teknobend

Makina & Endüstriyel Ürünler

PLANET REDÜKTÖR
PLANETARY GEAR-BOX

SESAME

RoHS SESAME MOTOR CORP.

c UL us Cert.No.E209009

CE

ISO9001

ISO14001

PLANET REDÜKTÖR ÇEŞİTLERİ
PLANETARY GEAR-BOX TYPES

	Output Shaft Mil Çıkışlı
Ultra Precision Type (Helical Gear) Ultra Hassas Tip (Helis Dişli)	★ **PHL** Series High Precision Yüksek Hassasiyet **PGH** Series High Performance Yüksek Performans ★ **PUL** Series High Radial Load Yüksek Radyal Yük Dayanımı
Precision Type (Helical Gear) Hassas Tip (Helis Dişli)	★ **PGLH** Series
Precision Type (Spur Gear) Hassas Tip (Düz Dişli)	**PGL** Series ★ **PGC** Series ★ **PGE** Series **PEC** Series **PEE** Series ★ **PEL** Series
Standart Type (Spur Gear) Standart Tip (Düz Dişli)	★ **PAC** Series ★ **PAE** Series ★ **PAN** Series (NEMA) ★ **PGS** Series ★ **PNS** Series
Primary Type (Spur Gear) Başlangıç Tip (Düz Dişli)	**PBC** Series High Ratio (max. i=1000) Yüksek Tahvil Oranı ★ **PBE** Series High Ratio (max. i=1000) Yüksek Tahvil Oranı

★ İşaretli ürünler sipariş üzerine temin edilecektir.

★ Marked products will be supplied on request.

Output Flange Flanş Çıkışlı	Right Angle 90° Dereceli	
★ **PHF** Series	★ **PHFR** Series	★ **PUR** Series
PGF Series	★ **PGFR** Series	★ **PGRH** Series
		PGR Series

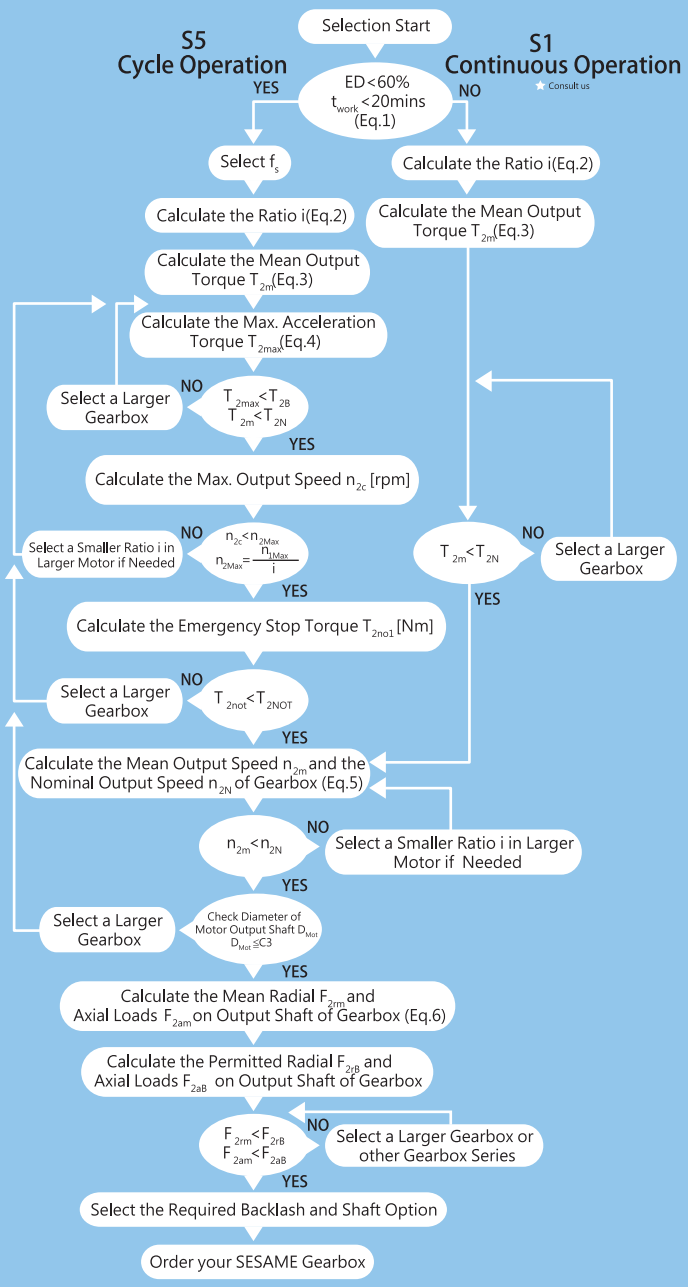
★ İşaretli ürünler sipariş üzerine temin edilecektir.

★ Marked products will be supplied on request.

Optimum Redüktör Seçimi

SELECTION OF THE OPTIMUM GEARBOX

Selection of the Optimum Gearbox



Recommended (for S5 Cycle Operation)

The general design is given for

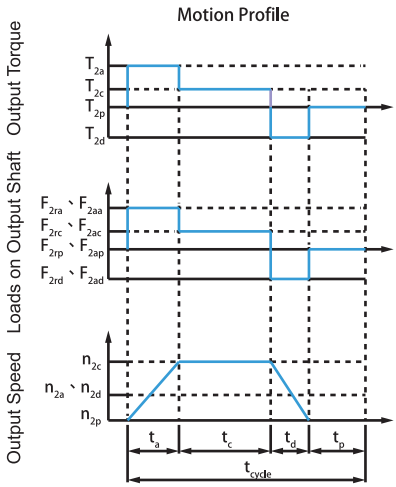
$\frac{J_L}{i^2} \leqq 4 \times J_m$

The optimal design is given for

$\frac{J_L}{i^2} \leqq J_m$

J_L Load Inertia

J_m Motor Inertia



1. $ED = \frac{t_{work}}{t_{cycle}} \times 100\%,\ t_{work} = t_a + t_c + t_d$

Index：a. Acceleration, c. Constant, d. Deceleration, p. Pause (Eq.1)

2. $i \cong \frac{n_m}{n_{work}}$

n_m Output Speed of the Motor

n_{work} Working Speed (Eq.2)

3. $T_{2m} = \sqrt[3]{\frac{n_{2a} \times t_a \times T_{2a}^3 \times n_{2c} \times t_c \times T_{2c}^3 + n_{2d} \times t_d \times T_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$ (Eq.3)

4. $T_{2max} = T_{mB} \times i \times f_s \times \eta$

Where f_s is

f_s	No. of Cycles / hr
1.0	0 ~ 1,000
1.1	1,000 ~ 1,500
1.3	1,500 ~ 2,000
1.6	2,000 ~ 3,000
1.8	3,000 ~ 5,000

T_{mB} Max. Output Torque of the Motor

η Efficiency of the Gearbox (Eq.4)

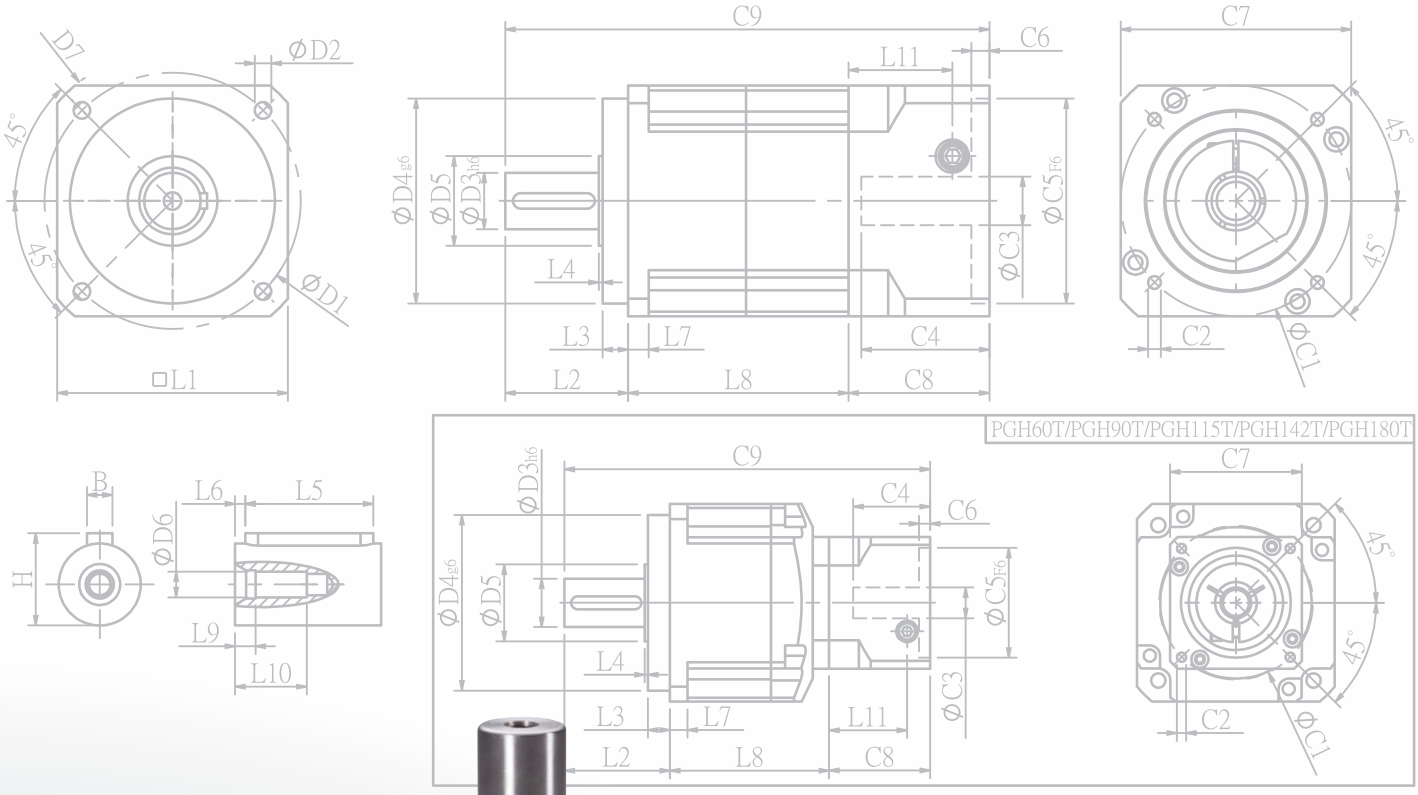
5. $n_{2a} = n_{2d} = \frac{1}{2} \times n_{2c}$

$n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a + t_c + t_d}$

$n_{2N} = \frac{n_{1N}}{i}$ (Eq.5)

6. $F_{2rm} = \sqrt[3]{\frac{n_{2a} \times t_a \times F_{2ra}^3 \times n_{2c} \times t_c \times F_{2rc}^3 + n_{2d} \times t_d \times F_{2rd}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$

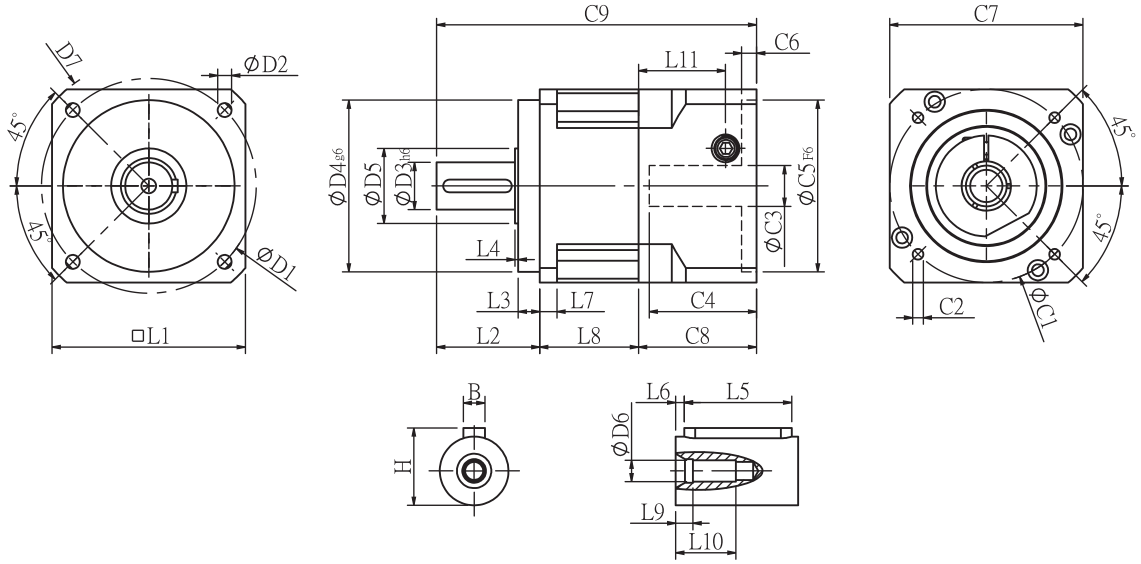
$F_{2am} = \sqrt[3]{\frac{n_{2a} \times t_a \times F_{2aa}^3 \times n_{2c} \times t_c \times F_{2ac}^3 + n_{2d} \times t_d \times F_{2ad}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$ (Eq.6)


D7
ØD2
45°
45°
ØD1
□L1
C9
C6
L11
ØD4g6
ØD5
ØD3h6
L4
L3
L7
L2
L8
C4
C8
ØC5F6
ØC3
C7
45°
45°
C2
ØC1
B
H
L6
L5
ØD6
L9
L10
PGH60T/PGH90T/PGH115T/PGH142T/PGH180T
ØD3h6
C9
C4
C6
ØD4g6
ØD5
ØC5F6
L4
L3
L7
L11
L2
L8
C8
ØC3
C7
45°
45°
C2
ØC1

SESAME
PGH
SESAME MOTOR
PGH60-10
MADE IN TAIWAN

PGH SERIES

PGH Tek Kademe Ölçüleri
PGH Single Stage Dimensions



Özellikler Specifications

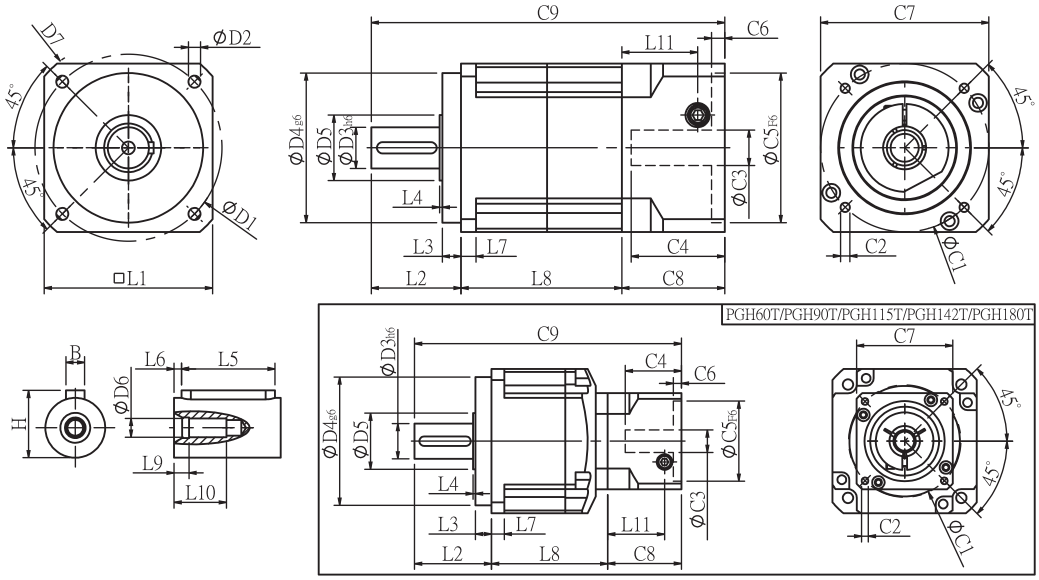
Birim:mm Unit:mm

Liste Fiyatı List price	407,37$	458,42$	610,91$	803,63$	1.256,42$	2.155,61$	4.259,31$
Ölçüler Dimensions	PGH42 - P0	PGH60 - P0	PGH90 - P0	PGH115 - P0	PGH142 - P0	PGH180 - P0	PGH220 - P0
D1	50	70	100	130	165	215	250
D2	3.4	5.5	6.5	8.5	10.5	13	17
D3 h6	13	16	22	32	40	55	75
D4 g6	35	50	80	110	130	160	180
D5	15	25	35	45	50	70	114.4
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	56	80	118	148	186	239	292
L1	42.6	60	90	115	142	182	220
L2	26	37	48	63	91.5	100.5	138
L3	5.5	7	10	10	10	16	30
L4	1	1.5	1.5	3.5	2.5	2.5	3
L5	15	25	32	40	60	70	90
L6	2	2	3	5	5	6	7
L7	4	6	8	11	16	18	20
L8	28.3	37	46	57	75.5	94	111
L9	4	4	4.5	6	6	8	15
L10	14	16.5	20.5	30	38	48	42
L11	29	35.5	40.5	42	63	69.5	96
C1 [2]	46	70	90	115	145	200	235
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 [2]	≦8/≦11	≦14	≦19/≦24	≦24/≦32	≦35/≦38	≦50	≦ 55
C4 [2]	27	37	47	56	66.5	82	112
C5 [2] F6	30	50	70	95	110	114.3	200
C6 [2]	4	4	6	10	6	13	6
C7 [2]	42.6	60	90	115	140	180	220
C8 [2]	38.5	46	55	63	80	95	120
C9 [2]	92.8	120	149	183	247	289.5	369
B	5	5	6	10	12	16	20
H	15	18	24.5	35	43	59	79.5

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

* Fiyat P0 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P0 Class. Please contact with us for different precision class.

PGH Çift Kademe Ölçüleri
PGH Double Stage Dimensions



Özellikler Specifications

Birim:mm Unit:mm

Liste Fiyatı List price	618,50$	707,46$	683,59$	918,48$	863,58$	1.192,60$	1.654,78$	2.740,38$	5.515,03$
Ölçüler Dimensions	PGH42 - P0	PGH60 - P0	PGH60T - P0	PGH90 - P0	PGH90T - P0	PGH115T - P0	PGH142T - P0	PGH180T - P0	PGH220T - P0
D1	50	70		100		130	165	215	250
D2	3.4	5.5		6.5		8.5	10.5	13	17
D3 h6	13	16		22		32	40	55	75
D4 g6	35	50		80		110	130	160	180
D5	15	25		35		45	50	70	114.4
D6	M4x0.7P	M5x0.8P		M8x1.25P		M12x1.75P	M16x2.0P	M20x2.5P	M20x1.5P
D7	56	80		118		148	186	239	292
L1	42.6	60		90		115	142	182	220
L2	26	37		48		63	91.5	100.5	138
L3	5.5	7		10		10	10	16	30
L4	1	1.5		1.5		3.5	2.5	2.5	3
L5	15	25		32		40	60	70	90
L6	2	2		3		5	5	6	7
L7	4	6		8		11	16	18	20
L8	55.3	70	65.5	86	78.5	99.5	127.5	166	202
L9	4	4		4.5		6	6	8	15
L10	14	16.5		20.5		30	38	48	42
L11	29	35.5	29	40.5	35.5	40.5	42	63	74
C1 [2]	46	70	46	90	70	90	115	145	200
C2 [2]	M4x0.7P	M5x0.8P	M4x0.7P	M6x1.0P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 [2]	≦8/≦11	≦14	≦8/≦11	≦19/≦24	≦14	≦19/≦24	≦24/≦32	≦35/≦38	≦ 50
C4 [2]	27	37	27	47	37	47	56	66.5	81
C5 [2] F6	30	50	30	70	50	70	95	110	114.3
C6 [2]	4	4	4	6	4	6	10	6	6
C7 [2]	42.6	60	42.6	90	60	90	115	140	180
C8 [2]	38.5	46	38.5	55	46	55	63	80	93
C9 [2]	119.8	153	141	189	172.5	217.5	282	346.5	433
B	5	5		6		10	12	16	20
H	15	18		24.5		35	43	59	79.5

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown).Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

* Fiyat P0 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P0 Class. Please contact with us for different precision class.

