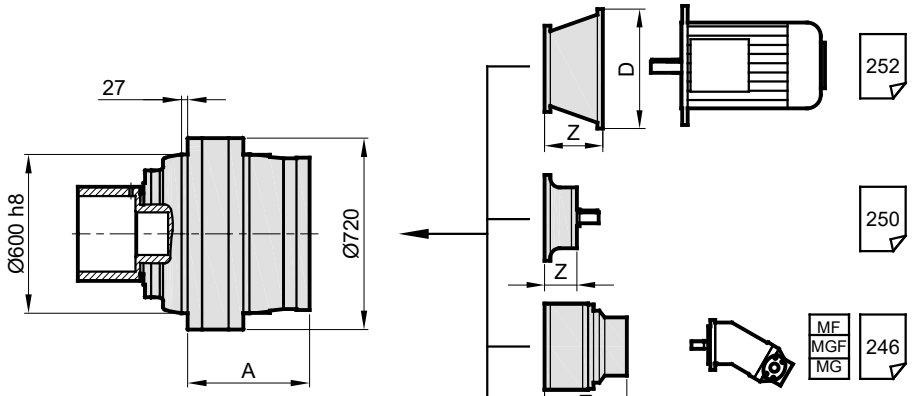
PD/PDA 131



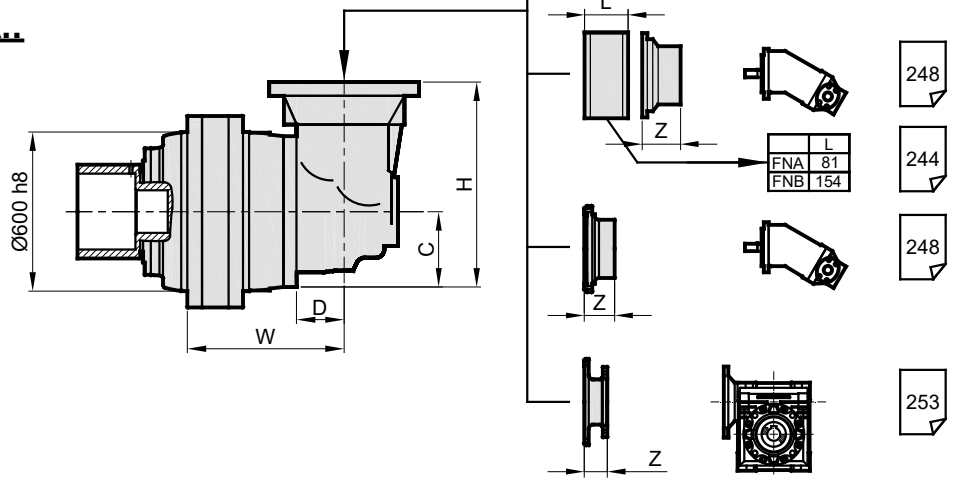
M_{max} = 355 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



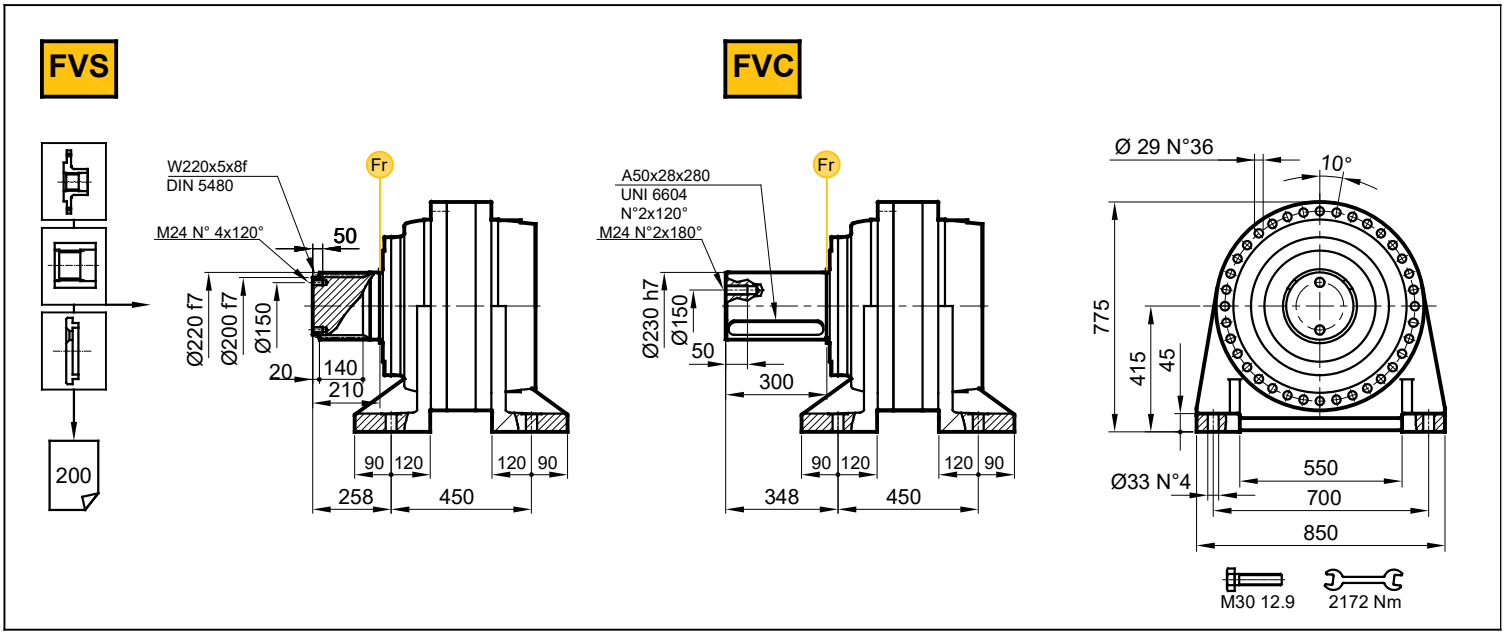
PDA..

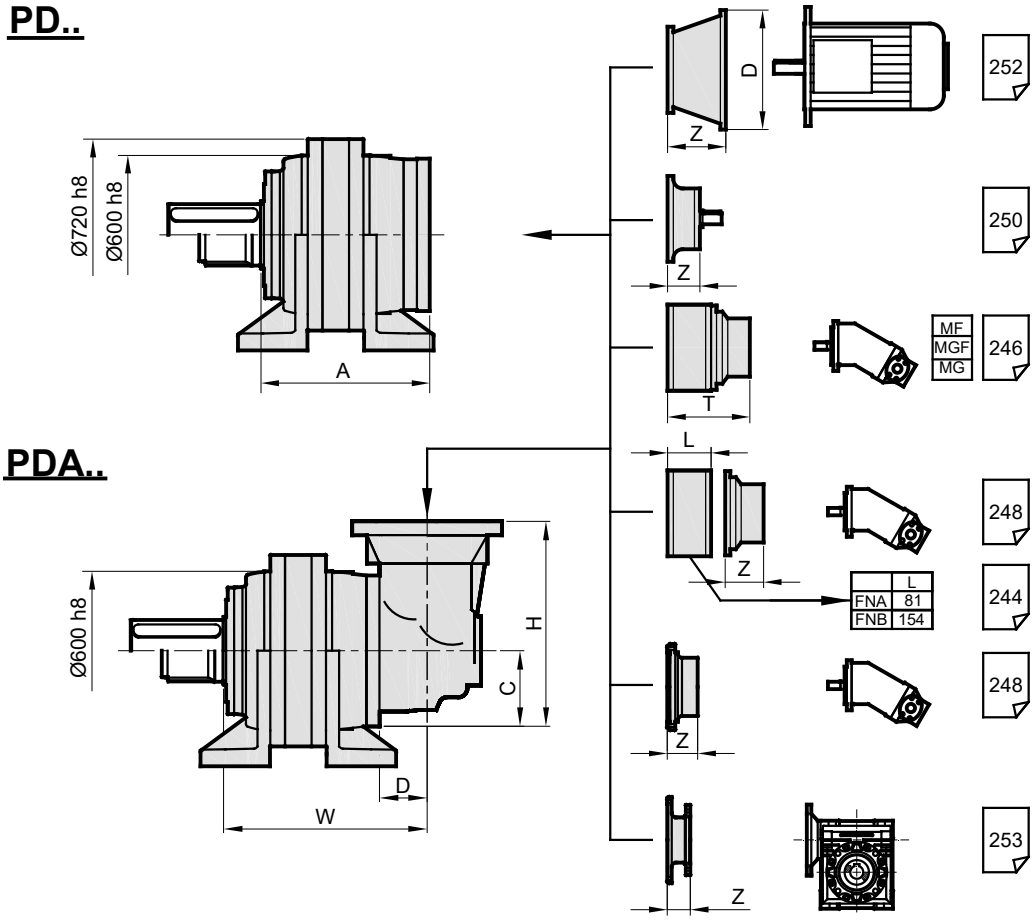


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	336	695	-
S2	-	-	-	-	564	894	-
S3	-	-	-	-	671	944	-
S4	743	121	172,5	457	743	961	1003
S5	808	103	122	319	804	970	986

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 131



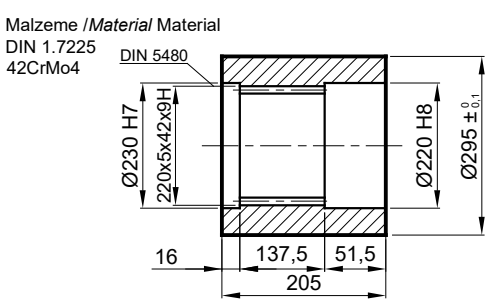


Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	474	902	-
S2	-	-	-	-	702	1100	-
S3	-	-	-	-	809	1151	-
S4	881	121	172,5	457	881	1168	1210
S5	946	103	122	319	942	1177	1193

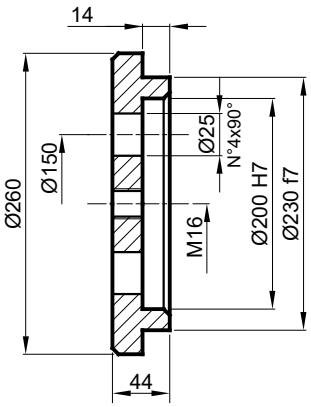
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 131

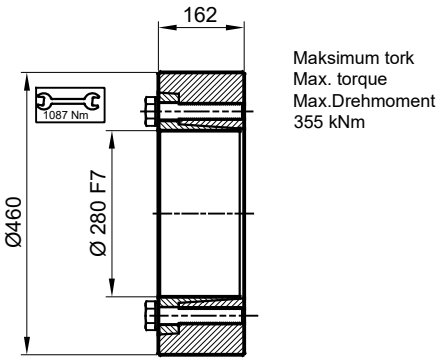
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse



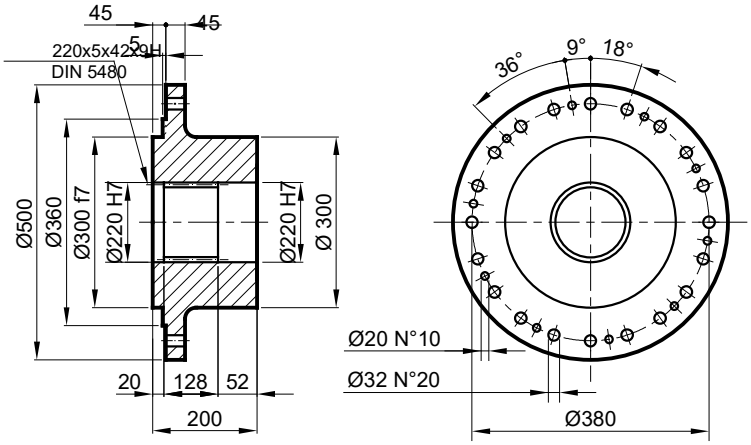
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



FL Flanş / *Flange* / Flansch



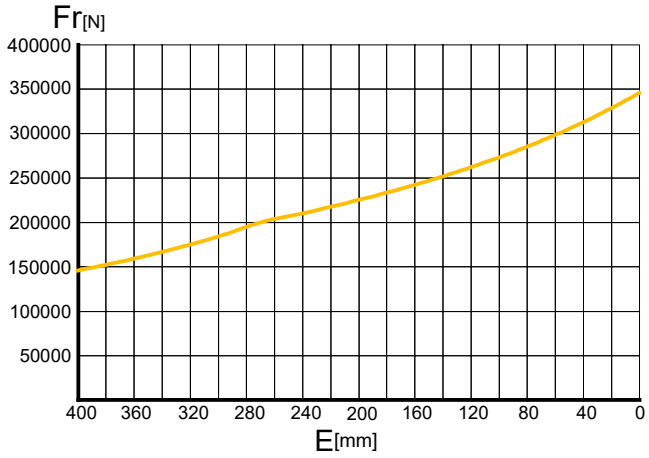
PD/PDA 131

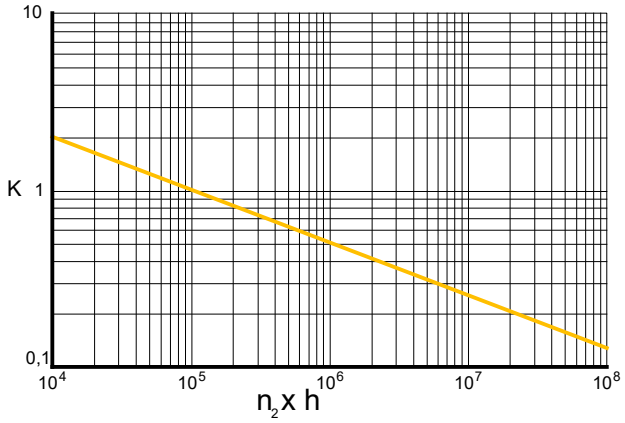
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

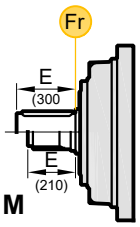
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

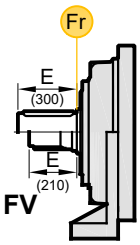
M-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



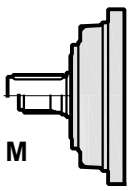


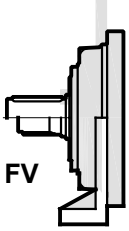
AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

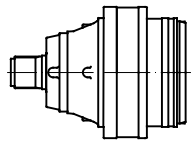
AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M	FV	
	45000	45000	←
	75000	75000	→

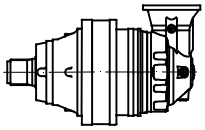




PD 133

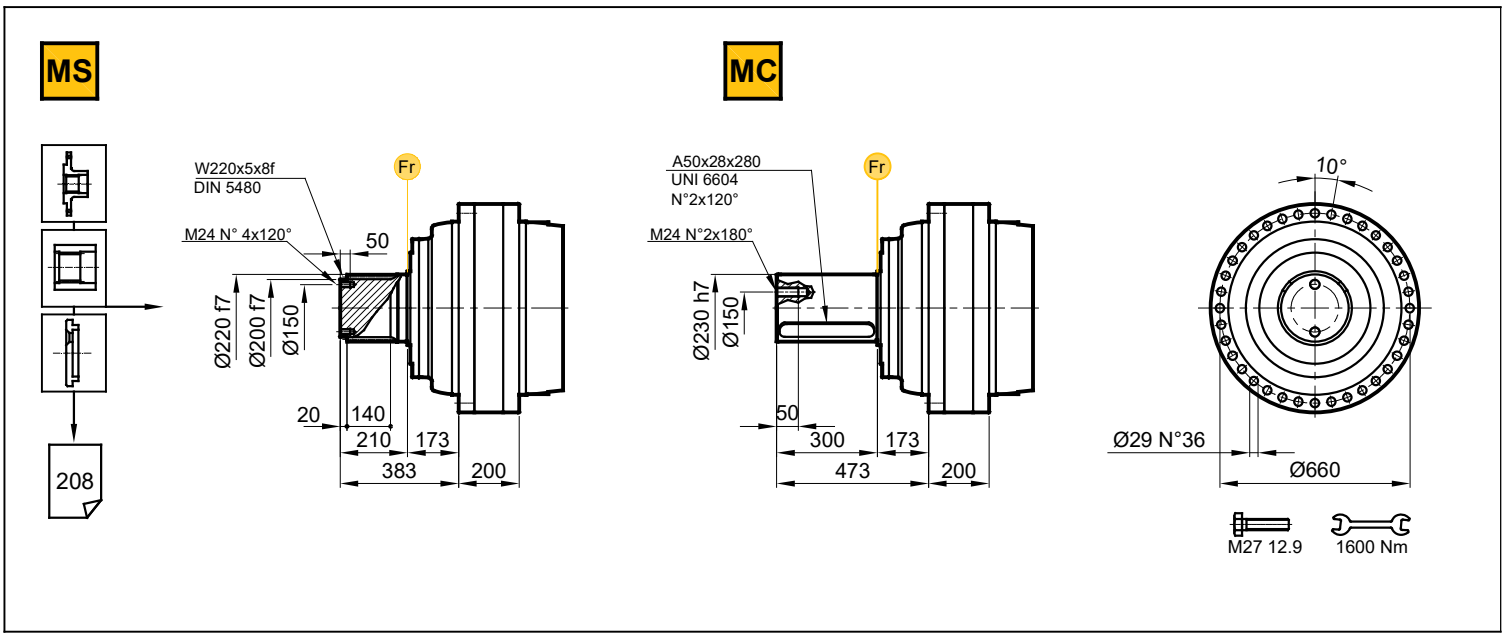
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 133 S1	3.68	238000	215000	190000	170000	200	322500	83
	4.94	188000	169000	154000	140000	200	253500	83
PD 133 S2	14.5	238000	215000	190000	170000	1200	322500	67
	19.5	188000	169000	154000	140000	1200	253500	67
	25.0	188000	169000	154000	140000	1200	253500	67
	29.6	188000	169000	154000	140000	1200	253500	67
PD 133 S3	51.7	238000	215000	190000	170000	2000	322500	47
	62.3	238000	215000	190000	170000	2000	322500	47
	69.4	188000	169000	154000	140000	2000	253500	47
	88.9	188000	169000	154000	140000	2000	253500	47
	107.2	188000	169000	154000	140000	2000	253500	47
	127.0	188000	169000	154000	140000	2000	253500	47
	140.1	188000	169000	154000	140000	2000	253500	47
	168.8	188000	169000	154000	140000	2000	253500	47
	200.1	188000	169000	154000	140000	2000	253500	47
PD 133 S4	256.9	238000	215000	190000	170000	2800	322500	37
	321.8	238000	215000	190000	170000	2800	322500	37
	366.8	188000	169000	154000	140000	2800	253500	37
	404.8	188000	169000	154000	140000	2800	253500	37
	497.6	188000	169000	154000	140000	2800	253500	37
	533.5	188000	169000	154000	140000	2800	253500	37
	577.7	188000	169000	154000	140000	2800	253500	37
	627.1	188000	169000	154000	140000	2800	253500	37
	684.7	188000	169000	154000	140000	2800	253500	37
	723.6	188000	169000	154000	140000	2800	253500	37
	792.2	188000	169000	154000	140000	2800	253500	37
	840.3	188000	169000	154000	140000	2800	253500	37
	920.8	188000	169000	154000	140000	2800	253500	37
	1012.9	188000	169000	154000	140000	2800	253500	37
	1200.4	188000	169000	154000	140000	2800	253500	37
	1450.5	188000	169000	154000	140000	2800	322500	37
PD 133 S5	1588.3	238000	215000	190000	170000	2800	322500	27
	1633.5	188000	169000	154000	140000	2800	253500	27
	1734.3	238000	215000	190000	170000	2800	322500	27
	1802.2	238000	215000	190000	170000	2800	322500	27
	1862.8	188000	169000	154000	140000	2800	253500	27
	1936.0	188000	169000	154000	140000	2800	253500	27
	2007.4	188000	169000	154000	140000	2800	253500	27
	2056.0	188000	169000	154000	140000	2800	253500	27
	2172.3	238000	215000	190000	170000	2800	322500	27
	2267.1	188000	169000	154000	140000	2800	253500	27
	2311.7	188000	169000	154000	140000	2800	253500	27
	2372.5	188000	169000	154000	140000	2800	253500	27
	2419.6	188000	169000	154000	140000	2800	253500	27
	2475.9	188000	169000	154000	140000	2800	253500	27
	2572.7	188000	169000	154000	140000	2800	253500	27
	2687.4	188000	169000	154000	140000	2800	253500	27
	3161.6	188000	169000	154000	140000	2800	253500	27
	4232.6	188000	169000	154000	140000	2800	253500	27
	6215.4	188000	169000	154000	140000	2800	253500	27
	8261.1	188000	169000	154000	140000	2800	253500	27
	9790.9	188000	169000	154000	140000	2800	253500	27

PDA 133

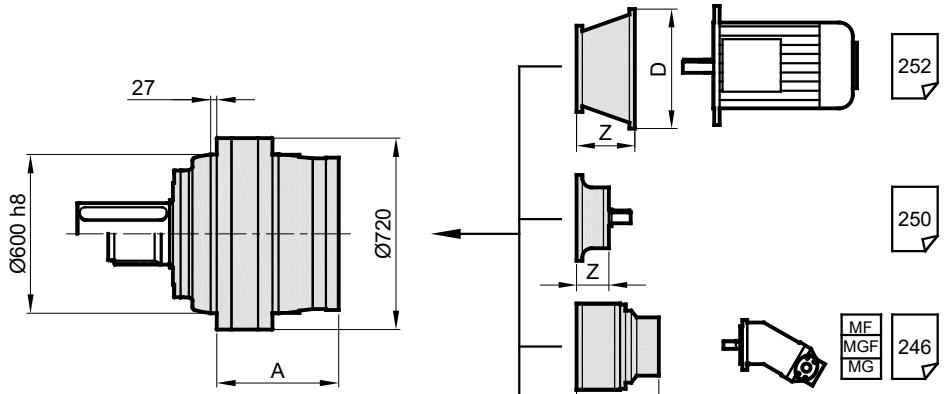
	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PDA 133 S4	173.2	238000	215000	190000	170000	2500	322500	35
	247.2	188000	169000	154000	140000	2500	253500	35
	297.3	238000	215000	190000	170000	2500	322500	35
	358.3	238000	215000	190000	170000	2500	322500	35
	381.0	238000	215000	190000	170000	2500	322500	35
	468.2	188000	169000	154000	140000	2500	253500	35
	564.4	188000	169000	154000	140000	2500	253500	35
	600.1	188000	169000	154000	140000	2500	253500	35
	723.4	188000	169000	154000	140000	2500	253500	35
	857.3	188000	169000	154000	140000	2500	253500	35
PDA 133 S5	931.1	188000	169000	154000	140000	2800	253500	25
	999.9	188000	169000	154000	140000	2800	253500	25
	1103.6	188000	169000	154000	140000	2800	253500	25
	1233.1	188000	169000	154000	140000	2800	253500	25
	1369.6	188000	169000	154000	140000	2800	253500	25
	1495.4	188000	169000	154000	140000	2800	253500	25
	1580.4	188000	169000	154000	140000	2800	253500	25
	1650.5	188000	169000	154000	140000	2800	253500	25
	1786.9	188000	169000	154000	140000	2800	253500	25
	1869.0	188000	169000	154000	140000	2800	253500	25
	1987.3	188000	169000	154000	140000	2800	253500	25
	2085.3	188000	169000	154000	140000	2800	253500	25
	2175.2	188000	169000	154000	140000	2800	253500	25
	2255.4	188000	169000	154000	140000	2800	253500	25
	2395.4	188000	169000	154000	140000	2800	253500	25
	2489.1	188000	169000	154000	140000	2800	253500	25
	2672.6	188000	169000	154000	140000	2800	253500	25
	2761.0	188000	169000	154000	140000	2800	253500	25
	2839.0	188000	169000	154000	140000	2800	253500	25
	2950.1	188000	169000	154000	140000	2800	253500	25
	3484.2	188000	169000	154000	140000	2800	253500	25
	4210.1	188000	169000	154000	140000	2800	253500	25
	4989.8	188000	169000	154000	140000	2800	253500	25

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 1,5}$

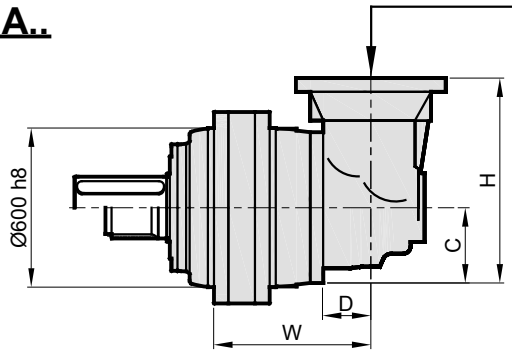
PD/PDA 133

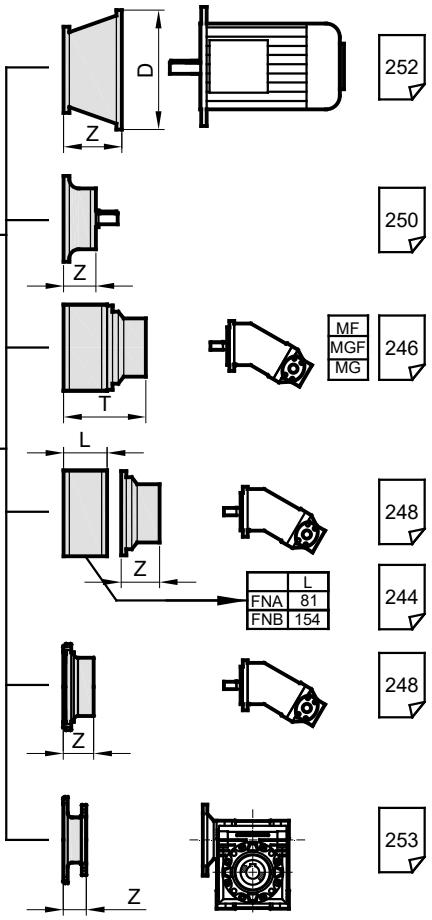


PD..



PDA..



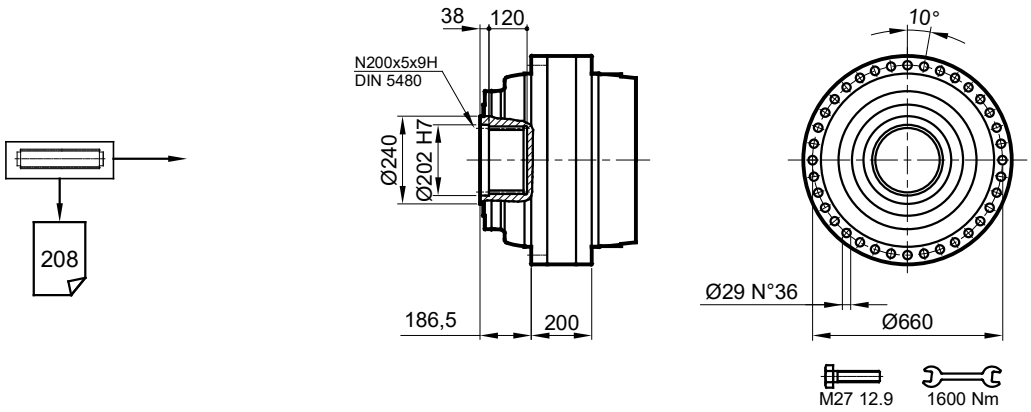


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	336	830	-
S2	-	-	-	-	564	1029	-
S3	-	-	-	-	671	1079	-
S4	743	121	172,5	457	743	1096	1138
S5	808	103	122	319	804	1105	1121

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

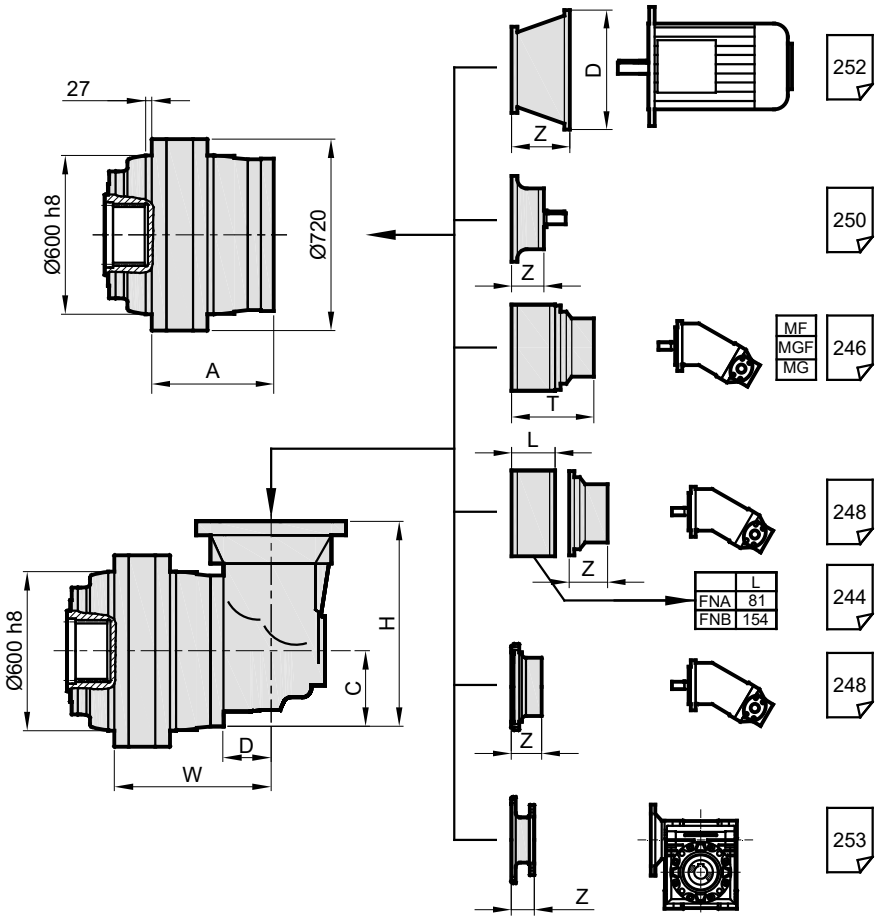
PD/PDA 133

S



PD..

