ALUMINIUM HYDRAULIC GEAR PUMPS

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HYDREX

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PUMP APPLICATION DATA

Please review the notes below to obtain high performance from the pump that is one of the components of the hydraulic system.

Pump Drives

Direct Drive

The drive must not impose severe axial or radial loads on the pump shaft, as under these conditions premature failure may result due to the overload on the pump bearings. Direct drives are preferred where practicable, using a coupling between the prime mover and the pump which will allow self alignment of the shafts without undue side loads. A coupling allowing a minimum of 0.25mm radial and axial displacement must be chosen. Flexible compensating three-piece couplings are recommended. (See Fig. 1)

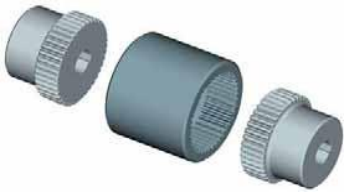
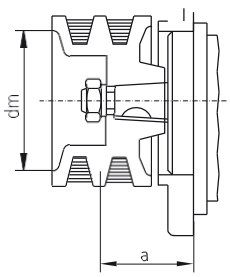


Fig : An example to the flexible compensating three - piece coupling

A shaft key supplied with the pump must be hand fitted when the coupling is assembled. On no account must the key or coupling be fitted or removed from the shaft by hammering as this will cause internal damage pumps equipped splined shafts intive misapplication by plugging the pump shaft directly into the rigidly supported mating shaft of a prime mover. This practice should be avoided as far as possible since very high radial loads can be imposed on the pump shaft unless the concentricity of the driving and the driven shafts, when under load, is of a very high order.

Indirect Drives

Side drives by gear, chain, toothed belt and V-belt drives can be accomodated but allowance must be made for extra side loads that these drives impose on the pump bearings and must be carefully calculated.



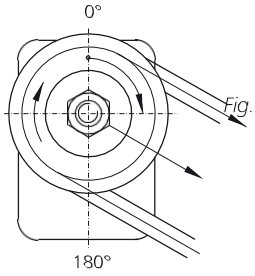
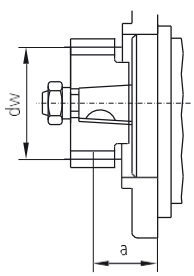


Fig. V-belt drive



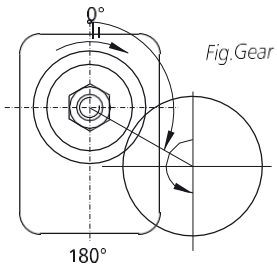


Fig.Gear Drive

Pump Rotation

An arrow embossed on the pump body shows the direction in which the drive shaft must be turned to operate the pump. This is always stated as clockwise or anti-clockwise, as viewed from drive shaft end (See Fig. 4)

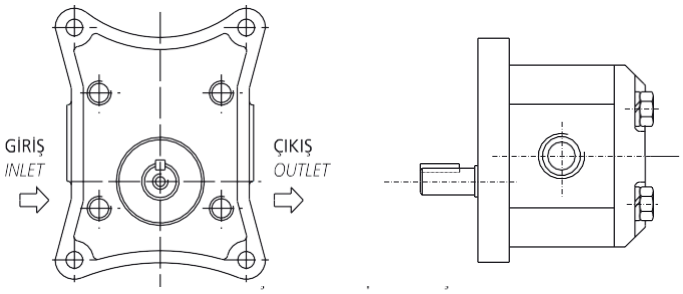


Fig. Pump Rotation

Pump Mounting

The pumps are flange mounted with spigot location and two or four bolts fixing making for simplicity of installation. The counterbore to receive the mounting flange spigot should have a 1 mm chamfer at 45° on the pump side to ensure proper seating. To minimize vibration, which can be transmitted to the pump by rigid pipe runs, it is good practice to use flexible hose immediately adjacent to the pump in both the suction and pressure lines.

Pump Suction Line

The pump inlet piping and fittings should be of generous proportions with flow velocities limited to a maximum of 2.0 m/s to avoid high suction depression. (See Fig. 5) When measured just outside the pump casing the maximum depression that can be continuously tolerated at the pump inlet is 200 mmHg (0.25 bar) below atmospheric pressure. Greater depressions, occuring under cold start-up conditions, are permissible for short periods. The suction line must be as large as possible and free from sharp bends so that depression at the pump inlet is a minimum.

Pump Outlet

The pump outlet should normally be protected by a relief valve to limit the working pressure. The setting of this valve should be as low as possible so that the pump is relieved as soon as excess pressure is produced. This minimizes the heating effect on the fluid and reduces the amount of work done by the pump, thereby saving energy. Outlet pipe sizes should be chosen to minimize flow velocity to avoid system noise, excess pressure drops and overheating. The velocities below 5m/s are normally acceptable (See Fig. 5)

PUMP APPLICATION DATA

Cavitation

Hydraulic oil used in the majority of systems contains about 10 % dissolved air by volume. This air under certain conditions of vacuum within the system is released from the oil causing air bubbles .These air pockets collapse if then subjected to pressure and the cavitation is this collapse that creates erosion of the adjacent metal.

It is obvious from the above that the greater the air content within the oil then the more severe will be the resultant erosion created.

The main causes of over aeration of the oil are air leaks particularly on the inlet side of the pump, and flow line restrictions such as inadequate pipe size, elbow fittings and sudden changes in flow line cross sectional area.

Oil Reservoir

It is recommended that the reservoir capacity is at least twice the pump output per minute at maximum pump speed. Too small a reservoir will fail to accomodate volume changes due to system components leading to the formation of vortex which will introduce air into the system. It also leaves insufficient time for the release of air in the oil and for the dissipation of heat.

The main air entrainement occurs in oil reservoirs and precautions should be taken to keep agitation of the oil/air interface to a minimum. These include location of oil return lines well below the oil surface. Oil suction ports also should be well immersed to eliminate vortex formation and as far as possible they should be located well away from the oil-return pipe to avoid recirculation of air bubbles.

Displacement volume for rams and actuators must be allowed for by providing adequate air space and breathing. For this purpose an oil filler /breather must be fitted to the filling orifice in the top surface of the tank. This should comprise a fine mesh strainer for the filling orifice and an air filter to prevent the entry of dust particles through the breather. Check the oil level regularly and use only clean, approved oil when to ping-up.

Filtration

Dirt is the enemy of any hydraulic system. Adequate filtration must be provided to ensure that harmful dirt particles are trapped. As an absolute minimum standard the system must have a suction line strainer and a return line filter.

The strainer is fitted to the pump suction line inside the reservoir and should be of 100 mesh construction (0.15 mm gap) The return line filter must be 10 micron filter of the renewable element type.

Oil

Only good quality, mineral based oil must be used with a viscosity characteristic that will conform to the requirements shown below.

Viscosity at any running condition must not be less than 5.5 centistokes. For normal temperature operation ISO VG68 oils are recommended, but in cold climates ISO VG32 oils must be used.

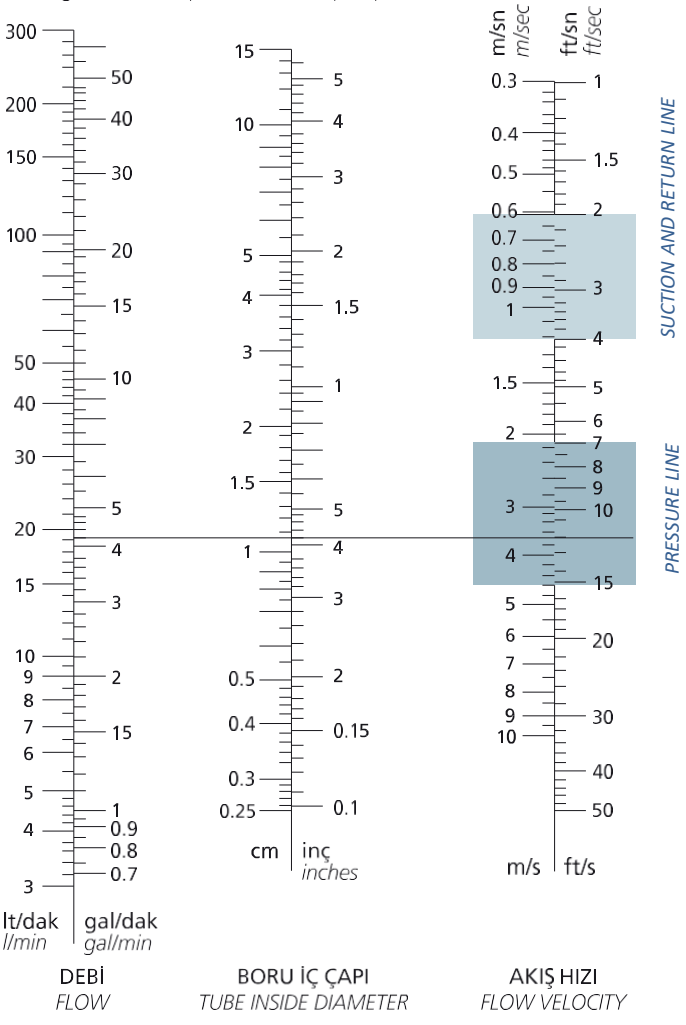
Operating Parameters

These pumps are designed to operate continuously between 0°C and + 80°C. This range can be extended to -20°C and + 100°C for intermittent operation.

High Efficient Pumps

High volumetric efficiencies produced by the pumps are achieved in part by careful attention to the control of gear tip leakage. The body to gear geometry is arranged such that during the running in test cycle, to which every unit is subjected, the gears cut perceptible tracks in the body. This results in virtually zero clearance between the gear tips and producing a near perfect tip seal under running conditions.

Floating composite bushes are used in the pumps which house the bearing liners and provide a face seal to the gears. This efficient seal is achieved by pressure loading precise areas of the bush rear face with fluid at working pressure. Special features are incorporated in the bush sealing face to compensate for operating variables such as pressure, speed and temperature. The pressure balancing system a minimum nett on-load for high mechanical efficiency yet at the same time balancing a varying pressure distribution across the bush face, thus contributing to the high volumetric performance of pumps.



PIPE SIZING

0P1 SERIES
ALUMINIUM HYDRAULIC GEAR PUMPS

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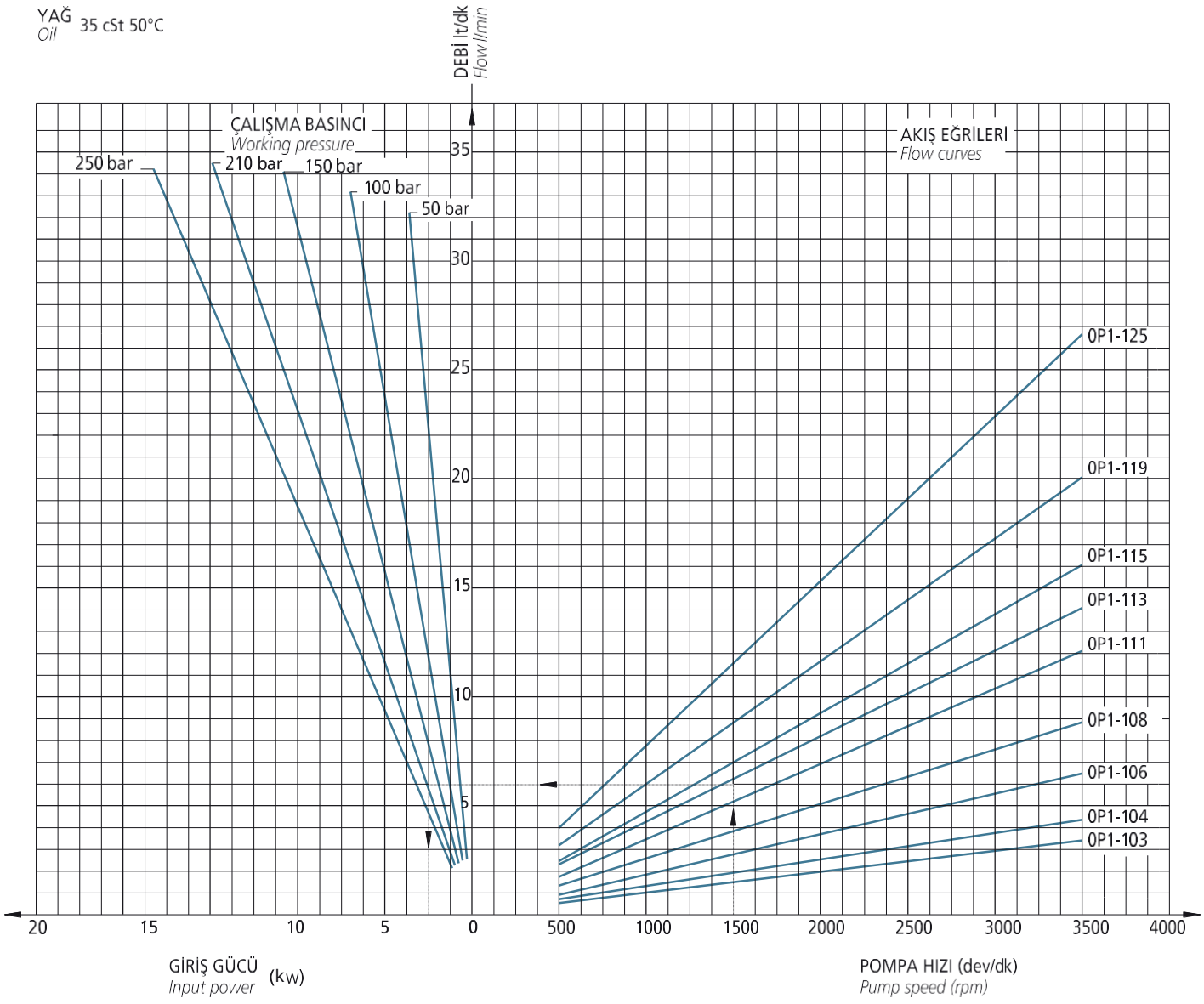
TECHNICAL DATA

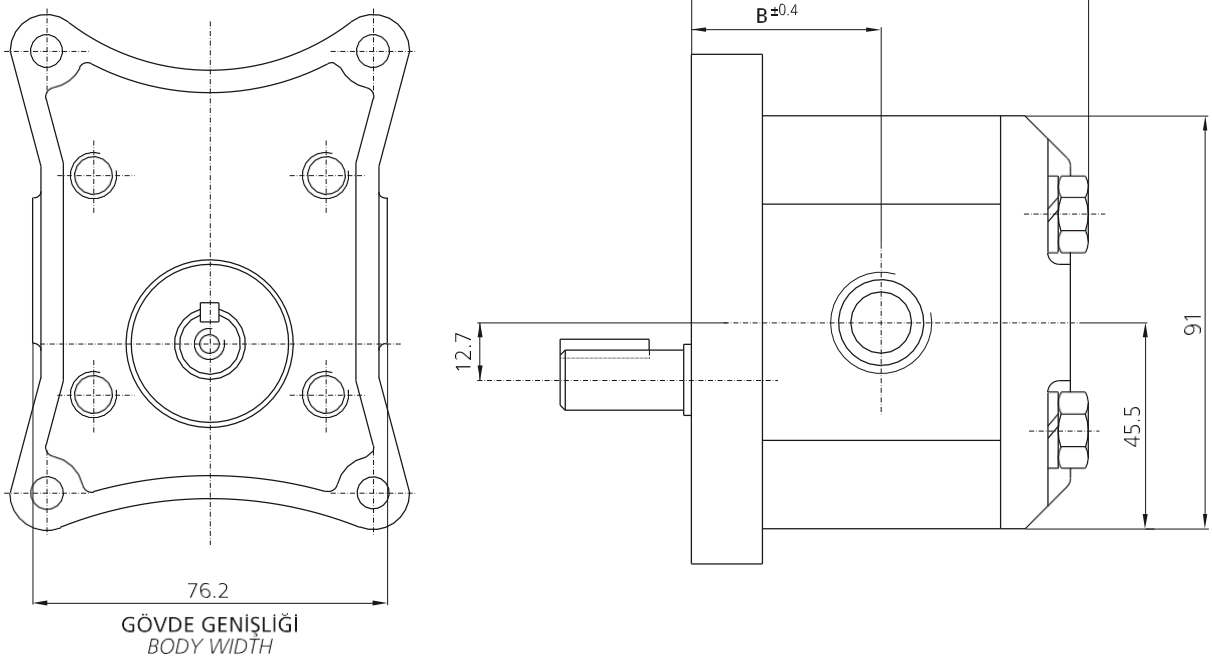
Model	Displacement cm3/dev	Flow lpm (1500 rpm)	Max. Outlet Pressure	Min. Speed (rpm)	Max. Speed (rpm)
0P1-103	1 2	1 5	280	600	4000
0P1-104	1.6	1.9	280	600	4000
0P1-106	2.2	2.9	280	600	4000
0P1-108	2.9	3.9	280	600	4000
0P1-111	3.8	5.3	280	600	4000
0P1-113	4.5	6.2	280	600	4000
0P1-115	5.1	7.2	280	600	4000
0P1-119	6.3	8.9	280	600	4000
0P1-125	8.1	11 7	225	600	4000

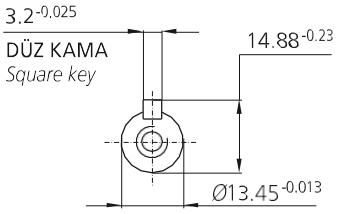
[1] *For ISO VG68 oil at 50°C*

Performance Curves



PUMP APPLICATION DATA

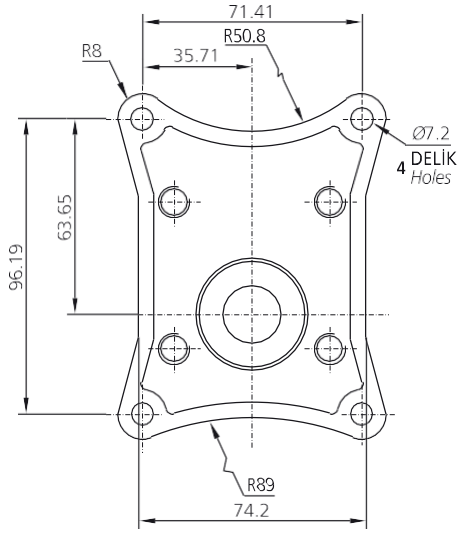


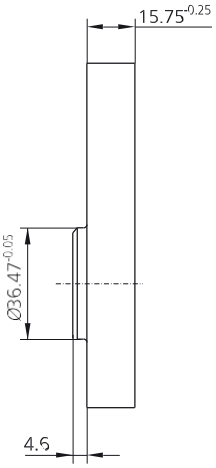


Model	Displacement cm3/dev	A	B
OP1-103	1.2	73.2	34.8
OP1-104	1.6	74.0	35.2
OP1-106	2.2	75.1	35.6
OP1-108	2.9	76.6	36.5
OP1-111	3.8	78.6	37.5
OP1-113	4.5	80.0	38.2
OP1-115	5.1	81.4	38.7
OP1-119	6.3	83.8	40.0
OP1-124	8.1	87.6	42.0

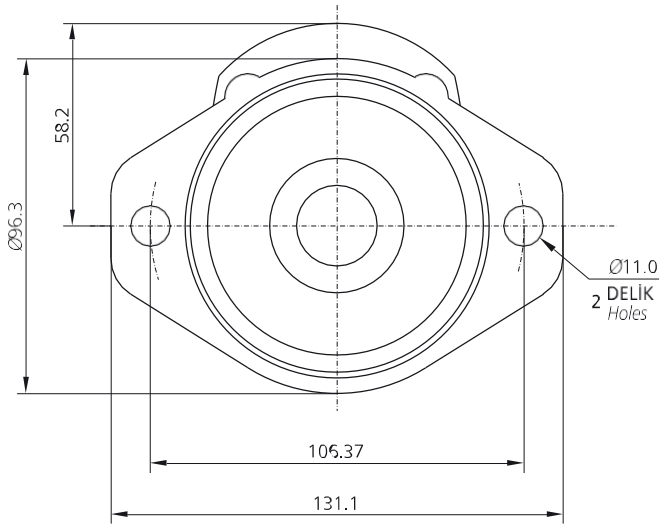
MOUNTING FLANGE

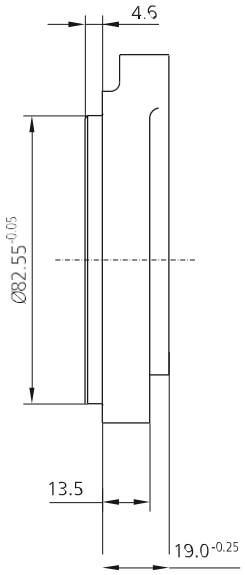
B Type



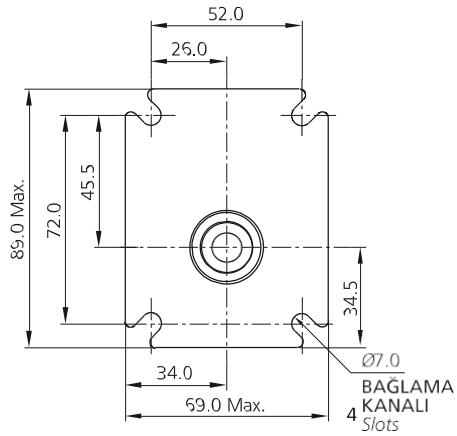


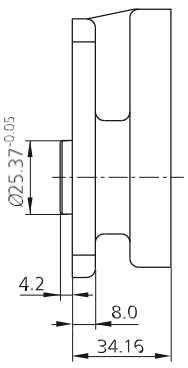
G Type



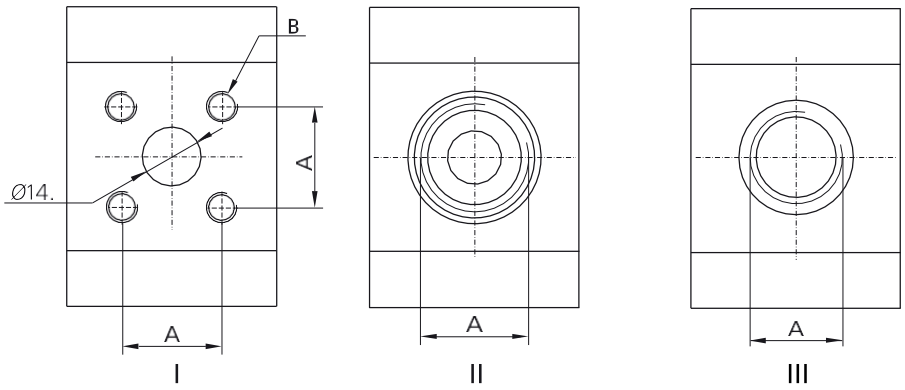


R Type





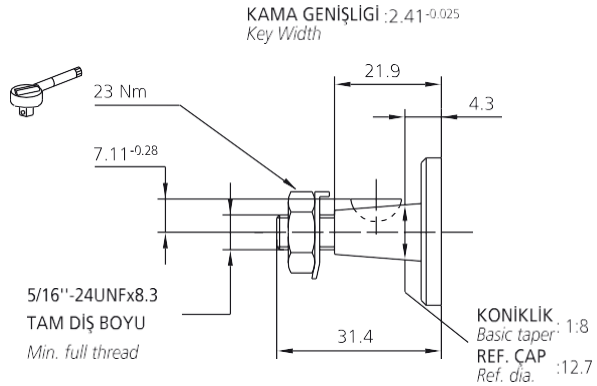
HOLES TYPES



Hole Type	Tube ØD1	I		II	III
		A	B	A	A
01	Inlet	25.15	M6x1x12.7		
	Outlet	25.15	M6x1x12.7		
02	Inlet			¾-16UNX14.2	
	Outlet			¾-16UNX14.2	
03	Inlet			7/8-14UNX16.5	
	Outlet			¾-16UNX14.2	
04	Inlet				3/8-BSPFX11.4
	Outlet				3/8-BSPFX11.4
05	Inlet				½-BSPFX14
	Outlet				½-BSPFX14

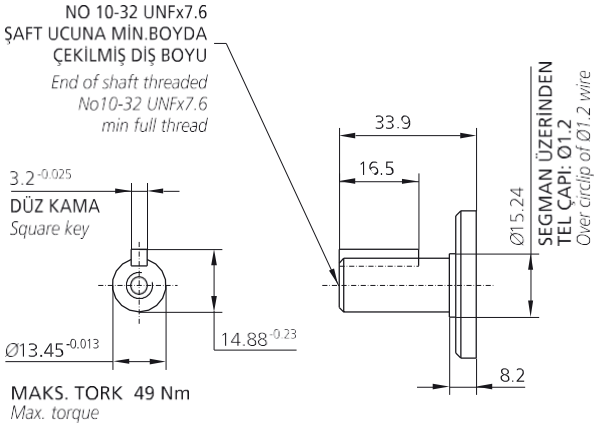
SHAFT TYPES

Standard Type



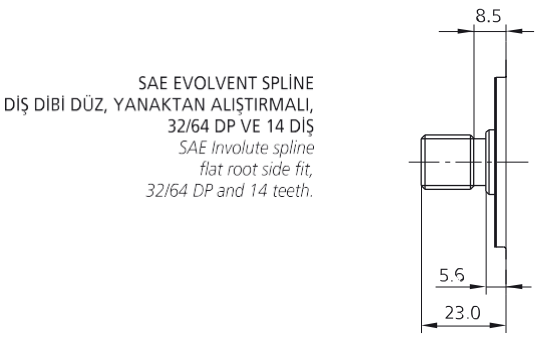
MAKS. TORK 49 Nm
Max. torque

P Type



MAKS. TORK 49 Nm
Max. torque

S Type



MAKS. TORK 40 Nm
Max. torque

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
1	**T03-0001**	1,2	1,5	280	A	B	Parallel	Inlet/Outlet 035-M6x1x12 (4) D
2	**T03-0002**	1,2	1,5	280	C	B	Parallel	Inlet/Outlet 035-M6x1x12 (4) D
3	**T03-0003**	1,6	1,9	280	A	B	Parallel	Inlet/Outlet 035-M6x1x12 (4) D
4	**T03-0004**	1,6	1,9	280	C	B	Parallel	Inlet/Outlet 035-M6x1x12 (4) D
5	**T03-0005**	2,2	2,9	280	A	B	Parallel	Inlet/Outlet 035-M6x1x12 (4) D
6	**T03-0006**	2,2	2,9	280	C	B	Parallel	Inlet/Outlet 035-M6x1x12 (4) D
7	**T03-0007**	2,9	3,9	280	A	B	Parallel	Inlet/Outlet 035-M6x1x12 (4) D
8	**T03-0008**	2,9	3,9	280	C	B	Parallel	Inlet/Outlet 035-M6x1x12 (4) D

1PN SERIES
ALUMINIUM HYDRAULIC GEAR PUMPS

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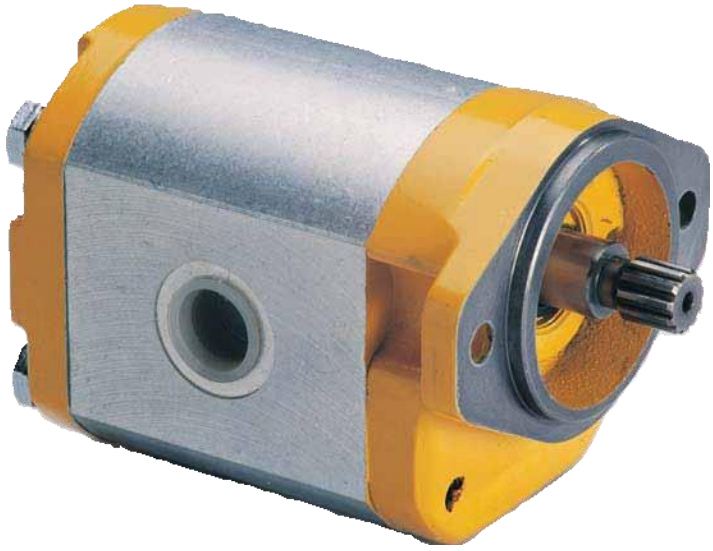

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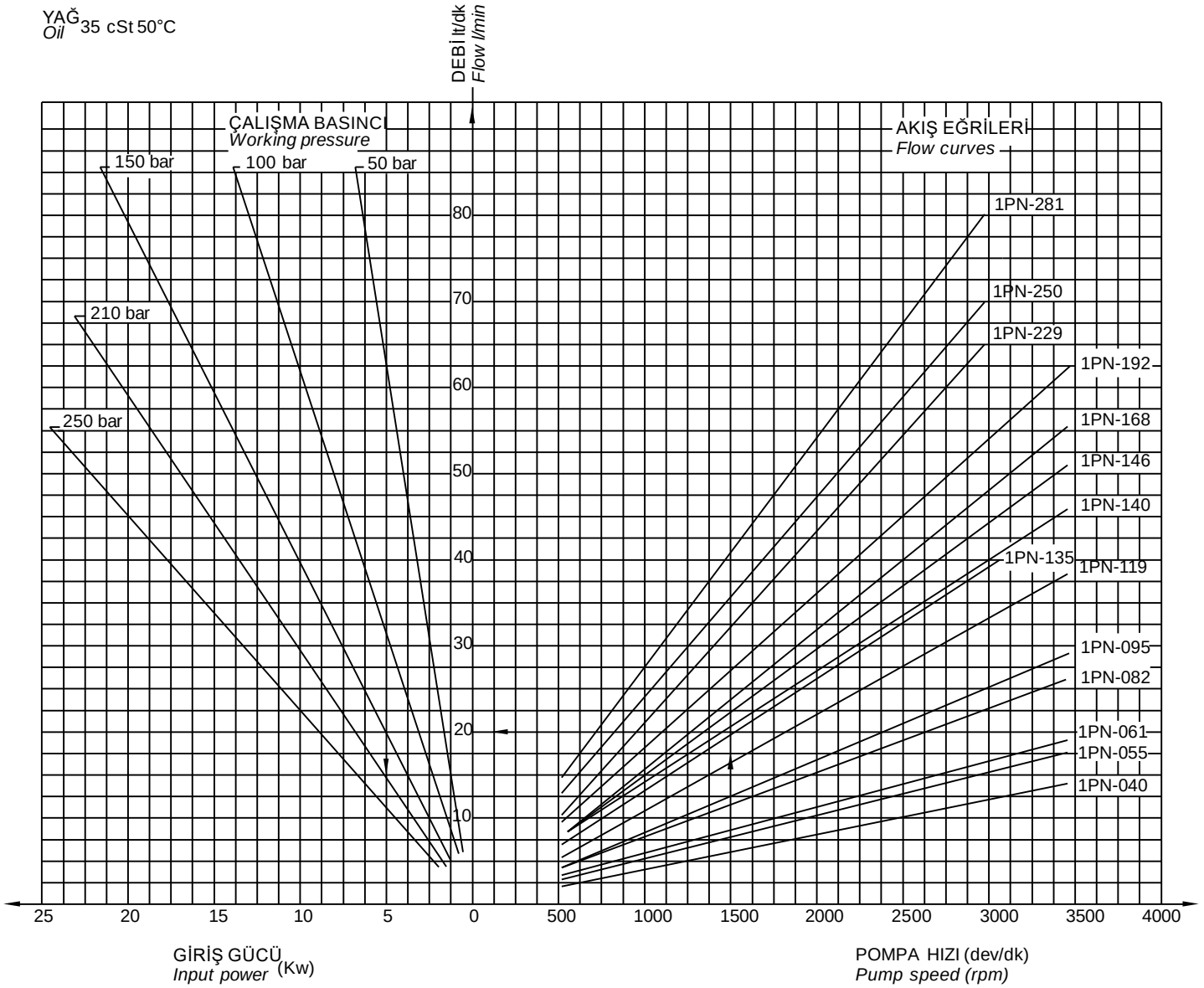
TECHNICAL DATA

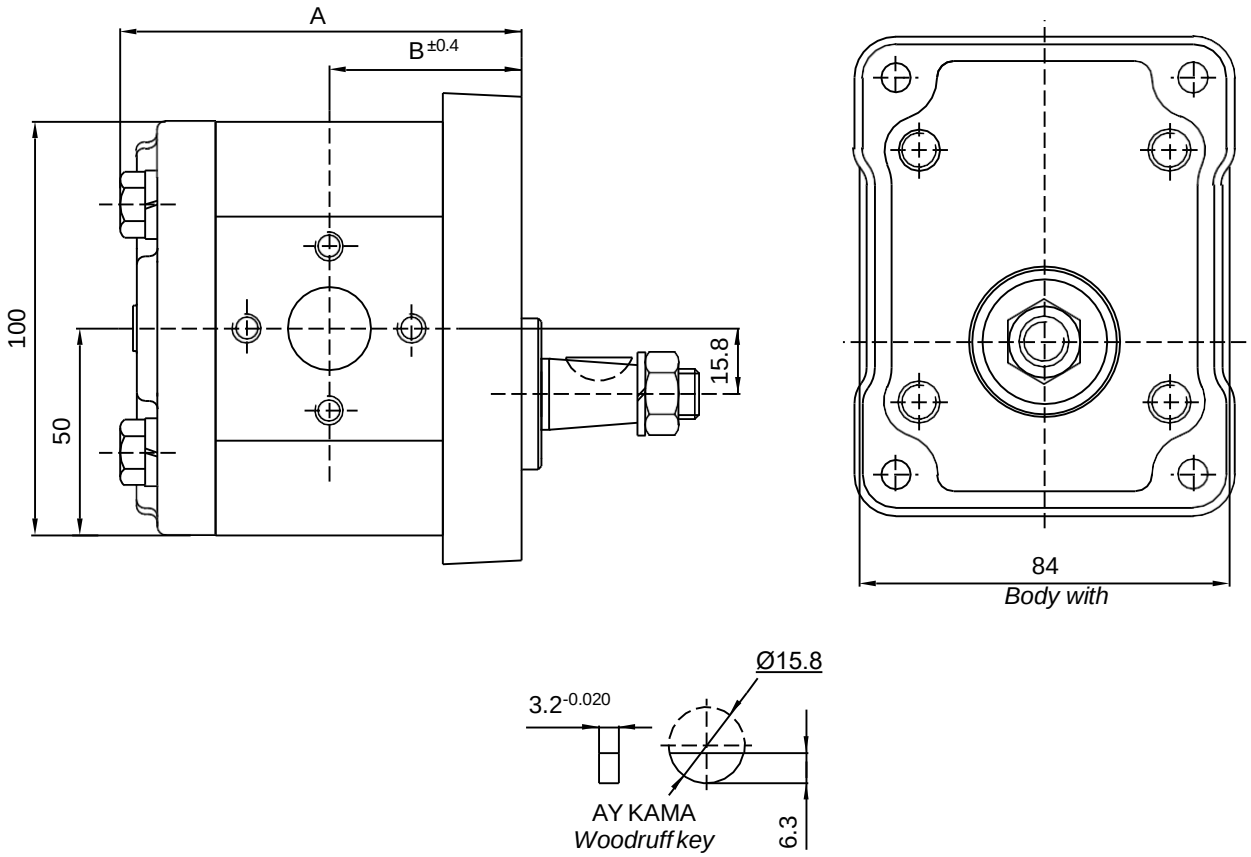
Model	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Max. Outlet Pressure	Min. Speed (rpm)	Max. Speed (rpm)
1PN-040	4,0	5,7	250	600	3000
1PN-055	5,5	7,8	250	600	3000
1PN-061	6,1	8,7	250	600	3000
1PN-082	8,2	11,8	250	600	3000
1PN-095	9,5	13,6	250	600	3000
1PN-0119	11,9	17,1	250	600	3000
1PN-135	13,5	19,4	250	600	3000
1PN-140	14	20,1	250	600	3000
1PN-146	14,6	21,0	250	600	3000
1PN-168	16,8	24,1	250	600	3000
1PN-192	19,2	27,6	250	600	3000
1PN-229	22,9	32,9	210	600	2500
1PN-250	25,0	36,0	210	600	2500
1PN-281	28,1	40,4	175	600	2500