PGH Özellik Tablosu
PGH Specifications Table

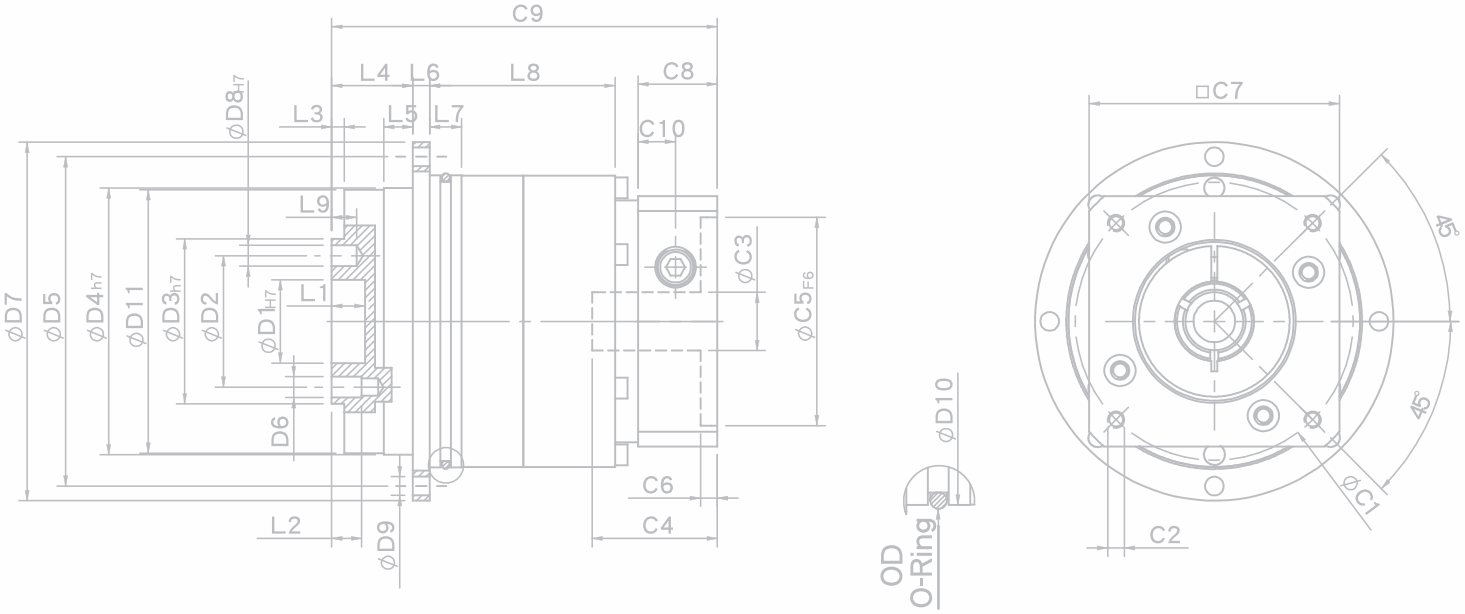
Özellikler Specifications		Kademe Stage	Tahvil Oranı Ratio	PGH-42	PGH-60	PGH-90	PGH-115	PGH-142	PGH-180	PGH-220
Nominal Çıkış Torku Nominal Output Torque T_{2N}	N • m	1	3	19	53	145	290	520	950	1100
			4	20	55	150	300	550	1000	1700
			5	17	54	140	290	530	1050	2000
			6	15	46	135	280	490	1000	1850
			7	14	44	125	270	450	960	1750
			8	12	41	110	240	390	900	1550
			9	11	37	95	220	360	800	1500
			10	11	37	95	220	360	800	1450
		Kademe Stage	Tahvil Oranı Ratio	PGH-42	PGH-60 (T)	PGH-90(T)	PGH-115T	PGH-142T	PGH-180T	PGH-220T
		2	15	19	53	145	290	520	950	2000
			20	20	55	150	300	550	1000	2000
			25	17	54	140	290	530	1050	2000
			30	17	54	140	290	530	1050	2000
			35	17	54	140	290	530	1050	2000
			40	17	54	140	290	530	1050	2000
			45	17	54	140	290	530	1050	2000
			50	17	54	140	290	530	1050	2000
			60	15	46	135	280	490	1000	1850
			70	14	44	125	270	450	960	1750
			80	12	41	110	240	390	900	1550
			90	11	37	95	220	360	800	1500
			100	11	37	95	220	360	800	1450
Acil Durdurma Torku Emergency Stop Torque T_{2NOT}	N • m		3.0 Normal Çıkış Torku Maksimum Çıkış Torku T2b =%60x Acil Durdurma Tork 3.0 times of Nominal Output Torque (*Max. Output Torque T_{2B}=60% of Emergency Stop Torque)							
Normal Giriş Hızı Nominal Input Speed n_{1N}	rpm	1,2	3-100	5000	5000	4000	4000	3000	3000	2000
Maksimum Giriş Hızı Max. Input Speed n_{1max}	rpm	1,2	3-100	10000	10000	8000	8000	6000	6000	4000
Mikro Boşluk Oranı P0 Micro Backlash P0	arcmin	1	3-10	≦2	≦2	≦2	≦1	≦1	≦1	≦1
		2	12-100	≦4	≦4	≦4	≦3	≦3	≦3	≦3
Hassas Boşluk Oranı P1 Precision Backlash P1	arcmin	1	3-10	≦4	≦4	≦4	≦3	≦3	≦3	≦3
		2	12-100	≦6	≦6	≦6	≦5	≦5	≦5	≦5
Standart Boşluk Oranı P2 Standard Backlash P2	arcmin	1	3-10	≦6	≦6	≦6	≦5	≦5	≦5	≦5
		2	12-100	≦8	≦8	≦8	≦7	≦7	≦7	≦7
Burulma Dayanımı Torsional Rigidity	N • m /arcmin	1,2	3-100	2.5	6	12	23	45	75	130
Maksimum Radyal Yükleme Max. Radial Load F_{2rB} [1]	N	1,2	3-100	760	1570	2780	5340	8400	13000	13810
Maksimum Eksenel Yükleme Max. Axial Load F_{2aB} [1]	N	1,2	3-100	410	750	1870	3310	4670	6460	18530
Çalışma Sıcaklığı Operating Temp.	°C		3-100	-10 °C ~+90 °C						
Çalışma Ömrü Service Life	hr		3-100							
Verimlilik Efficiency	%	1	3-10	≧97%						
		2	12-100	≧94%						
Ağırlık Weight	kg	1	3-10	0.6	1.3	3.5	7.8	16.1	27	55
		2	12-100	0.9	2.0/1.6	5.6/3.9	9.5	19	34	68.5
Pozisyonlama Hassasiyeti Mounting Position	-	1,2	3-100	Her Yön						
Çalışma Sesi Noise Level [2]	dBA/1m	1,2	3-100	56	58	60	63	65	67	70
Koruma Sınıfı Protection Class	-	1,2	3-100	IP65						
Yağlama Lubrication	-	1,2	3-100	Sentetik Yağ Synthetic Lubricant						

Eylemsizlik Momenti Synthetic Lubricant

Kademe Stage	Tahvil Oranı Ratio		PGH-42	PGH-60	PGH-90	PGH-115	PGH-142	PGH-180	PGH-220
1	3	Kg • cm²	0.03	0.23	0.97	2.35	10.00	30.50	79.50
	4		0.02	0.18	0.67	1.66	7.17	25.86	58.21
	5		0.02	0.17	0.65	1.50	6.52	23.63	54.36
	6/7/8		0.02	0.14	0.60	1.45	6.17	22.92	54.12
	9/10		0.02	0.14	0.58	1.41	6.10	22.73	53.98
Kademe Stage	Tahvil Oranı Ratio		PGH-42	PGH-60(T)	PGH-90(T)	PGH-115T	PGH-142T	PGH-180T	PGH-220T
2	15/20/25		0.02	0.17(0.02)	0.65(0.17)	0.65	1.50	6.52	23.63
	30/35/40		0.02	0.14(0.02)	0.60(0.14)	0.60	1.45	6.17	22.92
	45/50/60/70/80/90/100		0.02	0.14(0.02)	0.58(0.14)	0.58	1.41	6.10	22.73

* 1. 100 d/dk da çıkış mili merkezine uygulanan değer
* 2. 3000 d/dk da yüksüz ölçülen değerdir
※ Yukarıdaki özellikler bildirim yapılmaksızın değiştirilebilir

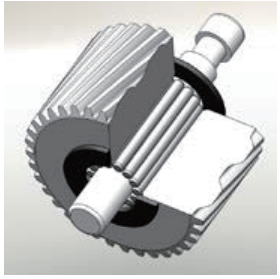
* 1. Applied to the output shaft center @100rpm.
* 2. Measured at 3000rpm with no load
※ The above figures/specifications are subject to change without prior notice.


C9
L4
L6
L8
C8
L3
L5
L7
C10
ØD8H7
L9
L1
ØD7
ØD5
ØD4h7
ØD11
ØD3h7
ØD2
ØD1H7
D6
ØC3
ØC5F6
C6
C4
L2
ØD9
ØD10
OD
O-Ring
□C7
45°
45°
ØC1
C2

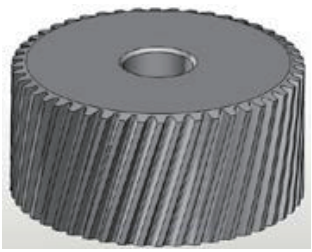
SESAME
PGF
SESAME MOTOR
PGF60-10
Arcmin P2
MADE IN TAIWAN
510-140107056-001

PGF SERIES

PGF SERİSİ ÖZELLİKLER
PGF SERIES FEATURES

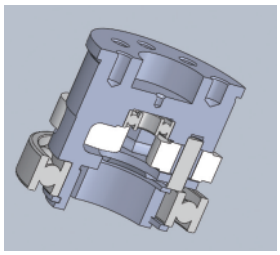


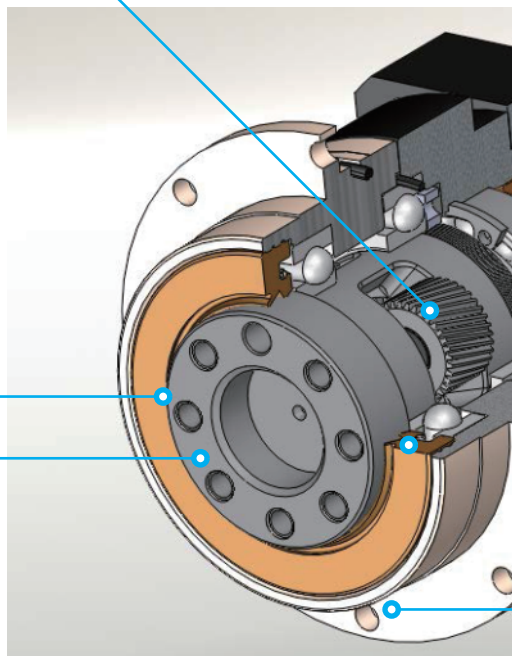
Isıl işlem uygulanmış alaşımlı çelik dişlidir buna ek olarak, en iyi doğruluğu, yüksek aşınma dayanımı ve yüksek darbe tokluğunu elde etmek için dişli taşlama işlemi uygulanmıştır.
Alloy steel gear with unique heat treatment. Additionally, with gear grinding processing to get the best accuracy, high wear resistance and high impact toughness.



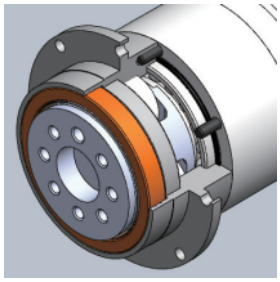
İğneli rulmanlar ile donatılmış, tutucu olmadan hizalanan iğneli rulman yatakları, azami pozlama elde ederken en küçük boşluk toleranslarına ulaşır.

Planet gear transmission interface equipped with needle bearings, full needle roller bearings aligned without retainer achieve maximum exposure but smallest gap tolerances. Enhance over-all gear structure rigid and output torque.





Planet kol ve çıkış mili tek bir parça olarak birleştirilmiştir, bu sayede rulmanlar geniş aralık değerlerinde rijitliği sağlayarak maximum eksenel yükleme kapasitesi sağlar.
Planetary arm bracket and output shaft are one-piece constructed, setting bearing apart for larger span to reach the largest reverse rigid and contribute high axis radial load capacity.

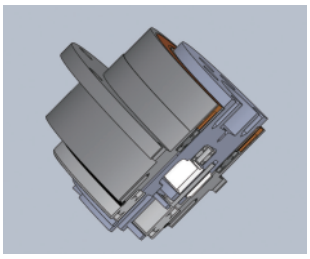


Çıkış mili üzerinde bulunan yağ sızdırmazlığı , çalışma hızının azalması ve redüktör çalışma ömrünün uzamasını sağlar.

Grinding process to smooth surface of output shaft, and with oil-seal to minimum friction coefficient and reducing start up load; result in the best seal-ability and extended lifespan. Hollow out-put shaft connects perfectly with circular flange drastically reducing the installation space.

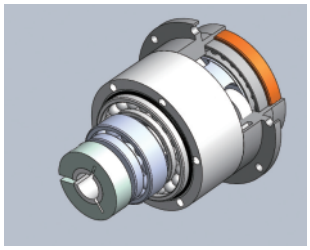
PGF serisi genel tasarımları yüksek giriş hızı ve maximum çıkış torkuna olanak sağlar. oyuk çıkış mili dairel flanş ile birleştirilerek kurulum alanını azaltır. hassas dişli tasarımı ve diş işlemesi sayesinde düşük boşluk oranı, yüksek verimlilik, düşük çalışma sesi ve uzun ömürlü çalışmaya olanak sağlayan planet redüktörlerdir.

PGF Series overall design suitable for combination operation with servo motor high-speed input and achieves maximum torque output. Hollow out-put shaft connects perfectly with circular flange drastically reducing the installation space.
Precision gear design and gear processing create a planetary gearhead with low backlash operation, high efficiency, low noise and long lifespan.



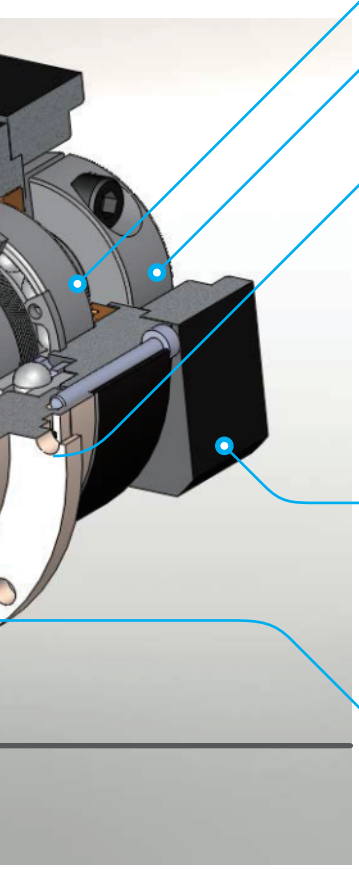
İletim bileşenlerinin merkezciliğini sağlamak için tasarlanmış genel mekanik yapıda güneş dişlisi yatağı doğrudan redüktör koluna yerleştirilir.

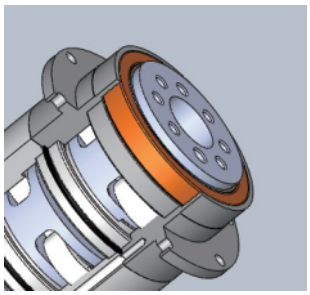
The sun gear bearing is placed directly into the planetary arm bracket, the overall mechanical structure designed to ensure concentricity of the transmission components.



Giriş ucu ve motor mili, dinamik balans yakası sıkıştırma mekanizması vasıtasıyla bağlanır ve böylece bağlantı arayüzü eş merkezliliği ve yüksek hızda sıfır kaymalı güç iletimi sağlar.

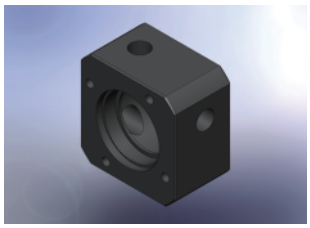
Input-end and motor shaft are coupled through a dynamic balanced collar clamping mechanism to ensure connection interface concentricity and zero slip power transmission at high speed.





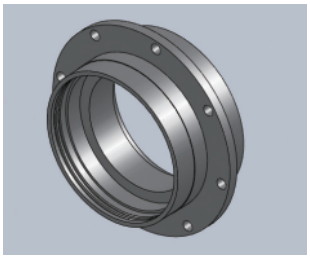
Ip65 koruma sınıfı sızıntıyı tam olarak önlemiyor ve bakım gerektirmiyorsa, üst dudak üzerinde bulunan yağ keçesi sayesinde alt dudağa yağ sızıntısı önlenir.

High-tech oil seal design on the upper lip guard against dust intruder, lower lip to guard against oil leak. Protection grade IP65 safeguards fully avoid leaking problem, and given it maintenance-free.



Giriş mili burcu ile birleştirilmiş gelişmiş motor flanş tasarımı, herhangi bir servo veya step motora kolayca monte edilebilir.

Advanced motor bracket design coupled with the input shaft bushing is easy to mount to any servo or stepper motor.

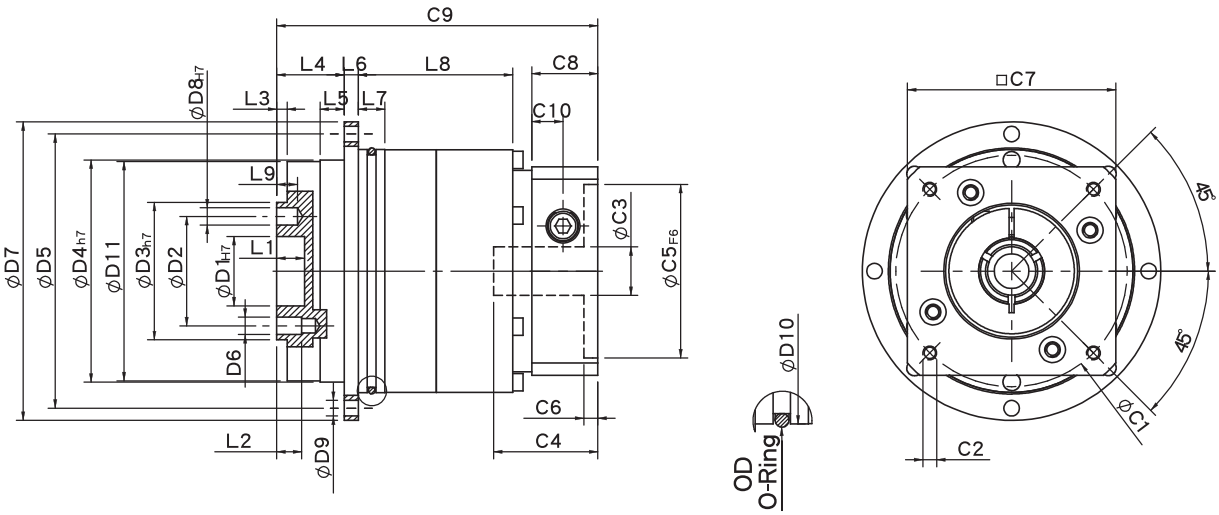


Dişli çarkı ve dişli kutusu tek parça halindedir, yüksek hassasiyet, yüksek tork ve aşınma tüketimini sağlamak için gelişmiş Alman dişli şekillendirici makinesiyle işlenir. yüzeyinde ki nikel kaplama sayesinde korozyona ve çizilmelere karşı dayanıklıdır.

Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment.

The gear box and internal gear ring are one-piece constructed, and then processed with advanced Germany gear shaper machinery for high-precision, high torque and abrade consumption.

PGF Tek Kademe Ölçüleri
PGF Single Stage Dimensions



Özellikler Specifications

Birim:mm Unit:mm

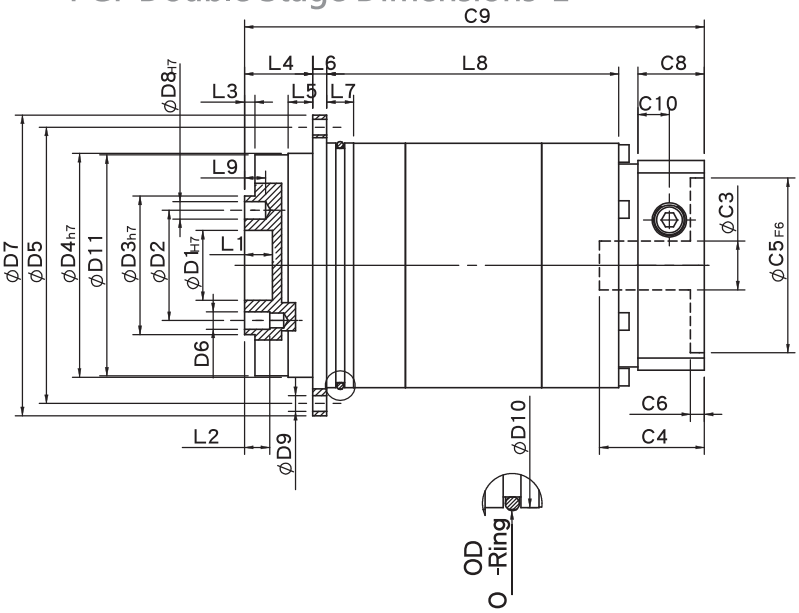
Liste Fiyatı List price	392,32$	463,20$	643,65$	768,41$
Ölçüler Dimensions	PGF42 - P2	PGF60 - P2	PGF90 - P2	PGF115 - P2
D1 H7	12	20	31.5	40
D2	20	31.5	50	63
D3 h7	28	40	63	80
D4 h7	47	64	90	110
D5	67	79	109	135
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P
D7	72	86	118	145
D8 H7	3	5	6	6
D9	3.4	4.5	5.5	5.5
D10	60	70	95	120
D11	46.2	63.2	89.2	109.2
L1	4	8	12	12
L2	6	7.2	12	13.5
L3	3	3	6	6
L4	19.5	19.5	29	29
L5	7	7	10	10
L6	4	4	7	8
L7	5	7.7	8	10
L8	25	29.5	35	50.5
L9	4	6	7	7
C1 [2]	46	70	90	115
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P
C3 [2]	≦8/≦11	≦14	≦19/≦24	≦24/≦32
C4 [2]	28.1	36.5	41.2	51.1
C5 [2] F6	30	50	70	95
C6 [2]	4	4	6.7	6
C7 [2]	42	60	90	115
C8 [2]	16.5	19	25.5	30
C9 [2]	74.8	84.5	104.5	127.5
C10 [2]	7.4	9	11.3	13.9
OD	56x2	66x2	90x3	110x3

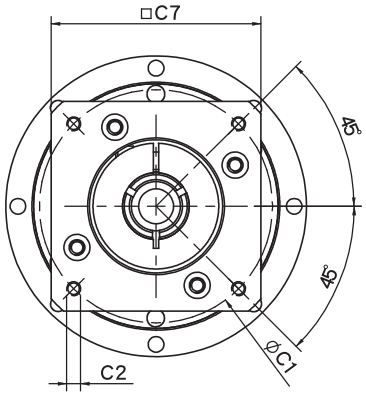
★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

* Fiyat P2 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P2 Class. Please contact with us for different precision class.