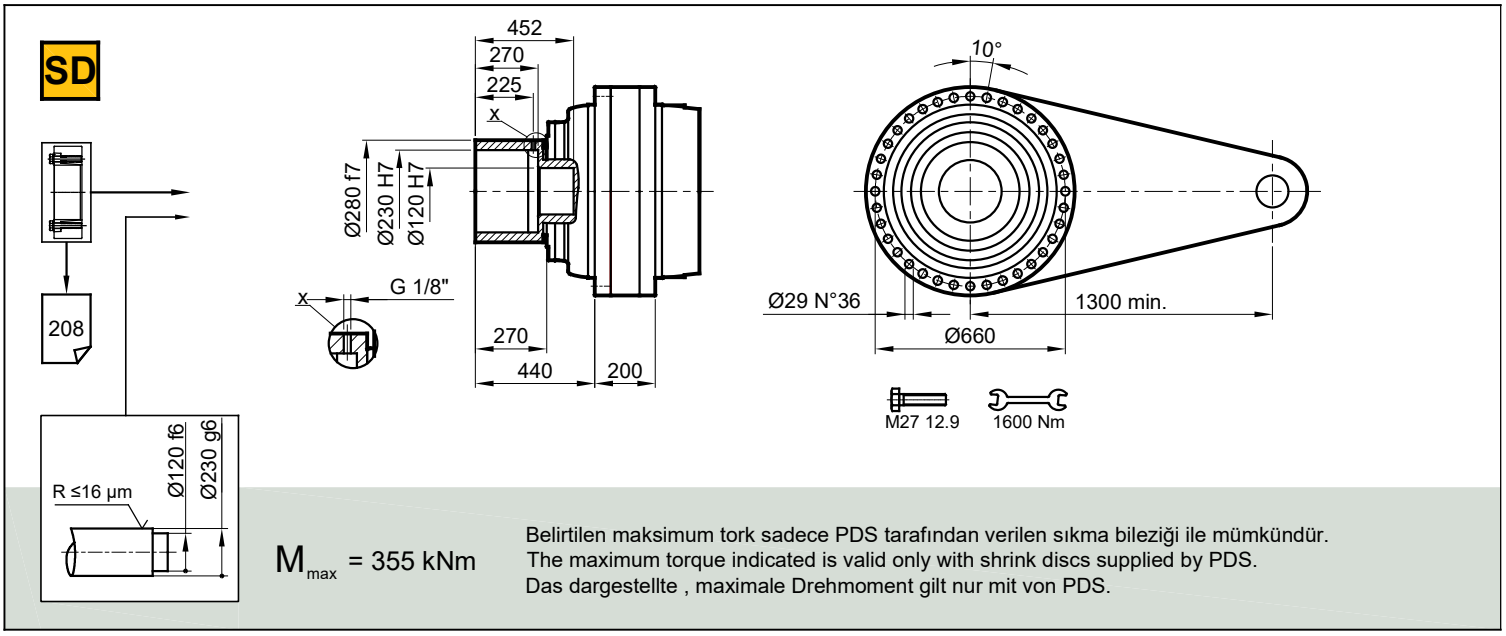
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	336	693	-
S2	-	-	-	-	564	892	-
S3	-	-	-	-	671	942	-
S4	743	121	172,5	457	743	959	1001
S5	808	103	122	319	804	968	984

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

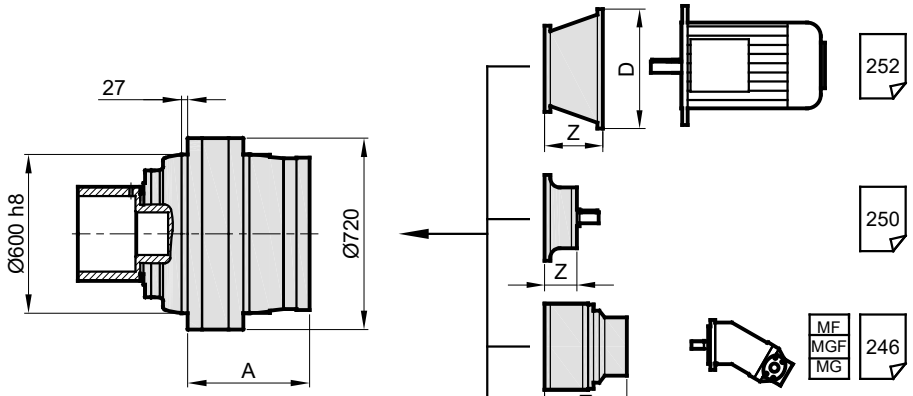
PD/PDA 133



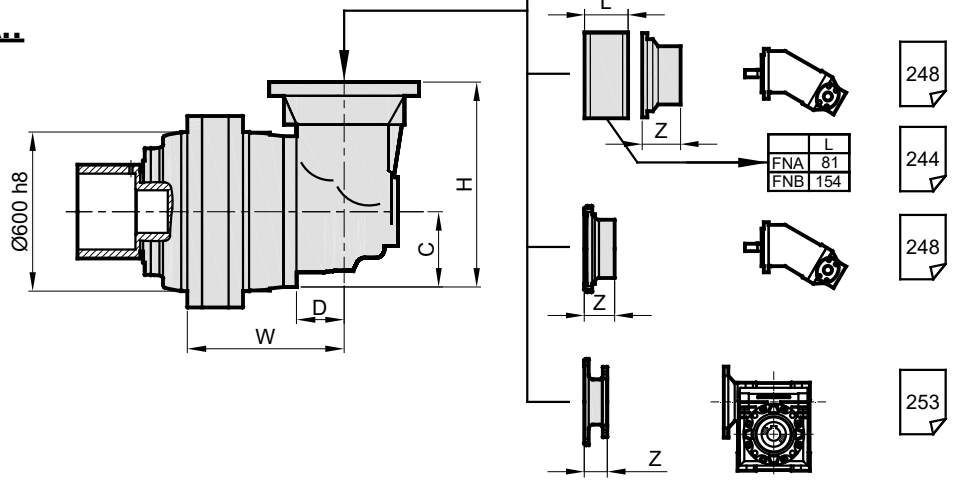
M_{max} = 355 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



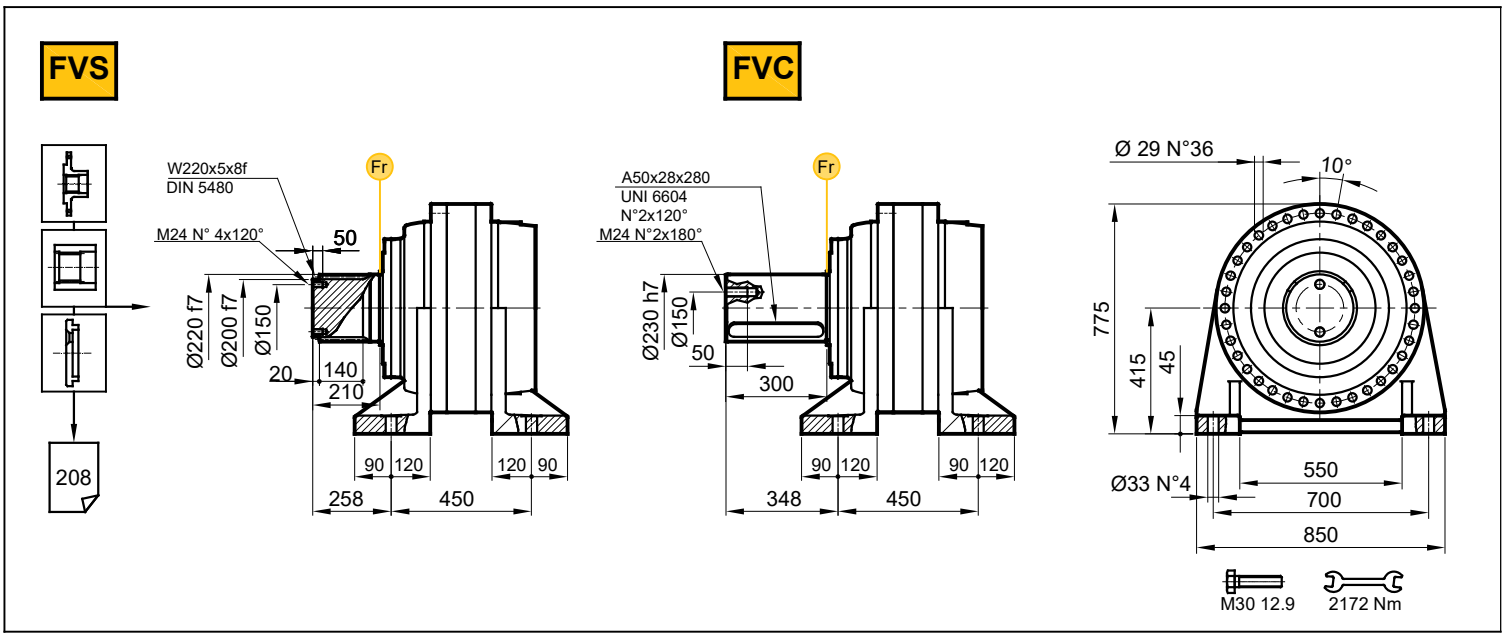
PDA..

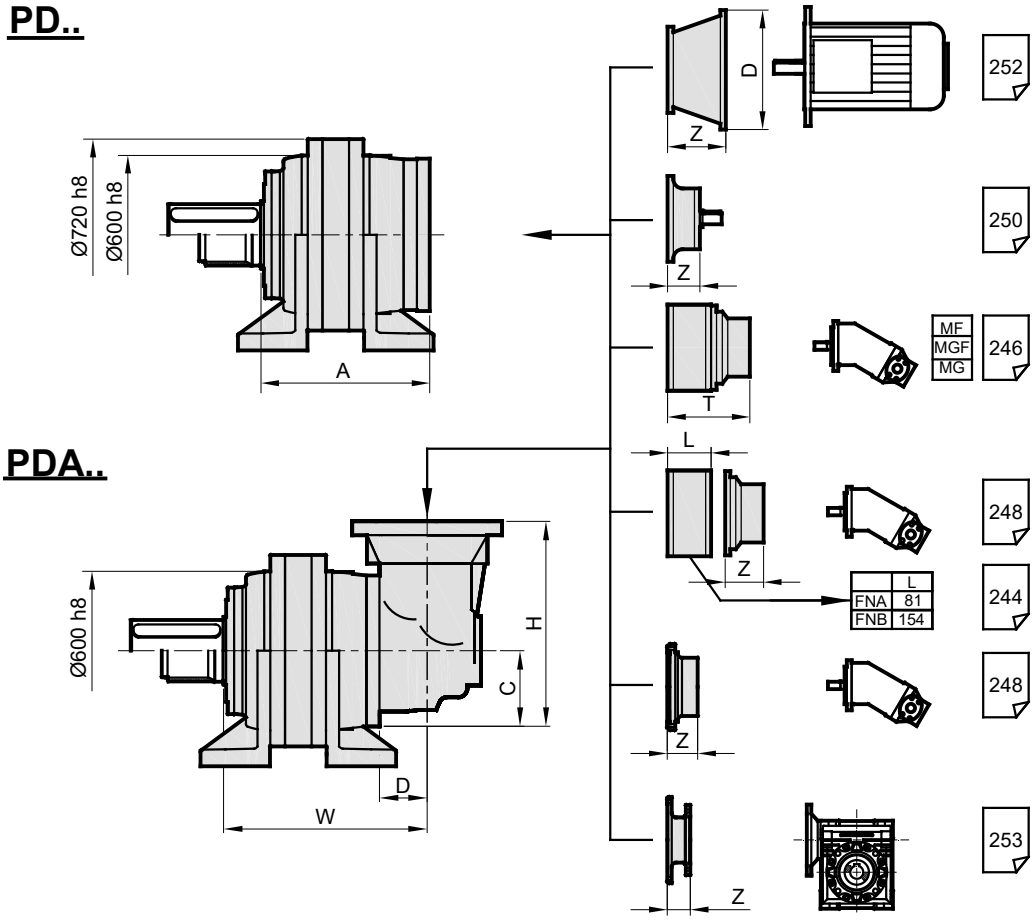


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	336	762	-
S2	-	-	-	-	564	961	-
S3	-	-	-	-	671	1011	-
S4	743	121	172,5	457	743	1028	1070
S5	808	103	122	319	804	1037	1053

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 133





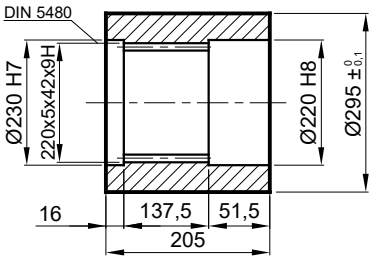
Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	474	969	-
S2	-	-	-	-	702	1168	-
S3	-	-	-	-	809	1218	-
S4	881	121	172,5	457	881	1235	1277
S5	946	103	122	319	942	1244	1260

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S2	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S3	-	-	-	-	-	-	-	-	350	120,5	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-
S5	-	-	-	-	247	71	300	104	350	120,5	400	148,5	450	148,5	-	-

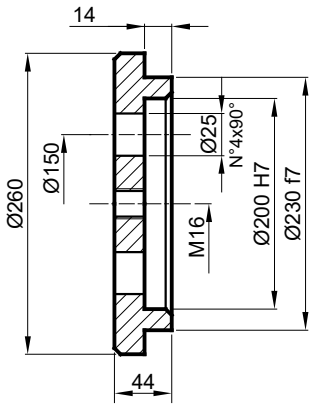
PD/PDA 133

FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

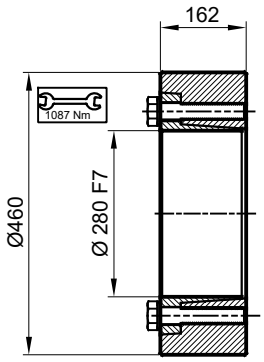
Malzeme /*Material* Material
DIN 1.7225
42CrMo4



SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe

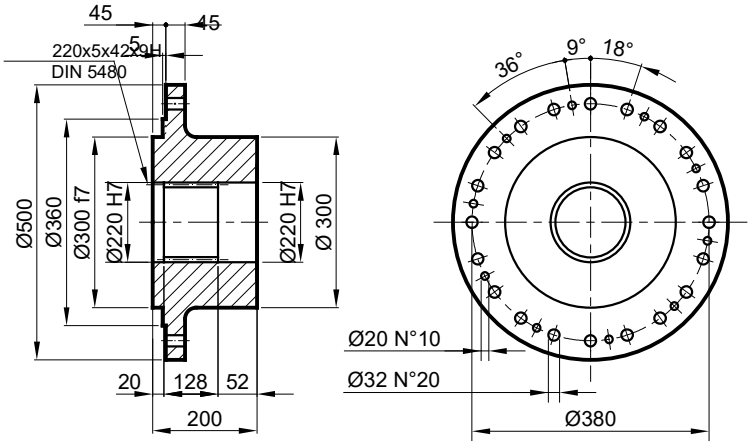


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
355 kNm

FL Flanş / *Flange* / Flansch



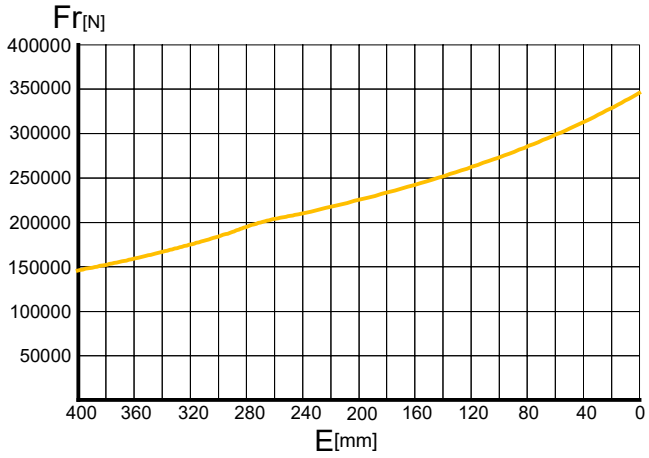
PD/PDA 133

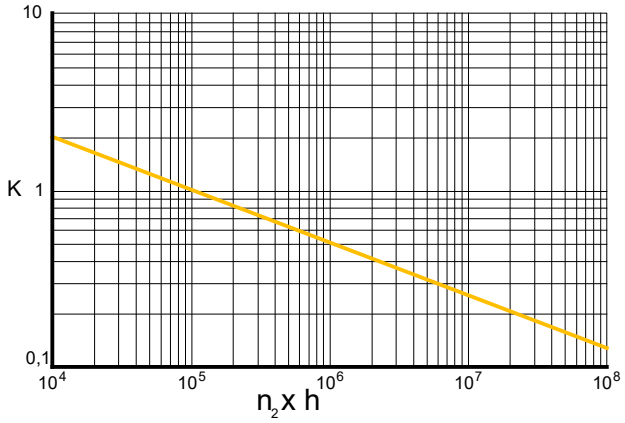
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

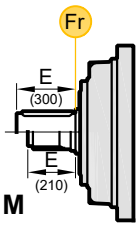
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

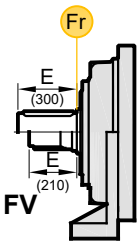
M-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



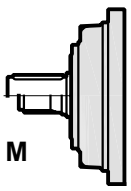


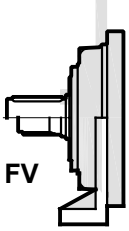
AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

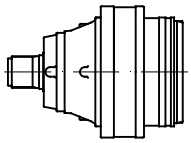
AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

Fa [N]	M	FV	
	45000	45000	←
	75000	75000	→

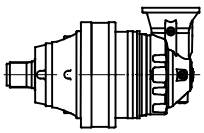




PD/PDA 135

	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PD 135 S1	4.00	342300	339900	336720	312170	200	441870	110
	4.57	291300	282600	274550	268600	200	367380	110
PD 135 S2	16.4	342300	339900	336720	312170	750	441870	80
	18.7	291300	282600	274550	268600	750	367380	80
	24.0	291300	282600	274550	268600	750	367380	80
PD 135 S3	65.4	342300	339900	336720	312170	1500	441870	71
	96.0	291300	282600	274550	268600	1500	367380	71
	116.8	291300	282600	274550	268600	1500	367380	71
	150.0	291300	282600	274550	268600	1500	367380	71
PD 135 S4	232.7	342300	339900	336720	312170	2800	441870	50
	280.4	342300	339900	336720	312170	2800	441870	50
	302.5	342300	339900	336720	312170	2800	441870	50
	366.5	342300	339900	336720	312170	2800	441870	50
	476.4	342300	339900	336720	312170	2800	441870	50
	574.2	342300	339900	336720	312170	2800	441870	50
	654.2	291300	282600	274550	268600	2800	367380	50
	698.7	291300	282600	274550	268600	2800	367380	50
	737.3	342300	339900	336720	312170	2800	441870	50
	842.1	291300	282600	274550	268600	2800	367380	50
PD 135 S5	959.8	342300	339900	336720	312170	2800	441870	37
	1059.3	342300	339900	336720	312170	2800	441870	37
	1142.7	342300	339900	336720	312170	2800	441870	37
	1247.7	342300	339900	336720	312170	2800	441870	37
	1384.4	342300	339900	336720	312170	2800	441870	37
	1448.8	342300	339900	336720	312170	2800	441870	37
	1562.8	342300	339900	336720	312170	2800	441870	37
	1686.9	342300	339900	336720	312170	2800	441870	37
	1799.7	342300	339900	336720	312170	2800	441870	37
	1965.2	342300	339900	336720	312170	2800	441870	37
	2169.3	342300	339900	336720	312170	2800	441870	37
	2461.4	342300	339900	336720	312170	2800	441870	37
	2650.3	342300	339900	336720	312170	2800	441870	37
	2785.3	342300	339900	336720	312170	2800	441870	37
	2966.9	342300	339900	336720	312170	2800	441870	37
	3202.5	342300	339900	336720	312170	2800	441870	37
	3445.4	342300	339900	336720	312170	2800	441870	37
	3809.3	342300	339900	336720	312170	2800	441870	37
	4423.7	342300	339900	336720	312170	2800	441870	37
	5345.4	342300	339900	336720	312170	2800	441870	37

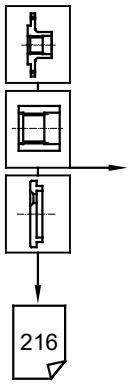
PD/PDA 135

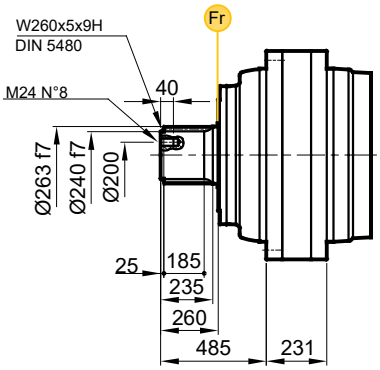
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 135 S4	231.7	342300	339900	336720	312170	2800	441870	45
	297.4	342300	339900	336720	312170	2800	441870	45
	386.6	342300	339900	336720	312170	2800	441870	45
	464.6	342300	339900	336720	312170	2800	441870	45
	505.1	342300	339900	336720	312170	2800	441870	45
	693.5	291300	282600	274550	268600	2800	367380	45
PDA 135 S5	779.5	342300	339900	336720	312170	2800	441870	40
	840.9	342300	339900	336720	312170	2800	441870	40
	997.0	342300	339900	336720	312170	2800	441870	40
	1018.8	342300	339900	336720	312170	2800	441870	40
	1296.1	342300	339900	336720	312170	2800	441870	40
	1324.4	342300	339900	336720	312170	2800	441870	40
	1480.8	291300	282600	336720	312170	2800	441870	40
	1596.4	342300	339900	336720	312170	2800	441870	40
	1794.1	291300	282600	274550	268600	2800	367380	40
	1892.8	342300	339900	336720	312170	2800	441870	40
	1942.3	291300	282600	274550	268600	2800	367380	40
	2049.7	342300	339900	336720	312170	2800	441870	40
	2162.5	291300	282600	274550	268600	2800	367380	40
	2460.6	342300	339900	336720	312170	2800	441870	40
	2776.5	291300	282600	274550	268600	2800	367380	40
	2993.8	291300	282600	274550	268600	2800	367380	40
	3159.3	342300	339900	336720	312170	2800	441870	40
	3378.9	291300	282600	274550	268600	2800	367380	40
	3609.5	291300	282600	274550	268600	2800	367380	40
	4338.3	291300	282600	274550	268600	2800	367380	40
	5568.8	291300	282600	274550	268600	2800	367380	40

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 1,3}$

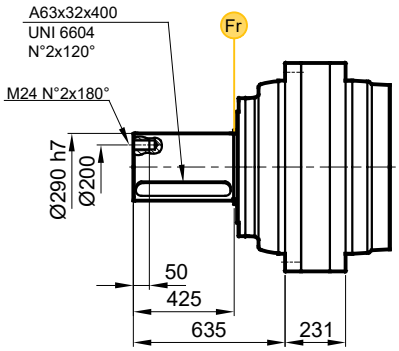
PD/PDA 135

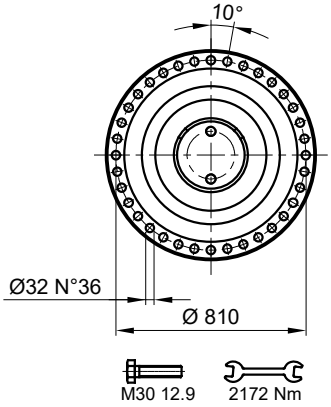
MS



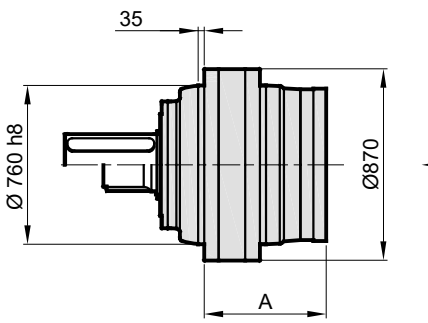


MC

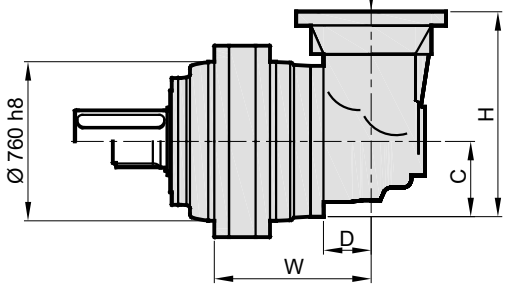


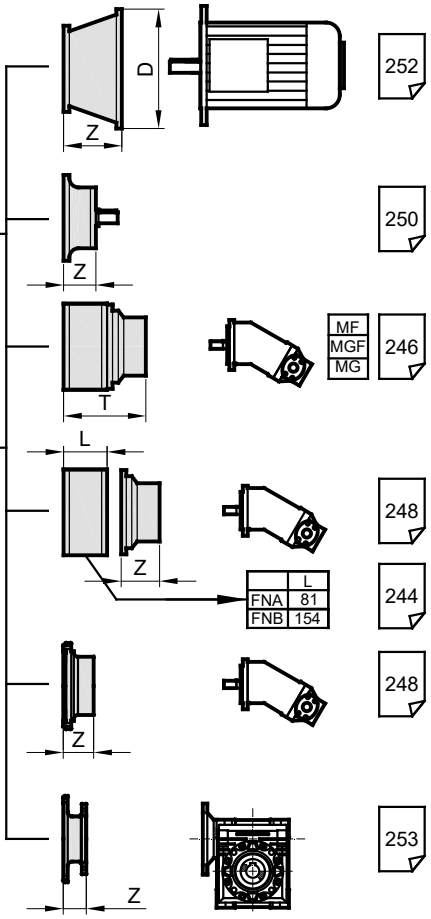


PD..



PDA..



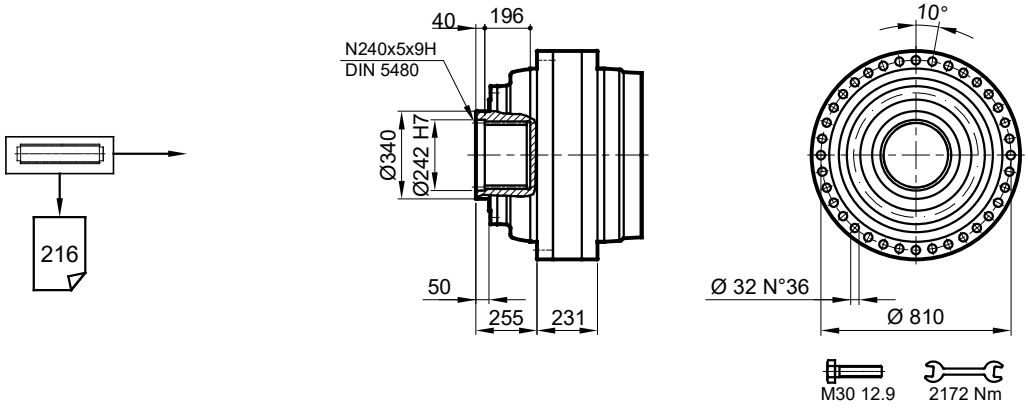


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	416	1532	-
S2	-	-	-	-	689	1836	-
S3	-	-	-	-	872	1956	-
S4	994	225	205	569	965	1982	2073
S5	1028,5	118,5	140	390	1025	1996	2034

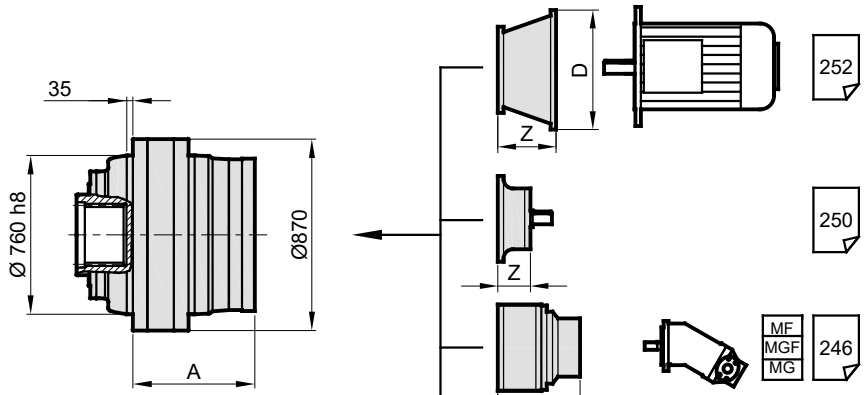
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S3	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 135

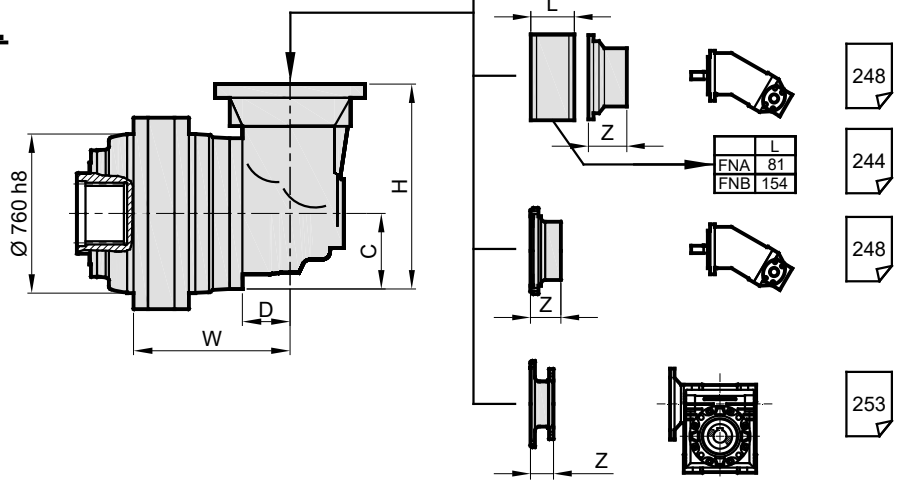
S



PD..



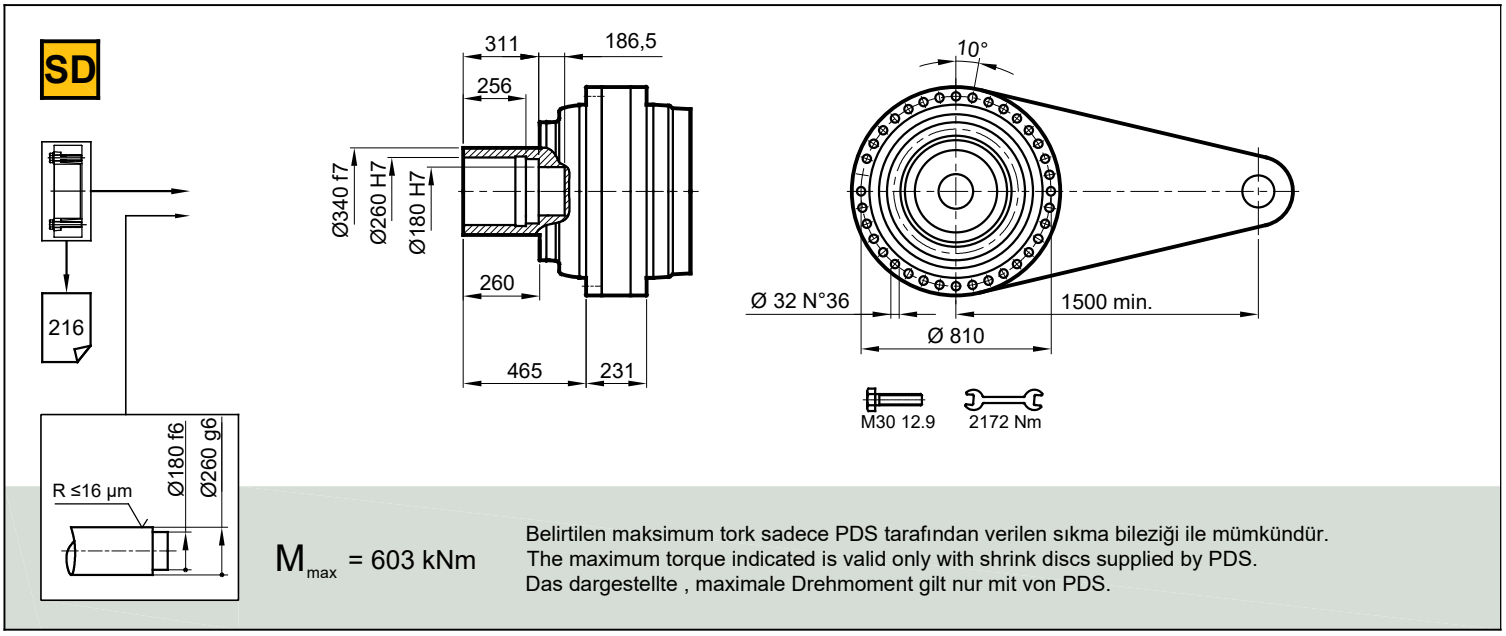
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S1	-	-	-	-	416	1209	-
S2	-	-	-	-	689	1513	-
S3	-	-	-	-	872	1633	-
S4	994	225	205	569	965	1659	1750
S5	1028,5	118,5	140	390	1025	1673	1711

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S3	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

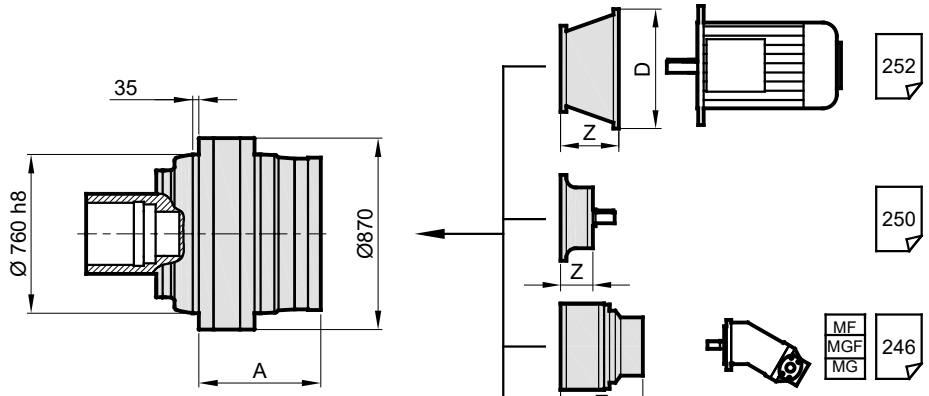
PD/PDA 135



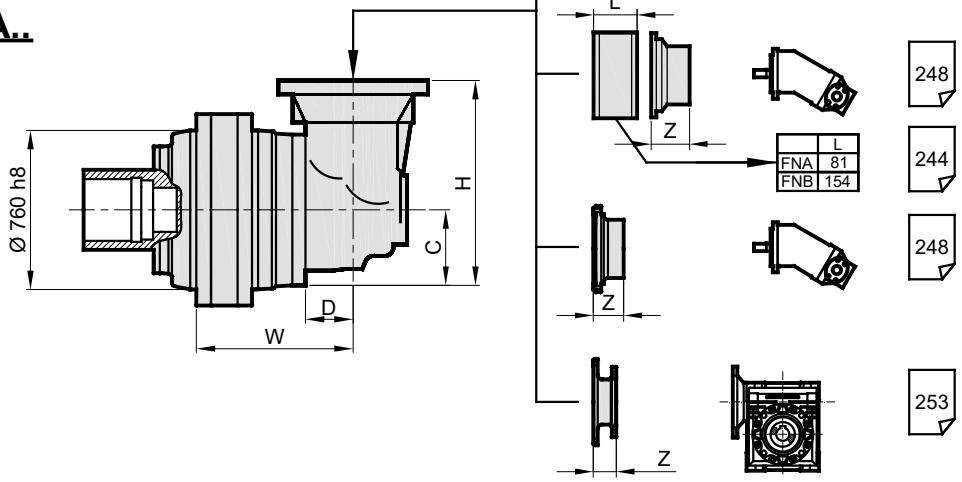
M_{max} = 603 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



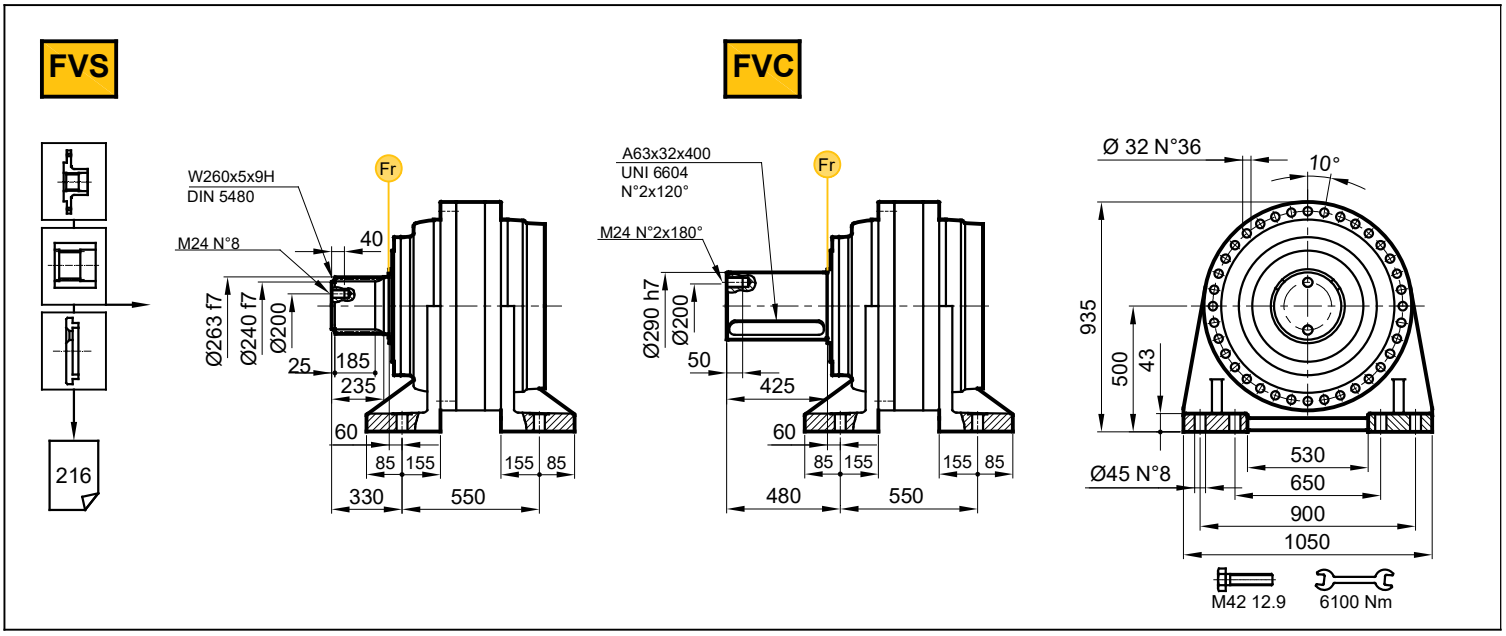
PDA..

