

Gear Pump – High Performance

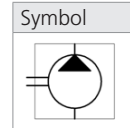
GP1

Displacement up to 9.8 cm³ (0.55 inch³) • $p_{\text{max cont.}}$ 250 bar (3600 PSI) • Speed from 750 to 3500 RPM



Technical Features

- › Operating pressure 250 bar, Peak pressure 280 bar
- › High-strength quality aluminum alloys pump with axial play compensation
- › Low noise level in whole operating range
- › High operational reliability and service life for 3000 operation hours
- › High volumetric efficiency up to 98 %
- › International standard flanges acc.to SAE, ISO, DIN



Technical Data

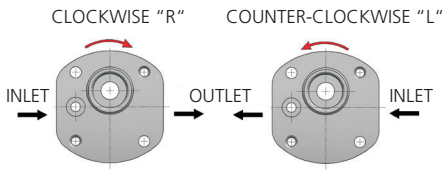
Nominal Size Parameters	Symbol	Unit	Displacement															
			Code	1	1,25	1,6	2	2,5	3,15	3,65	4,2	5	5,7	6,1	7,4	8	8,5	9,8
Actual displacement	V_g	[cm ³]	1.0	1.25	1.6	2.0	2.5	3.15	3.65	4.2	5.0	5.7	6.1	7.4	8.0	8.5	9.8	
		[in ³]	0.061	0.076	0.098	0.122	0.153	0.192	0.223	0.256	0.305	0.348	0.372	0.452	0.488	0.519	0.598	
Rotation speed	nominal	n_n	1500															
	minimum	n_{min}	750															
	maximum	n_{max}	3500				3000				2500				2000			
Pressure at inlet	minimum	$p_{1\text{min}}$	-0.2 (-2.9 PSI)															
	maximum	$p_{1\text{max}}$	0.5 (7.3 PSI)															
Pressure at outlet	max. continuous	p_{2n}	250								200		180		150		120	
		[PSI]	3625								2900		2610		2175		1740	
	maximum	$p_{2\text{max}}$	270								260		220		190		155	
		[PSI]	3915								3770		3190		2755		2248	
	peak	p_3	280								270		230		200		160	
		[PSI]	4060								3915		3335		2900		2320	
Nominal flow rate (min.) at n_n and p_{2n}	Q_n	[l min ⁻¹]	1.4	1.74	2.23	2.82	3.53	4.44	5.15	5.92	7.05	8.12	8.69	10.55	11.4	12.11	13.97	
		[GPM]	0.37	0.46	0.59	0.74	0.93	1.17	1.36	1.56	1.86	2.15	2.30	2.79	3.01	3.20	3.69	
Maximum flow rate at n_{max} and $p_{2\text{max}}$	Q_{max}	[l min ⁻¹]	3.26	4.07	5.21	6.58	8.23	10.36	12.01	13.82	14.1	16.25	14.49	17.58	15.2	16.15	18.62	
		[GPM]	0.86	1.08	1.38	1.74	2.17	2.74	3.17	3.65	3.72	4.29	3.83	4.64	4.02	4.27	4.92	
Nominal input power (max.) at n_n and p_{2n}	P_n	[kW]	0.73	0.91	1.16	1.47	1.84	2.31	2.68	3.08	3.67	3.38	3.62	3.96	3.56	3.78	3.49	
Maximum input power at n_{max} and $p_{2\text{max}}$	P_{max}	[kW]	1.83	2.29	2.93	3.70	4.63	5.83	6.76	7.77	7.64	7.45	6.64	6.96	4.91	5.22	5.04	

- 1) p_{2n} maximum continuous pressure - maximum working pressure, at which the pump can be operated without time limitation.
- 2) $p_{2\text{max}}$ maximum pressure - maximum pressure permissible for a short time, max. 20 s.
- 3) p_3 peak pressure - short-time pressure (fractions of a second) arising in case of a sudden change of the operating mode; any excess of this pressure during operation is impermissible.

Gear Pump / Size		GP1 - 1,0 ... 9,8 ccm
Volumetric efficiency	%	92 ÷ 98
Mechanical efficiency	%	85
Fluid temperature range (NBR)	°C (°F)	-25 ... 80 (-13 ... 176)
Viscosity range	mm ² /s (SUS)	16 ... 200 (75 ... 927), 1200 (5849) for cold start
Hydraulic fluid		Hydraulic oils of power classes (HL, HLP) to DIN 51524
Max. degree of fluid contamination for $p_2 \leq 200$ bar		Class 21/18/15 acc. to ISO 4406
Max. degree of fluid contamination for $p_2 \geq 200$ bar		Class 20/17/14 acc. to ISO 4406

Direction of rotation

Determine direction of rotation by looking at the drive shaft.
The pump can be used only in the specified direction of rotation.