PGF Çift Kademe Ölçüleri-1

PGF Double Stage Dimensions-1





Özellikler Specifications

Birim:mm Unit:mm

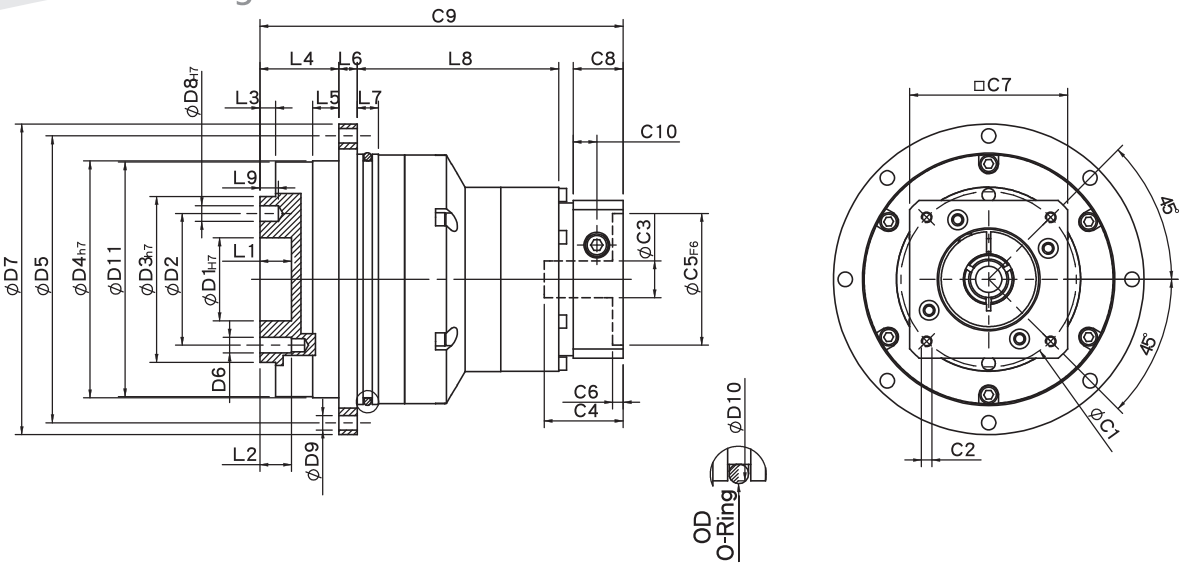
Liste Fiyatı List price	568,44$	710,14$	937,68$
Ölçüler Dimensions	PGF42 - P2	PGF60 - P2	PGF90 - P2
D1 H7	12	20	31.5
D2	20	31.5	50
D3 h7	28	40	63
D4 h7	47	64	90
D5	67	79	109
D6	M3x0.5P	M5x0.8P	M6x1.0P
D7	72	86	118
D8 H7	3	5	6
D9	3.4	4.5	5.5
D10	60	70	95
D11	46.2	63.2	89.2
L1	4	8	12
L2	6	7.2	12
L3	3	3	6
L4	19.5	19.5	29
L5	7	7	10
L6	4	4	7
L7	5	7.7	8
L8	54.5	68.5	80
L9	4	6	7
C1 [2]	46	70	90
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P
C3 [2]	≦8	≦14	≦19/≦24
C4 [2]	28.1	36.5	41.2
C5 [2] F6	30	50	70
C6 [2]	4	4	6.7
C7 [2]	42	60	90
C8 [2]	16.5	19	25.5
C9 [2]	102.5	123.5	148.6
C10 [2]	7.4	9	11.3
OD	56x2	66x2	90x3

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

* Fiyat P2 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P2 Class. Please contact with us for different precision class.

PGF Çift Kademe Ölçüleri-2

PGF Double Stage Dimensions-2



Özellikler Specifications

Birim:mm Unit:mm

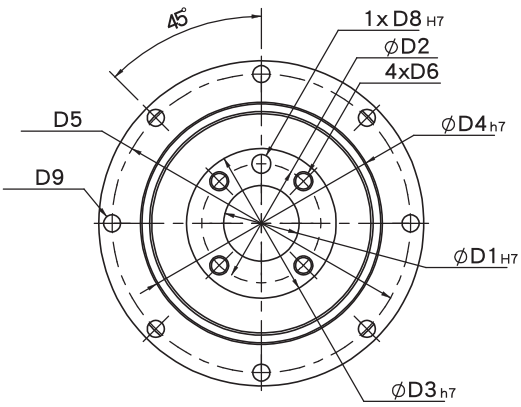
Liste Fiyatı List price	712,26$	913,72$	1.191,58$
Ölçüler Dimensions	PGF60T - P2	PGF90T - P2	PGF115T - P2
D1 H7	20	31.5	40
D2	31.5	50	63
D3 h7	40	63	80
D4 h7	64	90	110
D5	79	109	135
D6	M5x0.8P	M6x1.0P	M6x1.0P
D7	86	118	145
D8 H7	5	6	6
D9	4.5	5.5	5.5
D10	70	95	120
D11	63.2	89.2	109.2
L1	8	12	12
L2	7.2	12	13.5
L3	3	6	6
L4	19.5	29	29
L5	7	10	10
L6	4	7	8
L7	7.7	8	10
L8	61.2	68	89.5
L9	6	7	7
C1 [2]	46	70	90
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P
C3 [2]	≦8/≦11	≦14	≦19/≦24
C4 [2]	28.1	36.5	41.7
C5 [2] F6	30	50	70
C6 [2]	4	4	6.7
C7 [2]	42	60	90
C8 [2]	16.5	19	25.5
C9 [2]	109.2	135.5	159.1
C10 [2]	7.4	9	11.3
OD	66x2	90x3	110x3

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

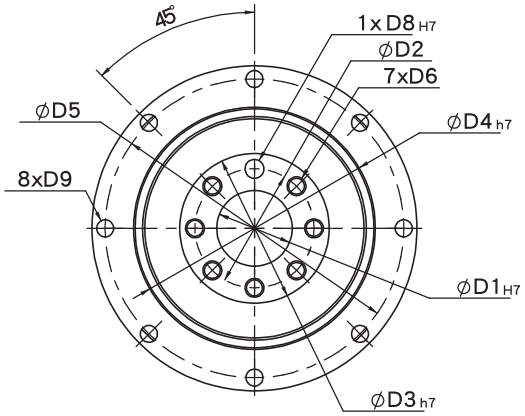
* Fiyat P2 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P2 Class. Please contact with us for different precision class.

PGF Flanş Ölçüleri
PGF Flange Dimensions

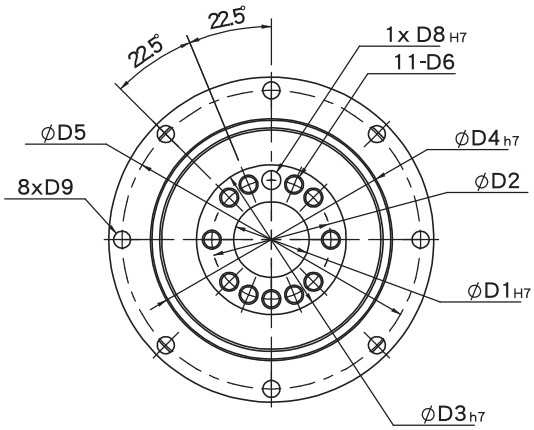
PGF42



PGF60
PGF90



PGF115



Özellikler Specifications

Birim:mm Unit:mm

Ölçüler Dimensions	PGF42	PGF60	PGF90	PGF115
D1 H7	12	20	31.5	40
D2	20	31.5	50	63
D3 h7	28	40	63	80
D4 h7	47	64	90	110
D5	67	79	109	135
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P
D8 H7	3	5	6	6
D9	3.4	4.5	5.5	5.5

★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir
★ Specification subject to change without notice.

PGF Özellik Tablosu

PGF Specifications Table

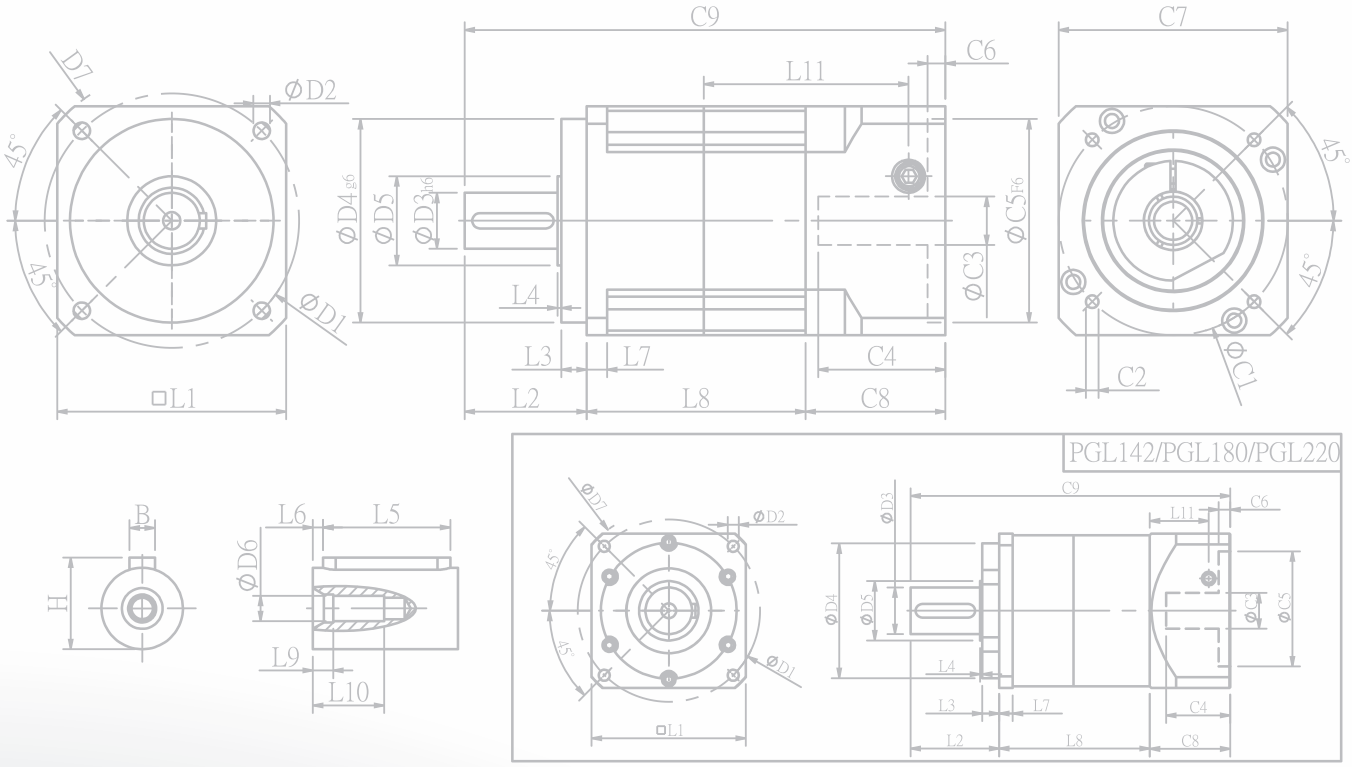
Özellikler Specifications		Kademe Stage	Tahvil Oranı Ratio	PGF-42	PGF-60	PGF-90	PGF-115
Nominal Çıkış Torku Nominal Output Torque T_{2N}	N • m	1	3	-	40	105	180
			4	16	43	110	240
			5	17	50	130	290
			7	14	44	125	270
			10	11	37	95	220
		Kademe Stage	Tahvil Oranı Ratio	PGF-42	PGF-60(T)	PGF-90(T)	PGF-115T
		2	15	-	40	105	180
			20	16	43	110	240
			25	17	50	130	290
			30	17	50	130	290
			35	17	50	130	290
			40	17	50	130	290
			50	17	50	130	290
			70	14	44	125	270
			100	11	37	95	220
Acil Durdurma Torku Emergency Stop Torque T_{2NOT}	N • m		3.0 Normal Çıkış Torku Maksimum Çıkış Torku T2b =%60x Acil Durdurma Tork 3.0 times of Nominal Output Torque (*Max. Output Torque T_{2B}=60% of Emergency Stop Torque)				
Normal Giriş Hızı Nominal Input Speed n_{1N}	rpm	1,2	3-100	5000	5000	4000	4000
Maksimum Giriş Hızı Max. Input Speed n_{1max}	rpm	1,2	3-100	10000	10000	8000	8000
Mikro Boşluk Oranı P0 Micro Backlash P0	arcmin	1	3-10	≦3	≦3	≦3	≦1
		2	12-100	≦5	≦5	≦5	≦3
Hassas Boşluk Oranı P1 Precision Backlash P1	arcmin	1	3-10	≦5	≦5	≦5	≦3
		2	12-100	≦7	≦7	≦7	≦5
Standart Boşluk Oranı P2 Standard Backlash P2	arcmin	1	3-10	≦7	≦7	≦7	≦5
		2	12-100	≦9	≦9	≦9	≦7
Burulma Dayanımı Torsional Rigidity	N • m /arcmin	1,2	3-100	6	12	28	75
Maksimum Radyal Yükleme Max. Radial Load F_{2rB} [1]	N • m	1,2	3-100	22.5	36	76	140
Maksimum Eksenel Yükleme Max. Axial Load F_{2aB} [1]	N	1,2	3-100	465	635	1060	1580
Çalışma Sıcaklığı Operating Temp.	°C		3-100	-10 °C ~+90 °C			
Çalışma Ömrü Service Life	hr		3-100	20,000 (10,000/Sürekli Çalışma) Continuous Work			
Verimlilik Efficiency	%	1	3-10	≧97%			
		2	12-100	≧94%			
Ağırlık Weight	kg	1	3-10	0.7	1.4	3.2	6.0
		2	12-100	1.1	2.2/1.7	5.9/4.0	7.9
Pozisyonlama Hassasiyeti Mounting Position	-	1,2	3-100	Her yön			
Çalışma Sesi Noise Level [2]	dBA/1m	1,2	3-100	56	58	60	63
Koruma Sınıfı Protection Class	-	1,2	3-100	IP65			
Yağlama Lubrication	-	1,2	3-100	Sentetik Yağ Synthetic Lubricant			

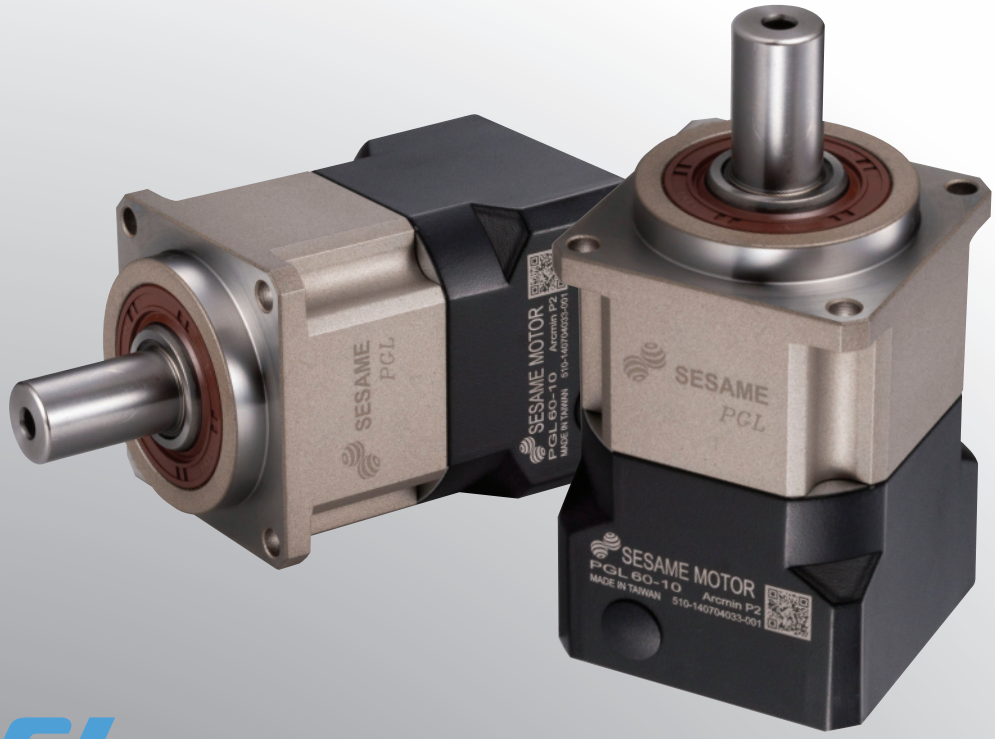
Eylemsizlik Momenti Synthetic Lubricant

Kademe Stage	Tahvil Oranı Ratio	Birim unit	PGF-42	PGF-60	PGF-90	PGF-115
1	3	Kg • cm²	-	0.19	0.72	2.35
	4		0.02	0.18	0.67	1.66
	5		0.02	0.17	0.65	1.50
	7		0.02	0.14	0.60	1.45
	10		0.02	0.14	0.58	1.41
Kademe Stage	Tahvil Oranı Ratio		PGF-42	PGF-60(T)	PGF-90(T)	PGF-115T
2	15/20/25		0.02	0.17(0.02)	0.65(0.17)	0.65
	30/35/40		0.02	0.14(0.02)	0.60(0.14)	0.60
	50/70/100		0.02	0.14(0.02)	0.58(0.14)	0.58

* 1. 100 d/dk da çıkış mili merkezine uygulanan değer
* 2. 3000 d/dk da yüksüz ölçülen değerdir
※ Yukarıdaki özellikler bildirim yapılmaksızın değiştirilebilir

* 1. Applied to the output shaft center @100rpm.
* 2. Measured at 3000rpm with no load
※ The above figures/specifications are subject to change without prior notice.


C9
C6
C7
L11
D7
ØD2
45°
ØD4g6
ØD5
ØD3h6
ØC5F6
ØC3
L4
ØD1
L3
L7
C4
C2
ØC1
□L1
L2
L8
C8
PGL142/PGL180/PGL220
B
H
L6
L5
ØD6
L9
L10

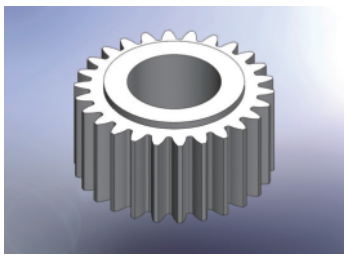

SESAME
PGL
SESAME MOTOR
PGL60-10
Aronin P2
MADE IN TAIWAN
510-140704033-001

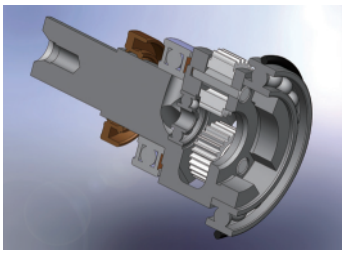
PGL SERIES

PGL SERİSİ ÖZELLİKLER
PGL SERIES FEATURES

Isıl işlem uygulanmış alaşımlı çelik dişlidir .buna ek olarak, en iyi doğruluğu, yüksek aşınma dayanımı ve yüksek darbe tokluğunu elde etmek için dişli taşlama işlemi uygulanmıştır.

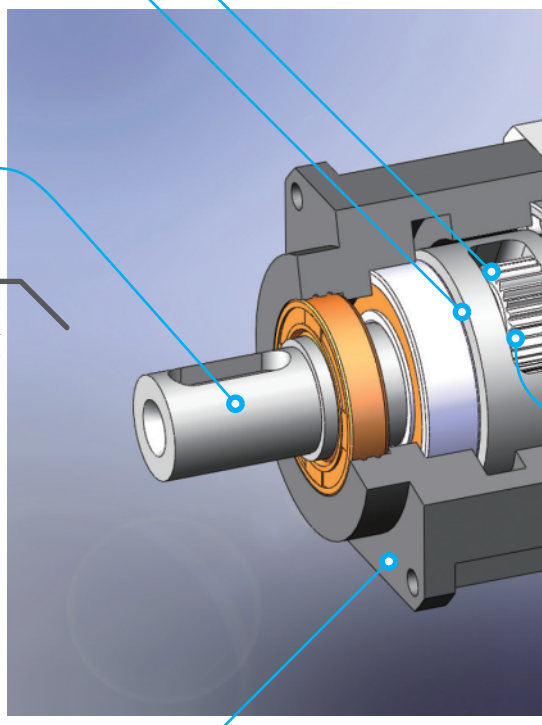
Alloy steel gear with unique heat treatment. Additionally, with gear grinding processing to get the best accuracy, high wear resistance and high impact toughness.