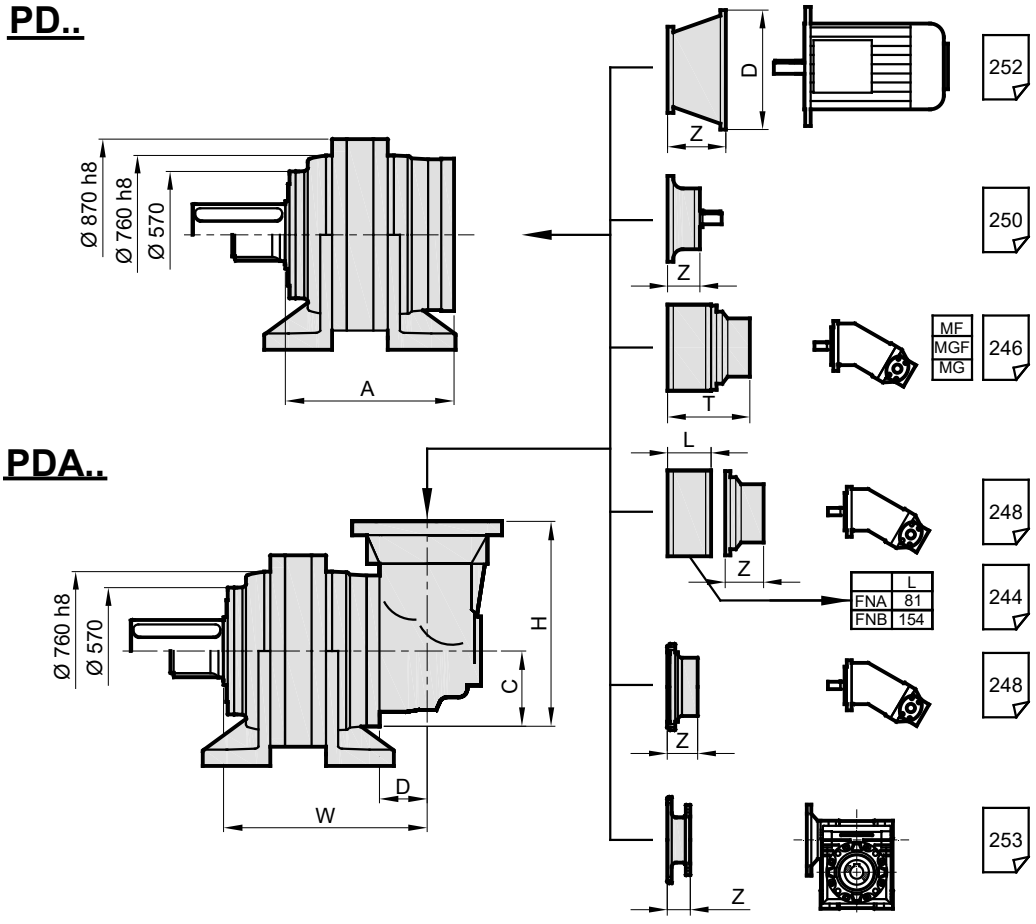


Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	416	1285	-
S2	-	-	-	-	689	1589	-
S3	-	-	-	-	872	1709	-
S4	994	225	205	569	965	1735	1826
S5	1028,5	118,5	140	390	1025	1749	1787

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S3	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 135





Stage	W	D	C	H	A	PD FV	PDA FV
S1	-	-	-	-	626	1919	-
S2	-	-	-	-	899	2223	-
S3	-	-	-	-	1082	2343	-
S4	1204	225	205	569	1175	2369	2460
S5	1218,5	118,5	140	390	1235	2383	2421

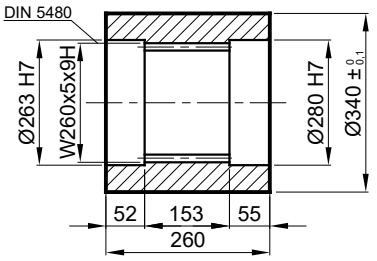
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S3	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 135

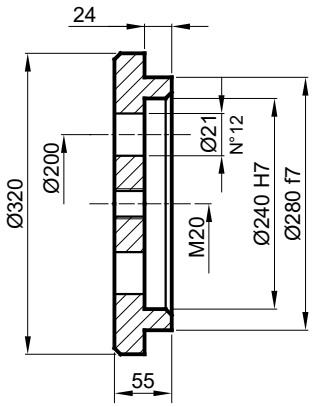
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse

Malzeme /Material Material

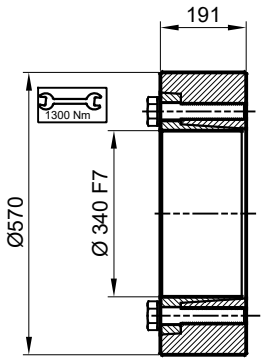
DIN 1.7225
42CrMo4



SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe

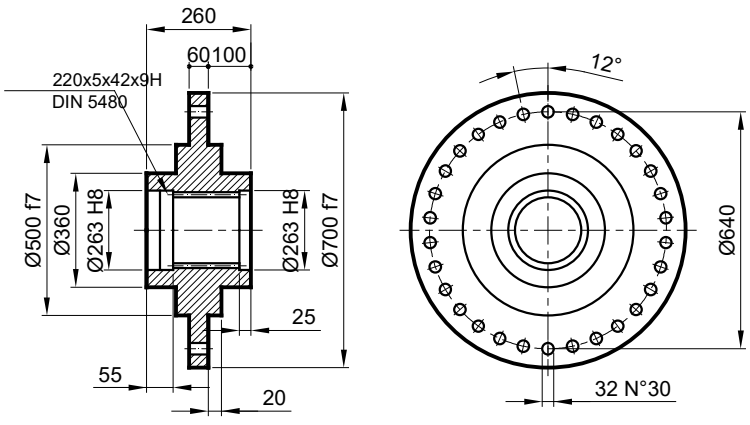


SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



Maksimum tork
Max. torque
Max.Drehmoment
603 kNm

FL Flanş / *Flange* / Flansch



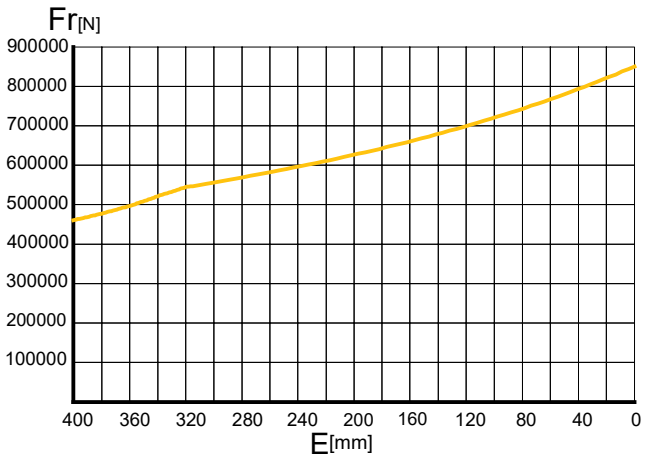
PD/PDA 135

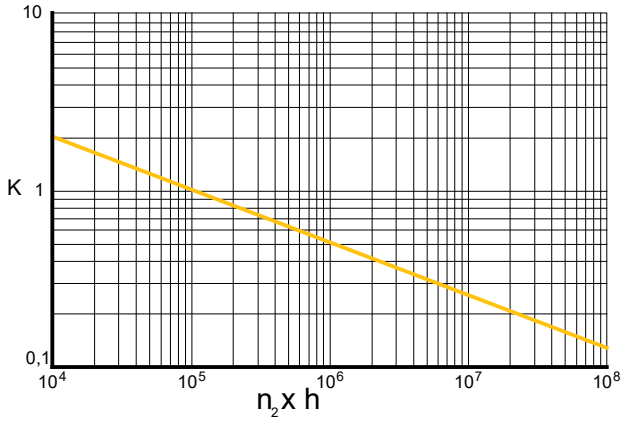
RADYAL YÜK(Fr)
Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

RADIAL LOADS(Fr)
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

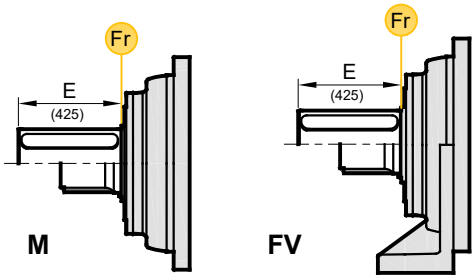
RADIALLAST (Fr)
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

M-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			

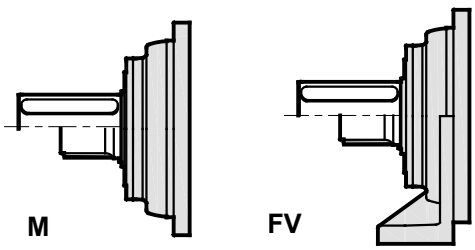


AKSİYEL YÜKLER (Fa)
Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

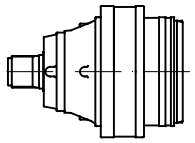
AXIAL LOADS (Fa)
The values of the axial loads in the table refer to the output versions and load directions of application.

AXIALLAST (Fa)
Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

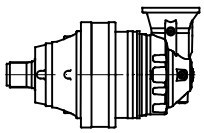
Fa [N]	M	FV	
	110000	80000	←
	110000	100000	→



PD 137

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 137 S1	4.00	342300	339900	336720	312170	200	441870	110
	4.57	291300	282600	274550	268600	200	367380	110
PD 137 S2	15.3	342300	339900	336720	312170	750	441870	80
	17.6	342300	339900	336720	312170	750	441870	80
	20.1	291300	282600	274550	268600	750	367380	80
PD 137 S3	60.6	342300	339900	336720	312170	1500	441870	71
	77.6	342300	339900	336720	312170	1500	441870	71
	92.0	342300	339900	336720	312170	1500	441870	71
	105.6	342300	339900	336720	312170	1500	441870	71
PD 137 S4	215.4	342300	339900	336720	312170	2800	441870	50
	297.9	342300	339900	336720	312170	2800	441870	50
	389.3	342300	339900	336720	312170	2800	441870	50
	434.7	342300	339900	336720	312170	2800	441870	50
	499.0	342300	339900	336720	312170	2800	441870	50
	591.4	342300	339900	336720	312170	2800	441870	50
	672.8	342300	339900	336720	312170	2800	441870	50
	772.2	342300	339900	336720	312170	2800	441870	50
	915.2	342300	339900	336720	312170	2800	441870	50
PD 137 S5	813.5	342300	339900	336720	312170	2800	441870	37
	1042.7	342300	339900	336720	312170	2800	441870	37
	1196.8	342300	339900	336720	312170	2800	441870	37
	1281.3	342300	339900	336720	312170	2800	441870	37
	1340.9	342300	339900	336720	312170	2800	441870	37
	1489.3	342300	339900	336720	312170	2800	441870	37
	1642.2	342300	339900	336720	312170	2800	441870	37
	1709.4	342300	339900	336720	312170	2800	441870	37
	1885.0	342300	339900	336720	312170	2800	441870	37
	2011.4	342300	339900	336720	312170	2800	441870	37
	2234.0	342300	339900	336720	312170	2800	441870	37
	2337.9	342300	339900	336720	312170	2800	441870	37
	2439.4	342300	339900	336720	312170	2800	441870	37
	2541.5	342300	339900	336720	312170	2800	441870	37
	2661.9	342300	339900	336720	312170	2800	441870	37
	2768.0	342300	339900	336720	312170	2800	441870	37
	2940.3	342300	339900	336720	312170	2800	441870	37
	3185.3	342300	339900	336720	312170	2800	441870	37
	3289.0	342300	339900	336720	312170	2800	441870	37
	3457.4	342300	339900	336720	312170	2800	441870	37
	3775.2	342300	339900	336720	312170	2800	441870	37
	4119.5	342300	339900	336720	312170	2800	441870	37
	4360.3	342300	339900	336720	312170	2800	441870	37
	4728.5	342300	339900	336720	312170	2800	441870	37
	5167.8	342300	339900	336720	312170	2800	441870	37
	5780.7	342300	339900	336720	312170	2800	441870	37

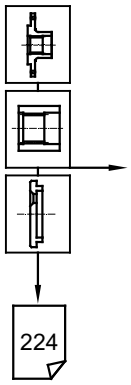
PDA 137

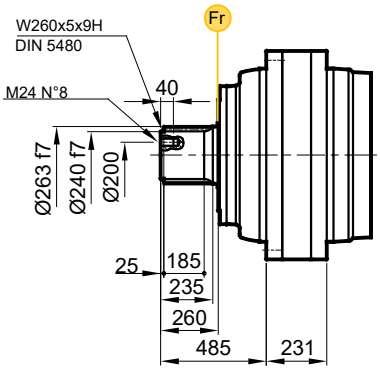
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 137 S4	245.9	342300	339900	336720	312170	2800	441870	45
	282.3	342300	339900	336720	312170	2800	441870	45
	315.2	342300	339900	336720	312170	2800	441870	45
	361.8	342300	339900	336720	312170	2800	441870	45
	428.7	342300	339900	336720	312170	2800	441870	45
PDA 137 S5	721,5	342300	339900	336720	312170	2800	441870	40
	924.7	342300	339900	336720	312170	2800	441870	40
	1061.4	342300	339900	336720	312170	2800	441870	40
	1182.7	342300	339900	336720	312170	2800	441870	40
	1257.9	342300	339900	336720	312170	2800	441870	40
	1456.6	342300	339900	336720	312170	2800	441870	40
	1689.2	342300	339900	336720	312170	2800	441870	40
	1870.2	342300	339900	336720	312170	2800	441870	40
	2010.8	342300	339900	336720	312170	2800	441870	40
	2245.2	342300	339900	336720	312170	2800	441870	40
	2534.0	342300	339900	336720	312170	2800	441870	40
	2661.0	342300	339900	336720	312170	2800	441870	40
	3054.4	342300	339900	336720	312170	2800	441870	40
	3416.6	342300	339900	336720	312170	2800	441870	40
	3921.6	342300	339900	336720	312170	2800	441870	40

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 1,3}$

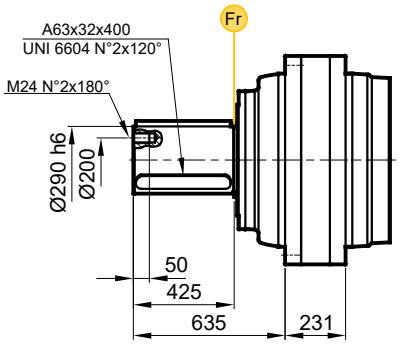
PD/PDA 137

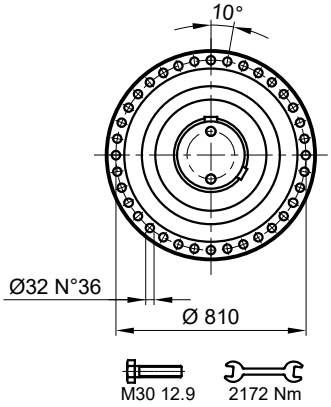
MS



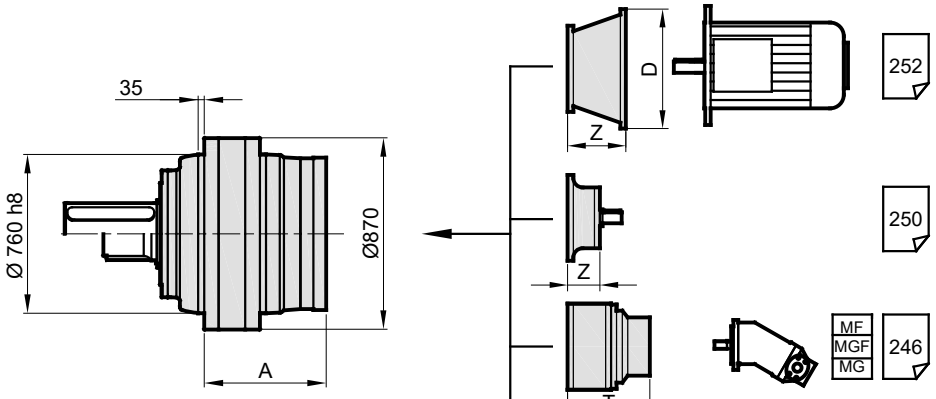


MC

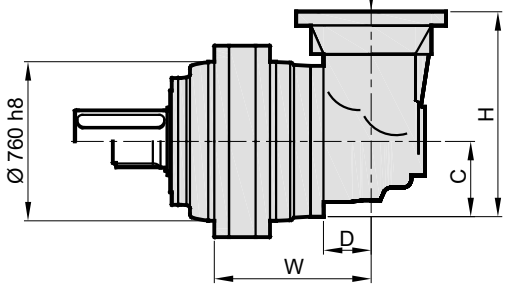


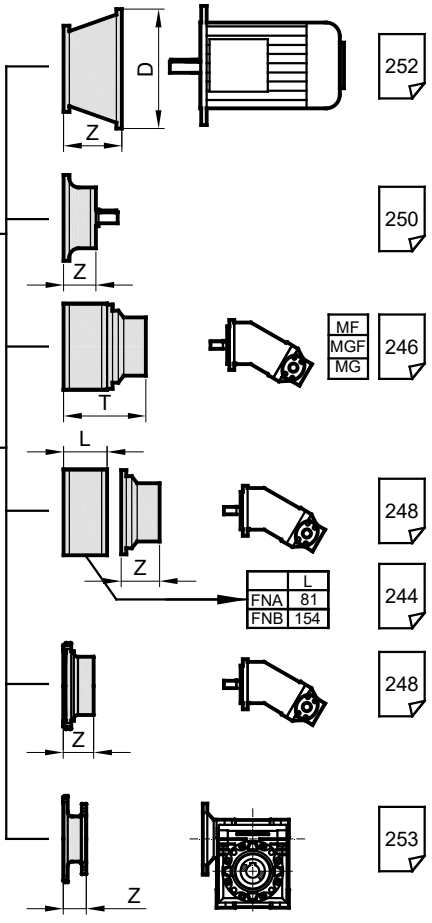


PD..



PDA..



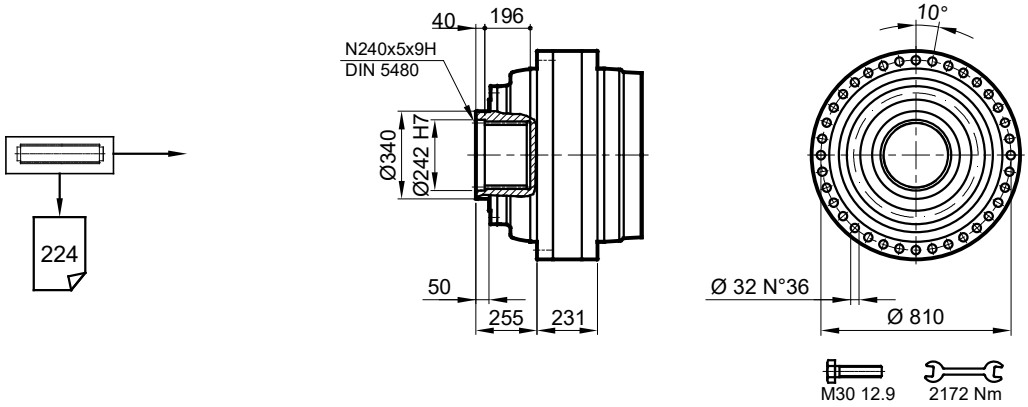


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	416	1532	-
S2	-	-	-	-	698	1862	-
S3	-	-	-	-	926	2062	-
S4	1074	279,5	245	536,5	1033	2112	2219
S5	1105	121	172,5	457	1105	2130	2176

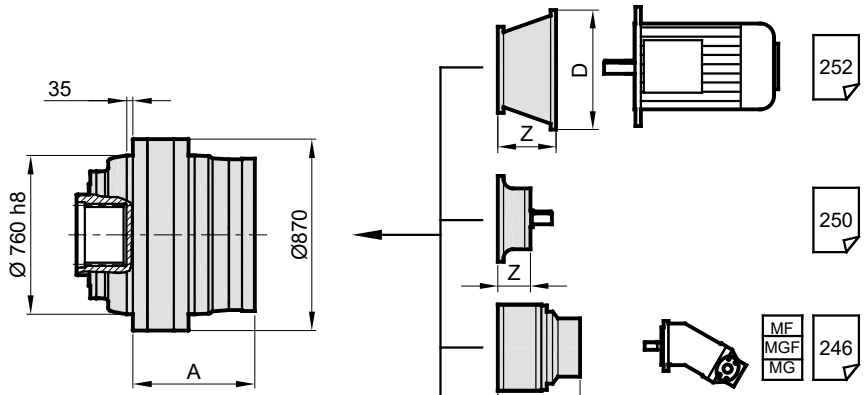
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S3	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 137

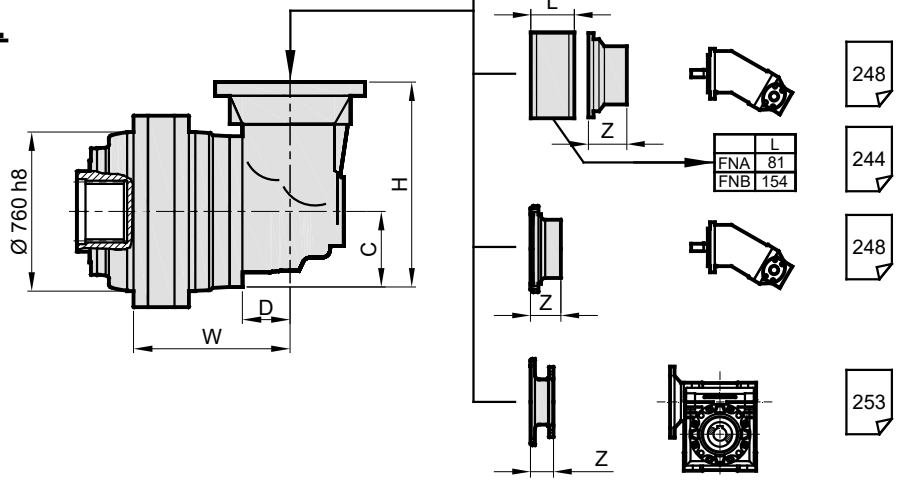
S



PD..



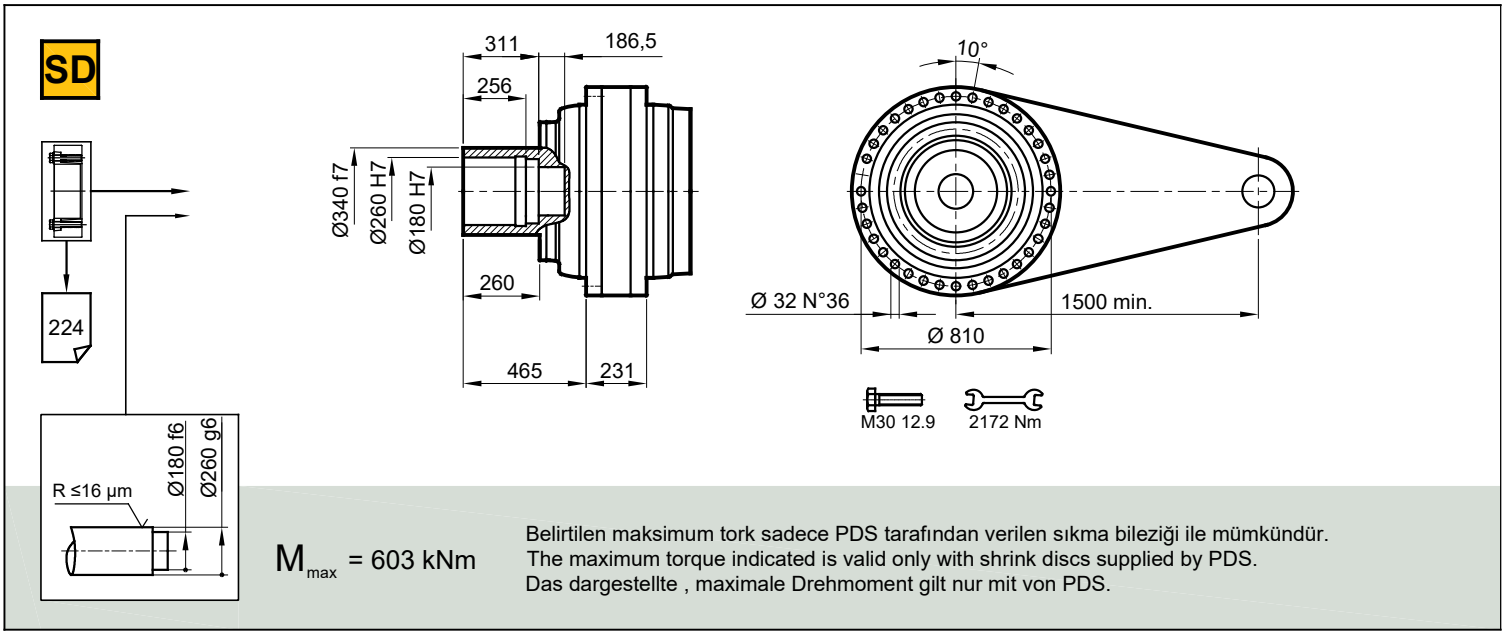
PDA..



Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	416	1209	-
S2	-	-	-	-	698	1539	-
S3	-	-	-	-	926	1739	-
S4	1074	279,5	245	536,5	1033	1789	1896
S5	1105	121	172,5	457	1105	1807	1853

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S3	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

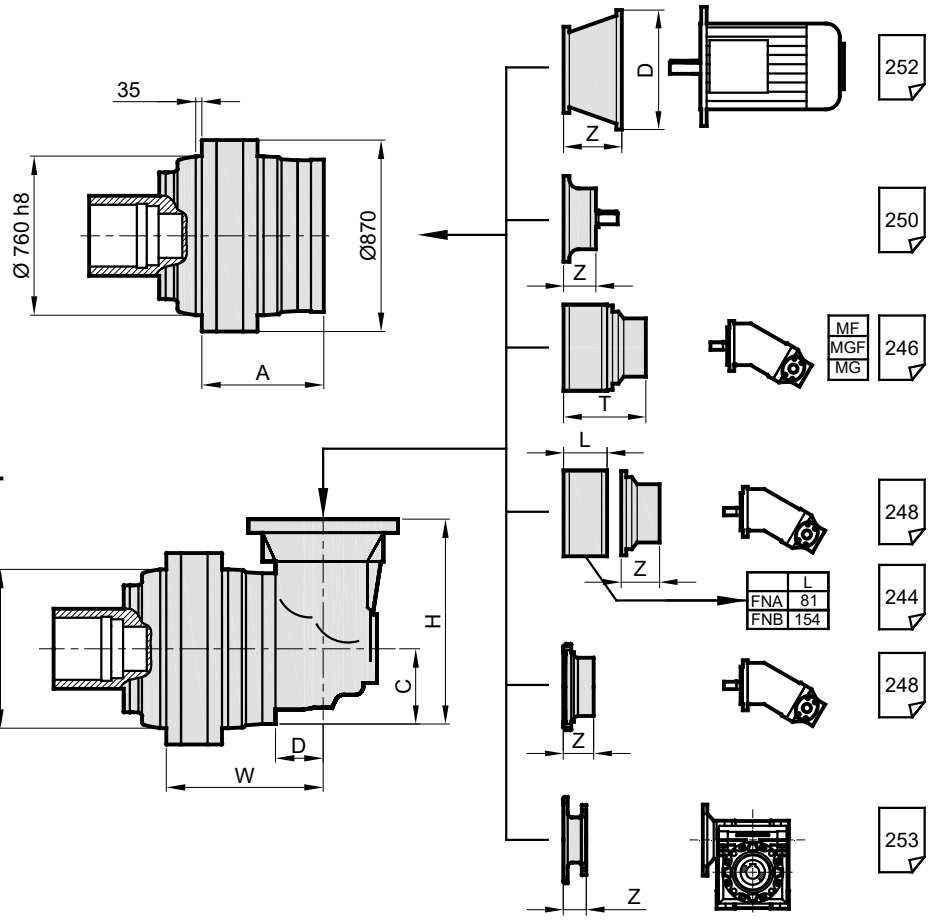
PD/PDA 137



M_{max} = 603 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



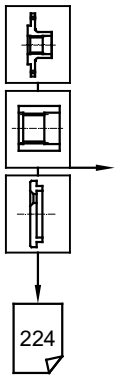
PDA..

