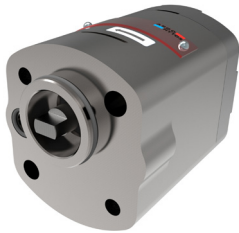
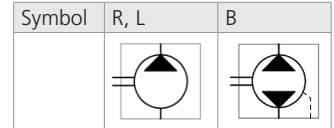


Technical Features



- › Operating pressure 280 bar, Peak pressure 310 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, GOST



Technical Data

Nominal Size Parameters	Symbol	Unit	Displacement																			
			0,8	1,2	1,6	2,1	2,5	3,3	3,6	4,4	4,8	5,8	6,2	7,0	7,9	10,0	11,8					
Actual displacement	V _g	[cm ³]	0,855	1,257	1,686	2,086	2,514	3,316	3,611	4,386	4,787	5,804	6,205	7,007	7,890	10,003	11,795					
		[in ³]	0.052	0.077	0.103	0.127	0.153	0.202	0.220	0.268	0.292	0.354	0.379	0.428	0.481	0.610	0.720					
Rotation speed	nominal	n _n	1500																			
	minimum	n _{min}	800			600			500													
	maximum	n _{max}	5000		4500		4000			3800		3500		3000		1800						
Pressure at inlet*	minimum	p _{1min}	-0,3 (-4.4 PSI)																			
	maximum	p _{1max}	0,5 (7.3 PSI)																			
Pressure at outlet**	max. continuous	p _{2n}	280				260		250		230		200		180		170		160		100	
		[PSI]	4061				3771		3625		3336		2901		2611		2466		2321		1450	
	maximum	p _{2max}	300				280		270		250		220		200		190		180		150	
		[PSI]	4351				4061		3916		3625		3191		2901		2756		2611		2176	
peak	p ₃	310				290		280		260		230		210		200		190		160		
	[PSI]	4496				4206		4061		3771		3336		3046		2901		2756		2321		
Nominal flow rate (min.) at n _n and p _{2n}	Q _n	[l min ⁻¹]	1,07	1,60	2,13	2,71	3,35	4,54	4,98	6,06	6,61	8,00	8,56	9,65	10,90	13,90	16,30					
		[GPM]	0.28	0.42	0.56	0.72	0.88	1.20	1.32	1.60	1.75	2.11	2.26	2.55	2.88	3.67	4.31					
Maximum flow rate at n _{max} and p _{2max}	Q _{max}	[l min ⁻¹]	3,92	5,88	7,06	9,26	9,80	12,94	14,11	17,25	17,88	21,60	21,27	20,58	23,23	17,64	20,82					
		[GPM]	1.04	1.55	1.87	2.45	2.59	3.42	3.73	4.56	4.72	5.71	5.62	5.44	6.14	4.66	5.50					
Nominal input power (max.) at n _n and p _{2n}	P _n	[kW]	0,7	1,04	1,39	1,72	2,07	2,97	3,35	3,23	3,24	3,41	3,29	3,50	3,71	2,94	3,47					
Maximum input power at n _{max} and p _{2max}	P _{max}	[kW]	2,51	3,70	4,96	5,52	6,65	7,80	7,93	9,29	8,29	9,51	8,52	7,83	8,35	5,30	6,06					
Weight	m	[kg]	0,82	0,84	0,85	0,87	0,89	0,92	0,93	0,96	0,98	1,02	1,04	1,08	1,10	1,20	1,25					
		[lbs]	1.81	1.85	1.87	1.92	1.96	2.03	2.05	2.12	2.16	2.25	2.29	2.38	2.43	2.65	2.76					

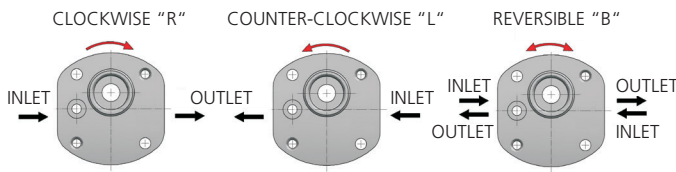
- 1) *Inlet pressure in the reversible design can be up to **p₁ = p_{2n} - 70 bar max.** External drainage must be used in case of the reversible design.
- 2) **Outlet pressure in the reversible design is 10% lower than shown in the table (depending on operating conditions).
- 3) **p_{2n}** maximum continuous pressure - maximum working pressure, at which the pump can be operated without time limitation.
- 4) **p_{2max}** maximum pressure - maximum pressure permissible for a short time, max. 20 s.
- 5) **p₃** 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 - 0,8 ...11,8 ccm
Volumetric efficiency	%	92 ÷ 98
Mechanical efficiency	%	85
Fluid temperature range (NBR)	°C (°F)	-20...80 (-4...176)
Fluid temperature range (FPM)	°C (°F)	-20...120 (-4...248)
Viscosity range	mm ² /s (SUS)	20 ...80 (97 ...390), 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 ≤ 200 bar		Class 21/18/15 acc. to ISO 4406
Max. degree of fluid contamination for p ₂ ≥ 200 bar		Class 20/17/14 acc. to ISO 4406