[1] For ISO VG68 oil at 50°C

PERFORMANCE CURVES



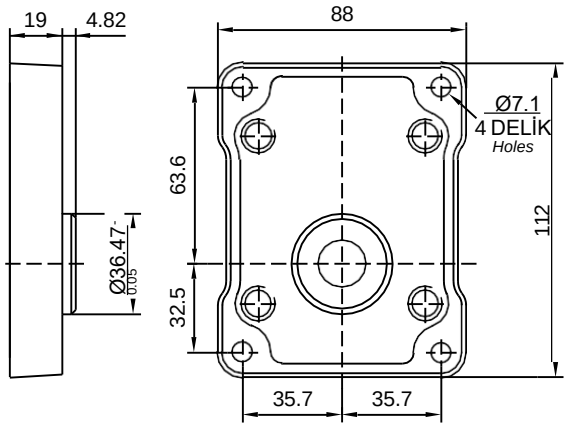
PUMP APPLICATION DATA



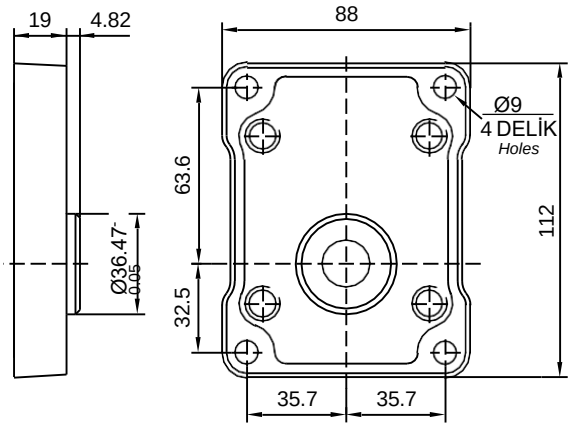
Model	Displacement cm3/dev	A mm	B mm
1PN-040	4,0	88,1	42,2
1PN-055	5,5	90,4	43,4
1PN-061	6,1	91,4	43,8
1PN-082	8,2	94,6	45,5
1PN-095	9,5	96,5	46,5
1PN-0119	11,9	100,4	48,4
1PN-140	14	103,7	50,0
1PN-146	14,6	104,7	50,5
1PN-168	16,8	108,1	52,2
1PN-192	19,2	123,9	60,1
1PN-229	22,9	129,6	63,0
1PN-250	25,0	132,9	64,6
1PN-281	28,1	137,8	67,1

MOUNTING FLANGE

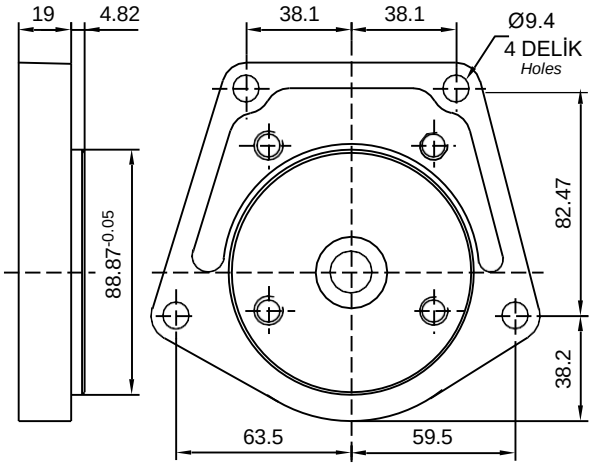
B1 Square Flange



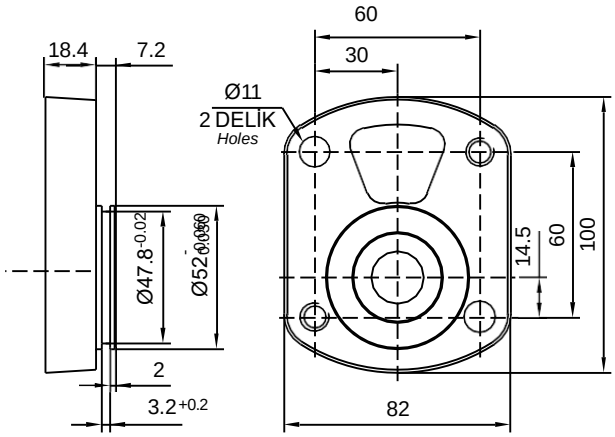
B2 Square Flange



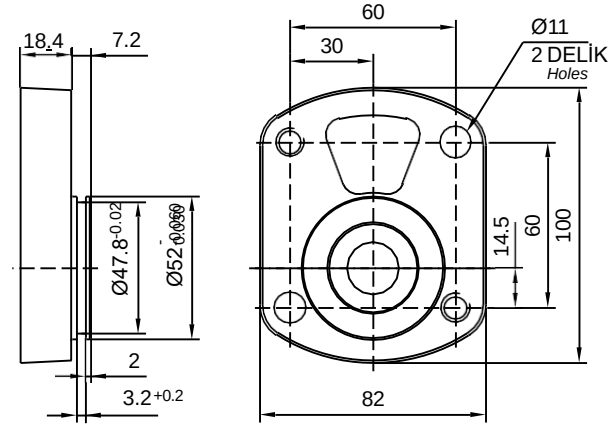
C1 Tractor Applications



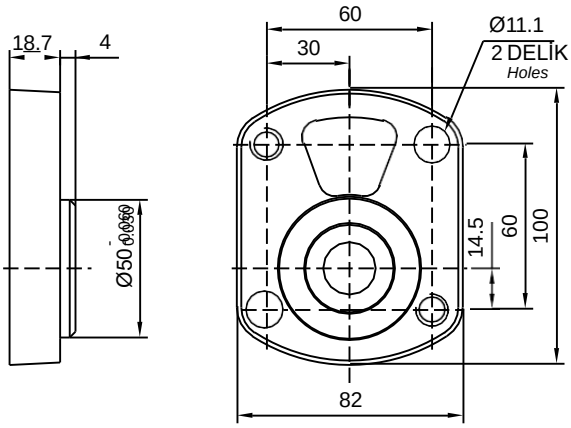
D1 Centering Ø52,0mm with seal ring



D2 Centering Ø52,0mm with seal ring

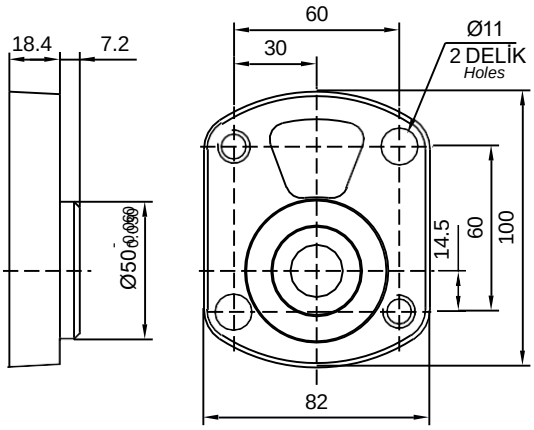


E1 Centering Ø50,0mm

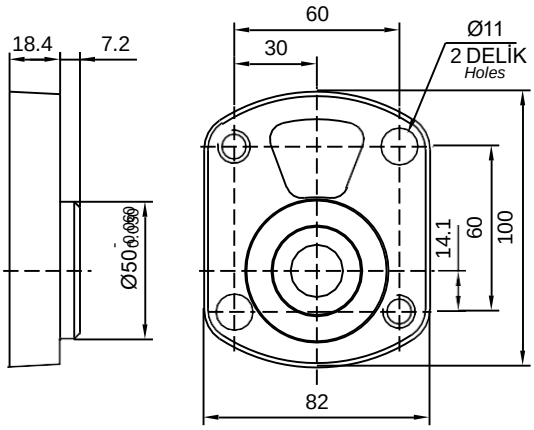


MOUNTING FLANGE

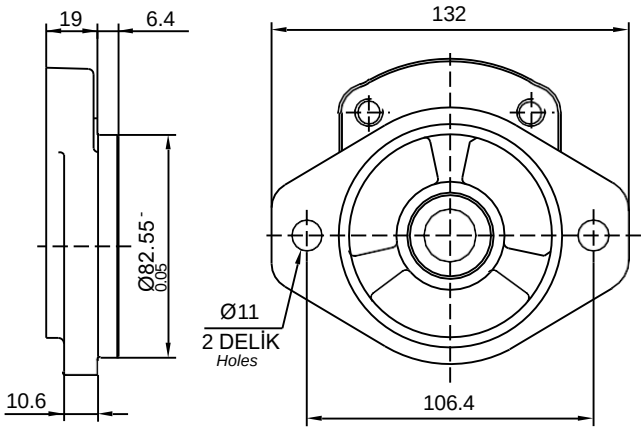
F1 Centering Ø50,0mm



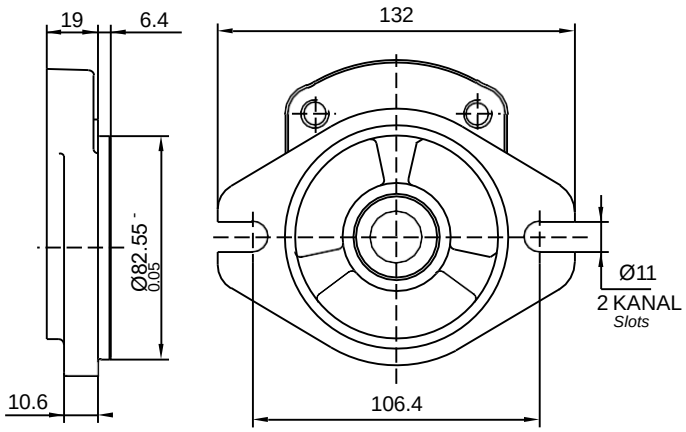
F2 Centering Ø50,0mm



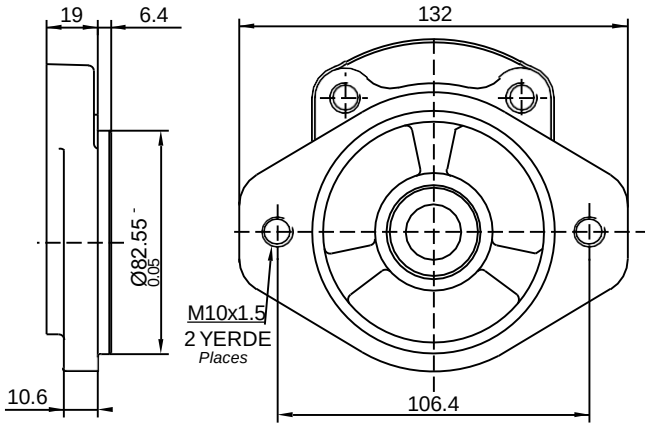
G1 SAE A – 2 Bolts



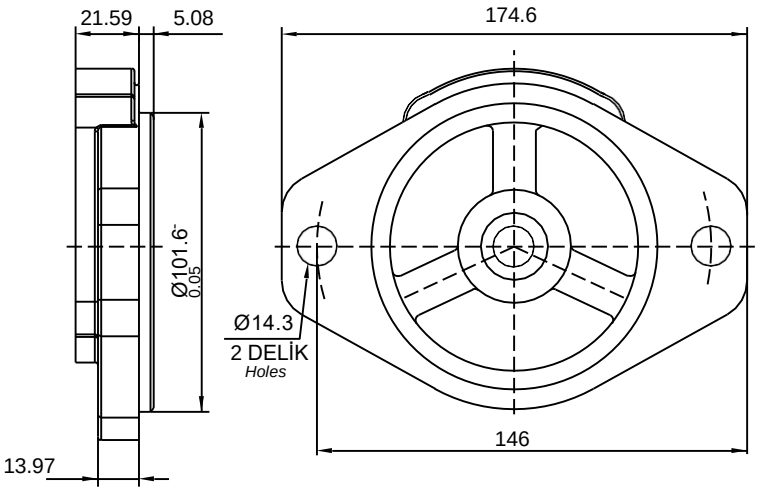
G2 SAE A – 2 Bolts



G3 SAE A – 2 Bolts

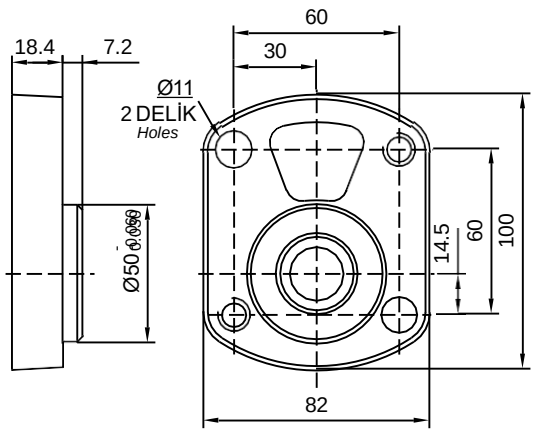


G4 SAE B – 2 Bolts

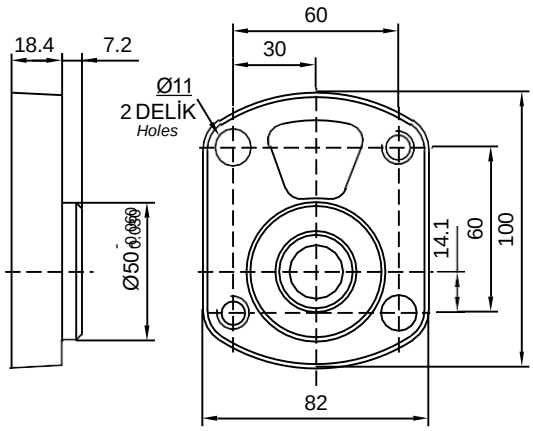


MOUNTING FLANGE

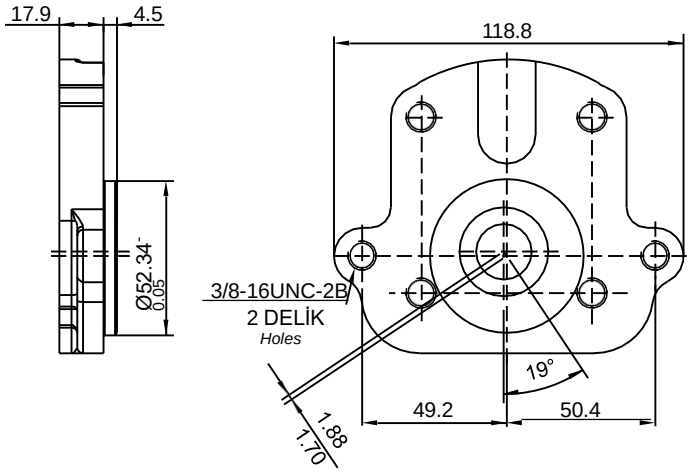
J1 Centering Ø50,0mm



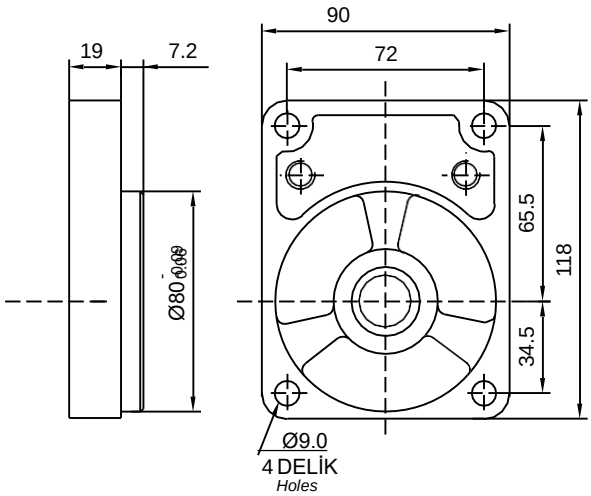
J2 Centering Ø50,0mm



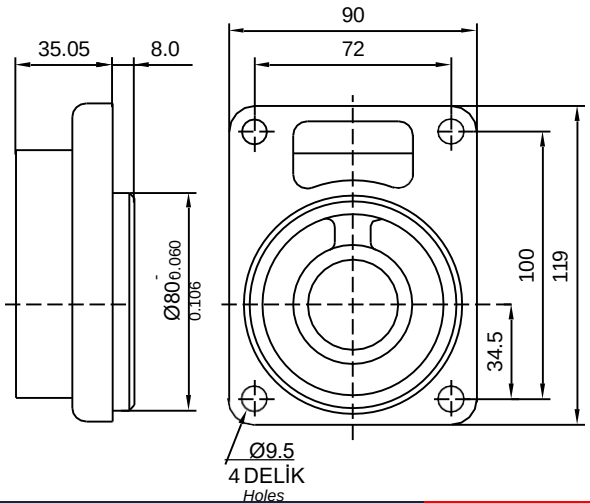
N1 Tractor Application



S1 Centering Ø80,0mm

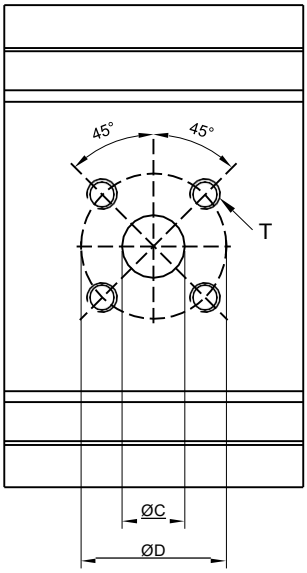


Y1 Outboard Bearing



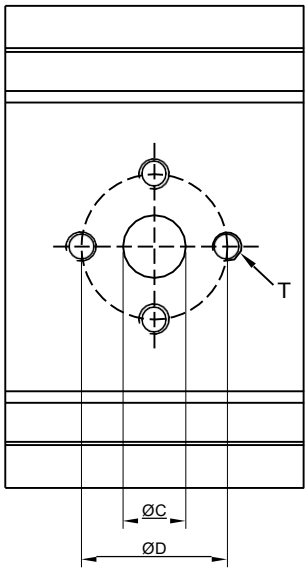
HOLES TYPES

Type 1 Rectangular Flange



Code	ØC	ØD	T
A	15	35	M6x1
B	20	40	M6x1
C	20	40	M8x1.25
D	25	50	M8x1.25
E	18	55	M8x1.25
F	29	55	M8x1.25

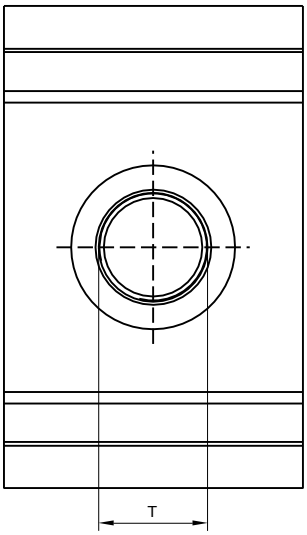
Type 2 Rectangular Flange



Code	ØC	ØD	T
A	13	30	M6x1
B	15	30	M6x1
C	15	35	M6x1
D	20	40	M8x1.25

Type 3 UNF Thread with O-ring Boss

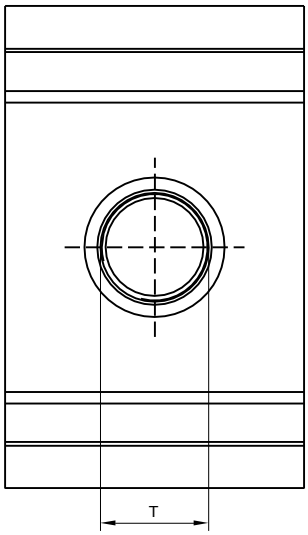
SAE J514



Code	T
A	9/16"-18 UNF
B	3/4"-16 UNF
C	7/8"-14 UNF
D	1 1/16"-12 UN
E	1 5/16"-12 UN
F	1 5/8"-12 UN

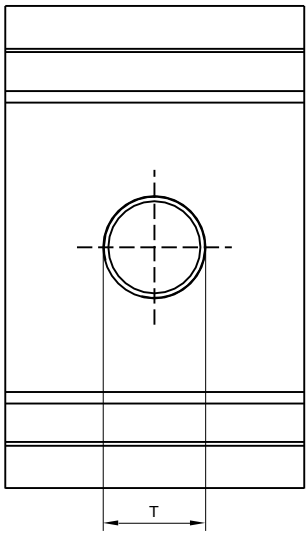
Type 4 Metric Thread with O-ring Boss

ISO6149



Code	T
A	M16x1.5
B	M18x1.5
C	M22x1.5
D	M27x2
E	M33x2

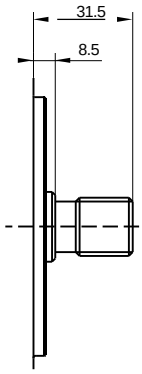
Type 3 Pipe Thread (BSPP)



Code	T
A	G 3/8"
B	G 1/2"
C	G 3/4"
D	G 1"

SHAFT TYPES

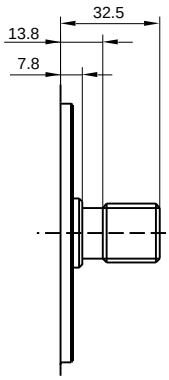
S1 SAE A Spline 9 Teeth



EVOLVENT SPLINE
SAE J744 16-4
9 DİŞ, 16/32 DP
DİŞ ÜSTÜ ÇAPI: Ø15.45
Involute Spline
SAE J744 16-4
9 Teeth, 16/32 DP
Major Diameter: Ø15.45

MAKS. TORK: 85 Nm
Max.Torque

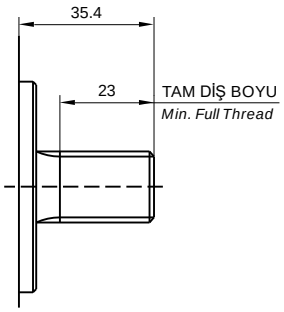
S2 SAE A Spline 11 Teeth



EVOLVENT SPLINE
SAE J744 19-4
11 DİŞ, 16/32 DP
DİŞ ÜSTÜ ÇAPI: Ø18.63
Involute Spline
SAE J744 19-4
11 Teeth, 16/32 DP
Major Diameter: Ø18.63

MAKS. TORK: 140 Nm
Max.Torque

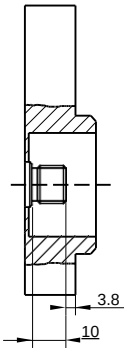
S3 SAE Spline 10 Teeth



EVOLVENT SPLINE
SAE J498 A
10 DİŞ, 16/32 DP
DİŞ ÜSTÜ ÇAPI: Ø17.45
Involute Spline
SAE J498A
10 Teeth, 16/32 DP
Major Diameter: Ø17.45

MAKS. TORK: 105 Nm
Max.Torque

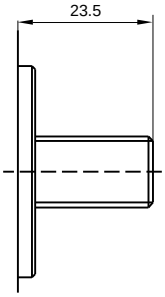
S4 DIN 5482 Spline 8 Teeth



EVOLVENT SPLINE
DIN 5482 B15x12
8 DİŞ
DİŞ ÜSTÜ ÇAPI: Ø14.5
Involute Spline
DIN 5482 B15x12
8 Teeth
Major Diameter: Ø14.5

MAKS. TORK: 115 Nm
Max.Torque

S5 DIN 5482 Spline 9 Teeth

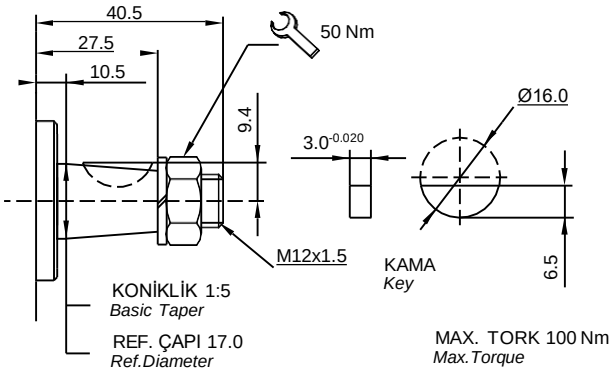


EVOLVENT SPLINE
DIN 5482 B17x14
9 DİŞ
DİŞ ÜSTÜ ÇAPI: Ø16.5
Involute Spline
DIN 5482 B17x14
9 Teeth
Major Diameter: Ø16.5

MAKS. TORK: 115 Nm
Max.Torque

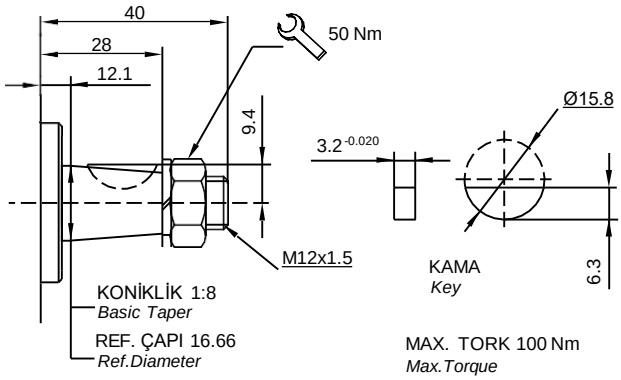
SHAFT TYPES

T1 1/5 Tapered Shaft



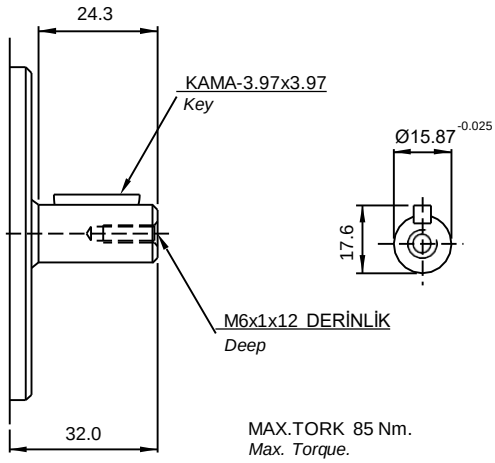
MAX. TORK 100 Nm
Max.Torque

T2 1/8 Tapered Shaft



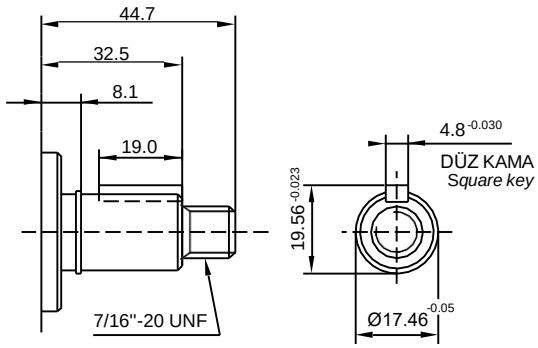
MAX. TORK 100 Nm
Max.Torque

P1 SAE A 5/8 Parallel Shaft



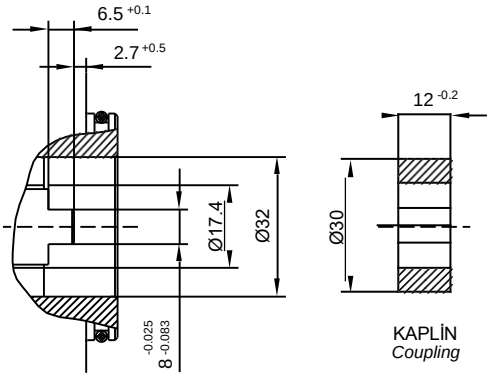
MAX.TORK 85 Nm.
Max. Torque.

P2 Parallel Shaft



MAX. TORK 100 Nm
Max. torque

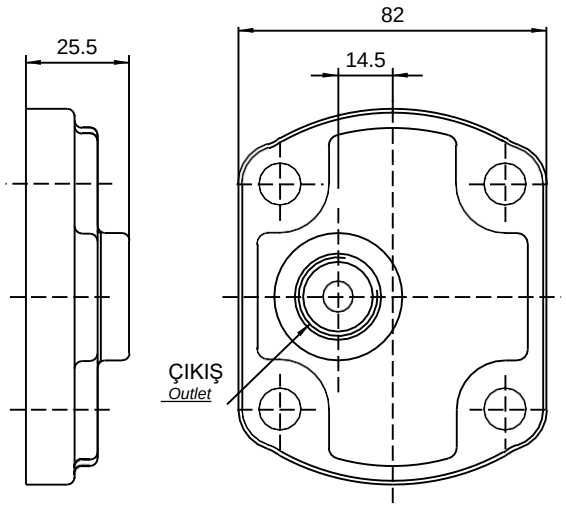
R1 Tang Drive Shaft



MAX. TORK 65 Nm
Max. torque

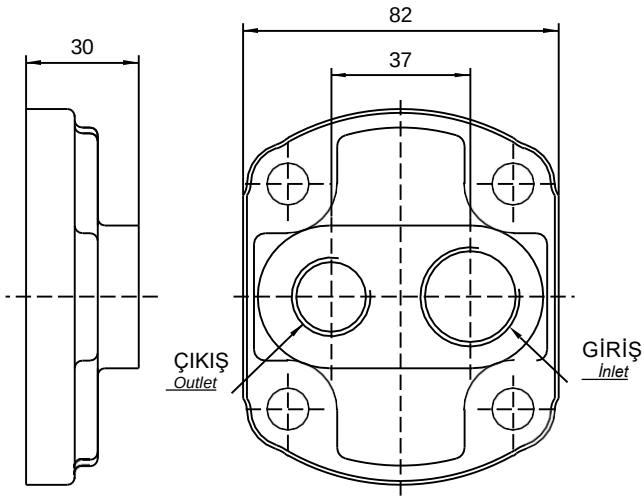
MOUNTING FLANGE

P Outlet Port on Cover



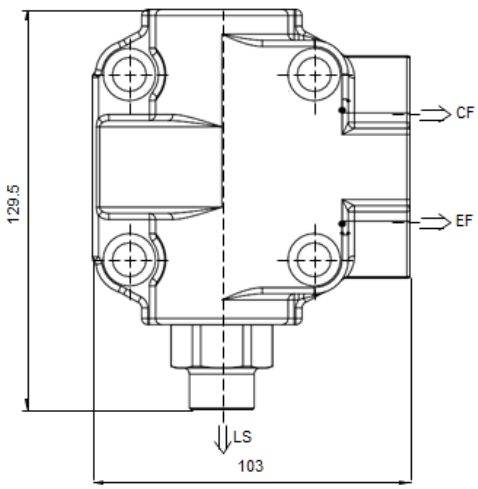
Outlet
G 1/2"
7/8"-14 UNF
M18x1.5

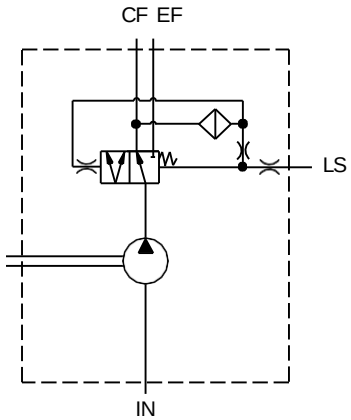
R Inlet/Outlet Port on Cover



Inlet	Outlet
G 3/4"	G 1/2"
1 1/16"-12 UN	7/8"-14 UNF

L Load Sensing Valve



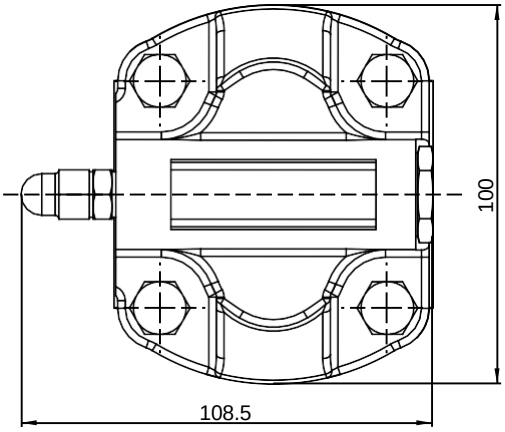


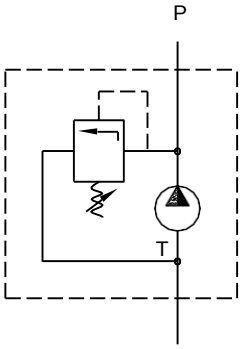
CF= Priority Flow Port
EF= Excess Flow Port
LS= Load Sensing Port

CF	EF	LS
G 3/8"	G 1/2"	G 1/4"
9/16"-18 UNF	3/4"-16 UNF	7/16"-20 UNF

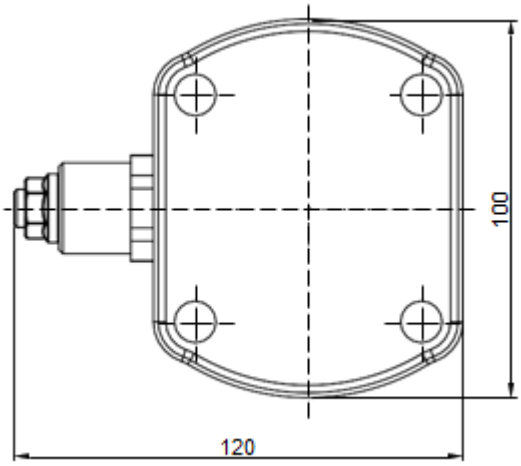
MOUNTING FLANGE

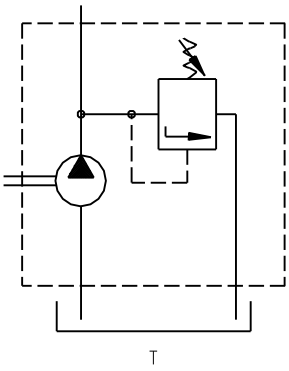
V Relief Valve



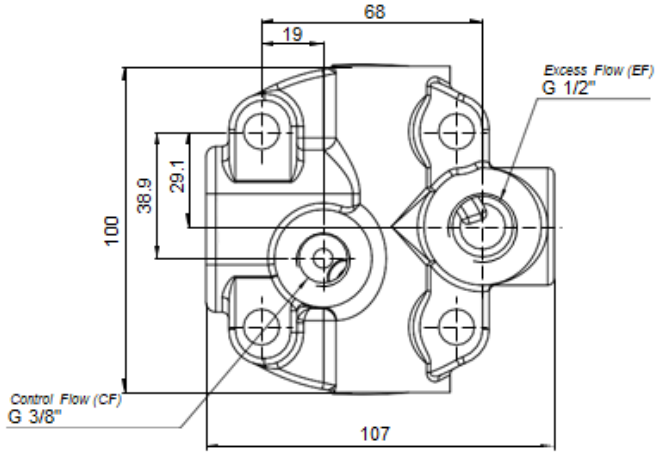


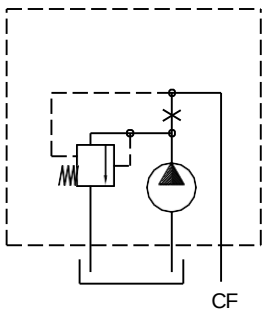
V Relief Valve





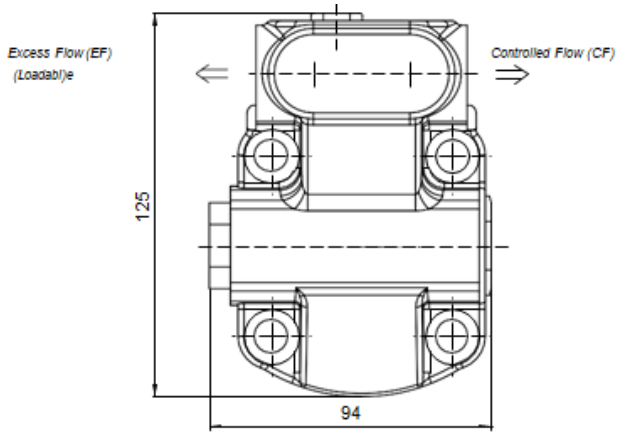
Y Priority Flow Valve

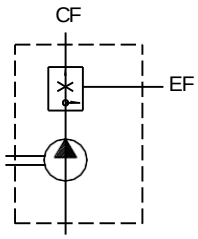




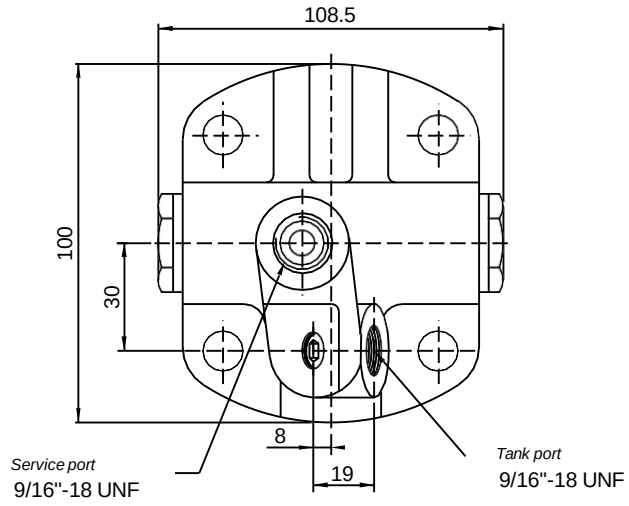
MOUNTING FLANGE

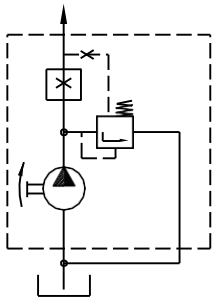
Y1 Priority Flow Valve





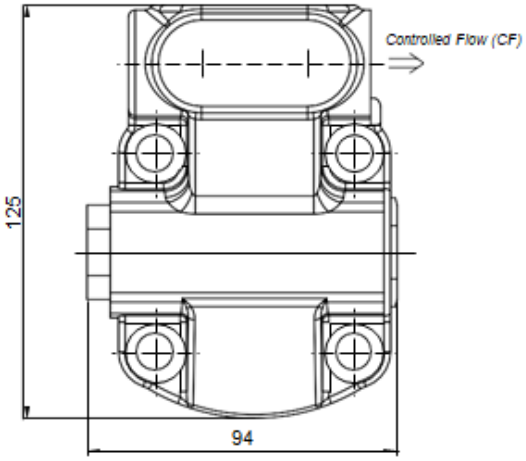
Z1 Flow Control Valve

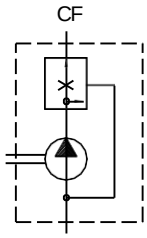




Item	Controlled flow lt/dak (lt/min)	Pressure setting range bar (PSI)
01	9	90 to 150 (1305 to 2030)
02	12	
03	16	