Ordering Code

	GP1	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	N9	<input type="text"/>
Gear pump serie 1			1 1,25 1,6 2 2,5 3,15 3,65 4,2 5 5,7 6,1 7,4 8 8,5 9,8											
Displacement														
Direction of rotation					L R									
Counter clockwise Clockwise						AC AE AG RB SA *G								
Flange design														
Customized														

Shaft seal
No designation 04 standard without shaft seal

Seals
GBGB
GBPA
GCGB
GCGC
PAPA
UCUB
UDUC
HDHD
NBR

Inlet / Outlet ports

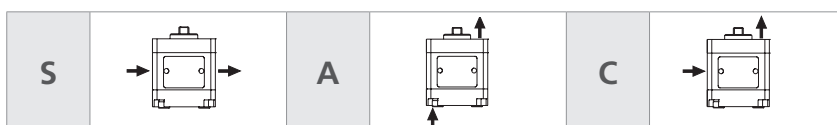
Ports orientation
S
A
C

Shaft Type
Customized

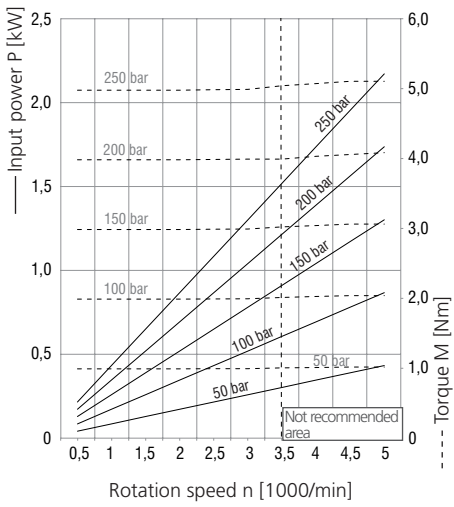
Combination of Flanges and Shafts

Code	Drive Shafts	Flange Design				
		RB	SA	AC	AE	
CB, CC		●		●		
CD				●	●	
KC, KD				●	●	
VE			●			
DE				●		