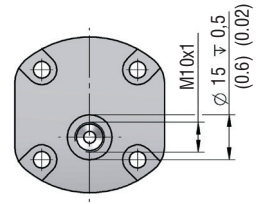
Direction of rotation, bi-directional design

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

The pumps B codes (Bi-directional) have an external drainage located in the cover.



Pressure in this port:
min. -0,3 bar (-4,4 PSI)
max. +0,5 bar (+7,3 PSI)



Ordering Code

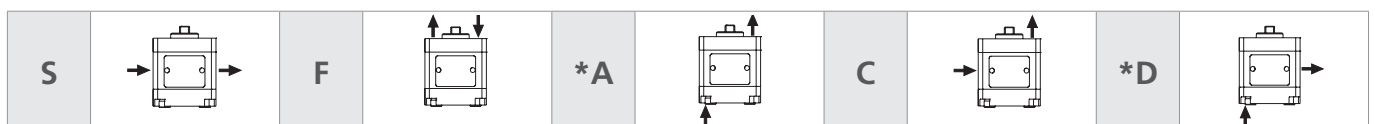
GP1 - [] - [] - [] - [] - [] - []

- Gear pump serie 1**
 - 0,8
 - 1,2
 - 1,6
 - 2,1
 - 2,5
 - 3,3
 - 3,6
 - 4,4
 - 4,8
 - 5,8
 - 6,2
 - 7,0
 - 7,9
 - 10,0
 - 11,8
- Displacement**
 - 11,8
- Direction of rotation**
 - Counter clockwise
 - Clockwise
 - Bi-directional
- Flange design**
 - *G Customized
- Ports orientation**
 - CB
 - CC
 - DA
 - KC
 - KD
 - VB
 - VC
 - *G
- Shaft seal**
 - No designation standard
 - 004 without shaft seal
 - 002 with relief valve
- Seals**
 - NBR
 - FPM (Viton)
- Inlet / Outlet ports**
 - PA
 - HA
 - HB
 - HC
 - HD
 - GA
 - GB
 - GC
 - (other ports available see next pages)
- Shaft Type**
 - *G Customized

Combination of Flanges and Shafts

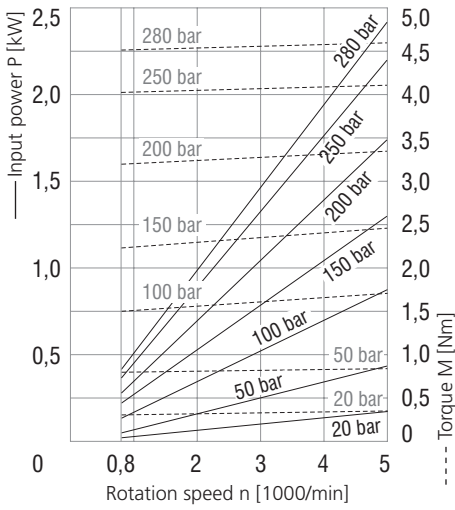
Code	Drive Shafts	Flange Design										
		RB	SA	AC	AD	AE	AF					
CB		●										
CC		●										
KC												
KD												
VB			●									
VC			●									
DA						●						