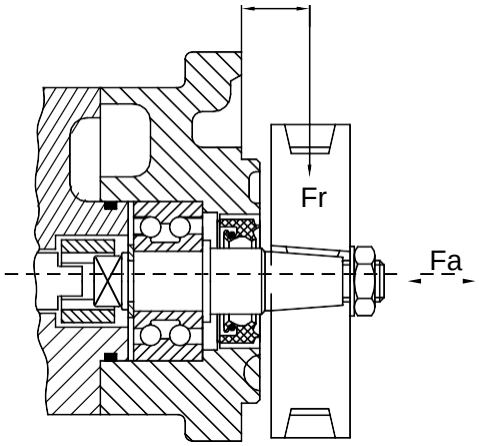
Z2 Flow Control Valve



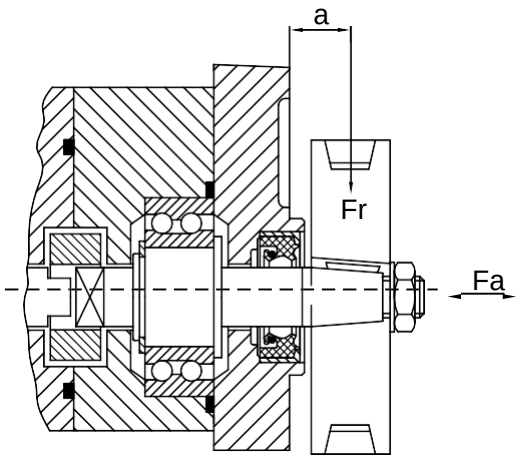


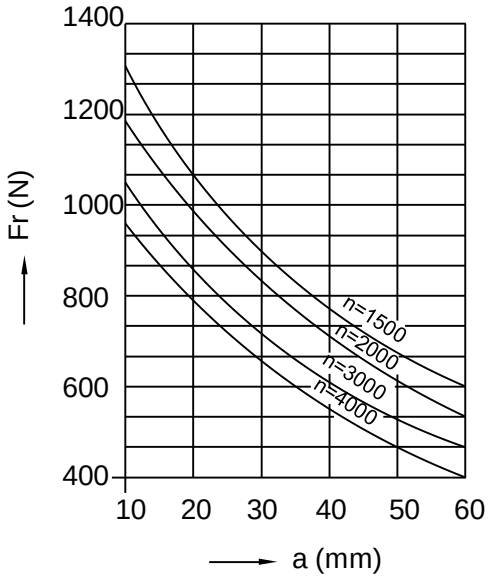
OUTBOARD BEARING TYPES

Type 1 – Only for Mounting Flange Type Y1



Type 2 – Only for Mounting Flange Type B, G, S1





Outboard bearings eliminate possible problems when the pumps are driven by V-belts or gearwheels. The diagrams below show the maximum overhung and thrust loads that can be tolerated referred to a bearing life of L_H=1000 hours.

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
1	**T03-0009**	4,0	5,7	250	A	B	1/5 Taper	Inlet/Outlet 035-M6x1x13 (4) D
2	**T03-0010**	4,0	5,7	250	C	B	1/5 Taper	Inlet/Outlet 035-M6x1x13 (4) D
3	**T03-0011**	4,0	5,7	250	A	B	1/8 Taper	Inlet/Outlet 030-M6x1x13 (4) D
4	**T03-0012**	4,0	5,7	250	C	B	1/8 Taper	Inlet/Outlet 030-M6x1x13 (4) D
5	**T03-0013**	4,0	5,7	250	A	G SA E A 2 Hole	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
6	**T03-0014**	4,0	5,7	250	C	G SA E A 2 Hole	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
7	**T03-0015**	4,0	5,7	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
8	**T03-0016**	4,0	5,7	250	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
9	**T03-0017**	4,0	5,7	250	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
10	**T03-0018**	4,0	5,7	250	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
11	**T03-0019**	4,0	5,7	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
12	**T03-0020**	4,0	5,7	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
13	**T03-0021**	4,0	5,7	250	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
14	**T03-0022**	4,0	5,7	250	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
15	**T03-0023**	4,0	5,7	250	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
16	**T03-0024**	4,0	5,7	250	C	S	DIN 5482 / 9 Teeth 016,5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
17	**T03-0025**	4,0	5,7	250	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
18	**T03-0026**	4,0	5,7	250	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
19	**T03-0027**	4,0	5,7	250	A	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 030-M6x1x13 (4) D
20	**T03-0028**	4,0	5,7	250	C	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 030-M6x1x13 (4) D
21	**T03-0029**	6,1	8,7	250	A	B	1/8 Taper	Inlet/Outlet 035-M6x1x13 (4) D
22	**T03-0030**	6,1	8,7	250	C	B	1/8 Taper	Inlet/Outlet 035-M6x1x13 (4) D
23	**T03-0031**	6,1	8,7	250	A	B	1/8 Taper	Inlet/Outlet 030-M6x1x13 (4) D
24	**T03-0032**	6,1	8,7	250	C	B	1/8 Taper	Inlet/Outlet 030-M6x1x13 (4) D
25	**T03-0033**	6,1	8,7	250	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
26	**T03-0034**	6,1	8,7	250	C	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
27	**T03-0035**	6,1	8,7	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
28	**T03-0036**	6,1	8,7	250	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
29	**T03-0037**	6,1	8,7	250	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
30	**T03-0038**	6,1	8,7	250	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
31	**T03-0039**	6,1	8,7	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
32	**T03-0040**	6,1	8,7	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
33	**T03-0041**	6,1	8,7	250	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
34	**T03-0042**	6,1	8,7	250	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
35	**T03-0043**	6,1	8,7	250	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
36	**T03-0044**	6,1	8,7	250	C	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
37	**T03-0045**	6,1	8,7	250	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
38	**T03-0046**	6,1	8,7	250	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
39	**T03-0047**	6,1	8,7	250	A	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 030-M6x1x13 (4) D
40	**T03-0048**	6,1	8,7	250	C	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 030-M6x1x13 (4) D
41	**T03-0049**	8,2	11,8	250	A	E	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
42	**T03-0050**	8,2	11,8	250	A	E	1/5 Taper	Inlet/Outlet 035-M6x1x13 (4) D
43	**T03-0051**	8,2	11,8	250	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
44	**T03-0052**	8,2	11,8	250	A	B	1/8 Taper	Inlet/Outlet 030-M6x1x13 (4) D
45	**T03-0053**	8,2	11,8	250	C	B	1/8 Taper	Inlet/Outlet 030-M6x1x13 (4) D
46	**T03-0054**	8,2	11,8	250	A	G SAE A 2 HOLE	1/5 Taper	Inlet/Outlet 035-M6x1x13 (4) D
47	**T03-0055**	8,2	11,8	250	C	G SAE A 2 HOLE 21° SPECIAL	SAE 19-4 / 11 Teeth 16/32DP	Inlet/Outlet 035-M6x1x13 (4) D
48	**T03-0056**	8,2	11,8	250	C	G SAE A 2 HOLE 21° SPECIAL	SAE 19-4 / 11 Teeth 16/32DP	Inlet 1 1/16»12UNX18 Outlet 7/8»14UNX18 ORING BOSS
49	**T03-0057**	8,2	11,8	250	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
50	**T03-0058**	8,2	11,8	250	C	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
51	**T03-0059**	8,2	11,8	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
52	**T03-0060**	8,2	11,8	250	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
53	**T03-0061**	8,2	11,8	250	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
54	**T03-0062**	8,2	11,8	250	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
55	**T03-0063**	8,2	11,8	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
56	**T03-0064**	8,2	11,8	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
57	**T03-0065**	8,2	11,8	250	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
58	**T03-0066**	8,2	11,8	250	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
59	**T03-0067**	8,2	11,8	250	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
60	**T03-0068**	8,2	11,8	250	C	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
61	**T03-0069**	8,2	11,8	250	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
62	**T03-0070**	8,2	11,8	250	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
63	**T03-0071**	8,2	11,8	250	A	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 030-M6x1x13 (4) D
64	**T03-0072**	8,2	11,8	250	C	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 030-M6x1x13 (4) D
65	**T03-0073**	9,5	13,1	250	A	B	1/8 Taper	Inlet 040-M6x1x12 (4) D Outlet 030-M6x1x12 (4) D

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
66	**T03-0074**	9,5	13,1	250	C	B	1/8 Taper	Inlet 040-M6x1x12 (4) D Outlet 030-M6x1x12 (4) D
67	**T03-0075**	9,5	13,1	250	A	B	1/8 Taper	Inlet/Outlet 030-M6x1x13 (4) D
68	**T03-0076**	9,5	13,1	250	C	B	1/8 Taper	Inlet/Outlet 030-M6x1x13 (4) D
69	**T03-0077**	9,5	13,1	250	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
70	**T03-0078**	9,5	13,1	250	C	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
71	**T03-0079**	9,5	13,1	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
72	**T03-0080**	9,5	13,1	250	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
73	**T03-0081**	9,5	13,1	250	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
74	**T03-0082**	9,5	13,1	250	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
75	**T03-0083**	9,5	13,1	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
76	**T03-0084**	9,5	13,1	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
77	**T03-0085**	9,5	13,1	250	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
78	**T03-0086**	9,5	13,1	250	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
79	**T03-0087**	9,5	13,1	250	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D
80	**T03-0088**	9,5	13,1	250	C	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4) D

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
81	**T03-0089**	9,5	13,1	250	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
82	**T03-0090**	9,5	13,1	250	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
83	**T03-0091**	9,5	13,1	250	A	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 030-M6x1x13 (4) D
84	**T03-0092**	9,5	13,1	250	C	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 030-M6x1x13 (4) D
85	**T03-0093**	11,9	17,1	250	A	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
86	**T03-0094**	11,9	17,1	250	C	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
87	**T03-0095**	11,9	17,1	250	A	G SAE A 2 HOLE	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
88	**T03-0096**	11,9	17,1	250	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
89	**T03-0097**	11,9	17,1	250	C	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
90	**T03-0098**	11,9	17,1	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
91	**T03-0099**	11,9	17,1	250	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
92	**T03-0100**	11,9	17,1	250	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
93	**T03-0101**	11,9	17,1	250	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
94	**T03-0102**	11,9	17,1	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
95	**T03-0103**	9,5	13,1	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
96	**T03-0104**	9,5	13,1	250	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
97	**T03-0105**	9,5	13,1	250	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
98	**T03-0106**	9,5	13,1	250	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
99	**T03-0107**	11,9	17,1	250	C	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
100	**T03-0108**	11,9	17,1	250	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
101	**T03-0109**	11,9	17,1	250	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
102	**T03-0110**	11,9	17,1	250	A	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
103	**T03-0111**	11,9	17,1	250	C	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
104	**T03-0112**	11,9	17,1	250	C	F	SHAFT DRIVE DOG	Inlet/Outlet M18X1,5
105	**T03-0113**	14,0	20,1	250	A	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
106	**T03-0114**	14,0	20,1	250	C	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
107	**T03-0115**	14,0	20,1	250	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
108	**T03-0116**	14,0	20,1	250	C	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
109	**T03-0117**	14,0	20,1	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
110	**T03-0118**	14,0	20,1	250	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
111	**T03-0119**	14,0	20,1	250	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
112	**T03-0120**	14,0	20,1	250	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
113	**T03-0121**	14,0	20,1	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
114	**T03-0122**	14,0	20,1	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
115	**T03-0123**	14,0	20,1	250	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
116	**T03-0124**	14,0	20,1	250	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
117	**T03-0125**	14,0	20,1	250	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
118	**T03-0126**	14,0	20,1	250	C	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
119	**T03-0127**	14,0	20,1	250	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
120	**T03-0128**	14,0	20,1	250	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
121	**T03-0129**	14,0	20,1	250	A	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
122	**T03-0130**	14,0	20,1	250	C	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
123	**T03-0131**	14,6	21,0	250	A	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
124	**T03-0132**	14,6	21,0	250	C	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
125	**T03-0133**	16,8	24,1	250	A	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
126	**T03-0134**	16,8	24,1	250	C	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
127	**T03-0135**	16,8	24,1	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
128	**T03-0136**	16,8	24,1	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
129	**T03-0137**	16,8	24,1	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
130	**T03-0138**	16,8	24,1	250	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
131	**T03-0139**	16,8	24,1	250	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
132	**T03-0140**	16,8	24,1	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
133	**T03-0141**	16,8	24,1	250	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
134	**T03-0142**	16,8	24,1	250	A	D	SHAFT DRIVE DOG	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
135	**T03-0143**	16,8	24,1		A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
136	**T03-0144**	16,8	24,1	250	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
137	**T03-0145**	16,8	24,1	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
138	**T03-0146**	16,8	24,1	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
139	**T03-0147**	16,8	24,1	250	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
140	**T03-0148**	16,8	24,1	250	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
141	**T03-0149**	16,8	24,1	250	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
142	**T03-0150**	16,8	24,1	250	C	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
143	**T03-0151**	16,8	24,1	250	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
144	**T03-0152**	16,8	24,1	250	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
145	**T03-0153**	16,8	24,1	250	A	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
146	**T03-0154**	16,8	24,1	250	C	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
147	**T03-0155**	19,2	27,2	250	A	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
148	**T03-0156**	19,2	27,2	250	C	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
149	**T03-0157**	19,2	27,2	250	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
150	**T03-0158**	19,2	27,2	250	C	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
151	**T03-0159**	19,2	27,2	250	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
152	**T03-0160**	19,2	27,2	250	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
153	**T03-0161**	19,2	27,2	250	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
154	**T03-0162**	19,2	27,2	250	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
155	**T03-0163**	19,2	27,2	250	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
156	**T03-0164**	19,2	27,2	250	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
157	**T03-0165**	19,2	27,2	250	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
158	**T03-0166**	19,2	27,2	250	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
159	**T03-0167**	19,2	27,2	250	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
160	**T03-0168**	19,2	27,2	250	C	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
161	**T03-0169**	19,2	27,2	250	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
162	**T03-0170**	19,2	27,2	250	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
163	**T03-0171**	19,2	27,2	250	A	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
164	**T03-0172**	19,2	27,2	250	C	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
165	**T03-0173**	22,9	32,9	210	A	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
166	**T03-0174**	22,9	32,9	210	C	B	1/8 Taper	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
167	**T03-0175**	22,9	32,9	210	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
168	**T03-0176**	22,9	32,9	210	C	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
169	**T03-0177**	22,9	32,9	210	A	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
170	**T03-0178**	22,9	32,9	210	C	J	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
171	**T03-0179**	22,9	32,9	210	A	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
172	**T03-0180**	22,9	32,9	210	C	F	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
173	**T03-0181**	22,9	32,9	210	A	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
174	**T03-0182**	22,9	32,9	210	C	S	1/5 Taper	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
175	**T03-0183**	22,9	32,9	210	A	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
176	**T03-0184**	22,9	32,9	210	C	J	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
177	**T03-0185**	22,9	32,9	210	A	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
178	**T03-0186**	22,9	32,9	210	C	S	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
179	**T03-0187**	22,9	32,9	210	A	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
180	**T03-0188**	22,9	32,9	210	C	F	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
181	**T03-0189**	22,9	32,9	210	A	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
182	**T03-0190**	22,9	32,9	210	C	B	DIN 5482 / 9 Teeth 016,5	Inlet 040-M6x1x13 (4) D Outlet 030-M6x1x13 (4) D
183	**T03-0191**	28,1	40,4	175	A	B	1/8 Taper	Inlet/Outlet 040-M6x1x13 (4) D
184	**T03-0192**	28,1	40,4	175	C	B	1/8 Taper	Inlet/Outlet 040-M6x1x13 (4) D
185	**T03-0193**	28,1	40,4	175	A	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
186	**T03-0194**	28,1	40,4	175	C	G SAE A 2 HOLE	SAE 16-4 / 9 Teeth 015,5	040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
187	**T03-0195**	28,1	40,4	175	A	J	1/5 Taper	040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
188	**T03-0196**	28,1	40,4	175	C	J	1/5 Taper	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
189	**T03-0197**	28,1	40,4	175	A	F	1/5 Taper	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
190	**T03-0198**	28,1	40,4	175	C	F	1/5 Taper	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
191	**T03-0199**	28,1	40,4	175	A	S	1/5 Taper	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
192	**T03-0200**	28,1	40,4	175	C	S	1/5 Taper	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
193	**T03-0201**	28,1	40,4	175	A	J	DIN 5482 / 9 Teeth 016,5	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
194	**T03-0202**	28,1	40,4	175	C	J	DIN 5482 / 9 Teeth 016,5	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
195	**T03-0203**	28,1	40,4	175	A	S	DIN 5482 / 9 Teeth 016,5	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
196	**T03-0204**	28,1	40,4	175	C	S	DIN 5482 / 9 Teeth 016,5	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
197	**T03-0205**	28,1	40,4	175	A	F	DIN 5482 / 9 Teeth 016,5	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
198	**T03-0206**	28,1	40,4	175	C	F	DIN 5482 / 9 Teeth 016,5	INLET 040-M6x1x13 (4) D Outlet 035-M6x1x13 (4)
199	**T03-0207**	28,1	40,4	175	A	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 040-M6x1x13 (4) D
200	**T03-0208**	28,1	40,4	175	C	B	DIN 5482 / 9 Teeth 016,5	Inlet/Outlet 040-M6x1x13 (4) D

ORDER CODES

With Priority Flow Divier Valve for Forklift

No	Order Code	Displacement cm3/dev	Max. Pressure (bar)	Max. Speed (rpm)	Controlled Flow @ lpm	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
202	**T03-0401**	25	195	2500	8	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
202	**T03-0402**	25	195	2500	8	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
203	**T03-0403**	25	195	2500	10	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
204	**T03-0404**	25	195	2500	10	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
205	**T03-0405**	25	195	2500	12	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
206	**T03-0406**	25	195	2500	12	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
207	**T03-0407**	25	195	2500	12	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
208	**T03-0408**	25	195	2500	12	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
209	**T03-0409**	25	195	2500	12	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
210	**T03-0410**	25	195	2500	12	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
211	**T03-0411**	25	195	2500	12	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
212	**T03-0412**	25	195	2500	12	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP

ORDER CODES

With Priority Flow Divier Valve for Forklift

No	Order Code	Displacement cm3/dev	Max. Pressure (bar)	Max. Speed (rpm)	Controlled Flow @ lpm	Rotation A – Left C - Right	Mounting Flange Type	ShaftSType	Hole Type
213	**T03-0413**	28	180	2500	8	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
214	**T03-0414**	28	180	2500	8	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
15	**T03-0415**	28	180	2500	10	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
216	**T03-0416**	28	180	2500	10	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
217	**T03-0417**	28	180	2500	12	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
218	**T03-0418**	28	180	2500	12	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 9 Teeth 015,5	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
219	**T03-0419**	28	180	2500	8	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
220	**T03-0420**	28	180	2500	8	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
221	**T03-0421**	28	180	2500	10	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
222	**T03-0422**	28	180	2500	10	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
223	**T03-0423**	28	180	2500	12	A	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP
224	**T03-0424**	28	180	2500	12	C	G TYPE SAE A 2 HOLE 082,50	SAE A 16/32DP 11 Teeth 019	Inlet 022-040-M8x4 Outlet ½"-3/8"BSPP

2P1 SERIES
ALUMINIUM HYDRAULIC GEAR PUMPS

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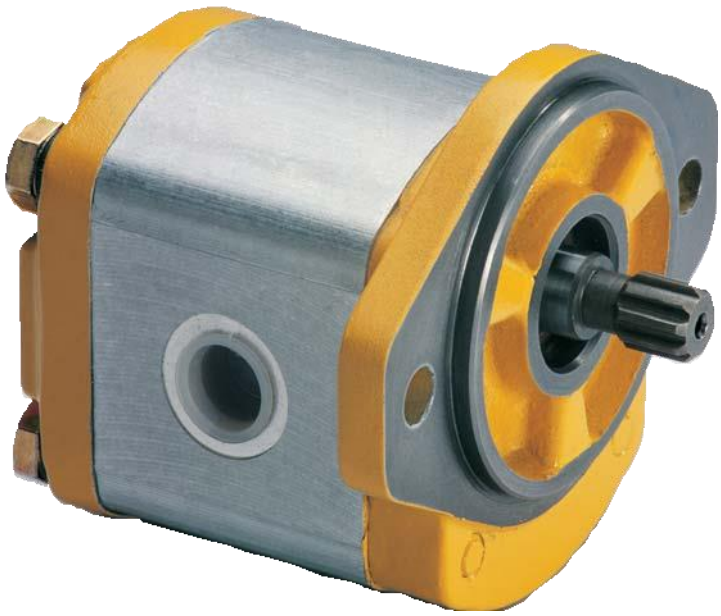


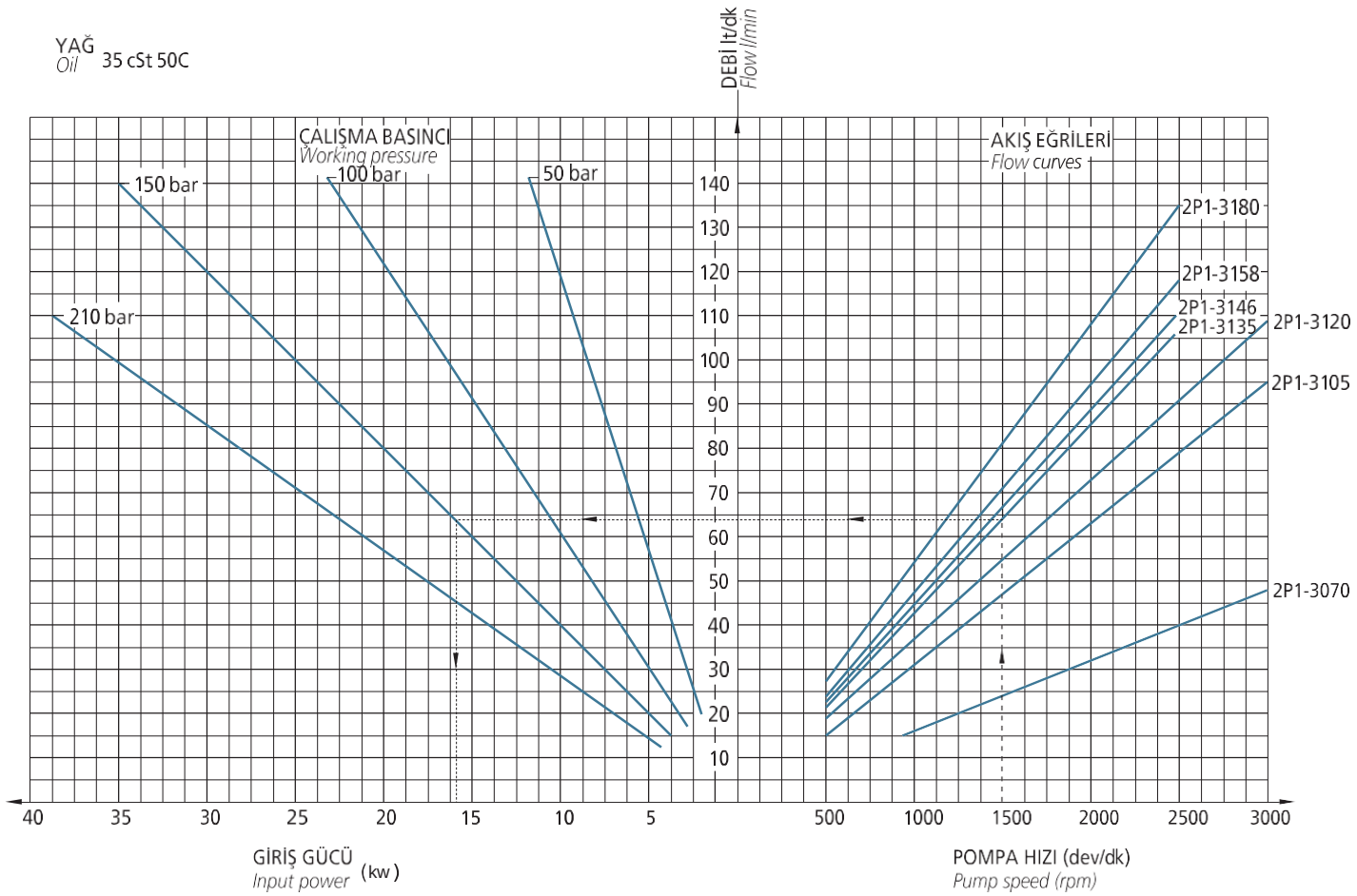
HYDREX

TECHNICAL DATA

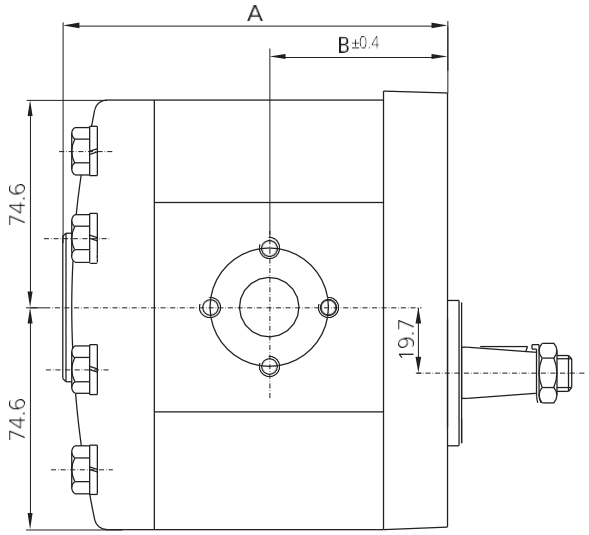
Model	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Max. Outlet Pressure	Min. Speed (rpm)	Max. Speed (rpm)
2P1-3050	16,7	24,0	250	600	2500
2P1-3070	22,7	32,7	250	600	2500
2P1-3090	28,8	41,5	250	600	2500
2P1-3105	33,3	47,7	250	600	2500
2P1-3120	37,9	54,5	210	600	2500
2P1-3135	42,6	64,0	210	600	2500
2P1-3146	45,5	66,5	210	600	2500
2P1-3158	49,4	71,8	210	600	2500
2P1-3180	56,1	81,2	175	600	2200

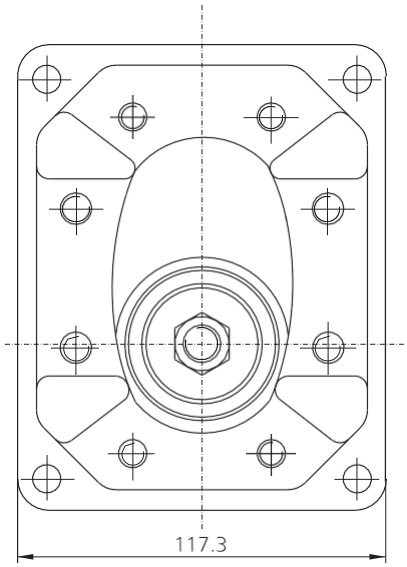
[1] For ISO VG68 oil at 50°C

PERFORMANCE CURVES

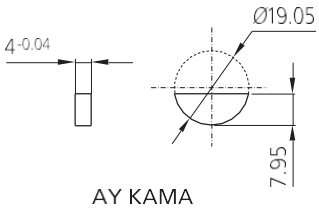


PUMP APPLICATION DATA





GÖVDE GENİŞLİĞİ
BODY WIDTH

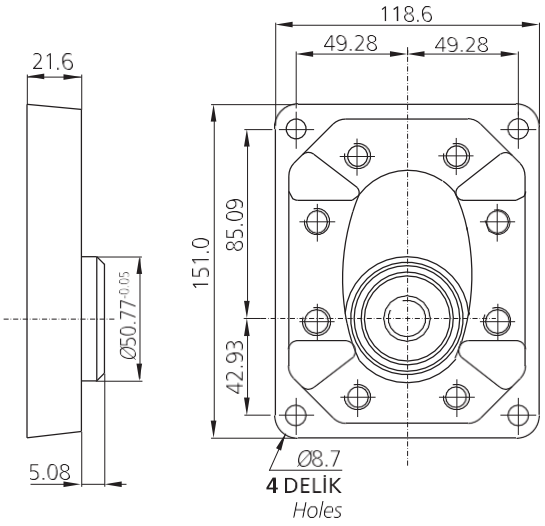


AY KAMA
WOODRUFF KEY

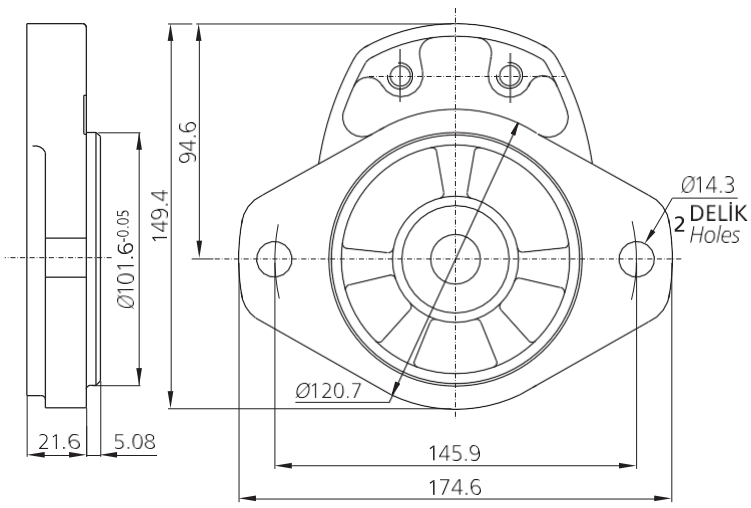
Model	Displacement cm3/dev	A mm	B mm
2P1-3050	16,7	115,3	48,4
2P1-3070	22,7	120,1	53,2
2P1-3090	28,8	125,0	58,1
2P1-3105	33,3	142,5	68,6
2P1-3120	37,9	145,8	70,4
2P1-3135	42,6	149,8	71,0
2P1-3146	45,5	152,2	73,4
2P1-3158	49,4	156,0	76,2
2P1-3180	56,1	162,4	77,5

MOUNTING FLANGE

B Type



G Type



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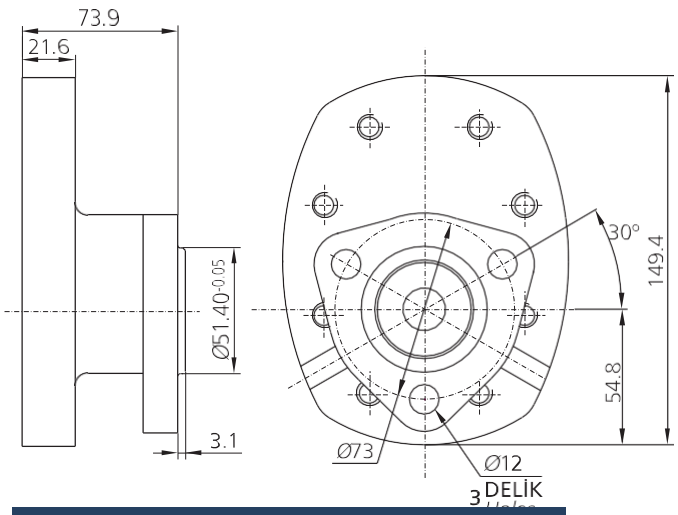

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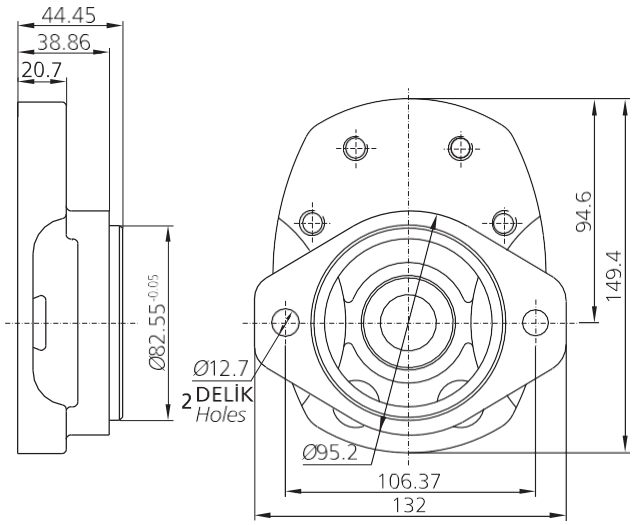

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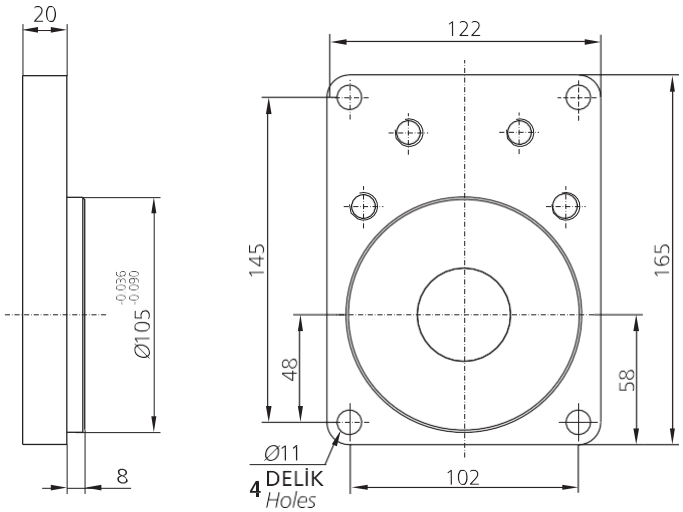

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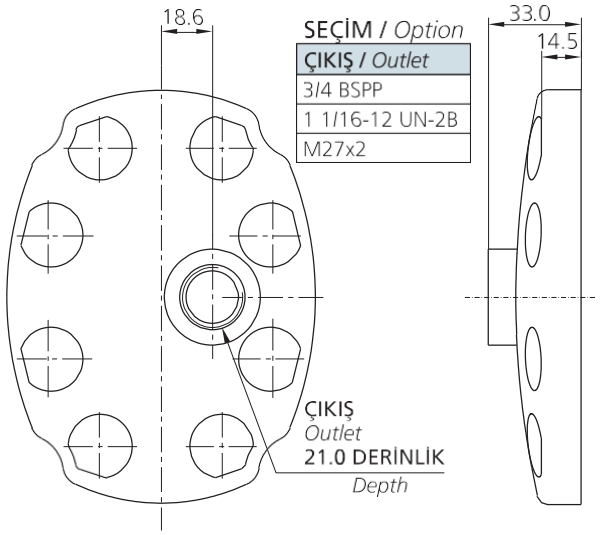
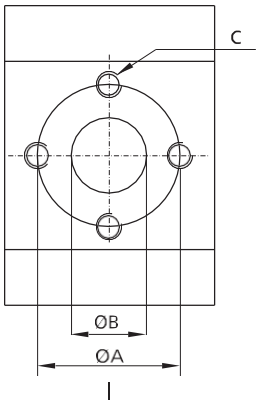


HOLES TYPES



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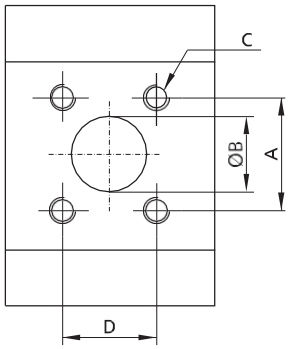
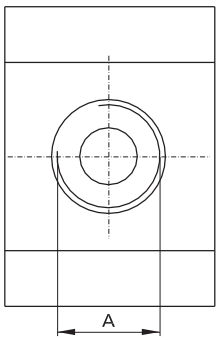


II

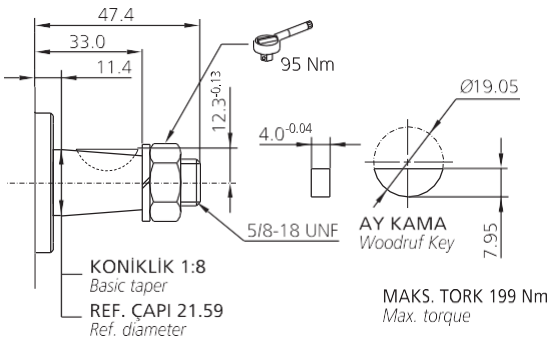


III

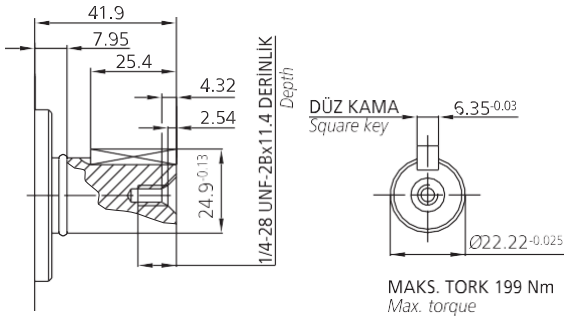
	Hole type	I			II				III
		A	B	C	A	B	C	D	A
01	Inlet	48.14	28	M8x1.25x12.7					
	Outlet	48.14	22	M8x1.25x12.7					
04	Inlet				52.4	28	M10x1.5x12.7	26.2	
	Outlet								1 1/16-12UN-2Bx19
07	Inlet	51	28	M10x1.5x12.7					
	Outlet	40	20	M8x1.25x12.7					
09	Inlet				52.4	28	M10x1.5x12.7	26.2	
	Outlet				47.6	22	M10x1.5x12.7	22.2	
10	Inlet				52.4	25.4	M10x1.5x12.7	26.2	
	Outlet				47.6	19	M10x1.5x12.7	22.2	
11	Inlet				52.4	25.4	M8x1.25x12.7	26.2	
	Outlet								1 1/16-12UN-2Bx19
21	Inlet								1 BSPPx25
	Outlet								3/4 BSPPx25

SHAFT TYPES

Taper Type



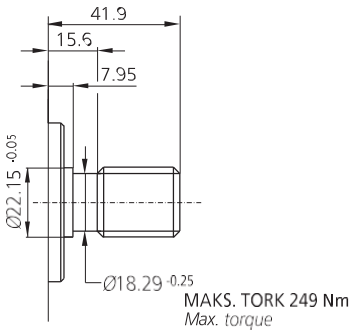
P Type



S Type

SAE 'B' EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI,
13 DİŞ, 16/32 DP.