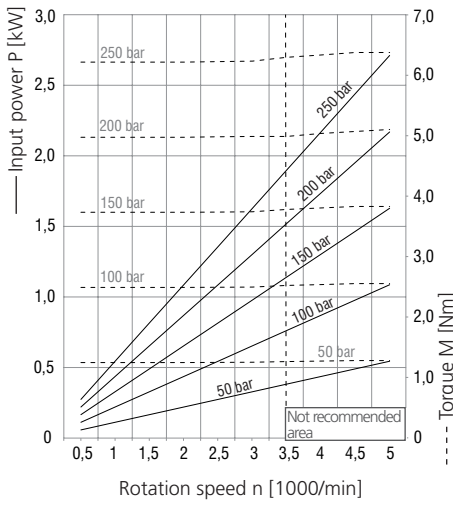
Ports orientation



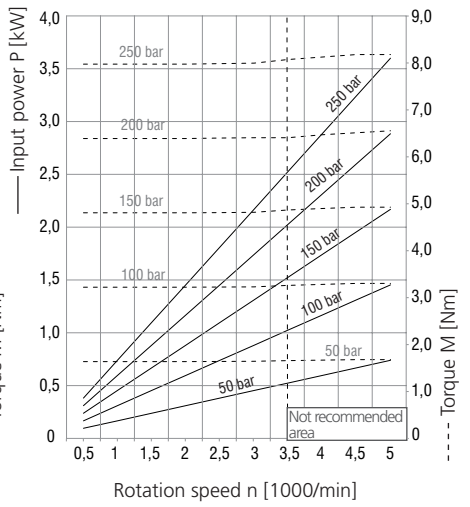
1 ccm



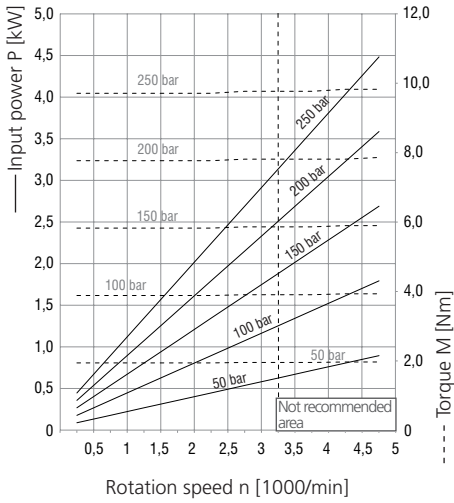
1,25 ccm



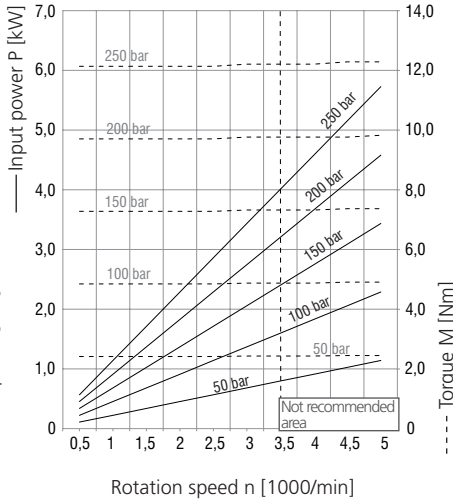
1,6 ccm



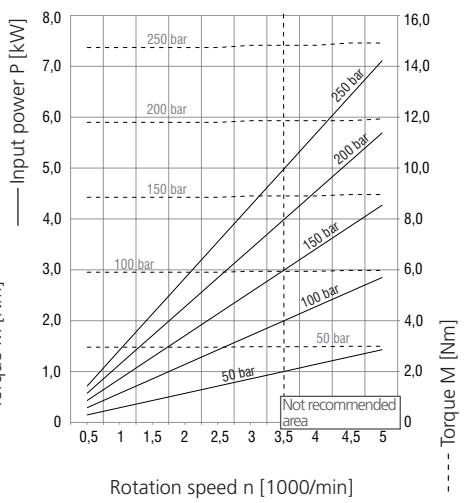
2 ccm



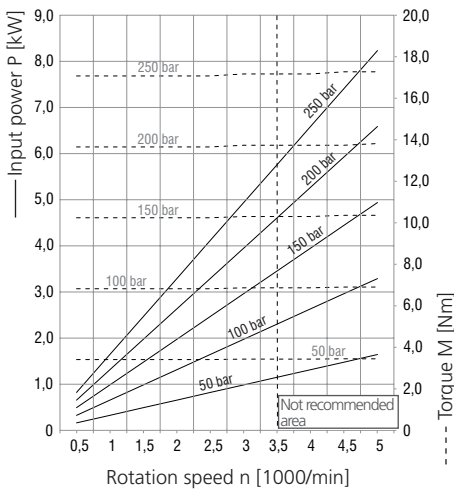
2,5 ccm



