



Riduttori a vite senza fine **serie PSH**

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Producer

PGR[®]
Drive Technologies

Distributore per Italia


Transmission Power Solution



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Redüktörleri oluşturan tüm parçaları modern CNC tezgahlarında ve yatay işleme merkezlerinde imal eden Polat Group Redüktör Ar-Ge çalışmalarına devam etmektedir. PGR, dişlilerin profil taşlamasından sonraki işlem olan HONLAMA yöntemini seçerek, üretimin her kademesinde işlem kontrolü yapmaktadır. Polat Group Redüktör, helis dişlilerde TEKİL GÖVDE kavramını Türkiye'de ilk uygulayan şirkettir. Buna ek olarak P serisinden farklı olarak helis dişlili, tekil gövdeli (ayaklı, flanşlı, ara millî ve çıkış millî) PA,PF, PD, PM serisi, helisel konik dişlili PKD serisi ve helisel-sonsuz dişlili PSH serisi redüktörlerin tasarım ve üretim işleri büyük bir özenle tamamlanarak seri üretime geçildi. Rulman, dişli ve mil hesapları DIN 3990 Niemann esasına dayalı profesyonel programa (HEXAGON) göre yapıldı. Tüm dişli ünitelerine sementasyon ve normalizasyon ısıl işlemleri uygulanmaktadır. Helis grubunda tekil gövdeler döküldükten sonra doğal şartlar altında (yağmur, sıcak ve soğuk doğa şartları) asgari 5 ay bekletilmekte, gövdeler son şekillerini almakta ve tüm yüzeyler yatay işleme merkezinde aynı anda işlenmektedir. Polat Group Redüktör ayrıca SİKLOİD REDÜKTÖR üzerindeki Ar-Ge çalışmalarına devam etmektedir. Polat Group Redüktör en üst teknolojilerle çalışarak ve Türkiye pazarındaki konumunu koruyarak, yeni ürünler ile ilgili etkinliklerine devam etmektedir.

KALİTE POLİTİKAMIZ

POLAT GROUP REDÜKTÖR A.Ş. ürünlerinin kalitesinde en iyiyi yakalamak için; sektöründeki teknolojik gelişmeleri takip etmeyi, pazar payındaki istikrarını sürdürmek için müşterilerinin istek ve beklentilerine eksiksiz ve zamanında cevap vererek, sürekli artan müşteri memnuniyetini sağlamayı, eğitimli çalışanlarının performansını huzurlu bir çalışma ortamı sağlayarak arttırmayı ve bu şekilde kalite yönetim sistemini sürekli iyileştirmeyi kalite politikası olarak benimsemiştir.

VİZYONUMUZ

Müşteri ve çalışan memnuniyetini en üst düzeyde tutan, gelişmeleri izleyen değil yaratan bir dünya şirketi olmaktır.

MİSYONUMUZ

Müşterilerimizin ihtiyaçlarını karşılayacak çözümleri bilgi teknolojilerini kullanarak en verimli ve kaliteli şekilde sunmaktır.

Polat Group Redüktör olarak birçok farklı ürün yelpazesi ile, müşteri ihtiyacını maksimum seviyede karşılamak için eş zamanlı mühendislik yöntemlerini kullanarak çalışmalarını sürdürmektedir. Tasarım faaliyetleri, ürün geliştirme programları ve bilgisayar destekli çalışmalarımız sürekli gelişen bir grafik çizmektedir. Rekabetçi ve güçlü kalite politikamız müşteri yelpazemizi genişletmektedir.

Polat Group Redüktör, tarding it's trial production work all the forming reducer on modern CNC machine tools and horizontal machining centers. The company makes process controls in every stages of the production by choosing the HONING METHOD which comes after profile grinding in gears. Polat Group Redüktör is the first company that applies the concept of single body in helical gears in Turkey. Additionally, as being separately from P series, the design and production works of PA,PF, PD, PM, series, helical bevel gear reducers with helical gear and helical-worm gear reducers (PSH) single body (foot, flange, gap solid shaft and solid shaft out) had been completed with great care and started series production. Bearing, gear and shaft calculations are made according to professional softwares (HEXAGON) based on DIN 3990 and Niemann basics. Carburizing and normalization heat treatment are applied to all the gear units. In helical group, single bodies are left in the natural conditions (rain, hot & cold natural conditions) for a minimum period 5 months after casting and the bodies get 3 their final shapes and then all the surface are treated on horizontal machining center at once at the same. Polat Group Redüktör also continues it's R&D activities on POLAT SİKLOİD GEAR UNITS. Polat Group Redüktör continues it's investments for new productions with the aim of high technology and maintaining it's positions on the Turkish Market.

OUR QUALITY POLICY

To achieve the best quality of its products, POLAT GROUP REDÜKTÖR A.Ş. adopts with its own quality politics by following the technological developments of its sector, in order to keep up the stabilization on its own market share ensuring the customers' gladness increasing permanently by answering the customers' wishes and expectations completely at the right time, to have the well - educated staffs increase their performance by providing a peaceful working place and making better the quality management system all the time.

OUR VISION

Our vision is to become a world company which keeps the customer satisfaction at the top level and which does not only follow the developments but also creates the developments itself.

OUR MISSION

Our mission is to provide the solutions to our customers in most efficient and qualified way by make use of the information technologies.

Our reducer group carries out its works using simultaneous engineering methods in order to meet the demands of our customers by presenting several different product ranges. Promotion activities, product development programmes and computer supporting work show a continuously growing chart. Our competitive and strong quality policy is to develop our customer spectrum.



Teknik Açıklamalar

Dişli Ünitesini Seçme

Bir dişli ünitesini seçerken PGR üç fazlı asenkron AC motorlarını veya tek fazlı AC motorları kullanılır ve teknik olarak kıyaslanabilen motorlar için de geçerlidir. Başka motorlar kullanırken, lütfen PGR'e danışınız. Bir dişli ünitesini seçme ile ilgili aşağıdaki önemli ana esaslara bağlı kalınmazsa, aşırı bir yük durumunun olması muhtemeldir. Bu durumda, tüm garantiler geçersizdir. Şüpheli durumda, lütfen dişli ünitesi tasarımını kontrol etmek için birlikte çalışabileceğiniz teknik bilgilerden sorumlu PGR satış ofisi ile irtibata geçiniz. Karşılıklı çıkarlarımız açısından, dişli ünitelerinde aşırı yüklemenin neden olduğu tüm problemler her durumda önlenmelidir.

Kriter

Seçme kriteri aşağıdakilerden oluşur:

1. Termal olarak transfer edilebilen güç (termal sınır)

Dişli ünitesinin aşırı ısınmaması için, bu güç transferi (3 saat) daha uzun bir çalışma zamanını aşmamalıdır. Aşağıdaki maddelerden iki veya daha fazlasının geçerli olması durumunda çalışma durumunu kontrol ediniz.

- Ortam sıcaklığı $> 40^{\circ}\text{C}$
- Dönme hızı $n_1 > 1500 \text{ min}^{-1}$
- Motor gücü $P_1 > 100 \text{ kW}$
- W kovanlı ve IEC adaptörlü redüktörler
- Dik olarak montajı yapılan redüktörler (sayfa 30-35)
- Tahvil oranı $i_{top} < 20$ (Polat konik dişlili için $i_{top} < 40$)

2. Mekanik olarak transfer edilebilen güç "P"

Bu güç, katalogdaki ilgili tablodaki servis faktörü f_B tarafından göz önüne alınır. Bir sonraki bölüm, gerekli servis faktörünün saptanmasını tanımlar.

Genel olarak, dişli ünitesi ekleme, ısı radyasyonu, dar yer vs gibi özel montaj koşulları olduğunda bize danışınız. Özel ölçüler (veya su soğutucusu) termal aşırı yüküne karşı var olduğunda; lütfen PGR'e danışınız.

Giriş gücü ve servis faktörü

Her bir uygulama için gerekli giriş gücü, hesaplama ile saptanır. Motor anma gücü (P_1), bu giriş gücünden sonra seçilir. Normal olarak, belirli uygulama özel çalıştırma koşullarına ait güvenlik faktörleri gözleneneceği ve anma motor çıkış seviyeleri genellikle standart çıkış seviyesi aralığında olduğu için motorun anma gücü istenilen güçten biraz daha yüksektir.

Montajı yapılacak 3 fazlı bir AC motorun anma gücünü seçerken kısa dönem ve seyrek tork tesirini göz önüne almak gerekmez. Bir frekans inventörü üzerindeki 3 fazlı bir AC motor çalıştırırken ilave faktörler anma çıkış gücünün seçimini etkiler. Motorun aksine, kısa dönem ve seyrek tork tesiri önemli derecede dişli ünitesinin seçimini etkiler. Dişli ünitesi servis faktörü f_B bu kısa dönem ve seyrek tork tesirini ve ayrıca yeterli doğrulukla dişli ünitesi üzerinde etkileri göz önüne alır.

4.sayfadaki **diyagram 1** çalışma saatine veya güne bağlı olarak yük sınıflandırması, devir ve minimum servis faktörü arasındaki ilişkiyi sunmaktadır.

Explanatory Notes

Selecting of Gear Unit

Gear unit selection includes PGR's three-phase AC motor or single phase AC motor and technically equal different motor could be applied. When you apply different motor please contact with PGR. There are some condition for selecting gear unit and these condition must be considered overloading could be effected badly if restrictions are not considered. In these situation, all guarantees could be invalidated. Under suspicious situation please refer to PGR sales office department which is responsible for giving technical information to you.

Conditions

Conditions of selecting gear unit;

1. Thermal Limit

Thermal transfer power should not be exceeded over running time (3 hours) for prevent overheated gear unit. Any suspicion please contact with PGR.

- Ambient temperature $> 40^{\circ}\text{C}$
- Rotational speed $n_1 > 1500 \text{ min}^{-1}$
- Input power $P_1 > 100 \text{ kW}$
- With W-cylinder and IEC adapter gear units
- Vertical mounting position (see page 30-34)
- Reduction ratio $i_{top} < 20$ (for helical-bevel gear units $i_{top} < 40$)

2. Power transfer with service factor "P"

Service factor (f_B) is important for power transfer, determination of minium service factor will be given at following information.

For every operating conditions; eg. heat radiation in bounded field (place) which is required special devices (oil cooler or water cooler) for that reason please contact with PGR.

Input power and service factor

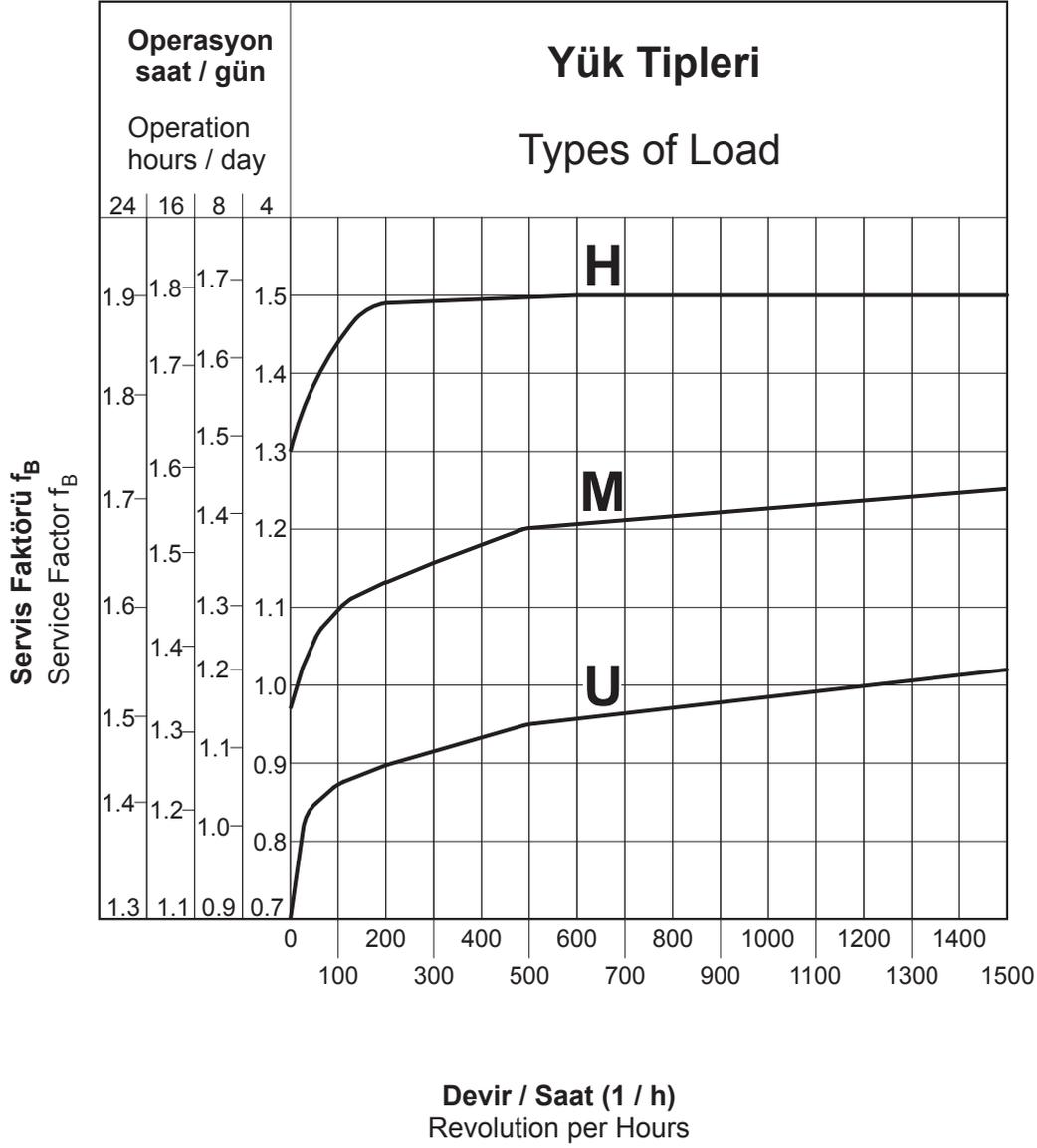
For every application requiring input power could be detected or determined by calculation. After determination input power, rated motor power (P_1) is defined. Motor power is greater than require input power due to safety factor is used according to operating conditions.

Selecting a motor type is important for right calculation for instance; three phase AC motor which is mounted to gear unit, affecting infrequent torque could not be considered but if you mount three-phase AC motor on frequency inverter latest available factor effects the output power. Besides of motor type short and infrequent torque impression effects selecting gear unit for that service factor is considered.

Diagram 1 which is shown on page 4, presents relation between types of load, revolution per hour and minimum service factor depend on operation hours or day.



Diyagram - 1



Diyagram 1, günlük çalışma zamanına bağlı gerekli minimum servis faktörü $f_{B \min}$, 'Z' saatteki çevrimleri, ve uygulama yükü sınıflandırması 'U', 'M', 'H' gösterir. Çalışma düzgünlüğüne ve kütle hız faktörüne bağlı olarak, üç yük sınıflandırması belirlenmiştir. Hareket ettiren makineden gelen etkiler çalışma düzgünlüğü sınıflandırmasında tanımlanırken, kütle hız faktörü en fazla olan yük üzerinde etkili olur.

Not : Elde edilen servis faktörü f_B kullanılan sürücü (tahrik) tipine göre "k" katsayısı ile çarpılır.

k = 1 ; elektrik motoru veya hidromotor,
k = 1.25 ; çok silindirli içten yanmalı motor,
k = 1.50 ; tek silindirli içten yanmalı motor

Diagram 1 shows requiring minimum service factor depend on revolution per hours 'Z' and types of load 'U', 'M' or 'H'. In following information mass acceleration factor will be explained how it effects to or relation between load classification. Forces or loads which are applied from driven machin to gear unit while determine load classification, mass acceleration factor is played important role on the high load classification which is designated with 'H' sign.

Note : Service factor f_B which is acquired from diagram should be modified with factor "k" that, depends on driver type.

k = 1 ; hydraulic motor and electrical motor
k = 1.25 ; multi-cylinder engine
k = 1.50 ; single-cylinder engine



Dişli Ünitesini Seçme

Selecting a Gear Unit

Bir çalışmanın sınıflandırılması :

Operation classification;

a) Düzgün çalışma (U)

Küçük karıştırıcılar, asansörler, konveyörler, montaj bantları, dolurma makineleri, bantlı konveyörler, temizleme makineleri, fanlar, test makineleri.

a) Uniform application (U)

Small agitators, elevators, conveyors, assembly belts, filling machines, conveyor belts, cleaning machines, fans, testing machines.

b) Yumuşak şoklar, düzgün olmayan çalışma (M)

Ağır konveyör bantları, değirmenler, ahır gübre makineleri, vinç hareketli mekanizmalar, bükme makineleri, çimento karıştırıcılar, dişli makineleri, ahşap işleme makineleri için sürücüler, vinçler, kayar kapılar, dengeleme makineleri.

b) Moderate shocks, non-uniform application (M)

Heavy conveyors belts, mills, stall dunging machines, crane traveling mechanisms, bending machines, cement mixers, gear pumps, decoilers, tapping units, packaging machines, feed drives for wood processing machines, hoists, winches sliding doors, balancing machines.

c) Ağır şoklar, aşırı düzgün olmayan çalışma (H)

Taş kırıcılar, eksantrik presler, doğrayıcılar, presler, taşlama milleri, çekiçli kırıcılar, kağıt öğütücüler, ağır karıştırıcılar, delme makineleri, katlama makineleri, dönen tezgahlar, yatay karıştırıcılar, kesiciler, vibratörler, santrifüj makineleri, döner tablalar.

c) Heavy shocks, extreme non-uniform application (H)

Stone crusher, eccentric presses, choppers, presses, grinding mills, hammer mills, shredders, heavy mixers, punching machines, folding machines, rolling stands, tumbling barrels, shears, vibrators, centrifuges, roller tables.

Yük sınıflandırması, çalışma düzgünlüğünden ve aşağıdaki tabloya göre kütle hız faktörü 'm_{af}' den belirlenir. Burada, çalışma veya kütle hız faktöründen gelen daha yüksek sınıf yük sınıflandırmasında geçerlidir. (Örnek: aşırı düzgün olmayan çalışma ve m_{af} = 2,8 gibi durumda yük sınıfı 'M' olarak belirlenir.

Load classification is obtained from operation class and mass acceleration factor (m_{af}). For this reason in any situation which factor is greater than other you must take for calculation. (Eg; heavy - shock and m_{af} = 2,8 load classification must be 'M')

Yük Sınıfı	Çalışma	Kütle hız faktörü
U	Düzgün çalışma	m _{af} ≤ 0.25
M	Düzgün olmayan çalışma	0.25 < m _{af} ≤ 3
H	Aşırı düzgün olmayan çalışma	3 < m _{af} ≤ 10

Load Classification	Operation	Mass Acceleration Factor
U	Uniform application	m _{af} ≤ 0.25
M	Non-uniform application	0.25 < m _{af} ≤ 3
H	Extreme non-uniform application	3 < m _{af} ≤ 10

$$m_{af} = \frac{J_{ex.red}}{J_{mot}} = \frac{J_{ex}}{J_{mot}} \times \left(\frac{1}{i_{ges}} \right)^2$$

i_{ges} = Toplam dişli ünitesi oranı
J_{ex.red} = Hareket motoru üzerindeki azaltılmış tüm dış kütle atalet momenti
J_{ex} = Tüm dış kütle atalet momenti
J_{mot} = Motorun kütle atalet momenti

i_{ges} = Total gear unit ratio
J_{ex.red} = All external mass moment of inertia on the drive motor, reduced
J_{ex} = All external mass moment of inertia
J_{mot} = Mass moment of inertia of the motors

Kütle hız faktörü m_{af}, çıkış tarafındaki dış kütleler ile giriş tarafındaki yüksek hız kütlelerin arasındaki ilişkiyi gösterir. Kütle hız faktörü, başlatma ve frenleme işlemlerine ve titreşime göre dişli ünitesindeki tork tesir seviyesini önemli derecede etkiler. Örneğin; bantlı konveyör sistemlerinde dış kütle atalet momenti taşıyan ürün kadar yük uygular. m_{af} > 10 ise, transfer elemanlarında büyük bir oynama, yük sınıflandırmasında belirsizlik varsa veya şüphedeyseniz, PGR'e danışınız.

Technically mass acceleration factor m_{af} mass different between external output-side and high speed input-side. m_{af} is played important role at the level of torque propulsive in the gear unit. It is mostly effected at start-up, braking operation and vibration. Please contact with PGR where m_{af} is greater than 10 and large play in transfer elements and vibration in the system.

Servis faktörü f_B, maksimum dişli ünitesi çıkış momenti M_{amax} ile montajlanmış motor gücü P₁, çıkış hızı n₂ ve dişli ünitesi verimi (η) sonucu ortaya çıkan momenti M_a arasındaki ilişkidir.

Calculation of service factor is illuminated below. It depends on maximum output moment of gear unit and the output moment which is calculated from motor power, rotation speed and efficiency.



Dişli Ünitesini Seçme

Helisel - Sonsuz Dişli Üniteleri İçin Seçim Bilgileri

Helisel-sonsuz dişli tasarımları için, çok sayıdaki kalkışlarda (oto-blokaj olasılığının azalması) çıkış torkunun geriye dönüşte etki etmesi ya da yüksek atalet momentinin oluşabileceği göz önünde bulundurulmalıdır. Sonsuz dişli sayıları Z2 / Z1 IEC seçim tablolarında listelenmiştir.

$m_{af} \leq 0.25$ tüm sonsuz dişli sayısı mümkündür.

$m_{af} \leq 3$ sonsuz dişli sayısı $Z_1 \geq 3$ önerilir.

$m_{af} \leq 10$ sonsuz dişli sayısı $Z_1 \geq 6$ önerilir.

Sonsuz dişli ünitelerinde diyagram 1'den bulunan f_{Bmin} servis faktörüne ek olarak T_U dış ortam sıcaklığı için f_{B1} servis faktörü ve devamlılık süresi faktörüne göre ED için f_{B2} servis gözönünde bulundurulmalıdır.

f_{B1} ve f_{B2} servis faktörleri diyagram 2 ve 3'ten bulunabilir.

Doğru bir dişli ünitesi seçiminde, tablolardan alınan servis faktörü aynı f_{Bmin} , f_{B1} ve f_{B2} servis faktörlerinden büyük olmalıdır.

$$f_B \geq f_{Bmin} \cdot f_{B1} \cdot f_{B2}$$

W kovanlı helisel-sonsuz dişli üniteleri için güç aşağıdaki formüle göre hesaplanır.

$$P_1 = \frac{M_{amax} \cdot n_2}{9550 \cdot f_{Bmin} \cdot f_{B1} \cdot f_{B2} \cdot \eta}, [kW]$$

$M_{amax} [Nm]$
$n_2 [min^{-1}]$

Burada maksimum sürücü gücü P_{1max} değerini geçmemelidir.

$$P_1 \leq P_{1max}$$

W ve IEC'li performans tablolarında her bir çıkış devri (n_2) için maksimum çıkış torku (M_{amax}), maksimum motor gücü (P_{1max}) ve dişli ünitesi verimi listelenmiştir. Dişli ünitesi verimi (η) yukarıdaki formüle göre çıkan faktörü içermelidir.

Örneğin ; 0,9 = %90

Helisel-sonsuz dişli ünitelerinde servis faktörü (f_{B1}) hesabına etki eden dış ortam sıcaklığına göre ve çalışma çevriminden dolayı gelecek servis faktörleri (f_{B2}) gözönünde bulundurulmalıdır.

Selecting a Gear Unit

Selection Information For Helical-Worm Gear Unit

For more start-stop applications (reducing possibility of auto-irreversibility) you must consider the effecting of the output torque to anti rotation or occuring high moment of inertia in design of helical-worm gear units. Number of Teeth number of worm gear Z_1 , of gear units with IEC adapters are listed in performance tables.

$m_{af} \leq 0.25$ all number is possible

$m_{af} \leq 3$ number of worm teeth $Z_1 \geq 3$ önerilir.

$m_{af} \leq 10$ number of worm teeth $Z_1 \geq 6$ önerilir.

In selection of helical-worm gear units additional f_{B1} service factor which is depend on ambient temperature and f_{B2} service factor which is depend on cycle and calculated according to ED are considered.

f_{B1} and f_{B2} service factors can be found from diagram 2 and 3.

For the right selection, service factor which is taken from performance table must be gearther than f_{Bmin} , f_{B1} and f_{B2} service factors which are taken from diagram 1,2,3.

Power for helical-worm gear with W cylinder is calculated as follows.

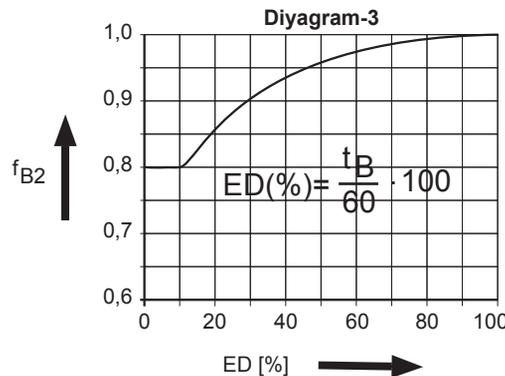
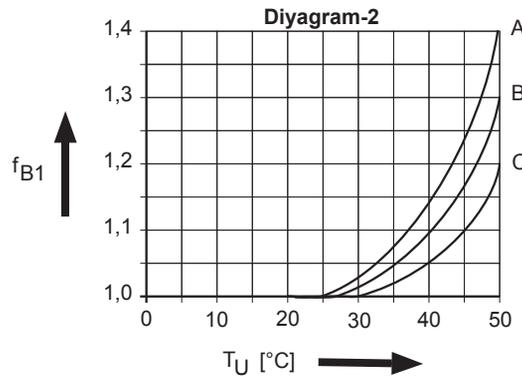
In this section P_1 value must be less than P_{1max} value.

$$P_1 \leq P_{1max}$$

For all output speed, maximum output torque [M_{amax}] maximum motor power (P_{1max}) and efficiency of gear units are listed on performance tables of gear unit with W and IEC adapter. Efficiency of gear units must be included factor which is obtained from equation on above.

Example ; 0,9 = %90

f_{B1} service factor according to ambient temperature and f_{B2} service factor according to running cycle which are effected to the calculation of service factor must be considered in helical-worm gear units.





Verim (η) :

PSH helisel-sonsuz dişli üniteleri verimde maksimum %92'ye ulaşabilir.

Sonsuz dişlilerin maksimum verimliliğe ulaşabilmeleri için dişli-lerin birbirine alışması gerekmektedir. Bundan dolayı dişli ünitesi verimi, sonsuz redüktör yeni olduğunda düşük olacaktır. Helisel - sonsuz dişli ünitesinin az sayıdaki kalkışlarında bu etki maksimumdur ama doğrusal açı ile azalır. Tecrübelerle göre tam çalışma tamamlanmadan önce aşağıda verilen verim düşüşleri göz önünde bulundurulmalıdır.

Helisel - Sonsuz Çalışması	Verimdeki Düşüş
1. Çalışma	% 12
2. Çalışma	% 6
3. Çalışma	% 3
6. Çalışma	% 2

Sonsuz dişlideki diş sayıları, IEC seçim tablolarında listelenmiştir. Alıştırma prosedürü maksimum yükte yaklaşık 25 saat çalıştırıldıktan sonra tamamlanmış olur.

Tablolarda verilen verim değerlerine ulaşabilmek için aşağıdaki bilgiler göz önünde bulundurulmalıdır.

- Dişli ünitesi devamlı çalıştırılmalı,
- Dişli ünitesi sabit sıcaklığa ulaşmış olmalı,
- Gerekli yağlayıcı ile doldurulmuş olmalı,

Radyal ve Eksenel Kuvvetler

Çıkış momenti ve hız genel açıklamalarındaki tablolarda, çıkış mili üzerine izin verilen radyal kuvvetler F_R ve eksenel kuvvetler F_A listelenmiştir. Tercihen güçlendirilmiş çıkış mili yatakları bir çok dişli ünitesi tipi için geçerlidir. Güçlendirilmiş yataklardaki radyal ve eksenel kuvvetler tablolarda F_{RGR} ve F_{AGR} olarak belirtilmiştir. Listelenen radyal ve eksenel kuvvetler, mil çıkışlı, ayak ve flanş bağlantılı dişli üniteleri için uygulanır. Radyal ve eksenel kuvvetler, bu kuvvetlerden biri 0 (sıfır)'a eşit iken hesaplanmıştır.

Ayrıca, radyal ve eksenel kuvvetlere ait bir servis faktörü $f_B = 1$ çıkış gücü ve devir açıklamalı genel tablolarda verilen kuvvetlerin temeline dayanır. Darbeli tipli kuvvetlerin olduğu ve aşırı çalışmalı (> 8 saat/gün) uygulamalarda uygun servis faktörü $f_B > 1$ radyal ve eksenel kuvvetler için de gözönünde bulundurulmalıdır. İzin verilen kuvvetler F_A ve F_R belirli oranda azaltılır.

Listelenen radyal kuvvetler, milin ucunun orta kısmında etki eden bir kuvvete karşılık gelir. İzin verilen kuvvetleri saptarken, uygulanan kuvvetin hiç istenmeyen yönü ve dönme yönü varsayıldı. Tam bir hesaplama için, daha yüksek radyal ve eksenel kuvvetler muhtemeldir. Bu yüzden lütfen bize istenen servis süresinin yanısıra gerçek güç ve dönme yönünün detaylarını da belirtiniz.

Transfer elemanları, çıkış miline eklenirse, ilgili faktör f_z radyal kuvveti saptamada göz önüne alınmalıdır.

Efficiency (η) :

Helical-worm gear units (PSH) can be reached maximum 92% per cent efficiency.

For reaching maximum efficiency of worm gears, gears must be run together. For that reason efficiency of gear units will be low in first running. At low start-stop applications this affect will be maximum but it could be decrease with linearly. According to experience, before full running incompletely decreasing in efficiency which is specified on below must be considered.

Running of Helical-Worm Gear	Decreasing in Efficiency
1 st Running	% 12
2 nd Running	% 6
3 rd Running	% 3
6 th Running	% 2

Teeth number of worm gear, reduction ratio and output speed are listed on the performance tables. Procedure of running together is accomplished after 25 hours running with maximum load.

For each efficiency value on the performance tables, you must consider as follows instruction;

- Gear units must be run full,
- Gear units must be reach constant temperature,
- It must be filled suitable lubrication,

Axial and Radial Forces

Permissible forces on the output shaft are given at the selection of gear motor. F_R represents radial load and F_A represents axial load. F_{RGR} and F_{AGR} represents permissible load with reinforced bearings. This values are calculated when one of them is equal to zero.

In selection of gear motor tables service factor is given with permissible axial and radial load but it must be considered when operating times is greater than 8 hours and service factor must be greater than 1 for that reason permissible radial and axial loads are reduced.

Axial and radial forces are calculated where force acting on the middle of the shaft end see page 39. Direction of rotation is played important role in calculation. For that reason this forces are calculated and result's value is found from forces to the shaft worse. Hence, please explain details in your orders.

For belt-pulleys operations or any other motion transfer applications f_z factor must be considered while calculating radial and axial load.



fz için Tablo

Transfer Elemanları	Faktör fz	Açıklama
Dişliler	1.1	$z \leq 17$ diş
Zincir Dişliler	1.4	$z \leq 13$ diş
Zincir Dişliler	1.2	$z \leq 20$ diş
Dar V-Kayış Makaralar	1.7	ön gerilim kuvveti
Düz kayış Makaralar	2.5	

Mil üzerinde ortaya çıkan radyal kuvvet, aşağıdaki formül kullanılarak hesaplanmıştır.

$$F_{R\text{vorth}} = \frac{2 \cdot M_2}{d_0} f_z \leq F_R$$

- M_2 : Dişli ünitesi çıkış momenti [Nm]
 f_z : Tablodan alınan katsayı
 d_0 : Etkili daire çapı [mm]
 F_R : Devir ve çıkış gücü tablolarından alınan müsaade edilebilir radyal kuvvet [kN]
 $F_{R\text{vorth}}$: Mil üzerindeki radyal kuvvet [kN]

Kuvvet mil ortasına uygulanmazsa, herhangi bir 'X' noktasında izin verilen radyal kuvvet **formül I ve II** kullanılarak hesaplanır.

fz values are shown at table.

Transfer Elements	Factor fz	Notice
Gears	1.1	$z \leq 17$ diş
Sprockets	1.4	$z \leq 13$ diş
Sprockets	1.2	$z \leq 20$ diş
Narrow V-belt pulleys	1.7	by Pre-Tensioning
Flat belt pulleys	2.5	

Radial load is determined with following equation;

- M_2 : Output torque of gear unit [Nm]
 f_z : Factor which is taken from table
 d_0 : Effective circular diameter [mm]
 F_R : Permitted radial force which is taken from the speed and output moment tables. [kN]
 $F_{R\text{vorth}}$: Radial force on the gear unit shaft [kN]

Equation which is determined above is used for when force is not acting on the middle of shaft at other situations following equation is applied.

Formül / Equation - I

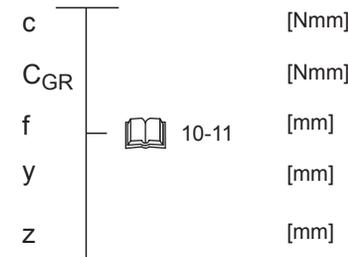
$$F_{RXL} = F_R \cdot \frac{z}{y + x}$$

Formül / Equation - II

$$F_{RXW} = \frac{c}{(f + x) \cdot 1000}$$

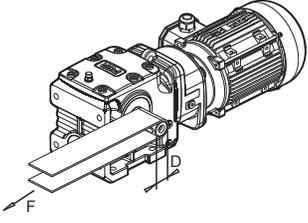
- X : mil bileziğinden kuvvet uygulama noktasına olan uzaklık [mm]
 X Noktası - mil kararlılığı
 F_{RXW} : izin verilen radyal yük [kN]
 F_R : hız ve çıkış tabloları ve milin ortasına uygulanan kuvvetten alınan radyal kuvvet [kN]
 X Noktası - yatak servis ömrü
 F_{RXL} : izin verilen radyal yük [kN]

- X : distance from the shaft collar to the point of force application [mm]
 point X - shaft stability
 F_{RXW} : permitted overhung force [kN]
 F_R : overhung force from the speed and output tables, force applied at shaft middle [kN]
 point X - bearing service life
 F_{RXL} : permitted overhung load [kN]



Belirtilmedi ki, hesaplamalarda **formül I** yatak servis ömrünü, **formül II** ise mil kararlılığını hesaplamada kullanılır. Hesaplamalar sonucunda küçük değer dikkate alınmalıdır.

Notify that, **equation I** and **equation II** are applied for calculating radial load where **equation I** is used for service life and **equation II** is used for shaft stability. But small result must be considered.



RADYAL YÜKLERİN HESABI

Radyal yük F_R (N)' nin hesaplanmasında gerekli tahrik momenti M_2 (Nm), kasnak veya dişli çapı D (mm) olmak üzere aşağıdaki formüller kullanılır.

CALCULATION OF OVERHUNG LOADS

Radial load F_R (N) is calculated with the following equations where required moment M_2 (Nm) and hoop or gear diameter D (mm) is used.

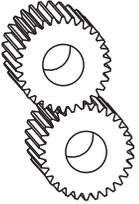


1 - Elastik Kaplin

Çalışma sırasında oluşan sapmalar kaplinin güvenli çalışma sınırları içerisinde ise kuvvetler ihmal edilebilir.

1 - Elastik Coupling

If elastic coupling is working in its reliable working area, the overhung loads can be neglected.



2 - Düz Dişli (20° kavrama açılı)

$$F_R = \frac{2100 \times M_2}{D}$$

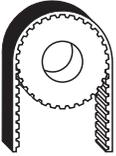
2 - For Spur Gear (Pressure angle 20°)



3 - Küçük Hızlarda Zincir Dişli (Z < 17)

$$F_R = \frac{2100 \times M_2}{D}$$

3 - For Chain Drive With Low Speed (Z < 17)



4 - Triger Kayış

$$F_R = \frac{2500 \times M_2}{D}$$

4 - For Triger Belt



5 - V Kayış

$$F_R = \frac{5000 \times M_2}{D}$$

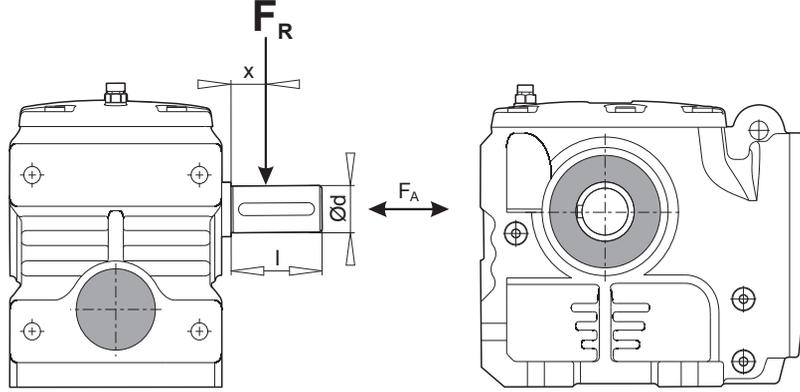
5 - For V Belt



6 - Gerdirme Makaralı Kayış

$$F_R = \frac{5000 \times M_2}{D}$$

6 - Flat Belt With Spanning Puley



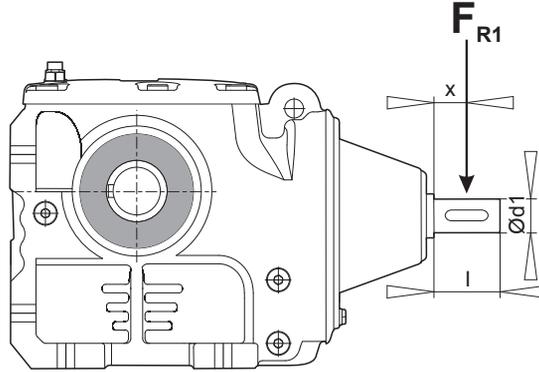
ÇIKIŞ ŞAFTINDAKİ RADYAL VE EKSENEL YÜK HESAPLAMALARI İÇİN DEĞERLER
VALUE TABLE FOR RADIAL AND AXIAL LOADS AT OUTPUT SHAFT

Redüktör Tipi Gearbox Type	y (mm)	z (mm)	c Normal Normal (Nmm)	CGR Güçlendirilmiş Reinforced (Nmm)	f (mm)	d (mm)	l (mm)
PSH 2040	99.5	115.5	0.07×10^6	—	0	20	40
PSH 2050, PSH 3050	104.0	129.0	0.12×10^6	0.19×10^6	0	25	50
PSH 2063, PSH 3063	118.5	148.5	0.19×10^6	0.30×10^6	0	30	60
PSH 2080, PSH 3080	150.0	185.0	0.21×10^6	0.41×10^6	0	35	70
PSH 2100, PSH 3100	179.0	224.0	0.51×10^6	0.94×10^6	0	45	90
PSH 2125, PSH 3125	233.5	293.5	1.33×10^6	2.19×10^6	0	60	120

y-z-c-CGR 8



W

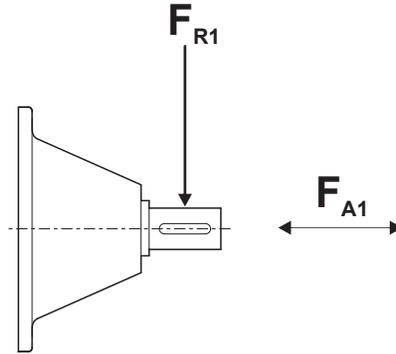


GİRİŞ ŞAFTINDAKİ RADYAL VE EKSENEL YÜK HESAPLAMALARI İÇİN DEĞERLER VALUE TABLE FOR RADIAL AND AXIAL LOADS AT INPUT SHAFT f=0					
Redüktör Tipi Gearbox Type	y (mm)	z (mm)	c (Nmm)	d1 (mm)	l (mm)
PSH 2040	58.5	78.5	0.037×10^6	16	40
PSH 2050 PSH 2063 PSH 2080 PSH 3050 PSH 3063 PSH 3080 PSH 3100	70.0	90.0	3.64×10^4	16	40
PSH 2100 PSH 3125	96.5	121.5	1.07×10^5	24	50
PSH 2125	110.5	150.5	4.70×10^5	38	80

y-z-c 8



W



Tip Type	PSH 2040		PSH 2050 PSH 2063 PSH 2080 PSH 3050 PSH 3063 PSH 3080 PSH 3100		PSH 2100 PSH 3125		PSH 2125	
	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
P ₁ (kW)	F _{A1}	F _{R1}	F _{A1}	F _{R1}	F _{A1}	F _{R1}	F _{A1}	F _{R1}
0.12	1.2	0.85	1.2	0.85	2.9	2.1	-	-
0.18	1.1	0.82	1.1	0.82	2.9	2.1	-	-
0.25	1.0	0.78	1.0	0.78	2.8	2.1	-	-
0.37	0.89	0.75	0.89	0.75	2.6	2.1	4.1	2.1
0.55	0.77	0.72	0.77	0.72	2.5	2.0	3.9	2.8
0.75	0.58	0.70	0.58	0.70	2.3	1.9	3.8	2.4
1.10	0.35	0.61	0.35	0.61	2.1	1.8	3.5	2.7
1.50	0.29	0.43	0.29	0.43	2.0	1.8	3.3	2.6
2.20	0.20	0.42	0.20	0.42	1.7	1.7	2.7	2.4
3.00	0.15	0.23	0.15	0.23	1.5	1.6	2.5	2.3
4.00	-	-	-	-	0.98	1.1	2.3	2.1
5.50	-	-	-	-	0.65	1.0	1.6	1.8
7.50	-	-	-	-	0.27	1.0	1.4	1.3
9.20	-	-	-	-	-	-	1.0	0.98
11.0	-	-	-	-	-	-	0.59	0.47

$$F_{A1} \Rightarrow F_{R1} = 0$$

$$F_{R1} \Rightarrow F_{A1} = 0$$



8



f_B = Servis Faktörü (Mamax / Ma)	f_B = Service factor (Mamax / Ma)
F_A = Çıkış tarafındaki müsaade edilebilir aksenal yük [kN]	F_A = Permissible axial load at the output side [kN]
F_R = Çıkış tarafındaki, milin orta noktasına etkiyen müsaade edilebilir radyal yük [kN]	F_R = Permissible overhung load at the output side, force acting at the shaft's midpoint [kN]
i_{toplam} = Dişli ünitesindeki toplam tahvil oranı	i_{total} = Gear units total ratio
i_{ges} = Tahvil oranı	i_{ges} = Reduction ratio
M₂ = Çıkış momenti [Nm]	M₂ = Output torque [Nm]
M_{amax} = Müsaade edilebilir maksimum çıkış momenti [Nm]	M_{amax} = Max. permissible output torque [Nm]
n₂ = Çıkış devri [d/dk]	n₂ = Output speed [min ⁻¹]
P_e = Mamax referans alınarak hesaplanan güç [kW]	P_e = Calculated power [kW] with reference to Mamax
P_n = Motor güç oranı [kW]	P_n = Rated power of motor [kW]
η = Verim [%]	η = Efficiency [%]
kg = Redüktörün ağırlığı	kg = Weight of the geared motor



POLAT HELİSEL-SONSUZ DİŞLİ ÜNİTESİ (PSH) POLAT HELICAL-WORM GEAR UNIT (PSH)

Helisel - sonsuz dişli üniteleri motor mili ile çıkış şaftı arasında 90° açı olan dişli üniteleridir. Bu yüzden uygulamalarda (sistem) faydalı özellik sağlar. Bu katalogta belirtilen tüm helisel - sonsuz dişli üniteleri çok kademelidir.

Helisel - sonsuz dişli ünitelerinin helisel dişlileri yüksek alaşımli çelikten yapılmış olup, dişliler sertleştirilmiştir. Dişli geometrileri ve düzeltmeleri optimize edilerek tek gövde prensibine göre hassas şaft hizalaması, yüksek yük kapasitesi, uzun servis ömrü ve düşük ses sağlanmış olur.

Sonsuz kademede çark sertleştirilmiş olduğu gibi özel bronzdan yapılmış ve şaft üzerine sıkıca sabitlenmiştir. Bu kombinasyon uzun servis ömrünü garanti etmektedir. Modern CNC tezgahlarında üretilen helisel-sonsuz dişli üniteleri düzenli proses kontrolü yapılarak en yüksek ürün kalitesi, siz değerli müşterilerimize sunulur.

Helisel - sonsuz dişli üniteleri ömürleri için fabrikada yüksek kalitede poliglolikol tabanlı sentetik uzun ömür yağı ile doldurulur. Bu sentetik yağ sürtünmeyi düşürerek uzun servis ömrü ve yüksek verim sağlamış olur.

Helisel-sonsuz dişli ünitelerinden PSH 2040'dan PSH 2125' e kadar iki kademe olarak mevcuttur. Bu ünitelere yüksek tahvil oranları için indirgeyici gövde montajlanarak 3 kademeli sunulmaktadır. Bunlar ise PSH 3050'den PSH 3125'e kadar toplam 5 gövde büyüklüğünde sağlanmaktadır.

There is a 90° between motor shaft and output shaft in helical-worm gear units. For that reason this features provide more benefits in applications (in system). All helical-worm gear units in this catalogue have multi-stage reduction.

Helical gears of helical-worm gear units are machined from high alloy steels and case hardened. According to monoblock principle and optimizing the teeth geometries, precise shaft alignment, high load capacity, long service life and low noise are provided.

In worm reduction, worm wheel is special bronze material and heat treated at the same time it is fixed to the output shaft. This combination is guaranteed long service life. Helical-worm gear units which are machined in latest version of CNC tools and allways checked regularly in process control, are offered to you with high quality level.

For long service life of helical-worm gear units, gearboxes are filled with high quality synthetic oil which have polyglolikol base. This synthetic oil is decreased friction effect and provided long service life, high efficiency.

In helical-worm gear units, from PSH 2040 to PSH 2125 is two stage reduction. For high reduction ratio three-stage reduction is offered when reduction case is mounted to the two stage reduction gear units. These are PSH 3050 to PSH 3125 and offered totally in 5 case width.

Helisel - Sonsuz Dişli Üniteleri

Çıkış gücü 0,12 kW'dan 15 kW'a kadar
maksimum çıkış momenti 3570 Nm, 6 gövde büyüklüğü

P₁ : 0,12 kW 15 kW
M₂ : 3 3570 Nm

Helical-Worm Gear Units

Approx. 3570 Nm output moment
altering power from 0.12 kW to 15 kW

P₁ : 0,12 kW 15 kW
M₂ : 3 3570 Nm

MAX. MÜSAADE EDİLEBİLİR ÇIKIŞ MOMENTİ Ma max.

MAX. PERMISSIBLE OUTPUT TORQUES Ma max.



85-105

İki ve Üç kademeli helisel-sonsuz redüktör

Helical-worm gear units, double and triple stage reduction

Tip/Type	Ma max. (Nm)	Tip/Type	Ma max. (Nm)
PSH 2040	100	PSH 3050	195
PSH 2050	185	PSH 3063	380
PSH 2063	360	PSH 3080	770
PSH 2080	710	PSH 3100	1590
PSH 2100	1420	PSH 3125	3090
PSH 2125	2850		



W ve IEC Adaptör

W kovanlı redüktörlerin max. tahrik gücü geçerli olan çıkış devri ve tahvil oranına göre tablolarda verilmiştir. (Bknz 85-105) IEC adaptörlü dişli ünitelerinde, her gövde büyüklüğünün standart gücü DIN EN 50347' ye göre verilir. P1 değeri W ve IEC seçim sayfalarında listelenmiştir. Bu listedeki değerlerden fazla bir güç istenirse özel hesaplamalar gerekmektedir. Lütfen danışınız.

Kaldırma, asansör ve bu gibi insan yaralanmalarına neden olabilecek çalışmalar için özel hesaplamalar gerekmektedir. Lütfen PGR'ye danışınız. Direk motor montajlı redüktörle karşılaştırmak gerekirse IEC ilave mil kaplinine ve extra rulman yataklanmasına sahiptir. Direk motor montajına göre IEC bağlantılı redüktörlerde güç kayıpları daha fazladır. PGR olarak biz direk motor montajını öneririz. Bu size sadece teknik avantaj değil finansal olarak da avantaj sağlar.

W and IEC Adapter for Gear Units

Selection of W cylinder (with free input shaft) and IEC adapter are listed on page 85-105. Maximum power are given according to gear reduction ratio and output speed. Gear units with IEC adapter standard power is specified according to DIN EN 50347. For other power values which are not shown on table, must be required special calculation for operating safety limits. For these cases, please contact with PGR.

On the other hand for operations where accident could be caused personnel damage special calculation must be required, please consult us. Direct motor mounting has a lot of advantage according to mounting of IEC adapter. At gear units with IEC adapter has additional solid shaft coupling and bearing seats for that reason power losses are greater than direct motor mounting. Last but not least direct motor mounting could be provided more technical and financial advantage.



UYGULAMALAR	APPLICATIONS
<u>KARIŞTIRICILAR</u>	<u>AGITATORS (MIXERS)</u>
<ul style="list-style-type: none">* Saf Sıvılar* Sıvılar ve Katılar* Değişken Yoğunluklu Sıvılar	<ul style="list-style-type: none">* Pure Liquids* Liquids and Solids* Liquids - Variable Density
<u>HAVALANDIRMA TERTİBATLARI</u>	<u>BLOWERS</u>
<ul style="list-style-type: none">* Santrifüj* Lob* Pervane	<ul style="list-style-type: none">* Centrifugal* Lobe* Vane
<u>MAYALAMA VE DAMITMA</u>	<u>BREWING AND DISTILLING</u>
<ul style="list-style-type: none">* Şişeleme Mekanizması* Mayalama Kazanları - Kesintisiz İş* Fırınlara, Ocaklar - Kesintisiz İş* Ezme, Karışım Kazanları - Kesintisiz İş* Ölçü Haznesi - Sık Sık Başlama	<ul style="list-style-type: none">* Bottling Machinery* Brew Kettles - Continuous Duty* Cookers - Continuous Duty* Mash Tubs - Continuous Duty* Scale Hopper - Frequent Starts
<u>TOPRAK İŞLEME MAKİNELERİ</u>	<u>CLAY WORKING MACHINERY</u>
<ul style="list-style-type: none">* Tuğla Presi* Briket Makinesi* Çamur Karma Makinesi	<ul style="list-style-type: none">* Brick Press* Briquette Machine* Pug Mill
<u>KOMPRESÖRLER</u>	<u>COMPRESSORS</u>
<ul style="list-style-type: none">* Santrifüj* Lob* Çok Pistonlu* Tek Pistonlu	<ul style="list-style-type: none">* Centrifugal* Lobe* Reciprocating, Multi-Cylinder* Reciprocating, Single-Cylinder
<u>KONVEYÖRLER - GENEL MAKSATLI</u>	<u>CONVEYORS - GENERAL PURPOSE</u>
<ul style="list-style-type: none">* Üniform Yüklü* Üniform Yüklü Olmayan* Pistonlu veya Karıştırıcı	<ul style="list-style-type: none">* Uniformly Loaded or Fed* Not Uniformly fed* Reciprocating Or Shaker
<u>VİNÇLER</u>	<u>CRANES</u>
<ul style="list-style-type: none">* Kuru Havuz Ana Kaldırma vinci Yardımcı Vinç Direkli Vinç Döndürme İşi Çekme İşi* Endüstriyel İşi Ana Kaldırma Vinci	<ul style="list-style-type: none">* Dry Dock Main Hoist Auxiliary Hoist Boom Hoist Slewing Drive Traction Drive* Industrial Duty Main Hoist
<u>ASANSÖRLER</u>	<u>ELEVATORS</u>
<ul style="list-style-type: none">* Kova* Santrifuj Boşaltma* Yürüyen Merdiven* Taşıma, Nakliye* Yerçekimi Boşaltım	<ul style="list-style-type: none">* Bucket* Centrifugal Discharge* Escalators* Freight* Gravity Discharge
<u>KIRMA MAKİNELERİ</u>	<u>CRUSHER</u>
<ul style="list-style-type: none">* Taş ya da Maden	<ul style="list-style-type: none">* Stone or Ore



UYGULAMALAR	APPLICATIONS
<u>TARAMA MAKİNELERİ</u>	<u>DREDGES</u>
<ul style="list-style-type: none">* Kablo Bobinleri* Konveyörler* Pompalar* İstifleme Makineleri* Vinçler	<ul style="list-style-type: none">* Cable Reels* Conveyors* Pumps* Stackers* Winches
<u>EKSTRUDERLER</u>	<u>EXTRUDERS</u>
<ul style="list-style-type: none">* Genel* Plastikler<ul style="list-style-type: none">Değişken Hızlı TahrirSabit Hızlı Tahrir*Kauçuk, Lastik<ul style="list-style-type: none">Kesintisiz Vida İşlemleriKesintili Vida İşlemleri	<ul style="list-style-type: none">* General* Plastics<ul style="list-style-type: none">Variable Speed DriveFixed Speed Drive*Rubber<ul style="list-style-type: none">Continuous Screw OperationIntermittent Screw Operation
<u>FANLAR</u>	<u>FANS</u>
<ul style="list-style-type: none">* Santrifüj* Yüksek Emişli* İndüklenmiş Çekiş* Endüstriyel ve Maden Ocağı	<ul style="list-style-type: none">* Centrifugal* Forced Draft* Induced Draft* Industrial and Mine
<u>BESLEME ÜNİTELERİ</u>	<u>FEEDERS</u>
<ul style="list-style-type: none">* Palet* Bant* Disk* Pistonlu* Vida	<ul style="list-style-type: none">* Apron* Belt* Disc* Reciprocating* Screw
<u>GIDA ENDÜSTRİSİ</u>	<u>FOOD INDUSTRY</u>
<ul style="list-style-type: none">* Hububat Fırını* Hamur Karıştırıcı* Kıyma Makinesi* Dilimleyici	<ul style="list-style-type: none">* Cereal Cooker* Dough Mixer* Meat Grinder* Slicer
<u>METAL İŞLEMELERİ</u>	<u>METAL MILLS</u>
<ul style="list-style-type: none">* Çekme Makinesi Taşıma ve Ana Tahrir* Hammadde İtici* Makaslar* Tel Çekme* Tel Sargı Makinesi* Salgı Tezgahı<ul style="list-style-type: none">Geri DönmesizTek TahrirGrup Tahriki	<ul style="list-style-type: none">* Draw Bench Carriage and Main Drive* Slab Pushers* Shears* Wire Drawing* Wire Winding Machine* Runout Table<ul style="list-style-type: none">Non-ReversingIndividual DrivesGroup Drives
<u>DÖNER İŞLEMELER</u>	<u>MILLS (ROTARY TYPE)</u>
<ul style="list-style-type: none">* Küresel ve Çubuk<ul style="list-style-type: none">Düz Halka DişliHelisel Halka DişliDoğrudan Bağlı* Çimento Fırını* Kurutucular ve Soğutucular	<ul style="list-style-type: none">* Ball and Rod<ul style="list-style-type: none">Spur Ring GearHelical Ring GearDirect Connected* Cement Kilns* Dryers and Coolers



UYGULAMALAR

KERESTE ENDÜSTRİSİ

- * Kabuk Soyucular
Besleme Tamburu
Ana Tahrik
- * Konveyörler
Brülör
Ana Yük veya Ağır Yük
Ana Kütük
Hızar ve Taşıma Bandı
Kalın Dilim
Taşıma
- * Kesme Testereleri
Zincir
Sürükleme
- * İndirme Boşaltma Tamburları
- * Uzun Deste
- * Tomruk Çekme-Eğme
- * Kütük Döndürme Aygıtları
- * Sıralama Tablası
- * Taşıma
Zincir
Kreynyolu
- * Tabla Tahriki

APPLICATIONS

LUMBER INDUSTRY

- * Barkers
Spindle Feed
Main Drive
- * Conveyors
Burner
Main or Heavy Duty
Main Log
Re-saw, Merry-Go-Round
Slab
Transfer
- * Cut-Off Saws
Chain
Drag
- * Debarking Drums
- * Long Deck
- * Log Hauls - Incline
- * Log Turning Devices
- * Sorting Table
- * Transfers
Chain
Causeway
- * Tray Drives

KAĞIT İŞLEMELERİ

- * Karıştırıcı
- * Saf çözeltiler için Karıştırıcı
- * Kabuk Soyma Tromelleri
- * Mekanik Kabuk Soyucu
- * Dövücü - Öğütücü
- * Düzleştirme Makinesi
- * Kalenderleme
- * Yüzey Pürüzlendirici
- * Çentik Besleyici
- * Kaplama Merdanesi
- * Konveyörler
Çentik, Kabuk, Kimyasal
Kalın Dilimler İçeren Kütükler
- * Kesici
- * Silindir Kalıpları
- * Kurutucu
Kağıt Makinesi
Konveyör Tip
- * Kabartmalı Basıcı
- * Ekstrüder
- * Kağıt Merdaneleri
- * Presler
- * Küspe Makinesi
- * Pompalar

PAPER MILLS

- * Agitator (Mixer)
- * Agitator for Pure Liquors
- * Barking Drums
- * Mechanical Barkers
- * Beater
- * Breaker Stack
- * Calender
- * Chipper
- * Chip Feeder
- * Coating Rolls
- * Conveyors
Chip, Bark, Chemical
Log (including Slab)
- * Cutter
- * Cylinder Molds
- * Dryer
Paper Machine
Conveyor Type
- * Embosser
- * Extruder
- * Paper Rolls
- * Presses
- * Pulper
- * Pumps

FİLTRELER

- * Havalı Yıkama
- * Döner - Taş veya Çakıl
- * Hareketli Su Girişi

SCREENS

- * Air Washing
- * Rotary - Stone or Gravel
- * Traveling Water Intake



UYGULAMALAR	APPLICATIONS
<u>PLASTİK ENDÜSTRİSİ</u> <u>İLK İŞLEMLER</u>	<u>PLASTIC INDUSTRY</u> <u>PRIMARY PROCESSING</u>
<ul style="list-style-type: none">* Yoğun İç KarıştırıcılarHarmanlayıcıKesintisiz Karıştırıcı	<ul style="list-style-type: none">* Intensive Internal MixersBatch MixersContinuous Mixers
<u>PLASTİK ENDÜSTRİSİ</u> <u>İKİNCİL İŞLEMLER</u>	<u>PLASTIC INDUSTRY</u> <u>SECONDARY PROCESSING</u>
<ul style="list-style-type: none">* Hacim Kalıpcıları* Kaplama* Tabaka* Boru* Ön Plastikleştirme* Rot* Saç, Plaka* Borular	<ul style="list-style-type: none">* Blow Molders* Coating* Film* Pipe* Pre-Plasticizers* Rods* Sheet* Tubing
<u>POMPALAR</u>	<u>PUMPS</u>
<ul style="list-style-type: none">* Santrifüj* Oranlama* PistonluTek Tesirli - 3 veya daha fazla SilindirÇift Tesirli - 2 veya daha fazla Silindir* DönerŞanzuman TipiLobPervane	<ul style="list-style-type: none">* Centrifugal* Proportioning* ReciprocatingSingle Acting - 3 or more cylindersDouble Acting - 2 or more cylinders*RotaryGear TypeLobeVane
<u>KAUÇUK - LASTİK ENDÜSTRİSİ</u>	<u>RUBBER INDUSTRY</u>
<ul style="list-style-type: none">* Yoğun İç KarıştırıcılarHarmanlayıcılarKesintisiz Karıştırıcılar*Karıştırma İşlemi2 Yumuşak Merdane1 veya 2 Oluklu Merdane* Toplu İşleme - 2 Yumuşak Silindir* Kırıcı ve Isıtıcı - 2 Merdane, 1 Oluklu Merdane* Kırıcı - 2 Oluklu Merdane* Tutma, Besleme, Karıştırma İşlemi - 2 Merdane* Arıtıcı - 2 Merdane* Kalenderler	<ul style="list-style-type: none">* Intensive Internal MixersBatch MixersContinuous Mixers* Mixing Mill2 Smooth Rolls1 or 2 corrugated Rolls* Batch Drop Mill - 2 Smooth Rolls* Cracker Warmer-2 Rolls,1 Corr. Roll* Cracker - 2 Corrugated Rolls* Holding, Feed and Blend Mill - 2 Rolls* Refiner - 2 Rolls* Calenders
<u>ATIK SU BOŞALTIM EKİPMANLARI</u>	<u>SEWAGE DISPOSAL EQUIPMENT</u>
<ul style="list-style-type: none">* Çubuklu Elek* Kimyasal Besleme Üniteleri* Su Boşaltma Eleği* Köpük Kesici* Yavaş veya Hızlı Karıştırıcılar* Tortu Toplayıcı* Koyulaştırıcı* Vakumlu Filtre	<ul style="list-style-type: none">* Bar Screens* Chemical Feeders* Dewatering Screen* Scum Breaker* Slow or Rapid Mixers* Sludge Collector* Thickener* Vacuum Filter
<u>KOMPAKTÖRLER</u>	<u>COMPACTORS</u>
<u>ÇEKTİRMELER - YAVAŞ VE KUVVETLİ</u>	<u>PULLERS - BARGE HAUL</u>



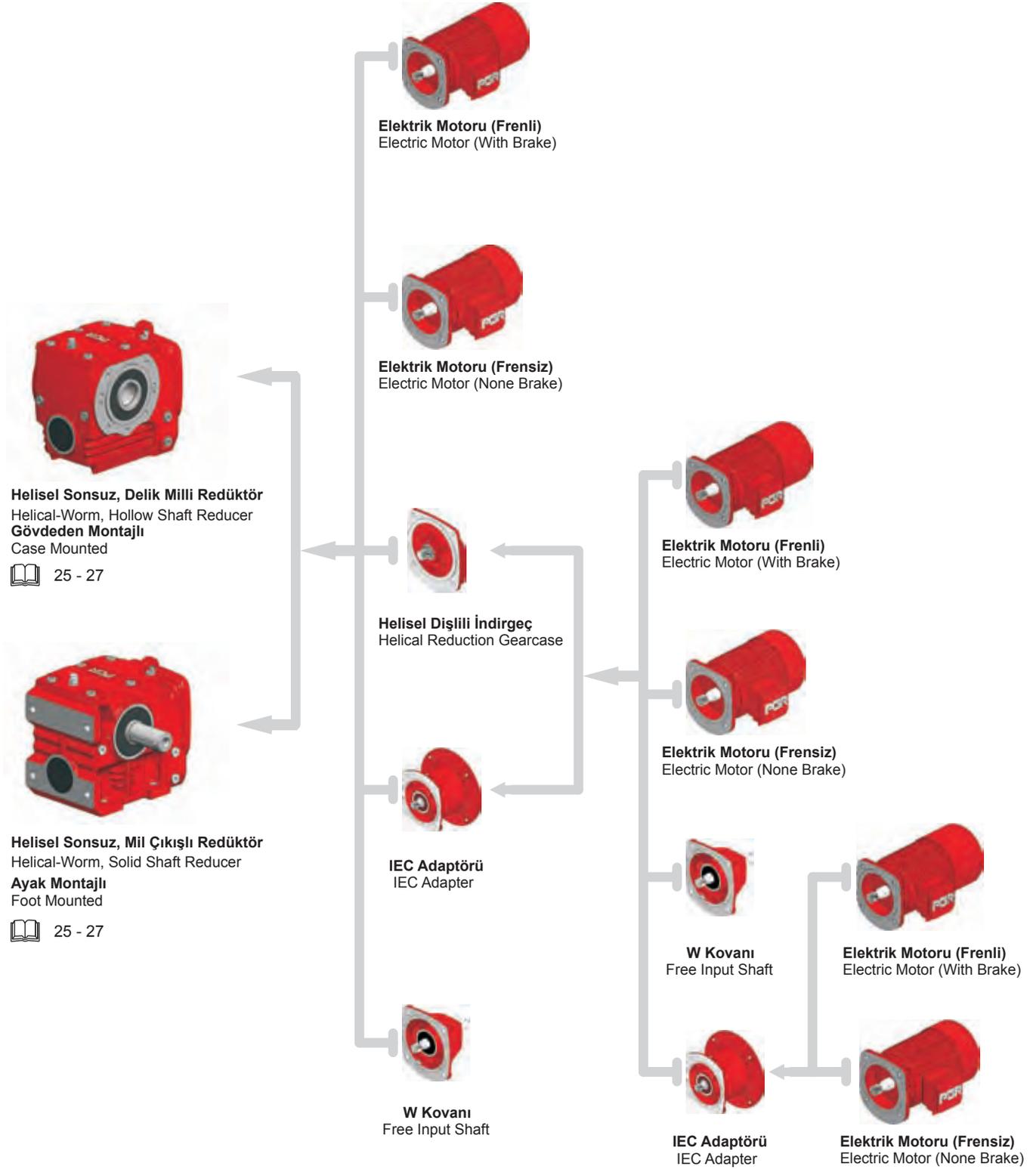
UYGULAMALAR	APPLICATIONS
<u>ŞEKER ENDÜSTRİSİ</u>	<u>SUGAR INDUSTRY</u>
<ul style="list-style-type: none">* Pancar Dilimleme Aleti* Kamış Bıçakları* Kırma Makineleri	<ul style="list-style-type: none">* Beet Slicer* Cane Knives* Crushers
<u>TEKSTİL ENDÜSTRİSİ</u>	<u>TEXTILE INDUSTRY</u>
<ul style="list-style-type: none">* Harman Ölçer* Kalenderler* Şablonlar* Kuru Konserveler* Boyama Makinesi* Dokuma Tezgahları* Çamaşır Sıkma Makinesi - Merdane* Kaplama* Doldurma Makinesi* Haşıl Makinesi* Halat Yıkama Makinesi* Eğirme Makinesi* Germe Kurutma Makineleri* Yıkama Makineleri* Masura Sarıcısı	<ul style="list-style-type: none">* Batcher* Calenders* Cards* Dry Cans* Dyeing Machinery* Looms* Mangle* Napper* Pads* Siashers* Soapers* Spinners* Tenter Frames* Washers* Winders
<u>DAMPERLİ ARAÇLAR</u>	<u>CAR DUMPERS</u>
<u>ÇEKİCİ ARAÇLAR</u>	<u>CAR PULLERS</u>
<u>ARITICILAR</u>	<u>CLARIFIERS</u>
<u>KONSERVE DOLUM MAKİNELERİ</u>	<u>CAN FILLING MACHINES</u>



REDÜKTÖR TİPİ GEAR TYPE	REDÜKTÖR DİZAYNI GEAR DESIGN
Ayak Montajlı Foot Mounted	TMA = Ayak montajlı, Tek mil çıkışı Foot mounted, Solid shaft
PSH 2040...PSH 2125 = İki kademeli, Helisel Sonsuz Dişlili redüktör Double reduction, helical-worm gearboxes	ÇMA = Ayak montajlı, Çift mil çıkışı, Foot mounted, Solid shaft on both sides
PSH 3050...PSH 3125 = Üç kademeli, Helisel Sonsuz Dişlili redüktör Triple reduction, helical-worm gearboxes	DG/B14 = Gövdeden montajlı, Delik milli, B14 flanşlı Case mounted, Hollow shaft, Flange B14
Gövdeden Montajlı Flange Mounted	DG/B5 = Gövdeden montajlı, Delik milli, B5 flanşlı Case mounted, Hollow shaft, Flange B5
PSH 2040...PSH 2125 = İki kademeli, Helisel Sonsuz Dişlili redüktör Double reduction, helical-worm gearboxes	DG/KS-B14 = Gövdeden montajlı, Delik milli, Konik sıkırtmalı, B14 flanşlı Case mounted, Hollow shaft, Shrink disk connector, Flange B14
PSH 3050...PSH 3125 = Üç kademeli, Helisel Sonsuz Dişlili redüktör Triple reduction, helical-worm gearboxes	DG/TK = Gövdeden montajlı, Delik milli, Tork kolu Case mounted, Hollow shaft, Torque arm
Gövdeden Montajlı / B5 Flanşlı Case Mounted / Flange B5	DG/Ç = Gövdeden montajlı, Delik milli, Çektirmeli Case mounted, Hollow shaft, Fixing element
PSH 2040...PSH 2125 = İki kademeli, Helisel Sonsuz Dişlili redüktör Double reduction, helical-worm gearboxes	DG/Ç/KK = Gövdeden montajlı, Delik milli, Çektirmeli, Koruma Kapaklı Case mounted, Hollow shaft, Fixing element with cover
PSH 3050...PSH 3125 = Üç kademeli, Helisel Sonsuz Dişlili redüktör Triple reduction, helical-worm gearboxes	DG/KS/KK = Gövdeden montajlı, Delik milli, Konik sıkırtmalı, Koruma Kapaklı Case mounted, Hollow shaft, Shrink disk connector with cover
	TMG/B5 = Gövdeden montajlı, Tek mil çıkışı, B5 flanşlı Case mounted, Solid shaft, Flange B5



Giriş Aksamları Input Options	Motor Motor	Kutup Numarası Number of Poles	Motor Seçenekleri Motor Options
<p>IEC = DIN 42677' ye göre standart motorlar için aksamlar</p> <p>= For assembly with IEC standard motors acc. to DIN 42677</p> <p>W = Motorsuz girişli redüktörler için aksam</p> <p>= With free input shaft</p> <p>T = Turbo kaplin</p> <p>= Turbo coupling</p>	<p>Üç fazlı motor Motor boyutu 63 - 315</p> <p>Three phase motor Motor size 63 - 315</p> <p>EExell = Patlamaya karşı güvenliği artırılmış üç fazlı motor</p> <p>= Explosion proof three phase motor increased safety</p>	<p>2 = 2 Kutuplu = 2 - Poles</p> <p>4 = 4 Kutuplu = 4 - Poles</p> <p>6 = 6 Kutuplu = 6 - Poles</p> <p>4 - 2 = 1:2 oranında hız değiştirici dahlander bağlantısı</p> <p>= Pole changing 1:2 Dahlander connection</p> <p>8 - 2 = 1:4 oranında hız değiştirici ayrılmış sarmal dizilişi</p> <p>= Pole changing 1:4 Separate windings</p> <p>Diğer kutup kombinasyonları talep karşısında karşılanacaktır Other pole combinations on request</p>	<p>BRE = Frenli = With brake</p> <p>EF = Tek fazlı, fanlı = Separate fan, single phase</p> <p>ZF = Çift fazlı, fanlı = Separate fan, double phase</p> <p>DF = Üç fazlı, fanlı = Separate fan, three phase</p> <p>IG = Enkoderli = With encoder</p> <p>KK/FK= Debriyajlı = With clutches</p> <p>SR = Toza karşı korumalı fren = Brake dust - proof</p> <p>TF = Termistörlü = Thermistor</p> <p>RG = Korozyon korumalı frenli = Brake corrosion - protected</p> <p>WU = Yumuşak kalkışlı rotor = Soft start rotor</p> <p>B = Geri dönmeye karşı kilitli = Backstop</p> <p>TW = Isıya duyarlı = Thermal trip</p> <p>HL = Manuel frenli motor = Brake motor with hand release</p>





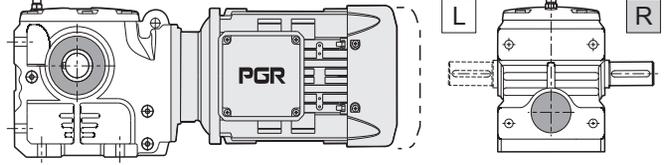
Kısaltmalar Abbrev	Anlamı Meaning	Helisel Sonsuz Dişlili Redüktör Helical Worm Gear Units
DG/B5	Gövdeden montajlı, Delik milli, B5 flanşlı Case mounted, Hollow shaft, Flange B5	✓
DG/B14	Gövdeden montajlı, Delik milli, B14 flanşlı Case mounted, Hollow shaft, Flange B14	✓
DG/TK	Gövdeden montajlı, Delik milli, Tork kolları Case mounted, Hollow shaft, Torque arm	✓
Ç	Çektirme elementi Fixing elements for hollow shaft	✓
KK	Koruma kapaklı Cover as a touch guard	✓
IEC	IEC adaptörü Adapter for mounting B5 IEC standard motors	✓
ÇMA	Ayak montajlı, Çift mil çıkışı Foot mounted, Solid shaft on both sides	✓
B	Kilit Integrated backstop	✓
WB	W kilidi Backstop in W adapter	✓
KS	Konik sıkırtma Hollow shaft with shrink disc	✓
TMG/B5	Gövdeden montajlı, Tek mil çıkışı, B5 flanşlı Case mounted, Solid shaft, Flange B5	✓
GR	Güçlendirilmiş rulman Reinforced bearing	✓
TMA	Ayak montajlı, Tek mil çıkışı Foot mounted, Solid shaft	✓
W	W kovanı Free input shaft	✓



PSH 2080...TMA- 80S/4A R

**Tek mil çıkışlı, Ayak montajlı,
Helisel sonsuz dişli, Motorlu redüktör**

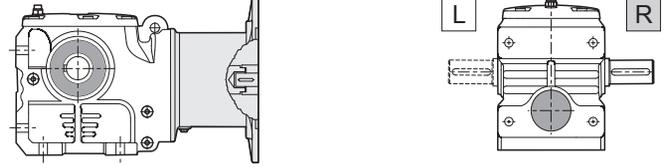
Helical worm geared motor,
Solid shaft, Foot mounted, With motor



PSH 2080...TMA - IEC 80 R

**Tek mil çıkışlı, Ayak montajlı,
Helisel sonsuz dişli, IEC Adaptörlü redüktör**

Helical worm geared motor,
Solid shaft, Foot mounted, With IEC adapter



PSH 2080...TMA - W R

**Tek mil çıkışlı, Ayak montajlı,
Helisel sonsuz dişli, W kovanlı redüktör**

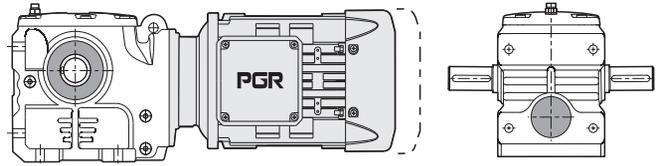
Helical worm geared motor,
Solid shaft, Foot mounted, With free input shaft



PSH 2080...ÇMA - 80S/4A

**Çift mil çıkışlı, Ayak montajlı,
Helisel sonsuz dişli, Motorlu redüktör**

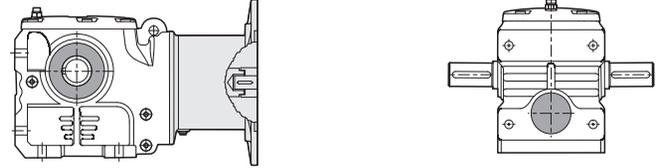
Helical worm geared motor,
Solid shaft on both sides, Foot mounted, With motor



PSH 2080...ÇMA - IEC 80

**Çift mil çıkışlı, Ayak montajlı,
Helisel sonsuz dişli, IEC adaptörlü redüktör**

Helical worm geared motor,
Solid shaft on both sides, Foot mounted, With IEC adapter



PSH 2080...ÇMA - W

**Çift mil çıkışlı, Ayak montajlı,
Helisel sonsuz dişli, W kovanlı redüktör**

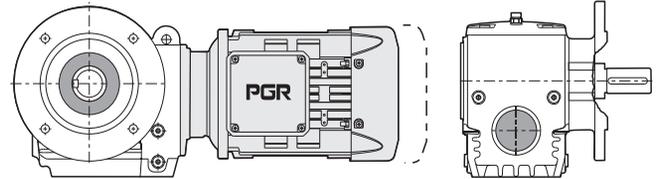
Helical worm geared motor,
Solid shaft on both sides, Foot mounted, With free input shaft



PSH 2080...TMG/B5 - 80S/4A

**Tek mil çıkışlı, Gövdeden montajlı, B5 Flanşlı
Helisel sonsuz dişli, Motorlu redüktör**

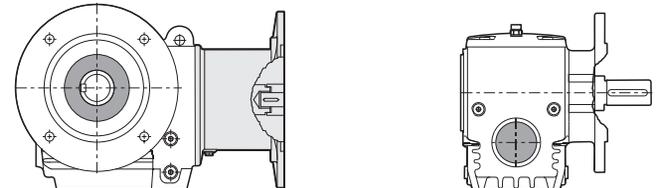
Helical worm geared motor,
Solid shaft, case mounted, Flange B5, With motor



PSH 2080...TMG/B5 - IEC 80

**Tek mil çıkışlı, Gövdeden montajlı, B5 Flanşlı
Helisel sonsuz dişli, IEC Adaptörlü Redüktör**

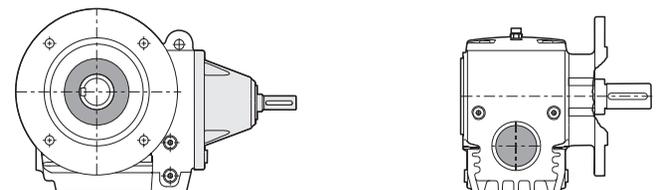
Helical worm geared motor,
Solid shaft, case mounted, Flange B5, With IEC Adapter



PSH 2080...TMG/B5 - W

**Tek mil çıkışlı, Gövdeden montajlı, B5 Flanşlı
Helisel sonsuz dişli, W kovanlı redüktör**

Helical worm geared motor,
Solid shaft, case mounted, Flange B5, With free input shaft

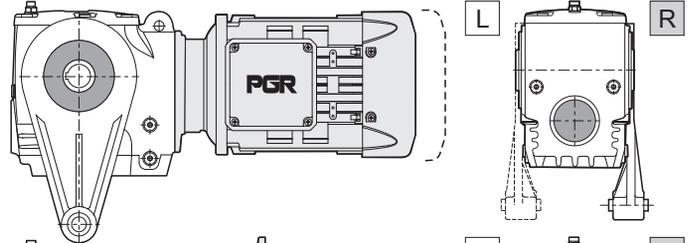




PSH 2080...DG/TK - 80S/4A R

**Delik milli, Gövdeden montajlı, Tork kollu
Helisel sonsuz dişli, Motorlu redüktör**

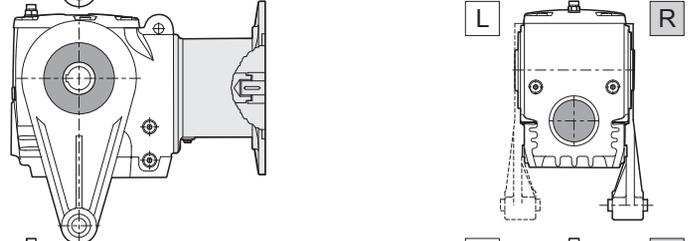
Helical worm geared motor,
Hollow shaft, Case mounted, Torque arm, With motor



PSH 2080...DG/TK - IEC 80 R

**Delik milli, Gövdeden montajlı, Tork kollu
Helisel sonsuz dişli, IEC adaptörlü redüktör**

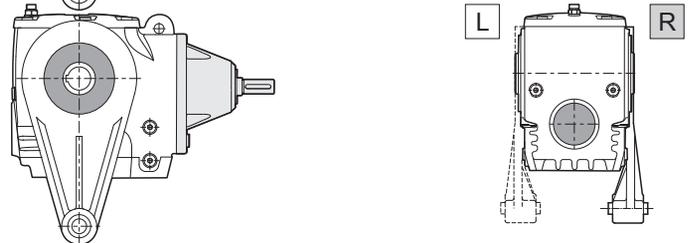
Helical worm geared motor,
Hollow shaft, Case mounted, Torque arm, With IEC adapter



PSH 2080...DG/TK - W R

**Delik milli, Gövdeden montajlı, Tork kollu
Helisel sonsuz dişli, W kovanlı redüktör**

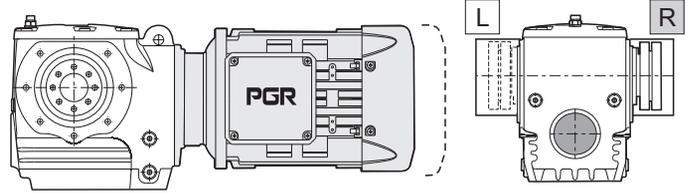
Helical worm geared motor,
Hollow shaft, Case mounted, Torque arm, With free input shaft



PSH 2080...DG/KS - 80S/4A R

**Delik milli, Gövdeden montajlı, Konik sıkırtmalı
Helisel sonsuz dişli, Motorlu redüktör**

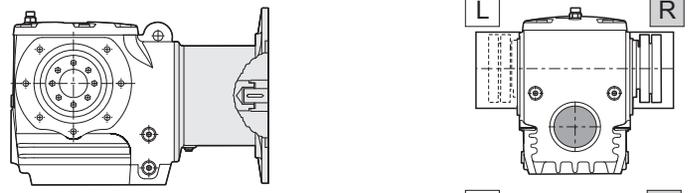
Helical worm geared motor,
Hollow shaft, Case mounted, Shrink disc, With motor



PSH 2080...DG/KS - IEC 80 R

**Delik milli, Gövdeden montajlı, Konik sıkırtmalı
Helisel sonsuz dişli, IEC adaptörlü redüktör**

Helical worm geared motor,
Hollow shaft, Case mounted, Shrink disc, With IEC adapter



PSH 2080...DG/KS - W R

**Delik milli, Gövdeden montajlı, Konik sıkırtmalı
Helisel sonsuz dişli, W kovanlı redüktör**

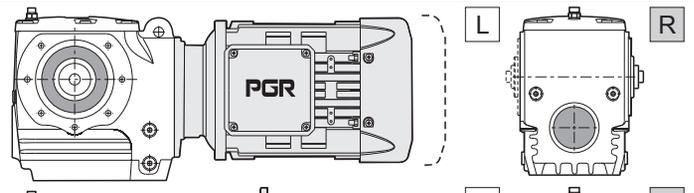
Helical worm geared motor,
Hollow shaft, Case mounted, Shrink disc, With free input shaft



PSH 2080...DG/Ç - 80S/4A R

**Delik milli, Gövdeden montajlı, Çektirme elementli
Helisel sonsuz dişli, Motorlu redüktör**

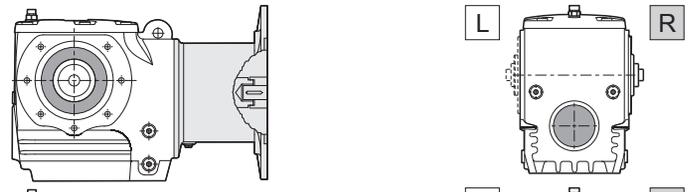
Helical worm geared motor,
Hollow shaft, Case mounted, Fixing element, With motor



PSH 2080...DG/Ç - IEC 80 R

**Delik milli, Gövdeden montajlı, Çektirme elementli
Helisel sonsuz dişli, IEC adaptörlü redüktör**

Helical worm geared motor,
Hollow shaft, Case mounted, Fixing element, With IEC adapter



PSH 2080...DG/Ç - W R

**Delik milli, Gövdeden montajlı, Çektirme elementli
Helisel sonsuz dişli, W kovanlı redüktör**

Helical worm geared motor,
Hollow shaft, Case mounted, Fixing element, With free input shaft

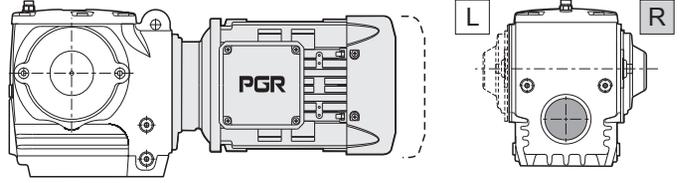




PSH 2080...DG/Ç-KK - 80S/4A R

Delik milli, Gövdeden montajlı, Çektirme elementli, Koruma kapaklı, Helisel sonsuz dişli, Motorlu redüktör

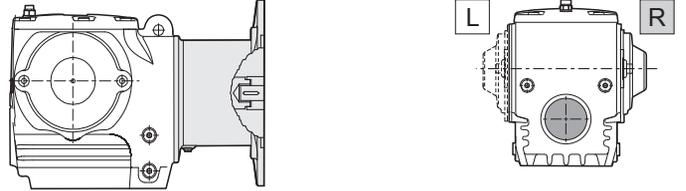
Helical worm geared motor, Hollow shaft, Case mounted, Fixing element and cover, With motor



PSH 2080...DG/Ç-KK - IEC 80 R

Delik milli, Gövdeden montajlı, Çektirme elementli, Koruma kapaklı, Helisel sonsuz dişli, IEC adaptörlü redüktör

Helical worm geared motor, Hollow shaft, Case mounted, Fixing element and cover, With IEC adapter



PSH 2080...DG/Ç-KK - W R

Delik milli, Gövdeden montajlı, Çektirme elementli, Koruma kapaklı, Helisel sonsuz dişli, W kovanlı redüktör

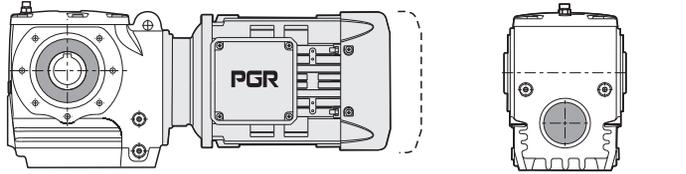
Helical worm geared motor, Hollow shaft, Case mounted, Fixing element and cover, With free input shaft



PSH 2080...DG/B14 - 80S/4A

Delik milli, Gövdeden montajlı, B14 Flanşlı Helisel sonsuz dişli, Motorlu redüktör

Helical worm geared motor, Hollow shaft, Case mounted, Flange B14, With motor



PSH 2080...DG/B14 - IEC 80

Delik milli, Gövdeden montajlı, B14 Flanşlı Helisel sonsuz dişli, IEC adaptörlü redüktör

Helical worm geared motor, Hollow shaft, Case mounted, Flange B14, With IEC adapter



PSH 2080...DG/B14 - W

Delik milli, Gövdeden montajlı, B14 Flanşlı Helisel sonsuz dişli, W kovanlı redüktör

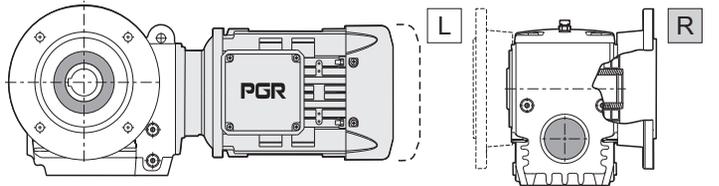
Helical worm geared motor, Hollow shaft, Case mounted, Flange B14, With free input shaft



PSH 2080...DG/B5 - 80S/4A R

Delik milli, Gövdeden montajlı, B5 Flanşlı Helisel sonsuz dişli, Motorlu redüktör

Helical worm geared motor, Hollow shaft, Case mounted, Flange B5, With motor



PSH 2080...DG/B5 - IEC 80 R

Delik milli, Gövdeden montajlı, B5 Flanşlı Helisel sonsuz dişli, IEC adaptörlü redüktör

Helical worm geared motor, Hollow shaft, Case mounted, Flange B5, With IEC adapter

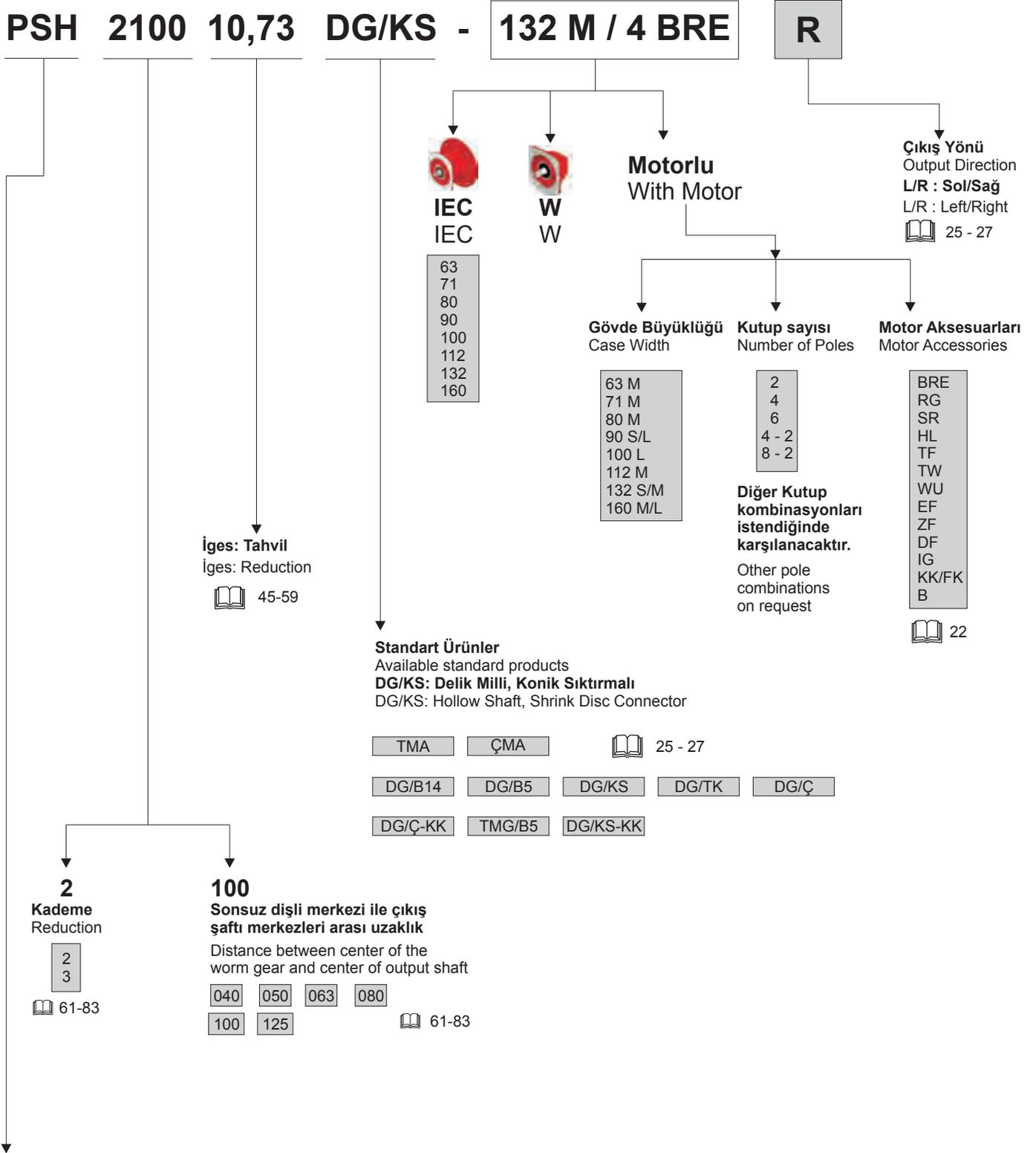


PSH 2080...DG/B5 - W R

Delik milli, Gövdeden montajlı, B5 Flanşlı Helisel sonsuz dişli, W kovanlı redüktör

Helical worm geared motor, Hollow shaft, Case mounted, Flange B5, With free input shaft





Tip (POLAT Helisel - Sonsuz Redüktör)
Type (POLAT Helical - Worm Gearbox)

YAĞLAMA

Çalıştırmadan veya uzun süreli olarak depoya kaldırmadan önce ventildeki tapa sökölüp, havalandırma tapası takılarak aşırı basınç ve yağ sızıntısı önlenmelidir.

Redüktörler fabrikadan çalışmaya hazır ve mineral yağ doldurulmuş olarak gönderilirler. Bütün dişi üniteler aşağıdaki tablonun ortam sıcaklığı sütununda listesi verilen yağlayıcı (normal) ile dolu olarak sevk edilirler. Diğer ortam sıcaklıkları için listede verilen yağlayıcılar ilave masraf karşılığında temin edilebilir.

Yağlayıcı her 10.000 çalışma saatinde veya 2 yıl sonra değiştirilmelidir. Sentetik yağlar için yağ değişikliği her 20000 çalışma saatinde veya 4 yıl sonra yapılmalıdır. Zorlu çalışma koşullarında örneğin yüksek rutubet ve büyük sıcaklık değişimleri ve kötü çevre şartları gibi durumlarda daha kısa aralıklarla yağ değişimi yapılması tavsiye edilir. Yağ değişiminin üniteyi komple temizleme işlemi ile birleştirilmesi önerilir. Rulman içerisindeki gres her 10000 çalışma saatinde değiştirilmeli ve yeni gres ile doldurulmalıdır. Bu işlem yapılırken rulmanın 1/3 ünün gresle dolu olması sağlanmalıdır.

LUBRICATION

Lubricating oil properties and selection of oil must be correct for the reducers to have long life and to run with good performance. In order to prevent oil leakage during long period storage due to inner pressure, top plug should be removed according to assembly type and venting plug should be mounted.

Reducers are delivered as being filled with mineral oil. Following tables are presented properties of oils depend on ambient temperature. Gear units which is W or IEC adapter type and gear motors are charged with lubricant. Ambient temperature is played important role for choosing lubricant. Relation between ambient temperature and properties of oils are shown in table.

Lubricants must be changed every 10000 hours or after two years, but this time changes when synthetic oil is used. Lubricants must be changed every 20000 hours or after four years where synthetic oil is used. However, operating conditions should be considered for changing oil time eg. in aggressive environment large temperature changing, oil must be changed frequently. For bearings grease should be changed every 10000 running time and it should be done with fresh grease and least 1/3 of bearing must be covered.

Not: Sentetik ve mineral yağlayıcılar birbirine karıştırılmamalıdır. / Note: Consider that different kind of oil (synthetic and mineral oil) should not be mixed.

