



6.3 SIZE 2 CONTENTS

PGE102

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ORDERING CODE

6.3.1 External Gear Pump

PGE102 – 1000 – R B R 1 – N – XXXX

External gear pump _____

Size 2

Displacement _____

450	4.5 cm ³ /rev
630	6.3 cm ³ /rev
820	8.2 cm ³ /rev
1000	10.0 cm ³ /rev
1130	11.3 cm ³ /rev
1200	12.0 cm ³ /rev
1400	14.0 cm ³ /rev
1500	15.0 cm ³ /rev
1600	16.0 cm ³ /rev
1730	17.3 cm ³ /rev
1900	19.0 cm ³ /rev
2200	22.0 cm ³ /rev
2500	25.0 cm ³ /rev
2800	28.0 cm ³ /rev

Shaft rotation (viewed from shaft end) _____

R	Clockwise
L	Anti-clockwise

Shaft _____

A	Tapered keyed shaft 1:5
B	Tapered keyed shaft 1:8
C	Tang
E	Splined shaft SAE A - J 744 16-4 9T
G	Splined shaft SAE J 744 19-4 11T
H	Keyed shaft SAE A - J 744 16-1 A
I	Keyed shaft ISO Ø 18 mm
Z	Special shaft (only on request)

Mounting flange _____

N	2-hole mounting, centering Ø 50 mm
O	2-hole mounting, centering Ø 52 mm with O-ring
R	Square flange, centering Ø 36.5 mm
T	Square flange, centering Ø 80 mm
W	SAE J 744 82-2 A Ø 82.55 mm
X	SAE J 744 101-2 B Ø 101.6 mm
Y	Outboard bearing Ø 80 mm, type 1
Z	Special flange (only on request)

Ports _____

1	Pipe thread ISO 228-1
2	Metric thread DIN 3852-1
3	Thread UN 2B SAE O-ring boss
4	Square flange (Italian design)
5	Square flange DIN 3901/ ISO 8435
9	Special ports (only on request)

Seals _____

N	NBR
V	FPM

Modification number _____

XXXX Determined by manufacturer

Not all combinations in the ordering code are possible.

Please refer to point 6.3.12 Preferred series, or consult HYDAC.

Special options are possible upon request.

TECHNICAL INFORMATION

6.3.2 Specifications

Pump size			450	630	820	1000	1130	1200	1400	1500	1600	1730	1900	2200	2500	2800
Geometric displacement		[cm³/rev]	4.5	6.3	8.2	10	11.3	12	14	15	16	17.3	19	22	25	28
Pressure	Rated	[bar]	250						250			220	200	180	160	120
	Intermittent		280						270			250	220	200	180	140
	Peak		300						280			270	230	210	190	150
Drive speed	Min.	[rpm]	750													
	Max.		3500						3000				2500			
Approx. weight		[kg]	3.34	3.36	3.37	3.57	3.62	3.64	3.78	4.16	4.2	4.24	4.32	4.44	4.56	4.68

The continuous and maximum pressures given here only apply to pumps with flange ports. If threaded ports are required, the performance will be reduced. To find out whether a pump with threaded ports can be used in a high pressure application, please consult HYDAC.

6.3.3 Hydraulic fluids

The pump series is designed for use with

HL Hydraulic oil
(normal mineral oil)
and

HLP Hydraulic oils of the R&O type
(Rust and Oxidation inhibitor)

6.3.4 Viscosity range

Normal operating viscosity:
16 - 200 cSt (mm²/s)

For other viscosity ranges, please contact HYDAC.

6.3.5 Temperature range

Ambient temperature range
-22 to 55 °C

Fluid temperature range
NBR
-25 to 85 °C
Viton
-15 to 90 °C

6.3.6 Seals

The pump series is equipped with NBR seals.

If special hydraulic fluids are used, the seal material must be changed if required. Please contact HYDAC.

6.3.7 Filtration

For maximum service life of the pump and system components, the system should be protected from contamination by effective filtration. Cleanliness class:

21/ 18/ 15 to ISO 4406:1999

or

Class 9 to NAS 1638 or cleaner.

At system pressures above 160 bar cleanliness class:

19/17/14 to ISO 4406:1999

or

Class 8 to NAS 1638 is required.

6.3.8 Installation notes

A. Mounting

The pump can be installed horizontally or vertically with the shaft at the top. If the pump is installed on the tank or above the oil level, the distance between the pump inlet and the oil level should not exceed 1 metre.

When installing a HYDAC pump always ensure that the fluid remains in the pump during stoppages.

B. Suction pipe

If the pump is installed above the oil level, particular attention must be paid to the suction pressure. The cross-section of the suction pipe must be equal to or larger than the cross-section of the pump port. The suction pressure must be kept within the values specified.

Minimum suction pressure:
0.8 bar abs.

Maximum suction pressure:
2.2 bar abs.

C. Drive

Use a flexible coupling whenever possible. There must not be any radial or axial forces on the pump shaft. The maximum permitted misalignment of the shafts is 0.2 mm and the angular deviation must be less than 0.2°.

Drive shafts with tang are for direct mounting onto an electric motor or a gearbox. The driver for the tang is not included.

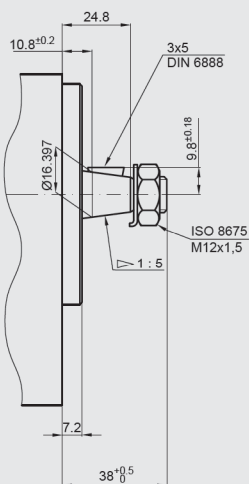
For indirect drives (with gear, chain or belt drives) please consult Hydac.