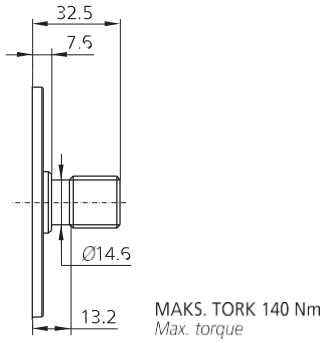
SAE 'B' Involute spline
Flat root side fit,
13 Teeth, 16/32 DP



S Type

SAE 19-4 (A) 3/4''
EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI,
11 DİŞ, 16/32 DP

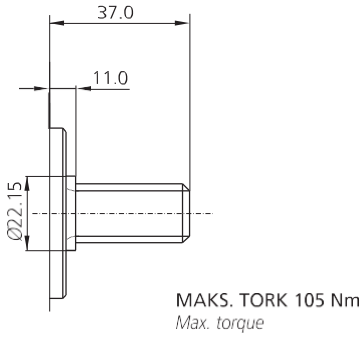
SAE 19-4 (A) 3/4''
Involute spline
Flat root side fit
11 Teeth, 16/32 DP



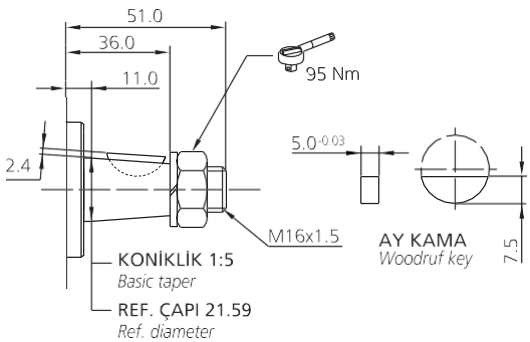
S Type

SAE J498 A
EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI,
10 DİŞ, 16/32 DP

SAE J498 A
Involute spline
Flat root side fit,
10 Teeth, 16/32 DP



T Type



ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
1	**T03-0441**	22,7	32,7	250	A	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
2	**T03-0442**	22,7	32,7	250	C	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
3	**T03-0443**	28,8	41,5	250	A	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
4	**T03-0444**	28,8	41,5	250	C	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
5	**T03-0445**	33,3	47,7	250	A	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
6	**T03-0446**	33,3	47,7	250	C	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
7	**T03-0447**	33,3	47,7	250	A	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
8	**T03-0448**	33,3	47,7	250	C	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
9	**T03-0449**	37,8	54,5	210	A	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
10	**T03-0450**	37,8	54,5	210	C	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
11	**T03-0451**	37,8	54,5	210	A	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
12	**T03-0452**	37,8	54,5	210	C	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
13	**T03-0453**	42,6	64,0	210	A	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
14	**T03-0454**	42,6	64,0	210	C	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
15	**T03-0455**	42,6	64,0	210	A	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
16	**T03-0456**	42,6	64,0	210	C	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
17	**T03-0457**	45,4	66,5	210	A	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
18	**T03-0458**	45,4	66,5	210	C	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
19	**T03-0459**	45,4	66,5	210	A	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
20	**T03-0460**	45,4	66,5	210	C	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
21	**T03-0461**	49,4	71,8	210	A	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
22	**T03-0462**	49,4	71,8	210	C	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
23	**T03-0463**	49,4	71,8	210	A	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
24	**T03-0464**	49,4	71,8	210	C	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
25	**T03-0465**	49,4	71,8	210	A	G SAE A 2 HOLE	7/8-13 Teeth	Inlet / 028-58,8x30,2 Outlet / 0,22-52,4x26,2
26	**T03-0466**	49,4	71,8	210	C	G SAE A 2 HOLE	7/8-13 Teeth	Inlet / 028-58,8x30,2 Outlet / 0,22-52,4x26,2
27	**T03-0467**	56,1	81,5	175	A	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
28	**T03-0468**	56,1	81,5	175	C	B	Parallel	Inlet / Outlet Ø48-M8x1,25x13(4)
29	**T03-0469**	56,1	81,5	175	A	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)
30	**T03-0470**	56,1	81,5	175	C	B	1/8 Taper	Inlet / 051-M10x1,5x13(4) Outlet / Ø40-M8x1,25x13(4)

3P1 SERIES
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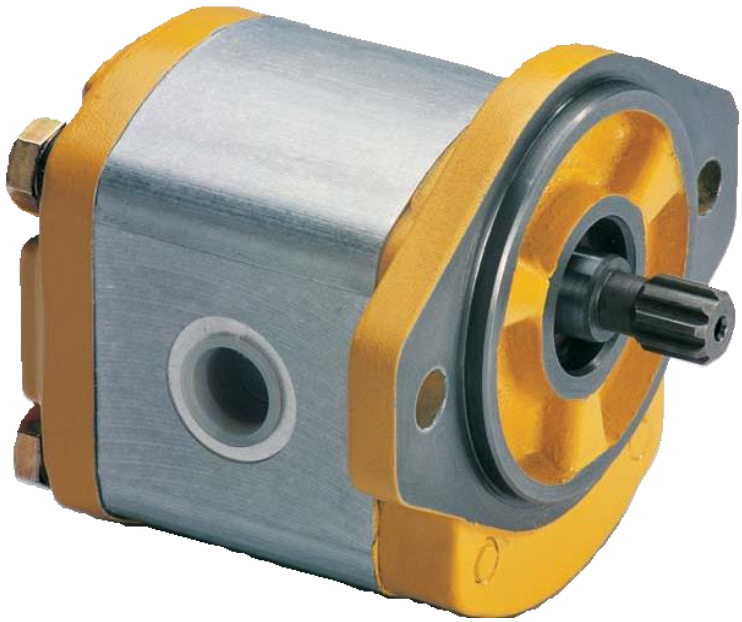


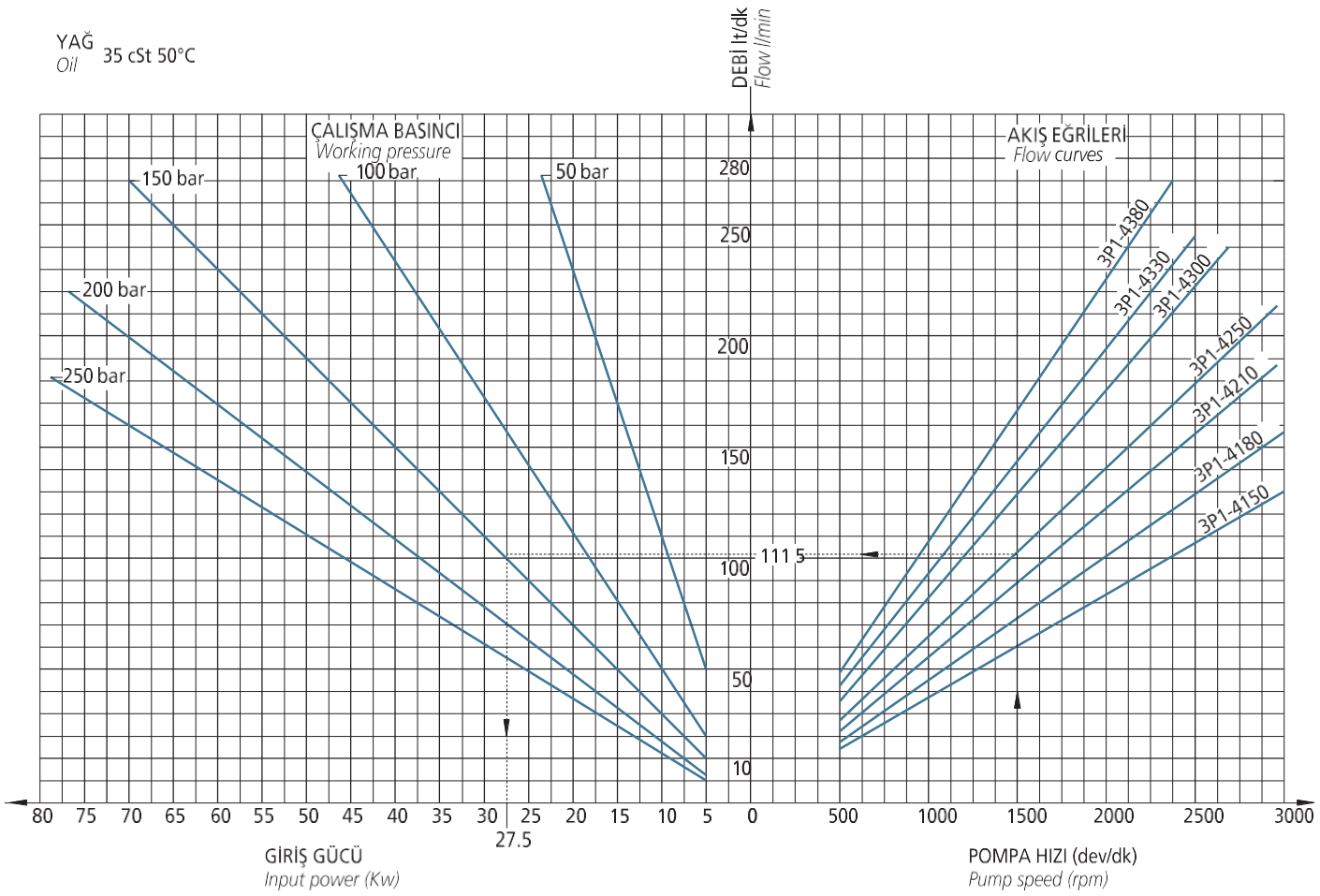
HYDREX

TECHNICAL DATA

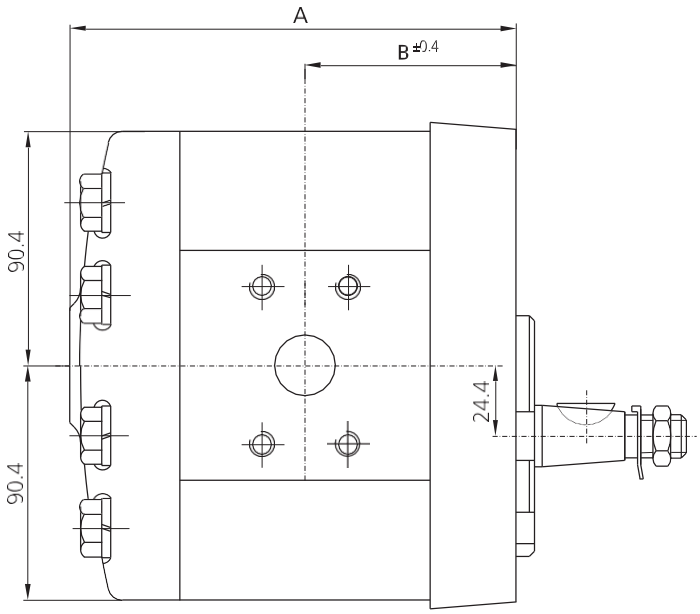
Model	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Max. Outlet Pressure	Min. Speed (rpm)	Max. Speed (rpm)
3P1-4150	47,0	68,2	248	600	2250
3P1-4180	56,1	81,8	248	600	2250
3P1-4210	65,2	95,5	248	600	2250
3P1-4250	77,0	113,7	248	600	2250
3P1-4300	91,9	136,4	207	600	2250
3P1-4330	101,5	150,0	193	600	2100
3P1-4380	116,7	173,0	172	600	2000

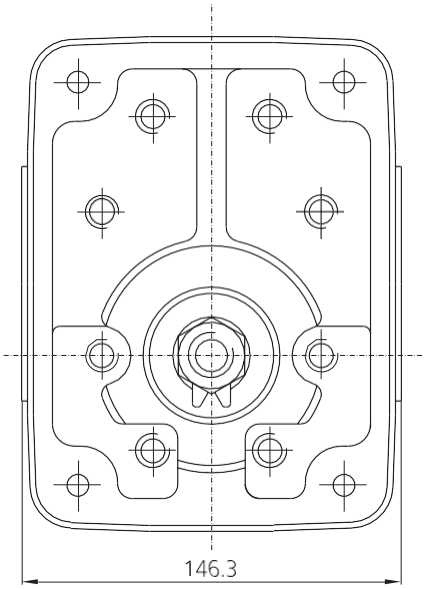
' For ISO VG68 oil at 50°C

PERFORMANCE CURVES

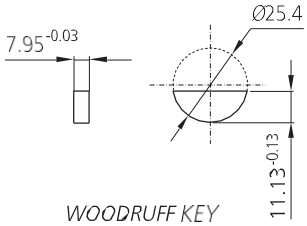


PUMP APPLICATION DATA





GÖVDE GENİŞLİĞİ
BODY WIDTH

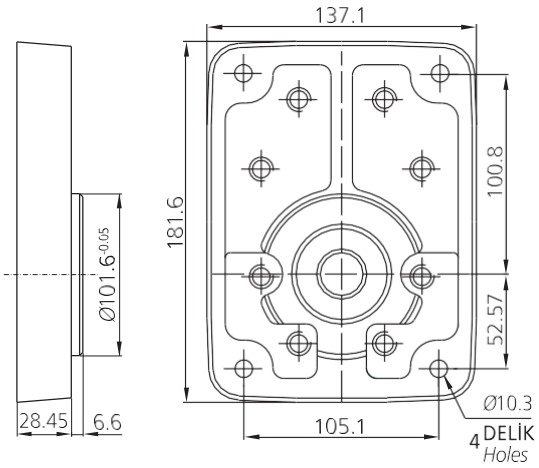


WOODRUFF KEY

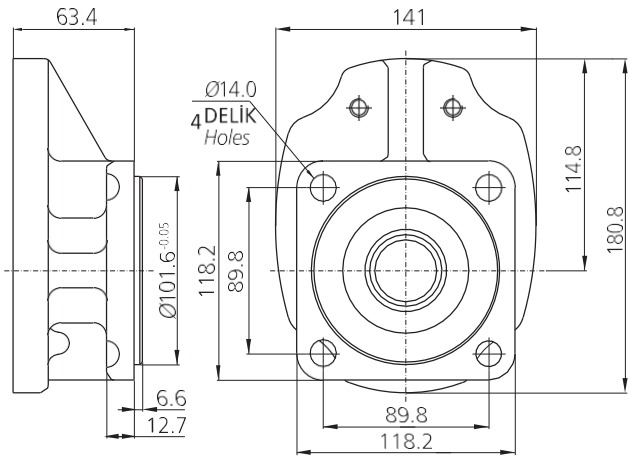
Model	Displacement cm3/dev	A mm	B mm
3P1-4150	47,0	167,4	81,3
3P1-4180	56,1	172,3	83,6
3P1-4210	65,2	177,1	86,1
3P1-4250	77,0	183,5	89,2
3P1-4300	91,9	191,2	93,2
3P1-4330	101,5	196,6	95,8
3P1-4380	116,7	204,6	99,9

MOUNTING FLANGE

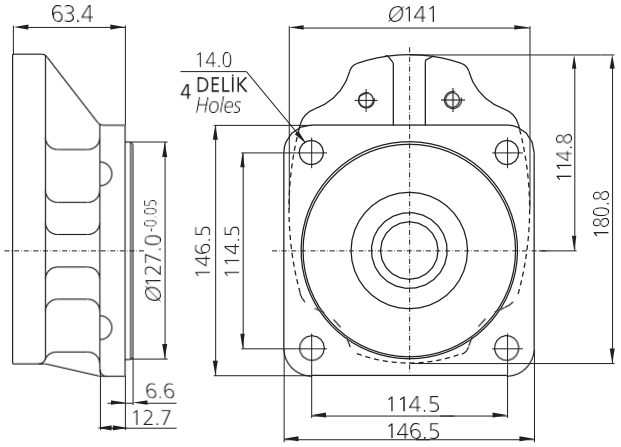
B Type



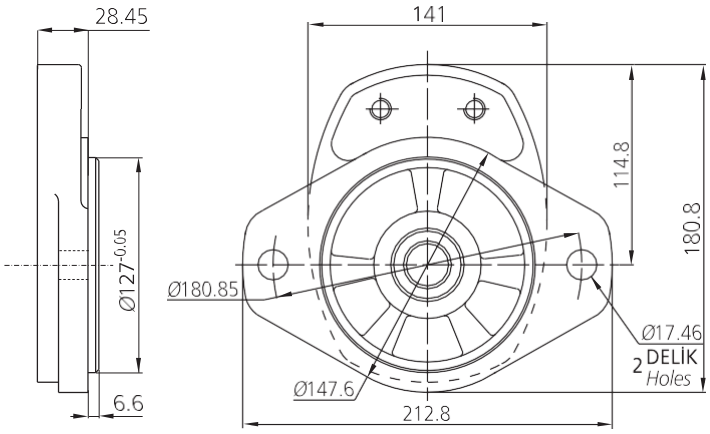
D Type



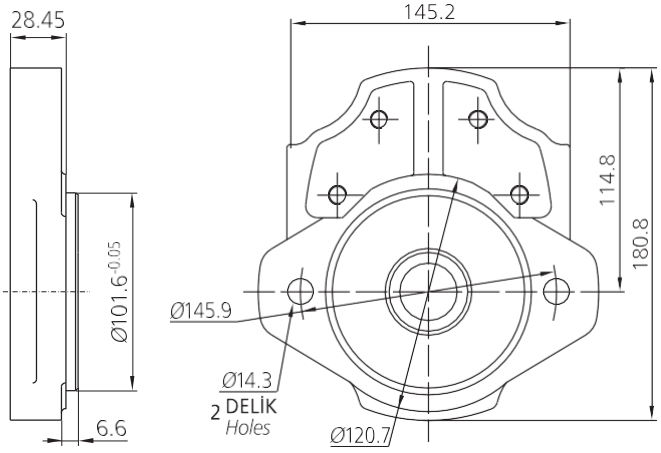
E Type



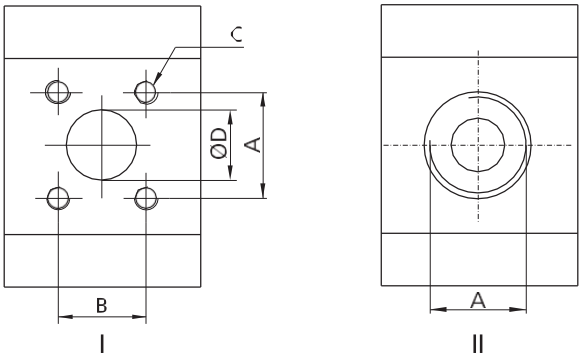
G Type



M Type



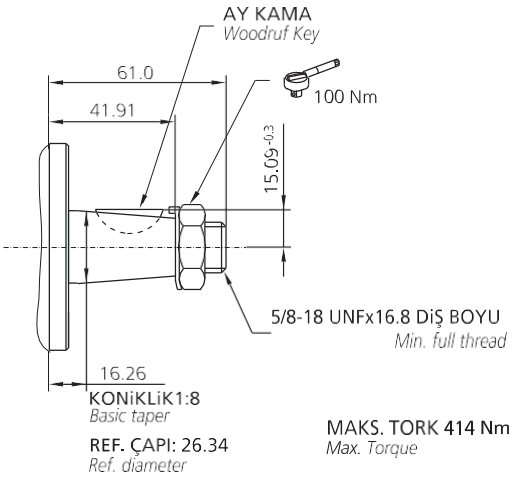
HOLES TYPES



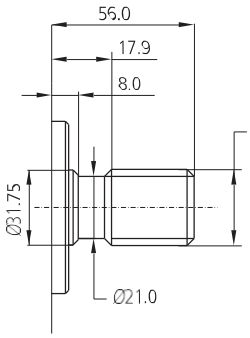
	Hole type	I A	B	C	D	II
01	Inlet	69.85	35.71	M10X1.5X30	33.3	1 ½ BSPP X 25
	Outlet	52.32	26.21	M10X1.5X30	25.4	1 ¼ BSPP X 25
02	Inlet	69.85	35.71	M12X1.75X30	33.3	1 7/8-12 UN X 25
	Outlet	58.92	29.97	M12X1.75X30	31.7	1 5/8-12 UN X 25

SHAFT TYPES

Taper Type



S Type

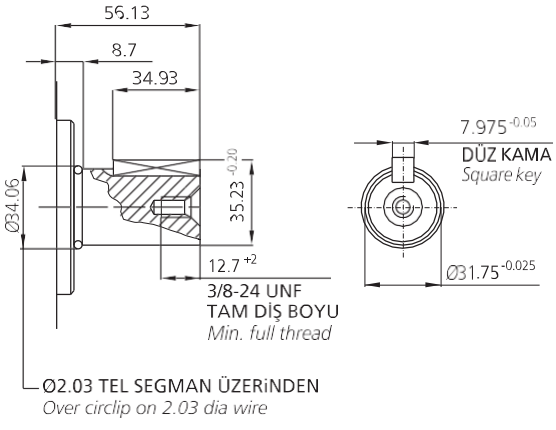


SAE 25-4 (BB) EVOLVENT SPLINE, DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI, 15 DİŞ VE 16/32 DP.

SAE 25-4 (BB) Involute spline , flat root side fit, 15 teeth and 16/32 DP.

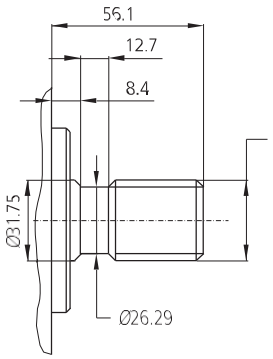
MAKS. TORK 376 Nm
Max. torque

P Type



MAKS. TORK 673 Nm
Max. Torque

S Type



SAE 'C' EVOLVENT SPLINE, DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI, 14 DİŞ VE 12/24 DP.

SAE 'C' Involute spline, flat root side fit, 14 teeth and 12/24 DP.

MAKS. TORK 764 Nm
Max. Torque

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C - Right	Mounting Flange Type	Shaft Type	Hole Type
1	**T03-0471**	47,0	68,2	248	A	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
2	**T03-0472**	47,0	68,2	248	C	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
3	**T03-0473**	56,1	81,8	248	A	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
4	**T03-0474**	56,1	81,8	248	C	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
5	**T03-0475**	65,1	95,5	248	A	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
6	**T03-0476**	65,1	95,5	248	C	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
7	**T03-0477**	77,0	113,7	248	A	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
8	**T03-0478**	77,0	113,7	248	C	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
9	**T03-0479**	91,9	136,4	207	A	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
10	**T03-0480**	91,9	136,4	207	C	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
11	**T03-0481**	101,5	150,0	193	A	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
12	**T03-0482**	101,5	150,0	193	C	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
13	**T03-0483**	116,7	173,0	172	A	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)
14	**T03-0484**	116,7	173,0	172	C	B	Parallel	Inlet / 69,85x35,71 D M12x1,75x30(4) Outlet / 52,32x26,21 D M10x1,5x30(4)

1PH SERIES
ALUMINIUM HYDRAULIC GEAR PUMPS

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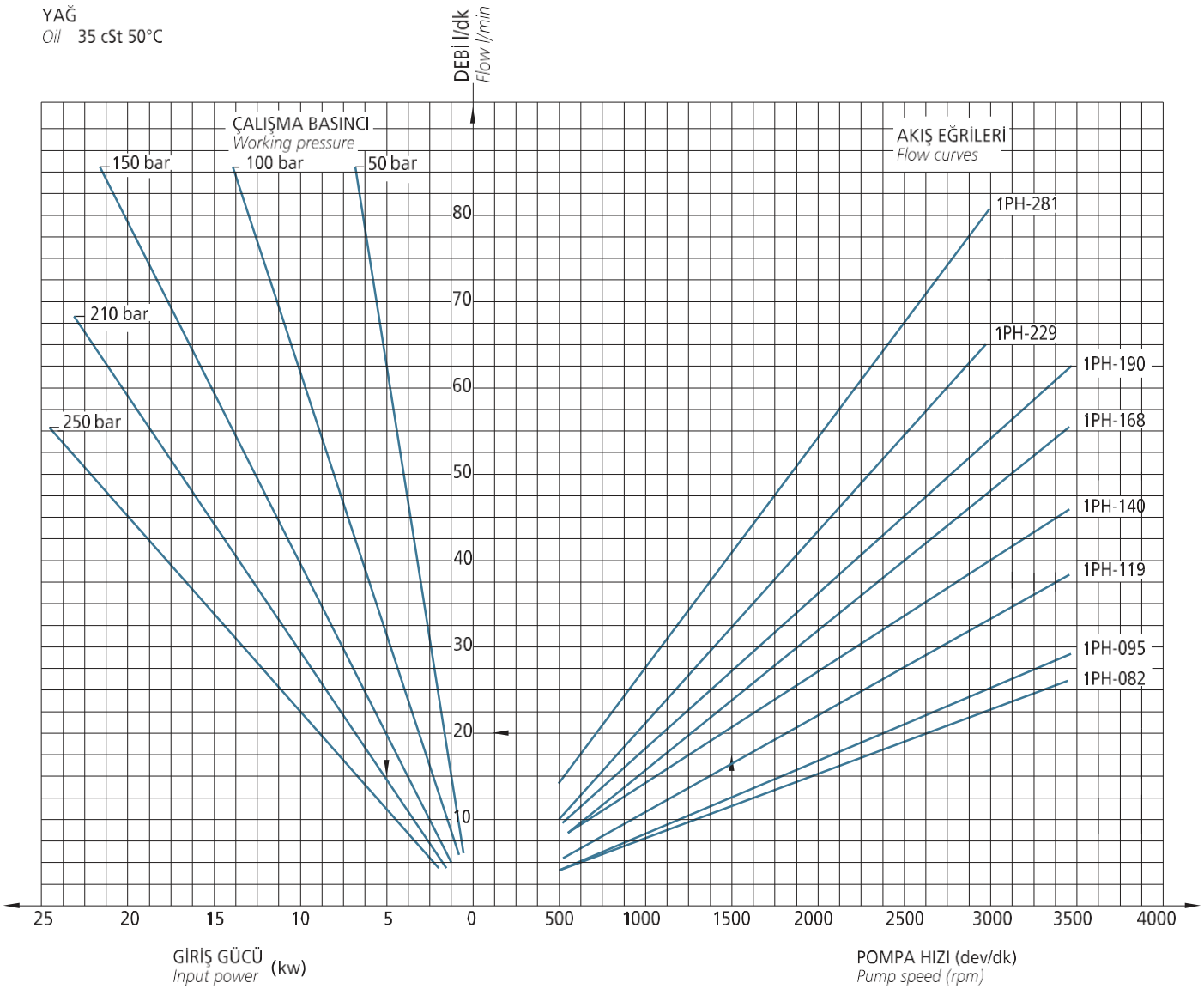
HYDREX

TECHNICAL DATA

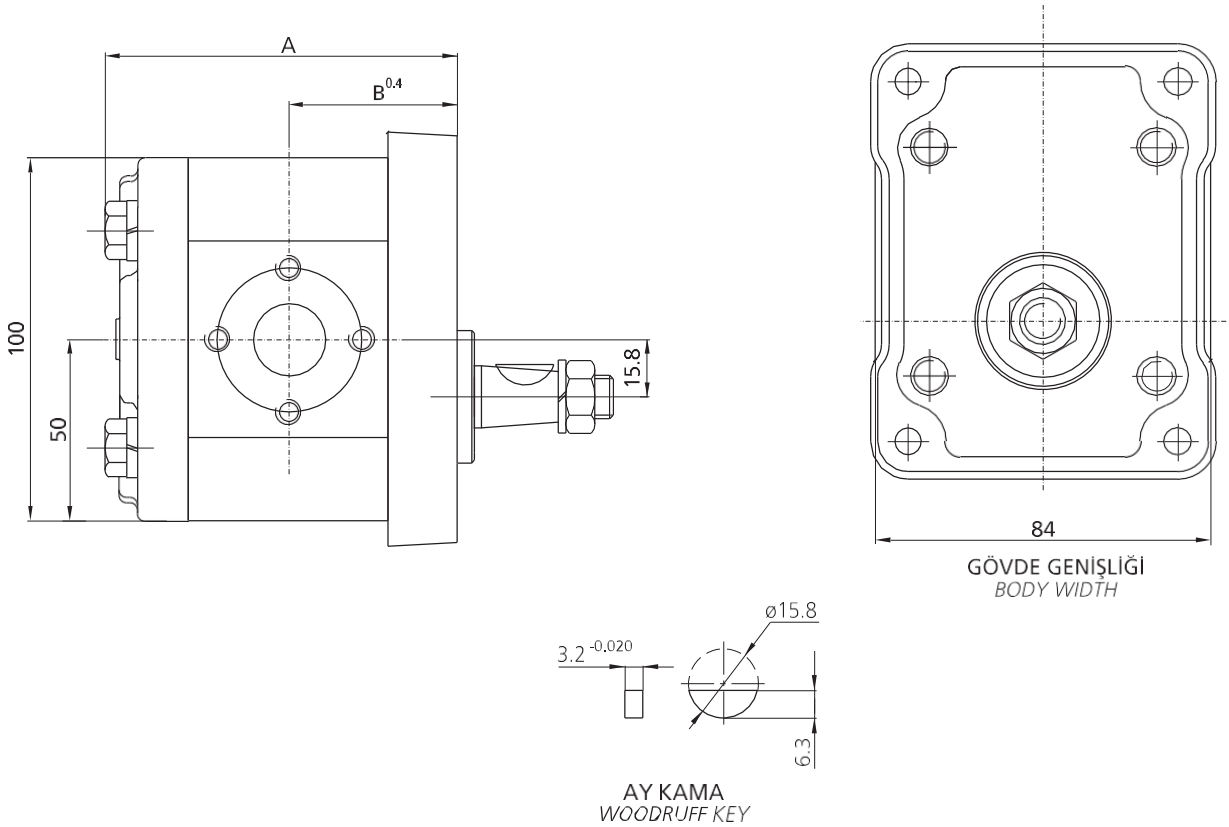
Model	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Max. Outlet Pressure	Min. Speed (rpm)	Max. Speed (rpm)
1PH-082	8,2	11,8	250	600	3000
1PH-095	9,5	13,6	250	600	3000
1PH-119	11,9	17,1	250	600	3000
1PH-140	14,0	20,1	250	600	3000
1PH-168	16,8	24,1	250	600	3000
1PH-190	19,2	27,3	250	600	3000
1PH-229	22,9	32,9	210	600	3000
1PH-281	28,1	40,4	175	600	2500