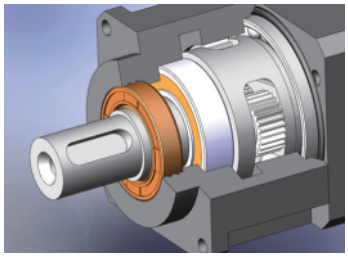




Planet kol ve çıkış mili tek bir parça olarak birleştirilmiştir, bu sayede rulmanlar geniş aralık değerlerinde rijitliği sağlayarak maximum eksenel yükleme kapasitesi sağlar.

Planetary arm bracket and output shaft are one-piece constructed, setting bearing apart for larger span to reach the largest reverse rigid and contribute high axis radial load capacity.



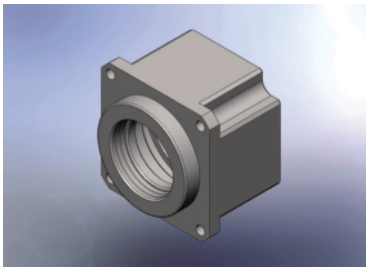


PGL serisi genel tasarımları yüksek giriş hızı ve maximum çıkış torkuna olanak sağlar. hassas dişli tasarımı ve diş işlemesi sayesinde düşük boşluk oranı, yüksek verimlilik, düşük çalışma sesi ve uzun ömürlü çalışmaya olanak sağlayan planet redüktörlerdir.

PGL Series overall design suitable for combination operation with servo motor high-speed input and achieves maximum torque output. Precision gear design and gear processing, create a low backlash operation, high efficiency, low noise and long-life of the planetary gear.

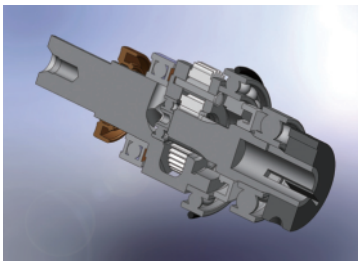
Çıkış mili üzerinde bulunan yağ sızdırmazlığı, çalışma hızının azalması ve redüktör çalışma ömrünün uzamasını sağlar.

Grinding process to smooth surface of output shaft, and with oil-seal to minimum friction coefficient and reducing start up load; result in the best seal-ability and extended lifespan.



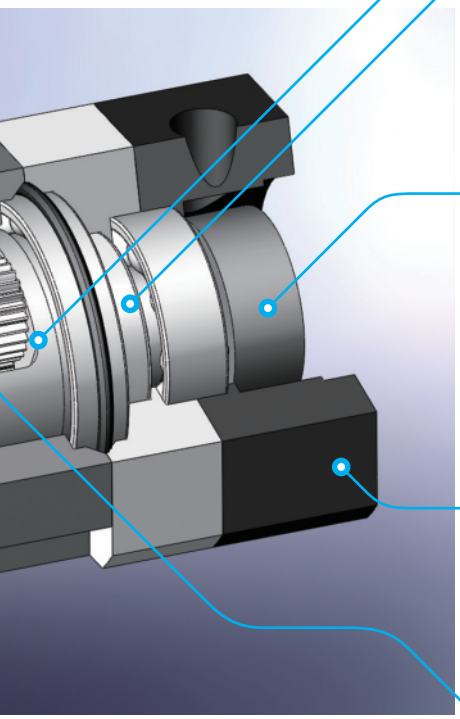
Dişli çarkı ve dişli kutusu tek parça halindedir, yüksek hassasiyet, yüksek tork ve aşınma tüketimini sağlamak için gelişmiş Alman dişli şekillendirici makinesiyle işlenir. yüzeyinde ki nikel kaplama sayesinde korozyona ve çizilmelere karşı dayanıklıdır.

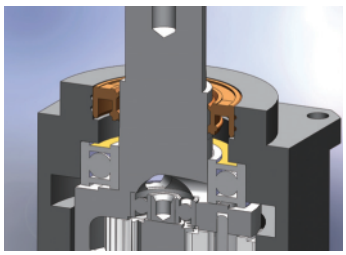
Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment.
The gear box and internal gear ring are one-piece constructed, and then processed with advanced Germany gear shaper machinery for high-precision, high torque and abrade consumption.



İletim bileşenlerinin merkezciliğini sağlamak için tasarlanmış genel mekanik yapıda güneş dişlisi yatağı doğrudan redüktör koluna yerleştirilir.

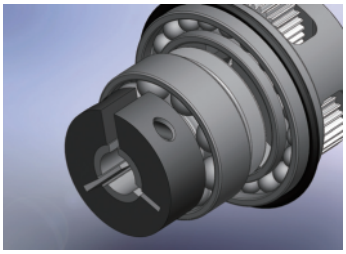
The sun gear bearing is placed directly into the planetary arm bracket, the overall mechanical structure designed to ensure concentricity of the transmission components.





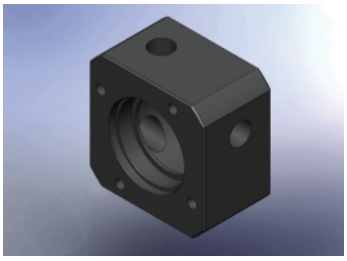
Ip65 koruma sınıfı sızıntıyı tam olarak önlemiyor ve bakım gerektirmiyorsa, üst dudak üzerinde bulunan yağ keçesi sayesinde alt dudağa yağ sızıntısı önlenir.

High-tech oil seal design on the upper lip guard against dust intruder, lower lip to guard against oil leak. Advanced lubricants grease and IP65 protection safeguards fully avoid leaking and given it maintenance-free.



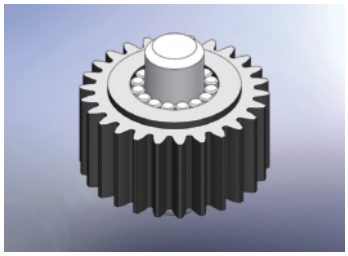
Giriş ucu ve motor mili, dinamik balans yakası sıkıştırma mekanizması vasıtasıyla bağlanır ve böylece bağlantı arayüzü eş merkezliliği ve yüksek hızda sıfır kaymalı güç iletimi sağlar.

Input-end and motor shaft are coupled through a dynamic balanced collar clamping mechanism to ensure connection interface concentricity and zero slip power transmission at high speed.



Giriş mili burcu ile birleştirilmiş gelişmiş motor flanş tasarımı, herhangi bir servo veya step motora kolayca monte edilebilir

Advanced motor bracket design coupled with the input shaft bushing is easy to mount to any servo or stepper motor.

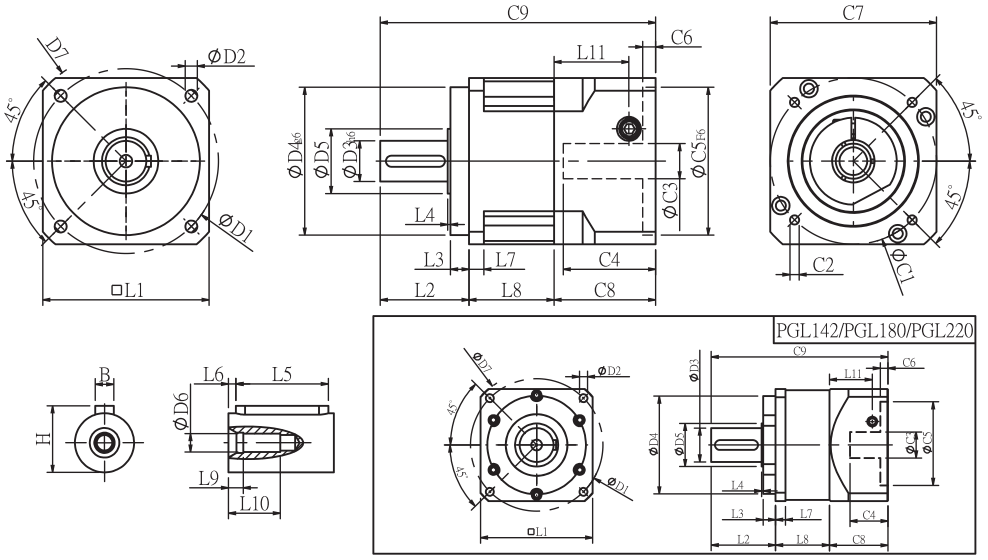


İğneli rulmanlar ile donatılmış, tutucu olmadan hizalanan iğneli rulman yatakları, azami pozlama elde ederken en küçük boşluk toleranslarına ulaşır.

Planet gear transmission interface equipped with needle bearings, full needle roller bearings aligned without retainer achieve maximum exposure but smallest gap tolerances. Enhance over-all gear structure rigid and output torque.

PGL Tek Kademe Ölçüleri

PGL Single Stage Dimensions



Özellikler Specifications

Birim:mm Unit:mm

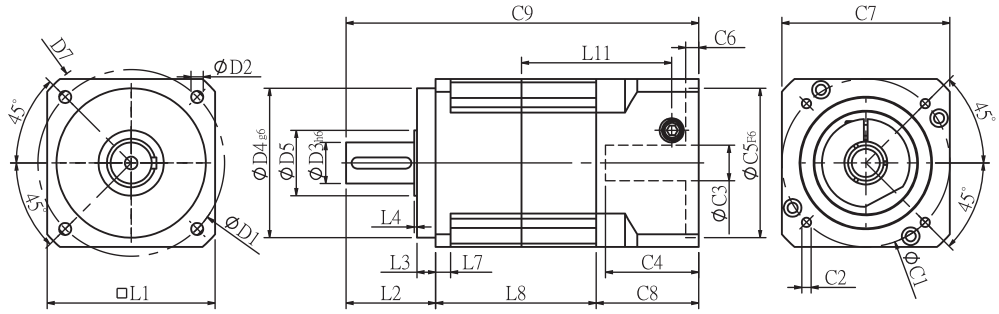
Liste Fiyatı List price	---	312,33$	400,61$	535,42$	791,82$	1.435,68$	3.057,57$
Ölçüler Dimensions	PGL42 - P1	PGL60 - P1	PGL90 - P1	PGL115 - P1	PGL142 - P1	PGL180 - P1	PGL220 - P1
D1	50	70	100	130	165	215	250
D2	3.4	5.5	6.5	8.5	10.5	13	17
D3 h6	13	16	22	32	40	55	75
D4 g6	35	50	80	110	130	160	180
D5	15	25	35	45	50	70	90
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	56	80	118	148	186	239	292
L1	42.6	60	90	115	142	182	220
L2	26	37	48	62	93	104.5	138
L3	5.5	7	10	8	8	20	30
L4	1.5	1.5	1.5	3	6	2.5	3
L5	15	25	32	40	60	70	90
L6	2	2	3	5	5	6	7
L7	4	6	8	12	18	16	20
L8	28.3	36	46	59	79	87.5	117.5
L9	4	4	4.5	6	6	8	7
L10	14	16.5	20.5	30	38	48	42
L11	29	35.5	40.5	42	63	69.5	102.2
C1 [2]	46	70	90	115	145	200	235
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦28	≦35	≦50	≦55
C4 [2]	27	37	47	58	66	82	98
C5 [2] F6	30	50	70	95	110	114.3	200
C6 [2]	4	4	6	10	6	13	12
C7 [2]	42.6	60	90	115	140	182	220
C8 [2]	38.5	46	55	63	80	95	130
C9 [2]	92.8	119	149	184	252	287	385.5
B	5	5	6	10	12	16	20
H	15	18	24.5	35	43	59	79.5

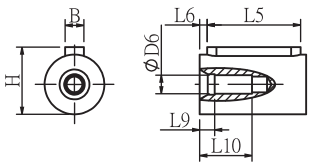
★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

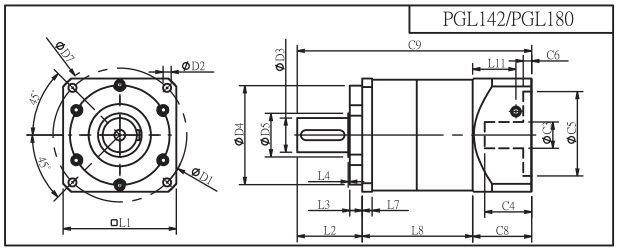
* Fiyat P1 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P1 Class. Please contact with us for different precision class.

PGL Çift Kademe Ölçüleri-1

PGL Double Stage Dimensions-1







Özellikler Specifications

Birim:mm Unit:mm

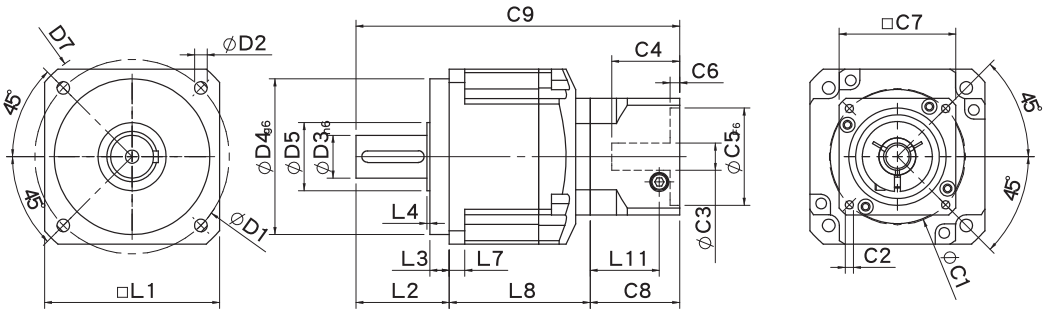
Liste Fiyatı List price	---	479,03$	603,96$	835,71$	1.139,25$	2.098,54$	4.794,33$
Ölçüler Dimensions	PGL42 - P1	PGL60 - P1	PGL90 - P1	PGL115 - P1	PGL142 - P1	PGL180 - P1	PGL 220 - P1
D1	50	70	100	130	165	215	250
D2	3.4	5.5	6.5	8.5	10.5	13	17
D3 h6	13	16	22	32	40	55	75
D4 g6	35	50	80	110	130	160	180
D5	15	25	35	45	50	70	90
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	56	80	118	148	186	239	292
L1	42.6	60	90	115	142	182	220
L2	26	37	48	62	93	104.5	138
L3	5.5	7	10	8	8	20	30
L4	1.5	1.5	1.5	3	6	2.5	3
L5	15	25	32	40	60	70	90
L6	2	2	3	5	5	6	7
L7	4	6	8	12	18	16	20
L8	54.3	64	86	107	140	177.5	232
L9	4	4	4.5	6	6	8	7
L10	14	16.5	20.5	30	38	48	42
L11	29	35.5	40.5	42	63	69.5	102.2
C1 [2]	46	70	90	115	145	200	235
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦28	≦35	≦50	≦55
C4 [2]	27	37	47	58	66	82	98
C5 [2] F6	30	50	70	95	110	114.3	200
C6 [2]	4	4	6	10	6	13	12
C7 [2]	42.6	60	90	115	140	182	220
C8 [2]	38.5	46	55	63	80	95	130
C9 [2]	118.8	147	189	232	313	377	500
B	5	5	6	10	12	16	20
H	15	18	24.5	35	43	59	79.5

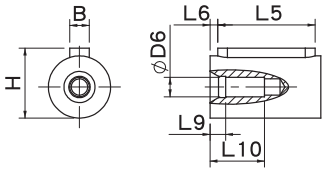
★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

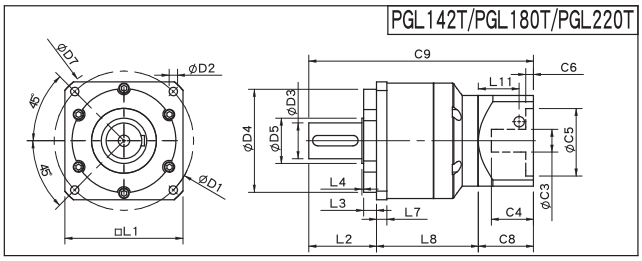
* Fiyat P1 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P1 Class. Please contact with us for different precision class.

PGL Çift Kademe Ölçüleri-2

PGL Double Stage Dimensions-2







Özellikler Specifications

Birim:mm Unit:mm

Liste Fiyatı List price	468,06$	587,68$	773,09$	1.078,05$	1.780,92$	3.302,25$
Ölçüler Dimensions	PGL60T - P1	PGL90T - P1	PGL115T - P1	PGL142T - P1	PGL180T - P1	PGL220T - P1
D1	70	100	130	165	215	250
D2	5.5	6.5	8.5	10.5	13	17
D3 h6	16	22	32	40	55	75
D4 g6	50	80	110	130	160	180
D5	25	35	45	50	70	90
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	80	118	148	186	239	292
L1	60	90	115	142	182	220
L2	37	48	62	93	104.5	138
L3	7	10	8	8	20	30
L4	1.5	1.5	3	6	2.5	3
L5	25	32	40	60	70	90
L6	2	3	5	5	6	7
L7	6	8	12	18	16	20
L8	58.8	72.5	97.4	127	157	199.5
L9	4	4.5	6	6	8	7
L10	16.5	20.5	30	38	48	42
L11	29	35.5	40.5	42	63	69.5
C1 [2]	46	70	90	115	145	200
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦28	≦35	≦50
C4 [2]	27	37	47	58	66	82
C5 [2] F6	30	50	70	95	110	114.3
C6 [2]	4	4	6	10	6	13
C7 [2]	42.6	60	90	115	140	182
C8 [2]	38.5	46	55	63	80	95
C9 [2]	134.3	166.5	214.4	283	341.5	432.5
B	5	6	10	12	16	20
H	18	24.5	35	43	59	79.5

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

* Fiyat P1 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P1 Class. Please contact with us for different precision class.

