



6.4 SIZE 3 CONTENTS

PGE103

Ordering Code

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ORDERING CODE

6.4.1 External Gear Pump

PGE103 – 2000 – R B S 1 – N – XXXX

External gear pump
Size 3

Displacement

2000	20.0 cm ³ /rev
2250	22.5 cm ³ /rev
2500	25.0 cm ³ /rev
2800	28.0 cm ³ /rev
3200	32.0 cm ³ /rev
3600	36.0 cm ³ /rev
4200	42.0 cm ³ /rev
4600	46.0 cm ³ /rev
5000	50.0 cm ³ /rev
5500	55.0 cm ³ /rev
6000	60.0 cm ³ /rev

Shaft rotation (viewed from shaft end)

R	Clockwise
L	Anti-clockwise

Shaft

A	Tapered key shaft 1:5
B	Tapered key shaft 1:8
F	Splined shaft SAE B - J 744 22-4 13T
Z	Special shaft (only on request)

Mounting flange

S	Square, centering Ø 50.8 mm
V	Square, centering Ø 105 mm
X	SAE J 744 101-2 B Ø 101.6 mm
Z	Special flange (only on request)

Ports

1	Pipe thread ISO 228-1
4	Square flange (Italian design)
5	Square flange DIN 3901/ ISO 8435
7	SAE flange with metric threads
8	SAE flange with UNC threads
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 6.4.12 Preferred series, or consult HYDAC.
Special options are possible upon request.

TECHNICAL INFORMATION

6.4.2 Specifications

Pump size			2000	2250	2500	2800	3200	3600	4200	4600	5000	5500	6000
Geometric displacement		[cm³/rev]	20	22.5	25.0	28.0	32.0	36.0	42.0	46.0	50.0	55.0	60.0
Pressure	Rated	[bar]	250					240	230	210	185	165	150
	Intermittent		270					260	250	230	200	180	165
	Peak		300					280	270	250	230	200	180
Drive speed	Min.	[rpm]	750										
	Max.		3000					2800	2500	2300	2100	1750	
Approx. weight		[kg]	7.83	8.0	8.16	8.34	8.78	8.99	9.25	9.47	9.60	9.85	10.10

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.

6.4.3 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)

6.4.4 Viscosity range

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

For other viscosity ranges, please
contact HYDAC.

6.4.5 Temperature range

Ambient temperature range
-22 to 55 °C

Fluid temperature range
NBR

-25 up to 85 °C

Viton

-15 up to 90 °C

6.4.6 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.

6.4.7 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.

6.4.8 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

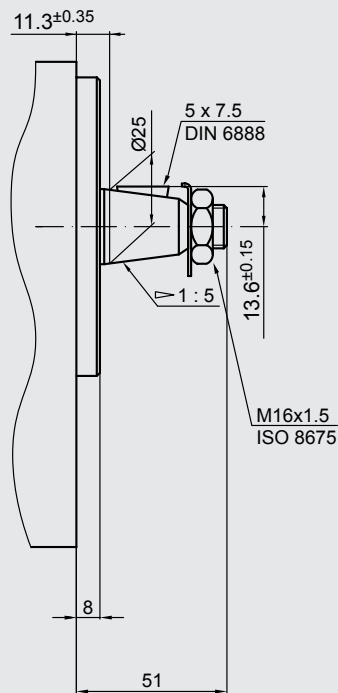
Use a flexible coupling whenever possible. There must not be any radial or axial forces on the pump shaft. The maximum permitted misalignment of the shafts is 0.2 mm and the angular deviation must be less than 0.2°.

