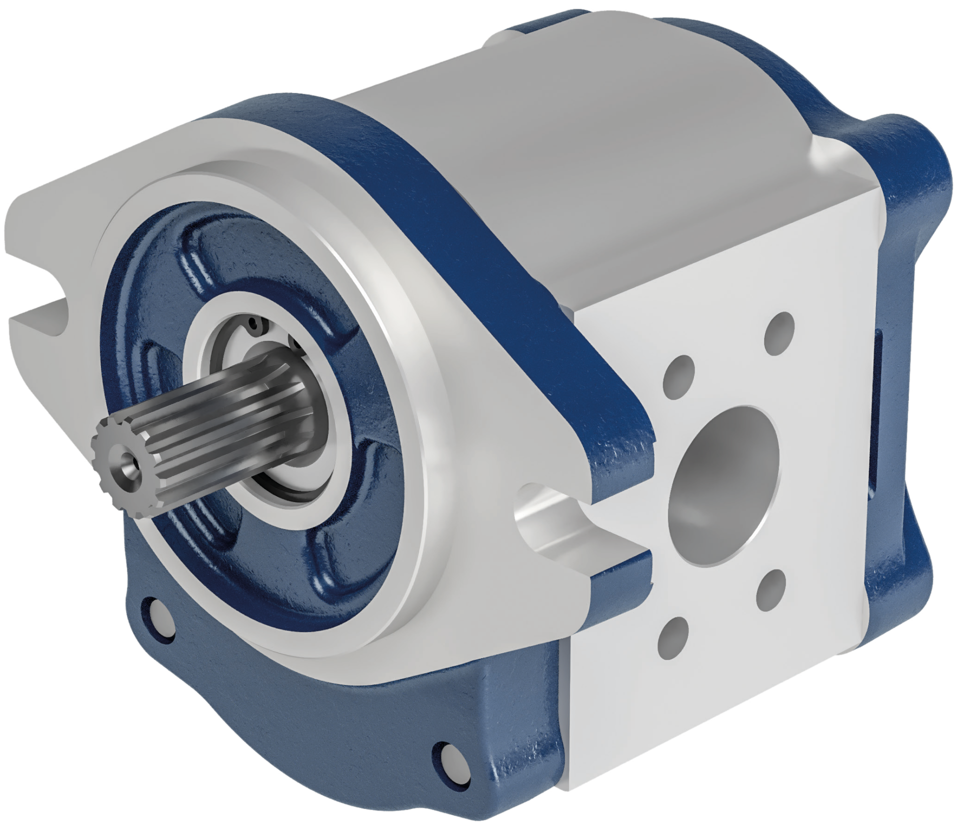
Aluminium gear pumps and motors

HPL

HPL Series



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