6.4 SIZE 3

CONTENTS PGE103

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 cm³/rev
2250	22.5 cm³/rev
2500	25.0 cm³/rev
2800	28.0 cm³/rev
3200	32.0 cm³/rev
3600	36.0 cm³/rev
4200	42.0 cm³/rev
4600	46.0 cm³/rev
5000	50.0 cm³/rev
5500	55.0 cm³/rev
6000	60.0 cm³/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.

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.

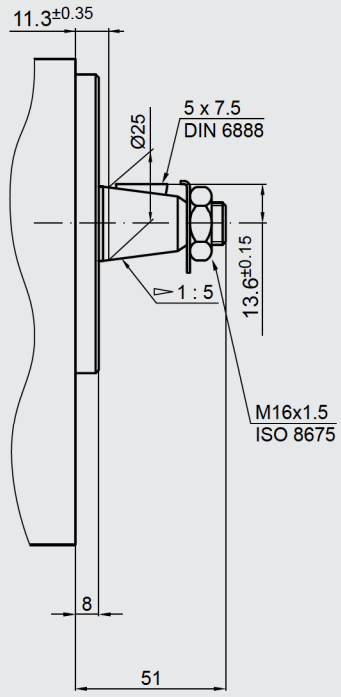
Maximum suction pressure:
2.2 bar abs.

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°.

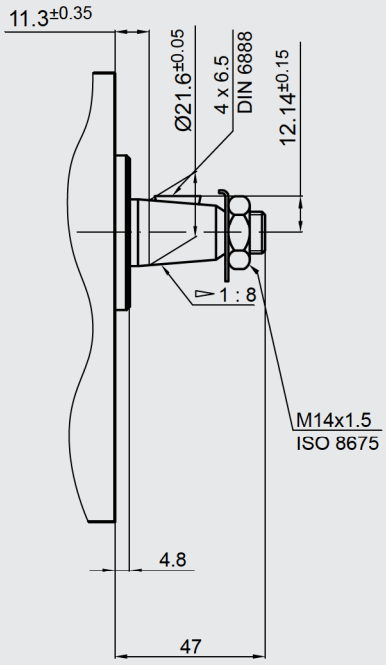
For indirect drives (with gear, chain or belt drives) please consult Hydac.