DIMENSIONS

6.3.9 Drive shafts

A

Tapered keyed shaft 1:5

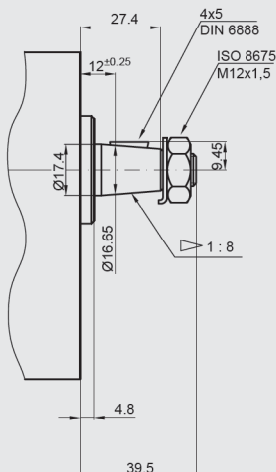


relevant mounting flange

T
N
Y

B

Tapered keyed shaft 1:8

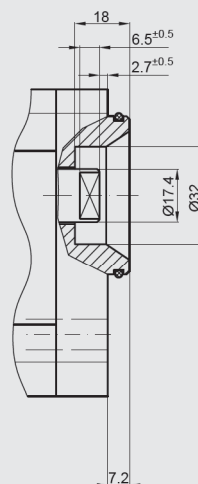


relevant mounting flange

R

C

Tang

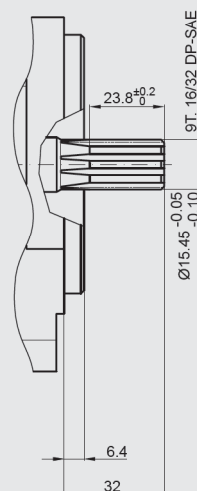


relevant mounting flange

O

E

Splined shaft SAE A - J 744 16-4 9T

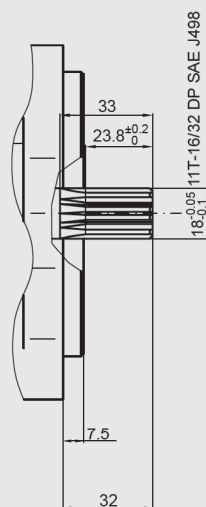


relevant mounting flange

W

G

Splined shaft SAE J 744 19-4 11T

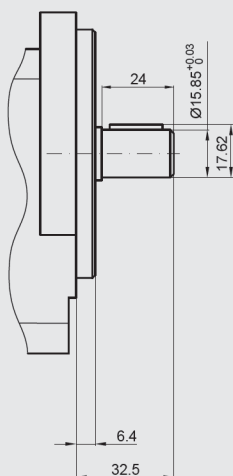


relevant mounting flange

W
X

H

Keyed shaft SAE A - J 744 16-1 A

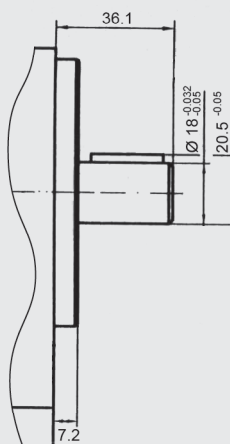


relevant mounting flange

W

I

Keyed shaft ISO Ø 18 mm

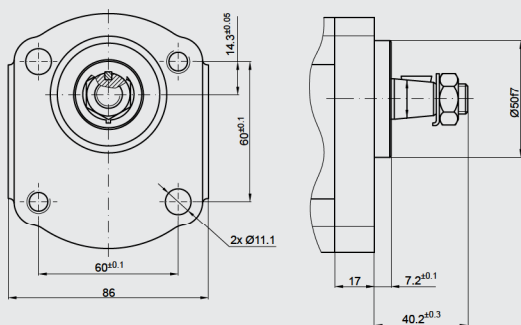


relevant mounting flange

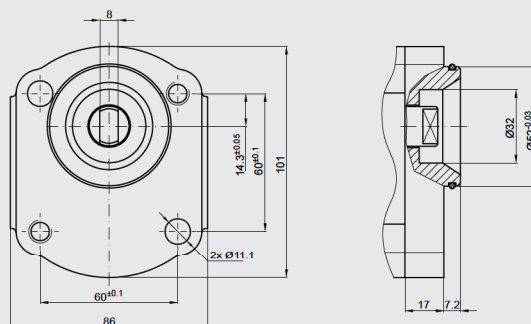
T

6.3.10 Mounting flange

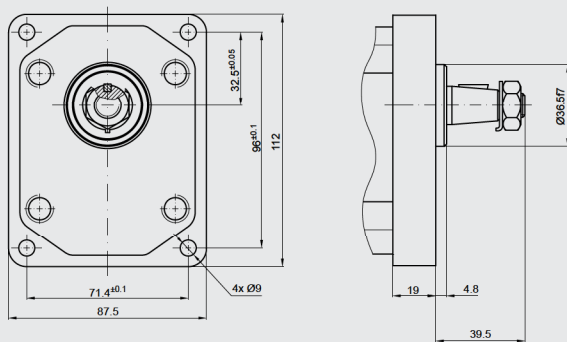
N 2-hole mounting
centering Ø 50 mm



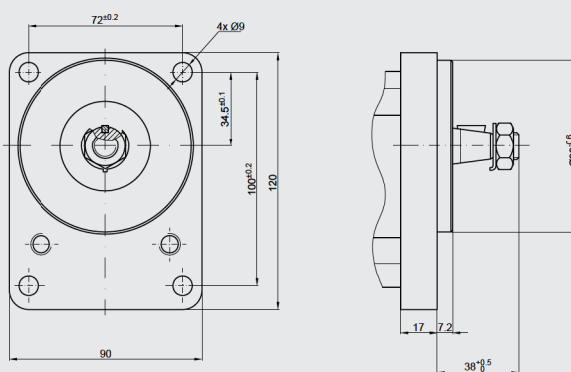
O 2-hole mounting
centering Ø 52 mm with O-ring