Redüktör Tipi Type of gearbox	Yağ Tipi Type of Lubricant	Ortam Sıcaklığı Ambient Temp. °C	ISO vizkozite sınıfı ISO viscosity class	SHELL	MOBİL	BP	ESSO	DEA	ARAL	CASTROL	TRIBOL	KLÜBER
Helisel - Sonsuz Dişli Redüktör	Mineral yağ	- 5...40 Normal	ISO VG 220	Shell Omala Oel 220	Mobilgear 630	Energol GR-XP 220	Spartan EP 220	Deagear DX SAE 85W-90 Falcon CLP 220	Degol BG 220	Alpha SP 220 Alpha MW 220 Alpha MAX 220	Tribol 1100/220	Klüberoil GEM 1-220
	Mineral oil	- 15...25	ISO VG 100	Shell omala Oel 100	Mobilgear 627	Energol GR-XP 100	Spartan EP 100	Deagear DX SAE 80W Falcon CLP 150	Degol BG 100	Alpha SP 100 Alpha MW 100 Alpha MAX 220	Tribol 1100/100	Klüberoil GEM 1-100
	Sentetik yağ Synthetic oil	# - 50...-15	ISO VG 15	Shell Tellus Oel T 15	Mobil DTE 11 M	Bartran HV 15	Uniwis J 13	Airkraft Hydraulic Oil 15	Vitamol 1010	Hyspin SP 15 Hyspin ZZ 15	Tribol 770	Isoflex MT 30 rot
Helical -Worm Gearboxes	Sentetik yağ Synthetic oil	- 25...80	ISO VG 220	Shell Tivela Oel WB	Glygoyle 30	Energyn SG-XP 220	ESSO Glycolube 220	Polydea P/GLP 220	Degol GS 220	Alphasyn PG 220	Tribol 800/220	Klüberynth GH 6 - 220
	Biyolojik Sentetik yağ Biodegradable oil	- 25...80	ISO VG 220		Mobil DTE FM 220	Biogear SE 220		Plantogear 220 S	Blo-Degol S 220	Carelube GES 220	Tribol Bio Top 1418/220	Klüber - Bio GM 2 - 220
	Gıda yağları Food - grade oil	- 25...80	ISO VG 220	Cassida 220			GEAR OIL FM 220	Renolin 220	Degol FG 220	OPTIMOL optileb GE 220	Tribol Food Proof 1810/220	Klüberoil 4UH1 - 220
Rulmanlar Anti Friction Bearings	Akışkan sentetik gres Synthetic fluid grease	- 35...60		Shell Tivela compound A	Glygoyle Grease 00	Energyn GSF	Fliessfett S 420	Glissando 6833 EP 00	Aralub SKA 00	Alpha Gel 00	Tribol 800/1000	Klüberynth GE 46 -1200
	Mineral yağlı gres Normal	- 30...60 Normal		Alvania Fett R 3 or Alvania Fett RL 3	Mobilux 3 Mobilux 2	Energrease LS 3 Energrease LS 2	Beacon 3 Beacon 2	Glissando 30 Glissando 20	Aralub HL 3 Aralub HL 2	Spheerol AP 3 Spheerol AP 2 LZV - EP	Tribol 3030/100-2 Tribol 4020/220-2 Tribol 3785	Centoplex 3 Centoplex 2
	Mineral oil grease	# - 50...110			Mobiltemp SHC 32		Beacon 325	Discor 8 - EP 2	Aralub SKL 2	Product 783/46	Tribol 3499	Isoflex Topas NB52
Sentetik gres Synthetic grease	# - 50...110			Aero Shell Grease 16 oder 7								

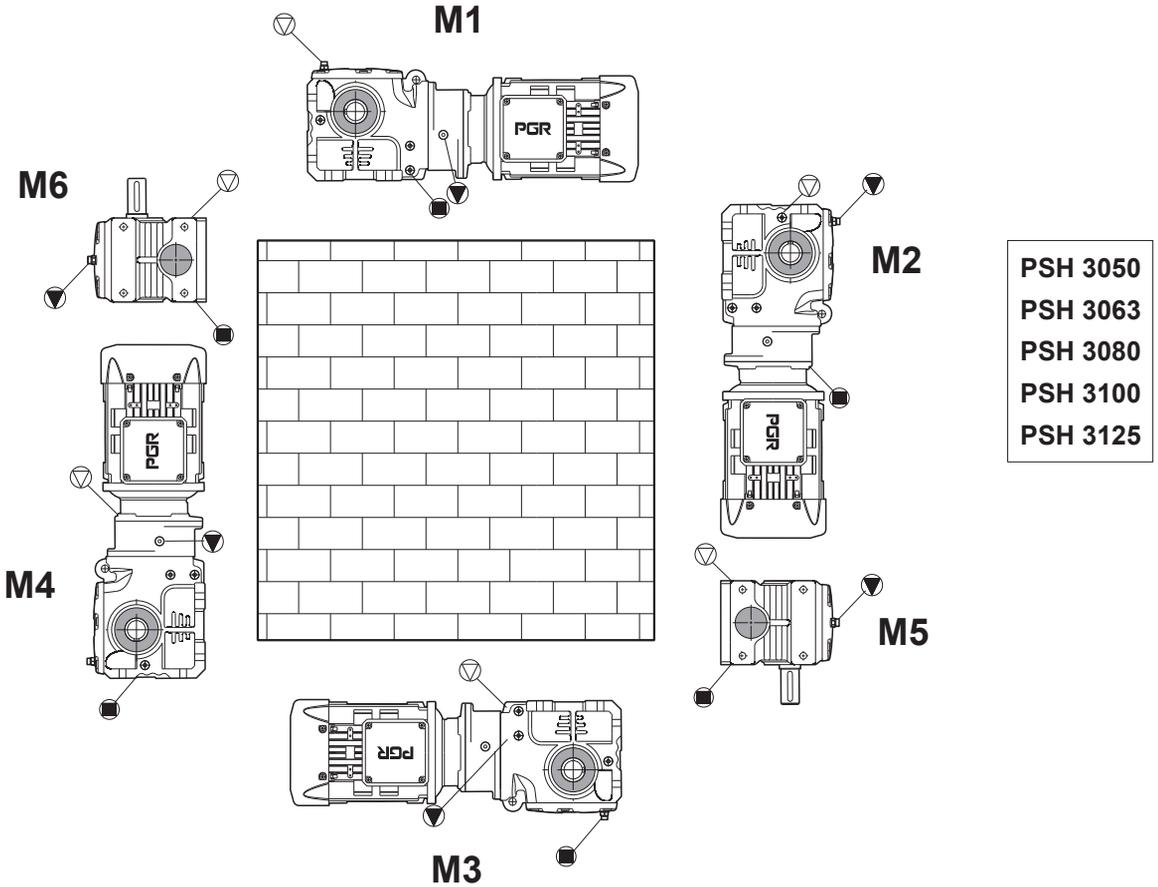
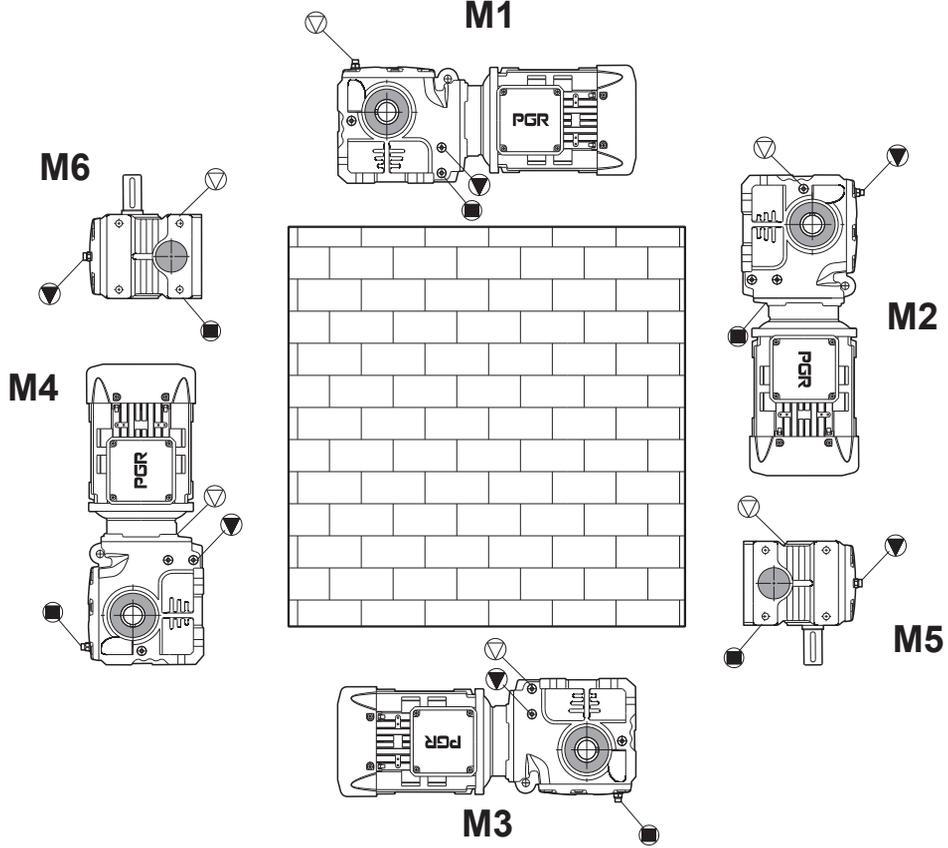
-30° C altında ve 60° C üzerindeki ortam sıcaklıklarında şafttaki sızdırmazlık elemanı için özel kalitedeki malzeme kullanılmalıdır.

Different materials should be used for sealing rings at operation temperature where temperature is below -30 °C and above 60 °C.



PSH Ayaklı / Foot Mounted

PSH 2050
PSH 2063
PSH 2080
PSH 2100
PSH 2125

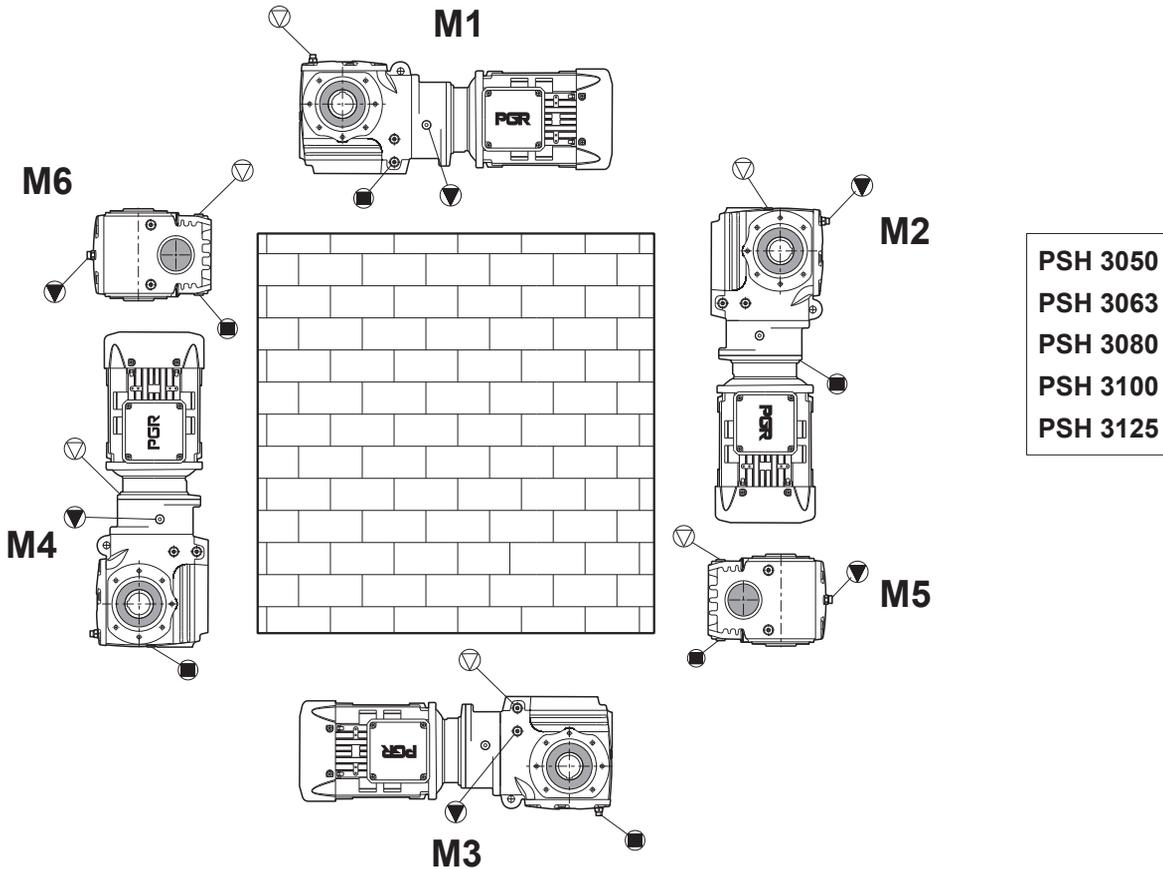
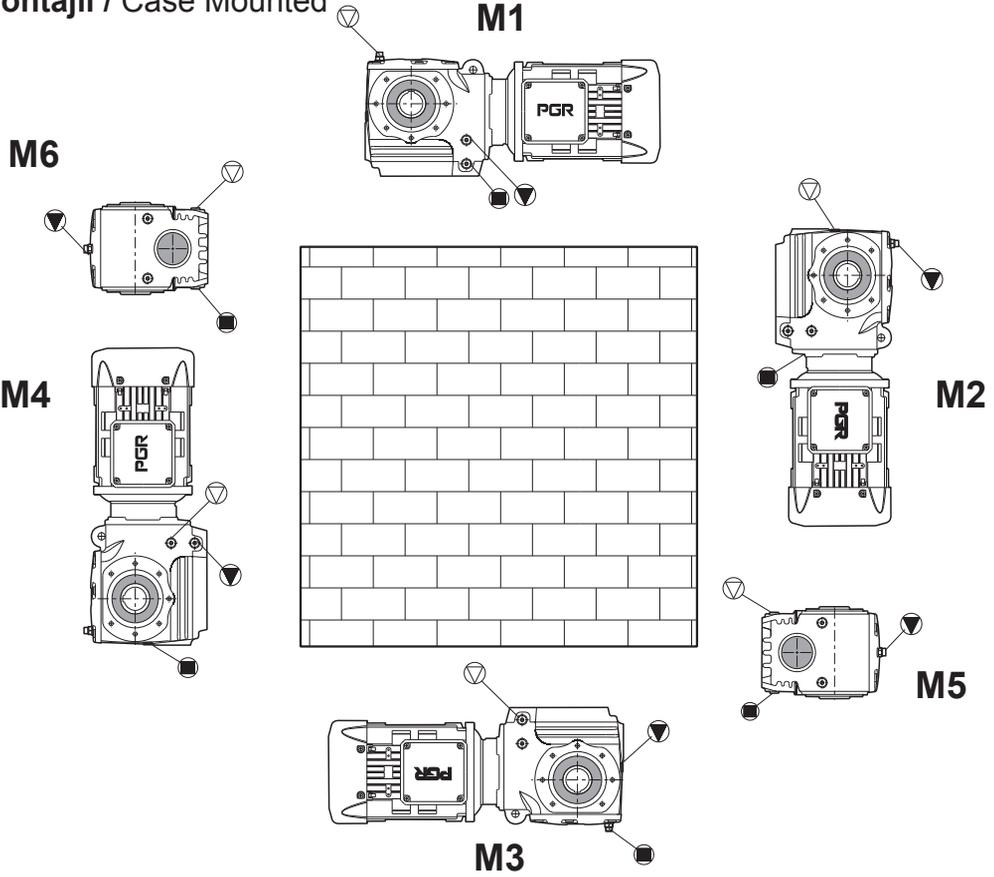


PSH 3050
PSH 3063
PSH 3080
PSH 3100
PSH 3125



PSH Gövdeden Montajlı / Case Mounted

PSH 2050
PSH 2063
PSH 2080
PSH 2100
PSH 2125

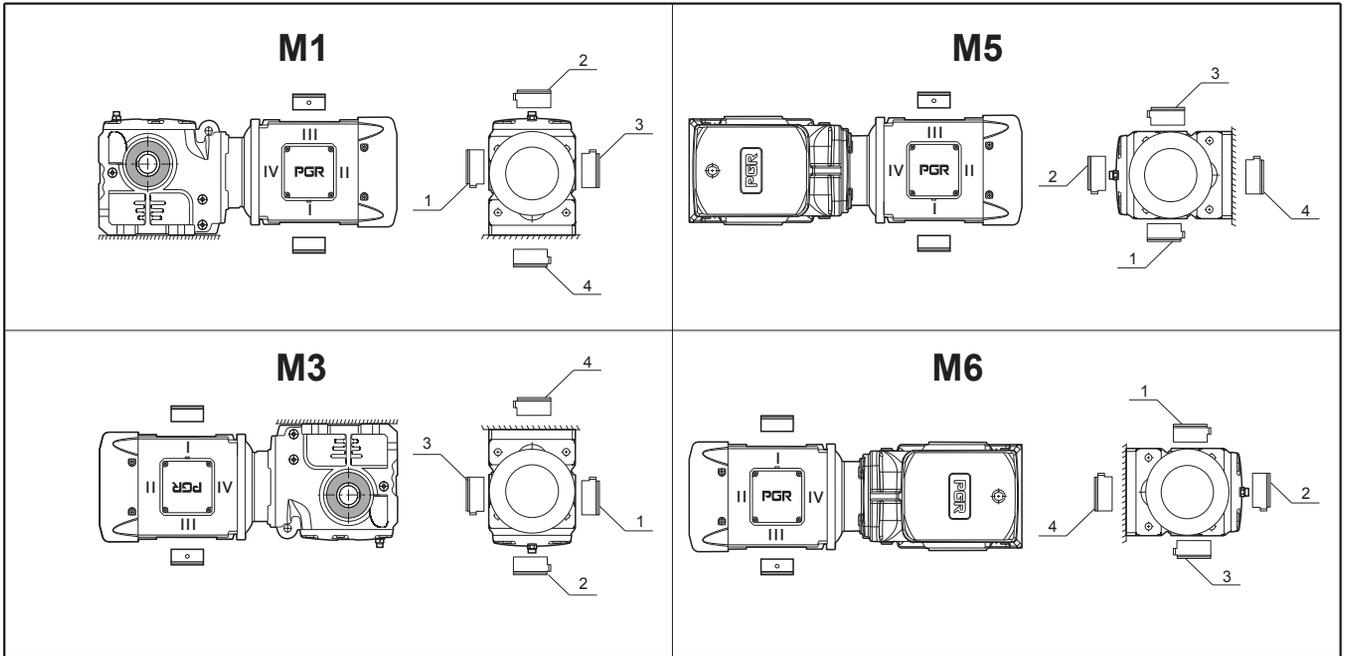


PSH 3050
PSH 3063
PSH 3080
PSH 3100
PSH 3125

▽ Havalandırma tapası / Vent plug ● Boşaltma tapası / Drain plug ▼ Yağ Seviye tapası / Oil level

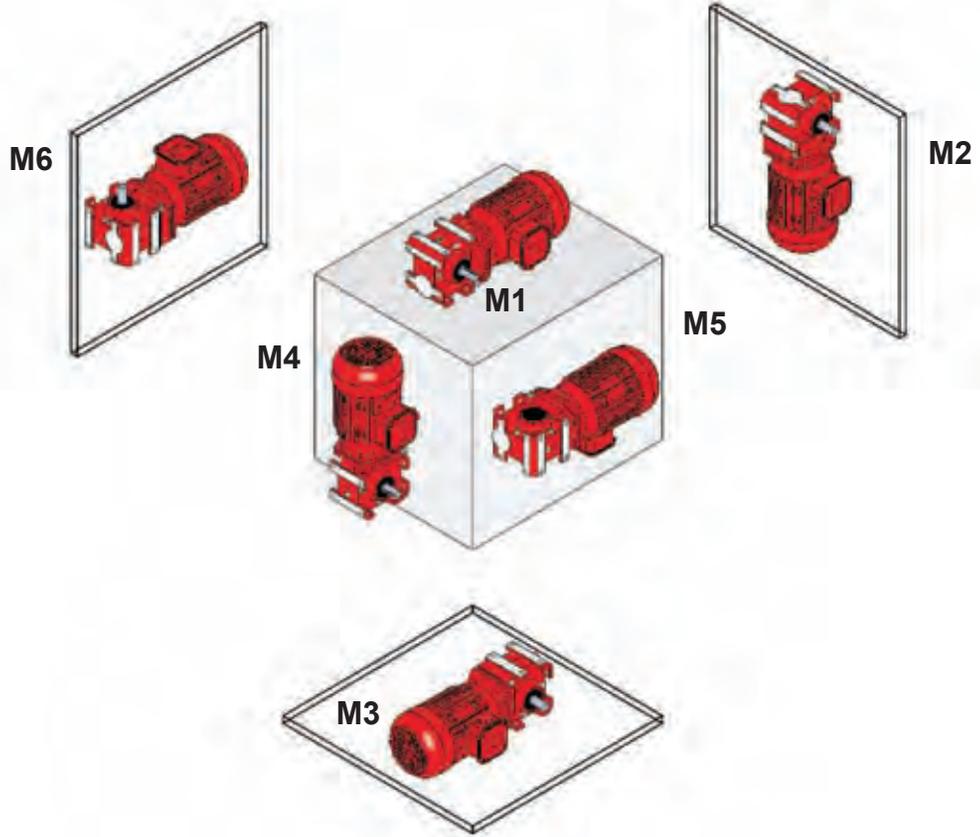


TERMİNAL KUTUSU VE KABLO GİRİŞ YÖNLERİ / POSITION OF TERMINAL BOX AND CABLE ENTRY





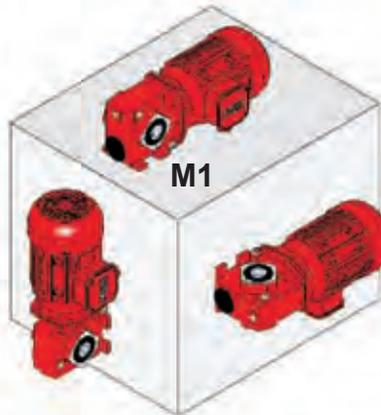
PSH 2040
Ayak Montajlı
Foot Mounted



M6



M4



M1

M5



M2

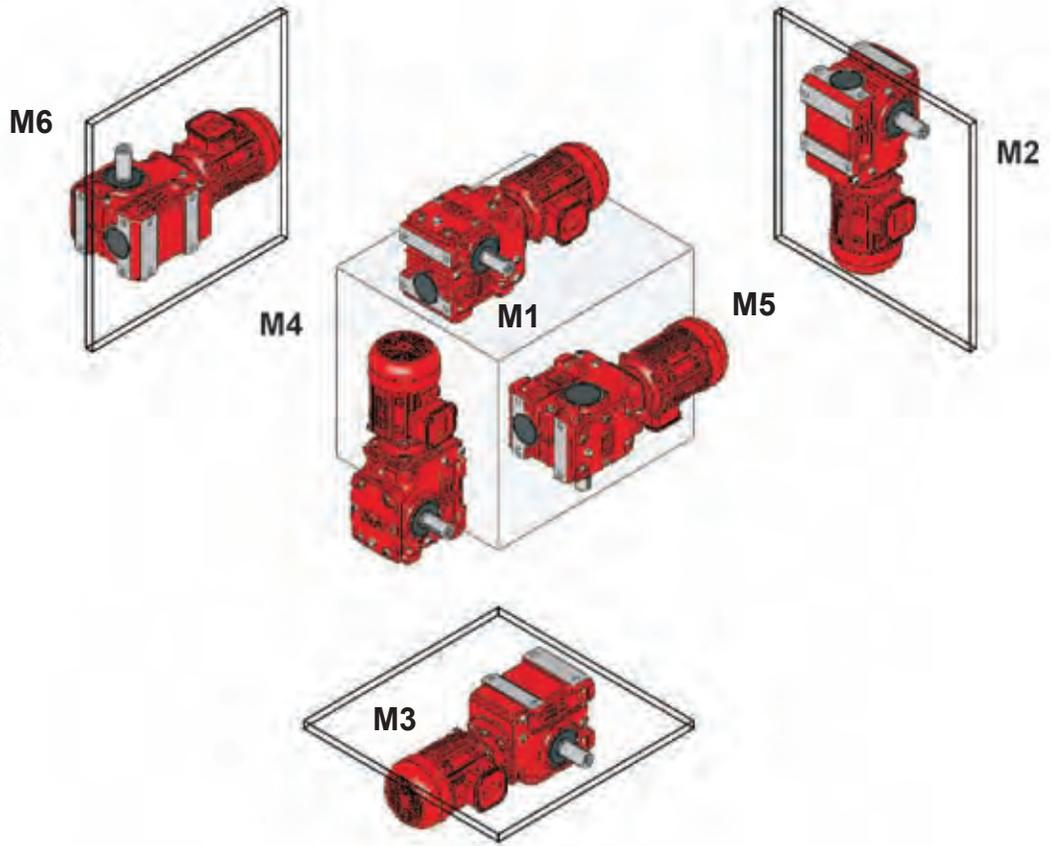
PSH 2040
Gövdeden Montajlı
Case Mounted



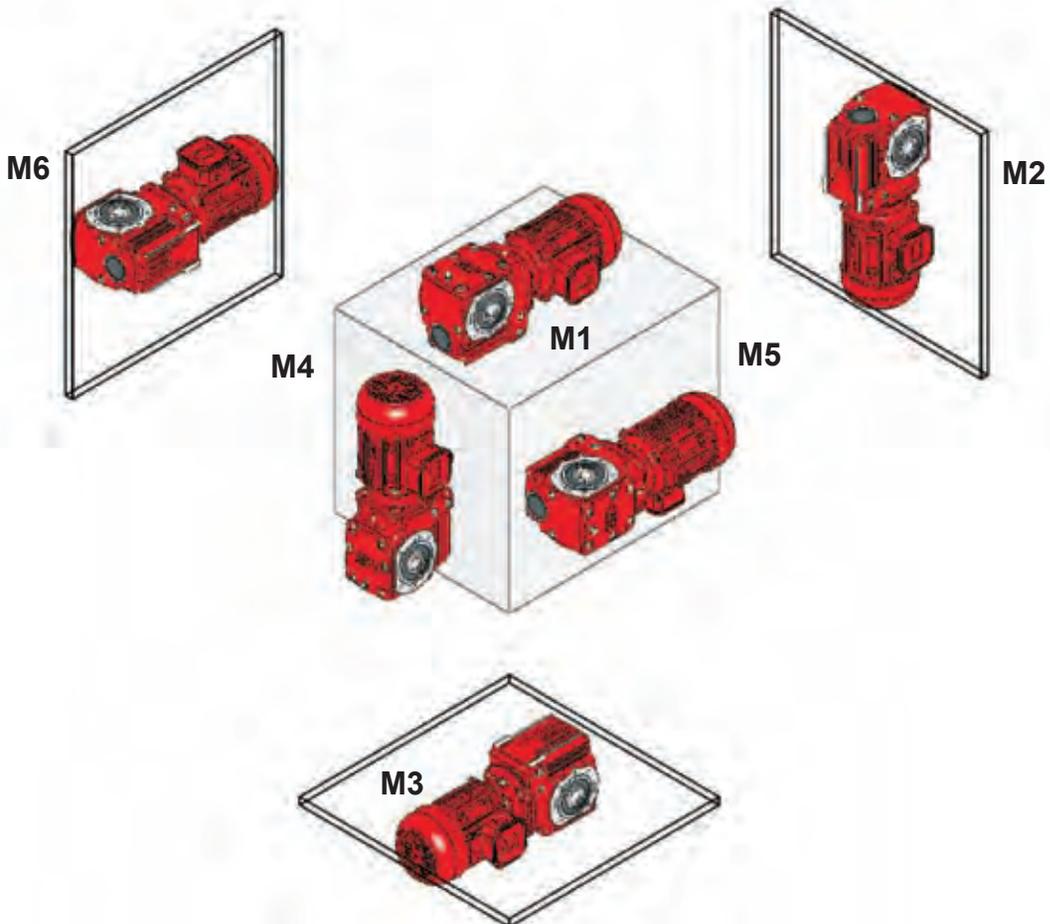
M3



PSH 2050...2125
Ayak Montajlı
Foot Mounted

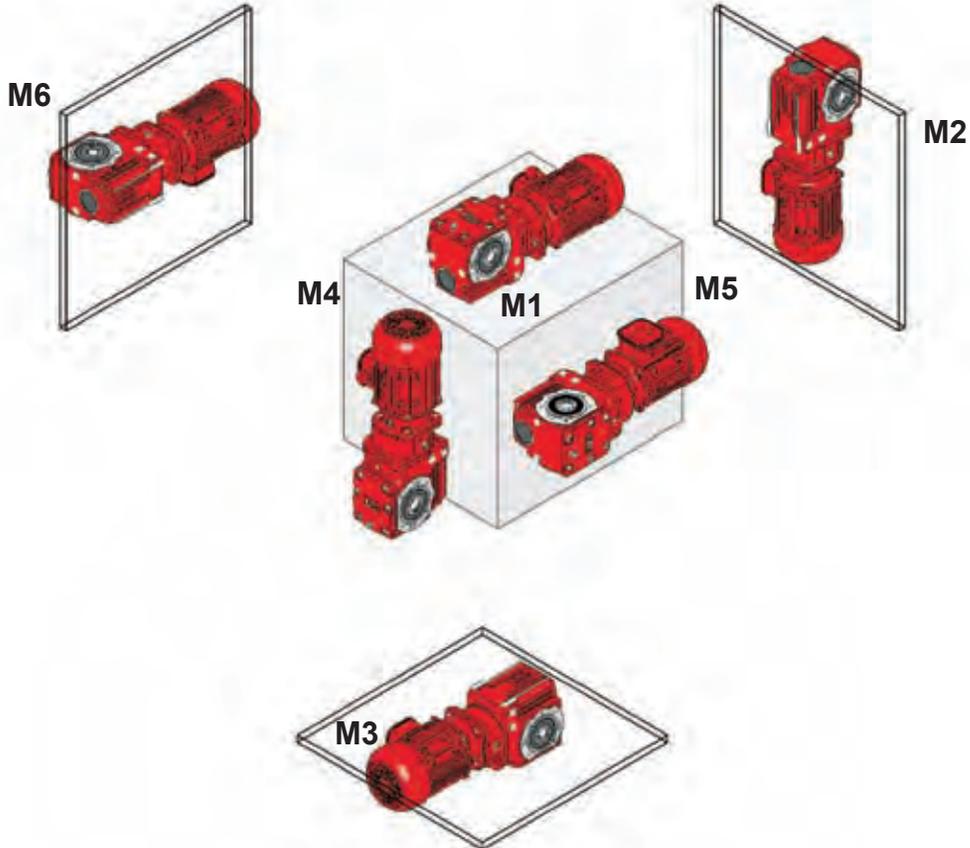
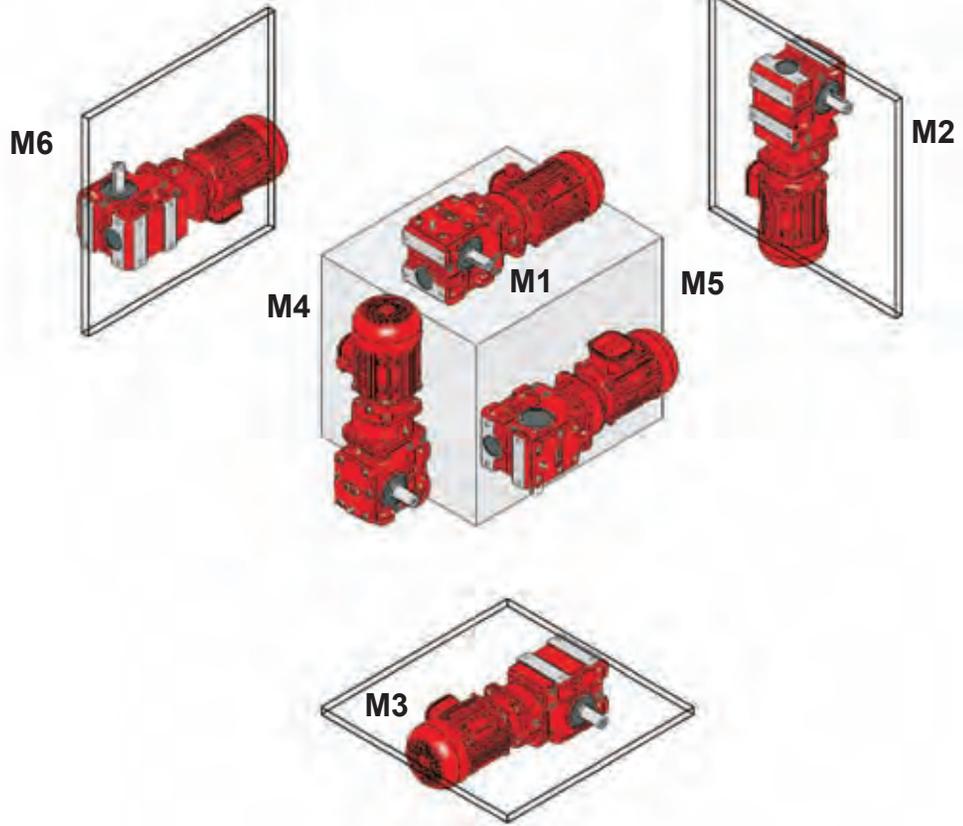


PSH 2050...2125
Gövdeden Montajlı
Case Mounted



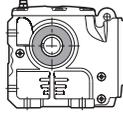
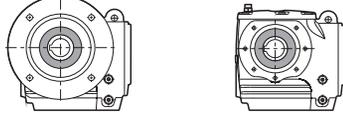


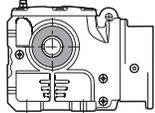
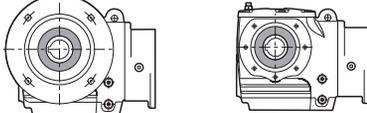
PSH 3050...3125
Ayak Montajlı
Foot Mounted



PSH 3050...3125
Gövdeden Montajlı
Case Mounted



(Litre) (L)	Ayak Montajlı / Foot Mounted						Gövdeden Montajlı / Case Mounted					
												
 30-35	M1	M2	M3	M4	M5	M6	M1	M2	M3	M4	M5	M6
PSH 2040	0.50	0.65	0.65	0.65	0.55	0.55	0.55	0.85	0.80	0.65	0.55	0.55
PSH 2050	0.60	1.25	0.80	1.20	0.75	0.75	0.40	1.35	0.85	1.20	0.95	0.95
PSH 2063	0.45	1.80	1.35	1.65	1.05	1.05	0.45	1.60	1.25	1.60	1.35	1.35
PSH 2080	0.90	2.75	1.90	3.00	1.85	1.85	0.70	3.00	2.25	3.30	2.30	2.30
PSH 2100	1.60	6.00	3.80	5.95	3.50	3.50	1.35	6.40	4.40	6.40	4.00	4.00
PSH 2125	3.10	12.10	6.90	11.30	6.40	6.40	3.00	11.2	6.70	10.40	6.80	6.80

(Litre) (L)	Ayak Montajlı / Foot Mounted						Gövdeden Montajlı / Case Mounted					
												
 30-35	M1	M2	M3	M4	M5	M6	M1	M2	M3	M4	M5	M6
PSH 3050	0.95	1.60	1.20	1.50	1.00	1.00	0.85	1.75	1.10	1.70	1.20	1.20
PSH 3063	0.90	2.40	1.75	2.10	1.30	1.30	0.90	2.10	1.50	1.95	1.60	1.60
PSH 3080	1.80	3.35	2.30	3.70	2.10	2.10	1.15	3.90	2.50	3.80	2.55	2.55
PSH 3100	2.20	8.10	4.40	7.35	4.00	4.00	2.15	6.90	5.00	7.10	4.45	4.45
PSH 3125	5.10	15.10	7.90	14.50	7.30	7.30	4.00	12.90	7.70	12.1	7.70	7.70



Kilit

Opsiyonel olarak kilitlerimiz mevcuttur. Bu kilitler tek yöne dönmeye izin verirken, diğer yöne dönmeyi engeller. 63 gövde ve üzeri üç fazlı motorlar, W kovanları ve IEC adaptörleri yağlanması yapılmış kilit ile donatılabilir. Bu kilitler çıkartılabilir, merkezkaç kuvveti tarafından kontrol edilir ve yaklaşık olarak 900 d/dk üzerine çıktıktan sonra aşınmaya maruz kalır.

Kilit mekanizmalı redüktörler için çıkış şaftının veya milinin dönme yönünün verilmesi gerekir. Dönme yönü çıkış şaftına veya çıkış miline göre düzenlenir.

Kararlaştırılan dönme yönü için, tarif edilen dönme yönü her zaman çıkış şaftına veya miline göre düzenlenir. Delik millî redüktörler ise konik sıkırtma tarafından belirlenir.

DİKKAT: Motoru ve sistemi çalıştırmadan önce redüktörün dönme yönünü kontrol ediniz. Redüktör üzerindeki oklar dönme yönünü gösterir.

Bloke edilen yön **CCW** ise Dönme Yönü **CW**

Bloke edilen yön **CW** ise Dönme Yönü **CCW**

CW : Saat yönü

CCW : Saat yönü tersi

Backstop

Backstop system is available for all type of helical gear unit. Lubricated backstop system could be used optionally for using motor size 63 and greater, W cylinder and IEC adapters. Backstop system permits just one direction rotation it resists another direction rotation. Rotation speed is important for abrasion. Nearly 900 min⁻¹ and greater rotation speed influence abrasion. Please, determine direction of rotation when you offer. Direction of rotation should be determined according to output shaft.

Arrows which is designated by 'CW' or 'CCW' shows locking direction from viewing at face of output shaft end. For hollow shafts gearboxes this direction determined by shrinkdisc side.

Precaution : When you receive gear units, please check direction of rotation before running or installation for avoid damage.

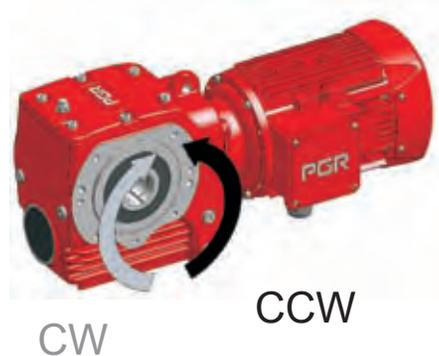
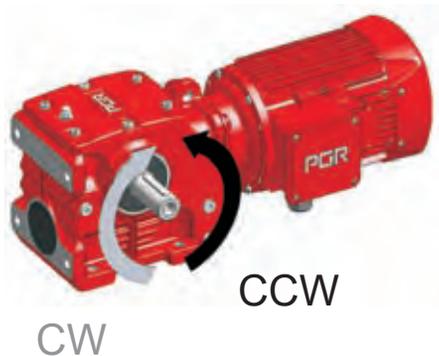
If Locking direction is **CCW**, Rotational direction is **CW**

If Locking direction is **CW**, Rotational direction is **CCW**

CW : Clockwise rotation

CCW : Counterclockwise rotation

Tip Type	Çıkış Şaftı Dönüş Yönü: CW Output shaft rotational direction: CW	Çıkış Şaftı Dönüş Yönü: CCW Output shaft rotational direction: CCW
2 kademe helisel - sonsuz redüktör PSH 2040... PSH 2125 Çıkış şaftı L veya konik sıkırtma R'de 2-stage helical worm gear motor: PSH 2040... PSH 2125 Output shaft position L or shrink disc at R	Motor Dönüş Yönü CW Motor rotational direction CW	Motor Dönüş Yönü CCW Motor rotational direction CCW
2 kademe helisel - sonsuz redüktör PSH 2040... PSH 2125 Çıkış şaftı R veya konik sıkırtma L'de 2-stage helical worm gear motor: PSH 2040... PSH 2125 Output shaft position R or shrink disc at L	Motor Dönüş Yönü CCW Motor rotational direction CCW	Motor Dönüş Yönü CW Motor rotational direction CW
3 kademe helisel - sonsuz redüktör PSH 3050... PSH 3125 Çıkış şaftı L veya konik sıkırtma R'de 3-stage helical worm gear motor: PSH 3050... PSH 3125 Output shaft position L or shrink disc at R	Motor Dönüş Yönü CCW Motor rotational direction CCW	Motor Dönüş Yönü CW Motor rotational direction CW
3 kademe helisel - sonsuz redüktör PSH 3050... PSH 3125 Çıkış şaftı R veya konik sıkırtma L'de 3-stage helical worm gear motor: PSH 3050... PSH 3125 Output shaft position R or shrink disc at L	Motor Dönüş Yönü CW Motor rotational direction CW	Motor Dönüş Yönü CCW Motor rotational direction CCW





**MOTOR VE REDÜKTÖRLERDE
BOYUT - ÇİZİM BİLGİLERİ**

Motor ölçüleri istenen opsiyona göre ölçüleri değişebilir.

DELİK MİLLİLER

Delik mil çapı toleransı için (DIN 748) ISO H7.
Müşteri mili çap toleransı ISO h6. "H" yükleme tipi bulunuyorsa ISO k6

IEC - ADAPTÖR

Flanş merkezi çap toleransı için ISO H7

GİRİŞ VE ÇIKIŞ ŞAFTLARI

Mil çapı toleransı (DIN 748) :

Ø 14 ile Ø 50 mm arası için ISO k6,
Ø 50 mm üzeri için ISO m6

Şaftta dış çekilmiş delikler için DIN 332/2 ye göre;

= Ø 13 - Ø 16	M5	
> Ø 16 - Ø 21	M6	
> Ø 21 - Ø 24	M8	
> Ø 24 - Ø 30	M10	
> Ø 30 - Ø 38	M12	 61-83
> Ø 38 - Ø 50	M16	
> Ø 50 - Ø 85	M20	
> Ø 85 - Ø 130	M24	

Kama yatakları DIN 6885

Şaft boyu "h" DIN 747

FLANŞLAR

Flanş merkezi çap toleransı (DIN 42948);

< Ø 230 mm' ye kadar ISO j6,
> Ø 230 mm üzeri için ISO h6

**GEARED MOTORS AND GEARBOXES
INFORMATION REFERRING TO
DIMENSION - DRAWINGS**

Motor dimension could be changed according to customer purchase.

HOLLOW SHAFTS

Tolerance of hollow shaft (DIN 748) ISO H7.
Tolerance of customer's solid shaft which is used for hollow shaft ISO h6, with type of load classification 'H' which is heavy-shock operation ISO k6.

IEC - ADAPTER

Diameter tolerance of flange centering is machined according to ISO H7.

INPUT AND OUTPUT SHAFT

Tolerances of solid shaft (DIN 748) :
between Ø 14 - Ø 50 mm to ISO k6,
greater than Ø 50 mm to ISO m6.

Tapped center hole is machined according to DIN 332, sheet 2;

= Ø 13 - Ø 16	M5	
> Ø 16 - Ø 21	M6	
> Ø 21 - Ø 24	M8	
> Ø 24 - Ø 30	M10	
> Ø 30 - Ø 38	M12	 61-83
> Ø 38 - Ø 50	M16	
> Ø 50 - Ø 85	M20	
> Ø 85 - Ø 130	M24	

Keyways are machined according to DIN 6885, sheet 1

Shaft heights are machined according to "h" to DIN 747

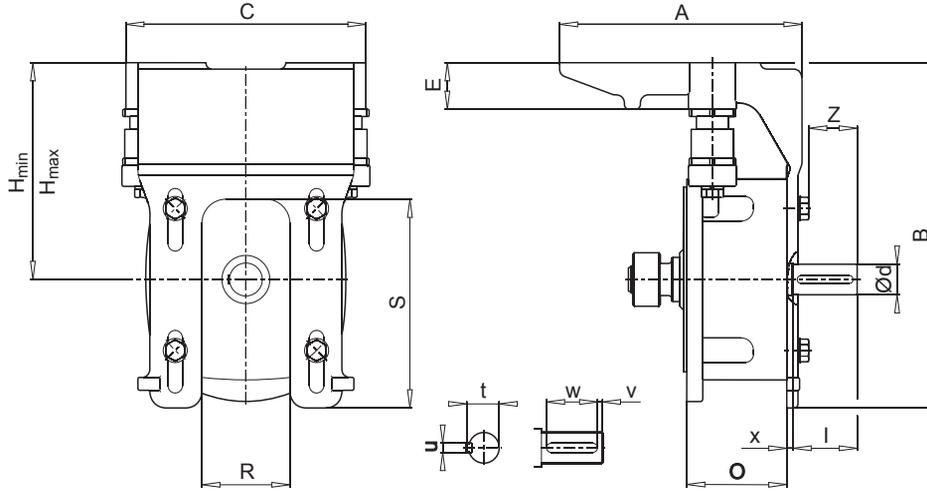
FLANGES

Diameter tolerance of flange centering is machined according to (DIN 42948);

< Ø 230 mm to ISO j6,
> Ø 230 mm to ISO h6



Motor Platformu Ölçüleri
Motor Platform Dimensions



Tip Type	Bağlantı boyutları ve platform ölçüleri Connection and Platform dimensions										Mil Ölçüleri Shaft size				Flanş Flange
	A	B	C	E	R	S	H min	H max	Z	O	d l	t u	v w	x	
MK I 63 M - 100 L	224	253	206	45	60	140	153	173	41	121.5	24 50	27 8	5 40	8	160 S
MK II 80 M - 112 M	238	320	252	50	66	145	199	224	48	115.5	28 60	31 8	5 50	9	250 S
MK III-A 90 S - 132 M	305	430	302	58	110	260	254	286	61	127	38 80	41 10	5 70	8	300 S
MK III-B 90 S - 132 M	305	430	302	58	110	260	254	286	91	172	42 110	45 12	10 90	8	Ø250
MK IV 112 M - 200L	478	530	402	75	130	315	315	355	116	254	65 140	69 18	15 110	8	Ø350
MK V 200 L - 250 M	664	690	572	105	382	369	465	515	119	247	65 140	69 18	15 110	12	Ø450

Motor Platform Montajı

Motor platform tasarımı PGR monoblok dişli ünitesi serilerinin tüm montaj pozisyonlarında kullanılabilir. 5 motor platformu boyutu tüm motor-redüktör kombinasyonlarını kapsar. Çok kademeli redüktörleri de karşılayan ayrı ayrı redüktörler için seçim tablolarından motor platformları bakılabilir.

- * Her montaj pozisyonu için kullanılabilir.
- * Optimum kayış gerilimi için kolayca yönlendirilebilen yükseklik ayarlaması yapılabilir.
- * Sabitleme elemanlarında dahil olmak üzere korozyona karşı dirençlidir.
- * Hafif, vibrasyonu absorbe eden alüminyum yapı mevcuttur.
- * Birçok motor boyutu için kullanım kolaylığı sağlar.
- * Tabloya göre "i" oranının 1'e eşit olduğu durumlar için önerilir.
- * Her yöne 90°'ye kadar eksen etrafında dönebilme özelliğine sahiptir.

Assembling of Motor Platform

Motor platform design could be used at all PGR monoblock gear unit series for all mounting positions. There are 5 motor platform designs. This platforms are provide using possibility with all motorgear unit series. Motor platform type, dimension and suitable belt type could be followed from table which is shown on page 45 - 46, on the other hand this table is valid for multi stage gear units.

- * It could be used for all mounting positions.
- * It could be adjusted for optimum belt-tension and height easily.
- * It has high corrosion resistance however fixing elements have this property.
- * Aluminum structure provide vibration absorbing and light weight.
- * It could be used with all motor type.
- * We recommend, it is suitable for while "i" ratio is equal to one, table is prepared according to this situation
- * It could be adjusted to all direction up to 90°



Tip Type	PSH 2050 PSH 2063 PSH 2080	PSH 2100	PSH 2125				
Motor	W III	W II	W III				
63 M	MK I						
71 M	MK I						
80 M	MK I	MK II					
90 S 90 L	MK I	MK II	MK III - A				
100 L	MK I	MK II	MK III - A				
112 M		MK II	MK III - A				
132 S 132 M			MK III - A				

Seçim Örneği:

Çıkış gücü ve hızına göre gerekli olan dişli ünitesinin temel tipini ve gerekli çıkış gücü veya çıkış dönüş hızına dayanan çıkış gücü ve dişli oranını saptayınız.

Örnek :

0.75 kW , 17.3 d/dk i = 78.83
PSH 2080 - 80 M

Bu esas dişli ünitesi tipi için, motor platformu MK I tayin edildiğini tablodan (yukarıya bakınız) saptayınız. Bu nedenle, tam tip tanımı **PSH 2080 - MK I - 80**'dir.

MK I için, tablodan (sayfa 41) bant makarası ve bant tipi ile ilgili daha fazla bilgi alabilirsiniz.

Esas boyutlar, tabloda gösterilmiştir.

Selection Example:

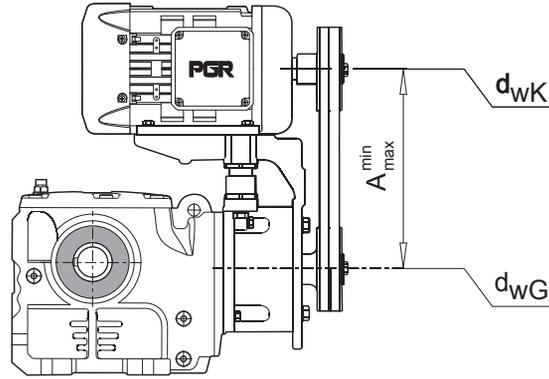
Motor platform assignment could be explained in one example hence, according to selecting gear unit reduction ratio, output speed and motor power is determined.

For instance ;

0.75 kW , 17.3 min⁻¹, i = 78.83
PSH 2080 - 80 M

From table (see above of this page) type of gear unit (column) and motor type (row) are intersected. Hence, from this motor bracket MK I dimension should be used. Full designation is **PSH 2080 - MK I - 80**.

Following page shows more detail about belt pulley and type of belt (see page 41). You can see dimension of belt length with motor platform assignment.



	Motor	Çıkış Output (kW)	Ayar aralığı Adjustment range		Kayış uzunluğu Belt length	Mil merkezi uzaklığı Shaft centre distance A	Kayış sayısı Number of belts	
			A _{min}	A _{max}				
MK I Kayış Tipi SPZ Belt type SPZ	63 M/4A	0.12	216	236	(dwg = 80) (i = 1) Lw 697	223	1	
	63 M/4B	0.18	216	236		697	223	1
	71 M/4A	0.25	224	244		710	229	1
	71 M/4B	0.37	224	244		710	229	1
	80 M/4A	0.55	233	253		737	243	1
	80 M/4B	0.75	233	253		737	243	1
	90 S/4A	1.10	243	263		750	249	1
	90 L/4A	1.50	243	263		750	249	2
	100 L/4A	2.20	253	273		772	260	2
	100 L/4B	3.00	253	273		772	260	3
MK II Kayış Tipi XPZ Belt type XPZ	80 M/4A	0.55	279	304	(dwg = 112) (i = 1) Lw 930	289	1	
	80 M/4B	0.75	279	304		930	289	1
	90 S/4A	1.10	289	314		950	299	1
	90 L/4A	1.50	289	314		950	299	1
	100 L/4A	2.20	299	324		980	314	1
	100 L/4B	3.00	299	324		980	314	2
	112 M/4B	4.00	311	336		1000	324	2
MK III Kayış Tipi SPZ Belt type SPZ	90 S/4A	1.10	344	376	(dwg = 160) (i = 1) Lw 1222	360	1	
	90 L/4B	1.50	344	376		1222	360	1
	100 L/4A	2.20	354	386		1250	374	1
	100 L/4B	3.00	354	386		1250	374	1
	112 M/4B	4.00	366	398		1262	380	2
	132 S/4C	5.50	386	418		1312	405	2
	132 M/4B	7.50	386	418		1312	405	3
	132 M/4	9.20	386	418		1312	405	3
MK IV Kayış Tipi XPA Belt type XPA	112 M/4B	4.00	427	467	(dwg = 200) (i = 1) Lw 1500	436	1	
	132 S/4C	5.50	447	487		1550	461	1
	132 M/4B	7.50	447	487		1550	461	2
	132 M/4	9.20	447	487		1550	461	2
	160 M/4B	11.0	475	515		1600	486	2
	160 L/4A	15.0	475	515		1600	486	3
	180 M/4B	18.5	495	535		1650	511	3
	180 L/4B	22.0	495	535		1650	511	4
	200 L/4C	30.0	515	555		1700	536	4
MK V Kayış Tipi SPA Belt type SPA	200 L/4C	30.0	665	715	(dwg = 250) (i = 1) Lw 2182	698	4	
	225 S/4A	37.0	690	740		2207	710	4
	225 M/4C	45.0	690	740		2207	710	5
MK V Kayış Tipi SPB Belt type SPB	250 M/4C	55.0	715	765	(dwg = 250) (i = 1) Lw 2240	727	4	



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Motorlu Seçim Sayfaları Selection Of Gearmotors



PSH 2040 DG



PSH 2040 TMA



**PSH 2050 DG ... 2125 DG
PSH 3050 DG ... 3125 DG**



**PSH 2050 TMA ... 2125 TMA
PSH 3050 TMA ... 3125 TMA**



Motorlu redüktör performans tablolarının yapısı.
Notify about performance tables for Geared motor.

0.55 kW → Redüktör motor gücü
Gear unit motor power

Motor gücü
Rated motor power

Çıkış devri
Output speed

Çıkış momenti
Output torque

Servis faktörü
Service factor

Tahvil oranı
Reduction ratio

Redüktör tipi
Gear unit motor type

Ağırlık
Weight

Ölçü sayfaları
Drawing page

P_1 [kW]	n_2 [Min ⁻¹]	M_2 [Nm]	f_B	i_{ges}	F_R [kN]	F_A [kN]	$F_{R GR}$ [kN]	$F_{A GR}$ [kN]	Tip / Type	Kg	Sayfa Page mm
0.55	1.2	2293	1.3	1198.50	25.0	21.0	27.0	28.0	PSH 3125 - 80M/4A	117	83-84
	1.5	1811	1.7	928.25	27.0	21.0	27.0	28.0			
	1.8	1578	2.0	793.81	27.0	21.0	27.0	28.0			

Müsaade edilebilir radyal yükler
Normal rulmanlarda
 F_R için listelenmiş değerlerde
 $F_A = 0$ (N) olarak hesaplanmıştır

Permissible radial force or load on output shaft while normal bearings are used. For this load F_A is assumed equal zero. $F_A = 0$ (N)

Müsaade edilebilir eksenel yükler
Normal rulmanlarda
 F_A için listelenmiş değerlerde
 $F_R = 0$ (N) olarak hesaplanmıştır

Permissible axial force or load on output shaft while normal bearings are used. For this load F_R is assumed equal zero. $F_R = 0$ (N)

Müsaade edilebilir eksenel yükler
Güçlendirilmiş rulmanlarda

F_A için listelenmiş değerlerde
 $F_R = 0$ (N) olarak hesaplanmıştır

Permissible axial force on output shaft while reinforced bearings are used. For this load F_R is assumed equal to zero. $F_R = 0$ (N)

Müsaade edilebilir radyal yükler
Güçlendirilmiş rulmanlarda

F_R için listelenmiş değerlerde
 $F_A = 0$ (N) olarak hesaplanmıştır

Permissible radial force or load on output shaft while reinforced bearings are used. For this load F_A is assumed equal to zero. $F_A = 0$ (N)



P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	Kg	Sayfa Page mm	
0.12	0.9 1.1	732 490	2.2 3.2	1506.84 1173.93	16.0 16.0	12.0 12.0	16.0 16.0	16.0 16.0	PSH 3100 - 63M/4A	65	78-79	
	1.1 1.4 1.6 1.9	490 391 336 301	1.6 2.0 2.3 2.6	1199.07 955.78 805.70 705.97	9.0 9.0 10.0 10.0	9.0 9.0 9.0 9.0	13.0 13.0 13.0 13.0	12.0 12.0 12.0 12.0	PSH 3080 - 63M/4A	37	74-75	
	1.3 2.0 4.8	424 280 164	1.8 2.5 4.3	656.63* 656.63* 276.81*	9.0 10.0 10.0	9.0 9.0 9.0	13.0 13.0 13.0	12.0 12.0 12.0	PSH 2080 - 63M/6 PSH 2080 - 63M/4A	32 32	72-73 72-73	
	1.0 1.2	484# 452#	0.8 0.8	1343.24* 1140.10*	5.0 5.0	8.0 8.0	9.0 9.0	10.0 10.0	PSH 3063 - 63M/4A	27	70-71	
	1.4 1.6 1.9	390 329 295	0.9 1.1 1.2	626.57* 529.13* 464.67*	6.0 7.0 7.0	8.0 8.0 8.0	10.0 10.0 10.0	10.0 10.0 10.0	PSH 2063 - 63M/6	22	68-69	
	2.1 2.5 2.8 5.0 5.9 6.7 7.2 8.1	262 226 198 154 130 116 86 78	1.4 1.6 1.8 2.2 2.8 3.1 4.2 4.0	626.57* 529.13* 464.67* 264.14* 223.06* 195.89* 183.60 162.27	7.0 7.0 8.0 8.0 8.0 8.0 8.0 8.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	10.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0	10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	PSH 2063 - 63M/4A	22	68-69	
	1.0 1.3 1.5 1.7 2.0 2.2	247# 239# 242# 238# 234# 239#	0.8 0.8 0.8 0.8 0.8 0.8	1330.71 991.88 868.89 755.93 663.52 586.50	4.0 4.0 4.0 4.0 4.0 4.0	8.0 8.0 8.0 8.0 8.0 8.0	6.0 6.0 6.0 6.0 6.0 6.0	8.0 8.0 8.0 8.0 8.0 8.0	PSH 3050 - 63M/4A	23	66-67	
	1.6 2.0 2.2	224# 235# 227#	0.8 0.8 0.8	524.57 439.88 385.33	4.0 4.0 4.0	8.0 8.0 8.0	6.0 6.0 6.0	8.0 8.0 8.0	PSH 2050 - 63M/6	18	64-65	
	2.5 3.0 3.4 5.7 6.8 7.7 8.9 10.1 11.5 14.2	230# 188 168 135 115 101 69 62 56 46	0.8 1.0 1.1 1.4 1.6 1.8 2.5 2.7 3.0 3.7	524.57 439.88 385.33 231.43 194.06 170.00 147.90 129.82 114.75 92.73	4.0 5.0 5.0 5.0 5.0 6.0 6.0 6.0 6.0 6.0 6.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	PSH 2050 - 63M/4A	18	64-65	
	<p># Max. çıkış momenti f_B = 0.8 # Max. Output Torque With f_B = 0.8</p>											
	<p>* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir. * Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange</p>											

0.12 kW
0.18 kW

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P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	Kg	Sayfa Page mm — — —
0.12	4.3	122 [#]	0.8	304.20	3.0	4.0	-	-	PSH 2040 - 63M/4A	10	62-63
	5.5	103	1.0	237.90	3.0	4.0	-	-			
	10.2	76	1.4	128.70	4.0	4.0	-	-			
	11.4	53	1.8	115.23	4.0	4.0	-	-			
	13.2	47	2.0	99.45	4.0	4.0	-	-			
	15.2	41	2.1	86.86	4.0	4.0	-	-			
	17.2	37	2.3	76.38	4.0	4.0	-	-			
	19.5	33	2.5	67.50	4.0	4.0	-	-			
	22.0	41	2.5	59.80	4.0	4.0	-	-			
	25.3	26	3.1	52.00	4.0	4.0	-	-			
	28.2	31	3.1	46.77	4.0	4.0	-	-			
	29.4	22	3.6	44.78	4.0	4.0	-	-			
	31.3	25	3.2	42.08	4.0	4.0	-	-			
	35.8	23	3.5	36.75	4.0	4.0	-	-			
	40.8	20	3.9	32.31	4.0	4.0	-	-			
	46.1	18	4.1	28.56	4.0	4.0	-	-			
	59.9	14	5.2	22.00	4.0	4.0	-	-			
	67.4	13	5.8	19.55	4.0	4.0	-	-			
	77.1	12	6.5	17.08	4.0	4.0	-	-			
	87.8	10	7.0	15.01	4.0	4.0	-	-			
99.3	9	7.7	13.27	4.0	4.0	-	-				
128.9	7	9.2	10.22	4.0	4.0	-	-				
149.7	6	10.2	8.80	4.0	4.0	-	-				
175.4	5	10	7.51	4.0	4.0	-	-				
198.7	5	11	6.63	4.0	4.0	-	-				
257.8	4	12	5.11	4.0	4.0	-	-				
299.4	3	14	4.40	4.0	4.0	-	-				
0.18	1.1	720	2.2	1173.93	16.0	12.0	16.0	16.0	PSH 3100 - 63M/4B	65	78-79
	2.0	430	3.7	660.00	16.0	12.0	16.0	16.0			
	2.6	345	4.6	519.44	16.0	12.0	16.0	16.0			
	2.9	317	5.0	468.59	16.0	12.0	16.0	16.0			
	3.7	257	5.9	365.06	16.0	12.0	16.0	16.0			
	4.5	214	7.1	298.69	16.0	12.0	16.0	16.0	PSH 2100 - 71M/6A	58	76-77
	1.4	604	2.4	645.00	16.0	12.0	16.0	16.0			
	1.1	720	1.1	1199.07	7.0	9.0	12.0	12.0	PSH 3080 - 63M/4B	37	74-75
	1.4	574	1.3	955.78	8.0	9.0	13.0	12.0			
	1.7	494	1.6	805.70	9.0	9.0	13.0	12.0			
	1.9	442	1.7	705.97	9.0	9.0	13.0	12.0	PSH 2080 - 71M/6A	33	72-73
	1.4	589	1.3	656.63 [*]	8.0	9.0	13.0	12.0			
	2.0	411	1.7	656.63 [*]	9.0	9.0	13.0	12.0	PSH 2080 - 63M/4B	32	72-73
	4.9	240	3.0	276.81 [*]	10.0	9.0	13.0	12.0			
	5.7	165	4.3	234.60	10.0	9.0	13.0	12.0			
	7.2	136	4.9	187.00	10.0	9.0	13.0	12.0			
	1.7	475	0.8	529.13 [*]	5.0	8.0	9.0	10.0	PSH 2063 - 71M/6A	23	68-69
	1.9	426	0.8	464.67 [*]	6.0	8.0	10.0	10.0			
	2.1	384	0.9	626.57 [*]	6.0	8.0	10.0	10.0	PSH 2063 - 63M/4B	22	68-69
	2.5	331	1.1	529.13 [*]	7.0	8.0	10.0	10.0			
2.9	291	1.2	464.67 [*]	7.0	8.0	10.0	10.0				
5.1	226	1.5	264.14 [*]	7.0	8.0	11.0	10.0				
6.0	191	1.9	223.06 [*]	8.0	8.0	11.0	10.0				
6.9	170	2.1	195.89 [*]	8.0	8.0	11.0	10.0				
7.3	127	2.8	183.60	8.0	8.0	11.0	10.0				
8.3	114	2.7	162.27	8.0	8.0	11.0	10.0				
9.3	103	2.9	144.50	8.0	8.0	11.0	10.0				
11.4	88	3.4	118.23	8.0	8.0	11.0	10.0				
12.9	78	3.8	104.13	8.0	8.0	11.0	10.0				
# Max. çıkış momenti f _B = 0.8											
# Max. Output Torque With f _B = 0.8											
* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.											
* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange											



P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	kg	Sayfa Page mm			
0.18	5.8	198	0.9	231.43	5.0	8.0	6.0	8.0	PSH 2050 - 63M/4B	18	64-65			
	6.9	169	1.1	194.06	5.0	8.0	6.0	8.0						
	7.9	148	1.3	170.00	5.0	8.0	6.0	8.0						
	9.1	102	1.7	147.90	6.0	8.0	6.0	8.0						
	10.4	91	1.8	129.82	6.0	8.0	6.0	8.0						
	11.7	82	2.0	114.75	6.0	8.0	6.0	8.0						
	14.5	68	2.5	92.73	6.0	8.0	6.0	8.0						
	16.7	60	2.8	80.75	6.0	8.0	6.0	8.0						
	20.6	60	2.8	65.25	6.0	8.0	6.0	8.0						
	23.5	53	3.2	57.27	6.0	8.0	6.0	8.0						
	26.6	47	3.3	50.63	6.0	8.0	6.0	8.0						
	11.7	78	1.2	115.23	4.0	4.0	-	-				PSH 2040 - 63M/4B	11	62-63
	13.5	69	1.3	99.45	4.0	4.0	-	-						
	15.5	60	1.5	86.86	4.0	4.0	-	-						
	17.6	54	1.6	76.38	4.0	4.0	-	-						
	19.9	48	1.7	67.50	4.0	4.0	-	-						
	22.5	60	1.7	59.80	4.0	4.0	-	-						
	25.9	38	2.1	52.00	4.0	4.0	-	-						
	28.8	47	2.1	46.77	4.0	4.0	-	-						
	30.0	34	2.4	44.78	4.0	4.0	-	-						
	32.0	38	2.3	42.08	4.0	4.0	-	-						
	36.6	33	2.4	36.75	4.0	4.0	-	-						
	41.6	29	2.7	32.31	4.0	4.0	-	-						
	47.1	26	2.8	28.56	4.0	4.0	-	-						
	61.2	20	3.5	22.00	4.0	4.0	-	-						
	68.8	19	3.9	19.55	4.0	4.0	-	-						
	78.8	17	4.4	17.08	4.0	4.0	-	-						
	89.6	15	4.8	15.01	4.0	4.0	-	-						
	101.4	14	5.3	13.27	4.0	4.0	-	-						
	131.7	10	6.3	10.22	4.0	4.0	-	-						
152.9	9	7.0	8.80	4.0	4.0	-	-							
179.2	8	6.8	7.51	4.0	4.0	-	-							
202.9	7	7.3	6.63	4.0	4.0	-	-							
263.3	6	8.4	5.11	4.0	4.0	-	-							
305.8	5	9.3	4.40	4.0	3.0	-	-							
0.25	0.9	1363	2.3	1475.08	27.0	21.0	27.0	28.0	PSH 3125 - 71M/4A	114	82-83			
	1.2	1050	2.9	1198.50	27.0	21.0	27.0	28.0						
	0.9	1351	1.2	1506.84	14.0	12.0	16.0	16.0	PSH 3100 - 71M/4A	66	78-79			
	1.2	968	1.6	1173.93	16.0	12.0	16.0	16.0						
	2.1	578	2.8	660.00	16.0	12.0	16.0	16.0						
	1.4	829	1.8	645.00	16.0	12.0	16.0	16.0	PSH 2100 - 71M/6B	59	76-77			
	2.2	565	2.5	645.00	16.0	12.0	16.0	16.0	PSH 2100 - 71M/4A	58	76-77			
	1.2	968	0.8	1199.07	1.0	9.0	10.0	12.0	PSH 3080 - 71M/4A	38	74-75			
	1.5	772	1.0	955.78	5.0	9.0	11.0	12.0						
	1.7	664	1.2	805.70	7.0	9.0	12.0	12.0						
	2.0	594	1.3	705.97	8.0	9.0	13.0	12.0						
	1.4	810	0.9	656.63*	5.0	9.0	11.0	12.0	PSH 2080 - 71M/6B	34	72-73			
	1.7	655	1.1	520.20*	8.0	9.0	13.0	12.0						
	2.1	553	1.3	656.63*	8.0	9.0	13.0	12.0	PSH 2080 - 71M/4A	33	72-73			
	5.0	323	2.2	276.81*	10.0	9.0	13.0	12.0						
5.9	222	3.2	234.60	10.0	9.0	13.0	12.0							
7.4	183	3.7	187.00	10.0	9.0	13.0	12.0							
8.8	157	4.3	157.64	10.0	9.0	13.0	12.0							

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange

0.25 kW



P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	Kg	Sayfa Page mm — — —
0.25	2.6	445	0.8	529.13*	5.0	8.0	9.0	10.0	PSH 2063 - 71M/4A	23	68-69
	3.0	391	0.9	464.67*	6.0	8.0	10.0	10.0			
	5.3	304	1.2	264.14*	7.0	8.0	10.0	10.0			
	6.2	257	1.4	223.06*	7.0	8.0	11.0	10.0			
	7.1	229	1.6	195.89*	7.0	8.0	11.0	10.0			
	7.6	170	2.1	183.60	8.0	8.0	11.0	10.0			
	8.6	153	2.0	162.27	8.0	8.0	11.0	10.0			
	9.6	139	2.2	144.50	8.0	8.0	11.0	10.0			
	11.8	118	2.5	118.23	8.0	8.0	11.0	10.0			
	13.3	106	2.8	104.13	8.0	8.0	11.0	10.0			
	15.1	95	3.1	92.19	8.0	8.0	11.0	10.0			
	18.0	96	3.2	77.40	8.0	8.0	11.0	10.0			
	20.3	86	3.4	68.41	8.0	8.0	11.0	10.0			
	22.8	76	3.7	60.92	8.0	8.0	11.0	10.0			
	7.6	213	0.9	182.08	5.0	8.0	6.0	8.0			
8.2	199	0.9	170.00	5.0	8.0	6.0	8.0	PSH 2050 - 71M/4A	19	64-65	
9.4	137	1.3	147.90	5.0	8.0	6.0	8.0				
10.7	123	1.4	129.82	5.0	8.0	6.0	8.0				
12.1	110	1.5	114.75	6.0	8.0	6.0	8.0				
15.0	91	1.9	92.73	6.0	8.0	6.0	8.0				
17.2	80	2.1	80.75	6.0	8.0	6.0	8.0				
21.3	81	2.1	65.25	6.0	8.0	6.0	8.0				
24.3	71	2.4	57.27	6.0	8.0	6.0	8.0				
27.5	63	2.4	50.63	6.0	8.0	6.0	8.0				
34.0	52	3.0	40.91	6.0	8.0	6.0	8.0				
39.0	46	3.4	35.63	6.0	8.0	6.0	8.0				
44.9	43	3.6	30.93	6.0	8.0	6.0	8.0				
51.2	38	4.0	27.15	5.0	8.0	6.0	8.0				
57.9	33	4.6	24.00	5.0	8.0	6.0	8.0				
14.0	92	1.0	99.45	3.0	4.0	-	-				PSH 2040- 71M/4A
16.0	81	1.1	86.86	4.0	4.0	-	-				
18.2	72	1.2	76.38	4.0	4.0	-	-				
20.6	65	1.3	67.50	4.0	4.0	-	-				
23.2	80	1.2	59.80	4.0	4.0	-	-				
26.7	52	1.6	52.00	4.0	4.0	-	-				
29.7	63	1.6	46.77	4.0	4.0	-	-				
31.0	45	1.8	44.78	4.0	4.0	-	-				
33.0	51	1.7	42.08	4.0	4.0	-	-				
37.8	45	1.8	36.75	4.0	4.0	-	-				
43.0	40	2.0	32.31	4.0	4.0	-	-				
48.7	35	2.1	28.56	4.0	4.0	-	-				
63.2	28	2.6	22.00	4.0	4.0	-	-				
71.1	27	2.9	19.55	4.0	4.0	-	-				
81.4	23	3.3	17.08	4.0	4.0	-	-				
92.6	21	3.5	15.01	4.0	4.0	-	-				
104.7	18	4.0	13.27	4.0	4.0	-	-				
136.0	14	4.6	10.22	4.0	4.0	-	-				
158.0	12	5.2	8.80	4.0	4.0	-	-				
185.1	11	5.0	7.51	4.0	4.0	-	-				
209.7	9	5.4	6.63	4.0	4.0	-	-				
272.0	8	6.2	5.11	4.0	3.0	-	-				
315.9	6	6.9	4.40	4.0	3.0	-	-				



P_1 [kW]	n_2 [Min ⁻¹]	M_2 [Nm]	f_B	i_{ges}	F_R [kN]	F_A [kN]	$F_{R GR}$ [kN]	$F_{A GR}$ [kN]	Tip / Type	kg	Sayfa Page mm
0.37	1.1	1577	2.0	1198.50	27.0	21.0	27.0	28.0	PSH 3125 - 71M/4B	115	82-83
	1.2	1454	1.1	1173.93	13.0	12.0	16.0	16.0	PSH 3100 - 71M/4B	67	78-79
	2.1	869	1.8	660.60	16.0	12.0	16.0	16.0			
	1.4	1214	1.2	645.00	14.0	12.0	16.0	16.0	PSH 2100 - 80M/6A	61	76-77
	1.8	979	1.5	510.00	16.0	12.0	16.0	16.0			
	2.1	849	1.7	645.00	16.0	12.0	16.0	16.0	PSH 2100 - 71M/4B	59	76-77
	5.7	362	3.9	241.67	16.0	12.0	16.0	16.0			
	1.8	959	0.7	520.20*	2.0	9.0	10.0	12.0	PSH 2080 - 80M/6A	36	72-73
	2.1	830	0.9	656.63*	5.0	9.0	11.0	12.0	PSH 2080 - 71M/4B	34	72-73
	2.6	671	1.1	520.20*	7.0	9.0	12.0	12.0			
	4.9	486	1.5	276.81*	9.0	9.0	13.0	12.0			
	5.8	333	2.1	234.60	10.0	9.0	13.0	12.0			
	7.3	275	2.4	187.00	10.0	9.0	13.0	12.0			
	8.7	236	2.8	157.64	10.0	9.0	13.0	12.0			
	9.9	214	3.0	138.13	10.0	9.0	13.0	12.0			
	11.1	195	3.2	123.58	10.0	9.0	13.0	12.0			
	12.9	170	3.5	106.25	10.0	9.0	13.0	12.0			
	14.5	153	3.7	94.15	10.0	9.0	13.0	12.0			
	17.4	153	4.3	78.83	10.0	9.0	13.0	12.0			
	20.6	130	4.8	66.45	10.0	9.0	13.0	12.0			
	6.1	386	0.9	223.06*	6.0	8.0	10.0	10.0	PSH 2063 - 71M/4B	24	68-69
	7.0	344	1.0	195.89*	7.0	8.0	10.0	10.0			
	7.5	256	1.4	183.60	7.0	8.0	11.0	10.0			
	8.4	230	1.3	162.27	7.0	8.0	11.0	10.0			
	9.5	209	1.4	144.50	8.0	8.0	11.0	10.0			
	11.6	177	1.7	118.23	8.0	8.0	11.0	10.0			
	13.1	159	1.9	104.13	8.0	8.0	11.0	10.0			
	14.9	143	2.1	92.19	8.0	8.0	11.0	10.0			
17.7	144	2.1	77.40	8.0	8.0	11.0	10.0				
20.0	129	2.3	68.41	8.0	8.0	11.0	10.0				
22.5	115	2.4	60.92	8.0	8.0	11.0	10.0				
27.5	96	2.7	49.84	8.0	8.0	11.0	10.0				
31.2	85	2.9	43.90	8.0	8.0	11.0	10.0				
35.2	76	3.2	38.87	8.0	8.0	11.0	10.0				
39.2	73	3.6	34.94	8.0	8.0	11.0	10.0				
11.9	166	1.0	114.75	5.0	8.0	6.0	8.0	PSH 2050 - 71M/4B	20	64-65	
14.8	136	1.2	92.73	5.0	8.0	6.0	8.0				
17.0	121	1.4	80.75	5.0	8.0	6.0	8.0				
21.0	121	1.4	65.25	5.0	8.0	6.0	8.0				
23.9	106	1.6	57.27	6.0	8.0	6.0	8.0				
27.0	95	1.6	50.63	6.0	8.0	6.0	8.0				
33.5	78	2.0	40.91	6.0	8.0	6.0	8.0				
38.4	69	2.2	35.63	6.0	8.0	6.0	8.0				
44.3	65	2.4	30.93	5.0	8.0	6.0	8.0				
50.4	57	2.7	27.15	5.0	8.0	6.0	8.0				
57.0	51	3.1	24.00	5.0	7.0	6.0	8.0				

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange

0.37 kW
0.55 kW

PGR®
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P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	Kg	Sayfa Page mm ↔
0.37	22.9	120	0.8	59.80	3.0	4.0	-	-	PSH 2040 - 71M/4B	13	62-63
	26.3	78	1.0	52.00	4.0	4.0	-	-			
	29.3	95	1.0	46.77	3.0	4.0	-	-			
	30.6	68	1.2	44.78	4.0	4.0	-	-			
	32.5	77	1.1	42.08	4.0	4.0	-	-			
	37.3	68	1.2	36.75	4.0	4.0	-	-			
	42.4	61	1.3	32.31	4.0	4.0	-	-			
	47.9	55	1.4	28.56	4.0	4.0	-	-			
	62.2	42	1.7	22.00	4.0	4.0	-	-			
	70.0	41	2.0	19.55	4.0	4.0	-	-			
	80.2	36	2.2	17.08	4.0	4.0	-	-			
	91.2	32	2.4	15.01	4.0	4.0	-	-			
	103.2	28	2.6	13.27	4.0	4.0	-	-			
	134.0	22	3.1	10.22	4.0	4.0	-	-			
	155.6	19	3.4	8.80	4.0	4.0	-	-			
	182.3	16	3.5	7.51	4.0	4.0	-	-			
206.5	15	3.7	6.63	4.0	4.0	-	-				
267.9	11	4.1	5.11	4.0	3.0	-	-				
311.2	10	4.6	4.40	4.0	3.0	-	-				
0.55	1.2	2293	1.3	1198.50	25.0	21.0	27.0	28.0	PSH 3125 - 80M/4A	117	82-83
	1.5	1811	1.7	928.25	27.0	21.0	27.0	28.0			
	1.8	1578	2.0	793.81	27.0	21.0	27.0	28.0			
	2.0	1762	1.6	690.49	27.0	21.0	27.0	28.0			
	2.3	1549	1.7	607.31	27.0	21.0	27.0	28.0			
	2.6	1416	2.2	546.92	27.0	21.0	27.0	28.0			
	3.2	1150	2.6	444.38	27.0	21.0	27.0	28.0			
	3.7	998	2.6	380.02	27.0	21.0	27.0	28.0			
	4.3	860	2.8	323.00	27.0	21.0	27.0	28.0			
	5.2	730	3.9	270.16	27.0	21.0	27.0	28.0			
	2.1	1263	1.3	660.00	14.0	12.0	16.0	16.0	PSH 3100 - 80M/4A	69	78-79
	1.4	1804	0.8	645.00	7.0	12.0	16.0	16.0	PSH 2100 - 80M/6B	62	76-77
	1.8	1456	1.0	510.00	13.0	12.0	16.0	16.0			
	2.2	1234	1.2	645.00	14.0	12.0	16.0	16.0	PSH 2100 - 80M/4A	61	76-77
	2.7	995	1.4	510.00	16.0	12.0	16.0	16.0			
	5.8	526	2.7	241.67	16.0	12.0	16.0	16.0			
	7.6	420	3.3	183.33	16.0	12.0	16.0	16.0			
	8.5	385	3.5	165.38	16.0	12.0	16.0	16.0			
	10.9	314	3.9	128.85	16.0	12.0	16.0	16.0			
	3.9	696	1.0	234.60	7.0	9.0	12.0	12.0	PSH 2080 - 80M/6B	37	72-73
	3.5	771	0.9	402.90*	6.0	9.0	11.0	12.0	PSH 2080 - 80M/4A	36	72-73
	6.0	484	1.5	234.60	9.0	9.0	13.0	12.0			
	7.5	400	1.7	187.00	9.0	9.0	13.0	12.0			
	8.9	343	2.0	157.64	10.0	9.0	13.0	12.0			
10.1	311	2.1	138.13	10.0	9.0	13.0	12.0				
11.3	283	2.2	123.58	10.0	9.0	13.0	12.0				
13.2	247	2.4	106.25	10.0	9.0	13.0	12.0				
14.9	223	2.5	94.15	10.0	9.0	13.0	12.0				
17.8	222	3.0	78.83	10.0	9.0	13.0	12.0				
21.1	189	3.3	66.45	10.0	9.0	13.0	12.0				
24.0	168	3.6	58.23	10.0	9.0	13.0	12.0				
26.9	151	3.8	52.10	10.0	9.0	13.0	12.0				
31.3	131	4.2	44.79	10.0	9.0	13.0	12.0				

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange



P_1 [kW]	n_2 [Min ⁻¹]	M_2 [Nm]	f_B	i_{ges}	F_R [kN]	F_A [kN]	$F_{R GR}$ [kN]	$F_{A GR}$ [kN]	Tip / Type	Kg	Sayfa Page mm ↔
0.55	7.6	372	1.0	183.60	6.0	8.0	10.0	10.0	PSH 2063 - 80M/4A	26	68-69
	8.6	335	0.9	162.27	7.0	8.0	10.0	10.0			
	9.7	304	1.0	144.50	7.0	8.0	10.0	10.0			
	11.8	257	1.1	118.23	7.0	8.0	11.0	10.0			
	13.4	230	1.3	104.13	7.0	8.0	11.0	10.0			
	15.2	208	1.4	92.19	8.0	8.0	11.0	10.0			
	18.1	209	1.5	77.40	8.0	8.0	11.0	10.0			
	20.5	187	1.6	68.41	8.0	8.0	11.0	10.0			
	23.0	167	1.7	60.92	8.0	8.0	11.0	10.0			
	28.1	140	1.9	49.84	8.0	8.0	11.0	10.0			
	31.9	124	2.0	43.90	8.0	8.0	11.0	10.0			
	36.0	111	2.2	38.87	8.0	8.0	11.0	10.0			
	40.1	106	2.5	34.94	7.0	8.0	11.0	10.0			
	49.0	88	2.8	28.59	7.0	8.0	11.0	10.0			
	55.6	78	3.1	25.18	7.0	8.0	11.0	10.0			
	62.8	69	3.5	22.29	6.0	8.0	11.0	10.0			
	73.6	59	3.6	19.01	6.0	8.0	11.0	10.0			
	21.5	176	1.0	65.25	5.0	8.0	6.0	8.0	PSH 2050- 80M/4A	22	64-65
	24.4	155	1.1	57.27	5.0	8.0	6.0	8.0			
	27.7	139	1.1	50.63	5.0	8.0	6.0	8.0			
	34.2	114	1.4	40.91	6.0	8.0	6.0	8.0			
	39.3	100	1.5	35.63	5.0	8.0	6.0	8.0			
	45.3	94	1.6	30.93	5.0	7.0	6.0	8.0			
	51.6	84	1.9	27.15	5.0	7.0	6.0	8.0			
	58.3	74	2.1	24.00	5.0	7.0	6.0	8.0			
	72.2	60	2.4	19.39	5.0	6.0	6.0	8.0			
	82.9	52	2.3	16.89	4.0	6.0	6.0	8.0			
	94.8	46	2.5	14.77	4.0	6.0	6.0	8.0			
	106.5	43	2.8	13.15	4.0	5.0	6.0	8.0			
	120.4	38	3.0	11.63	4.0	5.0	6.0	8.0			
	149.1	31	3.5	9.39	4.0	4.0	6.0	8.0			
	171.1	27	3.8	8.18	3.0	4.0	6.0	8.0			
	195.8	24	4.0	7.15	3.0	4.0	6.0	8.0			
	43.3	87	0.9	32.31	3.0	4.0	-	-	PSH 2040 - 80M/4A	15	62-63
	49.0	78	1.0	28.56	4.0	4.0	-	-			
	63.6	61	1.2	22.00	4.0	4.0	-	-			
71.6	59	1.3	19.55	4.0	4.0	-	-				
82.0	52	1.5	17.08	4.0	4.0	-	-				
93.3	46	1.6	15.01	4.0	4.0	-	-				
105.5	40	1.8	13.27	4.0	4.0	-	-				
137.0	31	2.1	10.22	4.0	4.0	-	-				
159.1	27	2.3	8.80	4.0	4.0	-	-				
186.4	24	2.4	7.51	4.0	3.0	-	-				
211.2	21	2.4	6.63	4.0	3.0	-	-				
274.0	16	2.8	5.11	4.0	3.0	-	-				
318.2	14	3.2	4.40	3.0	3.0	-	-				

0.75 kW



P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	Kg	Sayfa Page mm ↔
0.75	1.2	3127	1.0	1198.50	20.0	21.0	27.0	28.0	PSH 3125 - 80M/4B	118	82-83
	1.5	2469	1.3	928.25	25.0	21.0	27.0	28.0			
	1.8	2152	1.4	793.81	26.0	21.0	27.0	28.0			
	2.0	2402	1.2	690.49	25.0	21.0	27.0	28.0			
	2.3	2113	1.3	607.31	27.0	21.0	27.0	28.0			
	2.6	1931	1.6	546.92	27.0	21.0	27.0	28.0			
	3.2	1569	1.9	444.38	27.0	21.0	27.0	28.0			
	3.7	1361	1.9	380.02	27.0	21.0	27.0	28.0			
	4.3	1173	2.0	323.00	27.0	21.0	27.0	28.0			
	5.2	995	2.8	270.16	27.0	21.0	27.0	28.0			
5.9	884	3.1	236.72	27.0	21.0	27.0	28.0				
7.5	710	3.1	187.50	27.0	21.0	27.0	28.0				
	1.3	2747	1.0	695.60	25.0	21.0	27.0	28.0	PSH 2125 - 90S/6A	104	80-81
	1.9	2034	1.4	495.64	27.0	21.0	27.0	28.0			
	2.1	1722	0.9	660.00	9.0	12.0	16.0	16.0	PSH 3100 - 80M/4B	70	78-79
	2.2	1683	0.8	645.00	9.0	12.0	16.0	16.0	PSH 2100 - 80M/4B	62	76-77
	2.7	1357	1.0	510.00	13.0	12.0	16.0	16.0			
	5.8	717	2.0	241.67	16.0	12.0	16.0	16.0			
	7.6	572	2.4	183.33	16.0	12.0	16.0	16.0			
	8.5	525	2.5	165.38	16.0	12.0	16.0	16.0			
	10.9	428	2.9	128.85	16.0	12.0	16.0	16.0			
	14.9	366	2.8	94.25	14.0	12.0	16.0	16.0			
	19.6	285	3.1	71.50	13.0	12.0	16.0	16.0			
	6.0	660	1.1	234.60	7.0	9.0	12.0	12.0	PSH 2080 - 80M/4B	37	72-73
	7.5	545	1.2	187.00	8.0	9.0	13.0	12.0			
	8.9	468	1.4	157.64	9.0	9.0	13.0	12.0			
	10.1	424	1.5	138.13	9.0	9.0	13.0	12.0			
	11.3	386	1.6	123.58	10.0	9.0	13.0	12.0			
	13.2	337	1.8	106.25	10.0	9.0	13.0	12.0			
	14.9	303	1.8	94.15	10.0	9.0	13.0	12.0			
	17.8	302	2.2	78.83	10.0	9.0	13.0	12.0			
	21.1	258	2.4	66.45	10.0	9.0	13.0	12.0			
	24.0	229	2.6	58.23	10.0	9.0	13.0	12.0			
	26.9	205	2.8	52.10	10.0	9.0	13.0	12.0			
	31.3	179	3.1	44.79	10.0	9.0	13.0	12.0			
	36.9	161	2.8	37.89	9.0	9.0	13.0	12.0			
	43.8	137	3.0	31.94	9.0	9.0	13.0	12.0			
	50.0	122	3.1	27.99	8.0	9.0	13.0	12.0			
	55.9	109	3.3	25.04	8.0	9.0	13.0	12.0			
	11.8	351	0.8	118.23	7.0	8.0	10.0	10.0	PSH 2063 - 80M/4B	27	68-69
	13.4	314	0.9	104.13	7.0	8.0	10.0	10.0			
	15.2	283	1.0	92.19	7.0	8.0	10.0	10.0			
	18.1	285	1.1	77.40	7.0	8.0	10.0	10.0			
	20.5	255	1.2	68.41	7.0	8.0	11.0	10.0			
	23.0	228	1.2	60.92	7.0	8.0	11.0	10.0			
	28.1	191	1.4	49.84	8.0	8.0	11.0	10.0			
	31.9	168	1.5	43.90	8.0	8.0	11.0	10.0			
	36.0	151	1.6	38.87	7.0	8.0	11.0	10.0			
	40.1	145	1.8	34.94	7.0	8.0	11.0	10.0			
	49.0	120	2.0	28.59	7.0	8.0	11.0	10.0			
	55.6	107	2.3	25.18	6.0	8.0	11.0	10.0			
	62.8	95	2.6	22.29	6.0	8.0	11.0	10.0			
	73.6	82	2.6	19.01	6.0	8.0	11.0	10.0			
	89.9	69	2.7	15.58	6.0	8.0	11.0	10.0			
	109.8	57	2.9	12.75	5.0	8.0	11.0	10.0			
	124.7	50	3.1	11.23	5.0	8.0	11.0	10.0			
	140.8	45	3.3	9.94	5.0	8.0	11.0	10.0			
	165.1	39	3.4	8.48	5.0	7.0	10.0	10.0			



P_1 [kW]	n_2 [Min ⁻¹]	M_2 [Nm]	f_B	i_{ges}	F_R [kN]	F_A [kN]	$F_{R GR}$ [kN]	$F_{A GR}$ [kN]	Tip / Type	Kg	Sayfa Page mm ↔			
0.75	34.2	155	1.0	40.91	5.0	8.0	6.0	8.0	PSH 2050 - 80M/4B	23	64-65			
	39.3	137	1.1	35.63	5.0	8.0	6.0	8.0						
	45.3	128	1.2	30.93	5.0	6.0	6.0	8.0						
	51.6	114	1.4	27.15	5.0	6.0	6.0	8.0						
	58.3	101	1.5	24.00	5.0	6.0	6.0	8.0						
	72.2	82	1.8	19.39	4.0	6.0	6.0	8.0						
	82.9	72	1.7	16.89	4.0	6.0	6.0	8.0						
	94.8	63	1.8	14.77	4.0	5.0	6.0	8.0						
	106.5	59	2.1	13.15	4.0	4.0	6.0	8.0						
	120.4	52	2.2	11.63	4.0	4.0	6.0	8.0						
	149.1	42	2.6	9.39	3.0	4.0	6.0	8.0						
	171.1	37	2.8	8.18	3.0	4.0	6.0	8.0						
	195.8	33	2.8	7.15	3.0	4.0	6.0	8.0						
	63.6	83	0.9	22.00	3.0	4.0	-	-				PSH 2040- 80M/4B	16	62-63
	71.6	81	1.0	19.55	4.0	4.0	-	-						
	82.0	71	1.1	17.08	4.0	4.0	-	-						
	93.3	63	1.2	15.01	4.0	4.0	-	-						
	105.5	56	1.3	13.27	4.0	4.0	-	-						
	137.0	43	1.5	10.22	4.0	4.0	-	-						
	159.1	37	1.8	8.80	4.0	4.0	-	-						
186.4	33	1.7	7.51	4.0	3.0	-	-							
211.2	29	1.9	6.63	4.0	3.0	-	-							
274.0	22	2.1	5.11	3.0	3.0	-	-							
318.2	19	2.4	4.40	3.0	3.0	-	-							
1.10	1.5	3596	0.9	928.25	18.0	21.0	27.0	28.0	PSH 3125 - 90S/4A	121	82-83			
	1.9	2951	1.0	495.64	23.0	21.0	27.0	28.0	PSH 2125 - 90L/6B	106	80-81			
	2.0	2799	1.0	695.60	23.0	21.0	27.0	28.0	PSH 2125 - 90S/4A	104	80-81			
	2.8	2068	1.4	495.64	27.0	21.0	27.0	28.0						
	7.0	977	2.7	201.71	27.0	21.0	27.0	28.0						
	7.7	898	2.9	182.58	27.0	21.0	27.0	28.0						
	8.8	802	3.1	160.58	27.0	21.0	27.0	28.0						
	9.7	733	3.3	144.62	27.0	21.0	27.0	28.0						
	12.0	622	3.6	117.50	26.0	21.0	27.0	28.0						
	14.0	539	4.0	100.48	25.0	21.0	27.0	28.0						
	3.4	1650	0.8	410.00	10.0	12.0	16.0	16.0	PSH 2100 - 90S/4A	65	76-77			
	4.6	1313	1.1	303.85	14.0	12.0	16.0	16.0						
	5.8	1044	1.4	241.67	16.0	12.0	16.0	16.0						
	7.7	833	1.6	183.33	16.0	12.0	16.0	16.0						
	8.5	764	1.7	165.38	16.0	12.0	16.0	16.0						
	10.9	624	2.0	128.85	15.0	12.0	16.0	16.0						
	13.6	518	2.3	103.85	14.0	12.0	16.0	16.0						
15.0	534	2.5	94.25	14.0	12.0	16.0	16.0							
19.7	416	2.9	71.50	13.0	12.0	16.0	16.0							
21.9	380	3.1	64.50	12.0	12.0	16.0	16.0							
28.1	300	3.7	50.25	12.0	12.0	16.0	16.0							
33.0	271	3.4	42.78	11.0	12.0	16.0	16.0							
36.5	244	3.5	38.59	11.0	12.0	16.0	16.0							
41.1	212	4.1	34.29	10.0	12.0	16.0	16.0							