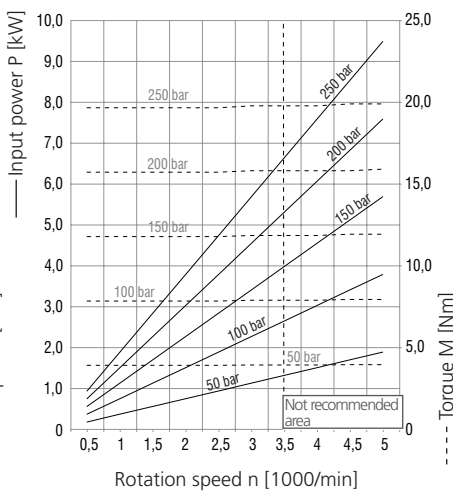
3,15 ccm



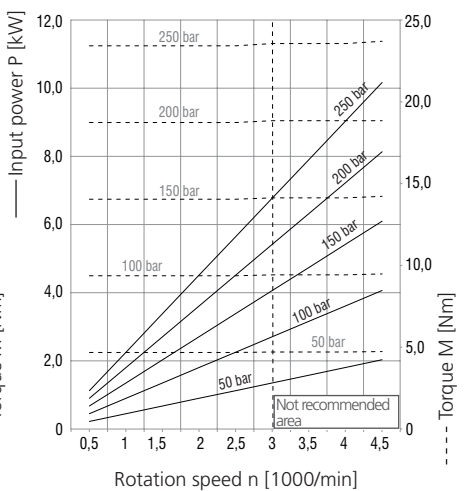
3,65 ccm



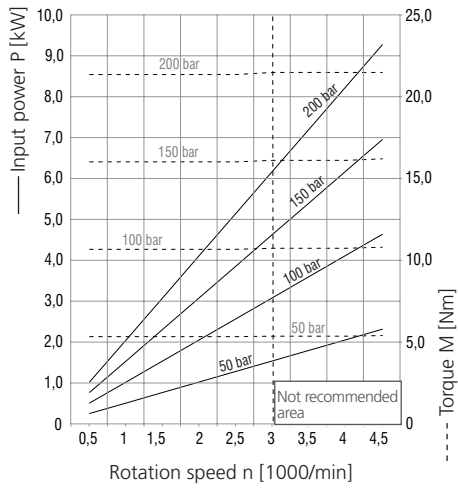
4,2 ccm



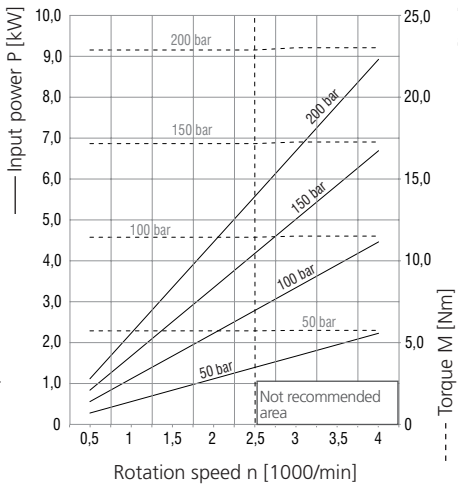
5 ccm



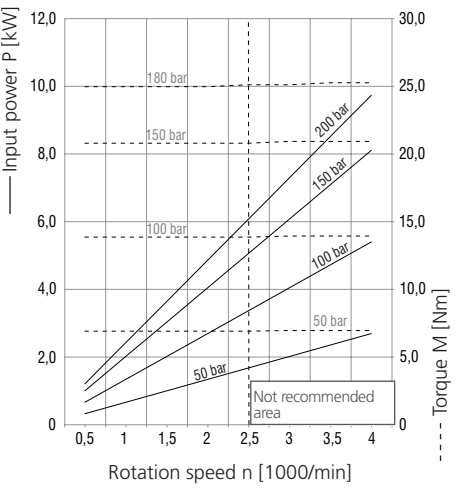
5,7 ccm



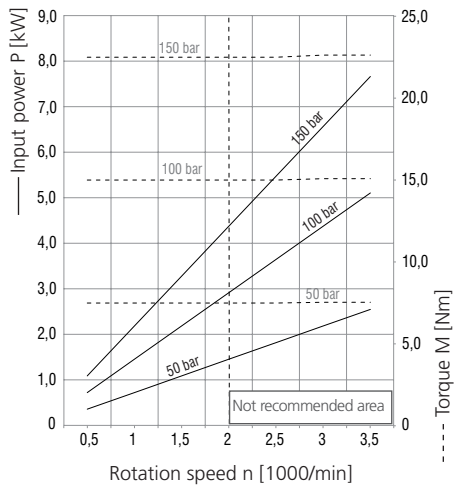
6,1 ccm



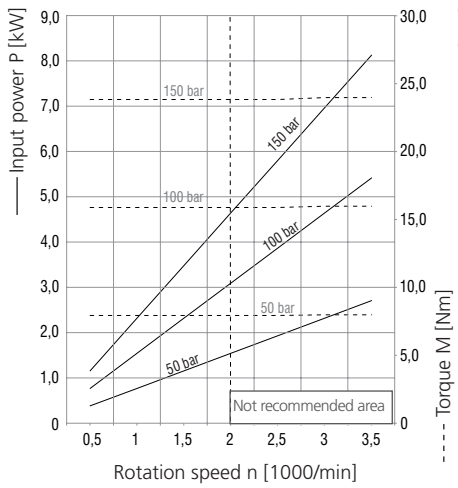