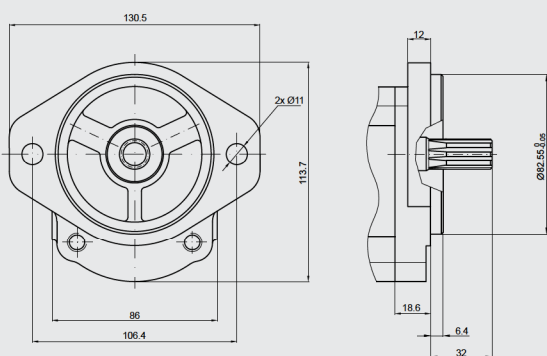
R Square flange
centering Ø 36.5 mm



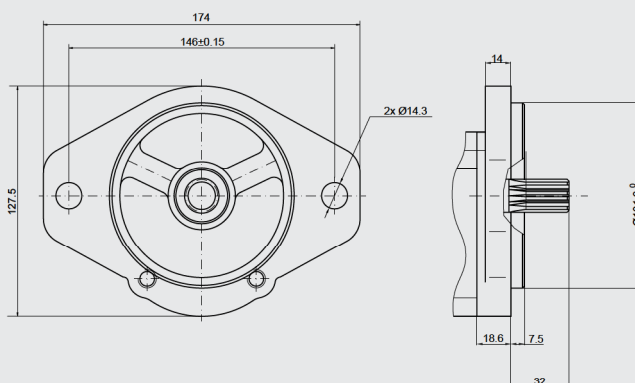
T Square flange
centering Ø 80 mm



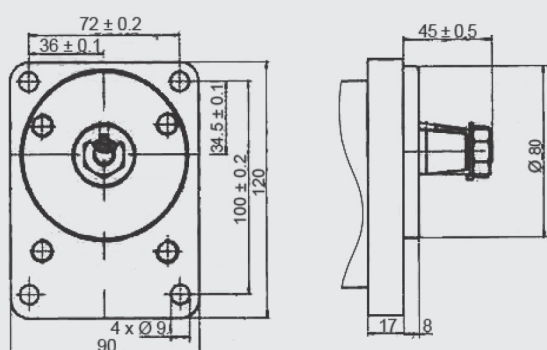
W SAE J 744 82-2 A
Ø 82.55 mm

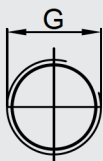


X SAE J 744 101-2 B
Ø 101.6 mm

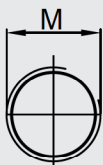


Y Outboard bearing
Ø 80 mm type 1

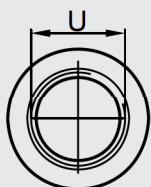



1 Pipe thread
ISO 228/1

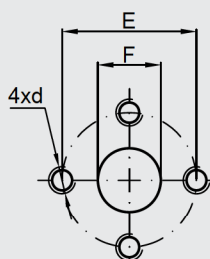
Ordering code	Displacement	Outlet G	Inlet G
1	4.5 ... 8.2 cm ³	G 1/2	G 1/2
	10 ... 25 cm ³	G 1/2	G 3/4
	28 cm ³	G 3/4	G 1


2 Metric thread
DIN 3852-1

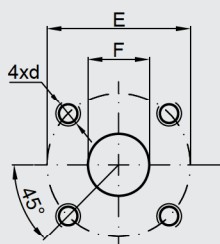
Ordering code	Displacement	Outlet M	Inlet M
2	4.5 ... 25 cm ³	M16x1.5	M20x1.5
	28 cm ³	M20x1.5	M27x2


3 Pipe thread
UN 2B SAE
O-ring boss

Ordering code	Displacement	Outlet U	Inlet U
3	4.5 ... 25 cm ³	7/8" -14 UNF	1 1/16" -12 UN
	28 cm ³	1 1/16" -12 UN	1 5/16" -12 UN

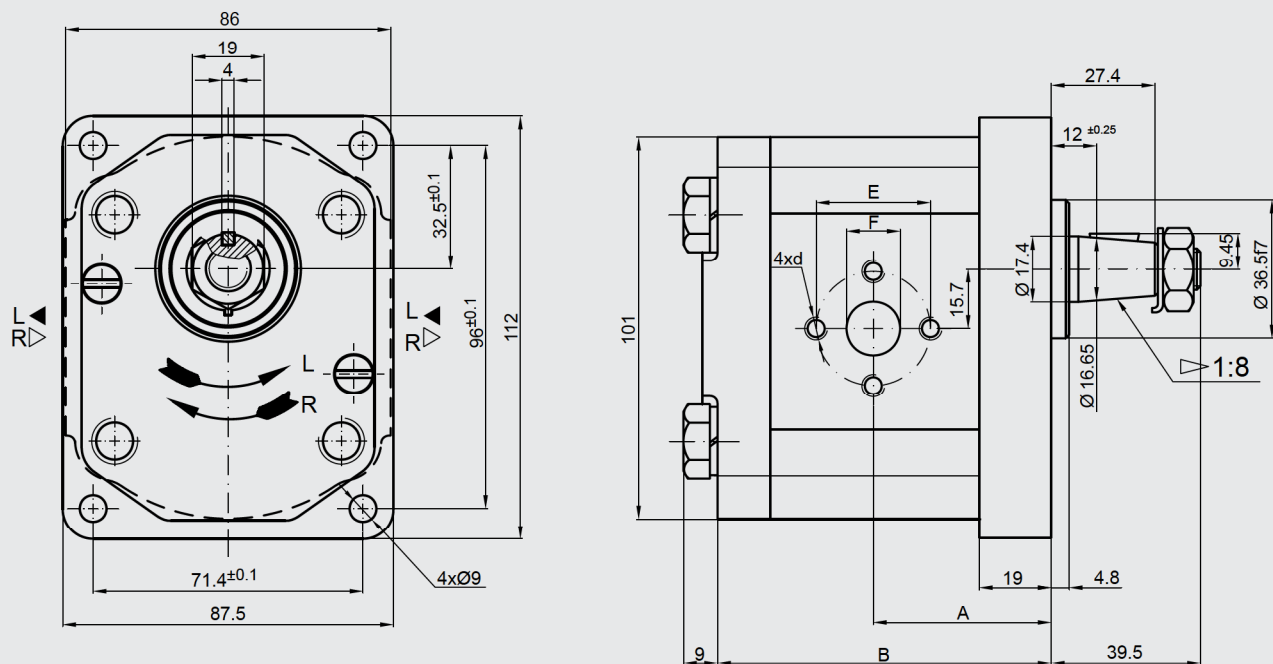

4 Square flange
(Italian design)

Ordering code	Displacement	Outlet			Inlet		
		E	F	d	E	F	d
4	4.5 ... 8.2 cm ³	30	13.1	M6	30	13.1	M6
	10 ... 22 cm ³	30	14.2	M6	40	19	M8
	25 ... 28 cm ³	40	19	M8	40	19	M8