Ports orientation

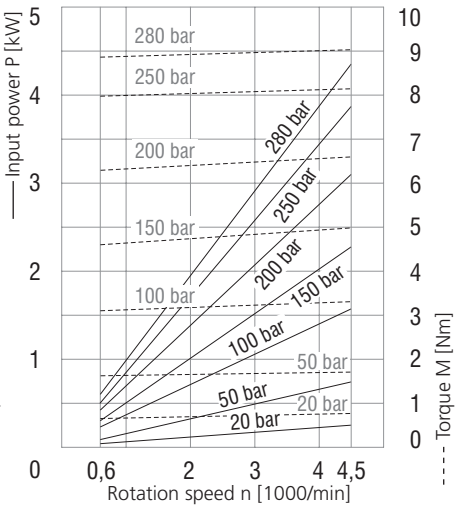


*Not available for Bi-directional pumps

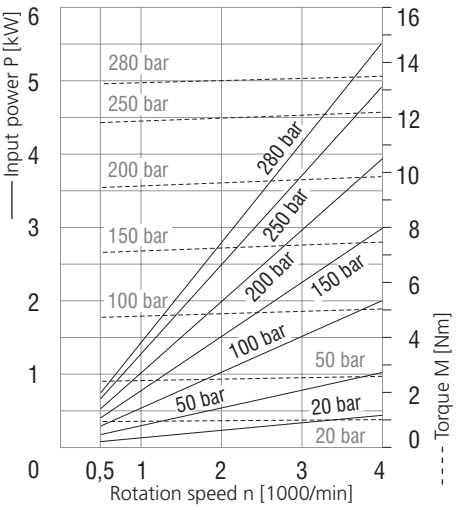
0,8 ccm



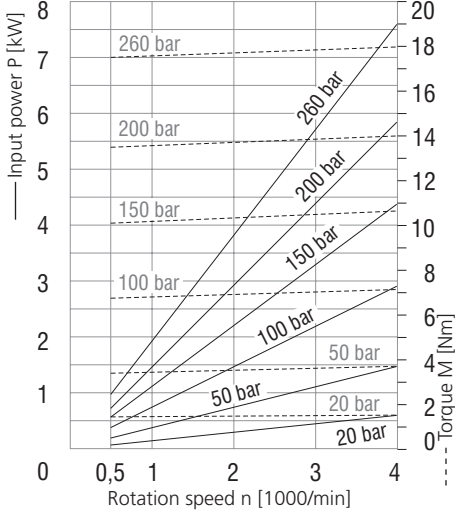
1,6 ccm



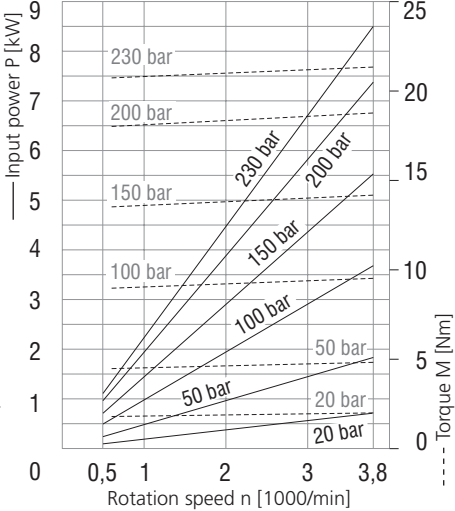
2,5 ccm



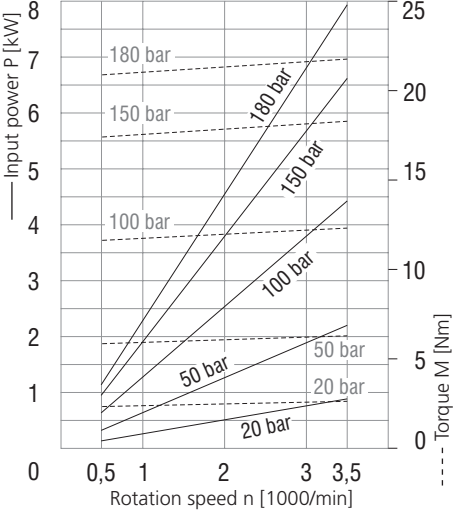
3,6 ccm



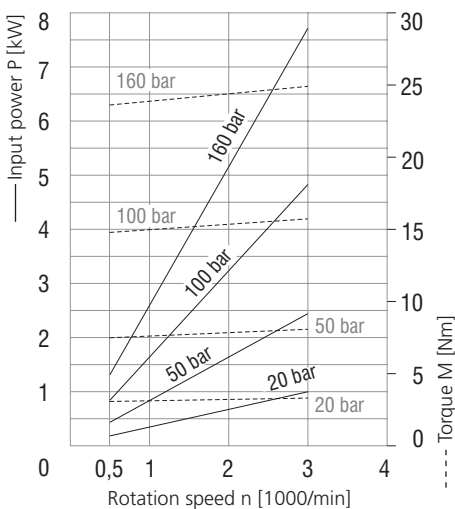
4,8 ccm



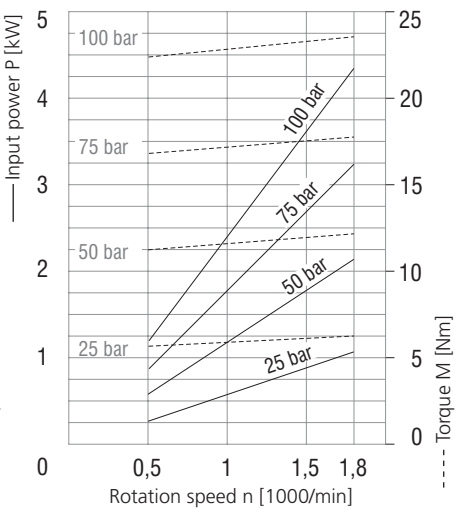
6,2 ccm



7,9 ccm



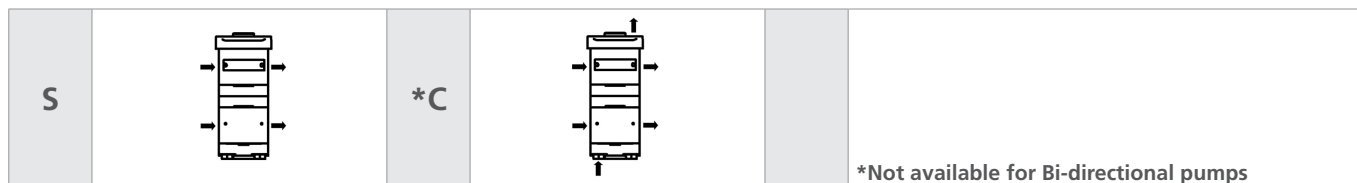
11,8 ccm



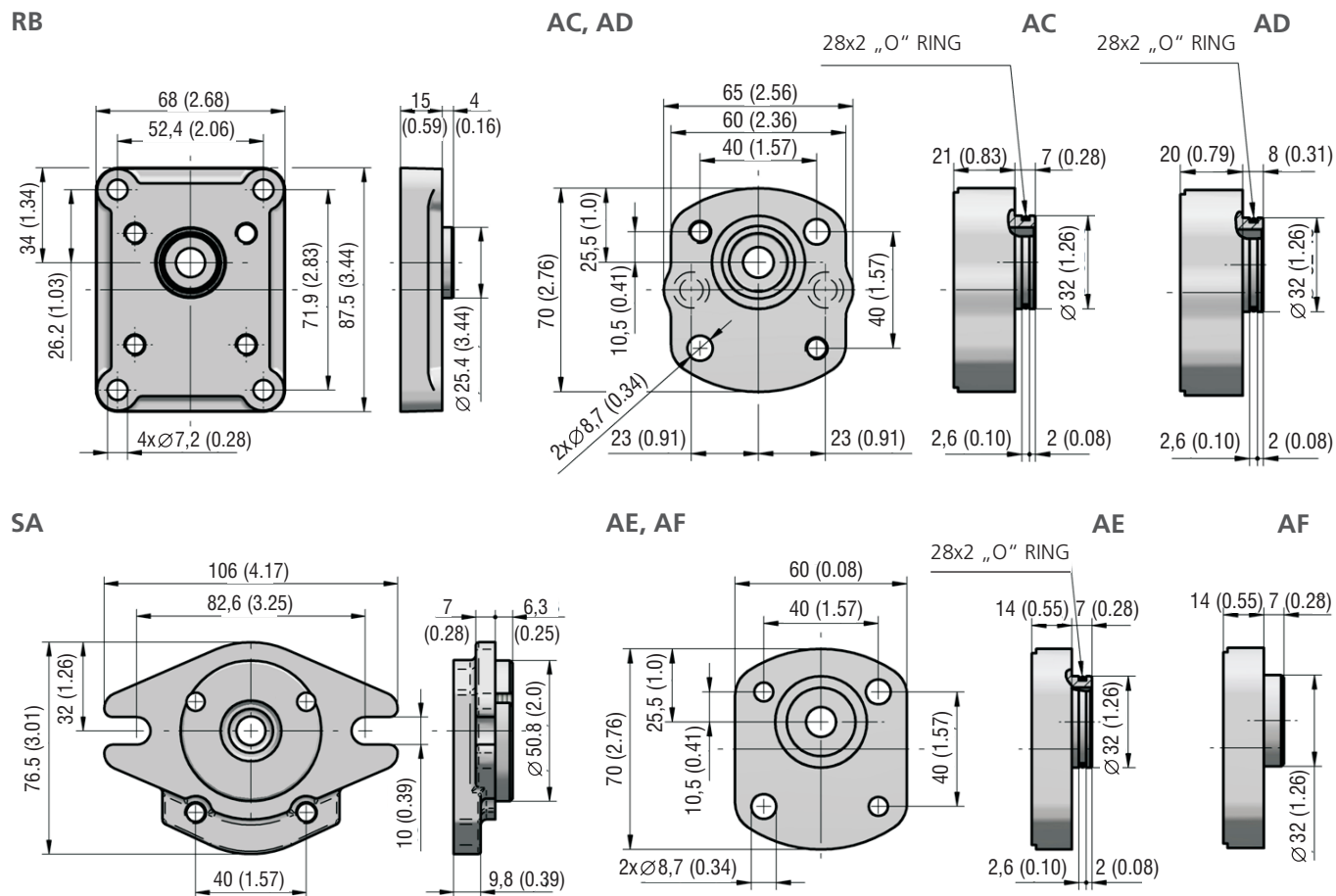
Ordering Code - Multiple Version

GP1	- 3,3 / 3,3	R	- SA	DA	- S	GBGB / BAGA	- V	004
Gear pump serie 1	Front pump (shaft side) Rear pump					Front pump (shaft side) - inlet, outlet port. Rear pump - inlet, outlet port.		