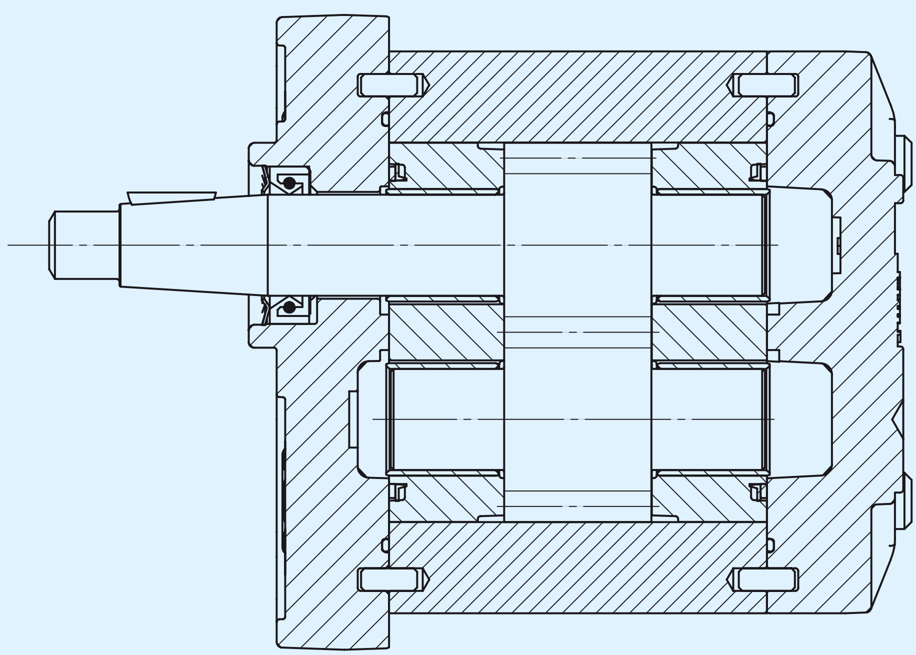
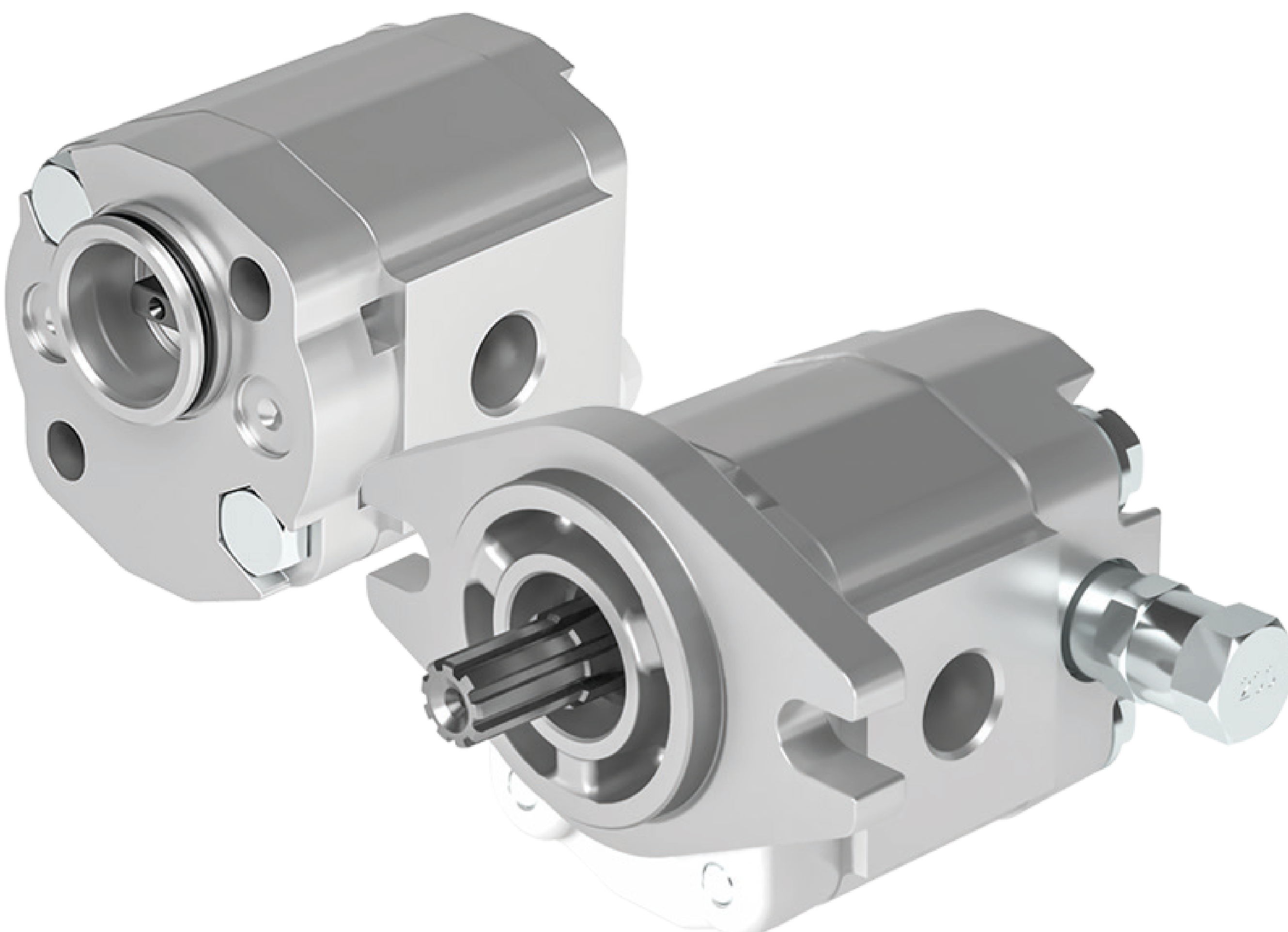
Aluminium gear pumps and motors