5 Square flange
DIN 3901/ ISO 8435

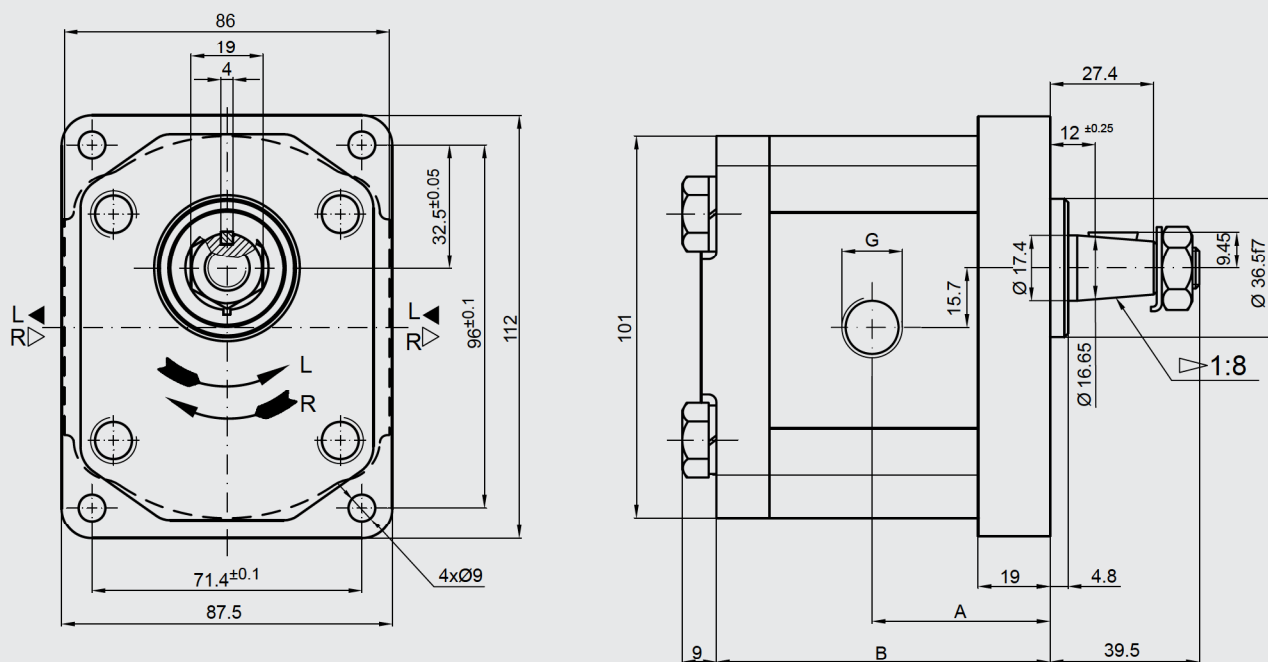
Ordering code	Displacement	Outlet			Inlet		
		E	F	d	E	F	d
5	4.5 ... 6.3 cm ³	35	15	M6	40	15	M6
	8.2 ... 25 cm ³	35	15	M6	40	20	M6
	28 cm ³	40	20	M6	40	20	M6

PGE102-...- BR4-N



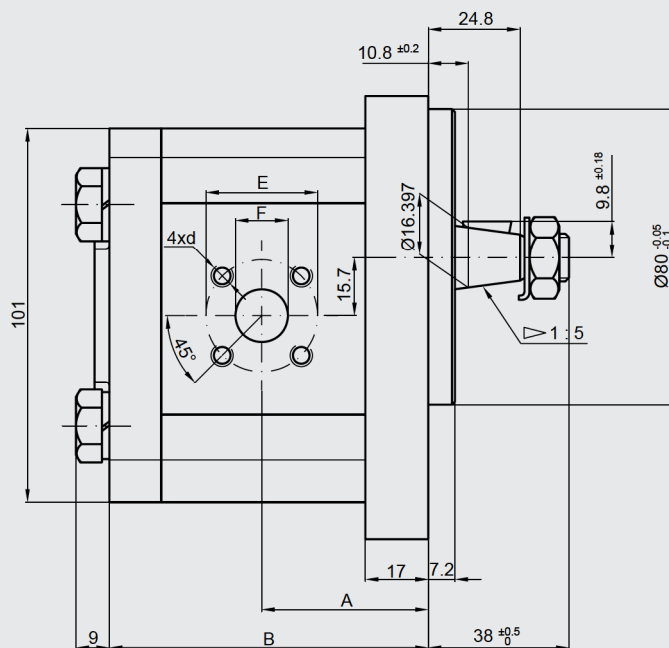
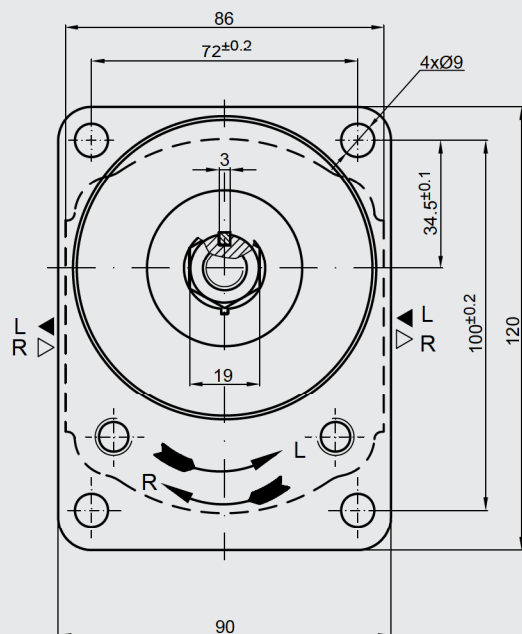
Type	Displacement [cm³/rev]	Output flow		Rated [bar]	Drive speed n [rpm]	Dimension							
		at 1500 rpm [l/min]	at max. rpm [l/min]			A [mm]	B [mm]	Inlet			Outlet		
								E	F	d	E	F	d
PGE102-450-. BR4-N	4.5	6.14	14.33	250	3500	42.5	80	30	13.1	M6	30	13.1	M6
PGE102-630-. BR4-N	6.3	8.69	20.29			42.5	80						
PGE102-820-. BR4-N	8.2	11.32	26.40			42.5	80						
PGE102-1000-. BR4-N	10	13.95	32.55			47	89						
PGE102-1130-. BR4-N	11.3	15.76	36.78			48	91.1						
PGE102-1200-. BR4-N	12	16.92	39.48			48.6	92.3						
PGE102-1400-. BR4-N	14	19.95	46.55			50	95.4						
PGE102-1500-. BR4-N	15	21.60	43.20			56	107.2						
PGE102-1600-. BR4-N	16	23.04	46.08	220	3000	56.9	108.8	40	19	M8	14.2	19	M8
PGE102-1730-. BR4-N	17.3	24.91	49.82			58	110.9						
PGE102-1900-. BR4-N	19	27.36	54.72			59.4	113.8						
PGE102-2200-. BR4-N	22	31.68	52.80	180	2500	61.9	118.8	40	19	M8	19	M8	M8
PGE102-2500-. BR4-N	25	36.00	60.00	160		64.3	123.7						
PGE102-2800-. BR4-N	28	40.32	67.20	120		66.8	128.5						