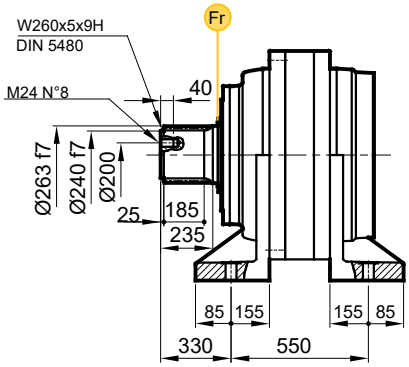
Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	416	1295	-
S2	-	-	-	-	698	1615	-
S3	-	-	-	-	926	1815	-
S4	1074	279,5	245	536,5	1033	1865	1972
S5	1105	121	172,5	457	1105	1883	1929

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S3	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

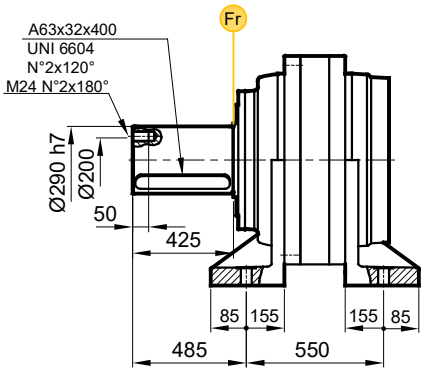
PD/PDA 137

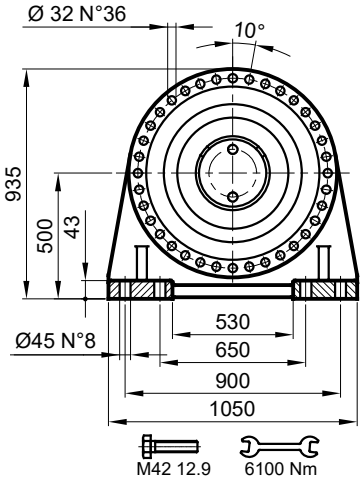
FVS



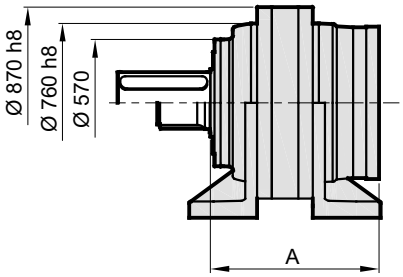


FVC

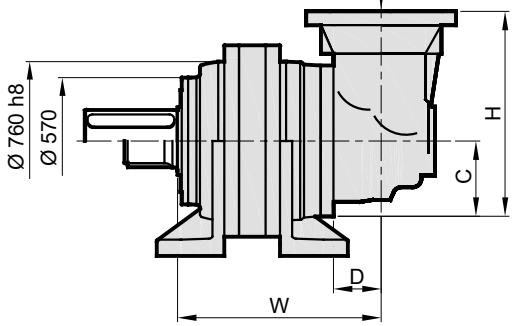


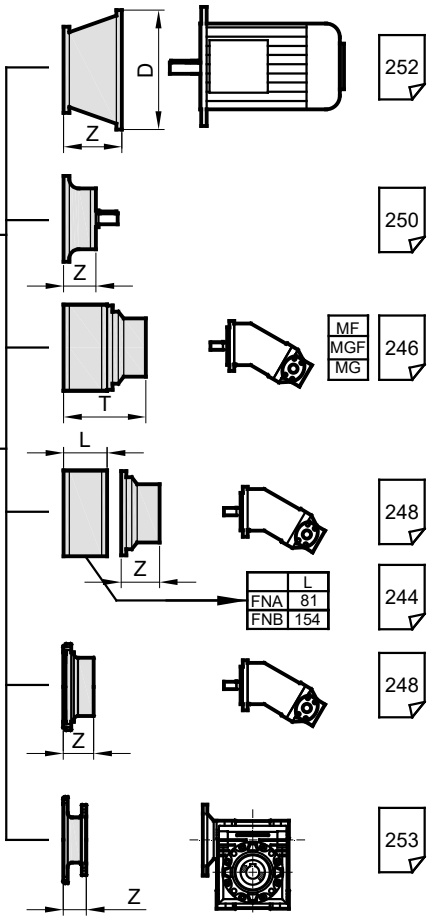


PD..



PDA..



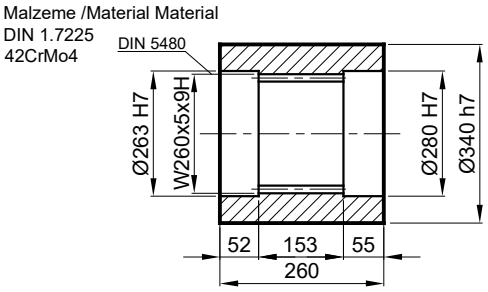


Stage	W	D	C	H	A	PD M	PDA M
S1	-	-	-	-	626	2919	-
S2	-	-	-	-	908	2249	-
S3	-	-	-	-	1136	2449	-
S4	1284	279,5	245	536,5	1243	2499	2606
S5	1315	121	172,5	457	1315	2517	2563

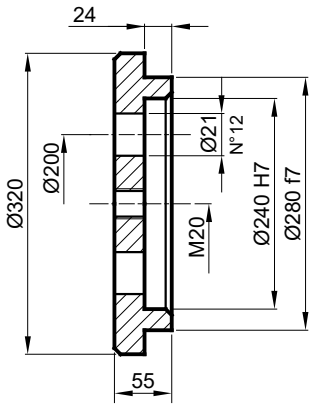
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S3	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120,5	400	148,5	450	148,5	-	-

PD/PDA 137

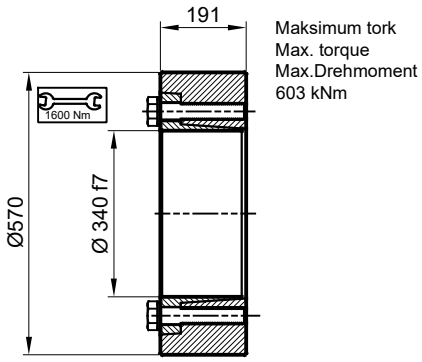
FK Frezeli Kaplin / *Spined bushing* Innenverzahnte Buchse



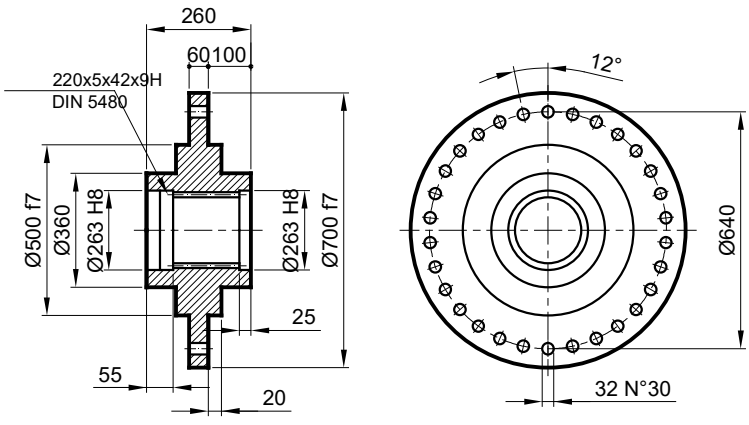
SP Sabitleme Pulu / *Stop bottom plate* / Endscheibe



SB Sıkma Bileziği / Shrink disc Schrumpfscheibe



FL Flanş / *Flange* / Flansch



PD/PDA 137

RADYAL YÜK(Fr)

Aşağıdaki diyagramlar radyal yükleri ve k faktörlerini arzu edilen n_2x h değerlerinde verir.

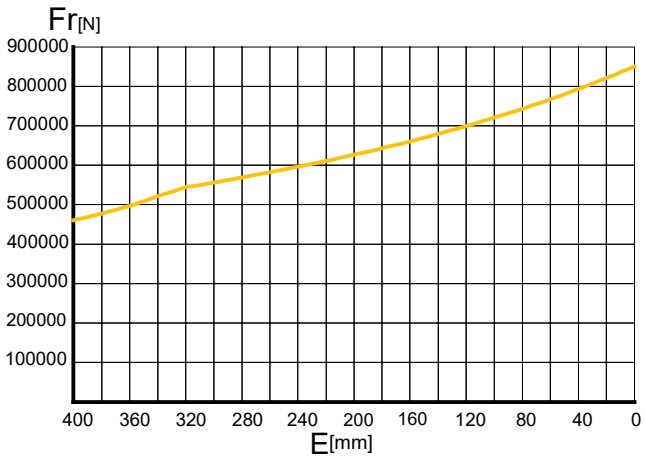
RADIAL LOADS(Fr)

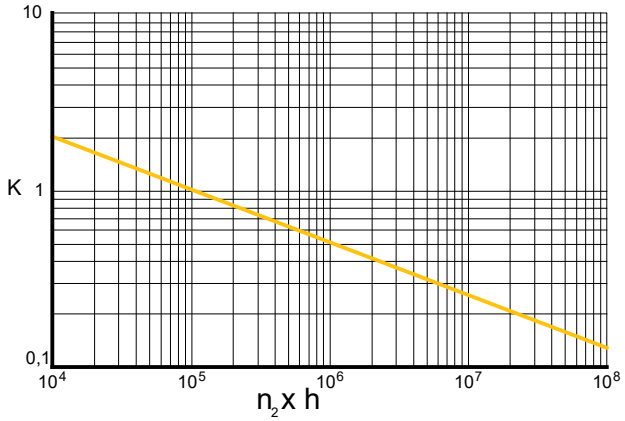
The following curves show the radial loads and the K factors to obtain the required n_2x h value.

RADIALLAST (Fr)

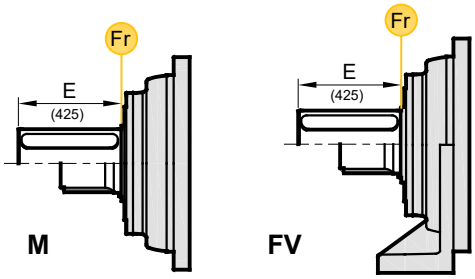
In den nachstehenden Diagrammen ist die Radiallast und der Koeffizient K dargestellt und kann mit dem gewünschten Wert n_2x h verglichen werden.

M-FV





	nxh				
	10^5	10^4	10^6	10^7	10^8
M	Fr	Fr . K			
FV	Fr .0,75	Fr . K . 0,75			



AKSİYEL YÜKLER (Fa)

Tablodaki aksiyel yük değerleri çıkış tipi ve tatbik edilen yük yönünde verilmiştir.

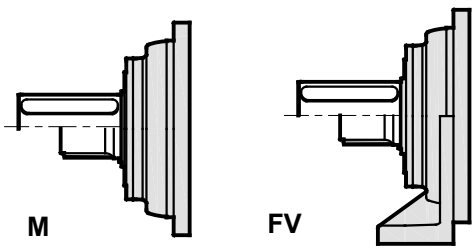
AXIAL LOADS (Fa)

The values of the axial loads in the table refer to the output versions and load directions of application.

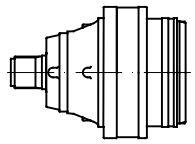
AXIALLAST (Fa)

Die dargestellten Werte der Axiallast basieren auf der Version und der applizierten Lastrichtung.

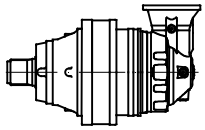
Fa [N]	M	FV	
	110000	80000	←
	110000	100000	→



PD 139

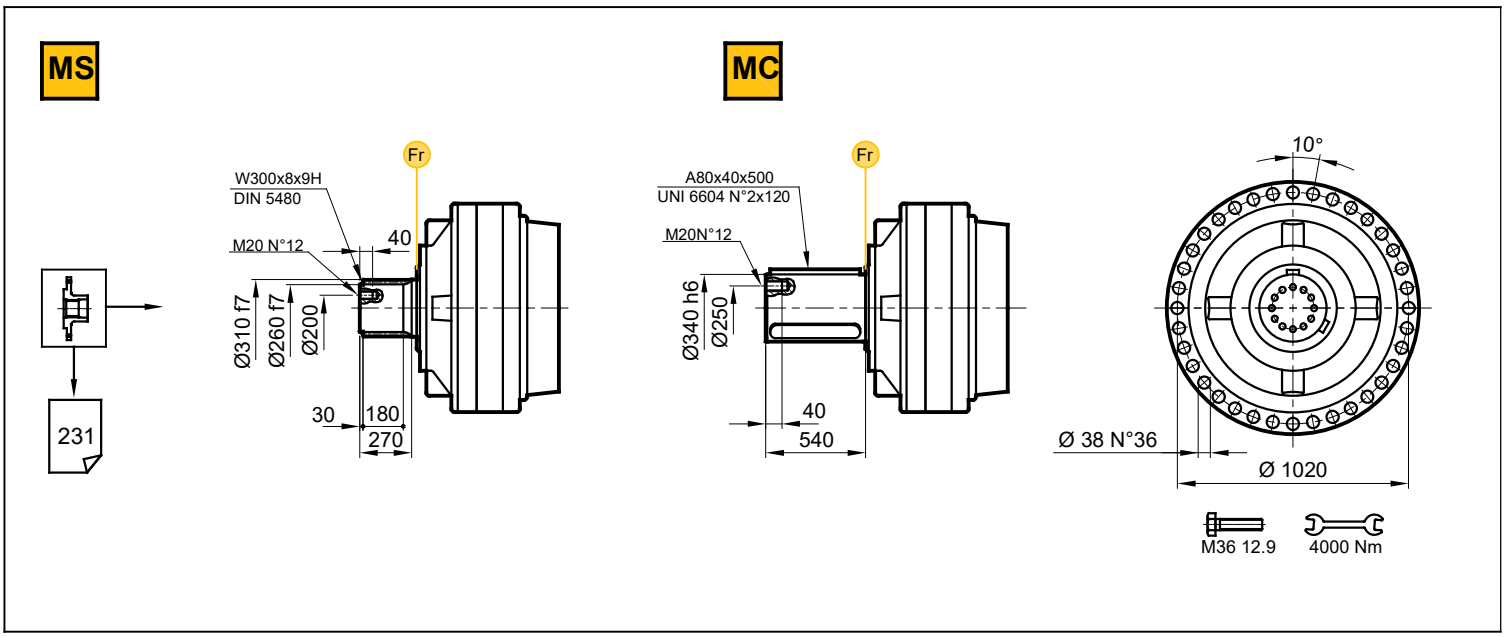
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 139 S1	3.84	635700	572300	498200	450000	100	743990	160
PD 139 S2	15.0	635700	572300	498200	450000	200	743990	110
PD 139 S3	59.3	635700	572300	498200	450000	1200	743990	93
	76.0	635700	572300	498200	450000	1200	743990	93
PD 139 S4	210.9	635700	572300	498200	450000	2000	743990	70
	270.3	635700	572300	498200	450000	2000	743990	70
	325.7	635700	572300	498200	450000	2000	743990	70
	425.7	635700	572300	498200	450000	2000	743990	70
	513.1	635700	572300	498200	450000	2000	743990	70
PD 139 S5	796.6	635700	572300	498200	450000	2800	743990	49
	869.8	635700	572300	498200	450000	2800	743990	49
	960.0	635700	572300	498200	450000	2800	743990	49
	1021.0	635700	572300	498200	450000	2800	743990	49
	1114.8	635700	572300	498200	450000	2800	743990	49
	1254.7	635700	572300	498200	450000	2800	743990	49
	1370.0	635700	572300	498200	450000	2800	743990	49
	1608.0	635700	572300	498200	450000	2800	743990	49
	1755.8	635700	572300	498200	450000	2800	743990	49
	1842.4	635700	572300	498200	450000	2800	743990	49
	1938.3	635700	572300	498200	450000	2800	743990	49
	2116.4	635700	572300	498200	450000	2800	743990	49
	2361.4	635700	572300	498200	450000	2800	743990	49
	2407.9	635700	572300	498200	450000	2800	743990	49
	2554.0	635700	572300	498200	450000	2800	743990	49
	3078.4	635700	572300	498200	450000	2800	743990	49
	3719.8	635700	572300	498200	450000	2800	743990	49

PDA 139

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 139 S5	586.2	635700	572300	498200	450000	2800	743990	57
	751.3	635700	572300	498200	450000	2800	743990	57
	923.3	635700	572300	498200	450000	2800	743990	57
	1089.0	635700	572300	498200	450000	2800	743990	57
	1183.3	635700	572300	498200	450000	2800	743990	57
	1395.6	635700	572300	498200	450000	2800	743990	57
	1426.3	635700	572300	498200	450000	2800	743990	57
	1824.0	635700	572300	498200	450000	2800	743990	57
	2198.5	635700	572300	498200	450000	2800	743990	57
PDA 139 S6	1832.2	635700	572300	498200	450000	2800	743990	50
	2348.2	635700	572300	498200	450000	2800	743990	50
	2830.0	635700	572300	498200	450000	2800	743990	50
	3698.5	635700	572300	498200	450000	2800	743990	50
	4232.7	635700	572300	498200	450000	2800	743990	50
	4458.0	635700	572300	498200	450000	2800	743990	50
	5531.7	635700	572300	498200	450000	2800	743990	50
	6667.6	635700	572300	498200	450000	2800	743990	50

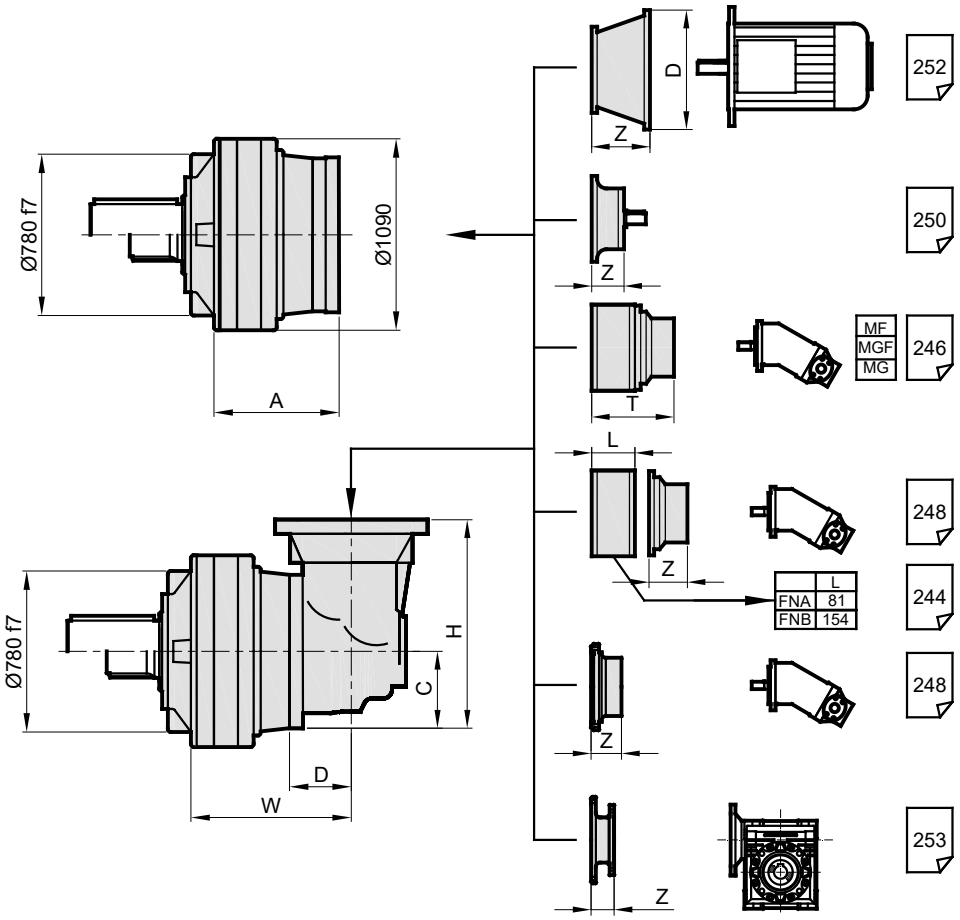
⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 1,3}$

PD/PDA 139



PD..

PDA..

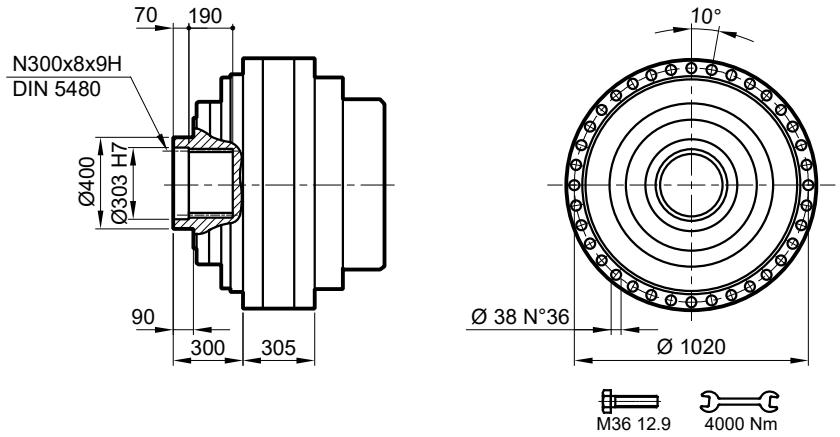


Stage	W	D	C	H	A	PD M	PDA M
S3	-	-	-	-	904	3600	-
S4	1173	149	240	610	1025	3700	3800
S5	1184	101	173	457	1204	4000	4100

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120	400	148,5	450	148,5	-	-

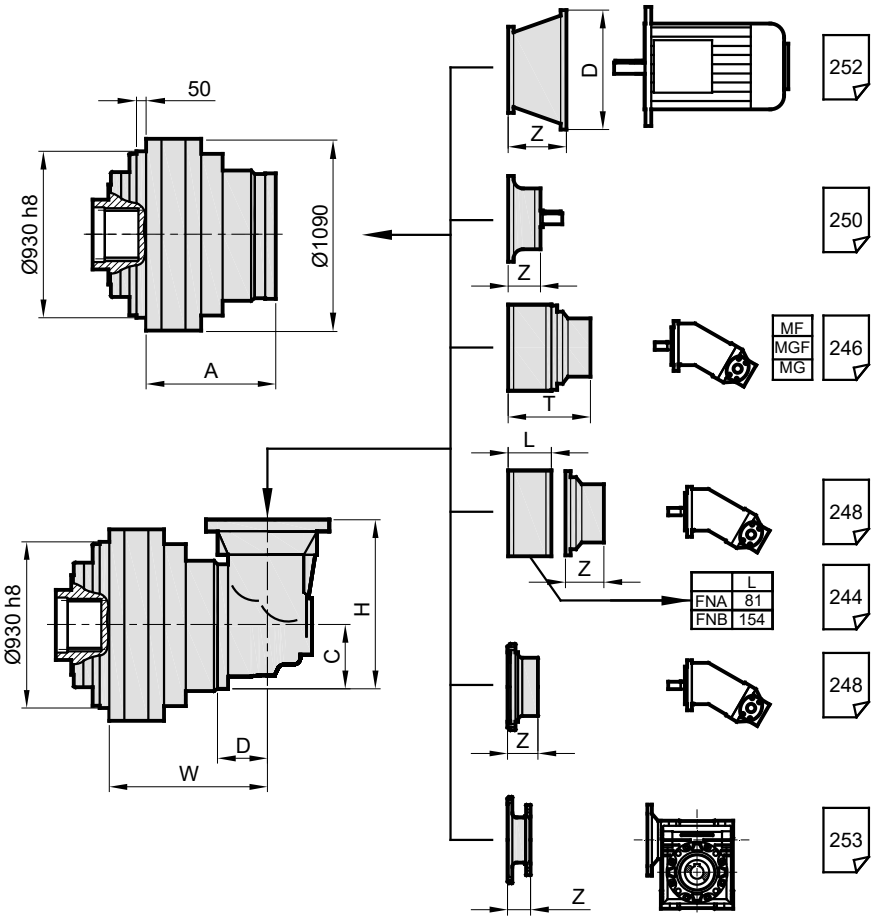
PD/PDA 139

S



PD..

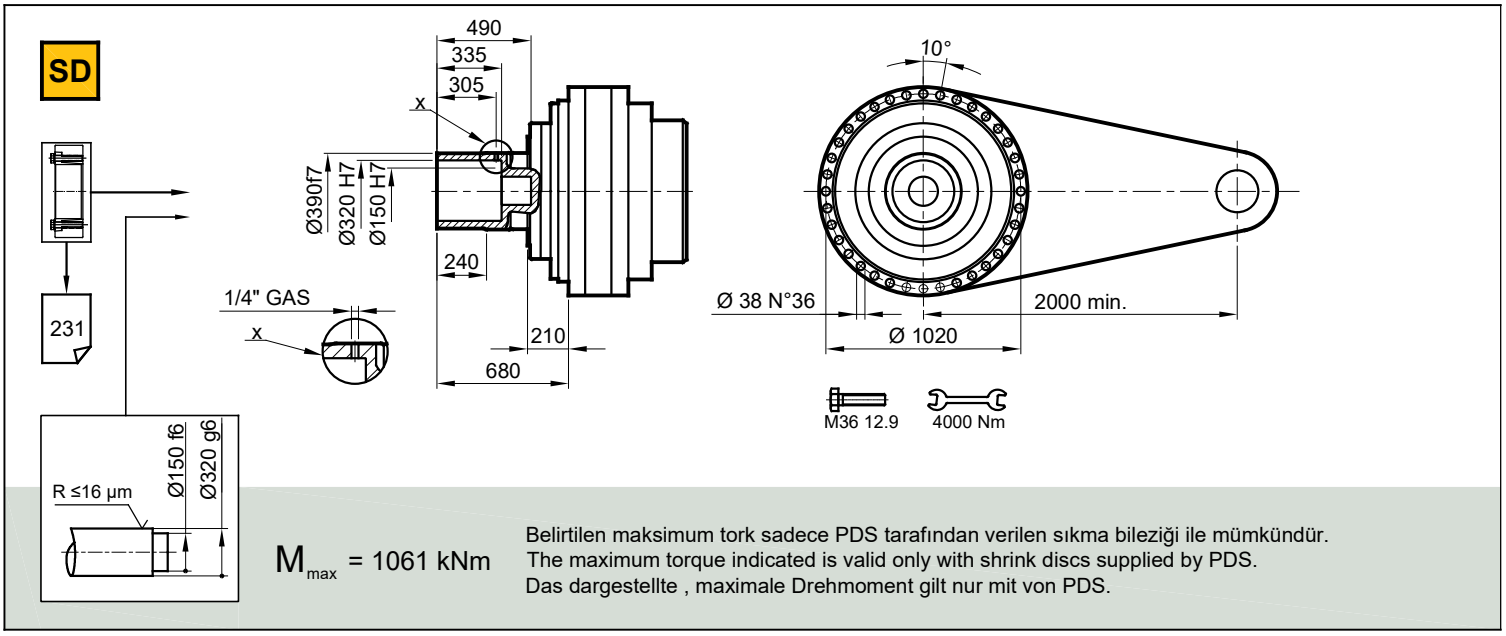
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S3	-	-	-	-	904	3600	-
S4	1173	149	240	610	1025	3700	3800
S5	1184	101	173	457	1204	4000	4100

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120	400	148,5	450	148,5	-	-

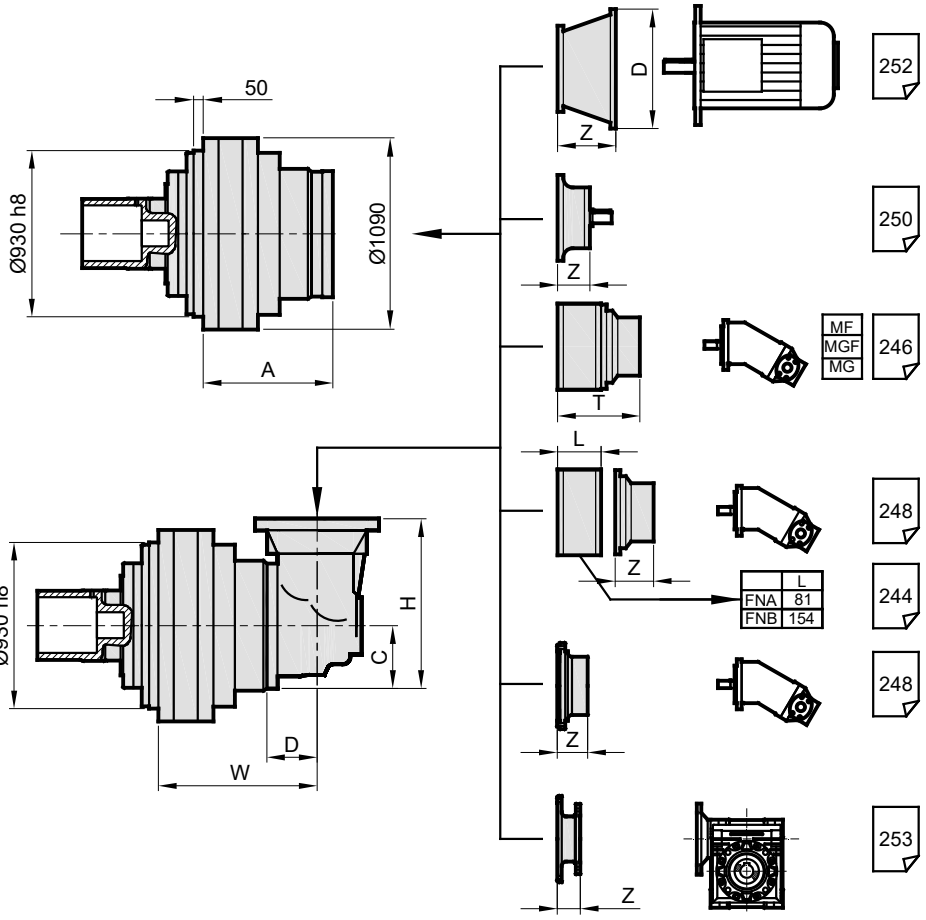
PD/PDA 139



M_{max} = 1061 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..



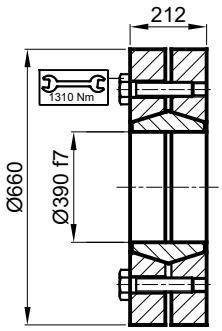
PDA..