7,4 ccm



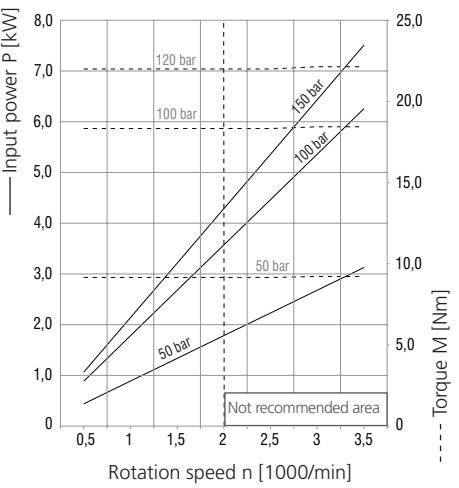
8 ccm



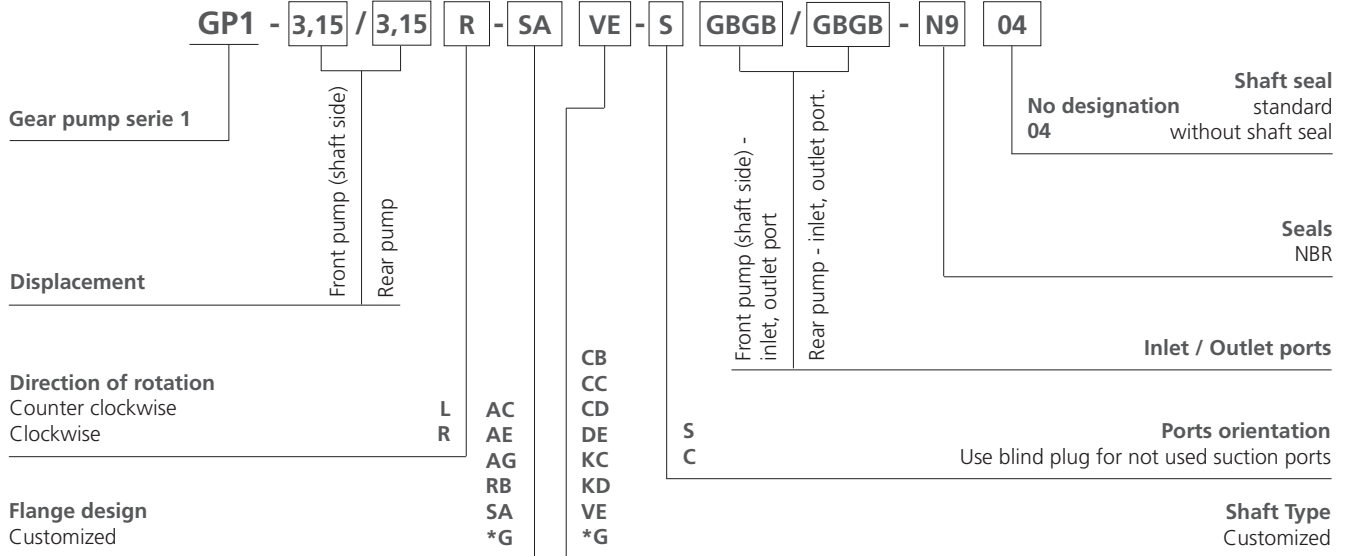
8,5 ccm



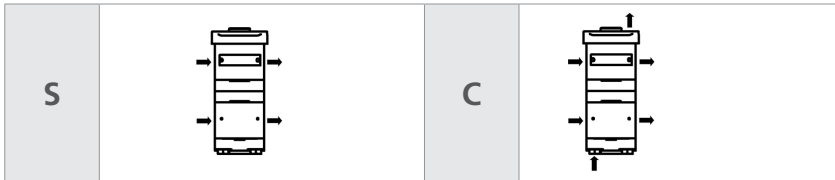
9,8 ccm



Ordering Code - Multiple Version

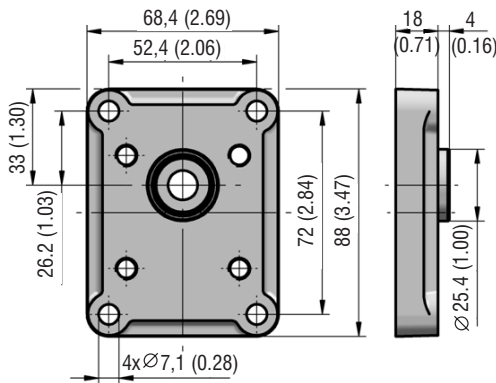


Ports orientation

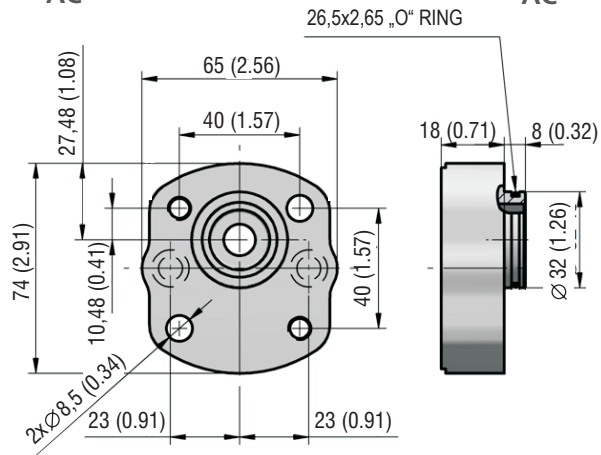


Flange design in millimeters (inches)