Displacement								Shaft seal standard without shaft seal No designation 004
Direction of rotation								Seals NBR PM (Viton)
Counter clockwise Clockwise Bi-directional		L R B	RB SA AC AD AE AF *G	CB CC DA KC KD VB VC *G	S C			Inlet / Outlet ports Ports orientation Use blind plug for not used suction ports
Flange design *G Customized								Shaft Type *G Customized

Ports orientation

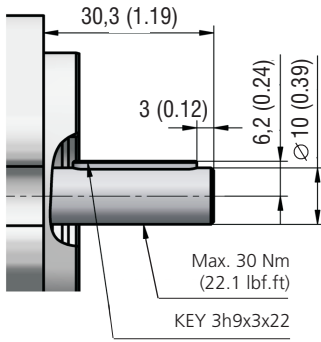


Flange design in millimeters (inches)

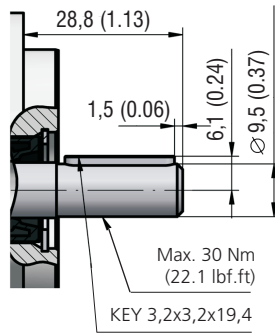


Shaft design in millimeters (inches)

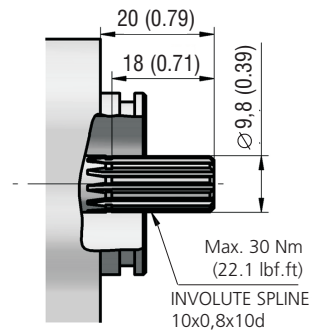
VB



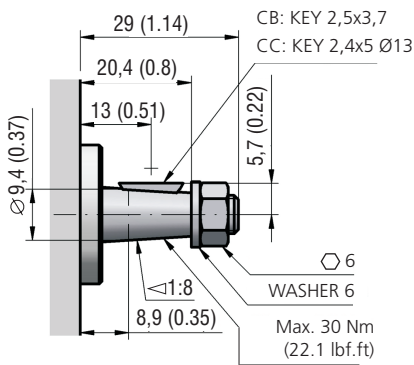
VC



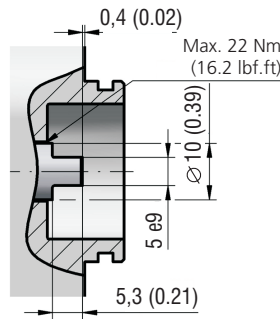
DA



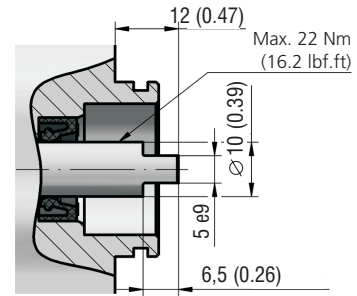
CB, CC



KC

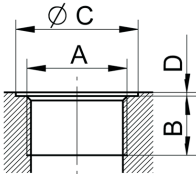


KD



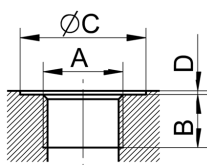
Ports design in millimeters (inches)

Metric thread according to ISO 6149



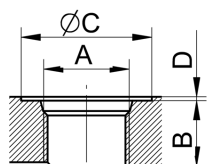
Displacement [cm ³ (in ³)]	Inlet Code	Dimension				Outlet Code	Displacement [cm ³ (in ³)]
		A	B	C	D		
	xx	M12x1,5	12 (0.47)	20 (0.79)	1 (0.04)	MB	ALL
0,18-0,5 (0.01-0.03)	MC	M14x1,5	13 (0.51)	26 (1.02)		MC	ALL
ALL	MD	M16x1,5	14 (0.55)	22 (0.89)		MD	ALL
ALL	ME	M18x1,5	13 (0.51)	30 (1.18)		ME	ALL
ALL	MF	M20x1,5	14 (0.55)	26 (1.02)		xx	
3,3-11,8 (0.20-0.72)	MH	M22x1,5	13 (0.51)	35 (1.38)		xx	
DRAIN	MA	M10x1	8 (0.31)	15 (0.59)		xx	

BSPP pipe thread according to 228-1



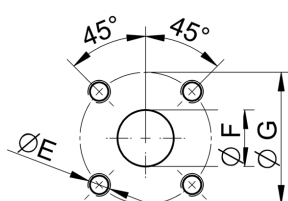
Displacement [cm ³ (in ³)]	Inlet Code	Dimension				Outlet Code
		A	B	C	D	
ALL	xx	G1/4	13 (0.51)	26 (1.02)	1 (0.04)	GA
	GB	G3/8		24 (0.94)		GB
	GC	G1/2		34 (1.34)		GC

UNF thread according to SAE



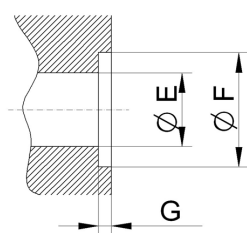
Displacement [cm ³ (in ³)]	Inlet Code	Dimension				Outlet Code
		A	B	C	D	
ALL	xx	9/16-18UNF	13 (0.51)	24,6 (0.97)	1 (0.04)	UB
	UC	3/4-16UNF				UC
	UD	7/8-14UNF	16 (0.63)	34 (1.34)		xx

Flanged fittings according to DIN 8901/8902



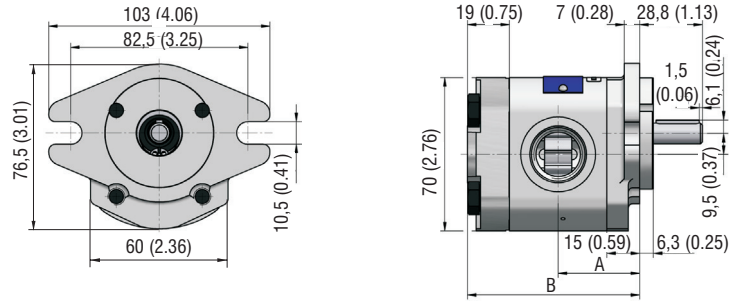
Displacement [cm ³ (in ³)]	Inlet Code	Dimension			Outlet Code
		E	F	G	
ALL	HA	M5, depth 12	8 (0.31)	26 (1.02)	HA
	HB		10 (0.39)		HB
	HC	M6 depth 12	8 (0.31)	30 (1.18)	HC
	HD		12 (0.47)		HD

Inlet / Outlet in flange



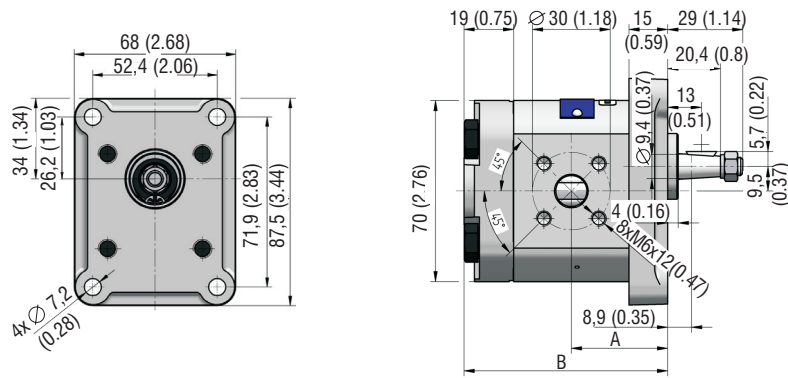
Code	Dimension		
	E	F	G
PA	8 (0.31)	12,4 (0.49)	1,4 (0.06)