1.10 kW



P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	Kg	Sayfa Page mm
1.10	8.9	681	1.0	157.64	7.0	9.0	12.0	12.0	PSH 2080 - 90S/4A	40	72-73
	10.2	617	1.0	138.13	8.0	9.0	13.0	12.0			
	11.4	562	1.1	123.58	8.0	9.0	13.0	12.0			
	13.3	491	1.2	106.25	9.0	9.0	13.0	12.0			
	15.0	442	1.3	94.15	9.0	9.0	13.0	12.0			
	17.9	440	1.5	78.83	9.0	9.0	13.0	12.0			
	21.2	376	1.7	66.45	10.0	9.0	13.0	12.0			
	24.2	334	1.8	58.23	10.0	9.0	13.0	12.0			
	27.1	299	1.9	52.10	9.0	9.0	13.0	12.0			
	31.5	260	2.1	44.79	9.0	9.0	13.0	12.0			
	37.2	234	2.3	37.89	9.0	9.0	13.0	12.0			
	44.1	200	2.6	31.94	8.0	9.0	13.0	12.0			
	50.4	177	2.9	27.99	8.0	9.0	13.0	12.0			
	56.3	159	3.1	25.04	8.0	9.0	13.0	12.0			
	65.5	138	3.4	21.53	7.0	9.0	13.0	12.0			
	73.9	122	3.6	19.08	7.0	9.0	13.0	12.0			
	88.3	106	3.1	15.97	7.0	9.0	13.0	12.0			
	100.8	93	3.2	13.99	6.0	9.0	13.0	12.0			
	112.6	84	3.4	12.52	6.0	9.0	13.0	12.0			
	131.0	72	3.5	10.76	6.0	9.0	13.0	12.0			
	28.3	278	0.9	49.84	7.0	8.0	10.0	10.0	PSH 2063 - 90S/4A	30	68-69
	32.1	245	1.0	43.90	7.0	8.0	11.0	10.0			
	36.3	220	1.1	38.87	7.0	8.0	11.0	10.0			
	40.4	211	1.2	34.94	7.0	8.0	11.0	10.0			
	49.3	175	1.4	28.59	6.0	8.0	11.0	10.0			
	56.0	156	1.6	25.18	6.0	8.0	11.0	10.0			
	63.3	138	1.8	22.29	6.0	8.0	11.0	10.0			
	74.2	119	1.8	19.01	6.0	8.0	11.0	10.0			
	90.5	101	1.9	15.58	5.0	8.0	11.0	10.0			
	110.6	84	2.2	12.75	5.0	7.0	11.0	10.0			
	125.6	74	2.4	11.23	5.0	7.0	11.0	10.0			
	141.9	66	2.6	9.94	5.0	7.0	10.0	10.0			
	166.3	56	3.0	8.48	5.0	7.0	10.0	10.0			
190.5	49	3.2	7.40	4.0	6.0	10.0	10.0				
	58.8	147	1.1	24.00	4.0	5.0	6.0	8.0	PSH 2050 - 90S/4A	26	64-65
	72.7	120	1.2	19.39	4.0	5.0	6.0	8.0			
	83.5	104	1.1	16.89	4.0	5.0	6.0	8.0			
	95.5	92	1.2	14.77	4.0	5.0	6.0	8.0			
	107.2	85	1.4	13.15	3.0	3.0	6.0	8.0			
	121.2	75	1.5	11.63	3.0	3.0	6.0	8.0			
	150.2	61	1.8	9.39	3.0	3.0	6.0	8.0			
	172.4	54	2.1	8.18	3.0	3.0	6.0	8.0			
	197.2	47	2.2	7.15	3.0	3.0	6.0	8.0			
	93.9	92	0.8	15.01	3.0	3.0	-	-	PSH 2040 - 90S/4A	19	62-63
	106.3	81	0.9	13.27	4.0	3.0	-	-			
	138.0	63	1.1	10.22	4.0	3.0	-	-			
	160.2	54	1.2	8.80	4.0	3.0	-	-			
	187.7	48	1.2	7.51	3.0	2.0	-	-			
	212.7	43	1.3	6.63	3.0	2.0	-	-			
	275.9	34	1.4	5.11	3.0	2.0	-	-			
	320.5	29	1.6	4.40	3.0	2.0	-	-			



P_1 [kW]	n_2 [Min ⁻¹]	M_2 [Nm]	f_B	i_{ges}	F_R [kN]	F_A [kN]	$F_{R GR}$ [kN]	$F_{A GR}$ [kN]	Tip / Type	Kg	Sayfa Page mm ↔
1.50	2.9	2800	1.0	495.64	23.0	21.0	27.0	28.0	PSH 2125 - 90L/4A	106	80-81
	7.0	1323	2.0	201.71	27.0	21.0	27.0	28.0			
	7.8	1216	2.1	182.58	27.0	21.0	27.0	28.0			
	8.8	1085	2.3	160.58	27.0	21.0	27.0	28.0			
	9.8	992	2.4	144.62	27.0	21.0	27.0	28.0			
	12.1	842	2.7	117.50	25.0	21.0	27.0	28.0			
	14.1	730	2.9	100.48	24.0	21.0	27.0	28.0			
	16.2	705	2.7	87.40	23.0	21.0	27.0	28.0			
	18.5	628	2.9	76.88	23.0	21.0	27.0	28.0			
	20.5	566	2.9	69.23	22.0	21.0	27.0	28.0			
	25.2	471	3.0	56.25	21.0	21.0	27.0	28.0			
	5.1	1592	0.9	183.33	11.0	12.0	16.0	16.0	PSH 2100 - 100L/6A	71	76-77
	5.9	1414	1.0	241.67	13.0	12.0	16.0	16.0	PSH 2100- 90L/4A	67	76-77
	7.7	1128	1.2	183.33	15.0	12.0	16.0	16.0			
	8.6	1034	1.3	165.38	15.0	12.0	16.0	16.0			
	11.0	845	1.5	128.85	14.0	12.0	16.0	16.0			
	13.7	702	1.7	103.85	13.0	12.0	16.0	16.0			
	15.1	723	1.8	94.25	13.0	12.0	16.0	16.0			
	19.9	563	2.2	71.50	12.0	12.0	16.0	16.0			
	22.0	514	2.3	64.50	12.0	12.0	16.0	16.0			
	28.3	406	2.7	50.25	11.0	12.0	16.0	16.0			
	33.2	367	2.5	42.78	11.0	12.0	16.0	16.0			
	36.8	331	2.6	38.59	10.0	12.0	16.0	16.0			
	41.4	287	3.0	34.29	10.0	12.0	16.0	16.0			
	47.2	261	2.8	30.06	10.0	12.0	16.0	16.0			
	58.6	213	3.0	24.23	9.0	12.0	16.0	16.0			
	15.1	598	0.9	94.15	8.0	9.0	13.0	12.0	PSH 2080 - 90L/4A	42	72-73
	18.0	596	1.1	78.83	8.0	9.0	13.0	12.0			
	21.4	509	1.2	66.45	9.0	9.0	13.0	12.0			
	24.4	452	1.3	58.23	9.0	9.0	13.0	12.0			
	27.3	405	1.4	52.10	9.0	9.0	13.0	12.0			
	31.7	352	1.6	44.79	9.0	9.0	13.0	12.0			
	37.5	317	1.7	37.89	8.0	9.0	13.0	12.0			
	44.5	271	1.9	31.94	8.0	9.0	13.0	12.0			
	50.7	240	2.1	27.99	8.0	9.0	13.0	12.0			
	56.7	215	2.3	25.04	7.0	9.0	13.0	12.0			
	66.0	187	2.5	21.53	7.0	9.0	13.0	12.0			
	74.4	166	2.7	19.08	7.0	9.0	13.0	12.0			
	88.9	143	2.2	15.97	6.0	9.0	13.0	12.0			
	101.5	126	2.4	13.99	6.0	9.0	13.0	12.0			
	113.4	114	2.5	12.52	6.0	8.0	13.0	12.0			
	132.0	98	2.6	10.76	6.0	8.0	13.0	12.0			
	148.8	87	2.8	9.54	6.0	8.0	13.0	12.0			
	188.1	69	2.8	7.55	5.0	7.0	12.0	12.0			
	49.7	237	1.0	28.59	6.0	8.0	11.0	10.0	PSH 2063 - 90L/4A	32	68-69
	56.4	211	1.2	25.18	6.0	8.0	11.0	10.0			
	63.7	187	1.3	22.29	6.0	8.0	11.0	10.0			
74.7	161	1.3	19.01	5.0	8.0	11.0	10.0				
91.1	137	1.4	15.58	5.0	7.0	11.0	10.0				
111.4	113	1.6	12.75	5.0	7.0	11.0	10.0				
126.4	100	1.8	11.23	5.0	6.0	11.0	10.0				
142.9	89	1.9	9.94	4.0	6.0	10.0	10.0				
167.5	76	2.2	8.48	4.0	6.0	10.0	10.0				
191.9	67	2.3	7.40	4.0	6.0	10.0	10.0				
84.1	141	0.8	16.89	4.0	4.0	6.0	8.0	PSH 2050 - 90L/4A	28	64-65	
96.1	125	0.9	14.77	4.0	4.0	6.0	8.0				
108.0	115	1.0	13.15	2.0	2.0	6.0	7.0				
122.1	102	1.1	11.63	3.0	2.0	6.0	7.0				
151.2	83	1.3	9.39	3.0	3.0	6.0	7.0				
173.6	73	1.5	8.18	3.0	3.0	6.0	7.0				
198.6	63	1.7	7.15	3.0	3.0	6.0	7.0				

2.20 kW



P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	Kg	Sayfa Page mm ↔
2.20	4.2	2968	1.0	337.55	23.0	21.0	27.0	28.0	PSH 2125 - 100L/4A	110	80-81
	7.0	1954	1.3	201.71	27.0	21.0	27.0	28.0			
	7.7	1796	1.4	182.58	27.0	21.0	27.0	28.0			
	8.8	1564	1.6	160.58	26.0	21.0	27.0	28.0			
	9.7	1465	1.6	144.62	25.0	21.0	27.0	28.0			
	12.0	1243	1.8	117.50	24.0	21.0	27.0	28.0			
	14.0	1078	2.0	100.48	23.0	21.0	27.0	28.0			
	16.1	1042	2.3	87.40	22.0	21.0	27.0	28.0			
	18.3	928	2.5	76.88	21.0	21.0	27.0	28.0			
	20.4	836	2.3	69.23	21.0	21.0	27.0	28.0			
	25.1	696	3.0	56.25	20.0	21.0	27.0	28.0			
	29.3	602	3.3	48.10	19.0	21.0	27.0	28.0			
	34.4	519	3.5	40.98	18.0	21.0	27.0	28.0			
	39.9	463	2.7	35.31	17.0	21.0	27.0	28.0			
	44.4	417	2.9	31.79	17.0	21.0	27.0	28.0			
	10.9	1248	1.0	128.85	12.0	12.0	16.0	16.0	PSH 2100 - 100L/4A	71	76-77
	13.6	1037	1.1	103.85	12.0	12.0	16.0	16.0			
	15.0	1067	1.2	94.25	11.0	12.0	16.0	16.0			
	19.7	831	1.5	71.50	11.0	12.0	16.0	16.0			
	21.9	759	1.6	64.50	11.0	12.0	16.0	16.0			
	28.1	599	1.9	50.25	10.0	12.0	16.0	16.0			
	33.0	542	2.0	42.78	10.0	12.0	16.0	16.0			
	36.5	489	2.3	38.59	10.0	12.0	16.0	16.0			
	41.1	424	2.6	34.29	9.0	12.0	16.0	16.0			
	46.9	385	2.5	30.06	9.0	12.0	16.0	16.0			
	58.2	314	2.9	24.23	9.0	12.0	16.0	16.0			
	68.7	269	3.0	20.52	8.0	12.0	16.0	16.0			
	74.4	254	2.2	18.94	8.0	10.0	16.0	16.0			
	82.5	229	2.3	17.09	8.0	9.0	16.0	16.0			
	86.8	216	3.1	16.25	8.0	11.0	16.0	16.0			
105.9	180	2.6	13.31	7.0	9.0	16.0	16.0				
131.4	145	2.8	10.73	7.0	9.0	16.0	16.0				
155.1	125	3.0	9.09	7.0	8.0	15.0	16.0				
	27.1	598	1.0	52.10	8.0	9.0	13.0	12.0	PSH 2080 - 100L/4A	46	72-73
	31.5	521	1.1	44.79	8.0	9.0	13.0	12.0			
	37.2	469	1.2	37.89	7.0	9.0	13.0	12.0			
	44.1	400	1.3	31.94	7.0	9.0	13.0	12.0			
	50.4	355	1.4	27.99	7.0	9.0	13.0	12.0			
	56.3	317	1.5	25.04	7.0	9.0	13.0	12.0			
	65.5	276	1.7	21.53	7.0	9.0	13.0	12.0			
	73.9	245	1.9	19.08	7.0	9.0	13.0	12.0			
	88.3	212	1.6	15.97	6.0	7.0	13.0	12.0			
	100.8	186	2.0	13.99	6.0	7.0	13.0	12.0			
	112.6	168	2.1	12.52	6.0	7.0	13.0	12.0			
	131.0	144	2.4	10.76	5.0	7.0	13.0	12.0			
	147.8	128	2.5	9.54	5.0	7.0	12.0	12.0			
	186.8	102	2.7	7.55	5.0	6.0	12.0	11.0			
		74.2	238	0.9	19.01	5.0	7.0	11.0			
90.5		202	0.9	15.58	4.0	5.0	11.0	10.0			
110.6		167	1.1	12.75	4.0	5.0	10.0	10.0			
125.6		147	1.2	11.23	4.0	5.0	10.0	10.0			
141.9		132	1.3	9.94	4.0	5.0	10.0	10.0			
166.3		112	1.5	8.48	4.0	5.0	9.0	9.0			
190.5		99	1.6	7.40	4.0	5.0	9.0	9.0			



P_1 [kW]	n_2 [Min ⁻¹]	M_2 [Nm]	f_B	i_{ges}	F_R [kN]	F_A [kN]	$F_{R GR}$ [kN]	$F_{A GR}$ [kN]	Tip / Type	kg	Sayfa Page mm ↔
3.00	7.0	2664	1.0	201.71	24.0	21.0	27.0	28.0	PSH 2125 - 100L/4B	113	80-81
	7.7	2449	1.0	182.58	24.0	21.0	27.0	28.0			
	8.8	2186	1.1	160.58	24.0	21.0	27.0	28.0			
	9.7	1998	1.2	144.62	24.0	21.0	27.0	28.0			
	12.0	1695	1.3	117.50	23.0	21.0	27.0	28.0			
	14.0	1470	1.4	100.48	22.0	21.0	27.0	28.0			
	16.1	1421	1.7	87.40	21.0	21.0	27.0	28.0			
	18.3	1265	1.8	76.88	20.0	21.0	27.0	28.0			
	20.4	1139	1.7	69.23	20.0	21.0	27.0	28.0			
	25.1	949	2.2	56.25	19.0	21.0	27.0	28.0			
	29.3	830	2.4	48.10	18.0	21.0	27.0	28.0			
	34.4	708	2.6	40.98	17.0	21.0	27.0	28.0			
	39.9	631	2.0	35.31	17.0	21.0	27.0	28.0			
	44.4	568	2.1	31.79	16.0	21.0	27.0	28.0			
	54.6	467	2.3	25.83	15.0	21.0	27.0	28.0			
	63.8	404	2.5	22.09	15.0	21.0	27.0	28.0			
	74.9	344	2.6	18.82	14.0	20.0	27.0	28.0			
	88.7	297	2.1	15.90	13.0	17.0	27.0	28.0			
	109.1	242	2.3	12.92	13.0	16.0	27.0	27.0			
	127.6	209	2.5	11.05	12.0	15.0	26.0	26.0			
	19.7	1133	1.1	71.50	9.0	12.0	16.0	16.0	PSH 2100 - 100L/4B	74	76-77
	21.9	1035	1.1	64.50	9.0	12.0	16.0	16.0			
	28.1	817	1.3	50.25	9.0	12.0	16.0	16.0			
	33.0	739	1.5	42.78	9.0	12.0	16.0	16.0			
	36.5	666	1.7	38.59	9.0	12.0	16.0	16.0			
	41.1	578	1.9	34.29	9.0	12.0	16.0	16.0			
	46.9	525	1.9	30.06	9.0	12.0	16.0	16.0			
	58.2	428	2.1	24.23	8.0	11.0	16.0	16.0			
	68.7	367	2.3	20.52	8.0	11.0	16.0	16.0			
	74.4	346	1.6	18.94	7.0	8.0	16.0	16.0			
	82.5	313	1.7	17.09	7.0	8.0	16.0	16.0			
	86.8	294	2.3	16.25	8.0	10.0	16.0	16.0			
	105.9	246	1.9	13.31	7.0	8.0	16.0	16.0			
	131.4	198	2.1	10.73	7.0	8.0	16.0	16.0			
	155.1	170	2.2	9.09	6.0	7.0	15.0	16.0			
	44.1	545	1.0	31.94	6.0	8.0	13.0	12.0	PSH 2080 - 100L/4B	48	72-73
	50.4	483	1.1	27.99	6.0	8.0	13.0	12.0			
	56.3	432	1.1	25.04	6.0	9.0	13.0	12.0			
	65.5	376	1.2	21.53	6.0	8.0	13.0	12.0			
	73.9	333	1.4	19.08	6.0	8.0	13.0	12.0			
88.3	289	1.2	15.97	5.0	6.0	13.0	11.0				
100.8	253	1.4	13.99	5.0	6.0	13.0	11.0				
112.6	229	1.5	12.52	5.0	6.0	13.0	11.0				
131.0	197	1.7	10.76	5.0	6.0	13.0	11.0				
147.8	174	1.8	9.54	5.0	6.0	12.0	11.0				
186.8	140	2.0	7.55	5.0	6.0	12.0	11.0				

4.00 kW
5.50 kW

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P_1 [kW]	n_2 [Min ⁻¹]	M_2 [Nm]	f_B	i_{ges}	F_R [kN]	F_A [kN]	$F_{R GR}$ [kN]	$F_{A GR}$ [kN]	Tip / Type	Kg	Sayfa Page mm ↔
4.00	9.9	2627	0.9	144.62	21.0	21.0	27.0	28.0	PSH 2125 - 112M/4B	122	80-81
	12.2	2229	1.0	117.50	21.0	21.0	27.0	28.0			
	14.2	1933	1.1	100.48	20.0	21.0	27.0	28.0			
	16.4	1868	1.3	87.40	19.0	21.0	27.0	28.0			
	18.6	1664	1.4	76.88	19.0	21.0	27.0	28.0			
	20.7	1498	1.3	69.23	18.0	21.0	27.0	28.0			
	25.4	1247	1.7	56.25	18.0	21.0	27.0	28.0			
	29.7	1079	1.8	48.10	17.0	21.0	27.0	28.0			
	34.9	931	2.0	40.98	17.0	21.0	27.0	28.0			
	40.5	830	1.9	35.31	16.0	21.0	27.0	28.0			
	45.0	747	2.4	31.79	16.0	21.0	27.0	28.0			
	55.4	614	2.6	25.83	15.0	21.0	27.0	28.0			
	64.7	531	2.8	22.09	14.0	20.0	27.0	28.0			
	76.0	452	2.9	18.82	14.0	19.0	27.0	28.0			
	89.9	391	2.4	15.90	13.0	16.0	27.0	27.0			
110.7	318	2.6	12.92	12.0	15.0	26.0	26.0				
129.4	275	2.8	11.05	12.0	14.0	25.0	25.0				
	28.5	1074	1.0	50.25	8.0	12.0	16.0	16.0	PSH 2100 - 112M/4B	83	76-77
	33.4	971	1.1	42.78	8.0	9.0	16.0	16.0			
	37.1	876	1.3	38.59	8.0	10.0	16.0	16.0			
	41.7	760	1.4	34.29	8.0	12.0	16.0	16.0			
	47.6	691	1.5	30.06	8.0	10.0	16.0	16.0			
	59.0	563	1.8	24.23	8.0	10.0	16.0	16.0			
	69.7	482	1.7	20.52	7.0	10.0	16.0	16.0			
	75.5	455	1.8	18.94	6.0	6.0	16.0	16.0			
	83.7	411	1.7	17.09	6.0	6.0	16.0	16.0			
	88.0	386	1.9	16.25	7.0	9.0	16.0	16.0			
	107.4	324	2.1	13.31	6.0	6.0	16.0	16.0			
	133.3	261	2.4	10.73	6.0	7.0	15.0	16.0			
	157.3	223	2.5	9.09	6.0	6.0	15.0	16.0			
	198.6	177	2.6	7.20	6.0	6.0	14.0	15.0			
		66.4	495	1.0	21.53	5.0	7.0	13.0			
74.9		438	1.0	19.08	5.0	7.0	13.0	12.0			
89.5		380	0.9	15.97	4.0	3.0	13.0	9.0			
102.2		333	1.1	13.99	4.0	4.0	13.0	10.0			
114.2		301	1.1	12.52	4.0	4.0	12.0	10.0			
132.9		259	1.3	10.76	5.0	4.0	12.0	10.0			
149.9		229	1.5	9.54	5.0	5.0	12.0	10.0			
189.4		184	1.6	7.55	4.0	5.0	11.0	10.0			
5.50		18.8	2264	1.0	76.88	16.0	21.0	27.0	28.0	PSH 2125 - 132S/4C	136
	20.9	2038	1.0	69.23	16.0	21.0	27.0	28.0			
	25.7	1697	1.2	56.25	16.0	21.0	27.0	28.0			
	30.0	1469	1.3	48.10	16.0	21.0	27.0	28.0			
	35.3	1266	1.5	40.98	15.0	21.0	27.0	28.0			
	40.9	1129	1.1	35.31	15.0	20.0	27.0	28.0			
	45.5	1017	1.8	31.79	15.0	19.0	27.0	28.0			
	55.9	836	2.0	25.83	14.0	19.0	27.0	28.0			
	65.4	723	2.2	22.09	14.0	18.0	27.0	28.0			
	76.8	616	2.5	18.82	13.0	17.0	27.0	28.0			
	90.9	532	2.3	15.90	12.0	14.0	27.0	25.0			
	99.4	481	2.8	14.54	12.0	16.0	27.0	27.0			
	111.8	432	2.8	12.92	12.0	13.0	26.0	24.0			
	130.8	374	2.9	11.05	11.0	13.0	25.0	24.0			
	153.6	318	3.1	9.41	11.0	12.0	24.0	23.0			
	171.2	285	3.3	8.44	10.0	12.0	23.0	23.0			
	186.5	262	3.3	7.75	10.0	12.0	23.0	22.0			
	198.8	246	3.4	7.27	10.0	12.0	22.0	22.0			



P ₁ [kW]	n ₂ [Min ⁻¹]	M ₂ [Nm]	f _B	i _{ges}	F _R [kN]	F _A [kN]	F _{R GR} [kN]	F _{A GR} [kN]	Tip / Type	Kg	Sayfa Page mm	
5.50	48.1	940	1.1	30.06	6.0	7.0	16.0	16.0	PSH 2100 - 132S/4C	97	76-77	
	59.6	766	1.3	24.23	6.0	8.0	16.0	16.0				
	70.4	656	1.3	20.52	6.0	8.0	16.0	16.0				
	76.3	620	0.9	18.94	3.0	3.0	16.0	13.0				
	84.6	559	1.3	17.09	4.0	3.0	16.0	14.0				
	88.9	526	1.4	16.25	6.0	8.0	16.0	16.0				
	108.6	440	1.6	13.31	5.0	4.0	15.0	14.0				
	134.7	355	2.0	10.73	6.0	5.0	15.0	14.0				
	159.0	304	2.4	9.09	5.0	5.0	14.0	14.0				
200.7	241	2.8	7.20	5.0	5.0	14.0	14.0					
7.50	30.1	1996	1.0	48.10	14.0	21.0	27.0	28.0	PSH 2125 - 132M/4B	147	80-81	
	35.4	1721	1.1	40.98	14.0	20.0	27.0	28.0				
	41.1	1535	0.8	35.31	13.0	16.0	27.0	28.0				
	45.6	1382	1.3	31.79	13.0	16.0	27.0	28.0				
	56.1	1136	1.5	25.83	13.0	16.0	27.0	28.0				
	65.6	982	1.6	22.09	13.0	16.0	27.0	27.0				
	77.0	837	1.8	18.82	12.0	15.0	27.0	27.0				
	91.2	723	1.7	15.90	11.0	11.0	26.0	23.0				
	99.7	654	2.1	14.54	12.0	15.0	26.0	26.0				
	112.2	587	2.0	12.92	11.0	11.0	25.0	22.0				
	131.2	508	2.2	11.05	10.0	11.0	24.0	22.0				
	154.1	432	2.3	9.41	10.0	11.0	23.0	22.0				
	171.8	388	2.4	8.44	10.0	11.0	23.0	21.0				
	187.1	356	2.4	7.75	10.0	11.0	22.0	21.0				
	199.4	334	2.5	7.27	10.0	11.0	22.0	21.0				
	7.50	89.2	714	1.0	16.25	5.0	6.0	16.0	16.0	PSH 2100 - 132M/4B	107	76-77
		108.9	598	1.2	13.31	2.0	2.0	14.0	11.0			
		135.1	482	1.5	10.73	3.0	3.0	14.0	12.0			
159.5		413	1.8	9.09	4.0	3.0	14.0	12.0				
199.4		327	2.1	7.20	5.0	4.0	13.0	12.0				
9.20		45.6	1695	1.1	31.79	12.0	13.0	27.0	26.0			
	56.1	1393	1.2	25.83	12.0	14.0	27.0	26.0				
	65.6	1205	1.3	22.09	12.0	14.0	27.0	26.0				
	77.0	1026	1.5	18.82	12.0	14.0	27.0	25.0				
	91.2	886	1.4	15.90	10.0	9.0	25.0	20.0				
	99.7	802	1.7	14.54	11.0	13.0	26.0	25.0				
	112.2	720	1.7	12.92	10.0	9.0	24.0	21.0				
	131.2	623	2.0	11.05	10.0	10.0	24.0	21.0				
	154.1	530	2.1	9.41	10.0	10.0	23.0	20.0				
	171.8	476	2.4	8.44	10.0	10.0	22.0	20.0				
	187.1	437	2.3	7.75	9.0	10.0	22.0	20.0				
	199.4	410	2.3	7.27	9.0	10.0	21.0	20.0				
11.00	56.1	1665	1.0	25.83	11.0	11.0	27.0	24.0	PSH 2125 - 160M/4B	174	80-81	
	65.6	1440	1.1	22.09	11.0	12.0	27.0	24.0				
	77.0	1227	1.2	18.82	11.0	12.0	27.0	24.0				
	91.2	1060	1.2	15.90	8.0	6.0	24.0	18.0				
	99.7	959	1.4	14.54	10.0	12.0	25.0	24.0				
	112.2	861	1.4	12.92	9.0	7.0	24.0	19.0				
	131.2	745	1.7	11.05	9.0	8.0	23.0	19.0				
	154.1	634	1.8	9.41	9.0	8.0	22.0	19.0				
	171.8	569	2.0	8.44	9.0	8.0	22.0	19.0				
	187.1	522	1.9	7.75	9.0	8.0	21.0	19.0				
	199.4	490	1.9	7.27	9.0	9.0	21.0	19.0				
15.00	99.7	1307	1.0	14.54	9.0	9.0	24.0	21.0	PSH 2125 - 160L/4A	199	80-81	
	112.2	1174	1.1	12.92	4.0	3.0	22.0	15.0				
	131.2	1015	1.2	11.05	5.0	4.0	22.0	16.0				
	154.1	865	1.3	9.41	6.0	5.0	21.0	16.0				
	171.8	775	1.5	8.44	7.0	6.0	21.0	16.0				
	187.1	712	1.4	7.75	7.0	6.0	20.0	17.0				
	199.4	668	1.4	7.27	8.0	6.0	20.0	17.0				



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İKİ - ÜÇ KADEMELİ MOTORLU ÖLÇÜ SAYFALARI DOUBLE - TRIBLE STAGE DIMENSION OF GEARMOTORS



PSH 2040 DG



PSH 2040 TMA



PSH 2050 DG ... 2125 DG



PSH 3050 DG ... 3125 DG



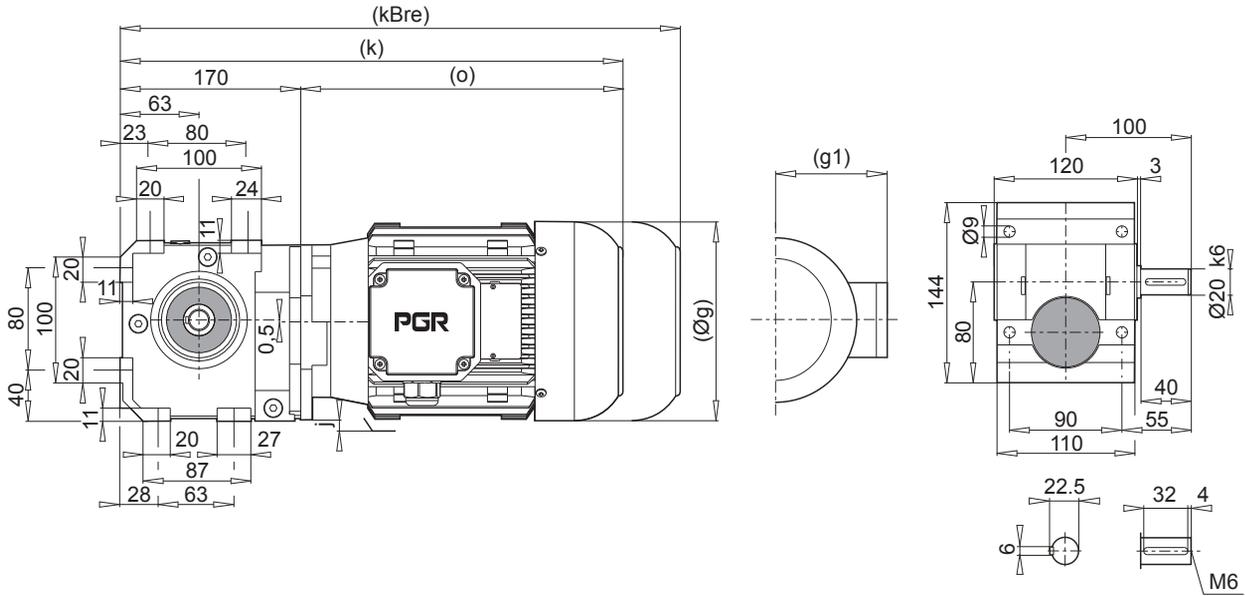
PSH 2050 TMA ... 2125 TMA



PSH 3050 TMA ... 3125 TMA

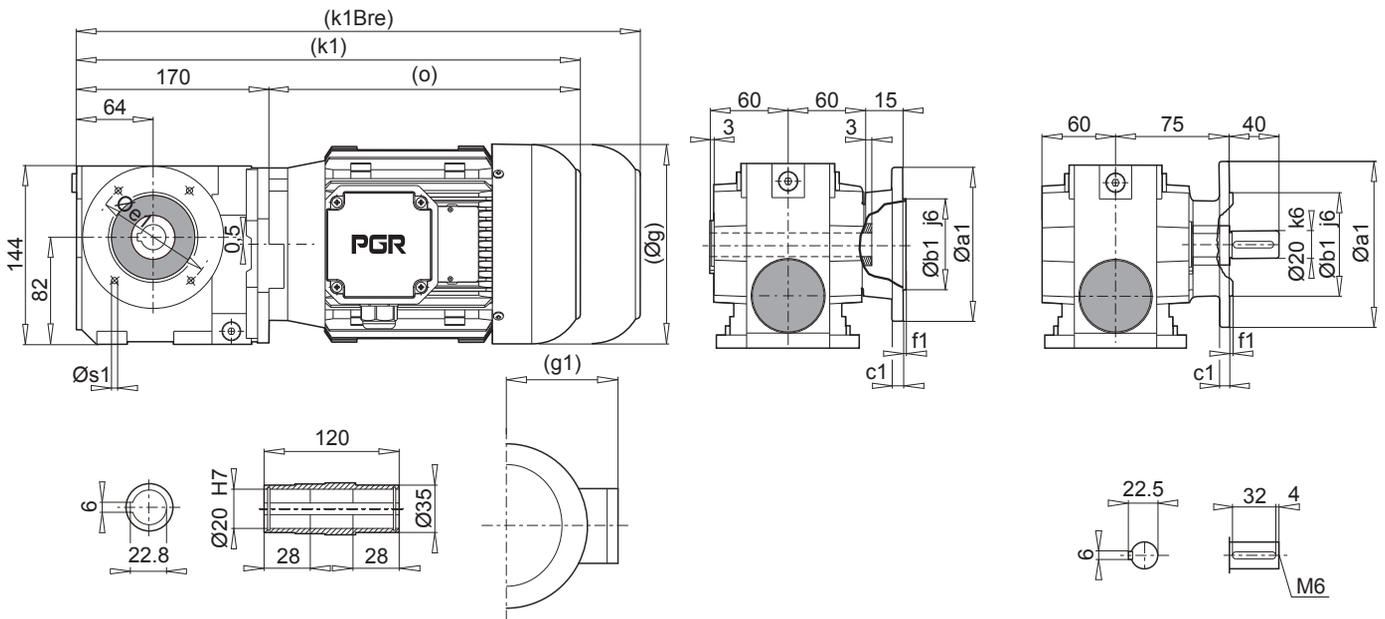


PSH 2040 TMA ...



PSH 2040 DG/B5 ...

PSH 2040 TMG/B5 ...



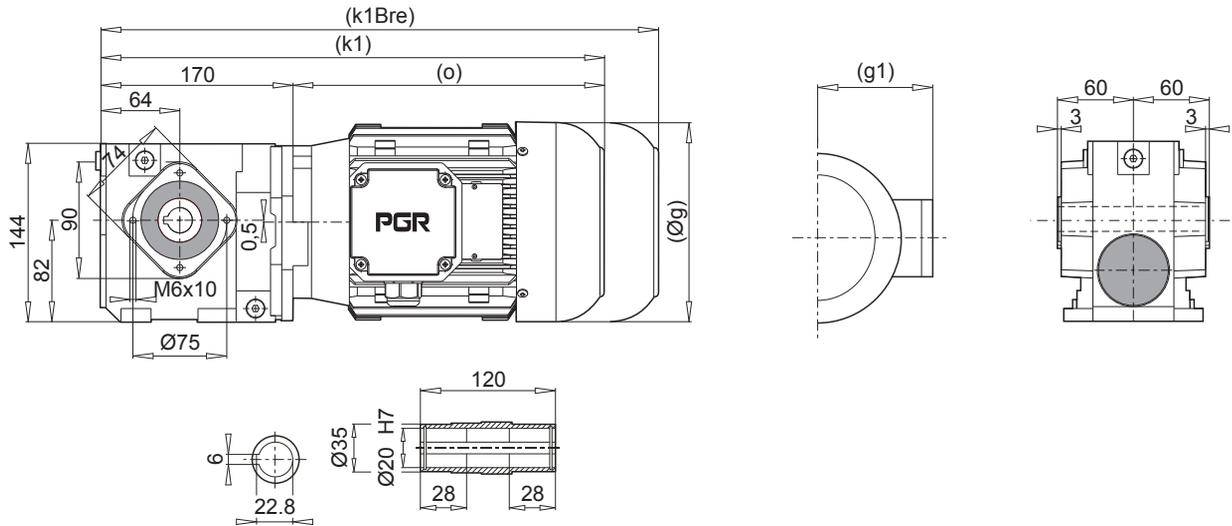
a1	b1	c1	e1	f1	s1
120	80	10	100	3	6,6
160	110	10	130	3,5	9

	63 M	71 M	80 M	90 S	90 L		
g	124	140	159	193	193		
g1	111	119	127	151	151		
k/k1	364/364	388/388	412/412	434/434	454/454		
kBre/k1Bre	416/416	448/448	474/474	507/507	527/527		
o	194	218	242	264	284		
j	—	—	3	12	12		

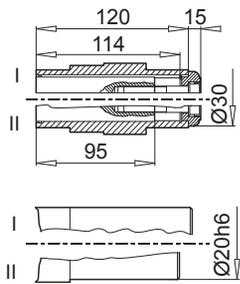
Note: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.



PSH 2040 DG/B14 ...



PSH 2040 DG/Ç ...



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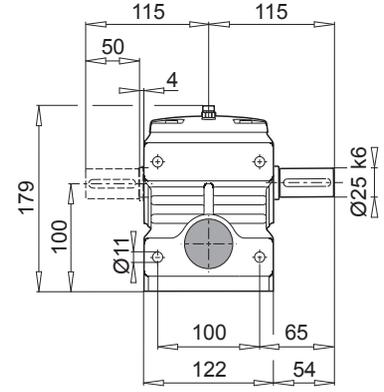
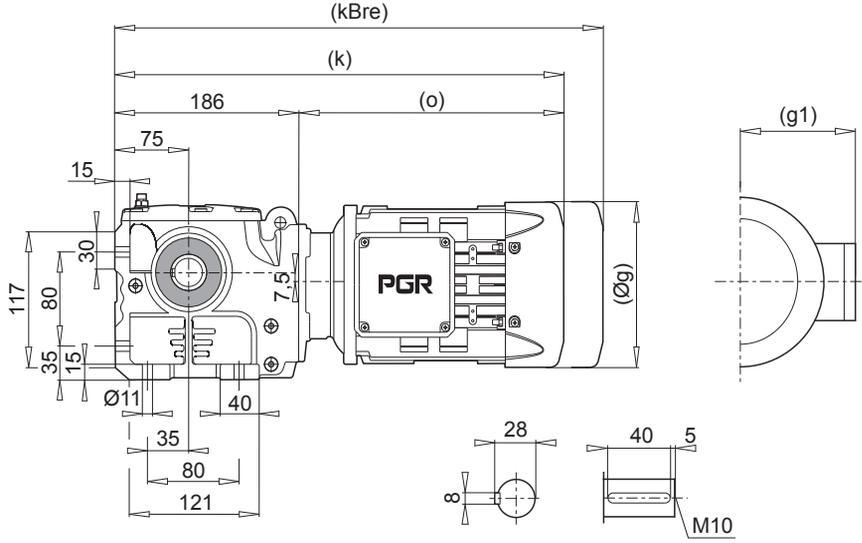
	63 M	71 M	80 M	90 S	90 L		
g	124	140	159	193	193		
g1	111	119	127	151	151		
k1	364	388	412	434	454		
k1Bre	416	448	474	507	527		
o	194	218	242	290	310		

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.



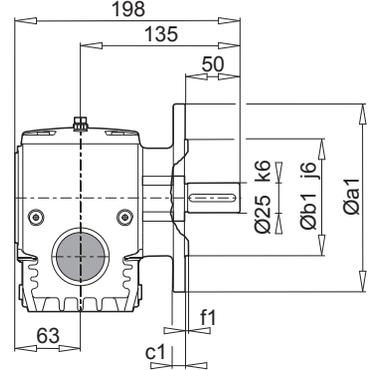
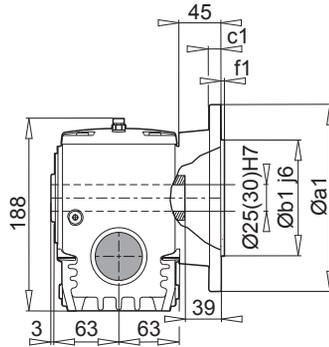
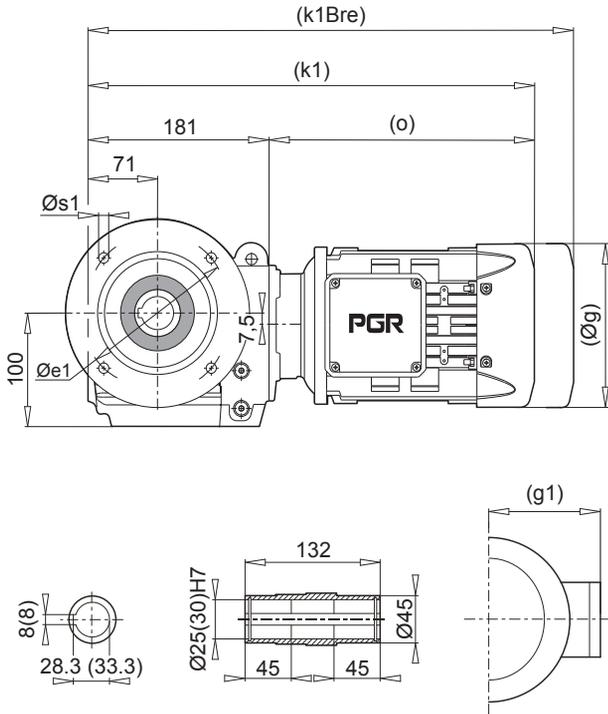
PSH 2050 TMA ...

PSH 2050 ÇMA ...



PSH 2050 DG/B5 ...

PSH 2050 TMG/B5 ...



a1	b1	c1	e1	f1	s1
200	130	12	165	3.5	4 x 11

a1	b1	c1	e1	f1	s1
160	110	10	130	3.5	4 x 9

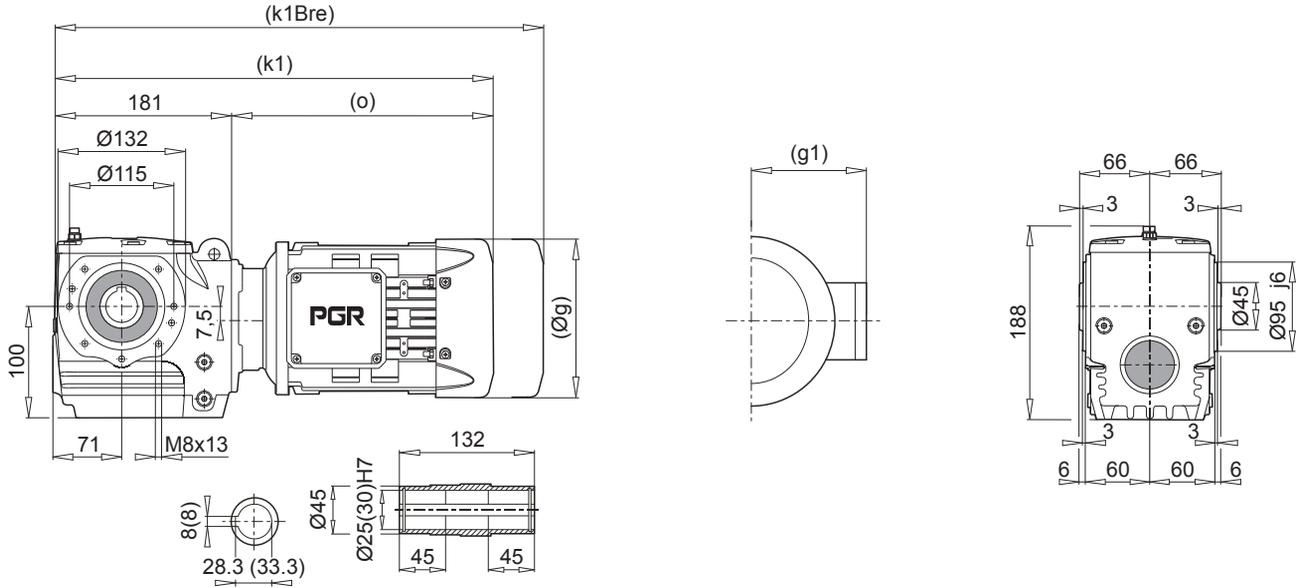
	63 M	71 M	80 M	90 S	90 L		
g	124	140	159	193	193		
g1	111	119	127	151	151		
k/k1	384 / 379	426 / 421	453 / 448	476 / 471	496 / 491		
kBre/k1Bre	436 / 431	486 / 481	515 / 510	549 / 544	569 / 564		
o	198	240	267	290	310		

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir.

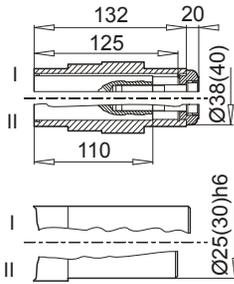
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 2050 DG/B14 ...

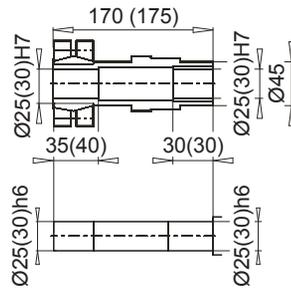


PSH 2050 DG/Ç ...

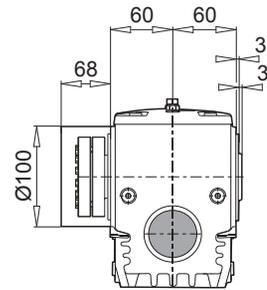


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PSH 2050 DG/KS ...



PSH 2050 DG/KS-KK ...



Konik sıkırma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 25/35	182	2.8	2.3	M5x25	8	7
KS 30/40	182	5.4	4.7	M6x35*	8	12

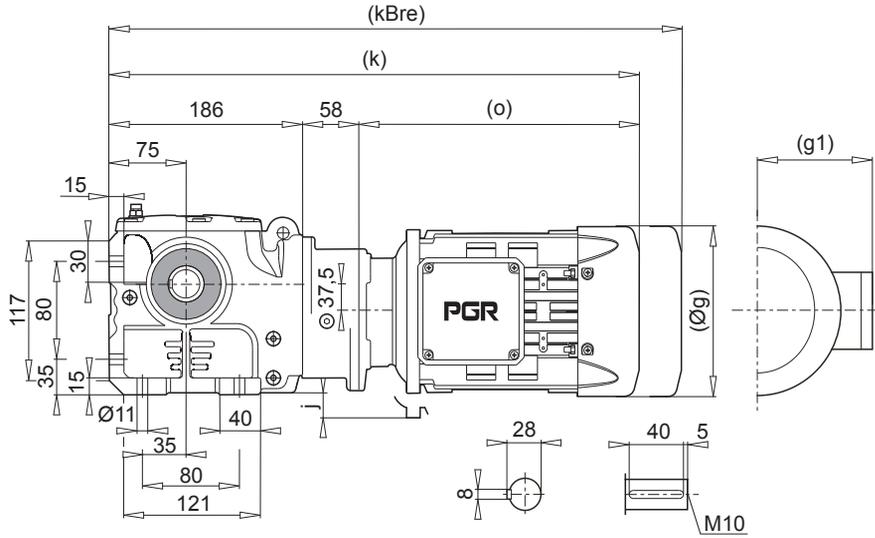
	63 M	71 M	80 M	90 S	90 L		
g	124	140	159	193	193		
g1	111	119	127	151	151		
k1	379	421	448	471	491		
k1Bre	431	481	510	544	564		
o	198	240	267	290	310		

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.

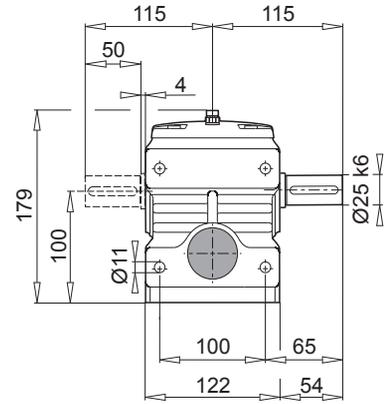
PSH 3050



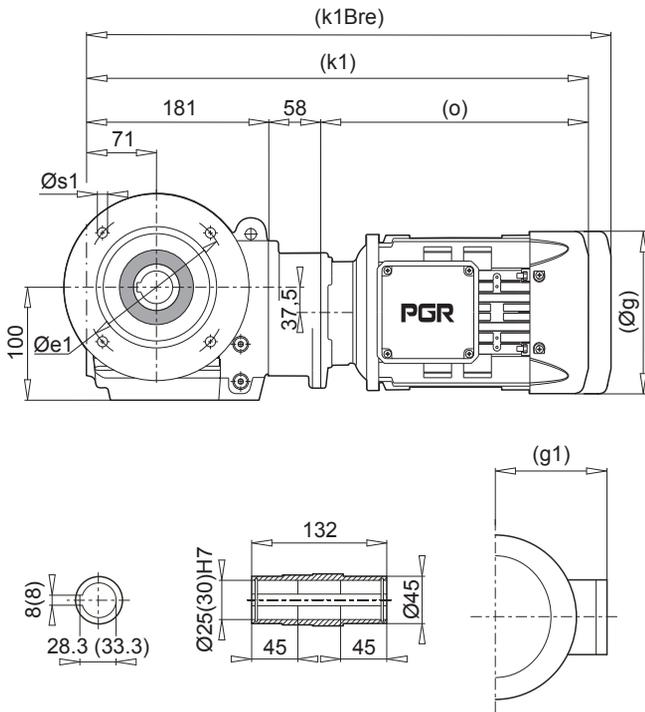
PSH 3050 TMA ...



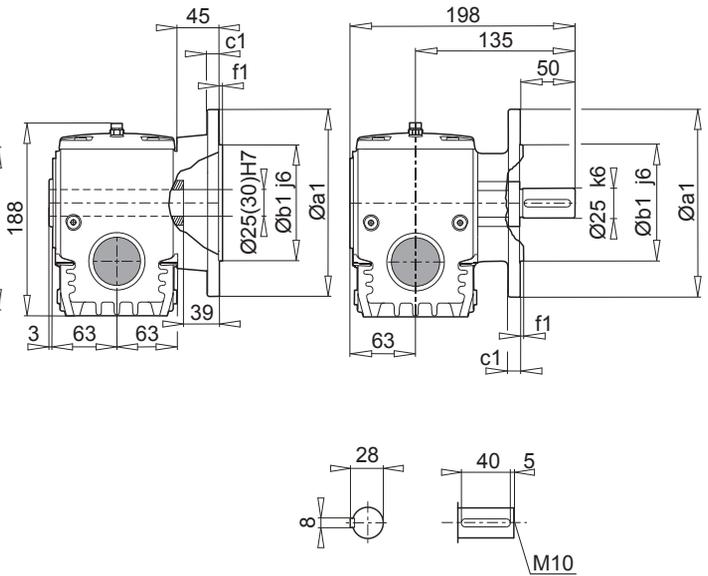
PSH 3050 ÇMA ...



PSH 3050 DG/B5 ...



PSH 3050 TMG/B5 ...



a1	b1	c1	e1	f1	s1
200	130	12	165	3.5	4 x 11

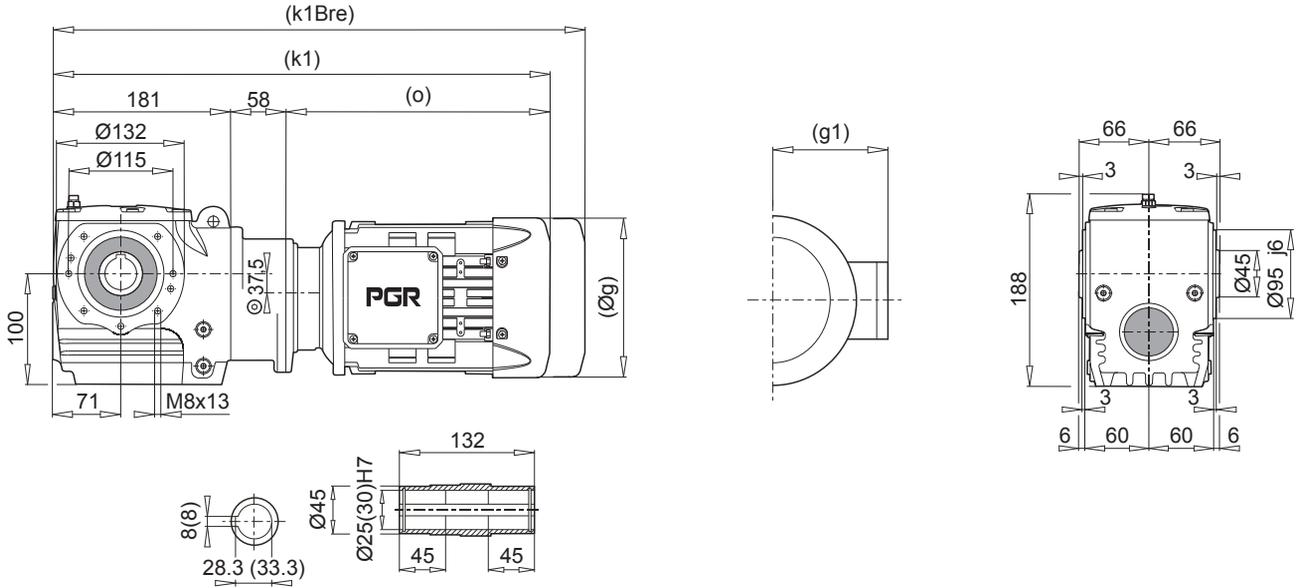
a1	b1	c1	e1	f1	s1
160	110	10	130	3.5	4 x 9

	63 M	71 M				
g	124	140				
g1	111	119				
k/k1	442 / 437	484 / 479				
kBre/k1Bre	494 / 489	544 / 539				
o	198	240				
j	2.5	10				

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.



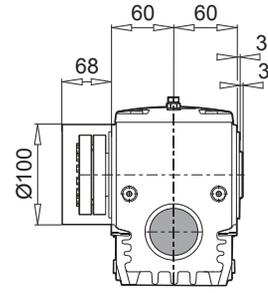
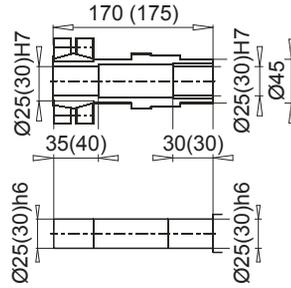
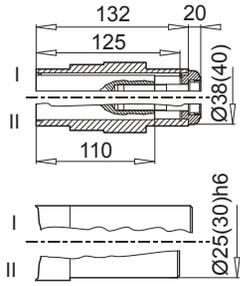
PSH 3050 DG/B14 ...



PSH 3050 DG/Ç ...

PSH 3050 DG/KS ...

PSH 3050 DG/KS-KK ...



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Konik sıkırtma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 25/35	182	2.8	2.3	M5x25	8	7
KS 30/40	182	5.4	4.7	M6x35*	8	12

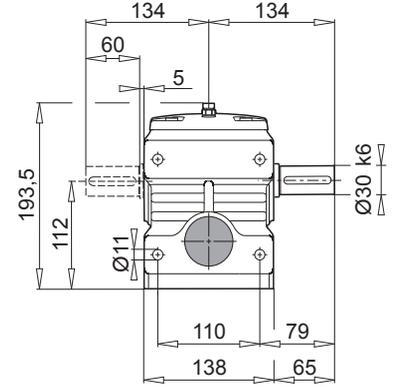
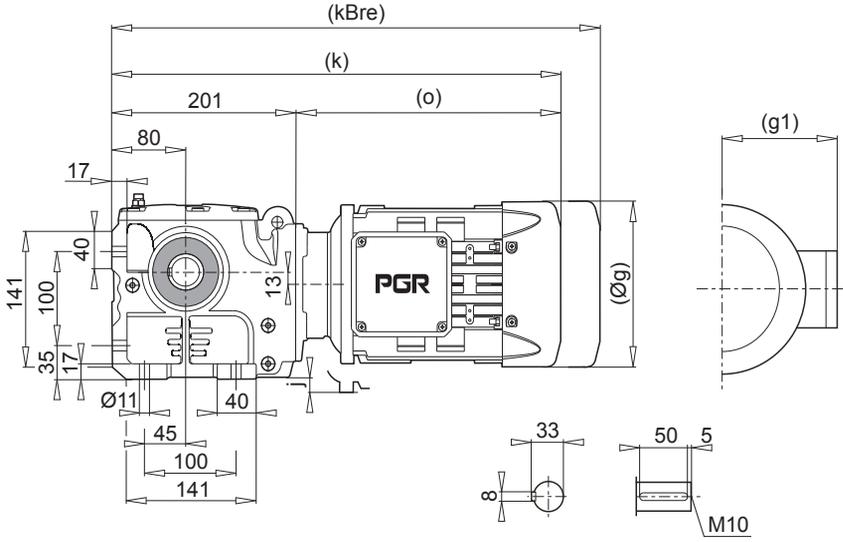
	63 M	71 M				
g	124	140				
g1	111	119				
k1	437	479				
k1Bre	489	539				
o	198	240				

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.



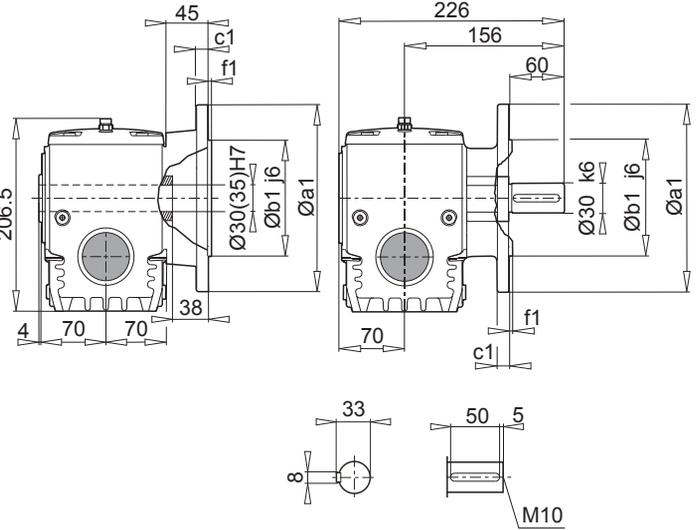
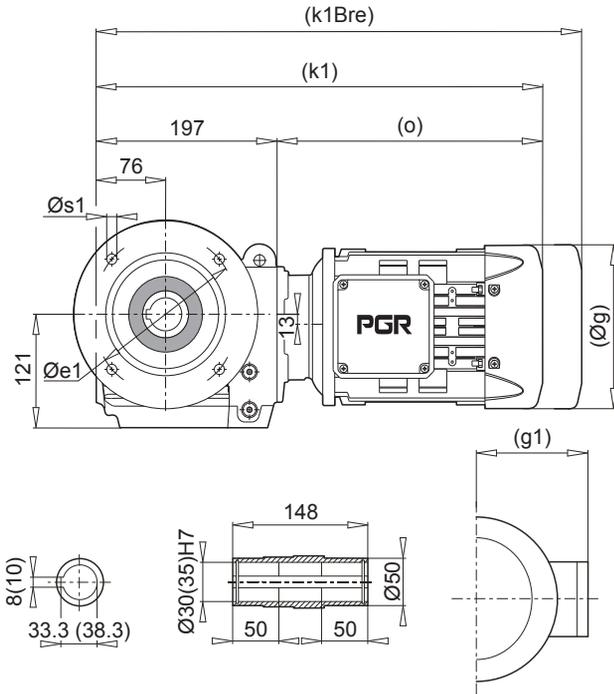
PSH 2063 TMA ...

PSH 2063 ÇMA ...



PSH 2063 DG/B5 ...

PSH 2063 TMG/B5...



a1	b1	c1	e1	f1	s1
200	130	12	165	3.5	4 x 11

a1	b1	c1	e1	f1	s1
200	130	12	165	3.5	4 x 11

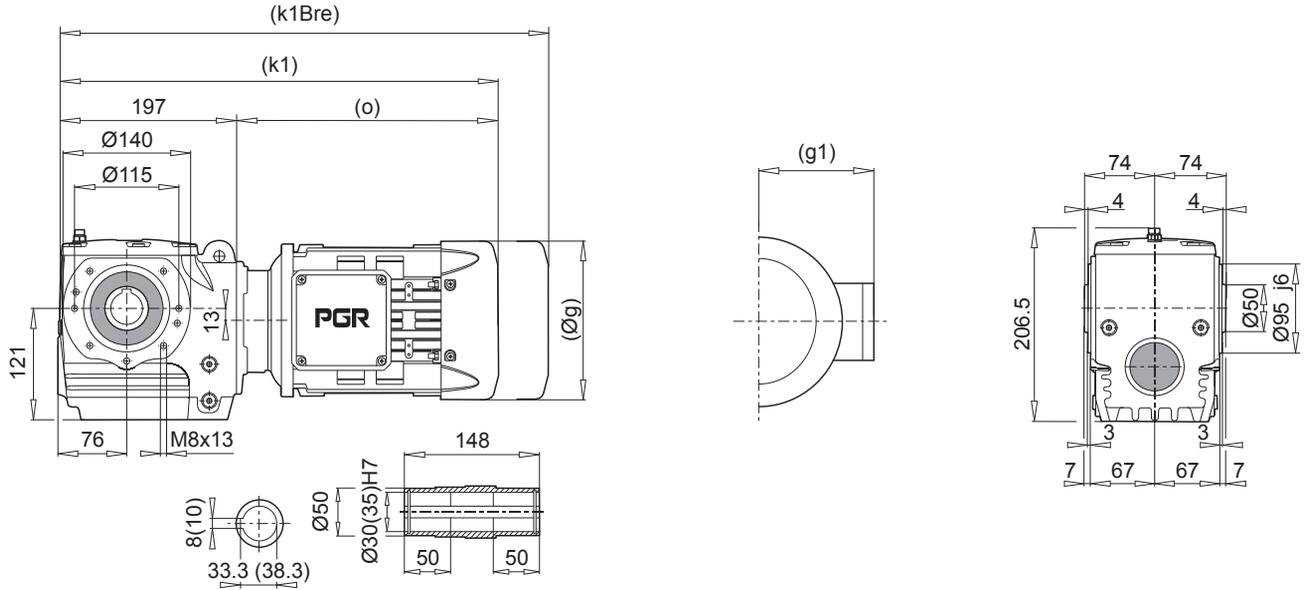
	63 M	71 M	80 M	90 S	90 L	100 L	
g	124	140	159	193	193	217	
g1	111	119	127	151	151	160	
k/k1	399 / 395	441 / 437	468 / 464	491 / 487	511 / 507	539 / 535	
kBre/k1Bre	451 / 447	501 / 497	530 / 526	564 / 560	584 / 580	620 / 616	
o	198	240	267	290	310	338	
j	-	-	-	-	-	2.5	

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir.

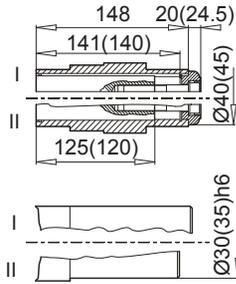
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 2063 DG/B14 ...

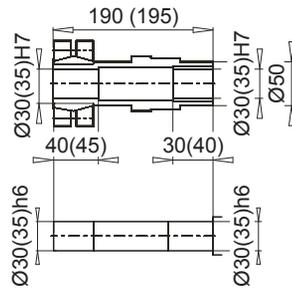


PSH 2063 DG/Ç ...

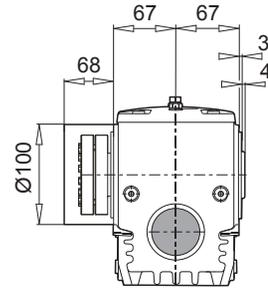


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PSH 2063 DG/KS ...



PSH 2063 DG/KS-KK ...



Konik sıkırtma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 30/40	383	2.6	2.2	M6x35*	8	12
KS 35/46	383	3.0	3.2	M6x35*	10	12

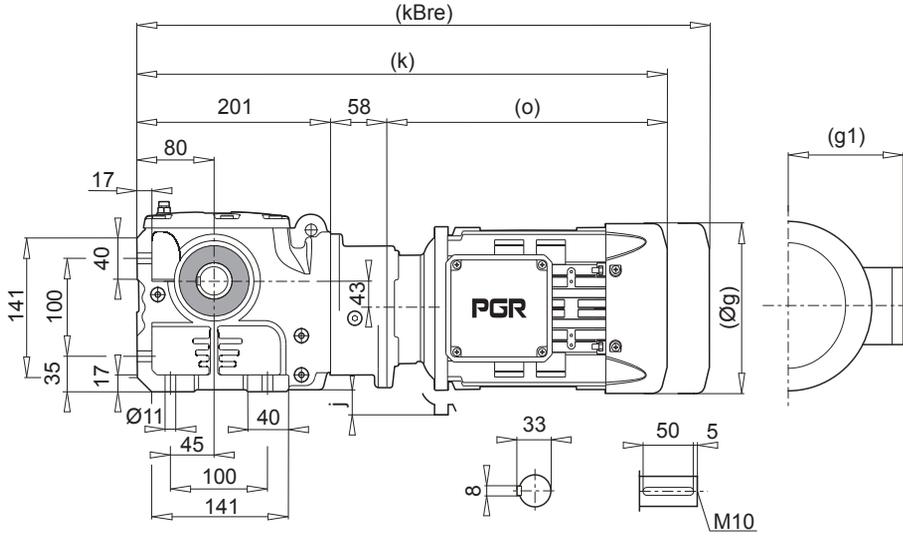
	63 M	71 M	80 M	90 S	90 L	100 L	
g	124	140	159	193	193	217	
g1	111	119	127	151	151	160	
k1	395	437	464	487	507	535	
k1Bre	447	497	526	560	580	616	
o	198	240	267	290	310	338	

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.

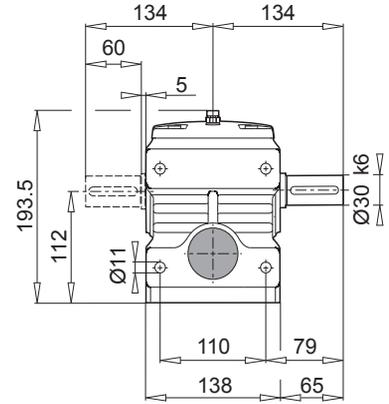
PSH 3063



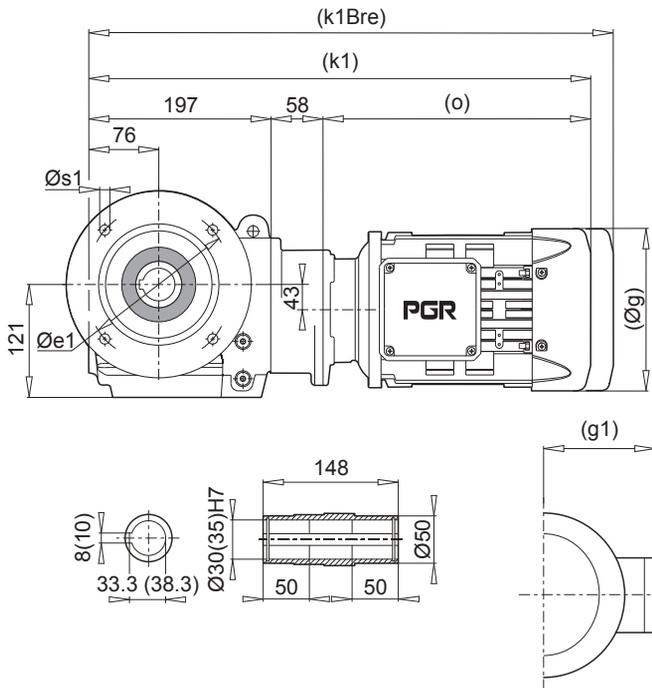
PSH 3063 TMA ...



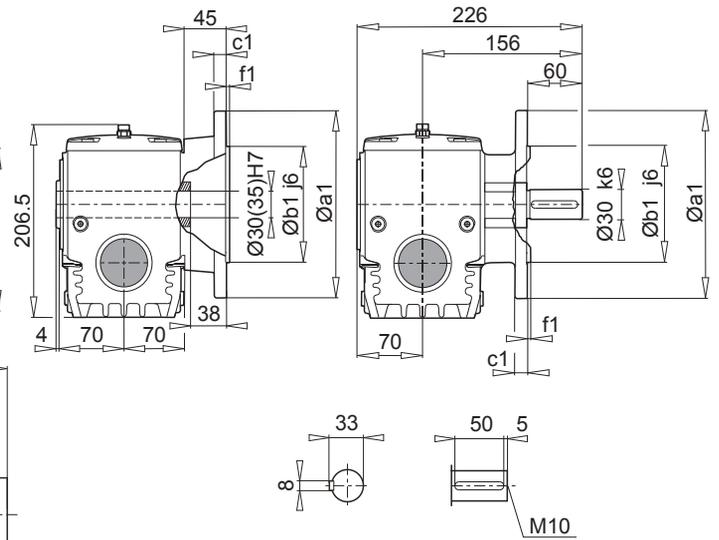
PSH 3063 ÇMA ...



PSH 3063 DG/B5 ...



PSH 3063 TMG/B5 ...



a1	b1	c1	e1	f1	s1
200	130	12	165	3.5	4 x 11

a1	b1	c1	e1	f1	s1
200	130	12	165	3.5	4 x 11

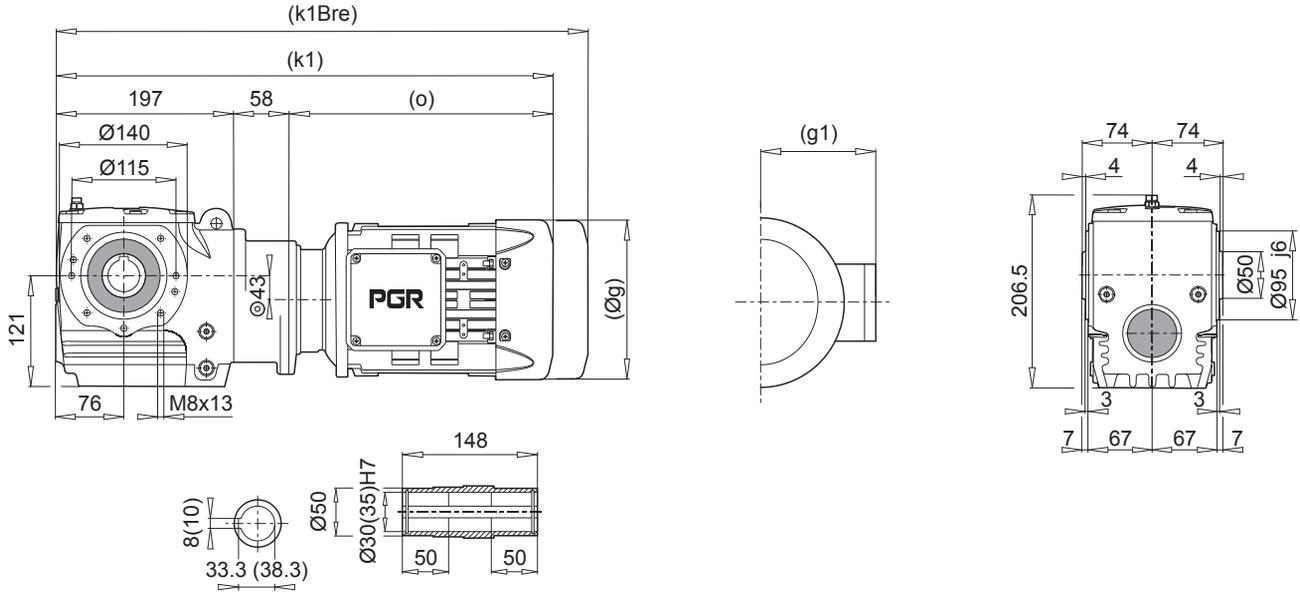
	63 M	71 M					
g	124	140					
g1	111	119					
k/k1	457 / 453	499 / 495					
kBre/k1Bre	509 / 505	559 / 555					
o	198	240					
j	-	3.5					

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir.

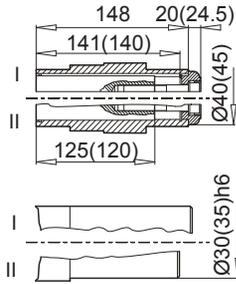
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 3063 DG/B14 ...

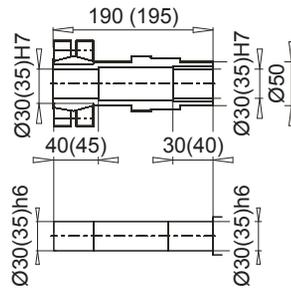


PSH 3063 DG/Ç ...

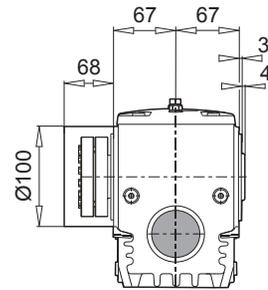


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PSH 3063 DG/KS ...



PSH 3063 DG/KS-KK ...



Konik sıkırtma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 30/40	383	2.6	2.2	M6x35*	8	12
KS 35/46	383	3.0	3.2	M6x35*	10	12

	63 M	71 M				
g	124	140				
g1	111	119				
k1	453	495				
k1Bre	505	555				
o	198	240				

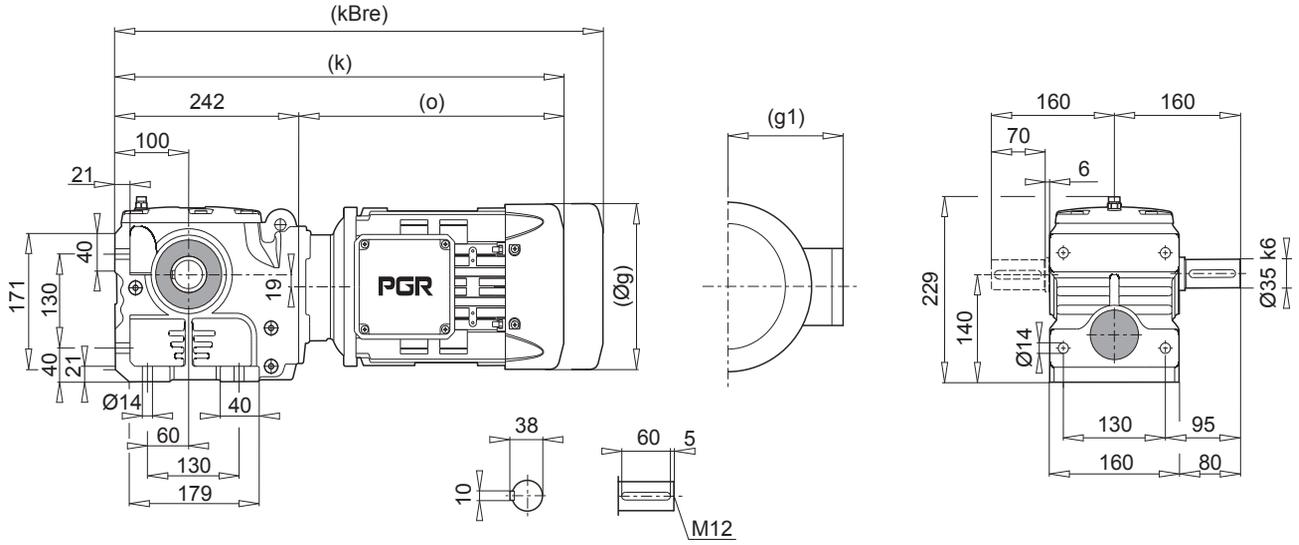
Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.

PSH 2080



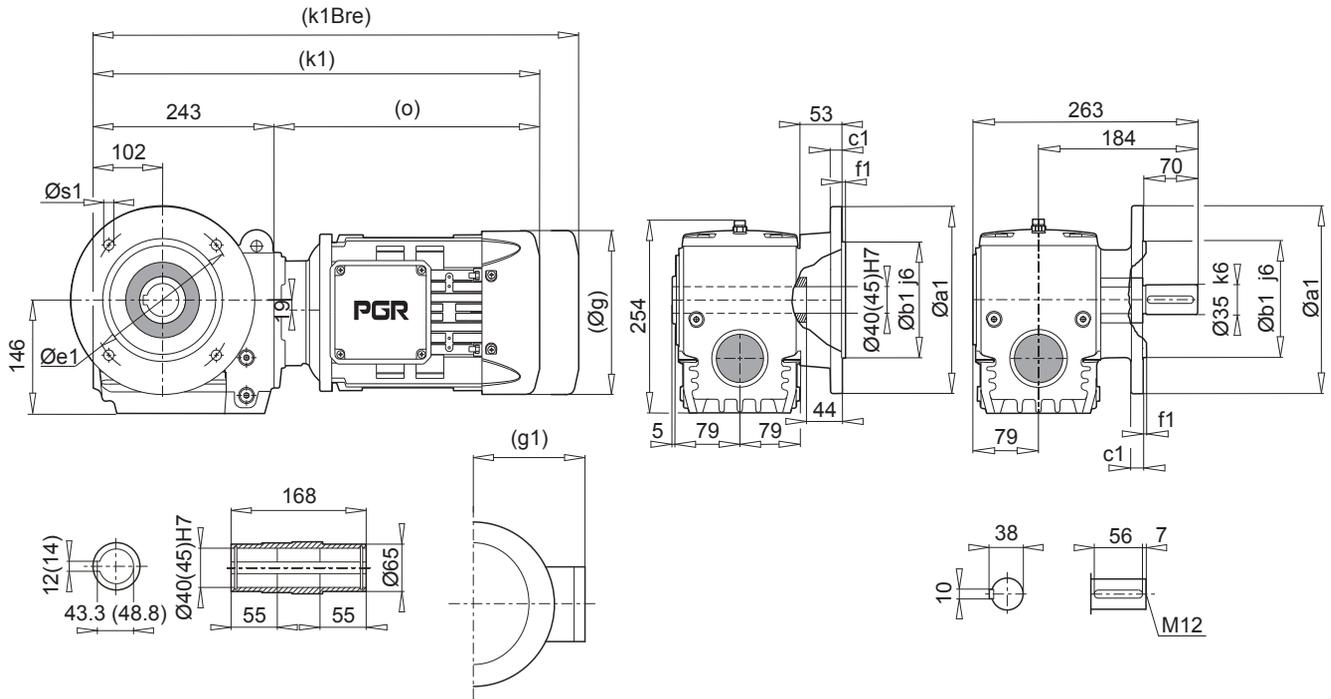
PSH 2080 TMA ...

PSH 2080 ÇMA ...



PSH 2080 DG/B5 ...

PSH 2080 TMG/B5 ...



a1	b1	c1	e1	f1	s1
250	180	15	215	4	4 x 14
300	230	20	265	4	4 x 14

a1	b1	c1	e1	f1	s1
200	130	12	165	3.5	4 x 11

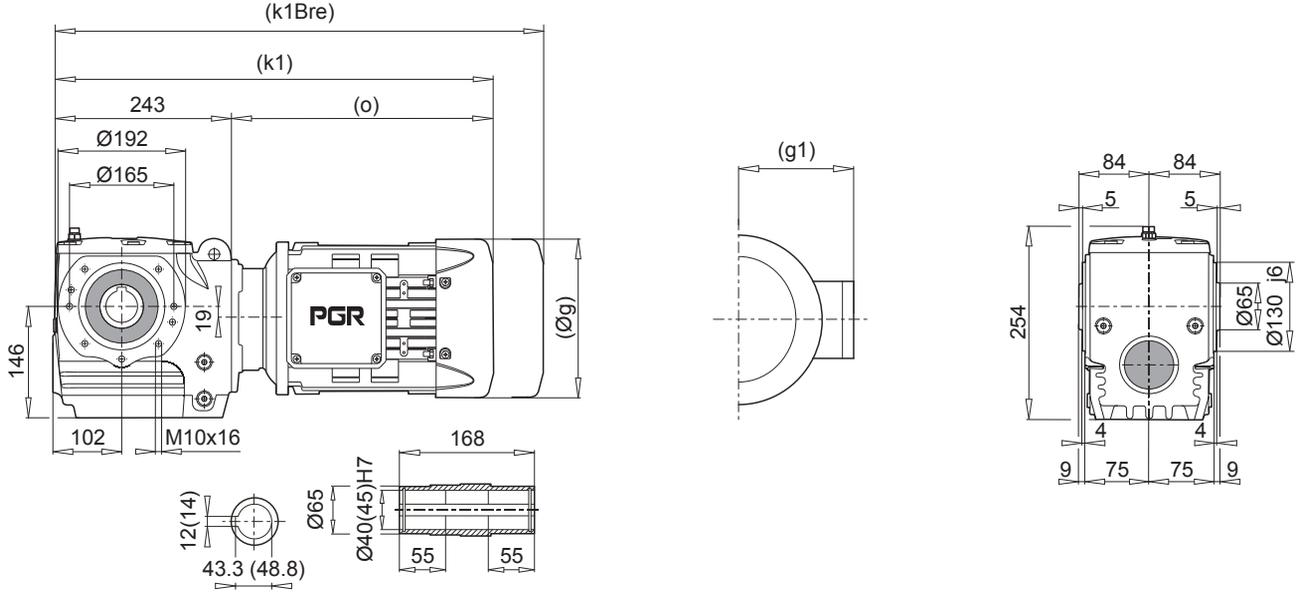
	63 M	71 M	80 M	90 S	90 L	100 L	112 M
g	124	140	159	193	193	217	232
g1	111	119	127	151	151	160	168
k/k1	440 / 441	482 / 483	509 / 510	532 / 533	552 / 553	580 / 581	625 / 626
kBre/k1Bre	492 / 493	542 / 543	571 / 572	605 / 606	625 / 626	661 / 662	705 / 706
o	198	240	267	290	310	338	383

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir.

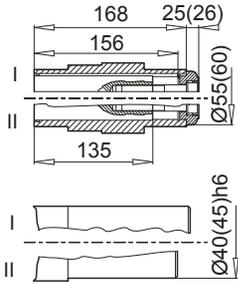
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 2080 DG/B14 ...

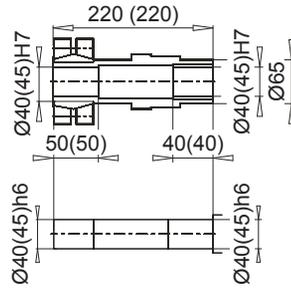


PSH 2080 DG/Ç ...

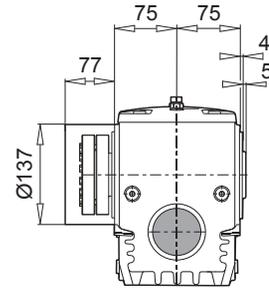


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PSH 2080 DG/KS ...



PSH 2080 DG/KS-KK ...



Konik sıkırma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 40/55	779	3.0	2.6	M8x40	8	30
KS 45/55	779	4.1	3.8	M8x40	8	30

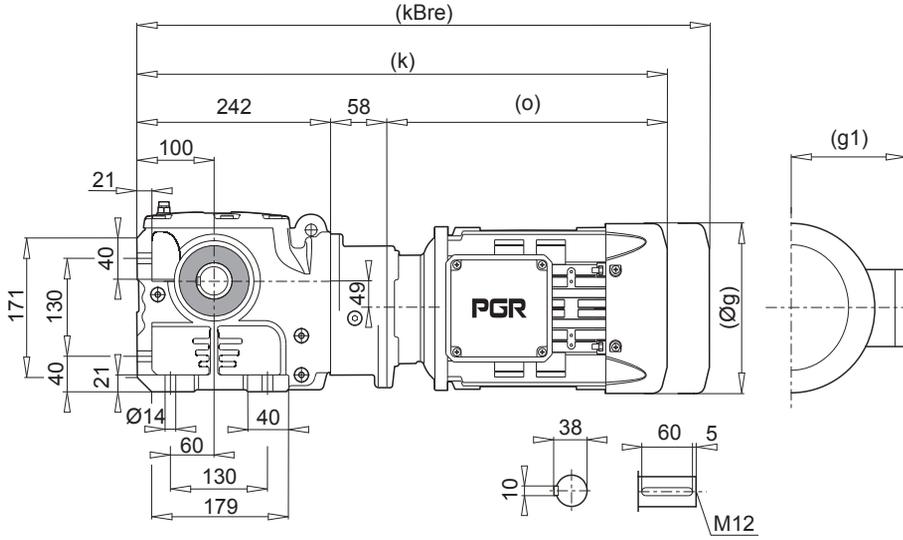
	63 M	71 M	80 M	90 S	90 L	100 L	112 M
g	124	140	159	193	193	217	232
g1	111	119	127	151	151	160	168
k1	441	483	510	533	553	581	626
k1Bre	493	543	572	606	626	662	706
o	198	240	267	290	310	338	383

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.

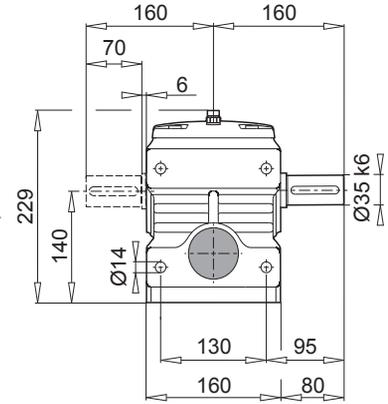
PSH 3080



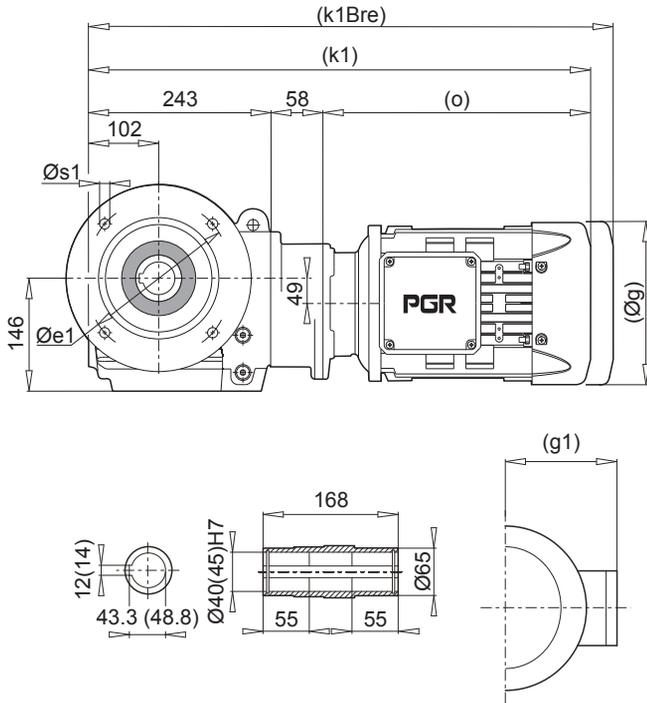
PSH 3080 TMA ...



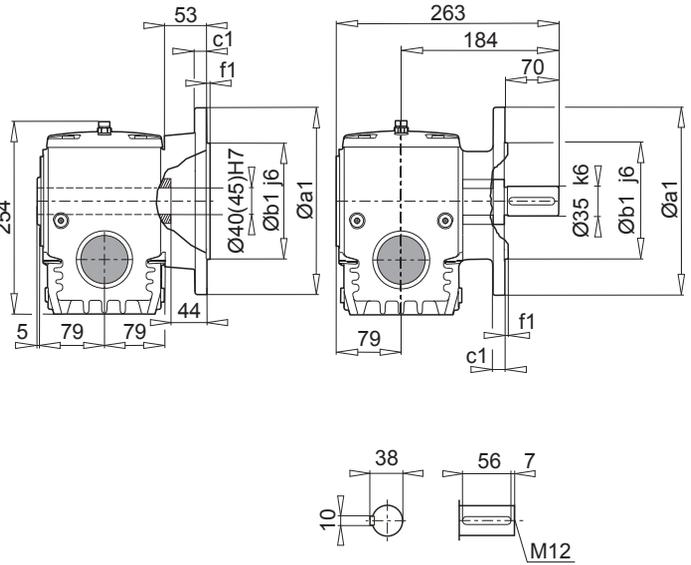
PSH 3080 ÇMA ...



PSH 3080 DG/B5 ...



PSH 3080 TMG/B5...



a1	b1	c1	e1	f1	s1
250	180	15	215	4	4 x 14
300	230	20	265	4	4 x 14

a1	b1	c1	e1	f1	s1
200	130	12	165	3.5	4 x 11

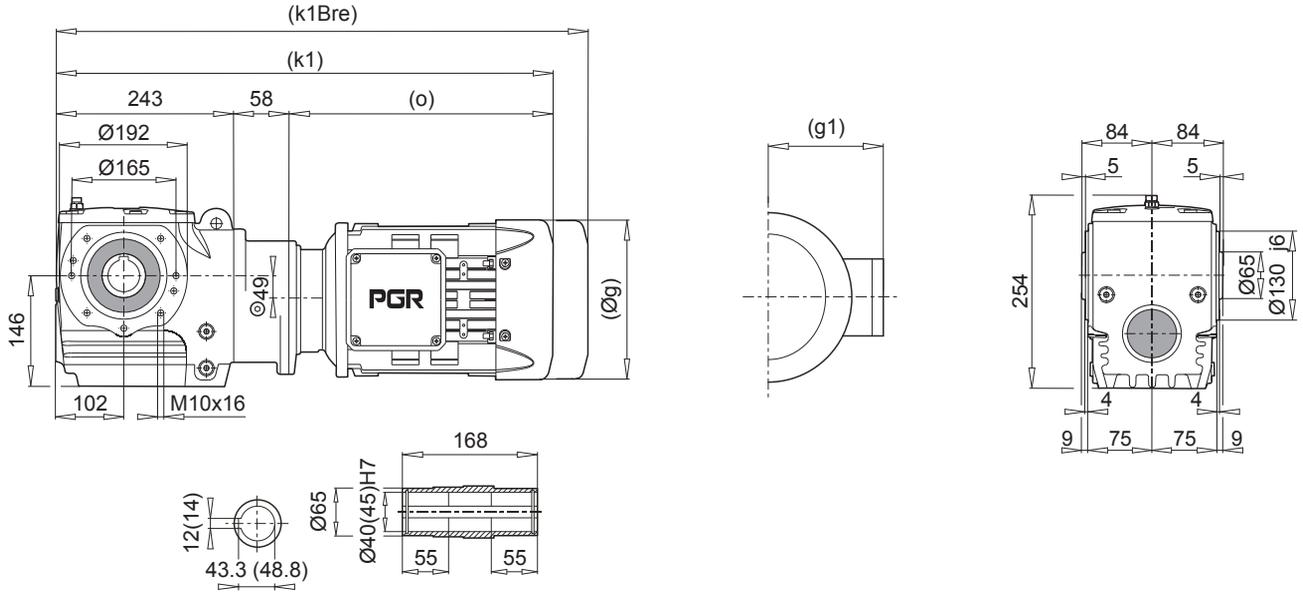
	63 M	71 M				
g	124	140				
g1	111	119				
k/k1	498 / 499	540 / 541				
kBre/k1Bre	550 / 551	600 / 601				
o	198	240				

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir.

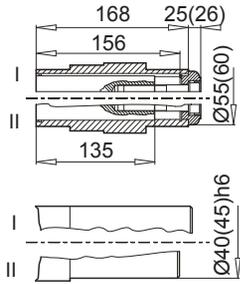
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 3080 DG/B14 ...

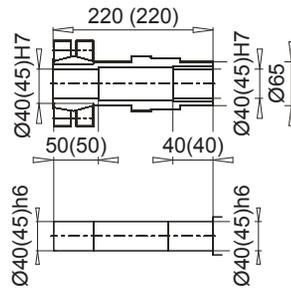


PSH 3080 DG/Ç ...

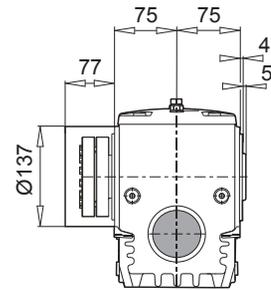


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PSH 3080 DG/KS ...



PSH 3080 DG/KS-KK ...



Konik sıkırma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 40/55	779	3.0	2.6	M8x40	8	30
KS 45/55	779	4.1	3.8	M8x40	8	30

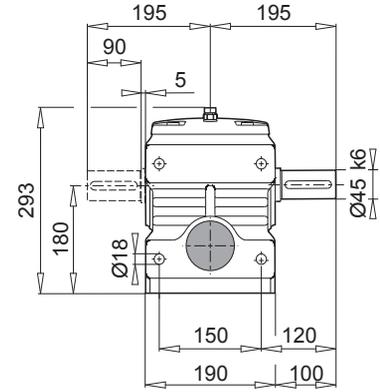
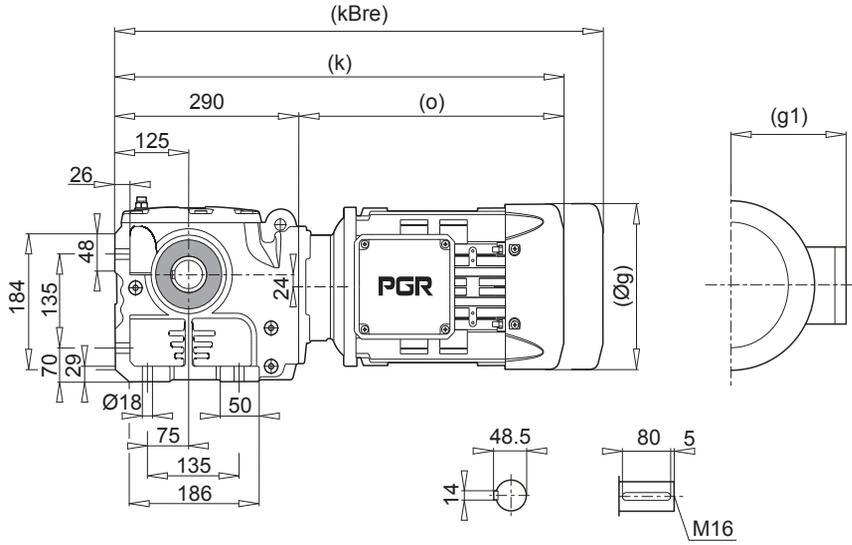
	63 M	71 M				
g	124	140				
g1	111	119				
k1	499	541				
k1Bre	551	601				
o	198	240				

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.