RB

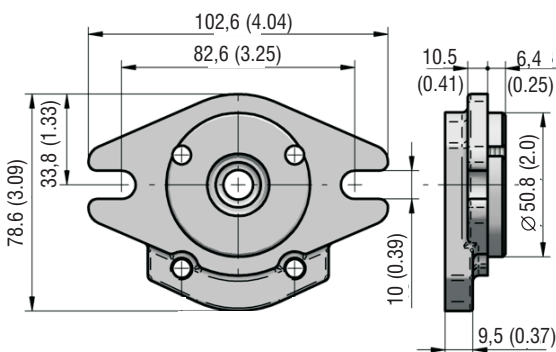


AC

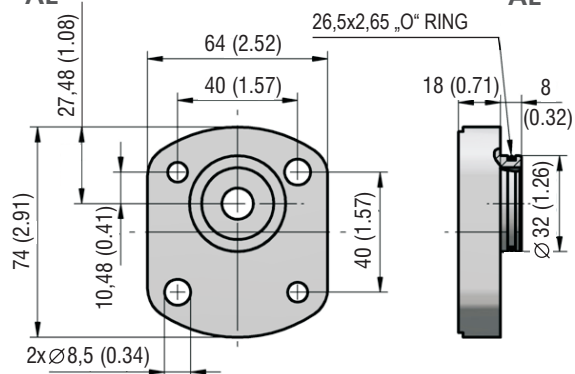


AC

SA



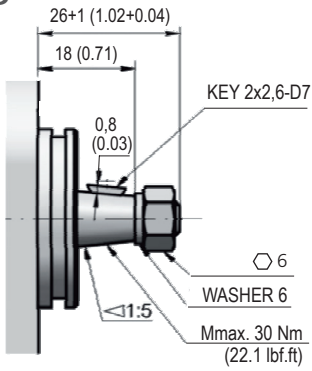
AE



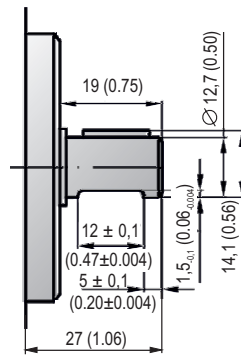
AE

Shaft design in millimeters (inches)

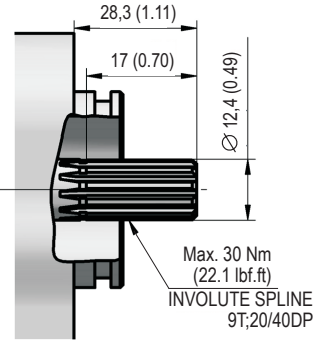
CD



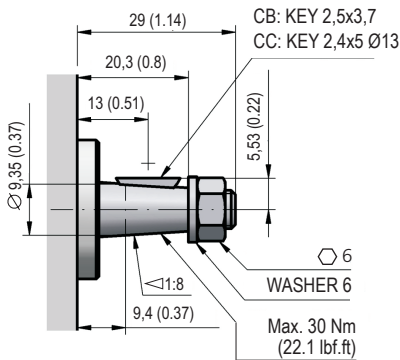
VE



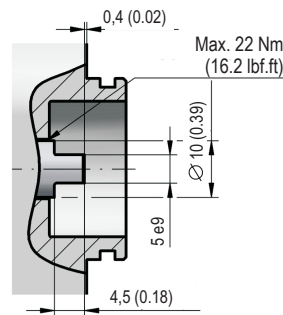
DE



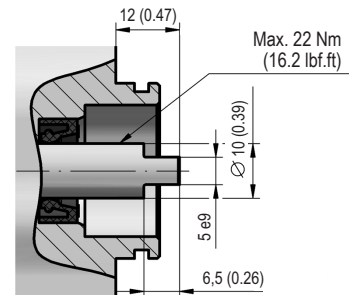
CB, CC



KC

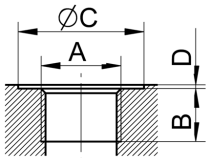


KD



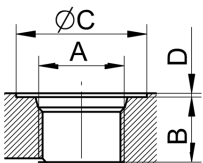
Ports design in millimeters (inches)

BSPP pipe thread according to 228-1



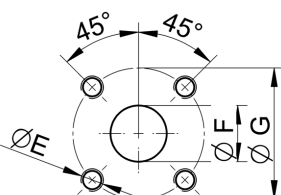
Displacement [cm ³ (in ³)]	Inlet Code	Dimension				Outlet Code
		A	B	C	D	
1.0-2.5 (0.061-0.153)	GB	G 3/8	14 (0.55)	24 (0.94)	1 (0.04)	GB
3.15-9.8 (0.192-0.598)	GC	G 1/2		34 (1.34)		GB

UNF thread according to SAE



Displacement [cm ³ (in ³)]	Inlet Code	Dimension				Outlet Code	Dimension			
		A	B	C	D		A	B	C	D
1.0-6.1 (0.192-0.372)	UC	3/4-16UNF	13 (0.51)	24.6 (0.94)	1(0.04)	UB	9/16-18UNF	13 (0.51)	24.6 (0.94)	1(0.04)
7.4-9.8 (0.452-0.598)	UD	7/8-14UNF	16 (0.63)	34 (1.34)		UC	3/4-16UNF	13 (0.51)	24.6 (0.94)	

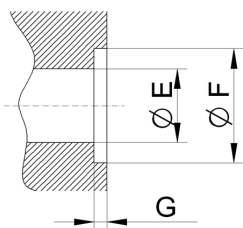
Flanged fittings according to DIN 8901/8902



Displacement [cm ³ (in ³)]	Inlet Code	Dimension			Outlet Code
		E	F	G	
ALL	HD	M6	12 (0.47)	30 (1.18)	HD

Ports design in millimeters (inches)

Inlet / Outlet in flange

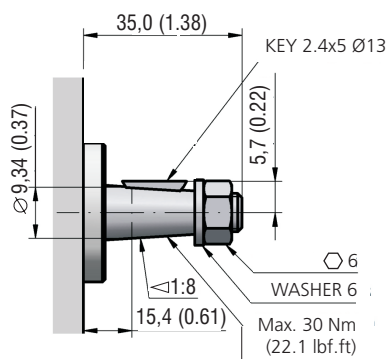


Code	Dimension		
	E	F	G
PA	8 (0.31)	12.4 (0.49)	1.4 (0.06)

GP1 Pumps - special design in millimeters (inches)

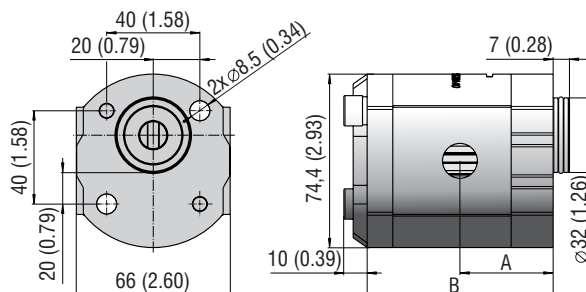
Single pump GP1-**L-AGCG-AGBPA-N914
 Double pump GP1-**/**L-AGCG-CGBPA/GBGBGB-N914

914 - Special design for SMA 05 hydraulic units:
 Flange AE with pressure port PA
 Shaft prolonged



GP1 Pumps - basic design in millimeters (inches)

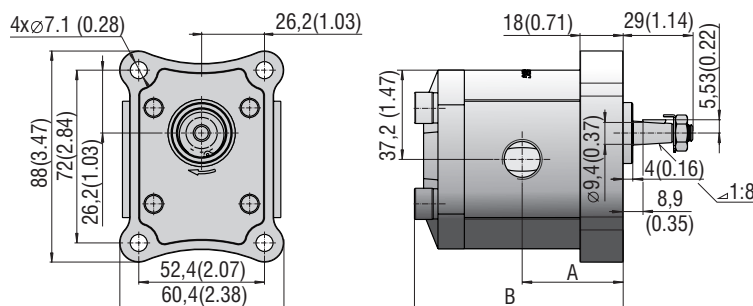
GP1-*R(L)-ACKC-SGBGB-N



Displacement [cm ³ (in ³)/rev]	A	B	Displacement [cm ³ (in ³)/rev]	A	B
1 (0.06)	39.1 (1.54)	71 (2.79)	5 (0.31)	47.1 (1.85)	87.2 (3.43)
1.25 (0.08)	39.5 (1.56)	72 (2.83)	5.7 (0.35)	48.5 (1.91)	90.1 (3.54)
1.6 (0.10)	40.3 (1.59)	73.6 (2.87)	6.1 (0.37)	49.4 (1.95)	91.8 (3.58)
2 (0.12)	41.1 (1.62)	75.2 (2.95)	7.4 (0.45)	52.1 (2.05)	97.2 (3.82)
2.5 (0.15)	42.1 (1.66)	77.2 (3.03)	8 (0.49)	53.4 (2.10)	99.7 (3.89)
3.15 (0.19)	43.5 (1.71)	79.8 (3.11)	8.5 (0.52)	54.4 (2.14)	101.7 (3.98)
3.65 (0.22)	44.4 (1.75)	81.9 (3.19)	9.8 (0.60)	57 (2.24)	107 (4.21)
4.2 (0.26)	45.5 (1.79)	84.1 (3.31)			