Stage	W	D	C	H	A	PD SD	PDA SD
S3	-	-	-	-	904	3600	-
S4	1173	149	240	610	1025	3700	3800
S5	1184	101	173	457	1204	4000	4100

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	300	104	350	120	400	148,5	450	148,5	-	-

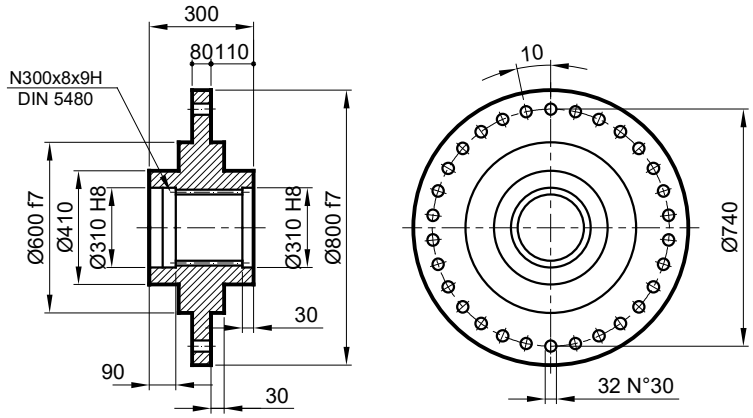
PD/PDA 139

SB Sıkma Bileziği / Shrink disc
Schrumpfscheibe

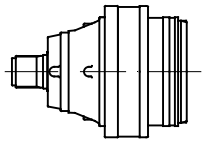


Maksimum tork
Max. torque
Max.Drehmoment
1061 kNm

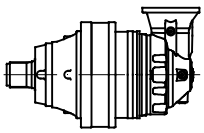
FL Flanş / *Flange* / Flansch



PD 141

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 141 S1	3.84	720000	662600	650500	641500	100	854750	160
PD 141 S2	14.1	720000	662600	650500	641500	200	854750	110
	19.0	720000	662600	650500	641500	200	854750	110
PD 141 S3	55.8	720000	662600	650500	641500	1200	854750	93
	74.9	720000	662600	650500	641500	1200	854750	93
	96.0	720000	662600	650500	641500	1200	854750	93
PD 141 S4	198.5	720000	662600	650500	641500	2000	854750	70
	266.4	720000	662600	650500	641500	2000	854750	70
	321.1	720000	662600	650500	641500	2000	854750	70
	341.5	720000	662600	650500	641500	2000	854750	70
	411.5	720000	662600	650500	641500	2000	854750	70
	487.7	720000	662600	650500	641500	2000	854750	70
	537.8	720000	662600	650500	641500	2000	854750	70
	637.4	720000	662600	650500	641500	2000	854750	70
	768.3	720000	662600	650500	641500	2000	854750	70
	986.8	720000	662600	650500	641500	2000	854750	70
PD 141 S5	1213.0	720000	662600	650500	641500	2800	854750	49
	1324.4	720000	662600	650500	641500	2800	854750	49
	1435.1	720000	662600	650500	641500	2800	854750	49
	1615.0	720000	662600	650500	641500	2800	854750	49
	1730.9	720000	662600	650500	641500	2800	854750	49
	1875.5	720000	662600	650500	641500	2800	854750	49
	1931.5	720000	662600	650500	641500	2800	854750	49
	2126.1	720000	662600	650500	641500	2800	854750	49
	2218.4	720000	662600	650500	641500	2800	854750	49
	2407.9	720000	662600	650500	641500	2800	854750	49
	2778.6	720000	662600	650500	641500	2800	854750	49
	3042.2	720000	662600	650500	641500	2800	854750	49
	3535.9	720000	662600	650500	641500	2800	854750	49
	3899.0	720000	662600	650500	641500	2800	854750	49
	4609.6	720000	662600	650500	641500	2800	854750	49
	5570.0	720000	662600	650500	641500	2800	854750	49

PDA 141

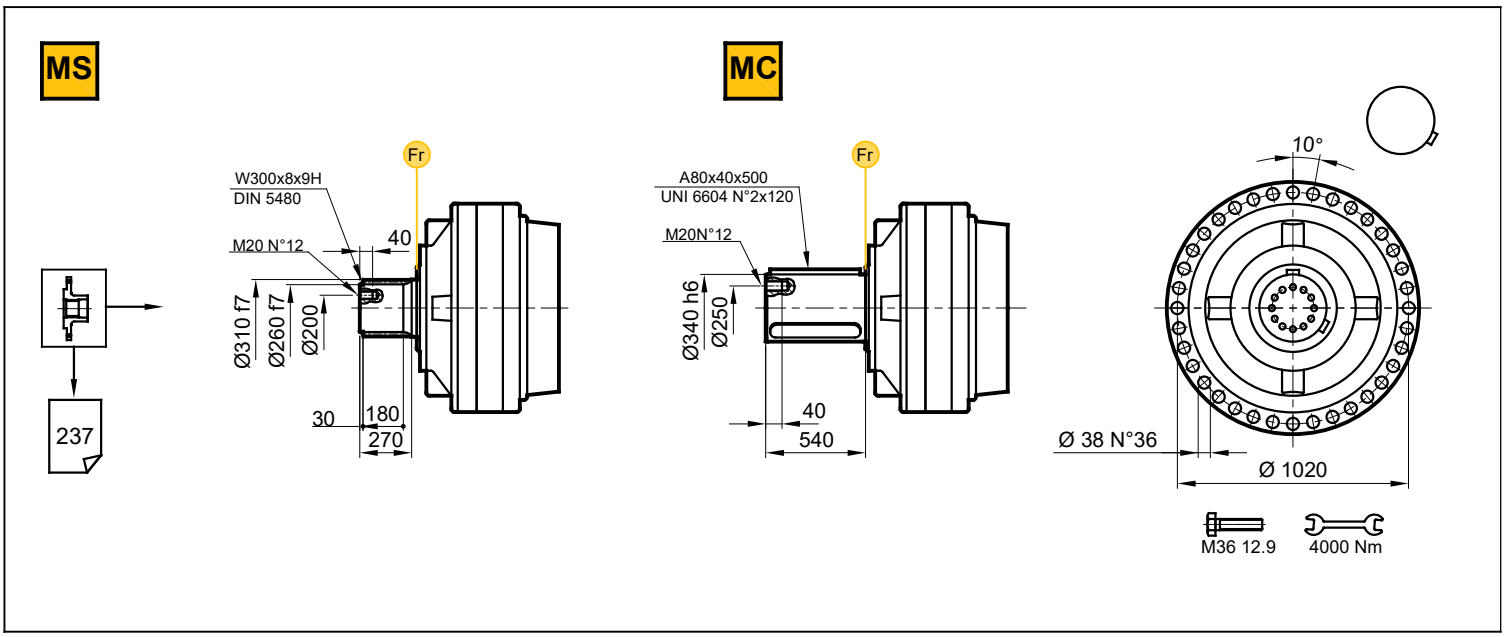


	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PDA 141 S5	551.7	672000	662600	650500	641500	2800	854750	57
	664.9	672000	662600	650500	641500	2800	854750	57
	740.6	672000	662600	650500	641500	2800	854750	57
	850.4	672000	662600	650500	641500	2800	854750	57
	1125.0	672000	662600	650500	641500	2800	854750	57
	1355.8	672000	662600	650500	641500	2800	854750	57
	1463.1	672000	662600	650500	641500	2800	854750	57
	1771.9	672000	662600	650500	641500	2800	854750	57
	1802.1	672000	662600	650500	641500	2800	854750	57
	2135.8	672000	662600	650500	641500	2800	854750	57
	2304.4	672000	662600	650500	641500	2800	854750	57
	2743.3	672000	662600	650500	641500	2800	854750	57
	3292.0	672000	662600	650500	641500	2800	854750	57
PDA 141 S6	1882.9	672000	662600	650500	641500	2800	854750	50
	2579.2	672000	662600	650500	641500	2800	854750	50
	3046,2	672000	662600	650500	641500	2800	854750	50
	3780.5	672000	662600	650500	641500	2800	854750	50
	4237.6	672000	662600	650500	641500	2800	854750	50
	4735.1	672000	662600	650500	641500	2800	854750	50
	5538.1	672000	662600	650500	641500	2800	854750	50
	5954.2	672000	662600	650500	641500	2800	854750	50
	6390.7	672000	662600	650500	641500	2800	854750	50
	6997.0	672000	662600	650500	641500	2800	854750	50
	7289.0	672000	662600	650500	641500	2800	854750	50
	7795.8	672000	662600	650500	641500	2800	854750	50
	8132.5	672000	662600	650500	641500	2800	854750	50
	8660.7	672000	662600	650500	641500	2800	854750	50
	9362.3	672000	662600	650500	641500	2800	854750	50
	9984.1	672000	662600	650500	641500	2800	854750	50
	10602.1	672000	662600	650500	641500	2800	854750	50
	11726.4	672000	662600	650500	641500	2800	854750	50
	12810.9	672000	662600	650500	641500	2800	854750	50
	13617.8	672000	662600	650500	641500	2800	854750	50
	14002.7	672000	662600	650500	641500	2800	854750	50
	15896.2	672000	662600	650500	641500	2800	854750	50
	16454.9	672000	662600	650500	641500	2800	854750	50
	17538.7	672000	662600	650500	641500	2800	854750	50
	19160.6	672000	662600	650500	641500	2800	854750	50
	20367.5	672000	662600	650500	641500	2800	854750	50

⚠ $(n_2 \times h = 20000)$

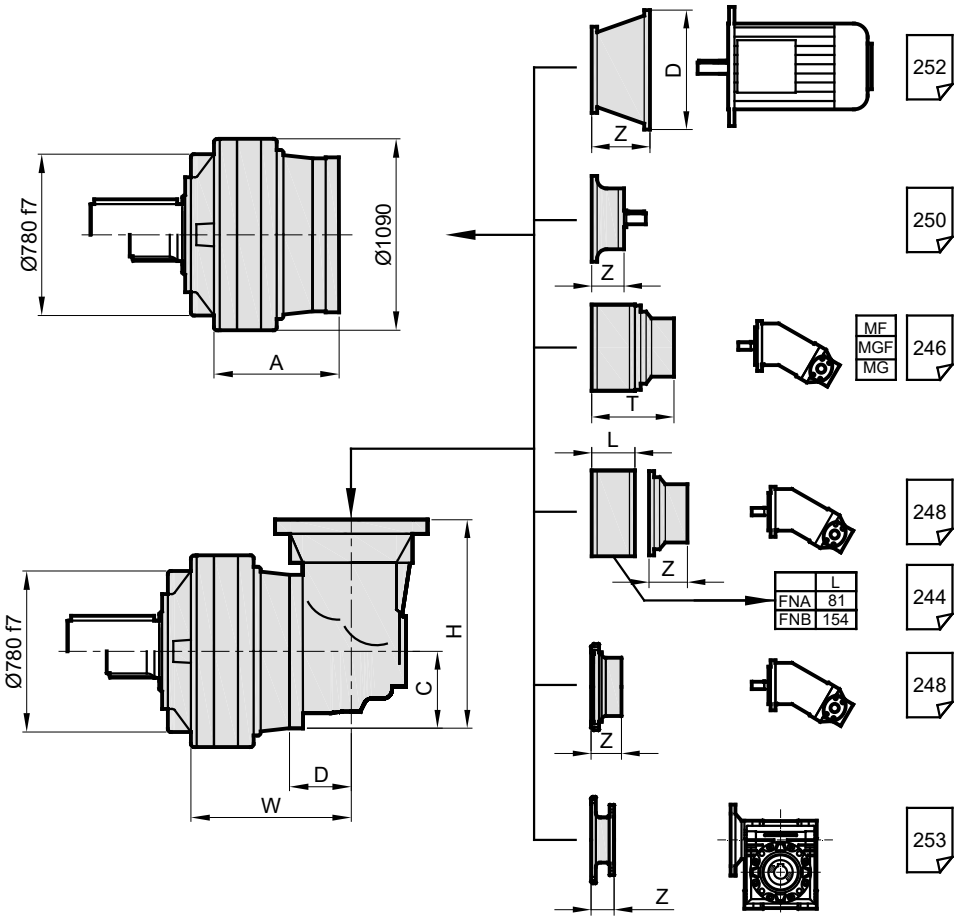
$T_{2max} = T_2 \times 1,3$

PD/PDA 141



PD..

PDA..

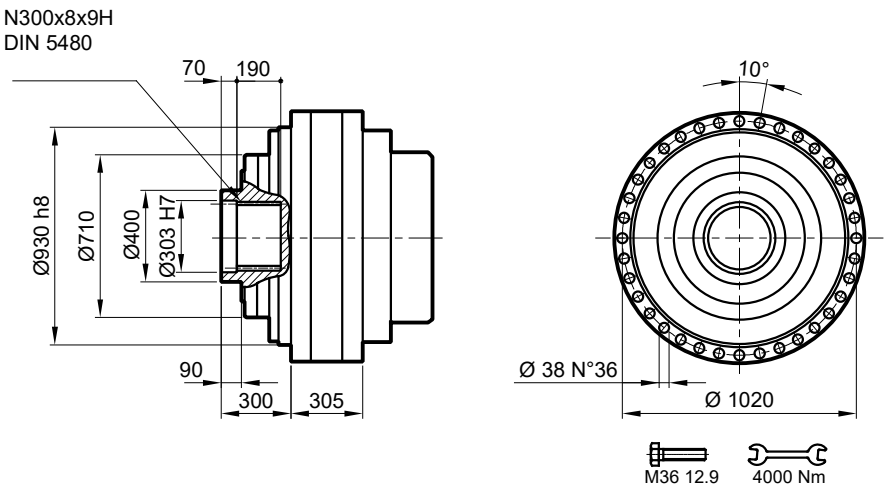


Stage	W	D	C	H	A	PD M	PDA M
S3	-	-	-	-	904	3600	-
S4	1173	149	240	610	1025	3700	3800
S5	1184	101	173	457	1204	4000	4100

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	-	-

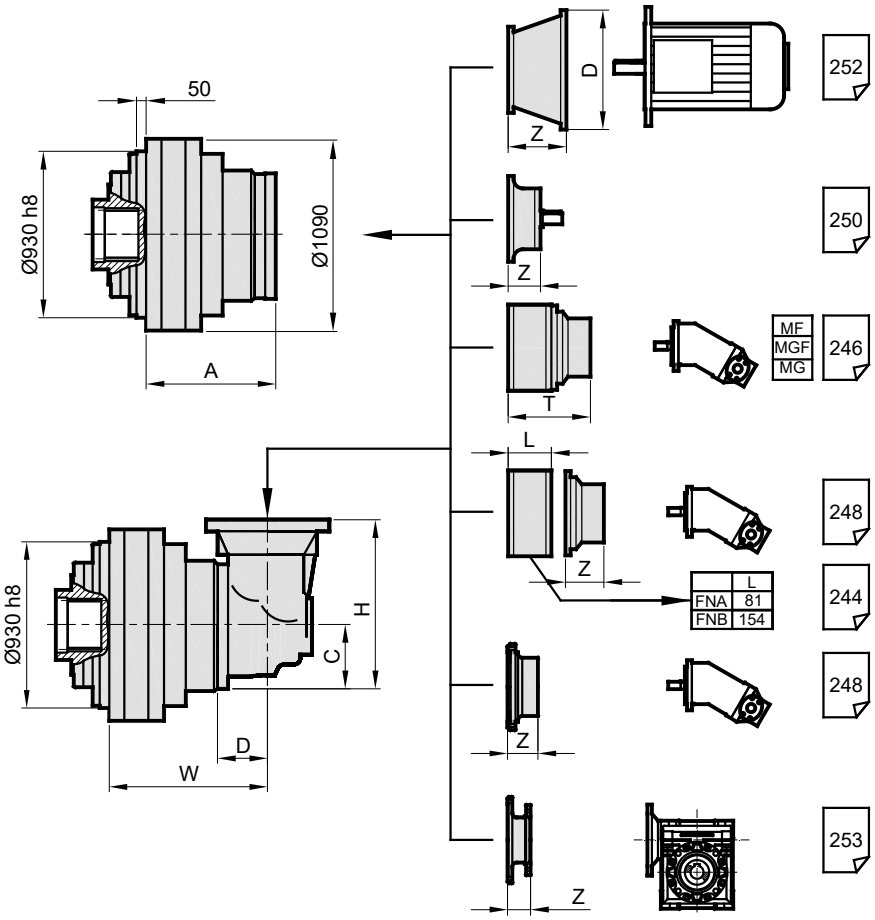
PD/PDA 141

S



PD..

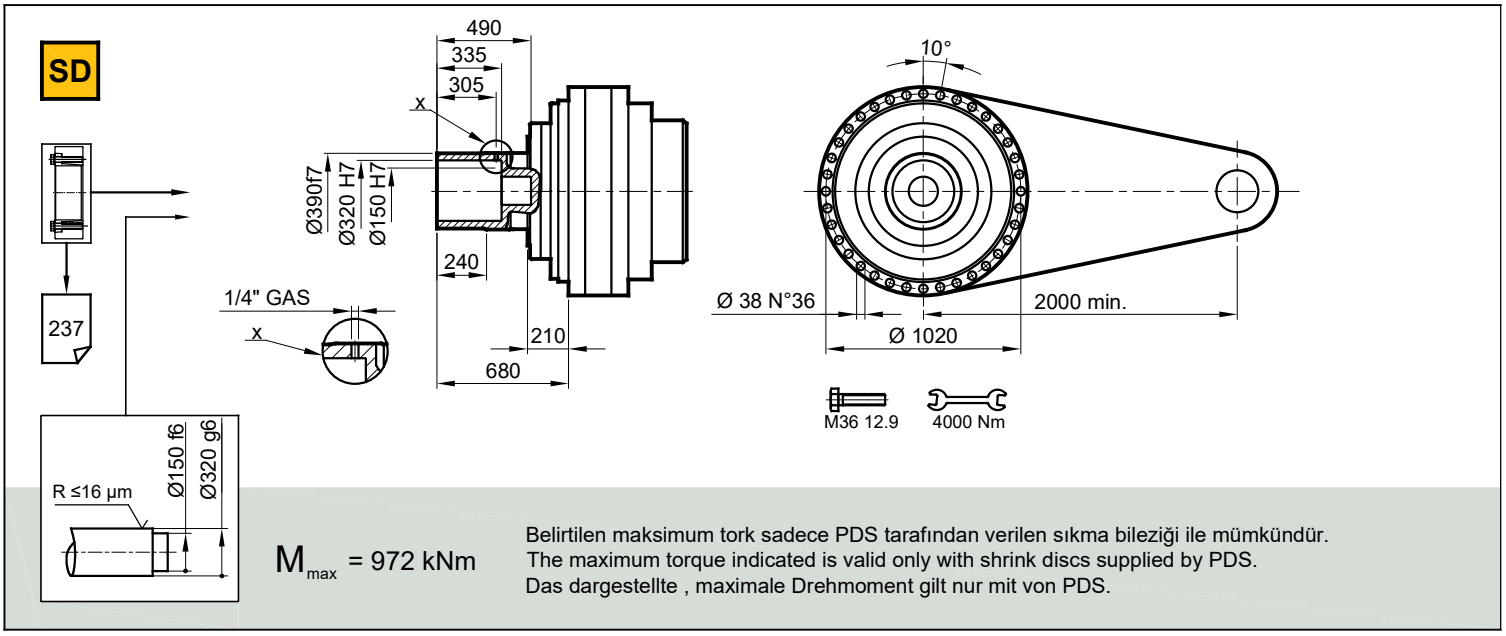
PDA..



Stage	W	D	C	H	A	PD S	PDA S
S3	-	-	-	-	904	3600	-
S4	1173	149	240	610	1025	3700	3800
S5	1184	101	173	457	1204	4000	4100

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	-	-

PD/PDA 141

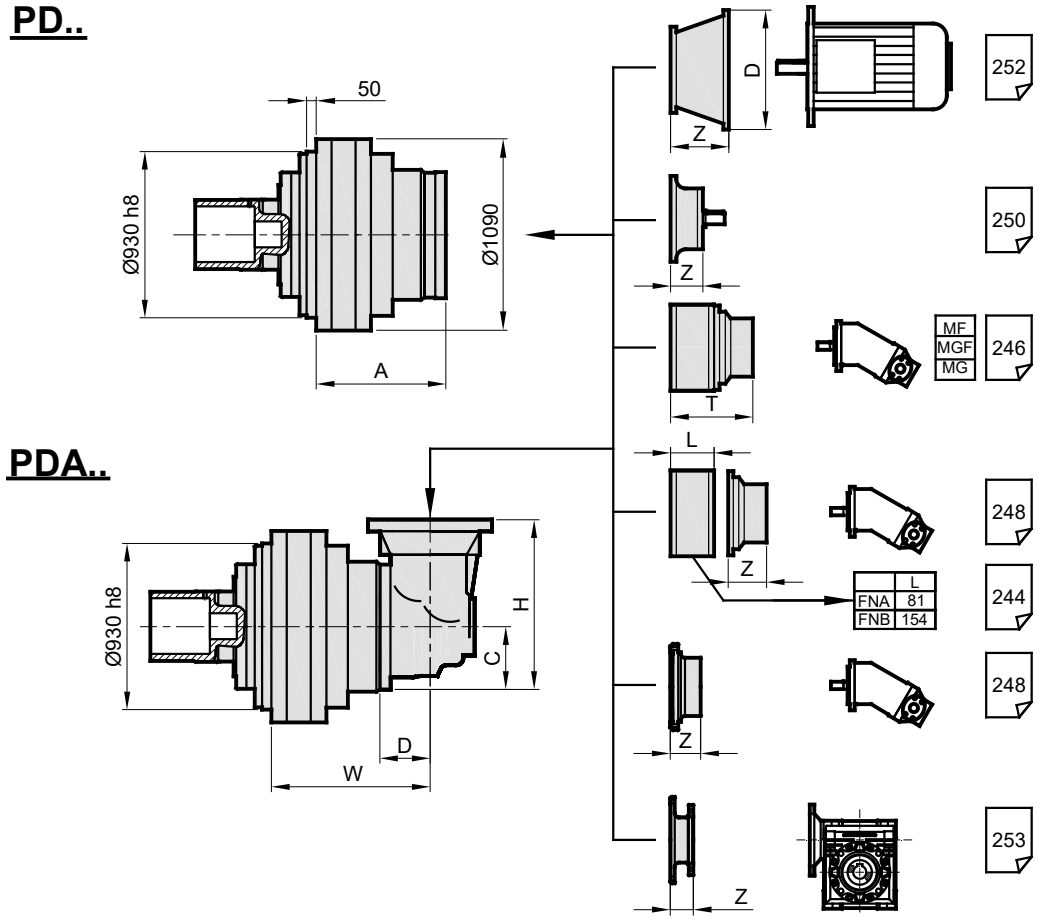


M_{max} = 972 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..

PDA..

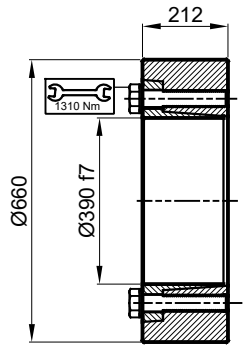


Stage	W	D	C	H	A	PD SD	PDA SD
S3	-	-	-	-	904	3600	-
S4	1173	149	240	610	1025	3700	3800
S5	1184	101	173	457	1204	4000	4100

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	-	-

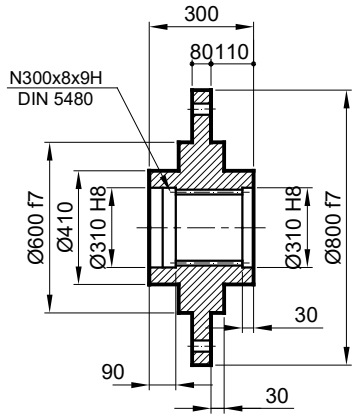
PD/PDA 141

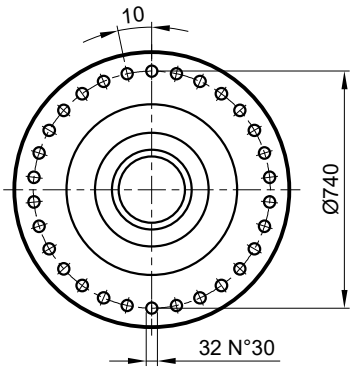
SB Sıkma Bileziği / Shrink disc
Schrumpfscheibe



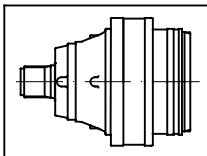
Maksimum tork
Max. torque
Max.Drehmoment
972 kNm

FL Flanş / *Flange* / Flansch

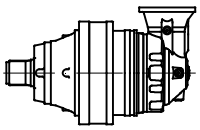




PD 143

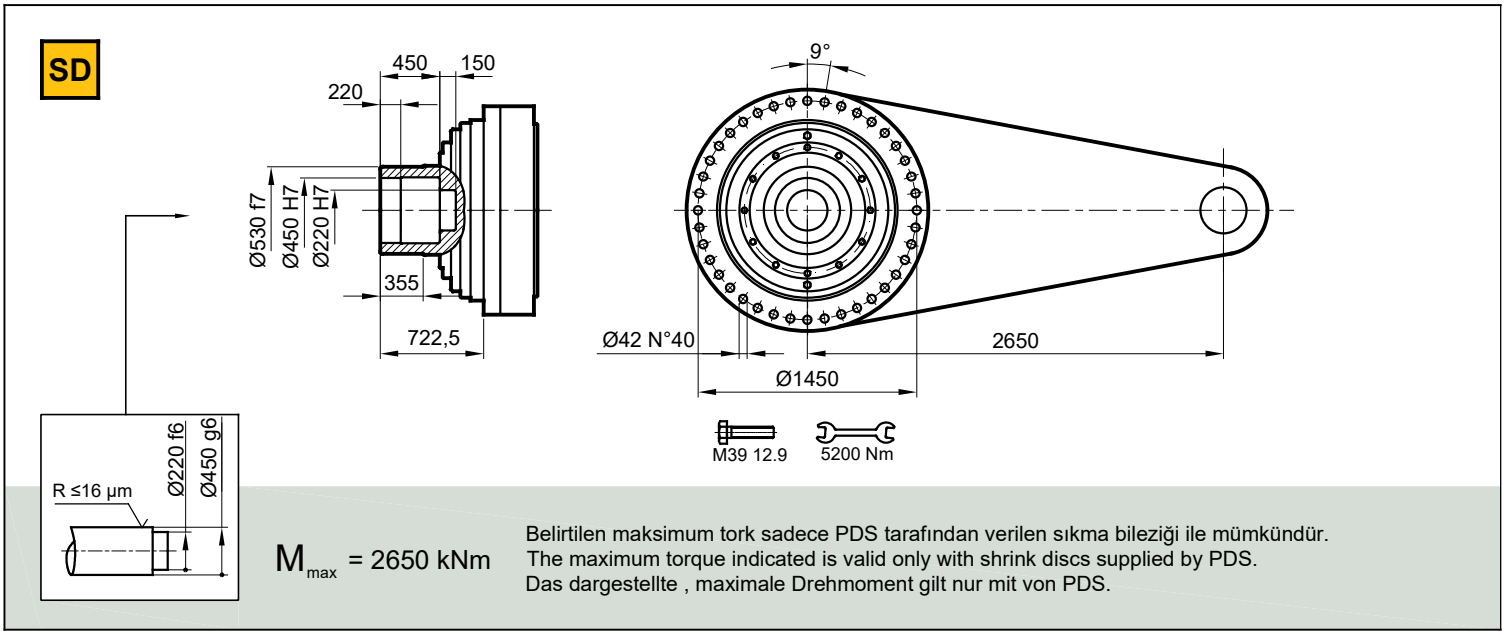
	i	T_2 [Nm]				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		$n_2$xh						
		10 000	20 000	50 000	100 000			
PD 143 S1	4.32	1347223	1172864	1056123	967096	750	1524723	278
PD 143 S2	17.3	1347223	1172864	1056123	967096	1300	1524723	187
	19.7	1347223	1172864	1056123	967096	1300	1524723	187
PD 143 S3	70.7	1347223	1172864	1056123	967096	1600	1524723	140
	80.8	1347223	1172864	1056123	967096	1600	1524723	140
	90.7	1347223	1172864	1056123	967096	1600	1524723	140
	103.7	1347223	1172864	1056123	967096	1600	1524723	140
PD 143 S4	282.7	1347223	1172864	1056123	967096	2100	1524723	111
	362.9	1347223	1172864	1056123	967096	2100	1524723	111
	414.6	1347223	1172864	1056123	967096	2100	1524723	111
	471.7	1347223	1172864	1056123	967096	2100	1524723	111
	539.0	1347223	1172864	1056123	967096	2100	1524723	111
PD 143 S5	1005.2	1347223	1172864	1056123	967096	2800	1524723	91
	1290.2	1347223	1172864	1056123	967096	2800	1524723	91
	1306.7	1347223	1172864	1056123	967096	2800	1524723	91
	1492.9	1347223	1172864	1056123	967096	2800	1524723	91
	1554.9	1347223	1172864	1056123	967096	2800	1524723	91
	1677.3	1347223	1172864	1056123	967096	2800	1524723	91
	1808.7	1347223	1172864	1056123	967096	2800	1524723	91
	1916.3	1347223	1172864	1056123	967096	2800	1524723	91
	2058.1	1347223	1172864	1056123	967096	2800	1524723	91
	2309.5	1347223	1172864	1056123	967096	2800	1524723	91
	2480.7	1347223	1172864	1056123	967096	2800	1524723	91
	2641.8	1347223	1172864	1056123	967096	2800	1524723	91
	2834.2	1347223	1172864	1056123	967096	2800	1524723	91
	3185.1	1347223	1172864	1056123	967096	2800	1524723	91
	3593.1	1347223	1172864	1056123	967096	2800	1524723	91
	4088.4	1347223	1172864	1056123	967096	2800	1524723	91
	4671.1	1347223	1172864	1056123	967096	2800	1524723	91
PD 143 S6	4737.1	1347223	1172864	1056123	967096	2800	1524723	57
	5193.3	1347223	1172864	1056123	967096	2800	1524723	57
	5639.9	1347223	1172864	1056123	967096	2800	1524723	57
	5980.7	1347223	1172864	1056123	967096	2800	1524723	57
	6336.5	1347223	1172864	1056123	967096	2800	1524723	57
	6796.9	1347223	1172864	1056123	967096	2800	1524723	57
	7239.4	1347223	1172864	1056123	967096	2800	1524723	57
	7676.9	1347223	1172864	1056123	967096	2800	1524723	57
	8033.9	1347223	1172864	1056123	967096	2800	1524723	57
	8993.1	1347223	1172864	1056123	967096	2800	1524723	57
	9253.4	1347223	1172864	1056123	967096	2800	1524723	57
	10572.0	1347223	1172864	1056123	967096	2800	1524723	57
	11995.5	1347223	1172864	1056123	967096	2800	1524723	57
	13743.6	1347223	1172864	1056123	967096	2800	1524723	57
	15445.2	1347223	1172864	1056123	967096	2800	1524723	57
	17646.2	1347223	1172864	1056123	967096	2800	1524723	57
	20289.0	1347223	1172864	1056123	967096	2800	1524723	57
	23091.9	1347223	1172864	1056123	967096	2800	1524723	57
	28026.3	1347223	1172864	1056123	967096	2800	1524723	57
	33865.1	1347223	1172864	1056123	967096	2800	1524723	57

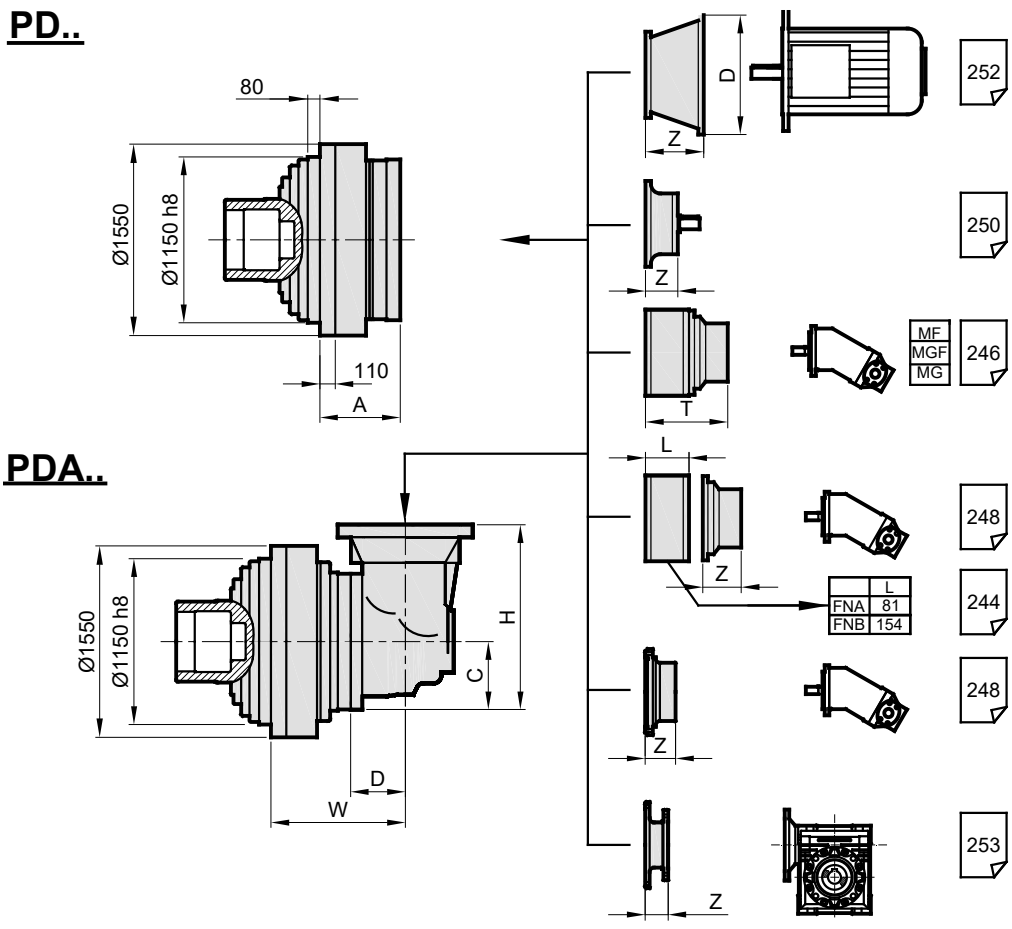
PDA 143

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 143 S5	1000.8	1347223	1172864	1056123	967096	2800	1524723	57
	1143.4	1347223	1172864	1056123	967096	2800	1524723	57
	1301.0	1347223	1172864	1056123	967096	2800	1524723	57
	1486.4	1347223	1172864	1056123	967096	2800	1524723	57
	1670.0	1347223	1172864	1056123	967096	2800	1524723	57
	1942.0	1347223	1172864	1056123	967096	2800	1524723	57
	2181.8	1347223	1172864	1056123	967096	2800	1524723	57
	2492.7	1347223	1172864	1056123	967096	2800	1524723	57
PDA 143 S6	2794.3	1347223	1172864	1056123	967096	2800	1524723	50
	3367.6	1347223	1172864	1056123	967096	2800	1524723	50
	3847.5	1347223	1172864	1056123	967096	2800	1524723	50
	4150.3	1347223	1172864	1056123	967096	2800	1524723	50
	4938.7	1347223	1172864	1056123	967096	2800	1524723	50
	5190.7	1347223	1172864	1056123	967096	2800	1524723	50
	5721.4	1347223	1172864	1056123	967096	2800	1524723	50
	6454.3	1347223	1172864	1056123	967096	2800	1524723	50
	6783.7	1347223	1172864	1056123	967096	2800	1524723	50
	7344.1	1347223	1172864	1056123	967096	2800	1524723	50
	7879.1	1347223	1172864	1056123	967096	2800	1524723	50
	8390.7	1347223	1172864	1056123	967096	2800	1524723	50
	8818.8	1347223	1172864	1056123	967096	2800	1524723	50
	9896.1	1347223	1172864	1056123	967096	2800	1524723	50
	10116.3	1347223	1172864	1056123	967096	2800	1524723	50
	11365.9	1347223	1172864	1056123	967096	2800	1524723	50
	12144.5	1347223	1172864	1056123	967096	2800	1524723	50
	13648.1	1347223	1172864	1056123	967096	2800	1524723	50
	15589.0	1347223	1172864	1056123	967096	2800	1524723	50

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max} = T_2 \times 1{,}3}$

PD/PDA 143

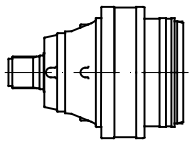




Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	-	4232	-
S2	-	-	-	-	646,5	5072	-
S3	-	-	-	-	1026,5	5268	-
S4	-	-	-	-	1263,5	5327	-
S5	-	-	-	-	1374,5	5343	-
S6	1892,5	101	235	550	1694,5	5359	5740

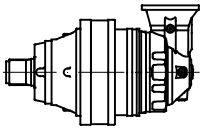
	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	-	-

PD 145



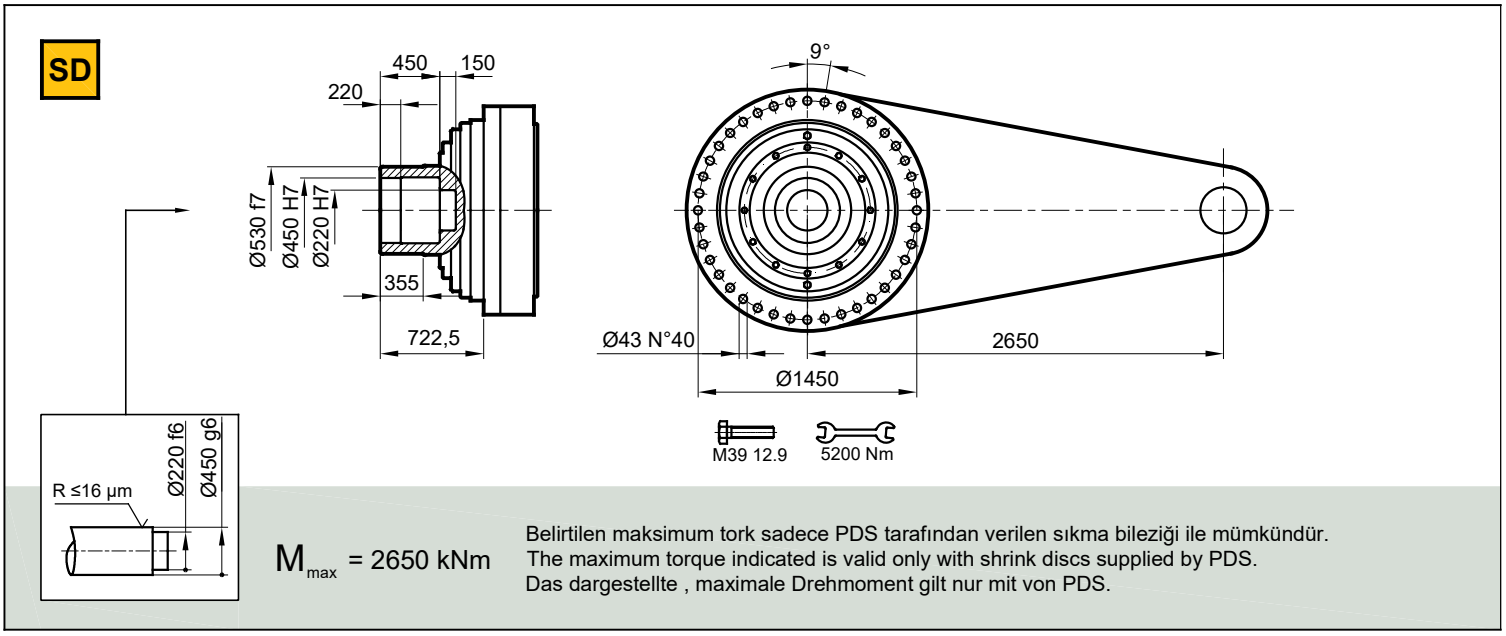
	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PD 145 S1	4,32	1347223	1172864	1056123	967096	750	1524723	278
PD 145 S2	17.3	1347223	1172864	1056123	967096	1300	1524723	187
	19.7	1347223	1172864	1056123	967096	1300	1524723	187
PD 145 S3	66.2	1347223	1172864	1056123	967096	1600	1524723	140
	75.7	1347223	1172864	1056123	967096	1600	1524723	140
	76.0	1347223	1172864	1056123	967096	1600	1524723	140
	86.9	1347223	1172864	1056123	967096	1600	1524723	140
PD 145 S4	261.7	1347223	1172864	1056123	967096	2100	1524723	111
	300.3	1347223	1172864	1056123	967096	2100	1524723	111
	343.1	1347223	1172864	1056123	967096	2100	1524723	111
	439.8	1347223	1172864	1056123	967096	2100	1524723	111
	521.2	1347223	1172864	1056123	967096	2100	1524723	111
PD 145 S5	930.3	1347223	1172864	1056123	967096	2800	1524723	91
	1067.8	1347223	1172864	1056123	967096	2800	1524723	91
	1192.3	1347223	1172864	1056123	967096	2800	1524723	91
	1286.9	1347223	1172864	1056123	967096	2800	1524723	91
	1368.6	1347223	1172864	1056123	967096	2800	1524723	91
	1703.0	1347223	1172864	1056123	967096	2800	1524723	91
	1954.8	1347223	1172864	1056123	967096	2800	1524723	91
	2233.3	1347223	1172864	1056123	967096	2800	1524723	91
	2542.8	1347223	1172864	1056123	967096	2800	1524723	91
	2973.7	1347223	1172864	1056123	967096	2800	1524723	91
	3320.4	1347223	1172864	1056123	967096	2800	1524723	91
	3518.1	1347223	1172864	1056123	967096	2800	1524723	91
	3811.3	1347223	1172864	1056123	967096	2800	1524723	91
PD 145 S6	4015.3	1347223	1172864	1056123	967096	2800	1524723	57
	4504.3	1347223	1172864	1056123	967096	2800	1524723	57
	4918.3	1347223	1172864	1056123	967096	2800	1524723	57
	5535.3	1347223	1172864	1056123	967096	2800	1524723	57
	5829.1	1347223	1172864	1056123	967096	2800	1524723	57
	6201.9	1347223	1172864	1056123	967096	2800	1524723	57
	6672.0	1347223	1172864	1056123	967096	2800	1524723	57
	7000.8	1347223	1172864	1056123	967096	2800	1524723	57
	7384.7	1347223	1172864	1056123	967096	2800	1524723	57
	7721.4	1347223	1172864	1056123	967096	2800	1524723	57
	8105.2	1347223	1172864	1056123	967096	2800	1524723	57
	8844.9	1347223	1172864	1056123	967096	2800	1524723	57
	9303.4	1347223	1172864	1056123	967096	2800	1524723	57
	9922.2	1347223	1172864	1056123	967096	2800	1524723	57
	10134.7	1347223	1172864	1056123	967096	2800	1524723	57
	11632.9	1347223	1172864	1056123	967096	2800	1524723	57
	13290.6	1347223	1172864	1056123	967096	2800	1524723	57
	15588.9	1347223	1172864	1056123	967096	2800	1524723	57
	17842.4	1347223	1172864	1056123	967096	2800	1524723	57
	18632.9	1347223	1172864	1056123	967096	2800	1524723	57
	20332.4	1347223	1172864	1056123	967096	2800	1524723	57
	21559.5	1347223	1172864	1056123	967096	2800	1524723	57
	24972.4	1347223	1172864	1056123	967096	2800	1524723	57
	27102.4	1347223	1172864	1056123	967096	2800	1524723	57

PDA 145

	i	T_2 [Nm] $n_2$xh				n_{1max} [min^{-1}]	T_{2max} [Nm]	P_t [kW]
		10 000	20 000	50 000	100 000			
PDA 145 S5	1062.3	1347223	1172864	1056123	967096	2800	1524723	57
	1219.3	1347223	1172864	1056123	967096	2800	1524723	57
	1361.5	1347223	1172864	1056123	967096	2800	1524723	57
	1562.7	1347223	1172864	1056123	967096	2800	1524723	57
	1785.4	1347223	1172864	1056123	967096	2800	1524723	57
	1843.5	1347223	1172864	1056123	967096	2800	1524723	57
	2116.1	1347223	1172864	1056123	967096	2800	1524723	57
PDA 145 S6	2586.2	1347223	1172864	1056123	967096	2800	1524723	50
	2968.6	1347223	1172864	1056123	967096	2800	1524723	50
	3391.6	1347223	1172864	1056123	967096	2800	1524723	50
	3561.0	1347223	1172864	1056123	967096	2800	1524723	50
	3994.7	1347223	1172864	1056123	967096	2800	1524723	50
	4346.8	1347223	1172864	1056123	967096	2800	1524723	50
	4509.2	1347223	1172864	1056123	967096	2800	1524723	50
	4804.2	1347223	1172864	1056123	967096	2800	1524723	50
	5151.8	1347223	1172864	1056123	967096	2800	1524723	50
	5635.6	1347223	1172864	1056123	967096	2800	1524723	50
	5864.3	1347223	1172864	1056123	967096	2800	1524723	50
	6187.3	1347223	1172864	1056123	967096	2800	1524723	50
	6846.2	1347223	1172864	1056123	967096	2800	1524723	50
	7102.0	1347223	1172864	1056123	967096	2800	1524723	50
	7567.8	1347223	1172864	1056123	967096	2800	1524723	50
	8252.1	1347223	1172864	1056123	967096	2800	1524723	50
	9193.5	1347223	1172864	1056123	967096	2800	1524723	50
	9575.6	1347223	1172864	1056123	967096	2800	1524723	50
	10595.3	1347223	1172864	1056123	967096	2800	1524723	50
	11133.1	1347223	1172864	1056123	967096	2800	1524723	50
	12506.7	1347223	1172864	1056123	967096	2800	1524723	50
	14759.6	1347223	1172864	1056123	967096	2800	1524723	50
	16862.8	1347223	1172864	1056123	967096	2800	1524723	50

⚠ $\frac{(n_2 \times h = 20000)}{T_{2max}=T_2 \times 1,3}$

PD/PDA 145

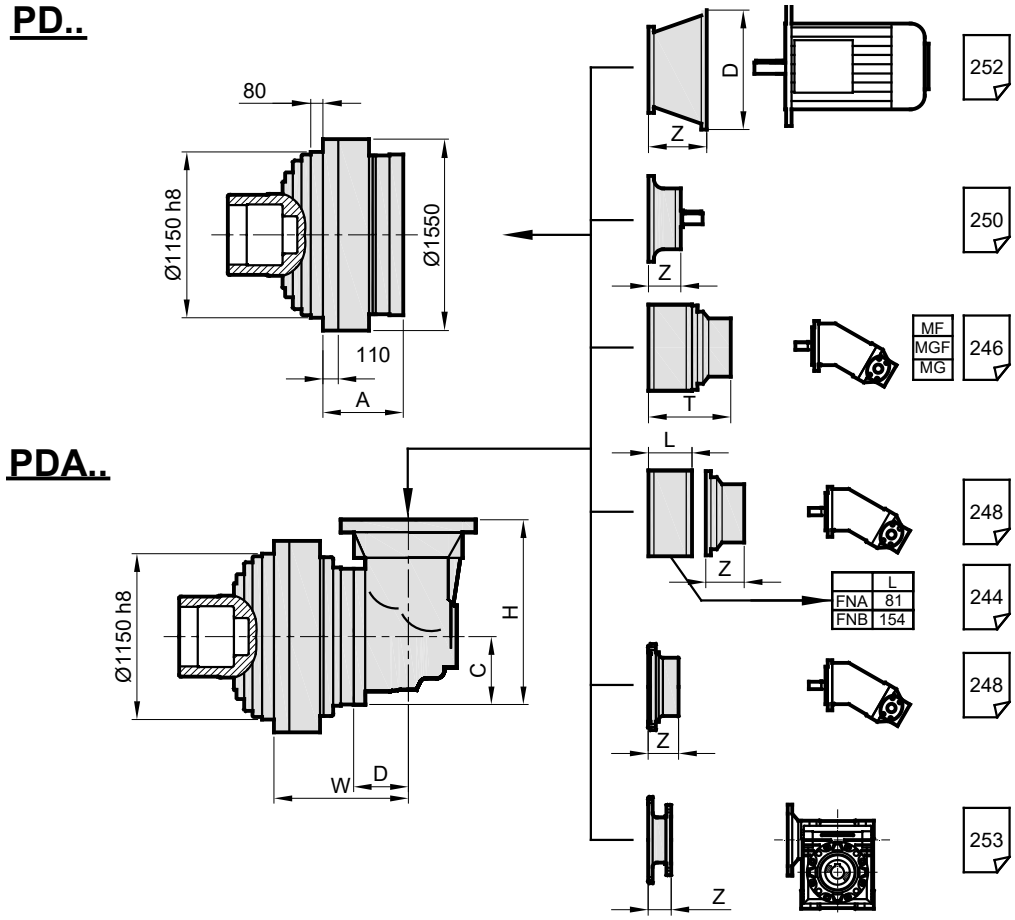


M_{max} = 2650 kNm

Belirtilen maksimum tork sadece PDS tarafından verilen sıkma bileziği ile mümkündür.
The maximum torque indicated is valid only with shrink discs supplied by PDS.
Das dargestellte , maximale Drehmoment gilt nur mit von PDS.

PD..

PDA..



Stage	W	D	C	H	A	PD SD	PDA SD
S1	-	-	-	-	-	4232	-
S2	-	-	-	-	646,5	5072	-
S3	-	-	-	-	1026,5	5268	-
S4	-	-	-	-	1263,5	5327	-
S5	-	-	-	-	1374,5	5343	-
S6	1892,5	101	235	550	1694,5	5359	5740

	H71		H80-90		H100		H132		H160-180		H200		H225		H250-280	
Stage	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z	D	Z
S4	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	550	183,5
S5	-	-	-	-	-	-	-	-	-	-	400	148,5	450	148,5	-	-

FNA FREN MODÜLÜ
FNA MODULER BRAKES
FNA BREMS MODULE

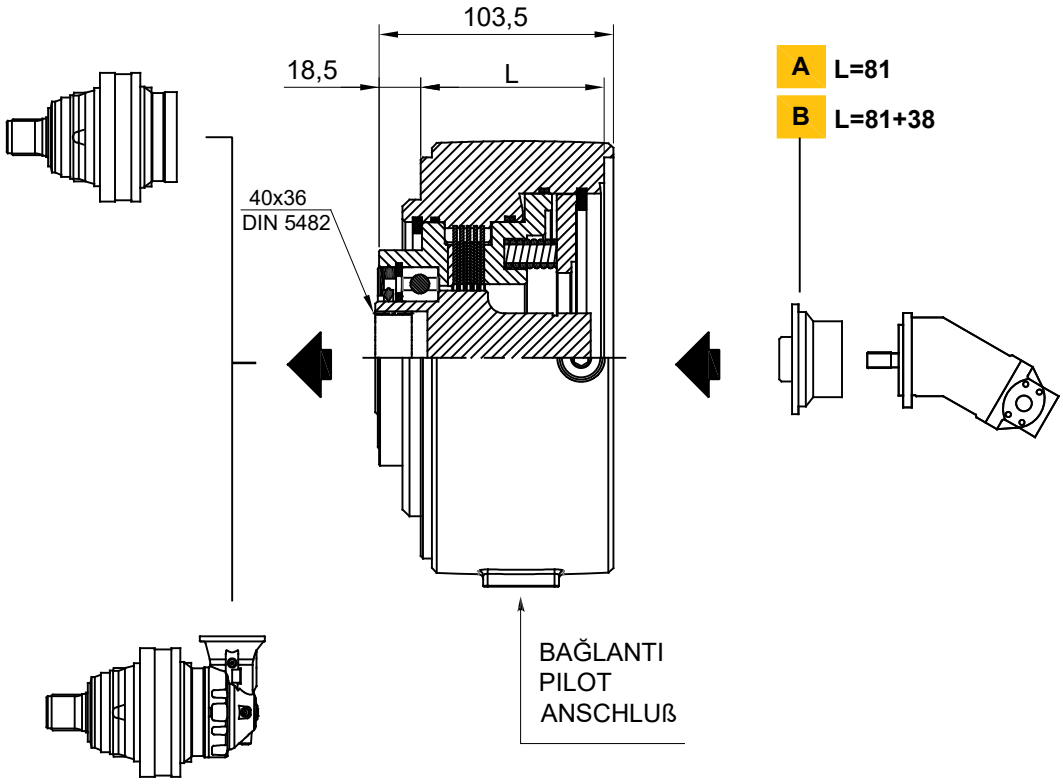
PDS Planet Redüktörleri hidrolik frenlerle ve yağ banyolu disklerle donatılmış olup frenleme için özel olarak dizayn edilmiştir. Frenleme için kullanılan yağlama, planet dişlileri için kullanılan yağlamadan bağımsızdır. Böylelikle yağ koyma sırasında dış yüzeyde bulunan girişten aynı zamanda frenleri de yağlayabilmek mümkündür. Yağ olarak ISO VG 32 kullanmanızı öneririz.(hidrolik yağ kullanmakta mümkündür)

PDS planetary reduction units are equipped with hydraulic brakes with oilbath disks, expressly designed for static or parking braking. The lubrication for the brakes is separated from the lubrication of the planetary gear units. Thus, during the lubricant inlet phase, it is necessary to pour the fluid also into the brake through the proper hole mounted on its casing. We suggest to use lubricant ISO VG 32 (however, hydraulic lubricants can be used as well).

Fuer die PDS - Planetengetriebe stehen hydraulische Federdruck-Lamellenbremsen zur Verfuegung. Diese sind ausschliesslich als statische Haltebremsen ausgelegt. Die Lamellen liegen im Oelbad, das vom Oelkreislauf des Getriebes getrennt ist. Deshalb ist beim Befuellen darauf zu achten, dass der Schmierstoff direkt in den Bremskoerper gegeben wird. In der Regel koennen Hydraulikoele verwendet werden. Empfohlener Schmierstoff: ISO VG 32.

	FNA
PD 101	1-2-3-4
PD 103	1-2-3-4
PD 105	1-2-3-4
PD 107	1-2-3-4
PD 109	2-3-4
PD 111	2-3-4
PD 113	2-3-4
PD 115	3-4
PD 117	3-4
PD 119	3-4
PD 121	3-4
PD 123	3-4
PD 125	4
PD 127	4
PD 129	4-5
PD 131	5
PD 133	5
PD 135	5
PD 137	5
PD 139	—
PD 141	—

	FNA
PDA 101	2-3-4
PDA 103	2-3-4
PDA 105	2-3-4
PDA 107	2-3-4
PDA 109	2-3-4
PDA 111	2-3-4
PDA 113	2-3-4
PDA 115	3-4
PDA 117	3-4
PDA 119	3-4
PDA 121	3-4
PDA 123	3-4
PDA 125	4
PDA 127	4
PDA 129	5
PDA 131	5
PD 133	5
PDA 135	5
PDA 137	—
PDA 139	—
PDA 141	—



FNA				
	Cfs_{min} [Nm]	Pa_{min} [bar]	P_{max} [bar]	Kg
FNA	550	34	320	14

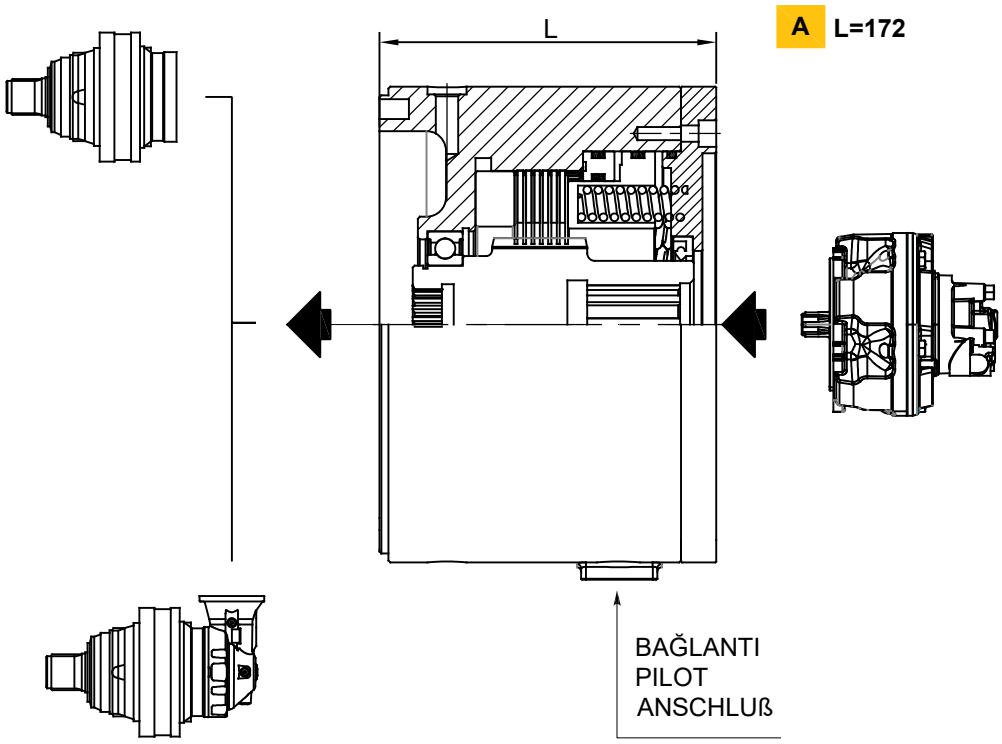
1-2-3-4-5 numaralı planet dişli redüktör kademelerine bakınız.

Numbers 1-2-3-4-5 refer to the number of stages of the planetary gear unit.

Die Ziffern 1-2-3-4-5 geben die Anzahl der Getriebestufen an.

FNB FREN MODÜLÜ
FNB MODULER BRAKES
FNB BREMS MODULE

	FNB
PD 101	—
PD 103	—
PD 105	1
PD 107	1
PD 109	1-2
PD 111	1-2
PD 113	1-2
PD 115	2-3
PD 117	2-3
PD 119	2-3
PD 121	2-3
PD 123	2-3
PD 125	3-4
PD 127	3-4
PD 129	3-4
PD 131	3-4
PD 133	3-4
PD 135	4-5
PD 137	4-5
PD 139	4-5
PD 141	4-5



	FNB
PDA 101	—
PDA 103	—
PDA 105	—
PDA 107	—
PDA 109	—
PDA 111	—
PDA 113	—
PDA 115	2
PDA 117	2
PDA 119	—
PDA 121	2-3
PDA 123	2
PDA 125	3
PDA 127	3
PDA 129	4
PDA 131	4
PDA 133	4
PDA 135	4
PDA 137	4-5
PDA 139	4-5
PDA 141	5

FNB				
	Cfs_{min} [Nm]	Pa_{min} [bar]	P_{max} [bar]	Kg
FNB	1500	40	320	43

1-2-3-4-5 numaralı planet dişli redüktör kademelerine bakınız.

Numbers 1-2-3-4-5 refer to the number of stages of the planetary gear unit.

Die Ziffern 1-2-3-4-5 geben die Anzahl der Getriebestufen an.

MGF FREN İLE DOĞRUDAN MOTOR GİRİŞ ADAPTÖR
MGF DIRECT INPUT MOTOR ADAPTOR WITH BRAKE
MGF MOTORFLANSCH MIT INTEGRIERTER BREMSE

Aşağıdaki tabloda PD planet redüktörleri üzerine doğrudan giriş MGF uygulamaları gösterilmiştir.

The table below shows direct input MGF applications on PD planetary gearboxes.

Die folgende Tabelle zeigt MGF-Anwendungen mit direkter Eingabe an PD-Planetengetrieben.

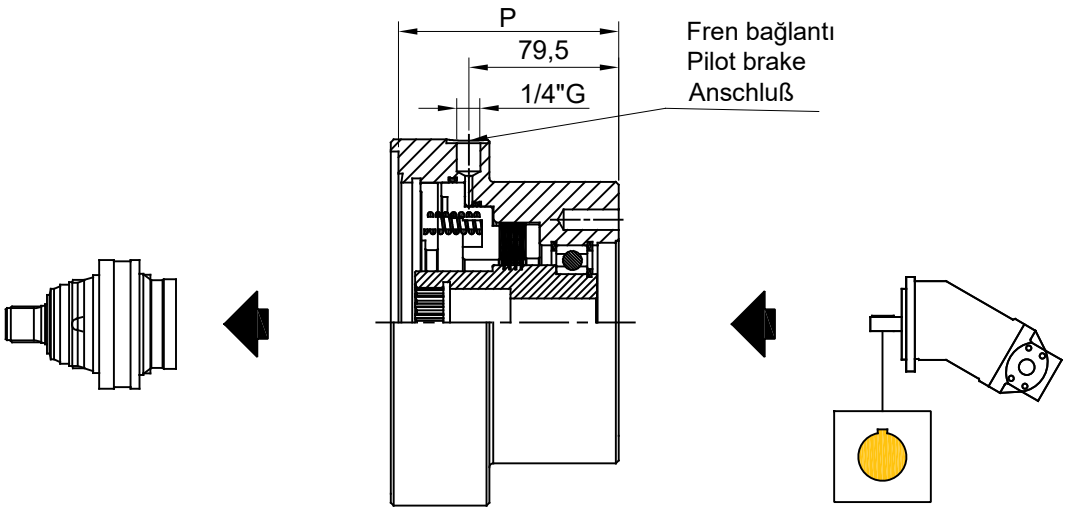
	MGF
PD 101	1-2-3-4
PD 103	1-2-3-4
PD 105	2-3-4
PD 107	2-3-4
PD 109	3-4
PD 111	3-4
PD 113	3-4
PD 115	4
PD 117	4
PD 119	4
PD 121	4

	MGF
PD 123	4
PD 125	-
PD 127	-
PD 129	5
PD 131	5
PD 133	5
PD 135	-
PD 137	-
PD 139	-
PD 141	-

1-2-3-4-5 numaralı planet dişli redüktör kademelerine bakınız.

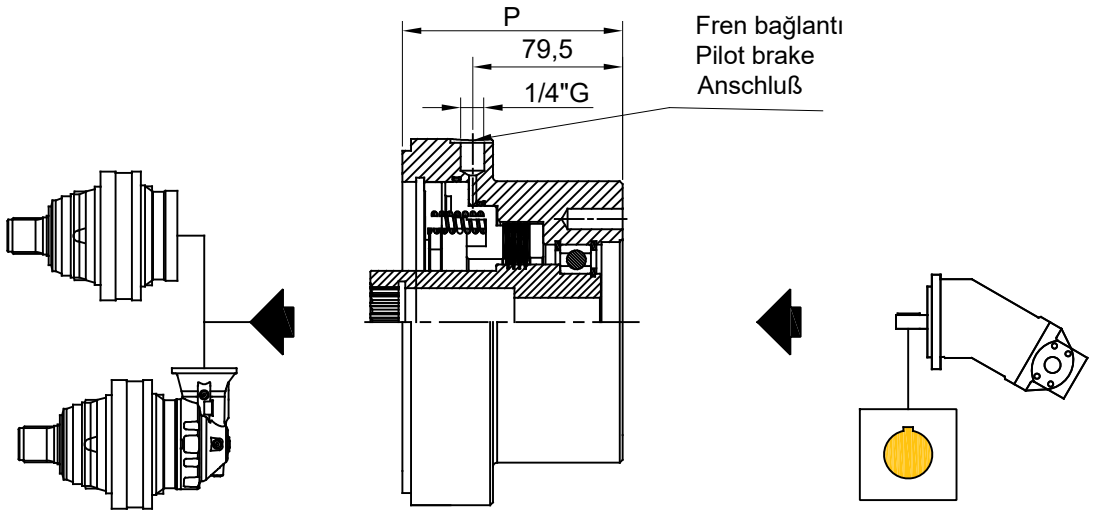
Numbers 1-2-3-4-5 refer to the number of stages of the planetary gear unit.

Die Ziffern 1-2-3-4-5 geben die Anzahl der Getriebestufen an.



	MGF				
	Cfs_{min} [Nm]	Pa_{min} [bar]	P	P_{max} [bar]	Kg
MGF 55 SAE A 2-4 F D. 25 CH 8	600	25	114	320	14

MF FREN İLE DOĞRUDAN MOTOR GİRİŞ ADAPTÖR
MF DIRECT INPUT MOTOR ADAPTOR WITH BRAKE
MF MOTORFLANSCH MIT INTEGRIERTER BREMSE



MF					
	Cfs_{min} [Nm]	Pa_{min} [bar]	P	P_{max} [bar]	Kg
MF 55 SAE A 2-4 F D. 25 CH 8	600	25	114	320	14

Aşağıdaki tabloda PD ve PDA planet redüktörleri üzerine doğrudan giriş MF uygulamaları gösterilmiştir.

The table below shows direct input MF applications on PD and PDS planetary gearboxes.

Die folgende Tabelle zeigt MF-Anwendungen mit direkter Eingabe für PD- und PDS-Planetengetriebe.

	MF
PD 101	-
PD 103	-
PD 105	1
PD 107	1
PD 109	2
PD 111	2
PD 113	2
PD 115	-
PD 117	3
PD 119	3
PD 121	3

	MF
PD 123	3
PD 125	4
PD 127	4
PD 129	4
PD 131	5
PD 133	5
PD 135	-
PD 137	-
PD 139	-
PD 141	-

	MF
PDA 101	2-3-4
PDA 103	2-3-4
PDA 105	2-3-4
PDA 107	2-3-4
PDA 109	2-3-4
PDA 111	2-3-4
PDA 113	2-3-4
PDA 115	3-4
PDA 117	3-4
PDA 119	3-4
PDA 121	4

	MF
PDA 123	4
PDA 125	4
PDA 127	4
PDA 129	5
PDA 131	5
PDA 133	5
PDA 135	5
PDA 137	-
PDA 139	-
PDA 141	-

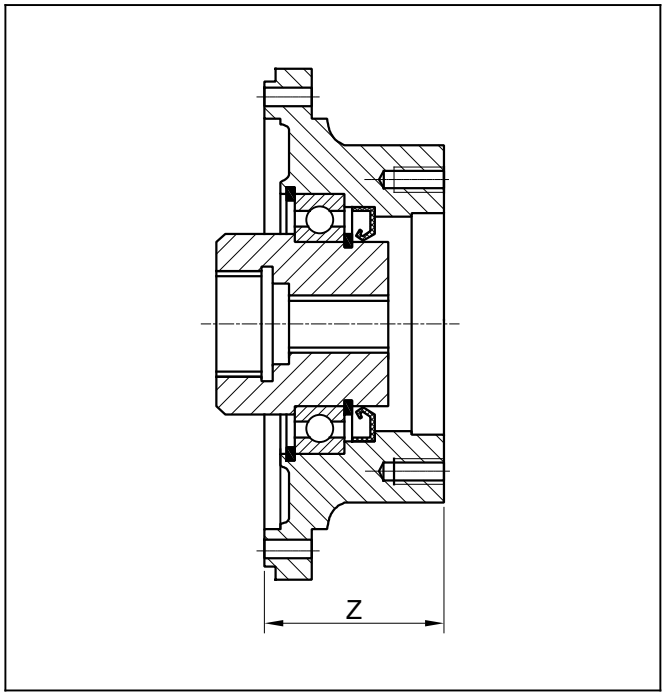
1-2-3-4-5 numaralı planet dişli redüktör kademelerine bakınız.