A Tapered keyed shaft 1:5



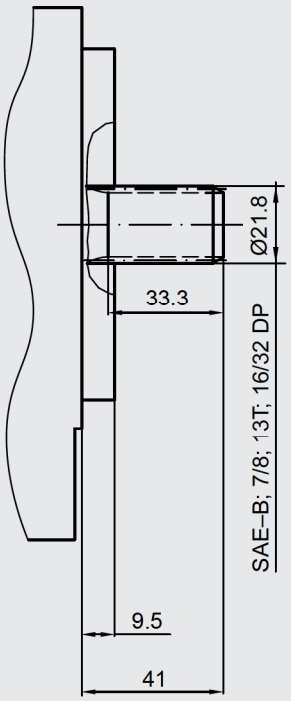
relevant mounting flange **V**

B Tapered keyed shaft 1:8



relevant mounting flange **S**

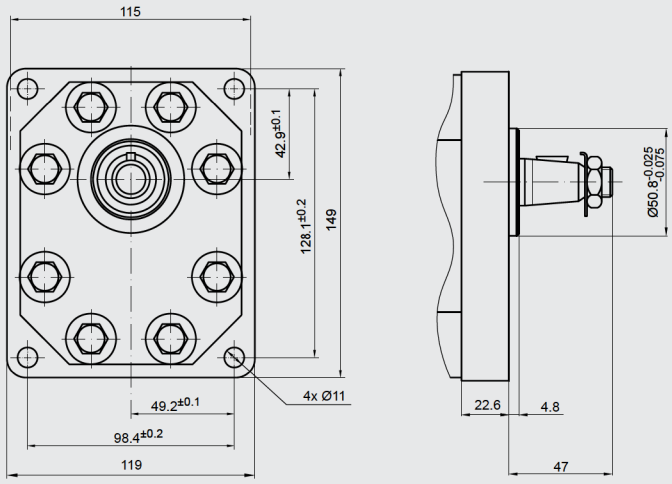
F Splined shaft SAE B - J 744 22-4 13T



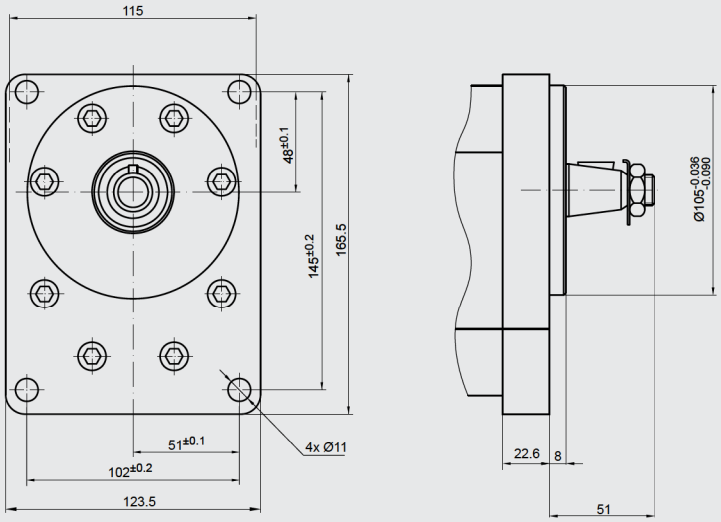
relevant mounting flange **X**

6.4.10 Mounting flange

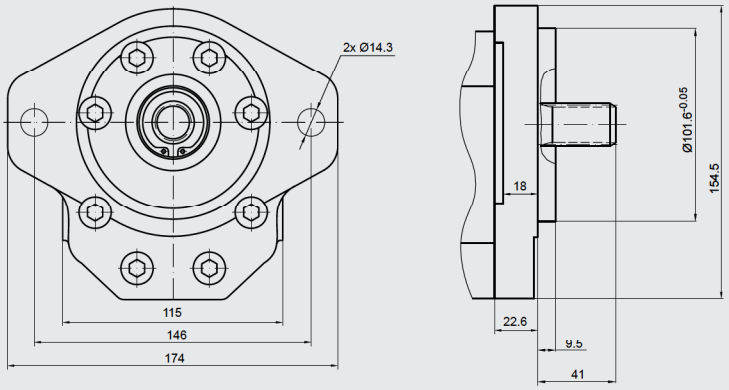
S Square flange
centering Ø 50.8 mm

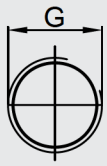


V Square flange
centering Ø 105 mm



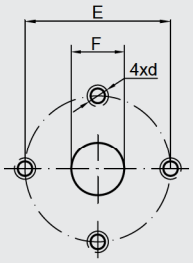
X SAE J 744 101-2 B
Ø 101.6 mm





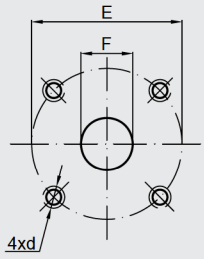
1 Pipe thread ISO 228/1

Ordering code	Displacement	Outlet G	Inlet G
1	20 ... 28 cm³	G 3/4	G 3/4
	32 ... 60 cm³	G 3/4	G 1



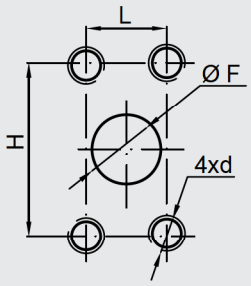
4 Square flange (Italian design)

Ordering code	Displacement	Outlet			Inlet		
		F	E	d	F	E	d
4	20 ... 28 cm³	19	40	M8	19	40	M8
	32 ... 60 cm³	19	40	M8	27	51	M10



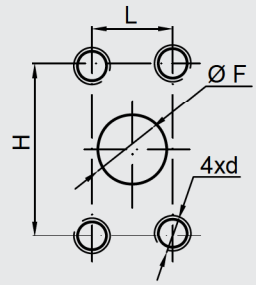
5 Square flange DIN 3901/ ISO 8435

Ordering code	Displacement	Outlet			Inlet		
		F	E	d	F	E	d
5	20 ... 28 cm³	19	40	M8	19	40	M8
	32 ... 60 cm³	19	55	M8	27	55	M8



7 SAE flange with metric threads

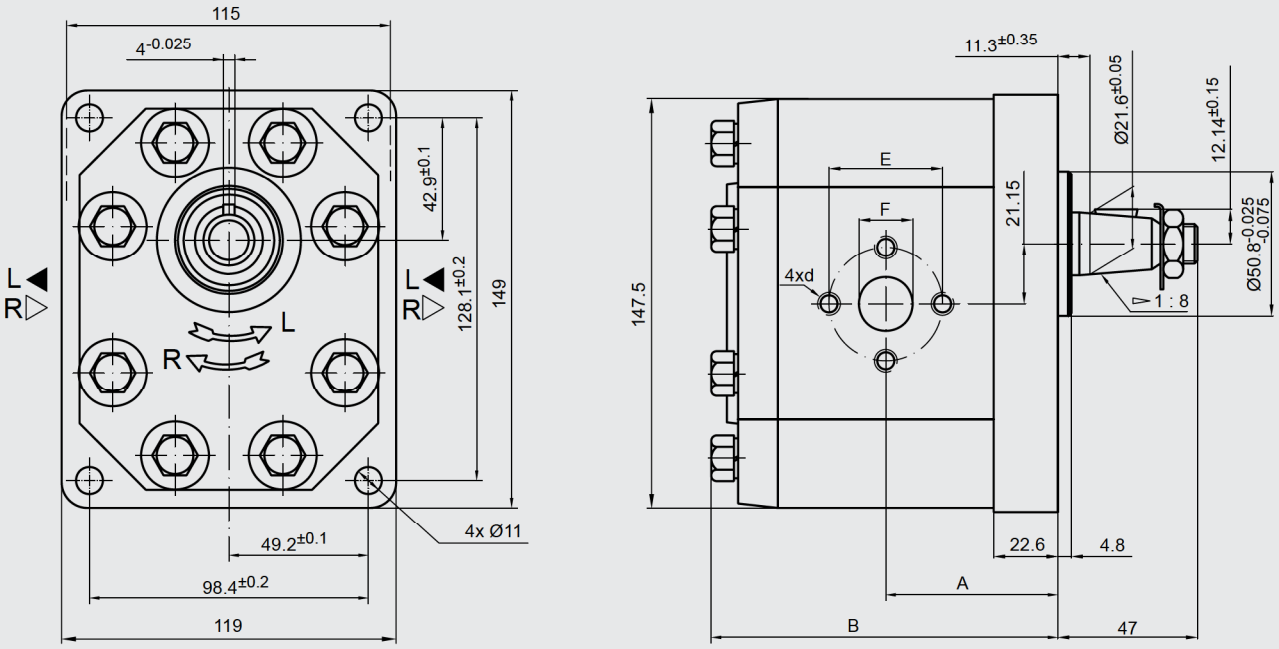
Ordering code	Displacement	Outlet				Inlet			
		F	H	L	d	F	H	L	d
7	20 ... 28 cm³	19	47.6	22.2	M10	19	47.6	22.2	M10
	32 ... 60 cm³	19	47.6	22.2	M10	27	52.4	26.2	M10



8 SAE flange with UNC threads

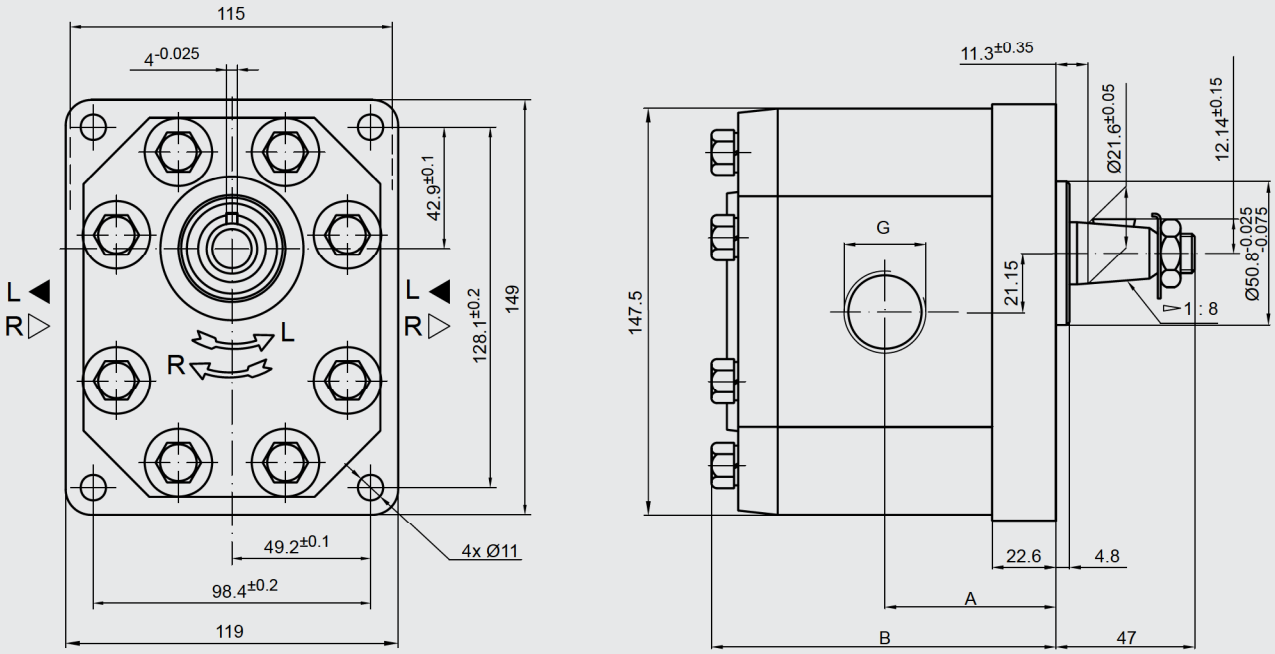
Ordering code	Displacement	Outlet				Inlet			
		F	H	L	d	F	H	L	d
8	20 ... 28 cm³	19	47.6	22.2	3/8 - 16 UNC	19	47.6	22.2	3/8 - 16 UNC
	32 ... 60 cm³	19	47.6	22.2		27	52.4	26.2	

PGE103-...-.BS4-N



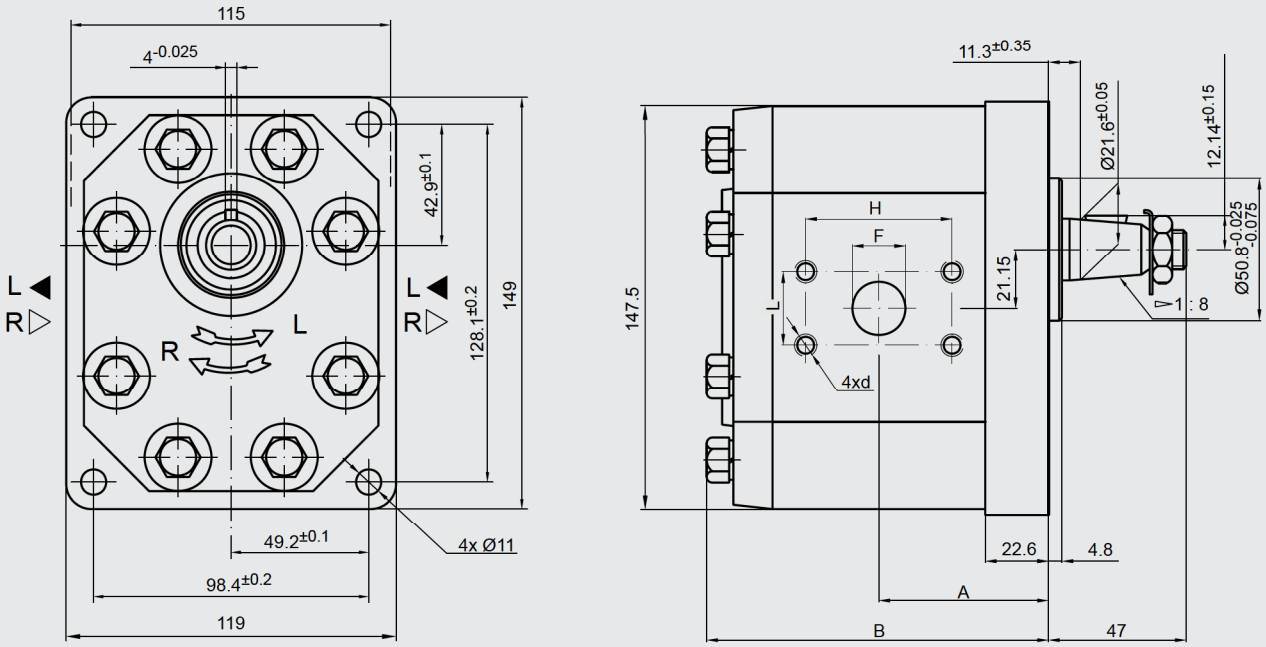
Type	Displacement	Output flow at 1500 rpm	Output flow at max. rpm	Rated	Drive speed	Dimension A	Dimension B	Inlet E	Inlet F	Inlet d	Outlet E	Outlet F	Outlet d
	[cm³/rev]	[l/min]	[l/min]	[bar]	n [rpm]	[mm]	[mm]						
PGE103-2000-. BS4-N	20	28.2	56.4			56.1	116.7						
PGE103-2250-. BS4-N	22.5	31.7	63.5			57.6	119.7	40	19	M8			
PGE103-2500-. BS4-N	25	35.3	70.5	250	3000	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						
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	51	27	M10	40	19	M8
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



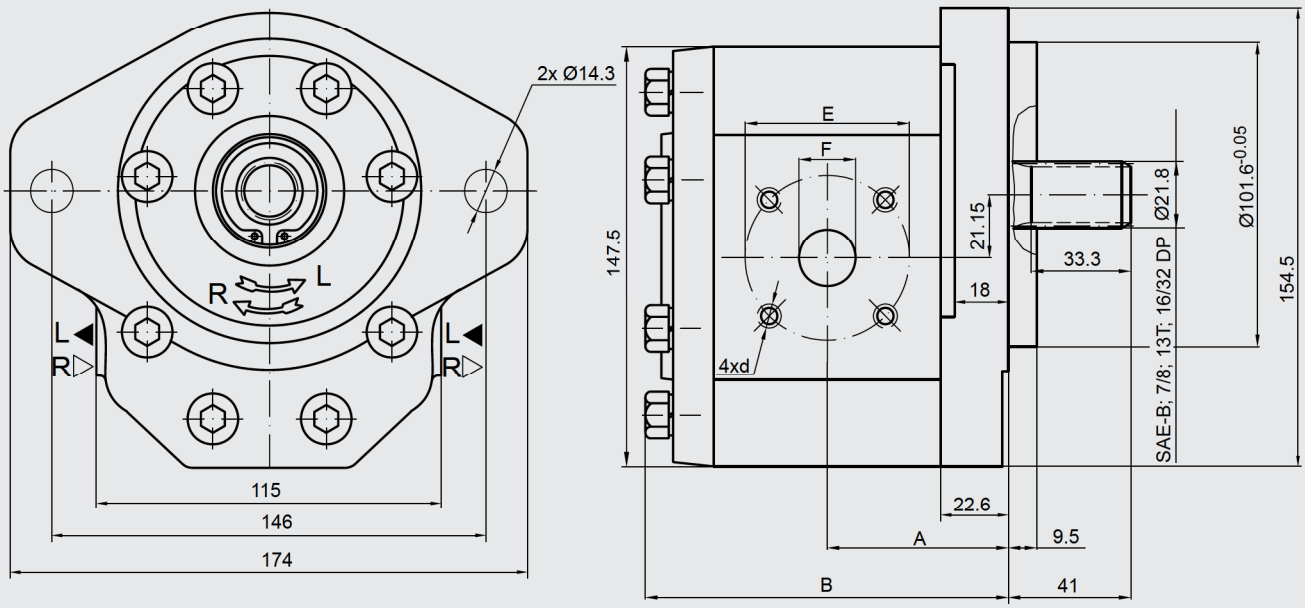
Type	Displace-ment	Output flow		Rated	Drive speed	Dimension			
		at 1500 rpm	at max. rpm		n	A	B	Inlet	Outlet
	[cm³/rev]	[l/min]	[l/min]	[bar]	[rpm]	[mm]	[mm]	G	G
PGE103-2000-. BS1-N	20	28.2	56.4	250	3000	56.1	116.7	G 3/4	G 3/4
PGE103-2250-. BS1-N	22.5	31.7	63.5			57.6	119.7		
PGE103-2500-. BS1-N	25	35.3	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	G 1	
PGE103-3600-. BS1-N	36	51.3	95.8	240	2800	68.0	140.5		
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



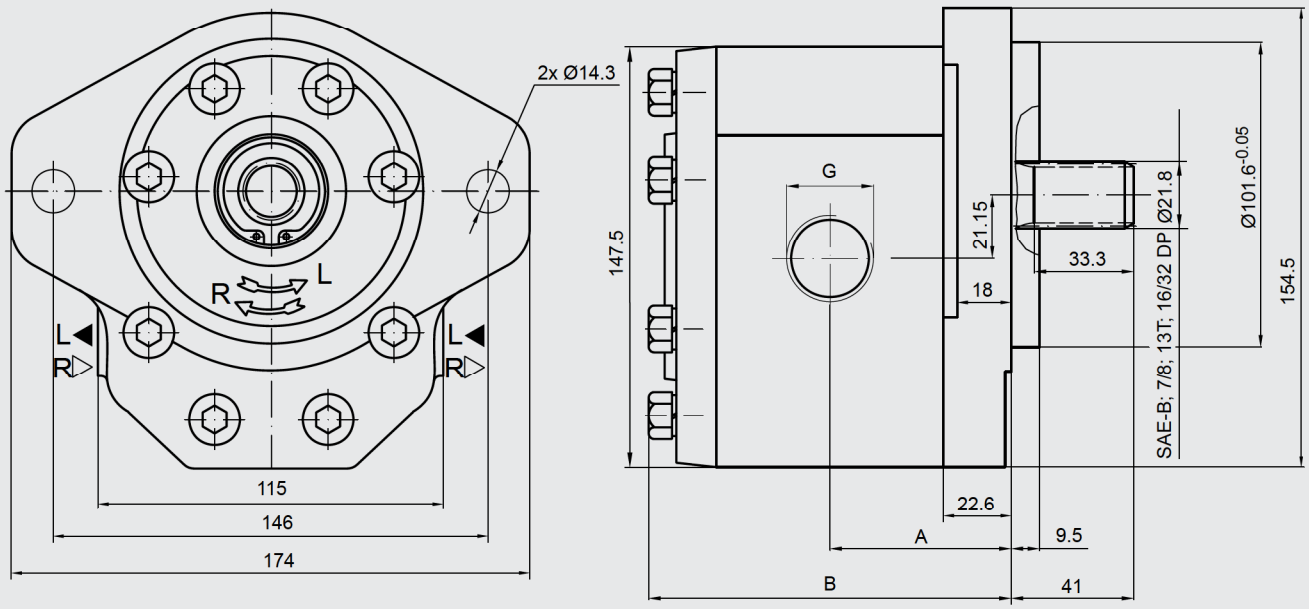
Type	Displace-ment	Output flow		Rated	Drive speed	Dimension								
		at 1500 rpm	at max. rpm					Inlet				Outlet			
	[cm³/rev]	[l/min]	[l/min]	[bar]	n [rpm]	A [mm]	B [mm]	H	F	L	d	H	F	L	d
PGE103-2000-. BS7-N	20	28.2	56.4	250	3000	56.1	116.7	52.4	27	26.2	M10	52.4	19	26.2	M10
PGE103-2250-. BS7-N	22.5	31.7	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								

PGE103-...-.FX5-N



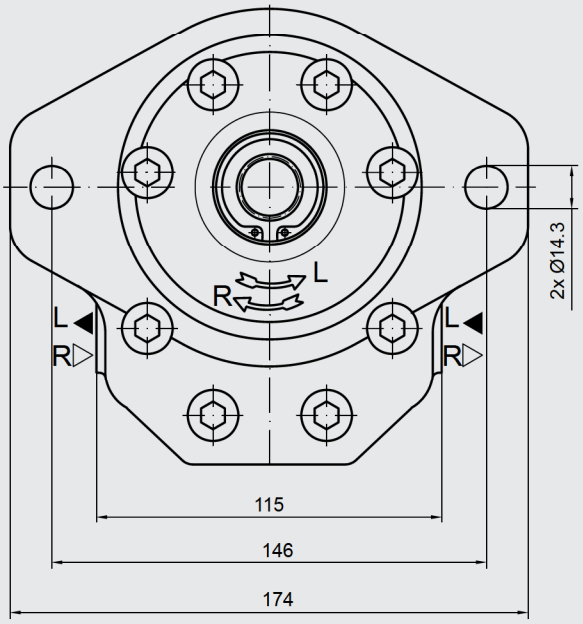
Type	Displace-ment	Output flow		Rated	Drive speed	Dimension							
		at 1500 rpm	at max. rpm					Inlet			Outlet		
	[cm³/rev]	[l/min]	[l/min]	[bar]	n [rpm]	A [mm]	B [mm]	E	F	d	E	F	d
PGE103-2000-. FX5-N	20	28.2	56.4	250	3000	56.1	116.7	40	19	M8	40	19	M8
PGE103-2250-. FX5-N	22.5	31.7	63.5			57.6	119.7						
PGE103-2500-. FX5-N	25	35.3	70.5			58.3	121.1						
PGE103-2800-. FX5-N	28	39.5	79			60.2	124.7						
PGE103-3200-. FX5-N	32	45.1	90.2			66.5	137.3	55	27		55		
PGE103-3600-. FX5-N	36	51.3	95.8	240	2800	68.0	140.5						
PGE103-4200-. FX5-N	42	59.9	99.8	230	2500	70.8	146.1						
PGE103-4600-. FX5-N	46	65.6	100.5	210	2300	72.7	149.8						
PGE103-5000-. FX5-N	50	71.3	99.8	185	2100	74.5	153.4						
PGE103-5500-. FX5-N	55	78.4	91.4	165	1750	76.7	157.9						
PGE103-6000-. FX5-N	60	85.5	99.8	150		78.7	162.4						

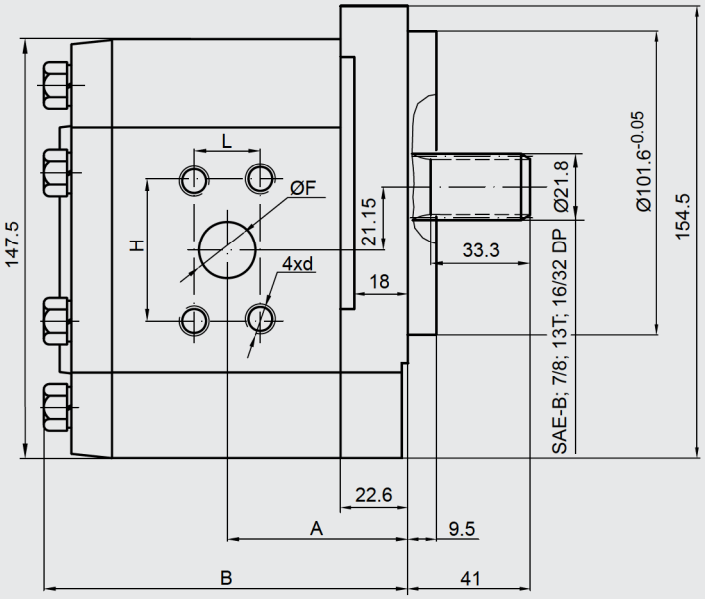
PGE103-...-.FX1-N



Type	Displace-ment	Output flow		Rated	Drive speed	Dimension			
		at 1500 rpm	at max. rpm					Inlet	Outlet
	[cm³/rev]	[l/min]	[l/min]	[bar]	n [rpm]	A [mm]	B [mm]	G	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	G 1	
PGE103-3600-. FX1-N	36	51.3	95.8	240	2800	68.0	140.5		
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		

PGE103-...-.FX7-N





Type	Displace-ment	Output flow		Rated	Drive speed	Dimension								
		at 1500 rpm	at max. rpm					Inlet				Outlet			
	[cm³/rev]	[l/min]	[l/min]	[bar]	n [rpm]	A [mm]	B [mm]	H	F	L	d	H	F	L	d
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	52.4	27	26.2					
PGE103-3600-. FX7-N	36	51.3	95.8	240	2800	68.0	140.5								
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								