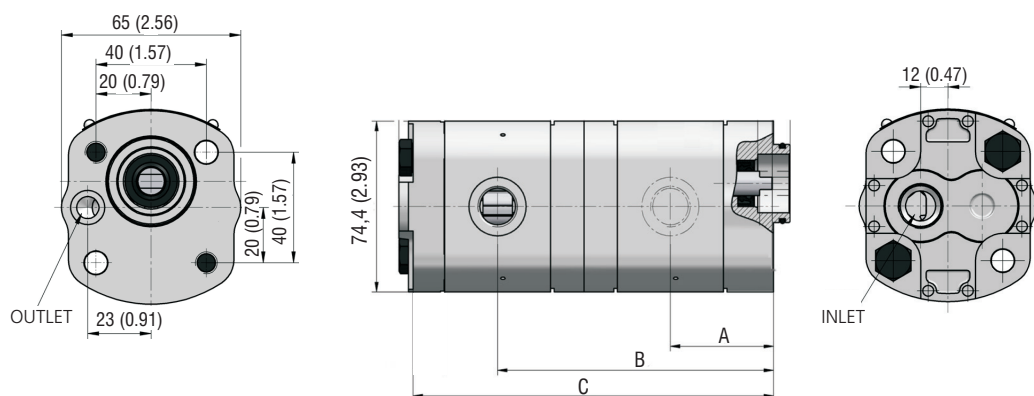
GP1 Pumps - basic design in millimeters (inches)

GP1-*R(L)-RBCC-SGBGB-N



Displacement [cm ³ (in ³)/rev]	A	B	Displacement [cm ³ (in ³)/rev]	A	B
1 (0.06)	39.1 (1.54)	81 (3.19)	5 (0.31)	47.1 (1.85)	97.2 (3.83)
1.25 (0.08)	39.5 (1.56)	82 (3.23)	5.7 (0.35)	48.5 (1.91)	100.1 (3.94)
1.6 (0.10)	40.3 (1.59)	83.6 (3.29)	6.1 (0.37)	49.4 (1.95)	101.8 (4.01)
2 (0.12)	41.1 (1.62)	85.2 (3.35)	7.4 (0.45)	52.1 (2.05)	107.2 (4.22)
2.5 (0.15)	42.1 (1.66)	87.2 (3.43)	8 (0.49)	53.4 (2.10)	109.7 (4.32)
3.15 (0.19)	43.5 (1.71)	89.8 (3.54)	8.5 (0.52)	54.4 (2.14)	111.7 (4.40)
3.65 (0.22)	44.4 (1.75)	91.9 (3.62)	9.8 (0.60)	57 (2.24)	117 (4.61)
4.2 (0.26)	45.5 (1.79)	94.1 (3.71)			

GP1-*/*L-ACKA-CGBPA/GBGBGB-N



Displacement [cm ³ (in ³)/rev]	A	B	C	Displacement [cm ³ (in ³)/rev]	A	B	C
1.6 / 5 (0.10 / 0.31)	40.3 (1.59)	128.7 (5.07)	168.8 (6.65)	2.5 / 5 (0.15 / 0.31)	42.1 (1.66)	132.3 (5.21)	172.4 (6.79)
1.6 / 5.7 (0.10 / 0.35)	40.3 (1.59)	130.1 (5.12)	171.7 (6.76)	3.15 / 4.2 (0.19 / 0.26)	43.5 (1.71)	133.3 (5.25)	171.9 (6.77)
1.6 / 6.1 (0.10 / 0.37)	40.3 (1.59)	131 (5.16)	173.7 (6.84)	6.1 / 1.6 (0.37 / 0.10)	49.4 (1.95)	140.1 (5.52)	173.4 (6.83)
2.5 / 4.2 (0.15 / 0.26)	42.1 (1.66)	130.7 (5.15)	169.3 (6.67)				