GP1-*R(L)-SAVC-SUDUD-N



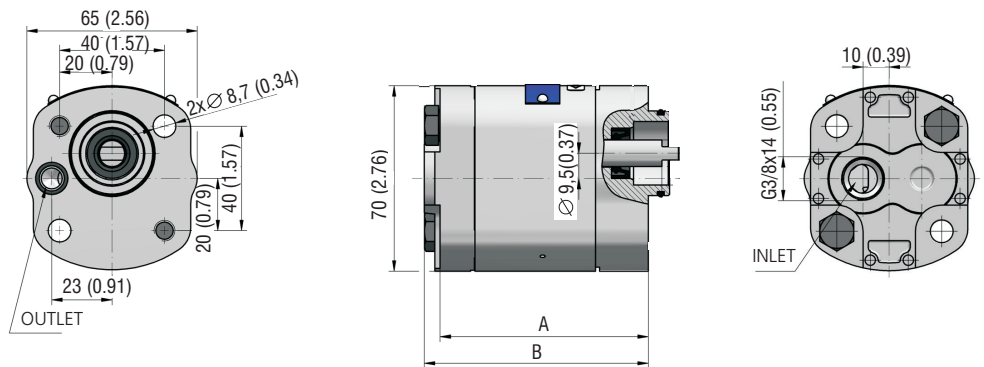
Displacement [cm ³ (in ³)/rev]	A	B	Displacement [cm ³ (in ³)/rev]	A	B
0,8 (0.05)	32,6 (1.28)	69,3 (2.73)	3,6 (0.22)	37,8 (1.49)	79,6 (3.13)
1,2 (0.07)	33,4 (1.31)	70,8 (2.79)	4,4 (0.27)	39,2 (1.54)	82,5 (3.25)
1,6 (0.10)	34,1 (1.34)	72,3 (2.85)	4,8 (0.29)	40,0 (1.57)	84,0 (3.31)
2,1 (0.13)	34,9 (1.37)	73,9 (2.91)	5,8 (0.35)	41,9 (1.65)	87,8 (3.46)
2,5 (0.15)	35,7 (1.41)	75,5 (2.97)	6,2 (0.38)	42,6 (1.68)	89,3 (3.53)
3,3 (0.20)	37,2 (1.46)	78,5 (3.09)	7,9 (0.48)	45,8 (1.80)	95,6 (3.76)

GP1-*R-RBCC-SHDUD-N



Displacement [cm ³ (in ³)/rev]	A	B	Displacement [cm ³ (in ³)/rev]	A	B
0,8 (0.05)	32,6 (1.28)	69,3 (2.73)	3,6 (0.22)	37,8 (1.49)	79,6 (3.13)
1,2 (0.07)	33,4 (1.31)	70,8 (2.79)	4,4 (0.27)	39,2 (1.54)	82,5 (3.25)
1,6 (0.10)	34,1 (1.34)	72,3 (2.85)	4,8 (0.29)	40,0 (1.57)	84,0 (3.31)
2,1 (0.13)	34,9 (1.37)	73,9 (2.91)	5,8 (0.35)	41,9 (1.65)	87,8 (3.46)
2,5 (0.15)	35,7 (1.41)	75,5 (2.97)	6,2 (0.38)	42,6 (1.68)	89,3 (3.53)
3,3 (0.20)	37,2 (1.46)	78,5 (3.09)	7,9 (0.48)	45,8 (1.80)	95,6 (3.76)

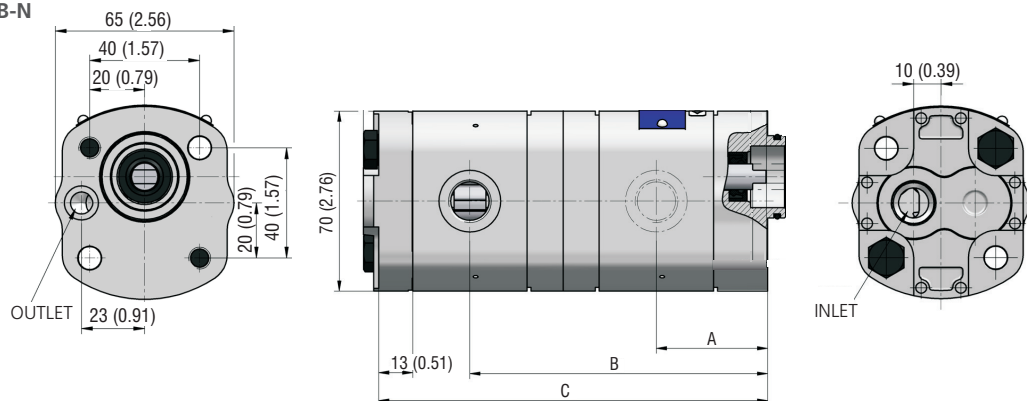
GP1-*L-ADKD-AGBPA-N



Displacement [cm ³ (in ³)/rev]	A	B	Displacement [cm ³ (in ³)/rev]	A	B
0,8 (0.05)	68,3 (2.69)	74,3 (2.93)	3,6 (0.22)	78,6 (3.09)	84,6 (3.33)
1,2 (0.07)	69,8 (2.75)	75,8 (2.98)	4,4 (0.27)	81,5 (3.21)	81,5 (3.21)
1,6 (0.10)	71,3 (2.81)	77,3 (3.04)	4,8 (0.29)	83,0 (3.27)	89,0 (3.50)
2,1 (0.13)	72,9 (2.87)	78,9 (3.11)	5,8 (0.35)	86,8 (3.42)	92,8 (3.65)
2,5 (0.15)	74,5 (2.93)	80,5 (3.17)	6,2 (0.38)	88,3 (3.48)	94,3 (3.71)
3,3 (0.20)	77,5 (3.05)	83,5 (3.29)	7,9 (0.48)	94,6 (3.72)	100,6 (3.96)