PGE102-...-BR1-N



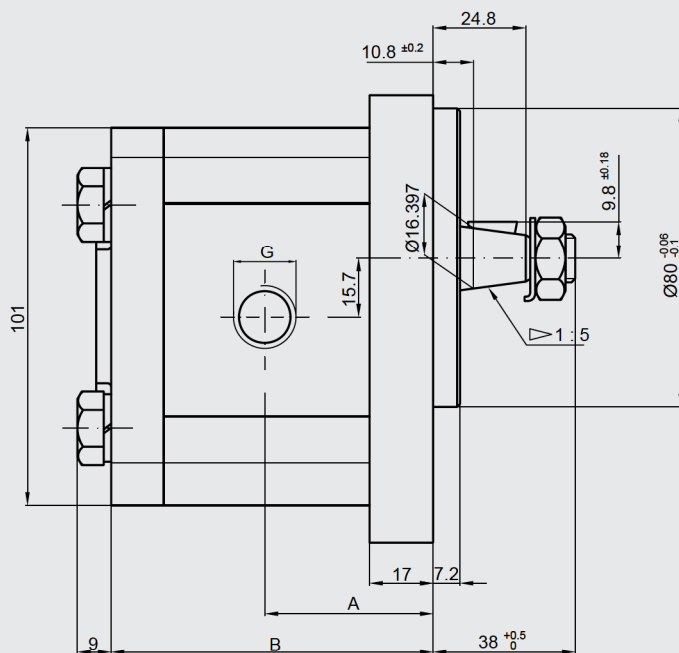
Type	Displacement [cm³/rev]	Output flow		Rated [bar]	Drive speed n [rpm]	Dimension			
		at 1500 rpm [l/min]	at max. rpm [l/min]			A [mm]	B [mm]	Inlet G	Outlet G
PGE102-450-. BR1-N	4.5	6.14	14.33	250	3500	42.5	80	G 1/2	G 1/2
PGE102-630-. BR1-N	6.3	8.69	20.29			42.5	80		
PGE102-820-. BR1-N	8.2	11.32	26.40			42.5	80		
PGE102-1000-. BR1-N	10	13.95	32.55			47	89	G 3/4	
PGE102-1130-. BR1-N	11.3	15.76	36.78			48	91.1		
PGE102-1200-. BR1-N	12	16.92	39.48			48.6	92.3		
PGE102-1400-. BR1-N	14	19.95	46.55			50	95.4		
PGE102-1500-. BR1-N	15	21.60	43.20	3000	56	107.2			
PGE102-1600-. BR1-N	16	23.04	46.08		56.9	108.8			
PGE102-1730-. BR1-N	17.3	24.91	49.82		58	110.9			
PGE102-1900-. BR1-N	19	27.36	54.72	200	59.4	113.8	G 1		
PGE102-2200-. BR1-N	22	31.68	52.80	180	61.9	118.8			
PGE102-2500-. BR1-N	25	36.00	60.00	160	64.3	123.7			
PGE102-2800-. BR1-N	28	40.32	67.20	120	2500	66.8	128.5	G 1	G 3/4

PGE102-...-AT5-N



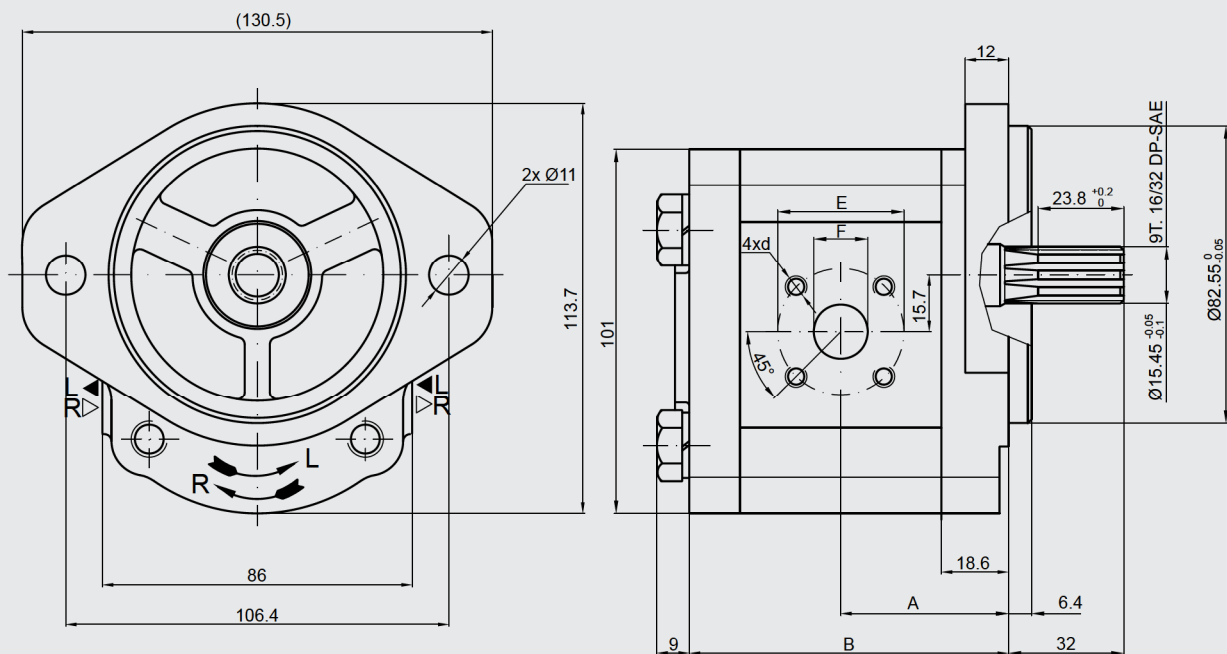
Type	Displacement [cm³/rev]	Output flow		Rated [bar]	Drive speed n [rpm]	Dimension					
		at 1500 rpm [l/min]	at max. rpm [l/min]			A [mm]	B [mm]	Inlet		Outlet	
								E	F	d	
PGE102-450-. AT5-N	4.5	6.14	14.33	250	3500	39.8	78	40	15	M6	35
PGE102-630-. AT5-N	6.3	8.69	20.29			41	81				
PGE102-820-. AT5-N	8.2	11.32	26.40			43.1	83.9				
PGE102-1000-. AT5-N	10	13.95	32.55			47.5	87				
PGE102-1130-. AT5-N	11.3	15.76	36.78				89				
PGE102-1200-. AT5-N	12	16.92	39.48				90.3				
PGE102-1400-. AT5-N	14	19.95	46.55				93.4				
PGE102-1500-. AT5-N	15	21.60	43.20				105.2				
PGE102-1600-. AT5-N	16	23.04	46.08	220	3000	47.5	106.8	20	M6	35	15
PGE102-1730-. AT5-N	17.3	24.91	49.82				108.9				
PGE102-1900-. AT5-N	19	27.36	54.72				111.8				
PGE102-2200-. AT5-N	22	31.68	52.80				116.8				
PGE102-2500-. AT5-N	25	36.00	60.00	160	2500	55	116.8	20	M6	35	15
PGE102-2500-. AT5-N	25	36.00	60.00	160		57.2	121.7				
PGE102-2800-. AT5-N	28	40.32	67.20	120		64.8	126.5				

Technical drawing of a square flange with a central hole and four mounting holes. The drawing includes dimensions: overall width 86, mounting hole pitch 72 ± 0.2 , central hole diameter 3, mounting hole diameter $4 \times \varnothing 9$, central hole depth 19, and mounting hole offset 34.5 ± 0.1 . It also shows a total height of 120 and a mounting hole offset of 100 ± 0.2 . The drawing is labeled with 'L' and 'R' for left and right views, and '90' for the angle of the mounting holes.



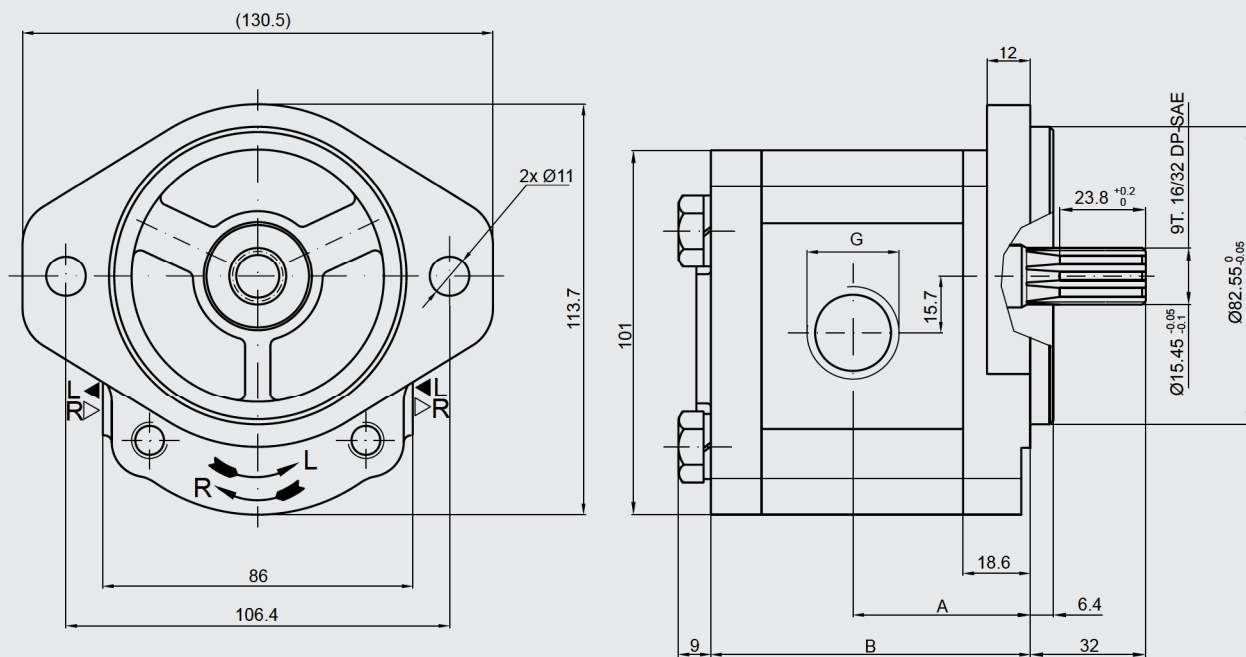
Type	Displacement [cm³/rev]	Output flow		Rated [bar]	Drive speed n [rpm]	Dimension			
		at 1500 rpm [l/min]	at max. rpm [l/min]			A [mm]	B [mm]	Inlet G	Outlet G
PGE102-450-. AT1-N	4.5	6.14	14.33	250	3500	40.4	78	G 1/2	G 1/2
PGE102-630-. AT1-N	6.3	8.69	20.29			42	81		
PGE102-820-. AT1-N	8.2	11.32	26.40			43.4	83.9		
PGE102-1000-. AT1-N	10	13.95	32.55			45	87	G 3/4	
PGE102-1130-. AT1-N	11.3	15.76	36.78			46	89		
PGE102-1200-. AT1-N	12	16.92	39.48			46.6	90.3		
PGE102-1400-. AT1-N	14	19.95	46.55			48	93.4		
PGE102-1500-. AT1-N	15	21.60	43.20			54	105.2		
PGE102-1600-. AT1-N	16	23.04	46.08	54.9	106.8				
PGE102-1730-. AT1-N	17.3	24.91	49.82	220	56	108.9	G 3/4		
PGE102-1900-. AT1-N	19	27.36	54.72	200	57.4	111.8			
PGE102-2200-. AT1-N	22	31.68	52.80	180	59.9	116.8			
PGE102-2500-. AT1-N	25	36.00	60.00	160	2500	64.3	121.7	G 1	G 3/4
PGE102-2800-. AT1-N	28	40.32	67.20	120		64.8	126.5		

PGE102-...-EW5-N

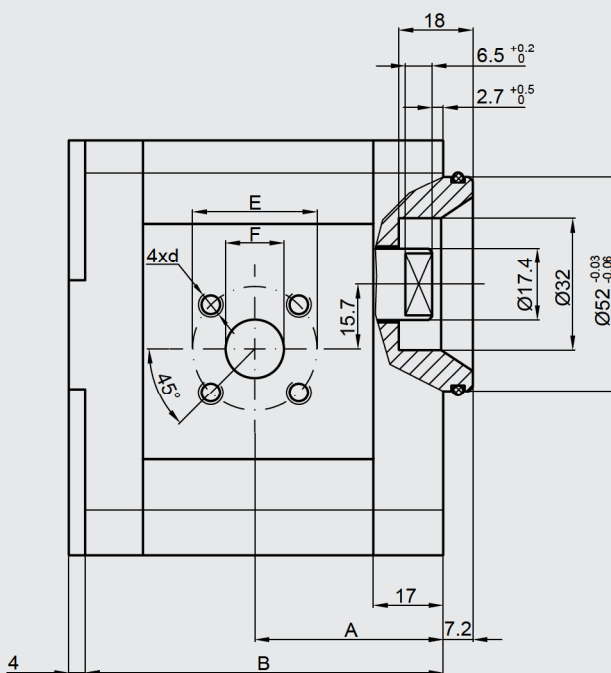


Type	Displacement [cm³/rev]	Output flow		Rated [bar]	Drive speed n [rpm]	Dimension					
		at 1500 rpm [l/min]	at max. rpm [l/min]			A [mm]	B [mm]	Inlet		Outlet	
								E	F	d	
PGE102-450-. EW5-N	4.5	6.14	14.33	250	3500	42	79.6	40	15	M6	35
PGE102-630-. EW5-N	6.3	8.69	20.29			43.6	82.6				
PGE102-820-. EW5-N	8.2	11.32	26.40			45	85.6				
PGE102-1000-. EW5-N	10	13.95	32.55			46.6	88.7				
PGE102-1130-. EW5-N	11.3	15.76	36.78			47.6	90.7				
PGE102-1200-. EW5-N	12	16.92	39.48			48.2	91.9				
PGE102-1400-. EW5-N	14	19.95	46.55			49.6	95				
PGE102-1500-. EW5-N	15	21.60	43.20			55.6	106.8				
PGE102-1600-. EW5-N	16	23.04	46.08	220	3000	56.5	108.4	20	M6	35	15
PGE102-1730-. EW5-N	17.3	24.91	49.82			57.6	110.5				
PGE102-1900-. EW5-N	19	27.36	54.72			59	113.4				
PGE102-2200-. EW5-N	22	31.68	52.80	180	2500	61.5	118.4	20	M6	40	20
PGE102-2500-. EW5-N	25	36.00	60.00	160		63.9	123.3				
PGE102-2800-. EW5-N	28	40.32	67.20	120		66.4	128.1				

PGE102-...-EW1-N

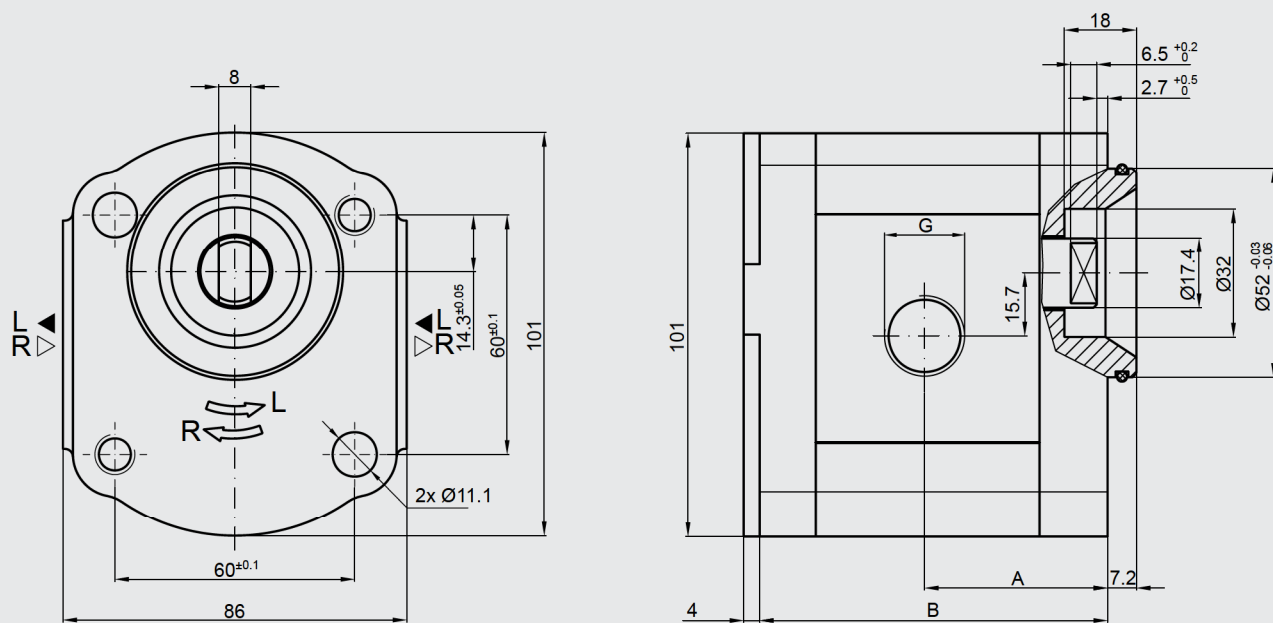


Type	Displacement [cm³/rev]	Output flow		Rated [bar]	Drive speed n [rpm]	Dimension			
		at 1500 rpm [l/min]	at max. rpm [l/min]			A [mm]	B [mm]	Inlet G	Outlet G
PGE102-450-. EW1-N	4.5	6.14	14.33	250	3500	42	79.6	G 1/2	G 1/2
PGE102-630-. EW1-N	6.3	8.69	20.29			43.6	82.6		
PGE102-820-. EW1-N	8.2	11.32	26.40			45	85.6		
PGE102-1000-. EW1-N	10	13.95	32.55			46.6	88.7	G 3/4	
PGE102-1130-. EW1-N	11.3	15.76	36.78			47.6	90.7		
PGE102-1200-. EW1-N	12	16.92	39.48			48.2	91.9		
PGE102-1400-. EW1-N	14	19.95	46.55			49.6	95		
PGE102-1500-. EW1-N	15	21.60	43.20			3000	55.6		
PGE102-1600-. EW1-N	16	23.04	46.08	56.5	108.4				
PGE102-1730-. EW1-N	17.3	24.91	49.82	57.6	110.5				
PGE102-1900-. EW1-N	19	27.36	54.72	200	59	113.4	G 1		
PGE102-2200-. EW1-N	22	31.68	52.80	180	61.5	118.4			
PGE102-2500-. EW1-N	25	36.00	60.00	160	63.9	123.3			
PGE102-2800-. EW1-N	28	40.32	67.20	120	2500	66.4	128.1	G 1	G 3/4



Type	Displacement [cm³/rev]	Output flow		Rated [bar]	Drive speed n [rpm]	Dimension							
		at 1500 rpm [l/min]	at max. rpm [l/min]			A [mm]	B [mm]	Inlet			Outlet		
								E	F	d	E	F	d
PGE102-450-. CO5-N	4.5	6.14	14.33	250	3500	37.3	78	40	15	M6	35	15	M6
PGE102-630-. CO5-N	6.3	8.69	20.29			38.6	81						
PGE102-820-. CO5-N	8.2	11.32	26.40			40.6	83.9						
PGE102-1000-. CO5-N	10	13.95	32.55			45	87						
PGE102-1130-. CO5-N	11.3	15.76	36.78			45	89						
PGE102-1200-. CO5-N	12	16.92	39.48			45	90.3						
PGE102-1400-. CO5-N	14	19.95	46.55			45	93.4						
PGE102-1500-. CO5-N	15	21.60	43.20			3000	54						
PGE102-1600-. CO5-N	16	23.04	46.08	54.9	106.8								
PGE102-1730-. CO5-N	17.3	24.91	49.82	56	108.9								
PGE102-1900-. CO5-N	19	27.36	54.72	57.4	111.8								
PGE102-2200-. CO5-N	22	31.68	52.80	180	59.9		116.8						
PGE102-2500-. CO5-N	25	36.00	60.00	160	62.3		121.7						
PGE102-2800-. CO5-N	28	40.32	67.20	120	2500	64.8	126.5				40	20	

PGE102-...-CO1-N



Type	Displacement [cm³/rev]	Output flow		Rated [bar]	Drive speed n [rpm]	Dimension			
		at 1500 rpm [l/min]	at max. rpm [l/min]			A [mm]	B [mm]	Inlet G	Outlet G
PGE102-450-. CO1-N	4.5	6.14	14.33	250	3500	40.5	78	G 1/2	G 1/2
PGE102-630-. CO1-N	6.3	8.69	20.29			42	81		
PGE102-820-. CO1-N	8.2	11.32	26.40			43.5	83.9		
PGE102-1000-. CO1-N	10	13.95	32.55			45	87	G 3/4	
PGE102-1130-. CO1-N	11.3	15.76	36.78			46	89		
PGE102-1200-. CO1-N	12	16.92	39.48			46.5	90.3		
PGE102-1400-. CO1-N	14	19.95	46.55			48	93.4		
PGE102-1500-. CO1-N	15	21.60	43.20		3000	54	105.2		
PGE102-1600-. CO1-N	16	23.04	46.08			54.9	106.8		
PGE102-1730-. CO1-N	17.3	24.91	49.82	56		108.9			
PGE102-1900-. CO1-N	19	27.36	54.72	200	2500	57.4	111.8	G 1	
PGE102-2200-. CO1-N	22	31.68	52.80	180		59.9	116.8		
PGE102-2500-. CO1-N	25	36.00	60.00	160		2500	62.3	121.7	G 1
PGE102-2800-. CO1-N	28	40.32	67.20	120	64.8		126.5		