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

DIMENSIONS

6.4.9 Drive shafts

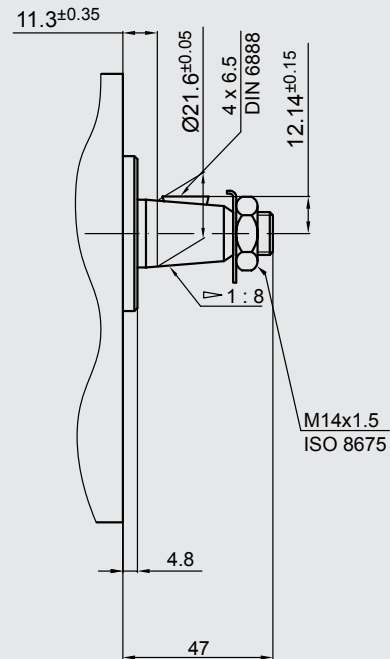
A Tapered keyed shaft 1:5



relevant mounting
flange

V

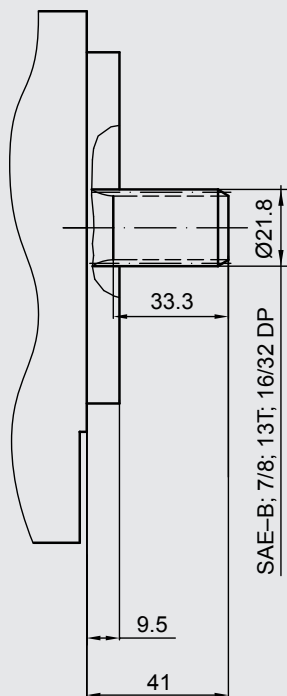
B Tapered keyed shaft 1:8



relevant mounting
flange

S

F Splined shaft
SAE B - J 744 22-4 13T



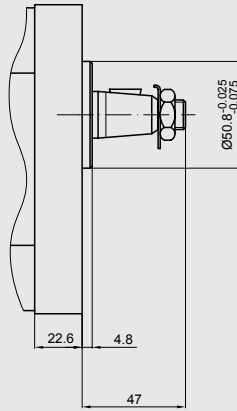
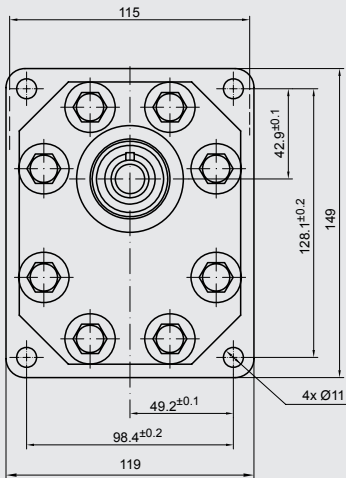
relevant mounting
flange

X

6.4.10 Mounting flange

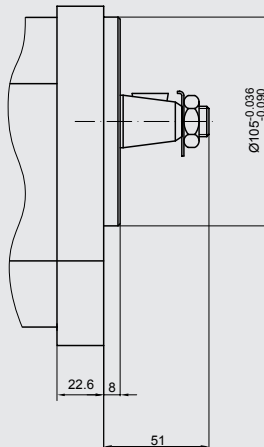
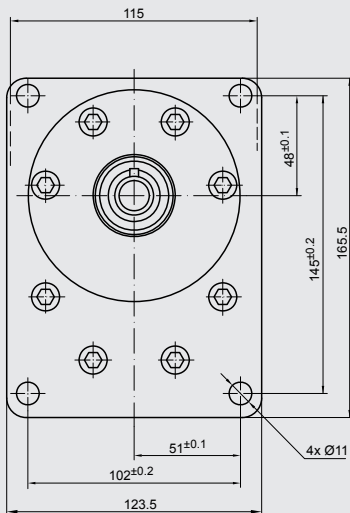
S

Square flange
centering Ø 50.8 mm



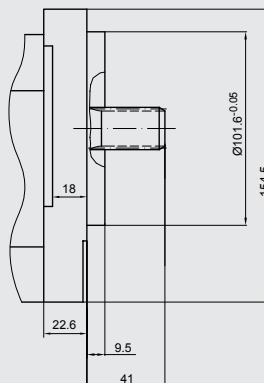
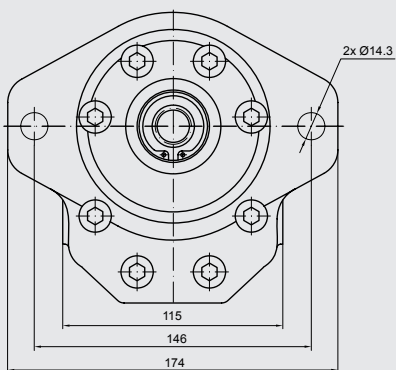
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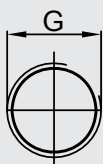
Square flange
centering Ø 105 mm