PGL Özellik Tablosu

PGL Specifications Table

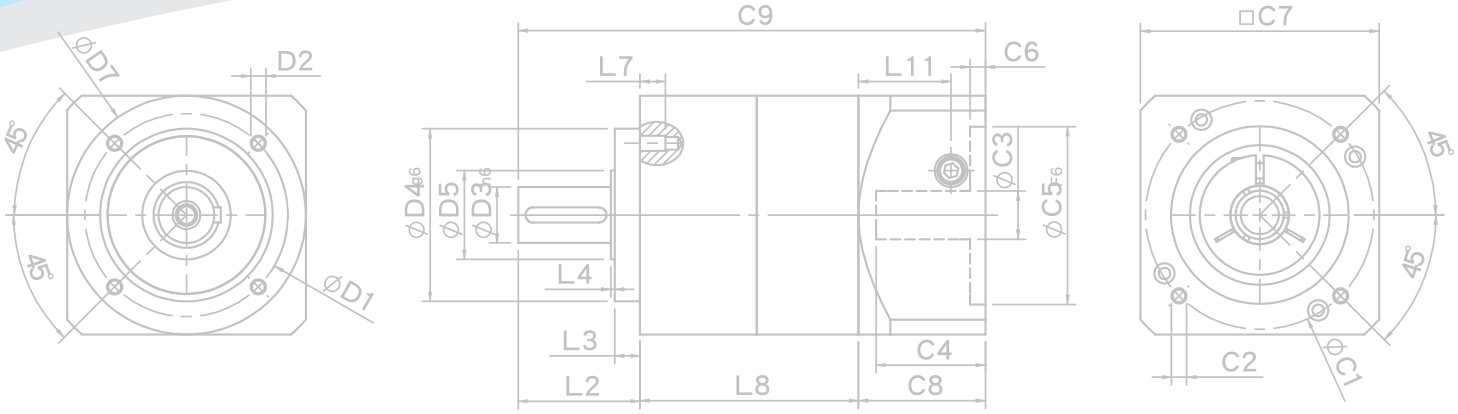
Özellikler Specifications		Kademe Stage	Tahvil Oranı Ratio	PGL-42	PGL-60	PGL-90	PGL-115	PGL-142	PGL-180	PGL-220
Nominal Çıkış Torku Nominal Output Torque T_{2N}	N • m	1	3	13.8	44.2	95.2	283	482	1151	1670
			4	11.9	35.9	74.6	249	490	1055	1574
			5	13.8	43.0	95.2	283	473	1151	1670
			6	12.5	39.4	90.9	266	436	1055	1574
			7	11.9	36.0	85.6	219	400	1055	1574
			8	10.9	32.4	85.0	216	363	860	1184
			9	9.8	28.7	80.0	210	320	764	1185
			10	10.1	25.0	75.0	210	320	763	1184
		Kademe Stage	Tahvil Oranı Ratio	PGL-42	PGL-60 (T)	PGL-90(T)	PGL-115(T)	PGL-142(T)	PGL-180(T)	PGL-220T
		2	15	13.8	44.2	95.2	283	482	1151	1670
			20	11.9	35.9	74.6	249	490	1055	1574
			25	13.8	43.0	95.2	283	473	1151	1670
			30	13.8	43.0	95.2	283	473	1151	1670
			35	13.8	43.0	95.2	283	473	1151	1670
			40	13.8	43.0	95.2	283	473	1151	1670
			45	13.8	43.0	95.2	283	473	1151	1670
			50	13.8	43.0	95.2	283	473	990	1670
			60	12.5	39.4	90.9	266	436	1055	1574
			70	11.9	36.0	85.6	219	400	1055	1574
			80	10.9	32.4	85.0	216	363	860	1184
			90	9.8	28.7	80.0	210	320	764	1185
			100	10.1	25.0	75.0	210	320	763	1184
Acil Durdurma Torku Emergency Stop Torque T_{2NOT}	N • m		3.0 Normal Çıkış Torku Maksimum Çıkış Torku T2b =%60x Acil Durdurma Tork 3.0 times of Nominal Output Torque (*Max. Output Torque T_{2B}=60% of Emergency Stop Torque)							
Normal Giriş Hızı Nominal Input Speed n_{1N}	rpm	1,2	3-100	3000	3000	3000	2500	2000	2000	2000
Maksimum Giriş Hızı Max. Input Speed n_{1max}	rpm	1,2	3-100	6000	6000	6000	5000	4000	4000	4000
Mikro Boşluk Oranı P0 Micro Backlash P0	arcmin	1	3-10	-	-	-	≦3	≦3	≦3	≦3
		2	12-100	-	-	-	≦5	≦5	≦5	≦5
Hassas Boşluk Oranı P1 Precision Backlash P1	arcmin	1	3-10	-	≦6	≦6	≦5	≦5	≦5	≦5
		2	12-100	-	≦9	≦9	≦7	≦7	≦7	≦7
Standart Boşluk Oranı P2 Standard Backlash P2	arcmin	1	3-10	≦12	≦9	≦9	≦7	≦7	≦7	≦7
		2	12-100	≦15	≦12	≦12	≦9	≦9	≦9	≦9
Burulma Dayanımı Torsional Rigidity	N • m /arcmin	1,2	3-100	1.0	2.8	7.5	15.5	30	57	110
Maksimum Radyal Yükleme Max. Radial Load F_{2rB} [1]	N	1,2	3-100	350	960	1630	3380	6150	7260	11120
Maksimum Eksenel Yükleme Max. Axial Load F_{2aB} [1]	N	1,2	3-100	320	900	1420	2930	5510	5550	8560
Çalışma Sıcaklığı Operating Temp.	°C		3-100	-10 °C ~+90 °C						
Çalışma Ömrü Service Life	hr		3-100	20,000 (10,000/Sürekli Çalışma) Continuous Work						
Verimlilik Efficiency	%	1	3-10	≧96%						
		2	12-100	≧92%						
Ağırlık Weight	kg	1	3-10	0.6	1.2	3.2	7.5	15.6	26	56
		2	12-100	0.8	1.9/1.5	5.3/3.6	12/8.8	20.7/17.2	36/31	80/62
Pozisyonlama Hassasiyeti Mounting Position	-	1,2	3-100	Any direction						
Çalışma Sesi Noise Level [2]	dBA/1m	1,2	3-100	60	62	65	65	70	70	75
Koruma Sınıfı Protection Class	-	1,2	3-100	IP65						
Yağlama Lubrication	-	1,2	3-100	Sentetik Yağ Synthetic Lubricant						

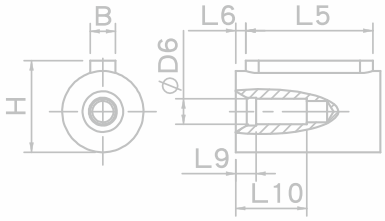
Eylemsizlik Momenti Synthetic Lubricant

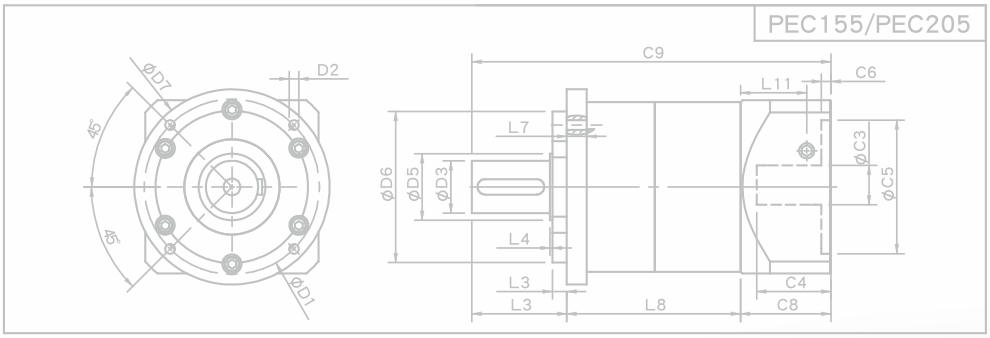
Kademe Stage	Tahvil Oranı Ratio	Birim unit	PGL-42	PGL-60	PGL-90	PGL-115	PGL-142	PGL-180	PGL-220
1	3	Kg • cm^2	0.03	0.20	0.81	2.20	7.89	25.2	77.9
	4		0.02	0.16	0.65	1.80	5.83	19.8	56.5
	5		0.02	0.15	0.62	1.61	5.38	18.3	53.3
	6/7/8		0.02	0.14	0.60	1.55	5.22	17.8	53.0
	9/10		0.02	0.14	0.60	1.53	5.20	17.6	52.9
Kademe Stage	Tahvil Oranı Ratio		PGL-42	PGL-60(T)	PGL-90(T)	PGL-115(T)	PGL-142(T)	PGL-180(T)	PGL-220T
2	15/20/25		0.02	0.15(0.02)	0.62(0.15)	1.61(0.62)	5.38(1.61)	18.3(5.38)	53.9(18.3)
	30/35/40		0.02	0.14(0.02)	0.60(0.14)	1.55(0.60)	5.22(1.55)	17.8(5.22)	53.0(17.8)
	45/50/60/70/80/90/100		0.02	0.14(0.02)	0.60(0.14)	1.53(0.60)	5.20(1.53)	17.6(5.20)	52.9(17.6)

* 1.100 d/dk da çıkış mili merkezine uygulanan değer * 2.3000 d/dk da yüksüz ölçülen değerdir
* 3.PGL60T - □□ - P1、PGL90T - □□ - P1, and PGL115T - □□ - P0, are not applicable.
※ Yukarıdaki özellikler bildirim yapılmaksızın değiştirilebilir

* 1. Applied to the output shaft center @100rpm. * 2. Measured at 3000rpm with no load
* 3.PGL60T - □□ - P1、PGL90T - □□ - P1, and PGL115T - □□ - P0, are not applicable.
※ The above figures/specifications are subject to change without prior notice.


ØD7
D2
45°
45°
ØD1
C9
L7
L11
C6
ØD4
ØD5
ØD3
ØC3
ØC5
L4
L3
L2
L8
C4
C8
□C7
45°
45°
C2
ØC1


B
L6
L5
ØD6
H
L9
L10

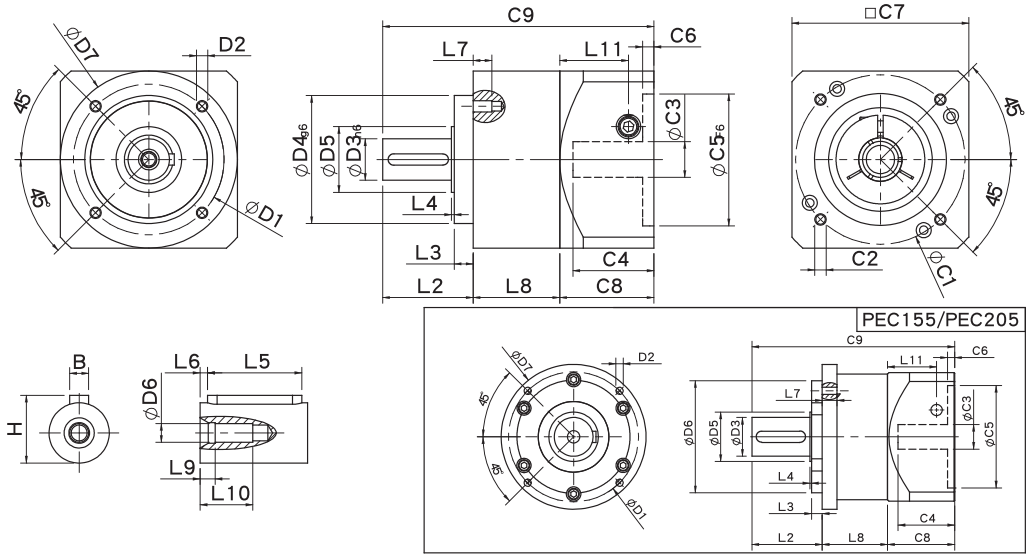

PEC155/PEC205
ØD7
D2
45°
45°
ØD1
C9
L11
C6
L7
ØD6
ØD5
ØD3
ØC3
ØC5
L4
L3
L3
L8
C4
C8

SESAME
PEC
SESAME MOTOR
Arcmin P2
SESAME MOTOR
PEC100-4
MADE IN TAIWAN

PEC SERIES

PEC Tek Kademe Ölçüleri

PEC Single Stage Dimensions



Özellikler Specifications

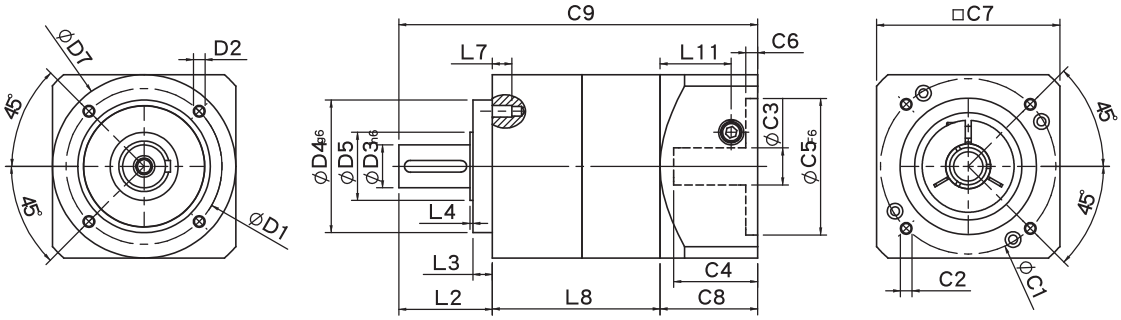
Birim:mm Unit:mm

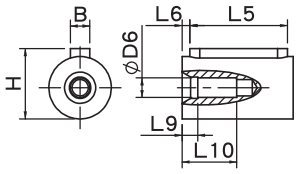
Liste Fiyatı List price	192,46$	207,56$	269,48$	377,35$	633,59$	1.273,97$
Ölçüler Dimensions	PEC50 - P2	PEC70 - P2	PEC90 - P2	PEC120 - P2	PEC155 - P2	PEC205 - P2
D1	44	62	80	108	140	184
D2	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M10x1.5P	M12x1.75P
D3 h6	13	16	22	32	40	55
D4 g6	35	52	68	90	120	160
D5	15	25	35	45	50	70
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	50	70	94	120	155	205
L2	24.5	35	48	60	93	99.5
L3	4	5	10	6	8	15
L4	1.5	1.5	1.5	3	6	2.5
L5	15	25	32	40	60	70
L6	2	2	3	5	5	6
L7	8	10	10	15	18	21
L8	30	38	46	61	79	92.5
L9	4	4	4.5	6	6	8
L10	14	16.5	20.5	30	38	48
L11	24.4	31.5	36.5	42	63	69.5
C1 [2]	46	70	90	115	145	200
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦28	≦35	≦50
C4 [2]	27	35	43	58	66	82
C5 [2] F6	30	50	70	95	110	114.3
C6 [2]	4	5	5	8	6	13
C7 [2]	50	70	94	120	140	182
C8 [2]	34	44	50	63	80	95
C9 [2]	88.5	117	144	184	252	287
B	5	5	6	10	12	16
H	15	18	24.5	35	43	59

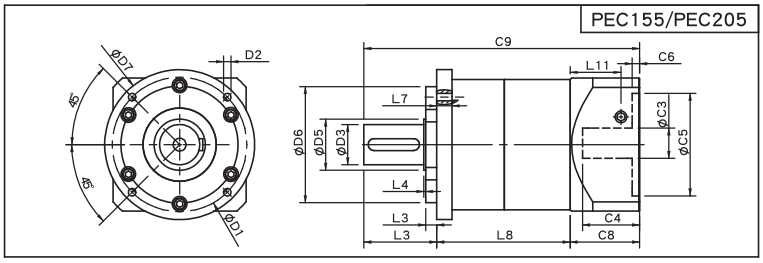
★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PEC Çift Kademe Ölçüleri-1

PEC Double Stage Dimensions-1







Özellikler Specifications

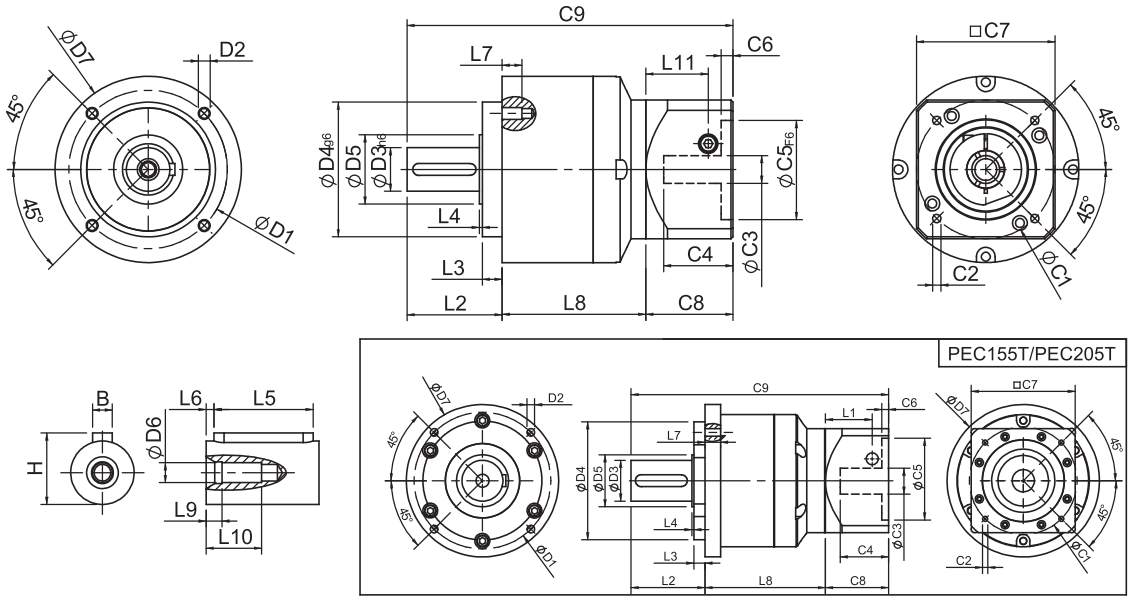
Birim:mm Unit:mm

Liste Fiyatı List price	277,84$	319,93$	399,93$	559,29$	983,54$	1.870,67$
Ölçüler Dimensions	PEC50 - P2	PEC70 - P2	PEC90 - P2	PEC120 - P2	PEC155 - P2	PEC205 - P2
D1	44	62	80	108	140	184
D2	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M10x1.5P	M12x1.75P
D3 h6	13	16	22	32	40	55
D4 g6	35	52	68	90	120	160
D5	15	25	35	45	50	70
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	50	70	94	120	155	205
L2	24.5	35	48	60	93	99.5
L3	4	5	10	6	8	15
L4	1.5	1.5	1.5	3	6	2.5
L5	15	25	32	40	60	70
L6	2	2	3	5	5	6
L7	8	10	10	15	18	21
L8	56	66	86	109	140	182.5
L9	4	4	4.5	6	6	8
L10	14	16.5	20.5	30	38	48
L11	24.4	31.5	36.5	42	63	69.5
C1 [2]	46	70	90	115	145	200
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦28	≦35	≦50
C4 [2]	27	35	43	58	66	82
C5 [2] F6	30	50	70	95	110	114.3
C6 [2]	4	5	5	8	6	13
C7 [2]	50	70	94	120	140	182
C8 [2]	34	44	50	63	80	95
C9 [2]	114.5	145	184	232	313	377
B	5	5	6	10	12	16
H	15	18	24.5	35	43	59

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PEC Çift Kademe Ölçüleri-2

PEC Double Stage Dimensions-2



Özellikler Specifications

Birim:mm Unit:mm

Liste Fiyatı List price	326,59$	365,31$	504,01$	855,63$	1.419,18$
Ölçüler Dimensions	PEC70T - P2	PEC90T - P2	PEC120T - P2	PEC155T - P2	PEC205T - P2
D1	62	80	108	140	184
D2	M5x0.8P	M6x1.0P	M8x1.25P	M10x1.5P	M12x1.75P
D3 h6	16	22	32	40	55
D4 g6	52	68	90	120	160
D5	25	35	45	50	70
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	70	94	120	155	205
L2	35	48	60	93	99.5
L3	5	10	6	8	15
L4	1.5	1.5	3	6	2.5
L5	25	32	40	60	70
L6	2	3	5	5	6
L7	10	10	15	18	21
L8	60.8	70.5	99.4	127	162
L9	4	4.5	6	6	8
L10	16.5	20.5	30	38	48
L11	29	35.5	40.5	42	63
C1 [2]	46	70	90	115	145
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦28	≦35
C4 [2]	28.5	41	47.75	58	66
C5 [2] F6	30	50	70	95	110
C6 [2]	5.5	8	6	8	6
C7 [2]	50	70	94	120	140
C8 [2]	40	50	55	63	80
C9 [2]	135.8	170.5	214.4	283	341.5
B	5	6	10	12	16
H	18	24.5	35	43	59

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PEC Özellik Tablosu
PEC Specifications Table

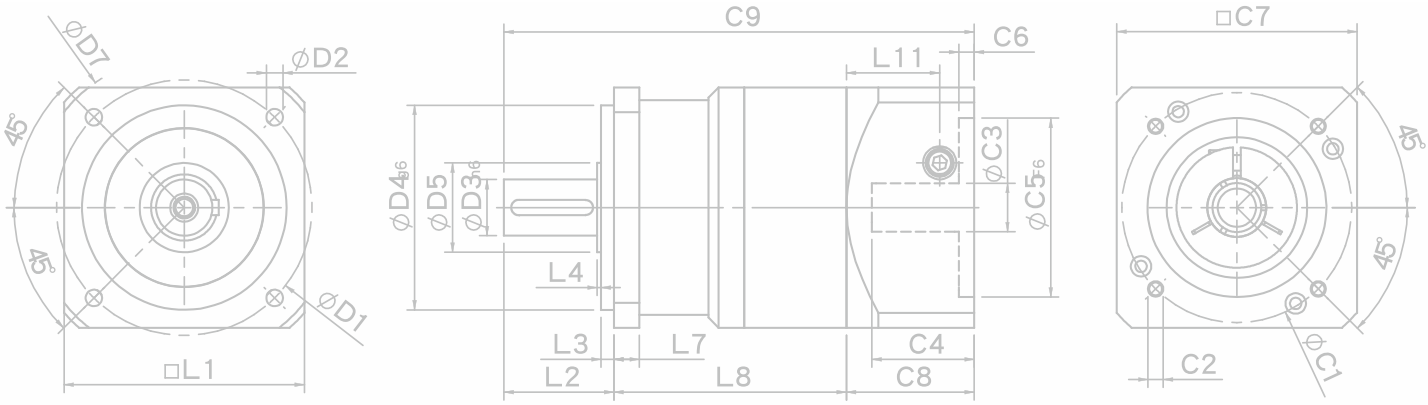
Özellikler Specifications		Kademe Stage	Tahvil Oranı Ratio	PEC-50	PEC-70	PEC-90	PEC-120	PEC-155	PEC-205
Nominal Çıkış Torku Nominal Output Torque T_{2N}	N • m	1	3	13.8	44.2	95.2	283	482	1151
			4	11.9	35.9	74.6	249	490	1055
			5	13.8	43.0	95.2	283	473	1151
			7	11.9	36.0	85.6	219	400	1055
			10	10.1	25.0	75.0	210	320	763
		Kademe Stage	Tahvil Oranı Ratio	PEC-50	PEC-70(T)	PEC-90(T)	PEC-120(T)	PEC-155(T)	PEC-205(T)
		2	15	13.8	44.2	95.2	283	482	1151
			20	11.9	35.9	74.6	249	490	1055
			25	13.8	43.0	95.2	283	473	1151
			30	13.8	43.0	95.2	283	473	1151
			35	13.8	43.0	95.2	283	473	1151
			40	13.8	43.0	95.2	283	473	1151
			50	13.8	43.0	95.2	283	473	1151
			70	11.9	36.0	85.6	219	400	1055
			100	10.1	25.0	75.0	210	320	763
Acil Durdurma Torku Emergency Stop Torque T_{2NOT}	N • m		3.0 Normal Çıkış Torku Maksimum Çıkış Torku T2b =%60x Acil Durdurma Tork 3.0 times of Nominal Output Torque (*Max. Output Torque T_{2B}=60% of Emergency Stop Torque)						
Normal Giriş Hızı Nominal Input Speed n_{1N}	rpm	1,2	3-100	3000	3000	3000	2500	2000	2000
Maksimum Giriş Hızı Max. Input Speed n_{1max}	rpm	1,2	3-100	6000	6000	6000	5000	4000	4000
Standart Boşluk Oranı P2 Standard Backlash P2	arcmin	1 2	3-10 12-100	≦12 ≦15	≦9 ≦12	≦9 ≦12	≦7 ≦9	≦7 ≦9	≦7 ≦9
Burulma Dayanımı Torsional Rigidity	N • m /arcmin	1,2	3-100	1.0	2.8	7.5	15.5	30	57
Maksimum Radyal Yükleme Max. Radial Load F_{2rB} [1]	N	1,2	3-100	350	960	1630	3380	6150	7260
Maksimum Eksenel Yükleme Max. Axial Load F_{2aB} [1]	N	1,2	3-100	320	900	1420	2930	5510	5550
Çalışma Sıcaklığı Operating Temp.	°C		3-100	-10 °C ~+90 °C					
Çalışma Ömrü Service Life	hr		3-100	20,000 (10,000/Sürekli Çalışma) Continuous Work					
Verimlilik Efficiency	%	1 2	3-10 12-100	≧95% ≧90%					
Ağırlık Weight	kg	1 2	3-10 12-100	0.7 0.9	1.4 2.2/1.7	3.0 5.0/3.4	7.3 11.5/8.5	15.6 20.7/17.2	26 36/31
Pozisyonlama Hassasiyeti Mounting Position	-	1,2	3-100	任意方向Any direction					
Çalışma Sesi Noise Level [2]	dBA/1m	1,2	3-100	≦65	≦67	≦70	≦70	≦75	≦75
Koruma Sınıfı Protection Class	-	1,2	3-100	IP65					
Yağlama Lubrication	-	1,2	3-100	20,000 (10,000/Sürekli Çalışma) Continuous Work					