Introduction

Gear pumps and motors are among the most popularly produced and utilized hydrostatic units. Some of their many characteristics are: robust design, profitable price/performance ratio, easy installation, suitability for customized solutions, possible integration with control devices (valves).
HP Hydraulic offers decades of well consolidated experience in the development and production of gear units with a constant approach towards innovation of design and of manufacturing process.
This same experience enables us today to offer a gear pumps range with aluminium body, grouped according to their capacity (from 0,37 to 90 cc/rev.), whose main features can be devised and varied to best respond to customer's requirements and whose performance permits use in any kind of application.
HP Hydraulic series L pumps are supplied in five groups, different in size (1,2,3,4). Various capacities will be determined within each group.
The series of products is even further completed with a full range of flanges, shaft ends, and available multiple pumps with or without valves integrated into the back cover.

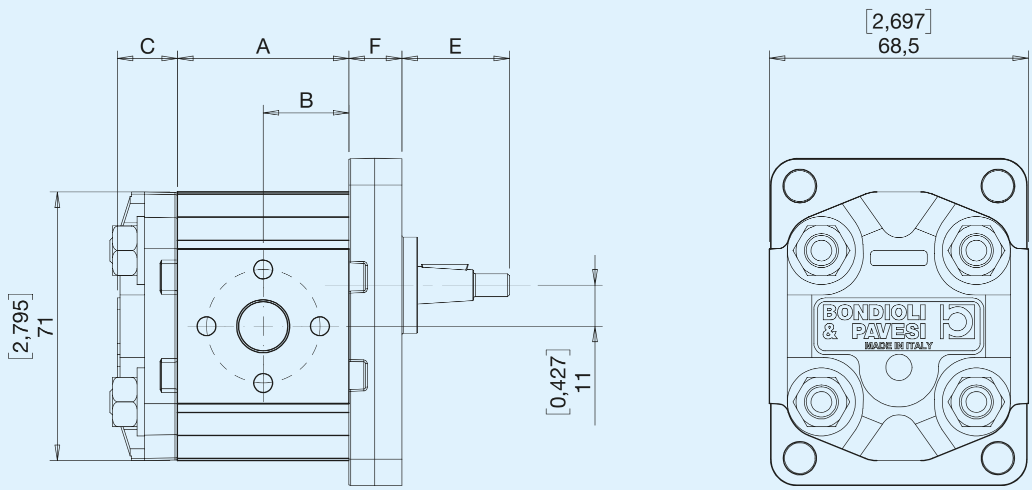


HPL Series Group 1



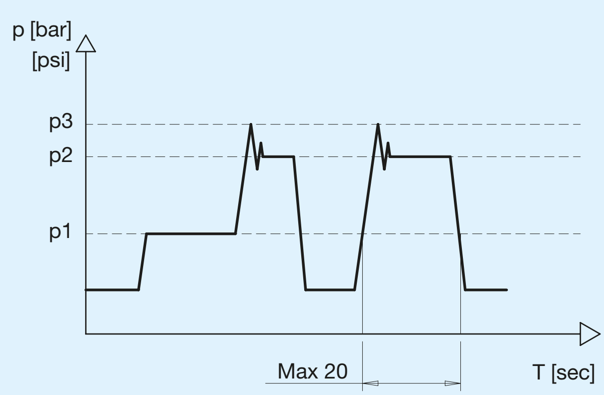
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF GEAR PUMPS AND MOTORS.

Dimensions and technical data



C - See section on covers E - See section on shafts F - See section on flanges

Pressure definition



p1	Continuous pressure
A,B - Use	Intermittent pressure Maximum pressure permitted for short periods (max. 20 sec)
L1, L2 - Drain port	Peak pressure Maximum permitted pressure intended as peak pressure of Vmax

Dimensions and technical data

Pump dimensions and technical data

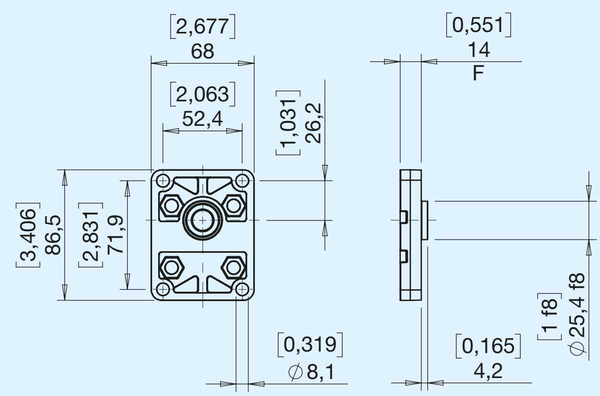
HPLPA1	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed		Weight		A		B	
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**min⁻¹**	**min⁻¹**	**kg**	**lbs**	**mm**	**in**	**mm**	**in**
14	1.37	0.08	220	3191	260	3771	280	4061	3500	700	0.90	1.98	38.70	1.524	19.4	0.762
19	1.90	0.12	220	3191	260	3771	280	4061	3500	700	0.95	2.09	38.70	1.524	19.4	0.762
24	2.53	0.15	210	3046	250	3626	260	3771	3500	700	0.95	2.09	38.70	1.524	19.4	0.762
31	3.17	0.19	210	3046	250	3626	260	3771	3500	700	0.95	2.09	38.70	1.524	19.4	0.762
36	3.73	0.23	210	3046	250	3626	260	3771	3500	700	1.05	2.31	45.35	1.785	22.7	0.893
44	4.35	0.27	210	3046	250	3626	260	3771	3500	700	1.05	2.31	45.35	1.785	22.7	0.893
48	4.97	0.30	210	3046	250	3626	260	3771	3500	700	1.05	2.31	45.35	1.785	22.7	0.893
60	6.08	0.37	210	3046	250	3626	260	3771	3000	700	1.20	2.65	56.05	2.207	28.0	1.103
70	7.00	0.43	190	2756	210	3046	230	3336	3000	700	1.20	2.65	56.05	2.207	28.0	1.103
80	7.87	0.48	160	2321	180	2611	200	2901	3000	700	1.20	2.65	56.05	2.207	28.0	1.103

Motor dimensions and technical data

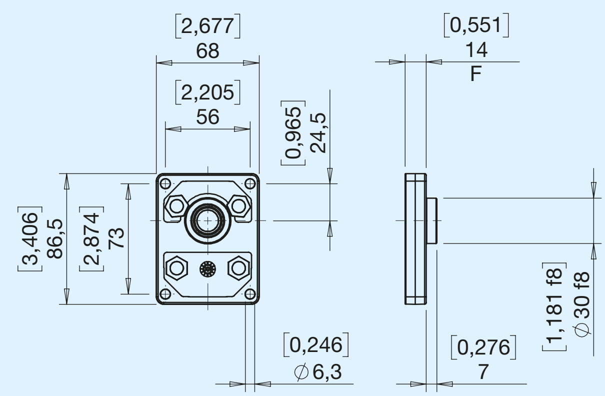
HPLMA1	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed		Weight		A		B	
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**min⁻¹**	**min⁻¹**	**kg**	**lbs**	**mm**	**in**	**mm**	**in**
19	1.90	0.12	220	3191	260	3771	280	4061	4000	700	0.95	2.09	38.70	1.524	19.4	0.762
24	2.53	0.15	210	3046	250	3626	260	3771	4000	700	0.95	2.09	38.70	1.524	19.4	0.762
31	3.17	0.19	210	3046	250	3626	260	3771	4000	700	0.95	2.09	38.70	1.524	19.4	0.762
36	3.73	0.23	210	3046	250	3626	260	3771	4000	700	1.05	2.31	45.35	1.785	22.7	0.893
44	4.35	0.27	210	3046	250	3626	260	3771	4000	700	1.05	2.31	45.35	1.785	22.7	0.893
48	4.97	0.30	210	3046	250	3626	260	3771	4000	700	1.05	2.31	45.35	1.785	22.7	0.893
60	6.08	0.37	210	3046	250	3626	260	3771	3500	700	1.20	2.65	56.05	2.207	28.0	1.103
70	7.00	0.43	190	2756	210	3046	230	3336	3500	700	1.20	2.65	56.05	2.207	28.0	1.103
80	7.87	0.48	160	2321	180	2611	200	2901	3500	700	1.20	2.65	56.05	2.207	28.0	1.103

Aluminium flanges

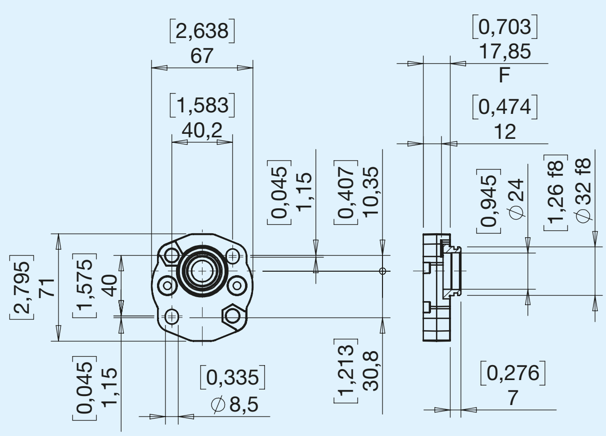
D European D25.4



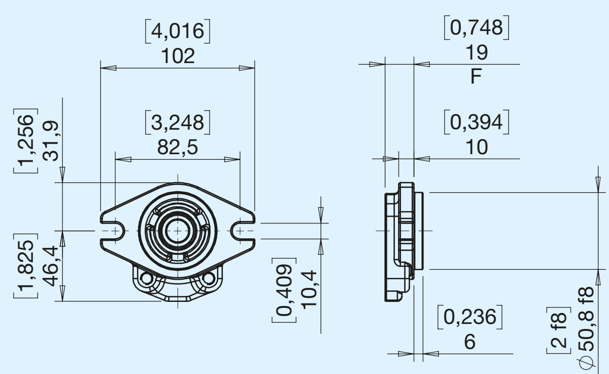
E European D30



G German

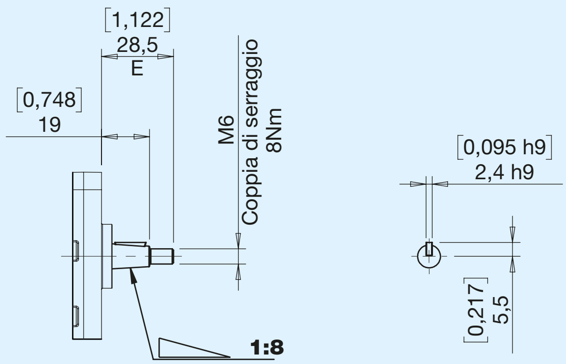


J SAE AA



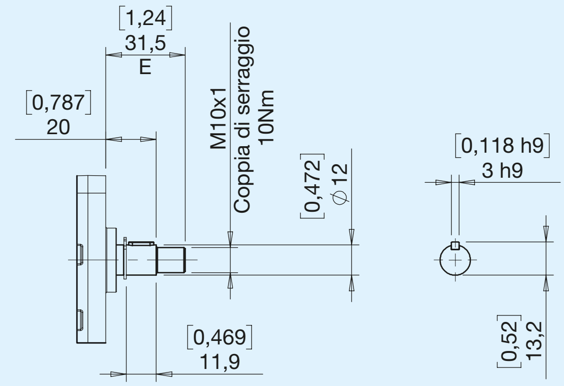
BONDIOLI & PAVESI HP Hydraulic

D Tapered (1:8)



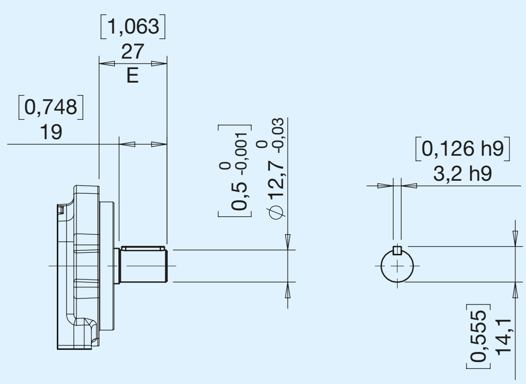
Max. torque 25 Nm

E European round



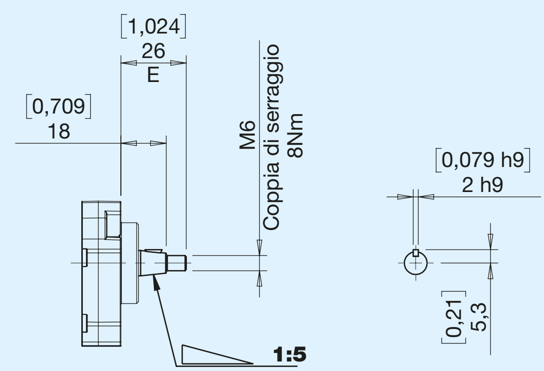
Max. torque 15 Nm

F Round SAE AA



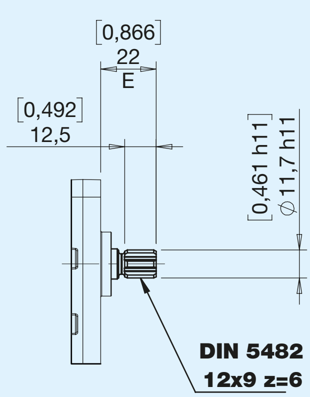
Max. torque 35 Nm

G Tapered (1:5)