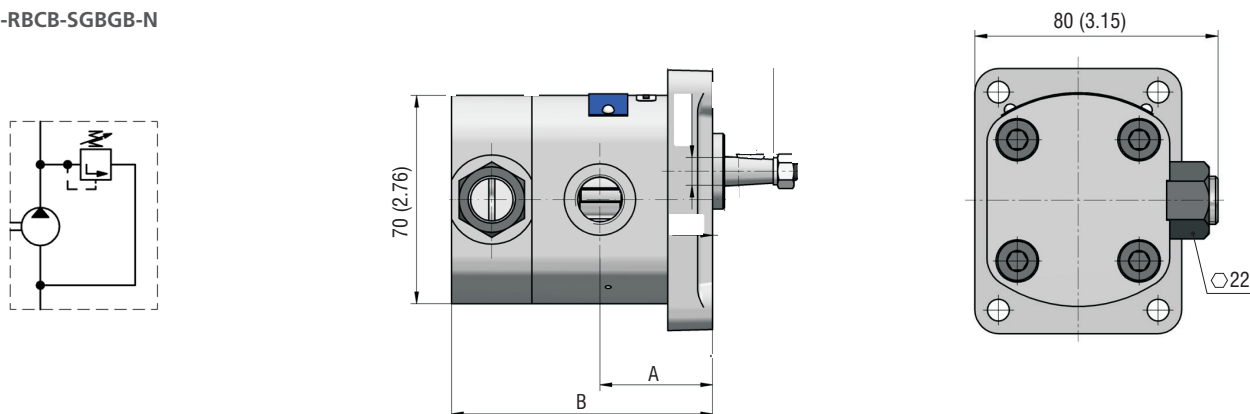
GP1 Pumps - basic design in millimeters (inches)

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 / 4,8 (0.10 / 0.29)	40,1 (1.58)	112,3 (4.42)	150,3 (5.92)	3,3 / 4,4 (0.20 / 0.27)	43,2 (1.70)	117,7 (4.63)	155,0 (6.10)
1,6 / 5,8 (0.10 / 0.35)	40,1 (1.58)	114,2 (4.50)	154,1 (6.07)	6,2 / 1,6 (0.38 / 0.10)	48,6 (1.91)	123,4 (4.86)	155,6 (6.13)
1,6 / 6,2 (0.10 / 0.38)	40,1 (1.58)	115,0 (4.53)	155,6 (6.13)	7,9 / 1,2 (0.48 / 0.07)	51,8 (2.04)	129,0 (5.08)	160,4 (6.31)
2,5 / 4,4 (0.15 / 0.27)	41,7 (1.64)	114,7 (4.52)	152,0 (5.98)	7,9 / 2,5 (0.48 / 0.15)	51,8 (2.04)	131,4 (5.17)	165,1 (6.50)
2,5 / 4,8 (0.15 / 0.29)	41,7 (1.64)	115,5 (4.55)	153,5 (6.04)				

GP1-*R-RBCB-SGBGB-N



Displacement [cm ³ (in ³)/rev]	A	B	Displacement [cm ³ (in ³)/rev]	A	B
0,8 (0.05)	32,6 (1.28)	77,3 (3.04)	3,6 (0.22)	37,8 (1.49)	87,6 (3.45)
1,2 (0.07)	33,4 (1.31)	78,8 (3.10)	4,4 (0.27)	39,2 (1.54)	90,5 (3.56)
1,6 (0.10)	34,1 (1.34)	80,3 (3.16)	4,8 (0.29)	40,0 (1.57)	92,0 (3.62)
2,1 (0.13)	34,9 (1.37)	81,9 (3.22)	5,8 (0.35)	41,9 (1.65)	95,8 (3.77)
2,5 (0.15)	35,7 (1.41)	83,5 (3.29)	6,2 (0.38)	42,6 (1.68)	97,3 (3.83)
3,3 (0.20)	37,2 (1.46)	86,5 (3.41)	7,9 (0.48)	45,8 (1.80)	103,6 (4.08)

GP1 Pumps - special design in millimeters (inches)

Single pump P23-L-AGCG-AGBPA-N014**

Double pump P23-/**L-AGCG-CGBPA/GBGBGB-N014**

014 - Special design for SMA 05 hydraulic units:

Flange AE with pressure port PA

Shaft prolonged