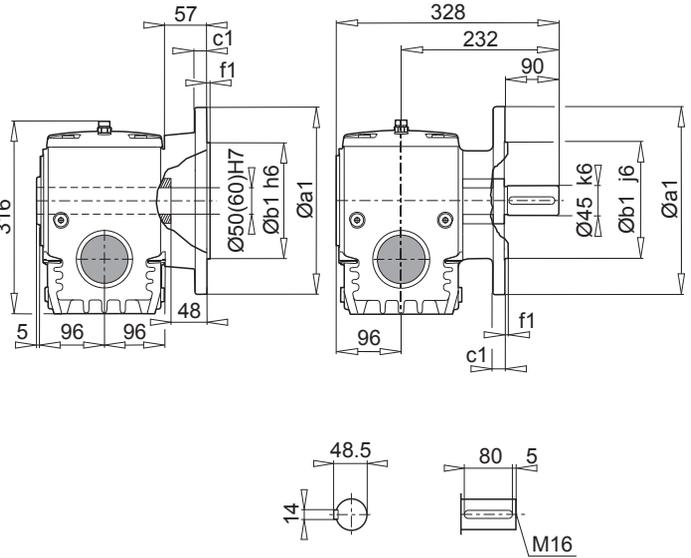
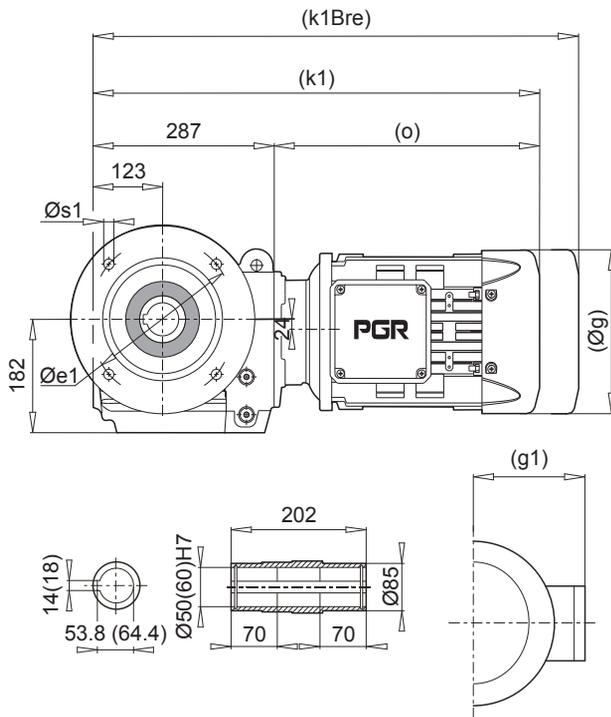
PSH 2100 TMA ...

PSH 2100 ÇMA ...



PSH 2100 DG/B5 ...

PSH 2100 TMG/B5 ...



a1	b1	c1	e1	f1	s1
350	250	20	300	5	4 x 18

a1	b1	c1	e1	f1	s1
250	180	16	215	4	4 x 14

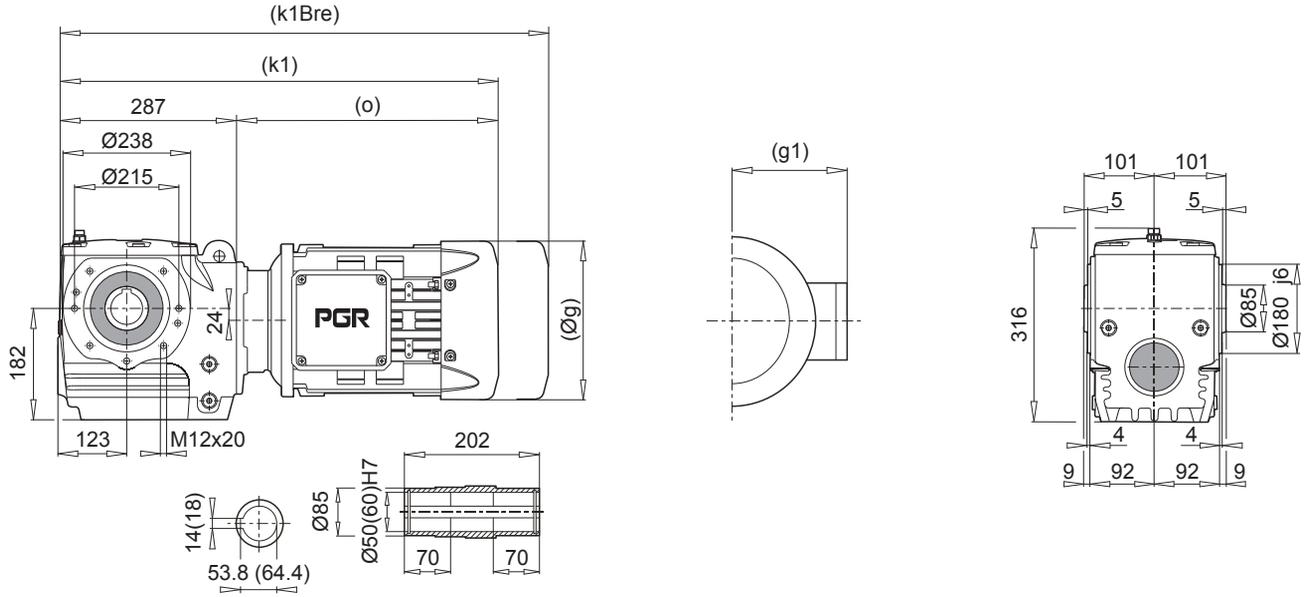
	71 M	80 M	90 S	90 L	100 L	112 M	132 S	132 M
g	140	159	193	193	217	232	279	279
g1	119	127	151	151	160	168	182	182
k/k1	526 / 523	552 / 549	575 / 572	595 / 592	623 / 620	668 / 665	675 / 672	710 / 707
kBre/k1Bre	586 / 583	614 / 611	648 / 645	668 / 665	704 / 701	748 / 745	783 / 780	818 / 815
o	236	262	285	305	333	378	385	420

Note: (...) işaretli olan ölçüler motor markasına göre farklılık gösterir.

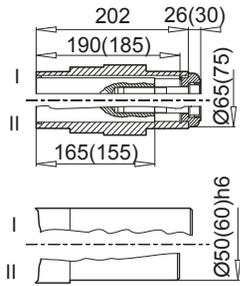
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 2100 DG/B14 ...

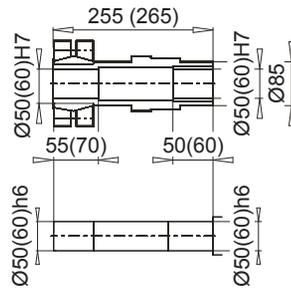


PSH 2100 DG/Ç ...

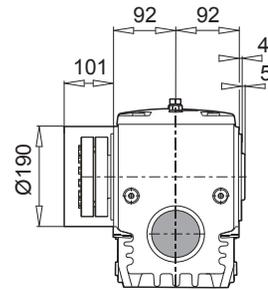


136-137

PSH 2100 DG/KS



PSH 2100 DG/KS-KK ...



Konik sıkırtma / Shrink disc  132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 50/62	1604	2.7	2.6	M8x40	10	30
KS 60/76	1604	5.1	4.7	M10x50	10	59

	71 M	80 M	90 S	90 L	100 L	112 M	132 S	132 M
g	140	159	193	193	217	232	279	279
g1	119	127	151	151	160	168	182	182
k1	523	549	572	592	620	665	672	707
k1Bre	583	611	645	665	701	745	780	815
o	236	262	285	305	333	378	385	420

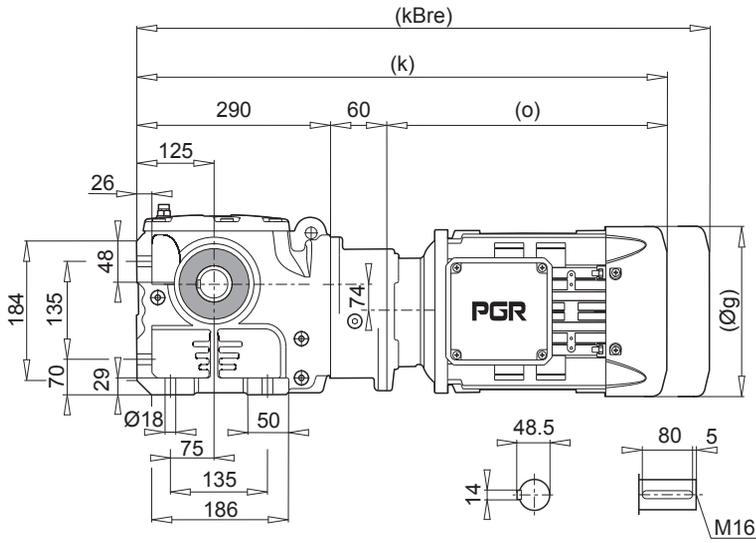
Note: (...) işaretli olan ölçüler motor markasına göre farklılık gösterir.

Note: Dimension which is designated by (...) depends on marks of motor.

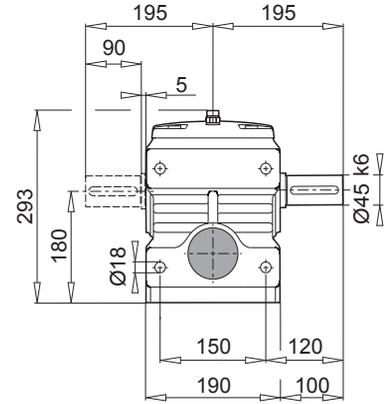
PSH 3100



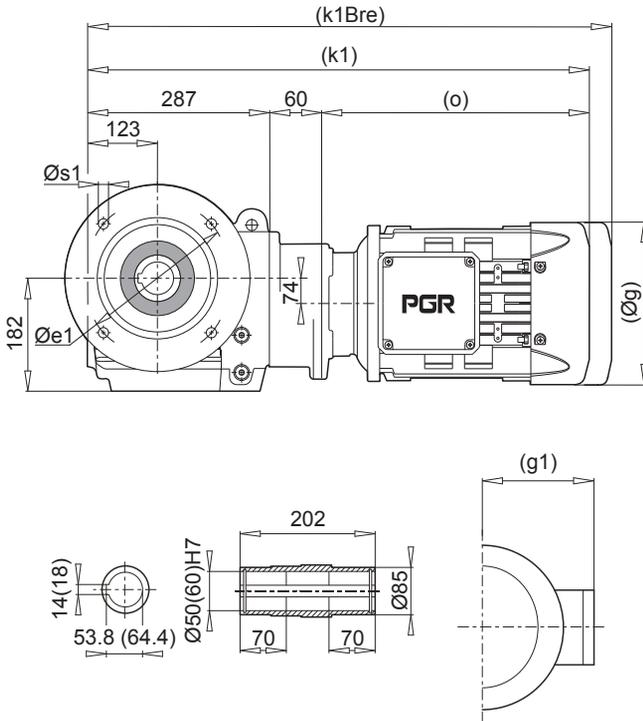
PSH 3100 TMA ...



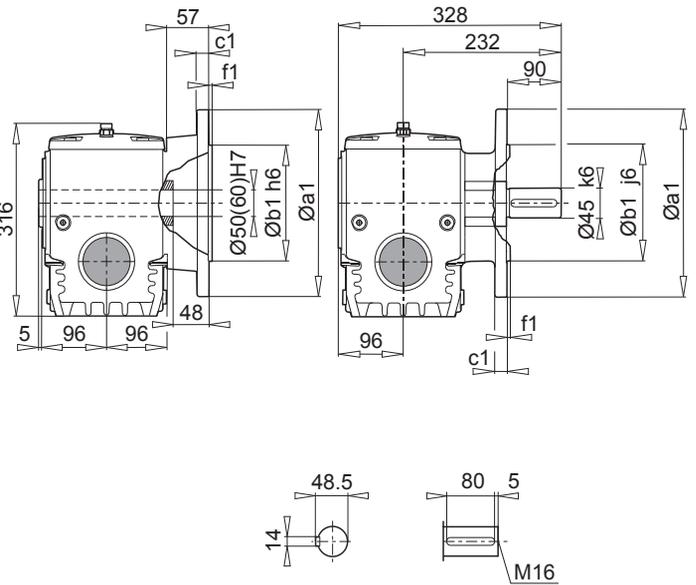
PSH 3100 ÇMA ...



PSH 3100 DG/B5 ...



PSH 3100 TMG/B5 ...



a1	b1	c1	e1	f1	s1
350	250	20	300	5	4 x 18

a1	b1	c1	e1	f1	s1
250	180	16	215	4	4 x 14

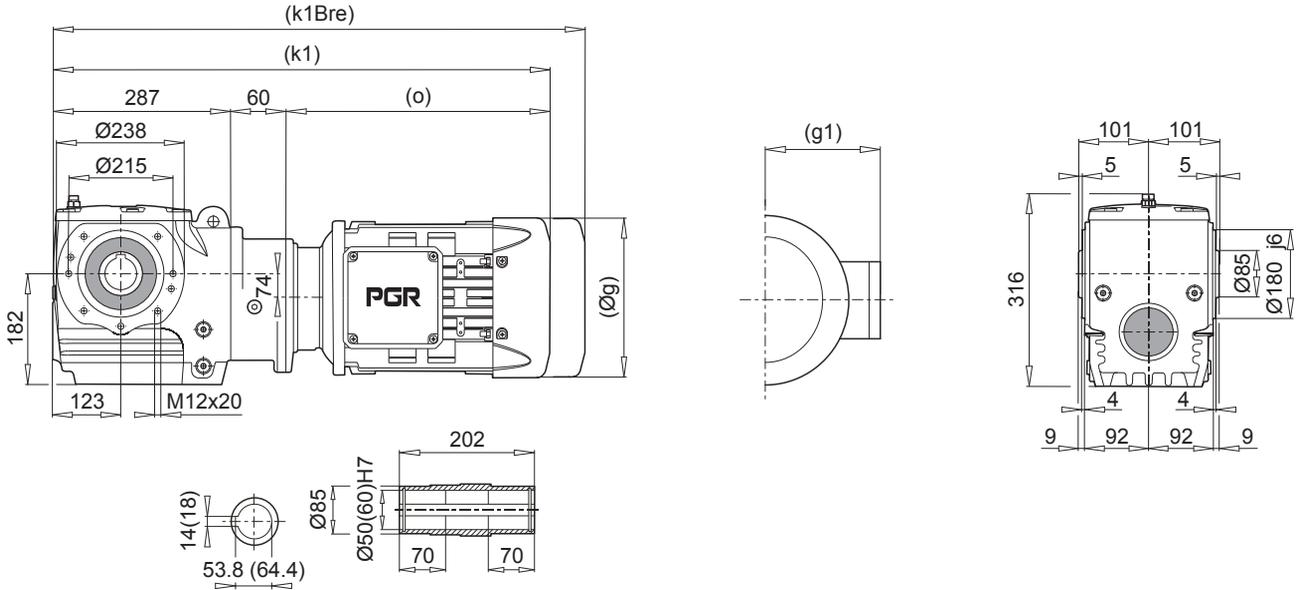
	63 M	71 M	80 M	90 S	90 L		
g	124	140	159	193	193		
g1	111	119	127	151	151		
k/k1	548 / 545	590 / 587	617 / 614	640 / 637	660 / 657		
kBre/k1Bre	600 / 597	650 / 647	679 / 676	713 / 710	733 / 730		
o	198	240	267	290	310		

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir.

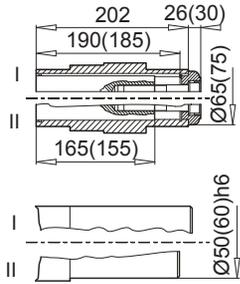
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 3100 DG/B14 ...

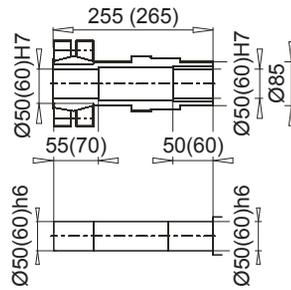


PSH 3100 DG/Ç ...

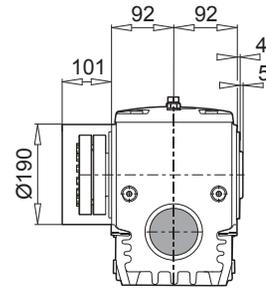


136-137

PSH 3100 DG/KS



PSH 3100 DG/KS-KK ...



Konik sıkırma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 50/62	1604	2.7	2.6	M8x40	10	30
KS 60/76	1604	5.1	4.7	M10x50	10	59

	63 M	71 M	80 M	90 S	90 L		
g	124	140	159	193	193		
g1	111	119	127	151	151		
k1	545	587	614	637	657		
k1Bre	597	647	676	710	730		
o	198	240	267	290	310		

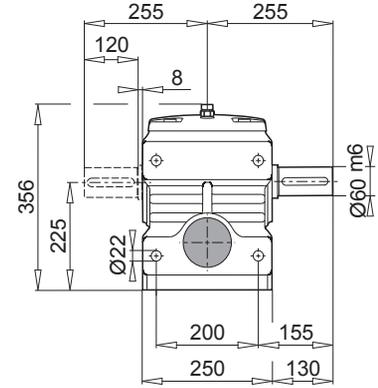
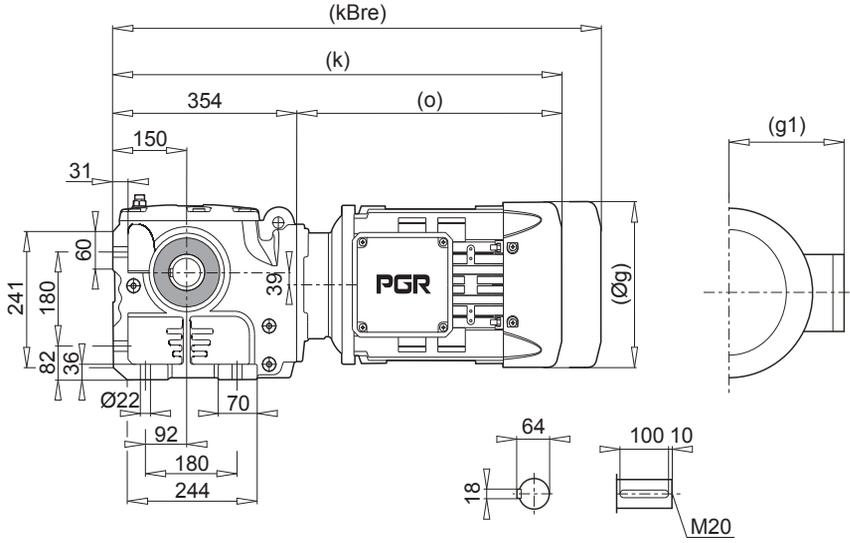
Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.

PSH 2125



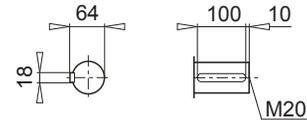
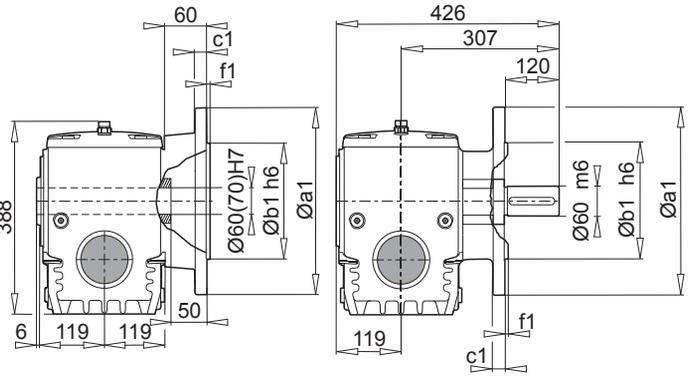
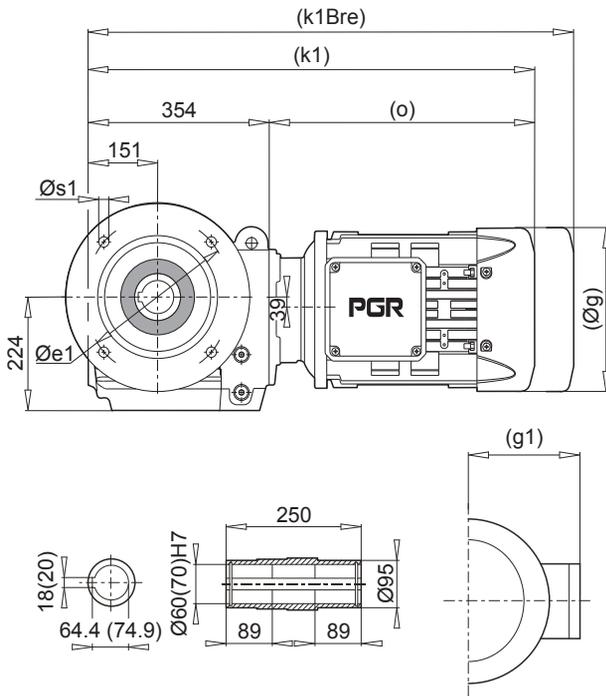
PSH 2125 TMA ...

PSH 2125 ÇMA ...



PSH 2125 DG/B5 ...

PSH 2125 TMG/B5 ...



a1	b1	c1	e1	f1	s1
400	300	20	350	5	4 x 18
450	350	22	400	5	8 x 18

a1	b1	c1	e1	f1	s1
350	250	20	300	5	4 x 18

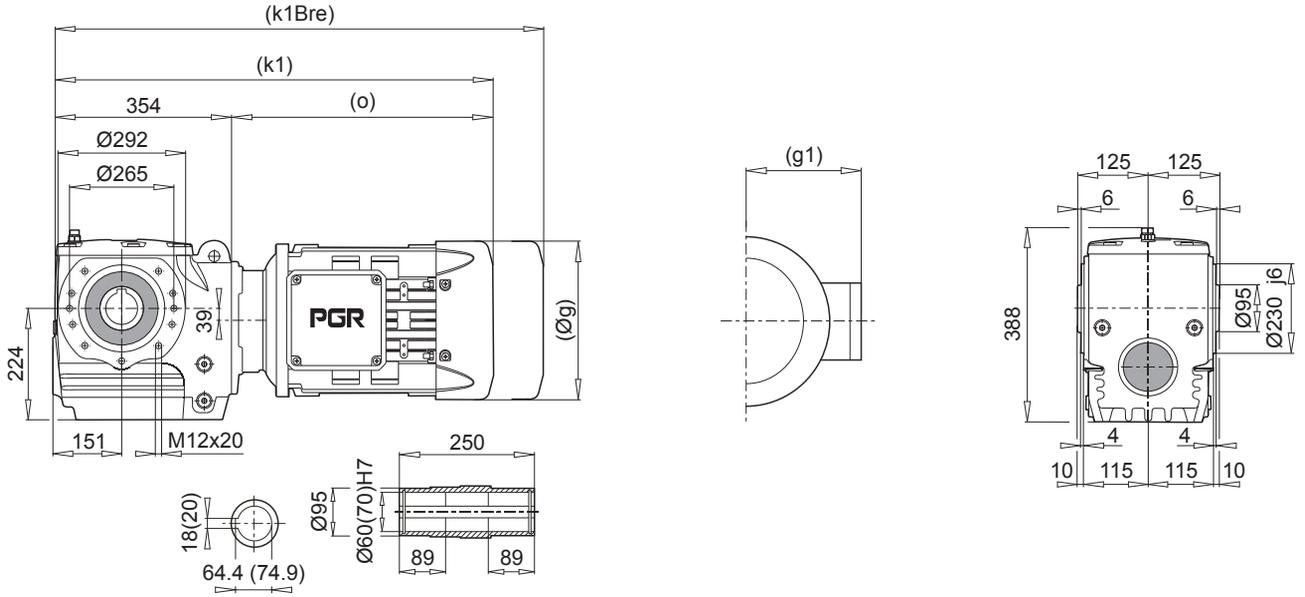
	90 S	90 L	100 L	112 M	132 S	132 M	160 M/L
g	193	193	217	232	279	279	323
g1	151	151	160	168	182	182	200
k/k1	619 / 619	639 / 639	667 / 667	712 / 712	719 / 719	754 / 754	859 / 859
kBre/k1Bre	692 / 692	712 / 712	748 / 748	792 / 792	827 / 827	862 / 862	1011 / 1011
o	265	285	313	358	365	400	505

Note: (...) İşaretli olan ölçüler motor markasına göre farklılık gösterir.

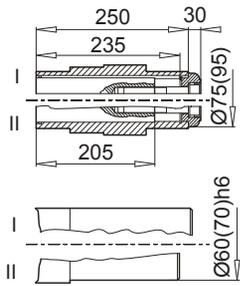
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 2125 DG/B14 ...

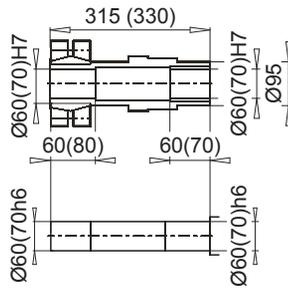


PSH 2125 DG/Ç ...

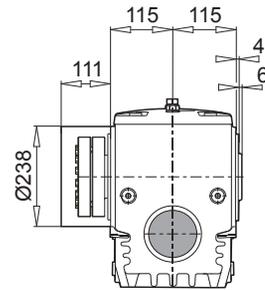


136-137

PSH 2125 DG/KS ...



PSH 2125 DG/KS-KK ...



Konik sıkırtma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Z _s	MA (Nm)
KS 60/76	3120	2.6	2.4	M10x50	10	59
KS 70/90	3120	4.4	4.1	M12x70*	10	100

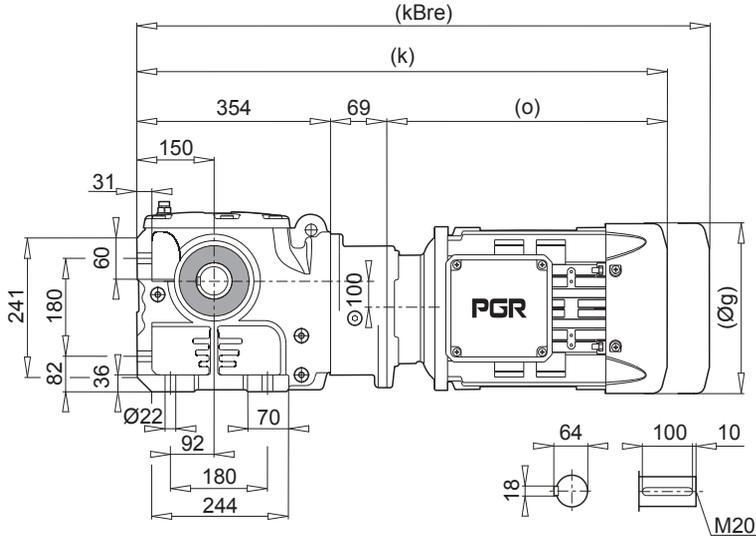
	90 S	90 L	100 L	112 M	132 S	132 M	160 M/L
g	193	193	217	232	279	279	323
g1	151	151	160	168	182	182	200
k1	619	639	667	712	719	754	859
k1Bre	692	712	748	792	827	862	1011
o	265	285	313	358	365	400	505

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.

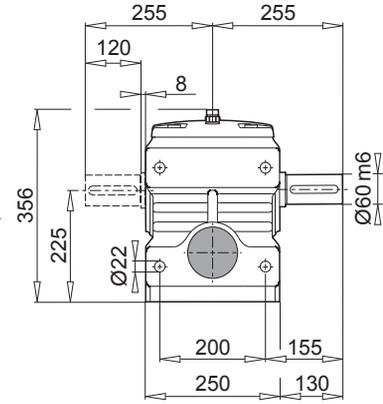
PSH 3125



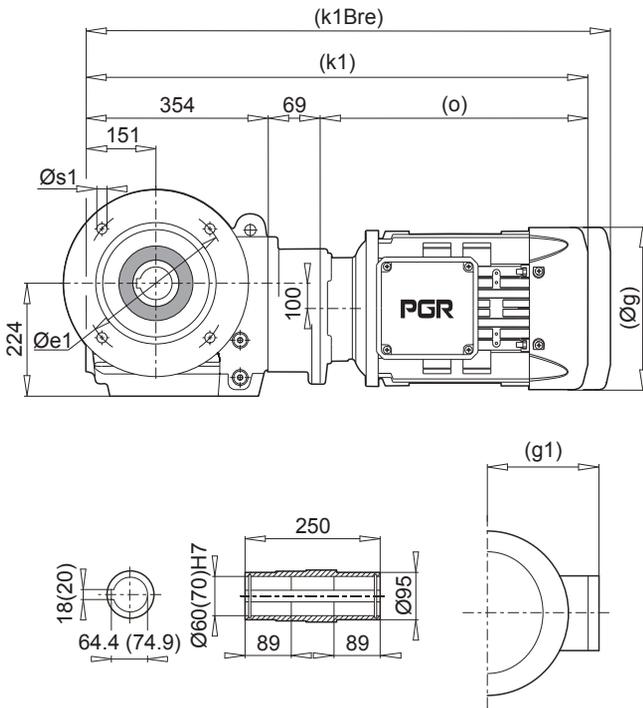
PSH 3125 TMA ...



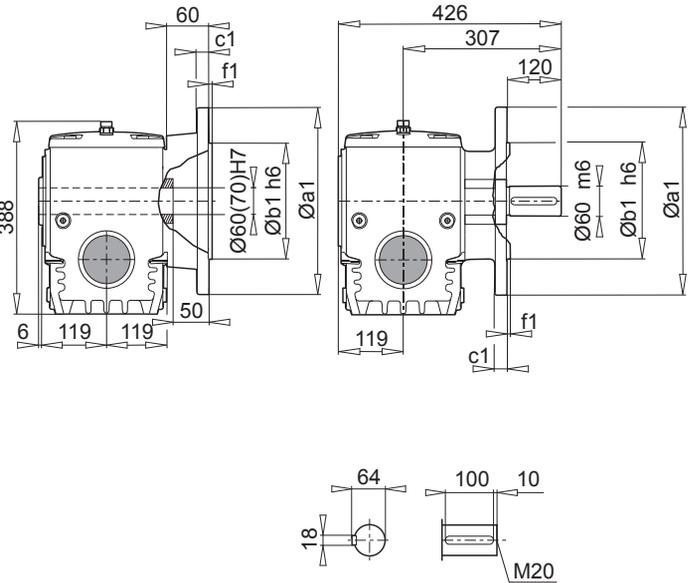
PSH 3125 ÇMA ...



PSH 3125 DG/B5 ...



PSH 3125 TMG/B5 ...



a1	b1	c1	e1	f1	s1
400	300	20	350	5	4 x 18
450	350	22	400	5	8 x 18

a1	b1	c1	e1	f1	s1
350	250	20	300	5	4 x 18

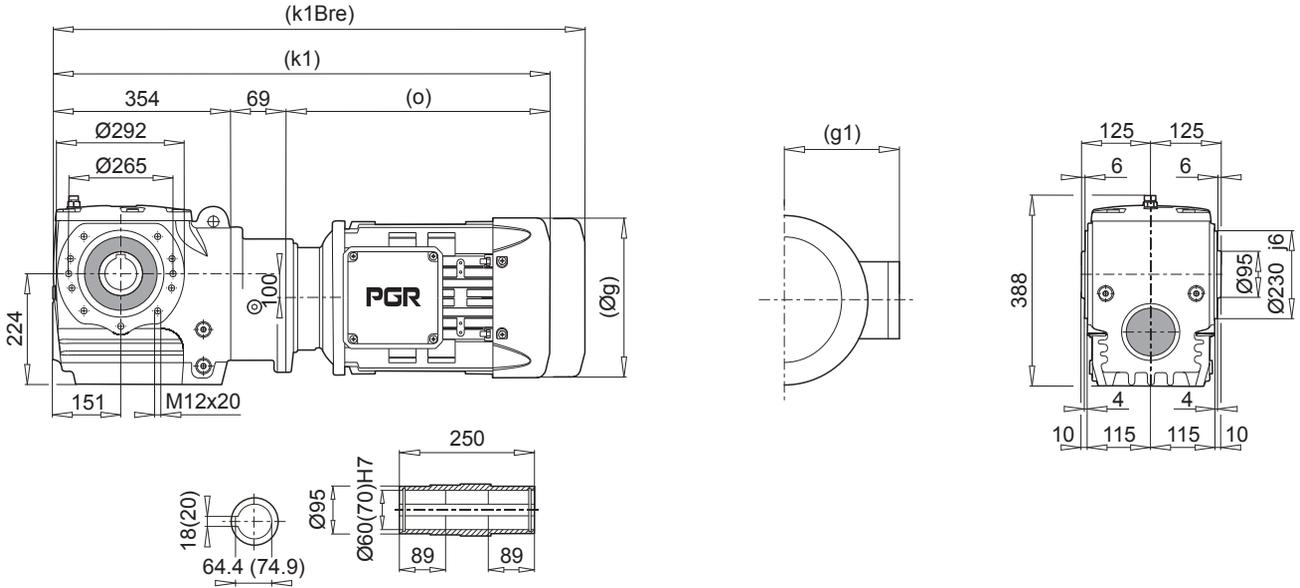
	71 M	80 M	90 S	90 L	100 L		
g	140	159	193	193	217		
g1	119	127	151	151	160		
k/k1	659 / 659	685 / 685	708 / 708	728 / 728	756 / 756		
kBre/k1Bre	719 / 719	747 / 747	781 / 781	801 / 801	837 / 837		
o	236	262	285	305	333		

Not: (...) İşaretili olan ölçüler motor markasına göre farklılık gösterir.

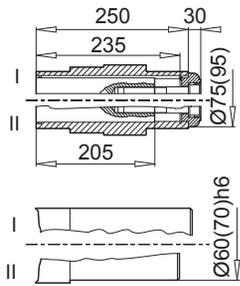
Note: Dimension which is designated by (...) depends on marks of motor.



PSH 3125 DG/B14 ...

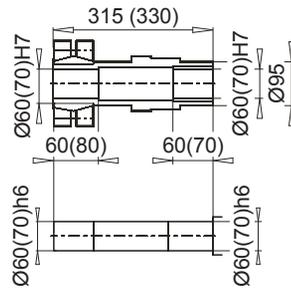


PSH 3125 DG/Ç ...

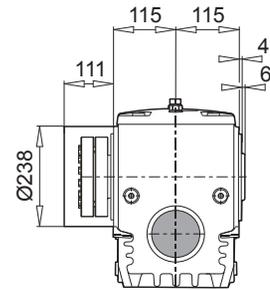


136-137

PSH 3125 DG/KS ...



PSH 3125 DG/KS-KK ...



Konik sıkırtma / Shrink disc 132				Altıköşe başlı civata / Hexagonal screw DIN 931 / DIN 933* 10.9Vz		
Tip/Type	M _{amax} (Nm)	s ^{h6}	s ^{f6}	d _{xl}	Zs	MA (Nm)
KS 60/76	3120	2.6	2.4	M10x50	10	59
KS 70/90	3120	4.4	4.1	M12x70*	10	100

	71 M	80 M	90 S	90 L	100 L		
g	140	159	193	193	217		
g1	119	127	151	151	160		
k1	659	685	708	728	756		
k1Bre	719	747	781	801	837		
o	236	262	285	305	333		

Note: (...) İşaretli olan ölçüler motor markasına göre farklılık gösterir. Note: Dimension which is designated by (...) depends on marks of motor.



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W VE IEC ADAPTÖRÜ SEÇİM TABLOLARI

SELECTION OF W AND IEC ADAPTERS

PSH İKİ KADEME



PSH ÜÇ KADEME





PGR[®]
Drive Technologies



W ve IEC adaptörü için performans tablolarının yapısı

Notify about performance tables for W and IEC adapter type

PSH 2063 → Redüktör Tipi / Gear unit type

Motor gövde büyüklüğü ile IEC gövde büyüklüğü aynı olan IEC montajlı redüktörler için Servis faktörü f_B motor seçim sayfalarından alınabilir.

Service factor f_B could be seen from selection of geared motor tables. Because this value is same for geared motor and geared motor with IEC adapters.

IEC motor büyüklükleri ve IEC standart çıkışları DIN 50347' e göredir.

According to DIN EN 50347 IEC motor sizes.

Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1 = 1400 \text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59	DIN 42677' ye göre IEC Adaptöre Bağlanacak Motor Boyutu	
				n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW]	f_B		According to DIN 42677 IEC motor power depend on pole number of motor.	
PSH 2063	626.57*	12.29	51/1	2.2	360	0.17	48	63*	71*	
	529.13*	10.38	51/1	2.7	360	0.20	49	63	71*	
	464.67*	9.11	51/1	3.0	360	0.23	49	63	71*	

165.1 166 2.20 89
189.2 156 2.20 90

P_{1max} hesaplanırken *italik* olan değerlerde $f_B > 1$ alınmıştır.
 P_{1max} value which is *italic*, is calculated when service factor f_B is greater than one.

Tip W azami tahrik gücü hesaplanırken *italik* olmayan değerler alınmıştır. P_{1max} ile $f_B = 1$
 P_{1max} value which is *non-italic* is calculated when service factor f_B is equal to one.

Max. çıkış momenti
Max. output torque while service factor $f_B = 1$

Çıkış Devri
Output speed

Redüktör Tahvili
Reduction ratio

Redüktör Tipi
Gear unit type

Yıldız işareti : Dikkat
Tip W sütunundaki P_{1max} değerlerini aşmamalıdır.

Star sign is shown precautions which is value of P_{1max} must be greater than drive power.

Rakamlı alanlar IEC adaptörünün, IEC motor büyüklüğü ve tahvil oranına uygun olduğunu belirtir.

This area which is colorless is shown IEC adapter is applicable for this IEC motor size and reduction ratio



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400 \text{ min}^{-1}$				W $n_1=930 \text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59					
				n_2 [min^{-1}]	M_{amax} [Nm] $f_B=1$	P_{1max} [kW] $f_B \geq 1$	[%]	n_2 [min^{-1}]	M_{amax} [Nm] $f_B=1$	P_{1max} [kW] $f_B \geq 1$	[%]	f_B	f_B	f_B	f_B		
PSH 2040	304.20	7.80	39/1	4.6	100	0.10	49	3.1	104	0.07	48	63*	71*	80*			
	237.90	6.10	39/1	5.9	100	0.12	50	3.9	106	0.09	49	63*	71*	80*			
W 	128.70	7.80	33/2	10.9	100	0.17	68	7.2	104	0.12	67	63*	71*	80*			
	115.23	2.95	39/1	12.1	94	0.22	53	8.1	101	0.17	51	63	71*	80*	90*		
	100.65	6.10	33/2	13.9	100	0.21	68	9.2	106	0.15	67	63	71*	80*			
	99.45	2.55	39/1	14.1	92	0.25	54	9.4	99	0.19	52	63	71*	80*	90*		
+ IEC 	86.86	2.23	39/1	16.1	87	0.27	54	10.7	95	0.20	52	63	71*	80*	90*		
	76.38	1.96	39/1	18.3	85	0.30	55	12.2	93	0.22	53	63	71*	80*	90*		
	67.50	1.73	39/1	20.7	82	0.32	56	13.8	91	0.24	54	63	71*	80*	90*		
	59.80	7.80	23/3	23.4	100	0.31	78	15.6	104	0.22	78	63	71*	80*			
	52.00	1.33	39/1	26.9	81	0.39	58	17.9	91	0.31	55	63	71	80*	90*		
	46.77	6.10	23/3	29.9	100	0.40	79	19.9	106	0.28	78	63	71	80*			
	44.78	1.15	39/1	31.3	81	0.45	59	20.8	92	0.36	56	63	71	80*	90*		
	42.08	2.55	33/2	33.3	85	0.42	71	22.1	92	0.30	70	63	71	80*	90*		
	36.75	2.23	33/2	38.1	81	0.45	72	25.3	88	0.33	70	63	71	80*	90*		
	32.31	1.96	33/2	43.3	78	0.49	72	28.8	85	0.36	71	63	71	80*	90*		
	28.56	1.73	33/2	49.0	75	0.53	73	32.6	83	0.40	71	63	71	80*	90*		
	22.00	1.33	33/2	63.6	73	0.66	74	42.3	82	0.50	72	63	71	80*	90*		
	19.55	2.55	23/3	71.6	80	0.74	81	47.6	86	0.54	80	63	71	80*	90*		
	17.08	2.23	23/3	82.0	78	0.83	81	54.4	85	0.61	80	63	71	80	90*		
	15.01	1.96	23/3	93.3	75	0.89	82	62.0	82	0.66	81	63	71	80	90*		
	13.27	1.73	23/3	105.5	73	0.98	82	70.1	81	0.73	81	63	71	80	90*		
	10.22	1.33	23/3	137.0	68	1.10	83	91.0	77	0.73	82	63	71	80	90*		
	8.80	1.15	23/3	159.1	65	1.10	83	105.7	74	0.73	82	63	71	80	90*		
	7.51	1.96	23/6	186.4	57	1.10	87	123.8	62	0.73	86	63	71	80	90*		
	6.63	1.73	23/6	211.2	54	1.10	87	140.3	60	0.73	86	63	71	80	90*		
	5.11	1.33	23/6	274.0	48	1.10	88	182.0	54	0.73	87	63	71	80	90*		
	4.40	1.15	23/6	318.2	46	1.10	88	211.4	52	0.73	87	63	71	80	90*		

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=700 \text{ min}^{-1}$				W $n_1=465 \text{ min}^{-1}$				W $n_1=250 \text{ min}^{-1}$				IEC $f_B \leftrightarrow$ 45 - 59			
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		$f_B \leftrightarrow$			
				$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$						
				[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]				
PSH 2040	304.20	7.80	39/1	2.3	107	0.05	48	1.5	112	0.04	47	0.82	119	0.02	47	63*	71*	80*	
	237.90	6.10	39/1	2.9	109	0.07	48	2.0	113	0.05	47	1.1	120	0.03	47	63*	71*	80*	
W	128.70	7.80	33/2	5.4	107	0.09	66	3.6	112	0.06	66	1.9	119	0.04	65	63*	71*	80*	
	115.23	2.95	39/1	6.1	104	0.13	50	4.0	111	0.09	49	2.2	117	0.06	48	63	71*	80*	90*
	100.65	6.10	33/2	7.0	109	0.12	67	4.6	113	0.08	66	2.5	120	0.05	66	63	71*	80*	
 108...114	99.45	2.55	39/1	7.0	103	0.15	50	4.7	110	0.11	49	2.5	116	0.06	48	63	71*	80*	90*
+ IEC	86.86	2.23	39/1	8.1	99	0.16	51	5.4	105	0.12	49	2.9	112	0.07	48	63	71*	80*	90*
	76.38	1.96	39/1	9.2	98	0.18	52	6.1	104	0.13	50	3.3	112	0.08	48	63	71*	80*	90*
 118...124	67.50	1.73	39/1	10.4	96	0.20	52	6.9	102	0.15	50	3.7	110	0.09	49	63	71*	80*	90*
	59.80	7.80	23/3	11.7	107	0.17	77	7.8	112	0.12	77	4.2	119	0.07	77	63	71*	80*	
	52.00	1.33	39/1	13.5	97	0.26	53	8.9	105	0.19	51	4.8	114	0.12	49	63	71	80*	90*
	46.77	6.10	23/3	15.0	109	0.22	78	9.9	113	0.15	77	5.3	120	0.09	77	63	71	80*	
	44.78	1.15	39/1	15.6	99	0.30	54	10.4	108	0.23	52	5.6	118	0.14	50	63	71	80*	90*
	42.08	2.55	33/2	16.6	95	0.24	69	11.1	101	0.17	68	5.9	107	0.10	66	63	71	80*	90*
	36.75	2.23	33/2	19.0	92	0.27	69	12.7	98	0.19	68	6.8	104	0.11	67	63	71	80*	90*
	32.31	1.96	33/2	21.7	90	0.29	70	14.4	95	0.21	68	7.7	102	0.12	67	63	71	80*	90*
	28.56	1.73	33/2	24.5	87	0.32	70	16.3	93	0.23	69	8.8	101	0.14	67	63	71	80*	90*
	22.00	1.33	33/2	31.8	88	0.41	71	21.1	95	0.30	69	11.4	103	0.18	68	63	71	80*	90*
	19.55	2.55	23/3	35.8	90	0.43	79	23.8	95	0.30	78	12.8	101	0.17	78	63	71	80*	90*
	17.08	2.23	23/3	41.0	88	0.47	80	27.2	94	0.34	79	14.6	100	0.20	78	63	71	80	90*
	15.01	1.96	23/3	46.6	86	0.52	80	31.0	92	0.38	79	16.7	99	0.22	78	63	71	80	90*
	13.27	1.73	23/3	52.8	85	0.59	80	35.0	90	0.42	79	18.8	98	0.25	78	63	71	80	90*
	10.22	1.33	23/3	68.5	82	0.55	81	45.5	88	0.36	80	24.5	96	0.20	78	63	71	80	90*
	8.80	1.15	23/3	79.5	80	0.55	81	52.8	87	0.36	80	28.4	94	0.20	79	63	71	80	90*
	7.51	1.96	23/6	93.2	66	0.55	85	61.9	70	0.36	84	33.3	75	0.20	84	63	71	80	90*
	6.63	1.73	23/6	105.6	63	0.55	86	70.1	67	0.36	85	37.7	72	0.20	84	63	71	80	90*
	5.11	1.33	23/6	137.0	58	0.55	86	91.0	62	0.36	85	48.9	68	0.20	84	63	71	80	90*
	4.40	1.15	23/6	159.1	56	0.55	86	105.7	61	0.36	85	56.8	67	0.20	84	63	71	80	90*

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400\text{ min}^{-1}$				W $n_1=930\text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59					
				n_2 [min^{-1}]	M_{amax} [Nm] $f_B=1$	P_{1max} [kW] $f_B \geq 1$	[%]	n_2 [min^{-1}]	M_{amax} [Nm] $f_B=1$	P_{1max} [kW] $f_B \geq 1$	[%]						
PSH 3050	3016.29	59.14	51/1	0.46	195	0.02	47	0.31	199	0.01	46	63*	71*				
	2248.25	44.08	51/1	0.62	195	0.03	47	0.41	201	0.02	46	63*	71*				
	1969.48	38.62	51/1	0.71	195	0.03	47	0.47	202	0.02	47	63*	71*				
	1746.47	34.24	51/1	0.80	195	0.03	47	0.53	203	0.02	47	63*	71*				
	1330.71	59.14	45/2	1.1	195	0.03	65	0.70	199	0.02	65	63*	71*				
	991.88	44.08	45/2	1.4	195	0.04	66	0.94	201	0.03	65	63*	71*				
	868.89	38.62	45/2	1.6	195	0.05	66	1.1	202	0.04	65	63*	71*				
	755.93	14.82	51/1	1.9	195	0.08	48	1.2	203	0.05	47	63*	71*				
	663.52	13.01	51/1	2.1	195	0.09	48	1.4	203	0.06	47	63*	71*				
	586.50	11.50	51/1	2.4	195	0.10	48	1.6	203	0.07	48	63*	71*				
	473.94	9.29	51/1	3.0	195	0.13	49	2.0	202	0.09	48	63*	71*				
	412.72	8.09	51/1	3.4	195	0.14	49	2.3	203	0.10	48	63*	71*				
	333.50	14.82	45/2	4.2	195	0.13	67	2.8	203	0.09	66	63*	71*				
	292.73	13.01	45/2	4.8	195	0.15	67	3.2	203	0.10	66	63*	71*				
	209.09	9.29	45/2	6.7	195	0.20	68	4.4	202	0.14	67	63	71*				
	182.08	8.09	45/2	7.7	195	0.23	68	5.1	203	0.16	67	63	71*				
	158.10	14.82	32/3	8.9	195	0.23	78	5.9	203	0.16	77	63	71*				
	138.77	13.01	32/3	10.1	195	0.26	78	6.7	203	0.18	77	63	71*				
	122.67	11.50	32/3	11.4	195	0.30	78	7.6	203	0.21	77	63	71*				
	99.12	9.29	32/3	14.1	190	0.36	78	9.4	197	0.25	78	63	71*				
86.32	8.09	32/3	16.2	180	0.37	79	10.8	187	0.24	78	63	71					
76.58	14.82	31/6	18.3	140	0.32	83	12.1	141	0.22	83	63	71*					
67.22	13.01	31/6	20.8	130	0.34	84	13.8	136	0.24	83	63	71*					
59.42	11.50	31/6	23.6	130	0.37	84	15.7	135	0.24	83	63	71					
48.01	9.29	31/6	29.2	110	0.37	84	19.4	114	0.24	83	63	71					
41.81	8.09	31/6	33.5	110	0.37	84	22.2	110	0.24	84	63	71					

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=700\text{ min}^{-1}$				W $n_1=465\text{ min}^{-1}$				W $n_1=250\text{ min}^{-1}$				IEC $f_B \leftrightarrow$ 45 - 59			
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		f_B			
				$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$						
				[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]				
PSH 3050	3016.29	59.14	51/1	0.23	202	0.01	46	0.15	215	0.01	46	0.08	232	-	46	63*	71*		
	2248.25	44.08	51/1	0.31	204	0.01	46	0.21	207	0.01	46	0.11	230	0.01	46	63*	71*		
W	1969.48	38.62	51/1	0.36	205	0.02	46	0.24	209	0.01	46	0.13	229	0.01	46	63*	71*		
	1746.47	34.24	51/1	0.40	207	0.02	46	0.27	211	0.01	46	0.14	227	0.01	46	63*	71*		
	1330.71	59.14	45/2	0.53	202	0.02	65	0.35	215	0.01	65	0.19	232	0.01	65	63*	71*		
	991.88	44.08	45/2	0.71	204	0.02	65	0.47	207	0.02	65	0.25	230	0.01	65	63*	71*		
 111...117	868.89	38.62	45/2	0.81	205	0.03	65	0.54	209	0.02	65	0.29	229	0.01	65	63*	71*		
	755.93	14.82	51/1	0.93	208	0.04	47	0.62	219	0.03	47	0.33	227	0.02	46	63*	71*		
+ IEC	663.52	13.01	51/1	1.1	208	0.05	47	0.70	219	0.03	47	0.38	229	0.02	46	63*	71*		
	663.52	13.01	51/1	1.1	208	0.05	47	0.70	219	0.03	47	0.38	229	0.02	46	63*	71*		
	586.50	11.50	51/1	1.2	208	0.06	47	0.79	218	0.04	47	0.43	229	0.02	46	63*	71*		
	473.94	9.29	51/1	1.5	209	0.07	48	1.0	216	0.05	47	0.53	231	0.03	47	63*	71*		
 121...127	412.72	8.09	51/1	1.7	209	0.08	48	1.1	217	0.05	47	0.61	232	0.03	47	63	71*		
	333.50	14.82	45/2	2.1	208	0.07	66	1.4	219	0.05	65	0.75	227	0.03	65	63*	71*		
	292.73	13.01	45/2	2.4	208	0.08	66	1.6	219	0.06	66	0.85	229	0.03	65	63*	71*		
	209.09	9.29	45/2	3.3	209	0.11	66	2.2	216	0.08	66	1.2	231	0.04	65	63*	71*		
	182.08	8.09	45/2	3.8	209	0.13	66	2.6	217	0.09	66	1.4	232	0.05	66	63	71*		
	158.10	14.82	32/3	4.4	208	0.12	77	2.9	219	0.09	77	1.6	227	0.05	77	63	71*		
	138.77	13.01	32/3	5.0	208	0.14	77	3.4	219	0.10	77	1.8	229	0.06	77	63	71*		
	122.67	11.50	32/3	5.7	208	0.16	77	3.8	218	0.11	77	2.0	229	0.06	77	63	71*		
	99.12	9.29	32/3	7.1	203	0.20	77	4.7	211	0.13	77	2.5	225	0.08	77	63	71*		
	86.32	8.09	32/3	8.1	193	0.21	78	5.4	199	0.12	77	2.9	199	0.07	77	63	71*		
	76.58	14.82	31/6	9.1	141	0.16	83	6.1	141	0.12	83	3.3	139	0.06	82	63	71*		
	67.22	13.01	31/6	10.4	139	0.18	83	6.9	139	0.12	83	3.7	138	0.07	82	63	71*		
	59.42	11.50	31/6	11.8	138	0.19	83	7.8	138	0.12	83	4.2	137	0.07	82	63	71*		
	48.01	9.29	31/6	14.6	118	0.19	83	9.7	120	0.12	83	5.2	120	0.07	83	63	71*		
	41.81	8.09	31/6	16.7	109	0.19	83	11.1	109	0.12	83	6.0	109	0.07	83	63	71*		

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400\text{ min}^{-1}$				W $n_1=930\text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59					
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}							
				[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]						
PSH 2050	524.57	10.29	51/1	2.7	185	0.11	49	1.8	192	0.08	48	63*	71*				
	439.88	8.62	51/1	3.2	185	0.13	49	2.1	192	0.09	48	63*	71*				
W 	385.33	7.56	51/1	3.6	185	0.14	50	2.4	193	0.10	48	63*	71*				
	341.70	6.70	51/1	4.1	185	0.16	50	2.7	195	0.11	49		71*	80*			
110...116	231.43	10.29	45/2	6.0	185	0.17	67	4.0	192	0.12	67	63*	71*				
	194.06	8.62	45/2	7.2	185	0.21	68	4.8	192	0.14	67	63	71*				
+ IEC 	170.00	7.56	45/2	8.2	185	0.23	68	5.5	193	0.17	67	63	71*				
	147.90	2.90	51/1	9.5	175	0.32	54	6.3	188	0.24	52	63	71*	80*	90*		
120...126	129.82	2.55	51/1	10.8	168	0.35	55	7.2	181	0.26	52	63	71*	80*	90*		
	114.75	2.25	51/1	12.2	168	0.38	56	8.1	182	0.29	53	63	71	80*	90*		
	92.73	1.82	51/1	15.1	168	0.47	57	10.0	185	0.36	54	63	71	80*	90*		
	80.75	1.58	51/1	17.3	168	0.52	58	11.5	187	0.41	55	63	71	80*	90*		
	65.25	2.90	45/2	21.5	168	0.53	72	14.3	180	0.39	70	63	71	80*	90*		
	57.27	2.55	45/2	24.4	168	0.60	72	16.2	181	0.44	70	63	71	80*	90*		
	50.63	2.25	45/2	27.7	155	0.62	73	18.4	168	0.46	71	63	71	80*	90*		
	40.91	1.82	45/2	34.2	155	0.75	74	22.7	171	0.56	72	63	71	80	90*		
	35.63	1.58	45/2	39.3	155	0.85	75	26.1	172	0.65	72	63	71	80	90*		
	30.93	2.90	32/3	45.3	155	0.91	81	30.1	166	0.65	80	63	71	80	90*		
	27.15	2.55	32/3	51.6	155	1.02	82	34.3	167	0.75	80	63	71	80	90*		
	24.00	2.25	32/3	58.3	155	1.15	82	38.8	168	0.84	81	63	71	80	90*		
	19.39	1.82	32/3	72.2	145	1.32	83	48.0	160	0.98	82	63	71	80	90*		
	16.89	1.58	32/3	82.9	120	1.26	83	55.1	133	0.94	82	63	71	80	90*		
	14.77	1.38	32/3	94.8	113	1.34	84	63.0	127	1.02	82	63	71	80	90*		
	13.15	2.55	31/6	106.5	120	1.50	87	70.7	129	0.99	86	63	71	80	90		
	11.63	2.25	31/6	120.4	113	1.50	87	80.0	123	0.99	86	63	71	80	90		
	9.39	1.82	31/6	149.1	110	1.50	88	99.0	121	0.99	87	63	71	80	90		
	8.18	1.58	31/6	171.1	110	1.50	88	113.7	122	0.99	87	63	71	80	90		
	7.15	1.38	31/6	195.8	105	1.50	88	130.1	118	0.99	87	63	71	80	90		

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=700 \text{ min}^{-1}$				W $n_1=465 \text{ min}^{-1}$				W $n_1=250 \text{ min}^{-1}$				IEC $f_B \leftrightarrow$ 45 - 59				
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		$f_B \rightarrow$				
				$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$							
				[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]					
PSH 2050	524.57	10.29	51/1	1.3	198	0.06	47	0.89	206	0.04	47	0.48	218	0.02	47	63*	71*			
	439.88	8.62	51/1	1.6	198	0.07	48	1.1	205	0.05	47	0.57	219	0.03	47	63*	71*			
W	385.33	7.56	51/1	1.8	198	0.08	48	1.2	207	0.06	47	0.65	220	0.03	47	63*	71*			
	341.70	6.70	51/1	2.0	199	0.09	48	1.4	208	0.06	47	0.73	221	0.04	47		71*	80*		
	231.43	10.29	45/2	3.0	198	0.09	66	2.0	206	0.07	66	1.1	211	0.04	65	63*	71*			
	194.06	8.62	45/2	3.6	198	0.11	66	2.4	205	0.08	66	1.3	219	0.05	65	63	71*			
 110...116	170.00	7.56	45/2	4.1	198	0.13	67	2.7	207	0.09	66	1.5	220	0.05	66	63	71*			
	147.90	2.90	51/1	4.7	194	0.19	51	3.1	207	0.14	49	1.7	219	0.08	48	63	71*	80*	90*	
+ IEC		129.82	2.55	51/1	5.4	188	0.21	51	3.6	201	0.15	49	1.9	212	0.09	48	63	71*	80*	90*
	 120...126	114.75	2.25	51/1	6.1	190	0.23	52	4.1	203	0.17	50	2.2	216	0.10	48	63	71*	80*	90*
		92.73	1.82	51/1	7.5	195	0.29	53	5.0	207	0.21	51	2.7	224	0.13	49	63	71	80*	90*
		80.75	1.58	51/1	8.7	198	0.34	53	5.8	211	0.25	51	3.1	229	0.15	49	63	71	80*	90*
		65.25	2.90	45/2	10.7	186	0.30	69	7.1	199	0.22	68	3.8	210	0.13	66	63	71	80*	90*
		57.27	2.55	45/2	12.2	188	0.35	69	8.1	201	0.25	68	4.4	212	0.15	67	63	71	80*	90*
		50.63	2.25	45/2	13.8	176	0.36	70	9.2	187	0.26	68	4.9	199	0.15	67	63	71	80*	90*
		40.91	1.82	45/2	17.1	180	0.45	71	11.4	191	0.33	69	6.1	206	0.20	67	63	71	80*	90*
		35.63	1.58	45/2	19.6	183	0.53	71	13.1	195	0.39	69	7.0	211	0.23	68	63	71	80*	90*
		30.93	2.90	32/3	22.6	172	0.52	79	15.0	183	0.37	78	8.1	194	0.21	78	63	71	80*	90*
		27.15	2.55	32/3	25.8	174	0.59	80	17.1	185	0.42	79	9.2	196	0.24	78	63	71	80	90*
		24.00	2.25	32/3	29.2	176	0.67	80	19.4	187	0.48	79	10.4	199	0.28	78	63	71	80	90*
		19.39	1.82	32/3	36.1	168	0.78	81	24.0	178	0.57	79	12.9	193	0.33	78	63	71	80	90*
		16.89	1.58	32/3	41.4	141	0.75	81	27.5	151	0.54	80	14.8	164	0.33	78	63	71	80	90*
		14.77	1.38	32/3	47.4	135	0.83	81	31.5	146	0.60	80	16.9	158	0.35	79	63	71	80	90*
		13.15	2.55	31/6	53.2	134	0.75	85	35.4	141	0.50	84	19.0	139	0.27	83	63	71	80	90*
		11.63	2.25	31/6	60.2	128	0.75	85	40.0	136	0.50	85	21.5	140	0.27	84	63	71	80	90*
		9.39	1.82	31/6	74.5	128	0.75	86	49.5	135	0.50	85	26.6	137	0.27	84	63	71	80	90*
		8.18	1.58	31/6	85.6	130	0.75	86	56.8	137	0.50	85	30.6	135	0.27	84	63	71	80	90
		7.15	1.38	31/6	97.9	126	0.75	87	65.0	136	0.50	86	35.0	133	0.27	84	63	71	80	90

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400\text{ min}^{-1}$				W $n_1=930\text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59					
				n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW]	$f_B \geq 1$ [%]	n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW]	$f_B \geq 1$ [%]	$f_B \Rightarrow$					
PSH 3063	3628.29*	71.14	51/1	0.39	380	0.03	45	0.26	387	0.02	45	63*	71*				
	2704.42*	53.03	51/1	0.52	380	0.04	46	0.34	390	0.03	45	63*	71*				
	2374.96*	46.57	51/1	0.59	380	0.05	46	0.39	391	0.04	45	63*	71*				
	2111.40*	41.40	51/1	0.66	380	0.06	46	0.44	393	0.04	45	63*	71*				
	1343.24*	62.48	43/2	1.0	380	0.06	64	0.69	388	0.04	64	63*	71*				
	1140.10*	53.03	43/2	1.2	380	0.07	64	0.82	390	0.05	64	63*	71*				
	938.40	18.40	51/1	1.5	380	0.13	47	1.0	392	0.09	46	63*	71*				
	738.56	14.48	51/1	1.9	380	0.16	48	1.3	396	0.11	47	63*	71*				
	604.27	11.85	51/1	2.3	380	0.19	48	1.5	396	0.13	47	63	71*				
	532.19	10.44	51/1	2.6	380	0.21	49	1.7	395	0.15	47	63	71*				
	471.21	9.24	51/1	3.0	380	0.24	49	2.0	394	0.17	48	63	71*				
	395.60	18.40	43/2	3.5	380	0.21	66	2.4	392	0.15	65	63	71*				
	349.65	16.26	43/2	4.0	380	0.24	66	2.7	394	0.17	65	63	71*				
	311.35	14.48	43/2	4.5	380	0.27	66	3.0	396	0.19	66	63	71*				
	254.74	11.85	43/2	5.5	370	0.32	67	3.7	385	0.23	66	63	71*				
	224.36	10.44	43/2	6.2	370	0.36	67	4.1	384	0.25	66	63	71*				
	198.65	9.24	43/2	7.0	360	0.37	68	4.7	373	0.24	66	63	71				
	178.60	14.48	37/3	7.8	340	0.37	76	5.2	354	0.24	75	63	71				
	146.13	11.85	37/3	9.6	330	0.37	77	6.4	333	0.24	76	63	71				
	128.70	10.44	37/3	10.9	300	0.37	77	7.2	296	0.24	76	63	71				
113.95	9.24	37/3	12.3	260	0.37	77	8.2	260	0.24	76	63	71					
97.18	7.88	37/3	14.4	230	0.37	78	9.6	227	0.24	77	63	71					
79.65	14.48	33/6	17.6	200	0.37	84	11.7	198	0.24	83	63	71					
65.17	11.85	33/6	21.5	170	0.37	84	14.3	168	0.24	83	63	71					

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1 = 700 \text{ min}^{-1}$				W $n_1 = 465 \text{ min}^{-1}$				W $n_1 = 250 \text{ min}^{-1}$				IEC $f_B \rightarrow$ 45 - 59			
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		f_B			
				$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$	$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$	$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$				
PSH 3063 W 111...117 + IEC 121...127	3628.29*	71.14	51/1	0.19	392	0.02	45	0.13	426	0.01	45	0.07	454	0.01	45	63*	71*		
	2704.42*	53.03	51/1	0.26	394	0.02	45	0.17	413	0.02	45	0.09	451	0.01	45	63*	71*		
	2374.96*	46.57	51/1	0.29	397	0.03	45	0.20	406	0.02	45	0.11	449	0.01	45	63*	71*		
	2111.40*	41.40	51/1	0.33	399	0.03	45	0.22	406	0.02	45	0.12	447	0.01	45	63*	71*		
	1343.24*	62.48	43/2	0.52	392	0.03	64	0.35	421	0.02	64	0.19	452	0.01	64	63*	71*		
	1140.10*	53.03	43/2	0.61	394	0.04	64	0.41	413	0.03	64	0.22	428	0.02	64	63*	71*		
	938.40	18.40	51/1	0.75	407	0.07	46	0.50	424	0.05	45	0.27	437	0.03	45	63*	71*		
	738.56	14.48	51/1	0.95	405	0.09	46	0.63	427	0.06	46	0.34	444	0.04	45	63*	71*		
	604.27	11.85	51/1	1.2	405	0.11	47	0.77	425	0.07	46	0.41	447	0.04	45	63	71*		
	532.19	10.44	51/1	1.3	406	0.12	47	0.87	423	0.08	46	0.47	448	0.05	45	63	71*		
	471.21	9.24	51/1	1.5	406	0.14	47	1.0	421	0.10	46	0.53	449	0.05	46	63	71*		
	395.60	18.40	43/2	1.8	407	0.12	65	1.2	424	0.08	64	0.63	437	0.05	64	63	71*		
	349.65	16.26	43/2	2.0	406	0.13	65	1.3	425	0.09	65	0.72	440	0.05	64	63	71*		
	311.35	14.48	43/2	2.2	405	0.14	65	1.5	427	0.10	65	0.80	444	0.06	64	63	71*		
	254.74	11.85	43/2	2.7	395	0.17	65	1.8	414	0.12	65	1.0	435	0.07	64	63	71*		
	224.36	10.44	43/2	3.1	395	0.19	66	2.1	412	0.14	65	1.1	430	0.08	64	63	71*		
	198.65	9.24	43/2	3.5	385	0.19	66	2.3	388	0.12	65	1.3	382	0.07	64	63	71*		
	178.60	14.48	37/3	3.9	363	0.19	75	2.6	382	0.12	75	1.4	396	0.07	74	63	71*		
	146.13	11.85	37/3	4.8	329	0.19	75	3.2	329	0.12	75	1.7	325	0.07	74	63	71*		
	128.70	10.44	37/3	5.4	292	0.19	75	3.6	292	0.12	75	1.9	288	0.07	74	63	71		
113.95	9.24	37/3	6.1	260	0.19	76	4.1	257	0.12	75	2.2	257	0.07	75	63	71			
97.18	7.88	37/3	7.2	224	0.19	76	4.8	221	0.12	75	2.6	221	0.07	75	63	71			
79.65	14.48	33/6	8.8	198	0.19	83	5.8	196	0.12	82	3.1	196	0.07	82	63	71			
65.17	11.85	33/6	10.7	168	0.19	83	7.1	168	0.12	83	3.8	166	0.07	82	63	71			

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400\text{ min}^{-1}$				W $n_1=930\text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59					
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}							
				[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]						
PSH 2063	626.57*	12.29	51/1	2.2	360	0.17	48	1.5	375	0.13	47	63*	71*				
	529.13*	10.38	51/1	2.6	360	0.20	49	1.8	374	0.15	47	63	71*				
W 	464.67*	9.11	51/1	3.0	360	0.23	49	2.0	373	0.16	48	63	71*				
	413.10*	8.10	51/1	3.4	360	0.26	50	2.3	375	0.19	48		71*	80*			
110...116	264.14*	12.29	43/2	5.3	350	0.29	67	3.5	349	0.19	66	63	71*				
	223.06*	10.38	43/2	6.3	360	0.35	67	4.2	374	0.25	66	63	71*				
+ IEC 	195.89*	9.11	43/2	7.1	360	0.39	68	4.7	373	0.27	67	63	71				
	183.60	3.60	51/1	7.6	325	0.48	54	5.1	343	0.35	52	63	71	80*	90*		
120...126	162.27	3.18	51/1	8.6	310	0.51	55	5.7	330	0.38	52	63	71	80*	90*		
	144.50	2.83	51/1	9.7	300	0.54	56	6.4	322	0.41	53	63	71	80*	90*	100*	
	118.23	2.32	51/1	11.8	295	0.63	58	7.9	320	0.49	54	63	71	80*	90*	100*	
	104.13	2.04	51/1	13.4	295	0.70	59	8.9	322	0.55	55	63	71	80*	90*	100*	
	92.19	1.81	51/1	15.2	295	0.78	60	10.1	325	0.61	56	63	71	80	90*	100*	
	77.40	3.60	43/2	18.1	305	0.80	72	12.0	322	0.58	70	63	71	80	90*		
	68.41	3.18	43/2	20.5	295	0.87	73	13.6	314	0.64	70	63	71	80	90*		
	60.92	2.83	43/2	23.0	280	0.92	73	15.3	301	0.68	71	63	71	80	90*	100*	
	49.84	2.32	43/2	28.1	262	1.03	75	18.7	284	0.77	72	63	71	80	90*	100*	
	43.90	2.04	43/2	31.9	250	1.11	75	21.2	273	0.83	73	63	71	80	90*	100*	
	38.87	1.81	43/2	36.0	245	1.22	76	23.9	270	0.91	74	63	71	80	90*	100*	
	34.94	2.83	37/3	40.1	262	1.36	81	26.6	281	0.98	80	63	71	80	90*	100*	
	28.59	2.32	37/3	49.0	245	1.53	82	32.5	266	1.12	81	63	71	80	90	100*	
	25.18	2.04	37/3	55.6	245	1.72	83	36.9	268	1.28	81	63	71	80	90	100*	
	22.29	1.81	37/3	62.8	245	1.94	83	41.7	270	1.44	82	63	71	80	90	100*	
	19.01	1.54	37/3	73.6	215	1.97	84	48.9	240	1.50	82	63	71	80	90	100*	
	15.58	2.83	33/6	89.9	190	2.06	87	59.7	204	1.48	86	63	71	80	90	100*	
	12.75	2.32	33/6	109.8	180	2.20	88	72.9	195	1.45	87	63	71	80	90	100*	
	11.23	2.04	33/6	124.7	175	2.20	88	82.8	191	1.45	87	63	71	80	90	100*	
	9.94	1.81	33/6	140.8	170	2.20	89	93.6	187	1.45	88	63	71	80	90	100*	
	8.48	1.54	33/6	165.1	166	2.20	89	109.7	185	1.45	88	63	71	80	90	100*	
	7.40	1.35	33/6	189.2	156	2.20	90	125.7	176	1.45	88	63	71	80	90	100*	

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange

IEC bağlantısı yoktur - No IEC assembling on empty fields

IEC bağlantısı yapılır - IEC assembling available on numbered fields

IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=700 \text{ min}^{-1}$				W $n_1=465 \text{ min}^{-1}$				W $n_1=250 \text{ min}^{-1}$				IEC $f_B \rightarrow$ 45 - 59				
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		f_B				
				$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$	$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$	$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$					
PSH 2063	626.57*	12.29	51/1	1.1	384	0.10	46	0.74	403	0.07	46	0.40	423	0.04	45	63*	71*			
	529.13*	10.38	51/1	1.3	385	0.11	47	0.88	401	0.08	46	0.47	424	0.05	45	63	71*			
W	464.67*	9.11	51/1	1.5	385	0.13	47	1.0	399	0.09	46	0.54	426	0.05	46	63	71*			
	413.10*	8.10	51/1	1.7	385	0.15	47	1.1	401	0.10	46	0.61	428	0.06	46		71*	80*		
	264.14*	12.29	43/2	2.7	344	0.15	65	1.8	344	0.10	65	0.95	338	0.05	64	63	71*			
	223.06*	10.38	43/2	3.1	385	0.19	66	2.1	401	0.14	65	1.1	424	0.08	64	63	71*			
 110...116	195.89*	9.11	43/2	3.6	385	0.22	66	2.4	399	0.15	65	1.3	426	0.09	64	63	71*			
	183.60	3.60	51/1	3.8	359	0.29	50	2.5	377	0.21	48	1.4	399	0.12	47	63	71	80*	90*	
	162.27	3.18	51/1	4.3	343	0.30	51	2.9	363	0.22	49	1.5	384	0.13	47	63	71	80*	90*	
	144.50	2.83	51/1	4.8	333	0.33	51	3.2	355	0.24	49	1.7	376	0.14	47	63	71	80*	90*	100*
 120...126	118.23	2.32	51/1	5.9	333	0.39	53	3.9	355	0.29	50	2.1	377	0.17	48	63	71	80*	90*	100*
	104.13	2.04	51/1	6.7	338	0.45	53	4.5	359	0.33	51	2.4	385	0.20	48	63	71	80*	90*	100*
	92.19	1.81	51/1	7.6	343	0.51	54	5.0	363	0.37	51	2.7	393	0.23	49	63	71	80*	90*	100*
	77.40	3.60	43/2	9.0	336	0.46	69	6.0	353	0.33	67	3.2	374	0.19	66	63	71	80*	90*	
	68.41	3.18	43/2	10.2	327	0.51	69	6.8	345	0.37	67	3.7	366	0.21	66	63	71	80*	90*	
	60.92	2.83	43/2	11.5	311	0.54	70	7.6	332	0.39	68	4.1	351	0.23	66	63	71	80	90*	100*
	49.84	2.32	43/2	14.0	296	0.61	71	9.3	315	0.44	69	5.0	335	0.26	67	63	71	80	90*	100*
	43.90	2.04	43/2	15.9	286	0.67	71	10.6	304	0.49	69	5.7	326	0.29	67	63	71	80	90*	100*
	38.87	1.81	43/2	18.0	285	0.75	72	12.0	301	0.54	70	6.4	327	0.33	67	63	71	80	90*	100*
	34.94	2.83	37/3	20.0	291	0.77	79	13.3	310	0.56	77	7.2	328	0.33	76	63	71	80	90*	100*
	28.59	2.32	37/3	24.5	277	0.90	79	16.3	295	0.65	78	8.7	313	0.38	76	63	71	80	90*	100*
	25.18	2.04	37/3	27.8	281	1.02	80	18.5	298	0.74	78	9.9	320	0.43	77	63	71	80	90*	100*
	22.29	1.81	37/3	31.4	285	1.17	80	20.9	301	0.83	79	11.2	327	0.50	77	63	71	80	90*	100*
	19.01	1.54	37/3	36.8	254	1.21	81	24.5	272	0.88	79	13.2	295	0.53	77	63	71	80	90	100*
	15.58	2.83	33/6	44.9	211	1.15	86	29.8	225	0.84	84	16.0	238	0.48	83	63	71	80	90	100*
	12.75	2.32	33/6	54.9	203	1.10	86	36.5	216	0.73	85	19.6	230	0.40	84	63	71	80	90	100*
	11.23	2.04	33/6	62.3	200	1.10	86	41.4	213	0.73	85	22.3	228	0.40	84	63	71	80	90	100*
	9.94	1.81	33/6	70.4	197	1.10	87	46.8	209	0.73	86	25.2	227	0.40	84	63	71	80	90	100*
	8.48	1.54	33/6	82.5	196	1.10	87	54.8	210	0.73	86	29.5	228	0.40	85	63	71	80	90	100*
	7.40	1.35	33/6	94.6	187	1.10	88	62.8	202	0.73	86	33.8	220	0.40	85	63	71	80	90	100*

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400 \text{ min}^{-1}$				W $n_1=930 \text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59						
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}								
				$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$	$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$							
PSH 3080	3356.08*	65.81	51/1	0.42	770	0.08	45	0.28	786	0.05	45	63*	71*					
	2658.80*	52.13	51/1	0.53	770	0.09	45	0.35	790	0.06	45	63*	71*					
	2059.27*	40.38	51/1	0.68	770	0.12	46	0.45	796	0.08	45	63*	71*					
	W	1199.07	23.51	51/1	1.2	770	0.21	47	0.78	804	0.14	46	63	71*				
		955.78	18.74	51/1	1.5	770	0.26	47	1.0	795	0.18	46	63	71*				
	111...117	805.70	15.80	51/1	1.7	770	0.29	48	1.2	800	0.21	47	63	71*				
	+	705.97	13.84	51/1	2.0	770	0.33	49	1.3	804	0.23	47	63	71*				
	IEC	631.62	12.38	51/1	2.2	770	0.36	49	1.5	802	0.27	47	63	71*				
		543.06	10.65	51/1	2.6	770	0.37	50	1.7	781	0.24	48	63	71				
	121...127	481.23	9.44	51/1	2.9	770	0.37	50	1.9	739	0.24	48	63	71				
		402.93	18.74	43/2	3.5	770	0.37	67	2.3	795	0.24	66	63	71				
		339.66	15.80	43/2	4.1	700	0.37	68	2.7	679	0.24	66	63	71				
		297.62	13.84	43/2	4.7	610	0.37	68	3.1	601	0.24	67	63	71				
		266.27	12.38	43/2	5.3	570	0.37	68	3.5	562	0.24	67	63	71				
		228.94	10.65	43/2	6.1	570	0.37	69	4.1	554	0.24	67	63	71				
		193.65	18.74	31/3	7.2	450	0.37	78	4.8	448	0.24	77	63	71				
		163.25	15.80	31/3	8.6	380	0.37	78	5.7	377	0.24	77	63	71				
		143.04	13.84	31/3	9.8	340	0.37	78	6.5	335	0.24	77	63	71				
		127.97	12.38	31/3	10.9	300	0.37	79	7.3	299	0.24	78	63	71				
		110.03	10.65	31/3	12.7	260	0.37	79	8.5	257	0.24	78	63	71				
	97.50	9.44	31/3	14.4	230	0.37	79	9.5	229	0.24	78	63	71					
PSH 2080	656.63*	12.88	51/1	2.1	710	0.32	49	1.4	740	0.23	47	63	71*					
	520.20*	10.20	51/1	2.7	710	0.40	50	1.8	737	0.29	48		71	80*				
	402.90*	7.90	51/1	3.5	710	0.51	51	2.3	740	0.36	49		71	80*				
	W	276.81*	12.88	43/2	5.1	710	0.56	68	3.4	740	0.39	67	63	71				
		234.60	4.60	51/1	6.0	710	0.81	55	4.0	752	0.61	52	63	71	80	90*		
	110...116	187.00	3.67	51/1	7.5	670	0.92	57	5.0	706	0.68	54	63	71	80	90*	100*	112*
	+	157.64	3.09	51/1	8.9	670	1.08	58	5.9	714	0.80	55	63	71	80	90*	100*	112*
	IEC	138.13	2.71	51/1	10.1	645	1.14	60	6.7	694	0.87	56	63	71	80	90*	100*	112*
		123.58	2.42	51/1	11.3	620	1.20	61	7.5	671	0.92	57	63	71	80	90*	100*	112*
	120...126	106.25	2.08	51/1	13.2	590	1.32	62	8.8	643	1.02	58	63	71	80	90*	100*	112*
		94.15	1.85	51/1	14.9	560	1.39	63	9.9	615	1.08	59	63	71	80	90*	100*	112*
		78.83	3.67	43/2	17.8	655	1.63	75	11.8	690	1.18	72	63	71	80	90	100*	112*
		66.45	3.09	43/2	21.1	630	1.83	76	14.0	672	1.35	73	63	71	80	90	100*	112*
		58.23	2.71	43/2	24.0	600	1.96	77	16.0	646	1.46	74	63	71	80	90	100*	112*
		52.10	2.42	43/2	26.9	575	2.10	77	17.9	622	1.55	75	63	71	80	90	100*	112*
		44.79	2.08	43/2	31.3	550	2.31	78	20.8	600	1.72	76	63	71	80	90	100*	112*
		37.89	3.67	31/3	36.9	550	2.56	83	24.5	580	1.81	82	63	71	80	90	100*	112*
		31.94	3.09	31/3	43.8	525	2.87	84	29.1	560	2.08	82	63	71	80	90	100*	112*
		27.99	2.71	31/3	50.0	510	3.14	85	33.2	549	2.30	83	63	71	80	90	100	112*
		25.04	2.42	31/3	55.9	490	3.37	85	37.1	530	2.48	83	63	71	80	90	100	112*
	21.53	2.08	31/3	65.0	470	3.72	86	43.2	513	2.76	84	63	71	80	90	100	112*	
	19.08	1.85	31/3	73.4	455	4.00	86	48.7	500	2.64	85	63	71	80	90	100	112	
	15.97	3.09	31/6	87.7	395	4.00	89	58.2	421	2.64	88	63	71	80	90	100	112	
	13.99	2.71	31/6	100.1	365	4.00	89	66.5	393	2.64	88	63	71	80	90	100	112	
	12.52	2.42	31/6	111.8	345	4.00	90	74.3	373	2.64	88	63	71	80	90	100	112	
	10.76	2.08	31/6	130.1	340	4.00	90	86.4	371	2.64	89	63	71	80	90	100	112	
	9.54	1.85	31/6	146.8	340	4.00	90	97.5	374	2.64	89	63	71	80	90	100	112	
	7.55	1.46	31/6	185.4	295	4.00	91	123.2	330	2.64	90			90	100	112		

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange

IEC bağlantısı yoktur - No IEC assembling on empty fields

IEC bağlantısı yapılır - IEC assembling available on numbered fields

IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=700 \text{ min}^{-1}$				W $n_1=465 \text{ min}^{-1}$				W $n_1=250 \text{ min}^{-1}$				IEC $f_B \leftrightarrow$ 45 - 59						
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}								
				[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]							
PSH 3080	3356.08*	65.81	51/1	0.21	793	0.04	45	0.14	857	0.03	45	0.07	918	0.02	44	63*	71*					
	2658.80*	52.13	51/1	0.26	800	0.05	45	0.17	835	0.03	45	0.09	912	0.02	44	63*	71*					
	2059.27*	40.38	51/1	0.34	809	0.06	45	0.23	823	0.04	45	0.12	905	0.03	44	63*	71*					
	1199.07	23.51	51/1	0.58	828	0.11	46	0.39	853	0.08	45	0.21	874	0.04	45	63	71*					
	955.78	18.74	51/1	0.73	825	0.14	46	0.49	858	0.10	45	0.26	884	0.05	45	63	71*					
	111...117	805.70	15.80	51/1	0.87	823	0.16	46	0.58	862	0.11	46	0.31	894	0.06	45	63	71*				
	+	705.97	13.84	51/1	1.0	821	0.19	46	0.66	866	0.13	46	0.35	902	0.07	45	63	71*				
	IEC	631.62	12.38	51/1	1.1	821	0.20	47	0.74	863	0.15	46	0.40	851	0.08	45	63	71*				
	121...127	543.06	10.65	51/1	1.3	764	0.19	47	0.86	748	0.12	46	0.46	732	0.07	45	63	71				
		481.23	9.44	51/1	1.5	724	0.19	47	1.0	709	0.12	46	0.52	693	0.07	45	63	71				
		402.93	18.74	43/2	1.7	798	0.19	66	1.2	786	0.12	65	0.62	786	0.07	65	63	71*				
		339.66	15.80	43/2	2.1	679	0.19	66	1.4	669	0.12	65	0.74	669	0.07	65	63	71				
		297.62	13.84	43/2	2.4	592	0.19	66	1.6	583	0.12	65	0.84	583	0.07	65	63	71				
		266.27	12.38	43/2	2.6	554	0.19	66	1.7	554	0.12	66	0.94	545	0.07	65	63	71				
		228.94	10.65	43/2	3.1	554	0.19	67	2.0	545	0.12	66	1.1	537	0.07	65	63	71				
		193.65	18.74	31/3	3.6	442	0.19	76	2.4	442	0.12	76	1.3	442	0.07	76	63	71				
		163.25	15.80	31/3	4.3	377	0.19	77	2.8	372	0.12	76	1.5	372	0.07	76	63	71				
	143.04	13.84	31/3	4.9	335	0.19	77	3.3	331	0.12	76	1.7	331	0.07	76	63	71					
	127.97	12.38	31/3	5.5	295	0.19	77	3.6	291	0.12	76	2.0	291	0.07	76	63	71					
	110.03	10.65	31/3	6.4	254	0.19	77	4.2	254	0.12	77	2.3	250	0.07	76	63	71					
	97.50	9.44	31/3	7.2	229	0.19	78	4.8	226	0.12	77	2.6	223	0.07	76	63	71					
PSH 2080	656.63*	12.88	51/1	1.1	757	0.19	47	0.71	797	0.13	46	0.38	833	0.07	45	63	71*					
	520.20*	10.20	51/1	1.3	759	0.22	47	0.89	791	0.16	46	0.48	838	0.09	45		71	80*				
	402.90*	7.90	51/1	1.7	761	0.28	48	1.2	792	0.21	47	0.62	844	0.12	46		71	80*				
	276.81*	12.88	43/2	2.5	731	0.29	66	1.7	731	0.20	66	0.90	720	0.10	65	63	71					
	234.60	4.60	51/1	3.0	779	0.49	50	2.0	810	0.35	48	1.1	857	0.21	47	63	71	80*	90*			
	110...116	187.00	3.67	51/1	3.7	739	0.55	52	2.5	775	0.41	49	1.3	820	0.24	47	63	71	80	90*	100*	112*
	+	157.64	3.09	51/1	4.4	742	0.65	53	2.9	787	0.48	50	1.6	832	0.29	48	63	71	80	90*	100*	112*
	IEC	138.13	2.71	51/1	5.1	719	0.71	54	3.4	767	0.54	51	1.8	811	0.32	48	63	71	80	90*	100*	112*
	120...126	123.58	2.42	51/1	5.7	698	0.76	55	3.8	743	0.57	52	2.0	787	0.34	49	63	71	80	90*	100*	112*
		106.25	2.08	51/1	6.6	674	0.83	56	4.4	716	0.62	53	2.4	767	0.39	49	63	71	80	90*	100*	112*
		94.15	1.85	51/1	7.4	649	0.88	57	4.9	688	0.67	53	2.7	744	0.42	50	63	71	80	90*	100*	112*
		78.83	3.67	43/2	8.9	722	0.95	71	5.9	758	0.68	69	3.2	802	0.40	67	63	71	80	90*	100*	112*
		66.45	3.09	43/2	10.5	698	1.07	72	7.0	740	0.79	69	3.8	783	0.47	67	63	71	80	90*	100*	112*
		58.23	2.71	43/2	12.0	668	1.17	72	8.0	713	0.85	70	4.3	754	0.50	68	63	71	80	90	100*	112*
		52.10	2.42	43/2	13.4	647	1.24	73	8.9	689	0.92	70	4.8	730	0.54	68	63	71	80	90	100*	112*
		44.79	2.08	43/2	15.6	629	1.39	74	10.4	668	1.02	71	5.6	715	0.61	69	63	71	80	90	100*	112*
		37.89	3.67	31/3	18.5	607	1.47	80	12.3	636	1.04	79	6.6	673	0.60	77	63	71	80	90	100*	112*
		31.94	3.09	31/3	21.9	582	1.65	81	14.6	616	1.19	79	7.8	652	0.68	78	63	71	80	90	100*	112*
		27.99	2.71	31/3	25.0	568	1.81	82	16.6	606	1.32	80	8.9	641	0.77	78	63	71	80	90	100*	112*
		25.04	2.42	31/3	28.0	551	1.97	82	18.6	587	1.43	80	10.0	622	0.84	78	63	71	80	90	100*	112*
	21.53	2.08	31/3	32.5	537	2.20	83	21.6	571	1.59	81	11.6	611	0.94	79	63	71	80	90	100*	112*	
	19.08	1.85	31/3	36.7	528	2.00	83	24.4	559	1.32	81	13.1	604	0.72	79	63	71	80	90	100	112*	
	15.97	3.09	31/6	43.8	417	2.00	87	29.1	408	1.32	85	15.7	403	0.72	84	63	71	80	90	100	112*	
	13.99	2.71	31/6	50.0	407	2.00	87	33.2	409	1.32	86	17.9	399	0.72	84	63	71	80	90	100	112*	
	12.52	2.42	31/6	55.9	388	2.00	87	37.1	406	1.32	86	20.0	401	0.72	85	63	71	80	90	100	112*	
	10.76	2.08	31/6	65.1	389	2.00	88	43.2	406	1.32	87	23.2	397	0.72	85	63	71	80	90	100	112*	
	9.54	1.85	31/6	73.4	394	2.00	88	48.7	402	1.32	87	26.2	393	0.72	85	63	71	80	90	100	112*	
	7.55	1.46	31/6	92.7	351	2.00	89	61.6	377	1.32	88	33.1	390	0.72	86			90	100	112*		

* İşareti belirtilen tahvil oranlarının B14 veya B5 flanşlı gövde bağlantılılar için geçerli olduğunu gösterir.