X

SAE J 744 101-2 B
Ø 101.6 mm

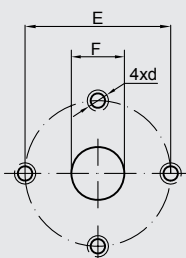




1

 Pipe thread
ISO 228/1

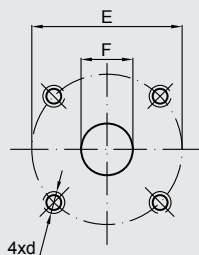
Ordering code	Displacement	Outlet G	Inlet G
1	20 ... 28 cm ³	G 3/4	G 3/4
	32 ... 60 cm ³	G 3/4	G 1



4

 Square flange
(Italian design)

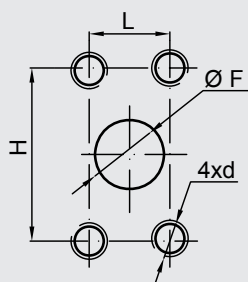
Ordering code	Displacement	Outlet			Inlet		
		F	E	d	F	E	d
4	20 ... 28 cm ³	19	40	M8	19	40	M8
	32 ... 60 cm ³	19	40	M8	27	51	M10



5

 Square flange
DIN 3901/ ISO 8435

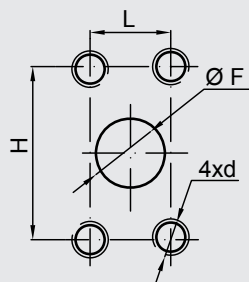
Ordering code	Displacement	Outlet			Inlet		
		F	E	d	F	E	d
5	20 ... 28 cm ³	19	40	M8	19	40	M8
	32 ... 60 cm ³	19	55	M8	27	55	M8



7

 SAE flange with metric threads

Ordering code	Displacement	Outlet				Inlet			
		F	H	L	d	F	H	L	d
7	20 ... 28 cm ³	19	47.6	22.2	M10	19	47.6	22.2	M10
	32 ... 60 cm ³	19	47.6	22.2	M10	27	52.4	26.2	M10

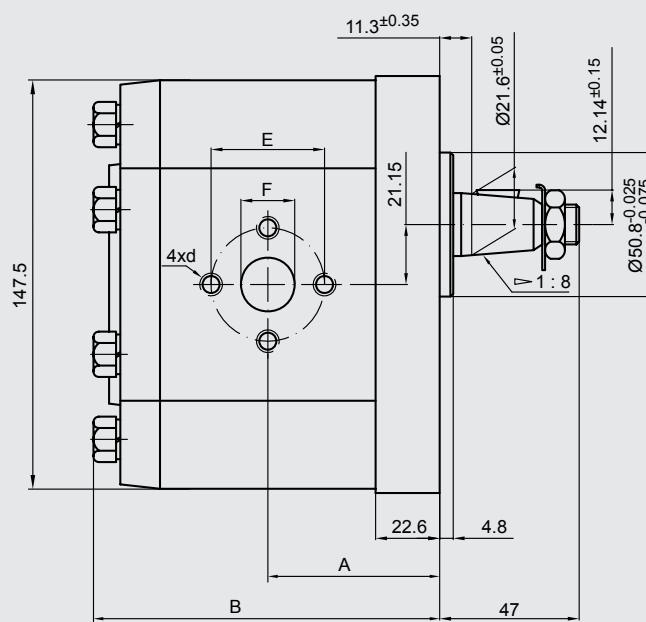
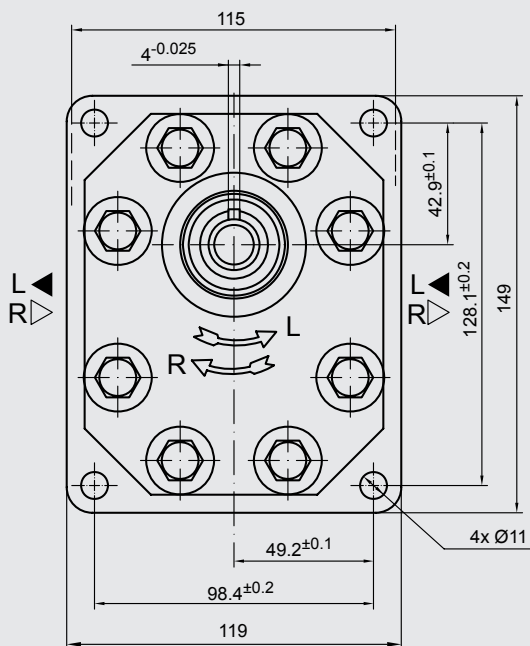