Numbers 1-2-3-4-5 refer to the number of stages of the planetary gear unit.

Die Ziffern 1-2-3-4-5 geben die Anzahl der Getriebestufen an.

HİDROLİK MOTOR BAĞLANTI ADAPTÖRÜ
HYDROLIC MOTOR COUPLINGS
ANBAUVORRICHTUNG FUER HYDRAULIKMOTORE

	A	B
	Z	Z+38
PD 101	1-2-3-4	-
PD 103	1-2-3-4	-
PD 105	1-2-3-4	-
PD 107	1-2-3-4	-
PD 109	2-3-4	1
PD 111	2-3-4	1
PD 113	2-3-4	1
PD 115	3-4	2
PD 117	3-4	2
PD 119	3-4	2
PD 121	3-4	2
PD 123	3-4	2
PD 125	4	3
PD 127	4	3
PD 129	4	3
PD 131	4	3
PD 133	4	3
PD 135	-	4
PD 137	-	4
PD 139	-	4
PD 141	-	4
PD 143	-	5
PD 145	-	5



	A
	Z
PDA 101	2-3-4
PDA 103	2-3-4
PDA 105	2-3-4
PDA 107	2-3-4
PDA 109	2-3-4
PDA 111	3-4
PDA 113	3-4
PDA 115	3-4
PDA 117	3-4
PDA 119	3-4
PDA 121	4
PDA 123	4
PDA 125	4
PDA 127	4
PDA 129	5
PDA 131	5
PDA 133	5
PDA 135	5
PDA 137	-
PDA 139	-
PDA 141	-

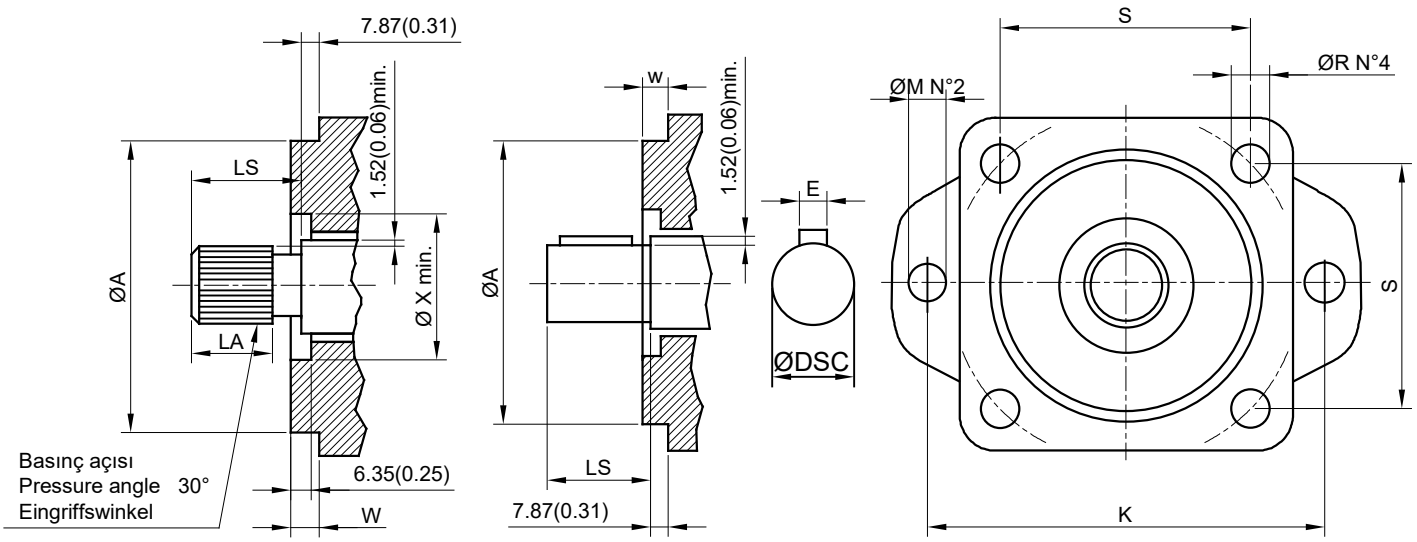
DANFOSS		
Motor Tip / Motor type / Motortyp	Z	
OMP - OMR Ø 25	62,5	A
OMP - OMR Ø 25.4	62,5	
OMP - OMR SAE 1”6B	62,5	
OMS Ø 32	78	
OMS 12/24 DP TH14	78	
OMSS	53,5	
OMT Ø 40	128	
OMTS	73	
M 25-28-32-41 W25x1,25x18	74,5	
M 25-28-32-41 W30x2x14	66,5	
M 45-50-63 W30x2x14	76,5	
M 45-50-63 W35x2x16	81,5	
M 80-90-108 W35x2x16	86	
M 80-90-108 W40x2x18	93	

1-2-3-4-5 numaralı planet dişli redüktör kademelerine bakınız.
Numbers 1-2-3-4-5 refer to the number of stages of the planetary gear unit.
Die Ziffern 1-2-3-4-5 geben die Anzahl der Getriebestufen an.

*Redüktör giriş kademesi 101-103 ise bağlantı tipi A dır, redüktör giriş kademesi 105-107 ise bağlantı tipi B dir.
*If the gearbox input stage is 101-103, the connection type is A, if the reducer input stage is 105-107, the connection type is B.
*Wenn die Getriebeeingangsstufe 101-103 ist, ist der Verbindungstyp A, wenn die Untersetzungsstufe 105-107 ist, ist der Verbindungstyp B.

*Özel hidromotorlar için PDA Planet'e başvurunuz.
*Please contact PDS Planet for special hydromotors.
*Bitte kontaktieren Sie PDS Planet für spezielle Hydromotoren.

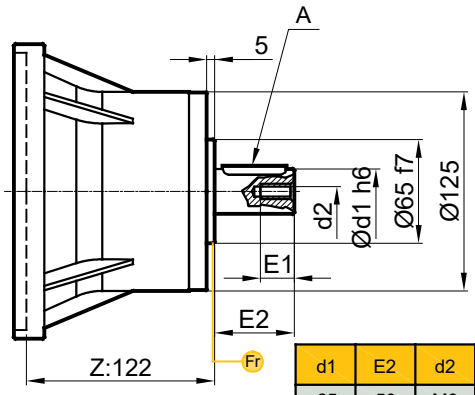
SAEJ 744C GÖRE MOTORLAR İÇİN FLANŞLAR
FLANGES FOR MOTORS ACCORDING TO THE SAEJ 744C STD
FLANSCHE FÜR MOTORE NQACH SAEJ 744C-NORM



		A	W	Xmin	K	M	S	R	Frezeli Mil Splined Shaft Zahnwelle			Kamalı Mil Parallel Shaft Zylinderwelle			
									DP	LS	LAmin	DSC	LS	F	E
SAE A-A	mm	50.80	6.35	-	350.04	10.31	-	-	20/40	19.05	5.08	12.70	19.05	14.07	3.175
	inç	(2.00)	(0.25)	-	(13.785)	(0.406)	-	-	9T	(0.750)	(0.20)	(0.50)	(0.750)	(0.554)	(0.125)
SAE A	mm	82.55	6.35	-	106.37	11.10	-	-	16/32	23.83	7.62	15.87	23.83	17.60	3.97
	inç	(3.250)	(0.25")	-	(4.188)	(0.438)	-	-	9T	(0.938)	(0.30)	(0.625)	(0.938)	(0.693)	(0.1563)
SAE B	mm	101.60	9.65	50.80	146.05	14.30	89.81	14.27	16/32	33.32	10.16	22.22	33.32	24.94	6.35
	inç	(4.00)	(0.38)	(2.00)	(5.75)	(0.562)	(3.536)	(0.562)	13T	(1.312)	(0.40)	(0.875)	(1.312)	(0.982)	(0.250)
SAE B-B	mm	101.60	12.70	50.80	146.05	14.30	89.81	14.27	16/32	38.10	12.70	25.40	38.10	28.10	6.35
	inç	(4.00)	(0.50)	(2.00)	(5.75)	(0.562)	(3.536)	(0.562)	15T	(1.500)	(0.50)	(1.000)	(1.500)	(1.106)	(0.250)
SAE C	mm	127	12.70	63.50	180.98	17.50	114.50	14.27	12/24	47.63	15.24	31.75	47.63	35.20	7.94
	inç	(5.00)	(0.50)	(2.50)	(7.175)	(0.688)	(4.508)	(0.562)	14T	(1.875)	(0.60)	(1.250)	(1.875)	(1.386)	(0.3125)
SAE C-C	mm	127	12.70	63.50	180.98	17.50	114.50	14.27	12/24	53.98	17.78	38.10	53.98	42.26	9.53
	inç	(5.00)	(0.50)	(2.50)	(7.175)	(0.688)	(4.508)	(0.562)	14T	(2.125)	(0.70)	(1.500)	(2.125)	(1.664)	(0.375)
SAE D	mm	152.40	12.70	69.85	228.60	20.60	161.65	20.63	8/16	66.67	20.32	44.45	66.67	49.30	11.11
	inç	(6.00)	(0.50)	(2.75)	(9.00)	(0.812)	(6.364)	(0.812)	13T	(2.625)	(0.80)	(1.750)	(2.625)	(1.941)	(0.4375)
SAE E	mm	165.10	15.875	69.85	317.50	26.97	224.51	20.63	8/16	66.67	20.32	44.45	66.67	49.30	11.11
	inç	(6.50)	(0.625)	(2.75)	(12.5)	(1.062)	(8.839)	(0.812)	13T	(2.625)	(0.80)	(1.750)	(2.625)	(1.941)	(0.4375)
SAE F	mm	177.80	15.875	69.85	317.50	26.97	247.52	20.98	8/16	79.38	25.40	-	79.38	-	-
	inç	(7.00)	(0.625)	(2.75)	(12.5)	(1.062)	(9.745)	(1.062)	15T	(3.125)	(1.00)	-	(3.129)	-	-

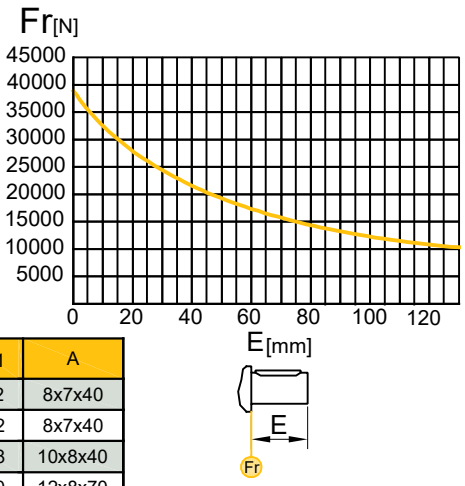
GİRİŞ MİLİ
INPUT SHAFTS
ANTRIEBSWELLEN

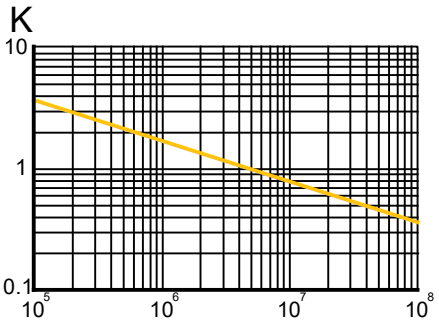
GM25-28-35-42



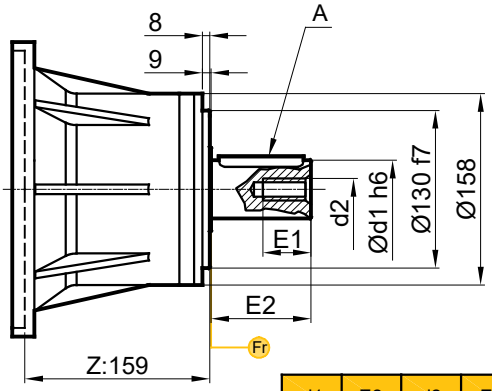
d1	E2	d2	E1	A
25	50	M8	22	8x7x40
28	50	M10	22	8x7x40
35	50	M12	28	10x8x40
42	82	M12	30	12x8x70

Kilogram
Weight 10 kg
Gewicht



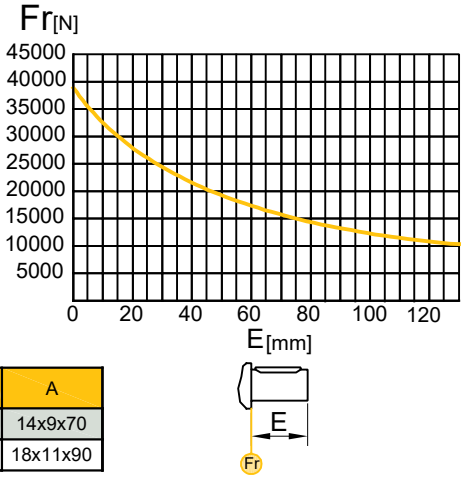


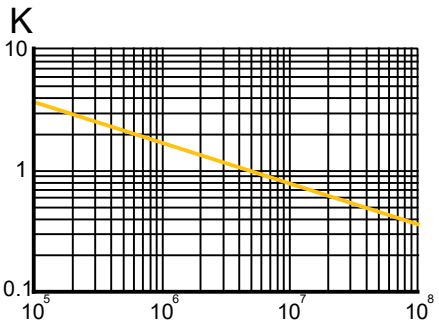
GM48-65



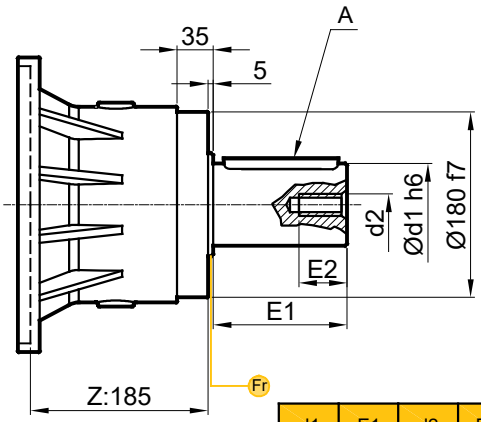
d1	E2	d2	E1	A
48	82,5	M12	30	14x9x70
65	105	M20	40	18x11x90

Kilogram
Weight 20 kg
Gewicht



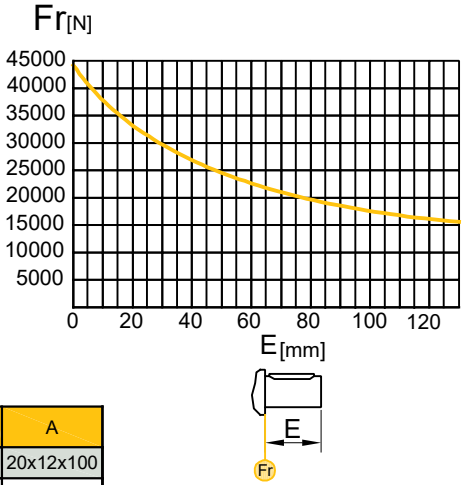


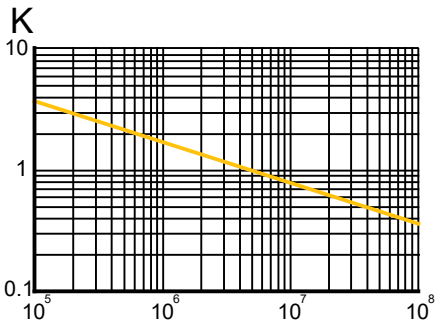
GM70-80



d1	E1	d2	E2	A
70	120	M18	35	20x12x100
80	130	M20	40	22x14x110

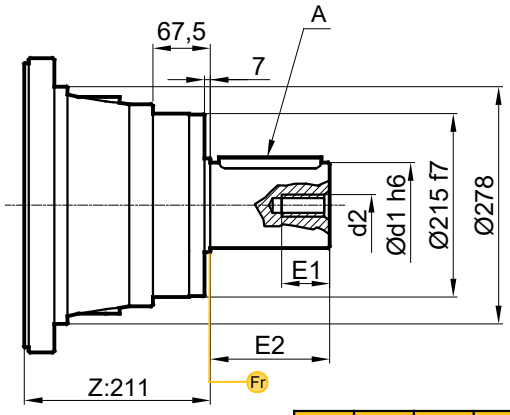
Kilogram
Weight 35 kg
Gewicht

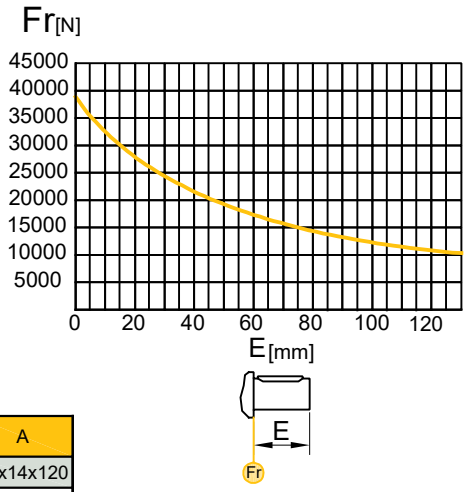


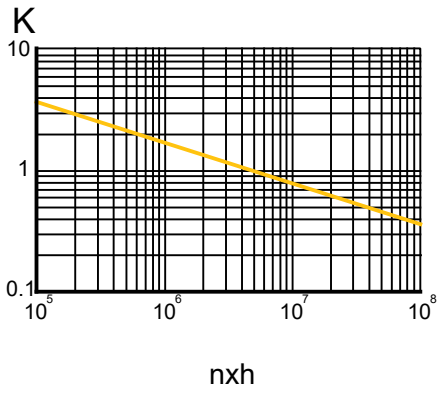


GİRİŞ MİLİ
INPUT SHAFTS
ANTRIEBSWELLEN

GM90-100



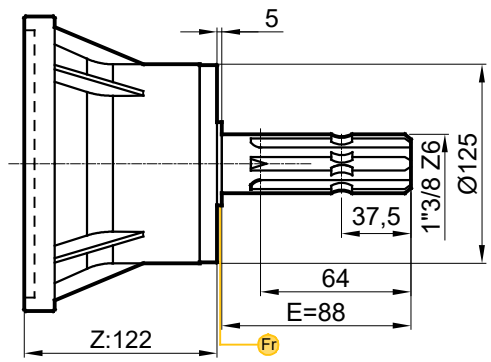


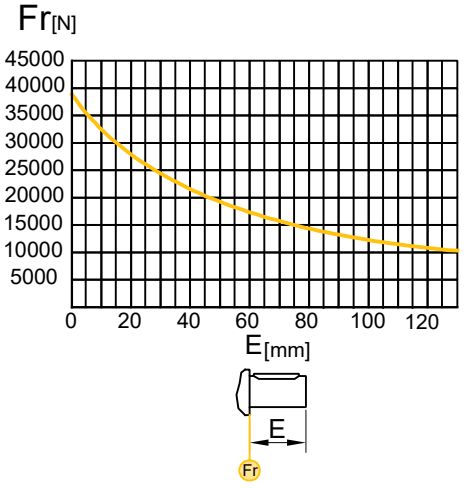


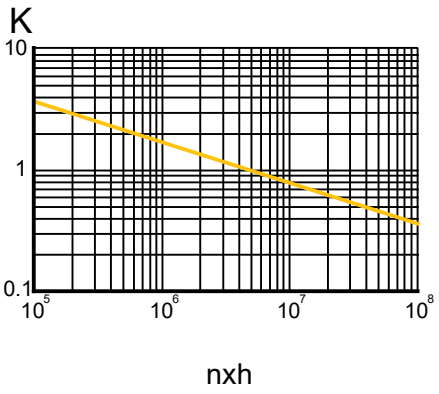
Kilogram
Weight 80 kg
Gewicht

d1	E1	d2	E2	A
90	140	M24	50	25x14x120
100	140	M24	50	28x16x120

GM 1"3/8 Z=6

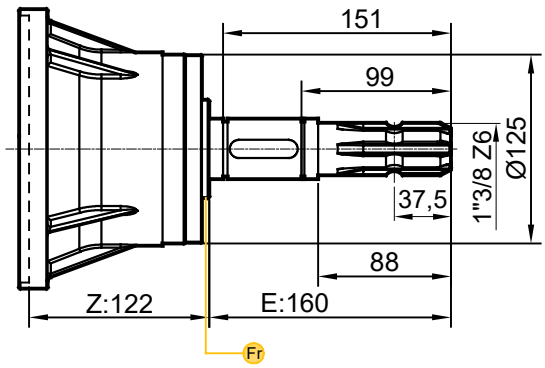


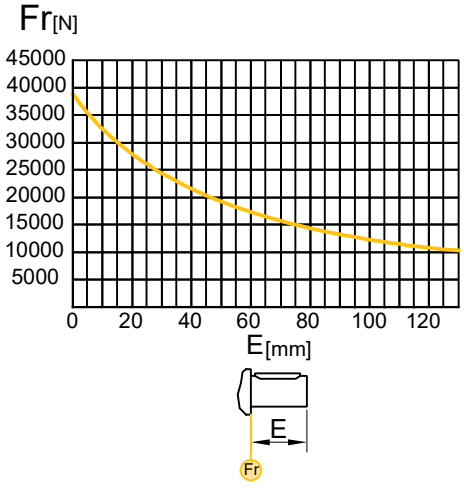


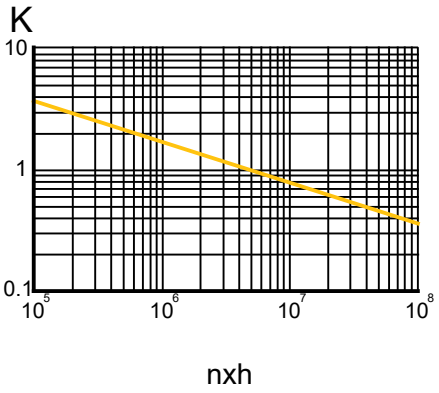


Kilogram
Weight 10 kg
Gewicht

GMK 1"3/8 Z=6

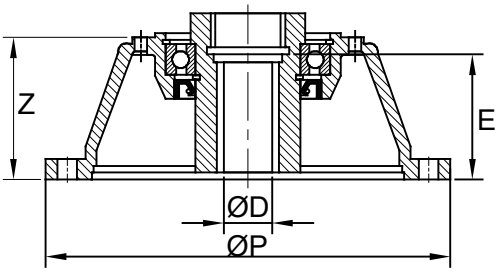


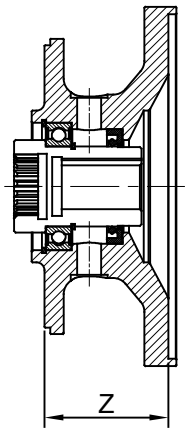




Kilogram
Weight 10 kg
Gewicht

ELEKTRİK MOTORU BAĞLANTI ADAPTÖRÜ
ELECTRIC MOTOR COUPLINGS
ANBAUVORRICHTUNG FÜR ELEKTROMOTORE

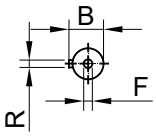


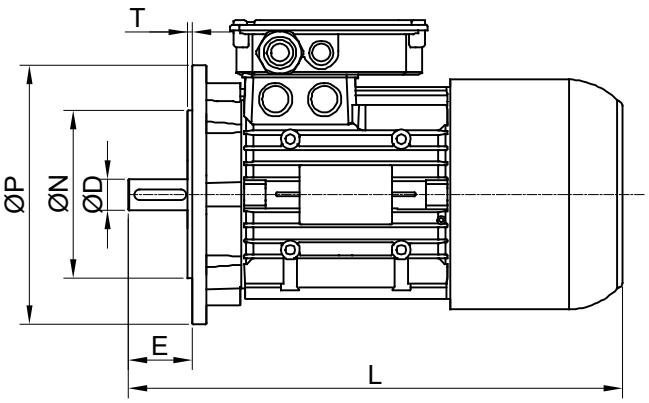


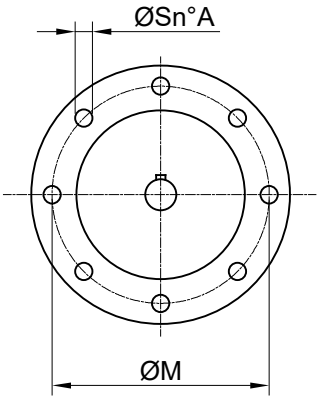
	A	B	C	D
PD 101	1-2-3-4	-	-	-
PD 103	1-2-3-4	-	-	-
PD 105	1-2-3-4	-	-	-
PD 107	1-2-3-4	1	-	-
PD 109	2-3-4	1	-	-
PD 111	2-3-4	1	-	-
PD 113	2-3-4	1	-	-
PD 115	3-4	2	-	-
PD 117	3-4	2	1	-
PD 119	3-4	2	-	-
PD 121	3-4	2	-	1
PD 123	3-4	2	-	1
PD 125	4	3	2	-
PD 127	4	3	2	-
PD 129	4	3	-	2
PD 131	4	3	-	2
PD 133	4	3	-	2
PD 135	-	4	3	-
PD 137	-	4	3	-
PD 139	-	4	-	3
PD 141	-	4	-	3
PD 143	-	5	-	-
PD 145	-	5	-	-

IEC B5					
	Z	ØD	E	ØP	
H63	36	11	32	140	A
H71	36	14	37	160	
H80	62	19	61	200	
H90	62	24	61	200	
H100-112	71	28	65	250	
H132	104	38	86	300	
H160	121+21	42	114	350	
H180	121+21	48	115	350	
H132	104+38	38	86	300	
H160	121	42	114	350	B
H180	121	48	115	350	
H200	149	55	148	400	
H225	149	60	148	450	
H250	184	65	157	550	
H160	121+54	42	114	350	C
H180	121+54	48	115	350	
H200	149+54	55	148	400	
H225	149+54	60	148	450	
H250	184+54	65	157	550	
H280	184+54	75	150	550	
H250	184+46	65	157	550	D
H280	184+46	75	150	550	
H315	233	85	178	660	

NEMA C		
	Z	
143TC - 145TC	65	A
182TC - 184TC	78	
213TC - 215TC	90	
254TC - 256TC	106	
284TC - 286TC	138	
143TC - 145TC	65+38	B
182TC - 184TC	78+38	
213TC - 215TC	90+38	
254TC - 256TC	106+38	
284TC - 286TC	138+38	







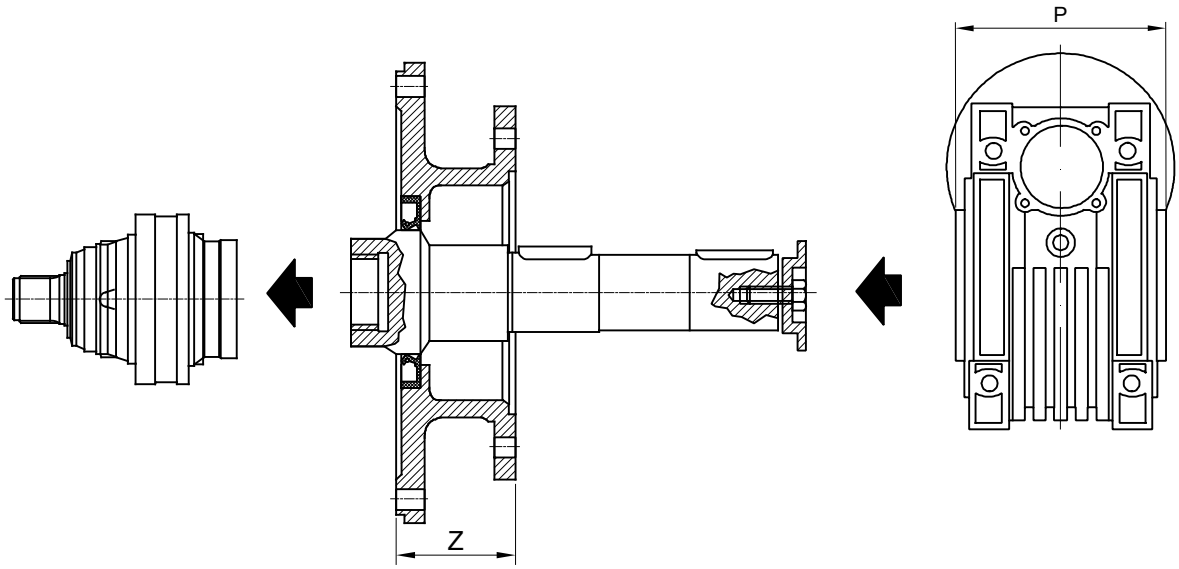
	Kutup Sayısı-Number Of Poles-Anzahl Pole									D	E	P	M	N	S	A	T	R	B	F	L
	2			4			6														
	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]												
63	0,18	-	0,25	0,12	-	0,18	0,06	-	0,09	11	23	140	115	95	9,5	4	3	4	12,5	M4	215
71	0,37	-	0,55	0,25	-	0,37	0,18	-	0,25	14	30	160	130	110	9,5	4	3,5	5	16	M5	247
80	0,75	-	1,1	0,55	-	0,75	0,37	-	0,55	19	40	200	165	130	11,5	4	3,5	6	21,5	M6	278
90	1,5	-	2,2	1,1	-	1,5	0,75	-	1,1	24	50	200	165	130	11,5	4	3,5	8	27	M8	308-333
100-112	3	-	4	2,2	3	4	1,5	-	2,2	28	60	250	215	180	14	4	4	8	31	M10	375-392
132	5,5	-	7,5	5,5	-	7,5	3	4	5,5	38	80	300	265	230	14	4	4	10	41	M12	455-501
160	11	15	11	11	-	15	7,5	-	11	42	110	350	300	250	18	4	4	12	45	M16	601
180	22	-	-	18,5	-	22	15	-	-	48	110	350	300	250	18	4	5	14	51,5	M16	659
200	30	-	37	30		-	18,5	-	22	55	110	400	350	300	18	4	5	16	59	M20	747
225	45	-	-	37	-	45	30	-	-	60 (55-2p)	140	450	400	350	18	8	5	18 (16-2p)	64 (59-29)	M20	780-820
250	55	-	-	55	-	-	37	-	-	65 (60-2p)	140	550	500	450	18	8	5	18	69 (64-2p)	M20	895
280	75	-	90	75	-	90	45	-	55	75 (65-2p)	140	550	500	450	18	8	5	20 (18-2p)	79,5 (69-2p)	M20	907-958
315	110	132	160	110	132	160	75	90	110	85 (65-2p)	170	660	600	550	24	8	6	22	90 (69-2p)	M20	1150-1330

SONSUZ DİŞLİ KUTUSU ADAPTÖRÜ
WORM GEARBOX ADAPTORS
ANSCHLUSS FÜR SCHNECKENGETRIEBE

PDS kombine redüktörleri aşağıdaki şekillerde sağlayabilmektedir.
1) Sonsuz vida redüktörlü üniteler.
2) Sonsuz vida redüktör hazırlıklı üniteler.
Planet dişli redüktörler ile ilave takılan sonsuz vida redüktörlerin yağlama sistemleri birbirinden bağımsızdır.

PDS can supply the combined reduction units as follows:
1) Complete of worm reduction units.
2) Preset for worm reduction units.
Furthermore, we would like to remind you that the lubrication of the planetary gear units is separated from the lubrication of the worm reduction units.

PDS kann kombinierte Getriebe wie folgt liefern:
1) komplett mit Schneckengetriebe.
2) Vorrichtung für Schneckengetriebe.
Weiterhin weisen wir darauf hin, das die Schmierung der Planetengetriebe getrennt von der des Schneckengetriebes erfolgt.



Sonsuz Dişli Kutusu Adaptörü Worm Gearbox Adaptors Anschluss Für Schneckengetriebe		
Tip/ Type/ Typ	Z	
NMRV 50 / NRV 50	80	A
NMRV 63 / NRV 63	80	
NMRV 75 / NRV 75	57	
NMRV 90 / NRV 90	57	
NMRV 110 / NRV 110	57	
NMRV 110 / NRV 110	57+38	B

Sonsuz Dişli Redüksiyon Ünitesi Worm Reduction Units Schneckengetrıebe	
Tip/ Type/ Typ	P
NMRV 50 / NRV 50	93
NMRV 63 / NRV 63	112
NMRV 75 / NRV 75	120
NMRV 90 / NRV 90	140
NMRV 110 / NRV 110	155
NMRV 130 / NRV 130	170

	A	B
PD 101	1-2-3-4	-
PD 103	1-2-3-4	-
PD 105	1-2-3-4	-
PD 107	1-2-3-4	-
PD 109	2-3-4	1
PD 111	2-3-4	1
PD 113	2-3-4	1
PD 115	3-4	2
PD 117	3-4	2
PD 119	3-4	2
PD 121	3-4	2
PD 123	3-4	2

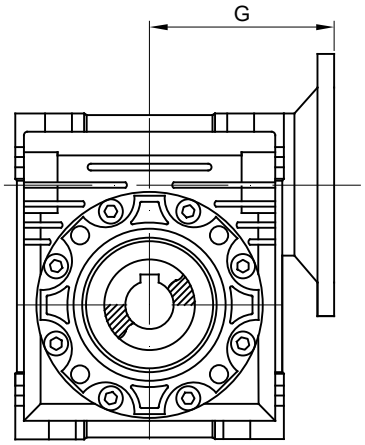
	A	B
PD 123	3-4	2
PD 125	4	3
PD 127	4	3
PD 129	4	3
PD 131	4-5	3
PD 133	4-5	3
PD 135	5	4
PD 137	5	4
PD 139	5	4
PD 141	5	4
PD 143	5	5
PD 145	5	5

*Redüktör giriş kademesi 101-103 ise bağlantı tipi A dır, redüktör giriş kademesi 105-107 ise bağlantı tipi B dir.

*If the gearbox input stage is 101-103, the connection type is A, if the reducer input stage is 105-107, the connection type is B.

*Wenn die Getriebeeingangsstufe 101-103 ist, ist der Verbindungstyp A, wenn die Untersetzungsstufe 105-107 ist, ist der Verbindungstyp B.

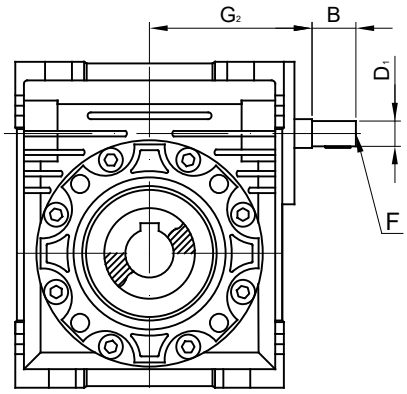
SONSUZ DİŞLİ KUTUSU ADAPTÖRÜ
WORM GEARBOX ADAPTORS
ANSCHLUSS FÜR SCHNECKENGETRIEBE



NMRV

Sonsuz Dişli Redüksiyon Ünitesi Worm Reduction Units Schneckengetrıebe	
Tip/ Type/ Typ	G
NMRV 50	80,5
NMRV 63	94,5
NMRV 75	112
NMRV 90	129,5
NMRV 100	160
NMRV 130	180

Elektrik motoru için giriş adaptörü ile sonsuz dişli redüksiyon ünitesi .
Worm gear reduction unit with input adaptor for electric motor .
Schneckengetriebe vorgesehen für Elektromotoranbau .



NRV

Sonsuz Dişli Kutusu Adaptörü Worm Gearbox Adaptors Anschluss Für Schneckengetriebe				
Tip/ Type/ Typ	G_2	B	D_1(j6)	**F**
NMRV 50	76	30	14	M6
NMRV 63	90	40	19	M6
NMRV 75	105	50	24	M8
NMRV 90	125	50	24	M8
NMRV 110	135	60	28	M10
NMRV 130	155	80	30	M10

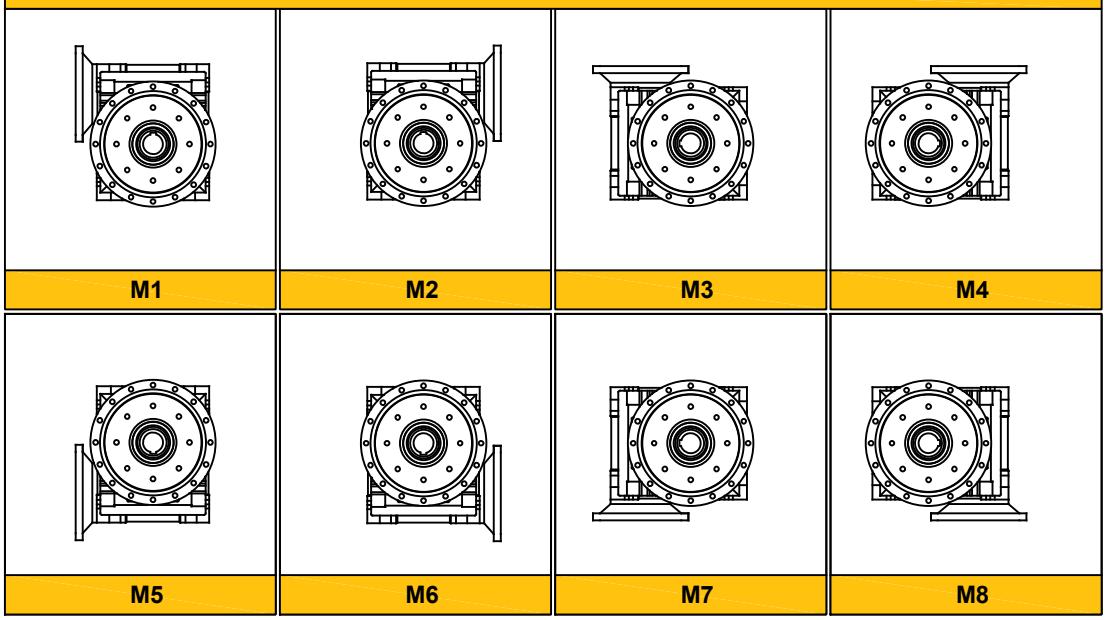
Sonsuz vidalı redüktör giriş mili.
Worm gear reduction unit with input shaft.
Schneckengetriebe mit Zapfwelle am Eingang.

Sonsuz dişli redüktör seçimi için lütfen PDS müşteri hizmetleri ile temasa geçiniz.

To select the worm reduction unit please contact the PDS Technical - Commercial Service Department.

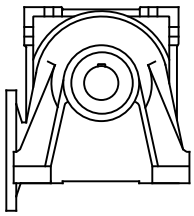
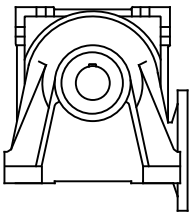
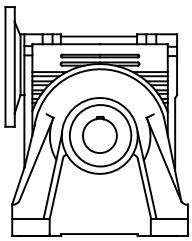
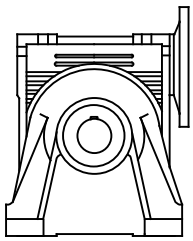
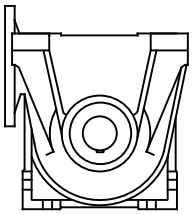
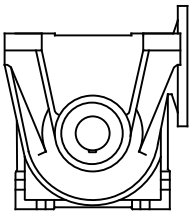
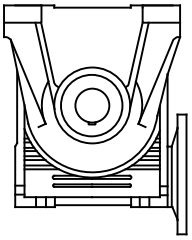
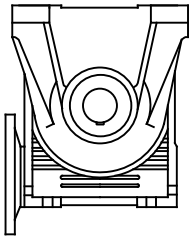
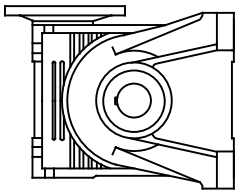
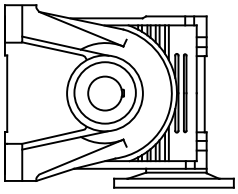
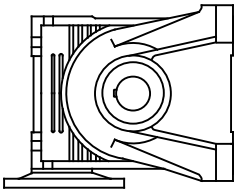
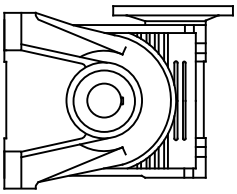
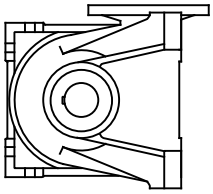
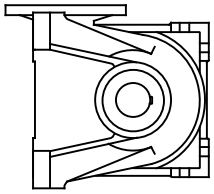
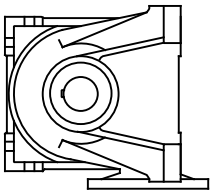
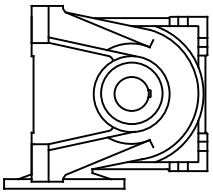
Für die auswahl des Schneckengetriebes kontaktieren sie bitte den Kundenservice von PDS.

F-S-SD-H

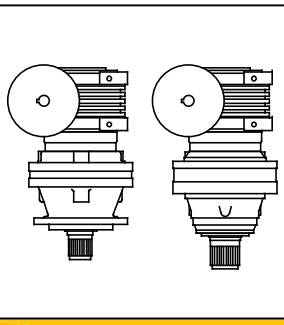
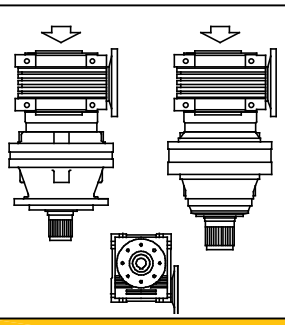
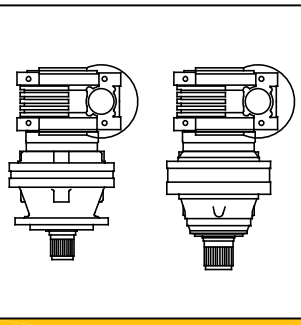
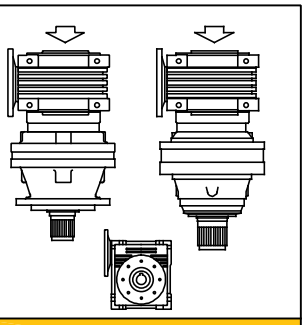
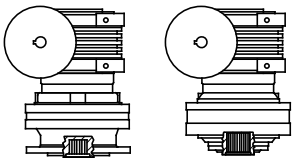
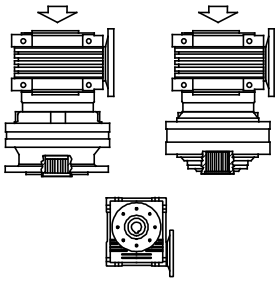
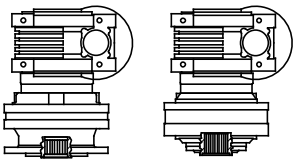
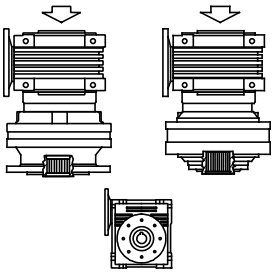
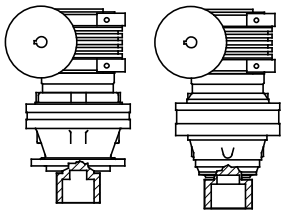
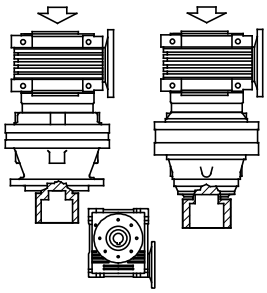
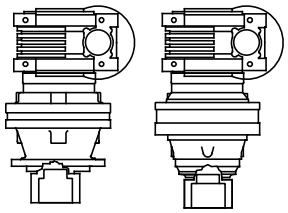
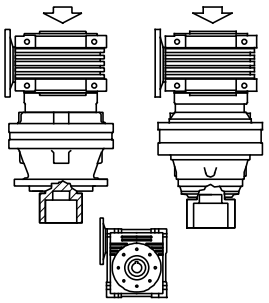
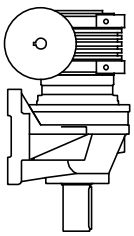
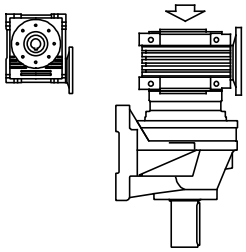
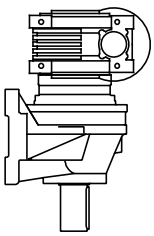
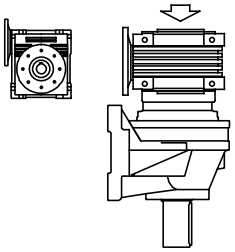
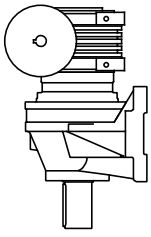
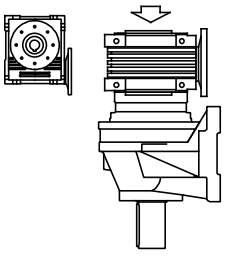
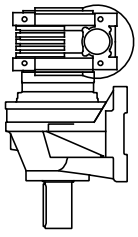
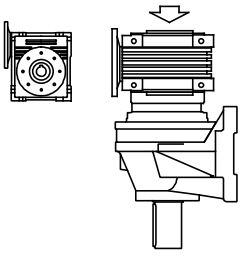


SONSUZ DİŞLİ KUTUSU MONTAJ POZİSYONLARI
WORM GEARBOX MOUNTING POSITIONS
ENDLOSE GETRIEBE-MONTAGEPOSITIONEN

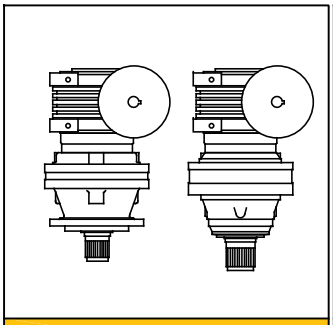
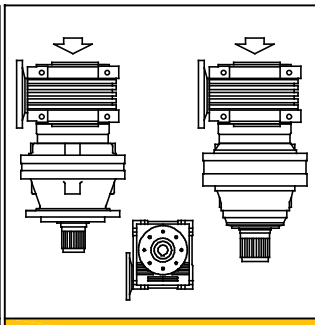
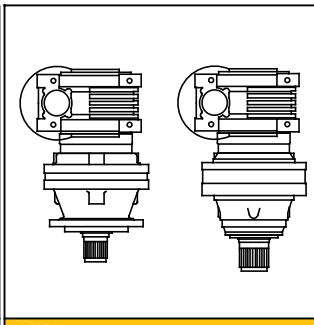
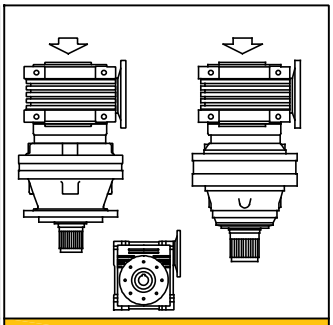
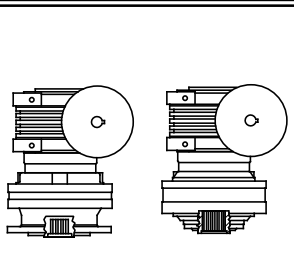
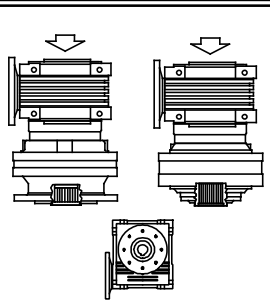
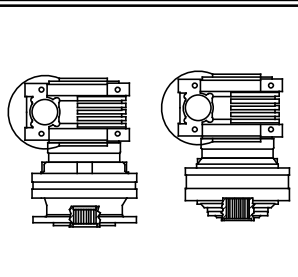
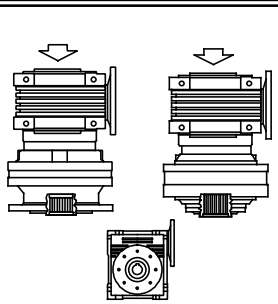
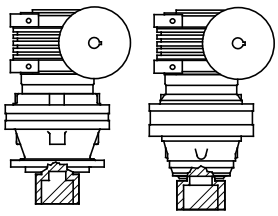
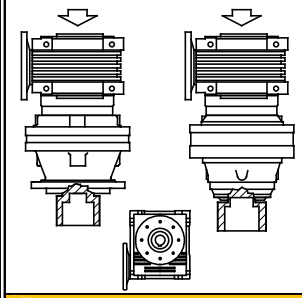
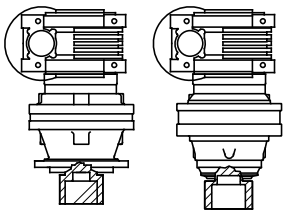
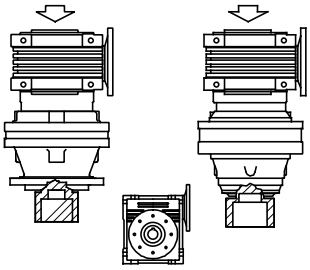
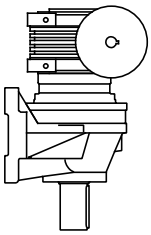
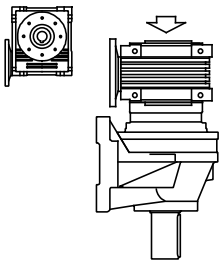
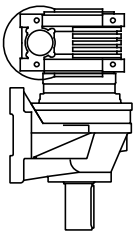
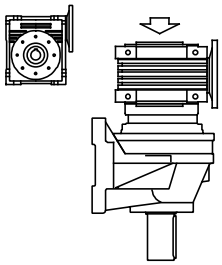
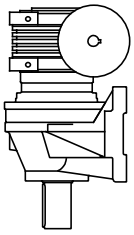
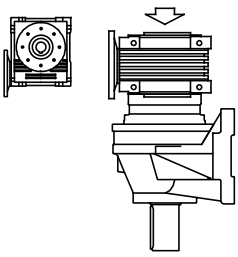
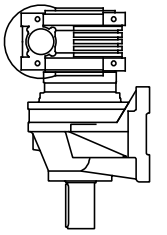
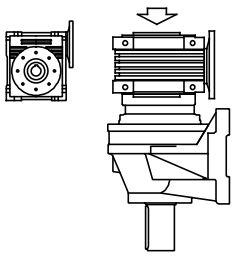
FVC

 M9	 M10	 M11	 M12
 M13	 M14	 M15	 M16
 M16	 M17	 M18	 M19
 M20	 M21	 M22	 M23

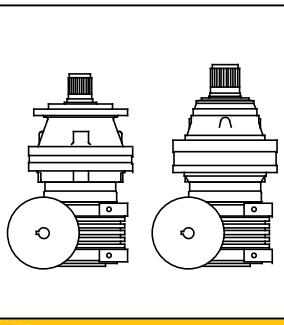
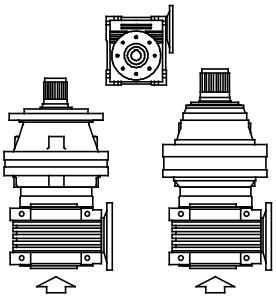
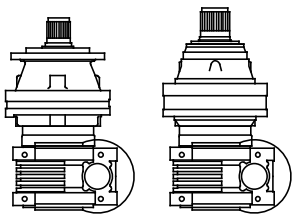
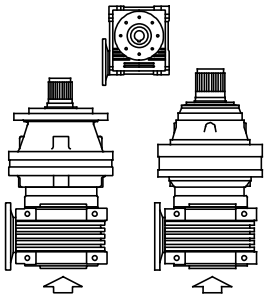
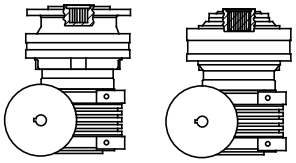
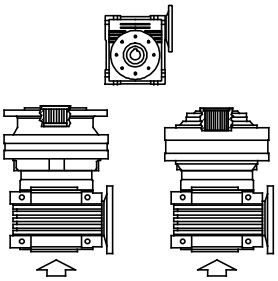
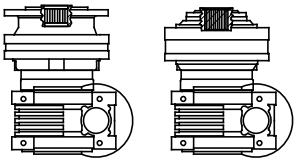
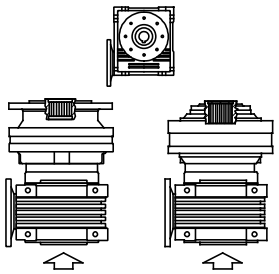
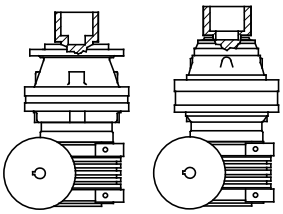
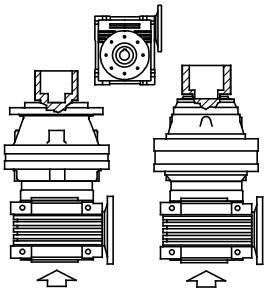
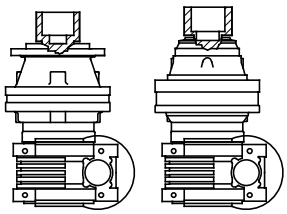
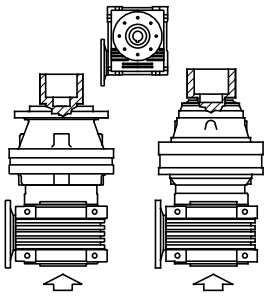
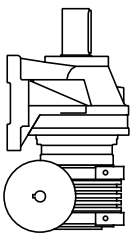
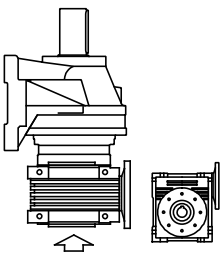
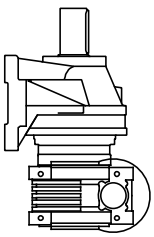
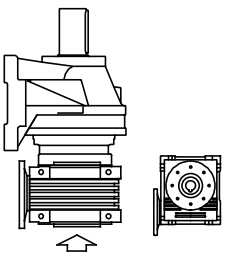
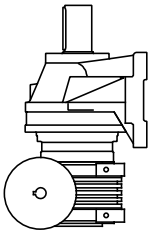
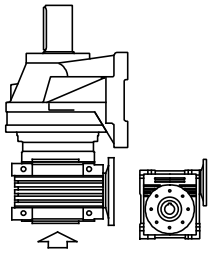
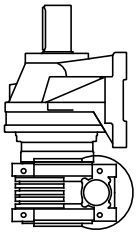
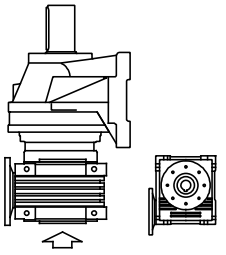
SONSUZ DİŞLİ KUTUSU MONTAJ POZİSYONLARI
WORM GEARBOX MOUNTING POSITIONS
ENDLOSE GETRIEBE-MONTAGEPOSITIONEN

M-F-H				
	M25	**M26**	**M27**	**M28**
S-SF				
	M25	**M26**	**M27**	**M28**
SD SDF				
	M25	**M26**	**M27**	**M28**
FVC				
	M41	**M42**	**M43**	**M44**
				
	M45	**M46**	**M47**	**M48**

SONSUZ DİŞLİ KUTUSU MONTAJ POZİSYONLARI
WORM GEARBOX MOUNTING POSITIONS
ENDLOSE GETRIEBE-MONTAGEPOSITIONEN

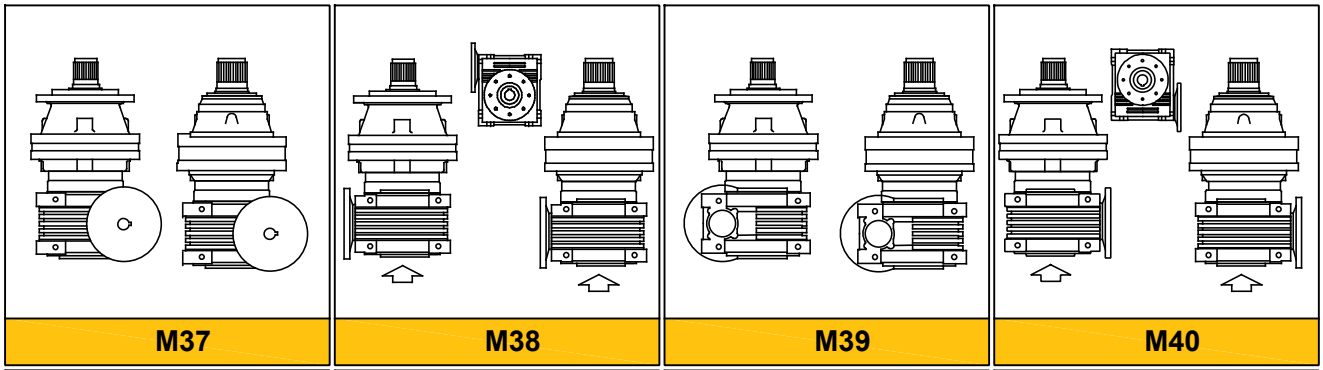
M-F-H				
	M29	**M30**	**M31**	**M32**
S-SF				
	M29	**M30**	**M31**	**M32**
SD SDF				
	M29	**M30**	**M31**	**M32**
				
FVC	**M49**	**M50**	**M51**	**M52**
				
	M53	**M54**	**M55**	**M56**

SONSUZ DİŞLİ KUTUSU MONTAJ POZİSYONLARI
WORM GEARBOX MOUNTING POSITIONS
ENDLOSE GETRIEBE-MONTAGEPOSITIONEN

M-F-H				
	M33	**M34**	**M35**	**M36**
S-SF				
	M33	**M34**	**M35**	**M36**
SD SDF				
	M33	**M34**	**M35**	**M36**
FVC				
	M57	**M58**	**M59**	M60
				
	M61	**M62**	**M63**	**M64**

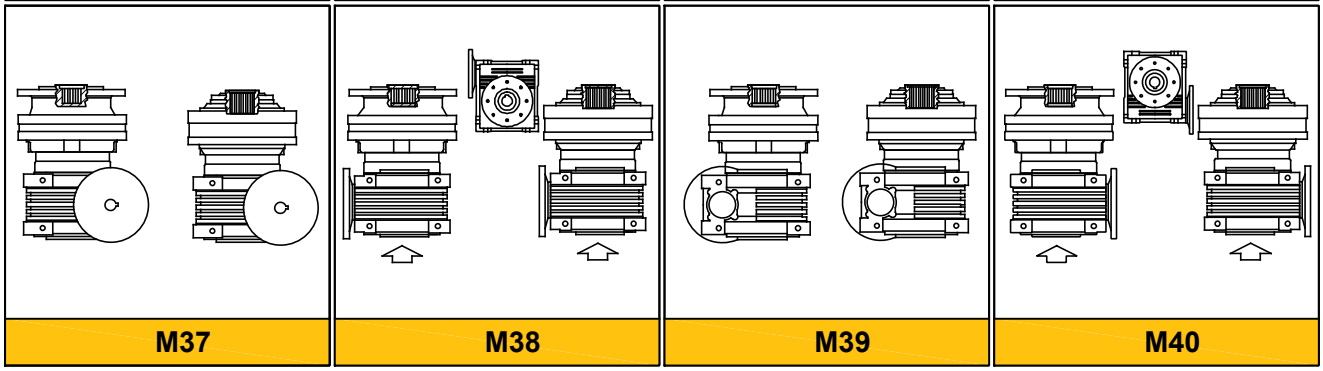
SONSUZ DİŞLİ KUTUSU MONTAJ POZİSYONLARI
WORM GEARBOX MOUNTING POSITIONS
ENDLOSE GETRIEBE-MONTAGEPOSITIONEN

M-F-H



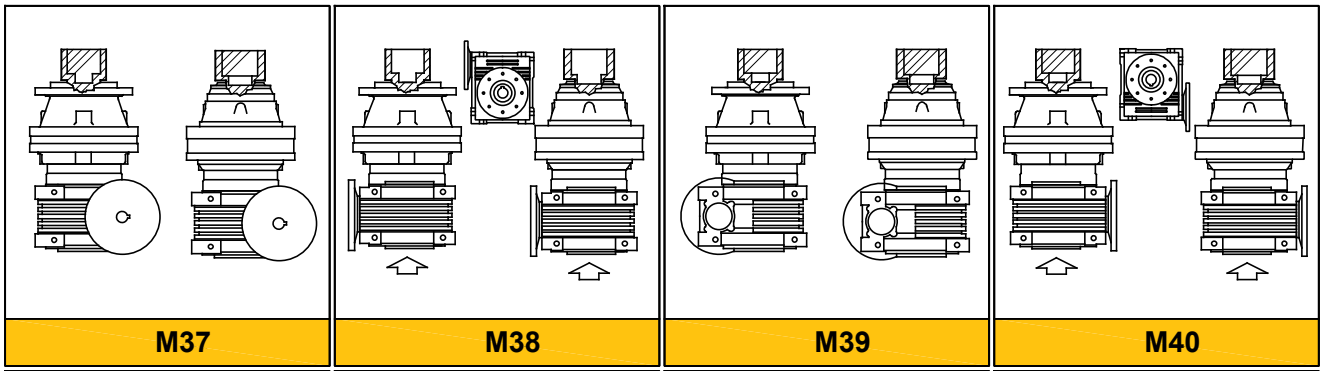
M37	M38	M39	M40

S-SF



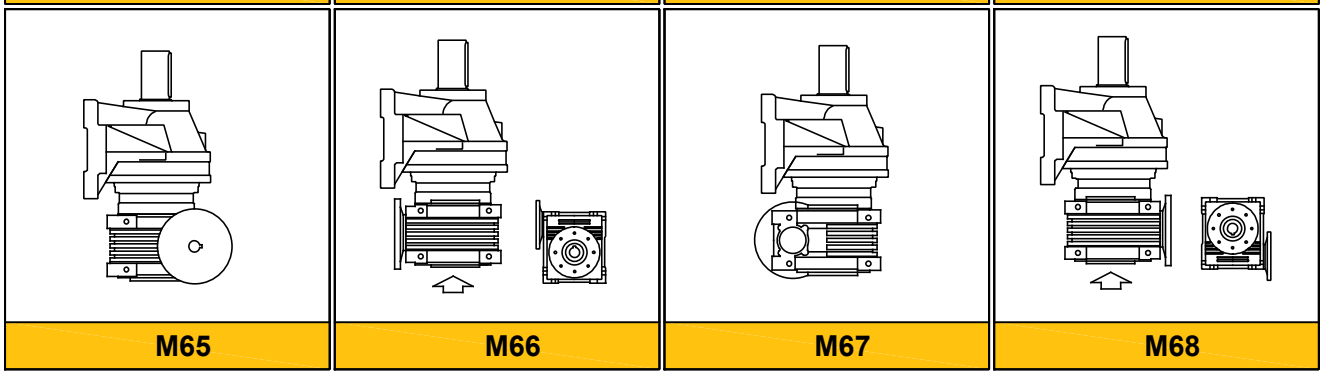
M37	M38	M39	M40

SD
SDF

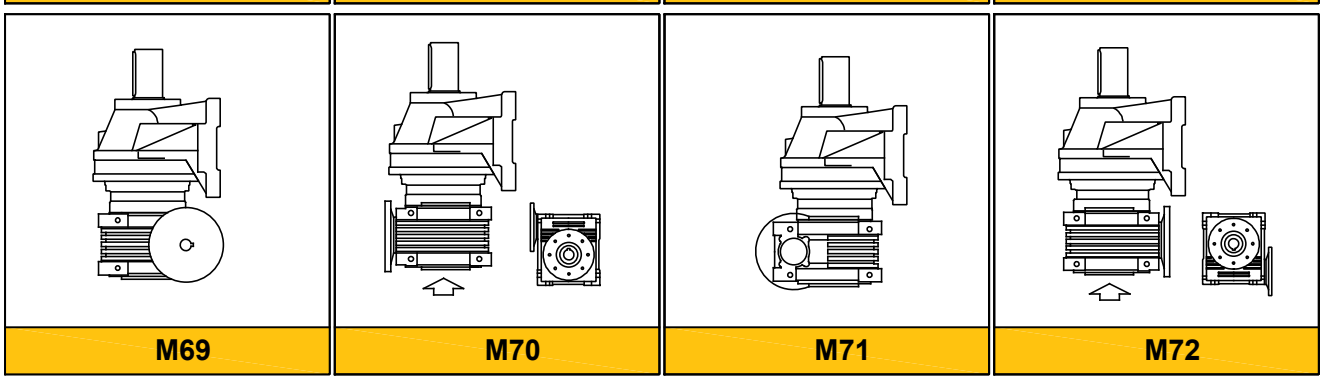


M37	M38	M39	M40

FVC



M65	M66	M67	M68



M69	M70	M71	M72