* Sign shows that this reduction ratio is valid for geared motor with B14 and B5 flange

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400 \text{ min}^{-1}$				W $n_1=930 \text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59					
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}							
				$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$	$[\text{min}^{-1}]$	$[\text{Nm}]$	$[\text{kW}]$	$[\%]$						
PSH 3100	5876.67	117.53	50/1	0.24	1590	0.09	45	0.16	1682	0.06	45	63*	71*				
	4646.67	92.93	50/1	0.30	1590	0.11	46	0.20	1612	0.08	45	63*	71*				
	3735.56	74.71	50/1	0.37	1590	0.13	46	0.25	1618	0.09	45	63*	71*				
	2201.85	44.04	50/1	0.64	1590	0.23	47	0.42	1640	0.16	46	63	71*				
	1670.37	33.41	50/1	0.84	1590	0.30	47	0.56	1657	0.21	46	63	71*				
	1506.84	30.14	50/1	0.93	1590	0.32	48	0.62	1666	0.23	47	63	71*				
	1173.93	23.48	50/1	1.2	1590	0.42	48	0.79	1661	0.29	47	63	71				
	660.00	13.20	50/1	2.1	1590	0.69	51	1.4	1659	0.50	49	63	71	80*	90*		
	519.44	10.39	50/1	2.7	1590	0.86	52	1.8	1651	0.62	50	63	71	80	90*		
	468.59	9.37	50/1	3.0	1590	0.94	53	2.0	1647	0.69	50	63	71	80	90*		
	365.06	7.30	50/1	3.8	1510	1.09	55	2.5	1580	0.80	52	63	71	80	90*		
	298.69	5.97	50/1	4.7	1510	1.33	56	3.1	1599	0.98	53	63	71	80	90*		
	257.40	13.20	39/2	5.4	1510	1.22	70	3.6	1575	0.86	69	63	71	80	90*		
	182.75	9.37	39/2	7.7	1420	1.50	72	5.1	1471	0.99	70	63	71	80			
	142.38	7.30	39/2	9.8	1310	1.50	74	6.5	1371	0.99	71	63	71	80	90		
	121.20	10.39	35/3	11.6	1190	1.50	80	7.7	1236	0.99	78	63	71	80	90		
	109.34	9.37	35/3	12.8	1190	1.50	80	8.5	1232	0.99	79	63	71	80	90		
	85.18	7.30	35/3	16.4	1080	1.50	81	10.9	1130	0.99	80	63	71	80	90		
	69.69	5.97	35/3	20.1	1080	1.50	82	13.3	1143	0.99	80	63	71	80	90		
	53.68	10.39	31/6	26.1	690	1.50	86	17.3	696	0.99	85	63	71	80	90		
PSH 2100	645.00	12.90	50/1	2.2	1420	0.64	51	1.4	1481	0.44	49	71	80*	90*			
	510.00	10.20	50/1	2.7	1420	0.77	52	1.8	1474	0.56	50		80	90*			
	410.00	8.20	50/1	3.4	1355	0.89	54	2.3	1410	0.67	51			90*	100*	112*	
	303.85	6.08	50/1	4.6	1420	1.22	56	3.1	1502	0.92	53			90*			
	241.67	4.83	50/1	5.8	1420	1.49	58	3.8	1506	1.09	55	71	80	90*	100*	112*	
	183.33	3.67	50/1	7.6	1365	1.78	61	5.1	1439	1.35	57	71	80	90	100*	112*	
	165.38	3.31	50/1	8.5	1330	1.91	62	5.6	1411	1.43	58	71	80	90	100*	112*	
	128.85	2.58	50/1	10.9	1240	2.18	65	7.2	1337	1.68	60	71	80	90	100*	112*	132*
	103.85	2.08	50/1	13.5	1170	2.47	67	9.0	1276	1.91	63			90	100*	112*	132*
	94.25	4.83	39/2	14.9	1310	2.69	76	9.9	1389	1.95	74	71	80	90	100*	112*	
	71.50	3.67	39/2	19.6	1220	3.21	78	13.0	1286	2.33	75	71	80	90	100	112*	
	64.50	3.31	39/2	21.7	1190	3.42	79	14.4	1263	2.51	76	71	80	90	100	112*	
	50.25	2.58	39/2	27.9	1110	4.05	80	18.5	1197	2.97	78	71	80	90	100	112	132*
	42.78	3.67	35/3	32.7	1100	4.43	85	21.7	1159	3.17	83	71	80	90	100	112	
	38.59	3.31	35/3	36.3	1100	4.92	85	24.1	1167	3.55	83	71	80	90	100	112	
	34.29	1.76	39/2	40.8	1090	5.61	83	27.1	1202	4.26	80			90	100	112	132*
	30.06	2.58	35/3	46.6	1050	5.96	86	30.9	1132	4.36	84	71	80	90	100	112	132*
	24.23	2.08	35/3	57.8	1020	7.10	87	38.4	1112	5.26	85			90	100	112	132*
	20.52	1.76	35/3	68.2	840	6.82	88	45.3	926	5.11	86			90	100	112	132*
	18.94	3.67	31/6	73.9	720	6.19	90	49.1	721	4.21	88	71	80	90	100	112	132*
17.09	3.31	31/6	81.9	710	6.77	90	54.4	725	4.64	89	71	80	90	100	112	132*	
16.25	1.39	35/3	86.2	750	7.50	89	57.2	844	4.95	87			90	100	112	132*	
13.31	2.58	31/6	105.2	710	7.50	91	69.9	712	4.95	89	71	80	90	100	112	132*	
10.73	2.08	31/6	130.5	725	7.50	91	86.7	717	4.95	90			90	100	112	132*	
9.09	1.76	31/6	154.0	725	7.50	92	102.3	717	4.95	91			90	100	112	132*	
7.20	1.39	31/6	194.4	680	7.50	92	129.2	680	4.95	91			90	100	112	132*	

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1 = 700 \text{ min}^{-1}$				W $n_1 = 465 \text{ min}^{-1}$				W $n_1 = 250 \text{ min}^{-1}$				IEC $f_B \leftrightarrow$ 45 - 59					
				n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW]	%	n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW]	%	n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW]	%	$f_B \leftrightarrow$ 45 - 59					
																$f_B = 1$	$f_B \geq 1$	$f_B = 1$	$f_B \geq 1$	$f_B = 1$	$f_B \geq 1$
PSH 3100 W $\leftarrow \text{mm} \rightarrow$ 111...117 + IEC $\leftarrow \text{mm} \rightarrow$ 121...127	5876.67	117.53	50/1	0.12	1760	0.05	45	0.08	1845	0.03	45	0.04	1913	0.02	45	63*	71*				
	4646.67	92.93	50/1	0.15	1712	0.06	45	0.10	1820	0.04	45	0.05	1907	0.02	45	63*	71*				
	3735.56	74.71	50/1	0.19	1655	0.07	45	0.12	1791	0.05	45	0.07	1900	0.03	45	63*	71*				
	2201.85	44.04	50/1	0.32	1664	0.12	46	0.21	1690	0.08	45	0.11	1874	0.05	45	63	71*				
	1670.37	33.41	50/1	0.42	1690	0.16	46	0.28	1726	0.11	46	0.15	1853	0.06	45	63	71*				
	1506.84	30.14	50/1	0.46	1703	0.18	46	0.31	1743	0.12	46	0.17	1843	0.07	45	63	71*				
	1173.93	23.48	50/1	0.60	1710	0.23	47	0.40	1762	0.16	46	0.21	1805	0.09	45	63	71				
	660.00	13.20	50/1	1.1	1695	0.41	48	0.70	1785	0.28	47	0.38	1865	0.16	46	63	71	80*	90*		
	519.44	10.39	50/1	1.3	1698	0.47	49	0.90	1772	0.36	47	0.48	1875	0.20	46	63	71	80	90*		
	468.59	9.37	50/1	1.5	1700	0.54	49	1.0	1764	0.38	48	0.53	1880	0.23	46	63	71	80	90*		
	365.06	7.30	50/1	1.9	1619	0.64	50	1.3	1692	0.48	48	0.68	1800	0.27	47	63	71	80	90*		
	298.69	5.97	50/1	2.3	1642	0.78	51	1.6	1715	0.59	49	0.84	1815	0.34	47	63	71	80	90*		
	257.40	13.20	39/2	2.7	1610	0.67	68	1.8	1696	0.48	67	1.0	1771	0.27	66	63	71	80	90*		
	182.75	9.37	39/2	3.8	1518	0.75	69	2.5	1576	0.50	68	1.4	1679	0.27	67	63	71	80	90*		
	142.38	7.30	39/2	4.9	1405	0.75	70	3.3	1468	0.50	68	1.8	1562	0.27	67	63	71	80	90		
	121.20	10.39	35/3	5.8	1271	0.75	78	3.8	1326	0.50	77	2.1	1403	0.27	76	63	71	80	90		
	109.34	9.37	35/3	6.4	1272	0.75	78	4.3	1320	0.50	77	2.3	1397	0.27	76	63	71	80	90		
	85.18	7.30	35/3	8.2	1158	0.75	79	5.5	1210	0.50	77	2.9	1287	0.27	76	63	71	80	90		
	69.69	5.97	35/3	10.0	1174	0.75	79	6.7	1227	0.50	78	3.6	1298	0.27	76	63	71	80	90		
	53.68	10.39	31/6	13.0	688	0.75	84	8.7	688	0.50	84	4.7	680	0.27	83	63	71	80	90		
PSH 2100 W $\leftarrow \text{mm} \rightarrow$ 110...116 + IEC $\leftarrow \text{mm} \rightarrow$ 120...126	645.00	12.90	50/1	1.1	1514	0.36	48	0.72	1593	0.26	47	0.39	1666	0.15	46		80*	90*			
	510.00	10.20	50/1	1.4	1517	0.45	49	0.91	1581	0.32	47	0.49	1675	0.19	46		80	90*			
	410.00	8.20	50/1	1.7	1451	0.52	50	1.1	1508	0.36	48	0.61	1609	0.22	47			90*	100*	112*	
	303.85	6.08	50/1	2.3	1542	0.73	51	1.5	1611	0.52	49	0.82	1706	0.31	47			90*			
	241.67	4.83	50/1	2.9	1558	0.89	53	1.9	1621	0.65	50	1.0	1709	0.37	48	71	80	90*	100*	112*	
	183.33	3.67	50/1	3.8	1505	1.09	55	2.5	1579	0.79	52	1.4	1671	0.50	49	71	80	90	100*	112*	
	165.38	3.31	50/1	4.2	1470	1.18	55	2.8	1552	0.88	52	1.5	1642	0.53	49	71	80	90	100*	112*	
	128.85	2.58	50/1	5.4	1387	1.35	58	3.6	1479	1.03	54	1.9	1564	0.62	50	71	80	90	100*	112*	132*
	103.85	2.08	50/1	6.7	1337	1.56	60	4.5	1420	1.19	56	2.4	1521	0.75	51			90	100*	112*	132*
	94.25	4.83	39/2	7.4	1437	1.55	72	4.9	1495	1.10	70	2.7	1576	0.65	68	71	80	90	100*	112*	
	71.50	3.67	39/2	9.8	1345	1.89	73	6.5	1412	1.35	71	3.5	1494	0.79	69	71	80	90	100*	112*	
	64.50	3.31	39/2	10.9	1316	2.03	74	7.2	1389	1.45	72	3.9	1469	0.87	69	71	80	90	100*	112*	
	50.25	2.58	39/2	13.9	1242	2.38	76	9.3	1324	1.77	73	5.0	1400	1.05	70	71	80	90	100	112*	132*
	42.78	3.67	35/3	16.4	1213	2.57	81	10.9	1273	1.84	79	5.8	1347	1.05	78	71	80	90	100	112*	
	38.59	3.31	35/3	18.1	1216	2.81	82	12.0	1284	2.02	80	6.5	1358	1.18	78	71	80	90	100	112*	
	34.29	1.76	39/2	20.4	1269	3.48	78	13.6	1346	2.56	75	7.3	1459	1.55	72			90	100	112	132*
	30.06	2.58	35/3	23.3	1175	3.45	83	15.5	1252	2.51	81	8.3	1324	1.46	79	71	80	90	100	112	132*
	24.23	2.08	35/3	28.9	1166	4.20	84	19.2	1238	3.04	82	10.3	1326	1.81	79			90	100	112	132*
	20.52	1.76	35/3	34.1	978	4.11	85	22.7	1037	2.97	83	12.2	1125	1.80	80			90	100	112	132*
	18.94	3.67	31/6	37.0	712	3.17	87	24.6	704	2.11	86	13.2	688	1.13	84	71	80	90	100	112	132
17.09	3.31	31/6	41.0	717	3.50	88	27.2	700	2.32	86	14.6	692	1.24	85	71	80	90	100	112		
16.25	1.39	35/3	43.1	897	3.75	86	28.6	968	2.48	84	15.4	1051	1.35	81	71	80	90	100	112	132*	
13.31	2.58	31/6	52.6	712	3.75	89	34.9	696	2.48	87	18.8	680	1.35	85	71	80	90	100	112	132*	
10.73	2.08	31/6	65.2	709	3.75	89	43.3	701	2.48	88	23.3	685	1.35	86			90	100	112	132*	
9.09	1.76	31/6	77.0	709	3.75	90	51.2	694	2.48	88	27.5	678	1.35	86			90	100	112	132*	
7.20	1.39	31/6	97.2	680	3.75	91	64.6	665	2.48	89	34.7	650	1.35	87			90	100	112	132*	

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400\text{ min}^{-1}$				W $n_1=930\text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59					
				n_2 [min ⁻¹]	M_{amax} [Nm]	P_{1max} [kW]	$f_B \geq 1$ [%]	n_2 [min ⁻¹]	M_{amax} [Nm]	P_{1max} [kW]	$f_B \geq 1$ [%]	f_B	f_B	f_B	f_B		
PSH 3125 W 111...117 + IEC 121...127	7095.12	150.96	47/1	0.20	3000	0.13	47	0.13	3000	0.09	47	71*	80*	90*			
	5055.49	107.56	47/1	0.28	3090	0.19	48	0.18	3222	0.13	47	71*	80*	90*			
	3442.96	73.25	47/1	0.41	3090	0.28	48	0.27	3146	0.19	48	71*	80*	90*			
	2527.75	53.78	47/1	0.55	3090	0.36	49	0.37	3168	0.26	48	71*	80*	90*			
	2057.43	43.78	47/1	0.68	3090	0.45	49	0.45	3187	0.31	48	71	80*	90*			
	1862.28	39.62	47/1	0.75	3090	0.50	49	0.50	3198	0.35	48	71	80*	90*			
	1637.95	34.85	47/1	0.85	3090	0.55	50	0.57	3215	0.39	49	71	80*	90*			
	1475.08	31.38	47/1	0.95	3090	0.61	50	0.63	3230	0.43	49	71	80*	90*			
	1198.50	25.50	47/1	1.2	3090	0.76	51	0.78	3239	0.54	49	71	80	90*			
	928.25	19.75	47/1	1.5	3090	0.93	52	1.0	3200	0.67	50		80	90*			
	793.81	16.89	47/1	1.8	3090	1.10	53	1.2	3201	0.79	51		80	90*			
	690.49	30.69	45/2	2.0	2830	0.87	68	1.3	2962	0.60	67		80	90*			
	607.31	26.99	45/2	2.3	2670	0.95	68	1.5	2805	0.66	67		80	90*			
	546.92	24.31	45/2	2.6	3090	1.22	69	1.7	3233	0.86	67		80	90*			
	444.38	19.75	45/2	3.2	2990	1.45	69	2.1	3022	0.98	68		80	90*			
	380.02	16.89	45/2	3.7	2610	1.44	70	2.4	2625	0.96	69		80	90*			
	323.00	14.39	45/2	4.3	2400	1.52	71	2.9	2332	1.03	69		80	90			
	270.16	12.01	45/2	5.2	2810	2.13	72	3.4	2926	1.49	70	71	80	90	100*	112*	
	236.72	10.52	45/2	5.9	2810	2.38	73	3.9	2918	1.70	70	71	80	90	100*	112*	
	187.50	8.33	45/2	7.5	2590	2.75	74	5.0	2694	1.96	72	71	80	90	100*	112*	
	152.34	6.77	45/2	9.2	2590	3.28	76	6.1	2721	2.38	73	71	80	90	100	112*	
	130.28	5.79	45/2	10.7	2480	3.61	77	7.1	2631	2.64	74	71	80	90	100	112*	
	110.99	4.93	45/2	12.6	2370	4.00	78	8.4	2514	2.64	75	71	80	90	100	112	
	86.11	8.33	31/3	16.3	1760	3.62	83	10.8	1830	2.55	81	71	80	90	100	112*	
69.97	6.77	31/3	20.0	1560	3.89	84	13.3	1639	2.78	82	71	80	90	100	112*		
62.60	6.06	31/3	22.4	1570	4.00	85	14.9	1661	2.64	83	71	80	90	100	112		

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=700 \text{ min}^{-1}$				W $n_1=465 \text{ min}^{-1}$				W $n_1=250 \text{ min}^{-1}$				IEC $f_B \rightarrow$ 45 - 59				
				n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW] [%]		n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW] [%]		n_2 [min^{-1}]	M_{amax} [Nm]	P_{1max} [kW] [%]		f_B	80*	90*		
						$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$					
PSH 3125	7095.12	150.96	47/1	0.10	3000	0.07	47	0.07	3000	0.05	47	0.04	3000	0.03	47	71*	80*	90*		
	5055.49	107.56	47/1	0.14	3388	0.11	47	0.09	3569	0.07	47	0.05	3714	0.04	47	71*	80*	90*		
W	3442.96	73.25	47/1	0.20	3204	0.14	47	0.14	3475	0.11	47	0.07	3691	0.06	47	71*	80*	90*		
	2527.75	53.78	47/1	0.28	3206	0.20	48	0.18	3364	0.13	47	0.10	3665	0.08	47	71	80*	90*		
	2057.43	43.78	47/1	0.34	3235	0.24	48	0.23	3286	0.17	47	0.12	3641	0.10	47	71	80*	90*		
	1862.28	39.62	47/1	0.38	3252	0.27	48	0.25	3309	0.18	47	0.13	3628	0.11	47	71	80*	90*		
 111...117	1637.95	34.85	47/1	0.43	3276	0.31	48	0.28	3342	0.20	48	0.15	3608	0.12	47	71	80*	90*		
	1475.08	31.38	47/1	0.47	3299	0.34	48	0.32	3374	0.24	48	0.17	3589	0.14	47	71	80*	90*		
+ IEC	1198.50	25.50	47/1	0.58	3325	0.41	49	0.39	3420	0.29	48	0.21	3380	0.16	47	71	80*	90*		
	928.25	19.75	47/1	0.75	3315	0.53	49	0.50	3439	0.38	48	0.27	3538	0.21	48		80	90*		
	793.81	16.89	47/1	0.88	3306	0.61	50	0.59	3453	0.44	49	0.31	3571	0.24	48		80	90*		
	690.49	30.69	45/2	1.0	3027	0.48	66	0.67	3097	0.33	66	0.36	3282	0.19	65		80	90*		
 121...127	607.31	26.99	45/2	1.2	2875	0.54	67	0.77	2952	0.36	66	0.41	3063	0.20	65		80	90*		
	546.92	24.31	45/2	1.3	3324	0.68	67	0.85	3396	0.46	66	0.46	3396	0.25	66		80	90*		
	444.38	19.75	45/2	1.6	2977	0.74	67	1.0	2933	0.47	66	0.56	2933	0.26	66		80	90*		
	380.02	16.89	45/2	1.8	2587	0.72	68	1.2	2549	0.48	67	0.66	2511	0.26	66		80	90*		
	323.00	14.39	45/2	2.2	2298	0.78	68	1.4	2265	0.50	67	0.77	2231	0.27	66		80	90*		
	270.16	12.01	45/2	2.6	2998	1.18	69	1.7	3146	0.84	67	0.93	3302	0.49	66	71	80	90	100*	112*
	236.72	10.52	45/2	3.0	3001	1.37	69	2.0	3132	0.96	68	1.1	3312	0.58	66	71	80	90	100*	112*
	187.50	8.33	45/2	3.7	2772	1.53	70	2.5	2880	1.11	68	1.3	3073	0.62	67	71	80	90	100*	112*
	152.34	6.77	45/2	4.6	2786	1.89	71	3.1	2916	1.37	69	1.6	3096	0.77	67	71	80	90	100*	112*
	130.28	5.79	45/2	5.4	2705	2.12	72	3.6	2824	1.52	70	1.9	2986	0.87	68	71	80	90	100	112*
	110.99	4.93	45/2	6.3	2599	2.00	73	4.2	2706	1.32	71	2.3	2849	0.72	68	71	80	90	100	112*
	86.11	8.33	31/3	8.1	1884	2.00	80	5.4	1866	1.34	79	2.9	1842	0.72	78	71	80	90	100	112*
	69.97	6.77	31/3	10.0	1678	2.17	81	6.6	1756	1.52	80	3.6	1810	0.87	78	71	80	90	100	112*
	62.60	6.06	31/3	11.2	1705	2.00	82	7.4	1782	1.32	80	4.0	1810	0.72	78	71	80	90	100	112

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=1400\text{ min}^{-1}$				W $n_1=930\text{ min}^{-1}$				IEC $f_B \Rightarrow$ 45 - 59					
				n_2 [min ⁻¹]	M_{amax} [Nm]	P_{1max} [kW]	$f_B \geq 1$ [%]	n_2 [min ⁻¹]	M_{amax} [Nm]	P_{1max} [kW]	$f_B \geq 1$ [%]	f_B	f_B	f_B	f_B		
PSH 2125	695.60	14.80	47/1	2.0	2850	1.11	54	1.3	2968	0.79	51	90*					
	495.64	10.55	47/1	2.8	2850	1.49	56	1.9	2960	1.11	53	90*	100*	112*			
W 	337.55	7.18	47/1	4.1	2850	2.07	59	2.8	2985	1.56	56		100*	112*	132*		
	247.82	5.27	47/1	5.6	2760	2.61	62	3.8	2932	2.01	58				132*		
110...116	201.71	4.29	47/1	6.9	2630	2.92	65	4.6	2781	2.23	60	90	100*	112*			
	182.58	3.88	47/1	7.7	2560	3.13	66	5.1	2700	2.36	61	90	100	112*			
+ IEC 	160.58	3.42	47/1	8.7	2470	3.36	67	5.8	2615	2.52	63	90	100	112*			
	144.62	3.08	47/1	9.7	2390	3.57	68	6.4	2549	2.67	64	90	100	112*	132*	160*	
120...126	117.50	2.50	47/1	11.9	2240	3.93	71	7.9	2419	3.03	66	90	100	112*	132*	160*	
	100.48	2.14	47/1	13.9	2130	4.31	72	9.3	2319	3.32	68	90	100	112	132*	160*	
	87.40	3.88	45/2	16.0	2360	4.94	80	10.6	2489	3.59	77	90	100	112	132*		
	76.88	3.42	45/2	18.2	2290	5.39	81	12.1	2424	3.94	78	90	100	112	132*		
	69.23	3.08	45/2	20.2	2220	5.80	81	13.4	2368	4.26	78	90	100	112	132*	160*	
	56.25	2.50	45/2	24.9	2060	6.47	83	16.5	2225	4.81	80	90	100	112	132*	160*	
	48.10	2.14	45/2	29.1	1960	7.11	84	19.3	2134	5.32	81	90	100	112	132*	160*	
	40.98	1.82	45/2	34.2	1840	7.75	85	22.7	2024	5.87	82	90	100	112	132*	160*	
	35.31	3.42	31/3	39.6	1600	7.54	88	26.3	1694	5.42	86	90	100	112	132*		
	31.79	3.08	31/3	44.0	1840	9.63	88	29.3	1962	7.00	86	90	100	112	132	160*	
	25.83	2.50	31/3	54.2	1710	10.90	89	36.0	1847	8.00	87	90	100	112	132	160*	
	22.09	2.14	31/3	63.4	1610	11.88	90	42.1	1753	8.78	88	90	100	112	132	160*	
	18.82	1.82	31/3	74.4	1510	13.07	90	49.4	1661	9.66	89	90	100	112	132	160*	
	15.90	3.08	31/6	88.1	1240	12.43	92	58.5	1300	8.85	90	90	100	112	132	160*	
	14.54	1.41	31/3	96.3	1340	14.85	91	64.0	1506	11.21	90				132	160*	
	12.92	2.50	31/6	108.4	1240	15.00	92	72.0	1314	9.90	91	90	100	112	132	160	
	11.05	2.14	31/6	126.7	1240	15.00	93	84.2	1297	9.90	92	90	100	112	132	160	
	9.41	1.82	31/6	148.8	1140	15.00	93	98.8	1254	9.90	92	90	100	112	132	160	
	8.44	1.63	31/6	165.9	1140	15.00	93	110.2	1234	9.90	92				132	160	
	7.75	1.50	31/6	180.6	1010	15.00	93	120.0	1129	9.90	93				132	160	
	7.27	1.41	31/6	192.6	940	15.00	93	127.9	1057	9.90	93				132	160	

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



Tip Type	Tahvil Reduction i_{ges}	Helisel Helical i_1	Sonsuz Worm Z_2/Z_1	W $n_1=700 \text{ min}^{-1}$				W $n_1=465 \text{ min}^{-1}$				W $n_1=250 \text{ min}^{-1}$				IEC $f_B \rightarrow$ 45 - 59				
				n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}		n_2	M_{amax}	P_{1max}						
				$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$			$f_B=1$	$f_B \geq 1$							
				[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]	[min^{-1}]	[Nm]	[kW]	[%]					
PSH 2125	695.60	14.80	47/1	1.0	3041	0.64	50	0.67	3068	0.44	49	0.36	3005	0.24	48	90*				
	495.64	10.55	47/1	1.4	3044	0.86	52	0.94	3177	0.63	50	0.50	3359	0.37	48	90*	100*	112*		
W	337.55	7.18	47/1	2.1	3056	1.24	54	1.4	3196	0.92	51	0.74	3399	0.54	49		100*	112*	132*	
	247.82	5.27	47/1	2.8	3023	1.58	56	1.9	3152	1.18	53	1.0	3322	0.70	50				132*	
	201.71	4.29	47/1	3.5	2891	1.83	58	2.3	3010	1.34	54	1.2	3186	0.78	51	90	100*	112*		
 110...116	182.58	3.88	47/1	3.8	2820	1.90	59	2.5	2950	1.40	55	1.4	3122	0.88	52	90	100*	112*		
+ IEC	160.58	3.42	47/1	4.4	2729	2.10	60	2.9	2874	1.56	56	1.6	3041	0.98	52	90	100*	112*		
	144.62	3.08	47/1	4.8	2648	2.18	61	3.2	2807	1.65	57	1.7	2970	1.00	53	90	100	112*	132*	160*
	117.50	2.50	47/1	6.0	2513	2.51	63	4.0	2678	1.90	59	2.1	2831	1.15	54	90	100	112*	132*	160*
 120...126	100.48	2.14	47/1	7.0	2427	2.74	65	4.6	2579	2.07	60	2.5	2756	1.31	55	90	100	112*	132*	160*
	87.40	3.88	45/2	8.0	2599	2.90	75	5.3	2720	2.10	72	2.9	2878	1.27	69	90	100	112*	132*	
	76.88	3.42	45/2	9.1	2530	3.21	75	6.0	2665	2.29	73	3.3	2820	1.39	70	90	100	112	132*	
	69.23	3.08	45/2	10.1	2459	3.42	76	6.7	2608	2.51	73	3.6	2759	1.49	70	90	100	112	132*	160*
	56.25	2.50	45/2	12.4	2311	3.85	78	8.3	2462	2.85	75	4.4	2604	1.69	71	90	100	112	132*	160*
	48.10	2.14	45/2	14.6	2233	4.32	79	9.7	2373	3.17	76	5.2	2536	1.92	72	90	100	112	132*	160*
	40.98	1.82	45/2	17.1	2136	4.78	80	11.3	2263	3.48	77	6.1	2450	2.14	73	90	100	112	132*	160*
	35.31	3.42	31/3	19.8	1767	4.36	84	13.2	1862	3.14	82	7.1	1904	1.77	80	90	100	112	132*	
	31.79	3.08	31/3	22.0	2008	5.44	85	14.6	1960	3.61	83	7.9	1890	1.95	80	90	100	112	132	160*
	25.83	2.50	31/3	27.1	1918	6.33	86	18.0	1949	4.37	84	9.7	1880	2.36	81	90	100	112	132	160*
	22.09	2.14	31/3	31.7	1834	7.00	87	21.1	1917	5.04	84	11.3	1872	2.70	82	90	100	112	132	160*
	18.82	1.82	31/3	37.2	1753	7.85	87	24.7	1857	5.65	85	13.3	1829	3.11	82	90	100	112	132	160*
	15.90	3.08	31/6	44.0	1285	6.65	89	29.2	1271	4.42	88	15.7	1242	2.37	86	90	100	112	132	160*
	14.54	1.41	31/3	48.1	1599	9.05	89	32.0	1725	6.64	87	17.2	1801	3.86	84				132	160*
	12.92	2.50	31/6	54.2	1300	7.50	90	36.0	1271	4.95	88	19.3	1242	2.70	86	90	100	112	132	160*
	11.05	2.14	31/6	63.3	1283	7.50	91	42.1	1255	4.95	89	22.6	1226	2.70	87	90	100	112	132	160*
	9.41	1.82	31/6	74.4	1251	7.50	91	49.4	1238	4.95	90	26.6	1196	2.70	87	90	100	112	132	160*
	8.44	1.63	31/6	82.9	1220	7.50	91	55.1	1207	4.95	90	29.6	1180	2.70	88				132	160*
	7.75	1.50	31/6	90.3	1196	7.50	92	60.0	1207	4.95	90	32.3	1180	2.70	88				132	160
	7.27	1.41	31/6	96.3	1122	7.50	92	64.0	1189	4.95	91	34.4	1150	2.70	88				132	160

IEC bağlantısı yoktur - No IEC assembling on empty fields

63 IEC bağlantısı yapılır - IEC assembling available on numbered fields

80* IEC bağlantısı yapılacaksa P_{1max} değerleri aşılmamalıdır - Do not exceed the P_{1max} values indicated on fields with asterisk



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Drive Technologies



W - IEC Ölçü Sayfaları Dimension Tables of W - IEC



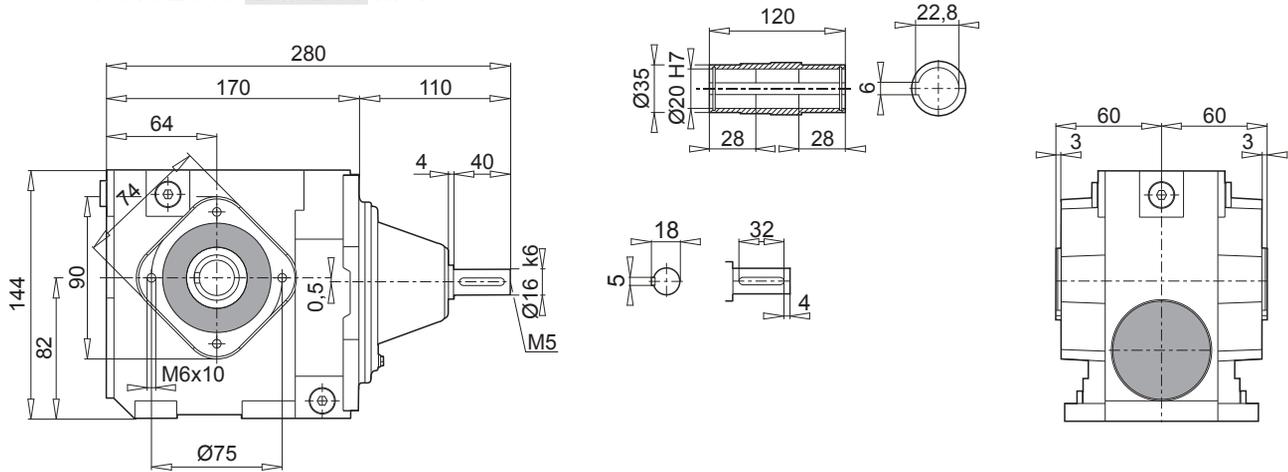
W



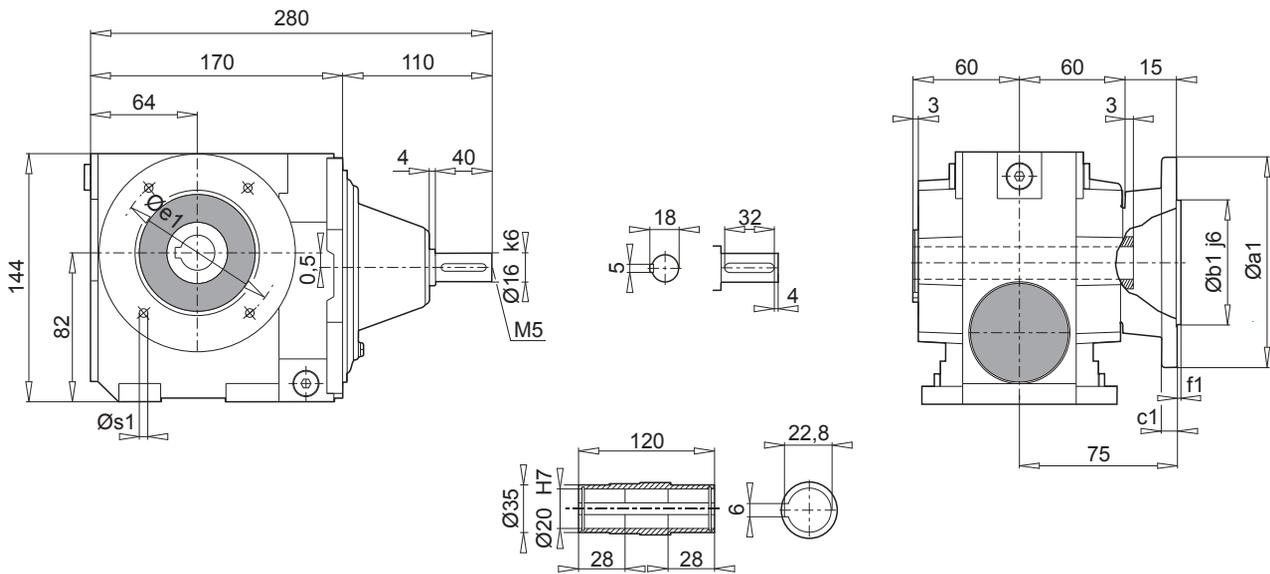
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PSH 2040 DG/B14 ...W

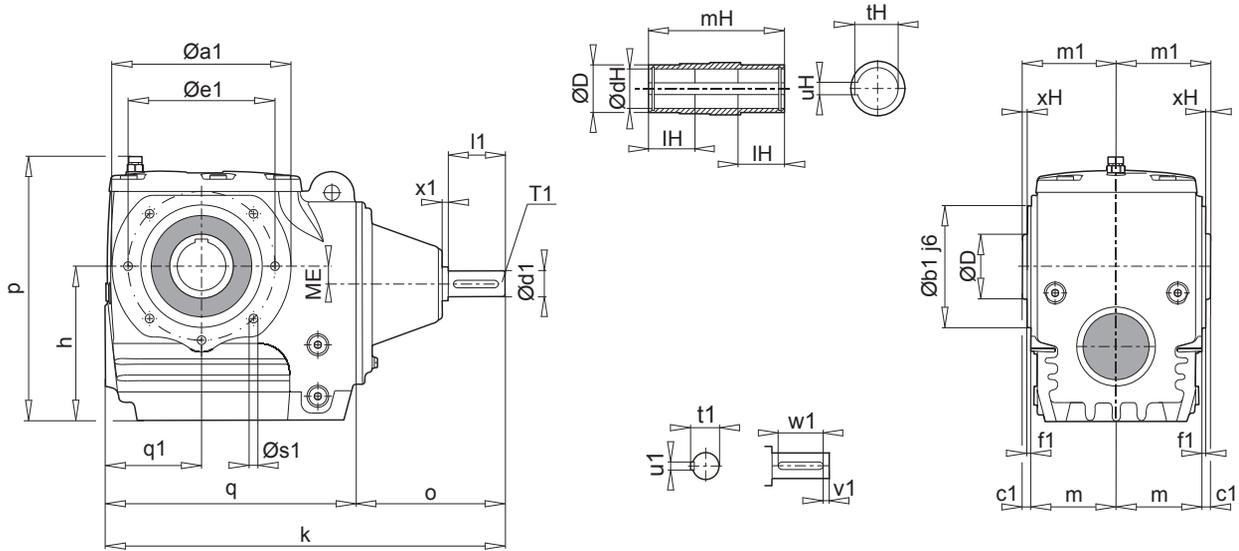


PSH 2040 DG/B5 ...W



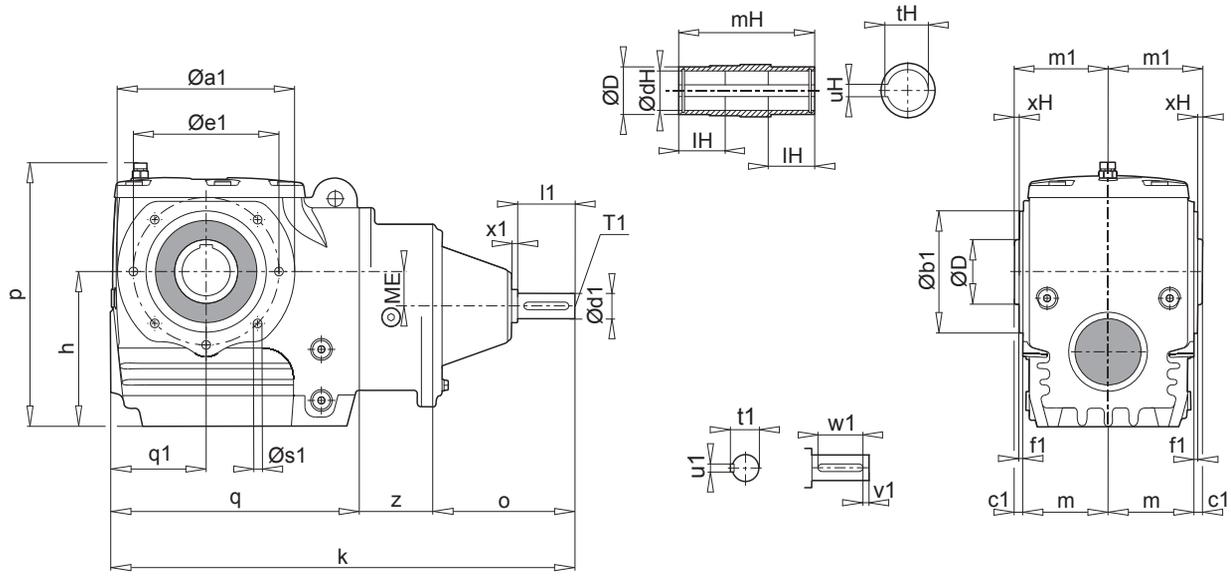
a1	b1	c1	e1	f1	s1
120	80	10	100	3,0	7
160	110	10	130	3,5	9

İKİ KADEME
DOUBLE REDUCTION



Tip Type	Montaj Ölçüleri (Flans) Mounting Dimensions (Flange)							Ana Ölçüler Outline Dimensions							Çıkış Şaftı Output Shaft				Giriş Şaftı Input Shaft				
	a1	b1	c1	e1	f1	s1	h	k	m	m1	o	p	q	q1	ME	dH*	tH*	uH*	xH	d1	t1	v1	x1
																D	IH	mH		l1	u1	w1	T1
PSH 2050 DG/B14 + W	132	95	6	115	3	M8 x 13	100	303	60	66	122	188	181	71	7.5	25	28.3	8	3	16	18.0	4	7
																30*	33.3*	8*		40	5	32	M5
																45	45	132					
PSH 2063 DG/B14 + W	140	95	7	115	3	M8 x 13	121	319	67	74	122	206.5	197	76	13.0	30	33.3	8	4	16	18.0	4	7
																35*	38.3*	10*		40	5	32	M5
																50	50	148					
PSH 2080 DG/B14 + W	192	130	9	165	4	M10 x 16	146	365	75	84	122	254	243	102	19.0	40	43.3	12	5	16	18.0	4	7
																45*	48.8*	14*		40	5	32	M5
																65	55	168					
PSH 2100 DG/B14 + W	238	180	9	215	4	M12 x 20	182	459	92	101	172	316	287	123	24.0	50	53.8	14	5	24	27.0	5	8
																60*	64.4*	18*		50	8	40	M8
																85	70	202					
PSH 2125 DG/B14 + W	292	230	10	265	4	M12 x 20	224	567	115	125	213	388	354	151	39.0	60	64.4	18	6	38	41.0	5	8
																70*	74.9*	20*		80	10	70	M12
																95	89	250					

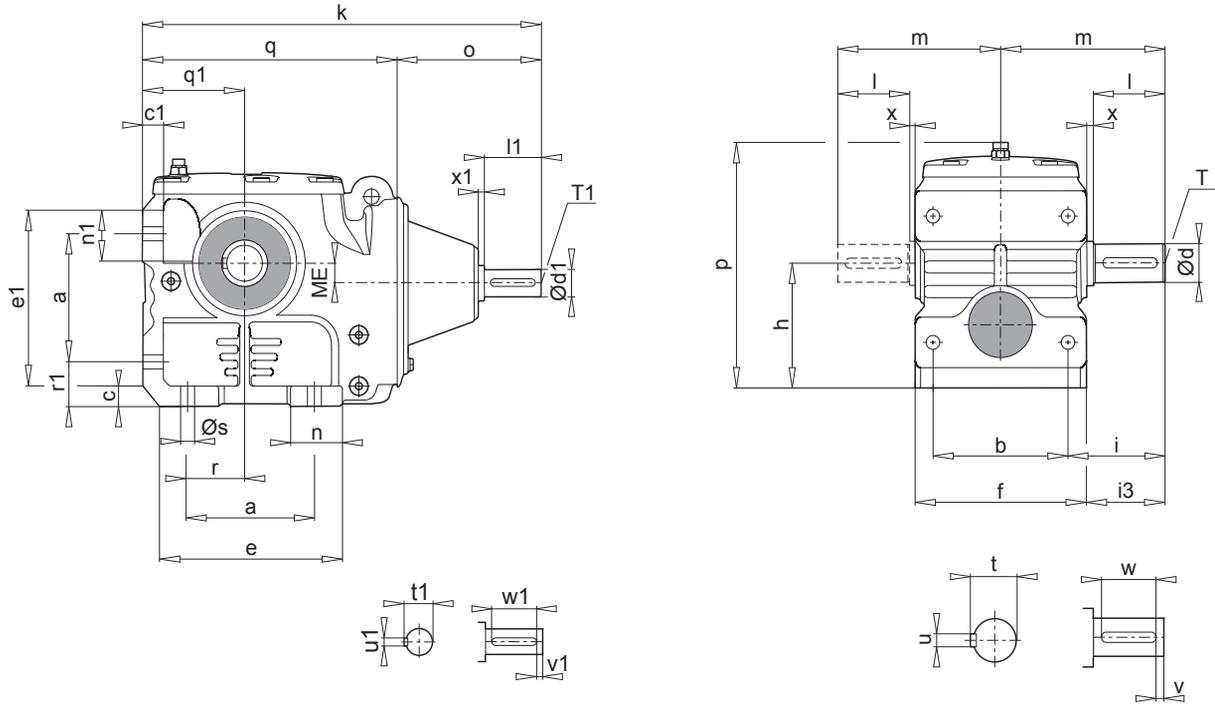
*Opsiyonel delik milli şaft *Optional hollow shaft



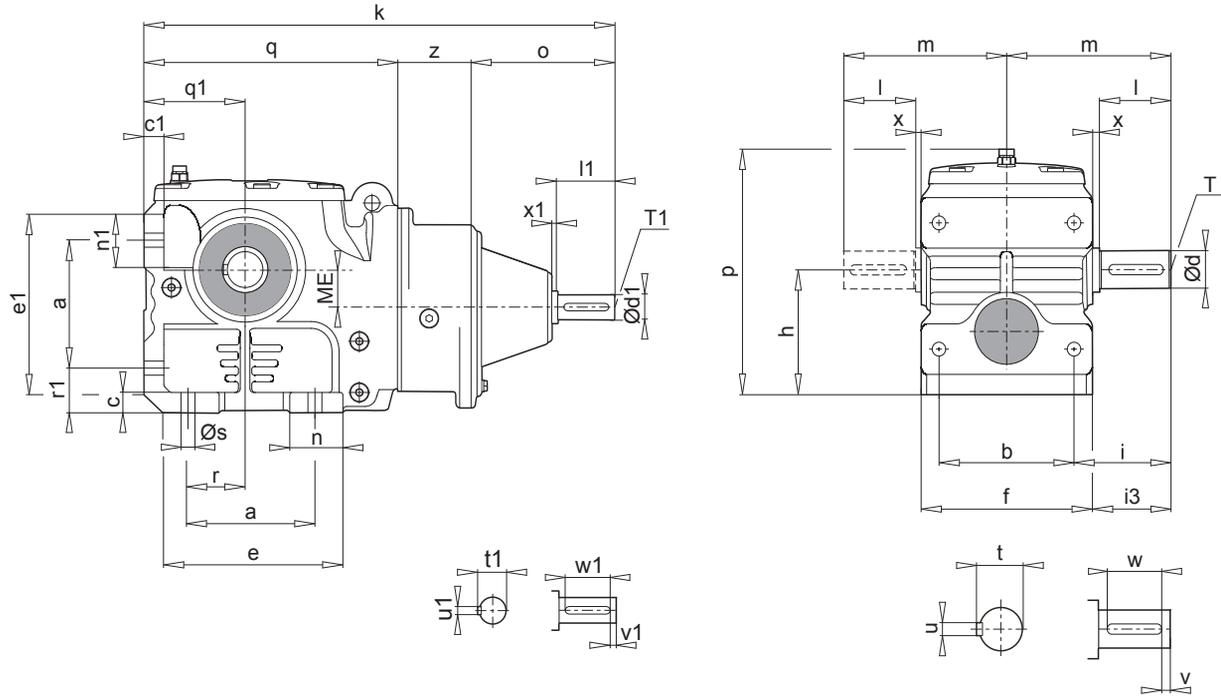
Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)						Ana Ölçüler Outline Dimensions										Çıkış Şaftı Output Shaft				Giriş Şaftı Input Shaft			
	a1	b1	c1	e1	f1	s1	h	k	m	m1	o	p	q	z	q1	ME	dH*	tH*	uH*	xH	d1	t1	v1	x1
																	D	IH	mH		l1	u1	w1	T1
PSH 3050 DG/B14 + W	132	95	6	115	3	M8 x 13	100	361	60	66	122	188	181	58	71	37.5	25	28.3	8	3	16	18.0	4	7
																	30*	33.3*	8*		40	5	32	M5
																	45	45	132					
PSH 3063 DG/B14 + W	140	95	7	115	3	M8 x 13	121	377	67	74	122	206.5	197	58	76	43.0	30	33.3	8	4	16	18.0	4	7
																	35*	38.3*	10*		40	5	32	M5
																	50	50	148					
PSH 3080 DG/B14 + W	192	130	9	165	4	M10 x 16	146	423	75	84	122	254	243	58	102	49.0	40	43.3	12	5	16	18.0	4	7
																	45*	48.8*	14*		40	5	32	M5
																	65	55	168					
PSH 3100 DG/B14 + W	238	180	9	215	4	M12 x 20	182	469	92	101	122	316	287	60	123	74.0	50	53.8	14	5	16	18.0	4	7
																	60*	64.4*	18*		40	5	32	M5
																	85	70	202					
PSH 3125 DG/B14 + W	292	230	10	265	4	M12 x 20	224	595	115	125	172	388	354	69	151	100	60	64.4	18	6	24	27.0	5	8
																	70*	74.9*	20*		50	8	40	M8
																	95	89	250					

*Opsiyonel delik milli şaft *Optional hollow shaft

İKİ KADEME
DOUBLE REDUCTION

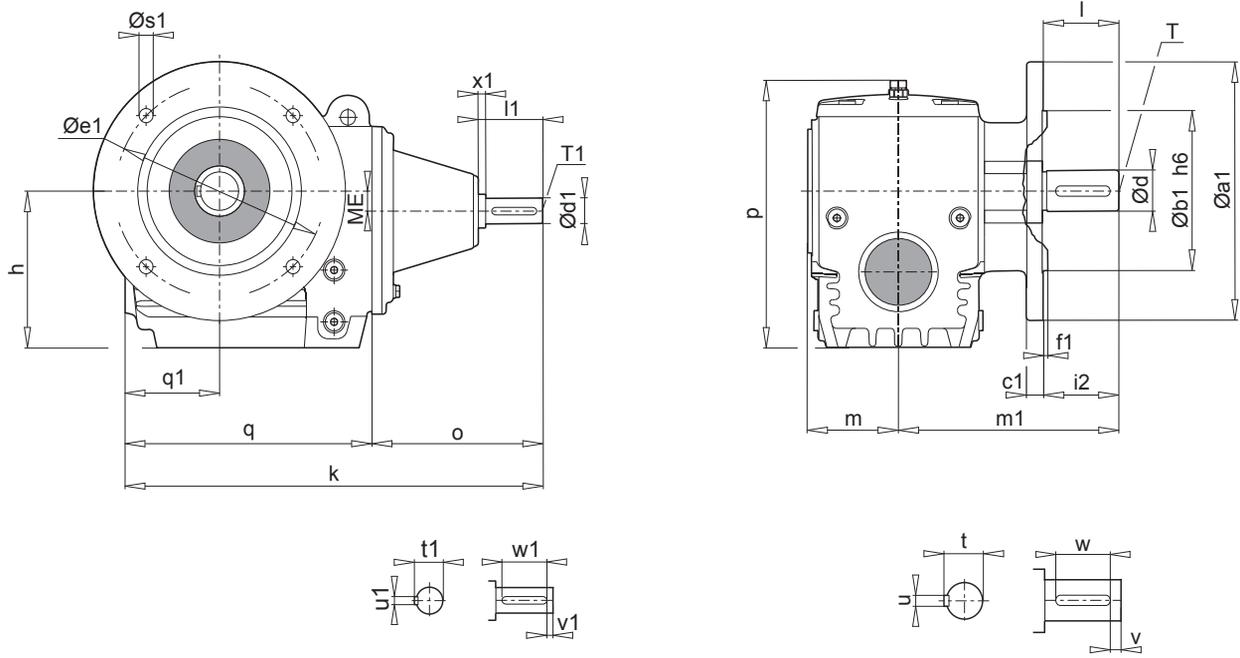


Tip Type	Montaj Ölçüleri (Ayak) Mounting Dimensions (Foot)								Ana Ölçüler Outline Dimensions								Çıkış Şaftı Output Shaft				Giriş Şaftı Input Shaft					
	a	b	c	e	f	n	r	s	h	i	i3	k	m	o	p	q	q1	ME	d	t	v	x	d1	t1	v1	x1
			c1	e1		n1	r1												l	u	w	T	l1	u1	w1	T1
PSH 2050 TMA +W	80	100	15	121	122	40	35	11	100	65	54	308	115	122	179	186	75	7.5	25	28.0	5	4	16	18.0	4	7
			15	117		30	35												50	8	40	M10	40	5	32	M5
PSH 2063 TMA +W	100	110	17	141	138	40	45	11	112	79	65	323	134	122	193.5	201	80	13.0	30	33.0	5	5	16	18.0	4	7
			17	141		40	35												60	8	50	M10	40	5	32	M5
PSH 2080 TMA +W	130	130	21	179	160	40	60	14	140	95	80	364	160	122	229	242	100	19.0	35	38.0	5	6	16	18.0	4	7
			21	171		40	40												70	10	60	M12	40	5	32	M5
PSH 2100 TMA +W	135	150	29	186	190	50	75	18	180	120	100	462	195	172	293	290	125	24.0	45	48.5	5	5	24	27.0	5	8
			26	184		48	70												90	14	80	M16	50	8	40	M8
PSH 2125 TMA +W	180	200	36	244	250	70	92	22	225	155	130	567	255	213	356	354	150	39.0	60	64.0	10	8	38	41.0	5	8
			31	241		60	82												120	18	100	M20	80	10	70	M12

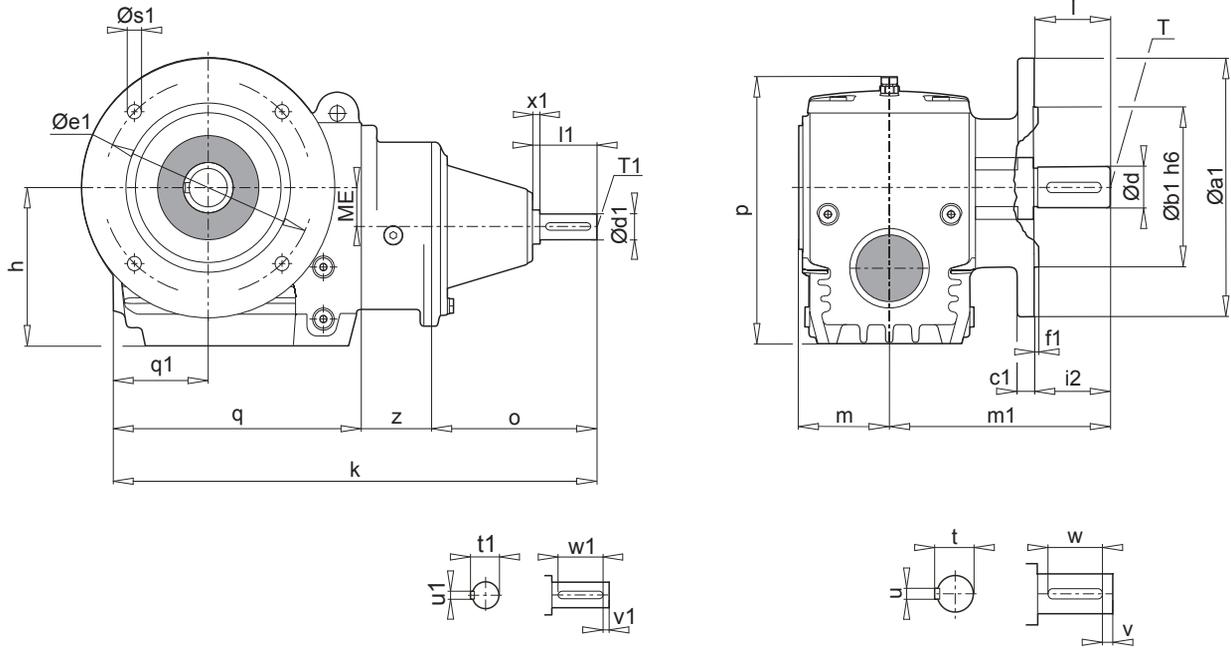


Tip Type	Montaj Ölçüleri (Ayak) Mounting Dimensions (Foot)								Ana Ölçüler Outline Dimensions								Çıkış Şaftı Output Shaft				Giriş Şaftı Input Shaft				
	a	b	c	e	f	n	r	s	h	i	k	m	o	p	q	z	ME	d	t	v	x	d1	t1	v1	x1
			c1	e1		n1	r1		i3					q1			l	u	w	T	l1	u1	w1	T1	
PSH 3050 TMA +W	80	100	15	121	122	40	35	11	100	65	366	115	122	179	186	58	37.5	25	28.0	5	4	16	18.0	4	7
			15	117		30	35			54					75			50	8	40	M10	40	5	32	M5
PSH 3063 TMA +W	100	110	17	141	138	40	45	11	112	79	381	134	122	193.5	201	58	43.0	30	33.0	5	5	16	18.0	4	7
			17	141		40	35			65					80			60	8	50	M10	40	5	32	M5
PSH 3080 TMA +W	130	130	21	179	160	40	60	14	140	95	422	160	122	229	242	58	49.0	35	38.0	5	6	16	18.0	4	7
			21	171		40	40			80					100			70	10	60	M12	40	5	32	M5
PSH 3100 TMA +W	135	150	29	186	190	50	75	18	180	120	472	195	122	293	290	60	74.0	45	48.5	5	5	16	18.0	4	7
			26	184		48	70			100					125			90	14	80	M16	40	5	32	M5
PSH 3125 TMA +W	180	200	36	244	250	70	92	22	225	155	595	255	172	356	354	69	100	60	64.0	10	8	24	27.0	5	8
			31	241		60	82			130					150			120	18	100	M20	50	8	40	M8

İKİ KADEME
DOUBLE REDUCTION

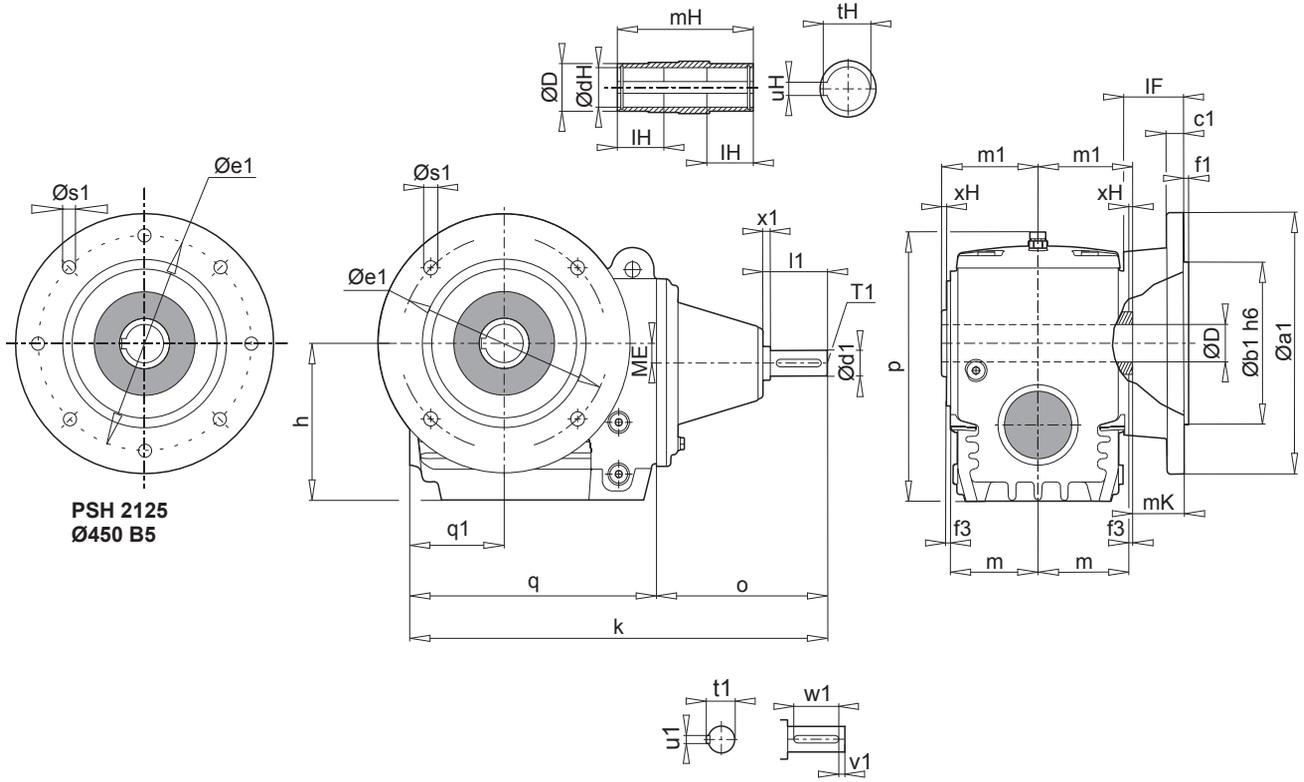


Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)							Ana Ölçüler Outline Dimensions							Çıkış Şaftı Output Shaft				Giriş Şaftı Input Shaft					
	a1	b1	c1	e1	f1	s1	h	i2	k	m1	m	o	p	q	q1	ME	d	t	v	T	d1	t1	v1	x1
	l	u	w	l1	u1	w1	T1																	
PSH 2050 TMG/B5 + W	160	110	10	130	3.5	9	100	50	303	135	63	122	188	181	71	7.5	25	28.0	5	M10	16	18.0	4	7
PSH 2063 TMG/B5 + W	200	130	12	165	3.5	11	121	60	319	156	70	122	206.5	197	76	13.0	30	33.0	5	M10	16	18.0	4	7
PSH 2080 TMG/B5 + W	200	130	12	165	3.5	11	146	70	365	184	79	122	254	243	102	19.0	35	38.0	7	M12	16	18.0	4	7
PSH 2100 TMG/B5 + W	250	180	16	215	4	14	182	90	459	232	96	172	316	287	123	24.0	45	48.5	5	M16	24	27.0	5	8
PSH 2125 TMG/B5 + W	350	250	20	300	5	18	224	120	567	307	119	213	388	354	151	39.0	60	64.0	10	M20	38	41.0	5	8
																	120	18	100		80	10	70	M12



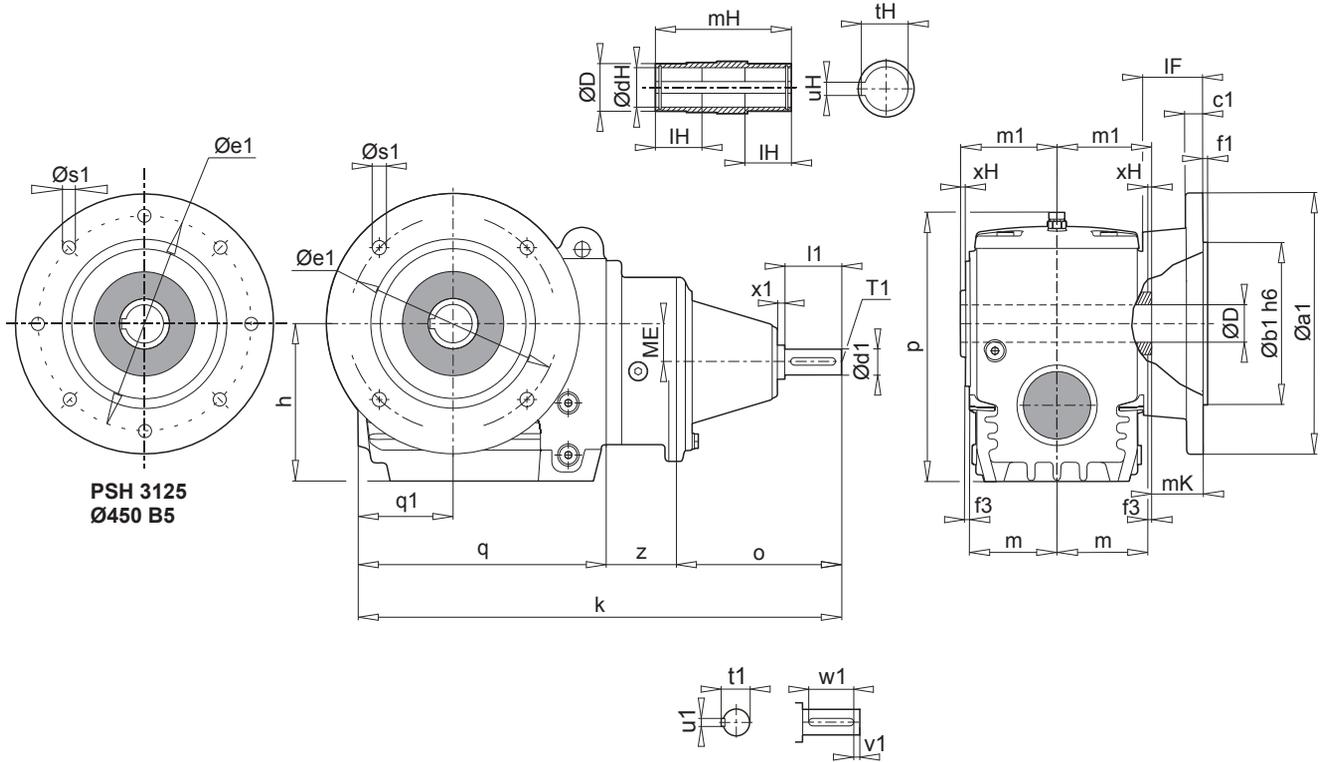
Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)	Ana Ölçüler Outline Dimensions	Çıkış Şaftı Output Shaft	Giriş Şaftı Input Shaft
	a1 b1 c1 e1 f1 s1	h i2 k m m1 o p q z q1 ME	d t v T l u w	d1 t1 v1 x1 l1 u1 w1 T1
PSH 3050 TMG/B5 + W	160 110 10 130 3.5 9	100 50 361 63 135 122 188 181 58 71 37.5	25 28.0 5 M10 50 8 40	16 18.0 4 7 40 5 32 M5
PSH 3063 TMG/B5 + W	200 130 12 165 3.5 11	121 60 377 70 156 122 206.5 197 58 76 43.0	30 33.0 5 M10 60 8 50	16 18.0 4 7 40 5 32 M5
PSH 3080 TMG/B5 + W	200 130 12 165 3.5 11	146 70 423 79 184 122 254 243 58 102 49.0	35 38.0 7 M12 70 10 56	16 18.0 4 7 40 5 32 M5
PSH 3100 TMG/B5 + W	250 180 16 215 4 14	182 90 469 96 232 122 316 287 60 123 74.0	45 48.5 5 M16 90 14 80	16 18.0 4 7 40 5 32 M5
PSH 3125 TMG/B5 + W	350 250 20 300 5 18	224 120 595 119 307 172 388 354 69 151 100	60 64.0 10 M20 120 18 100	24 27.0 5 8 50 8 40 M8

İKİ KADEME
DOUBLE REDUCTION



Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)						Ana Ölçüler Outline Dimensions										Çıkış Şaftı Output Shaft				Giriş Şaftı Input Shaft					
	a1	b1	c1	e1	f1	s1	h	k	m	m1	mK	o	IF	p	q	q1	f3	ME	dH*	tH*	uH*	xH	d1	t1	v1	x1
																			D	IH	mH		l1	u1	w1	T1
PSH 2050 DG/B5 + W	200	130	12	165	3.5	11	100	303	60	66	39	122	45	188	181	71	3	7.5	25	28.3	8	3	16	18.0	4	7
																			30*	33.3*	8*		40	5	32	M5
																			45	45	132					
PSH 2063 DG/B5 + W	200	130	12	165	3.5	11	121	319	67	74	38	122	45	206.5	197	76	3	13.0	30	33.3	8	4	16	18.0	4	7
																			35*	38.3*	10*		40	5	32	M5
																			50	50	148					
PSH 2080 DG/B5 + W	250	180	15	215	4	14	146	365	75	84	44	122	53	254	243	102	4	19.0	40	43.3	12	5	16	18.0	4	7
	300	230	20	265	4	14													45*	48.8*	14*		40	5	32	M5
																			65	55	168					
PSH 2100 DG/B5 + W	350	250	20	300	5	18	182	459	92	101	48	172	57	316	287	123	4	24.0	50	53.8	14	5	24	27.0	5	8
																			60*	64.4*	18*		50	8	40	M8
																			85	70	202					
PSH 2125 DG/B5 + W	400	300	20	350	5	18	224	567	115	125	50	213	60	388	354	151	4	39.0	60	64.4	18	6	38	41.0	5	8
	450	350	22	400	5	18													70*	74.9*	20*		80	10	70	M12
																			95	89	250					

*Opsiyonel delik milli şaft *Optional hollow shaft

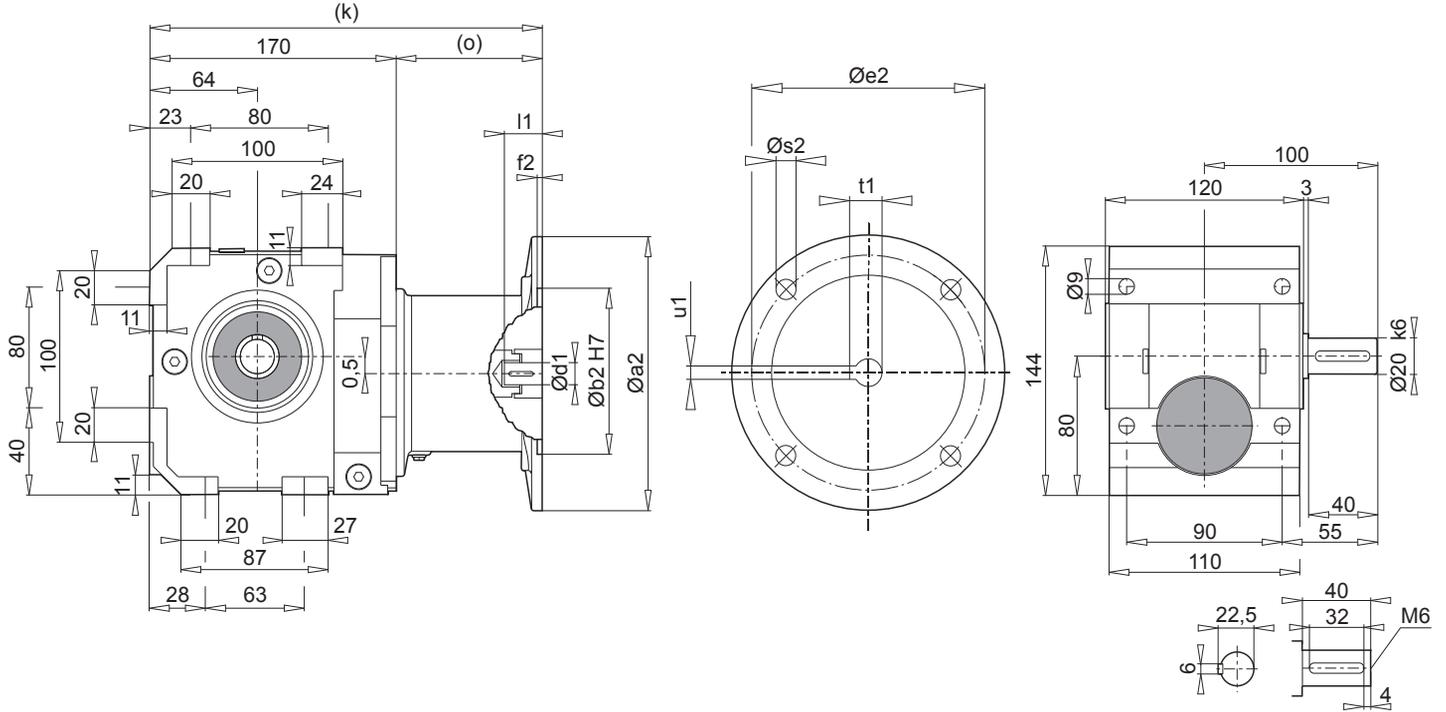


Tip	Montaj Ölçüleri (Flanş)	Ana Ölçüler	Çıkış Şaftı	Giriş Şaftı
Type	Mounting Dimensions (Flange)	Outline Dimensions	Output Shaft	Input Shaft
	a1 b1 c1 e1 f1 s1	h k m m1 mK o IF p q z q1 f3 ME	dH* tH* uH* xH	d1 t1 v1 x1
			D IH mH	l1 u1 w1 T1
PSH 3050 DG /B5 + W	200 130 12 165 3.5 11	100 361 60 66 39 122 45 188 181 58 71 3 37.5	25 28.3 8 3 30* 33.3* 8* 45 45 132	16 18.0 4 7 40 5 32 M5
PSH 3063 DG/B5 + W	200 130 12 165 3.5 11	121 377 67 74 38 122 45 206.5 197 58 76 3 43.0	30 33.3 8 4 35* 38.3* 10* 50 50 148	16 18.0 4 7 40 5 32 M5
PSH 3080 DG/B5 + W	250 180 15 215 4 14 300 230 20 265 4 14	146 423 75 84 44 122 53 254 243 58 102 4 49.0	40 43.3 12 5 45* 48.8* 14* 65 55 168	16 18.0 4 7 40 5 32 M5
PSH 3100 DG/B5 + W	350 250 20 300 5 18	182 469 92 101 48 122 57 316 287 60 123 4 74.0	50 53.8 14 5 60* 64.4* 18* 85 70 202	16 18.0 4 7 40 5 32 M5
PSH 3125 DG/B5 + W	400 300 20 350 5 18 450 350 22 400 5 18	224 595 115 125 50 172 60 388 354 69 151 4 100	60 64.4 18 6 70* 74.9* 20* 95 89 250	24 27.0 5 8 50 8 40 M8

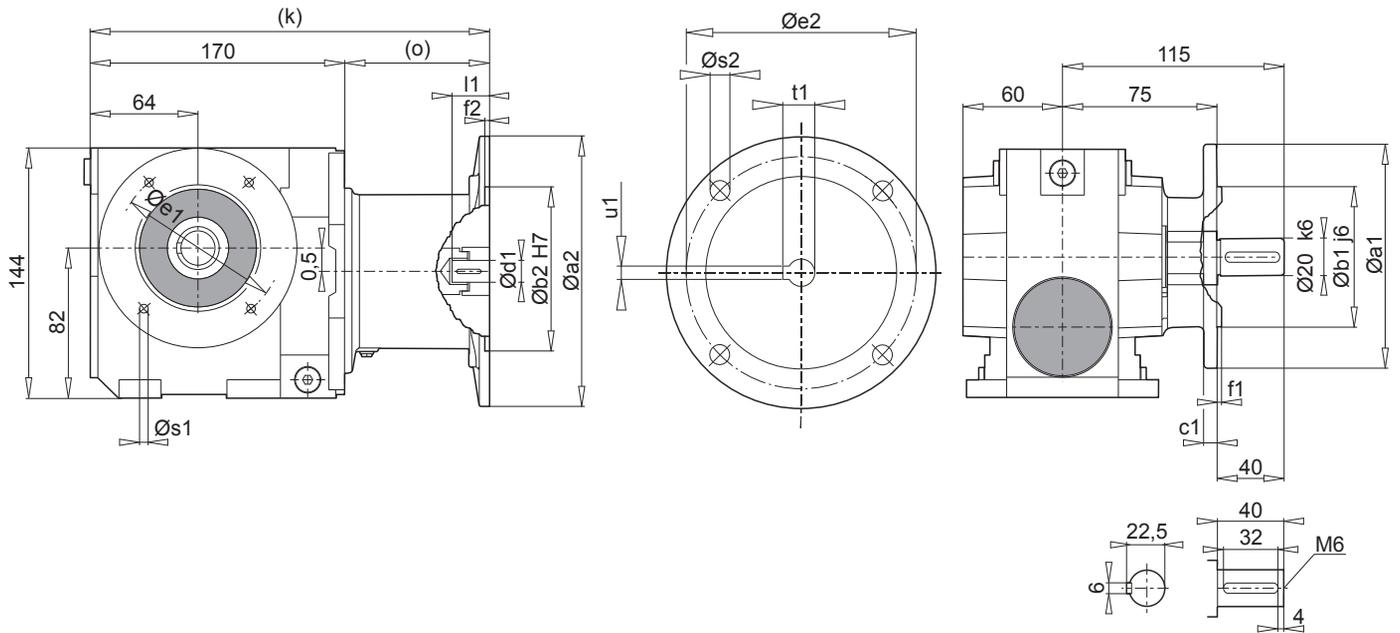
*Opsiyonel delik milli şaft *Optional hollow shaft



PSH 2040 TMA ...IEC



PSH 2040 TMG/B5 ...IEC



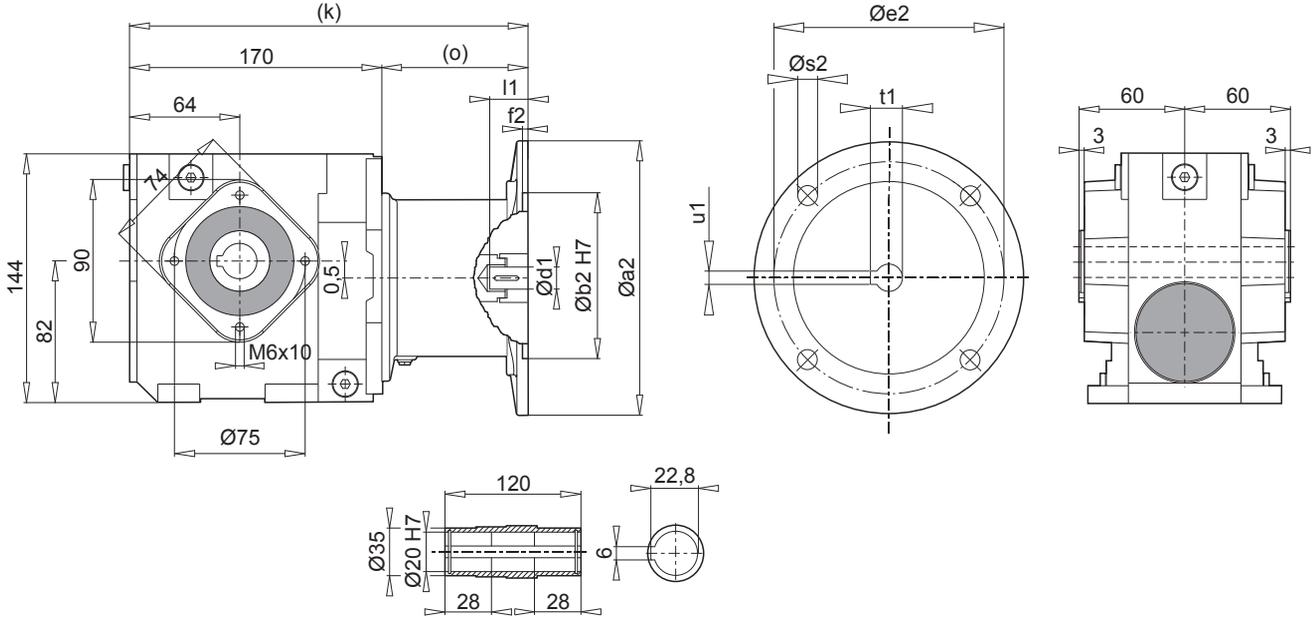
	63	71	80	90
k	255	255	273	273
o	85	85	103	103

a1	b1	c1	e1	f1	s1
120	80	10	100	3,0	7
160	110	10	130	3,5	9

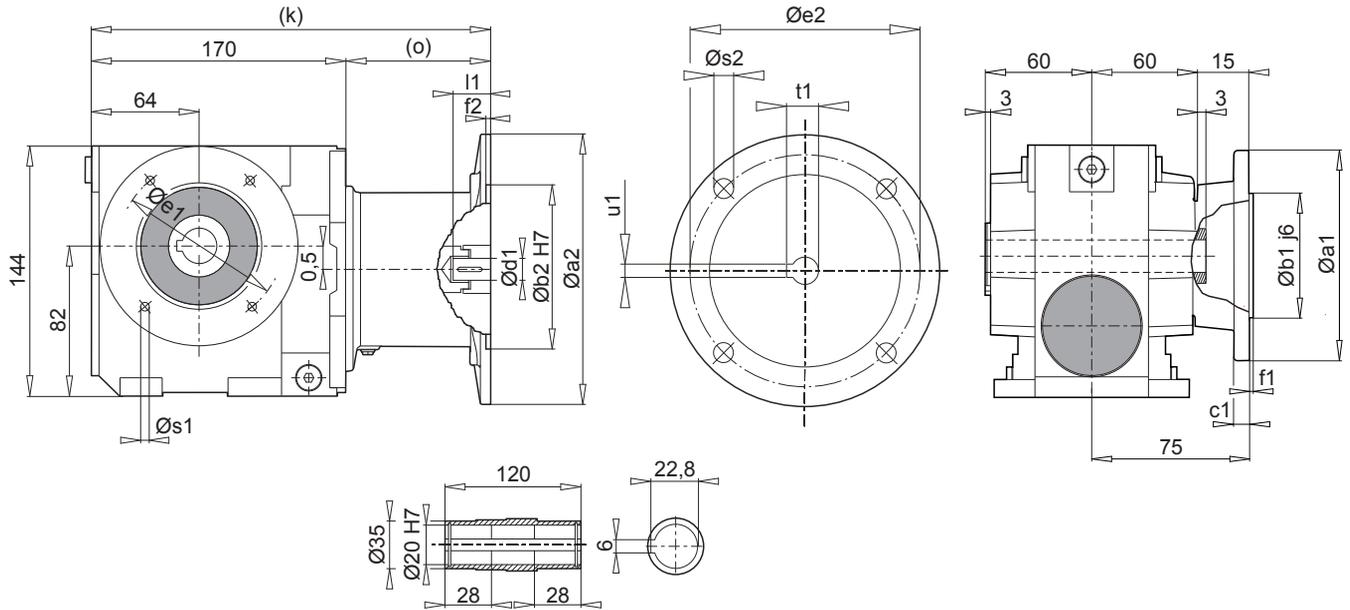
Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplın Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24



PSH 2040 DG/B14 ...IEC



PSH 2040 DG/B5 ...IEC

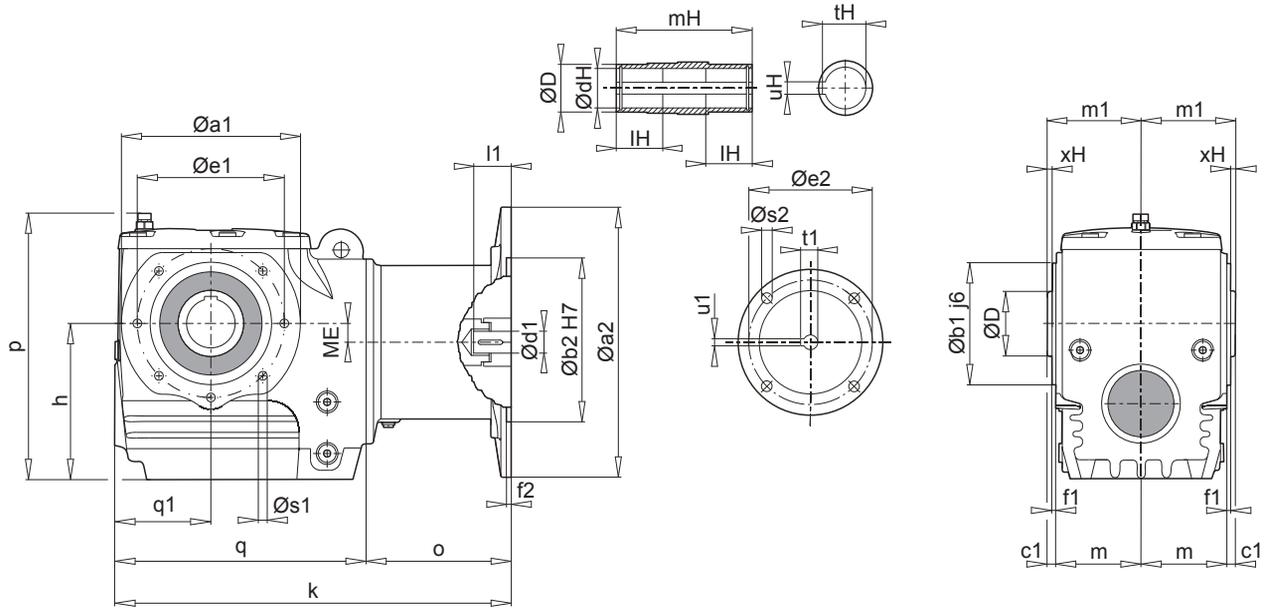


	63	71	80	90
k	255	255	273	273
o	85	85	103	103

a1	b1	c1	e1	f1	s1
120	80	10	100	3,0	7
160	110	10	130	3,5	9

Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplın Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24

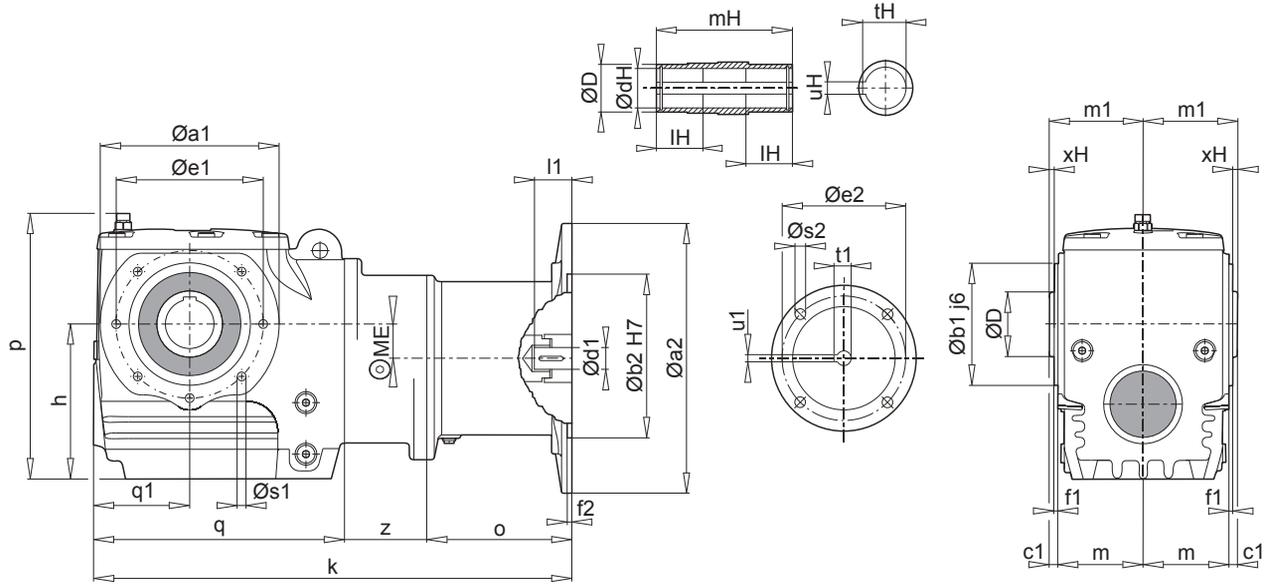
İKİ KADEME
DOUBLE REDUCTION



Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)						Ana Ölçüler Outline Dimensions								Şaft Ölçüleri Shaft Dimensions					
	a1	b1	c1	e1	f1	s1	h	k	m	m1	o	p	q	q1	ME	dH* D	tH* IH	uH* mH	xH	
PSH 2050 DG/B14 + IEC	- IEC 63 - IEC 71 - IEC 80 - IEC 90	132	95	6	115	3	M8 x 13	100	266	60	66	85	188	181	71	7.5	25	28.3	8	3
									270			89					30*	33.3*	8*	
									286			105					45	45	132	
									286			105								
PSH 2063 DG/B14 + IEC	- IEC 63 - IEC 71 - IEC 80 - IEC 90 - IEC 100	140	95	7	115	3	M8 x 13	121	282	67	74	85	206.5	197	76	13.0	30	33.3	8	4
									286			89					35*	38.3*	10*	
									302			105					50	50	148	
									302			105								
									327			130								
PSH 2080 DG/B14 + IEC	- IEC 63 - IEC 71 - IEC 80 - IEC 90 - IEC 100 - IEC 112	192	130	9	165	4	M10 x 16	146	328	75	84	85	254	243	102	19.0	40	43.3	12	5
									332			89					45*	48.8*	14*	
									348			105					65	55	168	
									348			105								
									373			130								
									373			130								
PSH 2100 DG/B14 + IEC	- IEC 71 - IEC 80 - IEC 90 - IEC 100 - IEC 112 - IEC 132	238	180	9	215	4	M12 x 20	182	375	92	101	88	316	287	123	24.0	50	53.8	14	5
									394			107					60*	64.4*	18*	
									394			107					85	70	202	
									411			124								
									411			124								
									443			156								
PSH 2125 DG/B14 + IEC	- IEC 90 - IEC 100 - IEC 112 - IEC 132 - IEC 160	292	230	10	265	4	M12 x 20	224	463	115	125	109	388	354	151	39.0	60	64.4	18	6
									487			133					70*	74.9*	20*	
									487			133					95	89	250	
									544			190								
									548			194								

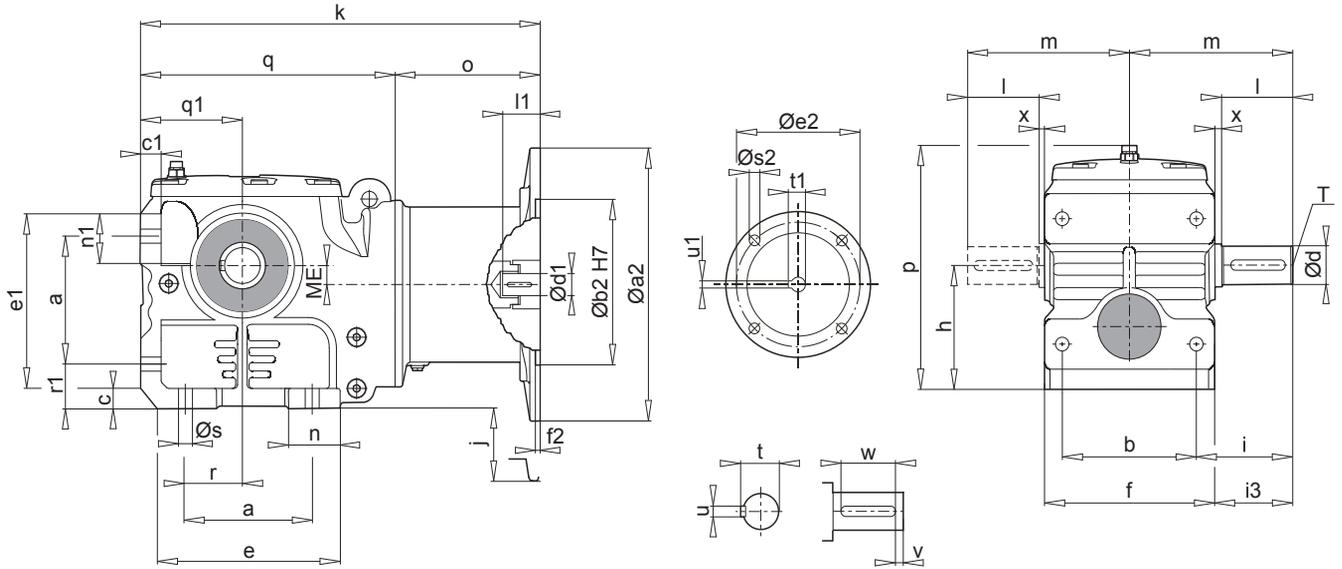
Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplin Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24
100	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
112	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
132	300	230	265	5.0	M12	38	80	41.3	10	A 10x8x60	DK - 38	BM - 38
160	350	250	300	6.0	M16	42	110	45.3	12	A 12x8x75	DK - 42	BM - 42

*Opsiyonel delik milli şaft *Optional hollow shaft



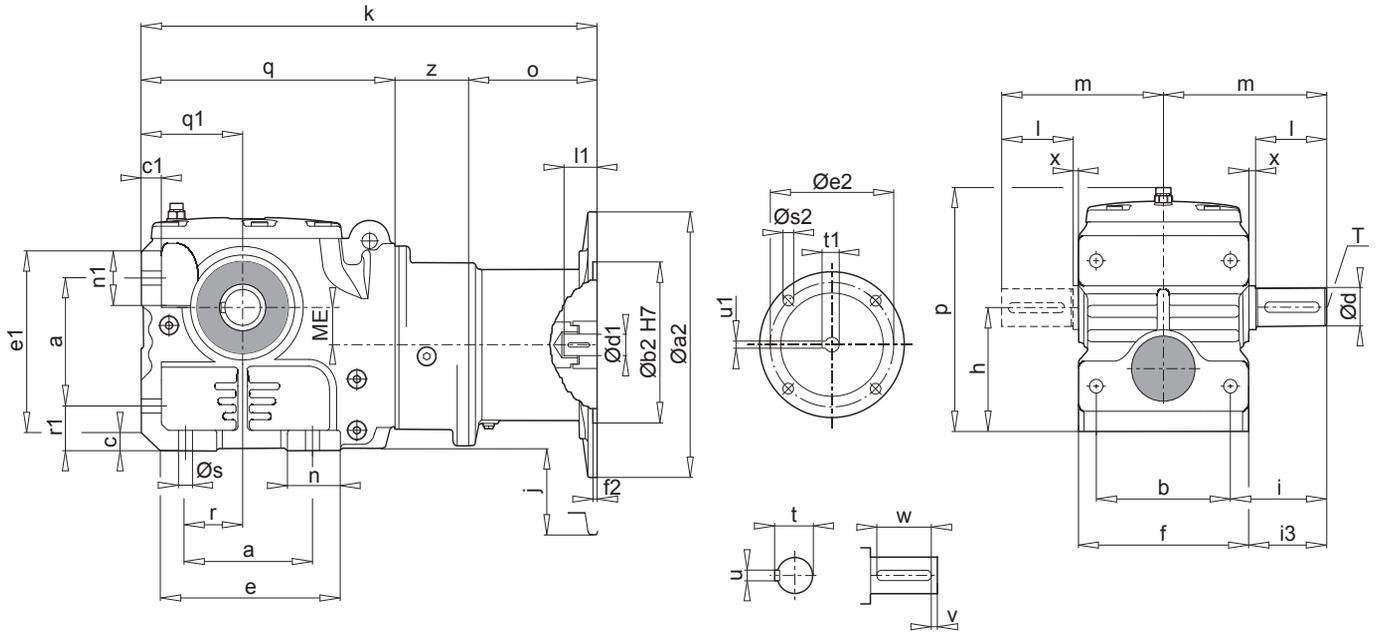
Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)						Ana Ölçüler Outline Dimensions										Şaft Ölçüleri Shaft Dimensions			
	a1	b1	c1	e1	f1	s1	h	k	m	m1	o	p	q	q1	z	ME	dH*	tH*	uH*	xH
																	D	IH	mH	
PSH 3050 DG/B14 + IEC - IEC 63 - IEC 71	132	95	6	115	3	M8x13	100	324	60	66	85	188	181	71	58	37.5	25	28.3	8	3
								328			89						30*	33.3*	8*	
																	45	45	132	
PSH 3063 DG/B14 + IEC - IEC 63 - IEC 71	140	95	7	115	3	M8x13	121	340	67	74	85	206.5	197	76	58	43.0	30	33.3	8	4
								344			89						35*	38.3*	10*	
																	50	50	148	
PSH 3080 DG/B14 + IEC - IEC 63 - IEC 71	192	130	9	165	4	M10 x 16	146	386	75	84	85	254	243	102	58	49.0	40	43.3	12	5
								390			89						45*	48.8*	14*	
																	65	55	168	
PSH 3100 DG/B14 + IEC - IEC 63 - IEC 71 - IEC 80 - IEC 90	238	180	9	215	4	M12 x 20	182	432	92	101	85	316	287	123	60	74.0	50	53.8	14	5
								436			89						60*	64.4*	18*	
								452			105						85	70	202	
								452			105									
PSH 3125 DG/B14 + IEC - IEC 71 - IEC 80 - IEC 90 - IEC 100 - IEC 112	292	230	10	265	4	M12 x 20	224	511	115	125	88	388	354	151	69	100	60	64.4	18	6
								530			107						70*	74.9*	20*	
								530			107						95	89	250	
								547			124									
								547			124									

Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplın Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24
100	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
112	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28



Tip Type	Montaj Ölçüleri (Ayak) Mounting Dimensions (Foot)								Ana Ölçüler Outline Dimensions								Şaft Ölçüleri Shaft Dimensions					
	a	b	c c1	e e1	f	n n1	r r1	s	h	i i3	k	m	j	o	p	q	q1	ME	d l	t u	v w	x T
PSH 2050 TMA + IEC - IEC 63 - IEC 71 - IEC 80 - IEC 90	80	100	15 15	121 117	122	40 30	35 35	11	100	65 54	271 275 291 291	115	- - 7.5 7.5	85 89 105 105	179	186	75	7.5	25 50	28.0 8	5 40	4 M10
PSH 2063 TMA + IEC - IEC 63 - IEC 71 - IEC 80 - IEC 90 - IEC 100	100	110	17 17	141 141	138	40 40	45 35	11	112	79 65	286 290 306 306 331	134	- - 1.0 1.0 26.0	85 89 105 105 130	193.5	201	80	13.0	30 60	33.0 8	5 50	5 M10
PSH 2080 TMA + IEC - IEC 63 - IEC 71 - IEC 80 - IEC 90 - IEC 100 - IEC 112	130	130	21 21	179 171	160	40 40	60 40	14	140	95 80	327 331 347 347 372 372	160	- - - - 4.0 4.0	85 89 105 105 130 130	229	242	100	19.0	35 70	38.0 10	5 60	6 M12
PSH 2100 TMA + IEC - IEC 71 - IEC 80 - IEC 90 - IEC 100 - IEC 112 - IEC 132	135	150	29 26	186 184	190	50 48	75 70	18	180	120 100	378 397 397 414 414 446	195	- - - - - -	88 107 107 124 124 156	293	290	125	24.0	45 90	48.5 14	5 80	5 M16
PSH 2125 TMA + IEC - IEC 90 - IEC 100 - IEC 112 - IEC 132 - IEC 160	180	200	36 31	244 241	250	70 60	92 82	22	225	155 130	463 487 487 544 548	255	- - - - -	109 133 133 190 194	356	354	150	39.0	60 120	64.0 18	10 100	8 M20

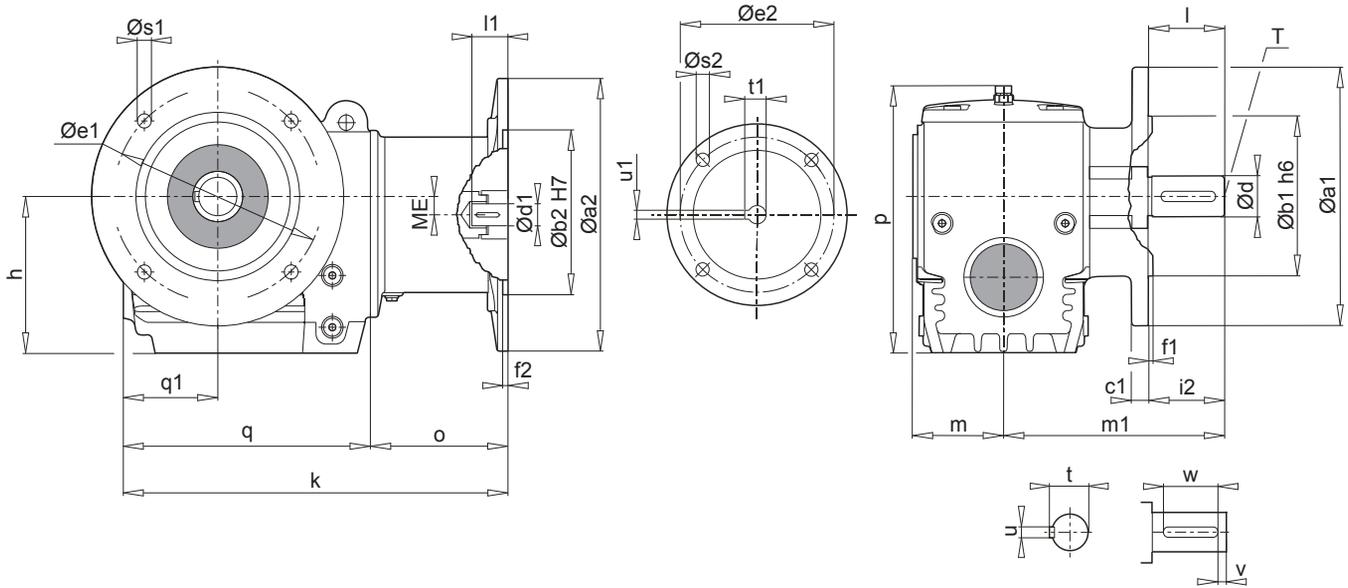
Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplin Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24
100	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
112	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
132	300	230	265	5.0	M12	38	80	41.3	10	A 10x8x60	DK - 38	BM - 38
160	350	250	300	6.0	M16	42	110	45.3	12	A 12x8x75	DK - 42	BM - 42



Tip Type	Montaj Ölçüleri (Ayak) Mounting Dimensions (Foot)								Ana Ölçüler Outline Dimensions										Şaft Ölçüleri Shaft Dimensions				
	a	b	c	e	f	n	r	s	h	i	k	m	o	p	q	j	q1	z	ME	d	t	v	x
			c1	e1		n1	r1			i3										l	u	w	T
PSH 3050 - IEC 63 TMA + IEC - IEC 71	80	100	15	121	122	40	35	11	100	65	329	115	85	179	186	7.5	75	58	37.5	25	28.0	5	4
			15	117		30	35			54	333	89				17.5				50	8	40	M10
PSH 3063 - IEC 63 TMA + IEC - IEC 71	100	110	17	141	138	40	45	11	112	79	344	134	85	193.5	201	1.0	80	58	43.0	30	33.0	5	5
			17	141		40	35			65	348	89				11.0				60	8	50	M10
PSH 3080 - IEC 63 TMA + IEC - IEC 71	130	130	21	179	160	40	60	14	140	95	385	160	85	229	242	-	100	58	49.0	35	38.0	5	6
			21	171		40	40			80	389	89				-				70	10	60	M12
PSH 3100 - IEC 63 TMA + IEC - IEC 71 - IEC 80 - IEC 90	135	150	29	186	190	50	75	18	180	120	435	195	85	293	290	-	125	60	74.0	45	48.5	5	5
			26	184		48	70			100	439	89				-				90	14	80	M16
											455	105				-							
											455	105				-							
PSH 3125 - IEC 71 TMA + IEC - IEC 80 - IEC 90 - IEC 100 - IEC 112	180	200	36	244	250	70	92	22	225	155	511	255	88	356	354	-	150	69	100	60	64.0	10	8
			31	241		60	82			130	530	107				-				120	18	100	M20
											530	107				-							
											547	124				-							
											547	124				-							

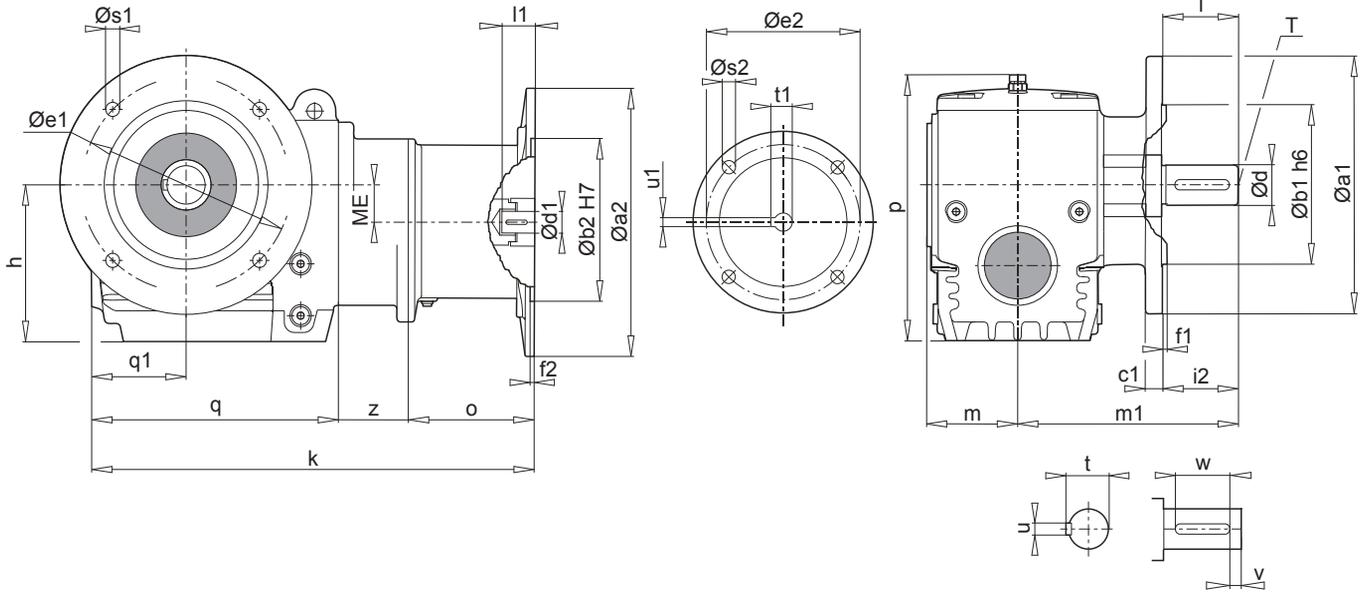
Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplın Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24
100	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
112	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28

İKİ KADEME
DOUBLE REDUCTION



Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)							Ana Ölçüler Outline Dimensions								Şaft Ölçüleri Shaft Dimensions					
	a1	b1	c1	e1	f1	s1	h	i2	k	m	m1	o	p	q	q1	ME	d	t	v	T	
																	l	u	w		
PSH 2050 TMG/B5 + IEC	- IEC 63 - IEC 71 - IEC 80 - IEC 90	160	110	10	130	3.5	9	100	50	266 270 286 286	63	135	85 89 105 105	188	181	71	7.5	25 50	28.0 8	5 40	M10
PSH 2063 TMG/B5 + IEC	- IEC 63 - IEC 71 - IEC 80 - IEC 90 - IEC 100	200	130	12	165	3.5	11	121	60	282 286 302 302 327	70	156	85 89 105 105 130	206.5	197	76	13.0	30 60	33.0 8	5 50	M10
PSH 2080 TMG/B5 + IEC	- IEC 63 - IEC 71 - IEC 80 - IEC 90 - IEC 100 - IEC 112	200	130	12	165	3.5	11	146	70	328 332 348 348 373 373	79	184	85 89 105 105 130 130	254	243	102	19.0	35 70	38.0 10	7 56	M12
PSH 2100 TMG/B5 + IEC	- IEC 71 - IEC 80 - IEC 90 - IEC 100 - IEC 112 - IEC 132	250	180	16	215	4	14	182	90	375 394 394 411 411 443	96	232	88 107 107 124 124 156	316	287	123	24.0	45 90	48.5 14	5 80	M16
PSH 2125 TMG/B5 + IEC	- IEC 90 - IEC 100 - IEC 112 - IEC 132 - IEC 160	350	250	20	300	5	18	224	120	463 487 487 544 548	119	307	109 133 133 190 194	388	354	151	39.0	60 120	64.0 18	10 100	M20

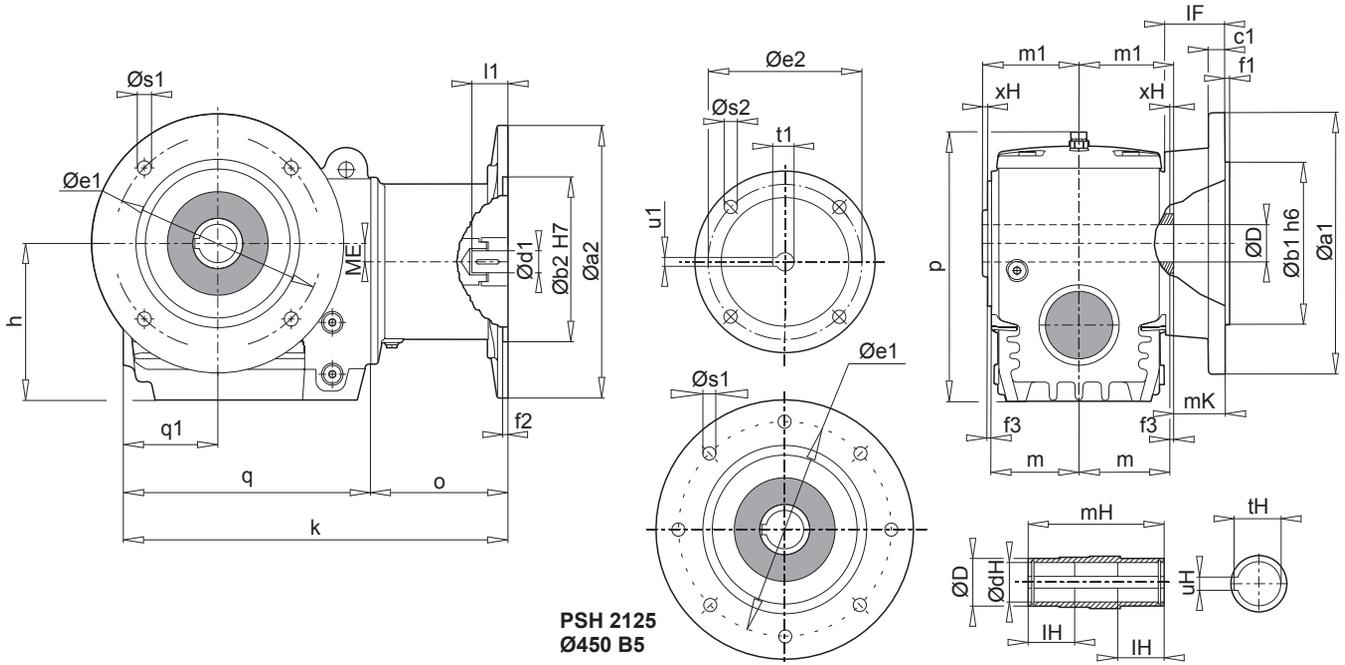
Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplın Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24
100	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
112	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
132	300	230	265	5.0	M12	38	80	41.3	10	A 10x8x60	DK - 38	BM - 38
160	350	250	300	6.0	M16	42	110	45.3	12	A 12x8x75	DK - 42	BM - 42



Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)						Ana Ölçüler Outline Dimensions										Şaft Ölçüleri Shaft Dimensions					
	a1	b1	c1	e1	f1	s1	h	i2	k	m	m1	o	p	q	z	q1	ME	d	t	v	T	
																		l	u	w		
PSH 3050 TMG/B5 + IEC	- IEC 63 - IEC 71	160	110	10	130	3.5	9	100	50	324	63	135	85	188	181	58	71	37.5	25	28.0	5	M10
										328			89					50	8	40		
PSH 3063 TMG/B5 + IEC	- IEC 63 - IEC 71	200	130	12	165	3.5	11	121	60	340	70	156	85	206.5	197	58	76	43.0	30	33.0	5	M10
										344			89					60	8	50		
PSH 3080 TMG/B5 + IEC	- IEC 63 - IEC 71	200	130	12	165	3.5	11	146	70	386	79	184	85	254	243	58	102	49.0	35	38.0	7	M12
										390			89					70	10	56		
PSH 3100 TMG/B5 + IEC	- IEC 63 - IEC 71 - IEC 80 - IEC 90	250	180	16	215	4	14	182	90	432	96	232	85	316	287	60	123	74.0	45	48.5	5	M16
										436			89					90	14	80		
										452			105									
										452			105									
PSH 3125 TMG/B5 + IEC	- IEC 71 - IEC 80 - IEC 90 - IEC 100 - IEC 112	350	250	20	300	5	18	224	120	511	119	307	88	388	354	69	151	100	60	64.0	10	M20
										530			107					120	18	100		
										530			107									
										547			124									
										547			124									

Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplın Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24
100	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
112	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28

İKİ KADEME
DOUBLE REDUCTION

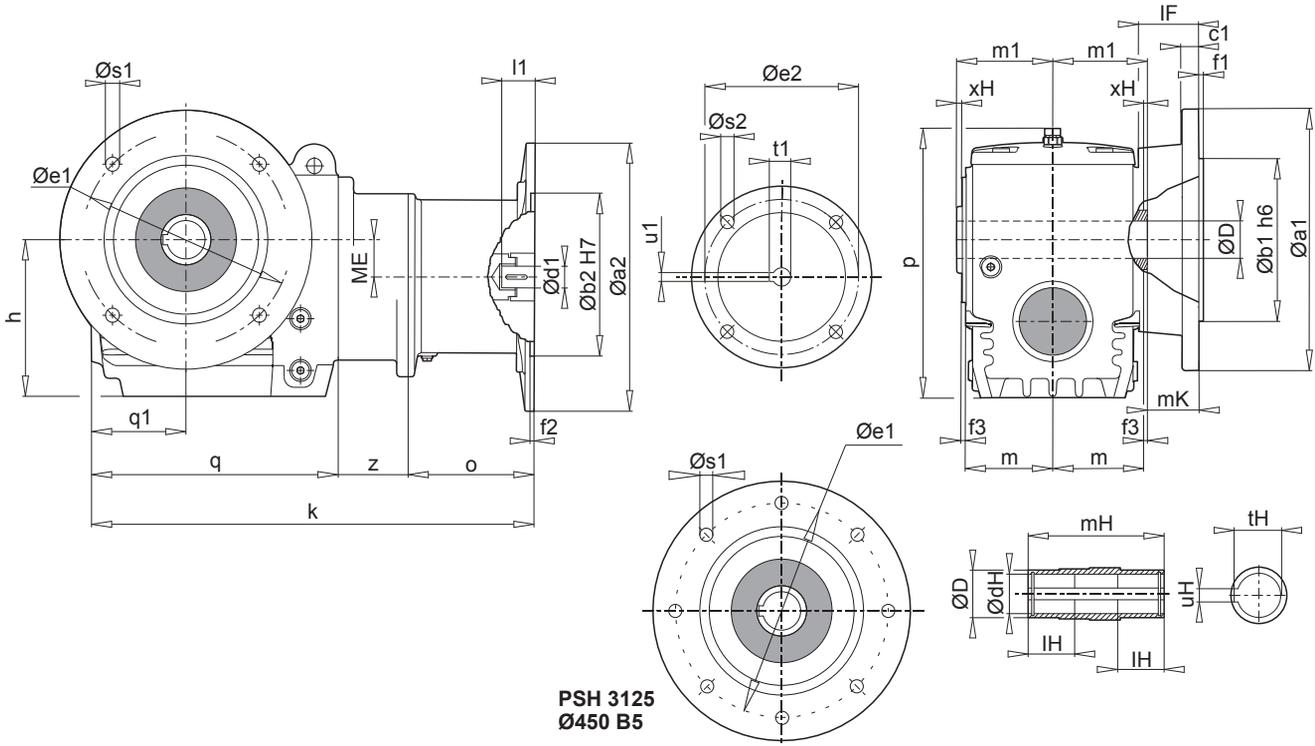


PSH 2125
Ø450 B5

Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)						Ana ölçüler Outline Dimensions											Şaft Ölçüleri Shaft Dimensions				
	a1	b1	c1	e1	f1	s1	h	k	m	m1	mK	o	IF	p	q	q1	f3	ME	dH*	tH*	uH*	xH
																			D	IH	mH	
PSH 2050 - IEC 63 DG/B5 - IEC 71 + IEC - IEC 80 - IEC 90	200	130	12	165	3.5	11	100	266	60	66	39	85	45	188	181	71	3	7.5	25	28.3	8	3
								270				89							30*	33.3*	8*	
								286				105							45	45	132	
								286				105										
PSH 2063 - IEC 63 DG/B5 - IEC 71 + IEC - IEC 80 - IEC 90 - IEC 100	200	130	12	165	3.5	11	121	282	67	74	38	85	45	206.5	197	76	3	13.0	30	33.3	8	4
								286				89							35*	38.3*	10*	
								302				105							50	50	148	
								302				105										
								327				130										
PSH 2080 - IEC 63 DG/B5 - IEC 71 + IEC - IEC 80 - IEC 90 - IEC 100 - IEC 112	250 300	180 230	15 20	215 265	4 4	14 14	146	328 332	75	84	44	85	53	254	243	102	4	19.0	40 45*	43.3 48.8*	12 14*	5
								348				105							65	55	168	
								348				105										
								373				130										
								373				130										
PSH 2100 - IEC 71 DG/B5 - IEC 80 + IEC - IEC 90 - IEC 100 - IEC 112 - IEC 132	350	250	20	300	5	18	182	375 394 394	92	101	48	88	57	316	287	123	4	24.0	50 60*	53.8 64.4*	14 18*	5
								411				107							85	70	202	
								411				124										
								411				124										
								443				156										
PSH 2125 - IEC 90 DG/B5 - IEC 100 + IEC - IEC 112 - IEC 132 - IEC 160	400 450	300 350	20 22	350 400	5 5	18 18	224	463 487 487	115	125	50	109	60	388	354	151	4	39.0	60 70*	64.4 74.9*	18 20*	6
								544				190							95	89	250	
								548				194										

Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplin Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24
100	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
112	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
132	300	230	265	5.0	M12	38	80	41.3	10	A 10x8x60	DK - 38	BM - 38
160	350	250	300	6.0	M16	42	110	45.3	12	A 12x8x75	DK - 42	BM - 42

*Opsiyonel delik milli shaft *Optional hollow shaft



PSH 3125
Ø450 B5

Tip Type	Montaj Ölçüleri (Flanş) Mounting Dimensions (Flange)						Ana Ölçüler Outline Dimensions											Şaft Ölçüleri Shaft Dimensions					
	a1	b1	c1	e1	f1	s1	h	k	m	m1	mK	o	IF	p	q	z	q1	f3	ME	dH*	tH*	uH*	xH
																				D	IH	mH	
PSH 3050 - IEC 63 DG/B5 - IEC 71 + IEC	200	130	12	165	3.5	11	100	324	60	66	39	85	45	188	181	58	71	3	37.5	25	28.3	8	3
								328				89								30*	33.3*	8*	
																				45	45	132	
PSH 3063 - IEC 63 DG/B5 - IEC 71 + IEC	200	130	12	165	3.5	11	121	340	67	74	38	85	45	206.5	197	58	76	3	43.0	30	33.3	8	4
								344				89								35*	38.3*	10*	
																				50	50	148	
PSH 3080 - IEC 63 DG/B5 - IEC 71 + IEC	250	180	15	215	4	14	146	386	75	84	44	85	53	254	243	58	102	4	49.0	40	43.3	12	5
	300	230	20	265	4	14		390				89								45*	48.8*	14*	
																				65	55	168	
PSH 3100 - IEC 63 DG/B5 - IEC 71 + IEC	350	250	20	300	5	18	182	432	92	101	48	85	57	316	287	60	123	4	74.0	50	53.8	14	5
								436				89								60*	64.4*	18*	
								452				105								85	70	202	
								452				105											
PSH 3125 - IEC 71 DG/B5 - IEC 80 + IEC	400	300	20	350	5	18	224	511	115	125	50	88	60	388	354	69	151	4	100	60	64.4	18	6
	450	350	22	400	5	18		530				107								70*	74.9*	20*	
								530				107											
								547				124								95	89	250	
								547				124											

Motor Büyüklüğü Motor Frame Size	Motor Bağlantı Ölçüleri Motor Mounting Dimensions									Kama Ölçüleri Key	Kaplın Tipi Type of coupling	
	a2	b2	e2	f2	s2	d1	l1	t1	u1		Çiftel	KTR
63	140	95	115	3.5	M8	11	23	12.8	4	A 4x4x18	DK - 14	BJ - 14
71	160	110	130	4.0	M8	14	30	16.3	5	A 5x5x25	DK - 14	BJ - 14
80	200	130	165	4.0	M10	19	40	21.8	6	A 6x6x35	DK - 24	BJ - 24
90	200	130	165	4.0	M10	24	50	27.3	8	A 8x7x40	DK - 24	BJ - 24
100	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28
112	250	180	215	5.0	M12	28	60	31.3	8	A 8x7x50	DK - 28	BJ - 28

*Opsiyonel delik millî shaft *Optional hollow shaft



W VE IEC ADAPTÖRLERİN AĞIRLIK TABLOSU
WEIGHTS TABLE OF W AND IEC ADAPTERS

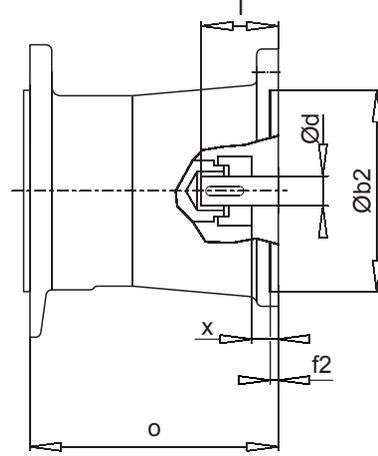
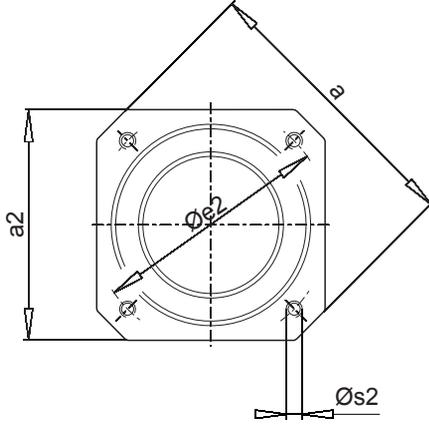


Ağırlıklar (Yaklaşık kg) / Weights (Approx. kg)									
TİP TYPE	W	IEC							
		63	71	80	90	100	112	132	160
PSH 2040	9	10	11	13	13				
PSH 3050	23	24	25						
PSH 2050	18	19	20	23	23				
PSH 3063	27	28	29						
PSH 2063	22	23	24	27	27	34			
PSH 3080	37	38	39						
PSH 2080	32	33	34	37	37	44	44		
PSH 3100	65	66	67	70	70				
PSH 2100	63	—	61	65	65	69	69	78	
PSH 3125	119	—	117	121	121	125	125		
PSH 2125	112	—	—	—	107	114	114	128	138



SERVOMOTOR MONTAJI İÇİN ADAPTÖR
ADAPTER FOR MOUNTING SERVOMOTOR

SEP TİPİ
TYPE SEP



Redüktör Tipi Gear Unit Type	Motor Büyüklüğü / Motor Size							Şaft Ebatı Shaft Size		Silindir Cylinder	M _{knom} [Nm]	Adaptör Tipi Adapter Type
	a	a2	b2	e2	f2	s2	x	d	l	o		
PSH 2050 PSH 2063 PSH 2080	120	96	80	100	4	M6	15	19	40	124	10	Servo 100 / 160 S
PSH 2050 PSH 2063 PSH 2080	165	126	110	130	4	M8	20	24	50	136	35	Servo 130 / 160 S
PSH 2100	155	126	110	130	4	M8	20	24	50	150	35	Servo 130 / 250 S
PSH 2050 PSH 2063 PSH 2080	186	155	130	165	5	M10	23	32	58	151	95	Servo 165 / 160 S
PSH 2100	186	155	130	165	5	M10	23	32	58	166	95	Servo 165 / 250 S
PSH 2100	240	192	180	215	5	M12	45	38	80	187	95	Servo 215/ 250 S
PSH 2125	240	192	180	215	5	M12	24	38	80	229	310	Servo 215/ 300 S
PSH 2125	350	260	250	300	5	M16	26	48	82	231	310	Servo 300/ 300 S

SEP tipi servo motor bağlantı adaptörünün bağlantısı kamalı olarak yapılmaktadır. SEK tiplerinde ise servo motor adaptörünün bağlantısı setuskur civata sıkırtması ile yapılmaktadır.

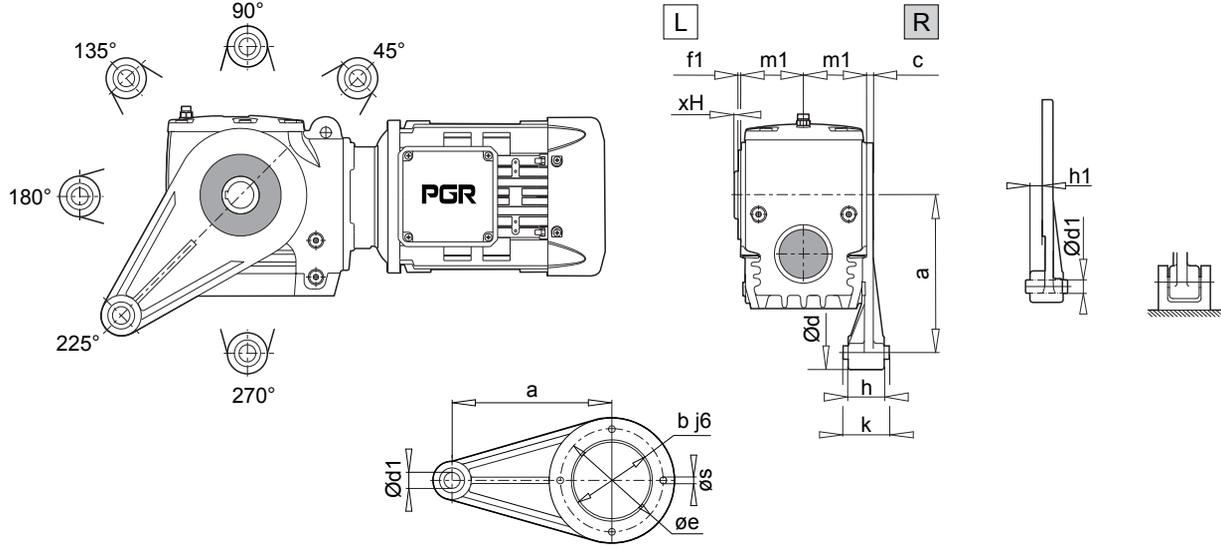
Servo motor bağlantı adaptörünün bağlantı flanşının farklı olması durumunda yüksek adetli siparişler üretime alınır.

For connecting SEP adapter which is shown above on this page, servo motor's output shaft is designed with locking key. For connecting SEK type adapter, connecting is supplied with a clamp coupling sleeve.

An intermediate flange is required when other servo motor types are used with IEC adapter. Offers are manufactured gladly by PGR.



PSH 2040 DG/TK ... PSH 2125 DG/TK
PSH 3050 DG/TK ... PSH 3125 DG/TK

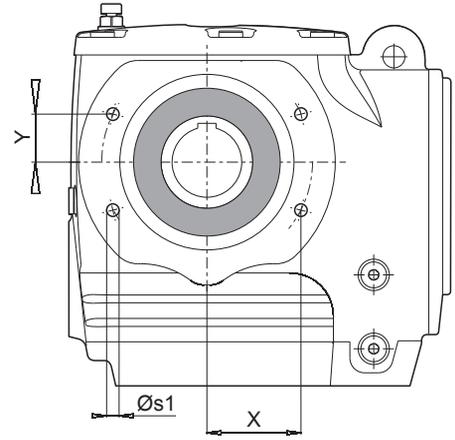
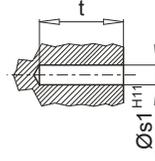
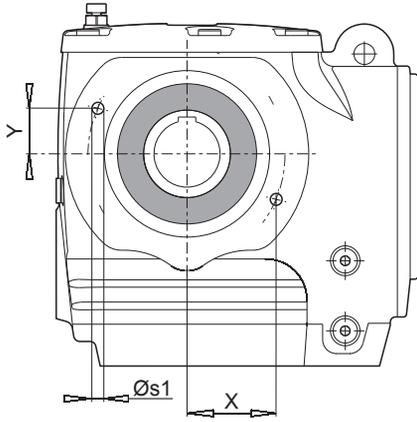


NOT : PSH 2040 için sadece 90° - 180° - 270°
NOTE : Only 90° - 180° - 270° for PSH 2040

Tip Type	Montaj Ölçüleri Mounting Dimensions											Ana Ölçüler Outline Dimensions	
	a	b j6	c	d	d1	f1	h	h1	k	s	e	m1	xH
PSH 2040 DG/TK	110	60	10	35	10,5	-	32	8	36	6,6	75	60	3
PSH 2050 DG/TK	130	95	14	40	10,5	3	32	10	36	9	115	66	3
PSH 3050 DG/TK	130	95	14	40	10,5	3	32	10	36	9	115	66	3
PSH 2063 DG/TK	160	95	14	40	10,5	3	32	11,5	36	9	115	74	4
PSH 3063 DG/TK	160	95	14	40	10,5	3	32	11,5	36	9	115	74	4
PSH 2080 DG/TK	200	130	13,5	40	10,5	4	32	9	36	11	165	84	5
PSH 3080 DG/TK	200	130	13,5	40	10,5	4	32	9	36	11	165	84	5
PSH 2100 DG/TK	250	180	16	60	16,5	4	56	20,5	60	14	215	101	5
PSH 3100 DG/TK	250	180	16	60	16,5	4	56	20,5	60	14	215	101	5
PSH 2125 DG/TK	310	230	18	60	16,5	4	56	29,5	60	14	265	125	6
PSH 3125 DG/TK	310	230	18	60	16,5	4	56	29,5	60	14	265	125	6

Sipariş verirken tork kolunun pozisyonunu belirtiniz.(Örn. 180°)
Tork kolu L yada R tarafına bağlanabilir.

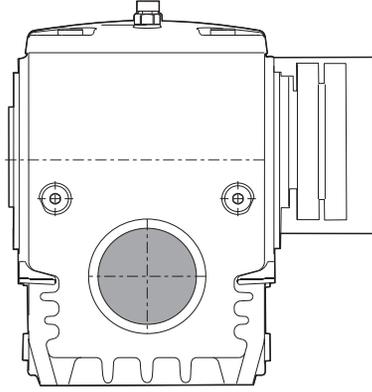
Determine position of torque arm when commission.(e.g. 180°)
Determine mounted and connecting position for instance side L or side R of gear unit when you commission.



PSH 2050 DG ... PSH 3100 DG

PSH 2125 DG ... PSH 3125 DG

TİP / TYPE	s1 ^{H11} x t	X	Y
PSH 2050 DG PSH 3050 DG	2 X Ø 8 X 12	56.14	12.45
PSH 2063 DG PSH 3063 DG	2 X Ø 8 X 12	56.14	12.45
PSH 2080 DG PSH 3080 DG	2 X Ø 10 X 15	80.54	17.86
PSH 2100 DG PSH 3100 DG	2 X Ø 12 X 20	104.95	23.27
PSH 2125 DG PSH 3125 DG	4 X Ø 12 X 20	111.75	71.19



S = h6 veya f6 ile konik siktirmanın güvenirliliđi.

S = Assurance of shrink disc (with h6 and f6 tolerance)

M_A = Civatayı sıkmak için gerekli olan tork

M_A = Screw torque for tightening

Z_s = Vida miktarı

Z_s = Amount of screw

M_{amax} = max. izin verilebilir çıkış momenti

M_{amax} = maximum allowable output moment

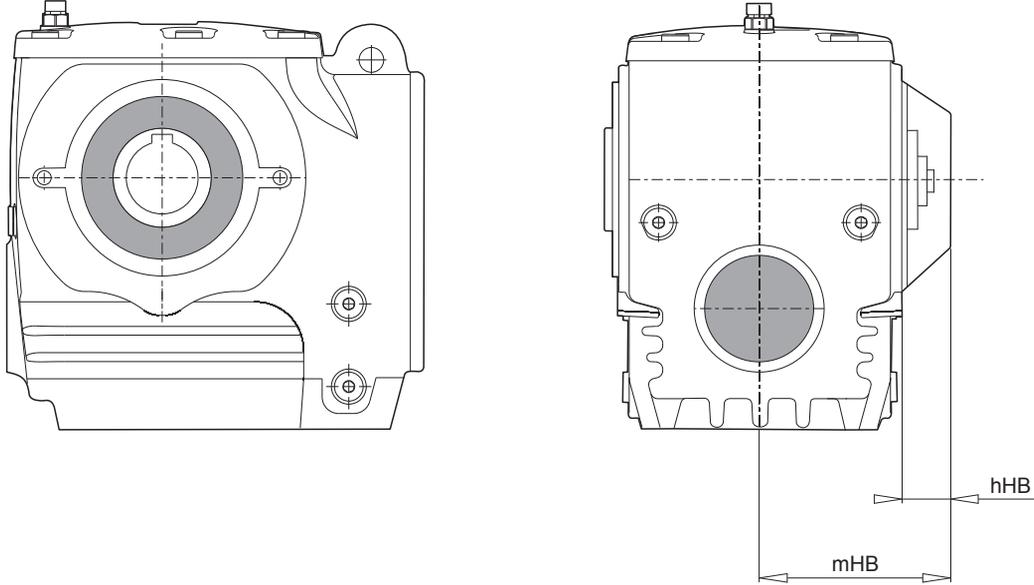
Konik siktirma, genellikle kullanıcı milinin karşı tarafına montaj edilmelidir. Şaft çapı ISO h6 veya f6'ya göre imal edilmelidir.

(f6= Kolay montaj)

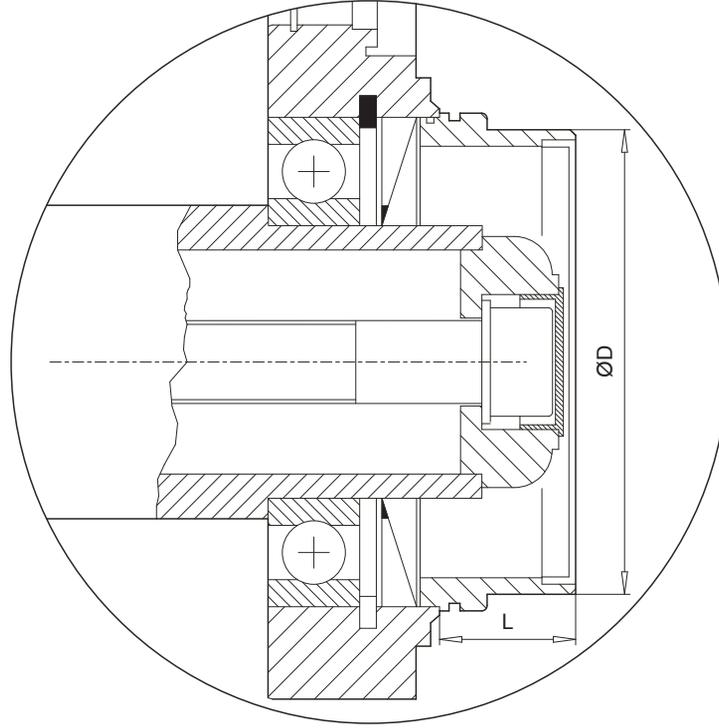
When customer shaft is installed to the gear unit, shrink disc should be mounted on opposite side of it. Customer diameter shaft should be machined according to ISO h6 or f6 tolerances.

(f6= For easy assembling)

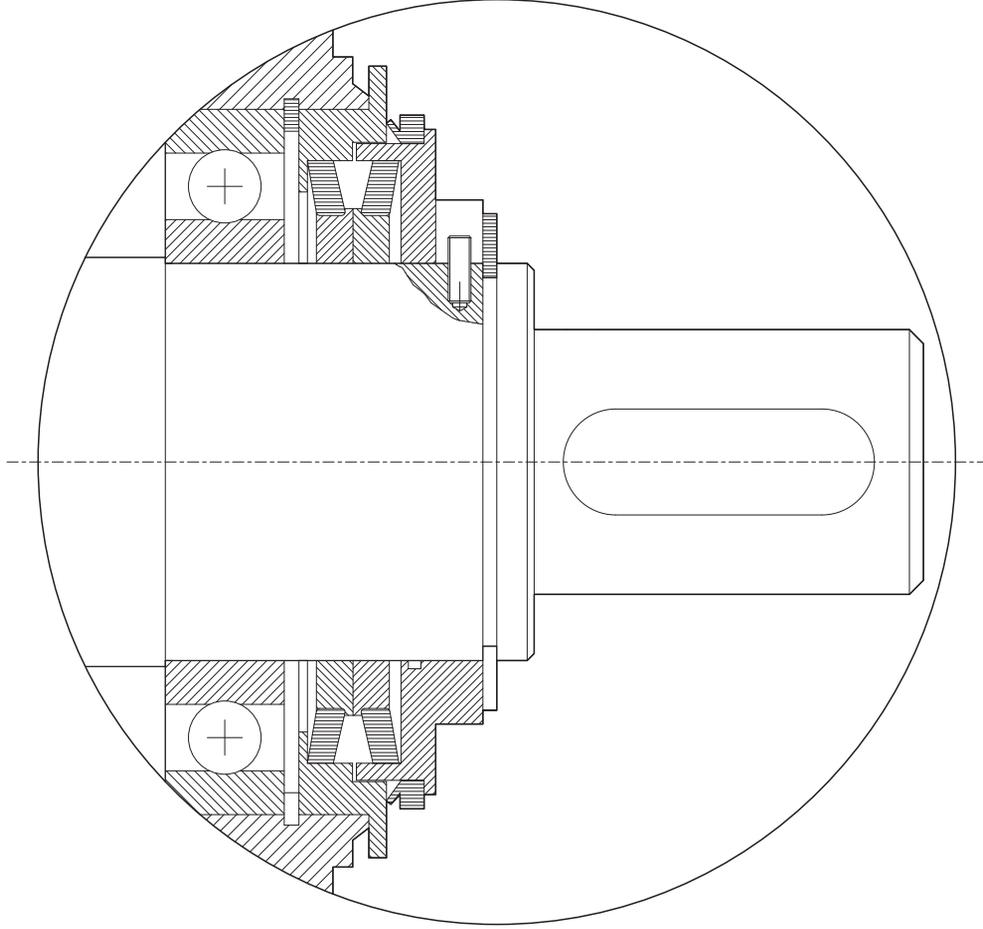
Redüktör Tipi Gearbox Type	Konik Siktirma Shrink Disc				Hexagonal Screw Altıköşe Başlı Civata DIN 931 / DIN 933* 10.9Vz		
	Tip Type	M _{amax} [Nm]	s ^{h6}	s ^{f6}	d x l	Zs	M _A [Nm]
PSH 2050 KS-KK	KS 25 / 35	182	2.8	2.3	M5 X 25	8	7
PSH 2050 KS-KK	KS 30 / 40	182	5.4	4.7	M6 X 35*	8	12
PSH 2063 KS-KK	KS 30 / 40	383	2.6	2.2	M6 X 35*	8	12
PSH 2063 KS-KK	KS 35 / 46	383	3.0	3.2	M6 X 35*	10	12
PSH 2080 KS-KK	KS 40 / 55	779	3.0	2.6	M8 X 40	8	30
PSH 2080 KS-KK	KS 45 / 55	779	4.1	3.8	M8 X 40	8	30
PSH 2100 KS-KK	KS 50 / 62	1604	2.7	2.6	M8 X 40	10	30
PSH 2100 KS-KK	KS 60 / 76	1604	5.1	4.7	M10 X 50	10	59
PSH 2125 KS-KK	KS 60 / 76	3120	2.6	2.4	M10 X 50	10	59
PSH 2125 KS-KK	KS 70 / 90	3120	4.4	4.1	M12 X 70*	10	100



TİP / TYPE	hHB	mHB
PSH 2050 DG/KK PSH 3050 DG/KK	38	98
PSH 2063 DG/KK PSH 3063 DG/KK	38	105
PSH 2080 DG/KK PSH 3080 DG/KK	42	117
PSH 2100 DG/KK PSH 3100 DG/KK	50	142
PSH 2125 DG/KK PSH 3125 DG/KK	54	169



TİP / TYPE	Ø D	L
PSH 2050 PSH 3050	81	25
PSH 2063 PSH 3063	86	28
PSH 2080 PSH 3080	105	35
PSH 2100 PSH 3100	136	40
PSH 2125 PSH 3125	151	40



MEKANİK KEÇE

Özellikle aşırı çalışmalarda ve çok kötü çalışma koşullarında uygundur. Daldırmalı veya sulu çalışma ortamlarından etkilenmemektedir. Bu keçe tipi dış çevre koşullarından kesin koruma sağlar.

MECHANICAL SEAL

Seals are important for prevent oil leakage from gear unit and protect from environment. In hazardous environment and extreme operation conditions sealing must be considered. For th at reason mechanical seals are applicable for using at hazardous environment, submerged operation.



Çektirme elemanları

Çektirme elemanlar, şaft montajlı dişli ünitelerinde opsiyonel olarak bulunur.

Kullanım Şartları:

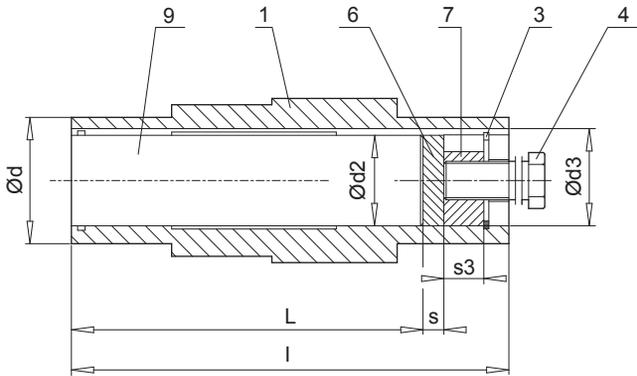
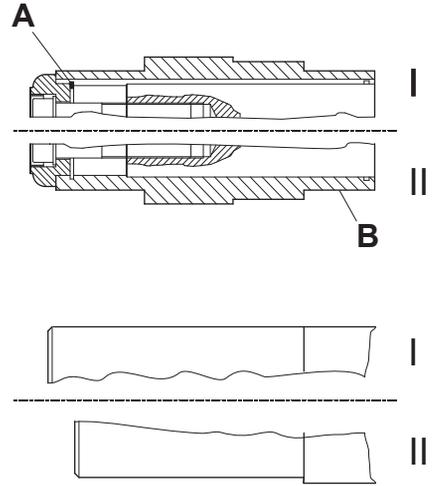
- Kullanılacak milin merkezinde DIN 332/2 standardında bir delik açılmalı.
- Mil, faturalı yada faturasız olsa da,çektirme elemanları ile sabitlelenebilir.
- I 'deki montaj kullanıldığında,mil,şaftın içinde bulunan segman ile tutturulur.(Parça A)
- II 'deki montaj kullanıldığında,milin üzerinde bulununan bilezik (manşon) kullanılarak doğrudan delik mil üzerine tutturulur.(Parça B)

Fixing elements

This is used for shaft mounted designs and it should be specified when ordering because there are some requirements for use.

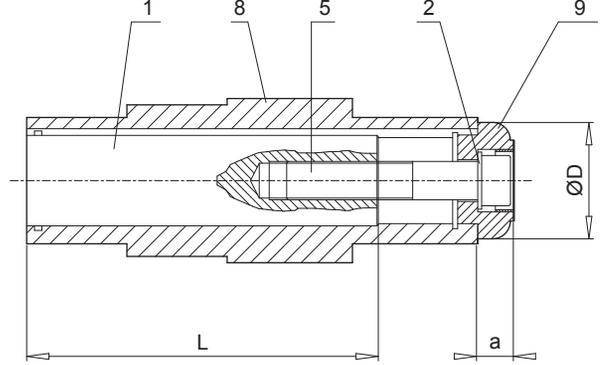
Using conditions:

- Centre bore must be machined appropriately DIN 332/2.
- Solid shaft could be mounted either with a shaft shoulder (II) or without shaft shoulder (I)
- Solid shaft which is without shaft shoulder is mounted with using retainin ring (A)
- Solid shaft which is with shaft shoulder is mounted with using spacer



DEMONTAJ
DISASSEMBLY

L= max. kullanıcı şaft boyu
L= maximum length of the solid shaft



MONTAJ
ASSEMBLY

- 1) Kullanıcı mili
- 2) Rondela DIN 127
- 3) * İç Segman DIN 472
- 4) * Çektirme civatası
- 5) Alyan başlı civata DIN 912
- 6) * Yaylı rondela
- 7) * Somun
- 8) Delik mil
- 9) Disk

*Dikkat, yıldızlı ürünler PGR tarafından temin edilmez.

- 1) Customer's shaft
- 2) Washer DIN 127
- 3) * Circlip DIN 472
- 4) * Jacking screw
- 5) Socket head screw DIN 912
- 6) * Thrust washer
- 7) * Jacking nut
- 8) Hollow shaft
- 9) Disc

*Star signs are shown this item are not provided by PGR

DEMONTAJ:

- 1) Alyanbaşlı civatayı sökünüz. (poz.5)
- 2) Diski çıkarınız. (poz.9)
- 3) Yaylı rondelayı takınız. (poz.6)
- 4) Somunu yerleştiriniz. (poz.7)
- 5) Segmanı takınız. (poz.3)
- 6) Çektirme civatasını basarak çevirerek kullanıcı milini şafttan ayırınız. (poz.4)

KOŞULLAR:

Kullanıcı mili DIN 332/2' e göre merkezine diş açılmış delik gerekmektedir. Müşteri mili "L" uzunluğunu geçmemelidir aksi halde çektirme elementi uygulanamaz. (poz. 5,6,7)

MONTAJ:

- 1) Kullanıcı milini şaftın içerisine yerleştiriniz. (poz.8)
- 2) Diski (poz.9) şaftın içerisine yerleştiriniz.
- 3) Disk ile alyan başlı civata ve rondelayı sabitleyiniz. (poz.2-5)

Yukarıdaki bütün ölçüler Sonsuz-helisel - Tıp W, Tıp IEC ve Sonsuz - helisel dişli motorları için geçerlidir.

DISASSEMBLING:

- 1) Loosen the socket head screw (5)
- 2) Remove disc (9)
- 3) Immerse thrust washer (6)
- 4) Tuck jacking nut (7)
- 5) Mount circlip (3)
- 6) Remove solid shaft from hollow shaft with using jacking screw (4)

REQUIREMENTS:

Solid shaft which is connected to the hollow shaft, must have machined with a centre bore according to DIN 332/2. Consider that 'L_{max}' length is important for jacking not using solid shaft's length must not greater than 'L_{max}'.

ASSEMBLING:

- 1) Immerse customer shaft to the hollow shaft (8)
- 2) Mount disc to the hollow shaft (9)
- 3) Fasten disc and washer (2) by tightening socket head screw (5)

Dimensions which are shown above of this page are used for all type of helical - worm gear units. (Type W, IEC adapter and helical - worm geared motor.)

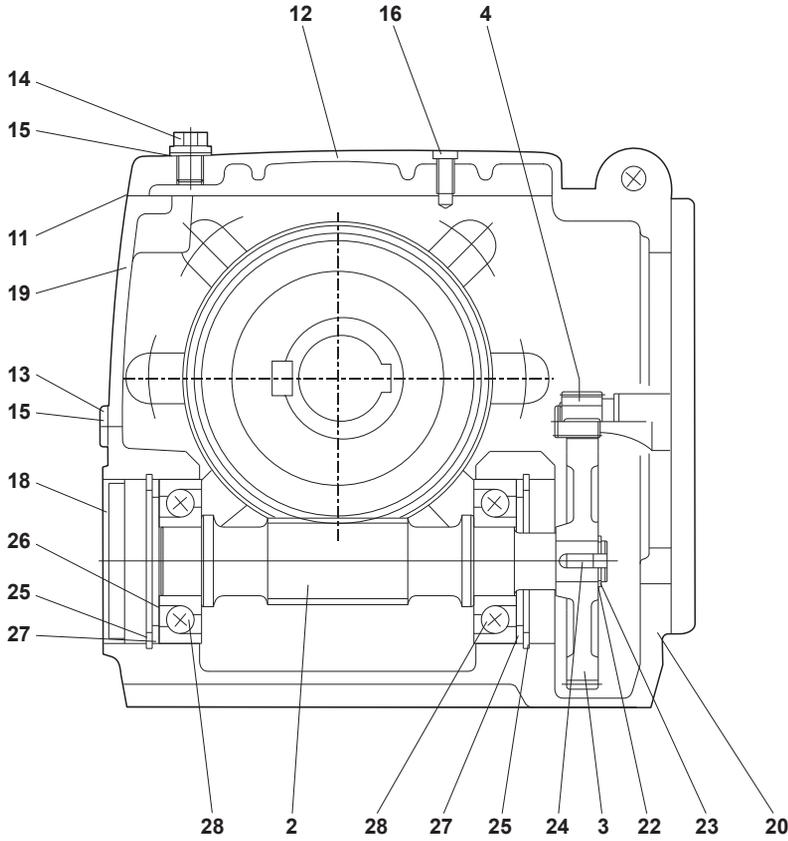


PSH 2040 DG/Ç ... PSH 2125 DG/Ç

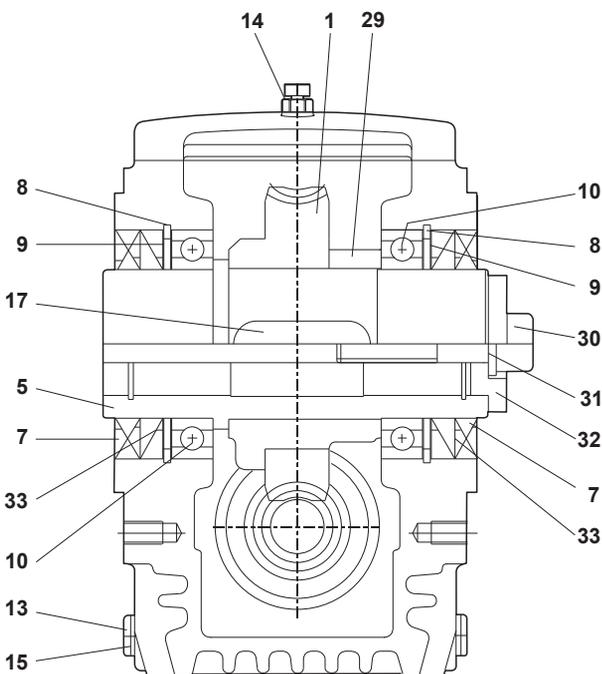
Tip / Type	1 L	2	3	4	5	6		7		8 d x mH	9		
						d2	s	d3	s3		a	D	
PSH 2040 DG/Ç	100	A6	120 x 1.5	M10	M6 X 30	19.9	3	19.9	10	M10	20 X 120	15	30
PSH 2050 DG/Ç	110	A10	125 x 1.2	M12	M10 X 45	24.9	3	24.9	12	M12	25 X 132	20	38
	110	A10	130 x 1.2	M12	M10 X 45	29.9	3	29.9	12	M12	30 X 132	20	40
PSH 2063 DG/Ç	125	A10	135 x 1.5	M12	M10 X 45	29.9	3	12	12	M12	30 X 148	20	40
	120	A12	140 x 1.75	M16	M12 X 55	34.9	3	16	16	M16	35 X 148	24.5	45
PSH 2080 DG/Ç	135	A16	140 x 1.75	M16	M16 X 70	39.9	4	39.9	16	M16	40 X 168	25	55
	135	A16	145 x 2.0	M16	M16 X 70	44.9	4	44.9	16	M16	45 X 168	26	60
PSH 2100 DG/Ç	165	A16	150 x 2.0	M20	M16 X 70	49.9	4	49.9	20	M20	50 X 202	26	65
	155	A20	160 x 2.0	M24	M20 X 70	59.9	5	59.9	24	M24	60 X 202	30	75
PSH 2125 DG/Ç	205	A20	160 x 2.0	M24	M20 X 90	59.9	5	59.9	24	M24	60 X 250	30	75
	205	A20	170 x 2.5	M24	M20 X 90	69.9	5	69.9	24	M24	70 X 250	30	95



PSH 2040 - PSH 2125 DG
Gövdeden Montajlı / Case Mounted

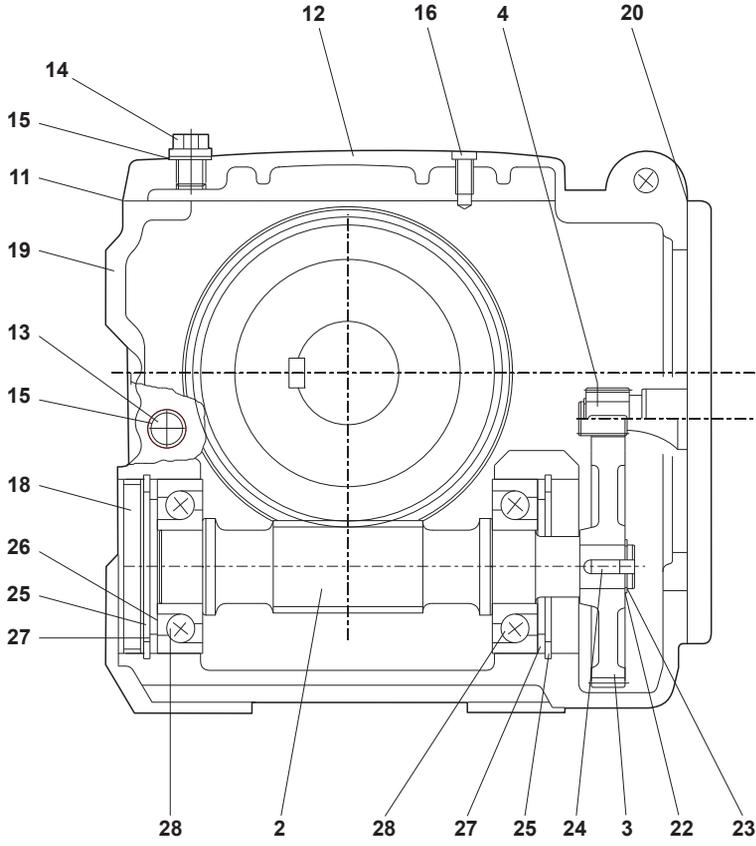


1	Sonsuz Çark	Worm whell
2	Vida	Worm gear
3	Z2 Dişlisi	Driving gear
4	Z1 Dişlisi	Driving pinion
5	Çıkış Şaftı	Hollow Shaft
7	Şaft Keçesi	Shaft Seal
8	Segman	Circlip
9	Layner	Shim
10	Bilyalı Rulman	Ball Bearing
11	Conta	Gasket
12	Gövde Kapağı	Gearcase Cover
13	Yağ Tapası	Drain plug
14	Havalandırma Tapası	Vent plug
15	Rondela	Washer
16	Alyan Başlı Civata	Socket Head Screw
17	Kama	Key
18	Yağ Kapağı	Locking Cap
19	Gövde	Gear Case
20	Conta	Gasket
22	Rondela	Supporting Disc
23	Segman	Circlip
24	Kama	Key
25	Segman	Circlip
26	Layner	Shim
27	Rondela	Supporting Disc
28	Rulman	Angular ball bearing
29	Burç	Spacer
30	Alyan Başlı Civata	Socket Head Screw
31	Rondela	Washer
32	Disk	Disc
33	Şaft Keçesi	Shaft Seal

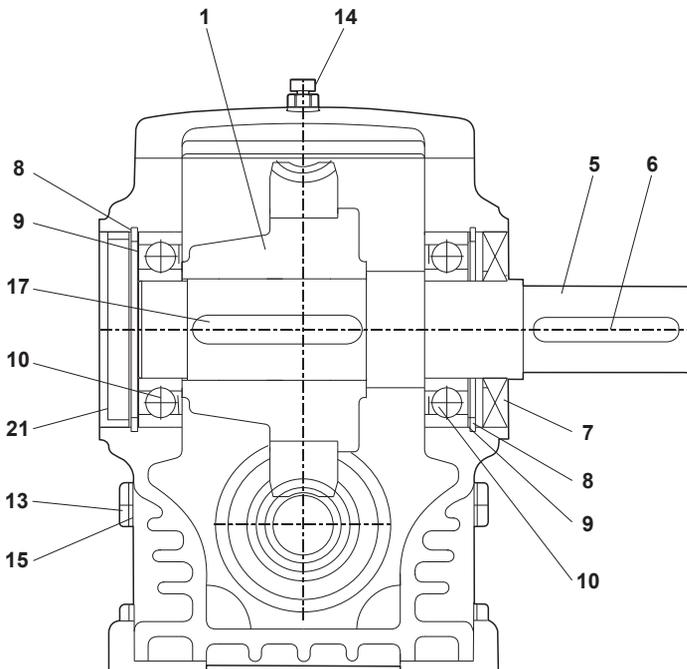




PSH 2040 - PSH 2125
Ayak Montajlı / Foot Mounted



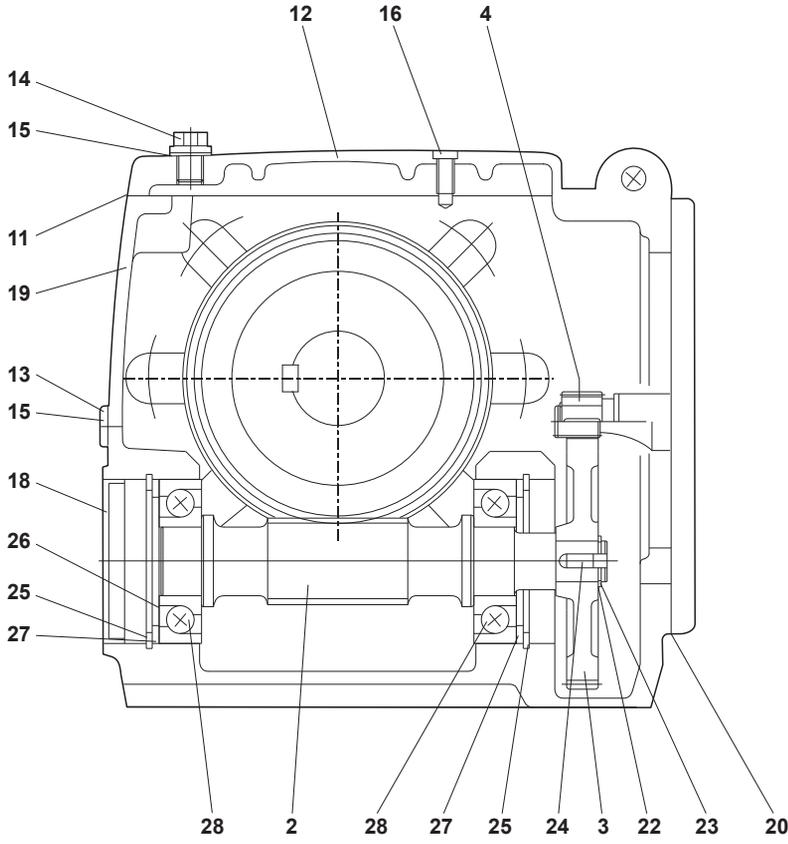
1	Sonsuz Çark	Worm whell
2	Vida	Worm gear
3	Z2 Dişlisi	Driving gear
4	Z1 Dişlisi	Driving pinion
5	Çıkış Mili	Output Shaft
6	Kama	Key
7	Şaft Keçesi	Shaft Seal
8	Segman	Circlip
9	Layner	Shim
10	Bilyalı Rulman	Ball Bearing
11	Conta	Gasket
12	Gövde Kapağı	Gearcase Cover
13	Yağ Tapası	Drain plug
14	Havalandırma Tapası	Vent plug
15	Rondela	Washer
16	Alyan Başlı Civata	Socket Head Screw
17	Kama	Key
18	Yağ Kapağı	Locking Cap
19	Gövde	Gear Case
20	Conta	Gasket
21	Yağ Kapağı	Locking Cap
22	Rondela	Supporting Disc
23	Segman	Circlip
24	Kama	Key
25	Segman	Circlip
26	Layner	Shim
27	Rondela	Supporting Disc
28	Rulman	Angular Ball Bearing



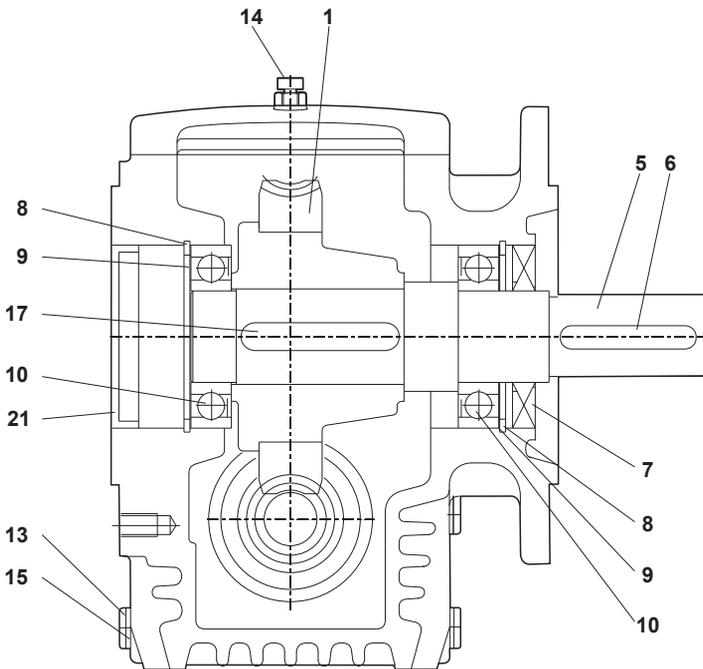


PSH 2040 - PSH 2125

Flanş Montajlı / Flange Mounted



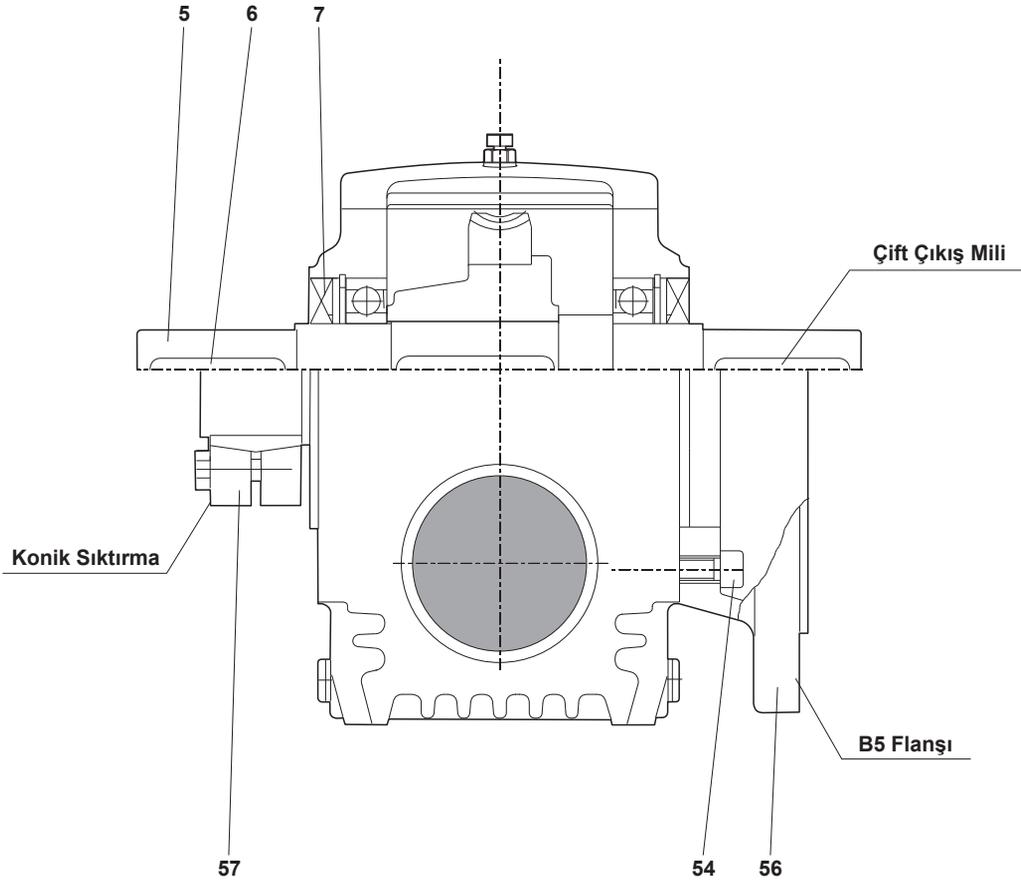
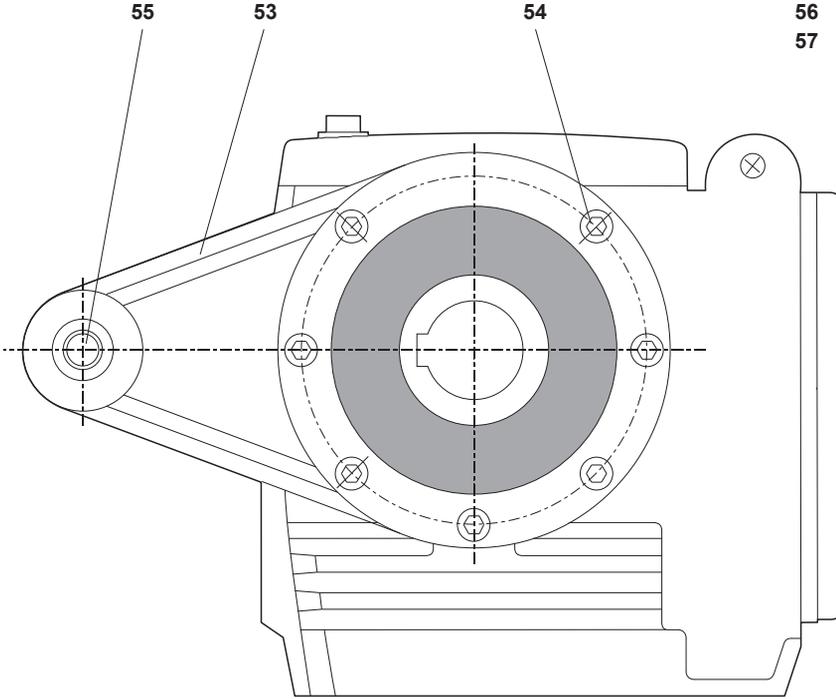
1	Sonsuz Çark	Worm whell
2	Vida	Worm gear
3	Z2 Dişlisi	Driving gear
4	Z1 Dişlisi	Driving pinion
5	Çıkış Mili	Output Shaft
6	Kama	Key
7	Şaft Keçesi	Shaft Seal
8	Segman	Circlip
9	Layner	Shim
10	Bilyalı Rulman	Ball Bearing
11	Conta	Gasket
12	Gövde Kapağı	Gearcase Cover
13	Yağ Tapası	Drain plug
14	Havalandırma Tapası	Vent plug
15	Rondela	Washer
16	Alyan Başlı Civata	Socket Head Screw
17	Kama	Key
18	Yağ Kapağı	Locking Cap
19	Gövde	Gear Case
20	Conta	Gasket
21	Yağ Kapağı	Locking Cap
22	Rondela	Supporting Disc
23	Segman	Circlip
24	Kama	Key
25	Segman	Circlip
26	Layner	Shim
27	Rondela	Supporting Disc
28	Rulman	Angular ball bearing





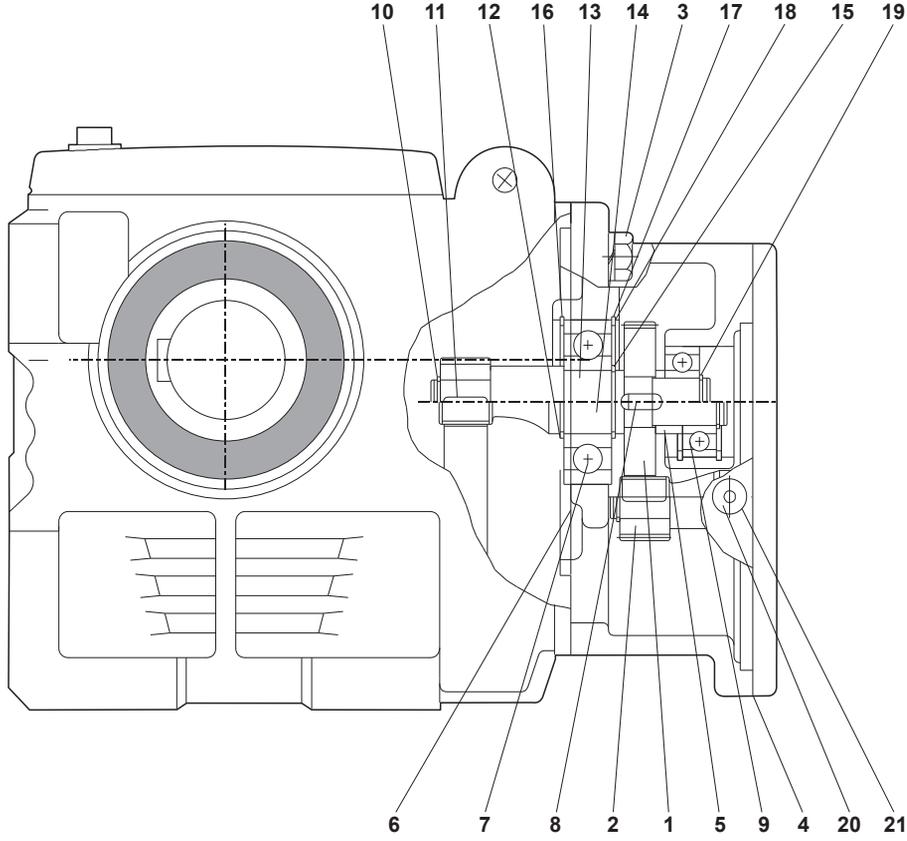
PSH 2040 - PSH 2125
PSH 3050 - PSH 3125
Delik Milli - Tork Kollu (DG/TK)
Hollow shaft - Torque arm

5	Çift çıkış mili	Output shaft, two sides
6	Kama	Key
7	Çıkış mili keçesi	Shaft seal
53	Tork kolu	Torque arm
54	Alyan başlı civata	Socket head screw
55	Vibrasyon sönmüleyeci	Vibration dampening connector
56	Flanş	Flange
57	Konik sıkırma	Shrink disc connector





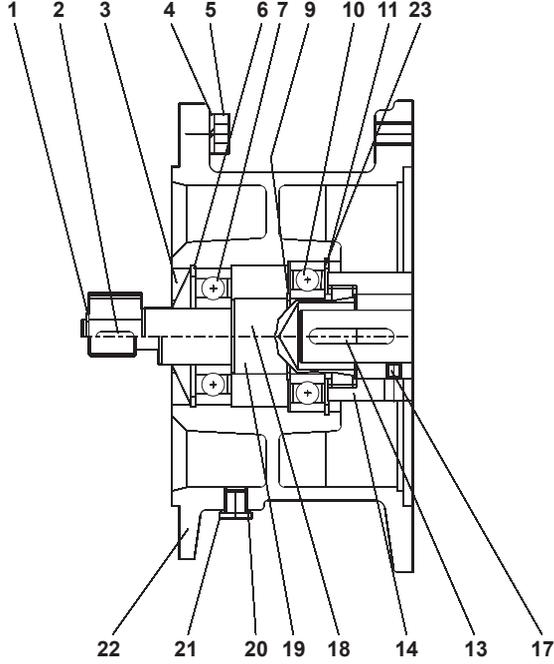
PSH 3050 - PSH 3125
Ayak Montajlı / Foot Mounted
Gövdeden Montajlı / Case Mounted



1	Z2 Dişlisi	Input Gear
2	Z1 Dişlisi	Input Pinion
3	Civata	Bolt
4	Conta	Gasket
5	Rondela	Supporting disc
6	İndirgeyici Gövdesi	Third Reduction gearcase
7	Rulman	Ball bearing
8	Kama	Key
9	Rulman	Ball bearing
10	Segman	Circlip
11	Kama	Key
12	Segman	Circlip
13	İndirgeyici Mili Çakma	Intermediate shaft, plain
14	İndirgeyici Mili Yekpare	Intermediate shaft, Gearcut
15	Segman	Circlip
16	Segman	Circlip
17	Layner	Shim
18	Segman	Circlip
19	Segman	Circlip
20	Tapa	Plug
21	Rondela	Washer

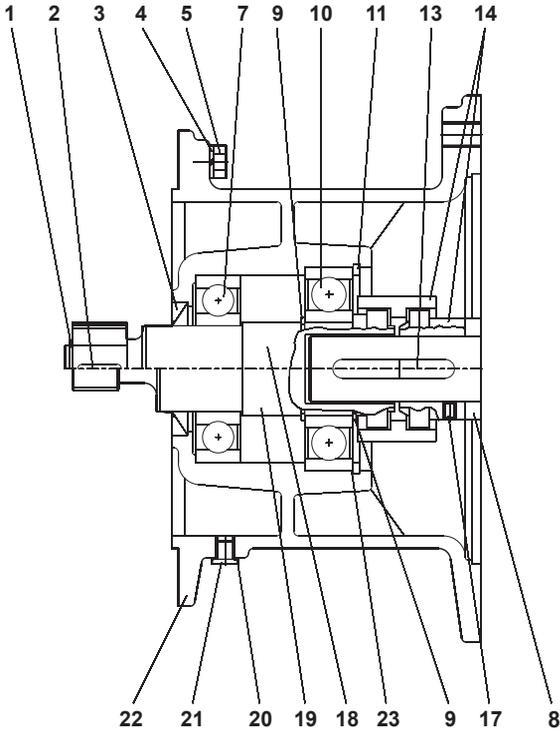


IEC 63 - 112



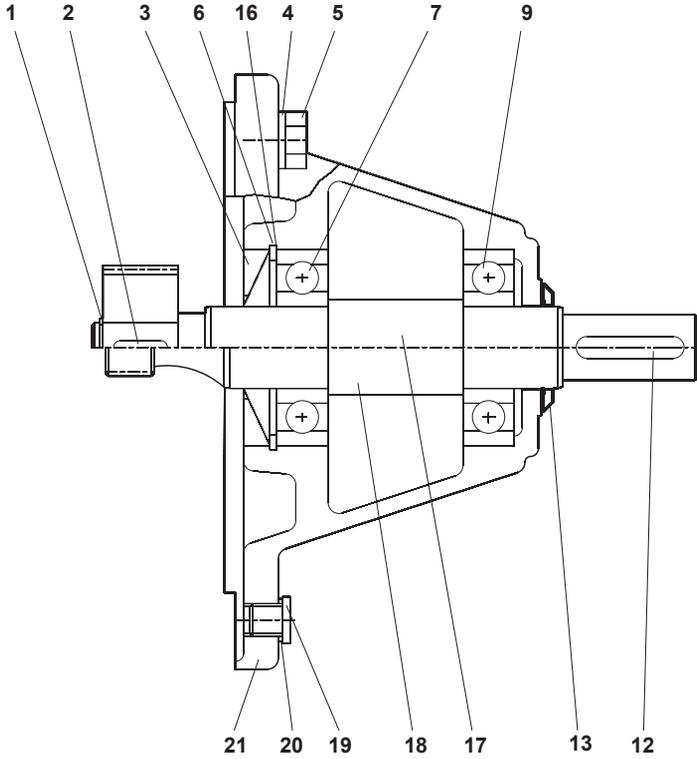
1	Segman	Circlip
2	Kama	Key
3	Şaft keçesi	Shaft seal
4	Rondela	Washer
5	Altıköşe başlı civata	Hexagon screw
6	Segman	Circlip
7	Rulman	Clutch shaft bearing
8	Burç	Spacer
9	Segman	Circlip
10	Rulman	Clutch shaft bearing
11	Segman	Circlip
12	Kama	Key
13	Kama	Key
14	Kaplin	Coupling
17	Setuskur civata	Set screw
18	lec mili çakma	Clutch shaft
19	lec mili yekpare	Clutch pinion shaft
20	Rondela	Washer
21	Yağ tapası	Oil plug
22	lec gövdesi	IEC adapter
23	Layner	Shim

IEC 132 - 160



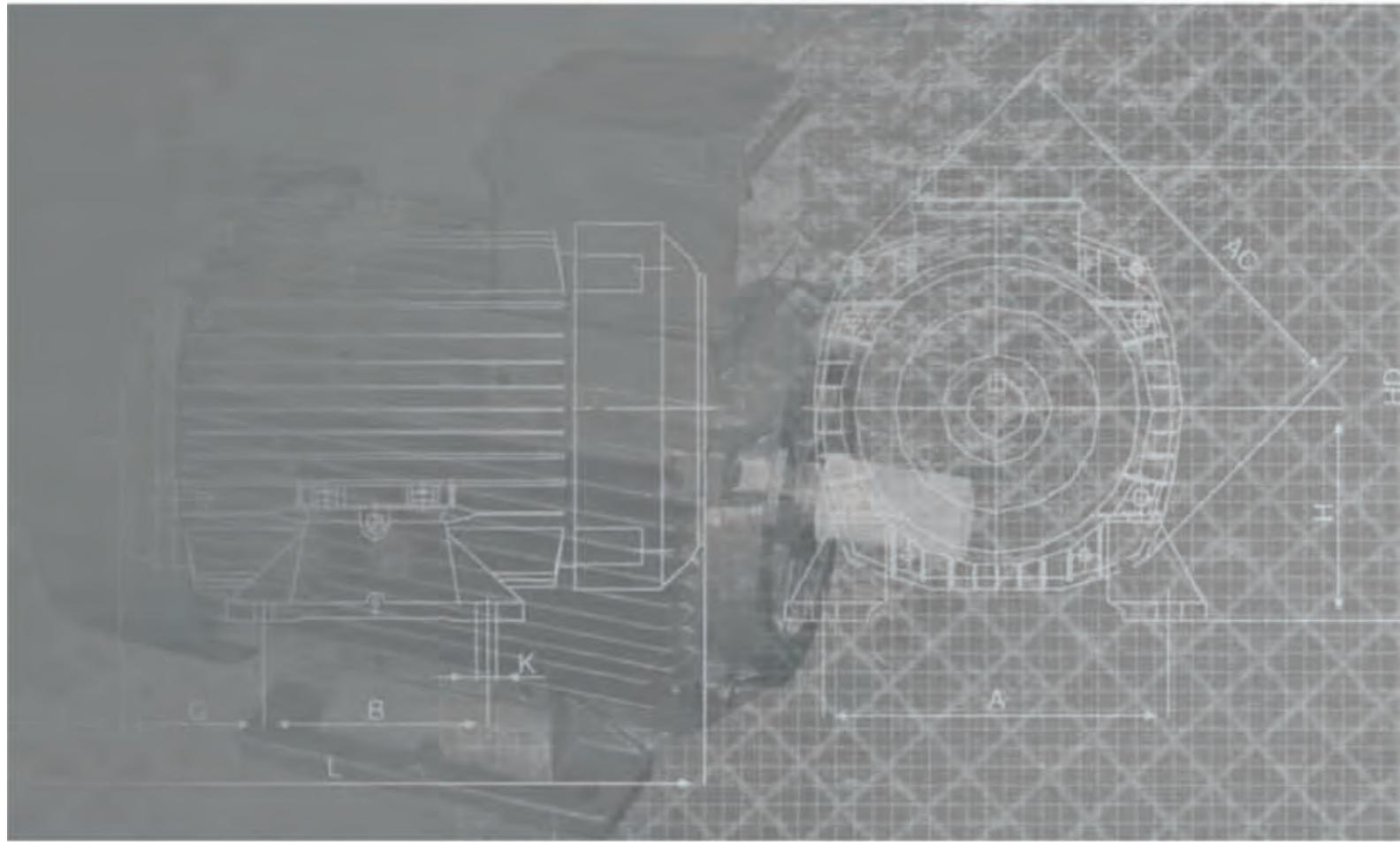


PSH 2040 - PSH 2125
PSH 3050 - PSH 3125



1	Segman	Circlip
2	Kama	Key
3	Şaft keçesi	Shaft seal
4	Rondela	Washer
5	Altköşe başlı civata	Hexagon screw
6	Segman	Circlip
7	Rulman	Input shaft bearing
9	Rulman	Input shaft bearing
12	Kama	Key
13	Yağ tutucu	Oil flinger
16	Layner	Shim
17	W mili çakma	Input shaft, plain
18	W mili yekpare	Input shaft, gearcut
19	Yağ tapası	Drain plug
20	Rondela	Washer
21	W gövdesi	Input bearing housing

ÜÇ FAZLI VE BİR FAZLI ELEKTRİK MOTORLARI



İÇERİK

İçindekiler
Üretim

Teknik Bilgiler

Standartlar
İzolasyon Sınıfı, Koruma Sınıfı
Vibrasyon/Balans, Elektriksel Bağlantı, Toleranslar
Ortam Koşulları, Malzeme
Yapı Şekilleri, Rulmanlar
Boya, Ayaklar, Terminal Kutusu, Tahliye Deliği
Motor Tip Kodları, Frekans Değişimi
Mil Üzerinde İzin Verilen Yük Miktarı
Çalışma Tipi

Üç Fazlı - QSX/QU/QH Tipler

Elektriksel Özellikler - QSX /QU Tipler
Elektriksel Özellikler - QSX /QU Tipler
Verimlilik Seviyeleri
Elektriksel Özellikler - QH Tip
Boyutlar
Boyutlar
Boyutlar

Bir Fazlı Daimi Devre Kondansatörlü - QM Tip

Teknik Bilgiler
Elektriksel Özellikler
Boyutlar

Frenli Motor - QB Tip

Teknik Bilgiler
Elektriksel Özellikler
Boyutlar
Boyutlar
Motor Parça Listesi

TEKNİK BİLGİLER

STANDARTLAR

Elektrik motorları, aşağıda listesi verilen Uluslararası Standartlara uygun olarak üretilmektedir:

IEC 60034-1	Sınıflama ve performans
IEC 60034-2	Kayıp ve verim ölçme metodları
IEC 60034-5	Koruma derecesi sınıflandırması
IEC 60034-6	Soğutma metodları
IEC 60034-7	Yapı şekil ve montaj düzenleme sembolleri
IEC 60034-8	Terminal işaretlemesi ve dönüş yönü
IEC 60034-9	Ses seviyesi limitleri
IEC 60034-11	Sıcaklık koruması
IEC 60034-14	Vibrasyon limitleri
IEC 60034-18-1	İzolasyon sistemlerinin fonksiyonel değerlendirilmesi
IEC 60038	Standart gerilimler
EN 50347	Elektrik makineleri için boyutlar ve çıkış güçleri

EN 55014-1	} Elektromanyetik uyumluluk
EN 61000-3-2	
EN 61000-3-3	

Türkiye

TSE 3067
TSE 4239

Almanya

DIN VDE 0530
DIN EN 60034

İngiltere

BS EN 60034

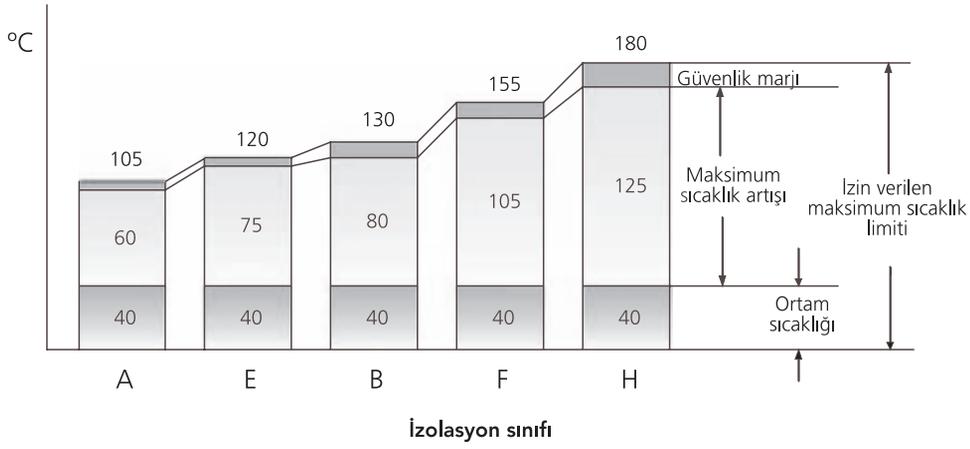
Üç fazlı ve bir fazlı motor serimiz için, UL 1004 ve CSA C 22.2 No 100.95 standartlarını sağlayan, UL ve C-UL sertifikalı motor üretimimiz mevcuttur.

TEKNİK BİLGİLER

İZOLASYON SINIFI

Standart motorlarımız, B sınıfı sıcaklık artışı limitleri içinde tasarlanmış olup, F sınıfı izolasyona sahiptir. Bu özellik, motorların daha uzun çalışma ömrüne sahip olmasını sağlamaktadır.

IEC 60034-1 standartlarına uygun ölçüm yapıldığında, F izolasyon sınıfı motorlar, 40°C ortam sıcaklığında, 10°C güvenlik marjı dikkate alındığında maximum 105°C sargı sıcaklığı artışına izin vermektedir.



KORUMA SINIFI

IEC 60034-5 standardına göre, yabancı maddelerin ve / veya suyun elektrik motoru gövdesini geçerek tehlike yaratacak motor kısımlarına ulaşmasının engellenme derecesini belirleyen IP kodu motorların üzerinde belirtilmektedir.

Standart motorlarımızın koruma sınıfı IP54'tür.

X	Katı yabancı maddelerin girişine karşı koruma	Y	Suya karşı koruma	IP XY
5	Muhafazanın içindeki hareketli ve gerilimli kısımlara rasgele dokunmaya karşı koruma. Zarar verici miktarda toz birikmesine karşı koruma. Toz girişi tam olarak önlenmemiştir, ancak motorun çalışmasını bozacak miktarda toz muhafazadan içeri giremez.	4	Herhangi bir doğrultudan motorun üzerine sıçrayan suyun zarar vermesine karşı koruma.	IP 54
		5	Herhangi bir doğrultudan motorun üzerine püskürtülen suyun zarar vermesine karşı koruma.	IP 55

TEKNİK BİLGİLER

VİBRASYON/BALANS

Bütün rotorlar yarım kama ile dinamik olarak balans yapılmakta olup bu motor etiketinde 'H' harfi ile belirtilmektedir.

IEC 60034-14'e göre, standart motorlarda **A vibrasyon seviyesi** sağlanmaktadır. Müşteri isteğine göre, B vibrasyon seviyesine sahip motor üretimi mümkündür.

Vibrasyon (mm/s)

Gövde büyüklüğü	Vibrasyon derecesi	
	A	B
63-132	1,6	0,7
160-250	2,2	1,1

ELEKTRİKSEL BAĞLANTI

Terminal plakasında IEC 60034-8'e göre işaretlenmiş 6 bağlantı terminali bulunmaktadır.

Gövde büyüklüğü	63-80	90-100	112	132-160	180	200	225-250
Kablo girişi	M20	M25	M25	M32	M40	M32	M40
Giriş sayısı	1	1	2	2	2	2	2

TOLERANSLAR

IEC 60034-1'e göre, katalog değerlerinden sapma toleransları aşağıda belirtilmiştir:

Hız (n)	$\Delta n = \pm 20\% (n_s - n_N)$ for $P_N > 1$ kW $\Delta n = \pm 30\% (n_s - n_N)$ for $P_N \leq 1$ kW
Verim % (η)	$\Delta \eta = -15\% (100 - \eta_N)$ for $P_N \leq 50$ kW $\Delta \eta = -10\% (100 - \eta_N)$ for $P_N > 50$ kW
Güç faktörü ($\cos \varphi$)	$\Delta \cos \varphi = -1/6 (1 - \cos \varphi)$
Kilitli rotor akımı (I_L/I_N)	$\Delta (I_L/I_N) = +20\% (I_L/I_N)$
Kilitli rotor momenti (M_L/M_N)	min. (M_L/M_N) = $-15\% (M_L/M_N)$ max. (M_L/M_N) = $+25\% (M_L/M_N)$
Devrilme momenti (M_K/M_N)	$\Delta (M_K/M_N) = -10\% (M_K/M_N)$
Semer momenti (M_P/M_N)	$\Delta (M_P/M_N) = -15\% (M_P/M_N)$
Eylemsizlik momenti (J) [kgm ²]	$\Delta J = \pm 10\% J$
Ses seviyesi (LPA) [dB]	$\Delta LPA = +3$ dB (A)

TEKNİK BİLGİLER

ORTAM KOŞULLARI

Üç fazlı ve bir fazlı motorlar en fazla deniz seviyesinden 1000 metre yükseklikte ve 40°C ortam sıcaklığında çalışacak şekilde tasarlanmıştır. Diğer yükseklik ve ortam sıcaklıklarındaki güç hesaplamalarında aşağıdaki % katsayılar kullanılmalıdır.

YÜKSEKLİK		1000 m'ye kadar	1500 m'ye kadar	2000 m'ye kadar	2500 m'ye kadar	3000 m'ye kadar	3500 m'ye kadar	4000 m'ye kadar
İzolasyon sınıfına göre % olarak katalog güçlerinin katları	B	100	97	94	90	86	82	77
	F	100	98	95	91	87	83	78

ORTAM SICAKLIĞI		30°C	35°C	40°C	45°C	50°C	55°C	60°C
İzolasyon sınıfına göre % olarak katalog güçlerinin katları	B	106	106	100	97	92	86	80
	F	105	102	100	97	93	87	82

MALZEME

Gövde Büyüklüğü	Gövde	Fan	Fan kapağı	Motor Kapakları	B5 Flanş	B14 Flanş
63						
71						
80						
90			Sac		Alüminyum	Alüminyum
100						
112	Alüminyum	Plastik		Alüminyum		
132						Pik Döküm
160						
180						
200			Plastik ⁽¹⁾		Pik Döküm	
225						
250						

⁽¹⁾Sac fan kapağı opsiyoneldir.

TEKNİK BİLGİLER

YAPI ŞEKİLLERİ

B3 IM 1001	V5 IM 1011	V6 IM 1031	B6 IM 1051 Ayaklar arkada	B7 IM 1061 Ayaklar arkada	B8 IM 1071	
B5 IM 3001	V1 IM 3011	V3 IM 3031				FA
B14 IM 3601	V18 IM 3611	V19 IM 3631				FB veya FC
B35 IM 2001	V15 IM 2011	V35 IM 2031	IM 2051 Ayaklar arkada	IM 2061 Ayaklar arkada	IM 2071	PA
B34 IM 2101	V17 IM 2111	V37 IM 2131	IM 2151 Ayaklar arkada	IM 2161 Ayaklar arkada	IM 2171	PB veya PC

RULMANLAR

Standart motorlarda yataklama için sabit bilyalı ZZ (her iki tarafı kapaklı) rulmanlar kullanılmaktadır. Sadece 250 gövde motorların kasnak tarafında sabit bilyalı açık rulman kullanılır.

Rulman ve keçe tipleri

Gövde büyüklüğü	Rulman		Keçe	
	KT	KTA	KT	KTA
63	6201-2Z	6201-2Z	12*22*7	12*22*7
71	6202-2Z	6202-2Z	15*24*5	15*24*5
80	6204-2Z	6204-2Z	20*30*7	20*30*7
90	6305-2Z	6205-2Z	25*40*7	25*40*7
100	6306-2Z	6205-2Z	30*47*7	25*40*7
112	6306-2Z	6206-2Z	30*47*7	30*47*7
132	6208-2Z	6208-2Z	40*62*10	40*62*10
160	6309-2Z	6309-2Z	45*72*10	45*72*10
180	6310-2Z	6310-2Z	50*80*10	50*80*10
200	6312-2Z	6312-2Z	60*90*10	60*90*10
225	6313-2Z	6313-2Z	65*100*13	65*100*13
250/2	6314	6313-2Z	70*112*12	65*100*13
250/4	6315	6313-2Z	75*112*12	65*100*13

KT = Kasnak tarafı
KTA = Kasnak tarafı aksi

TEKNİK BİLGİLER

BOYA

Standart motorlar RAL 6011 yeşil renkte boya ile boyanarak teslim edilir.

AYAKLAR

QSX tip gövdelerin ayakları sökülebilm ve üç yüzeye takılabilm özelliğine sahiptir. QU tip gövdelerde ayakların sökülebilm özelliği değişik montaj şekilleri için esneklik sağlar.

TERMİNAL KUTUSU

63-132 gövdelerde üstte ve mil tarafına yakındır. Ayakların 90'ar derece dönerek takılabilm özelliğinden dolayı terminal kutusu gövdenin sağ veya sol tarafına gelebilmektedir. Terminal kutusunun kendi eksenine etrafında dönerek montaj edilebilm özelliğinden dolayı, rakor bağlantı delikleri istenen her yönde olabilm şansına sahiptir. Diğer gövdelerde ise terminal kutusu üstte ve mil tarafına yakındır.

TAHLİYE DELİĞİ

Standart motorlar, tahliye deliksiz olarak üretilmektedir. İsteğe bağlı olarak, tahliye deliği bulunan motor üretimimiz mevcuttur.



MOTOR TİP KODLARI

QU FA 225 M 4 C-43 (Örnek model numarası)			
QU . Motor Tipi	QU Tip QSX Tip QH Tip QB Tip QM Tip	225 . Gövde büyüklüğü	Mil yüksekliği (mm)
FA . İnşa tipi	B3,B6,B7,B8,V5,V6/V19 B5,V1,V3 B14,V18,V19 B14,V18,V19	M . Motor uzunluğu	S Kısa M Orta L Uzun
--- Ayaklı FA A flanşlı FB B flanşlı FC C flanşlı FS Özel flanşlı PA Ayaklı A flanşlı PB Ayaklı B flanşlı PC Ayaklı C flanşlı PS Ayaklı ve özel flanşlı X Ayaksız, flanşsız	B3/B5,V1/V5,V3/V6 B3/B14,V5/V18,V6/V19 B3/B14,V5/V18,V6/V19 -	4 . Kutup sayısı	2,4,6,8 Kutup
	B9,V8,V9	C . Sac paketi uzunluğu	(Dış boyutlardan bağımsız olarak) A Kısa B Orta C Uzun D, CE Ekstra uzun
		43 . Özel motor numarası	01 - ... - 99

FREKANS DEĞİŞİMİ

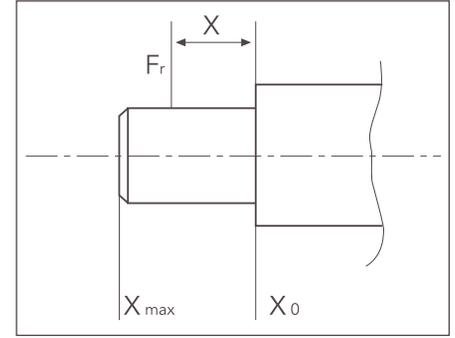
50 Hz'lik şebeke için sarılan motorlar, hiç bir değişiklik yapılmadan 60 Hz'lik bir şebekede çalıştırılabilirler. Bu durumda 50 Hz'lik değerler aşağıda verilen katsayılarla çarpılmalıdır.

		50 Hz motorun 60 Hz'de çalışma katsayıları						
50 Hz'e göre sarılmış motor	60 Hz'e bağlantı	Nominal Devir	Nominal Güç	Nominal Moment	Nominal Akım	Kalkış Momenti	Devrilme Momenti	Kalkış Akımı
220 V	220 V	1.2	1	0.83	1	0.83	0.83	0.83
220 V	255 V	1.2	1.15	0.96	1	0.96	0.96	0.96
380 V	380 V	1.2	1	0.83	1	0.70	0.83	0.83
380 V	440 V	1.2	1.15	0.96	1	0.95	0.98	0.97

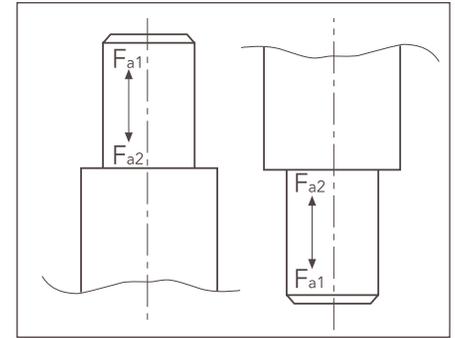
MİL ÜZERİNDE İZİN VERİLEN YÜK MİKTARI

GÖVDE BÜYÜKLÜĞÜ	KUTUP SAYISI	Yatay çalışma		Dikey çalışma	
		Fr(x=0) (kN)	Fr(x=max) (kN)	Fa1(x=0) (kN)	Fa2(x=max) (kN)
63	2	0,25	0,22	0,18	0,18
	4	0,29	0,25	0,21	0,21
	6	0,31	0,27	0,23	0,23
71	2	0,30	0,26	0,21	0,21
	4	0,35	0,29	0,25	0,25
	6	0,37	0,31	0,27	0,27
	8	0,38	0,32	0,28	0,28
80	2	0,54	0,45	0,38	0,38
	4	0,62	0,51	0,44	0,44
	6	0,66	0,54	0,48	0,48
	8	0,67	0,55	0,49	0,49
90	2	0,91	0,74	0,70	0,36
	4	0,99	0,80	0,77	0,40
	6	1,04	0,84	0,82	0,43
	8	1,03	0,83	0,80	0,43
100	2	1,21	0,96	0,91	0,36
	4	1,31	1,04	1,01	0,40
	6	1,38	1,09	1,07	0,43
	8	1,38	1,09	1,07	0,43
112	2	1,23	1,00	0,91	0,54
	4	1,33	1,09	1,01	0,60
	6	1,40	1,14	1,07	0,64
	8	1,40	1,14	1,07	0,61
132	2	1,22	0,98	0,86	0,86
	4	1,31	1,04	0,92	0,92
	6	1,34	1,08	0,95	0,95
	8	1,42	1,14	1,03	1,03
160	2	2,22	1,72	1,59	1,59
	4	2,34	1,82	1,71	1,71
	6	2,34	1,82	1,71	1,71
	8	2,48	1,92	1,83	1,83
180	2	2,68	2,12	1,94	1,94
	4	2,82	2,23	2,07	2,07
	6	2,93	2,31	2,17	2,17
	8	2,92	2,31	2,16	2,16
200	2	3,80	3,04	2,79	2,79
	4	3,95	3,16	2,93	2,93
	6	4,07	3,26	3,05	3,05
	8	3,95	3,16	2,93	2,93
225	2	4,45	3,65	3,25	3,25
	4	4,59	3,60	3,39	3,39
	6	4,73	3,71	3,52	3,52
	8	4,53	3,55	3,32	3,32
250	2	4,97	3,93	3,61	2,94
	4	5,78	4,57	4,26	3,15

Yatay çalışma



Dikey çalışma



Hesaplamalar 20.000 saat (L10aah) rulman ömrü baz alınarak yapılmıştır. Radyal ve axial yüklerin aynı anda etkimesi durumunda değerler değişecektir. Kritik uygulamalarda kapakların mekanik mukavemeti de dikkate alınmalıdır.

Mil'in herhangi bir noktasında (X=max ve X=0 noktaları arasında) uygulanan Fr kuvvetinin değeri aşağıdaki formül kullanılarak hesaplanabilir:

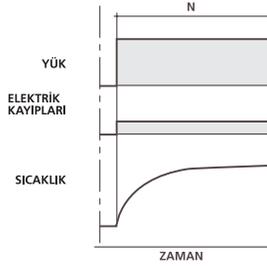
$$F_r = F_{x0} - \frac{x}{E} (F_{x0} - F_{xmax}) [kN]$$

Burada; F_{x0} - Mil ucu başlangıcında etkiyen Fr kuvvetinin değeri
 F_{xmax} - Mil ucu sonunda etkiyen Fr kuvvetinin değeri
 E - Mil ucu uzunluğu

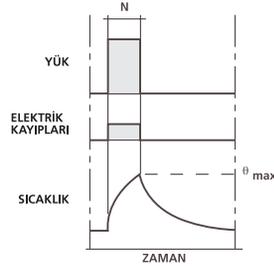
ÇALIŞMA TİPİ

IEC 60034-1 standardında motor çalışma tipleri aşağıdaki şekilde belirtilmiştir.

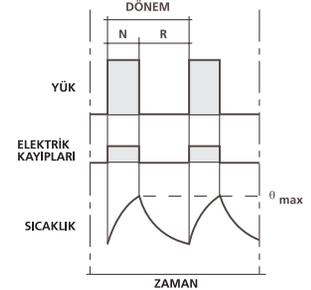
S1: Sürekli çalışma



S2: Kısa süreli çalışma

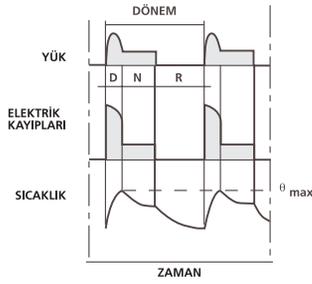


S3: Dönemli kesintili çalışma



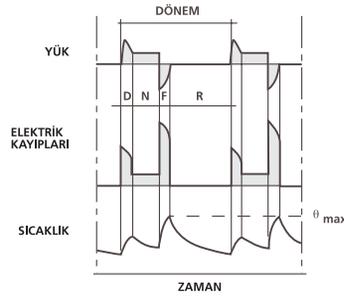
$$\text{Ç.K.} = \frac{N}{N+R} \times 100 \%$$

S4: Yolvermeli dönemli kesintili çalışma



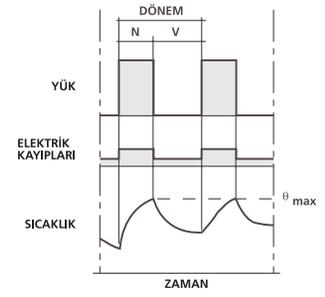
$$\text{Ç.K.} = \frac{D+N}{D+N+R} \times 100 \%$$

S5: Elektriksel frenlemeli dönemsel kesintili çalışma



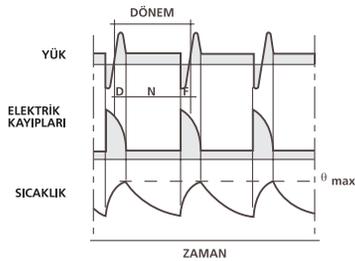
$$\text{Ç.K.} = \frac{D+N+F}{D+N+F+R} \times 100 \%$$

S6: Sürekli dönemli çalışma



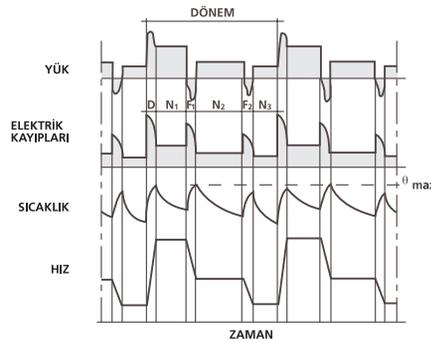
$$\text{Ç.K.} = \frac{N}{N+V} \times 100 \%$$

S7: Elektriksel frenlemeli sürekli dönemli çalışma



$$\text{Ç.K.} = 1$$

S8: Dönemli yük-hız değişmeli sürekli çalışma



$$\text{Ç.K.} = \frac{D+N}{D+N_1+F_1+N_2+F_2+N_3} \times 100 \%$$

$$\frac{F_1+N_2}{D+N_2+F_1+N_2+F_2+N_3} \times 100 \%$$

$$\frac{F_2+N_3}{D+N_1+F_1+N_2+F_2+N_3} \times 100 \%$$

N = Anma Koşullarında Çalışma

θ max = Ulaşılan en yüksek sıcaklık

R = Durma

D = Yolverme

F = Elektriksel Frenleme

V = Boşta Çalışma

Ç.K. = Çalışma katsayısı

Standart motorlarımız S1 sürekli çalışma motor çalışma tipinde olup müşteri isteğine bağlı farklı çalışma tipine sahip motor üretimi mümkündür.



ÜÇ FAZLI-QSX / QU / QH TİPLER

- 63-250 gövde büyüklüğü
- 55 kW'a kadar
- 2, 4, 6 ve 8 kutup



BİR FAZLI "Daimi Devre Kondansatörlü"-QM TİP

- 63-90 gövde büyüklüğü
- 2,2 kW'a kadar
- 2 ve 4 kutup



FRENLİ MOTOR-QB TİP

- 63-112 gövde büyüklüğü
- 4 kW'a kadar
- 2, 4 ve 6 kutup

MOTOR TİPİ	NOMİNAL					KALKIŞTAKİ DEĞERLER				Devrilme Momenti Oranı Mk/Mn	Verim**		Cosφ	J kgm ²	Ağırlık (B3) kg	Ses Seviyesi dB(A)*	
	GÜÇ		DEVİR d/d	AKIM A	MOMENT Nm	AKIM I _A / I _N		MOMENT M _A / M _N			%η _{3/4}	%η _{4/4}					
	HP	kW				∩	Δ	∩	Δ								
2 Kutup 3000 d/d																	
220/380 V	QSX 63M2A	1/4	0,18	2800	0,6	0,62	4,20	-	2,3	-	2,4	63	64	0,78	0,00017	5	52
	QSX 63M2B	1/3	0,25	2800	0,7	0,86	4,20	-	2,2	-	2,3	66	67	0,83	0,00022	6	52
	QSX 71M2A	1/2	0,37	2800	1,0	1,27	4,30	-	2,0	-	2,4	67	68	0,83	0,00028	7	54
	QSX 71M2B	3/4	0,55	2820	1,4	1,87	5,00	-	2,2	-	2,5	69	71	0,84	0,00036	8	54
	QSX 80M2A	1	0,75	2840	1,8	2,53	5,20	-	2,2	-	2,6	72	74	0,86	0,00088	10	58
	QSX 80M2B	1,5	1,1	2850	2,5	3,69	6,00	-	2,6	-	2,9	74,8	77	0,86	0,00109	11	58
	QSX 90S2A	2	1,5	2850	3,3	5,01	6,30	-	2,6	-	3,1	78	79	0,87	0,00129	14	62
	QSX 90L2A	3	2,2	2860	4,6	7,37	6,90	-	2,6	-	3,2	81	81,5	0,88	0,00162	16	62
	QSX 100L2A	4	3	2880	6,2	9,94	7,10	-	2,8	-	3,5	82	83	0,89	0,00241	21	64
	QSX 112M2A	5,5	4	2870	8,0	13,31	2,20	6,9	0,87	2,6	3,4	84	85	0,90	0,00394	29	67
380/660 V	QSX 132S2A	7,5	5,5	2890	10,9	18,24	2,20	6,9	0,72	2,7	3,4	86	86,5	0,89	0,01123	34	70
	QSX 132S2C	10	7,5	2880	14,1	24,9	2,30	6,9	0,78	2,7	3,4	87	88	0,92	0,01424	41	70
	QSX 132M2A	15	11	2890	20,8	36,35	2,30	7,0	0,80	2,8	3,4	88	88,5	0,91	0,01596	55	70
	QU 160M2A	15	11	2900	21	36,23	2,25	7	0,79	2,6	3,5	88,5	89	0,89	0,02644	69	71
	QU 160M2B	20	15	2900	28	49,4	2,25	7	0,87	2,7	3,5	89	90	0,90	0,03317	76	71
	QU 160L2A	25	18,5	2900	34	60,9	2,25	7	0,80	2,7	3,5	90	90,5	0,91	0,04075	91	71
	QU 180M2A	30	22	2940	40,5	71,47	2,26	7	0,74	2,6	3,5	90,5	91	0,91	0,06193	114	77
	QU 200L2A	40	30	2940	55,8	97,45	2,26	7	0,71	2,4	3,5	91	92	0,89	0,11917	148	80
	QU 200L2B	50	37	2945	68	120	2,26	7	0,68	2,4	3,5	91,5	92,5	0,89	0,13885	167	80
	QU 225M2A	60	45	2950	83	145,7	2,26	7	0,69	2,3	3,5	92,5	92,5	0,89	0,19833	206	81
QU 250M2A	75	55	2960	100	177,4	2,26	7	0,69	2,3	3,6	92,3	93	0,90	0,23505	235	81	

4 Kutup 1500 d/d																	
220/380 V	QSX 63M4A	1/6	0,12	1365	0,5	0,84	2,8	-	2,0	-	2,3	53	54	0,65	0,00020	5	41
	QSX 63M4B	1/4	0,18	1380	0,7	1,25	3,2	-	2,2	-	2,4	57	61	0,62	0,00025	5	41
	QSX 71M4A	1/3	0,25	1390	0,9	1,72	3,5	-	2,2	-	2,4	63	64	0,67	0,00071	7	45
	QSX 71M4B	1/2	0,37	1390	1,2	2,54	4,0	-	2,3	-	2,6	66	67	0,68	0,00095	8	45
	QSX 80M4A	3/4	0,55	1400	1,6	3,75	4,0	-	2,1	-	2,3	71	72	0,73	0,00168	10	49
	QSX 80M4B	1	0,75	1400	2,1	5,12	4,2	-	2,1	-	2,2	73	74	0,74	0,00205	11	49
	QSX 90S4A	1,5	1,1	1410	2,7	7,45	5,4	-	2,4	-	2,7	78	78	0,78	0,00243	13	54
	QSX 90L4A	2	1,5	1420	3,6	10,09	5,5	-	2,4	-	2,7	80	80	0,79	0,00322	15	54
	QSX 100L4A	3	2,2	1410	5,1	14,90	5,4	-	2,5	-	2,7	82	82	0,80	0,00398	21	56
	QSX 100L4B	4	3	1410	6,8	20,32	5,4	-	2,5	-	2,7	83	83	0,81	0,00471	24	56
380/660 V	QSX 112M4B	5,5	4	1430	8,7	26,71	2,1	6,7	0,72	2,8	3,2	85	85	0,82	0,00933	31	58
	QSX 132S4C	7,5	5,5	1445	11,3	36,35	1,9	6,5	0,75	2,6	3,0	86	86,5	0,85	0,02111	39	61
	QSX 132M4B	10	7,5	1450	15,4	49,40	2	6,5	0,75	2,6	3,1	87	87	0,85	0,02763	60	61
	QU 160M4B	15	11	1450	22,3	72,4	2,1	6,5	0,71	2,5	3,0	88	89	0,84	0,05547	76	63
	QU 160L4A	20	15	1450	30,2	98,8	2,1	6,5	0,74	2,6	3,1	88,5	89,5	0,84	0,06922	90	63
	QU 180M4B	25	18,5	1450	36,8	121,8	2,1	6,5	0,71	2,4	2,8	90	90,5	0,84	0,11220	119	69
	QU 180L4B	30	22	1455	42,5	144,4	2,1	6,5	0,74	2,5	3,0	90	91	0,86	0,12773	127	69
	QU 200L4C	40	30	1460	56	196,2	2,1	6,5	0,68	2,3	3,0	91	91,7	0,89	0,25035	176	70
	QU 225S4A	50	37	1460	70	242	2,1	6,5	0,74	2,5	3,0	91	92	0,87	0,36429	223	71
	QU 225M4C	60	45	1460	85	294,4	2,1	6,5	0,74	2,5	3,0	92	92,5	0,87	0,43513	260	71
QU 250M4C	75	55	1465	103	358,5	2,1	6,5	0,73	2,6	3,0	92,5	93,5	0,87	0,46270	280	71	

* Ses seviyesi ölçümleri, motordan 1 metre uzaklıktan alınır.

* Tolerans + 3 dB(A)

** 1.1 ve 55 kW arası 2 ve 4 kutup motorlarımız "EFF2" verimlilik seviyesindedir.

ÜÇ FAZLI-QSX / QU TIPLER

ELEKTRİKSEL ÖZELLİKLER, 50 Hz

MOTOR TİPİ	NOMİNAL					KALKIŞTAKİ DEĞERLER				Devrilme Momenti Oranı Mk/Mn	Verim % η		Cos ϕ 4/4	J kgm ²	Ağırlık (B3) kg	Ses Seviyesi dB(A)*	
	GÜÇ		DEVİR d/d	AKIM A	MOMENT Nm	AKIM I _A / I _N		MOMENT M _A / M _N			3/4	4/4					
	HP	kW				∩	Δ	∩	Δ								
6 Kutup 1000 d/d																	
220/380 V	QSX 71M6A	1/4	0,18	900	0,78	1,91	3,0	-	2,0	-	2,3	55	58	0,60	0,00068	8	42
	QSX 71M6B	1/3	0,25	910	0,95	2,63	3,1	-	2,0	-	2,3	61	63	0,63	0,00090	10	42
	QSX 80M6A	1/2	0,37	920	1,35	3,84	3,3	-	2,1	-	2,4	65	68	0,61	0,00160	11	49
	QSX 80M6B	3/4	0,55	920	1,85	5,71	3,2	-	2,1	-	2,5	68	69	0,65	0,00196	12	49
	QSX 90S6A	1	0,75	925	2,3	7,75	3,6	-	1,9	-	2,1	71	72	0,69	0,00255	13	51
	QSX 90L6B	1,5	1,1	935	3,3	11,24	4,0	-	2,0	-	2,2	72	73	0,69	0,00328	17	51
	QSX 100L6A	2	1,5	940	4,2	15,24	4,2	-	2,1	-	2,3	74	75	0,72	0,00463	20	53
QSX 112M6A	3	2,2	945	5,8	22,12	4,5	-	2,1	-	2,4	76	77	0,75	0,00916	29	58	
380/660 V	QSX 132S6B	4	3	955	7,2	30	1,75	5,5	0,63	2	2,6	80	81	0,78	0,02070	36	62
	QSX 132M6A	5,5	4	960	9,3	39,79	1,75	5,5	0,6	1,9	2,6	81	82	0,80	0,02070	53	62
	QSX 132M6B	7,5	5,5	960	12,5	54,72	1,76	5,5	0,61	1,9	2,5	82,5	84	0,80	0,02709	58	62
	QU 160M6B	10	7,5	960	16,8	74,61	1,90	6,5	0,69	2,2	3,0	86	87	0,78	0,05641	76	63
	QU 160L6B	15	11	960	24,3	109,5	1,89	6,5	0,72	2,2	3,0	86,5	87	0,79	0,07040	94	63
	QU 180L6A	20	15	965	32	148,5	1,91	6,5	0,62	2	2,8	87	88	0,81	0,18369	115	63
	QU 200L6B	25	18,5	970	37,8	182,2	1,90	6,5	0,6	1,85	2,7	89	90	0,83	0,27088	155	64
QU 200L6C	30	22	970	44,7	216,6	1,85	6,5	0,6	1,85	2,7	89	90	0,83	0,31281	165	64	
QU 225M6B	40	30	975	60,5	294	1,85	6,5	0,57	1,8	2,5	90	91	0,83	0,49334	221	65	

8 Kutup 750 d/d																	
220/380 V	QSX 80M8A	1/4	0,18	650	0,95	2,64	2,10	-	1,50	-	1,8	52	54	0,53	0,00168	10	44
	QSX 80M8B	1/3	0,25	675	1,2	3,54	2,20	-	1,50	-	1,7	55	57	0,56	0,00205	11	44
	QSX 90S8A	1/2	0,37	680	1,7	5,2	3,00	-	1,80	-	2,3	59	61	0,54	0,00243	12	49
	QSX 90L8A	3/4	0,55	690	2,1	7,62	3,00	-	1,80	-	2,3	64	65	0,61	0,00322	15	49
	QSX 100L8A	1	0,75	700	2,8	10,24	3,50	-	1,70	-	2,2	69	70	0,58	0,00398	19	48
	QSX 100L8B	1,5	1,1	690	3,6	15,23	3,50	-	1,80	-	2,2	72	73	0,64	0,00471	21	48
	QSX 112M8A	2	1,5	700	4,7	20,47	3,50	-	1,80	-	2,3	73	74	0,66	0,00933	28	54
	QSX 132S8B	3	2,2	705	6,3	29,81	1,27	4	0,60	1,7	2,2	76	77	0,69	0,02111	36	56
QSX 132M8A	4	3	705	8,2	40,64	1,40	4,5	0,60	1,8	2,2	77,5	79	0,70	0,02763	52	56	
380/660 V	QU 160M8A	5,5	4	720	10,6	53,1	1,75	5,5	0,61	1,90	2,3	82	83	0,69	0,05612	65	60
	QU 160M8B	7,5	5,5	720	14,8	73	1,74	5,5	0,61	1,90	2,5	82,5	83,5	0,68	0,05612	74	60
	QU 160L8A	10	7,5	720	19,2	99,5	1,74	5,5	0,62	2,00	2,5	83	84	0,71	0,07004	85	60
	QU 180L8B	15	11	720	25	146	1,75	5,5	0,65	2,10	2,8	85	87	0,77	0,12773	122	60
	QU 200L8C	20	15	725	32,5	197,6	1,74	5,5	0,68	2,20	2,8	87	89	0,79	0,25035	169	61
	QU 225S8A	25	18,5	725	39	244	1,75	5,5	0,62	2,00	2,5	88	90	0,80	0,36429	224	61
QU 225M8C	30	22	725	46,8	290	1,74	5,5	0,66	2,10	2,6	89	90	0,79	0,43513	256	61	

* Ses seviyesi ölçümleri, motordan 1 metre uzaklıktan alınır.

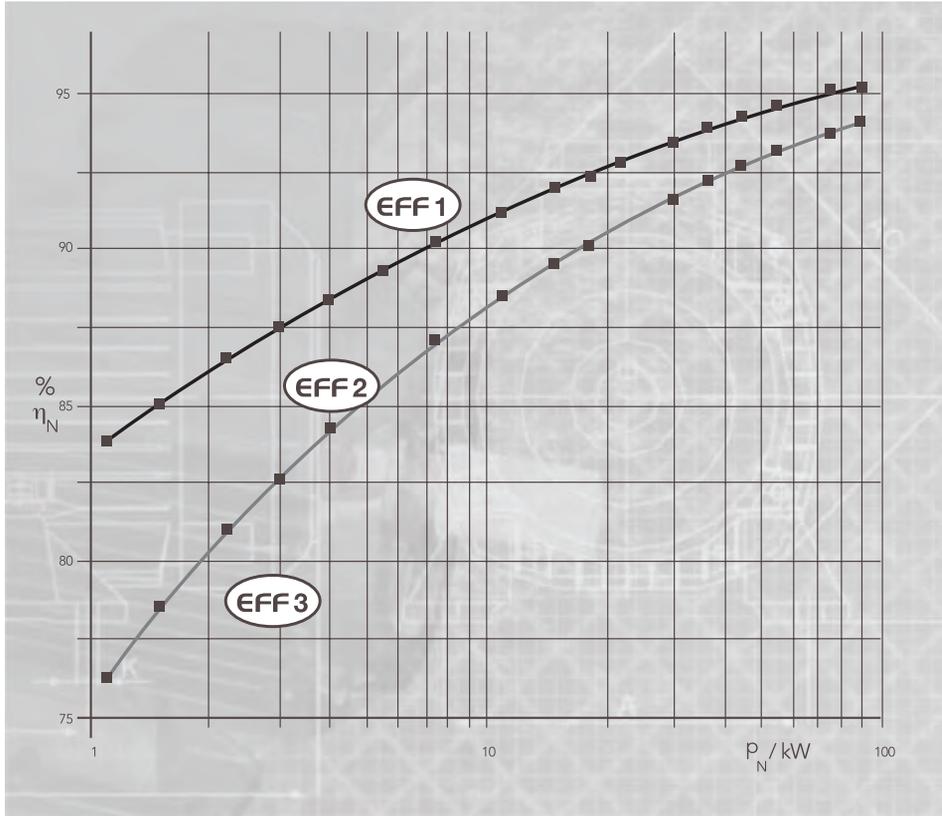
* Tolerans + 3 dB(A)

VERİMLİLİK SEVİYELERİ

VERİMLİLİK SEVİYELERİ

Elektriksel tahrik sistemlerinin, enerji tasarrufu ve çevre korumasındaki rolü çok büyüktür. Endüstriyel enerji tüketiminin üçte ikisi bu sistemler tarafından gerçekleştirilmektedir.

Avrupa Elektrik Makinaları Üreticileri Komitesi (CEMEP), Avrupa Enerji Komitesi'nin direktifleri doğrultusunda, elektrik motorlarını enerji seviyelerine göre sınıflandırmıştır. Bu amaçla, 1.1 ve 90kW arası çıkış gücündeki üç fazlı elektrik motorları verimliliklerine göre üç guruba ayrılmıştır.



Yüksek verimli motorların kullanıcıya faydaları nelerdir?

- Enerji tasarrufu
- Enerji giderlerinin azaltılması
- Varolan sisteme kolayca adapte edilmesi
- Çevre duyarlılığı

Yüksek verimli motorların tasarımı, motor kayıpları ve çalışma karakteristiğinin optimizasyonu ile gerçekleştirilmiştir. Verimlilik, stator sargısında daha fazla bakır ve rotor enjeksiyonunda daha fazla alüminyum kullanımı, veya daha uzun paket boyu ile elde edilmektedir. Bu değişiklikler, motor maliyetinde artışa yol açmasına rağmen, uygulamada getirdiği enerji tasarrufu ile kısa sürede kendini amorti etmektedir.

Verimlilik limitlerinin sağlandığı üretici tarafından beyan edilmektedir.

Verim seviyesini gösteren işaret motor etiketinde ve üretici dökümanlarında yer alır. Sadece bu anlaşmaya dahil olan Avrupalı üreticiler logoyu kullanmaya yetkilidir.

Arçelik, bu anlaşma uyarınca onaylı üretici olup, yüksek verimli motorları üretmektedir.

ÜÇ FAZLI-QH TİP

EFF 1

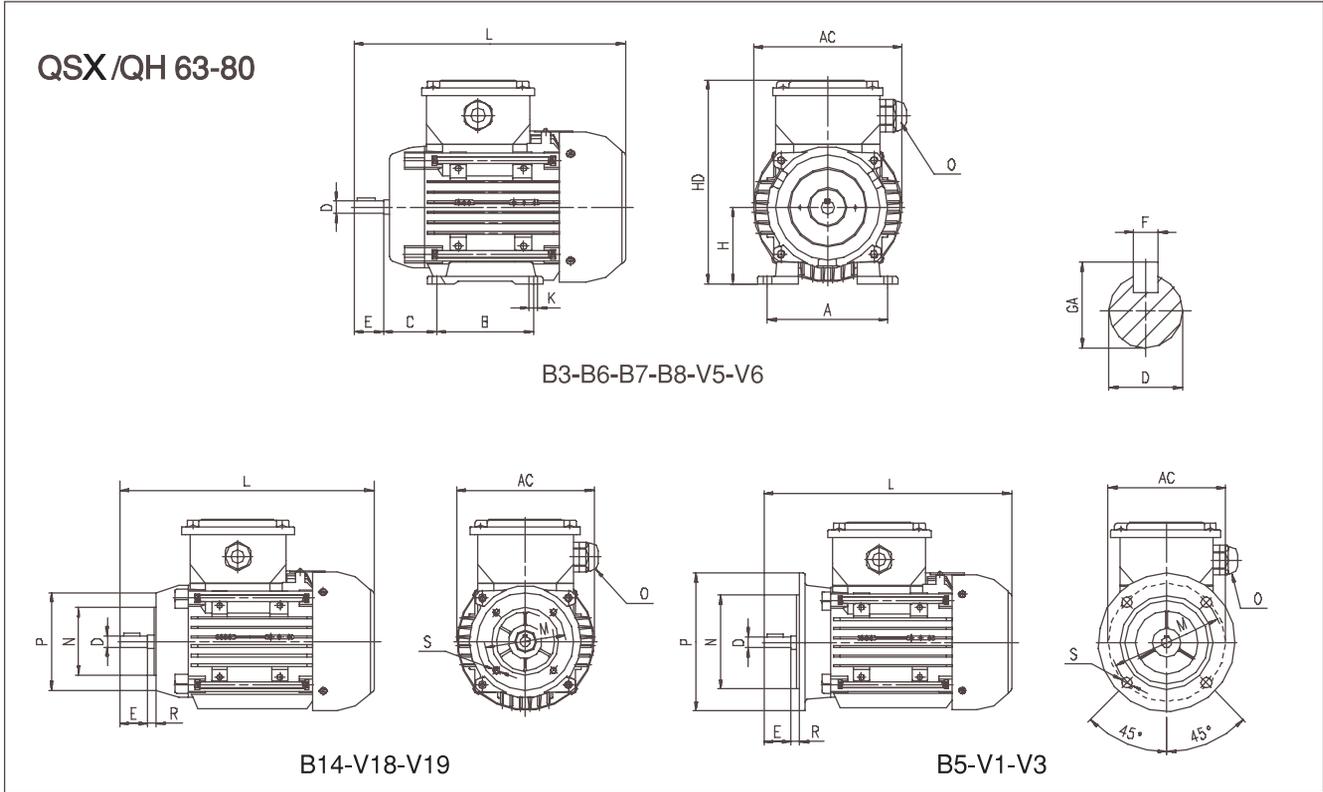
ELEKTRİKSEL ÖZELLİKLER, 50 Hz

MOTOR TİPİ	NOMİNAL					KALKIŞTAKİ DEĞERLER					Devrilme Momenti Oranı Mk/Mn	Verim % η		Cos ϕ 4/4	J kgm ²	Ağırlık (B3) kg	Ses Seviyesi dB(A)*
	GÜÇ		DEVİR d/d	AKIM A	MOMENT Nm	AKIM I _A / I _N		MOMENT M _A / M _N		3/4		4/4					
	HP	kW				∩	Δ	∩	Δ								
2 Kutup 3000 d/d																	
220/380 V	QH 80M2D	1,5	1,1	2880	2,45	3,65	8,1	-	3,6	-	3,8	82,5	82,9	0,82	0,00150	13	58
	QH 90L2C	2	1,5	2900	3,2	4,94	8,3	-	3,8	-	4,3	84,8	85,2	0,83	0,00182	17	62
	QH 90L2D	3	2,2	2900	4,7	7,24	8,6	-	3,9	-	4,4	85,2	85,7	0,84	0,00182	18	62
	QH 100L2D	4	3	2920	6,1	9,81	9,6	-	4,3	-	5,1	86,3	86,8	0,86	0,00335	27	64
380/660 V	QH 112M2C	5,5	4	2890	7,8	13,22	3,00	9,5	1,4	4,2	5,0	87	87,6	0,88	0,00489	34	67
	QH 132S2C	7,5	5,5	2920	10,6	17,99	2,90	9,0	1,1	3,3	3,7	88,3	88,6	0,89	0,01424	41	70
	QH 132M2A	10	7,5	2920	14,1	24,53	2,90	9,0	1,1	3,4	3,8	89	89,5	0,90	0,01596	55	70
	QH 160M2A	15	11	2930	21	35,85	2,90	9,0	0,9	2,6	3,3	90,3	90,8	0,88	0,02644	69	71
	QH 160M2B	20	15	2940	27,2	48,7	2,90	9,0	1,0	3,2	3,8	91,5	92	0,91	0,03317	77	71
	QH 160L2A	25	18,5	2930	33,2	60,3	2,90	9,0	1,0	3,1	3,7	92,5	92,2	0,92	0,04075	92	71
	QH 180M2A	30	22	2945	39,2	71,3	2,74	8,5	0,8	2,4	3,5	92,8	93	0,92	0,06193	115	77
	QH 200L2A	40	30	2950	54,6	97,1	2,74	8,5	0,7	2,1	3,5	93,2	93,5	0,89	0,11917	148	80
	QH 200L2B	50	37	2955	67,1	119,6	2,74	8,6	0,8	2,3	3,8	93,6	94	0,89	0,13885	168	80
	QH 225M2A	60	45	2960	81,3	145,2	2,74	8,5	0,8	2,3	3,1	93,7	94,3	0,89	0,19833	206	81
	QH 250M2A	75	55	2960	96,9	177,4	2,74	8,5	0,7	2,2	3,6	94,4	94,5	0,91	0,23505	235	81

4 Kutup 1500 d/d																	
220/380 V	QH 90L4C	1,5	1,1	1430	2,6	7,35	7,3	-	3,2	-	3,7	83,5	83,9	0,75	0,00365	18	54
	QH 90L4D	2	1,5	1430	3,5	10,02	7,5	-	3,5	-	4,0	84,5	85	0,76	0,00365	18	54
	QH 100L4C	3	2,2	1440	5	14,59	7,9	-	4,1	-	4,4	86,0	86,6	0,78	0,00545	26	56
	QH 100L4D	4	3	1440	6,6	19,9	7,8	-	3,8	-	4,2	87,0	87,4	0,79	0,00581	29	56
380/660 V	QH 112M4D	5,5	4	1450	8,6	26,34	2,7	8,5	1,1	3,2	4,3	87,8	88,3	0,80	0,01123	35	58
	QH 132M4B	7,5	5,5	1450	11,6	36,22	3,1	9,5	1,0	3,0	4,0	88,6	89,3	0,81	0,02763	60	61
	QH 132M4C	10	7,5	1450	15,8	49,4	2,7	8,5	1,1	3,3	4,0	87,6	90,2	0,80	0,02980	67	61
	QH 160M4B	15	11	1460	22,3	71,95	2,9	9,0	0,9	2,7	3,7	91,2	91,5	0,82	0,05547	77	63
	QH 160L4A	20	15	1455	29,5	98,45	2,9	9,0	0,8	2,5	3,4	91,8	92	0,84	0,06922	90	63
	QH 180M4B	25	18,5	1465	36,5	120,6	2,9	9,0	1,0	3,0	3,1	92	92,5	0,83	0,11220	120	69
	QH 180L4B	30	22	1465	44,5	143,4	2,9	9,0	0,9	2,6	3,7	92,5	93	0,81	0,12773	127	69
	QH 200L4C	40	30	1465	57,0	195,6	2,7	8,3	0,7	2,2	3,1	94,2	94	0,85	0,25035	176	70
	QH 225S4A	50	37	1470	71,4	240,4	2,7	8,5	1,0	3,0	3,2	94,7	94,5	0,83	0,36429	223	71
	QH 225M4C	60	45	1470	84,3	292,3	2,6	8,0	0,9	2,8	3,5	95,1	95	0,85	0,43513	260	71
	QH 250M4C	75	55	1475	99,2	356,1	2,6	8,0	1,0	2,9	3,50	95,2	95,3	0,88	0,46270	280	71

* Ses seviyesi ölçümleri, motordan 1 metre uzaklıktan alınır.

* Tolerans + 3 dB(A)



		Ana Boyutlar			Ayaklı Motorlar				Mil				Rulman		Keçe		Flanş								
Gövde ⁽⁴⁾ Büyüklüğü	Kutup Sayısı	AC	L	O	B	A	H	HD	K	C	D ⁽¹⁾	E	GA	F ⁽³⁾	Kasnak Tarafı	Kasnak Tarafı Aksisi	Kasnak Tarafı	Kasnak Tarafı Aksisi ⁽⁵⁾	Yapı Şekli	Flanş Tipi	P	N ⁽²⁾	M	R	S
63 M	2...8	123	219.5	1*M20	80	100	63	174	7	40	11	23	12.5	4	6201-2Z	6201-2Z	12*22*7	12*22*7	B5	FA	140	95	115	0	10
																			B14	FB	120	80	100	0	M6
																			B14	FC	90	60	75	0	M5
71 M	2...8	138	252.5	1*M20	90	112	71	190	7	45	14	30	16.0	5	6202-2Z	6202-2Z	15*24*5	15*24*5	B5	FA	160	110	130	0	10
																			B14	FB	140	95	115	0	M8
																			B14	FC	105	70	85	0	M6
80 M	2...8	158	283.5	1*M20	100	125	80	207	10	50	19	40	21.5	6	6204-2Z	6204-2Z	20*30*7	20*30*7	B5	FA	200	130	165	0	12
																			B14	FB	160	110	130	0	M8
																			B14	FC	120	80	100	0	M6

Ölçüler "mm" olarak verilmiştir.

(1) Tolerans DIN EN 50347 "j6"

(2) Tolerans DIN EN 50347 "j6"

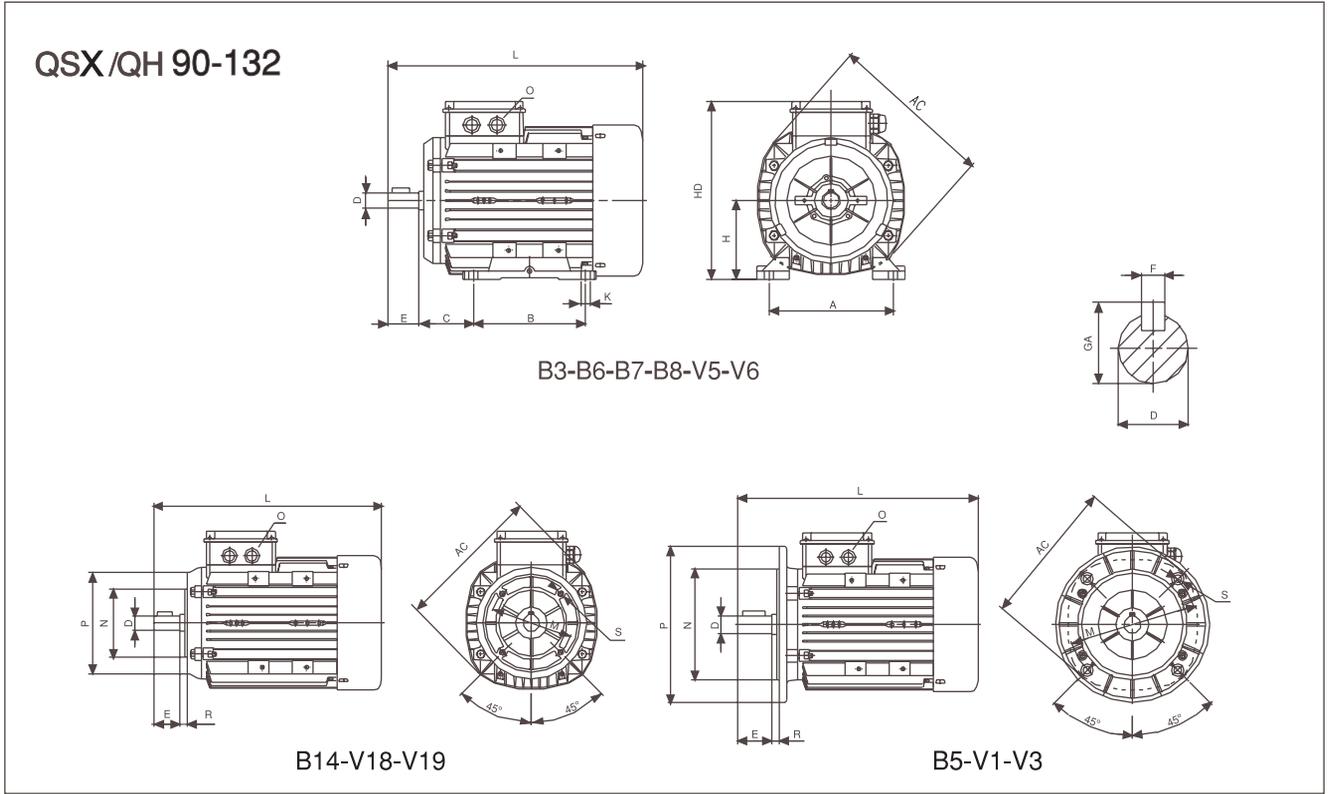
(3) DIN 6885'e göre

(4) 112 yapı büyüklüğünden itibaren kaldırma halkası mevcuttur.

(5) IP55

ÜÇ FAZLI TIPLER

BOYUTLAR



		Ana Boyutlar			Ayaklı Motorlar					Mil			Rulman		Keçe		Flanş											
Gövde ⁽⁴⁾ Büyüklüğü	Kutup Sayısı	AC	L	O	B	A	H	HD	K	C	D ⁽¹⁾	E	GA	F ⁽³⁾	Kasnak Tarafı	Kasnak Tarafı Aksı	Kasnak Tarafı	Kasnak Tarafı Aksı ⁽⁵⁾	Yapı Şekli	Flanş Tipi	P	N ⁽²⁾	M	R	S			
90 S/L	2...8	193	296.5 316.5	1*M25	100	140	90	241	10	56	24	50	27	8	6305-2Z	6205-2Z	25*40*7	25*40*7	B5	FA	200	130	165	0	12			
					125																	B14	FB	160	110	130	0	M8
																							B14	FC	140	95	115	0
100 L	2...8	217	352.0	1*M25	140	160	100	260	12	63	28	60	31	8	6306-2Z	6205-2Z	30*47*7	25*40*7	B5	FA	250	180	215	0	15			
																						B14	FB	200	130	165	0	M10
																							B14	FC	160	110	130	0
112 M	2...8	232	395.5	2*M25	140	190	112	280	12	70	28	60	31	8	6306-2Z	6206-2Z	30*47*7	30*47*7	B5	FA	250	180	215	0	15			
																						B14	FB	200	130	165	0	M10
																							B14	FC	160	110	130	0
132 S/M	2...8	279	440.5 475.5	2*M32	140	216	132	314	12	89	38	80	41	10	6208-2Z	6208-2Z	40*62*10	40*62*10	B5	FA	300	230	265	0	15			
					178																							

Ölçüler "mm" olarak verilmiştir.

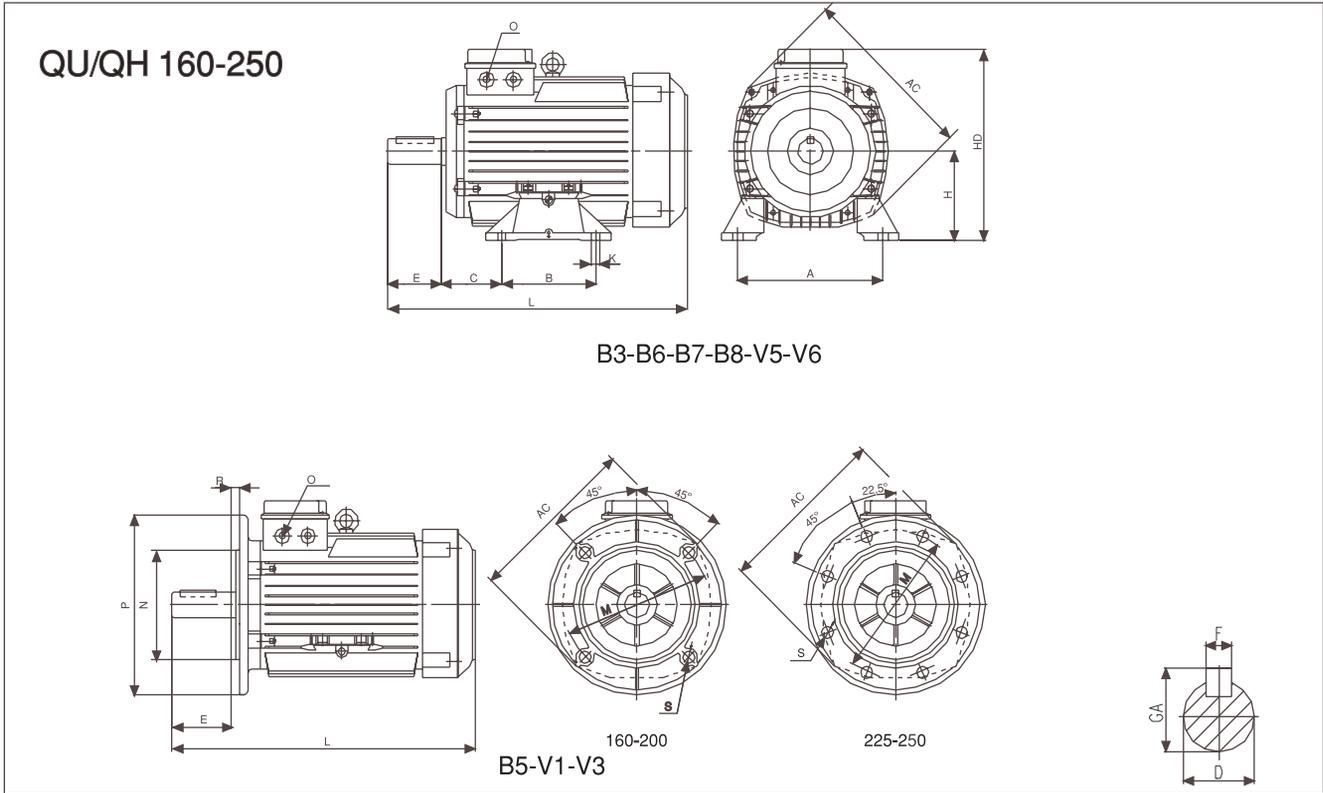
(1) Tolerans 28 mm'ye kadar DIN EN 50347 "j6", 28 mm ve üzeri "k6".

(2) Tolerans DIN EN 50347 "j6"

(3) DIN 6885'e göre

(4) 112 yapı büyüklüğünden itibaren kaldırma halkası mevcuttur.

(5) IP55



		Ana Boyutlar			Ayaklı Motorlar				Mil				Rulman		Keçe		Flanş								
Gövde ⁽⁴⁾ Büyüklüğü	Kutup Sayısı	AC	L	O	B	A	H	HD	K	C	D ⁽¹⁾	E	GA	F ⁽³⁾	Kasnak Tarafı	Kasnak Tarafı Aksı	Kasnak Tarafı	Kasnak Tarafı Aksı ⁽⁵⁾	Yapı Şekli	Flanş Tipi	P	N ⁽²⁾	M	R	S
160 M	2...8	323	586	2*M32	210	254	160	360	15	108	42	110	45,0	12	6309-2Z	6309-2Z	45*72*10	45*72*10	B5	FA	350	250	300	0	19
160 L	2...8	323	586	2*M32	254	254	160	360	15	108	42	110	45,0	12	6309-2Z	6309-2Z	45*72*10	45*72*10	B5	FA	350	250	300	0	19
180 M	2...8	370	629	2*M40	241	279	180	428	15	121	48	110	51,5	14	6310-2Z	6310-2Z	50*80*10	50*80*10	B5	FA	350	250	300	0	19
180 L	2...8	370	629	2*M40	279	279	180	428	15	121	48	110	51,5	14	6310-2Z	6310-2Z	50*80*10	50*80*10	B5	FA	350	250	300	0	19
200 L	2...8	415	665	2*M32	305	318	200	435	19	133	55	110	59,0	16	6312-2Z	6312-2Z	60*90*10	60*90*10	B5	FA	400	300	350	0	19
225 S	2 4...8	456	735 765	2*M40	286	356	225	485	19	149	55 60	110 140	59 64	16 18	6313-2Z	6313-2Z	65*100*13	65*100*13	B5	FA	450	350	400	0	19
225 M	2 4...8	456	735 765	2*M40	311	356	225	485	19	149	55 60	110 140	59 64	16 18	6313-2Z	6313-2Z	65*100*13	65*100*13	B5	FA	450	350	400	0	19
250	2	456	784	2*M40	349	406	250	510	24	168	60	140	64,0	18	6314 ⁽⁶⁾	6313-2Z	70*112*12	65*100*13	B5	FA	550	450	500	0	19
250	4	456	784	2*M40	349	406	250	510	24	168	65	140	69,0	18	6315 ⁽⁶⁾	6313-2Z	75*112*12	65*100*13	B5	FA	550	450	500	0	19

Ölçüler "mm" olarak verilmiştir.

- (1) Tolerans 48 mm'ye kadar DIN EN 50347 "k6", 48 mm ve üzeri "m6".
 (2) Tolerans 250 mm'ye kadar DIN EN 50347 "j6", 250 mm ve üzeri "h6".
 (3) DIN 6885'e göre
 (4) 112 yapı büyüklüğünden itibaren kaldırma halkası mevcuttur.
 (5) IP55
 (6) Harici yağlama

A. Mekanik Özellikler

Motorlar IEC 63-90 gövde büyüklüklerinde, tek fazlı, tam kapalı, kısa devre rotorlu ve fan soğutmalı olarak üretilmektedir.

Yapı Şekli

Tüm gövde büyüklüklerinde ayaklı, flanşlı ve ayaklı flanşlı yapı şekilleri mümkündür.

Koruma Sınıfı

Standart koruma sınıfı IP 54'dür.

Yataklar

Yataklama için sabit bilyalı ZZ rulmanlar kullanılır.

Mil Ucu

Mil uçlarına DIN 6885/6888'e uygun olarak kama kanalı açılır. Motor kamalı olarak teslim edilir.

Fan

Sıcaklığa dayanıklı sentetik malzemeden yapılmıştır ve her iki dönüş yönünde çalışmaya uygundur.

Boya

Standart motorlar yeşil (RAL 6011) renkte boyanmıştır.

B. Konstrüksiyon Özellikleri

Stator Gövde

Motor gövdeleri hafif, korozyona ve mekaniksel şoklara dayanıklı, ısı iletme özelliği yüksek olan alüminyum alaşımından basınçlı döküm metoduyla üretilmektedir.

Ayaklar

Tüm gövdelerin ayakları, sökülebilmeye ve üç yüzeye takılabilmeye özelliğine sahiptir.

Kapaklar

Kapaklar alüminyumdan yapılmaktadır. Fan kapağı ise sac malzemeden yapılmaktadır.

Terminal Kutusu

Terminal kutusu tüm motorlarda üstte ve mil tarafına yakındır. Ayakların 90°'ar derece dönerek takılabilmeye özelliğinden dolayı terminal kutusu gövdenin sağ veya sol tarafına gelebilmektedir.

C. Elektriksel Özellikler

Gerilim ve Frekans

Motorlar normal olarak 220V, 50 Hz' e göre dizayn edilmiştir. Bunun dışındaki gerilim ve 60 Hz frekans değerine sahip motorlar da üretilebilir.

Kondansatör

Motorlarda 400 V daimi devre kondansatör kullanılmaktadır.

Teknik Bilgiler

Tabloda verilen teknik bilgiler aşağıdaki şartlar için geçerlidir.

- 220 V kaynak gerilimi
- 50 Hz frekans
- Çalışma tipi: Sürekli çalışma (S1)
- Maksimum 40°C ortam sıcaklığı
- Deniz seviyesinden 1000 m'ye kadar olan yükseklikler

İzolasyon Sınıfı

Motorların standart izolasyon sınıfı F'dir. 40°C ortam sıcaklığında, maksimum sıcaklık artışı 100°K olabilir.

Yüksüz Çalışma

Yüksüz çalışmada kayıplar, nominal yükte çalışmaya nazaran daha yüksektir. Bu nedenle, standart bir fazlı motorlar uzun süre yüksüz çalıştırılmamalıdır. Motorun, uzun süre yüksüz çalışacağı uygulamalar özel sargı tasarımı gerektirir.



D. Özel Uygulamalar

Aşağıdaki özel konstrüksiyon özelliklerine sahip motorlar, isteğe bağlı olarak üretilebilmektedir.

- Özel mil veya çift mil çıkışı
- Özel flanş
- Değişik gerilim ve 60 Hz frekans
- Daha yüksek koruma sınıfı (IP 55)
- Sabit yatak
- Yoğunlaşmayı gidermek için tahliye deliği
- Motor sargı sıcaklığının, istenmeyen durumlarda limit değerlerinin üzerine çıkmasını önlemek için termik veya termistör kullanılması.

Motorlarımız IEC tavsiyelerine, DIN, VDE ve Türk Standartları TS 4239'a uygun olarak üretilmektedir.



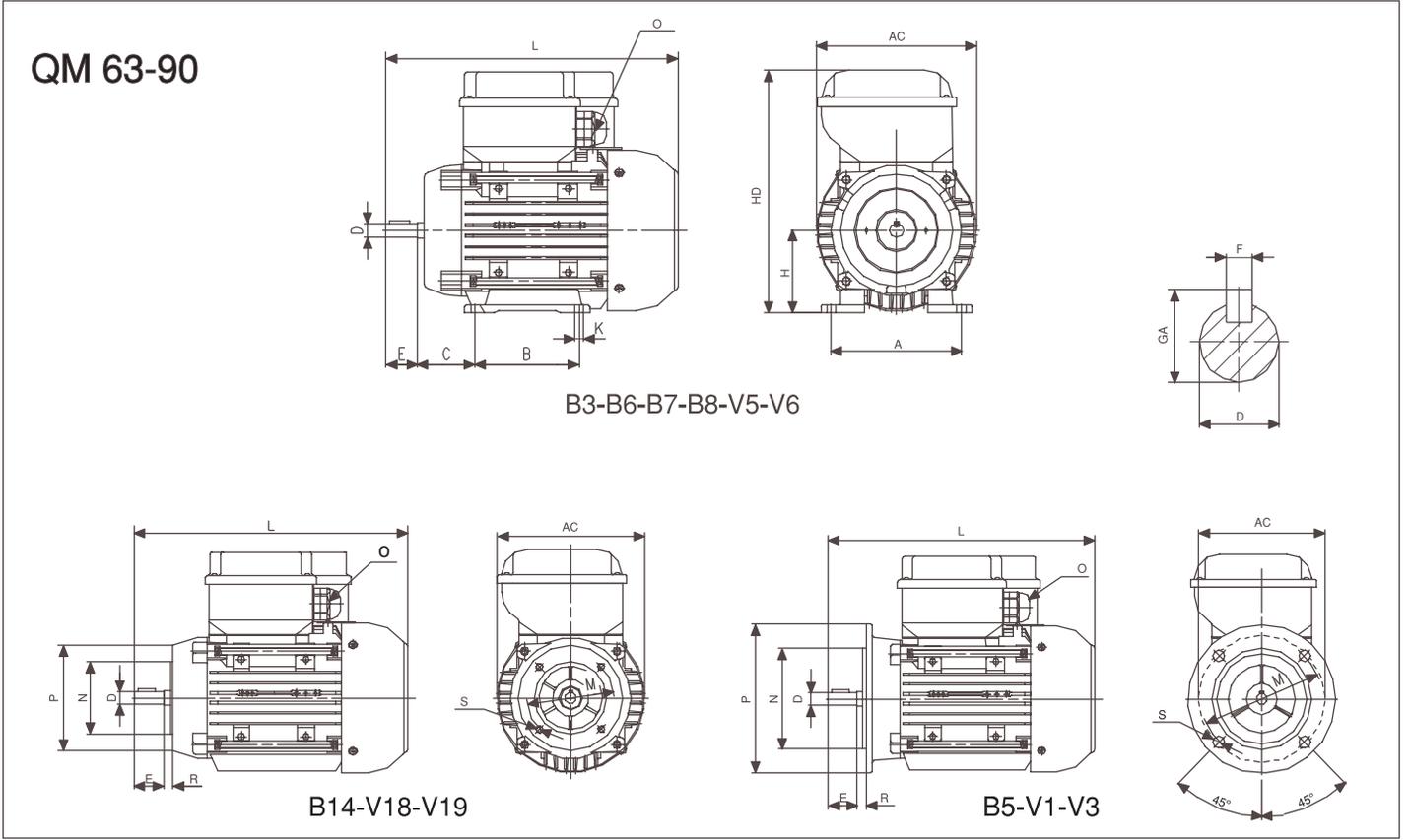
ELEKTRİKSEL ÖZELLİKLER, 50 Hz

MOTOR TİPİ	NOMİNAL					KALKIŞTAKİ DEĞERLER		Devrilme Momenti Oranı Mk/Mn	%η	Cosφ	Kondansatör μF (400 V)	J kgm ²	Ağırlık (B3) kg	
	GÜÇ		DEVİR d/d	AKIM A	MOMENT Nm	AKIM I _A / I _N	MOMENT M _A / M _N							
	HP	kW												
2 Kutup 3000 d/d														
220 V	QM 63M2B	1/3	0,25	2780	2,1	0,86	4,0	0,50	2,10	58	0,93	10	0,00021	6
	QM 71M2A	1/3	0,25	2780	1,85	0,86	5,0	0,70	2,20	64	0,96	12,5	0,00028	7
	QM 71M2B	1/2	0,37	2780	2,7	1,27	5,0	0,70	2,20	66	0,94	18	0,00035	8
	QM 71M2C	3/4	0,55	2780	4,1	1,89	5,0	0,70	2,20	67	0,91	20	0,00040	9
	QM 80M2A	3/4	0,55	2800	3,8	1,88	4,0	0,70	2,10	67	0,98	20	0,00092	10
	QM 80M2B	1	0,75	2800	5,0	2,56	4,0	0,70	2,10	70	0,97	25	0,00107	11
	QM 80M2C	1,5	1,1	2800	7,55	3,75	5,0	0,55	1,80	71	0,93	30	0,00126	12
	QM 90S2A	1,5	1,1	2800	7,3	3,75	4,0	0,60	2,00	74	0,93	30	0,00119	14
	QM 90L2A	2	1,5	2810	10,5	5,1	4,5	0,60	2,10	72	0,90	40	0,00152	16
	QM 90L2C	3	2,2	2790	14,8	7,53	4,0	0,50	2,00	74	0,91	50	0,00172	17

4 Kutup 1500 d/d														
220 V	QM 71M4A	1/4	0,18	1390	1,5	1,24	3,5	0,70	1,80	57	0,96	12,5	0,00071	7
	QM 71M4B	1/3	0,25	1390	1,95	1,72	4,0	0,70	1,85	63	0,93	15	0,00095	8
	QM 71M4C	1/2	0,37	1390	2,7	2,54	4,0	0,65	1,55	65	0,96	20	0,00107	10
	QM 80M4A	1/2	0,37	1390	2,65	2,54	4,0	0,70	1,55	66	0,96	20	0,00167	11
	QM 80M4B	3/4	0,55	1390	3,7	3,78	4,0	0,65	1,55	69	0,98	25	0,00204	12
	QM 80M4C	1	0,75	1370	4,95	5,23	3,2	0,60	1,55	71	0,97	30	0,00229	13
	QM 90S4A	1	0,75	1390	5,6	5,15	4,5	0,60	1,80	68	0,90	30	0,00238	15
	QM 90L4A	1,5	1,1	1400	8,0	7,5	4,5	0,60	1,80	69	0,91	40	0,00309	16
	QM 90L4C	2	1,5	1390	10,0	10,31	4,5	0,50	1,60	73	0,93	50	0,00351	17

BİR FAZLI - QM TİP

BOYUTLAR



Gövde Büyüklüğü	Gövde Büyüklüğü	Kutup Sayısı	Ana Boyutlar			Ayaklı Motorlar					Mil			Rulman		Keçe		Flanş								
			AC	L	O	B	A	H	HD	K	C	D ⁽¹⁾	E	GA	F ⁽³⁾	Kasnak Tarafı	Kasnak Tarafı Aksı	Kasnak Tarafı	Kasnak Tarafı Aksı ⁽⁴⁾	Yapı Şekli	Flanş Tipi	P	N ⁽²⁾	M	R	S
QM63M2B	63 M	2	123	219,5	1*M20	80	100	63	182	7	40	11	23	12.5	4	6201-2Z	6201-2Z	12*22*7	12*22*7	B5	FA	140	95	115	0	10
																				B14	FB	120	80	100	0	M6
																				B14	FC	90	60	75	0	M5
QM63M2C QM63M2D	63 M	2	123	233,5	1*M20	80	100	63	182	7	40	11	23	12.5	4	6201-2Z	6201-2Z	12*22*7	12*22*7	B5	FA	140	95	115	0	10
																				B14	FB	120	80	100	0	M6
																				B14	FC	90	60	75	0	M5
QM71M2A QM71M2B QM71M2C QM71M4A QM71M4B QM71M4C	71 M	2...4	138	252,5	1*M20	90	112	71	198	7	45	14	30	16.0	5	6202-2Z	6202-2Z	15*24*5	15*24*5	B5	FA	160	110	130	0	10
																				B14	FB	140	95	115	0	M8
																				B14	FC	105	70	85	0	M6
QM71M2D	71 M	2	138	262,5	1*M20	90	112	71	198	7	45	14	30	16.0	5	6202-2Z	6202-2Z	15*24*5	15*24*5	B5	FA	160	110	130	0	10
																				B14	FB	140	95	115	0	M8
																				B14	FC	105	70	85	0	M6
80 M	80 M	2...4	158	283,5	1*M20	100	125	80	215	10	50	19	40	21.5	6	6204-2Z	6204-2Z	20*30*7	20*30*7	B5	FA	200	130	165	0	12
																				B14	FB	160	110	130	0	M8
																				B14	FC	120	80	100	0	M6
90 S/L	90 S/L	2...4	193	296,5 316,5	1*M20	100 125	140	90	241	10	56	24	50	27	8	6305-2Z	6205-2Z	25*40*7	25*40*7	B5	FA	200	130	165	0	12
																				B14	FB	160	110	130	0	M8
																				B14	FC	140	95	115	0	M8

Ölçüler "mm" olarak verilmiştir.

(1) Tolerans DIN EN 50347 "j6"

(2) Tolerans DIN EN 50347 "j6"

(3) DIN 6885'e göre

(4) IP55

FRENLİ MOTOR - QB TİP

TEKNİK BİLGİLER

Mekanik ve elektriksel özellikleri QSX tip motorlar ile aynıdır. Kasnak tarafı aksi motor kapağı pik dökümüdür.

Fren Mekanizması Özellikleri

Frenli motorlarda standart olarak 100 V, D.C. gerilimle çalışan, güvenilir elektromanyetik fren mekanizması kullanılmaktadır. Özel uygulamalar için fren voltajı değiştirilebilir.

Çalışma Prensibi

Enerji kesildiğinde, yay kuvveti ile fren balatasını sıkıştıran hareketli disk otomatik olarak frenlemeyi gerçekleştirir. Tekrar enerji verildiğinde manyetik olarak geri çekilen disk fren balatasının serbest kalmasını sağlayarak milin hareketine imkan sağlar.

Fren Balatası

Asbestsiz malzemeden yapılmış olup uzun ömürlüdür.

Özel Uygulamalar

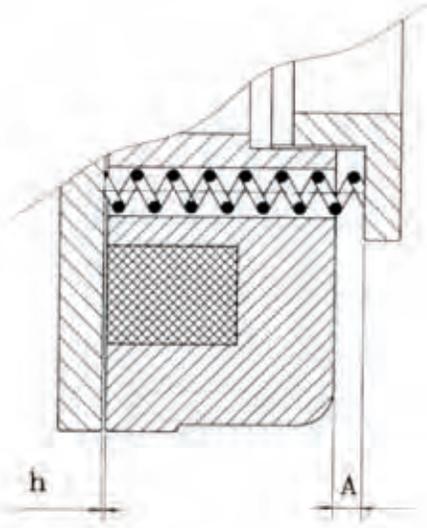
Standart dışındaki özel uygulamalar mümkündür;

- Özel mil
- Özel flanş
- Değişik tip yataklar
- Sabit yatak
- IP 55 koruma tipi
- Değişik gerilim ve frekans
- AC tip fren

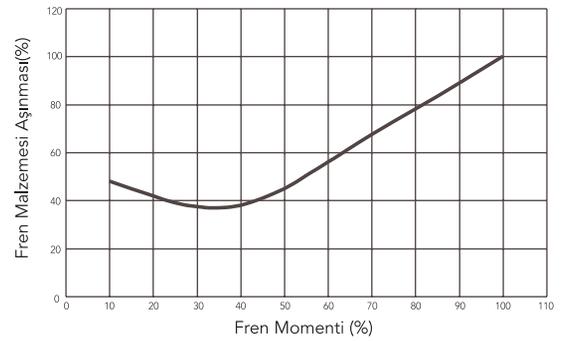


Frenleme Momenti

Ayar halkası yardımıyla fren momenti değiştirilebilir. Aşağıdaki tabloda "A" mesafesini ayarlayarak elde edilebilecek değişik fren momentleri verilmiştir. Frenleme momentinin değiştirilmesi ile balata malzemesinde oluşacak aşınma değişimi aşağıdaki grafik yardımıyla bulunabilir.



Model	Ayar Halkası ile Elektromagnet Arasındaki Mesafe: "A" (mm)									
	9	8	7	6	5	4	3	2	1	"A"
QB 63	-	-	-	0.3	0.1	1.7	2.4	3.1	3.8	4.5
QB 71	-	-	-	-	0.8	2.2	3.7	5.1	6.6	8
QB 80	-	-	-	-	0.1	3.2	5.4	7.6	9.8	12
QB 90	-	-	-	-	-	1.6	5.2	8.8	12.4	16
QB 100	3.5	7.0	14.5	14.0	17.5	21.0	24.5	28.0	31.5	35
QB 112	-	4.0	11.0	18.0	25.0	32.0	39.0	46.0	53.0	60
Frenleme Momenti (Kgm)										Max.Moment (Kgm)



Hava Aralığı

İdeal hava aralığı (h) ölçüleri yandaki tabloda verilmiştir. Kabul edilebilir en yüksek hava aralığı 0,7 mm'dir. Bu değer aşıldığında frenleme performansı değişecektir ve hava aralığının tekrar ayarlanması gerekmektedir.

Açma-Kapama Süreleri

Normal fren açma ve kapama süreleri aşağıdaki tabloda verilmiştir. Bu süreler yük özelliğine göre değişebilir.

Diyot Köprüsü

Standart motorun üzerinde normal tip (AS) yarım dalga diyot köprüsü bulunmaktadır. Hızlı tip (ASR) yarım dalga diyot köprüsü kullanarak aşağıdaki tabloda verilen hızlı kapanma sürelerini elde etmek mümkündür.

Model	QB63	QB71	QB80	QB90	QB100	QB112
İdeal hava aralığı (mm)	0.2	0.2	0.2	0.2	0.3	0.3

Model	Normal açma süresi ms	Normal kapama süresi ms	Hızlı kapama süresi ms
QB63	10	45	20
QB71	15	50	30
QB80	15	55	30
QB90	15	65	40
QB100	20	75	45
QB112	25	180	85

FRENLİ MOTOR - QB TİP

ELEKTRİKSEL ÖZELLİKLER, 50 Hz

MOTOR TİPİ	NOMİNAL					KALKIŞTAKİ DEĞERLER				Devrilme Momenti Oranı Mk/Mn	Verim* % η	Cos ϕ	FREN Max. Moment kgm	J kgm ²	Ağırlık (B3) kg	
	GÜÇ		DEVİR d/d	AKIM A	MOMENT Nm	AKIM I _A / I _N		MOMENT M _A / M _N								
	HP	kW				∩	Δ	∩	Δ							
2 Kutup 3000 d/d																
220/380 V	QB 63M2A	1/4	0,18	2800	0,6	0,62	4,20	-	2,3	-	2,4	64	0,78	0,46	0,00017	6
	QB 63M2B	1/3	0,25	2800	0,7	0,86	4,20	-	2,2	-	2,3	67	0,83	0,46	0,00022	7
	QB 71M2A	1/2	0,37	2800	1,0	1,27	4,30	-	2,0	-	2,4	68	0,83	0,82	0,00028	9
	QB 71M2B	3/4	0,55	2820	1,4	1,87	5,00	-	2,2	-	2,5	71	0,84	0,82	0,00036	10
	QB 80M2A	1	0,75	2840	1,8	2,53	5,20	-	2,2	-	2,6	74	0,86	1,22	0,00088	13
	QB 80M2B	1,5	1,1	2850	2,5	3,69	6,00	-	2,6	-	2,9	77	0,86	1,22	0,00109	14
	QB 90S2A	2	1,5	2850	3,3	5,01	6,30	-	2,6	-	3,1	79	0,87	1,63	0,00130	18
	QB 90L2A	3	2,2	2860	4,6	7,37	6,90	-	2,6	-	3,2	81,5	0,88	1,63	0,00164	20
	QB 100L2A	4	3	2880	6,2	9,94	7,10	-	2,8	-	3,5	83	0,89	3,57	0,00243	26
380/660 V	QB 112M2A	5,5	4	2870	8	13,31	2,20	6,9	0,87	2,6	3,4	85	0,90	60	0,00399	37

4 Kutup 1500 d/d																
220/380 V	QB 63M4A	1/6	0,12	1365	0,5	0,84	2,8	-	2,0	-	2,3	54	0,65	0,46	0,00020	6
	QB 63M4B	1/4	0,18	1380	0,7	1,25	3,2	-	2,2	-	2,4	61	0,62	0,46	0,00025	6
	QB 71M4A	1/3	0,25	1390	0,9	1,72	3,5	-	2,2	-	2,4	64	0,67	0,82	0,00071	9
	QB 71M4B	1/2	0,37	1390	1,2	2,54	4,0	-	2,3	-	2,6	67	0,68	0,82	0,00095	10
	QB 80M4A	3/4	0,55	1400	1,6	3,75	4,0	-	2,1	-	2,3	72	0,73	1,22	0,00168	13
	QB 80M4B	1	0,75	1400	2,1	5,12	4,2	-	2,1	-	2,2	74	0,74	1,22	0,00205	14
	QB 90S4A	1,5	1,1	1410	2,7	7,45	5,4	-	2,4	-	2,7	78	0,78	1,63	0,00243	17
	QB 90L4A	2	1,5	1420	3,6	10,09	5,5	-	2,4	-	2,7	80	0,79	1,63	0,00322	19
	QB 100L4A	3	2,2	1410	5,1	14,9	5,4	-	2,5	-	2,7	82	0,80	3,57	0,00398	26
380/660 V	QB 112M4B	5,5	4	1430	8,7	26,71	2,1	6,7	0,72	2,8	3,2	85	0,82	6,12	0,00933	39

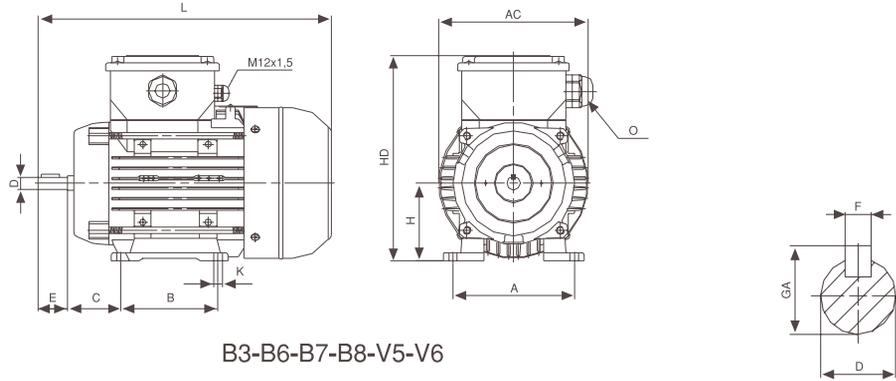
6 Kutup 1000 d/d																
220/380 V	QB 71M6A	1/4	0,18	900	0,78	1,91	3,0	-	2,0	-	2,3	58	0,60	0,82	0,00068	10
	QB 71M6B	1/3	0,25	910	0,95	2,63	3,1	-	2,0	-	2,3	63	0,63	0,82	0,00090	12
	QB 80M6A	1/2	0,37	920	1,35	3,84	3,3	-	2,1	-	2,4	68	0,61	1,22	0,00160	14
	QB 80M6B	3/4	0,55	920	1,85	5,71	3,2	-	2,1	-	2,5	69	0,65	1,22	0,00196	15
	QB 90S6A	1	0,75	925	2,3	7,75	3,6	-	1,9	-	2,1	72	0,69	1,63	0,00255	17
	QB 90L6B	1,5	1,1	935	3,3	11,24	4,0	-	2,0	-	2,2	73	0,69	1,63	0,00328	21
	QB 100L6A	2	1,5	940	4,2	15,24	4,2	-	2,1	-	2,3	75	0,72	3,57	0,00463	25
	QB 112M6A	3	2,2	945	5,8	22,12	4,5	-	2,1	-	2,4	77	0,75	6,12	0,00916	37

* 1.1 ve 4 kW arası 2 ve 4 kutup motorlarımız "EFF2" verimlilik seviyesindedir.

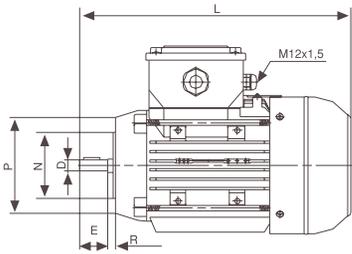
FRENLİ MOTOR - QB TİP

BOYUTLAR

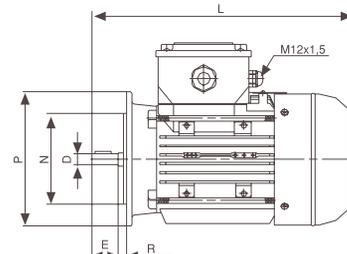
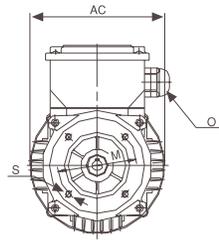
QB 63-80



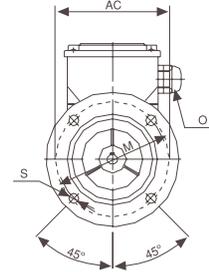
B3-B6-B7-B8-V5-V6



B14-V18-V19



B5-V1-V3



Gövde ⁽⁴⁾ Büyüklüğü	Kutup Sayısı	Ana Boyutlar			Ayaklı Motorlar							Mil				Rulman		Keçe		Flanş					
		AC	L	O	B	A	H	HD	K	C	D ⁽¹⁾	E	GA	F ⁽³⁾	Kasnak Taraflı	Kasnak Taraflı Aksı	Kasnak Taraflı	Kasnak Taraflı Aksı ⁽⁵⁾	Yapı Şekli	Flanş Tipi	P	N ⁽²⁾	M	R	S
63 M	2...6	123	278,5	1*M20	80	100	63	174	7	40	11	23	12,5	4	6201-2Z	6201-2Z	12*22*7	12*22*7	B5	FA	140	95	115	0	10
					B14	FB	120	80	100	0	M6														
					B14	FC	90	60	75	0	M5														
71 M	2...6	138	314,5	1*M20	90	112	71	190	7	45	14	30	16,0	5	6202-2Z	6202-2Z	15*24*5	15*24*5	B5	FA	160	110	130	0	10
					B14	FB	140	95	115	0	M8														
					B14	FC	105	70	85	0	M6														
80 M	2...6	158	347,5	1*M20	100	125	80	207	10	50	19	40	21,5	6	6204-2Z	6204-2Z	20*30*7	20*30*7	B5	FA	200	130	165	0	12
					B14	FB	160	110	130	0	M8														
					B14	FC	120	80	100	0	M6														

Ölçüler "mm" olarak verilmiştir.

(1) Tolerans 28 mm'ye kadar DIN EN 50347 "j6", 28 mm ve üzeri "k6".

(2) Tolerans DIN EN 50347 "j6"

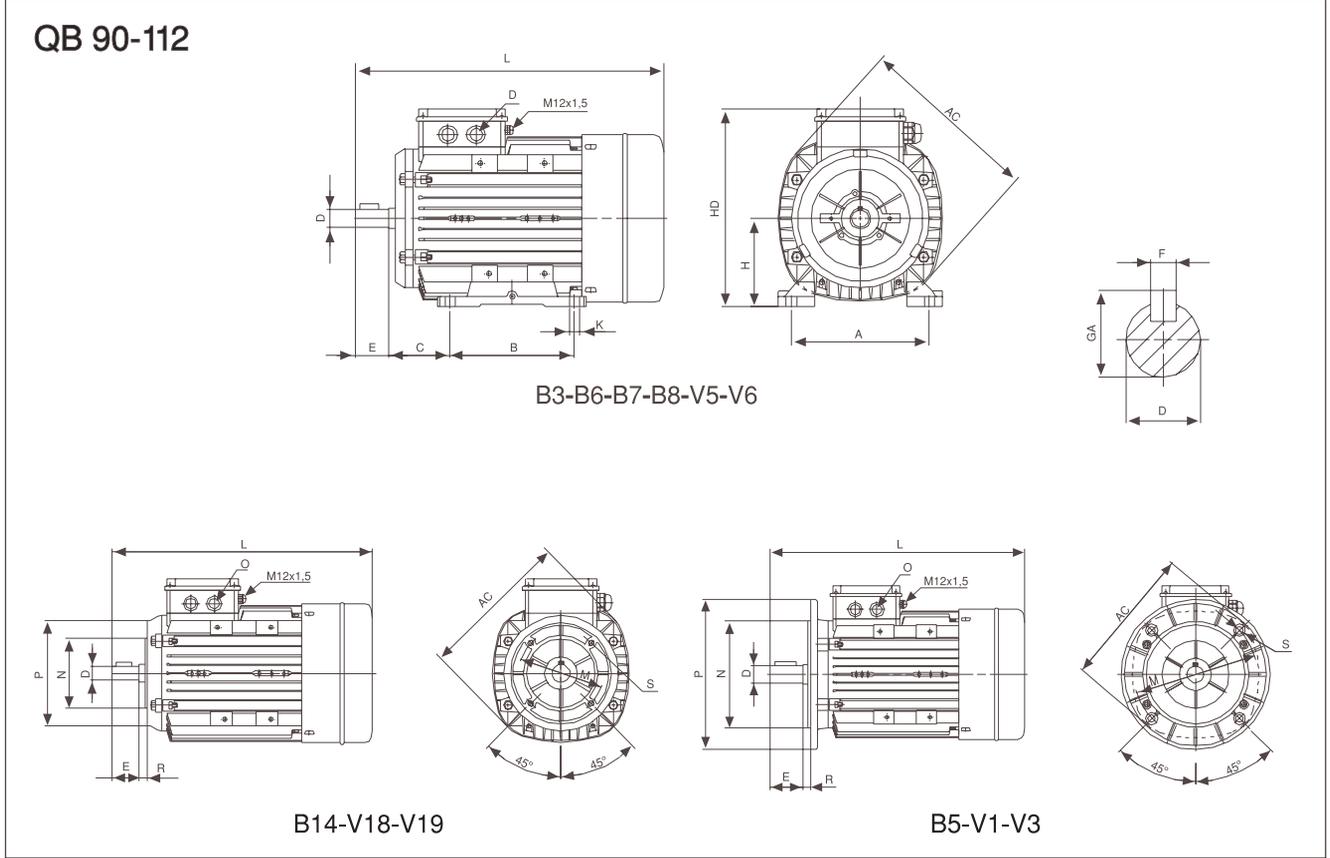
(3) DIN 6885'e göre

(4) 112 yapı büyüklüğünden itibaren kaldırma halkası mevcuttur.

(5) IP55

FRENLİ MOTOR - QB TİP

BOYUTLAR



Gövde ⁽⁴⁾ Büyüklüğü	Kutup Sayısı	Ana Boyutlar			Ayaklı Motorlar					Mil			Rulman		Keçe		Flanş								
		AC	L	O	B	A	H	HD	K	C	D ⁽¹⁾	E	GA	F ⁽³⁾	Kasnak Taraflı	Kasnak Taraflı Aksı	Kasnak Taraflı	Kasnak Taraflı Aksı ⁽⁵⁾	Yapı Şekli	Flanş Tipi	P	N ⁽²⁾	M	R	S
90 S/L	2...6	193	365,5 385,5	1*M25	100	140	90	241	10	56	24	50	27	8	6305-2Z	6205-2Z	25*40*7	25*40*7	B5	FA	200	130	165	0	12
					125	B14	FB	160	110	130	0	M8													
					B14	FC	140	95	115	0	M8														
100 L	2...6	217	432,0	1*M25	140	160	100	260	12	63	28	60	31	8	6306-2Z	6205-2Z	30*47*7	25*40*7	B5	FA	250	180	215	0	15
					B14	FB	200	130	165	0	M10														
					B14	FC	160	110	130	0	M8														
112 M	2...6	232	475,5	2*M25	140	190	112	280	12	70	28	60	31	8	6306-2Z	6206-2Z	30*47*7	30*47*7	B5	FA	250	180	215	0	15
					B14	FB	200	130	165	0	M10														
					B14	FC	160	110	130	0	M8														

Ölçüler "mm" olarak verilmiştir.

⁽¹⁾Tolerans 28 mm'ye kadar DIN EN 50347 "j6", 28 mm ve üzeri "k6".

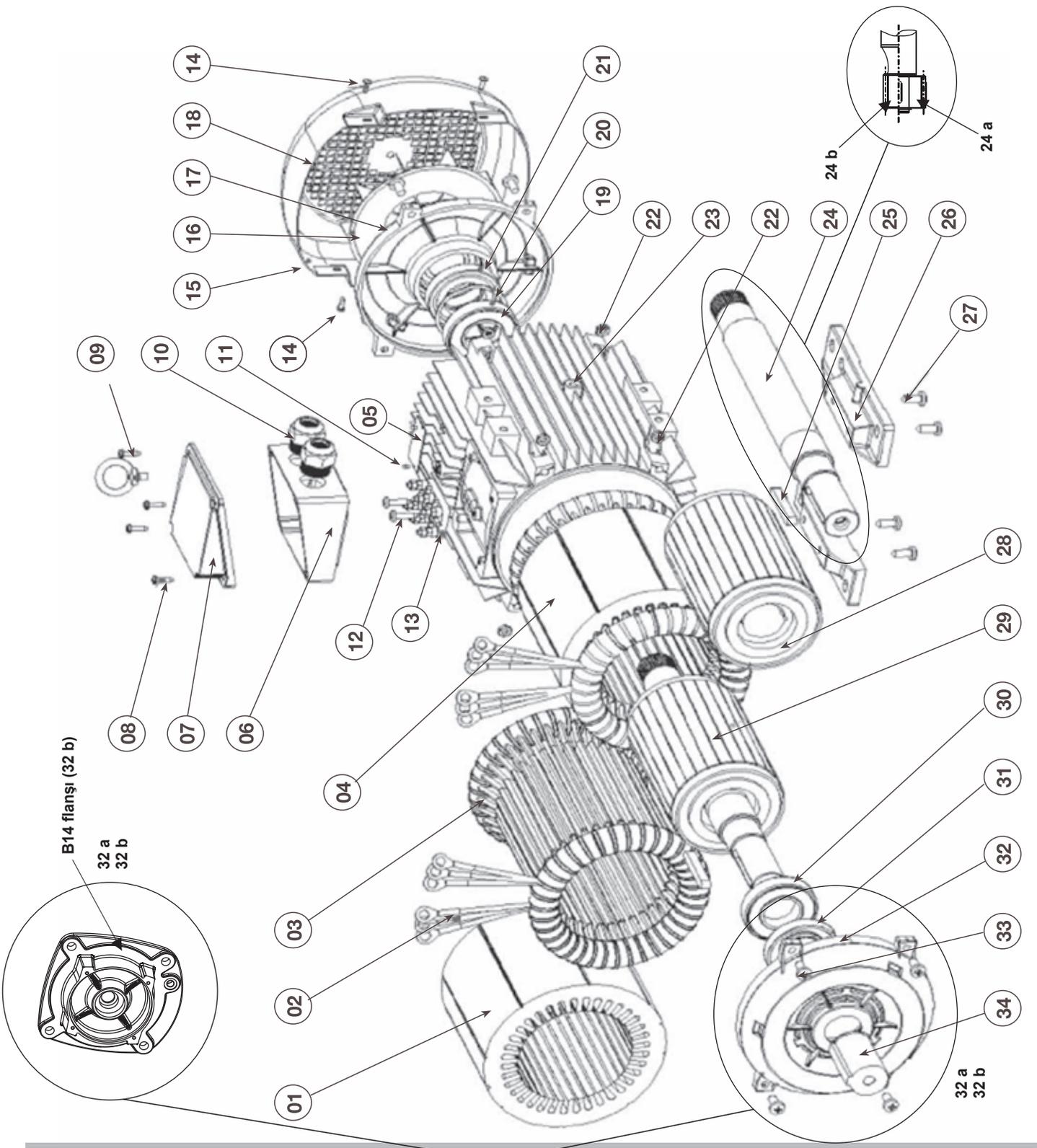
⁽²⁾Tolerans DIN EN 50347 "j6"

⁽³⁾DIN 6885'e göre

⁽⁴⁾112 yapı büyüklüğünden itibaren kaldırma halkası mevcuttur.

⁽⁵⁾IP55

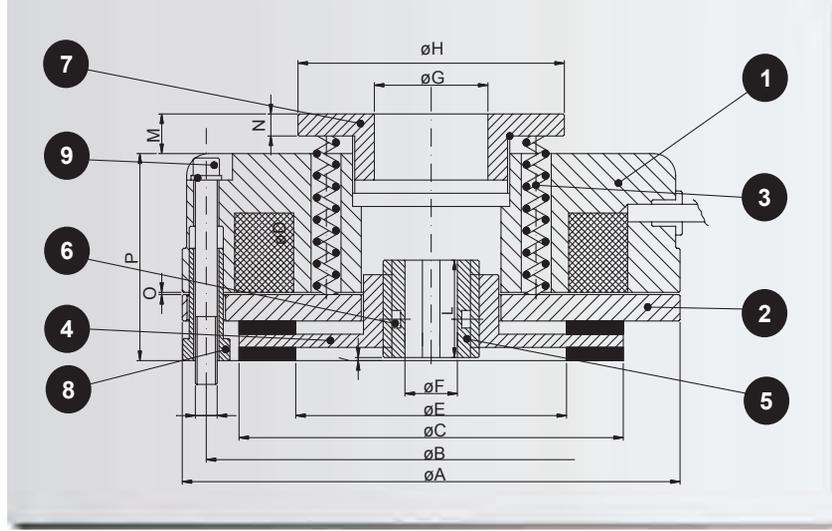
MOTOR PARÇA LİSTESİ



1. Stator çekirdek
2. Kamçı grubu
3. Sargı
4. Sargılı stator
5. Etiket
6. Terminal kutusu
7. Terminal kutu kapağı
8. Terminal kutu vidaları
9. Taşıma halkası
10. Rakor
11. Perçin
12. Terminal vidaları
13. Terminal plakası
14. Fan kapağı vidaları
15. Fan kapağı
16. Fan
17. Motor arka kapağı
18. Arka kapak vidaları
19. Arka rulman
20. Rulman gerği yayı
21. Keçe (Arka)
22. Somun
23. Gövde
24. Mil
- 24 a Çakma
- 24 b Yekpare
25. Kama
26. Ayak
27. Ayak vidalı
28. Rotor
29. Rotor-mil grubu
30. Ön rulman
31. Keçe (Ön)
32. Ön kapak (B3 Flanşı)
- 32 a B5 Flanşı
- 32 b B14 Flanşı
33. Ön kapak vidaları
34. Mil koruyucu kılıf

FREN PARÇA LİSTESİ VE ÖZELLİKLERİ

- 1 Elektro mıknatıs
- 2 Endüvi plakası
- 3 Tork yayı
- 4 Disk
- 5 Kamalı burç
- 6 O-ring
- 7 Ayar halkası
- 8 Ayar somunu
- 9 Bağlantı civataları



Tip Fren Modeli	K1	K2	K3	K4	K5	K6	K7	K7/D	K8	K8/D	K9	K9/D	K9/T	
Statik Fren Momenti (Nm)	5	12	16	20	40	60	90	180	200	400	300	600	900	
Motorun Max. Hızı (rpm)	3000	3000	3000	3000	3000	3000	3000	3000	1500	1500	1500	1500	1500	
Giriş Gücü (W)	15	20	25	30	45	50	55	55	60	60	65	65	65	
Max. Ses (\leq dB-A)	68	69	68	69	70	70	70	70	70	69	69	69	70	
Ağırlık (Kg.)	1,1	1,85	2,55	2,84	4,8	7	12	15	14,3	18	23	28	34	
A	84	104	114	124	148	159	189	189	218	218	248	248	248	
B	72	90	103	112	132	145	170	170	196	196	230	230	230	
C	61	77	88	98	119	128	151	151	176	176	204	204	204	
D	3xM4	3xM5	3xM5	3xM6	3xM6	3xM8	3xM8	3xM8	6xM10	6xM10	6xM10	6xM10	9xM10	
E	35	44	62	69	79	80	90	90	103	103	132	132	132	
Delik toleransı K3'e kadar H7, diğerleri +0,01/-0,01	F	10-11 12	11-14 15	11-15	14-25	24-25 28	25-30 34	25-30 34	25 H40 34 H60	24-34	34 H60 48	44-45 48	44-45 48	44-45 48-50
G	20	26	26	42	60	60	60	60	60	60	60	60	60	
H	50	61	61	79	104	104	104	104	104	104	104	104	104	
I	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
L	18	20	20	20	25	30	30	60	40	60	40	60	80	
M (max)	9	9	9	9,5	18	16	14	14	18	18	18	18	18	
N	4	4	4	5,5	8	8	8	8	8	8	8	8	8	
O	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3	0,3	0,4	0,4	0,4	0,4±0,5	
P	38,5	41,5	47	46,5	64	69,5	79	101,5	78	98	80	105	130	

Not

- Fren alıştırmadan önce statik fren momentini tabloda verilen değerlere göre \pm % 20 değişiklik gösterebilir.



PGR[®]
Drive Technologies

THREE PHASE & SINGLE PHASE INDUSTRIAL MOTORS



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TECHNICAL DOCUMENTATION

INTERNATIONAL STANDARDS

Electric motors are manufactured according to the international standards listed below:

IEC 60034-1	Rating and performance
IEC 60034-2	Methods for determining losses and efficiency
IEC 60034-5	Classification of degrees of protection
IEC 60034-6	Methods of cooling
IEC 60034-7	Symbols of construction and mounting arrangements
IEC 60034-8	Terminal markings and direction of rotation
IEC 60034-9	Noise limits
IEC 60034-11	Built-in thermal protection
IEC 60034-14	Vibration limits
IEC 60034-18-1	Functional evaluation of insulation systems
IEC 60038	Standart voltages
EN 50347	Dimensions and output for electrical machines

EN 55014-1	} Electromagnetic compatibility
EN 61000-3-2	
EN 61000-3-3	

Germany

DIN VDE 0530
DIN EN 60034

Great Britain

BS EN 60034

Turkey

TSE 3067
TSE 4239

Threephase and singlephase motor series complying with UL 1004 and CSA. C 22.2 No 100.95 for UL and c- UL respectively, are also available for our standart product range.

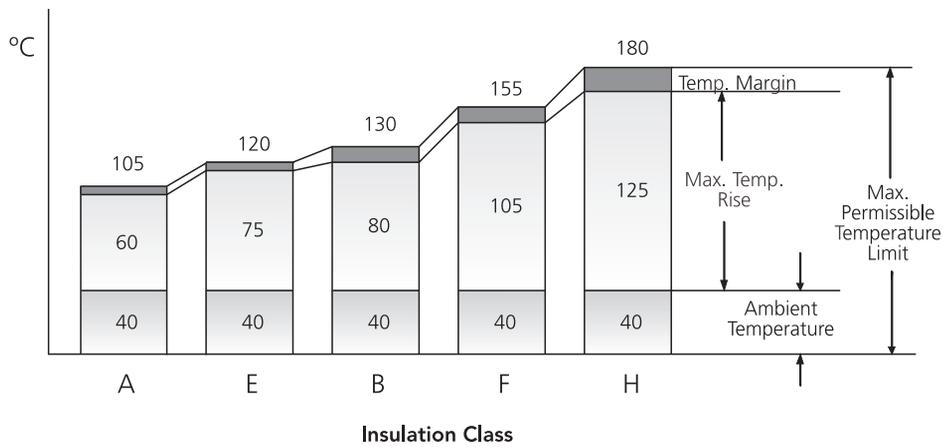
TECHNICAL DOCUMENTATION

INSULATION CLASSIFICATION

Our standard motors have insulation class F while the temperature rise is for class B. It means longer life of motors.

Under specified measuring conditions in accordance with IEC 60034-1 standard, insulation class F for an electric motor means that at ambient temperature of 40°C the temperature rise of its windings may be max. 105°C with the additional temperature margin of 10°C.

On customer's demand, we are able to make motors insulation class F with temperature rise for class F.



DEGREE OF PROTECTION

According to IEC 60034-5 standard, electric motors are provided with IP code which determines the degree of protection ensured by the housing against access to dangerous parts, introducing foreign matter and/or water.

Our motors comply with IP55 protection class as standard.

X	Protection from introduction of solid foreign matter	Y	Protection against penetration of water and its harmful effects	IP XY
5	Protection against with live or moving parts inside the enclosure. Ingress of dust is not totally prevented, but dust does not enter in sufficient quantity to interfere with satisfactory operation of the motor	4	Water splashed against the motor from any direction will have no harmful effect.	IP 54
		5	Water projected by a nozzle against the motor from any direction will have no harmful effect.	IP 55

TECHNICAL DOCUMENTATION

VIBRATION/BALANCING

All rotors are balanced dynamically with half key and this is indicated on the rating plate with letter H.

In accordance to IEC 60034-14, vibration level N is guaranteed for the standard motors. On customer demand, motors with reduced vibration level may also be produced.

Vibration in mm/s for the frame sizes

Vibration Grade	A	B
63-132	1,6	0,7
160-250	2,2	1,1

CONNECTIONS

The terminal plate is provided with 6 connection terminals, marked in accordance with 60034-8.

Frame Size	63-80	90-100	112	132-160	180	200	225-250
Cable Entry	M20	M25	M25	M32	M25	M32	M40
Number of Entries	1	1	2	2	2	2	2

TOLERANCES

According to IEC 60034-1, catalogue values are permitted to deviate from the real values as follows:

Speed (n)	$\Delta n = \pm 20\% (n_s - n_N)$ for $P_N > 1$ kW $\Delta n = \pm 30\% (n_s - n_N)$ for $P_N \leq 1$ kW
Efficiency % (η)	$\Delta \eta = -15\% (100 - \eta_N)$ for $P_N \leq 50$ kW $\Delta \eta = -10\% (100 - \eta_N)$ for $P_N > 50$ kW
Power Factor ($\cos \varphi$)	$\Delta \cos \varphi = -1/6 (1 - \cos \varphi)$
Locked Rotor Current (I_L/I_N)	$\Delta (I_L/I_N) = +20\% (I_L/I_N)$
Locked Rotor Torque (M_L/M_N)	min. (M_L/M_N) = $-15\% (M_L/M_N)$ max. (M_L/M_N) = $+25\% (M_L/M_N)$
Breakdown Torque (M_K/M_N)	$\Delta (M_K/M_N) = -10\% (M_K/M_N)$
Pull-up Torque (M_P/M_N)	$\Delta (M_P/M_N) = -15\% (M_P/M_N)$
Moment of Inertia (J) [kgm ²]	$\Delta J = \pm 10\% J$
Sound Pressure Level (LPA) [dB]	$\Delta LPA = +3$ dB (A)

TECHNICAL DOCUMENTATION

ENVIRONMENTAL CONDITIONS

Motors are designed to operate at altitudes up to 1000 m and ambient temperature up to 40°C. Rated output will change at the % ratios given below for different altitudes and ambient temperatures.

ALTITUDE		up to 1000 m	1500 m	2000 m	2500 m	3000 m	3500 m	4000 m
Insulation Class	B	100	97	94	90	86	82	77
	F	100	98	95	91	87	83	78

AMBIENT TEMPERATURE		30°C	35°C	40°C	45°C	50°C	55°C	60°C
Insulation Class	B	106	106	100	97	92	86	80
	F	105	102	100	97	93	87	82

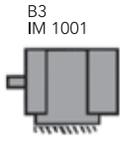
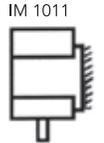
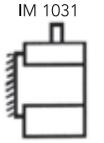
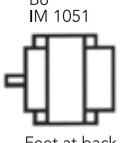
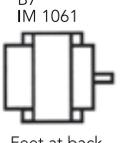
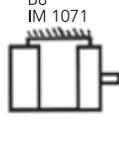
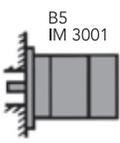
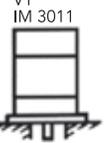
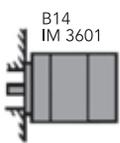
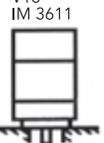
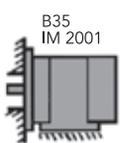
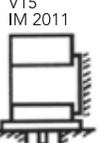
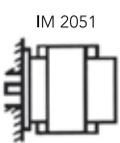
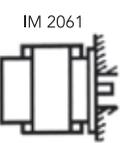
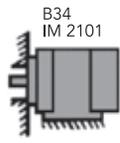
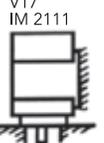
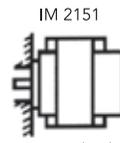
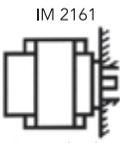
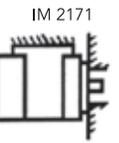
MATERIALS

Frame	Housing	Fan	Fan Cover	Endshields	B5 Flange	B14 Flange
63	Aluminium	Plastic	Steel	Aluminium	Aluminium	Aluminium
71						
80						
90						
100						
112						
132						
160						
180						
200						
225						
250						

¹⁾Steel fancover is optional.

TECHNICAL DOCUMENTATION

MOUNTING ARRANGEMENTS

			 Feet at back	 Feet at back		
						FA
						FB or FC
			 Feet at back	 Feet at back		PA
			 Feet at back	 Feet at back		PB or PC

BEARINGS

Standard motors are equipped with deep groove ball bearings with ZZ shields. 250 frame size motors have external lubrication.

Bearing & Seal Types

Frame	Bearing		Seal	
	Drive side	Nondrive side	Drive side	Nondrive side
63	6201-2Z	6201-2Z	12*22*7	12*22*7
71	6202-2Z	6202-2Z	15*24*5	15*24*5
80	6204-2Z	6204-2Z	20*30*7	20*30*7
90	6305-2Z	6205-2Z	25*40*7	25*40*7
100	6306-2Z	6205-2Z	30*47*7	25*40*7
112	6306-2Z	6206-2Z	30*47*7	30*47*7
132	6208-2Z	6208-2Z	40*62*10	40*62*10
160	6309-2Z	6309-2Z	45*72*10	45*72*10
180	6310-2Z	6310-2Z	50*80*10	50*80*10
200	6312-2Z	6312-2Z	60*90*10	60*90*10
225	6313-2Z	6313-2Z	65*100*13	65*100*13
250/2	6314	6313-2Z	70*112*12	65*100*13
250/4	6315	6313-2Z	75*112*12	65*100*13

TECHNICAL DOCUMENTATION

PAINTING

Our standard range of motors are painted with a gray protective paint according to RAL 7031 (grey). Other color are also available upon customer requests.

FEET

For QSX types motors (63-132 Frames), feet can be mounted on three sides, permitting terminal box assembly on the desired side. For QU types (160-250 Frames), the feet are detachable and this feature provides flexibility for different mounting types.

TERMINAL BOX

Motors frame size 63-160 have terminal boxes on top close to the drive end which can be turned 90°, so that conduits can be at each side. For the other frame sizes, it is on top and close to the drive end.

CONDENSATION HOLES

In the basic design, motors are supplied without holes. In case of customer requests, motors can be supplied with drain holes. Since these motors are provided with a special plug in the hole, the degree of protection remains IP 55.



MOTOR IDENTIFICATION SYMBOLS

QU FA 225 M 4 C-43 (Sample motor number)			
QU	Motor Type	QU Type QSX Type QH Type QB Type QM Type	225 . Frame Size (Shaft height in millimeters)
FA	Construction Type	---	M . Motor Length
---	with feet	B3,B6,B7,B8,V5,V6/V19	S Short
FA	with A flange	B5,V1,V3	M Medium
FB	with B flange	B14,V18,V19	L Long
FC	with C flange	B14,V18,V19	4 . Number of Poles
FS	with special flange	-	2,4,6,8 Poles
PA	with feet and A flange	B3/B5,V1/V5,V3/V6	C . Core Length (Does not affect outside dimensions)
PB	with feet and B flange	B3/B14,V5/V18,V6/V19	A Short
PC	with feet and C flange	B3/B14,V5/V18,V6/V19	B Medium
PS	with feet and special flange	-	C Long
X	without feet; flange and/or end-shield	B9,V8,V9	D, CE Extra Long
			43 . Special Motor Number
			01 - ... - 99

VOLTAGE/60 Hz

Motors are normally designed for 400V, 50 Hz. Other voltages and 60 Hz frequency are optional. Our motors wound for 50 Hz can be operated on 60 Hz for the same output power. The ratios given below indicate changes in the given parameters.

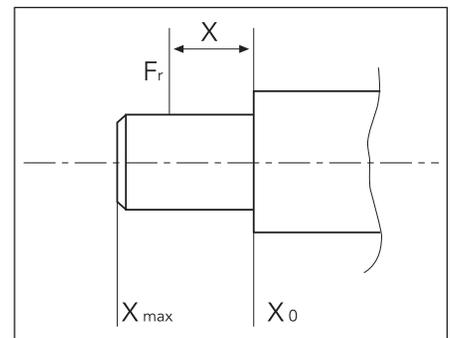
		60 Hz Application Coefficients of 50 Hz Motor						
50 Hz Voltage	60 Hz Application	Rated Speed	Rated Power	Rated Torque	Rated Current	Starting Torque	Breakdown Torque	Starting Current
230 V	230 V	1,2	1	0,83	1	0,83	0,83	0,83
230 V	265 V	1,2	1,15	0,96	1	0,96	0,96	0,96
400 V	400 V	1,2	1	0,83	1	0,70	0,83	0,83
400 V	460 V	1,2	1,15	0,96	1	0,95	0,98	0,97

TECHNICAL DOCUMENTATION

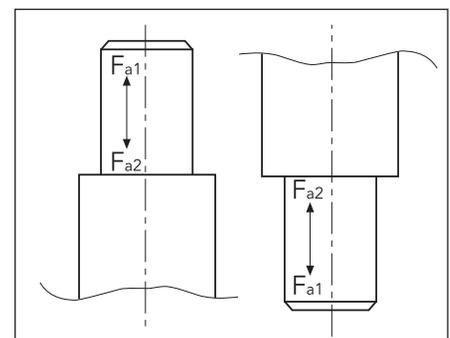
PERMISSIBLE LOADING ON THE SHAFTEND

FRAME SIZE	NUMBER OF POLES	Horizontal operation		Vertical operation	
		$F_r(x=0)$ (kN)	$F_r(x=\max)$ (kN)	$F_{a1}(x=0)$ (kN)	$F_{a2}(x=\max)$ (kN)
63	2	0,25	0,22	0,18	0,18
	4	0,29	0,25	0,21	0,21
	6	0,31	0,27	0,23	0,23
71	2	0,30	0,26	0,21	0,21
	4	0,35	0,29	0,25	0,25
	6	0,37	0,31	0,27	0,27
80	2	0,38	0,32	0,28	0,28
	4	0,54	0,45	0,38	0,38
	6	0,62	0,51	0,44	0,44
80	6	0,66	0,54	0,48	0,48
	8	0,67	0,55	0,49	0,49
	8	0,67	0,55	0,49	0,49
90	2	0,91	0,74	0,70	0,36
	4	0,99	0,80	0,77	0,40
	6	1,04	0,84	0,82	0,43
90	8	1,03	0,83	0,80	0,43
	8	1,03	0,83	0,80	0,43
	8	1,03	0,83	0,80	0,43
100	2	1,21	0,96	0,91	0,36
	4	1,31	1,04	1,01	0,40
	6	1,38	1,09	1,07	0,43
100	8	1,38	1,09	1,07	0,43
	8	1,38	1,09	1,07	0,43
	8	1,38	1,09	1,07	0,43
112	2	1,23	1,00	0,91	0,54
	4	1,33	1,09	1,01	0,60
	6	1,40	1,14	1,07	0,64
112	8	1,40	1,14	1,07	0,61
	8	1,40	1,14	1,07	0,61
	8	1,40	1,14	1,07	0,61
132	2	1,22	0,98	0,86	0,86
	4	1,31	1,04	0,92	0,92
	6	1,34	1,08	0,95	0,95
132	8	1,42	1,14	1,03	1,03
	8	1,42	1,14	1,03	1,03
	8	1,42	1,14	1,03	1,03
160	2	2,22	1,72	1,59	1,59
	4	2,34	1,82	1,71	1,71
	6	2,34	1,82	1,71	1,71
160	8	2,48	1,92	1,83	1,83
	8	2,48	1,92	1,83	1,83
	8	2,48	1,92	1,83	1,83
180	2	2,68	2,12	1,94	1,94
	4	2,82	2,23	2,07	2,07
	6	2,93	2,31	2,17	2,17
180	8	2,92	2,31	2,16	2,16
	8	2,92	2,31	2,16	2,16
	8	2,92	2,31	2,16	2,16
200	2	3,80	3,04	2,79	2,79
	4	3,95	3,16	2,93	2,93
	6	4,07	3,26	3,05	3,05
200	8	3,95	3,16	2,93	2,93
	8	3,95	3,16	2,93	2,93
	8	3,95	3,16	2,93	2,93
225	2	4,45	3,65	3,25	3,25
	4	4,59	3,60	3,39	3,39
	6	4,73	3,71	3,52	3,52
225	8	4,53	3,55	3,32	3,32
	8	4,53	3,55	3,32	3,32
	8	4,53	3,55	3,32	3,32
250	2	4,97	3,93	3,61	2,94
	4	5,78	4,57	4,26	3,15

Horizontal operation



Vertical operation



Calculations are based on 20.000h (L_{10aah}) bearing life time and the actual values will differ if radial and axial loads act at the same time. Mechanical strength of the endshields should also be considered for critical applications.

Value of force F_r acting on any point of the shaft end (between points $X=\max$ and $X=0$) may be calculated according to the following formula:

$$F_r = F_{x0} - \frac{x}{E} (F_{x0} - F_{x\max}) [kN]$$

Where; F_{x0} - value of F_r force acting on the beginning of the shaft end
 $F_{x\max}$ - value of F_r force acting on the shaft end
 E - length of the shaft end

MOTOR INQUIRY FORM

To	Nr	Date
----	----	------

Company Name & Address

Contact Person	Name & Position	
	Tel	e-mail
	Fax	

Annual Quantity (pcs)	Lot Size/Month
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Target Price	Requested Answer Date
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<input type="checkbox"/> Threephase	<input type="checkbox"/> Singlephase	<input type="checkbox"/> Brakemotor	<input type="checkbox"/> Doublespeed
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Motor Type	Drawing Nr
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Mechanical	Frame Size		
	IP	Iso	Shaft <input type="checkbox"/> Standard <input type="checkbox"/> Special
	Mounting		Flange Type
	Color	<input type="checkbox"/> Ral _____	<input type="checkbox"/> Epoxy Primer <input type="checkbox"/> Unpainted
	Terminal-Box	<input type="checkbox"/> Top <input type="checkbox"/> Leftside <input type="checkbox"/> Rightside	Conduits
	Cable Outlet <input type="checkbox"/>	Cable Type	Length/Thickness

Electrical	Output Power	
	Voltage/Frequency	Speed (rpm)
	Duty Type S__	Connection
	Protection	<input type="checkbox"/> PTC <input type="checkbox"/> PTO <input type="checkbox"/> Other _____

OTHER REQUIREMENTS:

Page __ of __	<input type="checkbox"/> Please send this checklist per e-mail
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THREE PHASE-QSX / QU / QH TYPES

- 63-250 frame size
- Up to 55 kW
- 2, 4, 6 and 8 poles



SINGLE PHASE-QM TYPE

- 63-90 frame size
- Up to 2,2 kW
- 2 and 4 poles



BRAKE MOTOR-QB TYPE

- 63-112 frame size
- Up to 4 kW
- 2, 4 and 6 poles

THREE PHASE - QSX TYPES

ELECTRICAL CHARACTERISTICS, AT 50 Hz

EFF2

MOTOR TYPE	RATED VALUES					STARTING VALUES				Mk/Mn	%η			J kgm ²	kg	Sound Pressure Level dBA*	
	OUTPUT		SPEED min ⁻¹	CURRENT A	MOMENT Nm	CURRENT I _A / I _N		TORQUE M _A / M _N			3/4	4/4	Cosφ 4/4				
	HP	kW				∧	Δ	∧	Δ								
2 Pole 3000 min⁻¹																	
230/400 V	QSX 63M2A	1/4	0,18	2800	0,51	0,62	4,20	-	2,3	-	2,4	63	64	0,80	0,00017	5	52
	QSX 63M2B	1/3	0,25	2800	0,66	0,86	4,20	-	2,2	-	2,3	66	67	0,82	0,00022	6	52
	QSX 71M2A	1/2	0,37	2800	0,93	1,27	4,30	-	2,0	-	2,4	67	68	0,84	0,00028	7	54
	QSX 71M2B	3/4	0,55	2820	1,32	1,87	5,00	-	2,2	-	2,5	69	71	0,85	0,00036	8	54
	QSX 80M2A	1,0	0,75	2840	1,70	2,53	5,20	-	2,2	-	2,6	72	74	0,86	0,00088	10	58
	QSX 80M2B	1,5	1,1	2850	2,40	3,69	6,00	-	2,6	-	2,9	75	77,3	0,86	0,00109	11	58
	QSX 90S2A	2	1,5	2860	3,20	5,01	6,50	-	2,6	-	3,1	78	79	0,86	0,00129	14	62
	QSX 90L2A	3	2,2	2860	4,50	7,35	7,00	-	2,7	-	3,3	80	81	0,87	0,00162	16	62
	QSX 100L2A	4	3	2890	6,10	9,91	7,50	-	2,9	-	3,6	81	82	0,87	0,00241	21	64
QSX 112M2A	5,5	4	2890	7,50	13,22	2,40	7,7	0,78	2,9	3,8	86	86	0,90	0,00394	29	67	
QSX 132S2A	7,5	5,5	2900	10,40	18,11	2,60	7,9	0,80	3	3,7	85,5	86,5	0,88	0,01123	34	70	
QSX 132S2C	10	7,5	2900	13,80	24,70	2,70	7,9	1,01	3,4	4,1	87	88	0,89	0,01424	41	70	
QSX 132M2A	15	11	2900	20,00	36,22	2,60	7,9	0,83	2,9	3,6	88	88,5	0,90	0,01596	55	70	
400/690 V	QU 160M2A	15	11	2900	19,60	36,23	2,25	6,9	0,79	2,5	3,5	89	90	0,90	0,02644	69	71
	QU 160M2B	20	15	2910	26,50	49,23	2,25	7	0,87	2,7	3,5	89,5	90,5	0,90	0,03317	76	71
	QU 160L2A	25	18,5	2920	32,20	60,51	2,25	7	0,80	2,6	3,5	90,5	91	0,91	0,04075	91	71
	QU 180M2A	30	22	2940	38,10	71,47	2,25	7	0,74	2,6	3,5	91	91,5	0,91	0,06193	114	77
	QU 200L2A	40	30	2945	53,00	97,12	2,26	7	0,71	2,4	3,5	92	92,5	0,88	0,11917	148	80
	QU 200L2B	50	37	2950	64,50	119,6	2,26	7	0,68	2,4	3,5	92	93	0,89	0,13885	167	80
	QU 225M2A	60	45	2955	79,00	145,4	2,26	7	0,69	2,3	3,5	92	93,5	0,88	0,19833	206	81
	QU 250M2A	75	55	2955	94,00	177,4	2,26	7	0,69	2,3	3,6	93	94	0,90	0,23505	235	81

4 Pole 1500 min⁻¹																	
220/380 V	QSX 63M4A	1/6	0,12	1365	0,50	0,84	2,8	-	2,0	-	2,3	53	56	0,62	0,00020	5	41
	QSX 63M4B	1/4	0,18	1380	0,70	1,25	3,2	-	2,2	-	2,4	57	60	0,62	0,00025	5,6	41
	QSX 71M4A	1/3	0,25	1390	0,80	1,72	3,5	-	2,2	-	2,4	63	65	0,69	0,00071	7	45
	QSX 71M4B	1/2	0,37	1390	1,12	2,55	4,0	-	2,3	-	2,6	68	69	0,69	0,00095	8	45
	QSX 80M4A	3/4	0,55	1400	1,50	3,76	4,0	-	2,1	-	2,3	71	72	0,74	0,00168	9,5	49
	QSX 80M4B	1,0	0,75	1400	1,96	5,12	4,2	-	2,1	-	2,2	73	74	0,75	0,00205	10,5	49
	QSX 90S4A	1,5	1,1	1410	2,70	7,45	5,4	-	2,6	-	3,1	77	77,5	0,76	0,00243	13	54
	QSX 90L4A	2,0	1,5	1420	3,50	10,09	5,5	-	2,7	-	3,2	80	80	0,77	0,00322	15	54
	QSX 100L4A	3,0	2,2	1430	4,80	14,69	5,7	-	2,8	-	3,0	82	82	0,80	0,00398	21	56
QSX 100L4B	4,0	3,0	1425	6,50	20,10	5,8	-	2,9	-	3,2	82	83	0,80	0,00471	24	56	
QSX 112M4B	5,5	4,0	1445	8,60	26,43	2,3	6,8	0,69	2,6	3,2	84	85	0,79	0,00933	31	58	
QSX 132S4C	7,5	5,5	1450	11,1	36,22	2,1	6,7	0,81	2,8	3,1	87	87	0,82	0,02111	39	61	
QSX 132M4B	10,0	7,5	1450	15,5	49,39	1,5	5,5	0,83	2,9	3,1	87	87	0,80	0,02763	60	61	
400/690 V	QU 160M4B	15,0	11	1450	21,5	72,45	2,1	6,5	0,71	2,5	3,0	88,5	89,5	0,83	0,05547	76	63
	QU 160L4A	20,0	15	1455	29	98,45	2,1	6,5	0,74	2,6	3,1	89,5	90	0,83	0,06922	90	63
	QU 180M4B	25,0	18,5	1455	34,9	121,4	2,1	6,5	0,71	2,6	3,0	90	91	0,84	0,11220	119	69
	QU 180L4B	30,0	22	1455	40,8	144,4	2,1	6,5	0,74	2,5	3,0	90,5	91,5	0,85	0,12773	127	69
	QU 200L4C	40,0	30	1460	54,6	196,2	2,1	7	0,68	2,3	3,0	91,5	92	0,86	0,25035	176	70
	QU 225S4A	50,0	37	1470	67,1	240,4	2,1	7	0,74	2,5	3,0	92	92,5	0,86	0,36429	223	71
	QU 225M4C	60,0	45	1470	82	292,3	2,1	7	0,74	2,5	3,0	92	93	0,85	0,43513	260	71
	QU 250M4C	75,0	55	1470	100	356,1	2,1	7	0,73	2,6	3,0	93	93,5	0,85	0,46270	280	71

* The Sound Pressure Level measurements are taken 1 meter away from the motor.

* Tolerance + 3 dB(A)

* The 2 and 4 pole motors in the 1,1 kw to 55 kw output range correspond with the EU "EFF2" efficiency classification.

THREE PHASE - QSX TYPES

EFF 2

ELECTRICAL CHARACTERISTICS, AT 50 Hz

MOTOR TYPE	RATED VALUES					STARTING VALUES				Mk/Mn	% η			J kgm ²	kg	Sound Pressure Level dBA *	
	OUTPUT		SPEED min ⁻¹	CURRENT A	MOMENT Nm	CURRENT I _A / I _N		TORQUE M _A / M _N			3/4	4/4	Cos ϕ 4/4				
	HP	kW				∧	Δ	∧	Δ								
6 Pole 1000 min⁻¹																	
220/380 V	QSX 71M6A	1/4	0,18	900	0,78	1,91	3,0	-	2,2	-	2,4	55	58	0,57	0,00068	6	42
	QSX 71M6B	1/3	0,25	910	0,90	2,63	3,1	-	2,2	-	2,4	61	63	0,64	0,00090	8	42
	QSX 80M6A	1/2	0,37	920	1,25	3,84	3,3	-	2,1	-	2,4	65	67	0,64	0,00160	10	49
	QSX 80M6B	3/4	0,55	920	1,80	5,71	3,2	-	2,1	-	2,5	68	70	0,63	0,00196	11	49
	QSX 90S6A	1,0	0,75	925	2,10	7,74	3,8	-	2,0	-	2,2	70	71	0,73	0,00225	13	51
	QSX 90L6B	1,5	1,10	930	3,0	11,29	4,2	-	2,2	-	2,4	72	73	0,72	0,00328	17	51
	QSX 100L6A	2,0	1,50	935	4,10	15,32	4,0	-	2,0	-	2,2	73	74	0,71	0,00463	20	53
QSX 112M6A	3,0	2,20	950	5,40	22,11	4,7	-	2,1	-	2,5	80	80	0,74	0,00916	29	58	
400/690 V	QSX 132S6B	4,0	3,0	955	7,00	30,00	1,81	5,7	0,63	2	2,5	80	81	0,76	0,02070	36	62
	QSX 132M6A	5,5	4,0	960	9,00	39,79	1,84	5,8	0,7	2,2	2,6	81	82	0,78	0,02070	53	62
	QSX 132M6B	7,5	5,5	960	12,30	54,71	1,76	5,5	0,67	2,1	2,6	83	84	0,77	0,02709	58	62
	QU 160M6B	10,0	7,5	960	17,0	74,61	1,90	6	0,69	2,1	3,2	85,5	86	0,74	0,05641	76	63
	QU 160L6B	15,0	11,0	960	24,3	109,5	1,89	6	0,72	2,2	3,0	86	87	0,75	0,07040	94	63
	QU 180L6A	20,0	15,0	965	30	148,5	1,91	6	0,62	2	2,8	87	89	0,81	0,18369	115	63
	QU 200L6B	25,0	18,5	970	36	182,2	1,90	6	0,6	1,85	2,7	88	90	0,82	0,27088	155	64
QU 200L6C	30,0	22,0	970	43	216,6	1,85	6	0,6	1,85	2,7	89	90,5	0,82	0,31281	165	64	
QU 225M6B	40,0	30,0	975	57	294	1,85	6	0,57	1,8	2,5	90	91	0,83	0,49334	221	65	

8 Pole 750 min⁻¹																	
220/380 V	QSX 80M8A	1/4	0,18	650	0,90	2,55	2,20	-	1,50	-	1,7	52	54	0,53	0,00168	10	44
	QSX 80M8B	1/3	0,25	675	1,15	2,55	2,20	-	1,50	-	1,7	55	57	0,55	0,00205	11	44
	QSX 90S8A	1/2	0,37	695	1,50	5,1	2,90	-	1,90	-	2,3	60	62	0,57	0,00243	12	49
	QSX 90L8A	3/4	0,55	690	2,00	7,61	3,00	-	1,90	-	2,2	64	65	0,61	0,00322	15	49
	QSX 100L8A	1,0	0,75	695	2,60	10,30	3,60	-	1,80	-	2,3	70	70,5	0,59	0,00398	19	49
	QSX 100L8B	1,5	1,1	690	3,4	15,22	3,60	-	1,80	-	2,2	73	73	0,64	0,00471	21	49
	QSX 112M8A	2,0	1,5	700	4,5	20,46	3,70	-	1,90	-	2,3	74	74	0,65	0,00933	28	54
	QSX 132S8B	3,0	2,2	710	6,0	29,59	1,27	4	0,60	1,7	2,2	75	77	0,69	0,02111	36	58
QSX 132M8A	4,0	3,0	710	7,9	40,35	1,40	4,5	0,60	1,7	2,2	77	79	0,69	0,02763	52	58	
400/690 V	QU 160M8A	5,5	4,0	720	10,5	53,1	1,75	5,0	0,61	1,80	2,2	82	83	0,66	0,05641	65	60
	QU 160M8B	7,5	5,5	720	14,5	73	1,74	5,0	0,61	1,80	2,2	82,5	83,5	0,66	0,05641	74	60
	QU 160L8A	10,0	7,5	720	19	99,5	1,74	5,0	0,62	1,90	2,2	83	84	0,68	0,07040	85	60
	QU 180L8B	15,0	11,0	720	24,6	146	1,75	5,5	0,65	2,10	2,6	85	87	0,74	0,12773	122	60
	QU 200L8C	20,0	15,0	725	31,0	197,6	1,74	5,5	0,68	2,20	2,8	87	89	0,78	0,25035	169	61
	QU 225S8A	25,0	18,5	725	37,5	244	1,75	5,5	0,62	2,00	2,5	88	90	0,79	0,36429	224	61
	QU 225M8C	30,0	22,0	725	45,0	290	1,74	5,5	0,66	2,10	2,6	89	90	0,78	0,43513	256	61

* The Sound Pressure Level measurements are taken 1 meter away from the motor.

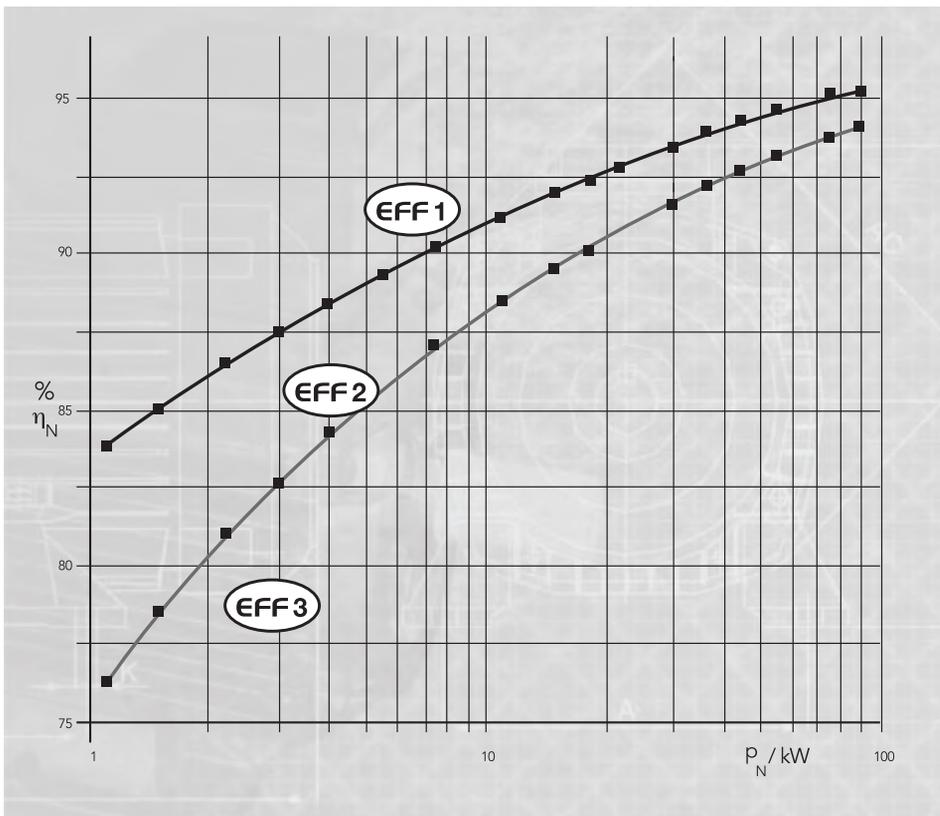
* Tolerance + 3 dB(A)

EFFICIENCY LEVELS

Electrical drive systems play a key role in saving energy and in protection of the environment. These systems also account for two thirds of industrial power consumption.

CEMEP has introduced a classification of electrical motors with General Directorate for Energy within the EC. For this purpose three-phase motors with power outputs between 1,1 and 90 kW are divided into three zones, namely "Efficiency Classes".

The meeting of the required limits will be guaranteed by the manufacturer in their Manufacturer's Statement.



What will the high-efficiency motors benefit to the user?

- Energy saving
- Reduction in energy costs
- Easily replacement of existing drives
- Protection of environment

The art of designing higher efficiencies is to obtain an optimum between the losses and the operating characteristics requirements. This leads to use of more copper in the stator winding and of more aluminium in the rotor injection or a longer core in the stator and rotor design. Additional improvements incur higher costs which can certainly be justified according to particular application.

The marking appears on the nameplate and in the manufacturers documentation. Only European manufacturers who have entered the agreement are entitled to use the licensed logos. Arçelik is an approved manufacturer in accordance with this agreement and produce high efficiency motors.

THREE PHASE TYPES

EFF 1

ELECTRICAL CHARACTERISTICS, AT 50 Hz

MOTOR TYPE	RATED VALUES					STARTING VALUES				Mk/Mn	Cosφ			J kgm ²	kg	Sound Pressure Level dBA*
	OUTPUT		SPEED min ⁻¹	CURRENT A	MOMENT Nm	CURRENT I _A / I _N		TORQUE M _A / M _N			%η	4/4	4/4			
	HP	kW				λ	Δ	λ	Δ							
2 Pole 3000 min⁻¹																
230/400 V	QH 80M2D	1,5	1,1	2880	2,4	3,65	8,1	4,0	4,3	82,2	82,9	0,81	0,00150	13	58	
	QH 90L2C	2	1,5	2900	3,1	4,94	8,2	3,8	4,3	84,4	85,2	0,83	0,00182	17	61	
	QH 90L2D	3	2,2	2900	4,4	7,24	8,3	3,9	4,4	85,0	85,7	0,84	0,00182	18	61	
	QH 100L2D	4	3	2920	5,8	9,81	9,6	4,3	5,1	85,9	86,8	0,86	0,00335	27	63	
400/690 V	QH 112M2C	5,5	4	2890	7,5	13,22	7,5	3,1	3,7	86,5	87,6	0,88	0,00489	34	66	
	QH 132S2C	7,5	5,5	2920	10,1	17,99	9,0	3,5	3,9	88,3	88,6	0,89	0,01424	41	69	
	QH 132M2A	10	7,5	2920	13,5	24,53	9,0	3,6	4,0	89,0	89,5	0,90	0,01596	55	69	
	QH 160M2A	15	11,0	2930	19,8	35,85	8,0	2,80	3,5	90,3	90,8	0,88	0,02644	69	71	
	QH 160M2B	20	15,0	2940	26,2	48,7	8,8	3,5	4,0	91,5	92,0	0,90	0,03317	77	71	
	QH 160L2A	25	18,5	2930	32,0	60,3	8,2	3,3	3,9	92,5	92,2	0,91	0,04075	92	71	
	QH 180M2A	30	22	2945	37,5	71,3	7,5	2,6	3,6	92,8	93,0	0,91	0,06193	115	77	
	QH 200L2A	40	30	2950	52,5	97,1	7,6	2,1	3,6	93,2	93,5	0,88	0,11917	148	80	
	QH 200L2B	50	37	2955	64,9	119,6	8,0	2,5	4,2	93,6	94,0	0,88	0,13885	168	80	
	QH 225M2A	60	45	2960	78,0	145,2	7,0	2,4	3,2	93,7	94,3	0,88	0,19833	206	81	
	QH 250M2A	75	55	2960	93,4	177,4	7,4	2,3	3,4	94,4	94,5	0,90	0,23505	235	81	

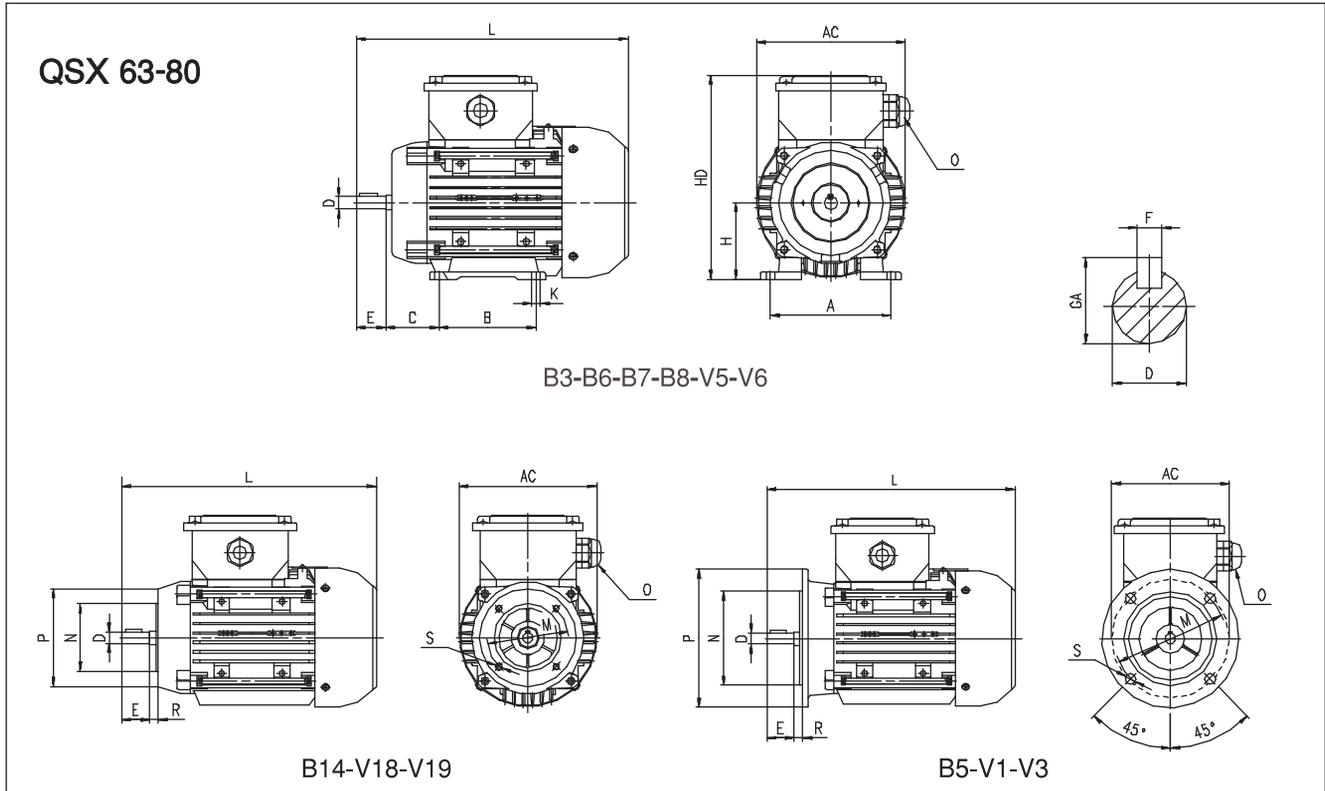
4 Pole 1500 min⁻¹																
230/400 V	QH 90L4C	1,5	1,1	1430	2,6	7,35	7,0	3,2	3,7	82,9	83,9	0,73	0,00365	18	50	
	QH 90L4D	2	1,5	1430	3,4	10,03	7,3	3,5	4,0	84,0	85,0	0,76	0,00365	18	50	
	QH 100L4C	3	2,2	1440	4,8	14,59	8,0	4,1	4,4	86,0	86,6	0,77	0,00545	26	53	
	QH 100L4D	4	3	1440	6,3	19,90	7,6	3,8	4,2	86,6	87,4	0,79	0,00581	29	53	
400/690 V	QH 112M4D	5,5	4	1450	8,3	26,34	8,6	3,2	4,3	87,1	88,3	0,79	0,01123	35	53	
	QH 132M4B	7,5	5,5	1450	11,0	36,22	8,7	3,2	4,3	88,6	89,3	0,81	0,02763	60	61	
	QH 132M4C	10	7,5	1450	14,7	49,40	9,5	3,2	4,5	87,6	90,2	0,82	0,02980	67	61	
	QH 160M4B	15	11	1460	21,5	71,95	8,0	2,9	3,9	91,2	91,5	0,81	0,05547	77	63	
	QH 160L4A	20	15	1455	28,5	98,45	8,0	2,7	3,5	91,8	92,0	0,83	0,06922	90	63	
	QH 180M4B	25	18,5	1465	35,0	120,6	9,0	3,2	3,4	92,0	92,5	0,82	0,11220	120	69	
	QH 180L4B 30	30	22	1465	42,0	143,4	8,5	2,8	3,9	92,5	93,0	0,81	0,12773	127	69	
	QH 200L4C	40	30	1465	53,5	195,6	7,0	2,3	3,2	94,2	94,0	0,86	0,25035	176	70	
	QH 225S4A	50	37	1470	67,8	240,4	7,9	3,2	3,3	94,7	94,5	0,83	0,36429	223	71	
	QH 225M4C	60	45	1470	81,0	292,3	7,3	3,0	3,5	95,1	95,0	0,84	0,43513	260	71	
	QH 250M4C	75	55	1475	96,2	356,1	7,5	3,0	3,50	95,2	95,3	0,87	0,46270	280	71	

* The Sound Pressure Level measurements are taken 1 meter away from the motor.

* Tolerance + 3 dB(A)

THREE PHASE TYPES

DIMENSIONS



Frame ⁴⁾ Size	No. Of Poles	Main Dimensions			Foot Mounted Motors							Shaft			Bearing		Seal		Flange						
		AC	L	O	B	A	H	HD	K	C	D ¹⁾	E	GA	F ³⁾	Drive Side	Non Drive Side	Drive Side	Non Drive Side ⁵⁾	Mounting Type	Flange Type	P	N ²⁾	M	R	S
63 M	2...4	123	219.5	1*M20	80	100	63	174	7	40	11	23	12.5	4	6201-2Z	6201-2Z	12*22*7	12*22*7	B5	FA	140	95	115	0	10
																			B14	FB	120	80	100	0	M6
																			B14	FC	90	60	75	0	M5
71 M	2...6	138	252.5	1*M20	90	112	71	190	7	45	14	30	16.0	5	6202-2Z	6202-2Z	15*24*5	15*24*5	B5	FA	160	110	130	0	10
																			B14	FB	140	95	115	0	M8
																			B14	FC	105	70	85	0	M6
80 M	2...8	158	283.5	1*M20	100	125	80	207	10	50	19	40	21.5	6	6204-2Z	6204-2Z	20*30*7	20*30*7	B5	FA	200	130	165	0	12
																			B14	FB	160	110	130	0	M8
																			B14	FC	120	80	100	0	M6

Dimensions are in mm

¹⁾Tolerance DIN EN 50347 "j6"

²⁾Tolerance DIN EN 50347 "j6"

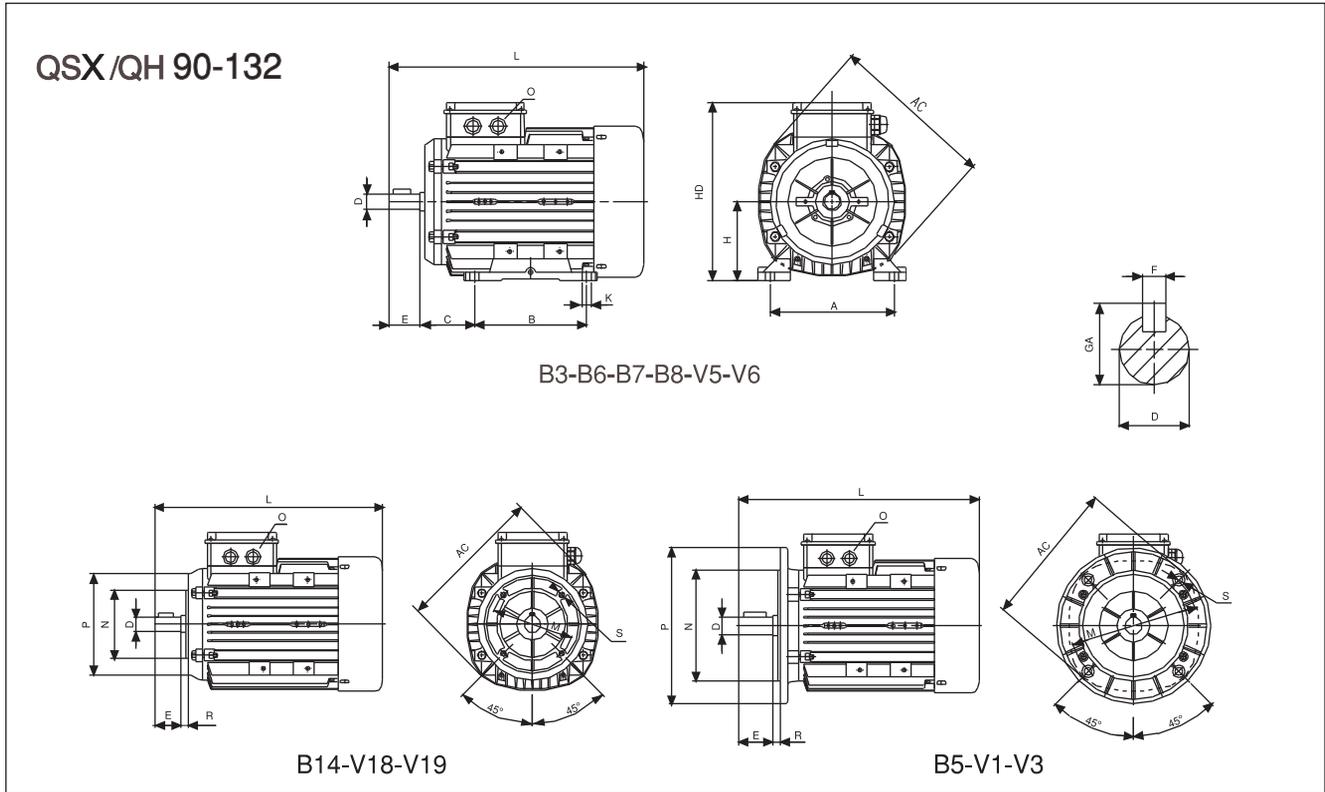
³⁾According to DIN 6885

⁴⁾Lifting bolt is mounted from frame size 112 on

⁵⁾IP55

THREE PHASE TYPES

DIMENSIONS



Frame ⁴⁾ Size	No. Of Poles	Main Dimensions			Foot Mounted Motors					Shaft			Bearing		Seal		Flange								
		AC	L	O	B	A	H	HD	K	C	D ¹⁾	E	GA	F ³⁾	Drive Side	Non Drive Side	Drive Side	Non Drive Side ⁵⁾	Mounting Type	Flange Type	P	N ²⁾	M	R	S
90 S/L	2...8	193	316.5	1*M25	100	140	90	241	10	56	24	50	27	8	6305-2Z	6205-2Z	25*40*7	25*40*7	B5	FA	200	130	165	0	12
					B14														FB	160	110	130	0	M8	
					B14														FC	140	95	115	0	M8	
100 L	2...8	217	352.0	1*M25	140	160	100	260	12	63	28	60	31	8	6306-2Z	6205-2Z	30*47*7	25*40*7	B5	FA	250	180	215	0	15
					B14														FB	200	130	165	0	M10	
					B14														FC	160	110	130	0	M8	
112 M	2...8	232	395.5	2*M25	140	190	112	280	12	70	28	60	31	8	6306-2Z	6206-2Z	30*47*7	30*47*7	B5	FA	250	180	215	0	15
					B14														FB	200	130	165	0	M10	
					B14														FC	160	110	130	0	M8	
132 S/M	2...8	279	475.5	2*M32	140	216	132	311	12	89	38	80	41	10	6208-2Z	6208-2Z	40*62*10	40*62*10	B5	FA	300	230	265	0	15
					B14														FC	200	130	165	0	M10	

Dimensions are in mm

¹⁾ Tolerance DIN EN 50347 "j6" up to $\phi 28$ mm, "k6" above $\phi 28$ mm

²⁾ Tolerance DIN EN 50347 "j6"

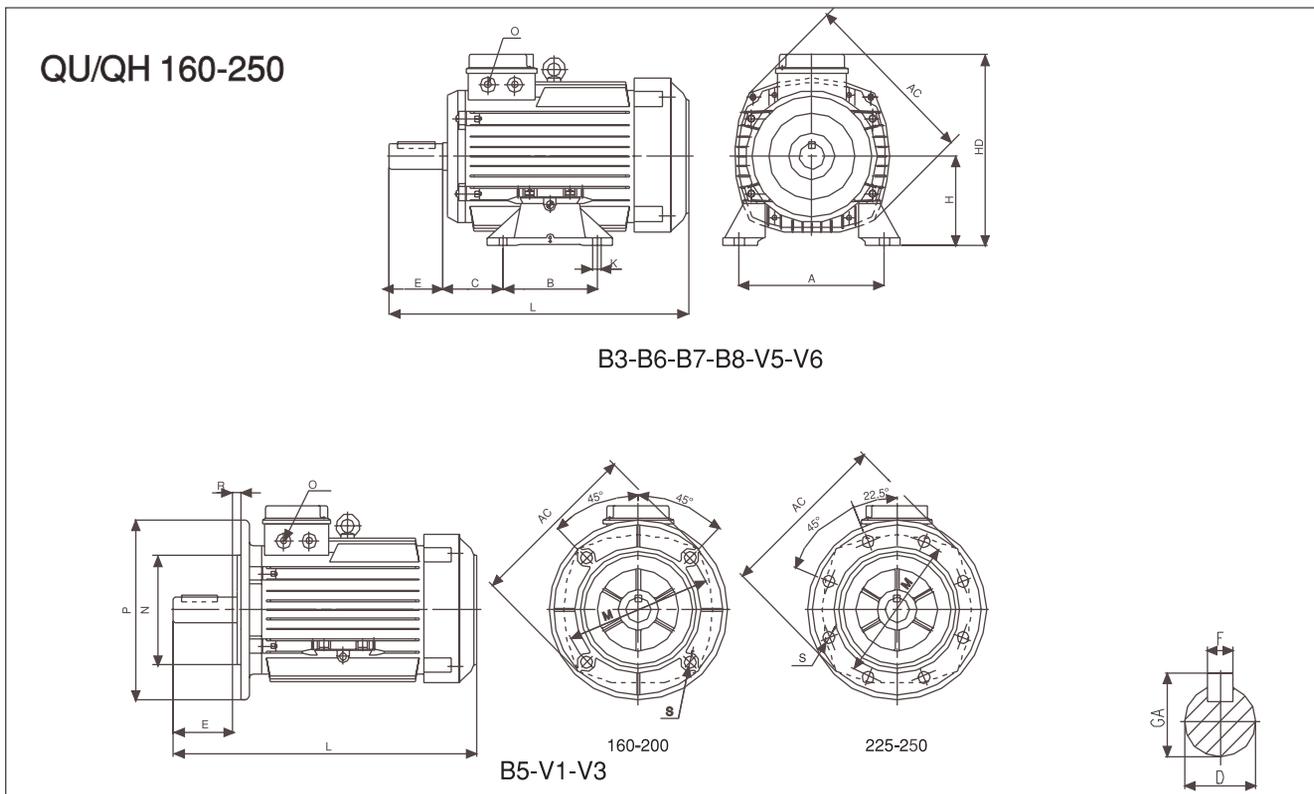
³⁾ According to DIN 6885

⁴⁾ Lifting bolt is mounted from frame size 112 on

⁵⁾ IP55

THREE PHASE TYPES

DIMENSIONS



Frame ⁴⁾ Size	No. Of Poles	Main Dimensions			Foot Mounted Motors					Shaft				Bearing		Seal		Flange							
		AC	L	O	B	A	H	HD	K	C	D ¹⁾	E	GA	F ³⁾	Drive Side	Non Drive Side	Drive Side	Non Drive Side ⁵⁾	Mounting Type	Flange Type	P	N ²⁾	M	R	S
160 M	2...8	323	586	2*M32	210	254	160	360	15	108	42	110	45.0	12	6309-2Z	6309-2Z	45*72*10	45*72*10	B5	FA	350	250	300	0	19
160 L	2...8	323	586	2*M32	254	254	160	360	15	108	42	110	45.0	12	6309-2Z	6309-2Z	45*72*10	45*72*10	B5	FA	350	250	300	0	19
180 M	2...8	370	629	2*M25	241	279	180	387	15	121	48	110	51.5	14	6310-2Z	6310-2Z	50*80*10	50*80*10	B5	FA	350	250	300	0	19
180 L	2...8	370	629	2*M25	279	279	180	387	15	121	48	110	51.5	14	6310-2Z	6310-2Z	50*80*10	50*80*10	B5	FA	350	250	300	0	19
200 L	2...8	415	665	2*M32	305	318	200	435	19	133	55	110	59.0	16	6312-2Z	6312-2Z	60*90*10	60*90*10	B5	FA	400	300	350	0	19
225 S	2 4...8	735 456	765	2*M40	286	356	225	485	19	149	55 60	110 140	59 64	16 18	6313-2Z	6313-2Z	65*100*13	65*100*13	B5	FA	450	350	400	0	19
225 M	2 4...8	735 456	765	2*M40	311	356	225	485	19	149	55 60	110 140	59 64	16 18	6313-2Z	6313-2Z	65*100*13	65*100*13	B5	FA	450	350	400	0	19
250	2	456	784	2*M40	349	406	250	510	24	168	60	140	64.0	18	6314 ⁶⁾	6313-2Z	70*112*12	65*100*13	B5	FA	550	450	500	0	19
250	4	456	784	2*M40	349	406	250	510	24	168	65	140	69.0	18	6315 ⁶⁾	6313-2Z	75*112*12	65*100*13	B5	FA	550	450	500	0	19

Dimensions are in mm

- 1) Tolerance DIN EN 50347 "k6" up to $\phi 48\text{mm}$, "m6" above $\phi 48\text{mm}$
- 2) Tolerance DIN EN 50347 "j6" up to $\phi 250\text{mm}$, "h6" above $\phi 250\text{mm}$
- 3) According to DIN 6885
- 4) Lifting bolt is mounted from frame size 112 on
- 5) IP55
- 6) External Lubrication

A. Mechanical

The motors are single phase totally enclosed, fan cooled with squirrel cage rotors in frame sizes IEC 63 to 90.

Construction Types

Foot mounted, flange-mounted and foot mounted with flange types are available for the above frame sizes.

Protection

The standard degree of protection is IP 55.

Bearings

Standard motors are equipped with ZZ deep groove ball bearings.

Shaft End

Motor shafts have tapped hole in the drive end according to DIN 6885-6888. Motors are delivered with keys.

Fan

Fans are made of durable synthetic material and the construction allows rotation in both directions.

Paint

Standard motors are painted in grey (RAL 7031)

B. Construction Details

Stator Frame

Motor frames are manufactured by high pressure die casting of aluminum alloy which is light, resistant to corrosion and mechanical shocks, also have excellent thermal conductivity.

Feet

Motor feet can be mounted on three sides, permitting terminal box assembly on the desired side.

Endshields

Endshields are made of aluminium. Fan covers are made of sheet steel.

Terminal Box

QM types have terminal boxes on top close to the drive end.

Capacitors

Motors use run capacitors.

C. Electrical Properties

Voltage and Frequency

The motors are normally designed for 230 V, 50 Hz. Other voltages and 60 Hz frequency is available.

Technical Data

The technical data given in the tables are valid for the following conditions;

- 230 V supply voltage
- 50 Hz frequency
- Max 40°C ambient temperature
- Altitudes up to 1000 m above the sea level.



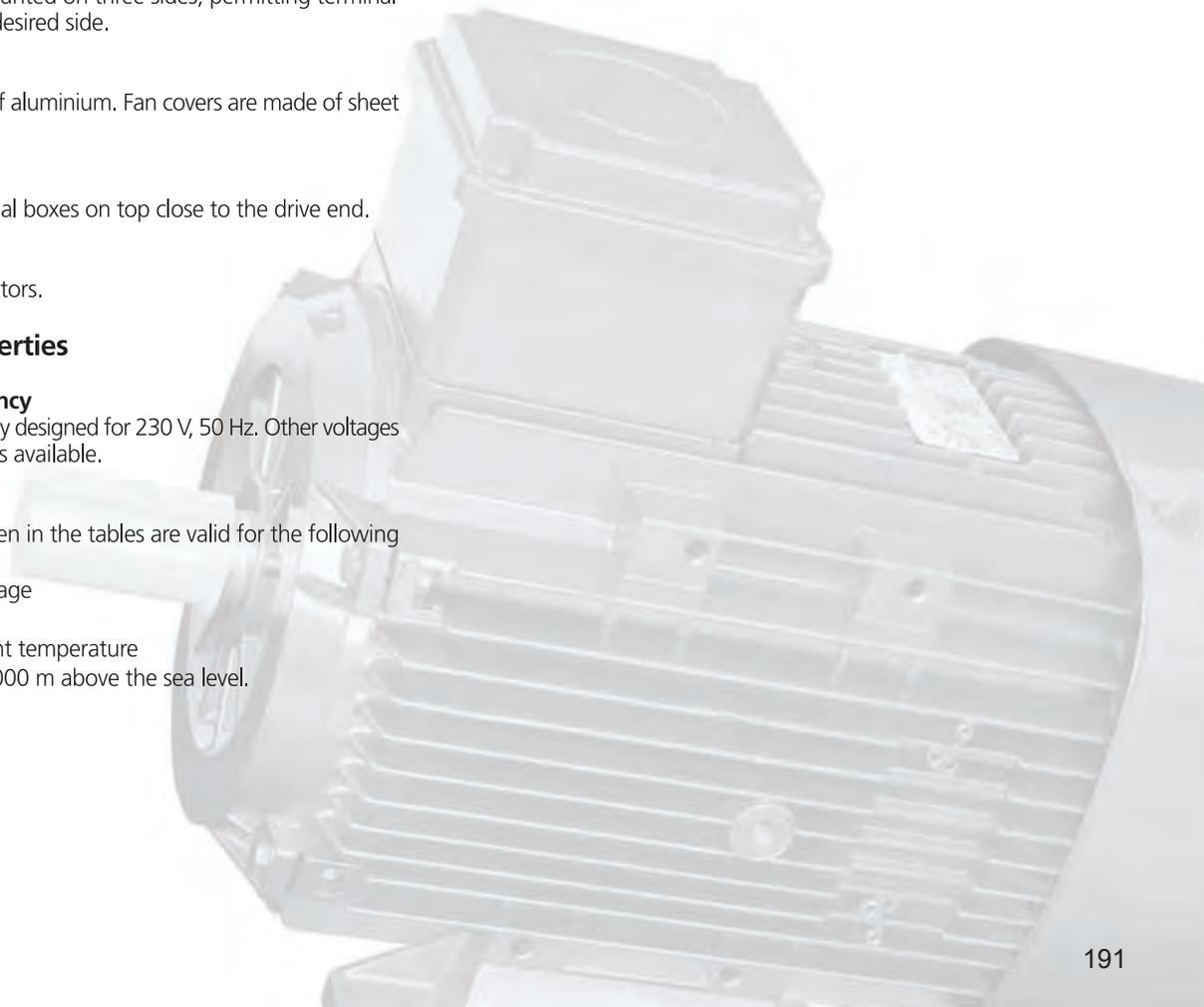
Insulation Class

The standard insulation class is F. For 40 °C ambient temperature, the maximum temperature rise is 100 Kelvin.

D. Special Constructions

The following special construction features are available upon request;

- Special shaft end and second shaft extension.
- Special flanges
- Other voltages and 60 Hz frequency
- Fixed bearing
- Condensation drainage
- Other colors



SINGLE PHASE - QM TYPE

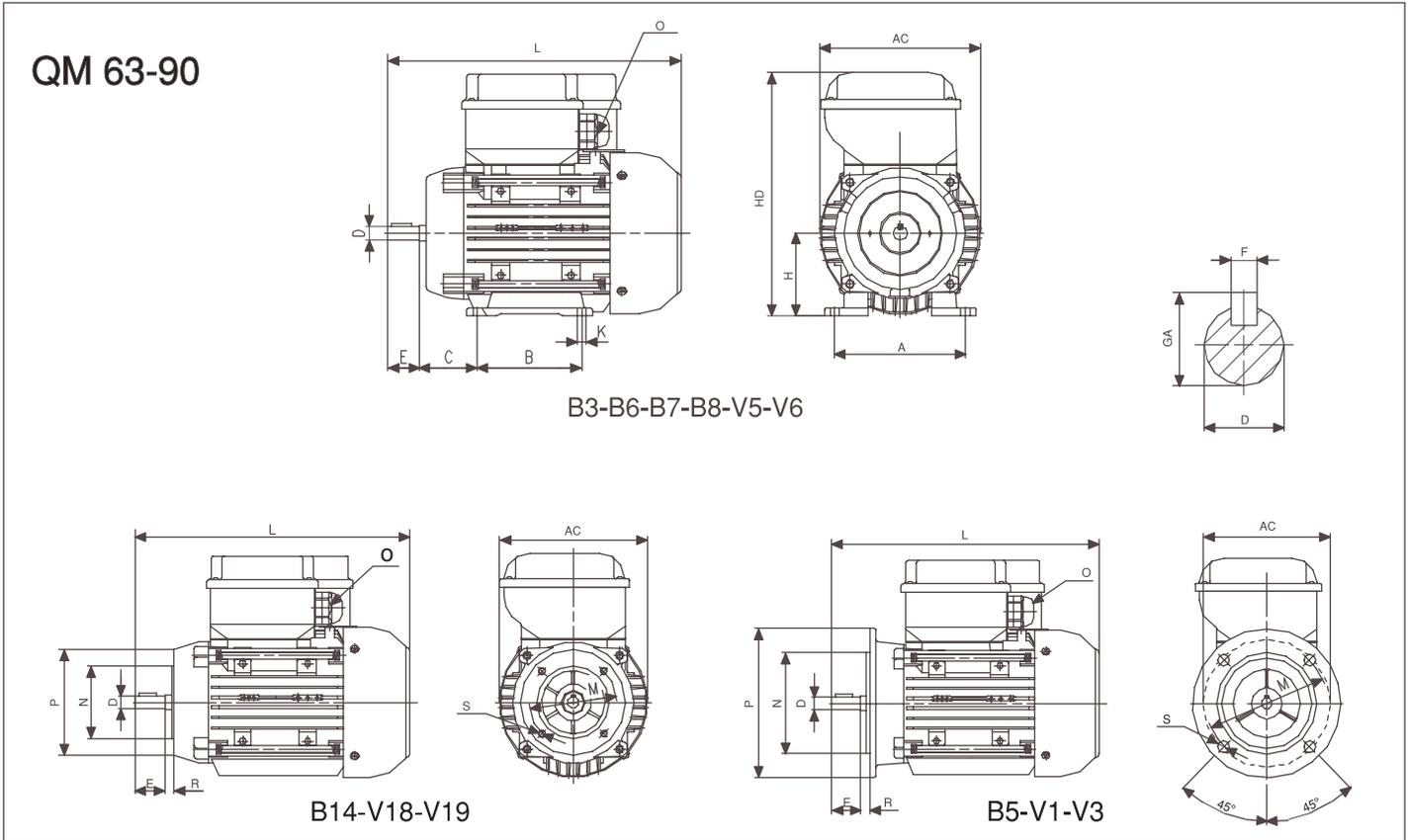
ELECTRICAL CHARACTERISTICS, AT 50 Hz

MOTOR TYPE	RATED VALUES					STARTING VALUES			% η	Cos ϕ	Capacitor mF	J kgm ²	kg	
	OUTPUT		SPEED min ⁻¹	CURRENT I _n 230V A	MOMENT Nm	CURRENT I _A / I _N	TORQUE M _A / M _N	Mk/Mn						
	HP	kW												
2 Pole 3000 min⁻¹														
220 V	QM 63M2B	1/3	0,25	2800	2,30	0,85	4,0	0,50	1,80	58	0,81	8	0,00021	6
	QM 63M2C	1/2	0,37	2800	2,80	1,26	4,0	0,50	1,70	61	0,94	15	0,00026	7
	QM 63M2D	3/4	0,55	2800	3,95	1,88	4,5	0,50	2,20	62	0,98	18	0,00030	7,5
	QM 71M2A	1/3	0,25	2780	1,85	0,86	5,0	0,70	2,20	63	0,93	12,5	0,00028	7
	QM 71M2B	1/2	0,37	2780	2,60	1,27	5,0	0,70	2,20	66	0,94	18	0,00035	8
	QM 71M2C	3/4	0,55	2780	4,10	1,89	5,0	0,70	2,20	67	0,87	20	0,00040	9
	QM 71M2D	1	0,75	2780	4,80	2,56	5,0	0,50	2,20	72	0,94	25	0,00051	9
	QM 80M2A	3/4	0,55	2800	3,95	1,88	4,0	0,80	2,10	64	0,95	20	0,00092	10
	QM 80M2B	1	0,75	2800	4,95	2,56	4,0	0,70	2,10	68	0,97	25	0,00107	11
	QM 80M2C	1,5	1,1	2800	7,60	3,75	5,0	0,65	2,00	69	0,91	30	0,00126	12
	QM 90S2A	1,5	1,1	2800	7,60	3,75	5,0	0,65	2,10	72	0,87	30	0,00119	14
	QM 90L2A	2	1,5	2810	10,0	5,10	5,0	0,65	2,15	74	0,88	40	0,00152	16
QM 90L2C	3	2,2	2750	14,5	7,64	5,0	0,55	2,10	73	0,90	50	0,00172	17	

4 Pole 1500 min⁻¹														
220 V	QM 71M4A	1/4	0,18	1390	1,50	1,24	3,5	0,70	1,90	55	0,95	12,5	0,00071	7
	QM 71M4B	1/3	0,25	1390	2,00	1,72	4,0	0,70	2,00	59	0,92	15	0,00095	8
	QM 71M4C	1/2	0,37	1390	2,75	2,54	4,0	0,65	1,55	64	0,91	20	0,00107	10
	QM 80M4A	1/2	0,37	1390	2,80	2,54	4,0	0,70	1,55	68	0,84	20	0,00167	11
	QM 80M4B	3/4	0,55	1390	3,80	3,78	4,0	0,65	1,55	69	0,91	25	0,00204	12
	QM 80M4C	1	0,75	1370	5,00	5,23	3,2	0,65	1,55	69	0,95	30	0,00229	13
	QM 90S4A	1	0,75	1400	5,50	5,12	5,0	0,60	1,80	69	0,86	30	0,00238	15
	QM 90L4A	1,5	1,1	1400	8,00	7,50	5,0	0,60	1,80	69	0,87	40	0,00309	16
	QM 90L4C	2	1,5	1400	10,50	10,23	5,0	0,55	1,60	69	0,90	50	0,00351	17

SINGLE PHASE - QM TYPE

DIMENSIONS



Frame ⁴⁾ Size	Frame ⁴⁾ Size	No. Of Poles	Main Dimensions			Foot Mounted Motors						Shaft		Bearing		Seal		Flange								
			AC	L	O	B	A	H	HD	K	C	D ¹⁾	E	GA	F ³⁾	Drive Side	Non Drive Side	Drive Side	Non Drive Side ⁵⁾	Mounting Type	Flange Type	P	N ²⁾	M	R	S
QM63M2B	63 M	2	123	219,5	1*M20	80	100	63	182	7	40	11	23	12.5	4	6201-2Z	6201-2Z	12*22*7	12*22*7	B5	FA	140	95	115	0	10
																				B14	FB	120	80	100	0	M6
																				B14	FC	90	60	75	0	M5
QM63M2C QM63M2D	63 M	2	123	233,5	1*M20	80	100	63	182	7	40	11	23	12.5	4	6201-2Z	6201-2Z	12*22*7	12*22*7	B5	FA	140	95	115	0	10
																				B14	FB	120	80	100	0	M6
																				B14	FC	90	60	75	0	M5
QM71M2A QM71M2B QM71M2C QM71M4A QM71M4B QM71M4C	71 M	2...4	138	252,5	1*M20	90	112	71	198	7	45	14	30	16.0	5	6202-2Z	6202-2Z	15*24*5	15*24*5	B5	FA	160	110	130	0	10
																				B14	FB	140	95	115	0	M8
																				B14	FC	105	70	85	0	M6
QM71M2D	71 M	2	138	262,5	1*M20	90	112	71	198	7	45	14	30	16.0	5	6202-2Z	6202-2Z	15*24*5	15*24*5	B5	FA	160	110	130	0	10
																				B14	FB	140	95	115	0	M8
																				B14	FC	105	70	85	0	M6
80 M	80 M	2...4	158	283,5	1*M20	100	125	80	215	10	50	19	40	21.5	6	6204-2Z	6204-2Z	20*30*7	20*30*7	B5	FA	200	130	165	0	12
																				B14	FB	160	110	130	0	M8
																				B14	FC	120	80	100	0	M6
90 S/L	90 S/L	2...4	193	316,5	1*M20	100	140	90	241	10	56	24	50	27	8	6305-2Z	6205-2Z	25*40*7	25*40*7	B5	FA	200	130	165	0	12
						125														B14	FB	160	110	130	0	M8
						125														B14	FC	140	95	115	0	M8

Dimensions are in mm

1) Tolerance DIN EN 50347 "j6"

2) Tolerance DIN EN 50347 "j6"

3) According to DIN 6885

4) Lifting bolt is mounted from frame size 112 on

5) IP55

BRAKE MOTOR - QB TYPE

TECHNICAL DOCUMENTATION

Mechanical and electrical properties are the same as QSX type motors.

Nondrive endshields are made of cast-iron.

Drive endshields are made of aluminium.

Brake Specifications

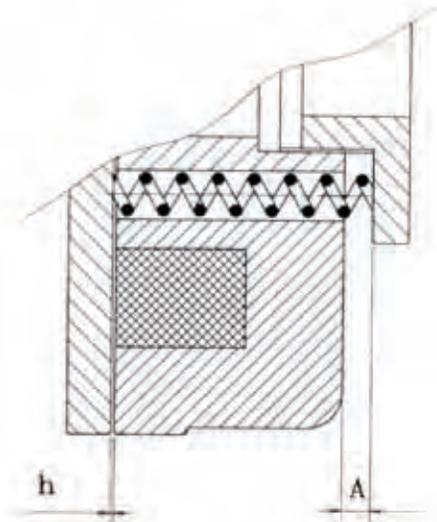
DC electromagnetic brakes with a safety-design are used in brake motors. Different brake voltages are available upon request.

Working Principle

When the supply fails, the springs make the armature plate press the brake disk and then motor automatically starts braking. When the brake being supplied, electromagnet pulls the armature plate then both the brake-disk and motor shaft are set free.

Brake Disk

Asbestos-free brake material is used with long-life friction rings.



Air-Gap

Ideal air-gap values "h" are given in the table on the right-hand side. The maximum acceptable air-gap value can be 0,7 mm. If this value exceeded, the brake's performance will vary.

Switching Times

The switching times are given in the table. These values are subject to change according to load characteristics.

Rectifier Bridge

Half wave rectifier is used as standard in motors. By using fast type rectifier, it is possible to get fast switch on times which is shown on the table.

The 24V DC brake motors are supplied without rectifier.

Special Constructions

The following special construction class features are possible upon request;

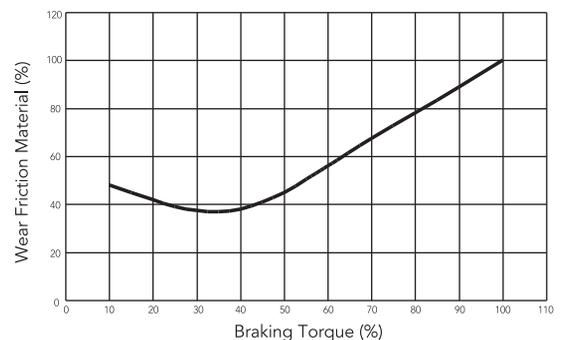
- Special shaft end
- Special flanges
- Different type bearings
- Fixed bearing
- Different voltages and 60 Hz frequency
- Condensation drainage
- External lubrication system
- Special paint or other colors
- AC or DC type electromagnetic brake



Braking Torque

Braking torque can be adjusted by ring. In the table shown below, you will find the distance "A" in order to obtain the braking torque requested. The variation in the wear of friction material which is subject to change in braking torque is given below.

Type	Distance between Adjusting-ring and Electromagnet: "A" (in mm)									"A"
	9	8	7	6	5	4	3	2	1	
QB 63	-	-	-	0.3	0.1	1.7	2.4	3.1	3.8	4.5
QB 71	-	-	-	-	0.8	2.2	3.7	5.1	6.6	8
QB 80	-	-	-	-	0.1	32	5.4	7.6	9.8	12
QB 90	-	-	-	-	-	1.6	5.2	8.8	12.4	16
QB 100	3.5	7.0	14.5	14.0	17.5	21.0	24.5	28.0	31.5	35
QB 112	-	4.0	11.0	18.0	25.0	32.0	39.0	46.0	53.0	60
Braking Torque Value (Nm)										Max. Torque (Nm)



Type	QB63	QB71	QB80	QB90	QB100	QB112
Ideal Air-Gap (mm)	0.2	0.2	0.2	0.2	0.3	0.3

Type	Normal Switch-off time ms	Normal Switch-on time ms	Fast Switch-on time ms
QB63	10	45	20
QB71	15	50	30
QB80	15	55	30
QB90	15	65	40
QB100	20	75	45
QB112	25	180	85

BRAKE MOTOR - QB TYPE

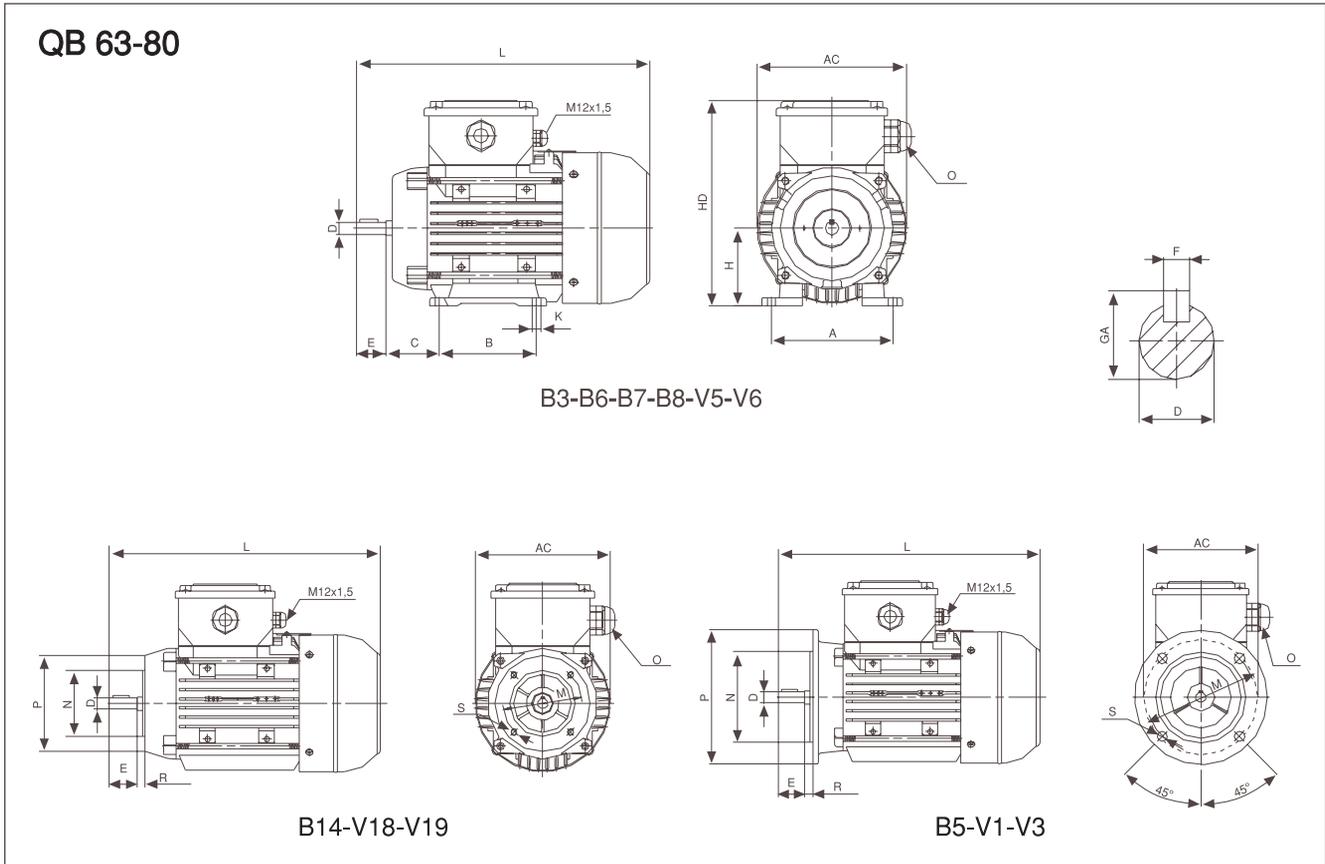
ELECTRICAL CHARACTERISTICS, AT 50 Hz

MOTOR TYPE	RATED VALUES					STARTING VALUES					Mk/Mn	% η			BRAKE Max. Torque Nm	J kgm ²	Sound pressure Level dBA
	OUTPUT		SPEED min ⁻¹	CURRENT A	MOMENT Nm	CURRENT I _A / I _N		TORQUE M _A / M _N		3/4		4/4	4/4	Cos ϕ			
	HP	kW				∧	Δ	∧	Δ								
2 Pole 3000 min⁻¹																	
230/400 V	QB 63M2A	1/4	0,18	2800	0,51	0,62	4,20	-	2,3	-	2,4	63	64	0,80	4,5	0,00017	52
	QB 63M2B	1/3	0,25	2800	0,66	0,86	4,20	-	2,2	-	2,3	66	67	0,82	4,5	0,00022	52
	QB 71M2A	1/2	0,37	2800	0,93	1,27	4,30	-	2,0	-	2,4	67	68	0,84	8	0,00028	54
	QB 71M2B	3/4	0,55	2820	1,32	1,87	5,00	-	2,2	-	2,5	69	71	0,85	8	0,00036	54
	QB 80M2A	1,0	0,75	2840	1,70	2,53	5,20	-	2,2	-	2,6	72	74	0,86	12	0,00088	58
	QB 80M2B	1,5	1,1	2850	2,40	3,69	6,00	-	2,6	-	2,9	75	77,3	0,86	12	0,00109	58
	QB 90S2A	2	1,5	2850	3,20	5,02	5,50	-	2,7	-	2,9	78,5	79,5	0,85	16	0,00130	62
	QB 90L2A	3	2,2	2850	4,5	7,37	5,90	-	2,8	-	3,0	80	82,0	0,86	16	0,00164	62
	QB 100L2A	4	3	2880	6	9,95	6,20	-	2,8	-	3,2	82	83,5	0,86	35	0,00243	64
400/690 V	QB 112M2A	5,5	4	2890	7,5	13,21	2,00	6,3	0,75	2,8	3,2	84	85,3	0,90	60	0,00399	67
4 Pole 1500 min⁻¹																	
230/400 V	QB 63M4A	1/6	0,12	1365	0,50	0,84	2,8	-	2,0	-	2,3	53	56	0,62	4,5	0,00020	41
	QB 63M4B	1/4	0,18	1380	0,70	1,25	3,2	-	2,2	-	2,4	57	60	0,62	4,5	0,00025	41
	QB 71M4A	1/3	0,25	1390	0,80	1,72	3,5	-	2,2	-	2,4	63	65	0,69	8	0,00072	45
	QB 71M4B	1/2	0,37	1390	1,12	2,55	4,0	-	2,3	-	2,6	68	69	0,69	8	0,00096	45
	QB 80M4A	3/4	0,55	1400	1,50	3,76	4,0	-	2,1	-	2,3	71	72	0,74	12	0,00168	49
	QB 80M4B	1,0	0,75	1400	1,96	5,12	4,2	-	2,1	-	2,2	73	74	0,75	12	0,00206	49
	QB 90S4A	1,5	1,1	1410	2,65	7,45	5,0	-	2,4	-	2,5	76	77,0	0,78	16	0,00245	54
	QB 90L4A	2,0	1,5	1415	3,53	10,16	5,0	-	2,4	-	2,7	79,0	80,0	0,77	16	0,00324	54
	QB 100L4A	3,0	2,2	1420	4,80	14,79	5,2	-	2,5	-	2,7	81	82	0,81	35	0,00400	56
	QB 100L4B	4,0	3,0	1430	6,40	20,04	5,3	-	2,5	-	2,7	82	83	0,82	35	0,00474	56
400/690 V	QB 112M4B	5,5	4,0	1445	8,50	26,44	1,9	5,7	0,69	2,6	3,0	84	85	0,80	60	0,00938	58
6 Pole 1000 min⁻¹																	
230/400 V	QB 71M6A	1/4	0,18	900	0,78	1,91	3,0	-	2,2	-	2,4	55	58	0,57	8	0,00068	42
	QB 71M6B	1/3	0,25	910	0,90	2,63	3,1	-	2,2	-	2,4	61	63	0,64	8	0,00090	42
	QB 80M6A	1/2	0,37	920	1,25	3,84	3,3	-	2,1	-	2,4	65	67	0,64	12	0,00160	49
	QB 80M6B	3/4	0,55	920	1,80	5,71	3,2	-	2,1	-	2,5	68	70	0,63	12	0,00196	49
	QB 90S6A	1,0	0,75	925	2,20	7,75	3,5	-	1,9	-	2,0	71	72	0,68	16	0,00257	51
	QB 90L6B	1,5	1,10	935	3,10	11,24	4,0	-	2,0	-	2,2	73	74	0,69	16	0,00330	51
	QB 100L6A	2,0	1,50	940	4,10	15,24	4,2	-	2,1	-	2,5	79	75	0,70	35	0,00465	53
	QB 112M6A	3,0	2,20	950	5,4	22,12	5,2	-	2,1	-	2,5	79	79	0,74	60	0,00921	58

* The 2 and 4 pole in the 1,1 kw to 55 kw output range correspond with the EU "EFF2" efficiency classification.

BRAKE MOTOR-QB TYPE

DIMENSIONS



Frame ⁴⁾ Size	No. Of Poles	Main Dimensions			Foot Mounted Motors					Shaft				Bearing		Seal		Flange							
		AC	L	O	B	A	H	HD	K	C	D ¹⁾	E	GA	F ³⁾	Drive Side	Non Drive Side	Drive Side	Non Drive Side ⁵⁾	Mounting Type	Flange Type	P	N ²⁾	M	R	S
63 M	2...8	123	278,5	1*M20	80	100	63	174	7	40	11	23	12,5	4	6201-2Z	6201-2Z	12*22*7	12*22*7	B5	FA	140	95	115	0	10
																			B14	FB	120	80	100	0	M6
																			B14	FC	90	60	75	0	M5
71 M	2...8	138	314,5	1*M20	90	112	71	190	7	45	14	30	16,0	5	6202-2Z	6202-2Z	15*24*5	15*24*5	B5	FA	160	110	130	0	10
																			B14	FB	140	95	115	0	M8
																			B14	FC	105	70	85	0	M6
80 M	2...8	158	347,5	1*M20	100	125	80	207	10	50	19	40	21,5	6	6204-2Z	6204-2Z	20*30*7	20*30*7	B5	FA	200	130	165	0	12
																			B14	FB	160	110	130	0	M8
																			B14	FC	120	80	100	0	M6

Dimensions are in mm

¹⁾Tolerance DIN EN 50347 "j6" up to $\phi 28$ mm, "k6" above $\phi 28$ mm

²⁾Tolerance DIN EN 50347 "j6"

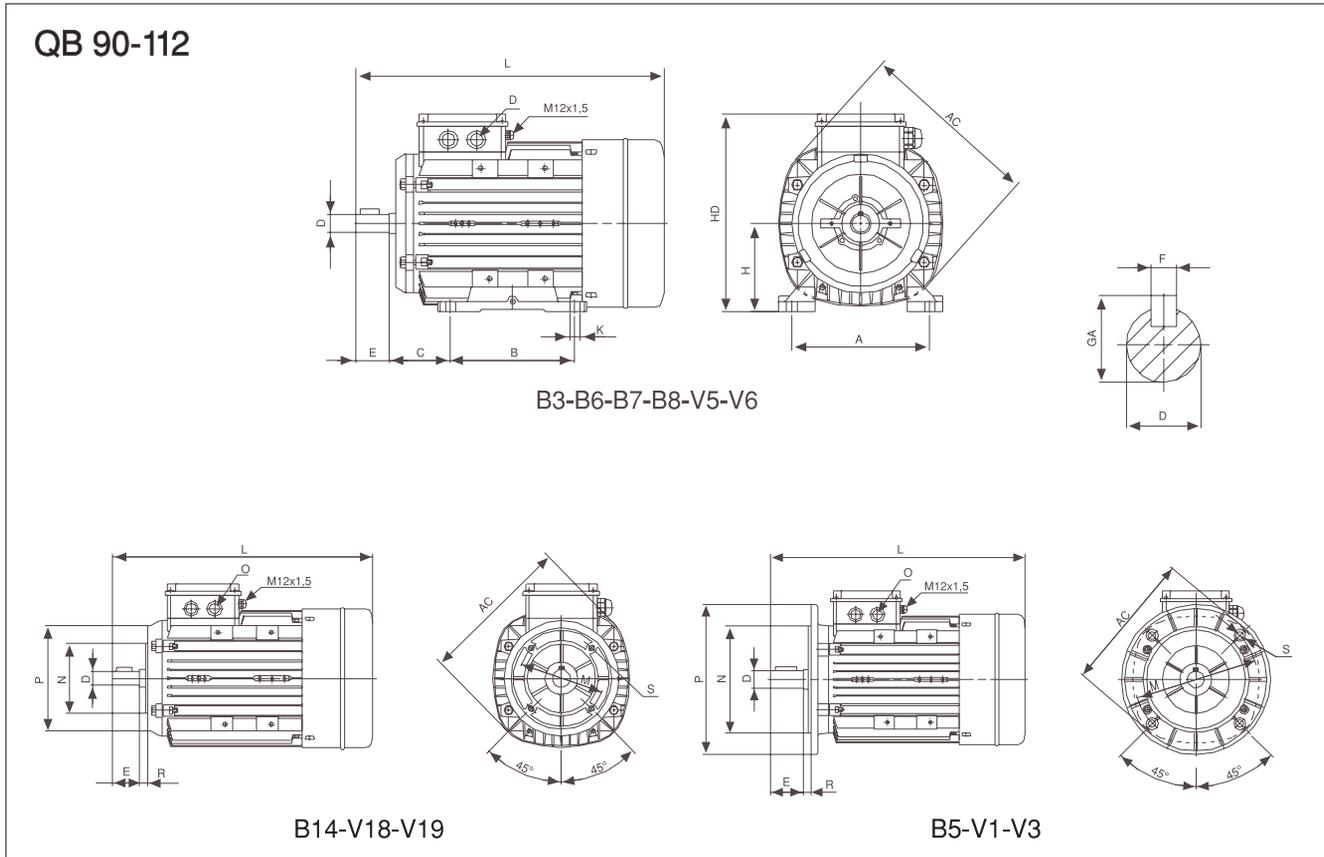
³⁾According to DIN 6885

⁴⁾Lifting bolt is mounted from frame size 112 on

⁵⁾Optional

BRAKE MOTOR - QB TYPE

DIMENSIONS



Frame ⁴⁾ Size	No. Of Poles	Main Dimensions			Foot Mounted Motors					Shaft				Bearing		Seal		Flange							
		AC	L	O	B	A	H	HD	K	C	D ¹⁾	E	GA	F ³⁾	Drive Side	Non Drive Side	Drive Side	Non Drive Side ⁵⁾	Mounting Type	Flange Type	P	N ²⁾	M	R	S
90 S/L	2...8	193	385,5	1*M25	100	140	90	241	10	56	24	50	27	8	6305-2Z	6205-2Z	25*40*7	25*40*7	B5	FA	200	130	165	0	12
					B14														FB	160	110	130	0	M8	
					B14														FC	140	95	115	0	M8	
100 L	2...8	217	432,0	1*M25	140	160	100	260	12	63	28	60	31	8	6306-2Z	6205-2Z	30*47*7	25*40*7	B5	FA	250	180	215	0	15
					B14														FB	200	130	165	0	M10	
					B14														FC	160	110	130	0	M8	
112 M	2...8	232	475,5	2*M25	140	190	112	280	12	70	28	60	31	8	6306-2Z	6206-2Z	30*47*7	30*47*7	B5	FA	250	180	215	0	15
					B14														FB	200	130	165	0	M10	
					B14														FC	160	110	130	0	M8	

Dimensions are in mm

1) Tolerance DIN EN 50347 "j6" up to $\phi 28$ mm, "k6" above $\phi 28$ mm

2) Tolerance DIN EN 50347 "j6"

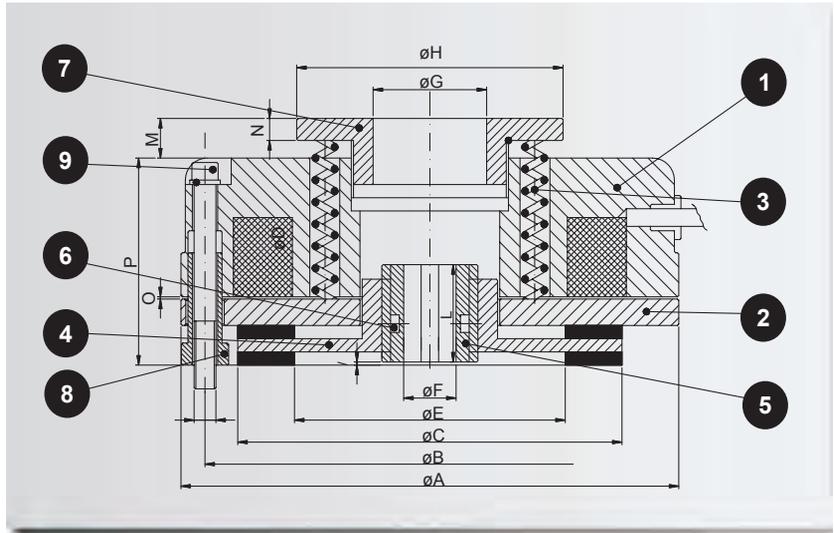
3) According to DIN 6885

4) Lifting bolt is mounted from frame size 112 on

5) Optional

BRAKE PART LIST AND PROPERTIES

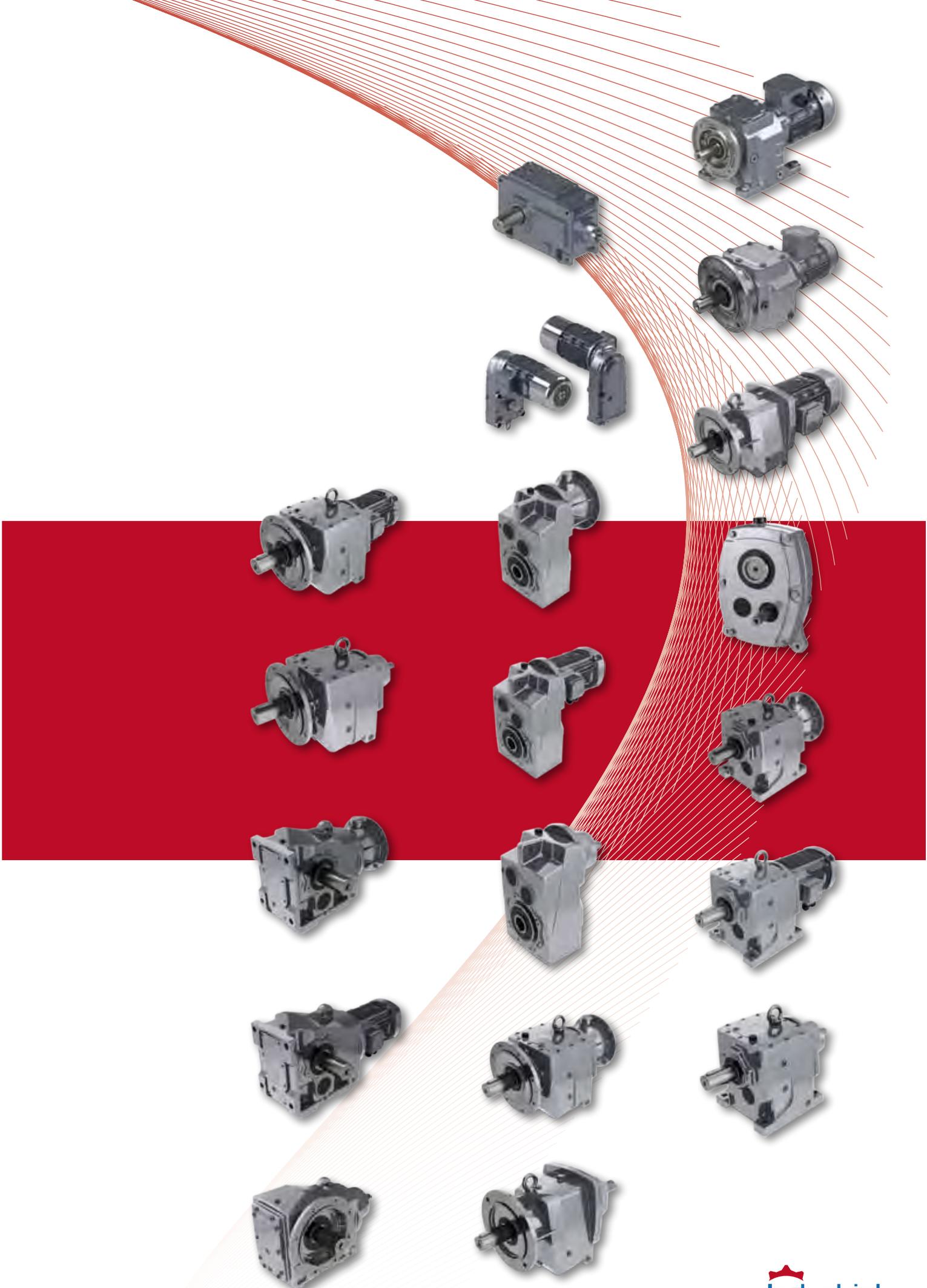
- 1 Electromagnet
- 2 Armature plate
- 3 Torque springs
- 4 Disc
- 5 Splined hub
- 6 O-ring
- 7 Adjuster ring
- 8 Adjuster nuts
- 9 Fixing screws



Typo Brake Model	K1	K2	K3	K4	K5	K6	K7	K7/D	K8	K8/D	K9	K9/D	K9/T	
Static Braking Torque (Nm)	5	12	16	20	40	60	90	180	200	400	300	600	900	
Max Speed of the motor (rpm)	3000	3000	3000	3000	3000	3000	3000	3000	1500	1500	1500	1500	1500	
Input Power (W)	15	20	25	30	45	50	55	55	60	60	65	65	65	
Max noisiness (≤dB-A)	68	69	68	69	70	70	70	70	70	69	69	69	70	
Weight (Kg.)	1,1	1,85	2,55	2,84	4,8	7	12	15	14,3	18	23	28	34	
A	84	104	114	124	148	159	189	189	218	218	248	248	248	
B	72	90	103	112	132	145	170	170	196	196	230	230	230	
C	61	77	88	98	119	128	151	151	176	176	204	204	204	
D	3xM4	3xM5	3xM5	3xM6	3xM6	3xM8	3xM8	3xM8	6xM10	6xM10	6xM10	6xM10	9xM10	
E	35	44	62	69	79	80	90	90	103	103	132	132	132	
Tolerance hole till size K3 H7, others +0,01/-0,01	F	10-11 12	11-14 15	11-15	14-25	24-25 28	25-30 34	25-30 34	25 H40 34 H60	24-34	34 H60 48	44-45 48	44-45 48	44-45 48-50
G	20	26	26	42	60	60	60	60	60	60	60	60	60	
H	50	61	61	79	104	104	104	104	104	104	104	104	104	
I	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
L	18	20	20	20	25	30	30	60	40	60	40	60	80	
M (max)	9	9	9	9,5	18	16	14	14	18	18	18	18	18	
N	4	4	4	5,5	8	8	8	8	8	8	8	8	8	
O	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3	0,3	0,4	0,4	0,4	0,4+0,5	
P	38,5	41,5	47	46,5	64	69,5	79	101,5	78	98	80	105	130	

Note

- The brake before running in, the static braking torque value could change by +20% from the reported value.





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