For ISO VG68 oil at 50°C

PERFORMANCE CURVES



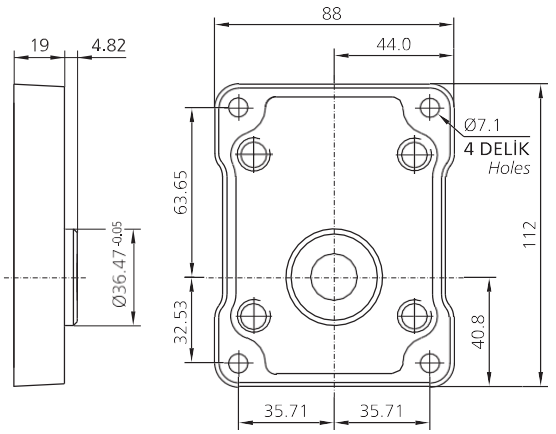
PUMP APPLICATION DATA



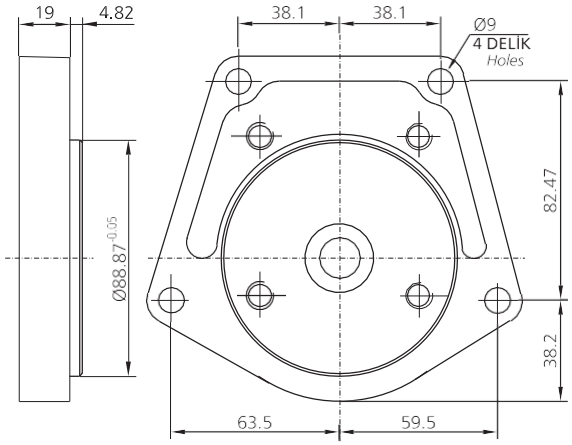
Model	Displacement cm3/dev	A mm	B mm
1PH-082	8,2	100,5	48,4
1PH-095	9,5	105,2	50,7
1PH-119	11,9	108,0	52,1
1PH-140	14,0	113,0	54,6
1PH-168	16,8	131,5	63,9
1PH-190	19,2	142,0	66,8
1PH-229	22,9	150,5	73,3
1PH-281	28,1	161,5	78,8

MOUNTING FLANGE

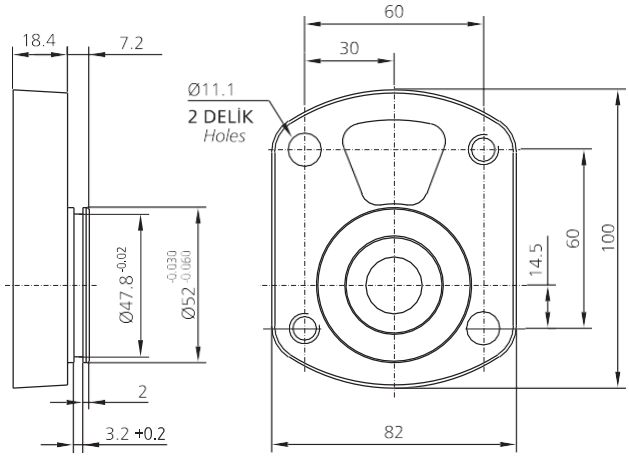
B Type



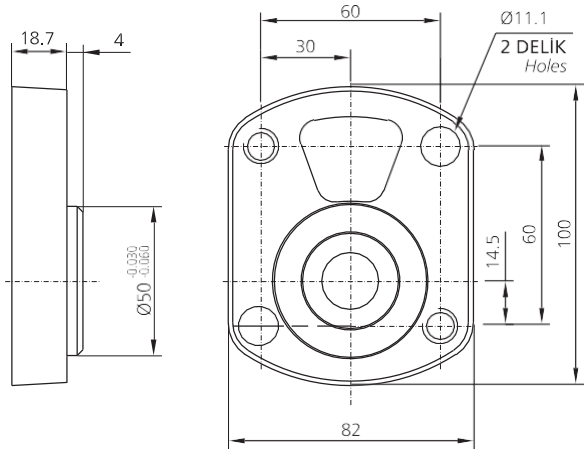
C Type



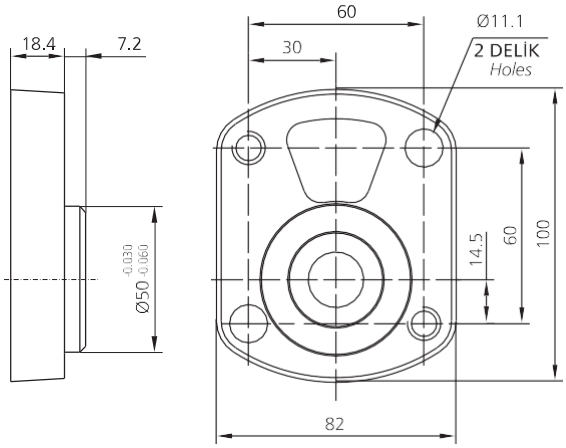
D Type



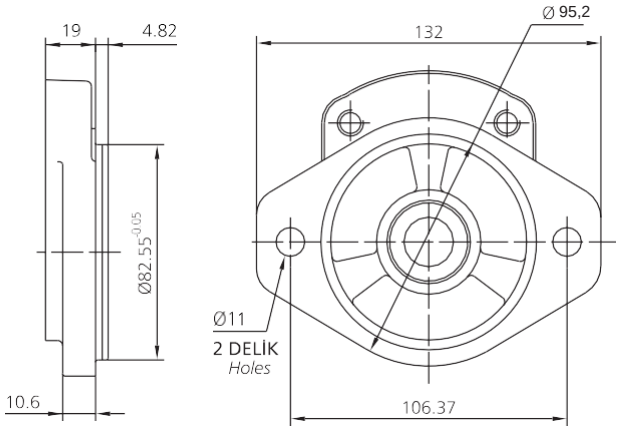
E Type



F Type

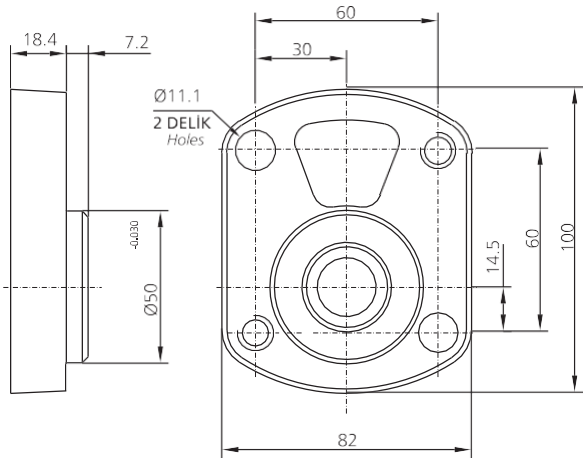


G Type

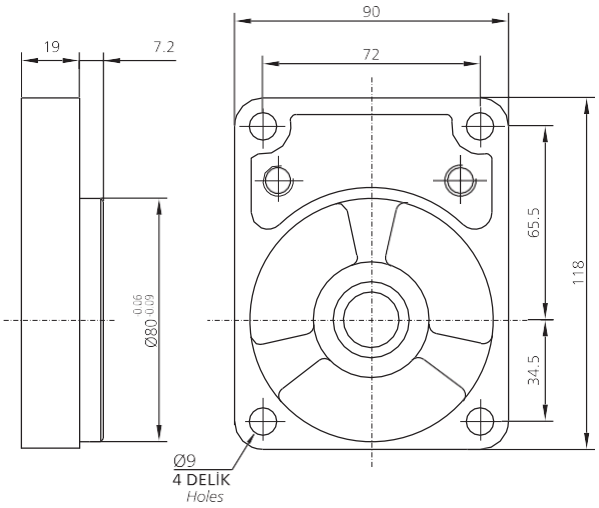


MOUNTING FLANGE

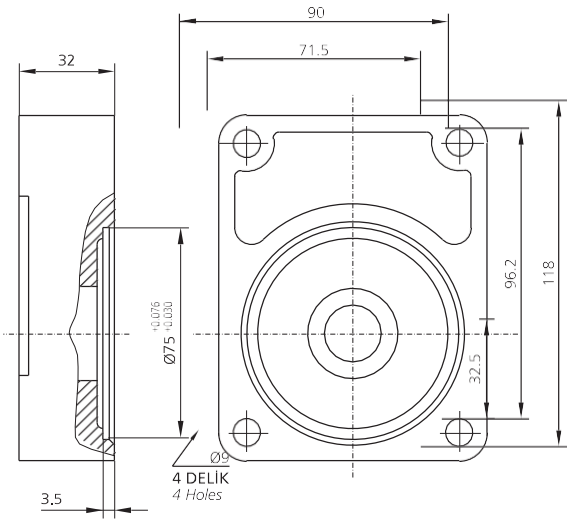
J Type



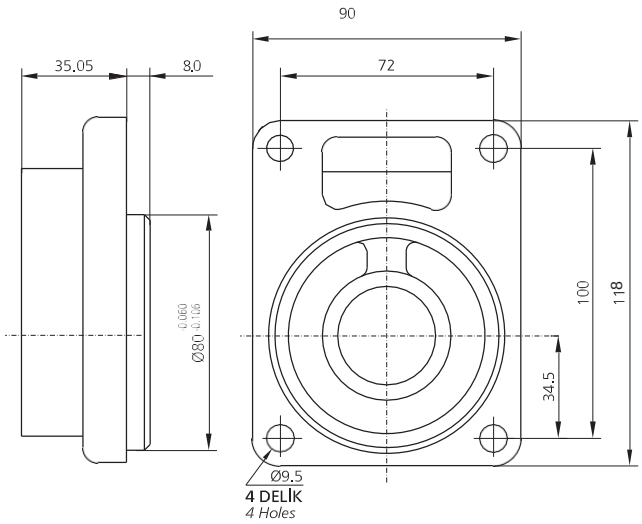
S Type



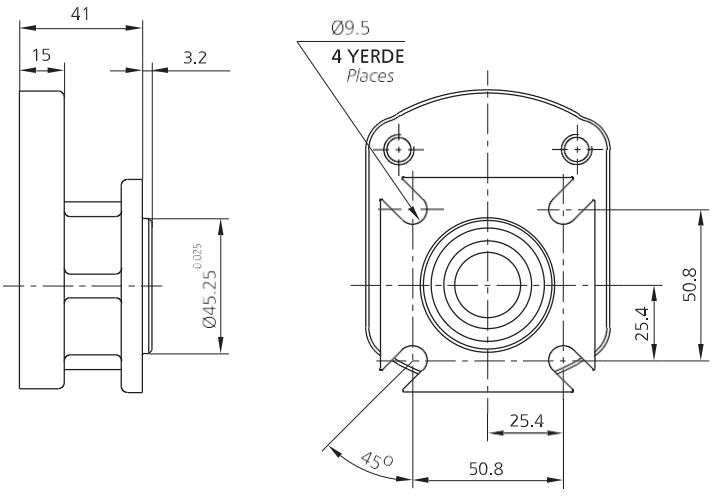
U Type



Y Type

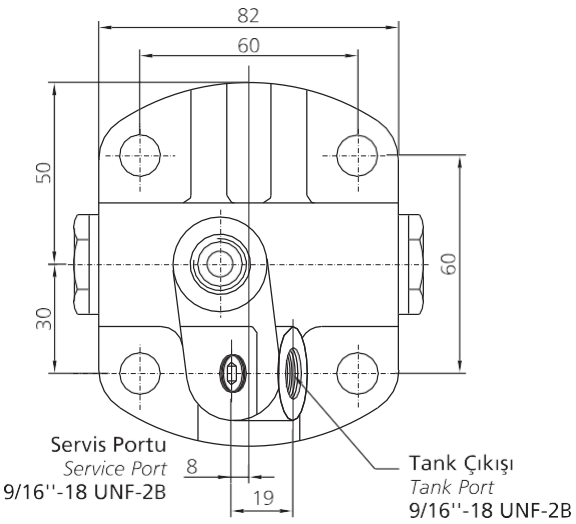


R Type



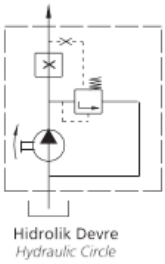
REAR COVERS

Z Integral Flow Control Valves

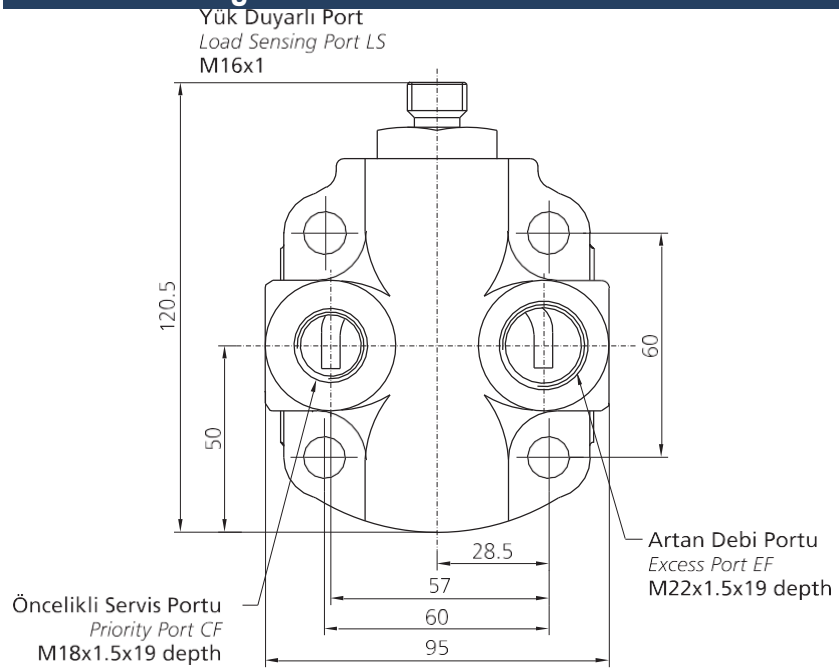


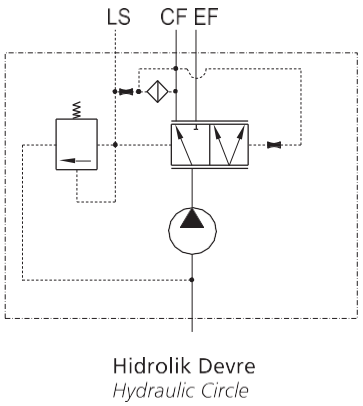
Standart Controlled Flow

Item	Controlled flow l/dev – l/min	Pressure Setting Range *bar-psi*
1	9	(90 TO 150) 1305 TO 2030
2	12	
3	16	

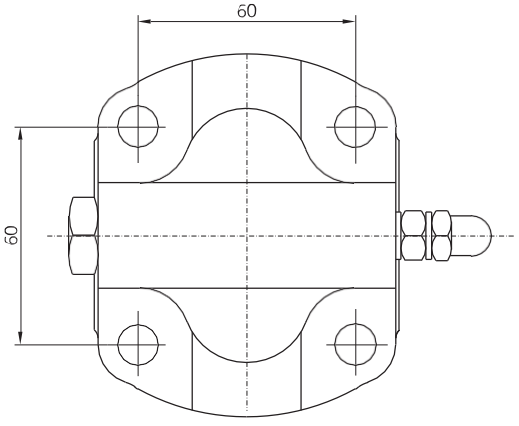


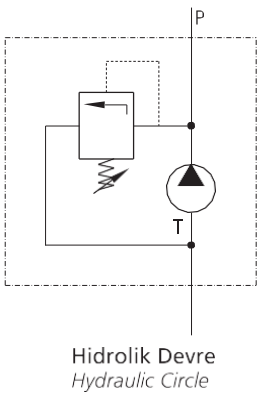
L Load Sensing





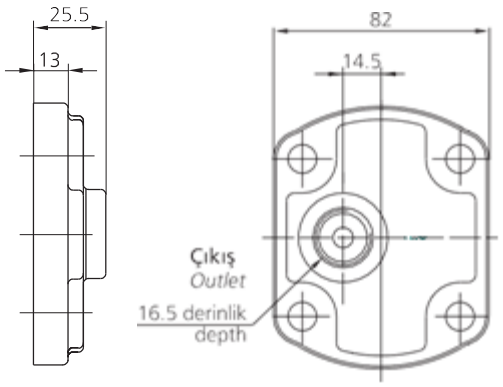
V Rear Cover With Relief





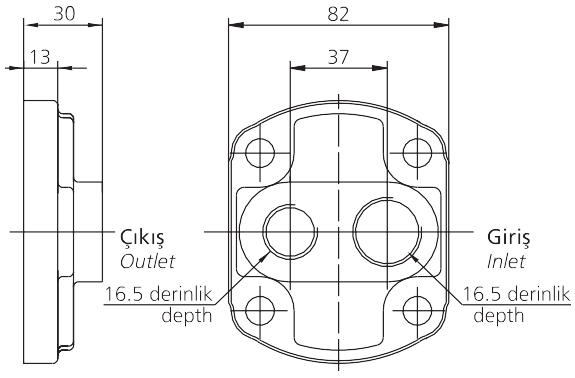
REAR COVERS

P Type



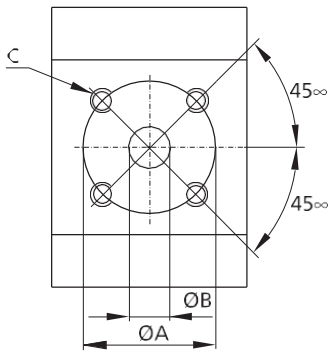
Outlet
½ BSPP
7/8-14 UN-2B
M18X1.5

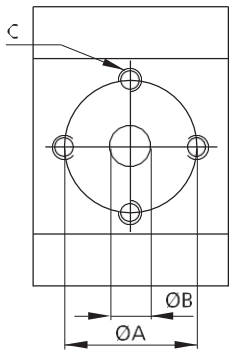
R Type

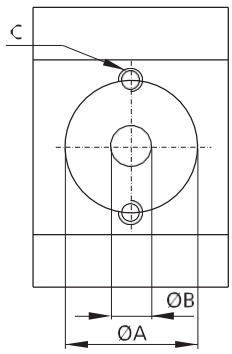


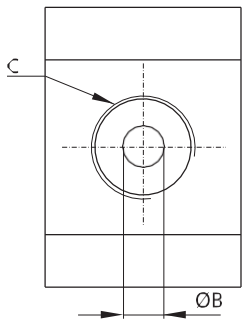
Hole Type	Inlet	Outlet
10	¾ BSPP	½ BSPP
19	1 1/16-12 UN-2B	7/8-14 UN-2B

HOLE TYPES





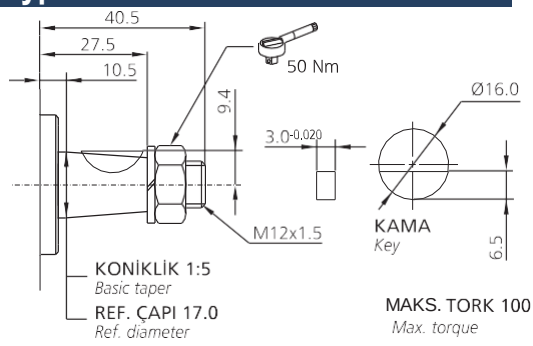




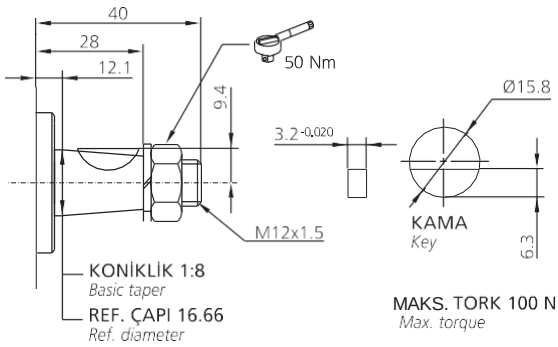
Hole type		I			II			III			IV		
		A	B	C	A	B	C	A	B	C	A	B	C
01	Inlet	35	12	M6X1X13									
	Outlet	35	12	M6X1X13									
03	Inlet	39.8	20	M6X1X13									
	Outlet	35	15	M6X1X13									
04	Inlet				35	15	M6X1X13						
	Outlet				35	15	M6X1X13						
10	Inlet											20	¾ BSP
	Outlet											20	½ BSP
11	Inlet				39.8	20	M8X1,25X13						
	Outlet				30.2	15	M6X1X13						
12	Inlet				30.2	15	M6X1X13						
	Outlet				30.2	15	M6X1X13						
13	Inlet	39.8	20	M18X1,25X13									
	Outlet	39.8	20	M18X1,25X13									
19	Inlet											19	1 1/16-12UNX16
	Outlet											15	7/8-14UNX16
24	Inlet											20	1 5/16-12UNX16
	Outlet											19	1 1/16-12UNX16

SHAFT TYPES

T Type

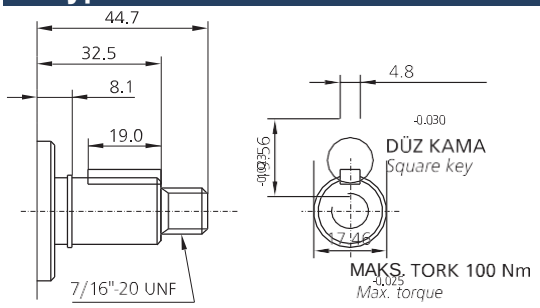


MAKS. TORK 100 Nm
Max. torque



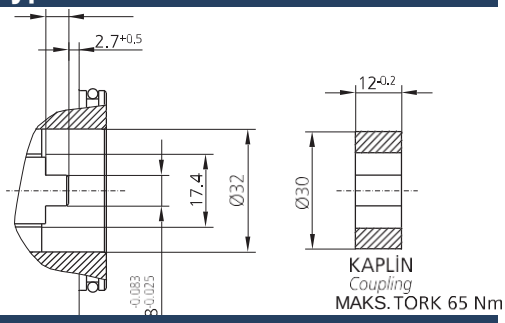
MAKS. TORK 100 Nm
Max. torque

P Type



MAKS. TORK 100 Nm
Max. torque

R Type

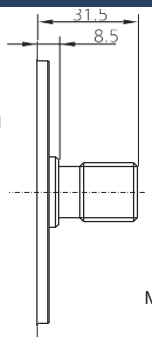


MAKS. TORK 65 Nm

S Type

SAE 16-4 (A) 5/8''SPLINE
EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI
9 DİŞ, 16/32 DP

Involute spline
Flat root side fit
9 Teeth, 16/32 DP

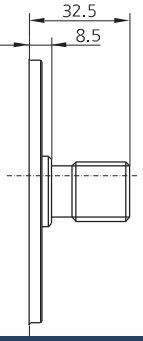


MAKS. TORK 85 Nm
Max. torque

S Type

SAE 19-4 3/4''SPLINE
EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI
11 DİŞ, 16/32 DP

Involute spline
Flat root side fit
11 Teeth, 16/32 DP

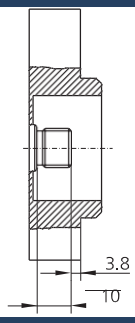


MAKS. TORK 140 Nm
Max. torque

S Type

EVOLVENT SPLINE
DIN 5482 B15x12
8 DİŞ

Involute spline
DIN 5482 B15x12
8 Teeth

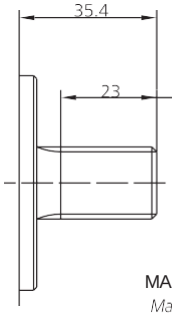


MAKS. TORK 115 Nm
Max. torque

S Type

SAE J498 A EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI
10 DİŞ, 16/32 DP

SAE J498 A Involute spline
Flat root side fit
10 Teeth, 16/32 DP

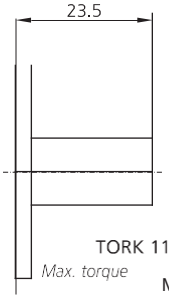


MAKS. TORK 105 Nm
Max. torque

S Type

EVOLVENT SPLINE
DIN 5482 B17x14
9 DİŞ

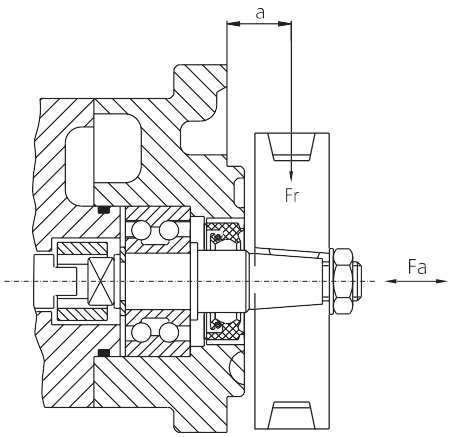
Involute spline
DIN 5482 B17x14
9 Teeth



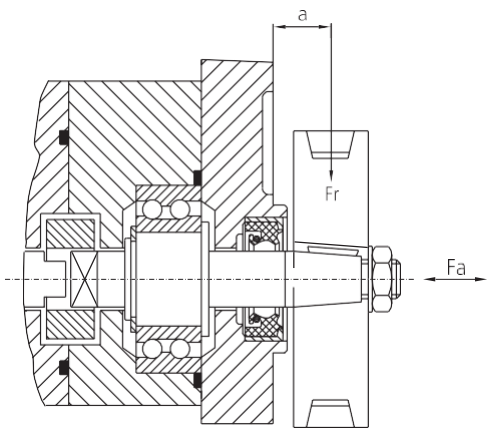
TORK 115 Nm
Max. torque

MAKS.

OUTRIGGER BEARINGS

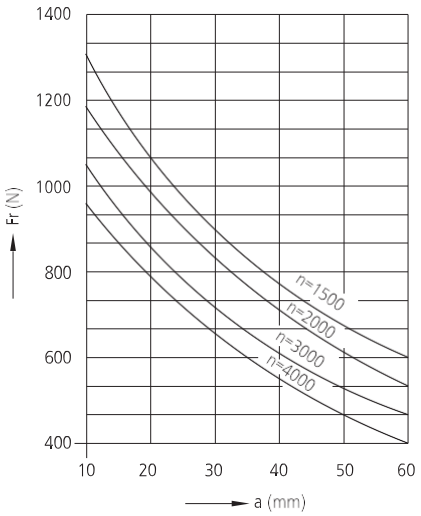


TİP 1 : SADECE "Y" TİPİ ÖN KAPAK İÇİNDİR
Type : Only mounting flange type "Y"



TİP 2 : SADECE B, G VE S TİPİ ÖN KAPAKLAR İÇİNDİR.
Type : Only mounting flange type B, G and S

Qutrigger bearings eliminate possible problems when the pumps are driven by V-belts or gearwheels. The diagrams below show the maximum overhung and thrust loads that can be tolerated referred to a bearing life of LH=1000 hours.



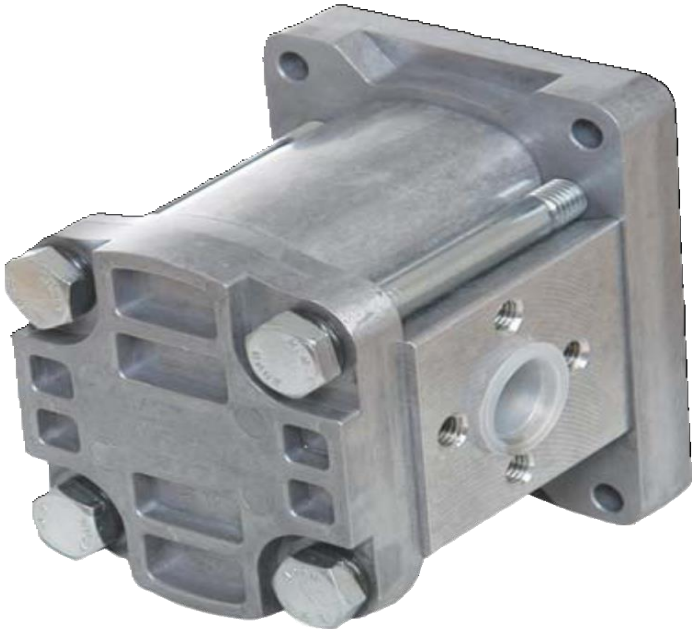
ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Rated Pressure (bar)	Rotation A – Left C – Right	Mounting Flange Type	Shaft Type	Hole Type
1	**T03-0425**	8,2	11,8	250	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
2	**T03-0426**	8,2	11,8	250	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
3	**T03-0427**	9,5	13,6	250	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
4	**T03-0428**	9,5	13,6	250	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
5	**T03-0429**	11,9	17,1	250	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
6	**T03-0430**	11,9	17,1	250	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
7	**T03-0431**	14,0	20,1	250	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
8	**T03-0432**	14,0	20,1	250	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
9	**T03-0433**	16,8	24,1	250	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
10	**T03-0434**	16,8	24,1	250	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
11	**T03-0435**	19	27,3	250	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
12	**T03-0436**	19	27,3	250	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
13	**T03-0437**	22,9	32,9	210	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
14	**T03-0438**	22,9	32,9	210	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
15	**T03-0439**	28,1	40,4	175	A	B	1/8 Taper	Inlet / Outlet 040-M6x1x13(4) D
16	**T03-0440**	28,1	40,4	175	C	B	1/8 Taper	Inlet / Outlet 040-M6x1x13(4) D

1PA SERIES

ALUMINIUM HYDRAULIC GEAR PUMPS

www.hydrex.com.tr



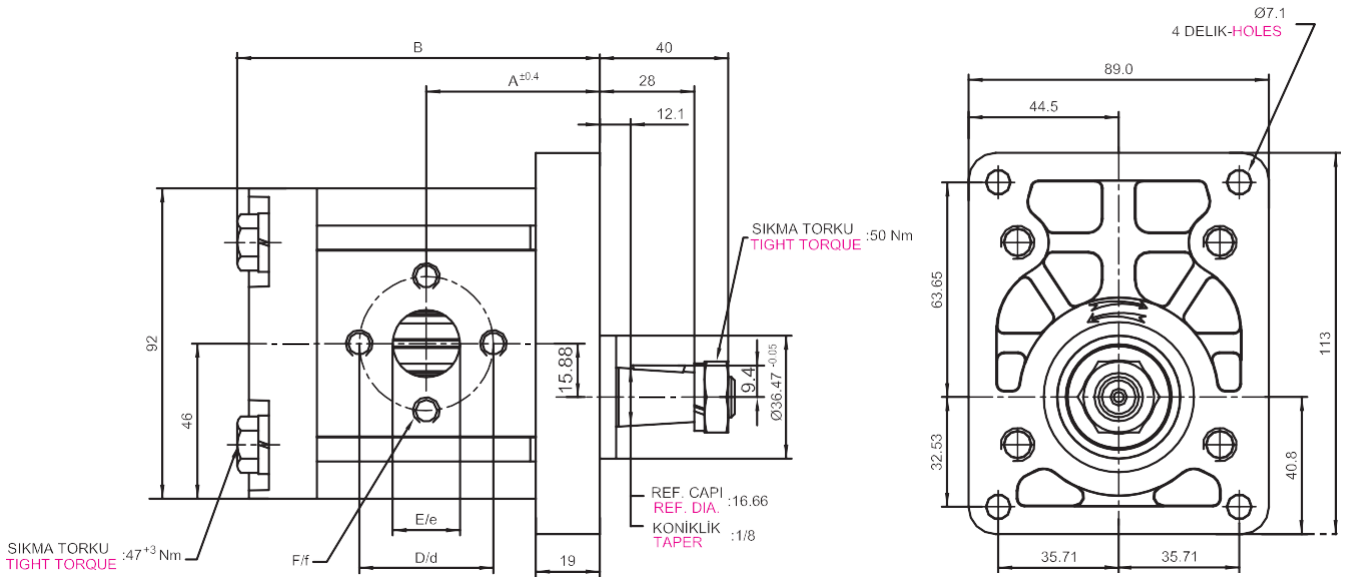
HYDREX

TECHNICAL DATA

Model	Displacement cm3/dev	Max. Pressure	Max. Speed (rpm)	Min. Speed (rpm)
1PA-A04	4,0	175	3500	650
1PA-A06	6,1	175		
1PA-A08	8,2	175		
1PA-A09	9,5	175		
1PA-A12	11,9	175		
1PA-A15	14,0	175		
1PA-A17	16,8	175		
1PA-A19	19,2	175		
1PA-A23	22,9	150	3000	

¹ For ISO VG68 oil at 50°C

PUMP APPLICATION DATA



Model	A	B	INLET			OUTLET			ROTATION
			D	E	F	d	e	f	
1PA-A04	89,3	42,2	30,2	15	M6x1	30,2	15	M6x1	RIGHT OR LEFT
1PA-A06	92,6	43,8	30,2	15	M6x1	30,2	15	M6x1	
1PA-A08	95,8	45,5	30,2	15	M6x1	30,2	15	M6x1	
1PA-A09	97,8	46,5	30,2	15	M6x1	30,2	15	M6x1	
1PA-A12	101,6	48,4	39,8	20	M8x1,25	30,2	15	M6x1	
1PA-A15	105,9	50,5	39,8	20	M8x1,25	30,2	15	M6x1	
1PA-A17	109,3	52,2	39,8	20	M8x1,25	30,2	15	M6x1	
1PA-A19	125,1	60,0	39,8	20	M8x1,25	30,2	15	M6x1	
1PA-A23	130,9	63,0	39,8	20	M8x1,25	30,2	15	M6x1	

ORDER CODES

No	Order Code	Displacement cm3/dev	Flow lpm @ (1500 rpm)	Max. Pressure (bar)	Rotation A – Left C – Right	Mounting Flange Type	Shaft Type	Hole Type
1	**T03-0485**	4,0	5,7	175	A	B	1/8 Taper	Inlet / Outlet 030-M6x1x13(4)
2	**T03-0486**	4,0	5,7	175	C	B	1/8 Taper	Inlet / Outlet 030-M6x1x13(4)
3	**T03-0487**	6,1	8,7	175	A	B	1/8 Taper	Inlet / Outlet 030-M6x1x13(4)
4	**T03-0488**	6,1	8,7	175	C	B	1/8 Taper	Inlet / Outlet 030-M6x1x13(4)
5	**T03-0489**	8,2	11,8	175	A	B	1/8 Taper	Inlet / Outlet 030-M6x1x13(4)
6	**T03-0490**	8,2	11,8	175	C	B	1/8 Taper	Inlet / Outlet 030-M6x1x13(4)
7	**T03-0491**	9,5	13,6	175	A	B	1/8 Taper	Inlet / Outlet 030-M6x1x13(4)
8	**T03-0492**	9,5	13,6	175	C	B	1/8 Taper	Inlet / Outlet 030-M6x1x13(4)
9	**T03-0493**	11,9	17,1	175	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
10	**T03-0494**	11,9	17,1	175	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
11	**T03-0495**	14,6	20,1	175	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
12	**T03-0496**	14,6	20,1	175	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
13	**T03-0497**	17,0	24,1	175	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
14	**T03-0498**	17,0	24,1	175	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
15	**T03-0499**	19,2	27,3	175	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
16	**T03-0500**	19,2	27,3	175	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
17	**T03-0501**	22,9	32,9	175	A	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)
18	**T03-0502**	22,9	32,9	175	C	B	1/8 Taper	Inlet / 040-M6x1x13(4) Outlet / Ø30-M6x1x13(4)

1P-1,5P-2P SERIES

ALUMINIUM HYDRAULIC GEAR PUMPS

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HYDREX

PUMP APPLICATION DATA

Please review the notes below to obtain high performance from the pump that is one of the components of the hydraulic system.

PUMP DRIVES

Direct Drive

The drive must not impose severe axial or radial loads on the pump shaft, as under these conditions premature failure may result due to the overload on the pump bearings. Direct drives are preferred where practicable, using a coupling between the prime mover and the pump which will allow self alignment of the shafts without undue side loads. A coupling allowing a minimum of 0.25mm radial and axial displacement must be chosen. Flexible compensating three-piece couplings are recommended. (See Fig. 1)

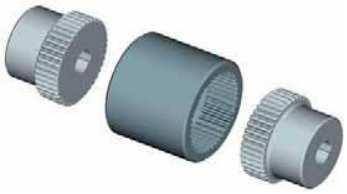
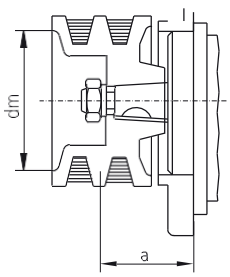


Fig : An example to the flexible compensating three - piece coupling

A shaft key supplied with the pump must be hand fitted when the coupling is assembled. On no account must the key or coupling be fitted or removed from the shaft by hammering as this will cause internal damage pumps equipped splined shafts intive misapplication by plugging the pump shaft directly into the rigidly supported mating shaft of a prime mover. This practice should be avoided as far as possible since very high radial loads can be imposed on the pump shaft unless the concentricity of the driving and the driven shafts, when under load, is of a very high order.

Indirect Drives

Side drives by gear, chain, toothed belt and V-belt drives can be accomodated but allowance must be made for extra side loads that these drives impose on the pump bearings and must be carefully calculated.



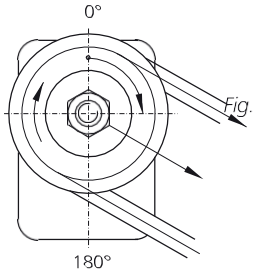
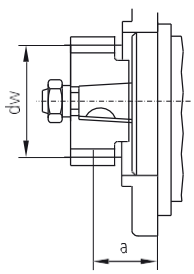


Fig. V-belt drive



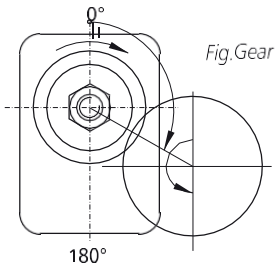
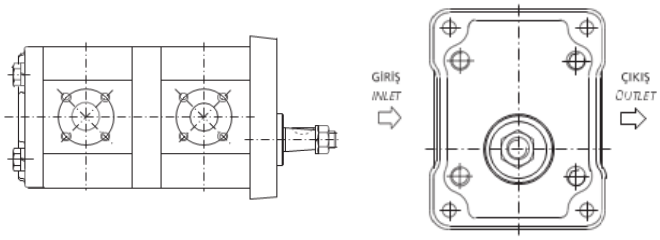


Fig.Gear Drive

PUMP ROTATION

An arrow embossed on the pump body shows the direction in which the drive shaft must be turned to operate the pump. This is always stated as clockwise or anti-clockwise, as viewed from drive shaft end (See Fig. 4)



PUMP MOUNTING

The pumps are flange mounted with spigot location and two or four bolts fixing making for simplicity of installation. The counterbore to receive the mounting flange spigot should have a 1 mm chamfer at 45° on the pump side to ensure proper seating. To minimize vibration, which can be transmitted to the pump by rigid pipe runs, it is good practice to use flexible hose immediately adjacent to the pump in both the suction and pressure lines.

PUMP SUCTION LINE

The pump inlet piping and fittings should be of generous proportions with flow velocities limited to a maximum of 2.0 m/s to avoid high suction depression. (See Fig. 5) When measured just outside the pump casing the maximum depression that can be continuously tolerated at the pump inlet is 200 mmHg (0.25 bar) below atmospheric pressure. Greater depressions, occuring under cold start-up conditions, are permissible for short periods. The suction line must be as large as possible and free from sharp bends so that depression at the pump inlet is a minimum.

PUMP OUTLET

The pump outlet should normally be protected by a relief valve to limit the working pressure. The setting of this valve should be as low as possible so that the pump is relieved as soon as excess pressure is produced. This minimizes the heating effect on the fluid and reduces the amount of work done by the pump, thereby saving energy. Outlet pipe sizes should be chosen to minimize flow velocity to avoid system noise, excess pressure drops and overheating. The velocities below 5m/s are normally acceptable (See Fig. 5)

PUMP APPLICATION DATA

CAVITATION

Hydraulic oil used in the majority of systems contains about 10 % dissolved air by volume. This air under certain conditions of vacuum within the system is released from the oil causing air bubbles .These air pockets collapse if then subjected to pressure and the cavitation is this collapse that creates erosion of the adjacent metal.

It is obvious from the above that the greater the air content within the oil then the more severe will be the resultant erosion created.

The main causes of over aeration of the oil are air leaks particularly on the inlet side of the pump, and flow line restrictions such as inadequate pipe size, elbow fittings and sudden changes in flow line cross sectional area.

OIL RESERVOIR

It is recommended that the reservoir capacity is at least twice the pump output per minute at maximum pump speed. Too small a reservoir will fail to accomodate volume changes due to system components leading to the formation of vortex which will introduce air into the system. It also leaves insufficient time for the release of air in the oil and for the dissipation of heat.

The main air entrainement occurs in oil reservoirs and precautions should be taken to keep agitation of the oil/air interface to a minimum. These include location of oil return lines well below the oil surface. Oil suction ports also should be well immersed to eliminate vortex formation and as far as possible they should be located well away from the oil-return pipe to avoid recirculation of air bubbles.

Displacement volume for rams and actuators must be allowed for by providing adequate air space and breathing. For this purpose an oil filler /breather must be fitted to the filling orifice in the top surface of the tank. This should comprise a fine mesh strainer for the filling orifice and an air filter to prevent the entry of dust particles through the breather. Check the oil level regularly and use only clean, approved oil when to ping-up.

FILTRATION

Dirt is the enemy of any hydraulic system. Adequate filtration must be provided to ensure that harmful dirt particles are trapped. As an absolute minimum standard the system must have a suction line strainer and a return line filter.

The strainer is fitted to the pump suction line inside the reservoir and should be of 100 mesh construction (0.15 mm gap) The return line filter must be 10 micron filter of the renewable element type.

OIL

Only good quality, mineral based oil must be used with a viscosity characteristic that will conform to the requirements shown below.

Viscosity at any running condition must not be less than 5.5 centistokes. For normal temperature operation ISO VG68 oils are recommended, but in cold climates ISO VG32 oils must be used.

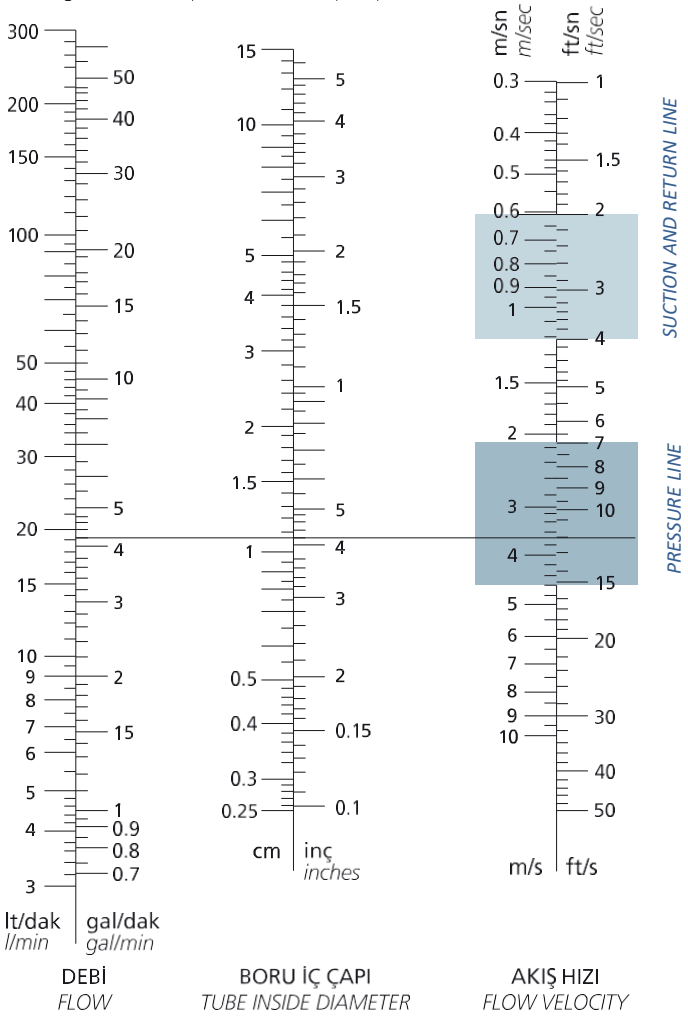
OPERATING PARAMETERS

These pumps are designed to operate continuously between 0°C and + 80°C. This range can be extended to -20°C and + 100°C for intermittent operation.

HIGH EFFICIENT PUMPS

High volumetric efficiencies produced by the pumps are achieved in part by careful attention to the control of gear tip leakage. The body to gear geometry is arranged such that during the running in test cycle, to which every unit is subjected, the gears cut perceptible tracks in the body. This results in virtually zero clearance between the gear tips and producing a near perfect tip seal under running conditions.

Floating composite bushes are used in the pumps which house the bearing liners and provide a face seal to the gears. This efficient seal is achieved by pressure loading precise areas of the bush rear face with fluid at working pressure. Special features are incorporated in the bush sealing face to compensate for operating variables such as pressure, speed and temperature. The pressure balancing system a minimum nett on-load for high mechanical efficiency yet at the same time balancing a varying pressure distribution across the bush face, thus contributing to the high volumetric performance of pumps.



PIPE SIZING

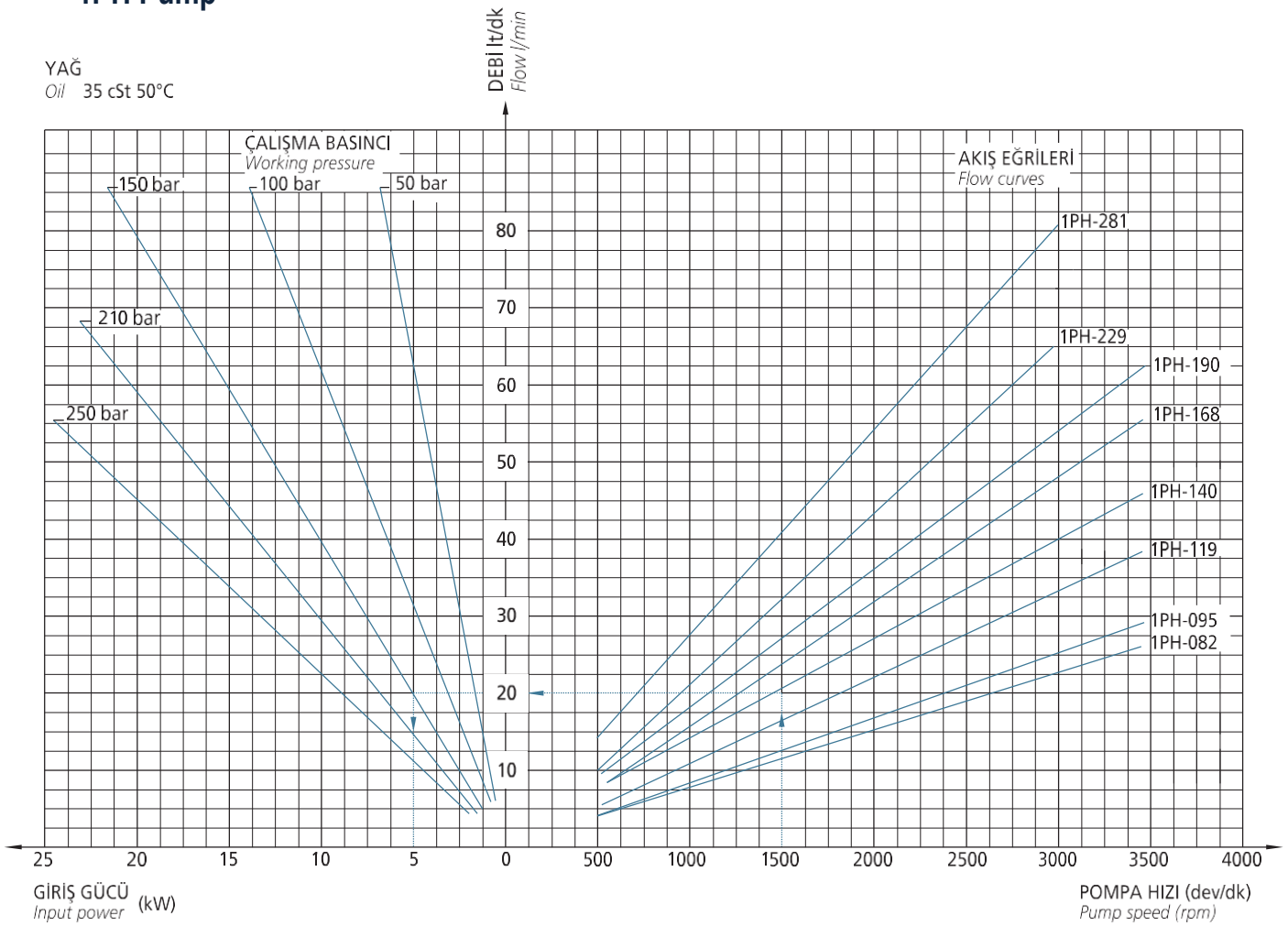
TECHNICAL DATA

Model	Displacement cm3/dev	Flow (rpm) l/min	Max.Outlet Pressure bar	Min. Speed (rpm)	Max.Speed rpm
1PN-040	4,0	5,7	250	600	3000
1PN-061	6,1	8,7	250	600	3000
1PN-082	8,2	11,8	250	600	3000
1PN-095	9,5	13,6	250	600	3000
1PN-119	11,9	17,1	250	600	3000
1PN-140	14,0	20,1	250	600	3000
1PN-168	16,8	24,1	250	600	3000
1PN-192	19,2	27,6	250	600	3000
1PN-229	22,9	32,9	210	600	2500
1PN-281	28,1	40,4	175	600	2500
1PH-082	8,2	11,8	250	600	3000
1PH-095	9,5	13,6	250	600	3000
1PH-119	11,9	17,1	250	600	3000
1PH-140	14,0	20,1	250	600	3000
1PH-168	16,8	24,1	250	600	3000
1PH-190	19,2	27,3	250	600	3000
1PH-229	22,9	32,9	210	600	2500
1PH-281	28,1	40,4	175	600	2500
1.5PH-160	16,0	22,8	225	600	3000
1.5PH-222	22,2	31,6	225	600	3000
1.5PH-260	26,0	37,0	225	600	3000
1.5PH-280	28,0	39,9	225	600	3000
1.5PH-310	31,0	44,1	210	600	3000
1.5PH-357	35,7	50,8	210	600	2500
1.5PH-406	40,6	57,8	175	600	2500
2P1-3050	16,7	24,0	250	600	2500
2P1-3070	22,7	32,7	250	600	2500
2P1-3090	28,8	41,5	250	600	2500
2P1-3105	33,3	47,7	250	600	2500
2P1-3120	37,9	54,5	250	600	2500
2P1-3135	42,6	64,0	210	600	2500
2P1-3146	45,5	66,5	210	600	2500
2P1-3158	49,4	71,8	210	600	2500
2P1-3180	56,1	81,5	175	600	2200

[1] For ISO VG68 oil at 50°C

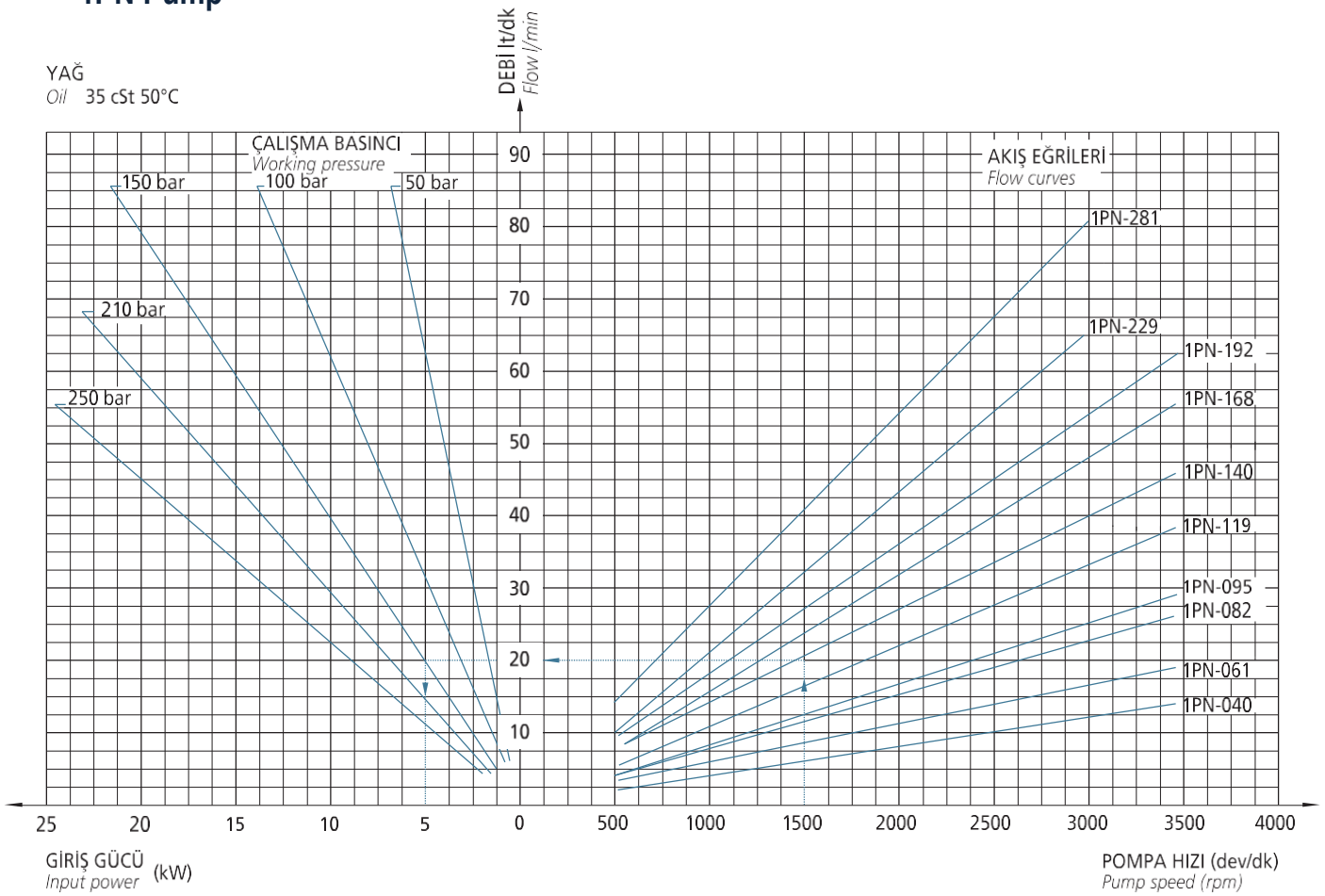
PERFORMANCE CURVES

1PH Pump



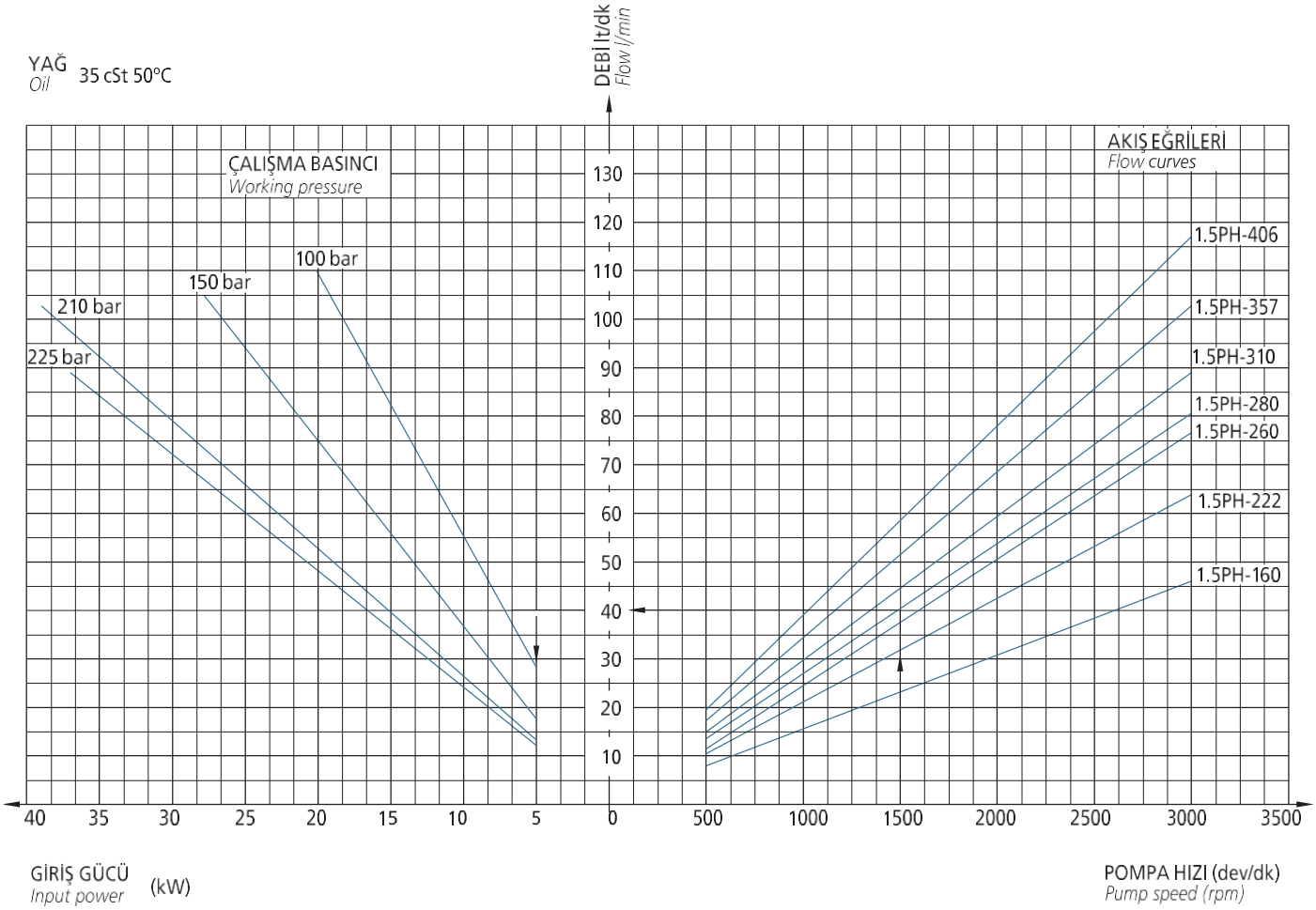
PERFORMANCE CURVES

1PN Pump



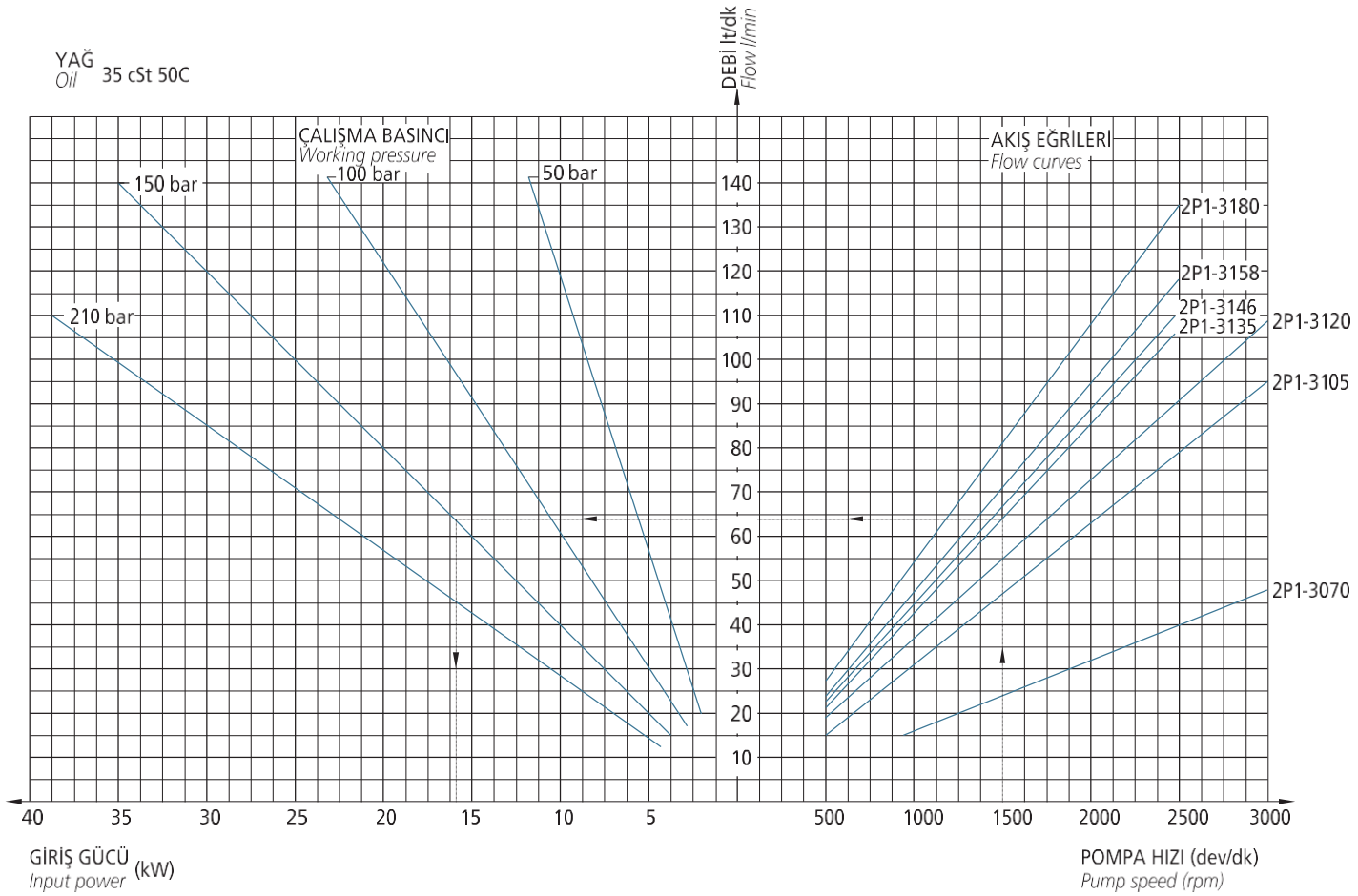
PERFORMANCE CURVES

1,5PH Pump

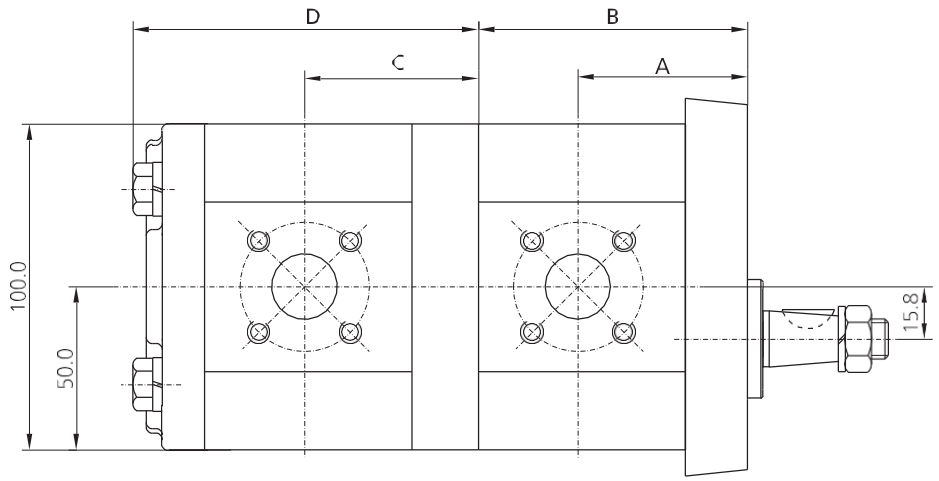


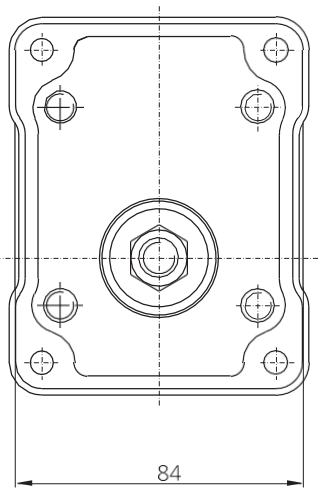
PERFORMANCE CURVES

2P1 Pump



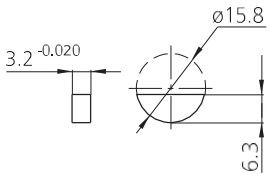
PUMP TECHNICAL DATA





GÖVDE GENİŞLİĞİ
BODY WIDTH

1PH Pump Tandem
Pump Combination



AY KAMA
WOODRUFF KEY

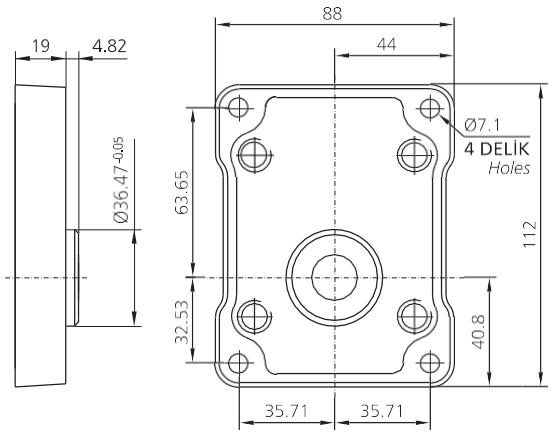
Model	Displacement Cm3/dev	A	B	C	D
1PH-082	8,2	50,7	82,5	61,7	116,0
1PH-095	9,5	52,1	85,3	83,1	118,7
1PH-119	11,9	54,7	90,4	65,6	124,0
1PH-140	14,0	63,9	108,8	74,9	142,5
1PH-168	16,8	66,9	114,8	77,8	148,5
1PH-190	19,0	69,2	119,4	80,2	153,0
1PH-229	22,9	73,3	127,7	84,3	161,4
1PH-281	28,1	78,8	138,7	89,8	172,5

1PN Pump Tandem
Pump Combination

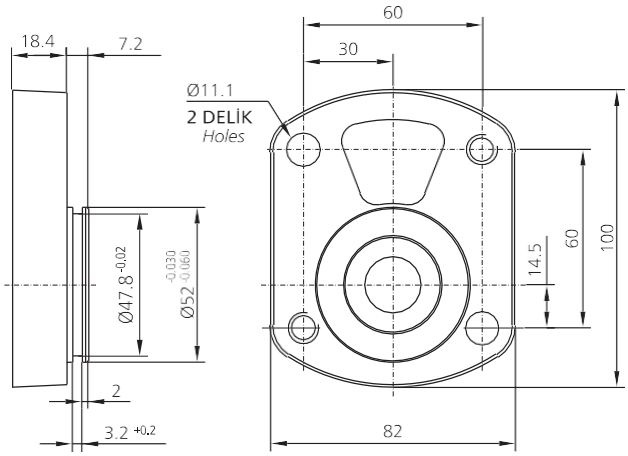
Model	Displacement Cm3/dev	A	B	C	D
1PN-040	4,0	42,2	65,4	53,2	99,0
1PN-061	6,1	43,8	68,6	54,8	102,3
1PN-082	8,2	45,5	72,0	56,5	105,7
1PN-095	9,5	46,5	73,9	57,5	107,6
1PN-119	11,9	48,4	77,7	59,4	114,4
1PN-140	14,0	50,0	81,0	61,0	114,7
1PN-168	16,8	52,2	85,4	63,2	119,1
1PN-192	19,2	60,1	101,2	71,1	134,9
1PN-229	22,9	63,0	107,0	74,0	140,7
1PN-281	28,1	67,0	115,1	78,0	148,8