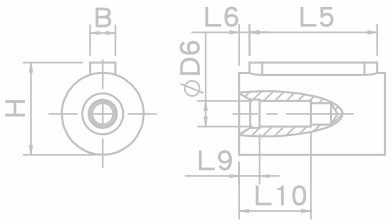
Eylemsizlik Momenti Synthetic Lubricant

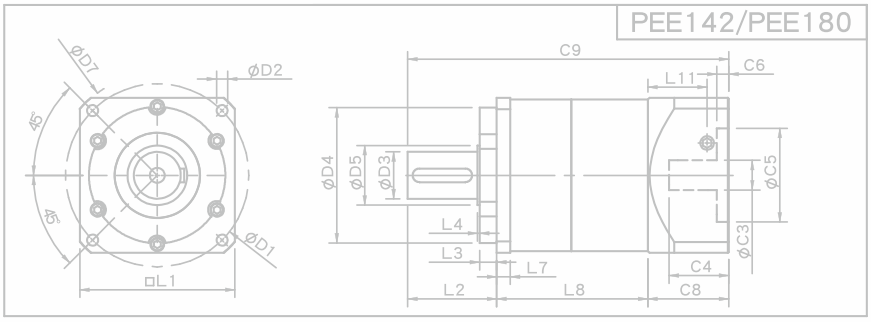
Kademe Stage	Tahvil Oranı Ratio	Birim unit	PEC-50	PEC-70	PEC-90	PEC-120	PEC-155	PEC-205
1	3	Kg • cm^2	0.03	0.20	0.81	2.20	7.89	25.2
	4		0.03	0.16	0.65	1.80	5.83	19.8
	5		0.03	0.15	0.62	1.61	5.38	18.3
	7		0.03	0.14	0.60	1.55	5.22	17.8
	10		0.03	0.14	0.60	1.53	5.20	17.6
Kademe Stage	Tahvil Oranı Ratio		PEC-50	PEC-70(T)	PEC-90(T)	PEC-120(T)	PEC-155(T)	PEC-205(T)
2	15/20/25		0.02	0.15(0.02)	0.62(0.15)	1.61(0.62)	5.38(1.61)	18.3(5.38)
	30/35/40		0.02	0.14(0.02)	0.60(0.14)	1.55(0.60)	5.22(1.55)	17.8(5.22)
	50/70/100		0.02	0.14(0.02)	0.60(0.14)	1.53(0.60)	5.20(1.53)	17.6(5.20)

* 1.100 d/dk da çıkış mili merkezine uygulanan değer * 2. 3000 d/dk da yüksüz ölçülen değerdir
* 3. PGL60T - □□ - P1、PGL90T - □□ - P1, and PGL115T - □□ - P0, are not applicable.
※ Yukarıdaki özellikler bildirim yapılmaksızın değiştirilebilir

* 1. Applied to the output shaft center @100rpm. * 2. Measured at 3000rpm with no load
* 3. PGL60T - □□ - P1、PGL90T - □□ - P1, and PGL115T - □□ - P0, are not applicable.
※ The above figures/specifications are subject to change without prior notice.


ØD7
ØD2
45°
45°
ØD1
□L1
C9
C6
L11
ØD4g6
ØD5
ØD3h6
ØC3
ØC5h6
L4
L3
L7
L2
L8
C4
C8
□C7
45°
45°
C2
ØC1


B
H
L6
L5
ØD6
L9
L10

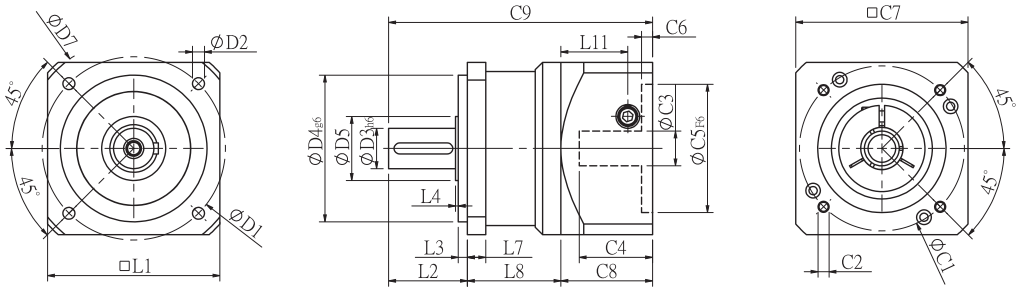

PEE142/PEE180
ØD7
ØD2
45°
45°
ØD1
□L1
C9
C6
L11
ØD4
ØD5
ØD3
ØC5
ØC3
L4
L3
L7
L2
L8
C4
C8

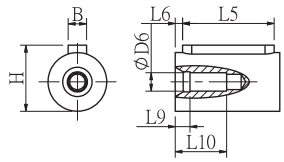
SESAME
PEE
SESAME MOTOR
PEE90-5

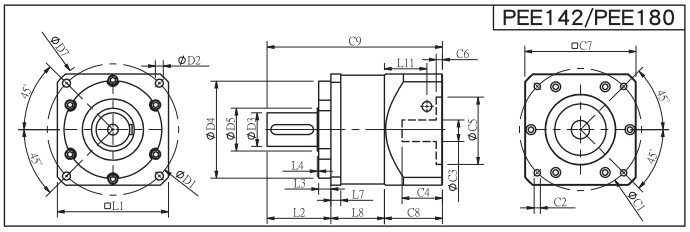
PEE SERIES

PEE Tek Kademe Ölçüleri

PEE Single Stage Dimensions







Özellikler Specifications

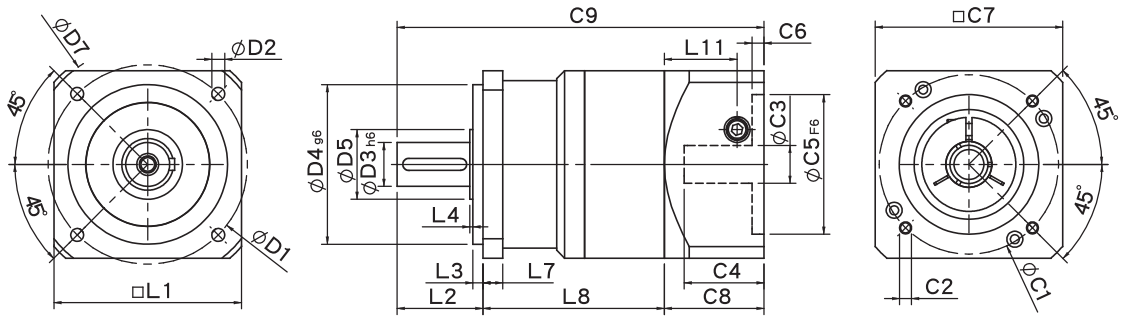
Birim:mm Unit:mm

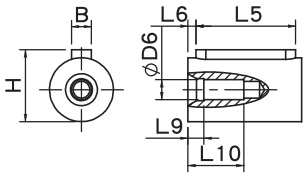
Liste Fiyatı List price	205,13$	223,15$	284,90$	389,33$	676,56$	1.237,48$
Ölçüler Dimensions	PEE50 - P2	PEE70 - P2	PEE90 - P2	PEE120 - P2	PEE142 - P2	PEE180 - P2
D1	50	70	100	130	165	215
D2	3.4	6	6.5	8.5	10.5	13
D3 h6	13	16	22	32	40	55
D4 g6	35	50	80	110	130	160
D5	15	25	35	45	50	70
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	64	90	120	152	186	239
L1	50	70	94	120	142	182
L2	24.5	37	43	60	93	104.5
L3	4	7	5	6	8	20
L4	1.5	1.5	1.5	3	6	2.5
L5	15	25	32	40	60	70
L6	2	2	3	5	5	6
L7	5	6	10	12	18	16
L8	30	36	51	61	79	87.5
L9	4	4	4.5	6	6	8
L10	14	16.5	20.5	30	38	48
L11	24.4	31.5	36.5	42	63	69.5
C1 [2]	46	70	90	115	145	200
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦28	≦35	≦50
C4 [2]	27	35	43	58	66	82
C5 [2] F6	30	50	70	95	110	114.3
C6 [2]	4	5	5	8	6	13
C7 [2]	50	70	94	120	140	182
C8 [2]	34	44	50	63	80	95
C9 [2]	88.5	117	144	184	252	287
B	5	5	6	10	12	16
H	15	18	24.5	35	43	59

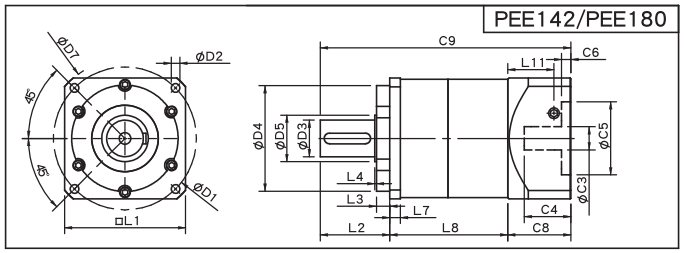
★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PEE Çift Kademe Ölçüleri-1

PEE Double Stage Dimensions-1







Özellikler Specifications

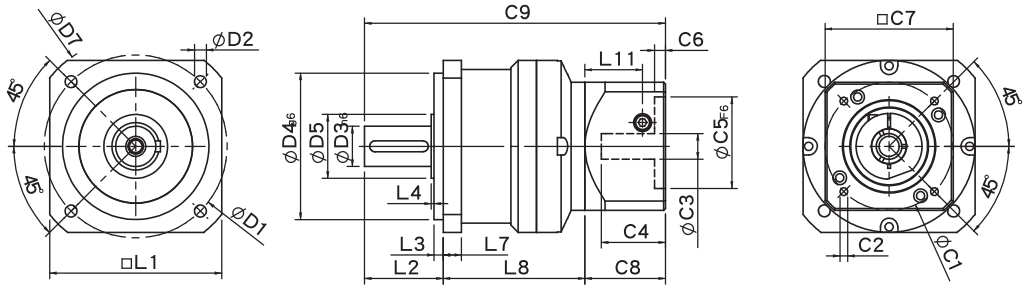
Birim:mm Unit:mm

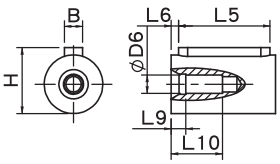
Liste Fiyatı List price	299,76$	326,70$	421,80$	587,80$	907,98$	1.837,11$
Ölçüler Dimensions	PEE50 - P2	PEE70 - P2	PEE90 - P2	PEE120 - P2	PEE142 - P2	PEE180 - P2
D1	50	70	100	130	165	215
D2	3.4	6	6.5	8.5	10.5	13
D3 h6	13	16	22	32	40	55
D4 g6	35	50	80	110	130	160
D5	15	25	35	45	50	70
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	64	90	120	152	186	239
L1	50	70	94	120	142	182
L2	24.5	37	43	60	93	104.5
L3	4	7	5	6	8	20
L4	1.5	1.5	1.5	3	6	2.5
L5	15	25	32	40	60	70
L6	2	2	3	5	5	6
L7	5	6	10	12	18	16
L8	56	64	91	109	140	177.5
L9	4	4	4.5	6	6	8
L10	14	16.5	20.5	30	38	48
L11	24.4	31.5	36.5	42	63	69.5
C1 [2]	46	70	90	115	145	200
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 [2]	≤8	≤14	≤19/≤24	≤24/≤28	≤35	≤50
C4 [2]	27	35	43	58	66	82
C5 [2] F6	30	50	70	95	110	114.3
C6 [2]	4	5	5	8	6	13
C7 [2]	50	70	94	120	140	182
C8 [2]	34	44	50	63	80	95
C9 [2]	114.5	145	184	232	313	377
B	5	5	6	10	12	16
H	15	18	24.5	35	43	59

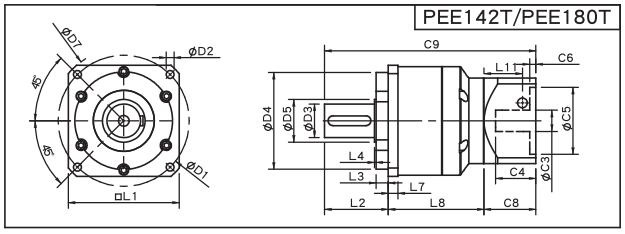
★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PEE Çift Kademe Ölçüleri-2

PEE Double Stage Dimensions-2







Özellikler Specifications

Birim:mm Unit:mm

Liste Fiyatı List price	331,73$	384,87$	502,71$	---	---
Ölçüler Dimensions	PEE70T - P2	PEE90T - P2	PEE120T - P2	PEE142T - P2	PEE180T - P2
D1	70	100	130	165	215
D2	6	6.5	8.5	10.5	13
D3 h6	16	22	32	40	55
D4 g6	50	80	110	130	160
D5	25	35	45	50	70
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	90	120	152	186	239
L1	70	94	120	142	182
L2	37	43	60	93	104.5
L3	7	5	6	8	20
L4	1.5	1.5	3	6	2.5
L5	25	32	40	60	70
L6	2	3	5	5	6
L7	6	10	12	18	16
L8	58.8	77.5	99.4	127	157
L9	4	4.5	6	6	8
L10	16.5	20.5	30	38	48
L11	29	35.5	40.5	42	63
C1 [2]	46	70	90	115	145
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 [2]	≤8	≤14	≤19/≤24	≤24/≤28	≤35
C4 [2]	28.5	41	47.75	58	66
C5 [2] F6	30	50	70	95	110
C6 [2]	5.5	8	6	8	6
C7 [2]	50	70	94	120	140
C8 [2]	40	50	55	63	80
C9 [2]	135.8	170.5	214.4	283	341.5
B	5	6	10	12	16
H	18	24.5	35	43	59

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PEE Özellik Tablosu
PEE Specifications Table

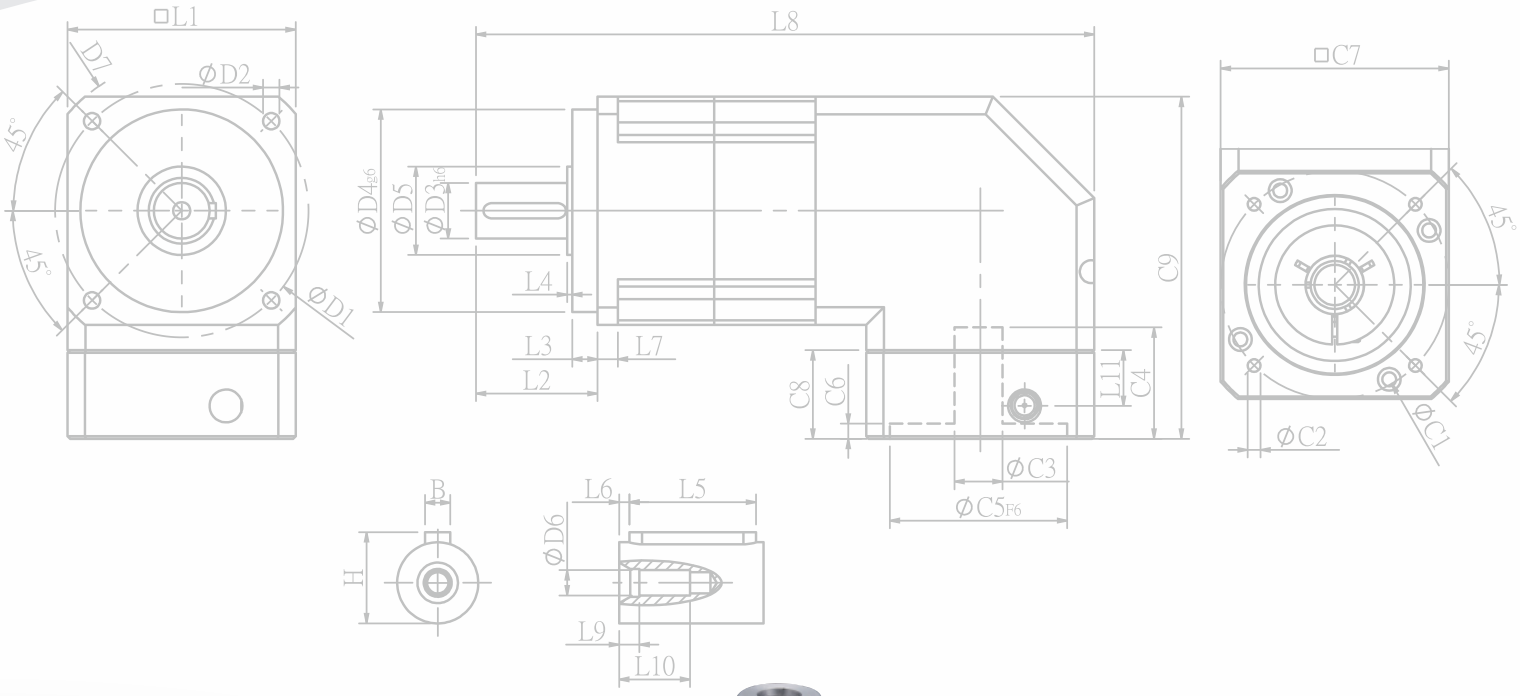
Özellikler Specifications		Kademe Stage	Tahvil Oranı Ratio	PEE-50	PEE-70	PEE-90	PEE-120	PEE-142	PEE-180
Nominal Çıkış Torku Nominal Output Torque T_{2N}	N • m	1	3	13.8	44.2	95.2	283	482	1151
			4	11.9	35.9	74.6	249	490	1055
			5	13.8	43.0	95.2	283	473	1151
			7	11.9	36.0	85.6	219	400	1055
			10	10.1	25.0	75.0	210	320	763
		Kademe Stage	Tahvil Oranı Ratio	PEE-50	PEE-70(T)	PEE-90(T)	PEE-120(T)	PEE-142(T)	PEE-180(T)
		2	15	13.8	44.2	95.2	283	482	1151
			20	11.9	35.9	74.6	249	490	1055
			25	13.8	43.0	95.2	283	473	1151
			30	13.8	43.0	95.2	283	473	1151
			35	13.8	43.0	95.2	283	473	1151
			40	13.8	43.0	95.2	283	473	1151
			50	13.8	43.0	95.2	283	473	1151
			70	11.9	36.0	85.6	219	400	1055
			100	10.1	25.0	75.0	210	320	763
Acil Durdurma Torku Emergency Stop Torque T_{2NOT}	N • m		3.0 Normal Çıkış Torku Maksimum Çıkış Torku T2b =%60x Acil Durdurma Tork 3.0 times of Nominal Output Torque (*Max. Output Torque T_{2B}=60% of Emergency Stop Torque)						
Normal Giriş Hızı Nominal Input Speed n_{1N}	rpm	1,2	3-100	3000	3000	3000	2500	2000	2000
Maksimum Giriş Hızı Max. Input Speed n_{1max}	rpm	1,2	3-100	6000	6000	6000	5000	4000	4000
Mikro Boşluk Oranı P0 Micro Backlash P0	arcmin	1 2	3-10 12-100	≦12 ≦15	≦9 ≦12	≦9 ≦12	≦7 ≦9	≦7 ≦9	≦7 ≦9
Burulma Dayanımı Torsional Rigidity	N • m /arcmin	1,2	3-100	1.0	2.8	7.5	15.5	30	57
Maksimum Radyal Yükleme Max. Radial Load F_{2rB} [1]	N	1,2	3-100	350	960	1630	3380	6150	7260
Maksimum Eksenel Yükleme Max. Axial Load F_{2aB} [1]	N	1,2	3-100	320	900	1420	2930	5510	5550
Çalışma Sıcaklığı Operating Temp.	°C		3-100	-10 °C ~+90 °C					
Çalışma Ömrü Service Life	hr		3-100	20,000 (10,000/Sürekli Çalışma) Continuous Work					
Verimlilik Efficiency	%	1 2	3-10 12-100	≧95% ≧90%					
Ağırlık Weight	kg	1 2	3-10 12-100	0.7 0.9	1.4 2.2/1.7	3.0 5.0/3.4	7.3 11.5/8.5	15.6 20.7/17.2	26 36/31
Pozisyonlama Hassasiyeti Mounting Position	-	1,2	3-100	任意方向Any direction					
Çalışma Sesi Noise Level [2]	dBA/1m	1,2	3-100	≦65	≦67	≦70	≦70	≦75	≦75
Koruma Sınıfı Protection Class	-	1,2	3-100	IP65					
Yağlama Lubrication	-	1,2	3-100	Sentetik Yağ Synthetic Lubricant					

Eylemsizlik Momenti Synthetic Lubricant

Kademe Stage	Tahvil Oranı Ratio	Birim unit	PEE-50	PEE-70	PEE-90	PEE-120	PEE-142	PEE-180
1	3	Kg • cm^2	0.03	0.20	0.81	2.20	7.89	25.2
	4		0.03	0.16	0.65	1.80	5.83	19.8
	5		0.03	0.15	0.62	1.61	5.38	18.3
	7		0.03	0.14	0.60	1.55	5.22	17.8
	10		0.03	0.14	0.60	1.53	5.20	17.6
Kademe Stage	Tahvil Oranı Ratio		PEE-50	PEE-70(T)	PEE-90(T)	PEE-120(T)	PEE-142(T)	PEE-180(T)
2	15/20/25		0.02	0.15(0.02)	0.62(0.15)	1.61(0.62)	5.38(1.61)	18.3(5.38)
	30/35/40		0.02	0.14(0.02)	0.60(0.14)	1.55(0.60)	5.22(1.55)	17.8(5.22)
	50/70/100		0.02	0.14(0.02)	0.60(0.14)	1.53(0.60)	5.20(1.53)	17.6(5.20)

* 1.100 d/dk da çıkış mili merkezine uygulanan değer
* 2.3000 d/dk da yüksüz ölçülen değerdir
※ Yukarıdaki özellikler bildirim yapılmaksızın değiştirilebilir

* 1. Applied to the output shaft center @100rpm. * 2. Measured at 3000rpm with no load
* 3. PGL60T - □□ - P1、PGL90T - □□ - P1, and PGL115T - □□ - P0, are not applicable.
※ The above figures/specifications are subject to change without prior notice.