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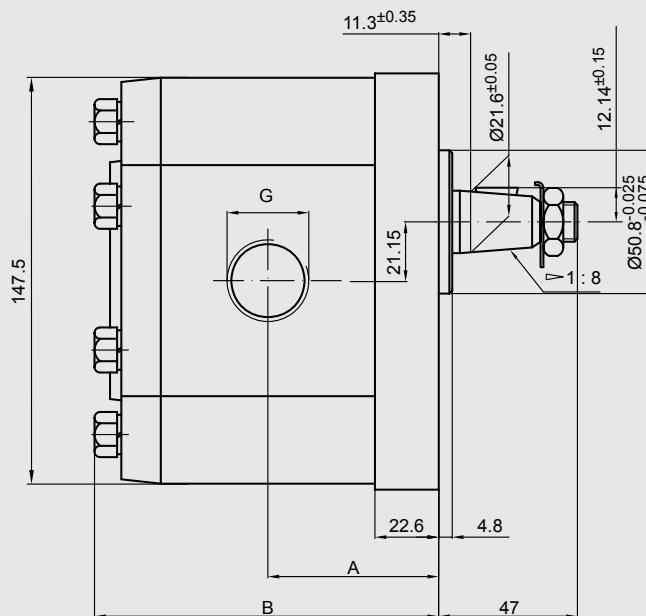
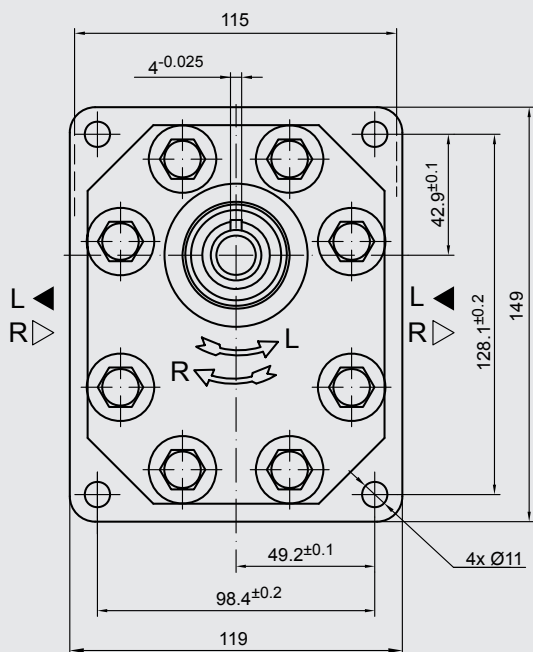
 SAE flange with UNC threads

Ordering code	Displacement	Outlet				Inlet			
		F	H	L	d	F	H	L	d
8	20 ... 28 cm ³	19	47.6	22.2	3/8 - 16 UNC	19	47.6	22.2	3/8 - 16 UNC
	32 ... 60 cm ³	19	47.6	22.2		27	52.4	26.2	

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		
PGE103-2000-. BS4-N	20	28.2	56.4	250	3000	56.1	116.7	40	19	M8	40	19	M8
PGE103-2250-. BS4-N	22.5	31.7	63.5			57.6	119.7						
PGE103-2500-. BS4-N	25	35.3	70.5			58.3	121.1						
PGE103-2800-. BS4-N	28	39.5	79			60.2	124.7						
PGE103-3200-. BS4-N	32	45.1	90.2			66.5	137.3						
PGE103-3600-. BS4-N	36	51.3	95.8	240	2800	68.0	140.5	51	27	M10	40	19	M8
PGE103-4200-. BS4-N	42	59.9	99.8	230	2500	70.8	146.1						
PGE103-4600-. BS4-N	46	65.6	100.5	210	2300	72.7	149.8						
PGE103-5000-. BS4-N	50	71.3	99.8	185	2100	74.5	153.4						
PGE103-5500-. BS4-N	55	78.4	91.4	165	1750	76.7	157.9						
PGE103-6000-. BS4-N	60	85.5	99.8	150		78.7	162.4						