1PH & 1PN PUMP FLANGES

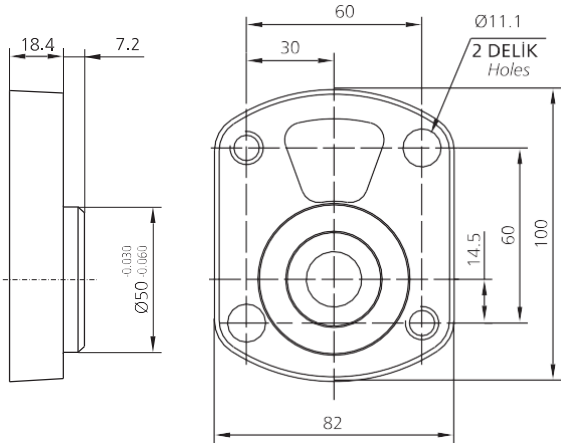
B Type



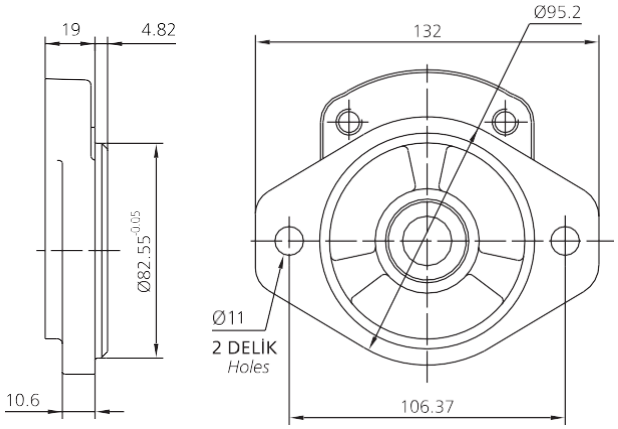
D Type



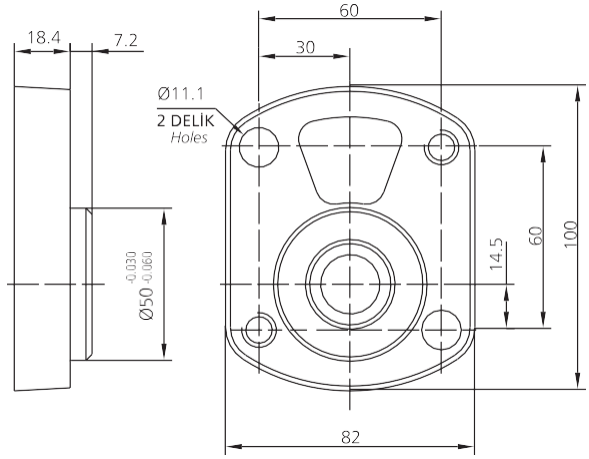
F Type



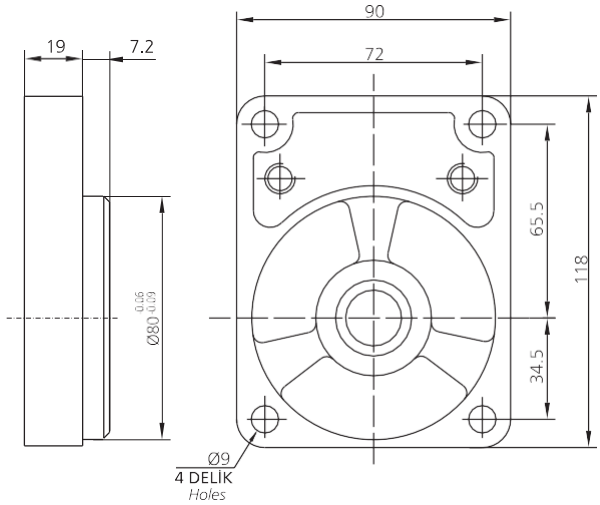
G Type



J Type

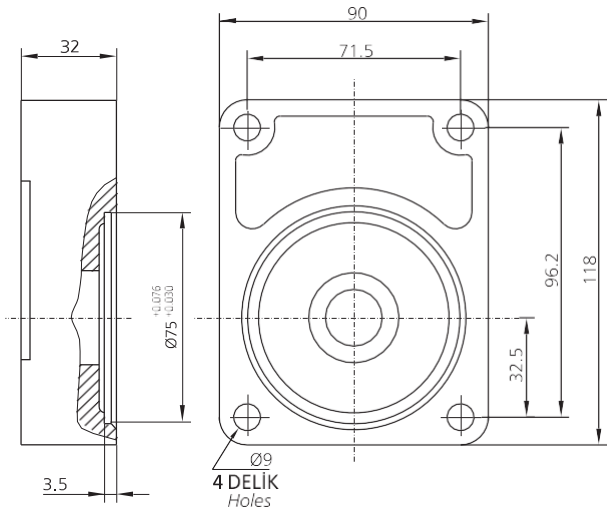


S Type

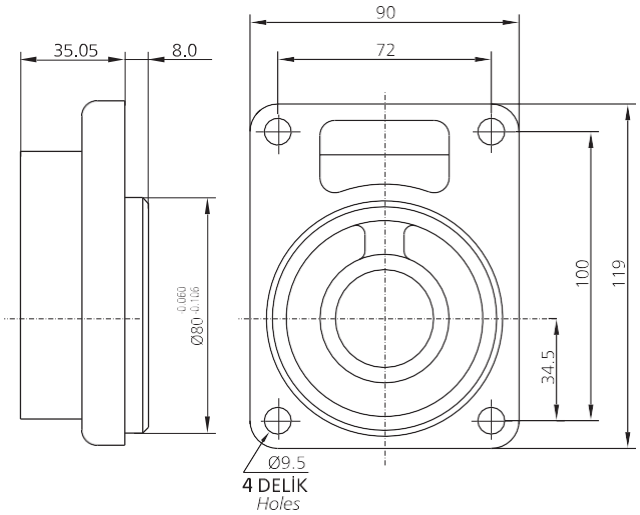


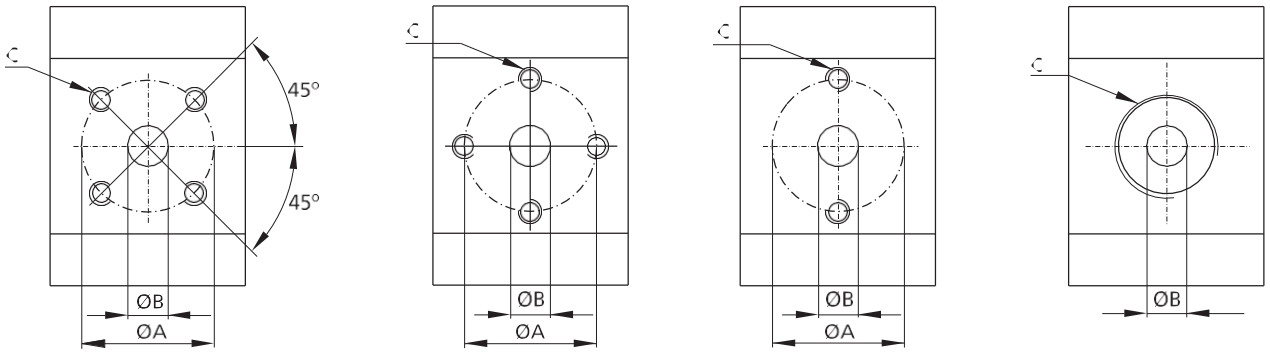
1PH & 1PN HOLE TYPES

U Type



Y Type



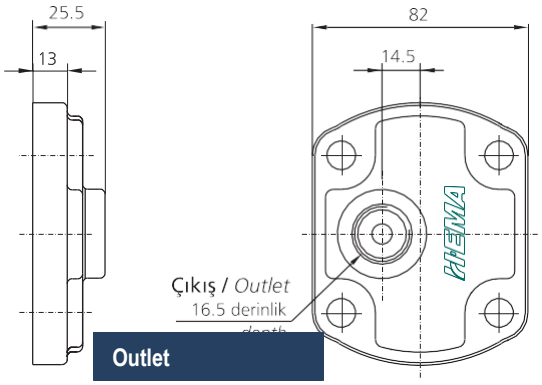


I II III IV

Hole type		I A			II A			III A	B	C	IV B	C
01	Inlet	35	12	M6X1X13								
	Outlet	35	12	M6X1X13								
03	Inlet	39.8	20	M6X1X13								
	Outlet	35	15	M6X1X13								
04	Inlet				35	15	M6X1X13					
	Outlet				35	15	M6X1X13					
10	Inlet										20	¾ BSP
	Outlet										20	½ BSP
11	Inlet				39.8	20	M8X1,25X13					
	Outlet				30.2	15	M6X1X13					
12	Inlet				30.2	15	M6X1X13					
	Outlet				30.2	15	M6X1X13					
13	Inlet	39.8	20	M18X1,25X13								
	Outlet	39.8	20	M18X1,25X13								
19	Inlet										19	1 1/16-12UNX16
	Outlet										15	7/8-14UNX16
24	Inlet										20	1 5/16-12UNX16
	Outlet										19	1 1/16-12UNX16

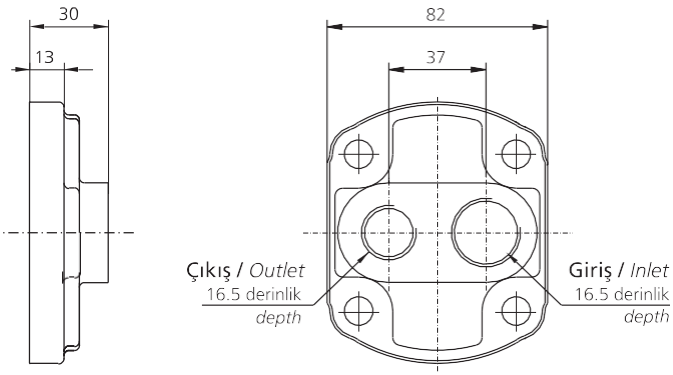
1PH & 1PN PUMP REAR COVERS

P Type



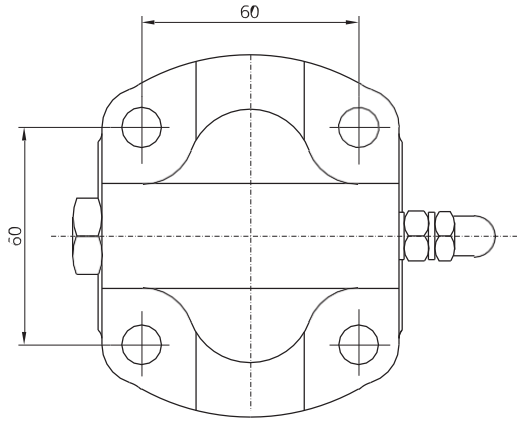
Outlet
½ BSPP
7/8-14 UN-2B
M18X1.5

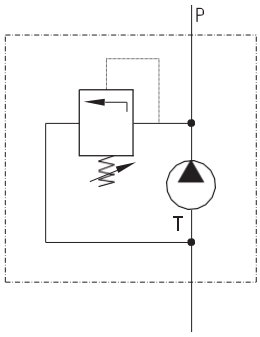
R Type



Hole Type	Inlet	Outlet
10	¾ BSPP	½ BSPP
19	1 1/16-12 UN-2B	7/8-14 UN-2B

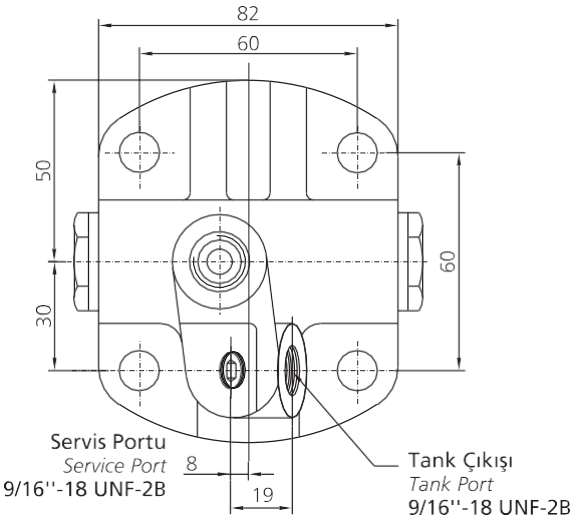
PV (with Relief Valve)

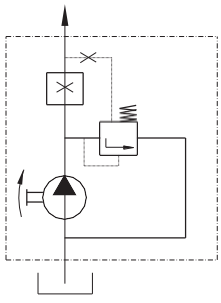




Hidrolik Devre
Hydraulic Diagram

Z (with Integral Flow Control Valves)



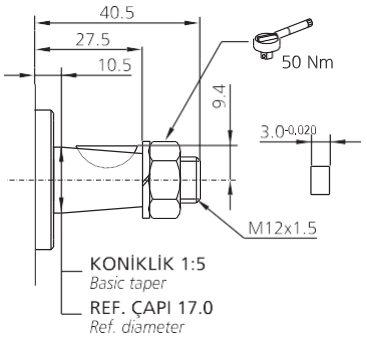


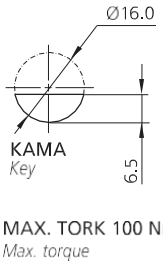
Hidrolik Devre
Hydraulic Diagram

Item	Controlled flow l/dev – l/min	Pressure Setting Range *bar-psi*
1	9	(90 TO 150) 1305 TO 2030
2	12	
3	16	

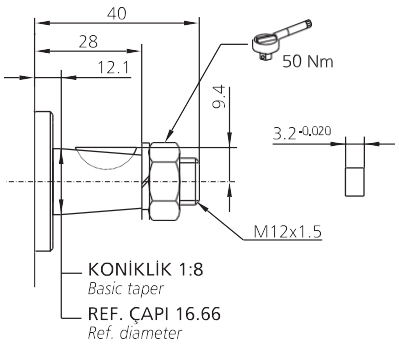
1PH & 1PN PUMP DRIVE SHAFTS

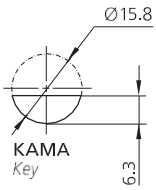
T Type





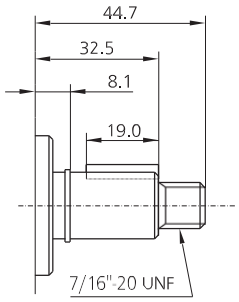
MAX. TORK 100 Nm
Max. torque

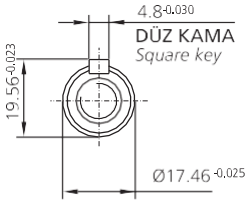




MAX. TORK 100 Nm
Max. torque

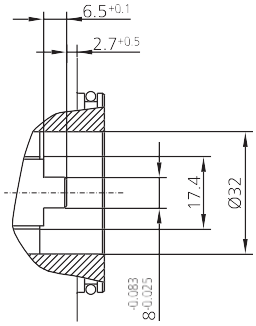
P Type

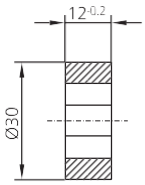




MAX. TORK 100 Nm
Max. torque

R Type



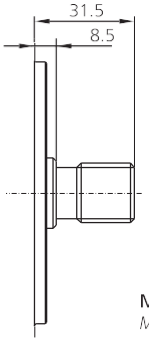


KAPLİN
Coupling
MAX. TORK 65 Nm
Max. torque

S Type

SAE 16-4 (A) 5/8''SPLINE
EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI
9 DİŞ, 16/32 DP

Involute spline
Flat root side fit
9 Teeth, 16/32 DP

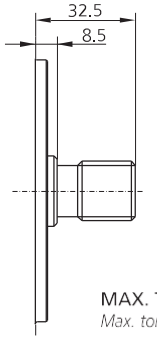


MAX. TORK 85 Nm
Max. torque

S Type

SAE 19-4 3/4''SPLINE
EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI
11 DİŞ, 16/32 DP

Involute spline
Flat root side fit
11 Teeth, 16/32 DP

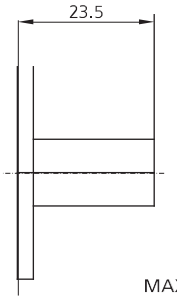


MAX. TORK 140 Nm
Max. torque

S Type

EVOLVENT SPLINE
DIN 5482 B17x14
9 DİŞ

Involute spline
DIN 5482 B17x14
9 Teeth

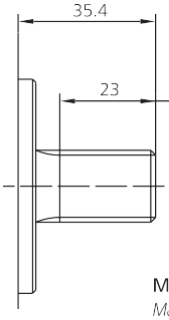


MAX. TORK 115 Nm
Max. torque

S Type

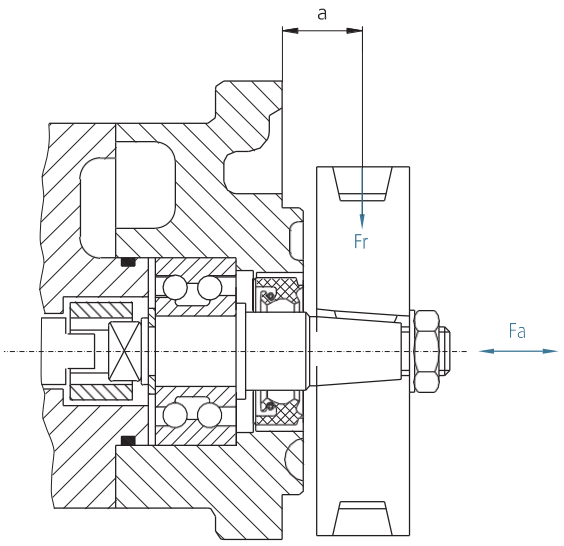
SAE J498 A EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI
10 DİŞ, 16/32 DP

SAE J498 A Involute spline
Flat root side fit
10 Teeth, 16/32 DP

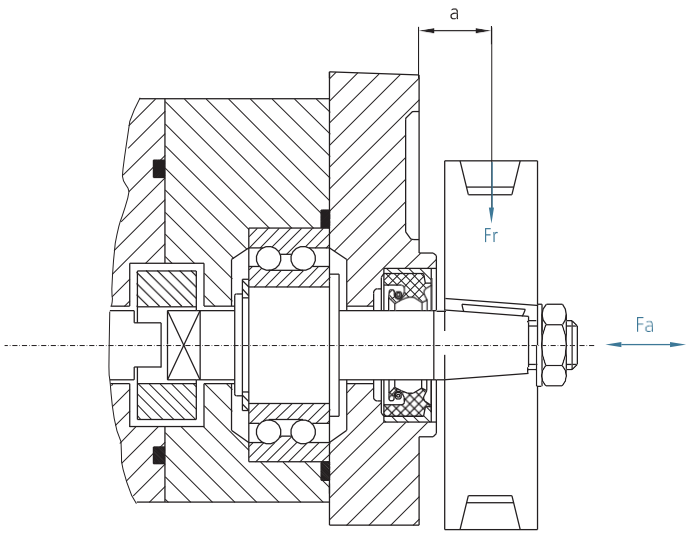


MAX. TORK 105 Nm
Max. torque

1PH & 1PN OUTRIGGER BEARING

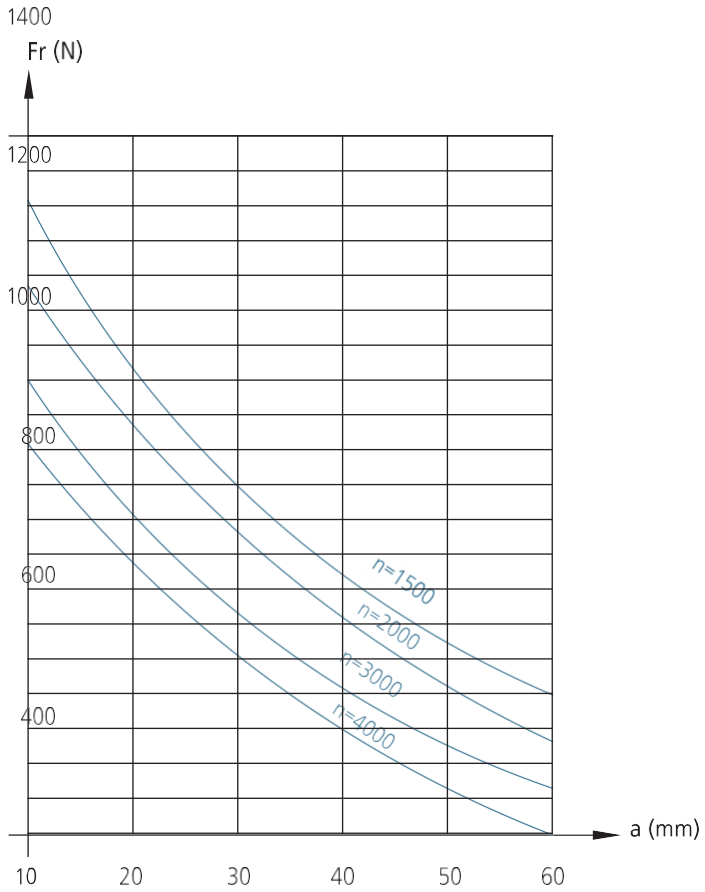


TİP 1 : SADECE "Y" TİPİ ÖN KAPAK İÇİNDİR.
Type : Only mounting flange type "Y"

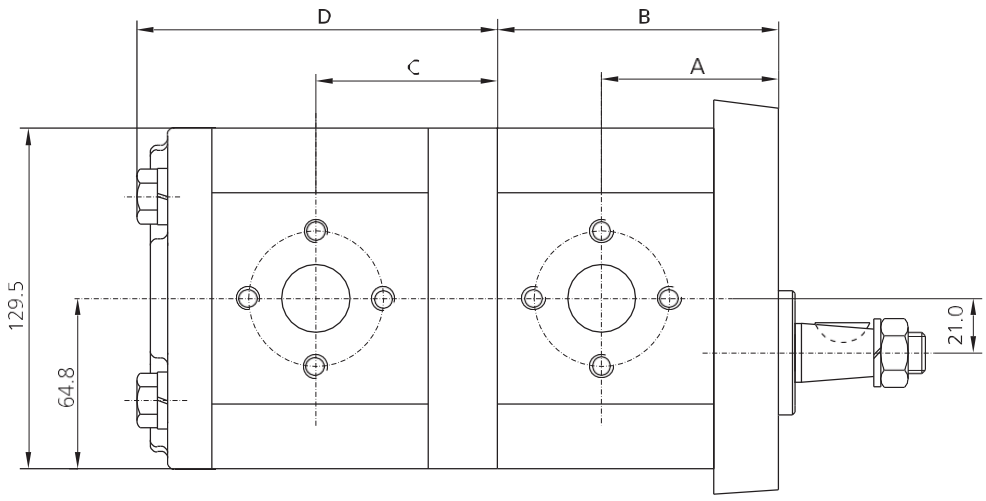


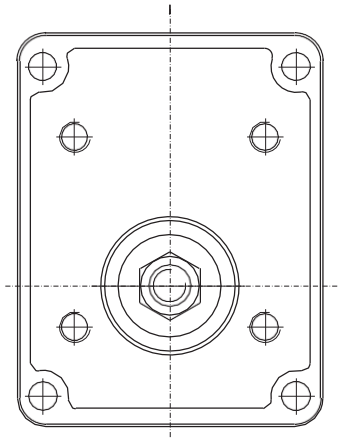
TİP 2 : SADECE B, G VE S TİPİ ÖN KAPAKLAR İÇİNDİR.
Type : Only mounting flange type B, G and S

Outrigger bearings eliminate possible problems when the pumps are driven by V-belts or gearwheels. The diagrams below show the maximum overhung and thrust loads that can be tolerated referred to a bearing life of LH=1000 hours.



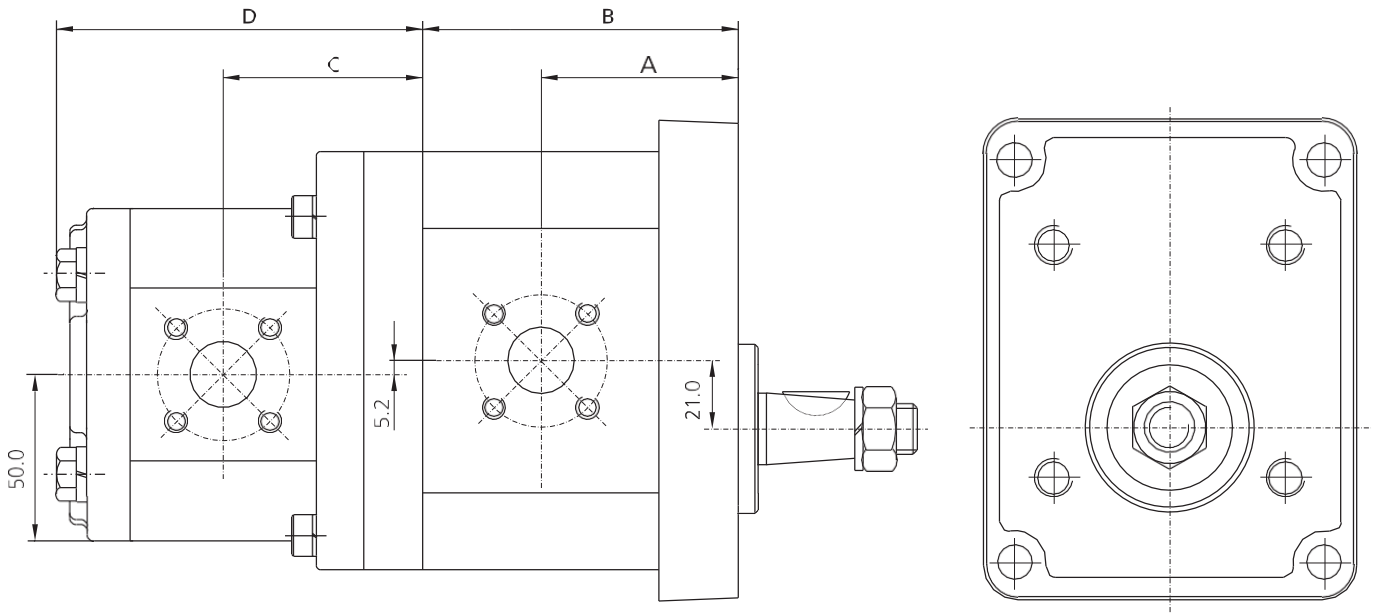
1,5PH TANDEM GEAR PUMPS





Model	Displacement Cm3/dev	A	B	C	D
1.5PH-160	16,0	63,8	106,0	75,2	143,5
1.5PH-222	22,2	67,6	113,6	79,0	151,0
1.5P1-I-260	26,0	70,0	118,4	81,4	155,8
1.5PH-280	28,0	71,1	120,6	82,5	158,0
1.5PH-310	31,0	72,9	124,3	84,3	161,7
1.5PH-357	35,7	75,8	130,0	113,2	167,4
1.5PH-406	40,6	78,7	136,0	90,1	173,4

1,5PH/1PH TANDEM GEAR PUMPS



Rear Pump

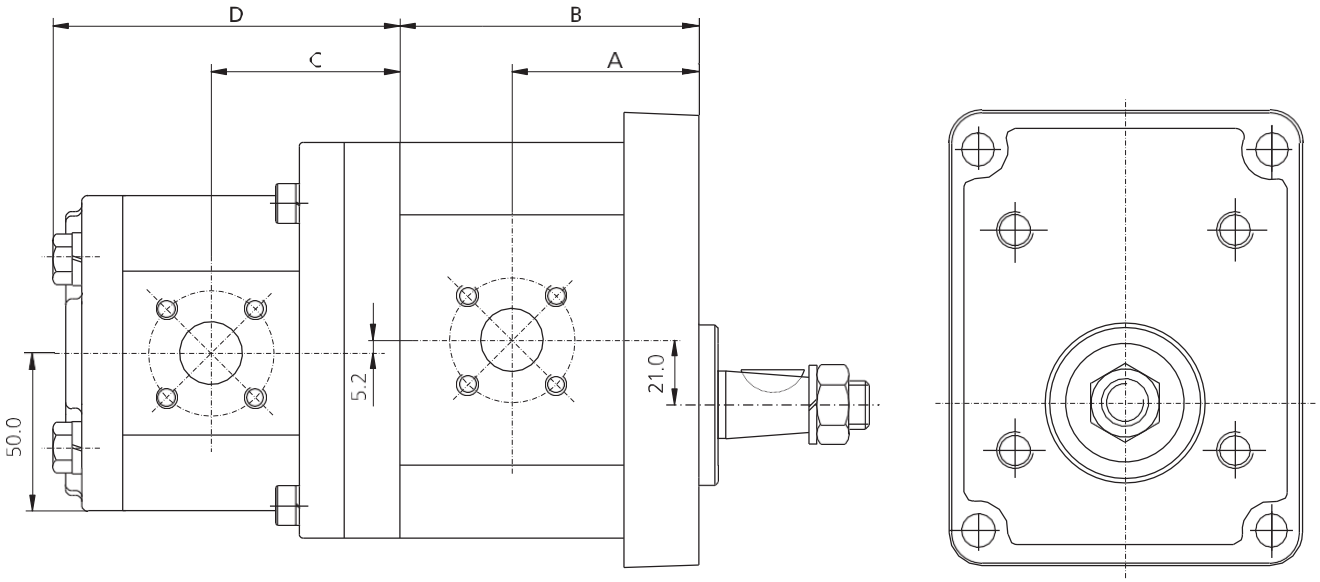
Model	Displacement Cm3/dev	C	D
1PH-082	8,2	74,7	129,2
1PH-095	9,5	76,1	131,9
1PH-119	11,9	78,6	137,0
1PH-140	14,0	87,9	155,5
1PH-168	16,8	90,8	161,4
1PH-190	19,0	93,2	166,1
1PH-229	22,9	97,3	174,3
1PH-281	28,1	102,8	185,4

Front Pump

Model	Displacement Cm3/dev	A	B
1.5PH-160	16,0	147,7	81,1
1.5PH-222	22,2	157,3	85,0
1.5P1-I-260	26,0	162,0	87,3
1.5PH-280	28,0	164,0	88,4
1.5PH-310	31,0	167,7	90,2
1.5PH-357	35,7	173,7	93,1
1.5PH-406	40,6	179,5	96,0

Rear Pump		Front Pump	
Width	Height	Width	Height
84,0	100,0	104,0	129,5

1,5PH/1PH TANDEM GEAR PUMPS



Rear Pump

Model	Displacement Cm3/dev	C	D
1PN-040	4,0	66,2	112,0
1PN-061	6,1	67,8	115,3
1PN-082	8,2	69,5	118,6
1PN-095	9,5	70,5	120,6
1PN-119	11,9	72,4	124,4
1PN-140	14,0	74,0	127,7
1PN-168	16,8	76,2	132,1
1PN-192	19,2	84,0	147,8
1PN-229	22,9	87,0	153,6
1PN-281	28,1	91,0	161,8

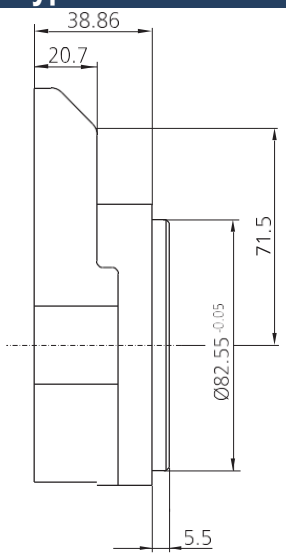
Front Pump

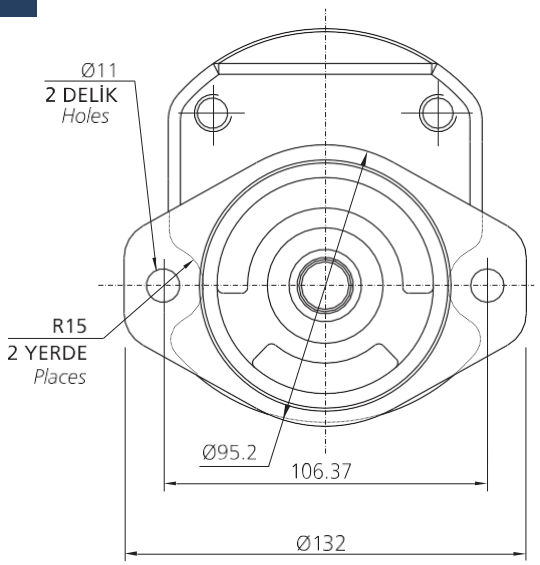
Model	Displacement Cm3/dev	A	B
1.5PH-160	16,0	147,7	81,1
1.5PH-222	22,2	157,3	85,0
1.5PH-260	26,0	162,0	87,3
1.5PH-280	28,0	164,0	88,4
1.5PH-310	31,0	167,7	90,2
1.5PH-357	35,7	173,7	93,1
1.5PH-406	40,6	179,5	96,0

Rear Pump		Front Pump	
Width	Height	Width	Height
84,0	100,0	104,0	129,5

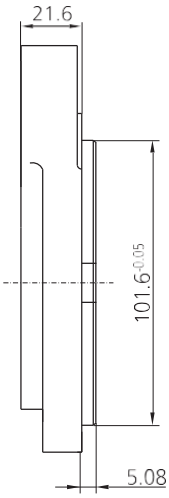
1,5PH PUMP MOUNTING FLANGES

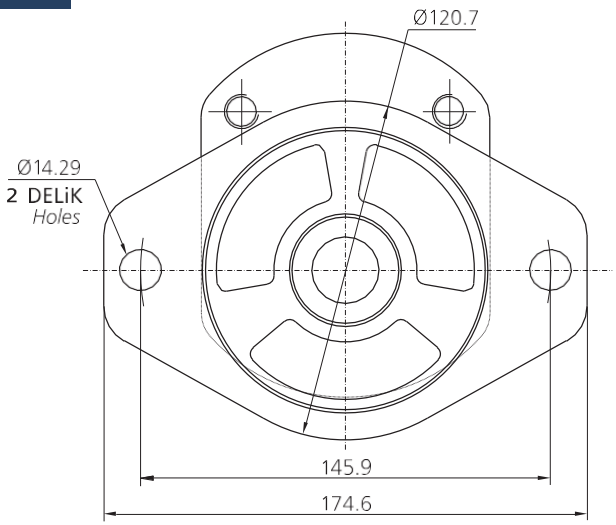
G Type



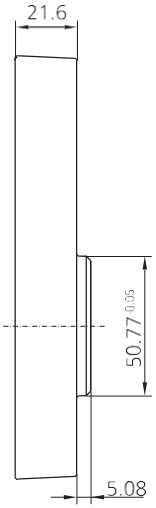


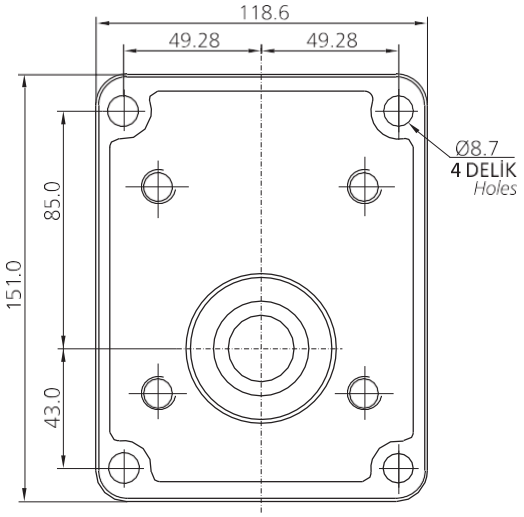
G Type



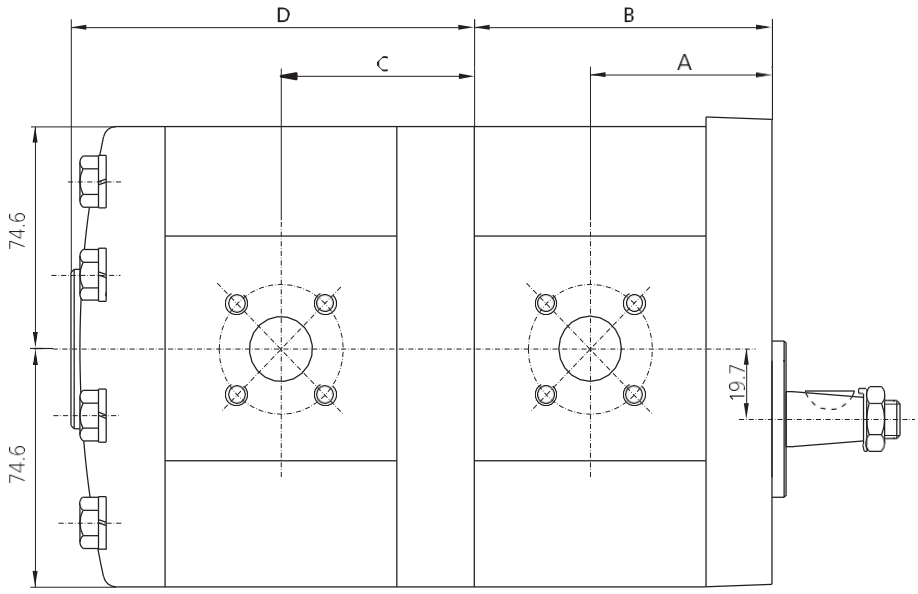


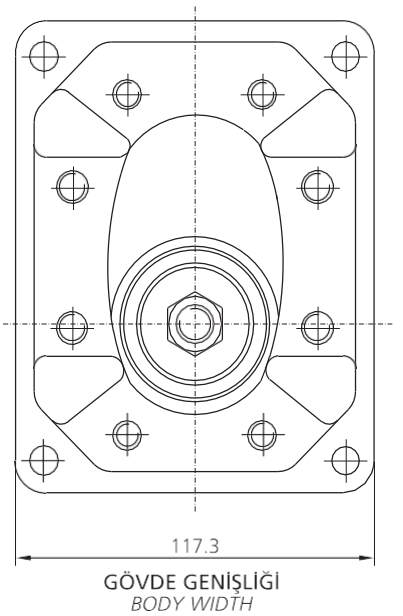
B Type





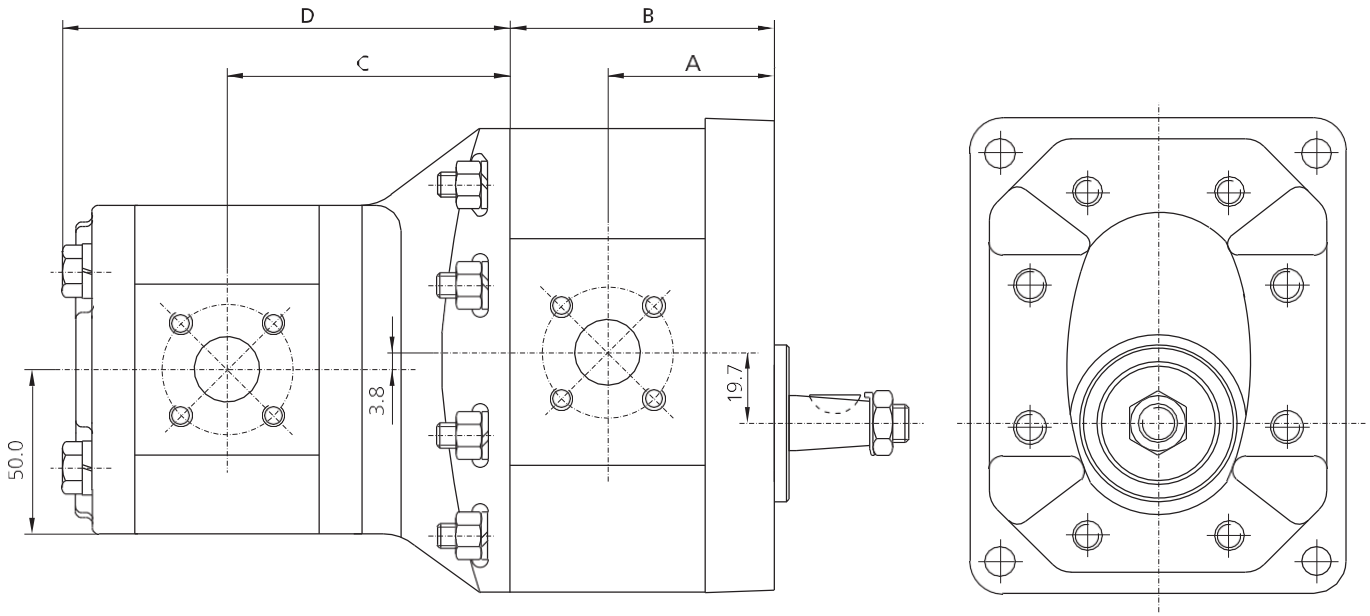
2P1 TANDEM GEAR PUMPS





Model	Displacement Cm3/dev	A	B	C	D
2P1-3050	16,7	54,3	87,0	65,7	124,1
2P1-3070	22,7	56,7	91,8	68,1	128,9
2P1-3090	28,8	59,1	96,6	70,5	133,7
2P1-3105	33,3	68,1	114,1	79,5	151,2
2P1-3120	37,9	69,8	117,8	81,2	154,9
2P1-3135	42,6	71,7	121,6	83,1	158,7
2P1-3146	45,5	72,9	123,9	84,3	161,0
2P1-3158	49,4	75,9	127,0	87,3	164,1
2P1-3180	56,1	77,5	133,4	88,9	170,5