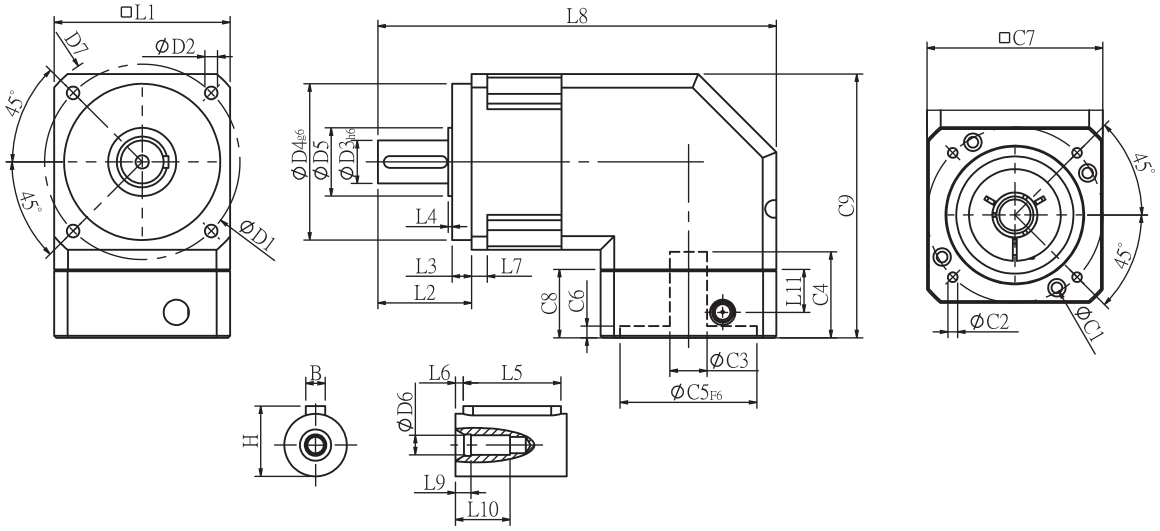


PGR SERIES

teknobend
Makina & Endüstriyel Ürünler
SESAME

PGR Tek Kademe Ölçüleri

PGR Single Stage Dimensions



Özellikler Specifications

Birim:mm Unit:mm

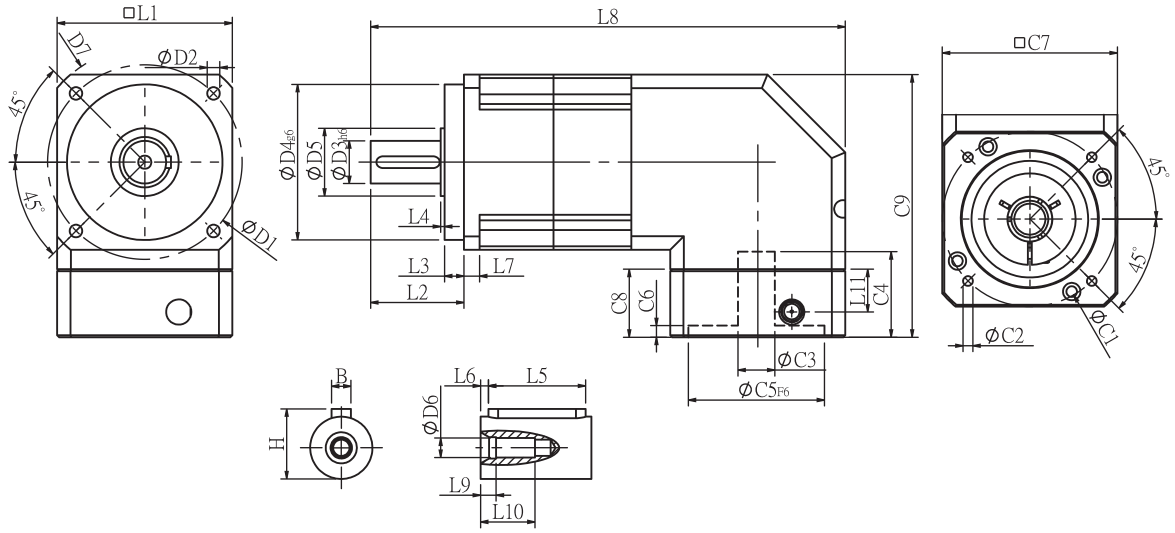
Liste Fiyatı List price	559,26$	700,47$	947,38$	1.187,82$	1.784,20$
Ölçüler Dimensions	PGR42 - P2	PGR60 - P2	PGR90 - P2	PGR115 - P2	PGR142 - P2
D1	50	70	100	130	165
D2	3.4	5.5	6.5	8.5	10.5
D3 h6	13	16	22	32	40
D4 g6	35	50	80	110	130
D5	15	25	35	45	50
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P
D7	56	80	118	148	186
L1	42.6	60	90	115	142
L2	26	37	48	62	93
L3	5.5	7	10	8	8
L4	1.5	1.5	1.5	3	6
L5	15	25	32	40	60
L6	2	2	3	5	5
L7	4	6	8	12	18
L8	103.6	148.7	204	244.5	330
L9	4	4	4.5	6	6
L10	14	16.5	20.5	30	38
L11	13.5	21.5	22	32	44.7
C1 [2]	46	70	90	115	145
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦32	≦35
C4 [2]	29	34	44	53	75
C5 [2] F6	30	50	70	95	110
C6 [2]	6	5	5	6	9
C7 [2]	42.6	60	90	115	140
C8 [2]	25	33	35	48	65
C9 [2]	70.8	107.8	135	174.5	207
B	5	5	6	10	12
H	15	18	24.5	35	43

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

* Fiyat P2 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P2 Class. Please contact with us for different precision class.

PGR Çift Kademe Ölçüleri-1

PGR Double Stage Dimensions-1



Özellikler Specifications

Birim:mm Unit:mm

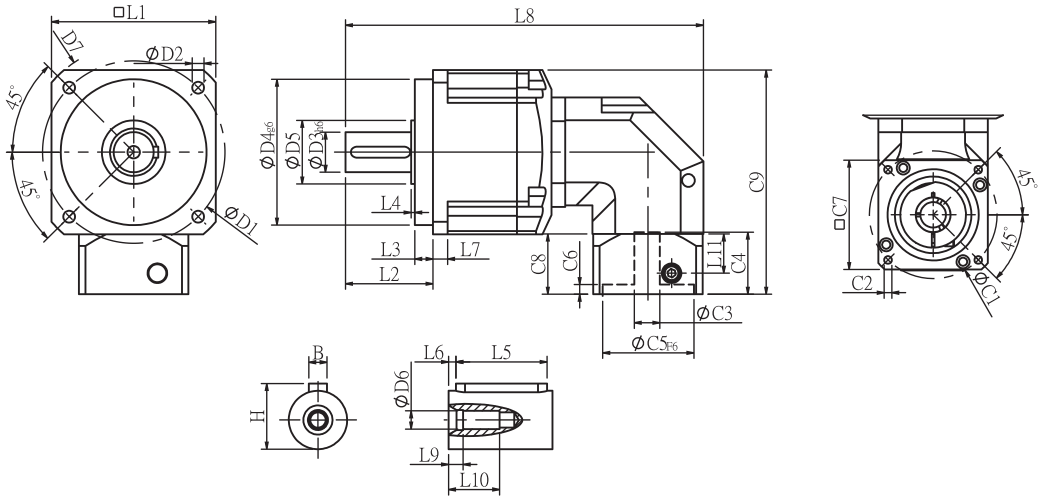
Liste Fiyatı List price	729,18$	877,97$	1.169,81$	1.454,62$	2.118,20$
Ölçüler Dimensions	PGR42 - P2	PGR60 - P2	PGR90 - P2	PGR115 - P2	PGR142 - P2
D1	50	70	100	130	165
D2	3.4	5.5	6.5	8.5	10.5
D3 h6	13	16	22	32	40
D4 g6	35	50	80	110	130
D5	15	25	35	45	50
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P
D7	56	80	118	148	186
L1	42.6	60	90	115	142
L2	26	37	48	62	93
L3	5.5	7	10	8	8
L4	1.5	1.5	1.5	3	6
L5	15	25	32	40	60
L6	2	2	3	5	5
L7	4	6	8	12	18
L8	129.6	176.7	244	292.5	391
L9	4	4	4.5	6	6
L10	14	16.5	20.5	30	38
L11	13.5	21.5	22	32	44.7
C1 [2]	46	70	90	115	145
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 [2]	≦8	≦14	≦19/≦24	≦24/≦32	≦35
C4 [2]	29	34	44	53	75
C5 [2] F6	30	50	70	95	110
C6 [2]	6	5	5	6	9
C7 [2]	42.6	60	90	115	140
C8 [2]	25	33	35	48	65
C9 [2]	70.8	107.8	135	174.5	207
B	5	5	6	10	12
H	15	18	24.5	35	43

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

* Fiyat P2 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P2 Class. Please contact with us for different precision class.

PGR Çift Kademe Ölçüleri-2

PGR Double Stage Dimensions-2



Özellikler Specifications

Birim:mm Unit:mm

Liste Fiyatı List price	766,11$	1030,44$	1.347,04$	1.651,71$	---
Ölçüler Dimensions	PGR60T - P2	PGR90T - P2	PGR115T - P2	PGR142T - P2	PGR180T - P2
D1	70	100	130	165	215
D2	5.5	6.5	8.5	10.5	13
D3 h6	16	22	32	40	55
D4 g6	50	80	110	130	160
D5	25	35	45	50	70
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	80	118	148	186	239
L1	60	90	115	142	182
L2	37	48	62	93	104.5
L3	7	10	8	8	20
L4	1.5	1.5	3	6	2.5
L5	25	32	40	60	70
L6	2	3	5	5	6
L7	6	8	12	18	16
L8	145.1	196.2	269.4	343.5	419.5
L9	4	4.5	6	6	8
L10	16.5	20.5	30	38	48
L11	13.5	21.5	22	32	44.7
C1 2	46	70	90	115	145
C2 2	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 2	≦8	≦14	≦19/≦24	≦24/≦32	≦35
C4 2	29	34	44	53	75
C5 2F6	30	50	70	95	110
C6 2	6	5	5	6	9
C7 2	42.6	60	90	115	140
C8 2	25	33	35	48	65
C9 2	79.5	122.8	147.5	188	207
B	5	6	10	12	16
H	18	24.5	35	43	59

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

* Fiyat P2 için verilmiştir. Farklı hassasiyet modelleri için fiyat sorunuz.
* All prices are for P2 Class. Please contact with us for different precision class.

PGR Özellik Tablosu
PGR Specifications Table

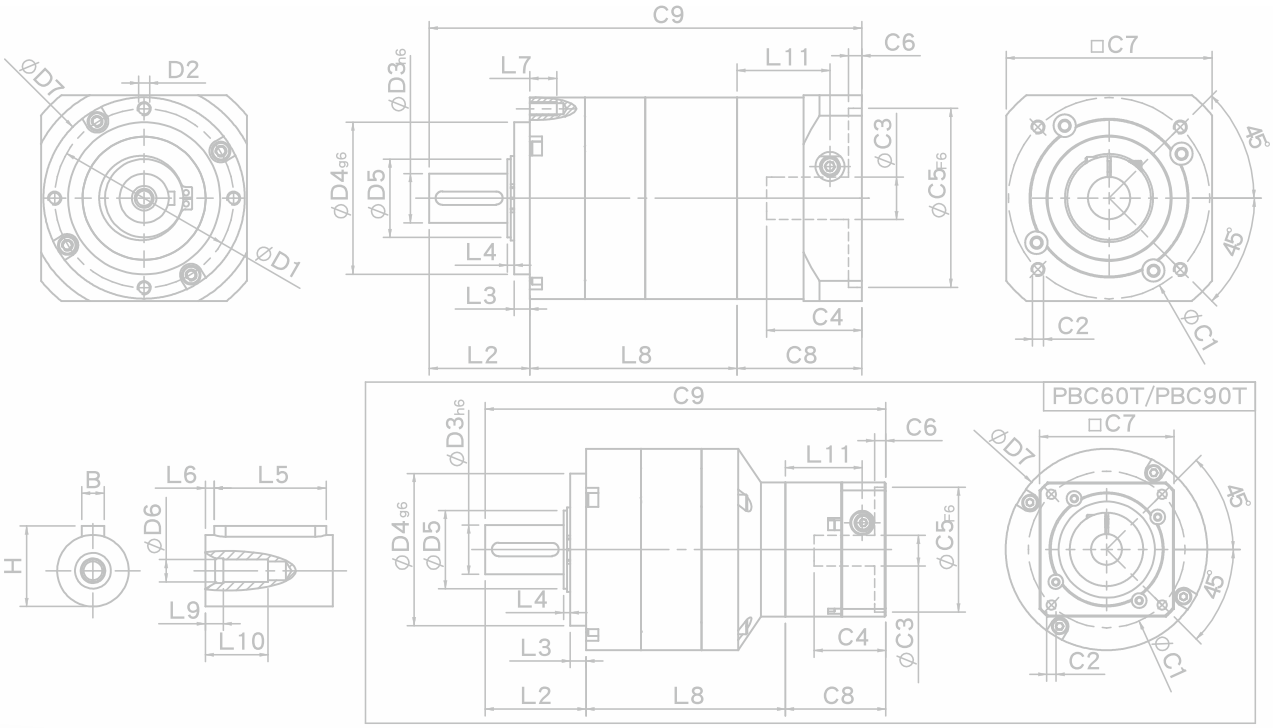
Özellikler Specifications		Kademe Stage	Tahvil Oranı Ratio	PGR-42	PGR-60	PGR-90	PGR-115	PGR-142	PGR-180	PGR-220
Nominal Çıkış Torku Nominal Output Torque T_{2N}	N • m	1	3	13.8	44.3	95.2	283	482	1510	1670
			4	11.9	35.9	74.6	249	490	1055	1574
			5	13.8	43.0	95.2	283	473	1151	1670
			6	12.5	39.4	90.9	266	436	1055	1574
			7	11.9	36.0	85.6	219	400	1055	1574
			8	10.9	32.4	85.0	216	363	860	1184
			9	9.8	28.7	80.0	210	320	764	1185
			10	10.1	25.0	75.0	210	320	763	1184
		Kademe Stage	Tahvil Oranı Ratio	PGR-42	PGR-60 (T)	PGR-90(T)	PGR-115(T)	PGR-142(T)	PGR-180T	PGR-220T
		2	15	13.8	44.2	95.2	283	482	1151	1670
			20	11.9	35.9	74.6	249	490	1055	1574
			25	13.8	43.0	95.2	283	473	1151	1670
			30	13.8	43.0	95.2	283	473	1151	1670
			35	13.8	43.0	95.2	283	473	1151	1670
			40	13.8	43.0	95.2	283	473	1151	1670
			45	13.8	43.0	95.2	283	473	1151	1670
			50	13.8	43.0	95.2	283	473	1151	1670
			60	12.5	39.4	90.9	266	436	1055	1574
			70	11.9	36.0	85.6	219	400	1055	1574
			80	10.9	32.4	85.0	216	363	860	1184
			90	9.8	28.7	80.0	210	320	764	1185
			100	10.1	25.0	75.0	210	320	763	1184
Acil Durdurma Torku Emergency Stop Torque T_{2NOT}	N • m		3.0 Normal Çıkış Torku Maksimum Çıkış Torku T2b =%60x Acil Durdurma Tork / 3.0 times of Nominal Output Torque (*Max. Output Torque T_{2B}=60% of Emergency Stop Torque)							
Normal Giriş Hızı Nominal Input Speed n_{1N}	rpm	1,2	3-100	3000	3000	3000	2500	2000	2000	2000
Maksimum Giriş Hızı Max. Input Speed n_{1max}	rpm	1,2	3-100	6000	6000	6000	5000	4000	4000	4000
Mikro Boşluk Oranı P0 Micro Backlash P0	arcmin	1	3-10	-	-	-	≦4	≦4	≦4	≦4
		2	12-100	-	-	-	≦6	≦6	≦6	≦6
Hassas Boşluk Oranı P1 Precision Backlash P1	arcmin	1	3-10	-	-	≦6	≦6	≦6	≦6	≦6
		2	12-100	-	-	≦9	≦8	≦8	≦8	≦8
Standart Boşluk Oranı P2 Standard Backlash P2	arcmin	1	3-10	≦12	≦9	≦9	≦9	≦9	≦9	≦9
		2	12-100	≦15	≦12	≦12	≦11	≦11	≦11	≦11
Burulma Dayanımı Torsional Rigidity	N • m /arcmin	1,2	3-100	1.0	2.8	7.5	15.5	30	57	110
Maksimum Radyal Yükleme Max. Radial Load F_{2rB} [1]	N	1,2	3-100	350	960	1630	3380	6150	7260	11120
Maksimum Eksenel Yükleme Max. Axial Load F_{2aB} [1]	N	1,2	3-100	320	900	1420	2930	5510	5550	8560
Çalışma Sıcaklığı Operating Temp.	°C		3-100	-10 °C ~+90 °C						
Çalışma Ömrü Service Life	hr		3-100	20,000 (10,000/Sürekli Çalışma) Continuous Work						
Verimlilik Efficiency	%	1	3-10	≧94%						
		2	12-100	≧90%						
Ağırlık Weight	kg	1	3-10	1.0	2.5	6.5	13.2	24.6	49	81
		2	12-100	1.3	3.2/2.8	8.6/6.9	17.7/14.5	29.7/26.2	53	87
Pozisyonlama Hassasiyeti Mounting Position	-	1,2	3-100	Any direction						
Çalışma Sesi Noise Level [2]	dBA/1m	1,2	3-100	65	67	70	70	75	75	80
Koruma Sınıfı Protection Class	-	1,2	3-100	IP65						
Yağlama Lubrication	-	1,2	3-100	Sentetik Yağ Synthetic Lubricant						

Eylemsizlik Momenti Synthetic Lubricant

Kademe Stage	Tahvil Oranı Ratio	Birim unit	PGR-42	PGR-60	PGR-90	PGR-115	PGR-142	PGR-180	PGR-220
1	3/4/5/7/9	Kg • cm²	0.06	0.40	2.28	6.87	24.2	69.8	138.2
	6/8/10		0.05	0.30	1.45	4.76	14.5	50.3	103.6
			PGR-42	PGR-60(T)	PGR-90(T)	PGR-115(T)	PGR-142(T)	PGR-180T	PGR-220T
2	15/20/25/35/45		0.06	0.40(0.08)	2.28(0.72)	6.87(3.02)	24.2(7.83)	27.7	80.3
	others		0.05	0.30(0.06)	1.45(0.38)	4.76(1.64)	14.5(5.00)	15.9	55.3

* 1.100 d/dk da çıkış mili merkezine uygulanan değer * 2.3000 d/dk da yüksüz ölçülen değerdir
* 3.PGL60T - □□ - P1、PGL90T - □□ - P1, and PGL115T - □□ - P0, are not applicable.
※ Yukarıdaki özellikler bildirim yapılmaksızın değiştirilebilir

* 1. Applied to the output shaft center @100rpm. * 2. Measured at 3000rpm with no load
* 3.PGL60T - □□ - P1、PGL90T - □□ - P1, and PGL115T - □□ - P0, are not applicable.
※ The above figures/specifications are subject to change without prior notice.