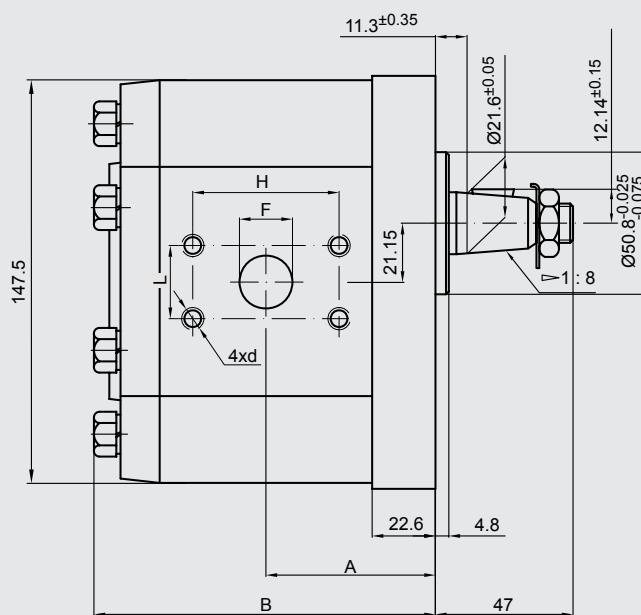
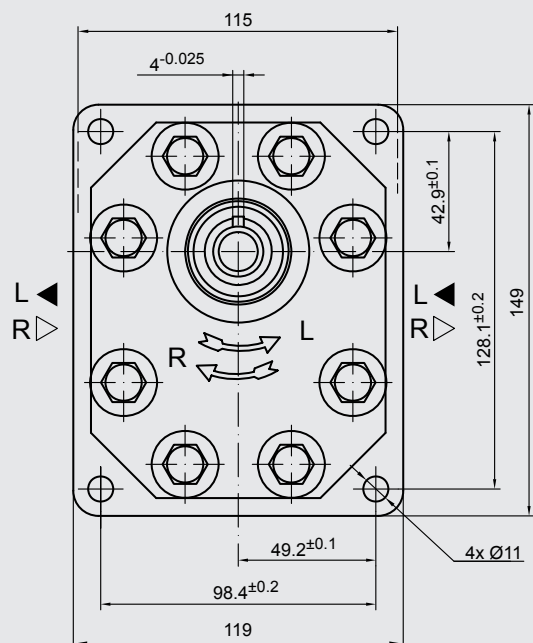


PGE103-...-BS1-N



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
PGE103-2000-. BS1-N	20	28.2	56.4	250	3000	56.1	116.7	G 3/4	G 3/4
PGE103-2250-. BS1-N	22.5	31.7	63.5			57.6	119.7		
PGE103-2500-. BS1-N	25	35.3	70.5			58.3	121.1		
PGE103-2800-. BS1-N	28	39.5	79			60.2	124.7		
PGE103-3200-. BS1-N	32	45.1	90.2			66.5	137.3		
PGE103-3600-. BS1-N	36	51.3	95.8	240	2800	68.0	140.5	G 1	
PGE103-4200-. BS1-N	42	59.9	99.8	230	2500	70.8	146.1		
PGE103-4600-. BS1-N	46	65.6	100.5	210	2300	72.7	149.8		
PGE103-5000-. BS1-N	50	71.3	99.8	185	2100	74.5	153.4		
PGE103-5500-. BS1-N	55	78.4	91.4	165	1750	76.7	157.9		
PGE103-6000-. BS1-N	60	85.5	99.8	150		78.7	162.4		

PGE103-...-BS7-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			
PGE103-2000-. BS7-N	20	28.2	56.4	250	3000	56.1	116.7	52.4	27	26.2	M10	52.4	19	26.2	M10
PGE103-2250-. BS7-N	22.5	31.7	63.5			57.6	119.7								
PGE103-2500-. BS7-N	25	35.3	70.5			58.3	121.1								
PGE103-2800-. BS7-N	28	39.5	79			60.2	124.7								
PGE103-3200-. BS7-N	32	45.1	90.2			66.5	137.3								
PGE103-3600-. BS7-N	36	51.3	95.8	240	2800	68.0	140.5								
PGE103-4200-. BS7-N	42	59.9	99.8	230	2500	70.8	146.1								
PGE103-4600-. BS7-N	46	65.6	100.5	210	2300	72.7	149.8								
PGE103-5000-. BS7-N	50	71.3	99.8	185	2100	74.5	153.4								
PGE103-5500-. BS7-N	55	78.4	91.4	165	1750	76.7	157.9								
PGE103-6000-. BS7-N	60	85.5	99.8	150		78.7	162.4								

Technical drawing of a 16/32 DP SAE-B 7/8" component, showing three views: front, top, and side.

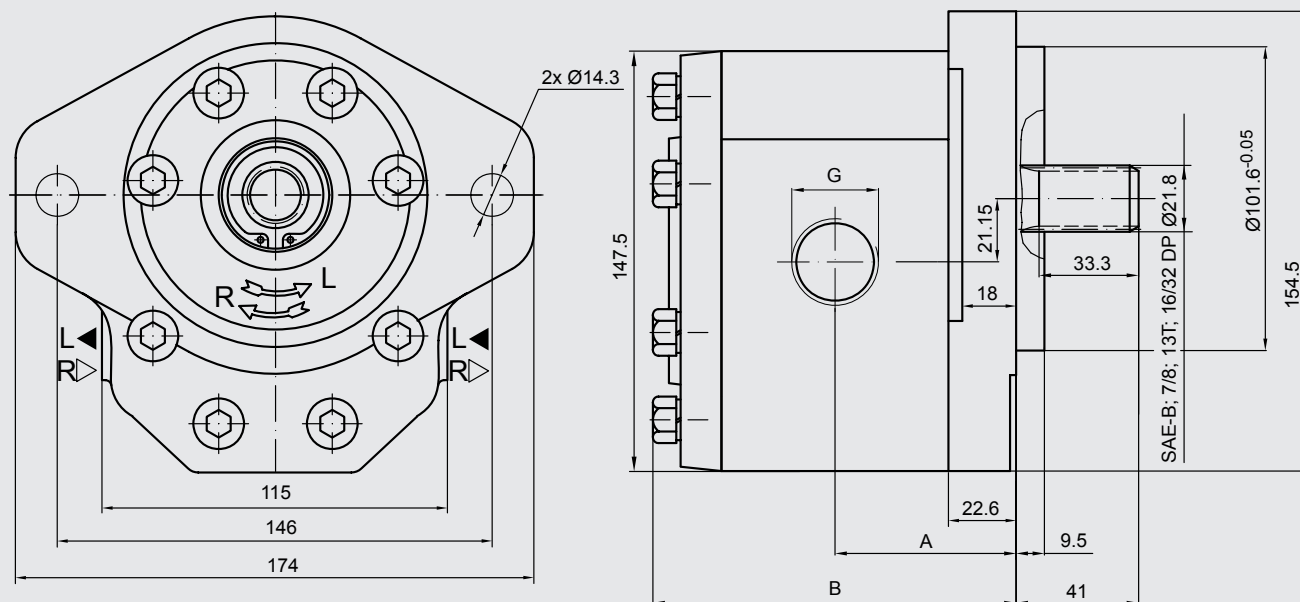
Front View: A hexagonal flange with a central circular feature. Dimensions include a central diameter of $\varnothing 14.3$ (labeled 2x), a central hole diameter of $\varnothing 21.8$, and a central hole depth of 33.3. The flange has six mounting holes. The overall width is 115, and the overall height is 146. The central feature has a diameter of 174 and a height of 147.5. The central feature has a diameter of 115 and a height of 146. The central feature has a diameter of 174 and a height of 147.5.

Top View: A circular view showing the central hole and the flange. Dimensions include a central diameter of $\varnothing 14.3$ (labeled 2x), a central hole diameter of $\varnothing 21.8$, and a central hole depth of 33.3. The flange has six mounting holes. The overall width is 115, and the overall height is 146. The central feature has a diameter of 174 and a height of 147.5. The central feature has a diameter of 115 and a height of 146. The central feature has a diameter of 174 and a height of 147.5.

Side View: A cross-sectional view showing the internal structure. Dimensions include a central diameter of $\varnothing 14.3$ (labeled 2x), a central hole diameter of $\varnothing 21.8$, and a central hole depth of 33.3. The flange has six mounting holes. The overall width is 115, and the overall height is 146. The central feature has a diameter of 174 and a height of 147.5. The central feature has a diameter of 115 and a height of 146. The central feature has a diameter of 174 and a height of 147.5.

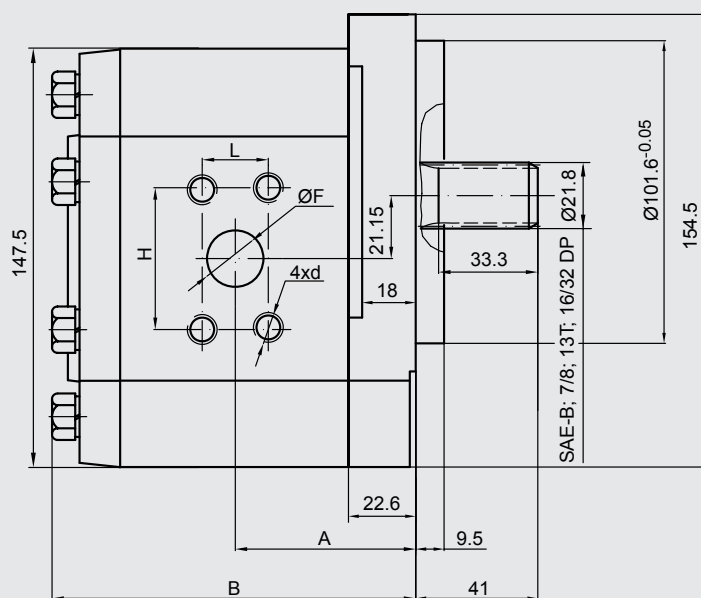
6

PGE103-...-FX1-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
PGE103-2000-. FX1-N	20	28.2	56.4	250	3000	56.1	116.7	G 3/4	G 3/4
PGE103-2250-. FX1-N	22.5	31.7	63.5			57.6	119.7		
PGE103-2500-. FX1-N	25	35.3	70.5			58.3	121.1		
PGE103-2800-. FX1-N	28	39.5	79			60.2	124.7		
PGE103-3200-. FX1-N	32	45.1	90.2			66.5	137.3		
PGE103-3600-. FX1-N	36	51.3	95.8	240	2800	68.0	140.5	G 1	
PGE103-4200-. FX1-N	42	59.9	99.8	230	2500	70.8	146.1		
PGE103-4600-. FX1-N	46	65.6	100.5	210	2300	72.7	149.8		
PGE103-5000-. FX1-N	50	71.3	99.8	185	2100	74.5	153.4		
PGE103-5500-. FX1-N	55	78.4	91.4	165	1750	76.7	157.9		
PGE103-6000-. FX1-N	60	85.5	99.8	150		78.7	162.4		

Technical drawing of a 6-hole flange. The drawing shows a circular flange with six mounting holes. Dimensions are provided: 115 (inner diameter), 146 (outer diameter), and 174 (total diameter including mounting holes). The mounting holes are spaced at 60° intervals. The flange has a central bore with a diameter of 2x Ø14.3. The drawing includes rotation indicators (L and R) and a dimension line for the mounting holes (2x Ø14.3).



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			
PGE103-2000-. FX7-N	20	28.2	56.4	250	3000	56.1	116.7	47.6	19	22.2	M10	47.6	19	22.2	M10
PGE103-2250-. FX7-N	22.5	31.7	63.5			57.6	119.7								
PGE103-2500-. FX7-N	25	35.3	70.5			58.3	121.1								
PGE103-2800-. FX7-N	28	39.5	79			60.2	124.7								
PGE103-3200-. FX7-N	32	45.1	90.2			66.5	137.3								
PGE103-3600-. FX7-N	36	51.3	95.8	240	2800	68.0	140.5	52.4	27	26.2	M10	47.6	19	22.2	M10
PGE103-4200-. FX7-N	42	59.9	99.8	230	2500	70.8	146.1								
PGE103-4600-. FX7-N	46	65.6	100.5	210	2300	72.7	149.8								
PGE103-5000-. FX7-N	50	71.3	99.8	185	2100	74.5	153.4								
PGE103-5500-. FX7-N	55	78.4	91.4	165	1750	76.7	157.9								
PGE103-6000-. FX7-N	60	85.5	99.8	150		78.7	162.4								