2P1/1PH TANDEM GEAR PUMPS



Rear Pump

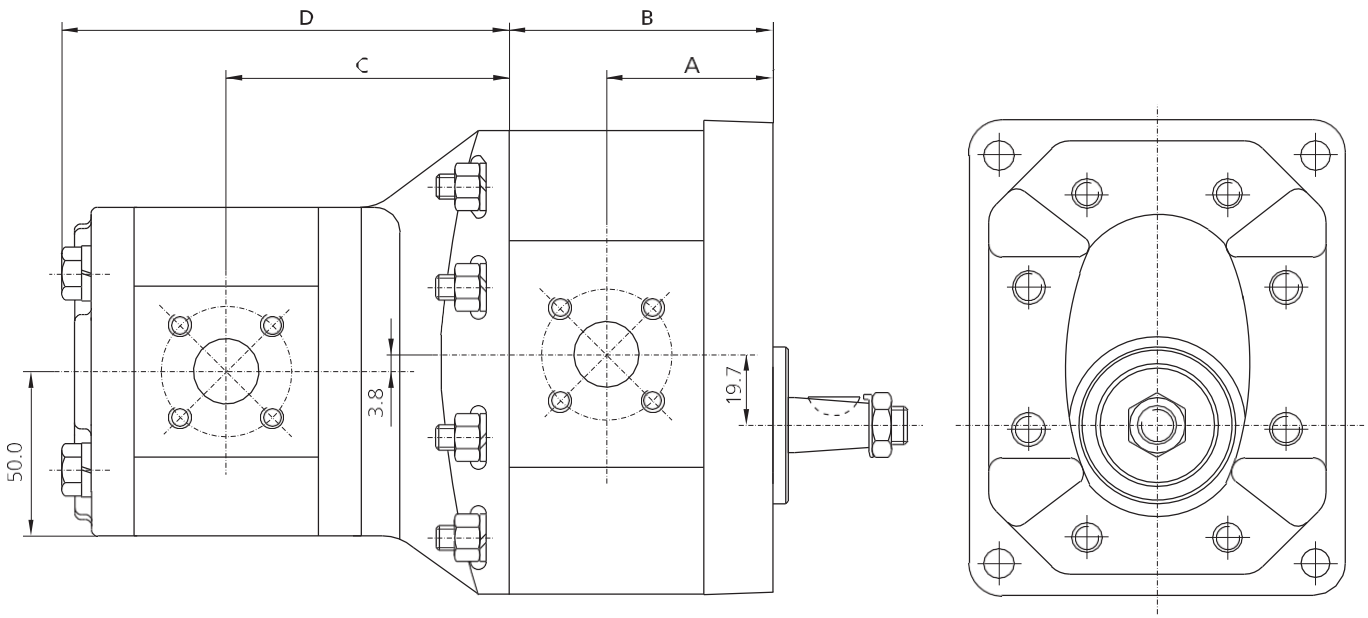
Model	Displacement Cm3/dev	C	D
1PH-060	6,0	103,1	155,2
1PH-082	8,2	105,4	159,9
1PH-095	9,5	106,8	162,6
1PH-119	11,9	109,3	167,7
1PH-140	14,0	118,6	186,2
1PH-168	16,8	121,5	192,1
1PH-190	19,0	123,9	196,8
1PH-229	22,9	128,0	205,0
1PH-281	28,1	133,5	216,1

Front Pump

Model	Displacement Cm3/dev	A	B
2P1-3050	16,7	54,3	87,0
2P1-3070	22,7	56,7	91,8
2P1-3090	28,8	59,1	96,6
2P1-3105	33,3	68,1	114,1
2P1-3120	37,9	69,8	117,8
2P1-3135	42,6	71,7	121,6
2P1-3146	45,5	72,9	123,9
2P1-3158	49,4	75,9	127,0
2P1-3180	56,1	77,5	133,4

Rear Pump		Front Pump	
Width	Height	Width	Height
84,0	100,0	117,3	149,4

2P1/1PN TANDEM GEAR PUMPS



Rear Pump

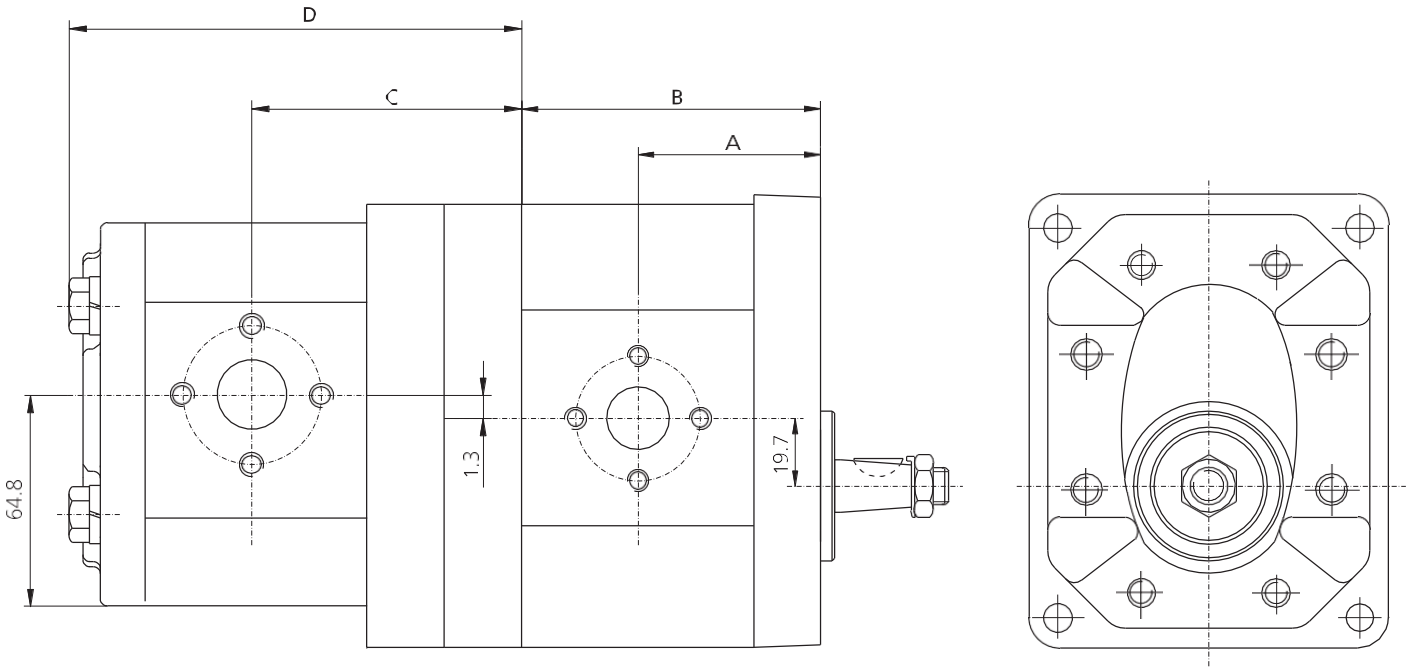
Model	Displacement Cm3/dev	C	D
1PN-040	4,0	96,9	142,7
1PN-061	6,1	98,5	146,0
1PN-082	8,2	100,2	149,3
1PN-095	9,5	101,2	151,3
1PN-119	11,9	103,1	155,1
1PN-140	14,0	104,7	158,4
1PN-168	16,8	106,9	162,8
1PN-192	19,2	114,7	178,5
1PN-229	22,9	117,7	184,3
1PN-281	28,1	121,7	192,5

Front Pump

Model	Displacement Cm3/dev	A	B
2P1-3050	16,7	54,3	87,0
2P1-3070	22,7	56,7	91,8
2P1-3090	28,8	59,1	96,6
2P1-3105	33,3	68,1	114,1
2P1-3120	37,9	69,8	117,8
2P1-3135	42,6	71,7	121,6
2P1-3146	45,5	72,9	123,9
2P1-3158	49,4	75,9	127,0
2P1-3180	56,1	77,5	133,4

Rear Pump		Front Pump	
Width	Height	Width	Height
84,0	100,0	117,3	149,4

2P1/1,5PH TANDEM GEAR PUMPS



Rear Pump

Model	Displacement Cm3/dev	C	D
1.5PH-160	16,0	87,2	155,5
1.5PH-260	26,0	91,0	163,0
1.5PH-280	28,0	93,4	167,8
1.5PH-310	31,0	94,5	170,0
1.5PH-222	22,2	96,3	173,7
1.5PH-357	35,7	125,2	179,4
1.5PH-406	40,6	102,1	185,4

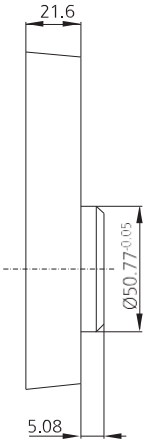
Front Pump

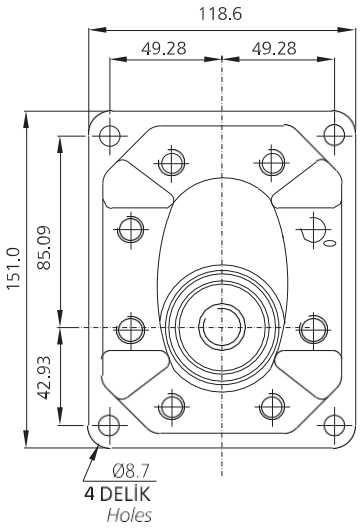
Model	Displacement Cm3/dev	A	B
2P1-3050	16,7	54,3	87,0
2P1-3070	22,7	56,7	91,8
2P1-3090	28,8	59,1	96,6
2P1-3105	33,3	68,1	114,1
2P1-3120	37,9	69,8	117,8
2P1-3135	42,6	71,7	121,6
2P1-3146	45,5	72,9	123,9
2P1-3158	49,4	75,9	127,0
2P1-3180	56,1	77,5	133,4

Rear Pump		Front Pump	
Width	**Height**	**Width**	**Height**
104,0	129,5	117,3	149,4

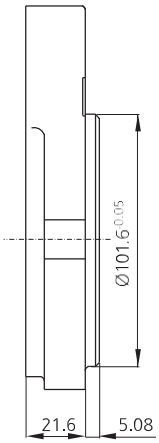
2P1 PUMPS FLANGES

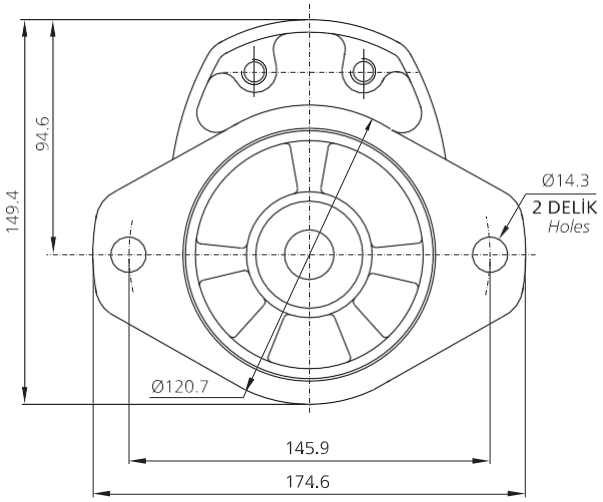
B Type



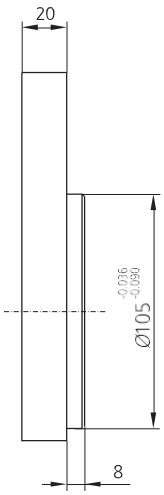


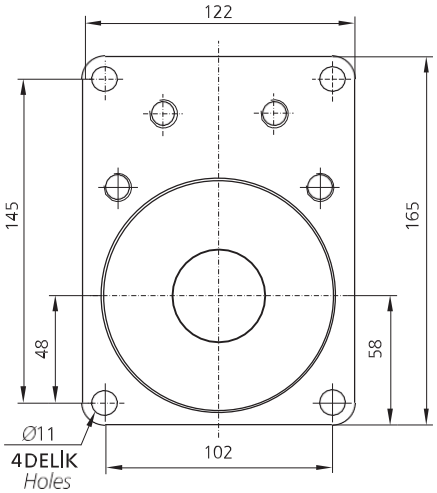
G Type





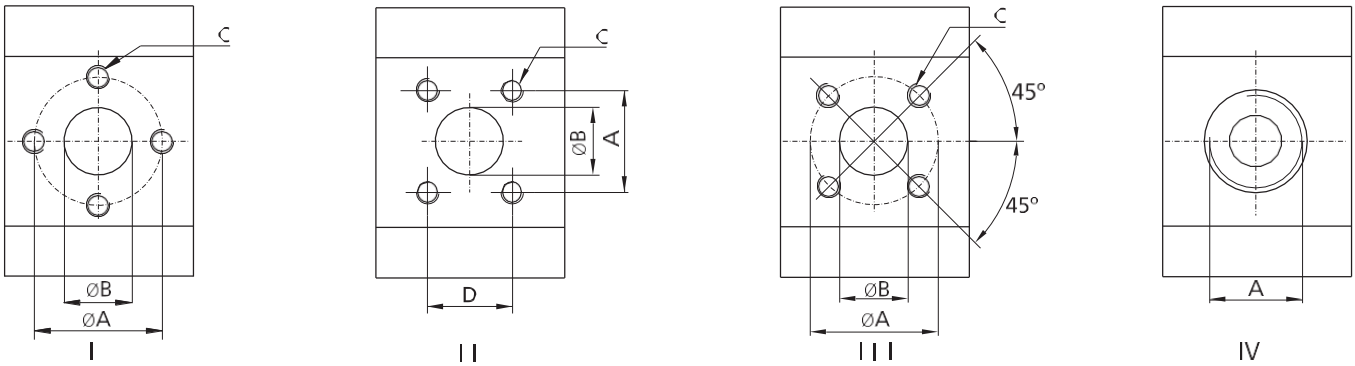
S Type





2P1 & 1.SPH HOLES & SHAFT TYPES

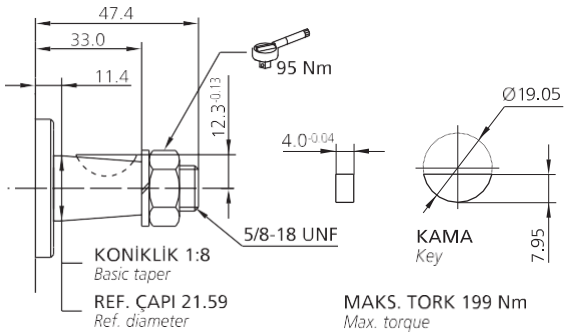
HOLE TYPES



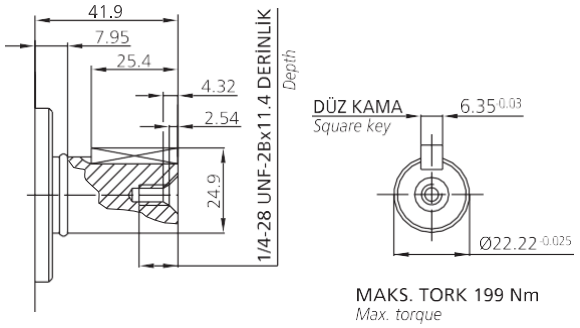
Hole type		I			II				III			IV
		A	B	C	A	B	C	D	A	B	C	A
01	Inlet	48.14	28	M8X1,25X12,7								
	Outlet	48.14	22	M8X1,25X12,7								
04	Inlet				52.4	28	M10X1,5X12,7	26,2				
	Outlet											1 1/16-12UN-2BX19
07	Inlet	51	28	M10X1,5X12,7	52.4	28	M10X1,5X12,7					
	Outlet	40	20	M8X1,25X12,7	47,6	22	M10X1,5X12,7					
09	Inlet				52,4	25	M10X1,5X12,7					
	Outlet				47,6	19	M10X1,5X12,7					
	Inlet											
	Outlet											
	Inlet											1 BSPPX20
	Outlet											¾ BSPPX20
26	Inlet								55	25	M8X1,25X13	
	Outlet											M27X2X19

SHAFT TYPES

Taper Type



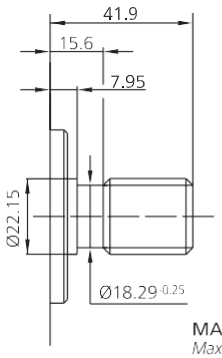
P Type



S Type

SAE B EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI
13 DİŞ, 16/32 DP

SAE B Involute spline
Flat root side fit
13 Teeth, 16/32 DP

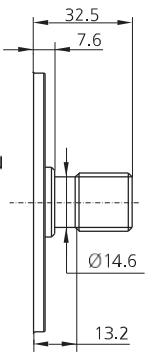


MAKS. TORK 249 Nm
Max. torque

S Type

SAE 19-4 (A) 3/4''
EVOLVENT SPLINE
DİŞ DİBİ DÜZ, YANAKTAN ALIŞTIRMALI
11 DİŞ, 16/32 DP

SAE 19-4 (A) 3/4"
Involute spline
Flat root side fit
11 Teeth, 16/32 DP



MAKS. TORK 140 Nm
Max. torque

ORDER CODES

1PN/1PN Series (Front)

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
1	T03-0209	4,0	5,7	250	A	B	1/8 /Tap.	Inlet/Outlet Ø 30-M6x1x13(4)◊
2	T03-0210	4,0	5,7	250	C	B	1/8 /Tap.	Inlet/Outlet Ø 30-M6x1x13(4)◊
3	T03-0211	6,1	8,7	250	A	B	1/8 /Tap.	Inlet/Outlet Ø 30-M6x1x13(4)◊
4	T03-0212	6,1	8,7	250	C	B	1/8 /Tap.	Inlet/Outlet Ø 30-M6x1x13(4)◊
5	T03-0213	8,2	11,8	250	A	B	1/8 /Tap.	Inlet/Outlet Ø 30-M6x1x13(4)◊
6	T03-0214	8,2	11,8	250	C	B	1/8 /Tap.	Inlet/Outlet Ø 30-M6x1x13(4)◊
7	T03-0215	9,5	13,1	250	A	B	1/8 /Tap.	Inlet/Outlet Ø 30-M6x1x13(4)◊
8	T03-0216	9,5	13,1	250	C	B	1/8 /Tap.	Inlet/Outlet Ø 30-M6x1x13(4)◊
9	T03-0217	11,9	17,1	250	A	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
10	T03-0218	11,9	17,1	250	C	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
11	T03-0219	14.0	20,1	250	A	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
12	T03-0220	14.0	20,1	250	C	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
13	T03-0221	16,8	24,1	250	A	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
14	T03-0222	16,8	24,1	250	C	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
15	T03-0223	19,2	27,2	250	A	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
16	T03-0224	19,2	27,2	250	C	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊

ORDER CODES

1PN/1PN Series (Front)

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
17	T03-0225	22,9	32,9	210	A	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
18	T03-0226	22,9	32,9	210	C	B	1/8 /Tap.	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
19	T03-0227	28,1	40,4	175	A	B	1/8 /Tap.	Inlet/Outlet Ø40-M6x1x13 (4) #
20	T03-0228	28,1	40,4	175	C	B	1/8 /Tap.	Inlet/Outlet Ø40-M6x1x13 (4) #
21	T03-0229	4,0	5,7	250	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
22	T03-0230	4,0	5,7	250	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
23	T03-0231	6,1	8,7	250	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
24	T03-0232	6,1	8,7	250	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
25	T03-0233	8,2	11,8	250	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
26	T03-0234	8,2	11,8	250	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
27	T03-0235	9,5	13,1	250	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
28	T03-0236	9,5	13,1	250	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
29	T03-0237	11,9	17,1	250	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
30	T03-0238	11,9	17,1	250	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #

ORDER CODES

1PN/1PN Series (Front)

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
31	T03-0239	14.0	20,1	250	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
32	T03-0240	14.0	20,1	250	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
33	T03-0241	16,8	24,1	250	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
34	T03-0242	16,8	24,1	250	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
35	T03-0243	19,2	27,2	250	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
36	T03-0244	19,2	27,2	250	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
37	T03-0245	22,9	32,9	210	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
38	T03-0246	22,9	32,9	210	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
39	T03-0247	28,1	40,4	175	A	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
40	T03-0248	28,1	40,4	175	C	J	1/5 /Tap.	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
41	T03-0249	4,0	5,7	250	A	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
42	T03-0250	4,0	5,7	250	C	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
43	T03-0251	6,1	8,7	250	A	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
44	T03-0252	6,1	8,7	250	C	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
45	T03-0253	8,2	11,8	250	A	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
46	T03-0254	8,2	11,8	250	C	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
47	T03-0255	9,5	13,1	250	A	G SAE A 2/Hole	SAE 16-4 9Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
48	T03-0256	9,5	13,1	250	C	G SAE A 2/Hole	SAE 16-4 9Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
49	T03-0257	11,9	17,1	250	A	G SAE A 2/Hole	SAE 16-4 9Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
50	T03-0258	11,9	17,1	250	C	G SAE A 2/Hole	SAE 16-4 9Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #

ORDER CODES

1PN/1PN Series (Front)

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
51	T03-0259	14.0	20,1	250	A	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
52	T03-0260	14.0	20,1	250	C	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
53	T03-0261	16,8	24,1	250	A	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
54	T03-0262	16,8	24,1	250	C	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
55	T03-0263	19,2	27,2	250	A	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
56	T03-0264	19,2	27,2	250	C	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
57	T03-0265	22,9	32,9	210	A	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
58	T03-0266	22,9	32,9	210	C	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
59	T03-0267	28,1	40,4	175	A	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
60	T03-0268	28,1	40,4	175	C	G SAE A 2/Hole	SAE 16-4 9/Teeth Ø15,5	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #

ORDER CODES

1PN/1PN Series Moduler Middle Pumps (For Multiple Pumps)

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
1	T03-0269	4,0	5,7	250	A	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
2	T03-0270	4,0	5,7	250	C	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
3	T03-0271	6,1	8,7	250	A	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
4	T03-0272	6,1	8,7	250	C	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
5	T03-0273	8,2	11,8	250	A	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
6	T03-0274	8,2	11,8	250	C	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
7	T03-0275	9,5	13,1	250	A	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
8	T03-0276	9,5	13,1	250	C	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
9	T03-0277	11,9	17,1	250	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
10	T03-0278	11,9	17,1	250	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊

ORDER CODES

1PN/1PN Series Moduler Middle Pumps (For Multiple Pumps)

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
11	T03-0279	14.0	20,1	250	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
12	T03-0280	14.0	20,1	250	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
13	T03-0281	16,8	24,1	250	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
14	T03-0282	16,8	24,1	250	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
15	T03-0283	19,2	27,2	250	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
16	T03-0284	19,2	27,2	250	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
17	T03-0285	22,9	32,9	210	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
18	T03-0286	22,9	32,9	210	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
19	T03-0287	28,1	40,4	175	A	X	SAE 14/Teeth	Inlet-Outlet Ø40-M6x1x13 (4) #
20	T03-0288	28,1	40,4	175	C	X	SAE 14/Teeth	Inlet-Outlet Ø40-M6x1x13 (4) #
21	T03-0289	4,0	5,7	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
22	T03-0290	4,0	5,7	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
23	T03-0291	6,1	8,7	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
24	T03-0292	6,1	8,7	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
25	T03-0293	8,2	11,8	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
26	T03-0294	8,2	11,8	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
27	T03-0295	9,5	13,1	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
28	T03-0296	9,5	13,1	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
29	T03-0297	11,9	17,1	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
30	T03-0298	11,9	17,1	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #

ORDER CODES

1PN/1PN Series Moduler Middle Pumps (For Multiple Pumps)

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
31	T03-0299	14.0	20,1	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
32	T03-0300	14.0	20,1	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
33	T03-0301	16,8	24,1	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
34	T03-0302	16,8	24,1	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
35	T03-0303	19,2	27,2	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
36	T03-0304	19,2	27,2	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
37	T03-0305	22,9	32,9	210	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
38	T03-0306	22,9	32,9	210	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
39	T03-0307	28,1	40,4	175	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
40	T03-0308	28,1	40,4	175	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #

ORDER CODES

1PN/1PN Series Moduler Tandem Rear Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
1	T03-0309	4,0	5,7	250	A	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
2	T03-0310	4,0	5,7	250	C	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
3	T03-0311	6,1	8,7	250	A	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
4	T03-0312	6,1	8,7	250	C	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
5	T03-0313	8,2	11,8	250	A	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
6	T03-0314	8,2	11,8	250	C	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
7	T03-0315	9,5	13,1	250	A	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
8	T03-0316	9,5	13,1	250	C	X	SAE 14/Teeth	Inlet/Outlet Ø 30-M6x1x13(4)◊
9	T03-0317	11,9	17,1	250	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
10	T03-0318	11,9	17,1	250	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊

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1PN/1PN Series Moduler Tandem Rear Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
11	T03-0319	14.0	20,1	250	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
12	T03-0320	14.0	20,1	250	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
13	T03-0321	16,8	24,1	250	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
14	T03-0322	16,8	24,1	250	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
15	T03-0323	19,2	27,2	250	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
16	T03-0324	19,2	27,2	250	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
17	T03-0325	22,9	32,9	210	A	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
18	T03-0326	22,9	32,9	210	C	X	SAE 14/Teeth	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
19	T03-0327	28,1	40,4	175	A	X	SAE 14/Teeth	Inlet-Outlet Ø40-M6x1x13 (4) #
20	T03-0328	28,1	40,4	175	C	X	SAE 14/Teeth	Inlet-Outlet Ø40-M6x1x13 (4) #
21	T03-0329	4,0	5,7	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
22	T03-0330	4,0	5,7	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
23	T03-0331	6,1	8,7	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
24	T03-0332	6,1	8,7	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
25	T03-0333	8,2	11,8	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
26	T03-0334	8,2	11,8	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
27	T03-0335	9,5	13,1	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
28	T03-0336	9,5	13,1	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
29	T03-0337	11,9	17,1	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
30	T03-0338	11,9	17,1	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #

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1PN/1PN Series Moduler Tandem Rear Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
31	T03-0339	14.0	20,1	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
32	T03-0340	14.0	20,1	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
33	T03-0341	16,8	24,1	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
34	T03-0342	16,8	24,1	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
35	T03-0343	19,2	27,2	250	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
36	T03-0344	19,2	27,2	250	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
37	T03-0345	22,9	32,9	210	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
38	T03-0346	22,9	32,9	210	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
39	T03-0347	28,1	40,4	175	A	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #
40	T03-0348	28,1	40,4	175	C	X	SAE 14/Teeth	Inlet Ø40-M6x1x13 (4) # OutletØ35-M6x1x13 (4) #

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1PN/0P1 Series Moduler Tandem Rear Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
1	**T03-0349**	1,2	1,5	280	A	X	SAE 14/Teeth	Inlet/Outlet Ø35-M6x1x12 (4) #
2	**T03-0350**	1,2	1,5	280	C	X	SAE 14/Teeth	Inlet/Outlet Ø35-M6x1x12 (4) #
3	**T03-0351**	1,6	1,9	280	A	X	SAE 14/Teeth	Inlet/Outlet Ø35-M6x1x12 (4) #
4	**T03-0352**	1,6	1,9	280	C	X	SAE 14/Teeth	Inlet/Outlet Ø35-M6x1x12 (4) #
5	**T03-0353**	2,2	2,9	280	A	X	SAE 14/Teeth	Inlet/Outlet Ø35-M6x1x12 (4) #
6	**T03-0354**	2,2	2,9	280	C	X	SAE 14/Teeth	Inlet/Outlet Ø35-M6x1x12 (4) #
7	**T03-0355**	2,9	3,9	280	A	X	SAE 14/Teeth	Inlet/Outlet Ø35-M6x1x12 (4) #
8	**T03-0356**	2,9	3,9	280	C	X	SAE 14/Teeth	Inlet/Outlet Ø35-M6x1x12 (4) #

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2P1/1PN Series Moduler Tandem Front Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
1	**T03-0357**	28,8	41,5	250	A	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ Outlet*Ø40* M8x1,25x13(4)◊
2	**T03-0358**	28,8	41,5	250	C	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ Outlet*Ø40* M8x1,25x13(4)◊
3	**T03-0359**	33,3	47,7	250	A	B	Paralel Parallel	Inlet-Outlet M8x1,25x13(4)◊
4	**T03-0360**	33,3	47,7	250	C	B	Paralel Parallel	Inlet-Outlet M8x1,25x13(4)◊
5	**T03-0361**	33,3	47,7	250	A	B	1/8 /Tap.	InletØ51M10x1,5x13(4)◊ Outlet*Ø40* M8x1,25x13(4)◊
6	**T03-0362**	33,3	47,7	250	C	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ Outlet*Ø40*- M8x1,25x13(4)◊
7	**T03-0363**	37,8	54,5	210	A	B	Paralel Parallel	Inlet-Outlet *Ø48*- M8x1,25x13(4)◊
8	**T03-0364**	37,8	54,5	210	C	B	Paralel Parallel	Inlet-Outlet *Ø48*- M8x1,25x13(4)◊
9	**T03-0365**	37,8	54,5	210	A	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ Outlet*Ø40*- M8x1,25x13(4)◊
10	**T03-0366**	37,8	54,5	210	C	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ Outlet*Ø40*- M8x1,25x13(4)◊

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2P1/1PN Series Moduler Tandem Front Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
11	T03-0367	42,6	64,0	210	A	B	Paralel Parallel	Inlet-Outlet Ø48- M8x1,25x13(4)◊
12	T03-0368	42,6	64,0	210	C	B	Paralel Parallel	Inlet-Outlet Ø48- M8x1,25x13(4)◊
13	T03-0369	42,6	64,0	210	A	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ OutletØ40-M8x1,25x13(4)◊
14	T03-0370	42,6	64,0	210	C	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ OutletØ40-M8x1,25x13(4)◊
15	T03-0371	45,4	66,5	210	A	B	Paralel Parallel	Inlet-Outlet Ø48- M8x1,25x13(4)◊
16	T03-0372	45,4	66,5	210	C	B	Paralel Parallel	Inlet-Outlet Ø48- M8x1,25x13(4)◊
17	T03-0373	49,4	71,8	210	A	B	Paralel Parallel	Inlet-Outlet Ø48- M8x1,25x13(4)◊
18	T03-0374	49,4	71,8	210	C	B	Paralel Parallel	Inlet-Outlet Ø48- M8x1,25x13(4)◊

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2P1/1PN Series Moduler Tandem Front Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
19	T03-0375	49,4	71,8	210	A	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ OutletØ40-M8x1,25x13(4)◊
20	T03-0376	49,4	71,8	210	C	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ OutletØ40-M8x1,25x13(4)◊
21	T03-0377	56,1	81,5	175	A	B	Paralel Parallel	Inlet-Outlet Ø48- M8x1,25x13(4)◊
22	T03-0378	56,1	81,5	175	C	B	Paralel Parallel	Inlet-Outlet Ø48- M8x1,25x13(4)◊
23	T03-0379	56,1	81,5	175	A	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ OutletØ40-M8x1,25x13(4)◊
24	T03-0380	56,1	81,5	175	C	B	1/8 /Tap.	InletØ51-M10x1,5x13(4)◊ OutletØ40-M8x1,25x13(4)◊

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2P1/1PN Series Moduler Tandem Rear Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
1	T03-0381	4,0	5,7	250	A	B	SAE 16-4 9/Teeth Ø15,5	Inlet/Outlet Ø 30-M6x1x13(4)◊
2	T03-0382	4,0	5,7	250	C	B	SAE 16-4 9/Teeth Ø15,5	Inlet/Outlet Ø 30-M6x1x13(4)◊
3	T03-0383	6,1	8,7	250	A	B	SAE 16-4 9/Teeth Ø15,5	Inlet/Outlet Ø 30-M6x1x13(4)◊
4	T03-0384	6,1	8,7	250	C	B	SAE 16-4 9/Teeth Ø15,5	Inlet/Outlet Ø 30-M6x1x13(4)◊
5	T03-0385	8,2	11,8	250	A	B	SAE 16-4 9/Teeth Ø15,5	Inlet/Outlet Ø 30-M6x1x13(4)◊
6	T03-0386	8,2	11,8	250	C	B	SAE 16-4 9/Teeth Ø15,5	Inlet/Outlet Ø 30-M6x1x13(4)◊
7	T03-0387	9,5	13,1	250	A	B	SAE 16-4 9/Teeth Ø15,5	Inlet/Outlet Ø 30-M6x1x13(4)◊
8	T03-0388	9,5	13,1	250	C	B	SAE 16-4 9/Teeth Ø15,5	Inlet/Outlet Ø 30-M6x1x13(4)◊
9	T03-0389	11,9	17,1	250	A	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
10	T03-0390	11,9	17,1	250	C	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊

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2P1/1PN Series Moduler Tandem Rear Pumps

No.	Item Code	Displacement cc/rev	Flow at 1500 rpm lt/min.	Rated Pressure bar	Rotation A-Left C-Right	Mounting Flange Type	Shaft Type	Hole Type
11	T03-0391	14.0	20,1	250	A	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
12	T03-0392	14.0	20,1	250	C	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
13	T03-0393	16,8	24,1	250	A	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
14	T03-0394	16,8	24,1	250	C	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
15	T03-0395	19,2	27,2	250	A	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
16	T03-0396	19,2	27,2	250	C	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
17	T03-0397	22,9	32,9	210	A	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
18	T03-0398	22,9	32,9	210	C	B	SAE 16-4 9/Teeth Ø15,5	InletØ40-M6x1x13(4)◊ OutletØ 30-M6x1x13(4)◊
19	T03-0399	28,1	40,4	175	A	B	SAE 16-4 9/Teeth Ø15,5	Inlet-Outlet Ø40-M6x1x13 (4) #
20	T03-0400	28,1	40,4	175	C	B	SAE 16-4 9/Teeth Ø15,5	Inlet-Outlet Ø40-M6x1x13 (4) #

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