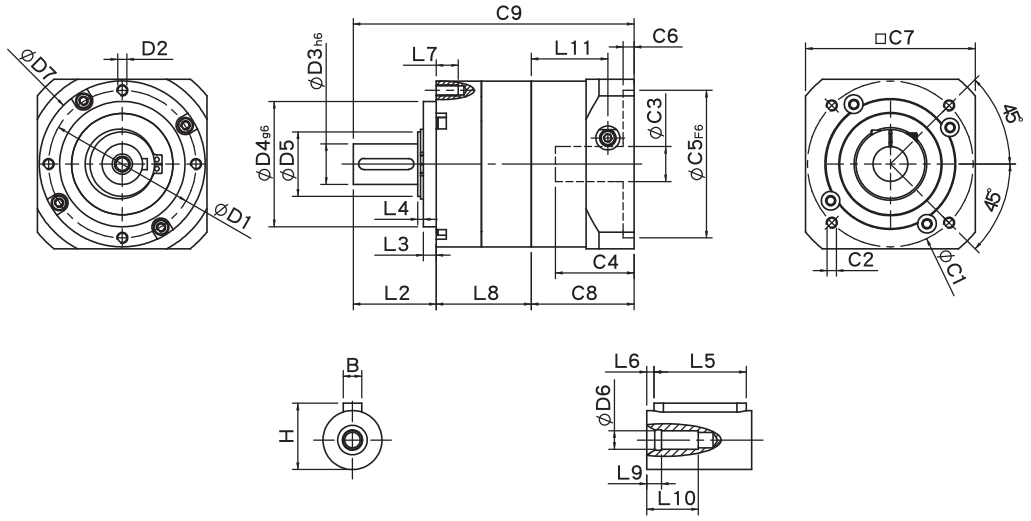

C9
C6
L11
L7
□C7
ØD7
D2
ØD3h6
ØD4g6
ØD5
ØC3
ØC5F6
45°
ØD1
L4
L3
C4
C2
ØC1
L2
L8
C8
PBC60T/PBC90T
B
L6
L5
ØD6
H
L9
L10

SESAME
PBC
SESAME MOTOR

PBC SERIES

PBC Tek Kademe Ölçüleri

PBC Single Stage Dimensions



Özellikler Specifications

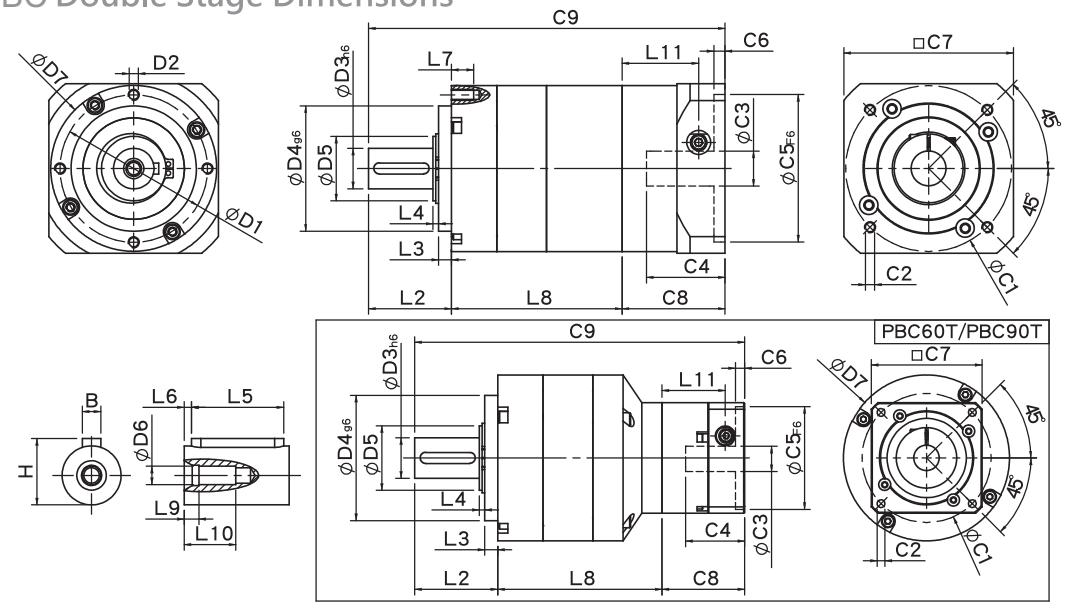
Birim:mm Unit:mm

Liste Fiyatı List price	179,80$	204,68$	245,44$
Ölçüler Dimensions	PBC50 - P2	PBC70 - P2	PBC90 - P2
D1	44	62	80
D2	M4x0.7P	M5x0.8P	M6x1.0P
D3 h6	12	16	22
D4 g6	35	52	68
D5	15	20	35
D6	M4x0.7P	M5x0.8P	M8x1.25P
D7	50	70	90
L2	26	36	45
L3	5.5	5	7
L4	2.6	2.7	3
L5	15	25	30
L6	2	2	3
L7	8	10	12
L8	32.4	49.6	54.4
L9	4	4	4.5
L10	14	16.5	20.5
L11	26.9	34.3	41.55
C1 [2]	46	70	90
C2 [2]	M4x0.7P	M5x0.8P	M6x1.0P
C3 [2]	≦8/≦11	≦14/≦19	≦19/≦24/≦28
C4 [2]	26.5	33.5	41
C5 [2] F6	30	50	70
C6 [2]	4	4	6
C7 [2]	42.6	60	92
C8 [2]	36.4	44.8	55.8
C9 [2]	94.8	130.4	155.2
B	5	5	6
H	15	18	24.5

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PBC Çift Kademe Ölçüleri

PBC Double Stage Dimensions



Özellikler Specifications

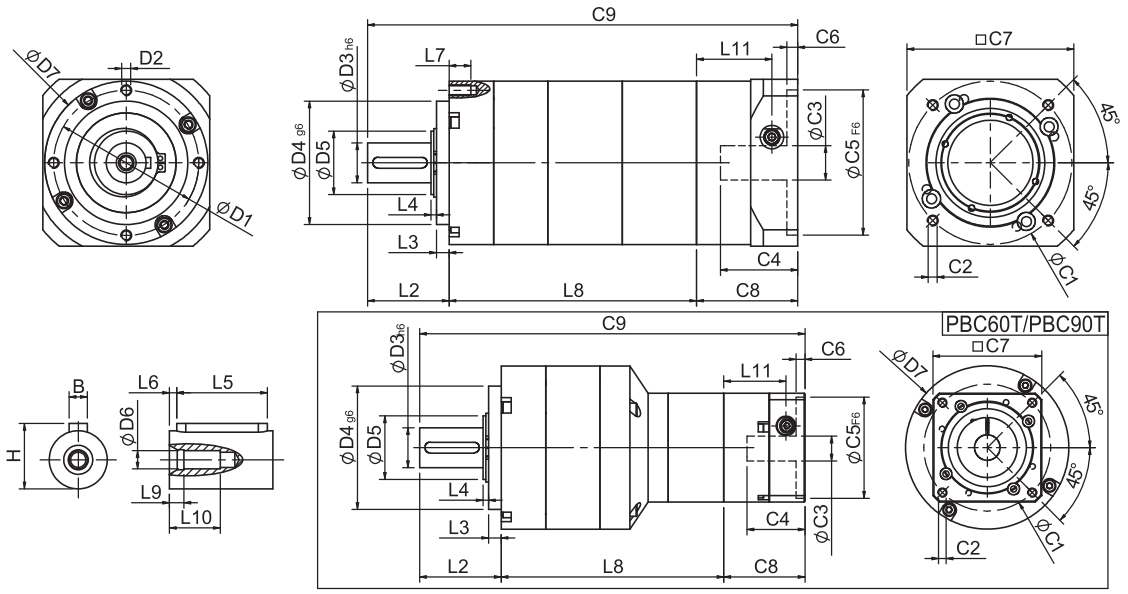
Birim:mm Unit:mm

Liste Fiyatı List price	268,45$	299,54$	302,08$	367,82$	380,32$
Ölçüler Dimensions	PBC50 - P2	PBC70 - P2	PBC70T - P2	PBC90 - P2	PBC90T - P2
D1	44	62		80	
D2	M4x0.7P	M5x0.8P		M6x1.0P	
D3 h6	12	16		22	
D4 g6	35	52		68	
D5	15	20		35	
D6	M4x0.7P	M5x0.8P		M8x1.25P	
D7	50	70		90	
L2	26	36		45	
L3	5.5	5		7	
L4	2.6	2.7		3	
L5	15	25		30	
L6	2	2		3	
L7	8	10		12	
L8	57.3	80.3	75.9	95.4	92
L9	4	4		4.5	
L10	14	16.5		20.5	
L11	26.9	34.3	26.9	41.55	34.3
C1 [2]	46	70	46	90	70
C2 [2]	M4x0.7P	M5x0.8P	M4x0.7P	M6x1.0P	M5x0.8P
C3 [2]	≤8/≤11	≤14/≤19	≤8/≤11	≤19/≤24/≤28	≤14/≤19
C4 [2]	26.5	33.5	26.5	41	33.5
C5 [2] F6	30	50	30	70	50
C6 [2]	4	4	4	6	4
C7 [2]	42.6	60	42.6	92	60
C8 [2]	36.4	44.8	36.4	55.8	44.8
C9 [2]	119.7	161.1	148.3	196.2	181.8
B	5	5		6	
H	15	18		24.5	

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PBC Üçüncü Kademe Ölçüleri

PBC Triple Stage Dimensions



Özellikler Specifications

Birim:mm Unit:mm

Liste Fiyatı List price	372,65$	399,07$	479,74$
Ölçüler Dimensions	PBC50 - P2	PBC70T - P2	PBC90T - P2
D1	44	62	80
D2	M4x0.7P	M5x0.8P	M6x1.0P
$D3_{h6}$	12	16	22
$D4_{g6}$	35	52	68
D5	15	20	35
D6	M4x0.7P	M5x0.8P	M8x1.25P
D7	50	70	90
L2	26	36	45
L3	5.5	5	7
L4	2.6	2.7	3
L5	15	25	30
L6	2	2	3
L7	8	10	12
L8	82.2	100.8	122.7
L9	4	4	4.5
L10	14	16.5	20.5
L11	26.9	26.9	34.3
C1 [2]	46	46	70
C2 [2]	M4x0.7P	M4x0.7P	M5x0.8P
C3 [2]	≤8/≤11	≤8/≤11	≤14/≤19
C4 [2]	26.5	26.5	33.5
$C5^{2}_{F6}$	30	30	50
C6 [2]	4	4	4
C7 [2]	42.6	42.6	60
C8 [2]	36.4	36.4	44.8
C9 [2]	144.6	173.2	212.5
B	4	5	6
H	13.5	18	24.5

★ C1-C9 arası ölçüler, motor flanş ölçülerine göre değişliklik gösterir.
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ Özellikler önceden bildirimde bulunulmaksızın değiştirilebilir.
★ Specification subject to change without notice.

PBC Özellik Tablosu

PBC Specifications Table

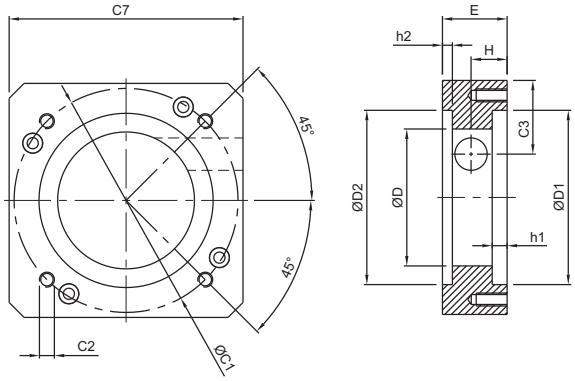
Özellikler Specifications		Kademe Stage	Tahvil Oranı Ratio	PBC-50	PBC-70	PBC-90
Nominal Çıkış Torku Nominal Output Torque T_{2N}	N • m	1	3	4.8	13.6	33.5
			4	6.3	21.6	58.6
			5	6.0	20.5	55.1
			7	5.6	19.2	51.8
			9	5.4	18.5	50.0
			10	5.4	17.0	48.0
		Kademe Stage	Ratio	PBC-50	PBC-70(T)	PBC-90(T)
		2	15	4.8	13.6	33.5
			20	6.3	21.6	58.6
			25	6.0	20.5	55.1
			35	6.0	20.5	55.1
			45	6.0	20.5	55.1
			49	5.6	19.2	51.8
			63	5.6	19.2	51.8
			81	5.4	18.5	50.0
		Kademe Stage	Ratio	PBC-50	PBC-70(T)	PBC-90(T)
		3	125	6.0	20.5	55.1
			175	6.0	20.5	55.1
			225	6.0	20.5	55.1
			245	6.0	20.5	55.1
			315	6.0	20.5	55.1
			405	6.0	20.5	55.1
			567	5.6	19.2	51.8
			729	5.4	18.5	50.0
Acil Durdurma Torku Emergency Stop Torque T_{2NOT}	N • m		3.0 Normal Çıkış Torku Maksimum Çıkış Torku T2b =%60x Acil Durdurma Tork		3.0 times of Nominal Output Torque (*Max. Output Torque T_{2B}=60% of Emergency Stop Torque)	
Normal Giriş Hızı Nominal Input Speed n_{1N}	rpm	1,2,3	3-729	4000	4000	3000
Maksimum Giriş Hızı Max. Input Speed n_{1max}	rpm	1,2,3	3-729	8000	6000	6000
Mikro Boşluk Oranı Micro Backlash	arcmin	1	3-10	≦9	≦8	≦7
		2	15-81	≦12	≦10	≦9
		3	125-729	≦15	≦12	≦12
Burulma Dayanımı Torsional Rigidity	N • m /arcmin	1,2,3	3-729	0.8	2.0	7.0
Maksimum Radyal Yükleme Max. Radial Load F_{2rB} [1]	N	1,2,3	3-729	540	1040	1700
Maksimum Eksenel Yükleme Max. Axial Load F_{2aB} [1]	N	1,2,3	3-729	360	720	735
Çalışma Sıcaklığı Operating Temp.	°C	1,2,3	3-729	-10 °C ~ +90 °C		
Çalışma Ömrü Service Life	hr	1,2,3	3-729	20,000 (10,000/Sürekli Çalışma) Continuous Work		
Verimlilik Efficiency	%	1	3-10	≧95%		
		2	15-81	≧90%		
		3	125-729	≧85%		
Ağırlık Weight	kg	1	3-10	0.5	1.2	3.1
		2	15-81	0.7	1.7/1.5	4.7/3.6
		3	125-729	0.9	2.0/1.8	5.3/4.0
Pozisyonlama Hassasiyeti Mounting Position	-	1,2,3	3-729	Sentetik Yağ Synthetic Lubricant		
Çalışma Sesi Noise Level [2]	dBA/1m	1,2,3	3-729	≦62	≦64	≦67
Koruma Sınıfı Protection Class	-	1,2,3	3-729	IP64		
Yağlama Lubrication	-	1,2,3	3-729	Sentetik Yağ Synthetic Lubricant		

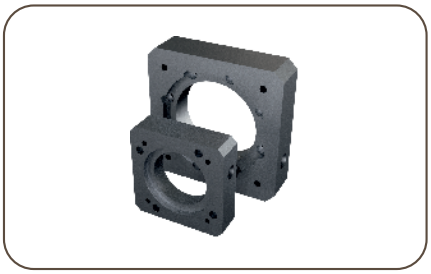
* 1. 100 d/dk da çıkış mili merkezine uygulanan değer
* 2. 3000 d/dk da yüksüz ölçülen değerdir
※ Yukarıdaki özellikler bildirim yapılmaksızın değiştirilebilir

* 1. Applied to the output shaft center @100rpm.
* 2. Measured at 3000rpm with no load
※ The above figures/specifications are subject to change without prior notice.

Redüktör Bağlantı Flanşları

Reducer Connection Flanges





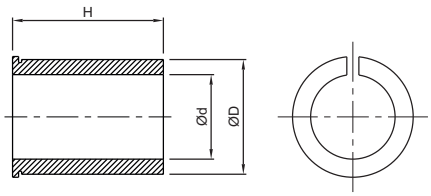
Redüktör Tipi Gearbox Type	Kod Code	Motor Tipi Motor Type	C1	C2	C3	C7	D	D1	D2	E	H	h1	h2	Motor Mili Derinliği Max Motor shaft Depth Max	Max. Burç Max. Sign	Malzeme Material	LİSTE FİYATI LIST PRICE
PEC 050	5.3.000050.01	DELTA - ECMAC10401	46	M4	17	50	28,5	30	35	18,5	9,5	4	3,2	27	Ø8	6063	10,14 $
	5.3.000050.02	PANASONİC - MSMD011100W	45	M3	17	50	28,5	30	35	18,5	9,5	4	3,2	27	Ø8	6063	10,11 $
PEC 070	5.3.000070.01	SOYO - 8,5 NM STEP MOTOR	98,4	M6	29,6	86	43	73	50	26	14,5	2,5	3,5	43	Ø14	6063	21,45 $
	5.3.000070.02	PANASONİC - MSMD042400W	70	M4	22	70	43	50	50	20	10,5	4	3,5	37	Ø14	6063	14,81 $
	5.3.000070.03	DELTA - ECMAC20604	70	M5	22	70	43	50	50	20	10,5	4	3,5	37	Ø14	6063	14,81 $
PEC 090	5.3.000090.01	DELTA - 130 GÖVDE 1 Kw	145	M8	42,5	130	55	110	70	44,5	31,5	7	4,5	66,25	Ø24	6063	61,58 $
	5.3.000090.02	PANASONİC - MSMA1021KW	100	M6	29,6	94	55	80	70	36	24,5	10	4,5	57,75	Ø24	6063	25,64 $
	5.3.000090.03	DELTA - ECMAJ10807	90	M6	29,6	94	55	70	70	26	14,5	6	4,5	47,75	Ø24	6063	21,68 $
	5.3.000090.04	OMRON - R88M-G1K530T	115	M8	41,6	118	55	95	70	34,5	23	10	4,5	56,25	Ø24	6063	40,37 $
	5.3.000090.05	SOYO - 8,5 NM STEP MOTOR	98,4	M6	27	92	50	73	70	26	14,5	2,5	4,5	47,75	Ø24	6063	20,83 $
PEC 120	5.3.000120.01	PANASONİC - MSMA152-15KW	115	M8	38,5	120	70	95	90	36	22	10	4	58,5	Ø24	6063	49,96 $
	5.3.000120.02	ADTECH - ACH13200C2KW	145	M8	38,5	130	70	110	90	36	22	10	4	58,5	Ø24	6063	53,95 $
PEC 155	5.3.000155.01	PANASONİC - MSMA502-4-5KW	145	M8	99,5	140	88	110	95	36	18,2	7	5,3	67,5	Ø35	6063	65,41 $
	5.3.000155.02	DELTA - ECMAE11820-2KW	200	M12	119,5	180	88	114,3	95	49,5	31,7	7	5,3	81	Ø35	6063	91,81 $

★ Tüm motor türleri için flanş üretimi yapılabilmektedir.

★ The flanges can produce for all motor types.

Planet Redüktör Burçları

Planetary Reducer Bushes



Kod Code	Max. Burç Çapı (D) Max. Bushing Diameter (D)	Ød	H	Malzeme Material	LİSTE FİYATI LIST PRICE
4.022.01.014011.10	14	11	20	Transmisyon (Çelik)	1,05 $
4.022.01.014127.10	14	12,7	20	Transmisyon (Çelik)	1,08 $
4.022.01.019014.10	19	14	25	Transmisyon (Çelik)	1,21 $
4.022.01.019016.10	19	16	25	Transmisyon (Çelik)	1,24 $
4.022.01.024019.10	24	19	25	Transmisyon (Çelik)	1,37 $
4.022.01.024022.10	24	22	25	Transmisyon (Çelik)	1,37 $
4.022.01.035024.10	35	24	25	Transmisyon (Çelik)	1,65 $

Not / Notes: