

Gear Pumps

Cast Iron Gear Housing

Technical/Spare Parts Catalogue

E0.100.0921.02.01M01



1800-OILSOL
1800-645765

<https://oilsolutions.com.au/>

sales@oilsolutions.com.au

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QUALITY SYSTEM
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salami
FLUID POWER SYSTEMS



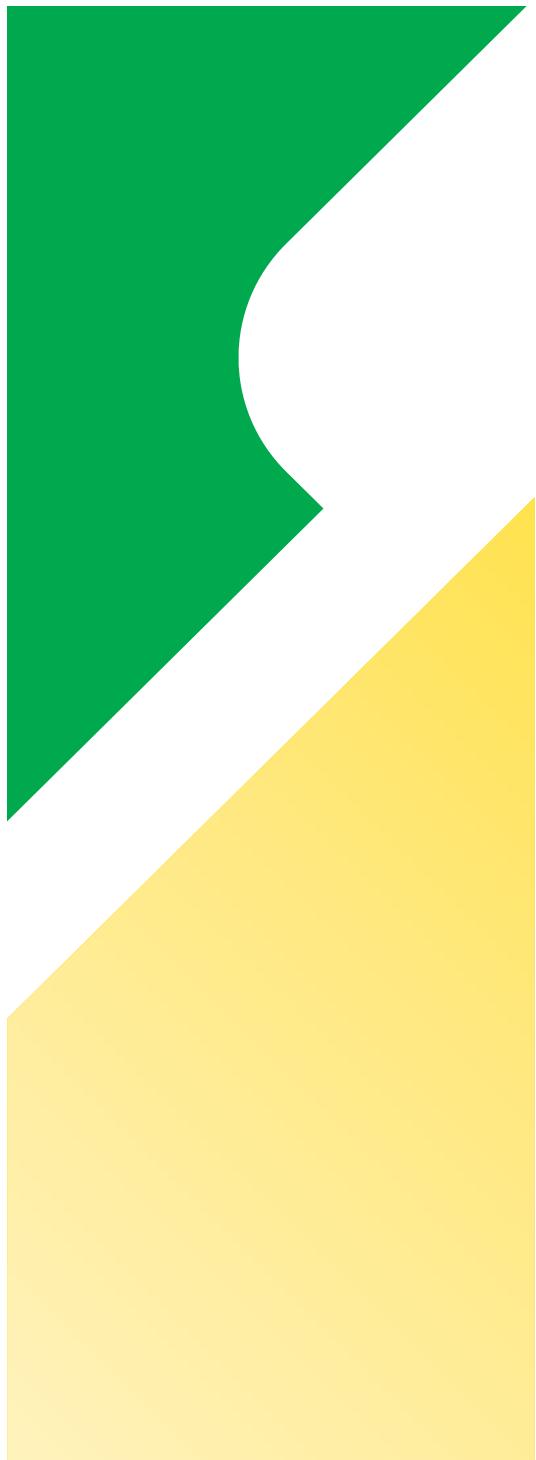
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Symbol Designation

**INFORMATION:**

Indicates reminders and communications to be taken into account for the correct configuration and mounting of the product.

**CAUTION:**

Indicates the recommendations and rules, to be observed before proceeding with the product's configuration.

**REVIEW:**

Indicates update or modify data.



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Gear Pumps

Cast Iron Gear Housing:
2PGE/PG330/PG331

Features

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2PGE and PG330/331 Features

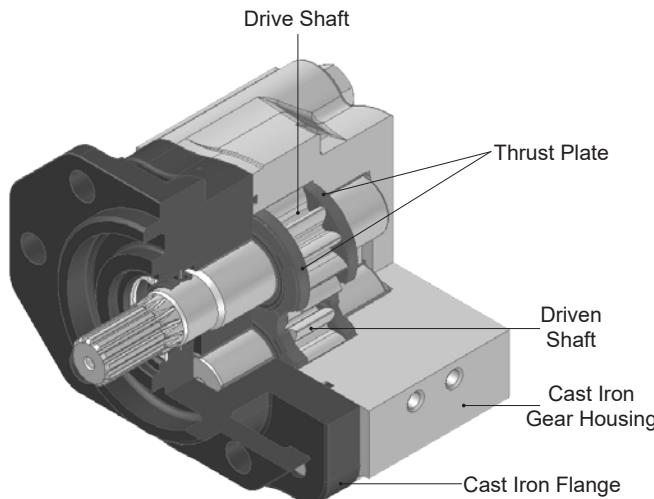
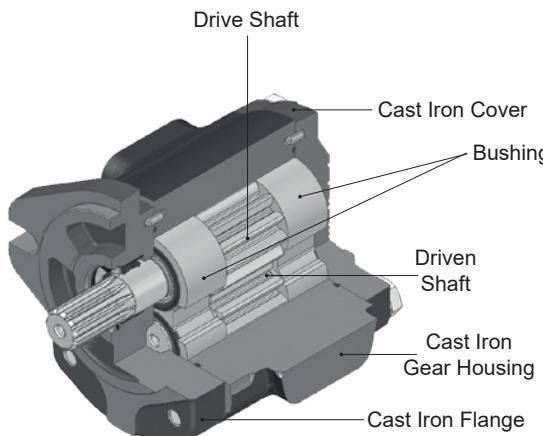
The PG330/PG331 and 2PGE Series Cast Iron Pumps has been specifically designed for high flow applications, demanding peak performance and long life in extreme operating conditions. PG330 optimized for high volume and for OEM's customers. Displacements available:

2PGE: 6.5 cm³/rev to 26.6 cm³/rev (from 0.40 cu.in/rev to 1.62 cu.in/rev)

PG330/PG331: 23.4 cm³/rev to 80.6 cm³/rev (from 1.43 cu.in/rev to 4.91 cu.in/rev)

Several options of shafts, flanges and ports as for European, German and American standards are available for all the pumps.

- High volumetric efficiency thanks to an innovative design and an accurate control of machining tolerances.
- DU bearings to ensure high pressure capability.
- 12 teeth solid gear shaft.
- Cast iron construction.
- Double shaft seals.
- Standard nitrile seals and Viton seals for high temperature applications.
- All pumps are hydraulically tested after assembly to ensure the highest standard performance.
- Typical applications: construction, agriculture, material handling, municipality vehicles, light duty equipment, aerial working platforms, hoists, fan drive.



2PGE

- Cast iron body, flange and cover.
- Common parts with 2PE series.
- High resistance.
- Axial compensation achieved by the use of floating bushes that allow high volumetric efficiency throughout the working pressure range.
- Available with SAE 13T splined shaft that allow torque up to 200 Nm.
- Telltale leakage inspection hole on mounting flanges.

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PG330

- Two pieces compact construction made with high strength cast iron. Cast iron offers thermal stability, contamination resistance and strength for consistent performance and durability in severe duty cycle applications.
- Advanced pressure-balanced thrust plates optimize volumetric efficiency across the range of operating speeds and pressures.
- Heavy duty low friction DU bushes provide long life in low viscosity and high pressure conditions.
- Compact design in single and double configuration is ideal for fitting into narrow spaces.
- PG330 Sharing the same features with PG331, in terms of dimensions and working conditions.
- Multiple pumps and combo with 2PE or 2PGE series available.

GEAR PUMPS

2PGE/PG330/PG331

CAST IRON SERIES



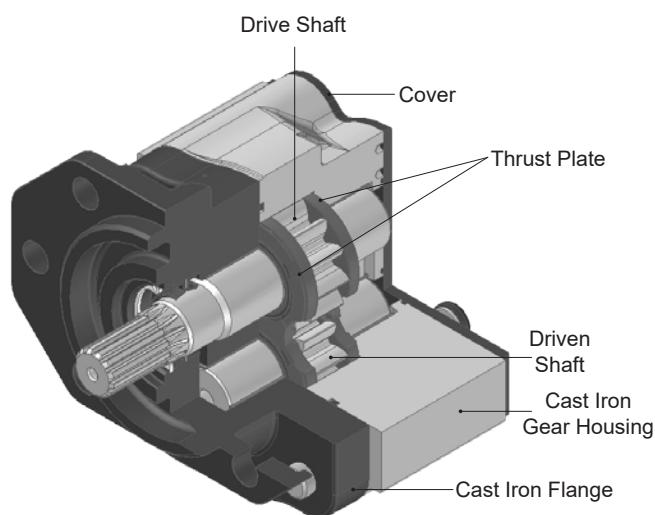
PG331 Features

PG331

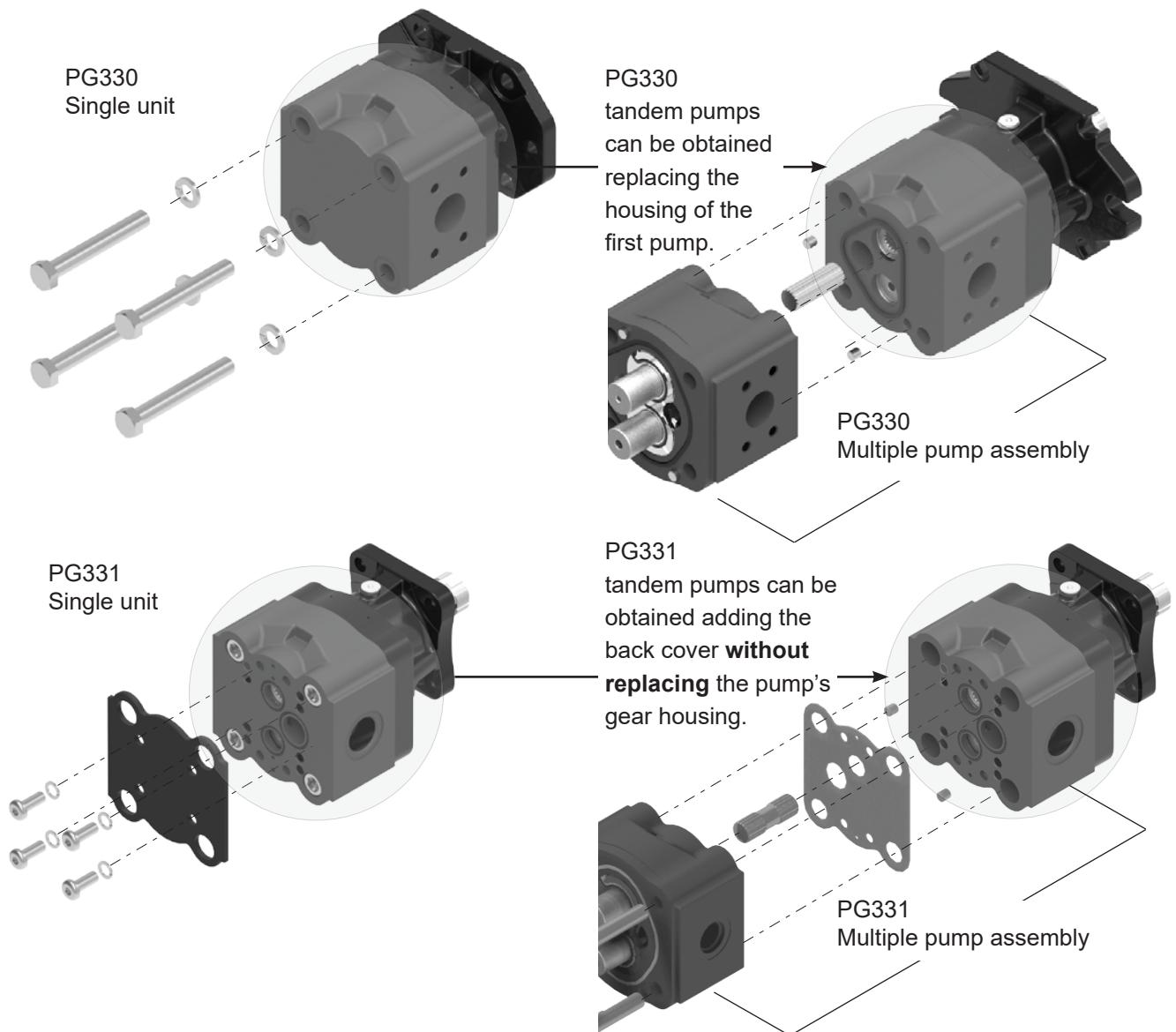
PG331 has been designed for Distributors and easing local conversion from single to multiple stage pump configuration.

- Sharing the same features with PG330, in terms of dimensions and working conditions.

Is available in single, double, triple version.

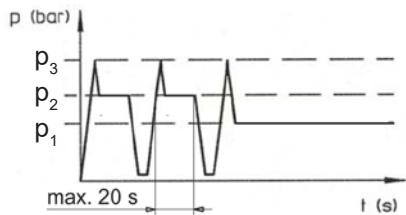


PG330/331 Pump assembly





Definition of Pressures



p_3 = Peak pressure

p_2 = Intermittent operating pressure (1/3 of working time)

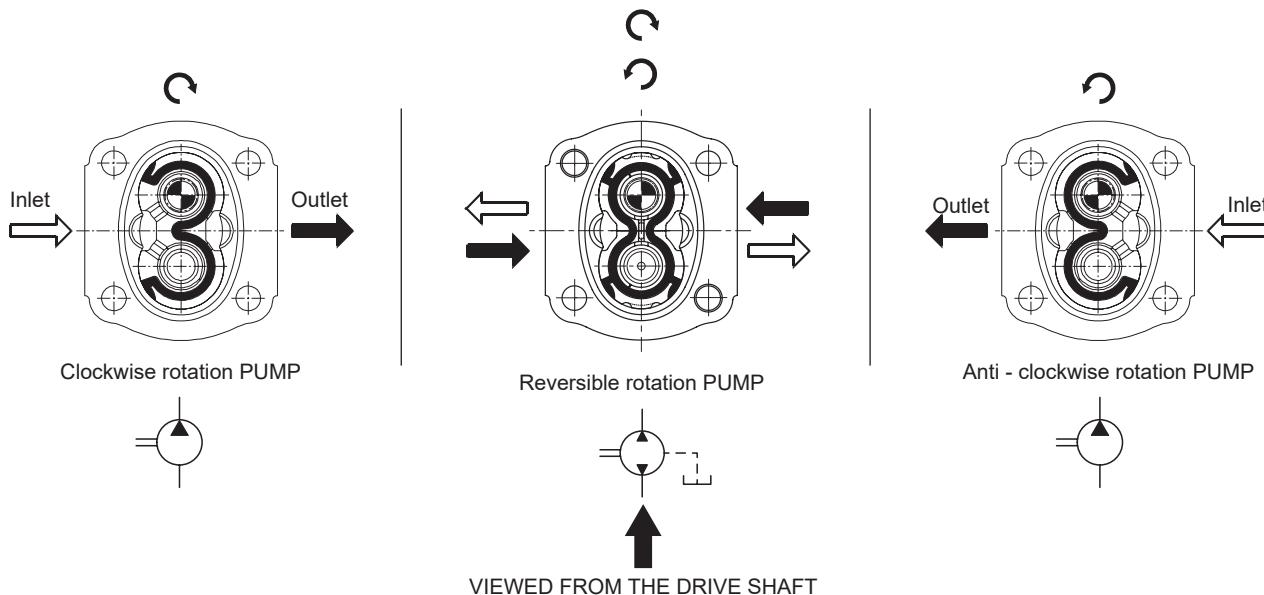
p_1 = Continuous operating pressure

Drive Shaft

Radial and axial loads on the shafts must be avoided since they reduce the life of the unit.

In order to avoid misalignment during the assembly with the primary engine, a connection with "Oldham" coupling (or coupling having convex toothed hub) is recommended.

Pump Rotation



Working Conditions

HYDRAULIC FLUID

Mineral oil according to DIN 51524, other hydraulic fluids on request.

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Pump inlet pressure (absolute pressure)		0.8 to 1.5 bar (11.6 to 21.7 psi)
Viscosity	Minimum operating fluid viscosity	12 mm ² /sec
	Max starting viscosity	800 mm ² /sec
	Suggested fluid viscosity range	17 ÷ 65 mm ² /sec
Temperature	fluid operating temperature range	-25 ÷ 80 °C
	fluid operating temperature range with FPM seals (Viton)	-20 ÷ 110°C
	fluid operating temperature range with HNBR seals*	-30 ÷ 110°C

* Available on request



Hydraulic Pipe Line

To ensure favorable suction conditions it is important to keep pressure drop in suction pipe line to a minimum value (see Working Conditions). To calculate hydraulic pipe line size, the designer can use, as an approximate guide, the following fluid speed figures:

From 1 to 2 m/sec on suction pipe line
From 6 to 10 m/sec on pressure pipe line

From 3.28 to 6.36 ft/sec on suction pipe line
From 19.7 to 32.8 ft/sec on pressure pipe line

The lowest fluid speed values in pipe lines is recommended when the operating temperature range is high and/or for continuos duty. The highest value is recommended when the temperature difference is low and/or for intermittent duty.

 2PGE: When tandem pumps are supplied by 2 different reservoirs with 2 different fluids it is mandatory to specify "AS" version.

Filtration Index Recommended

Working pressure	>200 bar/2900 psi	<200 bar/2900 psi
Contamination class NAS 1638	9	10
Contamination class ISO 4406	19/18/15	20/19/16
Achieved with filter $\beta_x = 75$	15 µm	25 µm

Common Formulas

$$C = \text{Input torque} = \frac{q \cdot \Delta p}{62.8 \cdot \eta_m} \text{ (Nm)}$$

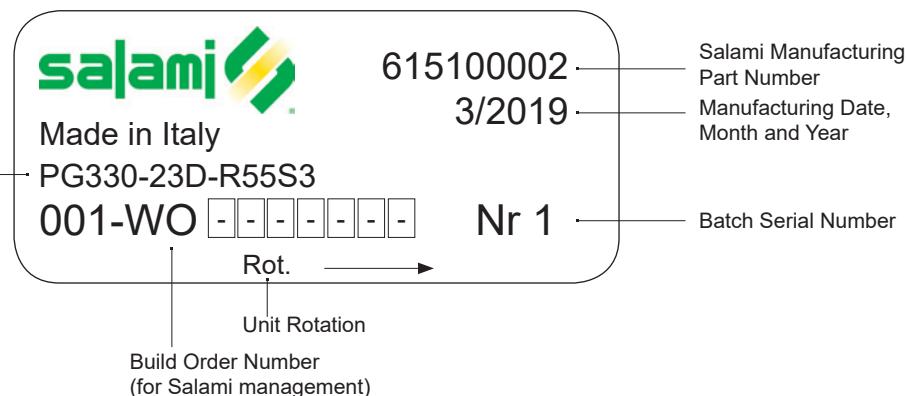
$$P = \text{Input power} = \frac{q \cdot n \cdot \Delta p \cdot 10^{-3}}{600 \cdot \eta_m} (\text{kW})$$

$$Q = \text{Outlet flow} = \frac{q \cdot n \cdot \eta_v}{1000} \text{ (l/min)}$$

LEGENDA

Δp = Working pressure	(bar)
q = Displacement	(cm ³ /rev)
n = Speed	(min ⁻¹)
η_m = Mechanical efficiency (0.92)	
η_v = Volumetric efficiency (0.95)	

Identification Label

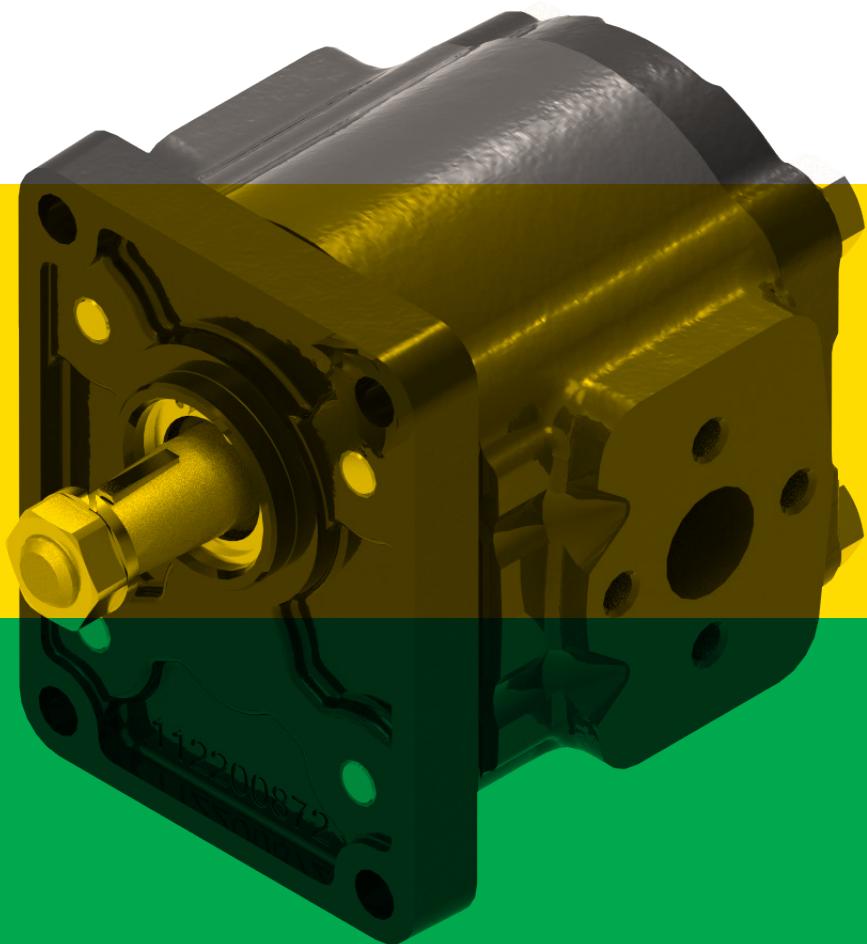


2PGE

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GEAR PUMPS "GE" SERIES Cast Iron Gear Housing

2PGE

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2PGE Single Pump - Dimensions and Technical Data


 20 bar (290 psi)
 Max pressure discharge

 Displacements up to 26.6 cm³/rev - 1.62 cu.in./rev
 Pressure up to 320 bar - 4650 psi

TYPE	Displacement		Dimension A		Dimension C		Continuous pressure p ₁		Intermittent pressure p ₂		Peak pressure p ₃		Min. speed at p ₁	Max. speed at p ₂	Weight	
	cm ³ /rev	cu.in./rev	mm	in	mm	in	bar	psi	bar	psi	bar	psi	rpm	kg	lbs	
2PGE - 6.5	6.5	0.40	49.95	1.97	25	0.98	270	3915	300	4350	320	4650	600	4000	4.8	10.58
2PGE - 8.3	8.2	0.50	52.8	2.07	26.4	1.04	270	3915	300	4350	320	4650	500	3500	5.0	11.02
2PGE - 11.3	11.5	0.68	59.7	2.35	29.75	1.17	270	3915	300	4350	320	4650	500	3500	5.2	11.46
2PGE - 13.8	13.8	0.84	63.5	2.50	31.75	1.25	270	3915	300	4350	320	4650	500	3500	5.4	11.90
2PGE - 16	16.6	1.01	67.5	2.65	39.5	1.56	270	3915	300	4350	320	4650	500	3000	6.6	14.55
2PGE - 19	19.4	1.18	75.6	2.97	39.5	1.56	270	3915	300	4350	320	4650	500	3000	7.1	15.65
2PGE - 22.5	22.9	1.37	81	3.19	47.5	1.87	250	3625	280	4060	300	4350	500	2750	7.5	16.53
2PGE - 26	26.6	1.62	86.8	3.42	47.5	1.87	230	3335	260	3750	280	4060	500	2500	7.8	17.20

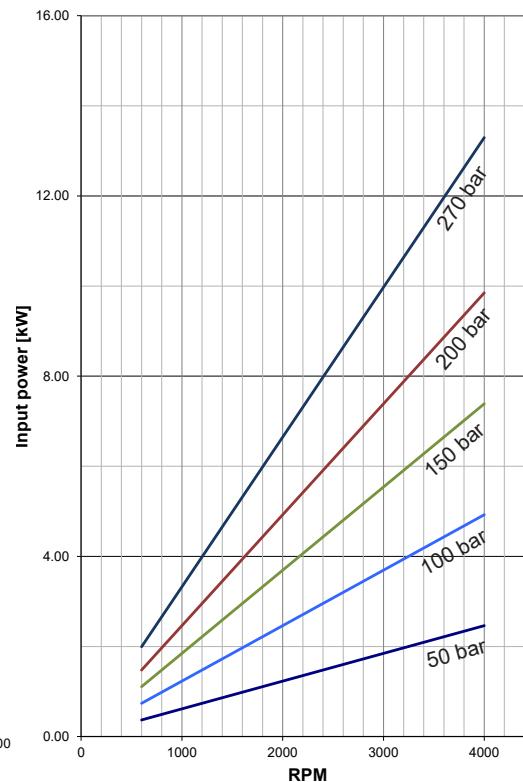
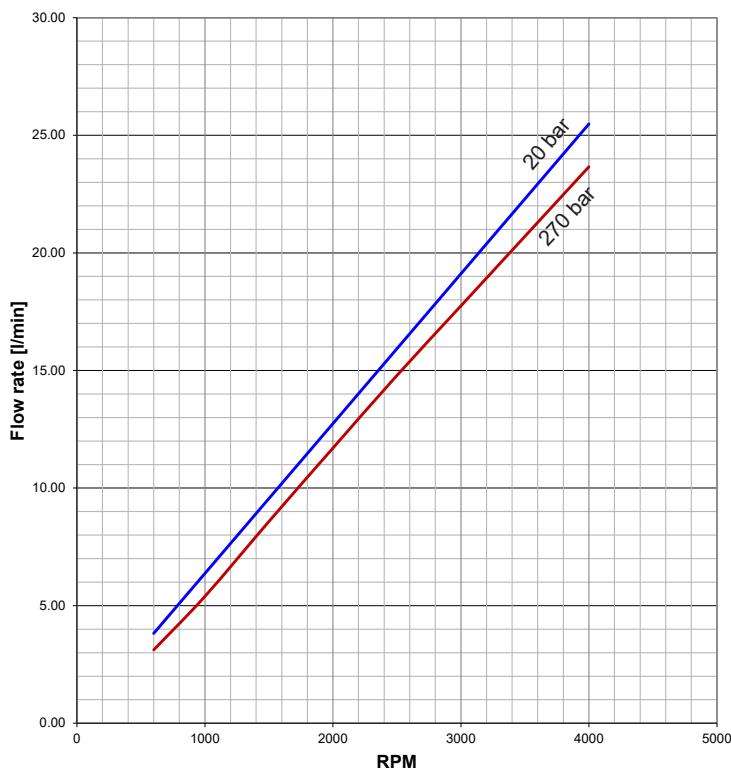
! Max Speed must be lowered by 10% for system working continuously at p₁ pressure.
 Max pressure must be lowered by 10% for bi-directional pump.

From Displacement 6.5 to 13.8	For flanges code: P1-B1-S2-S3, this dimension is 19 mm (0.75 in.) B4-B5-C1, this dimension is 16.5 mm (0.65 in.)			
From Displacement 16 to 26	For flanges code: P1-B1-S2-S3, this dimension is 19 mm (0.75 in.) B4-B5-C1, this dimension is 16.5 mm (0.65 in.)			

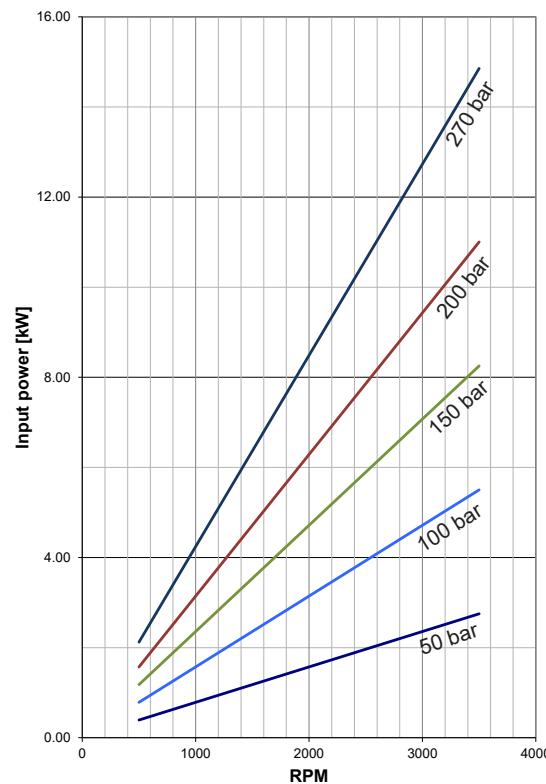
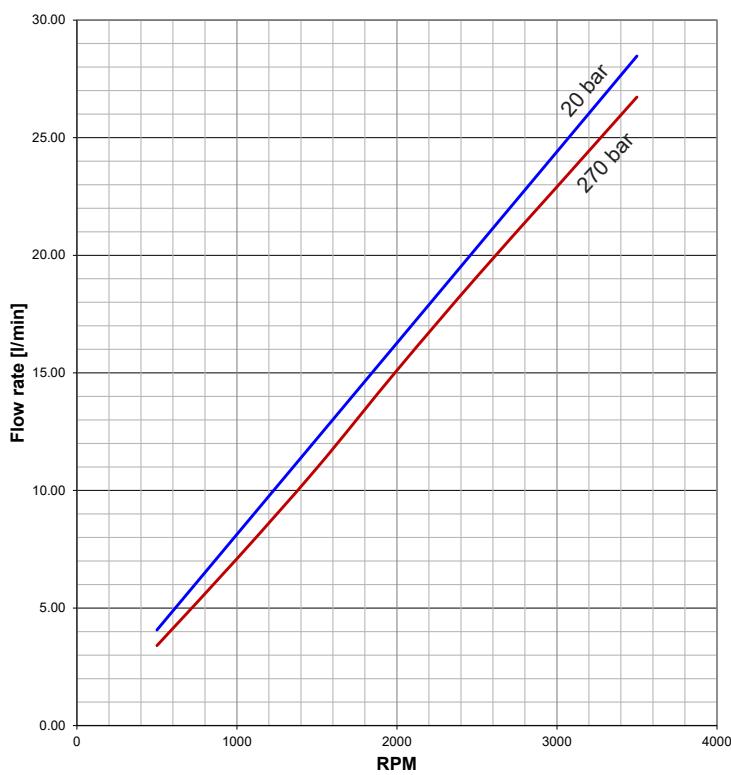

2PGE

Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



2PGE - 6.5



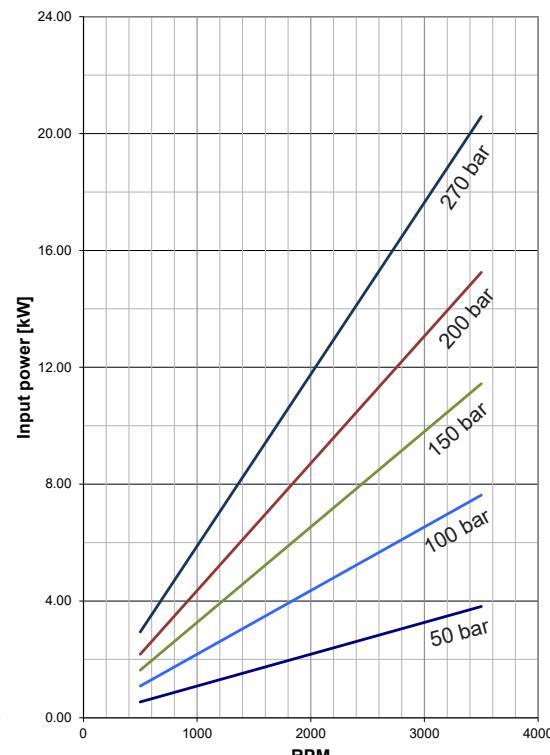
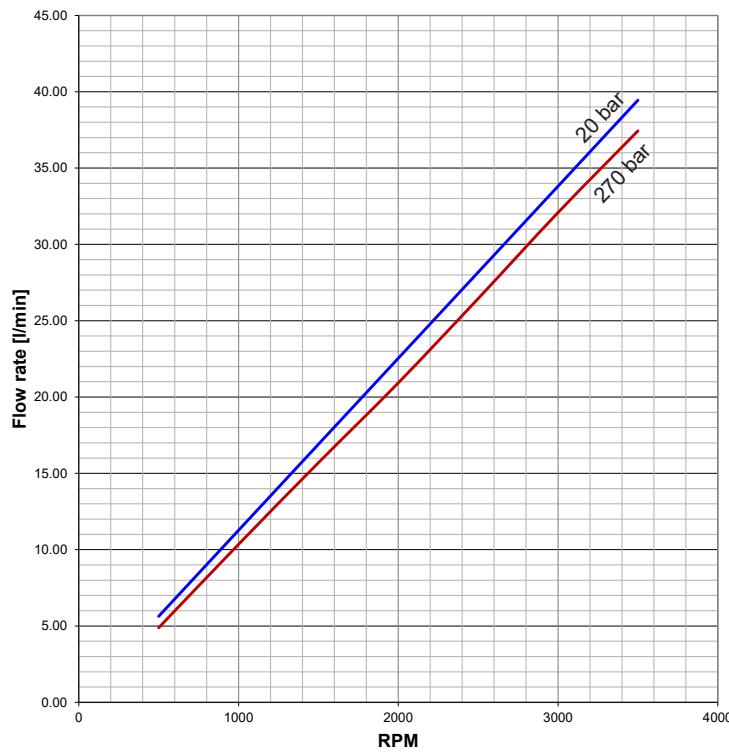
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2PGE - 8.3



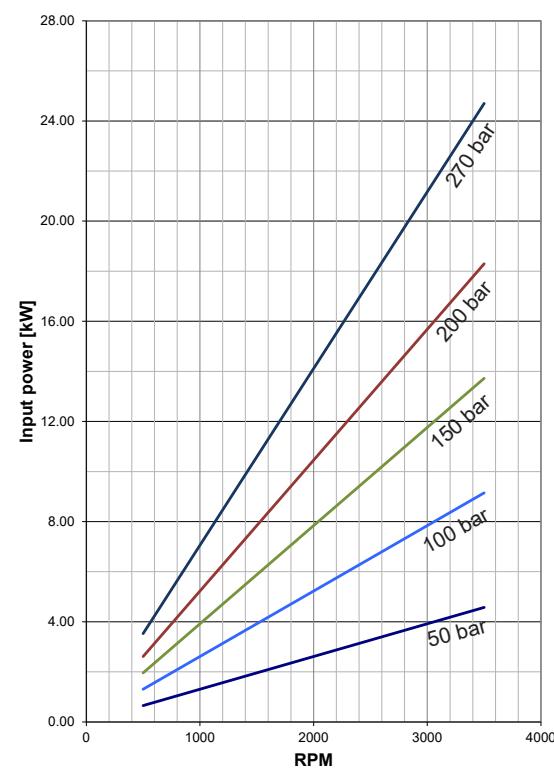
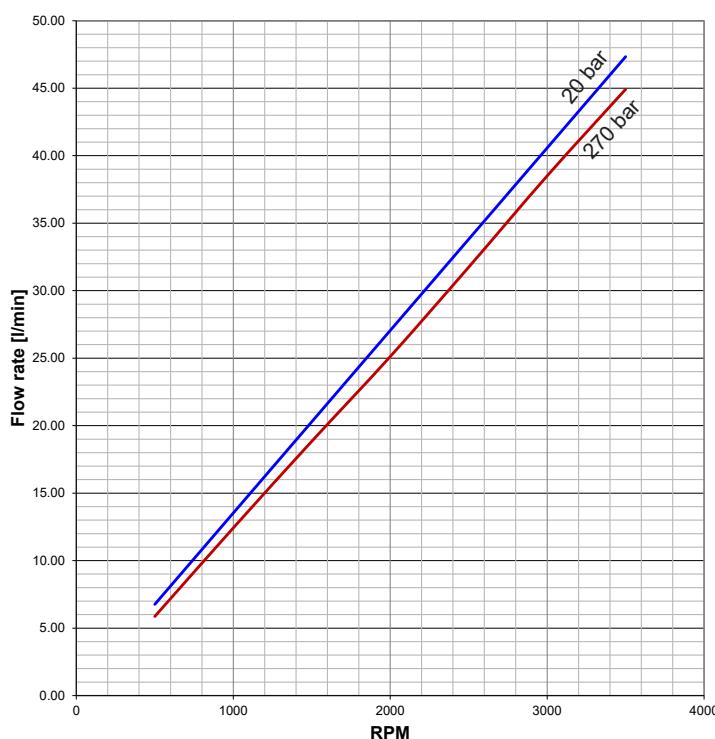
Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



2PGE - 11.3

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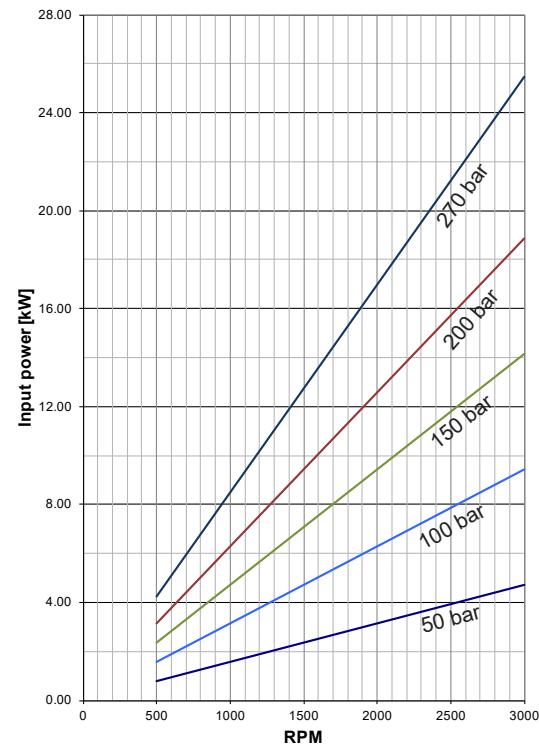
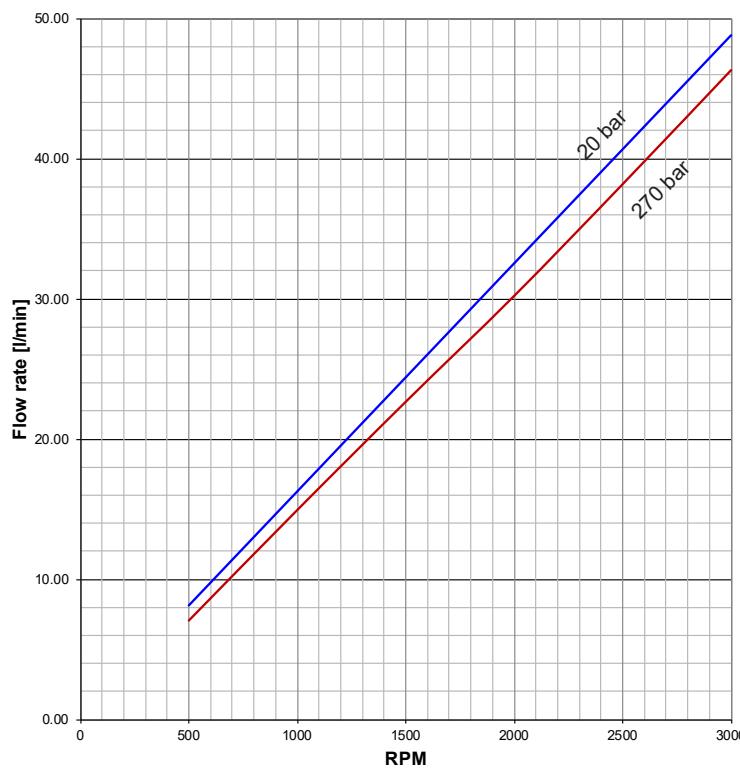


2PGE - 13.8

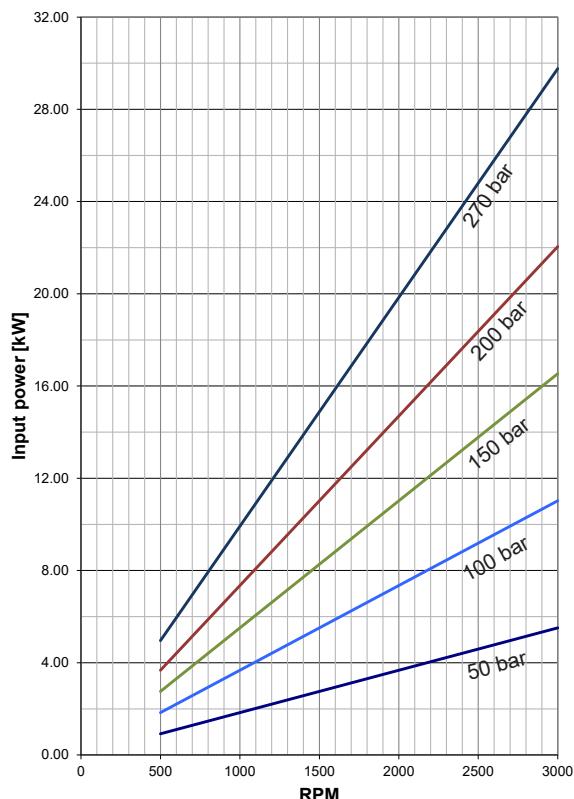
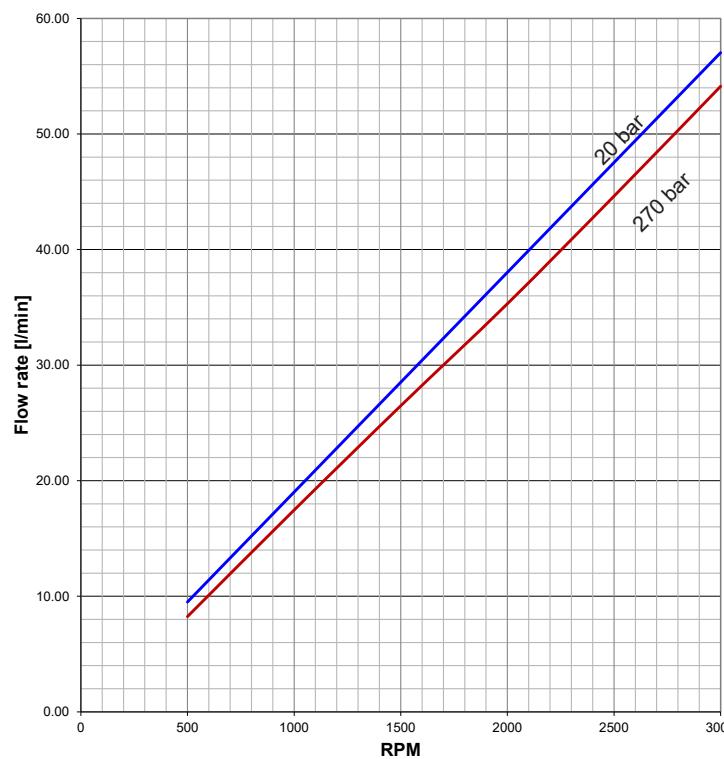


Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



2PGE - 16



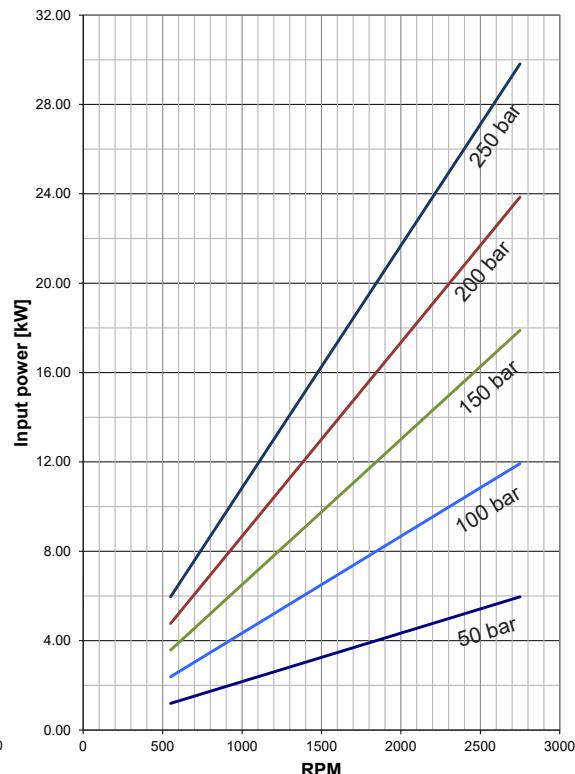
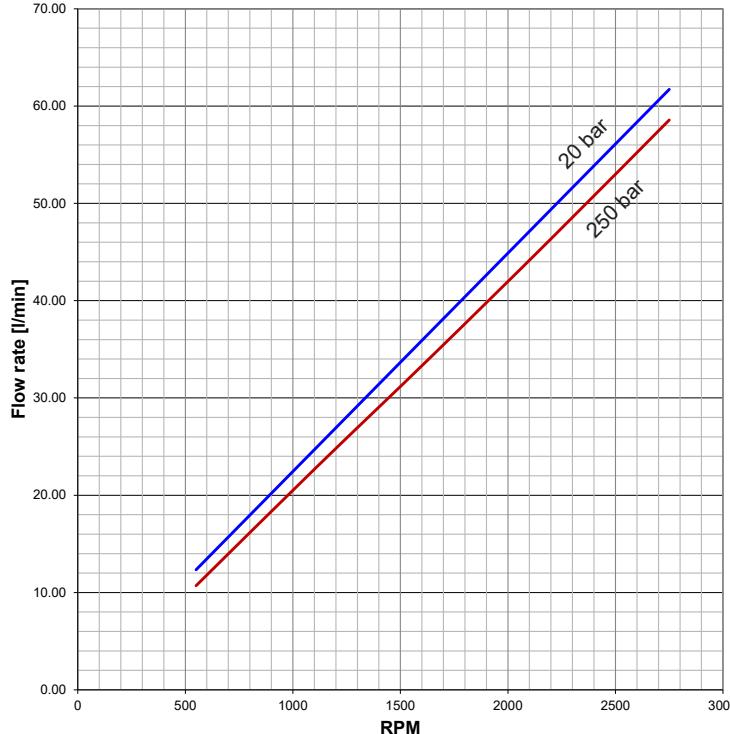
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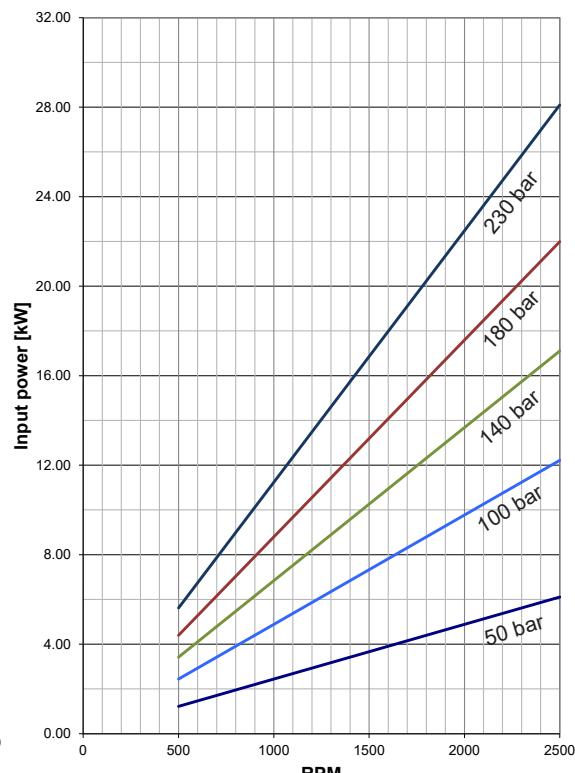
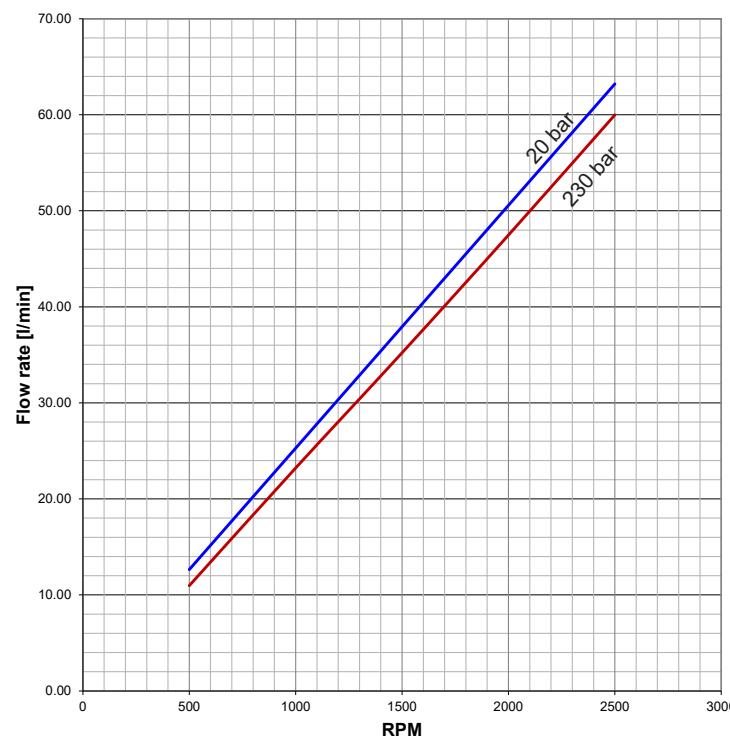


Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



2PGE - 22.5



2PGE - 26


Shaft and Flange Combinations

SHAFT	2PGE	CODE P1	CODE B1	CODE B2-B3	CODE B4-B5	CODE C1
		FLANGES				
	CODE 03			03B2 03B3		
	CODE 04				04B4 04B5	
	CODE 25		25B1		25B4 25B5	
	CODE 28	28P1				
	CODE 62	62P1	62B1		62B4 62B5	62C1
	CODE 82	82P1				

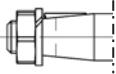
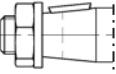
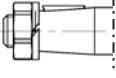
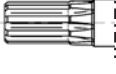
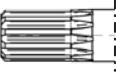
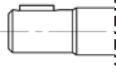
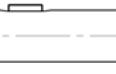
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Shaft and Flange Combinations					
2PGE					
		CODE S2	CODE S3	CODE S6	CODE T1
	FLANGES				
SHAFT	 CODE 52	52S2		52S6	
	 CODE 54	54S2		54S6	
	 CODE 55		55S3		
	 CODE 82	82S2		82S6	
	 CODE 85	85S2		85S6	
	 CODE 67				67Z2
CONTINENTAL SHAFT	 CODE 73				73T1

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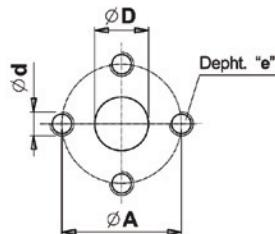

Continental Shaft and Flange With Outrigger Bearing Combinations

2PGE							
	CODE CL	CODE CF	CODE CS	CODE CB	CODE CP	CODE CSB	CODE Z1
	FLANGES WITH OUTRIGGER BEARING						
 CODE 25	25CL	25CF		25CB			
 CODE 26	26CL			26CB			
 CODE 28					28CP		
 CODE 52			52CS				
 CODE 54			54CS				
 CODE 82			82CS				
 CODE 85			85CS				
 CODE 87						87CSB	
 CODE 66							66Z1

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Flanged Ports



code P

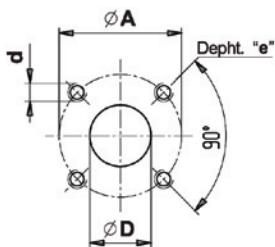
Flanged ports
european standard



M6	8 Nm (5.9 lbf-ft)
M8	20 Nm (14.7 lbf-ft)

UNI-DIRECTIONAL								
PUMPS	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
From 6.5 to 8.3	13 (0.51")	30 (1.18")	M6	13 (0.51")	13 (0.51")	30 (1.18")	M6	13 (0.51")
From 11.3 to 22.5	20 (0.79")	40 (1.57")	M8	13 (0.51")	13 (0.51")	30 (1.18")	M6	13 (0.51")
	22 (0.87")							

BI-DIRECTIONAL								
PUMPS	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
From 6.5 to 8.3	13 (0.51")	30 (1.18")	M6	13 (0.51")	13 (0.51")	30 (1.18")	M6	13 (0.51")
From 11.3 to 26	20 (0.79")	40 (1.57")	M8	13 (0.51")	20 (0.79")	40 (1.57")	M8	13 (0.51")



code B

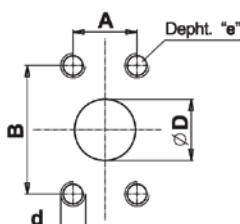
Flanged ports
german standard



M6	8 Nm (5.9 lbf-ft)
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UNI-DIRECTIONAL								
PUMPS	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
From 6.5 to 22.5	20 (0.79")	40 (1.57")	M6	13 (0.51")	15 (0.59")	35 (1.38")	M6	13 (0.51")
	22 (0.87")							

BI-DIRECTIONAL								
PUMPS	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
From 6.5 to 8.3	15 (0.59")	35 (1.38")	M6	13 (0.51")	15 (0.59")	35 (1.38")	M6	13 (0.51")
From 11.3 to 26	20 (0.79")	40 (1.57")	M6	13 (0.51")	20 (0.79")	40 (1.57")	M6	13 (0.51")



code W

Flanged ports
SAE J518 - METRIC THREAD



M8	20 Nm (14.7 lbf-ft)
M10	35 Nm (25.8 lbf-ft)

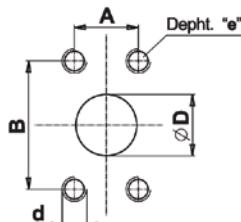
UNI-DIRECTIONAL										
PUMPS	INLET				OUTLET					
	ØD	B	A	d	e	ØD	B	A	d	e
From 16 to 19	19 (0.75")	47.6 (1.87")	22.2 (0.87")	M10	15 (0.59")	12.7 (0.50")	38.1 (1.50")	17.5 (0.69")	M8	15 (0.59")
From 22.5 to 26	25.4 (1.00")	52.4 (2.06")	26.2 (1.03")	M10	15 (0.59")	19 (0.75")	47.6 (1.87")	22.2 (0.87")	M10	15 (0.59")

BI-DIRECTIONAL										
PUMPS	INLET				OUTLET					
	ØD	B	A	d	e	ØD	B	A	d	e
From 16 to 26	19 (0.75")	47.6 (1.87")	22.2 (0.87")	M10	15 (0.59")	19 (0.75")	47.6 (1.87")	22.2 (0.87")	M10	15 (0.59")



2PGE

Flanged Ports


code S

 Flanged ports
 SAE J518

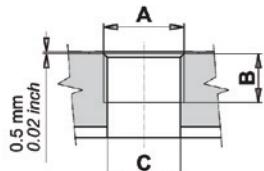
AMERICAN STANDARD THREAD

5/16-18 UNC	20 Nm (14.7 lbf-ft)
3/8-16 UNC	30 Nm (22.1 lbf-ft)

PUMPS	UNI-DIRECTIONAL									
	INLET		OUTLET							
ØD	B	A	d	e	ØD	B	A	d	e	
From 16 to 19	19 (0.75")	47.6 (1.87")	22.2 (0.87")	3/8-16 UNC	15 (0.59")	12.7 (0.50")	38.1 (1.50")	17.5 (0.69")	5/16-18 UNC	15 (0.59")
From 22.5 to 26	25.4 (1.00")	52.4 (2.06")	26.2 (1.03")	3/8-16 UNC	15 (0.59")	19 (0.75")	47.6 (1.87")	22.2 (0.87")	3/8-16 UNC	15 (0.59")

PUMPS	BI-DIRECTIONAL									
	INLET		OUTLET							
ØD	B	A	d	e	ØD	B	A	d	e	
From 16 to 26	19 (0.75")	47.6 (1.87")	22.2 (0.87")	3/8-16 UNC	15 (0.59")	19 (0.75")	47.6 (1.87")	22.2 (0.87")	3/8-16 UNC	15 (0.59")

Threaded Ports


code G

 Threaded ports
 GAS (BSP)

G1/2	60 Nm (44.3 lbf-ft)
G3/4	90 Nm (66.4 lbf-ft)
G1	130 Nm (95.8 lbf-ft)

PUMPS	UNI-DIRECTIONAL		
	A	B	C
	A	B	C
From 6.5 to 19	G 3/4	17 (0.67")	18 (0.71")
From 22.5 to 26	G1	20 (0.79")	25 (0.98")

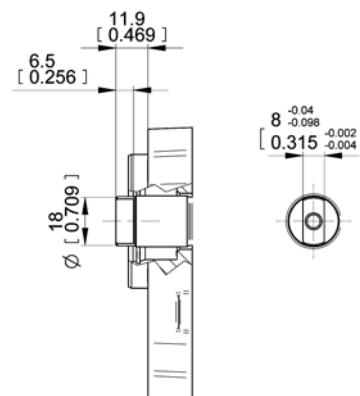
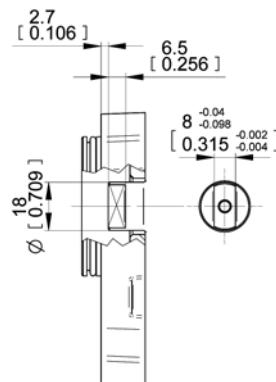
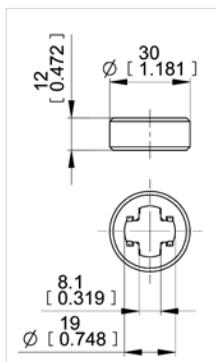
PUMPS	BI-DIRECTIONAL		
	A	B	C
	A	B	C
From 6.5 to 8.3	G 1/2	15 (0.59")	13 (0.79")
From 11.3 to 26	G 3/4	17 (0.67")	18 (0.71")

PUMPS	UNI-DIRECTIONAL				
	A	B	C	Y	K
	A	B	C	Y	K
From 6.5 to 19	1-1/16-12 UN (SAE 12)	19 (0.75")	18 (0.71")	41 (1.61")	3.3 (0.13")
From 22.5 to 26	1-5/16-12 UN (SAE 16)	19 (0.75")	25 (0.98")	49 (1.93")	3.3 (0.13")

PUMPS	BI-DIRECTIONAL				
	A	B	C	Y	K
	A	B	C	Y	K
From 6.5 to 8.3	7/8-14 UNF (SAE 10)	17 (0.67")	13 (0.79")	34 (1.32")	2.5 (0.10")
From 11.3 to 26	1-1/16-12 UN (SAE 12)	19 (0.75")	20 (0.79")	41 (1.61")	3.3 (0.13")



Drive Shaft



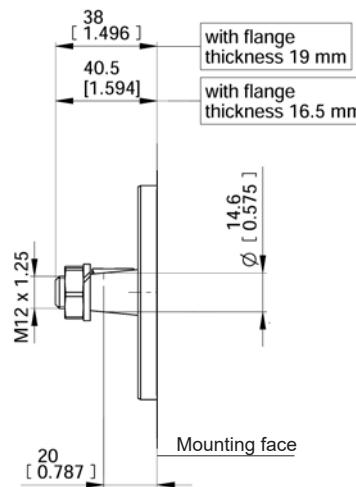
code 03	Max torque 70 Nm (620 lbf in)
----------------	-------------------------------

TANG DRIVE FOR ELECTRIC MOTORS (without shaft seal)

- Woodruff Key
3x6.5-UNI 6606
- 3x5 (for bearing version CL-CF-CB)
- Washer
M12 TE-UNI 1751B

- Nut
M12x1.25-UNI 5589
- 40 Nm-29.7 lbf-ft

Part Number
Kit Woodruff Key+Nut+Washer
R12280180
R12283030 (1) (bearing version)



- Woodruff Key
3,165x6,2

- Washer
M12 TE-UNI 1751B

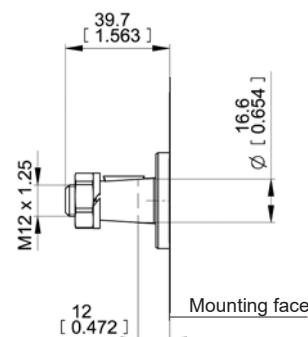
- Nut
M12x1.25-UNI 5589
- 40 Nm-29.7 lbf-ft

Part Number
Kit Woodruff Key+Nut+Washer

R12280170

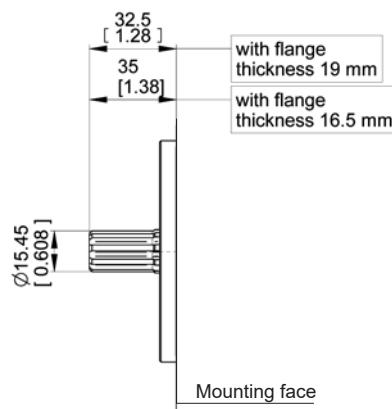
code 04	Max torque 70 Nm (620 lbf in)
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TANG DRIVE



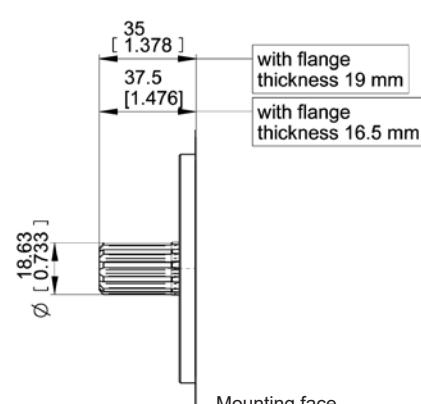
code 25	Max torque 130 Nm (1151 lbf in)
----------------	---------------------------------

TAPERED 1:5



code 28	Max torque 130 Nm (1151 lbf in)
----------------	---------------------------------

TAPERED 1:8



code 52	Max torque 110 Nm (974 lbt in)
----------------	--------------------------------

SAE A 9T-16/32DP SPLINED

code 54	Max torque 160 Nm (1416 lbt in)
----------------	---------------------------------

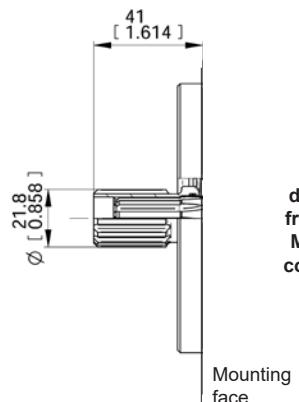
SAE A 11T-16/32DP SPLINED



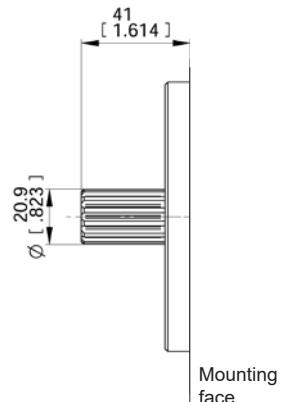
2PGE

Drive Shaft

Part Number
Coupling Sleeve+O ring
R12040210



i
for
displacements
from 6.5 to 13.8
Mounting with
coupling sleeve



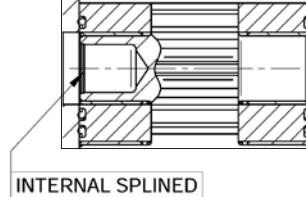
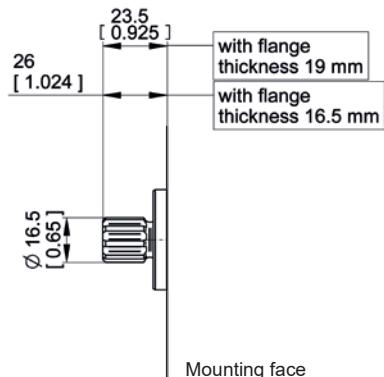
i
for
displacements
from 16 to 26
Mounting with
solid shaft.

code 55

Max torque 100 Nm (885 lbt in)

Max torque 200 Nm (1770 lbt in)

SAE B 13T-16/32DP SPLINED



INTERNAL SPLINED

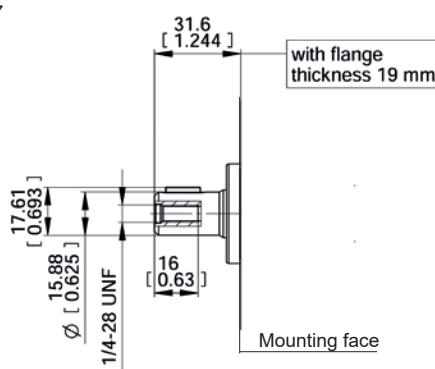
code 62

Max torque 140 Nm (1239 lbt in)

9 TEETH DIN 5482 SPLINED

 Key
3.97x3.97x12.7

Part Number
Key
796620700



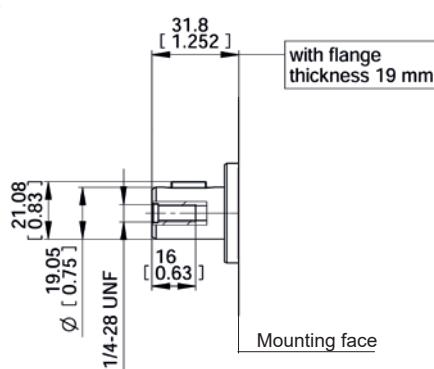
code 60

Max torque 100 Nm (885 lbt in)

DIN 5480 INTERNAL SPLINED (ONLY FOR REAR PUMPS)

 Key
4.76x4.76x12.7

Part Number
Key
796621000



code 82

Max torque 75 Nm (664 lbt in)

5/8" SAE A PARALLEL

code 85

Max torque 110 Nm (974 lbt in)

3/4" SAE A PARALLEL



GEAR PUMPS "GE" SERIES

Cast Iron Gear Housing

1800-OILSOL
1800-645765

<https://oilsolutions.com.au/>

sales@oilsolutions.com.au

2PGE

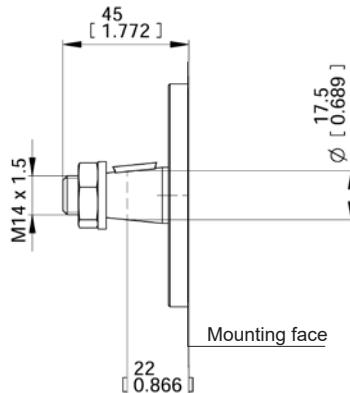
Continental Shaft

Woodruff Key
4x6,5 UNI 6606

Washer
M14 UNI 1751

Nut
M14x1,5 ISO 8675
C 40 Nm-29.7 lbf-ft

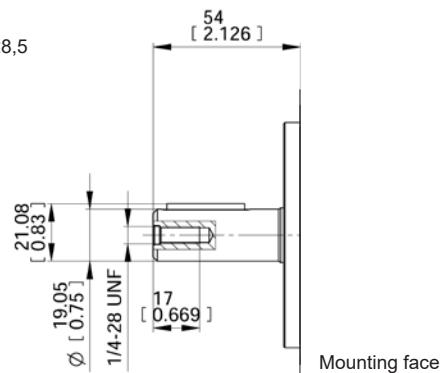
Part Number
Kit Woodruff Key+Nut+Washer
R12240080



Key
4,76x4,76x28,5

Part Number
Key

796622800



code 26

Max torque 100 Nm (885 lbt in)

TAPERED 1:5 (ONLY FOR CB, CL)

code 86

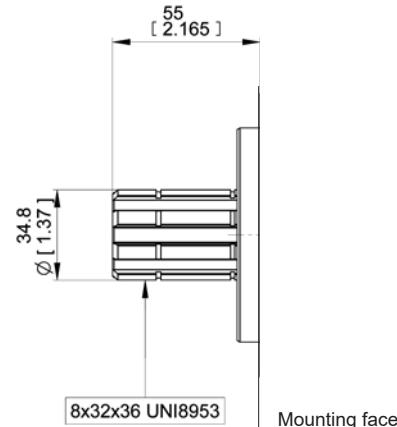
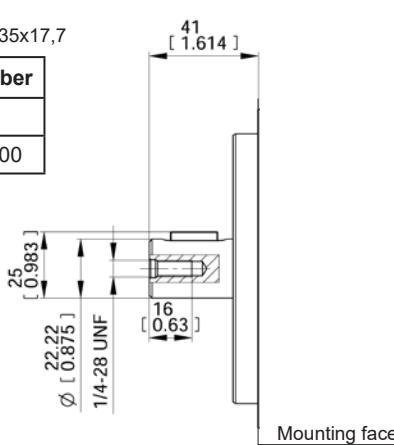
Max torque 100 Nm (885 lbt in)

3/4" SAE A PARALLEL

Key
6,35x6,35x17,7

Part Number
Key

796620800



code 87

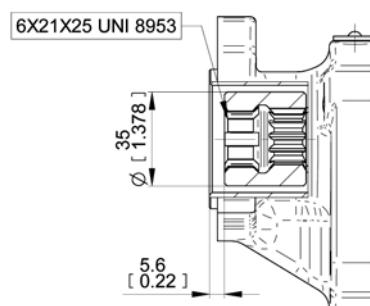
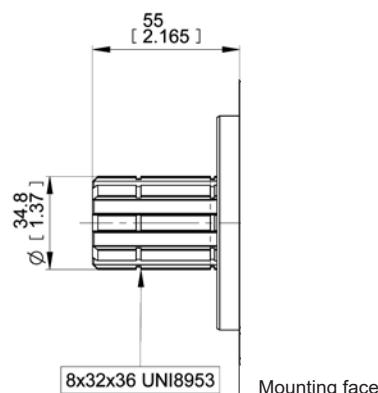
Max torque 200 Nm (1770 lbt in)

7/8" SAE B PARALLEL

code 66

Max torque 200 Nm (1770 lbt in)

8X32X36 UNI 8953 SPLINED



code 67

Max torque 200 Nm (1770 lbt in)

8X32X36 UNI 8953 SPLINED

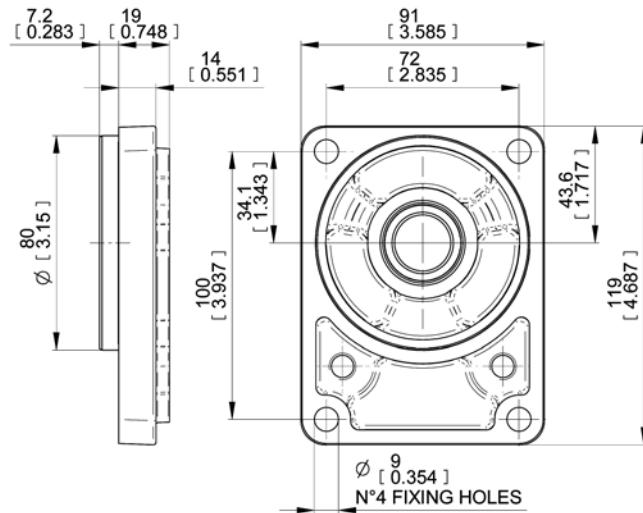
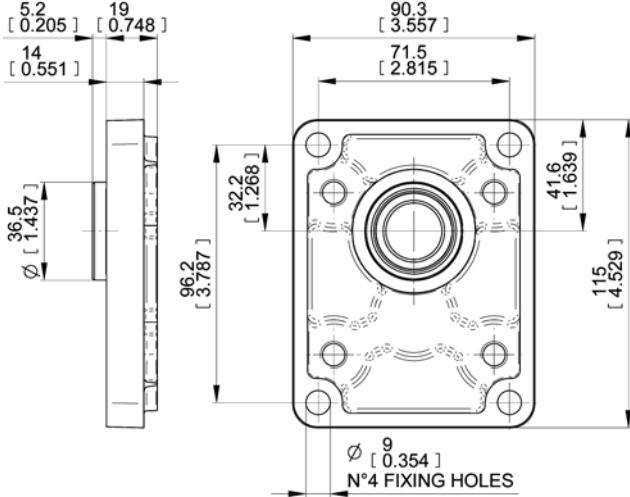
code 73

Max torque 200 Nm (1770 lbt in)

6X21X25 UNI 8953 INTERNAL SPLINED



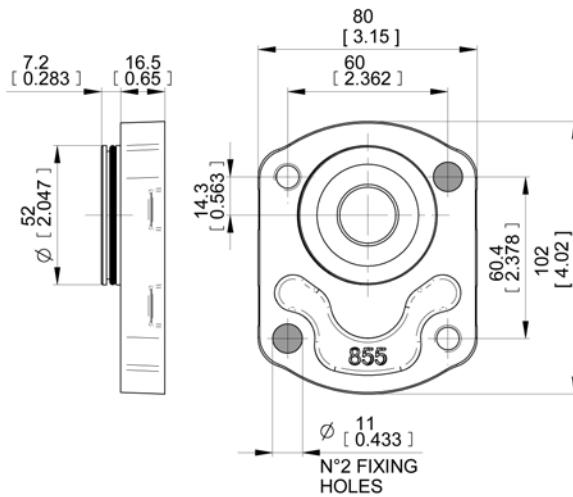
Mounting Flanges



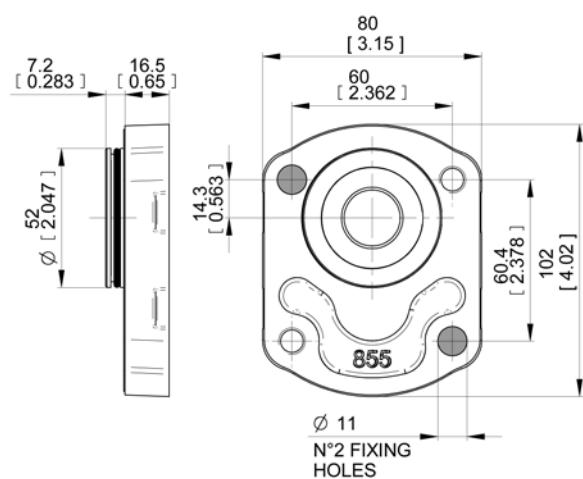
Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 43-44)
28P1	R12240012 (NBR)	R12240010 (NBR)
62P1	R12240420 (FPM)	R12240021 (FPM)
82P1		

Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 43-44)
25B1	R12240610 (NBR)	R12240010 (NBR)
62B1	R12240611 (FPM)	R12240021 (FPM)

code P1	With shaft code 28-62-82
EUROPEAN STANDARD	



code B1	With shaft code 25-62
GERMAN STANDARD	



Code	Part Number (Unidirectional Pump)	
	Flange+O-ring	O-ring (OR3187-AT 47,29x2,62-NBR)
03B2	R12240050	799113400

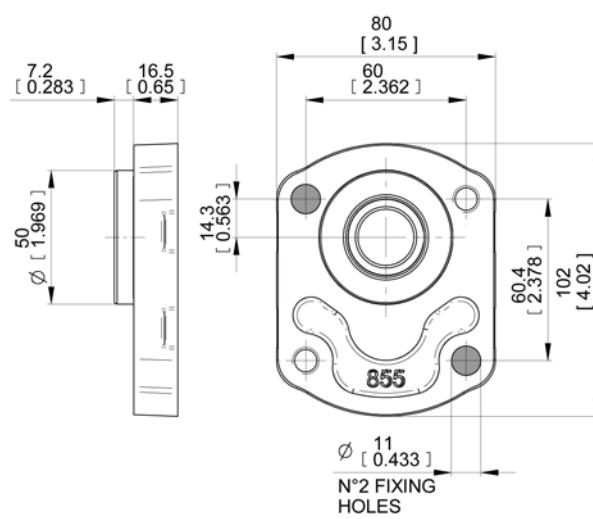
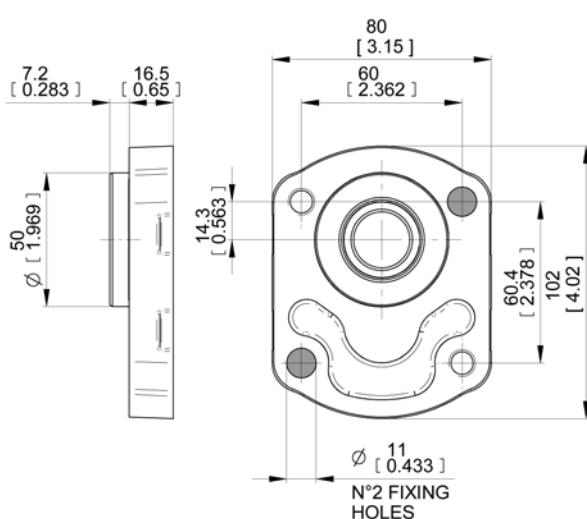
Code	Part Number (Unidirectional Pump)	
	Flange+O-ring	O-ring (OR3187-AT 47,29x2,62-NBR)
03B3	R12240050	799113400

code B2	With shaft code 03
GERMAN STANDARD	

code B3	With shaft code 03
GERMAN STANDARD	



Mounting Flanges

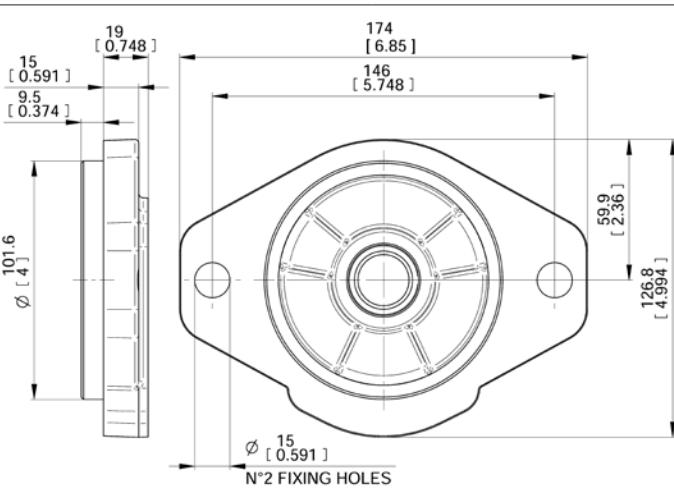
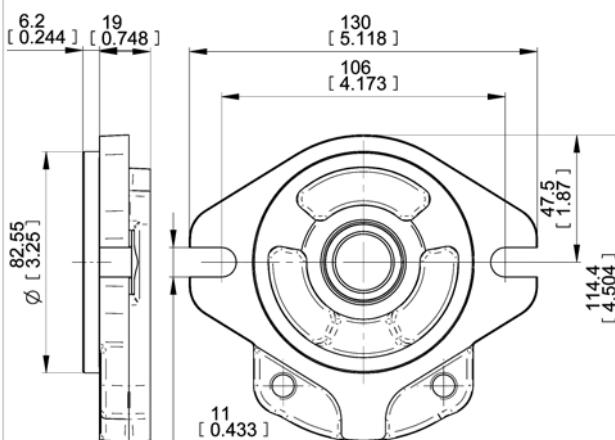


Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit (See page 43-44)	Shaft seal kit
04B4	R12240136 (NBR) R12240137 (FPM)	R12240110 (NBR) R12240115 (FPM)
25B4	R12240100 (NBR)	R12240010 (NBR)
62B4	R12240102 (FPM)	R12240021 (FPM)

Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit (See page 43-44)	Shaft seal kit
04B5	R12240134 (NBR) R12240138 (FPM)	R12240110 (NBR) R12240115 (FPM)
25B5	R12240130 (NBR)	R12240010 (NBR)
62B5	R12240133 (FPM)	R12240021 (FPM)

B4 With shaft code 04-25-62

GERMAN STANDARD



Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 43-44)
52S2	R14640100 (NBR) R14640101 (FPM)	R12240010 (NBR) R12240021 (FPM)
82S2	R14640110 (NBR) R14640111 (FPM)	R12240110 (NBR) R12240115 (FPM)
54S2	R14640050 (NBR) R14640060 (FPM)	R14640010 (NBR) R14640011 (FPM)
85S2	R14640050 (NBR) R14640060 (FPM)	R14640010 (NBR) R14640011 (FPM)

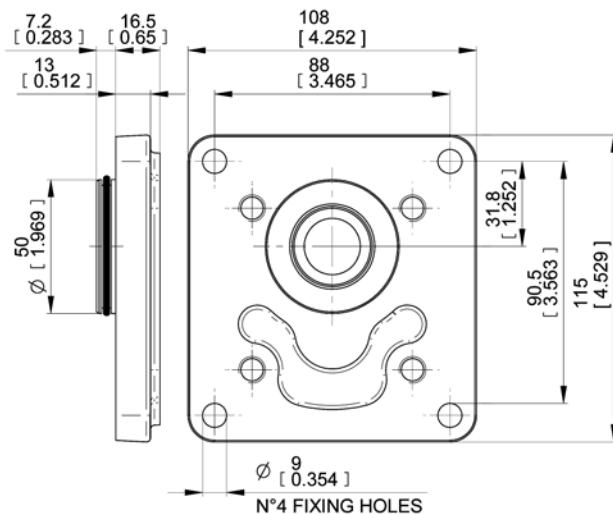
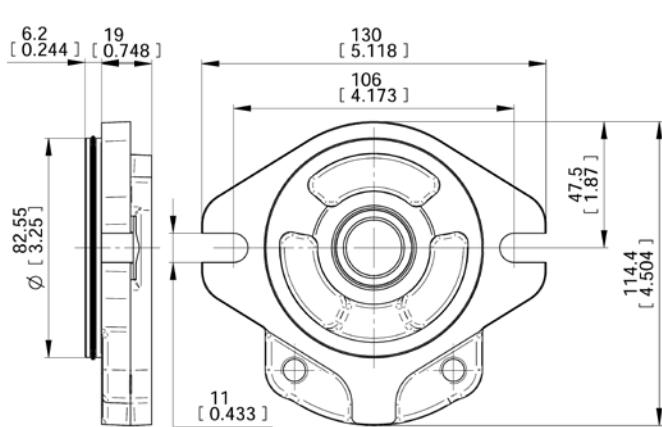
Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 43-44)
55S3 from cy 6.5 to 13.8	R12040310 (NBR) R12040311 (FPM)	R12240010 (NBR) R12240021 (FPM)
55S3 from cy 16 to 26	R14640050 (NBR) R14640060 (FPM)	R14640010 (NBR) R14640011 (FPM)

S2 With shaft code 52-54-82-85
SAE A 2 BOLTS

S3 With shaft code 55
SAE B 2 BOLTS



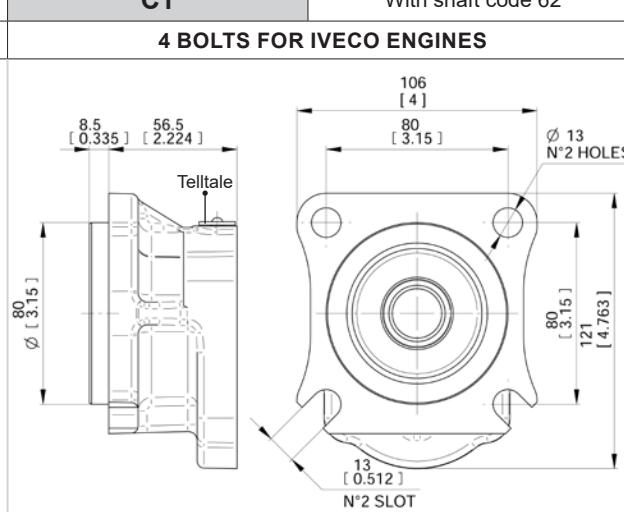
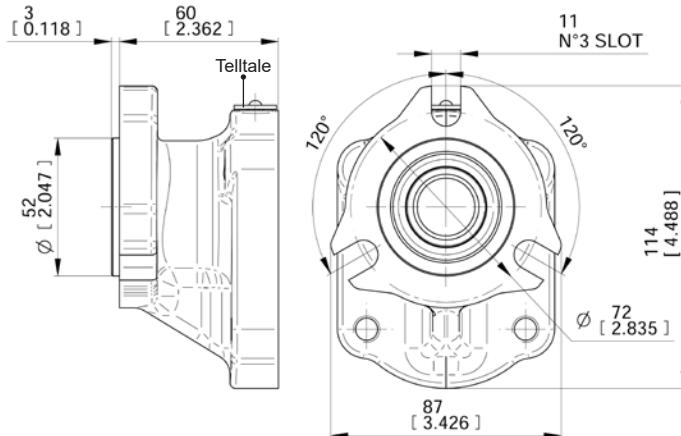
Mounting Flanges



Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 43-44)
52S6	R14640020 (NBR)	R12240010 (NBR)
82S6	R14640021 (FPM)	R12240021 (FPM)
54S6	R14640022 (NBR)	R12240110 (NBR)
85S6	R14640023 (FPM)	R12240115 (FPM)

Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 43-44)
62C1	R12040300 (NBR) R12040301 (FPM)	R12240010 (NBR) R12240021 (FPM)

S6	With shaft code 52-54-82-85
SAE A 2 BOLTS (with O-ring on the centering collar)	



TellTale
drop in plug in case of failure,
outside leakage through the
crossing hole is visible.

EO.146.0921.14.00IM01

Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 43-44)
73T1	R14620030 (NBR) R14620031 (FPM)	R14640010 (NBR) R14640011 (FPM)

Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 43-44)
67Z2	R14620011 (NBR) R14620012 (FPM)	R14640010 (NBR) R14640011 (FPM)

T1	With shaft code 73
3 BOLTS UNI 8953 FOR GEAR BOX	

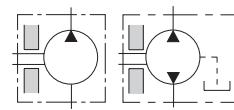
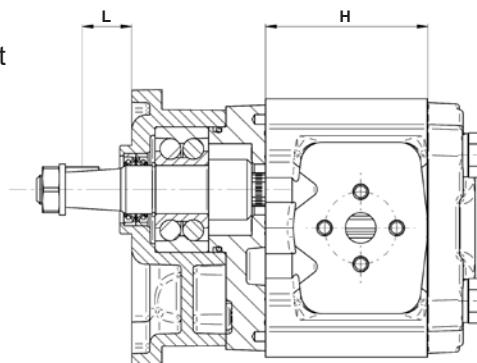
Z2	With shaft code 67
4 BOLTS FOR ZF GEAR BOX	



Mounting Flanges with Outrigger Bearing

The following diagrams show radial load capacity of the bearing.
 Calculation according to ISO 281 at 10 cSt

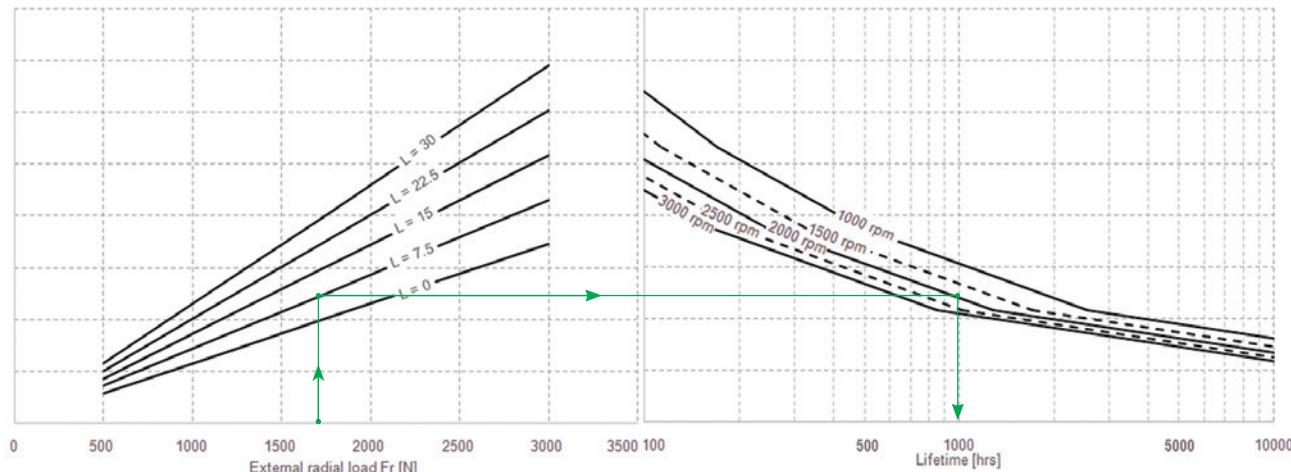
L=Distance between mounting flange and radial force point of application [mm-inches]



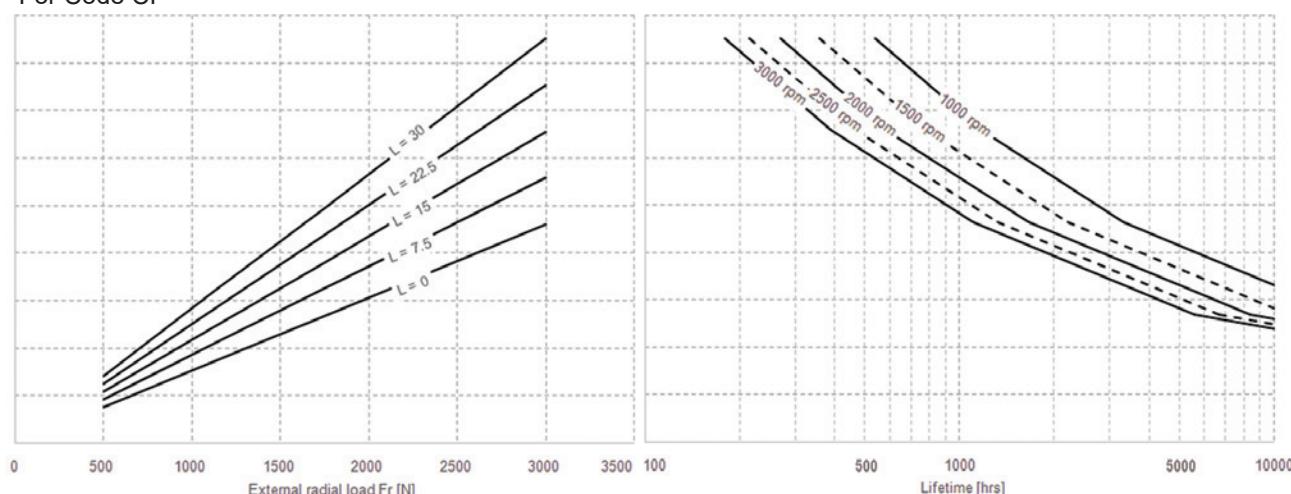
Example:
 Fr = 1700 N → Expected life: 1000 hrs
 L = 7.5
 Speed = 2000 rpm

TYPE	H
6.5	49.95 (1.97")
8.3	52.8 (2.08")
11.3	59.7 (2.35")
13.8	63.5 (2.5")
16	67.5 (2.66")
19	75.6 (2.97")
22.5	81 (3.19")
26	86.6 (3.42")

For Code CP-CB-CL-CS



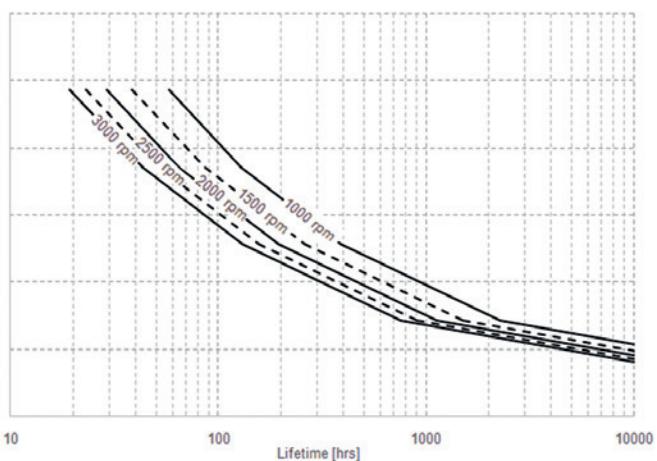
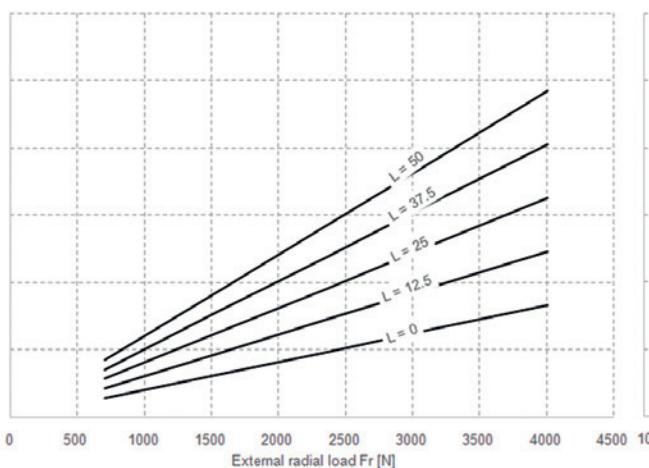
For Code CF



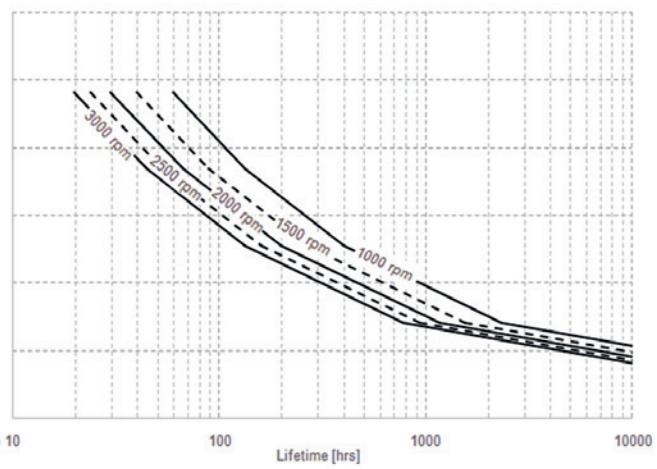
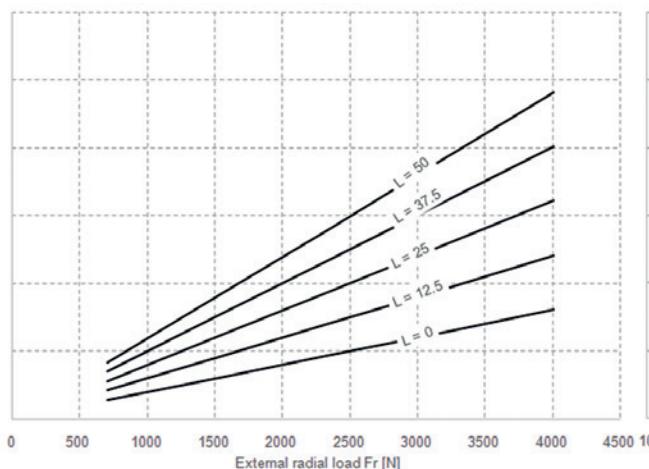


Mounting Flanges with Outrigger Bearing

For Code Z1

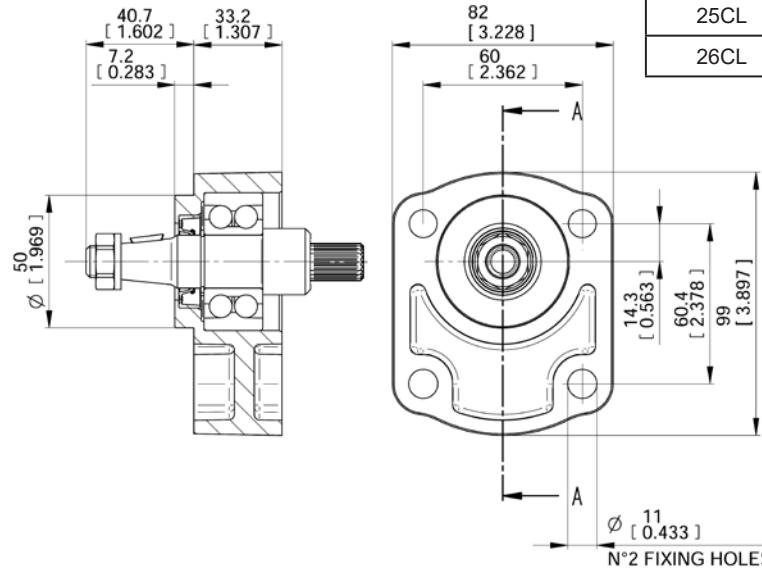


For Code CSB





Aluminium Mounting Flanges with Outrigger Bearing

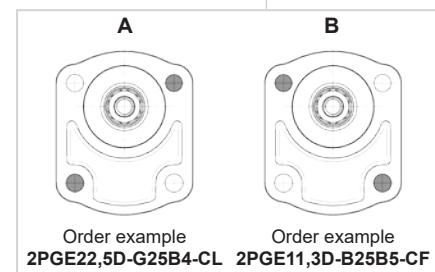
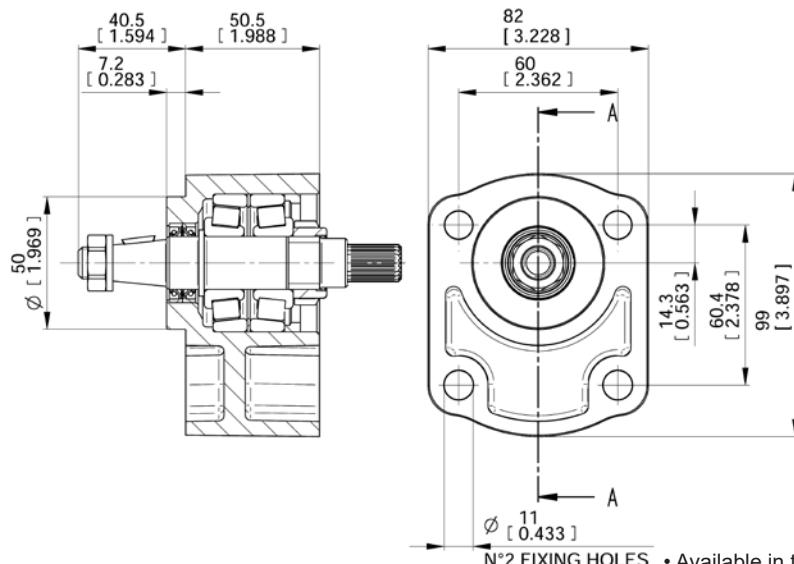


Code	Part Number	
	Flange+Bearing support	Kit Woodruff Key+Nut+Washer
25CL	R12040090	R12283030
26CL	R12040060	R12240080

• Available in two positions: A - B

Mounting with shaft code 25

CL	With shaft code 25-26 - Max torque 100 Nm (885 lbt in)
FOR INTERNAL COMBUSTION ENGINES	



Order example 2PGE22,5D-G25B4-CL Order example 2PGE11,3D-B25B5-CF

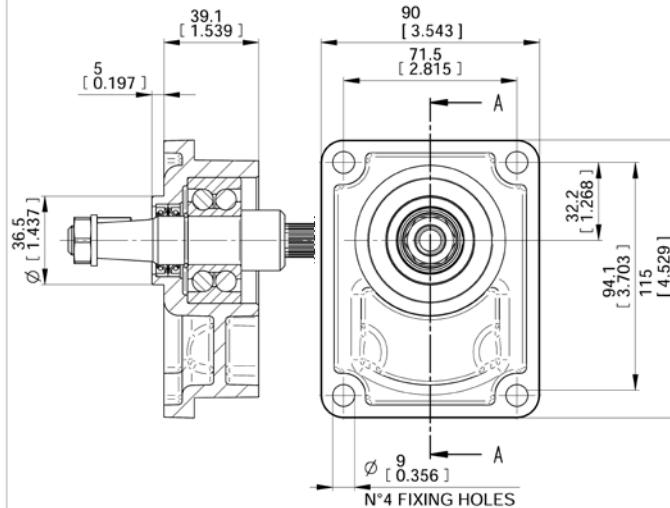
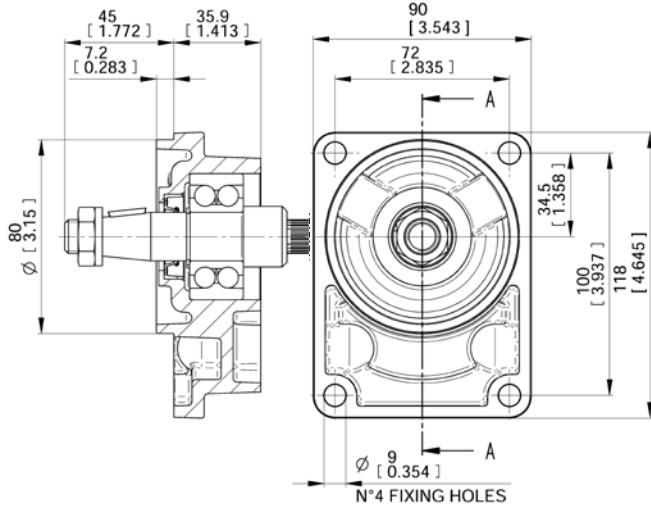
E0.146.0921.14.00M01

Code	Part Number	
	Flange+Bearing support	Kit Woodruff Key+Nut+Washer
25CF	R12040101	R12283030

	CF	With shaft code 25 - Max torque 100 Nm (885 lbt in)
FOR INTERNAL COMBUSTION ENGINES WITH AXIAL AND RADIAL LOADS		



Aluminium Mounting Flanges with Outrigger Bearing



Mounting with shaft code 26

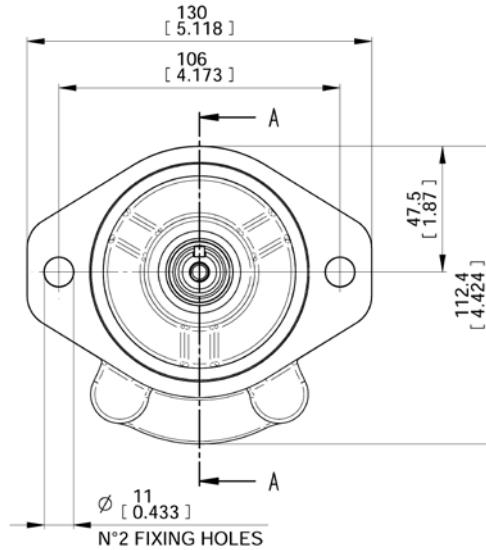
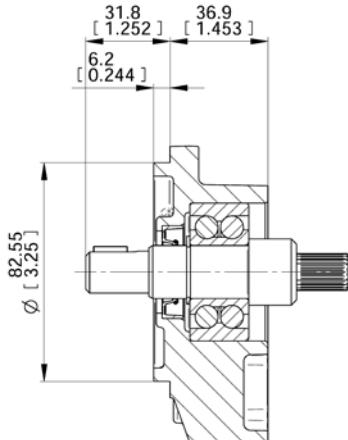
Code	Part Number	
	Flange+Bearing support	Kit Woodruff Key+Nut+Washer
25CB	R12040070	R12283030
26CB	R12040080	R12240080

Code	Part Number	
	Flange+Bearing support	Kit Woodruff Key+Nut+Washer
28CP	R12040010	R12240070

CB With shaft code 25-26
 Max torque 100 Nm (885 lbt in)

CP With shaft code 28
 Max torque 100 Nm (885 lbt in)

GERMAN STANDARD
EUROPEAN STANDARD

 Mounting with
shaft code 82


Code	Part Number	
	Flange+Bearing support	
52CS	R12040030	
54CS	R12040020	

Code	Part Number	
	Flange+Bearing support	Key
82CS	R12040040	796620700
85CS	R12040050	796621000
86CS	R12010430	796622800

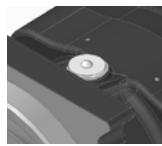
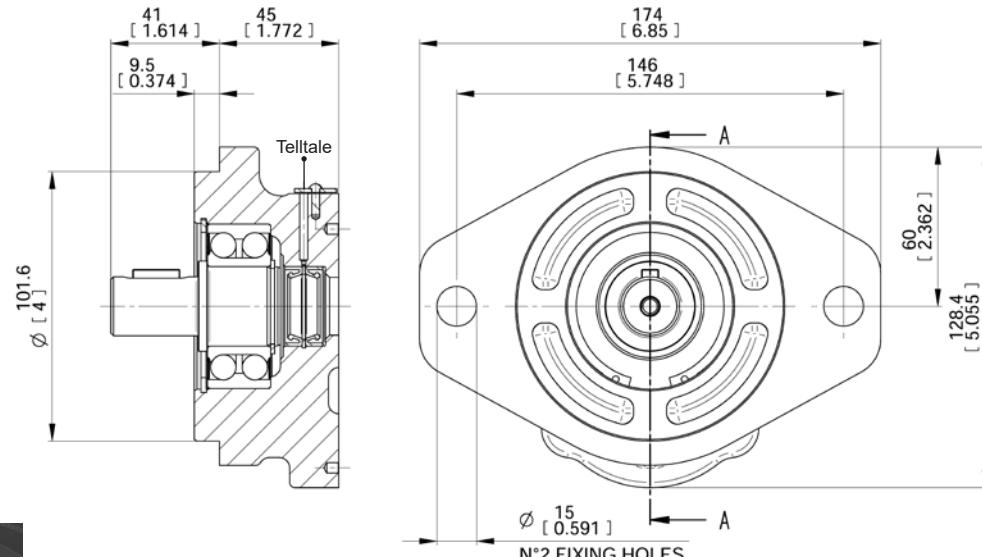
CS

With shaft code 52-54-82-85-86 - Max torque 100 Nm (885 lbt in)

SAE A



Cast Iron Mounting Flanges with Outrigger Bearing



(i)

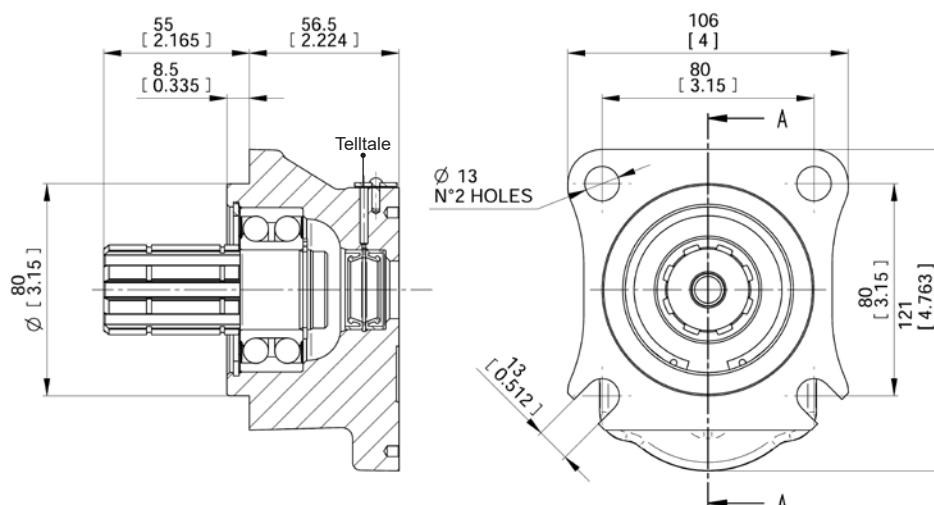
TellTale
drop in plug in case of failure,
outside leakage trough the
crossing hole is visible.

Code	Part Number	
	Flange+Bearing support	Key
87CSB	R14620020	796620800

CSB

With shaft code 87 - Max torque 200 Nm (1770 lbt in)

SAE B



(i)
Available only for
displacements
from 11.3 to 26

E0.146.0921.14.00M01

Code	Part Number	
	Flange+Bearing support	
66Z1	R14620010	

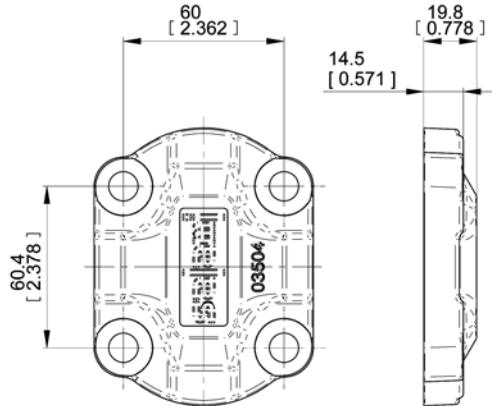
Z1

With shaft code 66 - Max torque 200 Nm (1770 lbt in)

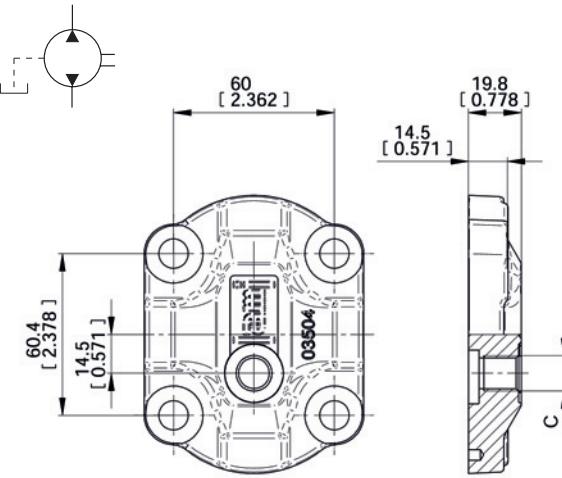
4 BOLTS FOR ZF GEAR BOX



Rear Covers



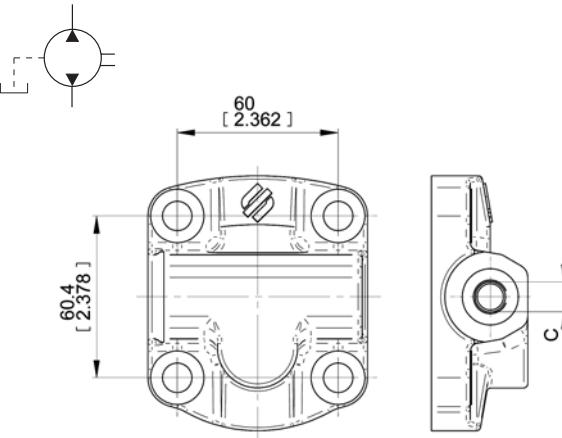
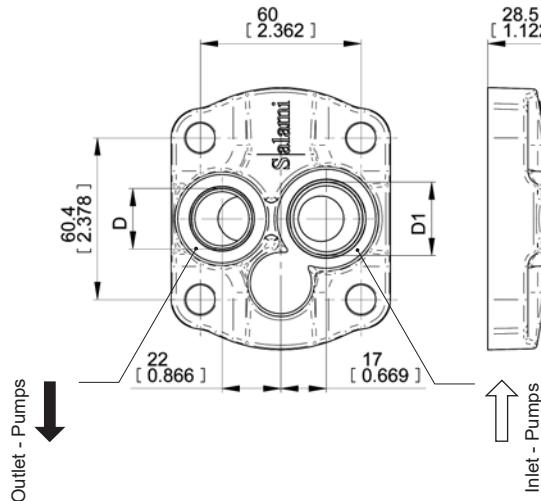
Code	Part Number
Standard Cover	312203529



Code	Part Number	Threaded Port
		C (Drain)
Cover with External Drain	312203552	7/16-20 UNF-2B SAE 4
	312203551	G 1/4

STANDARD REAR COVER
FOR UNIDIRECTIONAL PUMPS

REAR COVER WITH EXTERNAL DRAIN C
FOR BIDIRECTIONAL PUMPS



Code	Part Number	Threaded Ports	
		D (Outlet)	D1 (Inlet)
1 Cover with rear ports	312203535	7/8-14 UNF-2B SAE 10	1-1/16-12 UN-2B SAE 12
	312203543	G 1/2	G 3/4

On request outlet port only.

Code	Part Number	Threaded Port
		C (Drain)
LD Cover with External Drain	312203545	7/16-20 UNF-2B SAE 4
	312003509	G 1/4

1

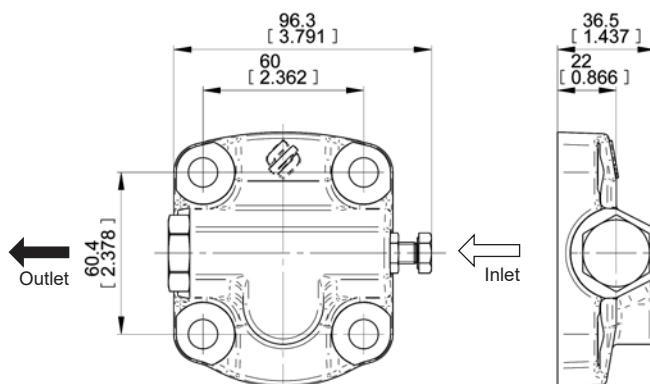
REAR COVER WITH REAR PORTS
FOR UNIDIRECTIONAL PUMPS

LD

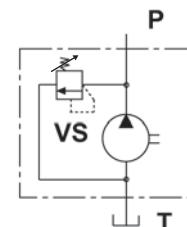
REAR COVER WITH LATERAL DRAIN
FOR BIDIRECTIONAL PUMPS



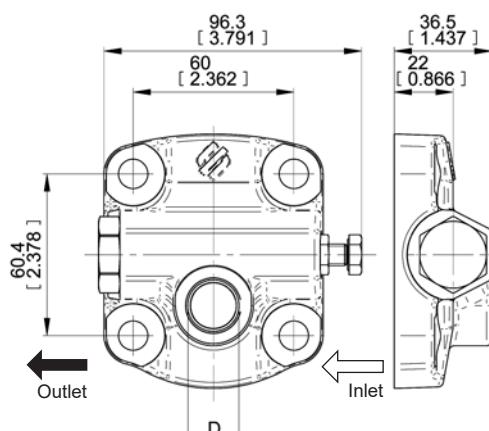
Rear Covers with Valves



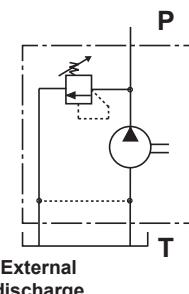
Code	Part Number	Pressure relief valve setting range
VS Internal Discharge	R12275013	15-30 bar
	R12275020	30-60 bar
	R12275040	61-120 bar
	R12275050	121-170 bar
	R12275060	171-250 bar



VS INTERNAL DISCHARGE



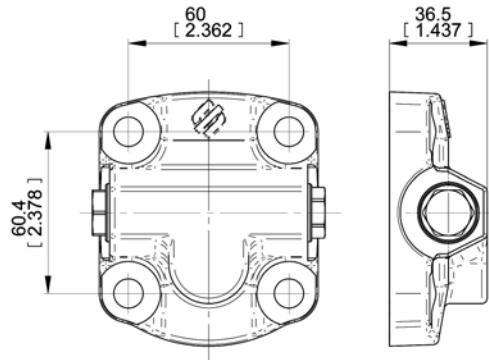
Code	Part Number	Pressure relief valve setting range	D (external discharge)
VSE External Discharge	R12275014	15-30 bar	SAE 8
	R12275021	30-60 bar	
	R12275041	61-120 bar	
	R12275051	121-170 bar	
	R12275061	171-250 bar	
VSE External Discharge	R12275015	15-30 bar	M18x1.5
	R12275022	30-60 bar	
	R12275042	61-120 bar	
	R12275052	121-170 bar	
	R12275062	171-250 bar	
VSE External Discharge	R12275016	15-30 bar	G 3/8
	R12275023	30-60 bar	
	R12275043	61-120 bar	
	R12275053	121-170 bar	
	R12275063	171-250 bar	



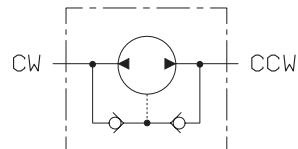
VSE EXTERNAL DISCHARGE



Rear Covers with Valves



Code	Part Number
IDV Internal drain	R12203501



IDV

INTERNAL DRAIN FOR BIDIRECTIONAL PUMPS



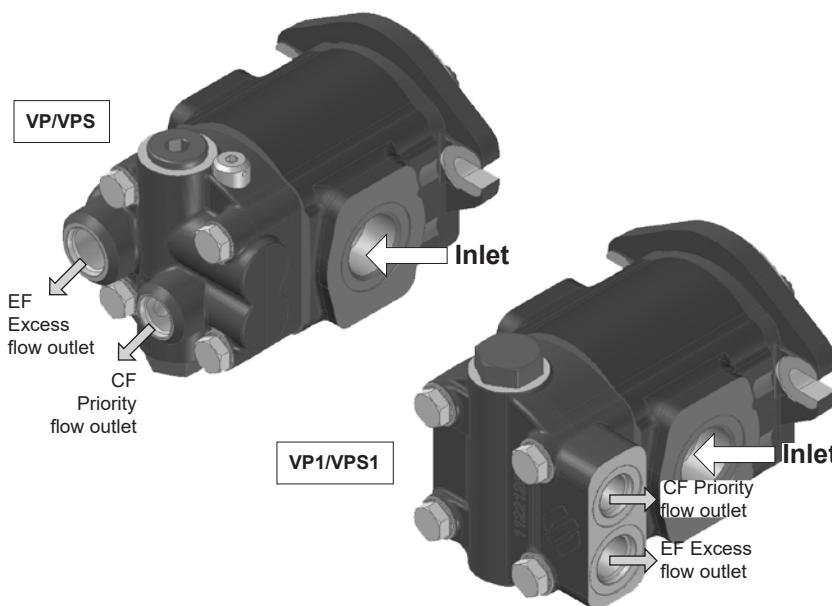
GEAR PUMPS "GE" SERIES

Cast Iron Gear Housing

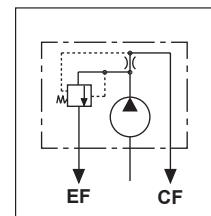
2PGE

Rear Covers with Valves

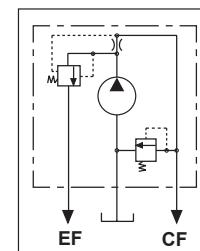
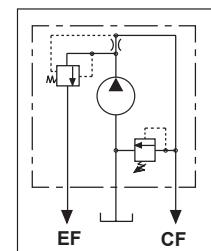
Pressure compensated priority flow valve to feed two pressurized circuit at the same time, priority flow CF remains constant regardless of pump speed and system pressure variations. Excess flow EF is directly proportional to pump speed. Priority flow is determined by diameter of calibrated orifice, see table at page 38). The max. pressure of the priority circuit can be limited by valve which relieves into pump suction line.



CF= Priority flow port
EF= Excess flow port

VP - VP1


Priority flow valve,
excess flow available
to second actuator.

VPS

VPS1


Priority flow valve, excess flow available to
second actuator with pressure relief valve on
priority flow line.

VP/VP1/VPS/VPS1

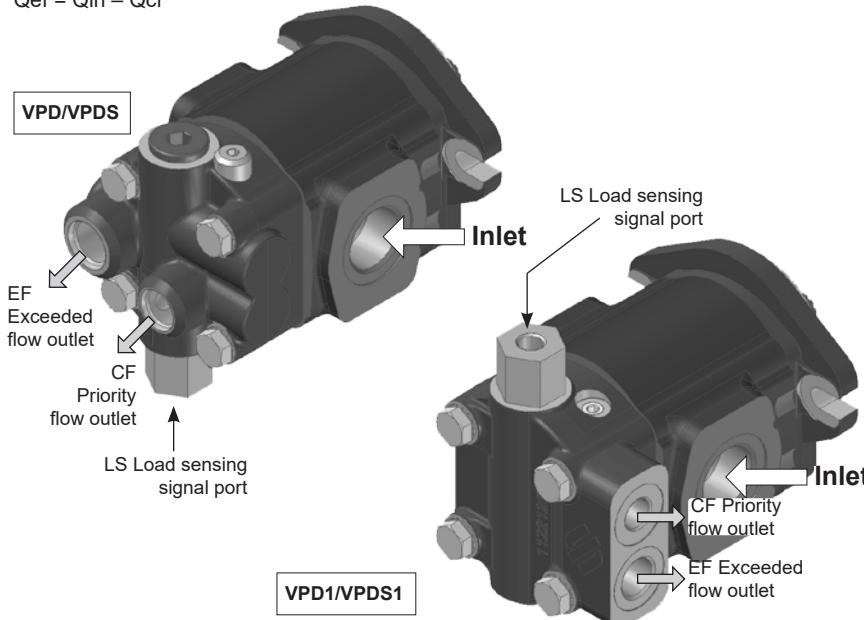
PRESSURE COMPENSATED PRIORITY FLOW VALVES

The load sensing priority valve is a control valve able to divide the flow generated by the pump, coming from the port P, in two different flows named Qcf and Qef. The Qcf flow follows the user request, the flow Qef changes according to the equation:
 $Qin = Qcf + Qef$

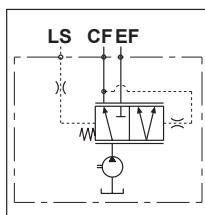
This valve is used in hydraulic steering systems, the CF port is connected to the inlet of power steering unit while the other functions (lifter etc...) are connected to the EF port. The load sensing LS signal of the valve is connected to the LS of powersteering unit.

The regulated flow Qcf depends on the steering speed, the remaining flow Qef is available for the other functions and complies with the equation:

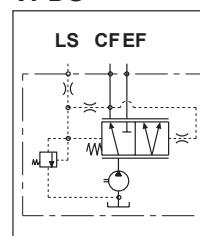
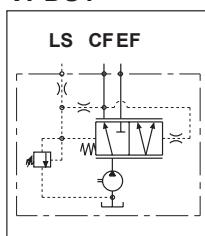
$$Qef = Qin - Qcf$$



CF= Priority flow port
EF= Excess flow port
LS= Load sensing
signal port

VPD - VPD1


Load sensing priority
valve with dynamic signal
without pressure relief
valve.

VPDS

VPDS1


Load sensing priority valve with dinamic
signal with pressure relief valve.

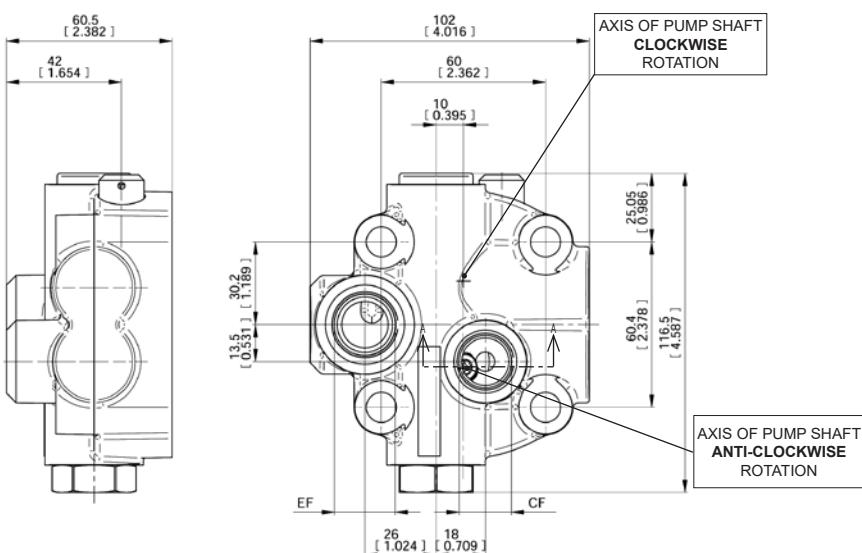
VPD/VPD1/VPDS/VPDS1

LOAD SENSING PRIORITY VALVES



Pressure Compensated Priority Flow Valve

Flow Rate Table					
		Calibrated Orifice ϕd		Flow Rate $\pm 10\%$	
mm	inch	l/min	gpm		
1.5	0.06	2.5	0.66		
2	0.08	4	1.06		
2.4	0.09	6	1.59		
2.8	0.11	8	2.11		
3.1	0.12	10	2.64		
3.5	0.14	12.5	3.30		
4	0.16	16	4.23		
4.4	0.17	20	5.28		
4.9	0.19	25	6.61		



Threaded Port	
CF= Priority flow port	EF= Excess flow port
G 3/8	G 1/2
SAE 6 9/16-18 UNF-2B	SAE 8 3/4 - 16 UNF - 2B

Code	Part Number
VP - VPS	Please contact our sales department
Pressure Relief Valve setting range	
	20-240 bar

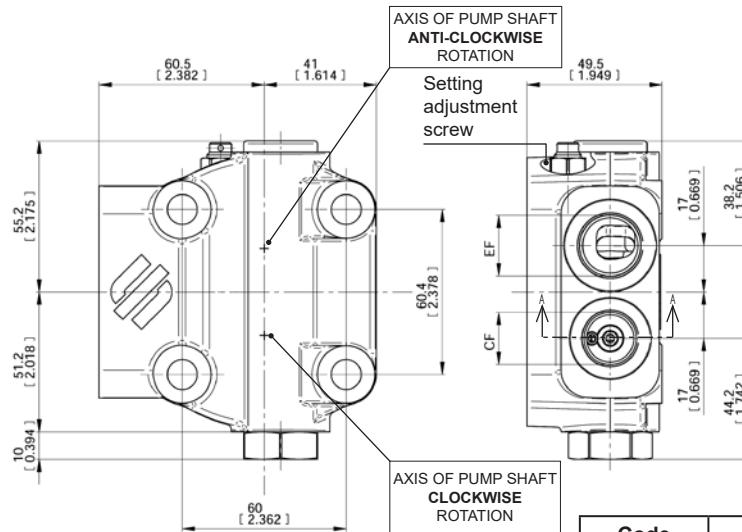
VP

Excess flow available to second actuator - REAR PORTS

VPS

 Excess flow available to second actuator with **fixed setting** pressure relief valve on priority flow line - REAR PORTS

Flow Rate Table					
		Calibrated Orifice ϕd		Flow Rate $\pm 10\%$	
mm	inch	l/min	gpm		
1.5	0.06	2.5	0.66		
2	0.08	4	1.06		
2.4	0.09	6	1.59		
2.8	0.11	8	2.11		
3.1	0.12	10	2.64		
3.5	0.14	12.5	3.30		
4	0.16	16	4.23		
4.4	0.17	20	5.28		
4.9	0.19	25	6.61		



Threaded Port	
CF= Priority flow port	EF= Excess flow port
G 3/8	G 1/2

Code	Part Number
VP1 - VPS1	Please contact our sales department
Pressure Relief Valve setting range	
	30-110 bar
	110-380 bar

VP1

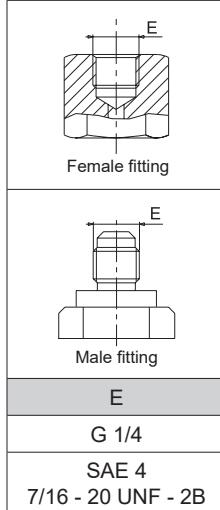
Excess flow available to second actuator - SIDE PORTS

VPS1

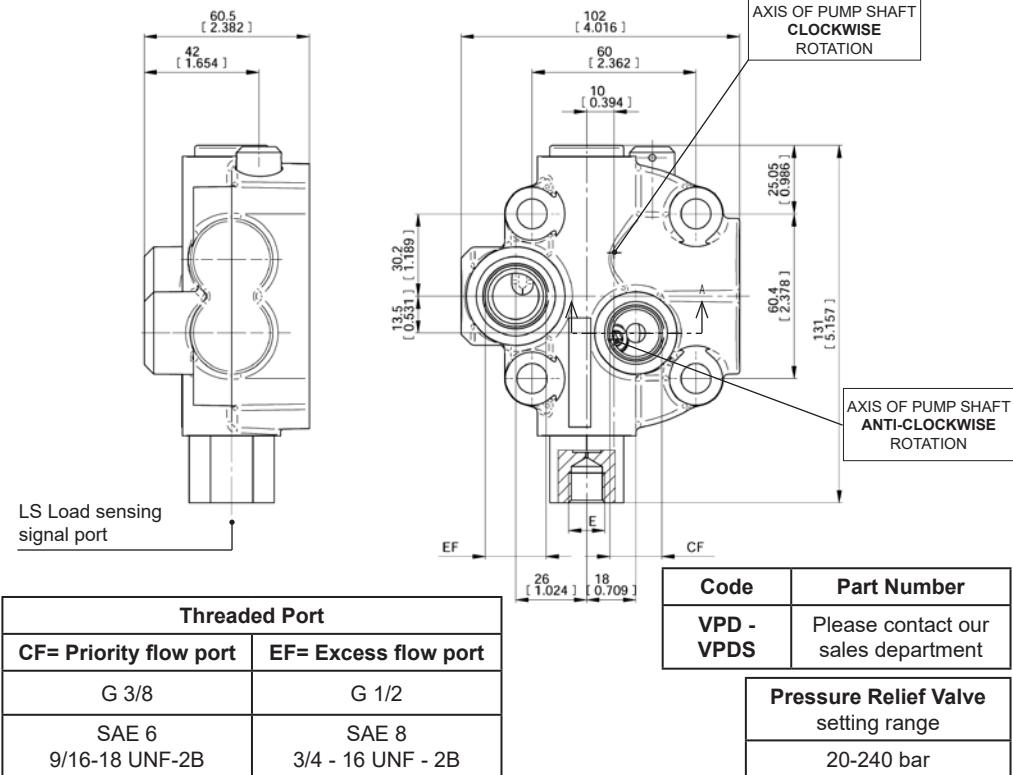
 Excess flow available to second actuator with **adjustable setting** pressure relief valve on priority flow line - SIDE PORTS



Load Sensing Priority Valve

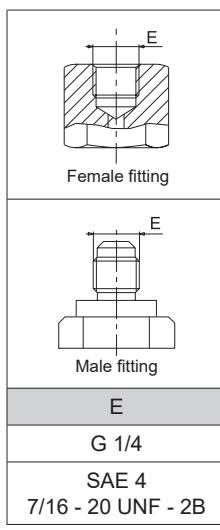


Minimum load sensing signal (LS) = 4 bar (28 psi)



VPD

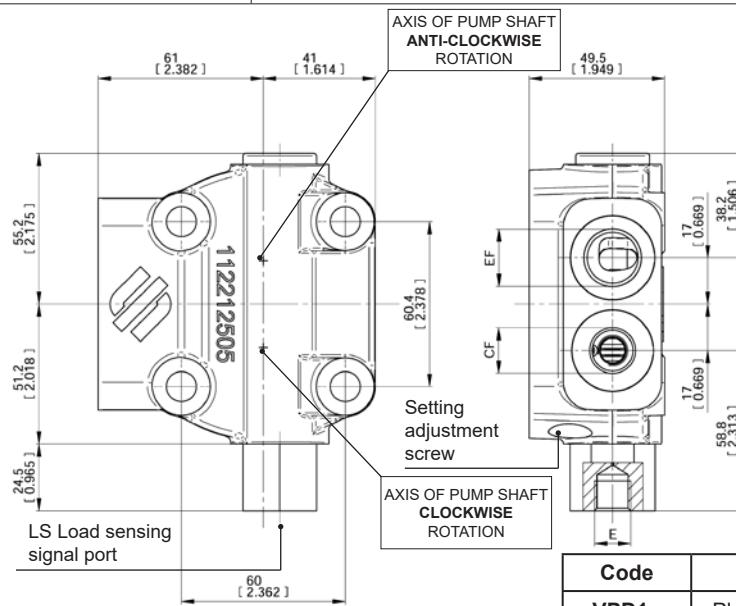
Dynamic signal without pressure relief valve
REAR PORTS



Minimum load sensing signal (LS) = 4 bar (28 psi)

VPDS

Dinamic signal with **fixed setting** pressure relief valve
REAR PORTS



VPD1

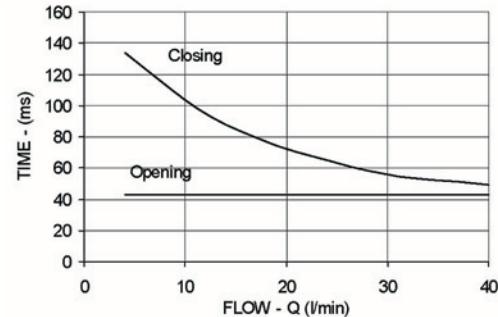
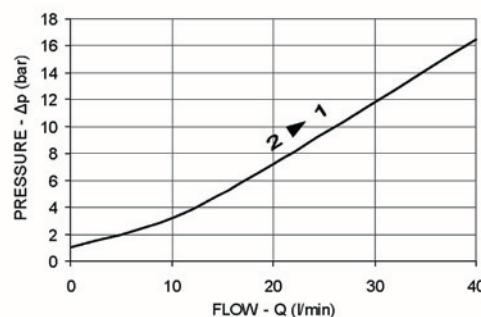
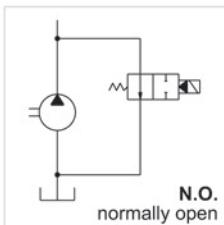
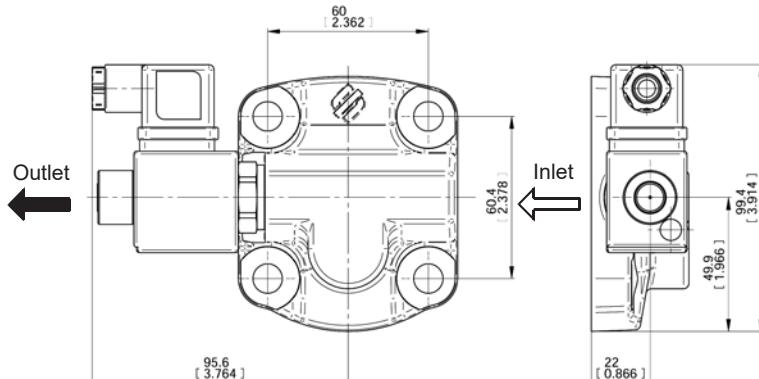
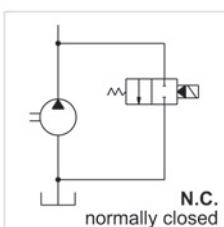
Dynamic signal without pressure relief valve
SIDE PORTS

VPDS1

Dinamic signal with **adjustable setting** pressure relief valve
SIDE PORTS



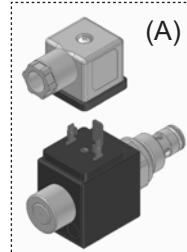
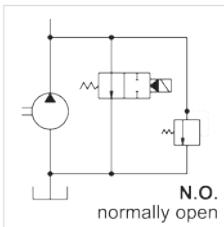
Rear Covers with Valves

EV1 - 12 Vcc
EV2 - 24 Vcc

EV3 - 12 Vcc
EV4 - 24 Vcc


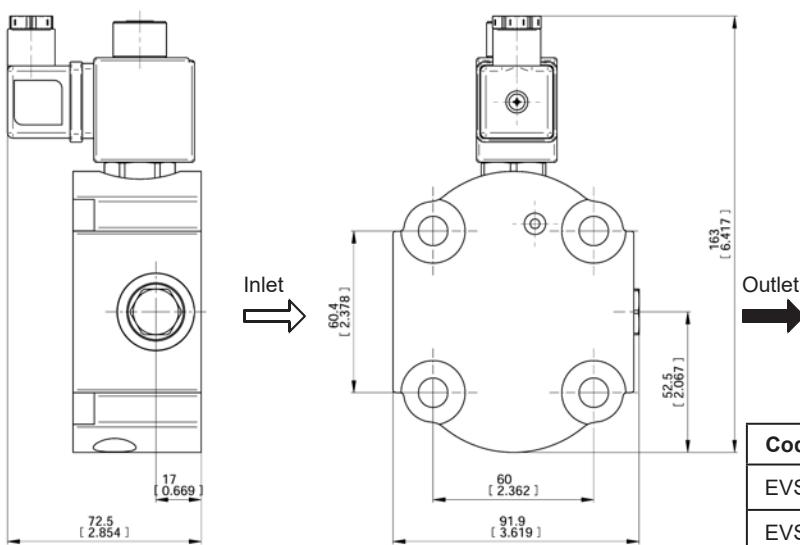
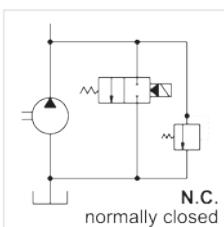
Code	Part Number
EV1	R12273273
EV2	R12273272
EV3	R12273275
EV4	R12273274

EV1-EV2-EV3-EV4

ELECTRIC UNLOADING VALVE

EVS1 - 12 Vcc
EVS2 - 24 Vcc


Part Number			
(A) Coil+Mech.Part+Connector			
EV1/EVS1	EV2/EVS2	EV3/EVS3	EV4/EVS4
796332680	796332681	412271232	412271233
Part Number			
Connector DIN 43650 A/ISO 4400			
796361600			

EVS3 - 12 Vcc
EVS4 - 24 Vcc


Code	Part Number
EVS1	R12273290
EVS2	R12273291
EVS3	R12273292
EVS4	R12273293

Pressure Relief Valve
 setting range

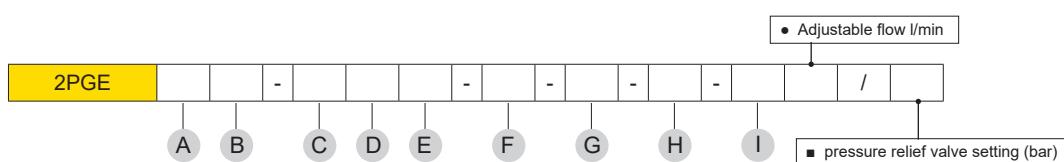
25-250 bar

EVS1-EVS2-EV3-EV4

ELECTRIC UNLOADING VALVE WITH BUILT-IN PRESSURE RELIEF VALVE



HOW TO ORDER SINGLE PUMP

2PGE


A	TYPE	DISPLACEMENTS		
6.5	6.5 cm ³ /rev.	0.40 cu.in/rev.		
8.3	8.2 cm ³ /rev.	0.50 cu.in/rev.		
11.3	11.5 cm ³ /rev.	0.68 cu.in/rev.		
13.8	13.8 cm ³ /rev.	0.84 cu.in/rev.		
16	16.6 cm ³ /rev.	1.01 cu.in/rev.		
19	19.4 cm ³ /rev.	1.18 cu.in/rev.		
22.5	22.9 cm ³ /rev.	1.37 cu.in/rev.		
26	26.6 cm ³ /rev.	1.62 cu.in/rev.		

B	ROTATION	CODE
Clockwise	D	
Anti-clockwise	S	
Reversible	R	

C	POTS (page 21)	CODE
Flanged ports european standard	P	
Flanged ports german standard	B	
Flanged ports SAE J518 Metric thread	W	
Flanged ports SAE J518 American standard thread	S	
Threaded ports GAS (BSPP)	G	
Threaded ports SAE (ODT)	R	

D	DRIVE SHAFT (page 23)	CODE
Tang drive for electric motors	03	
Tang drive	04	
Tapered 1:5	25	
Tapered 1:8	28	
SAE A splined 9T	52	
SAE A splined 11T	54	
SAE B splined 13T	55	
9 teeth DIN 5482 splined	62	
DIN 5480 internal splined (only for rear pumps-see page 24)	60	
5/8" SAE A parallel	82	
3/4" SAE A parallel (Mounting face 31.8 mm)	85	
Tapered 1:5 Continental shaft	26	
3/4" SAE A Parallel Continental shaft (Mounting face 54 mm)	86	
7/8" SAE B Parallel Continental shaft	87	
8x32x36 UNI 8953 splined Continental shaft	66	
8x32x36 UNI 8953 splined Continental shaft	67	
6x21x25 UNI 8953 splined Continental shaft	73	

E0.146-0921.14.00IM01

I	REAR COVERS (page 34)	CODE
Lateral drain	LD	
Adjustable pressure relief valve-Internal discharge	■ VS	
Adjustable setting pressure relief valve-External discharge	■ VSE	
Internal drain valve	IDV	
Priority flow valve with excess flow to 2nd actuator	● VP-VP1	
Priority flow valve with excess flow to 2nd actuator with pressure relief valve	■ VPS-VPS1	
Load sensing priority valve with dinamic signal	● VPD-VPD1	
Load sensing priority valve with dinamic signal and pressure relief valve	■ VPDS VPDS1	
Electric unloading valve (12V)	EV1/EV3	
Electric unloading valve (24V)	EV2/EV4	
Pressure relief and electric unloading valves (12V)	EVS1/EVS3	
Pressure relief and electric unloading valves (24V)	EVS2/EVS4	
Pre-arranged for 1.5PE rear	PD1.5	

H	OUTRIGGER BEARING (page 31)	CODE
For Internal combustion engines	CL	
For Internal combustion engines with axial and radial loads	CF	
SAE A	CS	
German standard	CB	
European standard	CP	
SAE B	CSB	
4 Bolts for ZF gear box	Z1	

G	PORTS POSITION	CODE
Side ports (standard configuration)	-	
Rear ports	1	

F	SEAL	CODE
Buna standard (standard configuration)	-	
Viton	V	

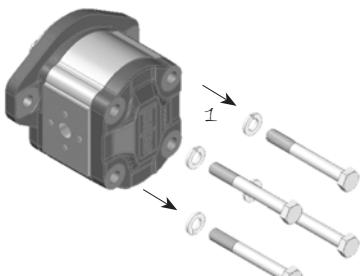
E	MOUNTING FLANGES (page 26)	CODE
European standard	P1	
German standard Ø80	B1	
German standard Ø52	B2-B3	
German standard Ø50	B4-B5	
4 bolts for Iveco engines	C1	
SAE A 2 bolts	S2	
SAE B 2 bolts	S3	
SAE A 2 Bolts (with o-ring on the centering collar)	S6	
3 BOLT UNI 8953 for gear box	T1	
4 Bolts for ZF gear box	Z2	

How to order Single Pump: 2PGE 19D, ports SAE (R), drive shaft (54), mounting flange (S2).
2PGE19D-R54S2



Single Pump Changing Rotation Instructions

Keep the working surface cleaned as well as the exterior of the pump before starting and avoid inner contamination of the pump. The pump shown below is a clockwise rotating pump.
 To achieve anti - clockwise rotation, please read the following instructions carefully.

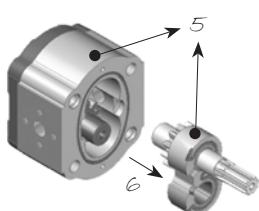
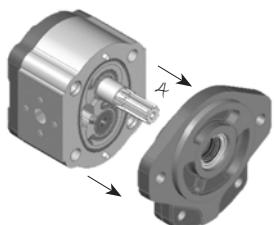
CLOCKWISE ROTATION


1 - Loosen and fully unscrew the bolts.

2 - Lay the pump on the working area in order to have the mounting flange turned upside.

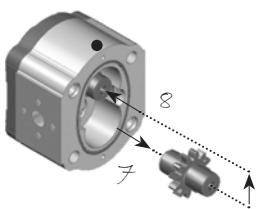
3 - Coat the shaft end with grease to avoid damaging the shaft seal.

4 - Remove the flange and lay it on the working area; verify that the seal is correctly located in the body seat.



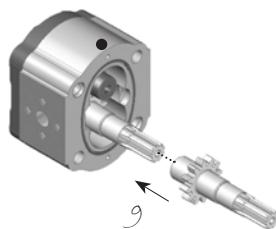
5 - Mark the position of the bushing and eventually of the thrust plate, as well, with reference to the body.

6 - Remove the bushing, thrust plate and the driving gear taking care to avoid driven gear axial shifts.

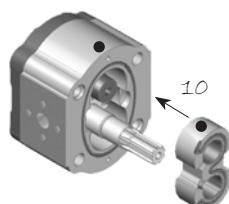


7 - Draw out the driven gear from its housing, taking care to avoid rear cover axial shifts.

8 - Re-locate the driven gear in the position previously occupied by the driving gear.



9 - Re-locate the driving gear in the position previously occupied by the driven gear.

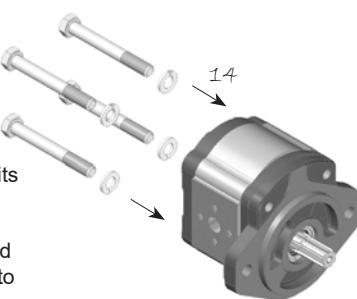


10 - Replace the bushing and thrust plate taking care that:

- marks are located as on the picture
- surface containing the seal is visible
- seal and its protection are correctly located.

11 - Clean the body and mounting flange facing surfaces.

12 - Verify that the two plugs are located in the body.



13 - Refit the mounting flange, turned 180° from its original position.

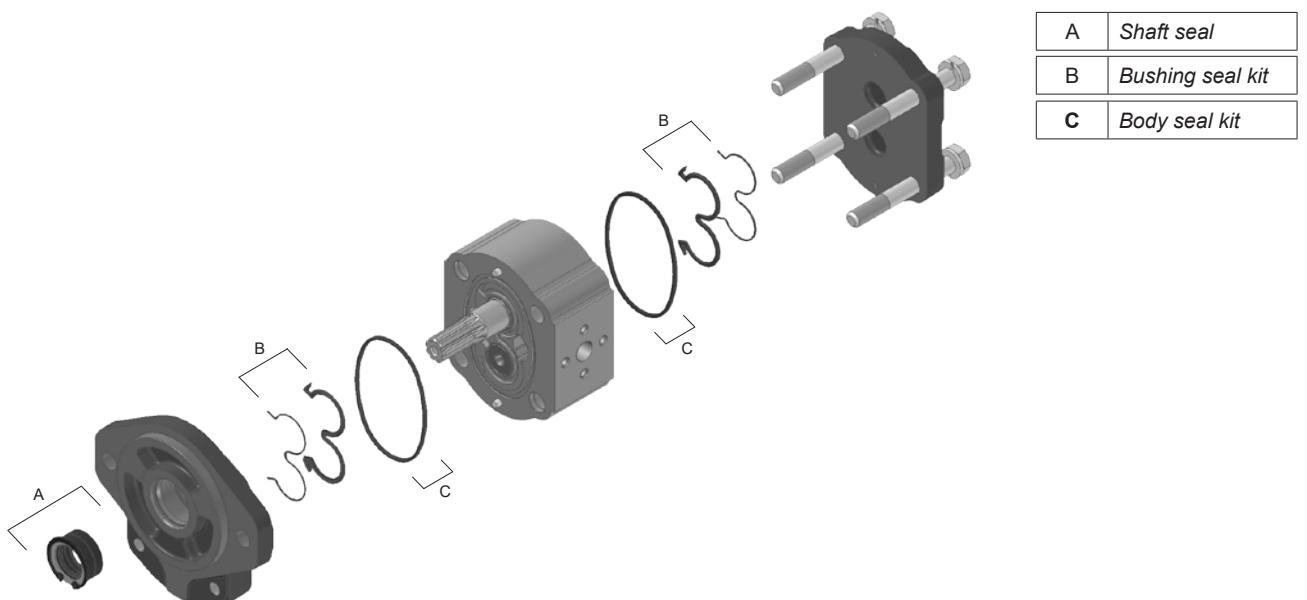
14 - Replace the bolts and tighten clockwise evenly to an appropriate torque.

15 - Check that the shaft rotates freely.

16 - Mark on the flange the new direction of rotation.

ANTI - CLOCKWISE ROTATION

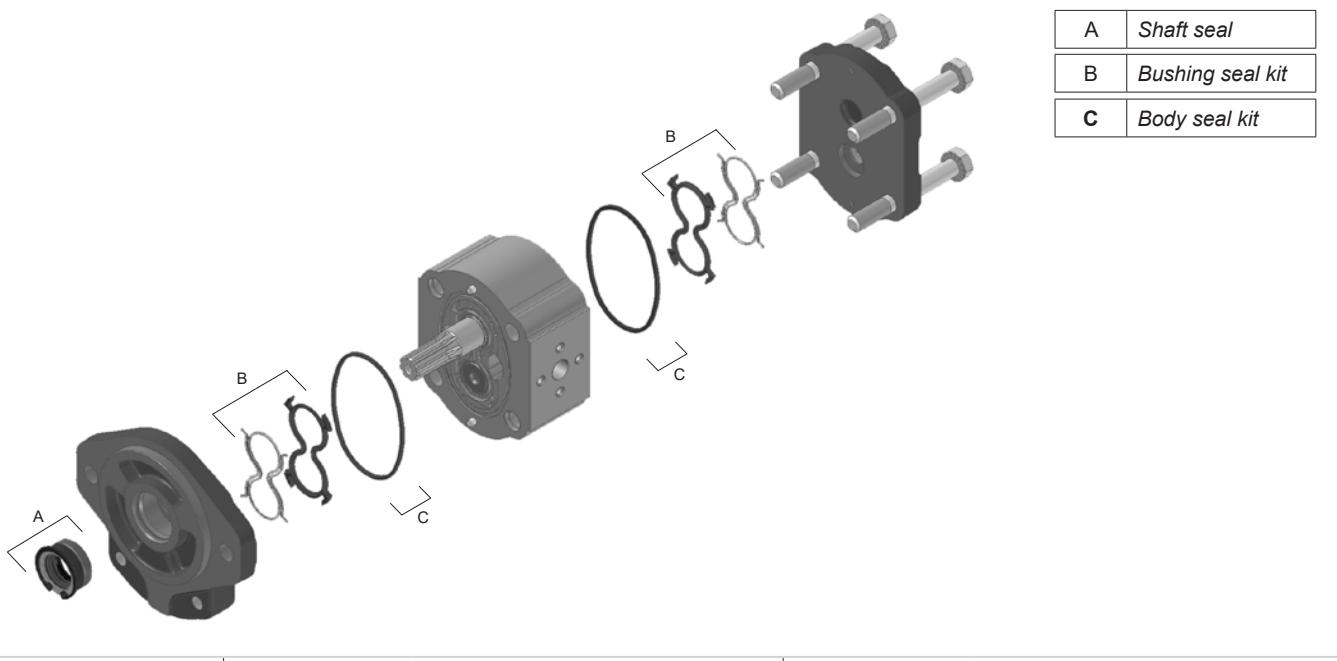


GEAR PUMPS "GE" SERIES
Cast Iron Gear Housing
2PGE
Unidirectional Pump Seal Spare Parts Kit


SHAFT & FLANGE TYPE	NBR COMPOUND		FPM COMPOUND	
	Complete seal kit (A+B+C)	Shaft seal kit (A)	Complete seal kit (A+B+C)	Shaft seal kit (A)
28P1 25B1/B4/B5 62P1/B1/B4/B5 82P1/S2/S6 52S2/S6 55S3 (Coupling sleeve)	Part Number R12292830	795003600 795508250 796103310 17.45x28.58x6.3 Part Number R12240010	795003600 795508250 796103445 17.45x28.58x6.3 Part Number R12240021	Drive Shaft
55S3 (Solid Shaft) 73T1 67Z2	Part Number R14690010	796106000 21x30x6.5 Part Number R14640010	796106040 21x30x6.5 Part Number R14640020	Drive Shaft 795519250
54S2/S6 85S2/S6 04B4/B5	Part Number R12292833	795003600 795508250 796105350 19.05x28.58x6.3 Part Number R12240110	795003600 795508250 796105340 19.05x28.58x6.3 Part Number R12240115	Drive Shaft 795519250



Bidirectional Pump Seal Spare Parts Kit

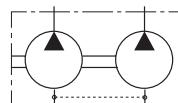
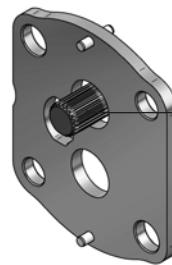
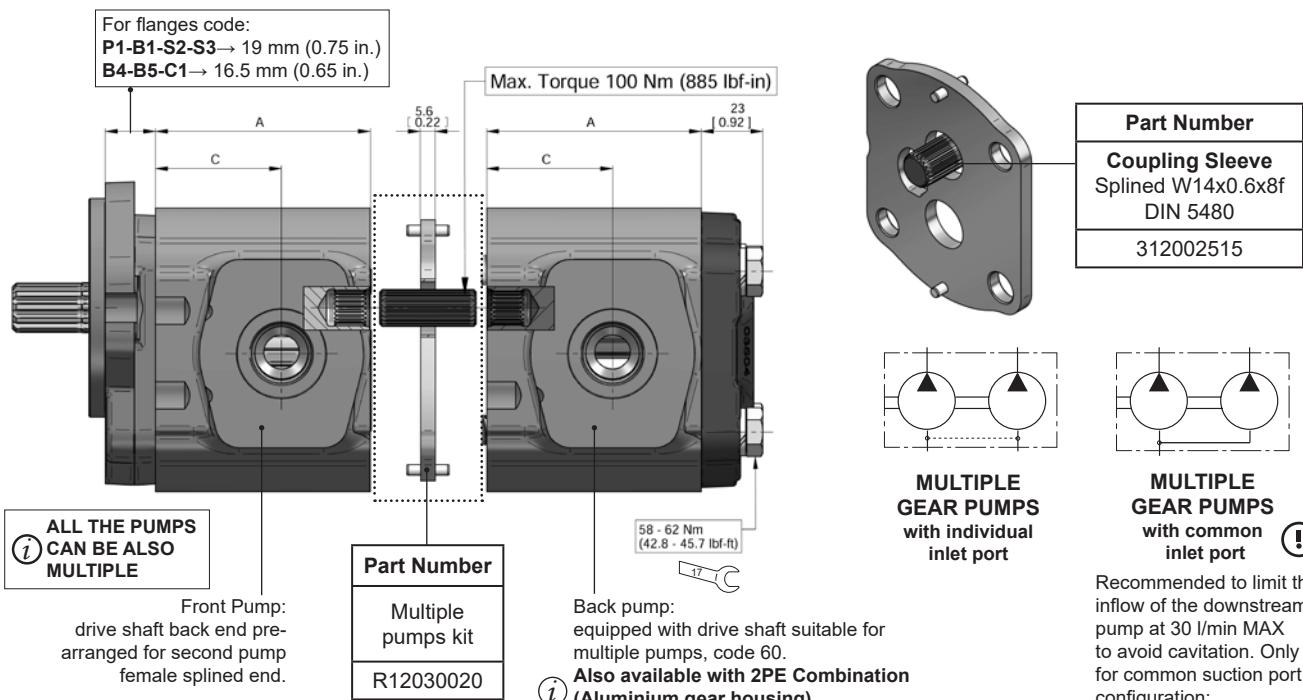


A	Shaft seal
B	Bushing seal kit
C	Body seal kit

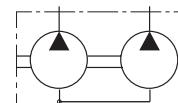
SHAFT & FLANGE TYPE	NBR COMPOUND		FPM COMPOUND	
	Complete seal kit (A+B+C)	Shaft seal kit (A)	Complete seal kit (A+B+C)	Shaft seal kit (A)
28P1 25B1/B4/B5 62P1/B1/B4/B5 82P1/S2/S6 52S2/S6				
55S3 (Coupling sleeve)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R12081820 </div> <div style="text-align: center;"> Part Number R12040122 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R12081830 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R12040123 </div> </div>	
55S3 (Solid Shaft) 73T1 67Z2	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R14690031 </div> <div style="text-align: center;"> Part Number R14640012 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R14690041 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R14640013 </div> </div>	
54S2/S6 85S2/S6	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R12092835 </div> <div style="text-align: center;"> Part Number R12240114 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R12092836 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R12240113 </div> </div>	



2PGE Multiple Pump - Dimensions



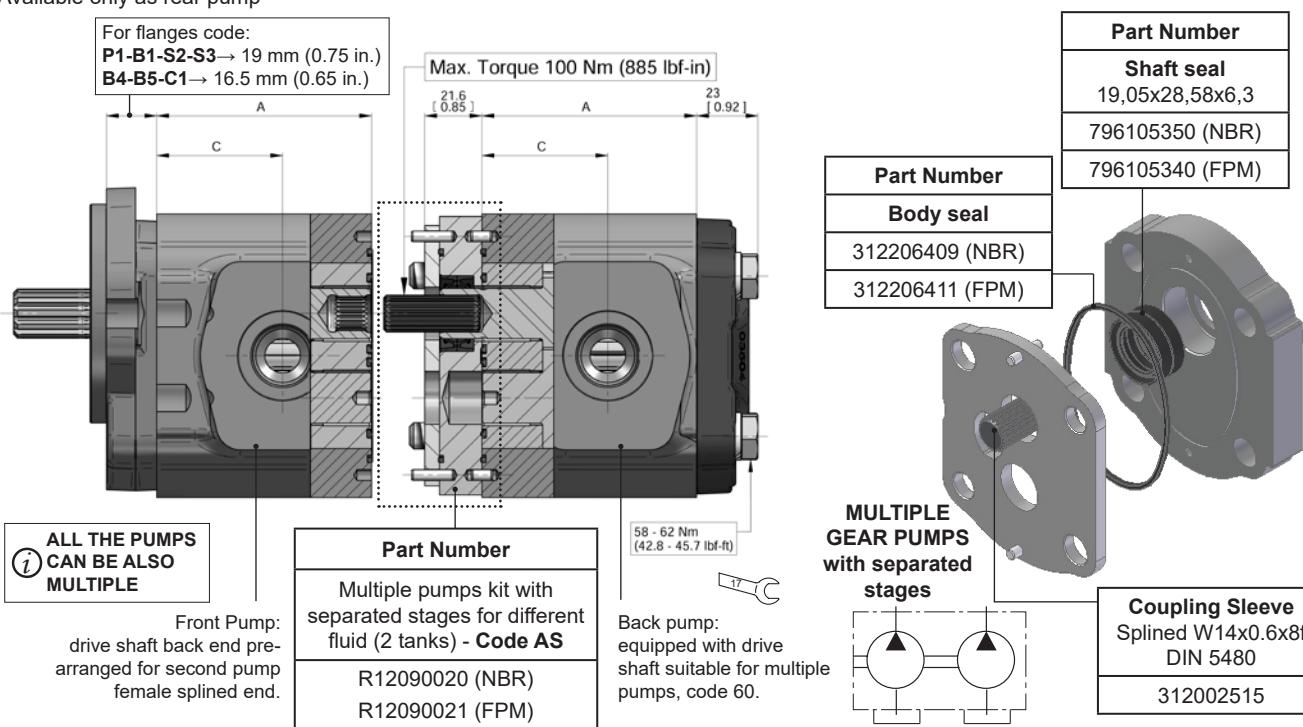
MULTIPLE GEAR PUMPS with individual inlet port


 MULTIPLE GEAR PUMPS with common inlet port **!**

Recommended to limit the inflow of the downstream pump at 30 l/min MAX to avoid cavitation. Only for common suction port configuration:
Commercial code UA.

2PGE-Type		6.5	8.3	11.3	13.8	16	19	22.5	26
Dimension A 2PGE	mm in	49.95 1.97	52.8 2.07	59.7 2.35	63.5 2.5	67.5 2.65	75.6 2.97	81 3.19	86.8 3.42
Dimension C 2PGE	mm in	25 0.98	26.4 1.04	29.75 1.17	31.75 1.25	39.5 1.56	39.5 1.56	47.5 1.87	47.5 1.87
2PE-Type		3.2*	3.9*	4.5	6.5	8.3	10.5	11.3	12.5
Dimension A 2PE	mm in	47.1 1.83		49.95 1.97	52.8 2.07	56.3 2.22	59.7 2.35	63.5 2.5	67.5 2.65
Dimension C 2PE	mm in	23.55 0.93		25 0.98	26.4 1.04	28.15 1.11	29.75 1.17	31.75 1.25	33.75 1.33
2PE-Type		13.8	16	19	22.5	26			
Dimension A 2PE	mm in	31.75 1.25		37.80 1.49	40.5 1.59	43.4 1.71			

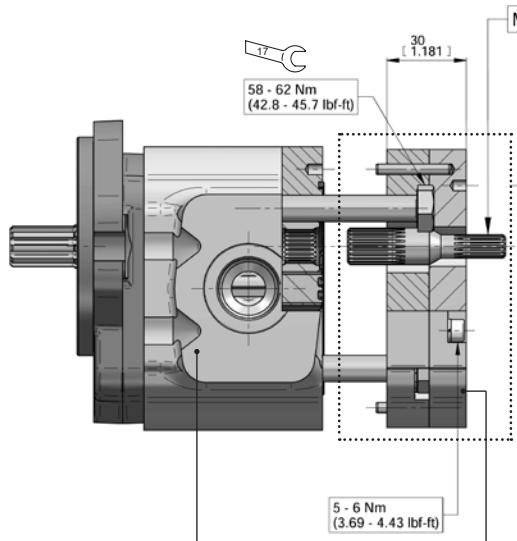
*Available only as rear pump





2PGE Combination with Pump 1.5PE (Aluminium gear housing)

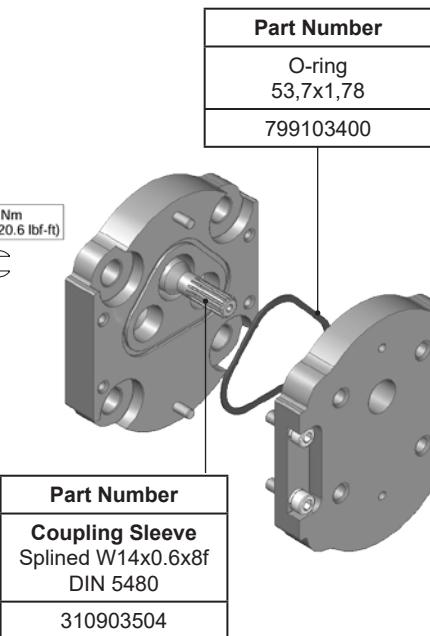
PD1.5 Multiple pumps kit
 Pre-arranged for 1.5PE rear.



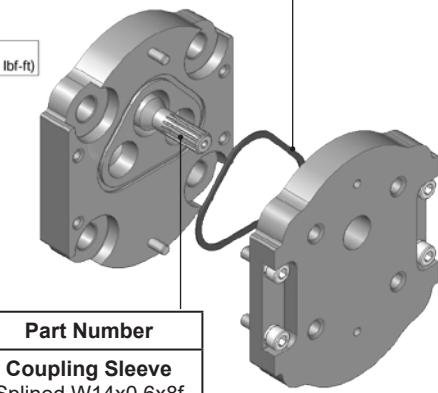
Front Pump:
 drive shaft back end pre-arranged
 for second pump female splined
 end.

Part Number
Multiple pumps kit
R12090043

Back pump:
 equipped with drive shaft
 suitable for multiple pumps,
 code 60.



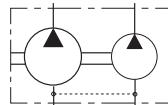
Part Number
O-ring 53,7x1,78
799103400



Part Number
Coupling Sleeve Splined W14x0.6x8f DIN 5480
310903504

Not available
 combinations with
 flange: B2-B3-B4-B5

ALL THE PUMPS
 CAN BE ALSO
 MULTIPLE



**MULTIPLE
 GEAR PUMPS
 with individual
 inlet port**

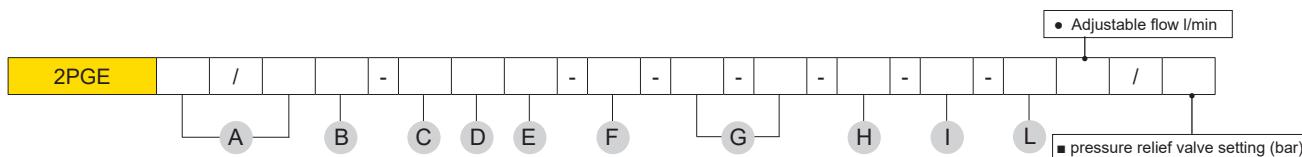
**MULTIPLE
 GEAR PUMPS**
 with common
 inlet port

Recommended to limit the inflow of the downstream pump at 12 l/min MAX to avoid cavitation. Only for common suction port configuration:
Commercial code UA.

1.5PE-Type		1.4	2.1	2.8	3.5	4.1	5.2	6.2	7.6	9.3	11
Dimension A 1.5PE	mm in	44 1.73	45.9 1.81	47.9 1.89	49.9 1.96	51.6 2.03	54.7 2.15	57.5 2.26	61.5 2.42	66.3 2.61	71.1 2.80
Dimension C 1.5PE	mm in	22 0.87	22.95 0.90	23.95 0.94	24.95 0.98	25.8 1.02	27.35 1.08	28.75 1.13	30.75 1.21	33.15 1.31	35.55 1.40



HOW TO ORDER MULTIPLE PUMP

2PGE


A	TYPE	DISPLACEMENTS	
6.5	6.5 cm ³ /rev.	0.40 cu.in/rev.	
8.3	8.2 cm ³ /rev.	0.50 cu.in/rev.	
11.3	11.5 cm ³ /rev.	0.68 cu.in/rev.	
13.8	13.8 cm ³ /rev.	0.84 cu.in/rev.	
16	16.6 cm ³ /rev.	1.01 cu.in/rev.	
19	19.4 cm ³ /rev.	1.18 cu.in/rev.	
22.5	22.9 cm ³ /rev.	1.37 cu.in/rev.	
26	26.6 cm ³ /rev.	1.62 cu.in/rev.	

B	ROTATION	CODE
Clockwise		D
Anti-clockwise		S

C	PORTS (page 21)	CODE
Flanged ports european standard		P
Flanged ports german standard		B
Flanged ports SAE J518 Metric thread		W
Flanged ports SAE J518 American standard thread		S
Threaded ports GAS (BSPP)		G
Threaded ports SAE (ODT)		R

D	DRIVE SHAFT (page 23)	CODE
Tang drive for electric motors		03
Tang drive		04
Tapered 1:5		25
Tapered 1:8		28
SAE A splined 9T		52
SAE A splined 11T		54
SAE B splined 13T		55
9 teeth DIN 5482 splined		62
DIN 5480 internal splined (only for rear pumps-see page 24)		60
5/8" SAE A parallel		82
3/4" SAE A parallel (Mounting face 31.8 mm)		85
Tapered 1:5 Continental shaft		26
3/4" SAE A parallel Continental shaft (Mounting face 54 mm)		86
7/8" SAE B parallel Continental shaft		87
8x32x36 UNI 8953 splined Continental shaft		66
8x32x36 UNI 8953 splined Continental shaft		67
6x21x25 UNI 8953 splined Continental shaft		73

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How to order Multiple pump: 2PGE 16/16D, ports European (P), drive shaft (55), mounting flange (S3) **2PGE16/16D-P55S3.**

L	REAR COVERS (page 34)	CODE
Lateral drain		LD
Adjustable pressure relief valve		■ VS
Adjustable setting pressure relief valve		■ VSE
Internal drain valve		IDV
Priority flow divider with excess flow to 2nd actuator		● VP-VP1
Like VP with pressure relief valve		■ VPS-VPS1
Priority flow divider with Load sensing with dinamic signal		● VPD-VPD1
Load sensing priority valve with dinamic signal with pressure relief valve		■ VPDS VPDS1
Electric unloading valve (12V)		EV1/EV3
Electric unloading valve (24V)		EV2/EV4
Main relief and electric unloading valves (12V)		EVS1/EVS3
Main relief and electric unloading valves (24V)		EVS2/EVS4
Pre-arranged for 1.5PE rear		PD1.5

I	OUTRIGGER BEARING (page 31)	CODE
For Internal combustion engines		CL
For Internal combustion engines with axial and radial loads		CF
SAE A		CS
German standard		CB
European standard		CP
SAE B		CSB
4 Bolts for ZF gear box		Z1

H	PORTS POSITION	CODE
Side ports (standard configuration)		-
Rear ports		1

G	INLET PORTS	CODE
Separated stages: Pump with separated stages for different fluid (2 tanks) Code 1 - 2 or 3 correspond to the body where Kit AS is mounted.		AS
Common Inlet: Pump with one inlet port opened, all the other inlet port are closed. Code 1 - 2 or 3, correspond to the body where inlet is located.		UA

F	SEAL	CODE
Buna standard (standard configuration)		-
Viton		V

E	MOUNTING FLANGES (page 26)	CODE
European standard		P1
German standard Ø80		B1
German standard Ø52		B2-B3
German standard Ø50		B4-B5
4 bolts for Iveco engines		C1
SAE A 2 bolts		S2
SAE B 2 bolts		S3
SAE A 2 Bolts (with o-ring on the centering collar)		S6
3 Bolts UNI 8953 for gear box		T1
4 Bolts for ZF gear box		Z2

2PGE
HOW TO ORDER MULTIPLE PUMP


2PGE / - - - - / / - - - - - - - - - / /																																	
F [] [] [] [] [] [] [] [] [] A [] B [] C [] D [] E [] G [] [] [] [] [] [] [] [] [] H [] I [] L [] M []																																	
• Adjustable flow l/min ■ pressure relief valve setting (bar)																																	
M REAR COVERS (page 34) CODE																																	
<table border="1"> <tr><td>Lateral drain</td><td>LD</td></tr> <tr><td>Adjustable pressure relief valve</td><td>■ VS</td></tr> <tr><td>Adjustable setting pressure relief valve</td><td>■ VSE</td></tr> <tr><td>Internal drain valve</td><td>IDV</td></tr> <tr><td>Priority flow divider with excess flow to 2nd actuator</td><td>● VP-VP1</td></tr> <tr><td>Like VP with pressure relief valve</td><td>■ VPS-VPS1</td></tr> <tr><td>Priority flow divider with Load sensing with dinamic signal</td><td>● VPD-VPD1</td></tr> <tr><td>Load sensing priority valve with dinamic signal with pressure relief valve</td><td>■ VPDS VPDS1</td></tr> <tr><td>Electric unloading valve (12V)</td><td>EV1/EV3</td></tr> <tr><td>Electric unloading valve (24V)</td><td>EV2/EV4</td></tr> <tr><td>Main relief and electric unloading valves (12V)</td><td>EVS1/EVS3</td></tr> <tr><td>Main relief and electric unloading valves (24V)</td><td>EVS2/EVS4</td></tr> </table>										Lateral drain	LD	Adjustable pressure relief valve	■ VS	Adjustable setting pressure relief valve	■ VSE	Internal drain valve	IDV	Priority flow divider with excess flow to 2nd actuator	● VP-VP1	Like VP with pressure relief valve	■ VPS-VPS1	Priority flow divider with Load sensing with dinamic signal	● VPD-VPD1	Load sensing priority valve with dinamic signal with pressure relief valve	■ VPDS VPDS1	Electric unloading valve (12V)	EV1/EV3	Electric unloading valve (24V)	EV2/EV4	Main relief and electric unloading valves (12V)	EVS1/EVS3	Main relief and electric unloading valves (24V)	EVS2/EVS4
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F COMBINATION WITH 2PE or 1.5PE (page 46)																																	
2PE or 1.5PE Piggy back configuration: Displacement - Port type																																	
E MOUNTING FLANGES (page 26) CODE																																	
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How to order Multiple pump: 2PGE 16/6.5S, ports European (P), drive shaft (28), mounting flange (P1) - 1.5PE 2.1
2PGE16/6.5S-P28P1-1.5PE2.1.

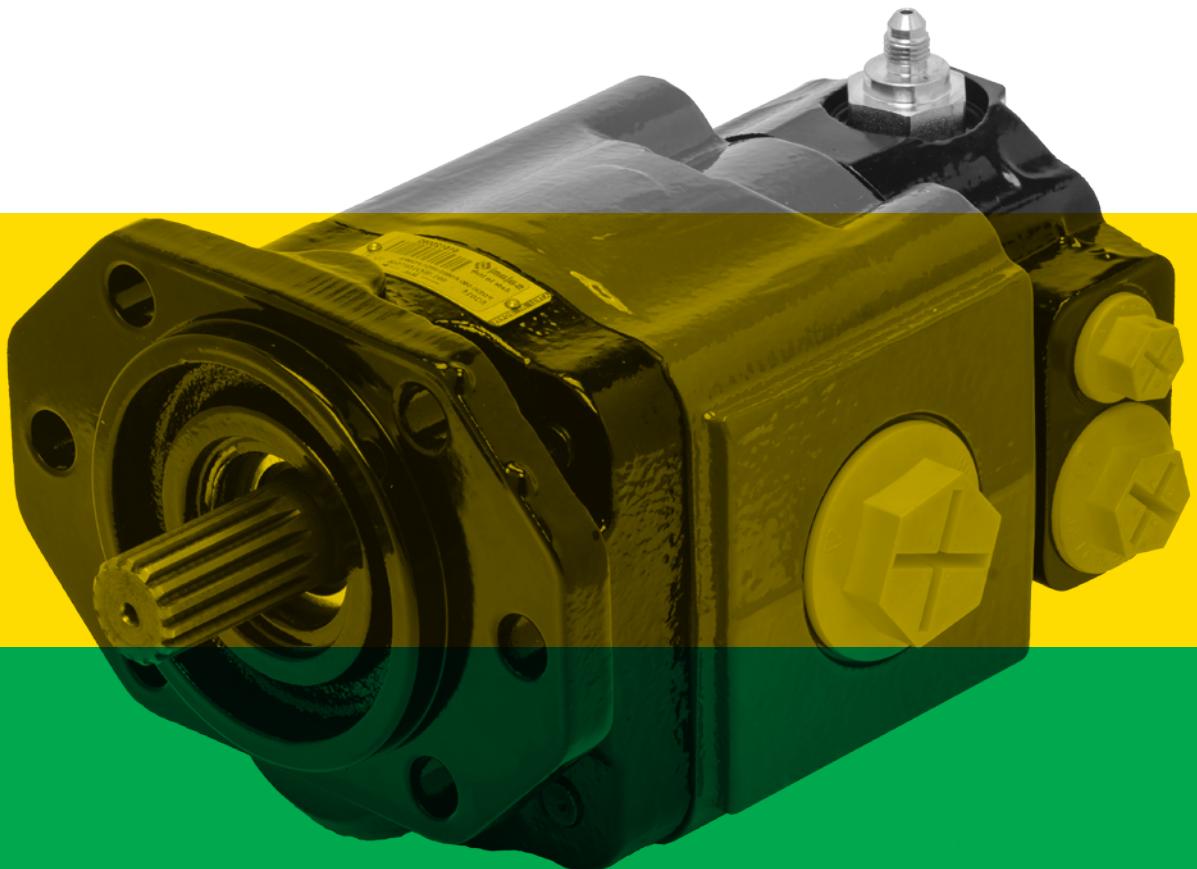
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PG330

Cast Iron Gear Pumps

Technical/Spare Parts Catalogue

E0_151_0721_14_000IM00



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QUALITY SYSTEM
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FLUID POWER SYSTEMS ®



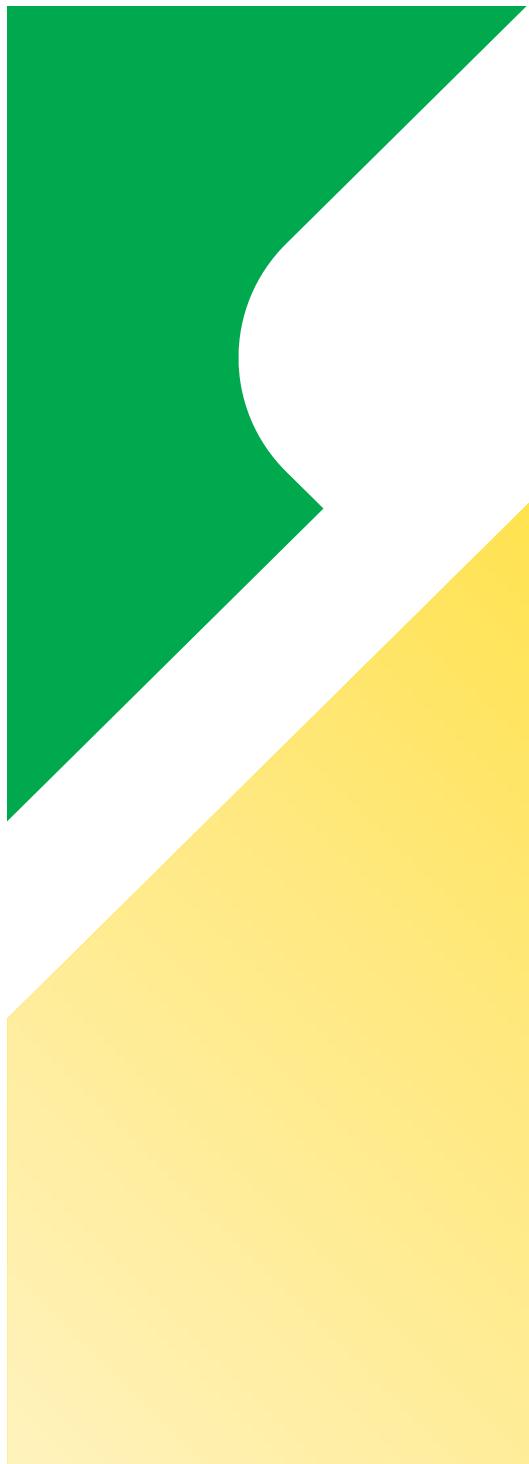
1800-OILSOL <https://oilsolutions.com.au/>
1800-645765

sales@oilsolutions.com.au

Final revised edition - July 2021

The data in this catalogue refers to the standard product. The policy of Salami S.p.A. consists of a continuous improvement of its products. It reserves the right to change the specifications of the different products whenever necessary and without giving prior information.

If any doubts, please contact our sales department.



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PG330 Single Pump - Dimensions and Technical Data

2 bar (29 psi)
 Max pressure discharge

Displacements up to 80.6 cm³/rev - 4.91 cu.in./rev
 Pressure up to 320 bar - 4650 psi

TYPE	Displacement		Dimension A		Dimension C		Continuous pressure p ₁		Intermittent pressure p ₂		Peak pressure p ₃		Min. speed at p ₁	Max. speed at p ₂	Weight	
	cm ³ /rev	cu.in/rev	mm	in	mm	in	bar	psi	bar	psi	bar	psi	rpm	kg	lbs	
PG330 - 23	23.4	1.43	77	3.03	35	1.38	260	3750	280	4060	300	4350	400	3000	13.2	29.10
PG330 - 28	28.6	1.74	81	3.19	38	1.49	280	4060	300	4350	320	4650	400	3000	13.7	30.20
PG330 - 34	34.4	2.10	85.5	3.36	42.5	1.67	280	4060	300	4350	320	4650	400	3000	14.2	31.30
PG330 - 40	40.3	2.46	90	3.54	47	1.85	260	3750	280	4060	300	4350	400	2700	14.7	32.41
PG330 - 47	47.4	2.89	101.5	3.40	50	1.97	280	4060	300	4350	320	4650	400	2700	17.0	37.48
PG330 - 55	55.2	3.37	107.5	4.23	56	2.20	260	3750	280	4060	300	4350	400	2700	17.7	39.02
PG330 - 64	64.3	3.92	114.5	4.51	58	2.28	240	3480	260	3750	280	4060	350	2500	18.5	40.79
PG330 - 72	73.4	4.48	121.5	4.78	61	2.40	220	3190	240	3480	260	3750	350	2500	19.4	42.77
PG330 - 80	80.6	4.91	127.5	5.02	65	2.56	200	2900	220	3190	240	3480	350	2500	22.5	49.60

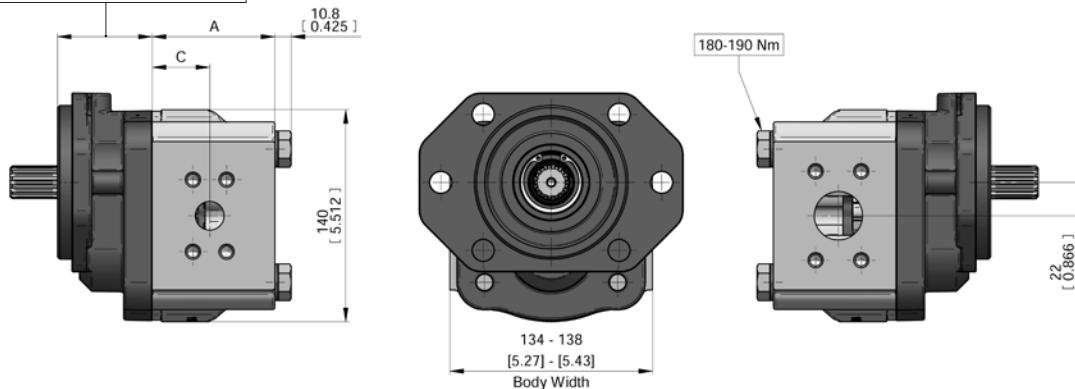
• Technical Data - Shaft 38/Flange P2

TYPE	Displacement		Continuous pressure p ₁		Intermittent pressure p ₂		Peak pressure p ₃		Min. speed at p ₁	Max. speed at p ₂	Weight	
	cm ³ /rev	cu.in/rev	bar	psi	bar	psi	bar	psi	rpm	kg	lbs	
PG330 - 55 •	55.2	3.37	230	3335	250	3625	270	3915	400	2700	17.7	39.02
PG330 - 64 •	64.3	3.92	200	2900	220	3190	240	3480	350	2500	18.5	40.79
PG330 - 72 •	73.4	4.48	170	2465	190	2755	210	3045	350	2500	19.4	42.77

•=Max torque of 250 Nm for the displacements 55-64-72 cc/rev

Max Speed must be lowered by 10% for system working continuously at p₁ pressure.
Max pressure must be lowered by 10% for birectional pump.

For flanges code:
S3→ 53 mm (2.09 in.) for displ. 23 to 40
 64 mm (2.52 in.) for displ. 47 to 80
P2→ 54 mm (2.13 in.)
S4/R8/Z1/Z2→ 85 mm (3.35 in.)
R3→ 64 mm (2.52 in.)



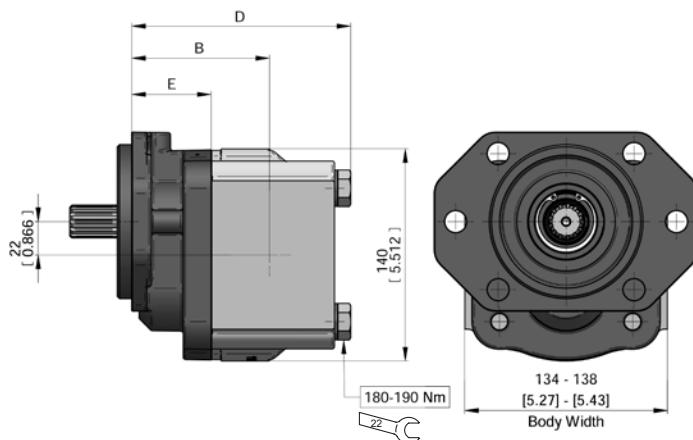
PG330

GEAR PUMPS "PG" SERIES Cast Iron Gear Housing



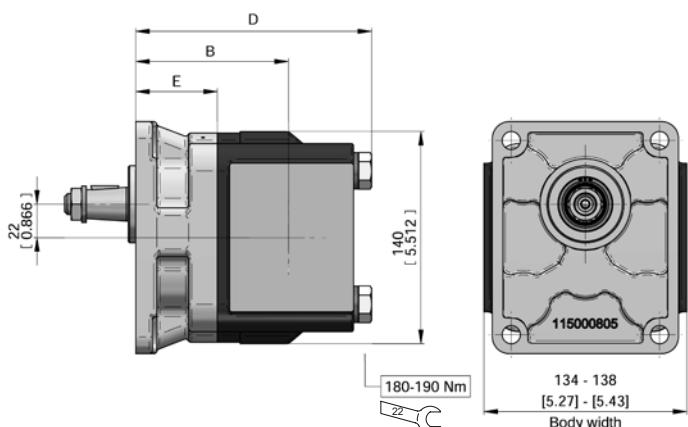
Dimensions - Shaft 55/Flange S3 (SAE B)

TYPE	Dimension D		Dimension B		Dimension E	
	mm	in	mm	in	mm	in
23	140.8	5.54	88	3.46		
28	144.8	5.70	91	3.58		
34	149.3	5.88	95.5	3.76		
40	153.8	6.00	100	3.94		
47	176.3	6.94	114	4.49		
55	182.3	7.18	120	4.72		
64	189.3	7.45	122	4.80		
72	196.3	7.73	125	4.92		
80	202.3	7.96	129	5.08		



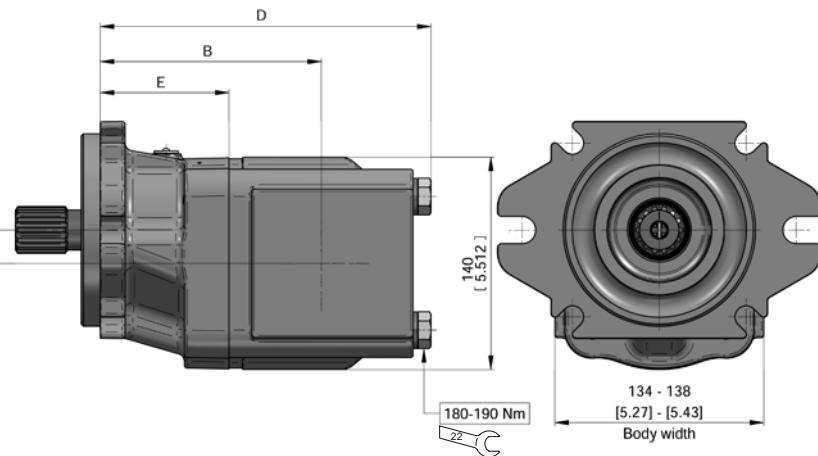
Dimensions - Shaft 38/Flange P2 (European)

TYPE	Dimension D		Dimension B		Dimension E	
	mm	in	mm	in	mm	in
23	141.8	5.58	89	3.50		
28	145.8	5.74	92	3.62		
34	150.3	5.92	96.5	3.80		
40	154.3	6.10	101	3.98		
47	166.3	6.55	104	4.10		
55	172.3	6.78	110	4.33		
64	179.3	7.05	112	4.41		
72	186.3	7.33	115	4.53		



Dimensions - Shaft 58/Flange S4 (SAE C)

TYPE	Dimension D		Dimension B		Dimension E	
	mm	in	mm	in	mm	in
23	172.8	6.80	120	4.72		
28	176.8	6.96	123	4.84		
34	181.3	7.14	127.5	5.02		
40	185.3	7.30	132	5.20		
47	197.3	7.77	135	5.31		
55	203.3	8.00	141	5.55		
64	210.3	8.28	143	5.63		
72	217.3	8.55	146	5.75		
80	223.3	8.79	150	5.91		

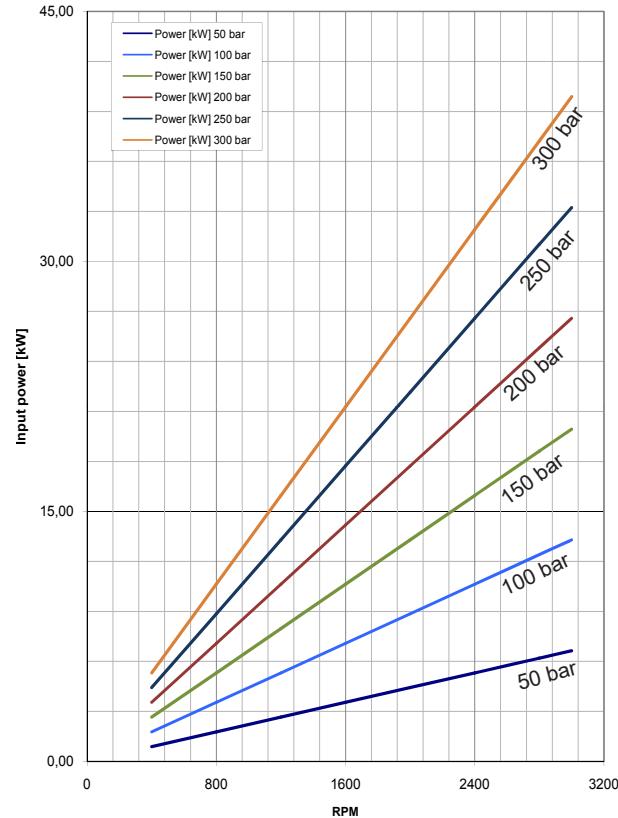
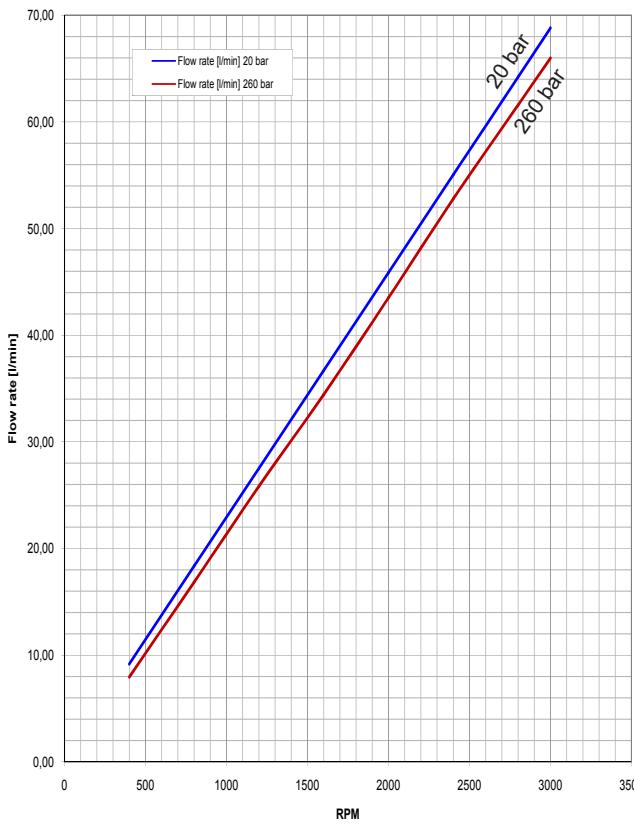


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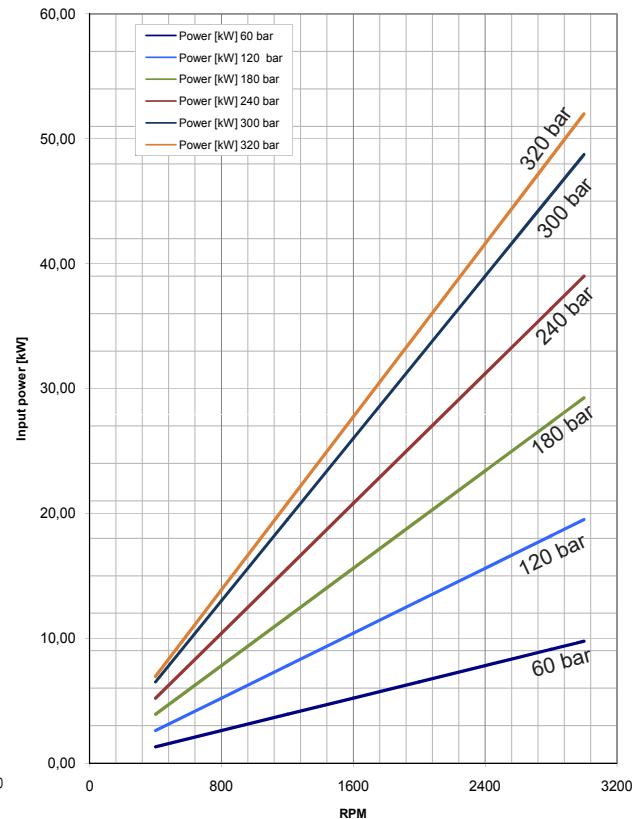
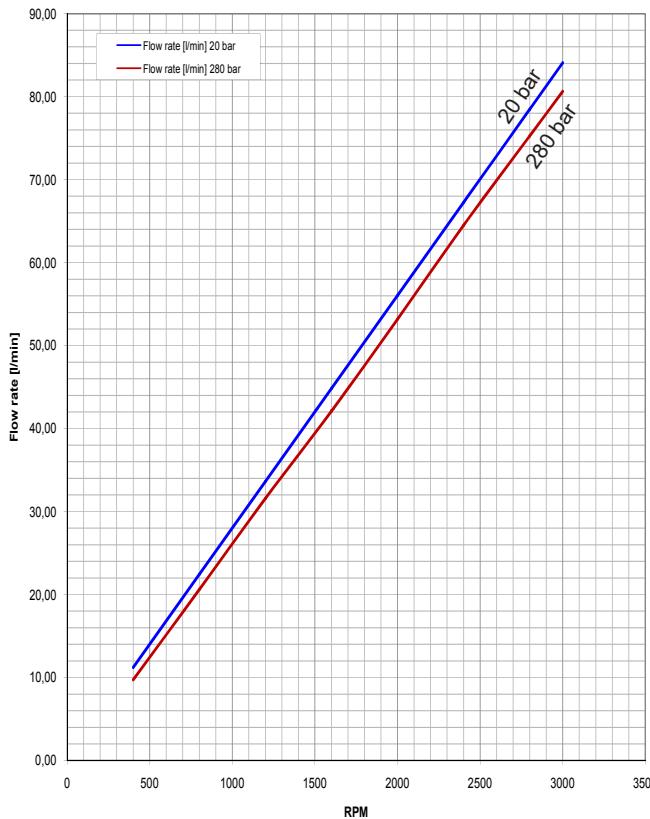


Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



PG330 - 23



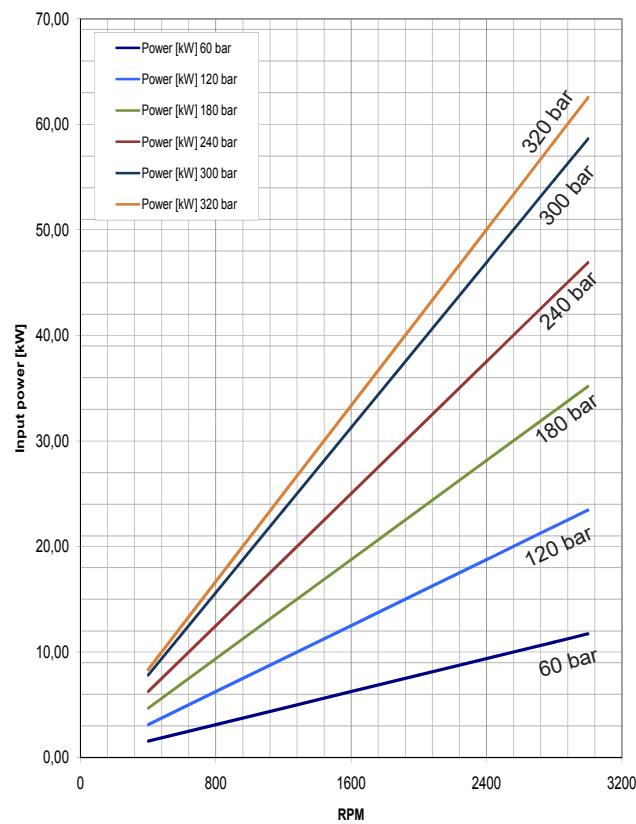
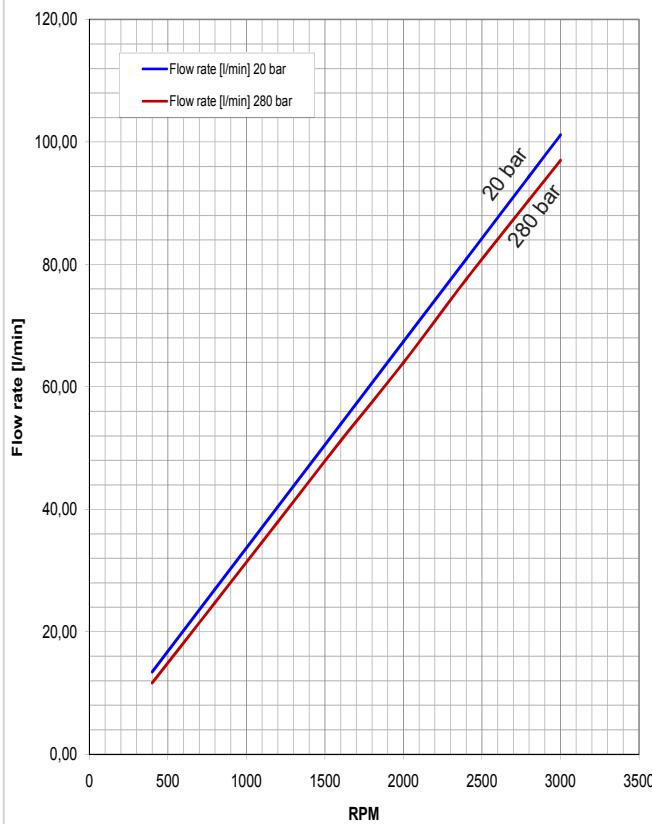
PG330 - 28



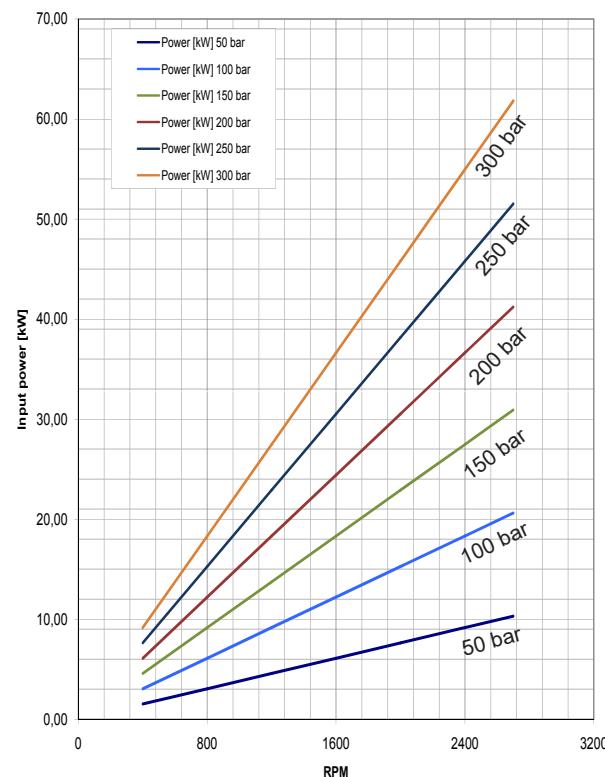
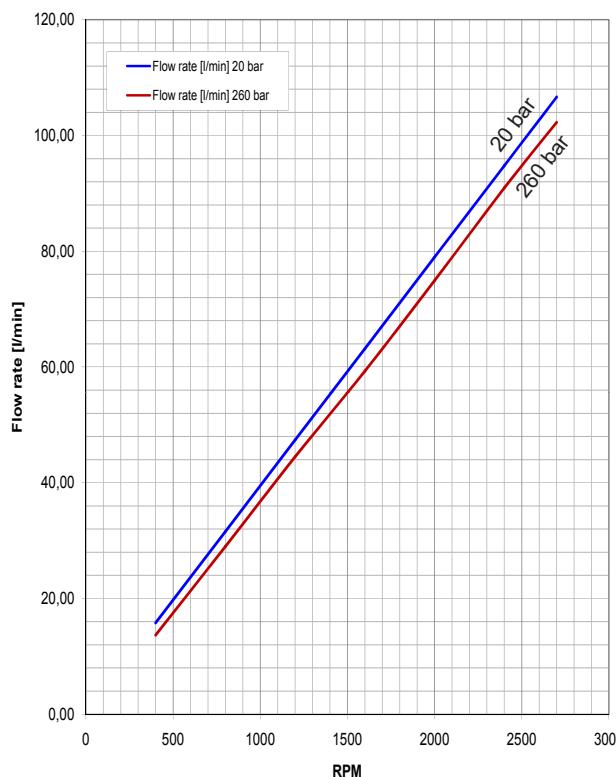
PG330

Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



PG330 - 34



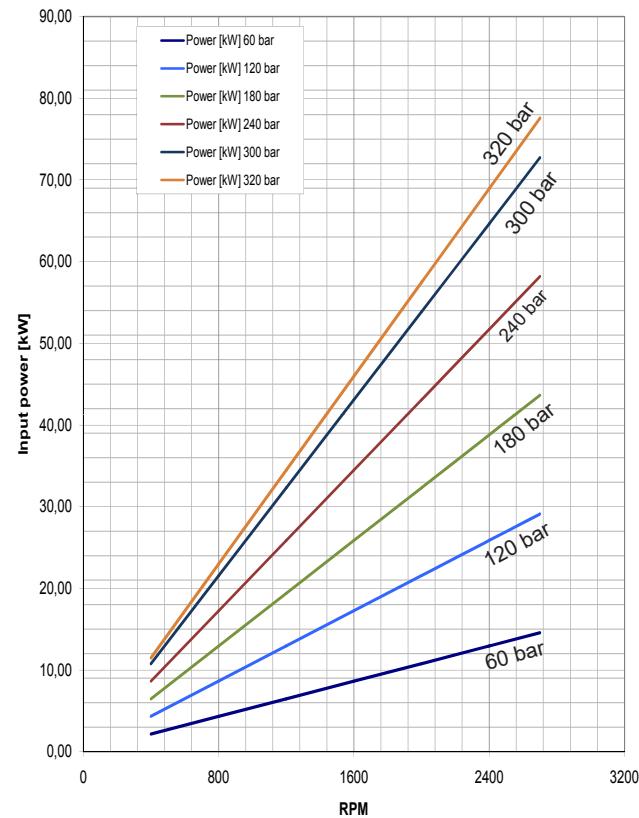
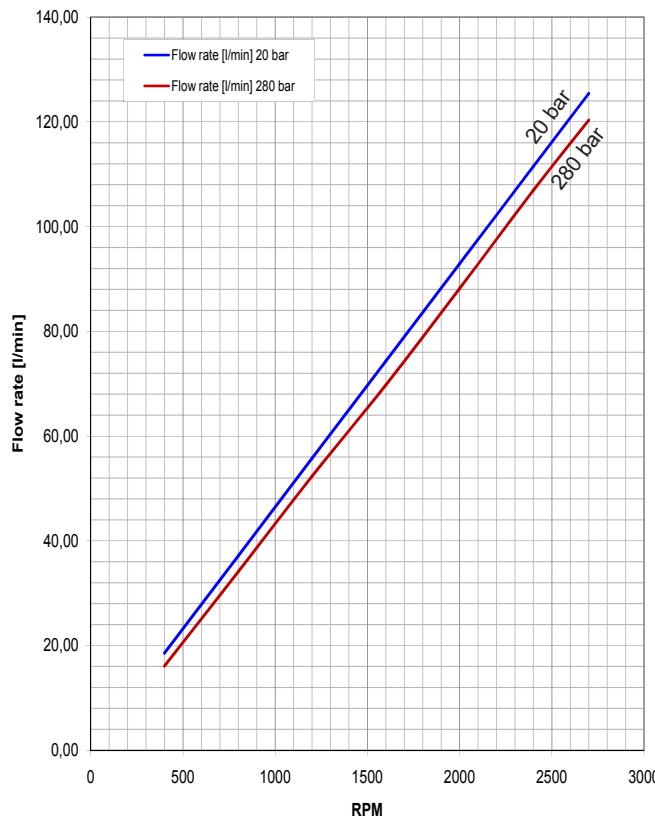
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PG330 - 40

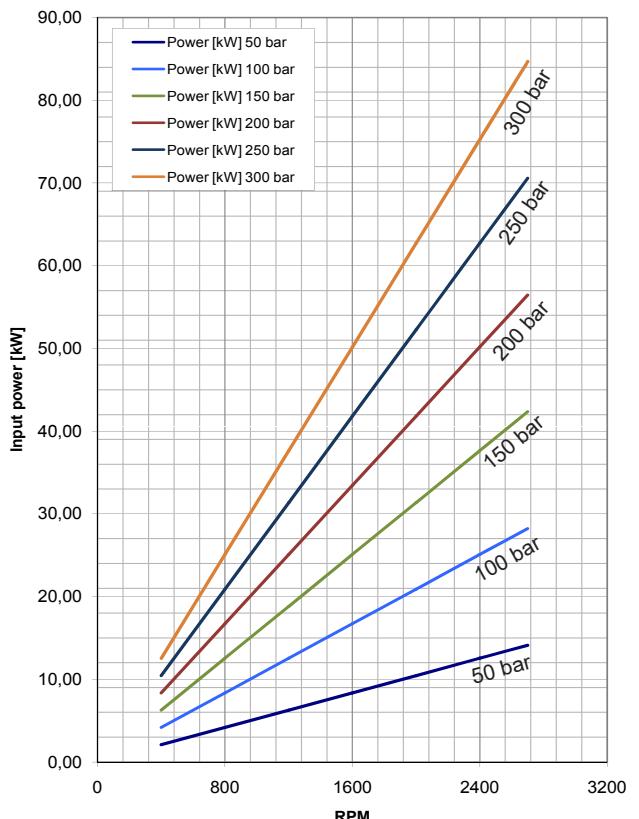
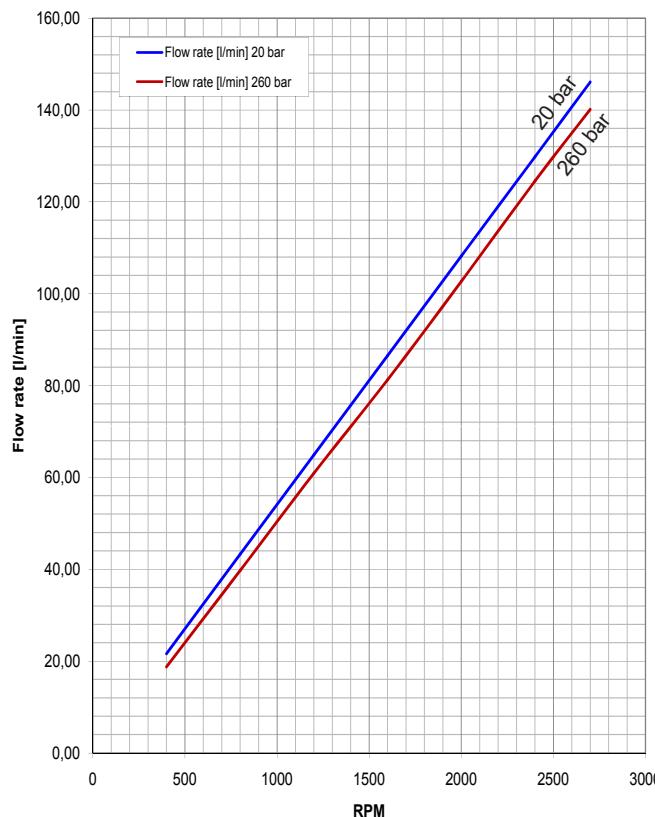


Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



PG330 - 47



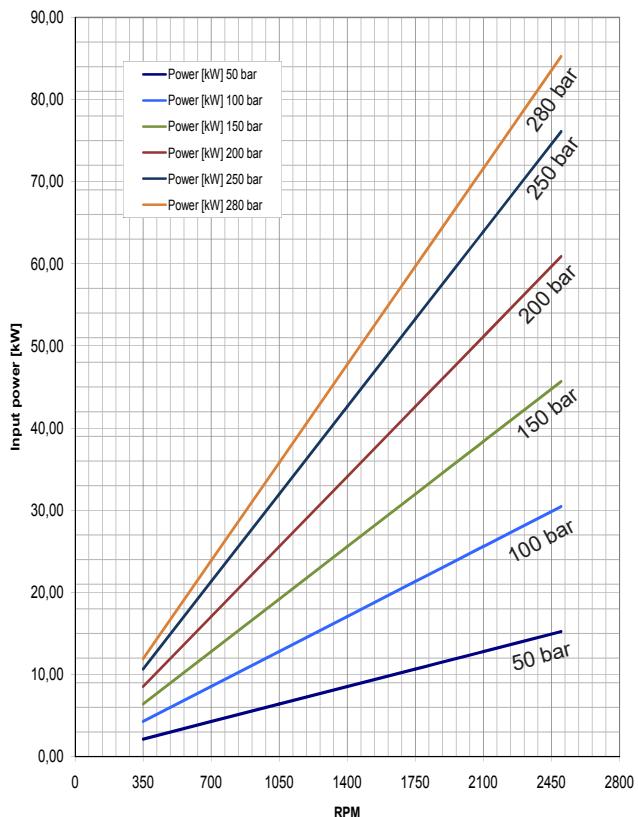
PG330 - 55



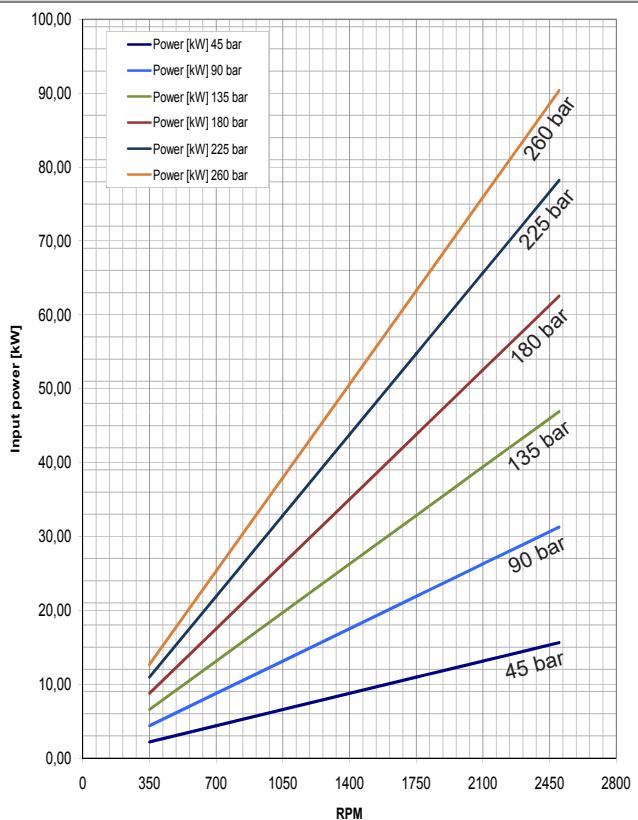
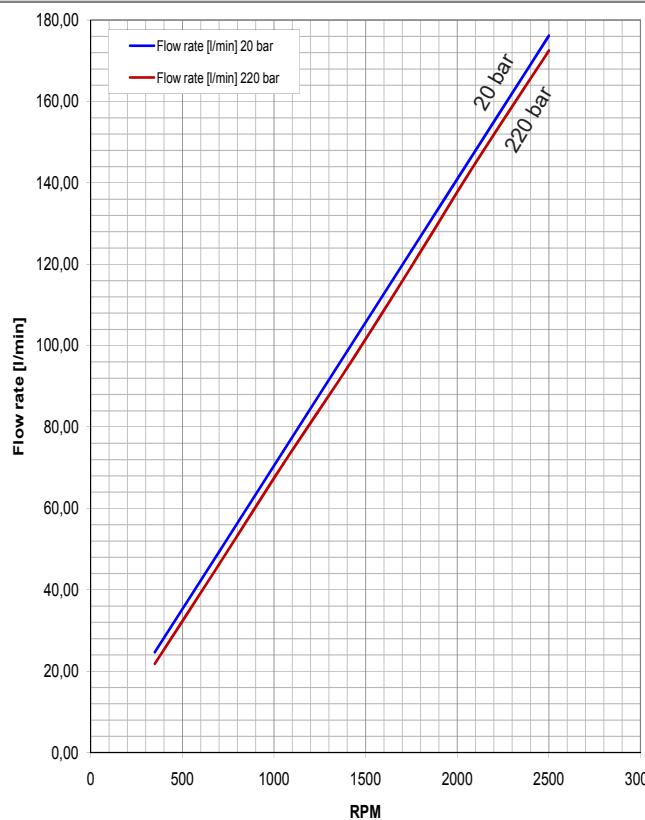
PG330

Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



PG330 - 64



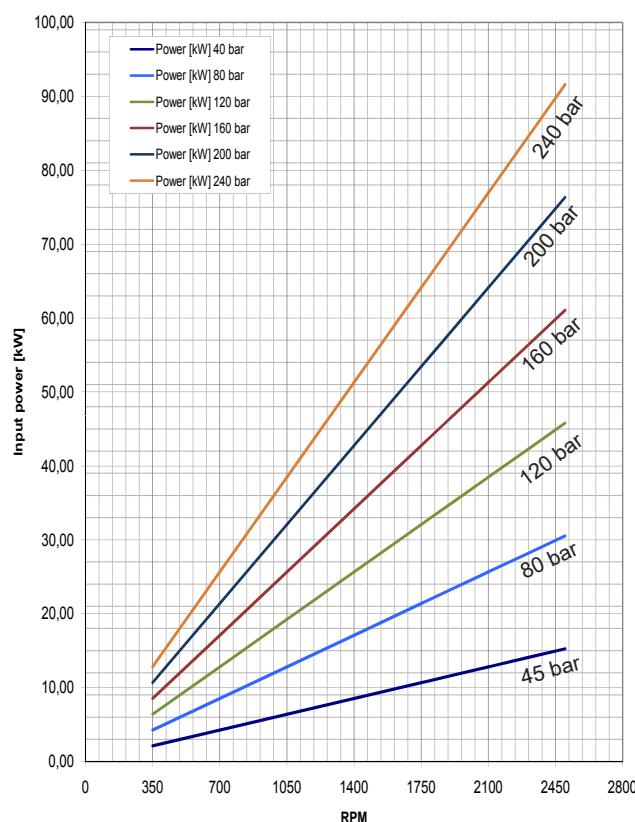
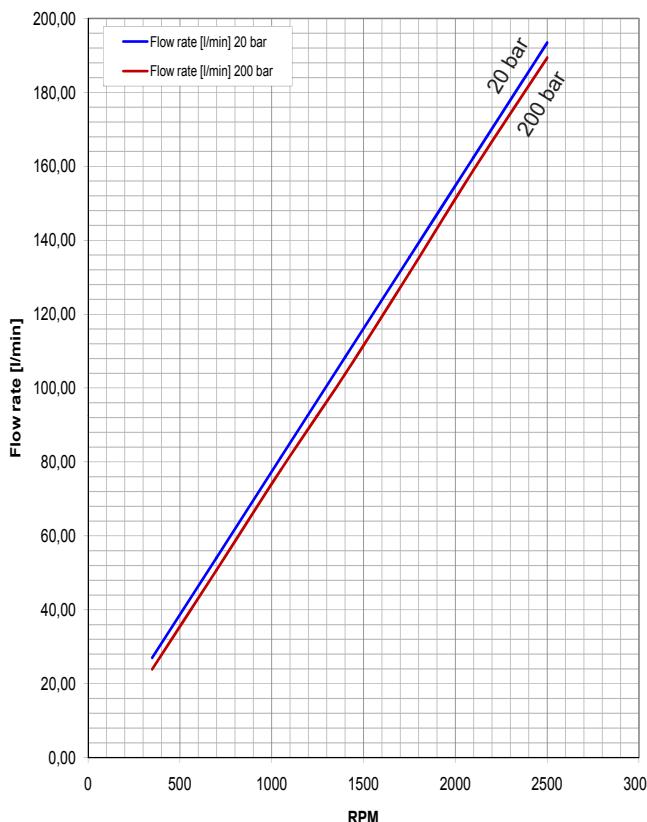
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PG330 - 72



Pump Performance Charts

Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



PG330 - 80

PG330

GEAR PUMPS "PG" SERIES Cast Iron Gear Housing



Shaft And Flange Combinations

SHAFT END	PG330	Shaft And Flange Combinations						
		CODE P2	CODE S3	CODE S4	CODE Z2	CODE R3	CODE R8	CODE Z1
		FLANGES				FLANGES WITH OUTRIGGER BEARING		
		CODE 38	38P2					
		CODE 55		55S3		55R3		
		CODE 56		56S3		56R3		
		CODE 87		87S3		87R3		
		CODE 88		88S3		88R3		
		CODE 58		58S3	58S4			
		CODE 67				67Z2		
CONTINENTAL SHAFT END		CODE 57					57R8	
		CODE 66						66Z1
		CODE 89					89R8	

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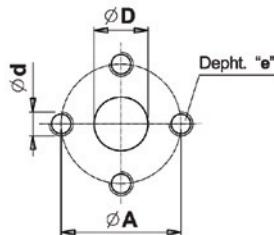


GEAR PUMPS "PG" SERIES

Cast Iron Gear Housing

PG330

Flanged Ports

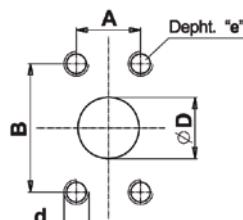

code P

 Flanged ports
 european standard

M8	20 Nm (14.7 lbf-ft)
M10	35 Nm (25.8 lbf-ft)
M12	65 Nm (47.9 lbf-ft)

PUMPS	UNI-DIRECTIONAL			
	INLET		OUTLET	
	$\varnothing D$	$\varnothing A$	d	e
23	20 (0.79")	40 (1.57")	M8	16 (0.63")
From 28 to 47	27 (1.07")	51 (2.01")	M10	16 (0.63")
From 55 to 72	33 (1.3")	62 (2.44")	M12	16 (0.63")
				21 (0.83")
				51 (2.01")
				M10
				16 (0.63")

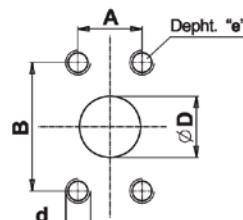
PUMPS	BI-DIRECTIONAL			
	INLET		OUTLET	
	$\varnothing D$	$\varnothing A$	d	e
23	20 (0.79")	40 (1.57")	M8	16 (0.63")
From 28 to 47	27 (1.07")	51 (2.01")	M10	16 (0.63")
From 55 to 72	33 (1.3")	62 (2.44")	M12	16 (0.63")
				27 (1.07")
				51 (2.01")
				M10
				16 (0.63")


code W

 Flanged ports
 SAE J518
 METRIC THREAD

M10	35 Nm (25.8 lbf-ft)
M12	65 Nm (47.9 lbf-ft)

PUMPS	UNI-DIRECTIONAL				
	INLET		OUTLET		
	$\varnothing D$	B	A	d	e
From 23 to 47	32 (1.26")	58.72 (2.31")	38.18 (1.19")	M10	18 (0.71")
From 55 to 80	39.3 (1.55")	69.8 (2.75")	35.7 (1.40")	M12	15 (0.59")
					19 (0.75")
					47.6 (1.87")
					22.2 (0.87")
					M10
					18 (0.71")


code S

 Flanged ports
 SAE J518
 AMERICAN STANDARD
 THREAD

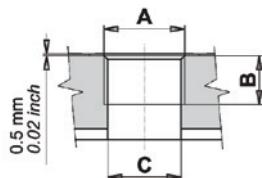
3/8-16 UNC	35 Nm (25.8 lbf-ft)
7/16-14 UNC	45 Nm (33.2 lbf-ft)
1/2-13 UNC	65 Nm (47.9 lbf-ft)

PUMPS	UNI-DIRECTIONAL				
	INLET		OUTLET		
	$\varnothing D$	B	A	d	e
From 23 to 47	32 (1.26")	58.72 (2.31")	30.18 (1.19")	7/16-14 UNC	18 (0.71")
From 55 to 80	39.3 (1.55")	69.8 (2.75")	35.7 (1.40")	1/2-13 UNC	15 (0.59")
					19 (0.75")
					47.6 (1.87")
					22.2 (0.87")
					M10
					18 (0.71")



PG330

Threaded Ports


code G

 Threaded ports
 GAS (BSPP)

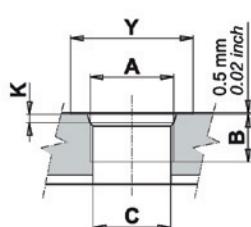
G3/4	90 Nm (66.4 lbf-ft)
G1	130 Nm (95.8 lbf-ft)
G1 1/4	170 Nm (125.4 lbf-ft)



PUMPS	UNI-DIRECTIONAL			OUTLET		
	A	B	C	A	B	C
From 23 to 40	G1	22 (0.87")	30.5 (1.2")	G3/4	16 (0.62")	24.4 (0.96")
From 47 to 80	G1 1/4	24 (0.94")	37 (1.46")	G1	22 (0.87")	30.5 (1.2")

PUMPS	BI-DIRECTIONAL			OUTLET		
	A	B	C	A	B	C
From 23 to 40	G1	22 (0.87")	30.5 (1.2")	G1	22 (0.87")	30.5 (1.2")
From 47 to 80	G1 1/4	24 (0.94")	37 (1.46")	G1 1/4	24 (0.94")	37 (1.46")

PUMPS	BI-DIRECTIONAL - REAR PORTS					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 23 to 64	G1	22 (0.87")	30.5 (1.2")			G1	22 (0.87")	30.5 (1.2")		


code R

 Threaded ports
 SAE (ODT)

SAE12	90 Nm (66.4 lbf-ft)
SAE16	130 Nm (95.8 lbf-ft)
SAE20	170 Nm (125.4 lbf-ft)



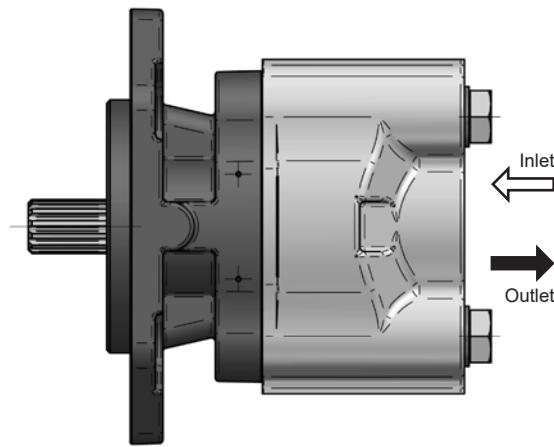
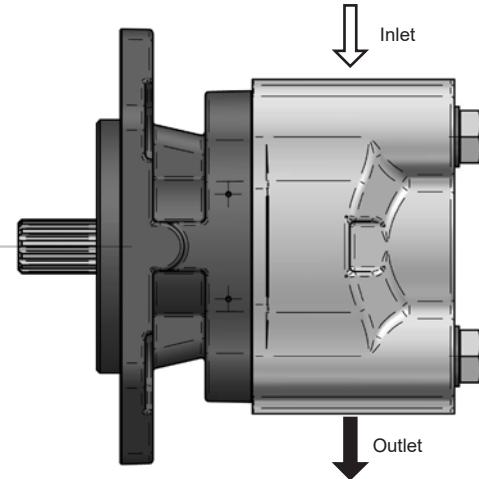
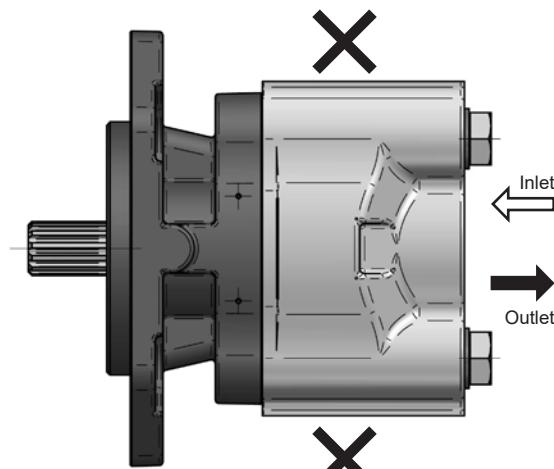
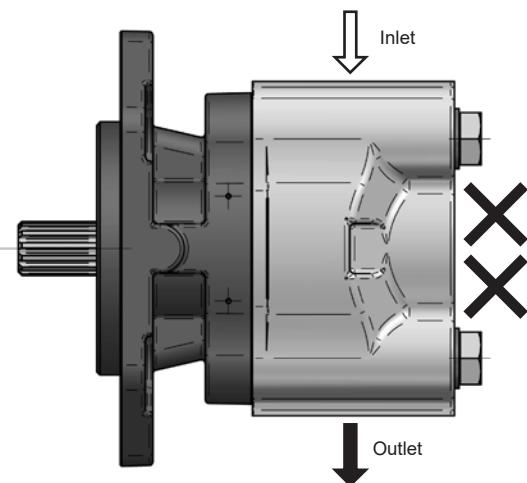
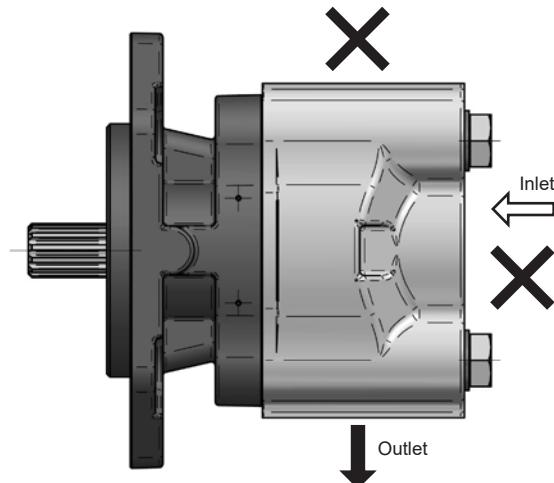
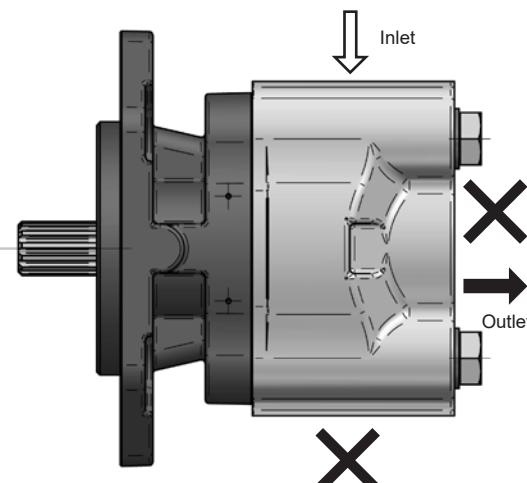
PUMPS	UNI-DIRECTIONAL					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 23 to 40	1-5/16-12 UN (SAE 16)	19 (0.75")	31 (1.22")	49 (1.93")	3.3 (0.13")	1-5/16-12 UN (SAE 12)	19 (0.75")	24.7 (1.09")	41 (1.16")	3.3 (0.13")
From 47 to 80	1-5/8-12 UN (SAE 20)	19 (0.75")	38.9 (1.53")	58 (2.28")	3.3 (0.13")	1-5/16-12 UN (SAE 16)	19 (0.75")	31 (1.22")	49 (1.93")	3.3 (0.13")

PUMPS	BI-DIRECTIONAL					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 23 to 40	1-5/16-12 UN (SAE 16)	19 (0.75")	31 (1.22")	49 (1.93")	3.3 (0.13")	1-5/16-12 UN (SAE 16)	19 (0.75")	31 (1.22")	49 (1.93")	3.3 (0.13")
From 47 to 80	1-5/8-12 UN (SAE 20)	19 (0.75")	38.9 (1.53")	58 (2.28")	3.3 (0.13")	1-5/8-12 UN (SAE 20)	19 (0.75")	38.9 (1.53")	58 (2.28")	3.3 (0.13")

PUMPS	BI-DIRECTIONAL - REAR PORTS					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 23 to 64	1-5/16-12 UN (SAE 16)	19 (0.75")	31 (1.22")	49 (1.93")	3.3 (0.13")	1-5/16-12 UN (SAE 16)	19 (0.75")	31 (1.22")	49 (1.93")	3.3 (0.13")

**GEAR PUMPS "PG" SERIES**
Cast Iron Gear Housing**PG330**

(i) example with clockwise rotation / X = plugged port

Ports layout - Single Pump**STANDARD CONFIGURATION****CODE 1****CODE 2****CODE 3****CODE 4****CODE 5**

PG330

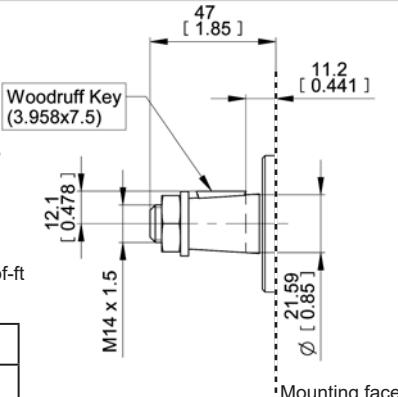
GEAR PUMPS "PG" SERIES Cast Iron Gear Housing



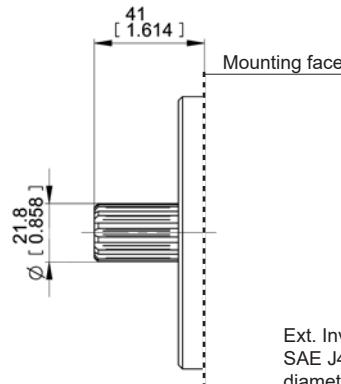
Drive Shaft

- Woodruff Key
3.958x7,5
- Washer
M14 TE-UNI 1751B
- Nut
M14x1,5 ISO 8675
40 Nm-29.7 lbf-ft

Part Number
Kit Woodruff Key+Nut+Washer
R12980070



Pressure values are lower for displacement 55-64-72 cc/rev, see page 53.



Ext. Involute Spline
SAE J498B with outer diameter modified 13 teeth - 16/32 Pitch - 30 deg - Flat Root - Side fit - Class 1

code 38

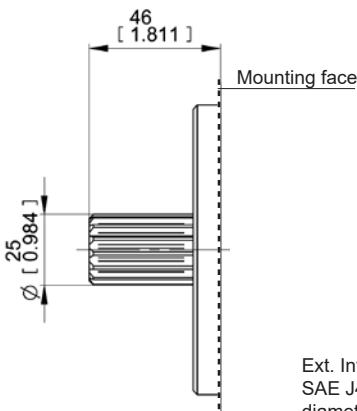

Max torque 250 Nm (2213 lbf in)

code 55

Max torque 330 Nm (2921 lbf in)

Tapered 1:8

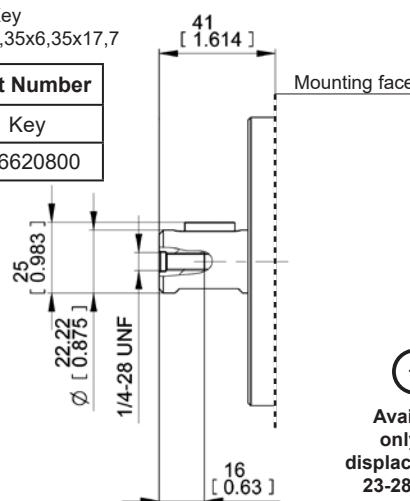
SAE B 13T-16/32DP SPLINED



Ext. Involute Spline
SAE J498B with outer diameter modified 15 teeth - 16/32 Pitch - 30 deg - Flat Root - Side fit - Class 1



Part Number
Key 796620800



Available only for displacements: 23-28-34-40

code 56

Max torque 480 Nm (4250 lbf in)

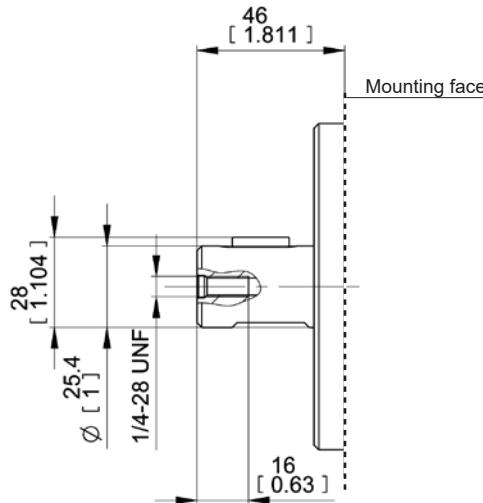
code 87

Max torque 220 Nm (1950 lbf in)

SAE BB 15T-16/32DP SPLINED

SAE B PARALLEL

Key 6,35x6,35x17,7
Part Number Key 796620800


code 88

Max torque 320 Nm (2830 lbf in)

SAE BB PARALLEL

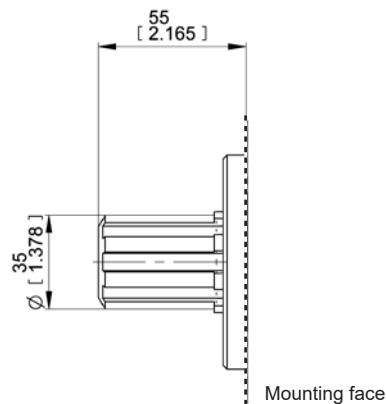
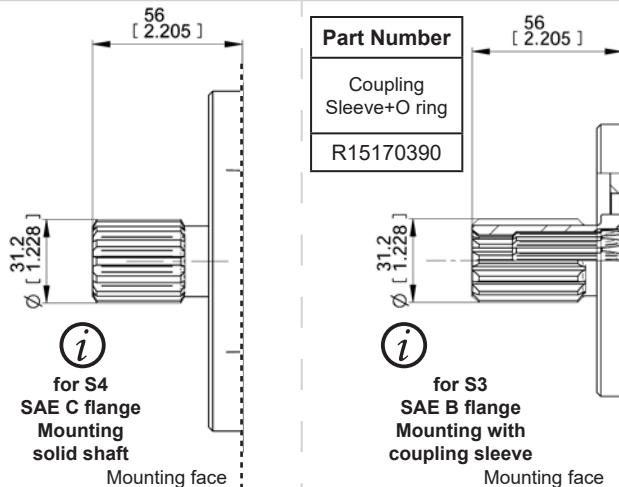


GEAR PUMPS "PG" SERIES

Cast Iron Gear Housing

PG330

Continental Shaft



Ext. Involute Spline SAE J498B with outer diameter modified 14 teeth - 12/24 Pitch - 30 deg - Flat Root - Side fit - Class 1

code 58

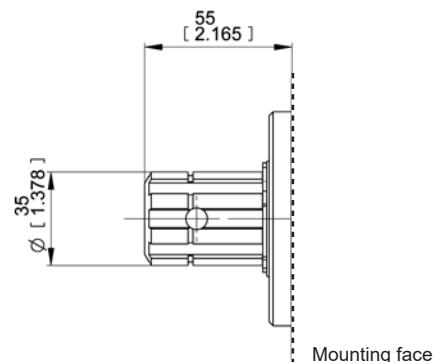
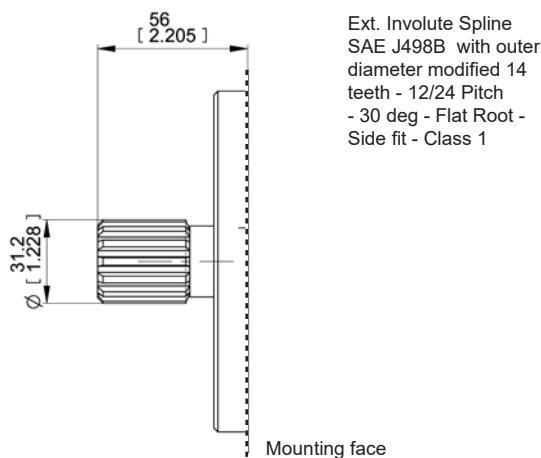
Max torque 480 Nm (4250 lbt in)	Max torque 330 Nm (4250 lbt in)
---------------------------------	---------------------------------

code 67

Max torque 480 Nm (4250 lbt in)

SAE C 14T-12/24DP SPLINED

B8x32x36 DIN 5462 SPLINED



code 57

Max torque 480 Nm (4250 lbt in)

code 66

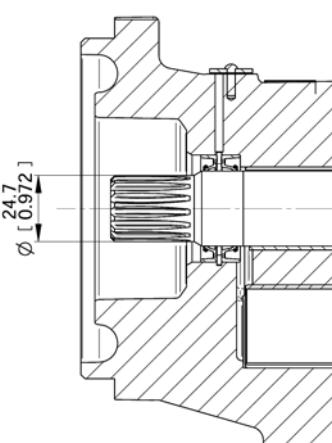
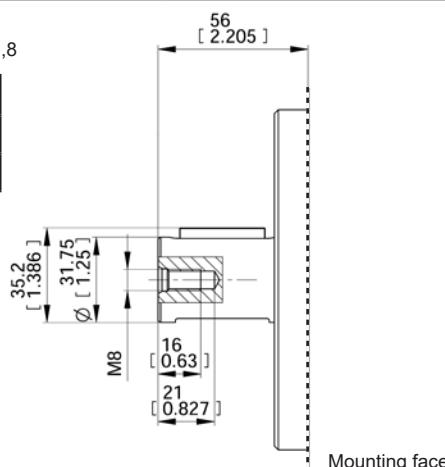
Max torque 480 Nm (4250 lbt in)

SAE C 14T-12/24DP SPLINED

B8x32x36 DIN 5462 SPLINED

Key
7,94x7,94x31,8

Part Number
Key 796620800



code 89

Max torque 480 Nm (4250 lbt in)

code 70

Max torque 480 Nm (4250 lbt in)

SAE C PARALLEL

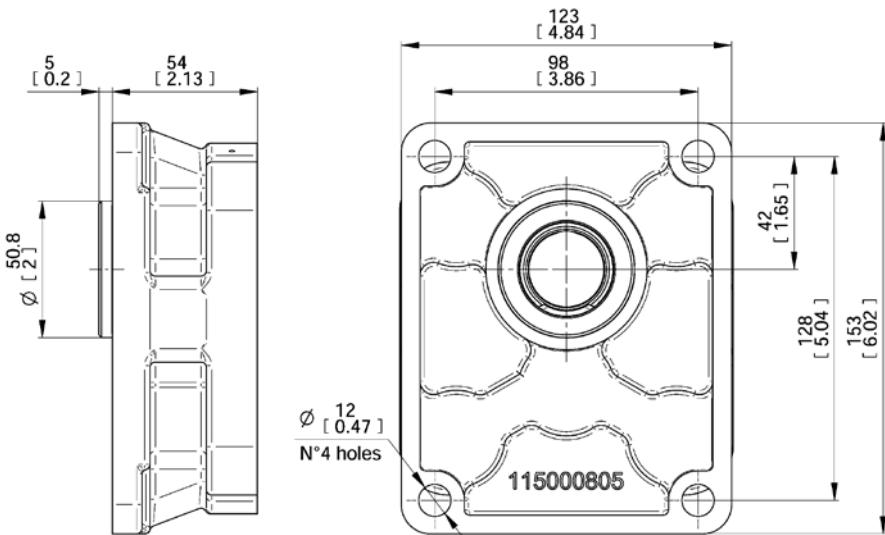
INTERNAL DRIVE SHAFT - W25X1.5X15X8F DIN 5480 SPLINED

PG330

GEAR PUMPS "PG" SERIES Cast Iron Gear Housing



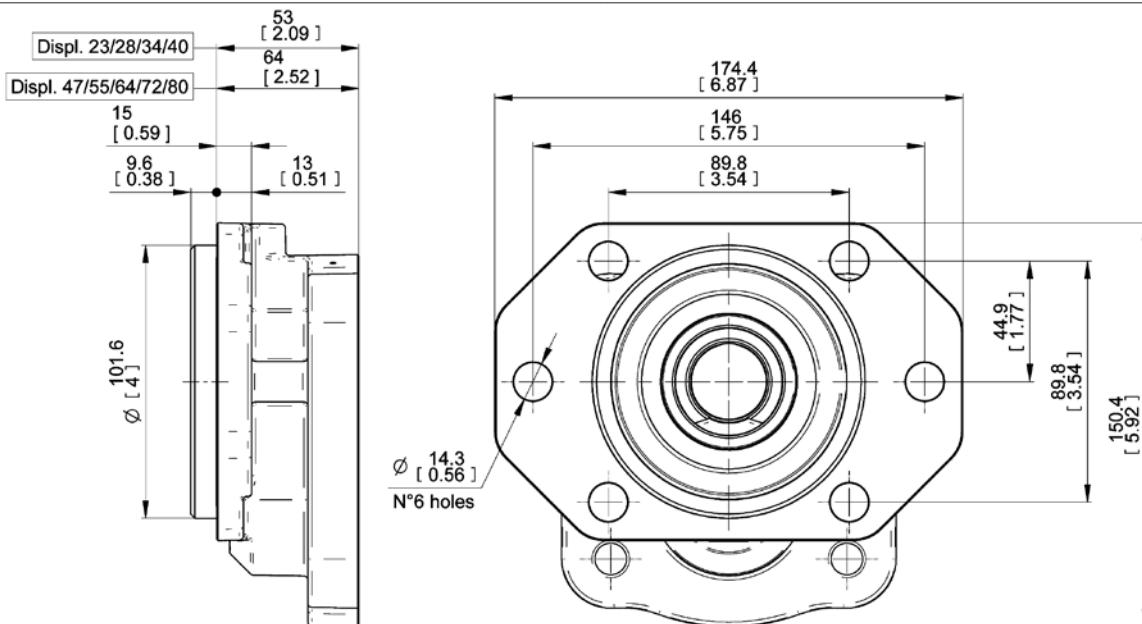
Mounting Flanges



Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit	Shaft seal kit (See page 76-77)
38P2	R15240030 (NBR) R15240031 (FPM)	R12940010 (NBR) R12940020 (FPM)

P2

With shaft code 38

EUROPEAN STANDARD


Code	Part Number (Unidirectional Pump)		
	Flange+Shaft seal kit	Shaft seal kit (See page 76-77)	
55S3			
56S3	R15240010 (NBR)	R15240020 (NBR)	R12940030 (NBR)
87S3	R15240011 (FPM)	R15240021 (FPM)	R12940033 (FPM)
88S3			
58S3	R15240012 (NBR) R15240013 (FPM)	R15240022 (NBR) R15240023 (FPM)	R15020190 (NBR) R15020191 (FPM)

S3

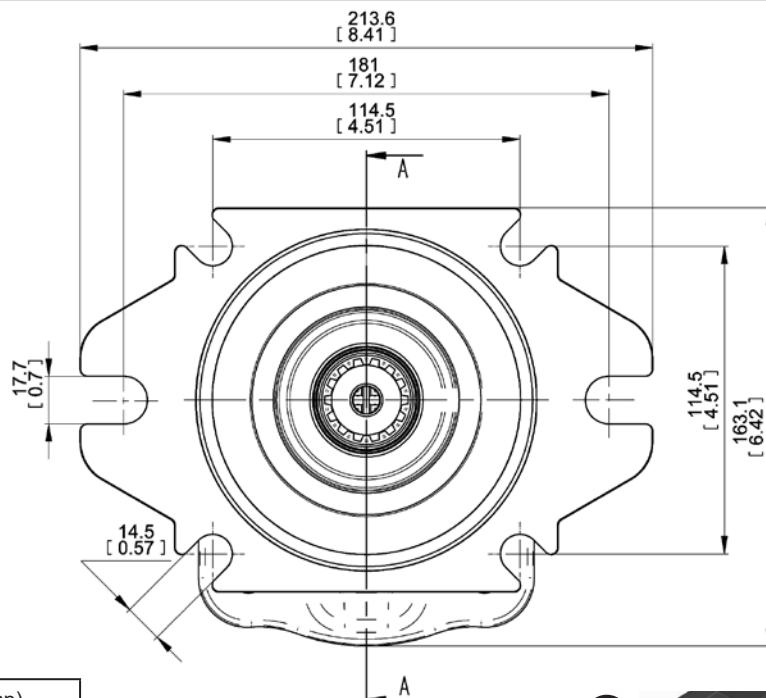
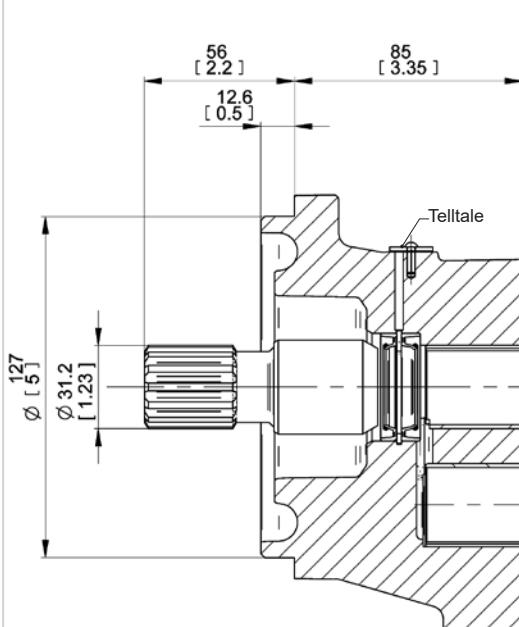
With shaft code 55-56-58-87-88

SAE B 2-4 BOLTS

EO.151.0721.14.00IM00



Mounting Flanges



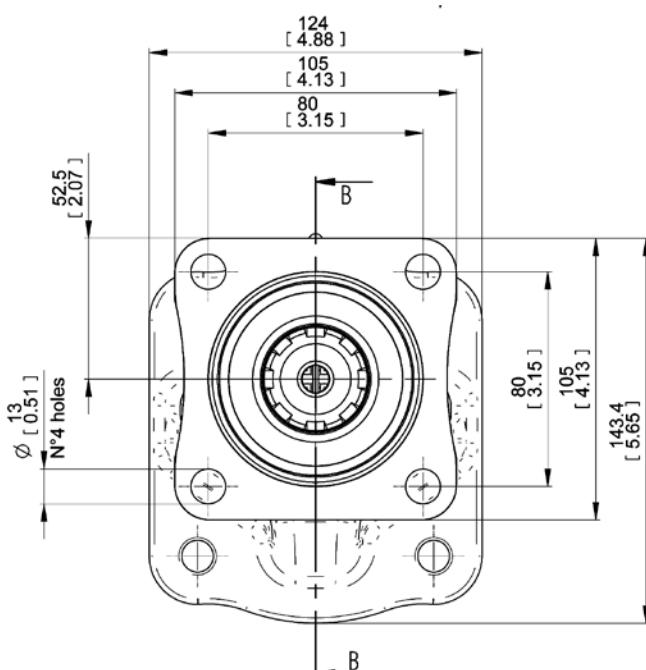
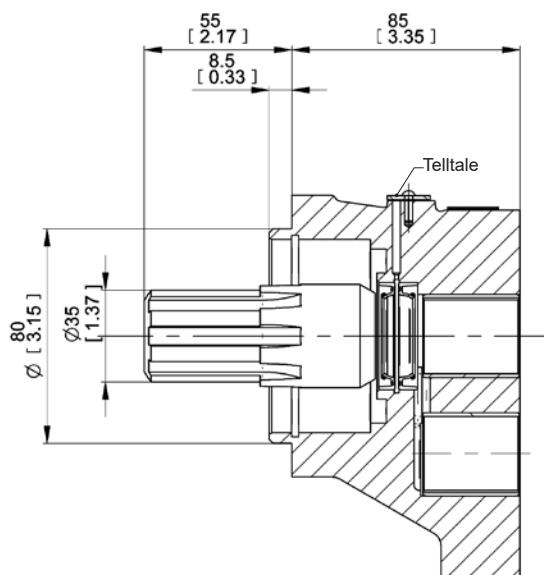
i
Telltale drop in plug in case of failure, outside leakage through the crossing hole is visible.

Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit (See page 76-77)	Shaft seal kit (See page 76-77)
58S4	R15020015 (NBR) R15020017 (FPM)	R15020190 (NBR) R15020191 (FPM)

S4

With shaft code 58

SAE C 2-4 BOLTS



Code	Part Number (Unidirectional Pump)	
	Flange+Shaft seal kit (See page 76-77)	Shaft seal kit (See page 76-77)
67Z2	R15020013 (NBR) R15020120 (FPM)	R15020200 (NBR) R15020201 (FPM)

Z2

With shaft code 67

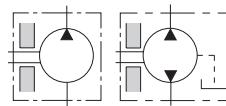
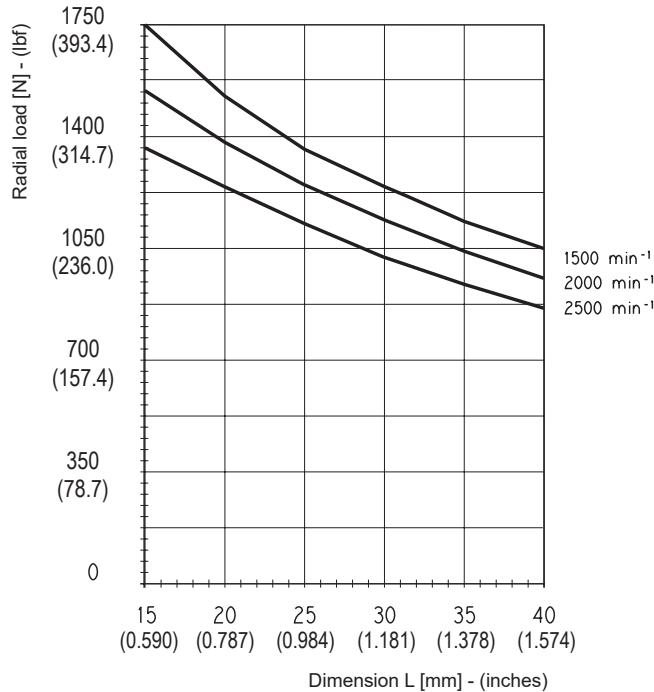
4 Bolts for ZF gear box



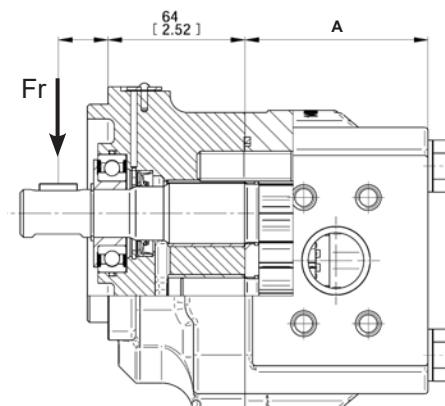
PG330

Mounting Flanges with Outrigger Bearing for Medium Loads (R3)

The following diagram shows radial load bearing capacity, in case of parallel axis drag.
 The duty life of 3500 - 4000 hours is referred to a typical mobile application, when duty cycle is less than 100%.

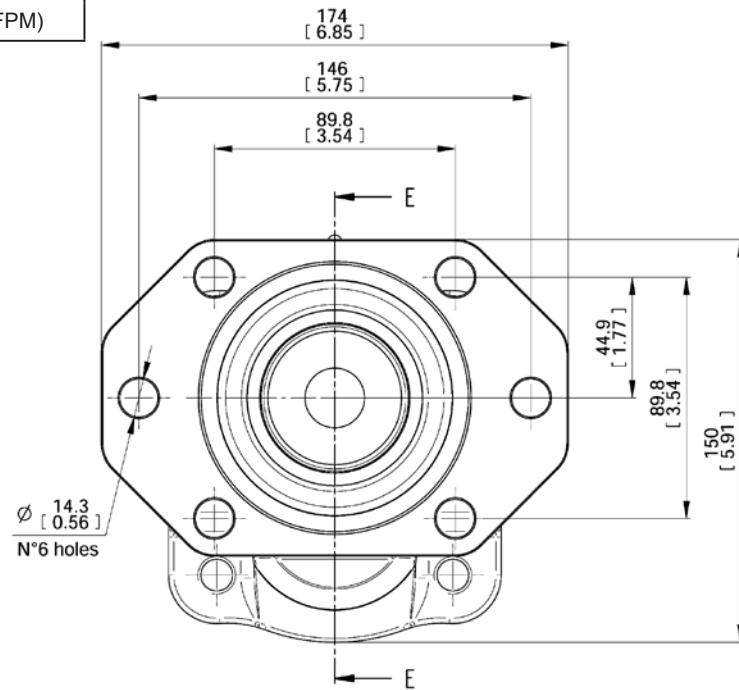
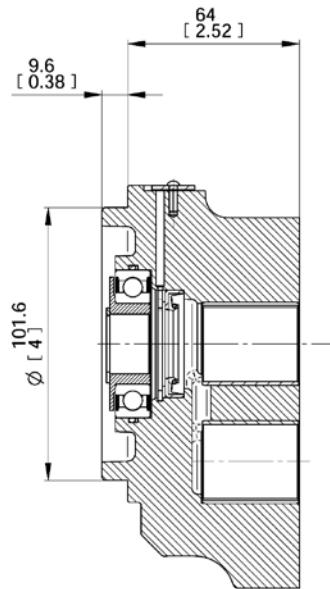


L=Distance between mounting flange and radial force point of application [mm-inches]



Type	A	
	mm	in
PG330 - 23	77	3.03
PG330 - 28	81	3.19
PG330 - 34	85.5	3.36
PG330 - 40	90	3.54
PG330 - 47	101.5	3.40
PG330 - 55	107.5	4.23
PG330 - 64	114.5	4.51
PG330 - 72	121.5	4.78
PG330 - 80	127.5	5.02

Code	Part Number
	Flange+Bearing support
55R3	R15020023 (NBR)
87R3	R15020090 (FPM)
56R3	R15020021 (NBR)
88R3	R15020080 (FPM)



R3

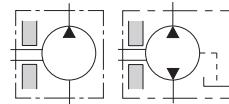
With shaft code 55-56-87-88

SAE B 2-4 BOLTS

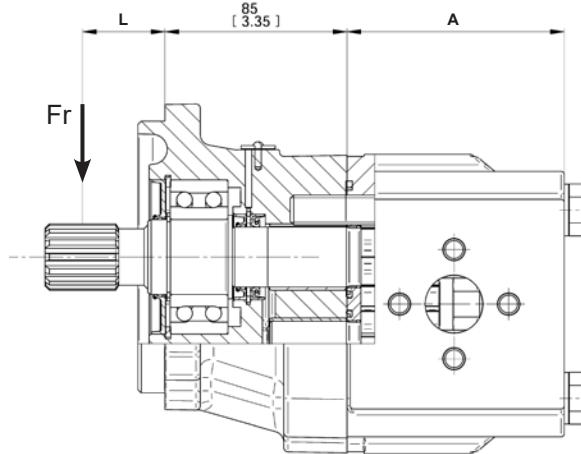


Mounting Flanges with Outrigger Bearing for Heavy Loads (Z1- R8)

The following diagram shows radial load bearing capacity, in case of parallel axis drag.
The duty life of 3500 - 4000 hours is referred to a typical mobile application, when duty cycle is less than 100%.



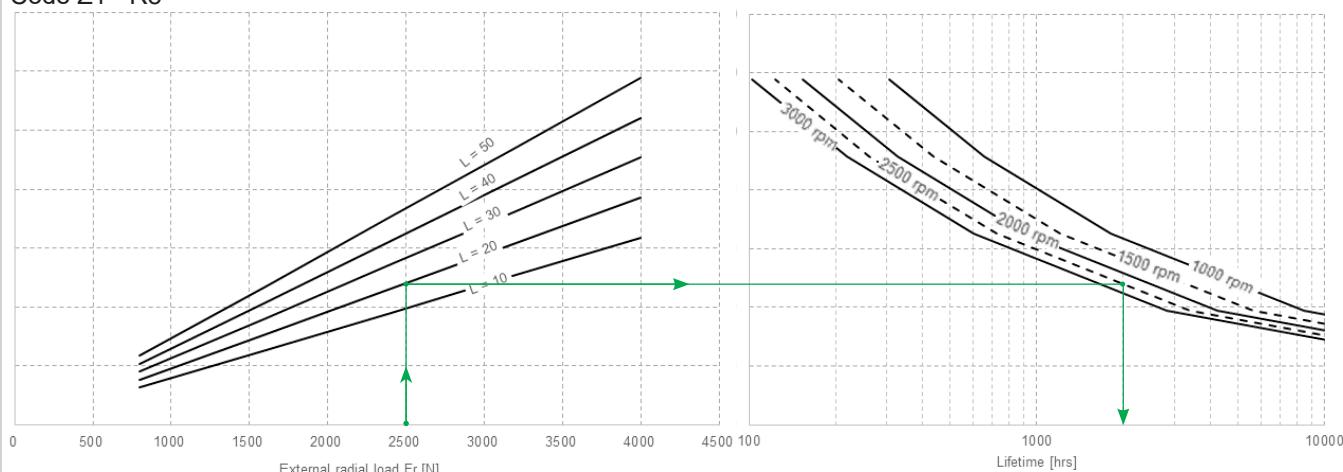
L=Distance between mounting flange and radial force point of application [mm-inches]



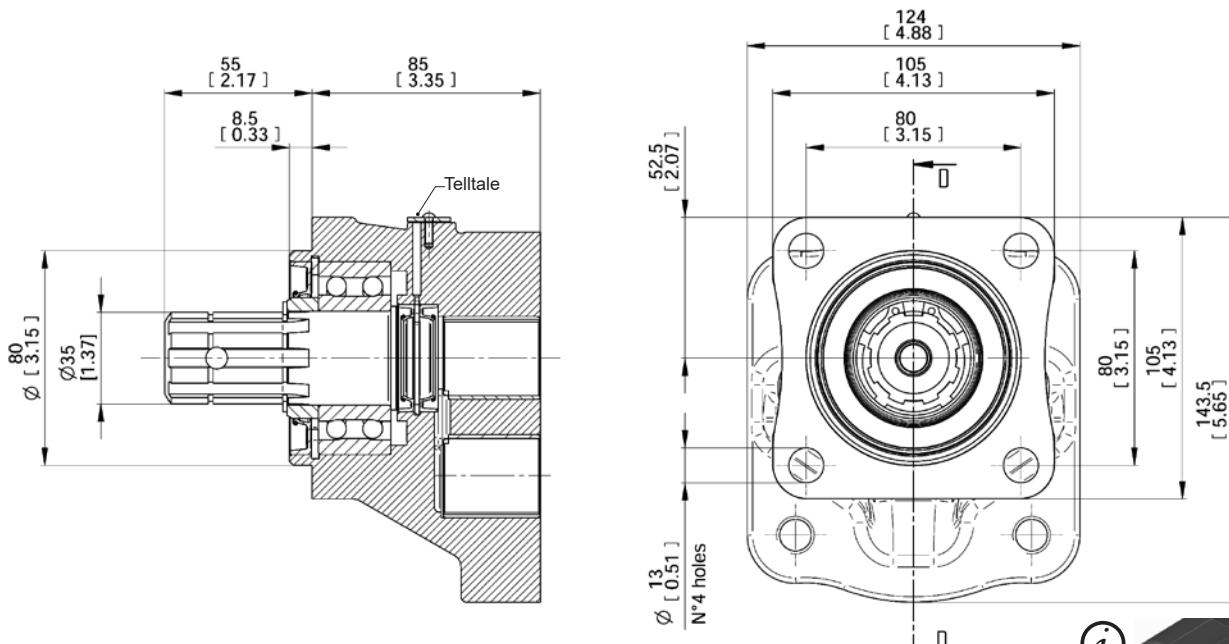
Type	A	
	mm	in
PG330 - 23	77	3.03
PG330 - 28	81	3.19
PG330 - 34	85.5	3.36
PG330 - 40	90	3.54
PG330 - 47	101.5	3.40
PG330 - 55	107.5	4.23
PG330 - 64	114.5	4.51
PG330 - 72	121.5	4.78
PG330 - 80	127.5	5.02

Example:
Fr = 2500 N → Expected life: 2000 hrs
L = 20
Speed = 2500 rpm

Code Z1 - R8



PG330
GEAR PUMPS "PG" SERIES
Cast Iron Gear Housing

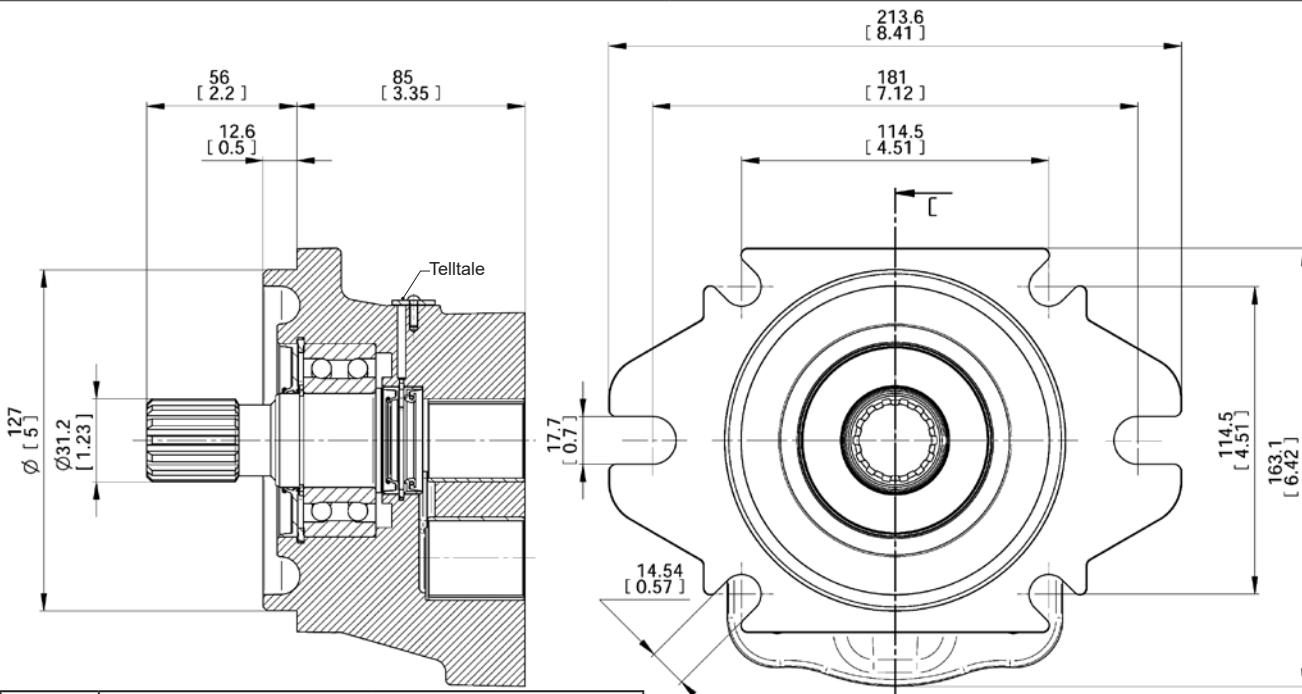
Mounting Flanges with Outrigger Bearing for Heavy Loads (Z1- R8)


Code	Part Number	
	Flange+Bearing support	
66Z1	R15020012 (NBR)	R15020018 (FPM)

Telltale
drop in plug in case of failure,
outside leakage trough the
crossing hole is visible.



Z1	With shaft code 66
4 BOLTS FOR ZF GEAR	



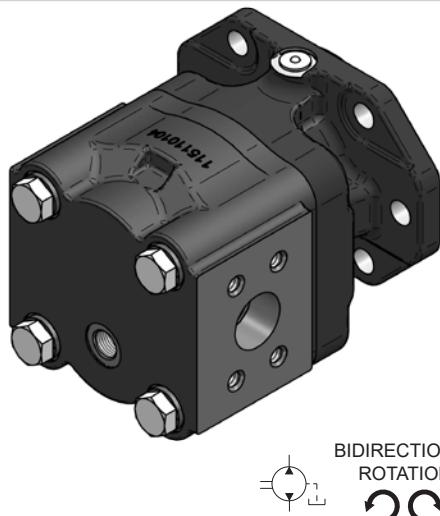
Code	Part Number	
	Flange+Bearing support	
57R8	R15020010 (NBR)	R15020030 (FPM)
89R8	R15020014 (NBR)	R15020040 (FPM)

E0.151.0721.14.00IM00

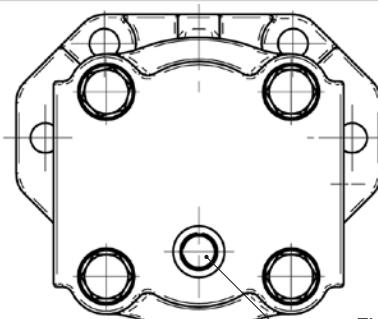
R8	With shaft code 57-89
SAE C 2-4 BOLTS	



External Drain for Bidirectional Pump

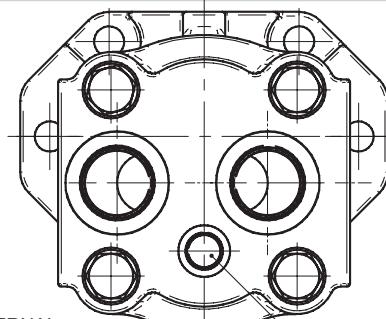


BIDIRECTIONAL ROTATION



Threaded Drain Port

C
9/16-18 UNF-2B
SAE 6
G 3/8

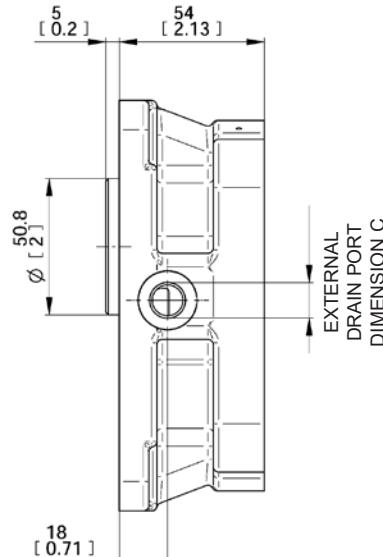
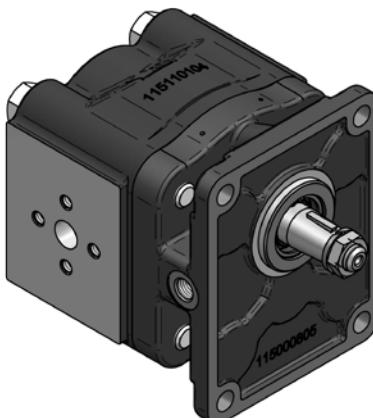
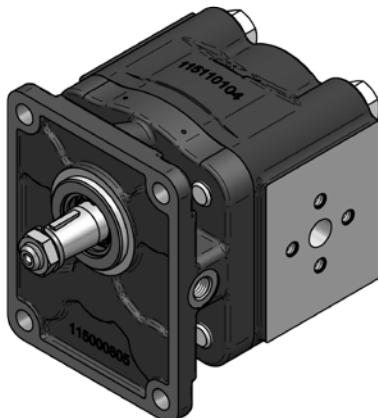


EXTERNAL DRAIN PORT DIMENSION C



Available only threaded ports see page 62

GEAR HOUSING TYPES



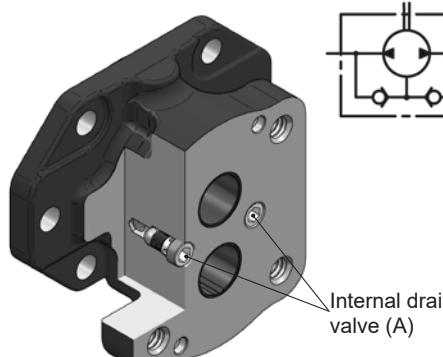
Code	Part Number	Threaded Drain Port
		C
P2 with lateral drain	R15000815	G1/4

BIDIRECTIONAL ROTATION

LD

P2 (EUROPEAN STANDARD) WITH LATERAL DRAIN

Internal Drain Valve for Bidirectional Pump



Internal drain valve (A)

Code	Part Number	
	Flange+Shaft seal kit+Internal drain valve	Internal drain valve (A)
P2-IDV	R15030020 (NBR)	R15030030 (FPM)
S3-IDV	R15012503 (NBR) (from 23cc to 40cc)	R15012505 (FPM) (from 23cc to 40cc)
	R15012502 (NBR) (from 47cc to 80cc)	R15012506 (FPM) (from 47cc to 80cc)
S4-IDV	R15012507 (NBR)	R15012508 (FPM)
R8-IDV	R15012509 (NBR)	R15012510 (FPM)
Z1-IDV	R15170460 (NBR)	R15170461 (FPM)
Z2-IDV	R15030040 (NBR)	R15030050 (FPM)

IDV

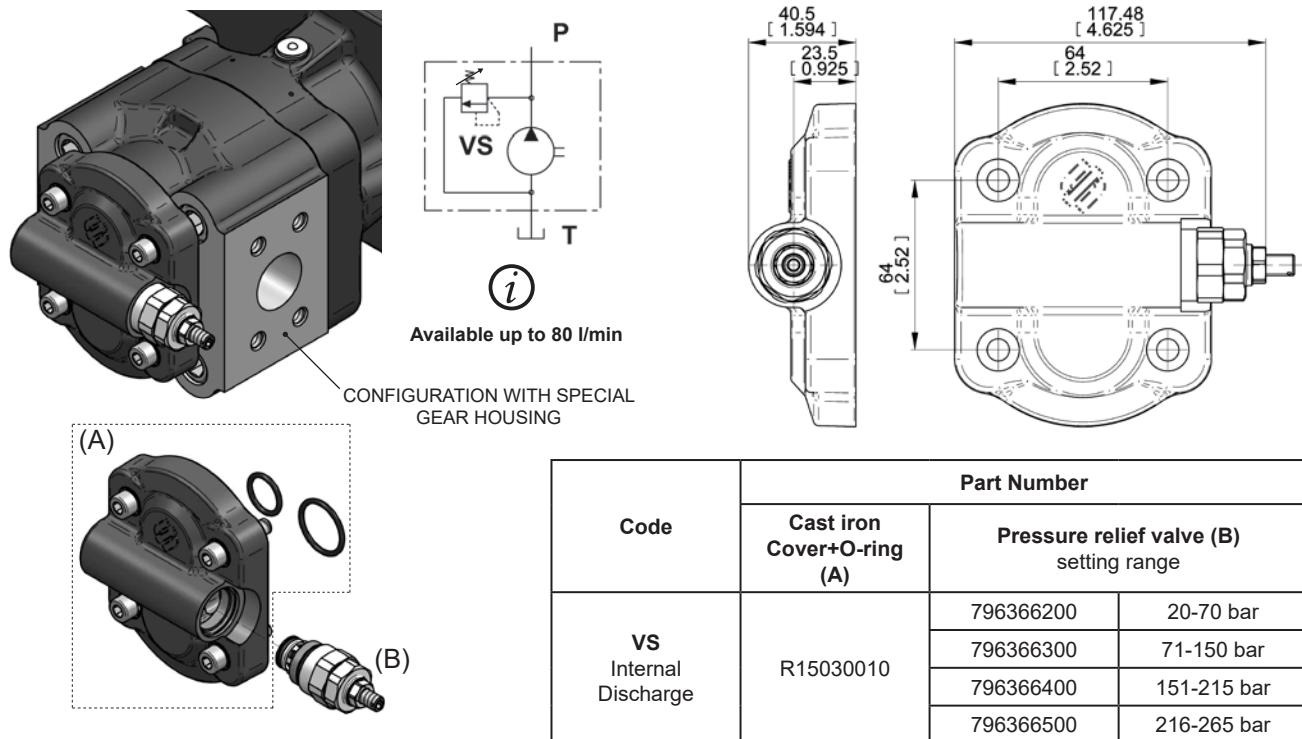
INTERNAL DRAIN FOR BI-DIRECTIONAL PUMP

PG330

GEAR PUMPS "PG" SERIES Cast Iron Gear Housing

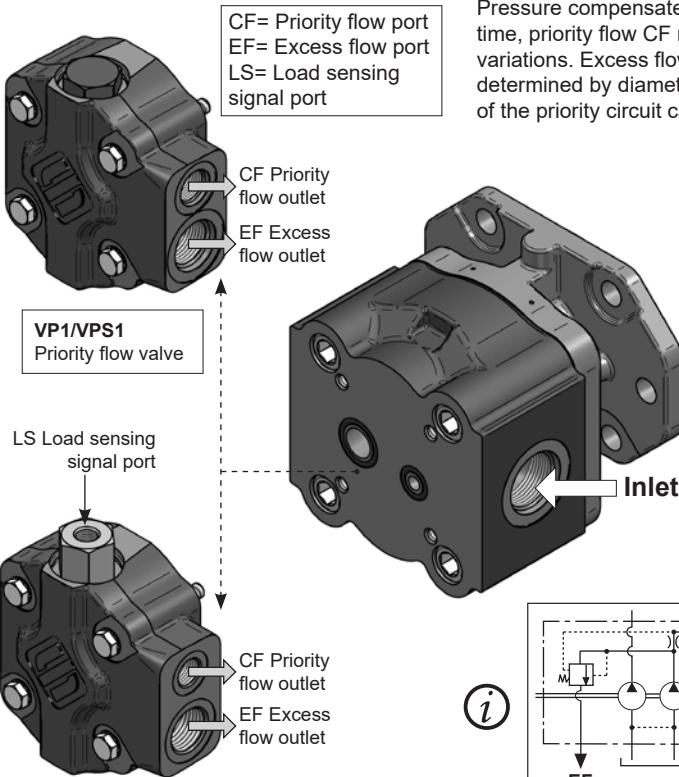


Rear Covers with Valves



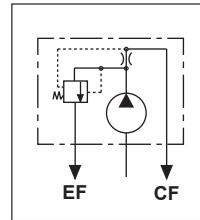
VS

MAIN RELIEF VALVE



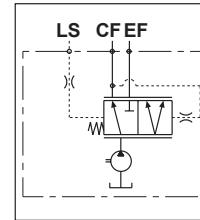
Pressure compensated priority flow valve to feed two pressurized circuit at the same time, priority flow CF remains constant regardless of pump speed and system pressure variations. Excess flow EF is directly proportional to pump speed. Priority flow is determined by diameter of calibrated orifice, see table at page 73). The max. pressure of the priority circuit can be limited by valve which relieves into pump suction line.

VP1



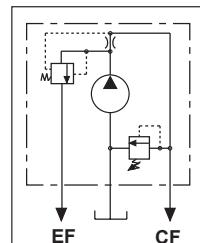
Priority flow valve, excess flow available to second actuator.

VPD1



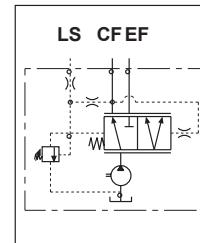
Load sensing priority valve with dynamic signal without main relief valve.

VPS1



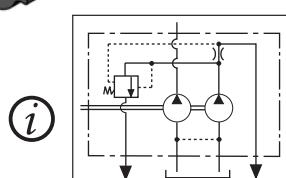
Priority flow valve, excess flow available to second actuator with pressure relief valve on priority flow line.

VPDS1



Load sensing priority valve with dynamic signal with main relief valve.

VP1-VPS1
Load sensing priority valve



Multiple pump with Priority flow valve available.
(Example VP1)

VP1-VPS1

PRESSURE COMPENSATED PRIORITY FLOW VALVES

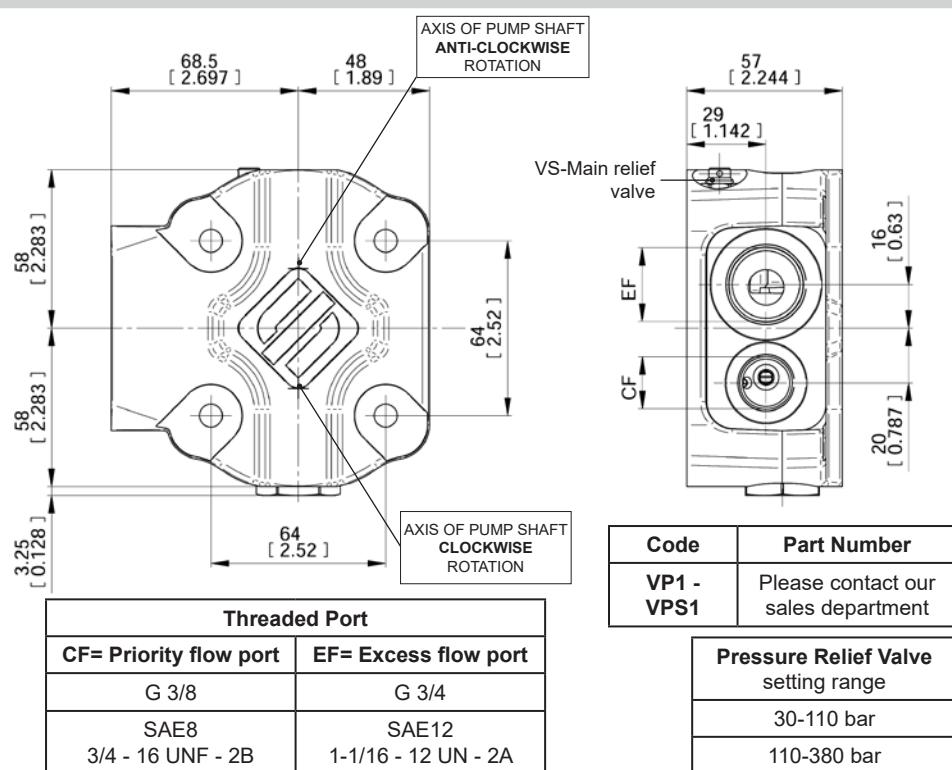
VPD1-VPDS1

LOAD SENSING PRIORITY VALVES



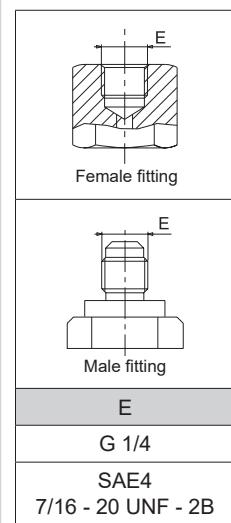
Pressure Compensated Priority Flow Valve

Flow Rate Table			
CF - port		Calibrated Orifice ϕd	
		Flow rate ± 10%	
mm	inch	l/min	gpm
1.5	0.06	2.5	0.66
2	0.08	4	1.06
2.4	0.09	6	1.59
2.8	0.11	8	2.11
3.1	0.12	10	2.64
3.5	0.14	12.5	3.30
4	0.16	16	4.23
4.4	0.17	20	5.28
4.9	0.19	25	6.61



VP1	VPS1
Excess flow available to second actuator - REAR PORTS	Excess flow available to second actuator with fixed setting pressure relief valve on priority flow line - REAR PORTS

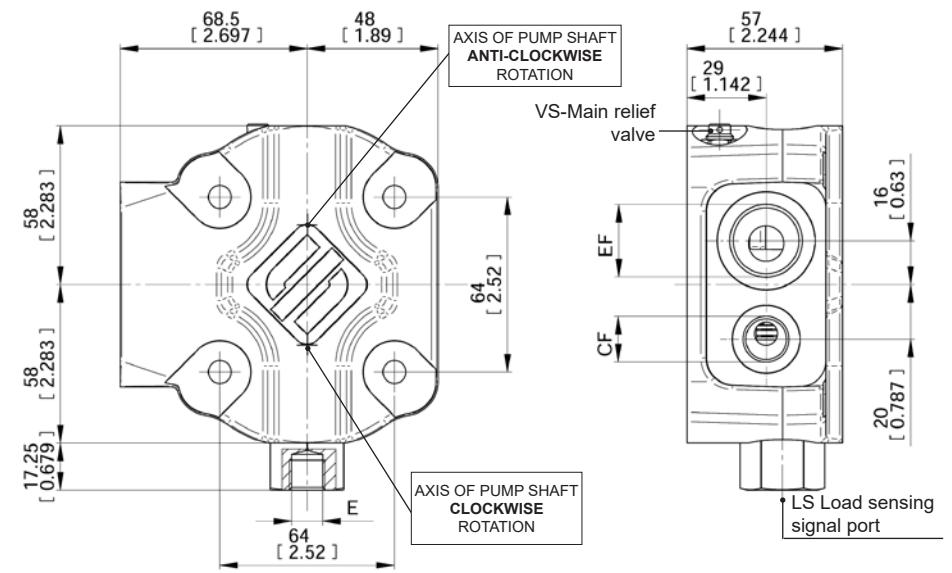
Load Sensing Priority Valve



E0.151.0721.14.00M00

Minimum load sensing signal (LS)
= 4 bar (28 psi)

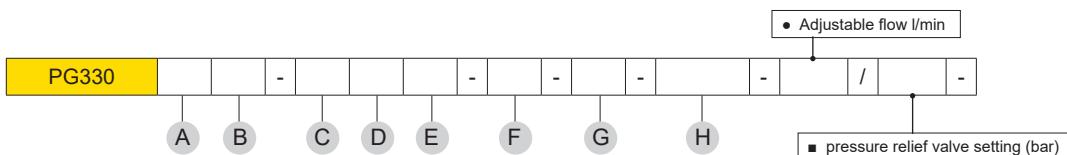
Code	Part Number
VPD1 - VPDS1	Please contact our sales department



VPD1	VPDS1
Excess flow available to second actuator - SIDE PORTS	Excess flow available to second actuator with adjustable setting pressure relief valve on priority flow line - SIDE PORTS

PG330

HOW TO ORDER SINGLE PUMP



DISPLACEMENTS		
A	CODES	
23	23.4 cm ³ /rev.	1.43 cu.in/rev.
28	28.6 cm ³ /rev.	1.74 cu.in/rev.
34	34.4 cm ³ /rev.	2.1 cu.in/rev.
40	40.3 cm ³ /rev.	2.46 cu.in/rev.
47	47.5 cm ³ /rev.	2.89 cu.in/rev.
55	55.2 cm ³ /rev.	3.37 cu.in/rev.
64	64.3 cm ³ /rev.	3.92 cu.in/rev.
72	73.4 cm ³ /rev.	4.48 cu.in/rev.
80	80.6 cm ³ /rev.	4.91 cu.in/rev.

B	ROTATION	CODES
Clockwise		D
Anti-clockwise		S
Reversible		R

C	PORTS (page 61)	CODES
Flanged ports european standard		P
Flanged ports SAE J518 Metric thread		W
Flanged ports SAE J518 American standard thread		S
Threaded ports GAS (BSP)		G
Threaded ports SAE (ODT)		R

D	DRIVE SHAFT END (page 64)	CODES
Tapered 1:8		38
SAE B splined 13T		55
SAE BB splined 15T		56
SAE B PARALLEL		87
SAE BB PARALLEL		88
SAE C 14T-12/24DP Continental Shaft		58
8x32x36 UNI 8953 splined Continental Shaft		67
SAE C 14T-12/24DP Continental Shaft		57
8x32x36 UNI 8953 splined Continental Shaft		66
SAE C PARALLEL Continental Shaft		89

H	FLANGES AND REAR COVERS (page 71)	CODES
Priority flow valve with excess flow to 2nd actuator	• VP1	
Priority flow valve with excess flow to 2nd actuator with main relief valve	■ VPS1	
Load sensing priority valve with dinamic signal	• VPD1	
Load sensing priority valve with dinamic signal and main relief valve	■ VPDS1	
Adjustable main relief valve	■ VS	
Internal drain valve (Flange)	IDV	
Lateral drain on P2 (Flange European standard)	LD	
G	PORTS LAYOUT (page 63)	CODE
Side ports (standard configuration)	-	
Rear ports	1	
Side ports - Rear ports plugged	2	
Rear ports - Side ports plugged	3	
Side Inlet port - Rear outlet port	4	
Rear Inlet port - Side outlet port	5	
F	SEAL	CODE
Buna standard (standard configuration)	-	
Viton	V	
E	MOUNTING FLANGES (page 66)	CODES
European standard Ø50.8	P2	
SAE B 2-4 BOLTS	S3	
SAE C 2-4 BOLTS	S4	
SAE B 2-4 BOLTS (Medium Loads)	R3	
SAE C 2-4 BOLTS (Heavy Loads)	R8	
4 BOLTS FOR ZF GEAR	Z1	
4 Bolts for ZF gear box	Z2	

How to order Single pump: PG330 28D, ports European (P), drive shaft (38), mounting flange (P2) **PG330-28D-P38P2**

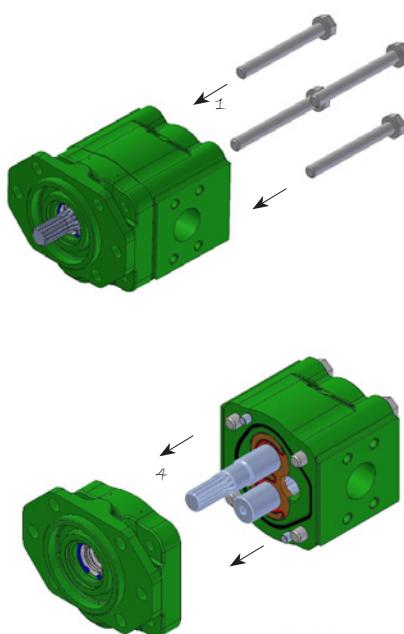
How to order Single pump with VPDS1:

PG330 23D, ports GAS-BSP (G), drive shaft (67), mounting flange (Z2), Load sensing priority valve with dinaminc signal and main relief valve (VPDS1) **PG330-23D-G67Z2-VPDS1/200**

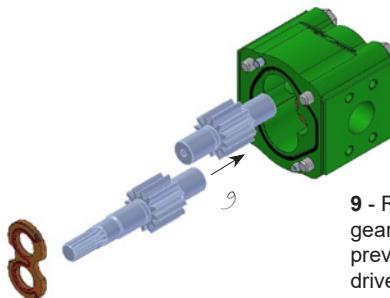


Single Pump Changing Rotation Instructions

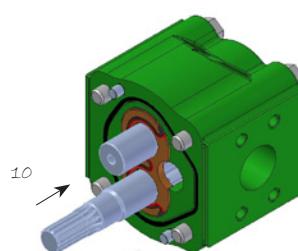
! Keep the working surface cleaned as well as the exterior of the pump before starting and avoid inner contamination of the pump. The pump shown below is an anti - clockwise rotating pump. To achieve clockwise rotation, please read the following instructions carefully.



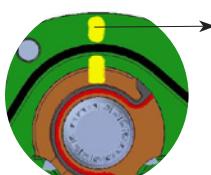
- 1 - Loosen and fully unscrew the bolts.
- 2 - Lay the pump on the working area in order to have the mounting flange turned upside.
- 3 - Coat the shaft end with grease to avoid damaging the shaft seal.
- 4 - Remove the flange and lay it on the working area; verify that the seal is correctly located in the body seat.



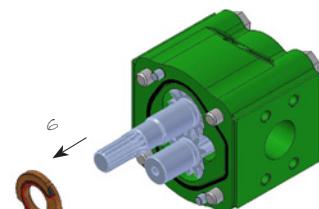
- 9 - Re-locate the driving gear in the position previously occupied by the driven gear.



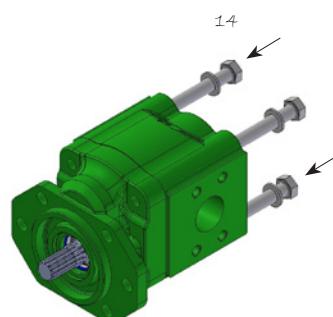
- 10 - Replace the bushing and thrust plate taking care that:
 - marks are located as on the picture
 - surface containing the seal is visible
 - seal and its protection are correctly located.



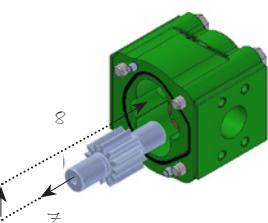
- 11 - Clean the body and mounting flange facing surfaces.



- 12 - Verify that the two plugs are located in the body.



- 13 - Refit the mounting flange, turned 180° from its original position.
- 14 - Replace the bolts and tighten clockwise evenly to an appropriate torque.



- 15 - Check that the shaft rotates freely.

- 16 - Mark on the flange the new direction of rotation.



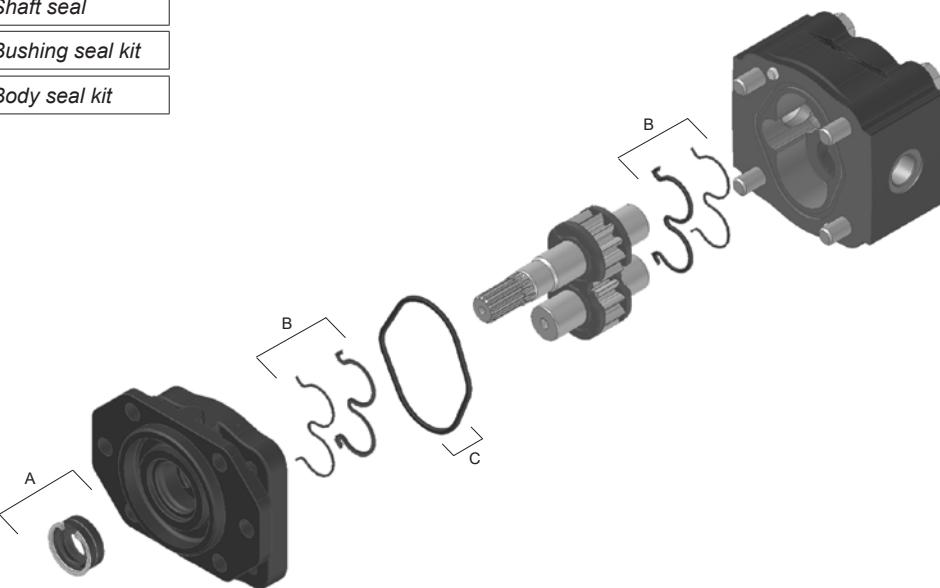
- 7 - Draw out the driven gear from its housing, taking care to avoid rear cover axial shifts.
- 8 - Re-locate the driven gear in the position previously occupied by the driving gear.



PG330

Unidirectional Pump Seal Spare Parts Kit

A	Shaft seal
B	Bushing seal kit
C	Body seal kit



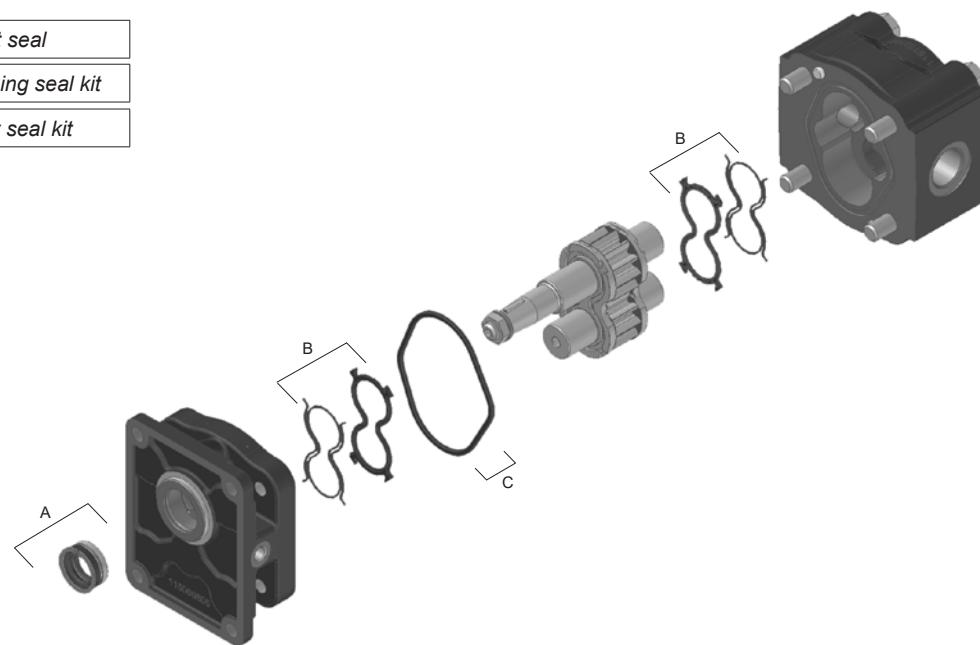
SHAFT & FLANGE TYPE	NBR COMPOUND		FPM COMPOUND	
	Complete seal kit (A+B+C)	Shaft seal kit (A)	Complete seal kit (A+B+C)	Shaft seal kit (A)
38P2	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R15170010 </div> <div style="text-align: center;"> Part Number R12940010 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R15170013 </div> <div style="text-align: center;"> Part Number R12940020 </div> </div>		
55S3 56S3 58S3 87S3 88S3	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R15170020 </div> <div style="text-align: center;"> Part Number R12940030 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R15170023 </div> <div style="text-align: center;"> Part Number R12940033 </div> </div>		
58S4	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R15170030 </div> <div style="text-align: center;"> Part Number R15020190 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R15170031 </div> <div style="text-align: center;"> Part Number R15020191 </div> </div>		
67Z2	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R15170430 </div> <div style="text-align: center;"> Part Number R15020200 </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Part Number R15170431 </div> <div style="text-align: center;"> Part Number R15020201 </div> </div>		

EO.151.0721.14.00IM00



Bidirectional Pump Seal Spare Parts Kit

A	Shaft seal
B	Bushing seal kit
C	Body seal kit



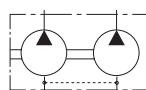
SHAFT & FLANGE TYPE	NBR COMPOUND		FPM COMPOUND											
	Complete seal kit (A+B+C)	Shaft seal kit (A)	Complete seal kit (A+B+C)	Shaft seal kit (A)										
38P2	<table border="1"> <tr> <td>Part Number</td> <td>R15170350</td> </tr> </table>	Part Number	R15170350	<p>796107700 22.22x34.93x6.3</p> <p>796127100 SBHP 22.22x34.93x6.3 20 bar</p> <p>Drive Shaft</p> <p>795508550 795002800</p>	<table border="1"> <tr> <td>Part Number</td> <td>R12940080</td> </tr> </table>	Part Number	R12940080	<p>796107740 22.22x34.93x6.3</p> <p>796127140 SBHP 22.22x34.93x6.3 20 bar</p> <p>Drive Shaft</p> <p>795508550 795002800</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15170360</td> </tr> </table>	Part Number	R15170360	<table border="1"> <tr> <td>Part Number</td> <td>R12940083</td> </tr> </table>	Part Number	R12940083
Part Number	R15170350													
Part Number	R12940080													
Part Number	R15170360													
Part Number	R12940083													
55S3 56S3 58S3 87S3	<table border="1"> <tr> <td>Part Number</td> <td>R15170370</td> </tr> </table>	Part Number	R15170370	<p>796109800 25x40x7</p> <p>795508950 795015300</p> <p>796126600 SBHP 25x40x7 20 bar</p> <p>Drive Shaft</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15170140</td> </tr> </table>	Part Number	R15170140	<p>796109840 25x40x7</p> <p>795508950 795015300</p> <p>796126640 SBHP 25x40x7 20 bar</p> <p>Drive Shaft</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15170380</td> </tr> </table>	Part Number	R15170380	<table border="1"> <tr> <td>Part Number</td> <td>R15170080</td> </tr> </table>	Part Number	R15170080
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Part Number	R15170140													
Part Number	R15170380													
Part Number	R15170080													
88S3	<table border="1"> <tr> <td>Part Number</td> <td>R15170160</td> </tr> </table>	Part Number	R15170160	<p>796109800 25x40x7</p> <p>795508950 795015300</p> <p>796126700 SBHP 25.4x40x7 20 bar</p> <p>Drive Shaft</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15170130</td> </tr> </table>	Part Number	R15170130	<p>796109840 25x40x7</p> <p>795508950 795015300</p> <p>796126740 SBHP 25.4x40x7 20 bar</p> <p>Drive Shaft</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15170400</td> </tr> </table>	Part Number	R15170400	<table border="1"> <tr> <td>Part Number</td> <td>R15170131</td> </tr> </table>	Part Number	R15170131
Part Number	R15170160													
Part Number	R15170130													
Part Number	R15170400													
Part Number	R15170131													
58S4	<table border="1"> <tr> <td>Part Number</td> <td>R15170410</td> </tr> </table>	Part Number	R15170410	<p>795508950 28x40x6</p> <p>795112700 28x40x6</p> <p>796126500 SBHP 28x40x7 20 bar</p> <p>Drive Shaft</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15020190</td> </tr> </table>	Part Number	R15020190	<p>795508950 28x40x6</p> <p>795112740 28x40x6</p> <p>796112740 SBHP 28x40x7 20 bar</p> <p>Drive Shaft</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15170420</td> </tr> </table>	Part Number	R15170420	<table border="1"> <tr> <td>Part Number</td> <td>R15020191</td> </tr> </table>	Part Number	R15020191
Part Number	R15170410													
Part Number	R15020190													
Part Number	R15170420													
Part Number	R15020191													
67Z2	<table border="1"> <tr> <td>Part Number</td> <td>R15170470</td> </tr> </table>	Part Number	R15170470	<p>795508950 28x40x7</p> <p>795126500 SBHP 28x40x7 20 bar</p> <p>Drive Shaft</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15020200</td> </tr> </table>	Part Number	R15020200	<p>795508950 28x40x7</p> <p>795126540 SBHP 28x40x7 20 bar</p> <p>Drive Shaft</p>	<table border="1"> <tr> <td>Part Number</td> <td>R15170471</td> </tr> </table>	Part Number	R15170471	<table border="1"> <tr> <td>Part Number</td> <td>R15020201</td> </tr> </table>	Part Number	R15020201
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Part Number	R15020200													
Part Number	R15170471													
Part Number	R15020201													

PG330

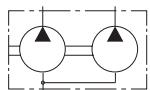
GEAR PUMPS "PG" SERIES Cast Iron Gear Housing



PG330 Multiple Pump - Dimensions and Technical Data



DOUBLE GEAR PUMPS
with individual inlet port



DOUBLE GEAR PUMPS
with common inlet port



Recommended to limit the inflow of the downstream pump at 60 l/min MAX to avoid cavitation. Only for common suction port configuration:
Commercial code UA.

TYPE	Displacement		Dimension A		Dimension C (Front and Back pump)						Continuous pressure p_1		Intermittent pressure p_2		Peak pressure p_3		Min. speed at p_1	Max. speed at p_2
	cm ³ /rev	cu.in./rev	mm	in	Type port G-R		Type port P		Type port W-S		bar	psi	bar	psi	bar	psi	rpm	
					mm	in	mm	in	mm	in								
PG330 - 23	23.4	1.43	68	2.68	35	1.38	35	1.38	33	1.30	260	3750	280	4060	300	4350	400	3000
PG330 - 28	28.6	1.74	72	2.83	38	1.49	34	1.34	36	1.42	280	4060	300	4350	320	4650	400	3000
PG330 - 34	34.4	2.10	76.5	3.01	42.5	1.67	37.5	1.48	40	1.57	280	4060	300	4350	320	4650	400	3000
PG330 - 40	40.3	2.46	81	3.19	47	1.85	42	1.65	44.5	1.75	260	3750	280	4060	300	4350	400	2700
PG330 - 47	47.4	2.89	93	3.66	50	1.97	50	1.97	50	1.97	280	4060	300	4350	320	4650	400	2700
PG330 - 55	55.2	3.37	99	6.78	56	2.20	52	2.05	56	2.20	260	3750	280	4060	300	4350	400	2700
											230*	3335*	250*	3625*	270*	3915*		
PG330 - 64	64.3	3.92	106	7.05	58	2.28	58	2.28	58	2.28	240	3480	260	3750	280	4060	350	2500
											200*	2900*	220*	3190*	240*	3480*		
PG330 - 72	73.4	4.48	113	7.33	61	2.40	61	2.40	61	2.40	220	3190	240	3480	260	3750	350	2500
											170*	2465*	190*	2755*	210*	3045*		
PG330 - 80	80.6	4.91	119	7.57	65	2.56	65	2.56	65	2.56	200	2900	220	3190	240	3480	350	2500

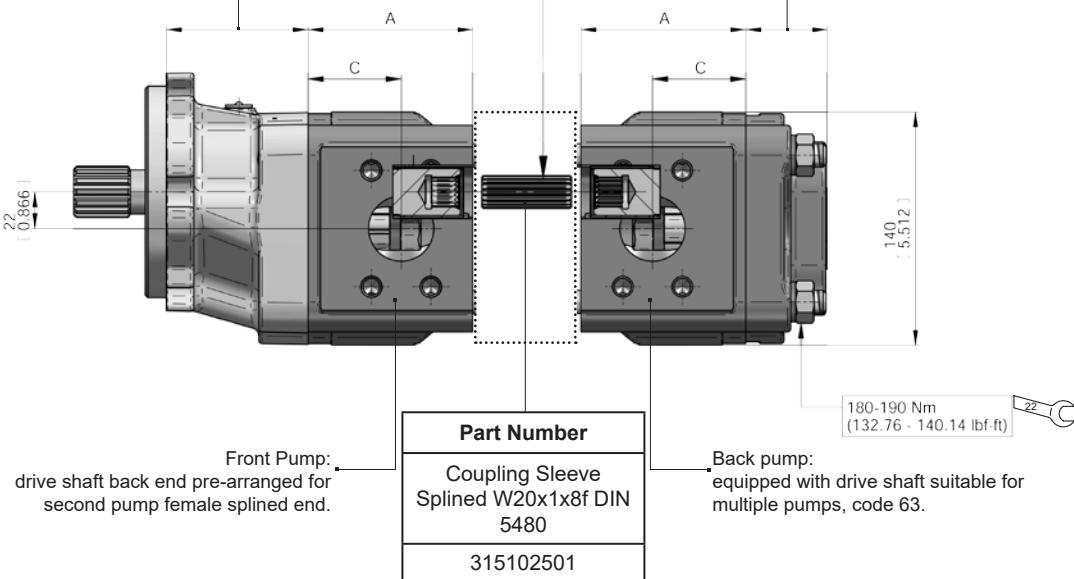
*Values of pressure with configuration with **Shaft 38-Flange P2** on the displacement 55-64-72, due to max Torque of 250 Nm.
Displacement 80 not available.

! Max Speed must be lowered by 10% for system working continuously at p_1 pressure.
Max pressure must be lowered by 10% for birectional pump.

For flanges code:
S3→ 53 mm (2.09 in.) for displ. 23 to 40
P2→ 54 mm (2.13 in.)
S4/R8/Z1/Z2→ 85 mm (3.35 in.)
R3→ 64 mm (2.52 in.)

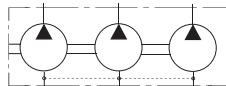
Max. Torque 270 Nm (199.14 lbf-ft)

40 mm (1.57 in.) for displ. 23 to 40
48 mm (1.89 in.) for displ. 47 to 80

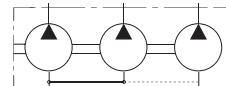




PG330 Triple Pump - Dimensions and Technical Data



TRIPLE GEAR PUMPS
with individual inlet port

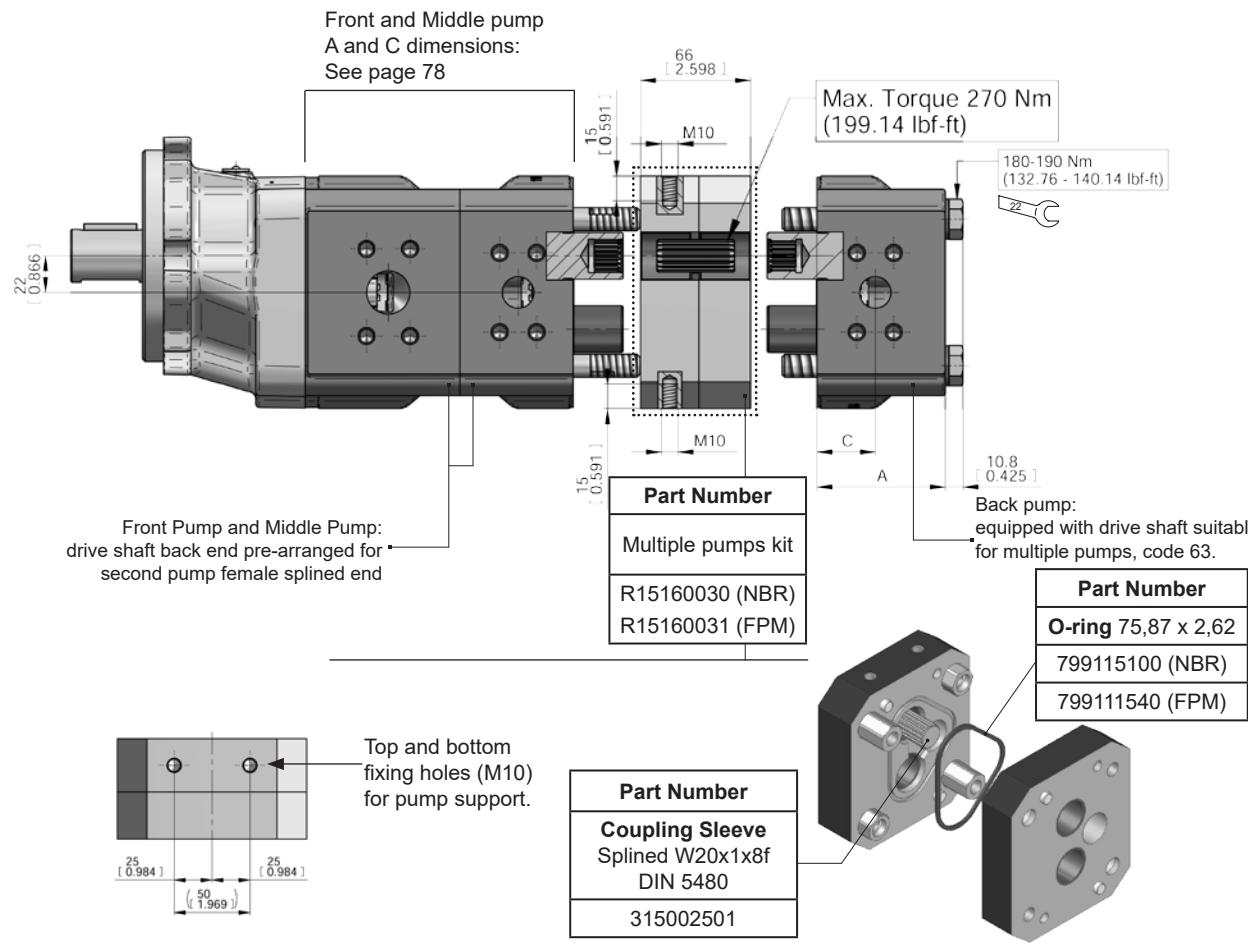


TRIPLE GEAR PUMPS
with common inlet port

TYPE	Displacement		Dimension A (Back pump)		Dimension C (Back pump)		Continuous pressure p_1		Intermittent pressure p_2		Peak pressure p_3		Min. speed at p_1	Max. speed at p_2
	cm ³ /rev	cu.in/rev	mm	in	mm	in	bar	psi	bar	psi	bar	psi		
PG330 - 23	23.4	1.43	77	3.03	35	1.38	260	3750	280	4060	300	4350	400	3000
PG330 - 28	28.6	1.74	81	3.19	38	1.49	280	4060	300	4350	320	4650	400	3000
PG330 - 34	34.4	2.10	85.5	3.36	42.5	1.67	280	4060	300	4350	320	4650	400	3000
PG330 - 40	40.3	2.46	90	3.54	47	1.85	260	3750	280	4060	300	4350	400	2700
PG330 - 47	47.4	2.89	101.5	3.40	50	1.97	280	4060	300	4350	320	4650	400	2700
PG330 - 55	55.2	3.37	107.5	4.23	56	2.20	260	3750	280	4060	300	4350	400	2700
							230*	3335*	250*	3625*	270*	3915*		
PG330 - 64	64.3	3.92	114.5	4.51	58	2.28	240	3480	260	3750	280	4060	350	2500
							200*	2900*	220*	3190*	240*	3480*		
PG330 - 72	73.4	4.48	121.5	4.78	61	2.40	220	3190	240	3480	260	3750	350	2500
							170*	2465*	190*	2755*	210*	3045*		
PG330 - 80	80.6	4.91	127.5	5.02	65	2.56	200	2900	220	3190	240	3480	350	2500

*Values of pressure with configuration with **Shaft 38-Flange P2** on the displacement 55-64-72, due to max Torque of 250 Nm.
Displacement 80 not available.

- ! Max Speed must be lowered by 10% for system working continuously at p_1 pressure.
- ! Max pressure must be lowered by 10% for birectional pump.

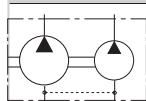


PG330

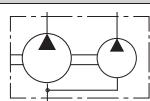
GEAR PUMPS "PG" SERIES Cast Iron Gear Housing



PG330 with Pump 2PE or 2PGE piggy back pump - Dimensions



MULTIPLE GEAR PUMPS
with individual inlet port



MULTIPLE GEAR PUMPS
with common inlet port



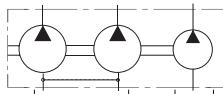
Recommended to limit the inflow of the downstream pump at 30 l/min MAX to avoid cavitation. Only for common suction port configuration:
Commercial code UA.

TYPE	Displacement		Dimension A		Dimension C (Front and Back pump)						TYPE	Displacement		Dimension A (2PGE-2PE)		Dimension C (2PGE-2PE)			
	cm ³ /rev	cu.in./rev	mm	in	Type port G-R		Type port P		Type port W-S				cm ³ /rev	cu.in./rev	mm	in	mm	in	
					mm	in	mm	in	mm	in									
PG330 - 23	23.4	1.43	72	2.83	35	1.38	35	1.38	33	1.30	-	2PE - 3.2	3.2	0.19					
PG330 - 28	28.6	1.74	76	2.99	38	1.49	34	1.34	36	1.42	-	2PE - 3.9	3.9	0.24	47.1	1.83	23.55	0.93	
PG330 - 34	34.4	2.10	80.5	3.17	42.5	1.67	37.5	1.48	40	1.57	2PGE - 6.5	2PE - 6.5	6.5	0.40	49.95	1.97	25	0.98	
PG330 - 40	40.3	2.46	85	3.35	47	1.85	42	1.65	44.5	1.75	2PGE - 8.3	2PE - 8.3	8.2	0.50	52.8	2.07	26.4	1.04	
PG330 - 47	47.4	2.89	96	3.78	50	1.97	50	1.97	50	1.97	-	2PE - 10.5	10.6	0.65	56.3	2.35	28.15	1.11	
PG330 - 55	55.2	3.37	102	4.02	56	2.20	52	2.05	56	2.20	2PGE - 11.3	2PE - 11.3	11.5	0.68	59.7	2.35	29.75	1.17	
PG330 - 64	64.3	3.92	109	4.29	58	2.28	58	2.28	58	2.28	-	2PE - 12.5	12.7	0.77					
PG330 - 72	73.4	4.48	116	4.57	61	2.40	61	2.40	61	2.40	2PGE - 13.8	2PE - 13.8	13.8	0.84	63.5	2.5	31.75	1.25	
PG330 - 80	80.6	4.91	122	4.80	65	2.56	65	2.56	65	2.56	2PGE - 16	2PE - 16	16.6	1.01	67.5	2.65	33.75	1.25	
											2PGE - 19	2PE - 19	19.4	1.15	75.6	2.97	37.80	1.49	
											2PGE - 22.5	2PE - 22.5	22.9	1.37	81	3.19	40.5	1.59	
											2PGE - 26	2PE - 26	25.8	1.58	86.8	3.42	43.4	1.71	

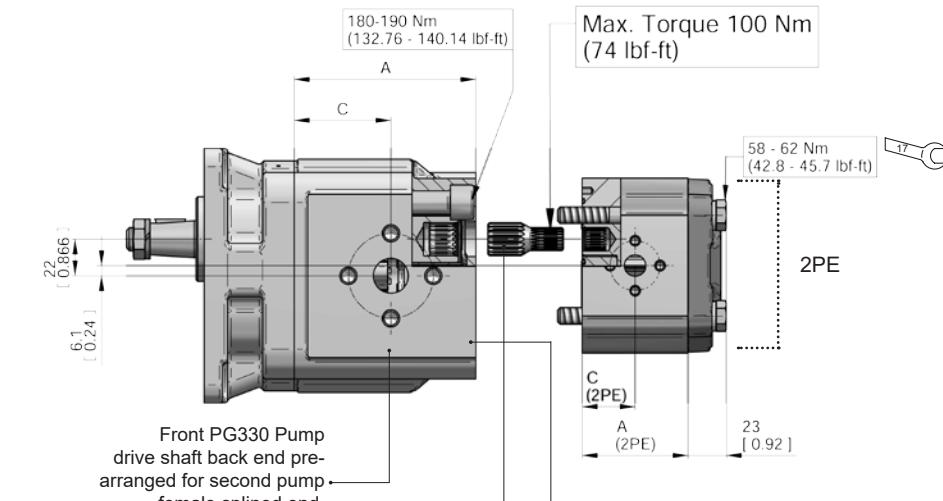
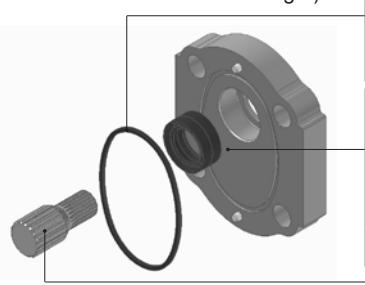
2PE and 2PGE can be single
(1) or multiple and/or with built in valve in the rear cover.

(1) Available AS configuration

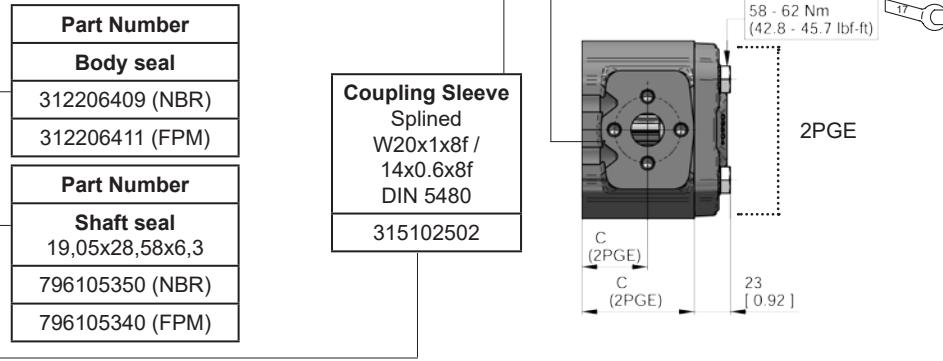
Part Number
Multiple pumps kit with separated stages for different fluid (2 tanks) - Code AS
R15190010 (NBR) R15190011 (FPM)



MULTIPLE GEAR PUMPS
with separated stages
(Example: **Code AS2**= Separated inlet between second and third stage.)



Front PG330 Pump
drive shaft back end pre-
arranged for second pump
female splined end.

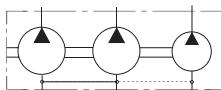


Coupling Sleeve
Splined
W20x1x8f /
14x0.6x8f
DIN 5480
315102502

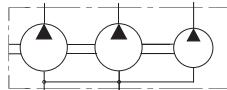
Shaft seal
19,05x28,58x6,3
796105350 (NBR)
796105340 (FPM)



PG330 Multiple with Pump 2PE or 2PGE piggy back pump - Dimensions

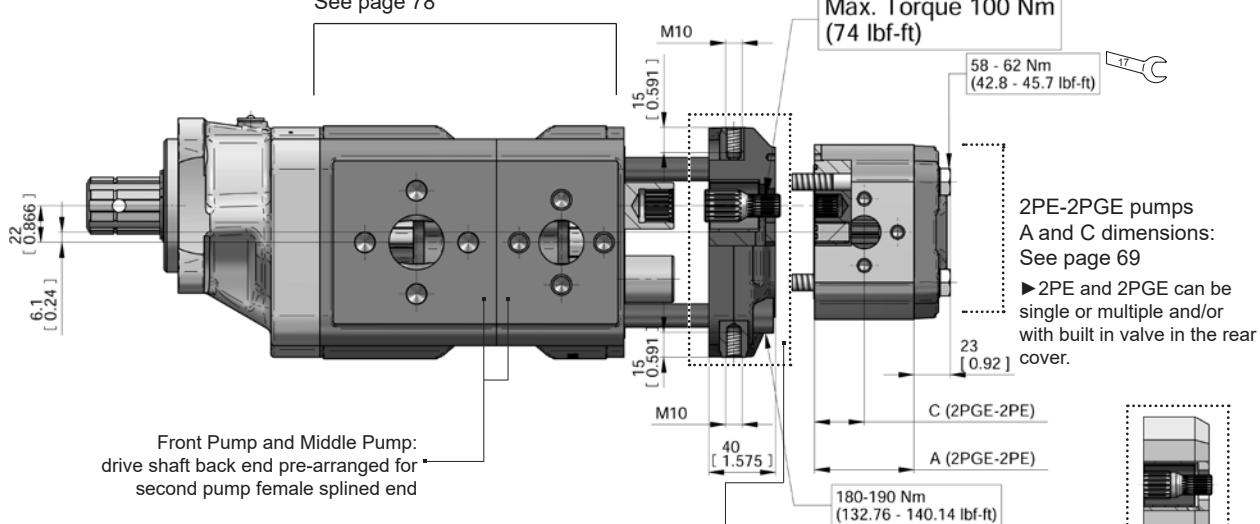


MULTIPLE GEAR PUMPS
with individual inlet port



MULTIPLE GEAR PUMPS
with common inlet port on first two stages

Front and Middle pump
A and C dimensions:
See page 78



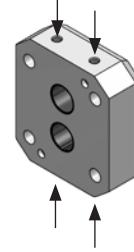
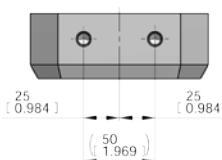
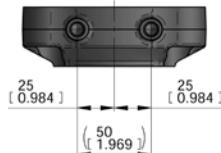
Part Number

Multiple pumps kit

R15160050 (Displ. from 23 to 40)	R15160060 (Displ. from 47 to 80)
----------------------------------	----------------------------------

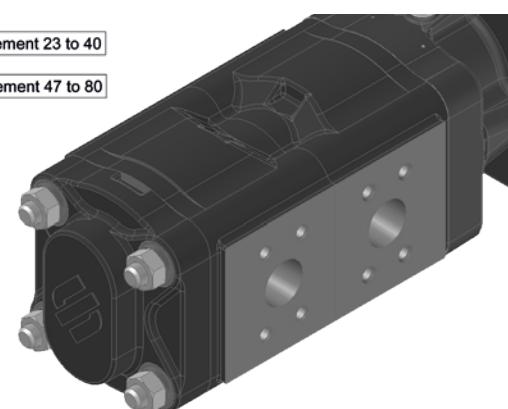
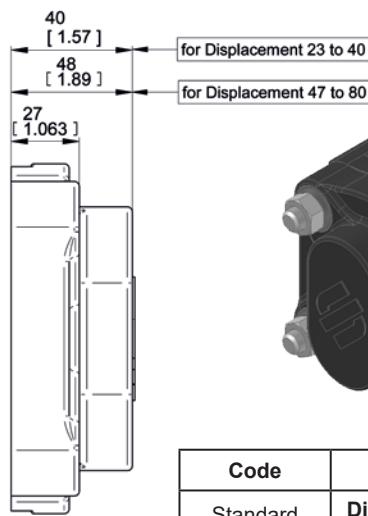
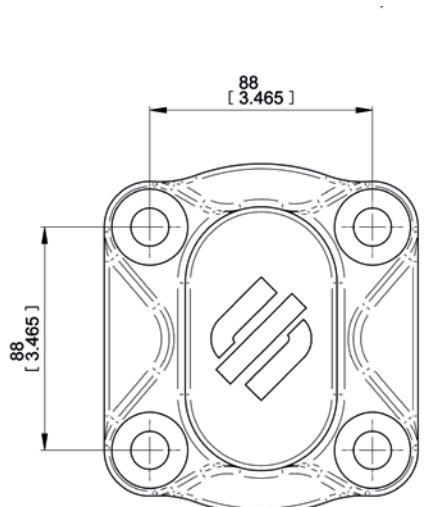


Top and bottom
fixing holes (M10)
for pump support.



Top and bottom
fixing holes (M10)
for pump support.

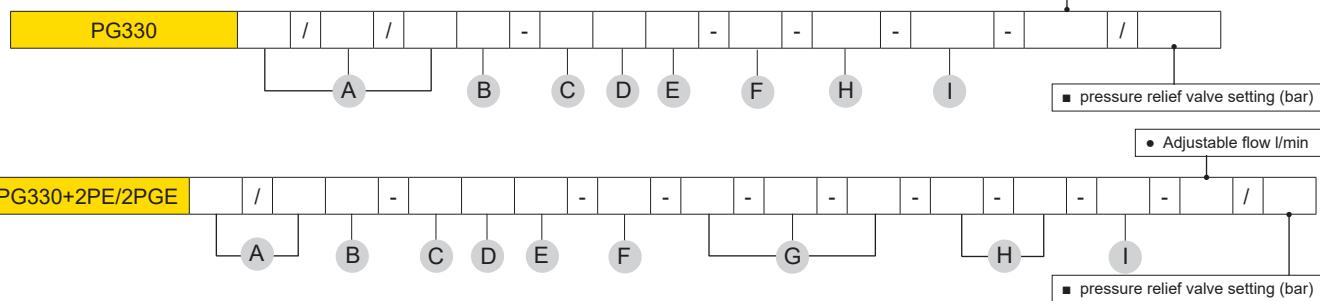
Rear Cover - Dimensions



Code	Part Number	
Standard Cover	Displ. from 23 to 40	Displ. from 47 to 80
	R15003501	R15003508

PG330

HOW TO ORDER MULTIPLE PUMP



A	CODES	DISPLACEMENTS
23	23.4 cm³/rev.	1.43 cu.in/rev.
28	28.6 cm³/rev.	1.74 cu.in/rev.
34	34.4 cm³/rev.	2.1 cu.in/rev.
40	40.3 cm³/rev.	2.46 cu.in/rev.
47	47.5 cm³/rev.	2.89 cu.in/rev.
55	55.2 cm³/rev.	3.37 cu.in/rev.
64	64.3 cm³/rev.	3.92 cu.in/rev.
72	73.4 cm³/rev.	4.48 cu.in/rev.
80	80.6 cm³/rev.	4.91 cu.in/rev.

B	ROTATION	CODES
Clockwise	D	
Anti-clockwise	S	
Reversible	R	

C	PORTS (page 61)	CODES
Flanged ports European standard	P	
Flanged ports SAE J518 Metric thread	W	
Flanged ports SAE J518 American standard thread	S	
Threaded ports GAS (BSPP)	G	
Threaded ports SAE (ODT)	R	

D	DRIVE SHAFT (page 64)	CODES
Tapered 1:8	38	
SAE B splined 13T	55	
SAE BB splined 15T	56	
SAE B PARALLEL	87	
SAE BB PARALLEL	88	
SAE C 14T-12/24DP Continental Shaft	58	
8x32x36 UNI 8953 splined Continental Shaft	67	
SAE C 14T-12/24DP Continental Shaft	57	
8x32x36 UNI 8953 splined Continental Shaft	66	
SAE C PARALLEL Continental Shaft	89	

I	FLANGES AND REAR COVERS (page 71)	CODES
Priority flow valve with excess flow to 2nd actuator	• VP1	
Priority flow valve with excess flow to 2nd actuator with main relief valve	■ VPS1	
Load sensing priority valve with dinamic signal	• VPD1	
Load sensing priority valve with dinamic signal and main relief valve	■ VPDS1	
Adjustable main relief valve	■ VS	
Internal drain valve (Flange)	IDV	
Lateral drain on P2 (Flange European standard)	LD	

H	INLET PORTS	CODE
Separated stages: Pump with separated stages for different fluid (2 tanks) Code 1-2 or 3 correspond to the body where Kit AS is mounted.	AS	
NOT AVAILABLE FOR MULTIPLE PUMP PG330		
Common Inlet: Pump with one inlet port opened, all the other inlet port are closed. Code 1 - 2 or 3, correspond to the body where inlet is located.	UA	

G	COMBINATION WITH 2PE or 2PGE (page 80)
2PE or 2PGE Piggy back configuration: Displacement - Port type	

F	SEAL	CODE
Buna standard (standard configuration)	-	
Viton	V	

E	MOUNTING FLANGES (page 66)	CODES
European standard Ø50.8	P2	
SAE B 2-4 BOLTS	S3	
SAE C 2-4 BOLTS	S4	
SAE B 2-4 BOLTS (Medium Loads)	R3	
SAE C 2-4 BOLTS (Heavy Loads)	R8	
4 BOLTS FOR ZF GEAR	Z1	
4 Bolts for ZF gear box	Z2	

How to order Multiple pump: PG330 40/28D, ports European (P), drive shaft (38), mounting flange (P2) **PG330-40/28D-P38P2.**

How to order Multiple or Triple pump with 2PE:

PG330 47/28D, 2PE 8.3/6.5, ports European (P), drive shaft (55), mounting flange (S3), **PG330-47/28D-P55S3-2PE8.3/6.5.**

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