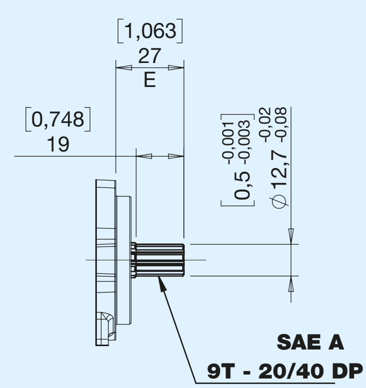
Max. torque 25 Nm

H Splined DIN 5482



Max. torque 30 Nm

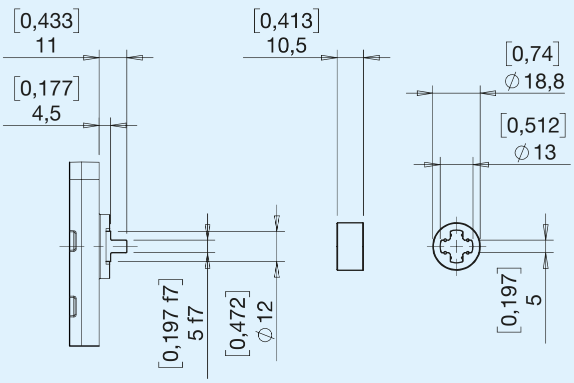
I Splined SAE AA



Max. torque 45 Nm

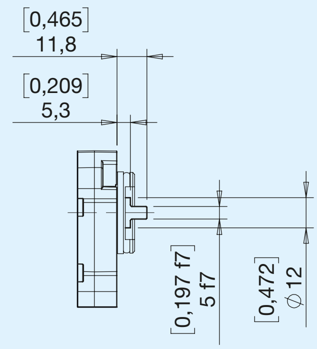
J Protruding front tooth

J-shaft for European flange D25.4



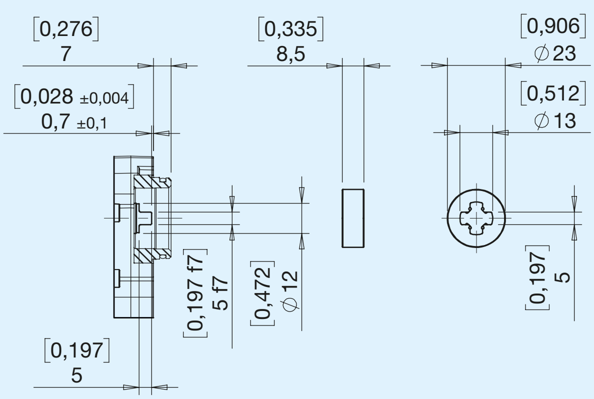
Max. torque 20 Nm

J-shaft for German flange (no joint)



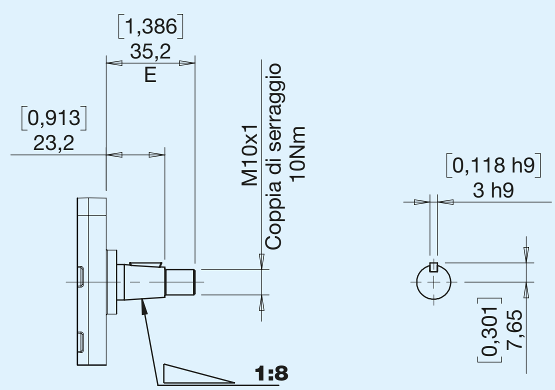
Max. torque 20 Nm

K Front tooth



Max. torque 20 Nm

T High torque tapered (1:8)

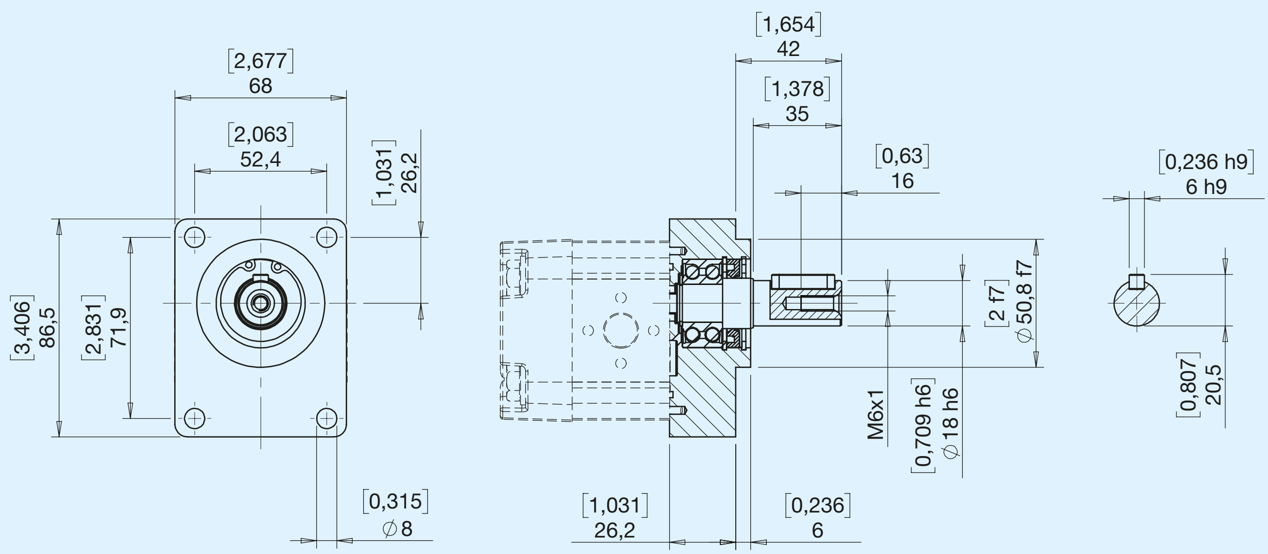


Max. torque 60 Nm

Combinations of shaft - flange

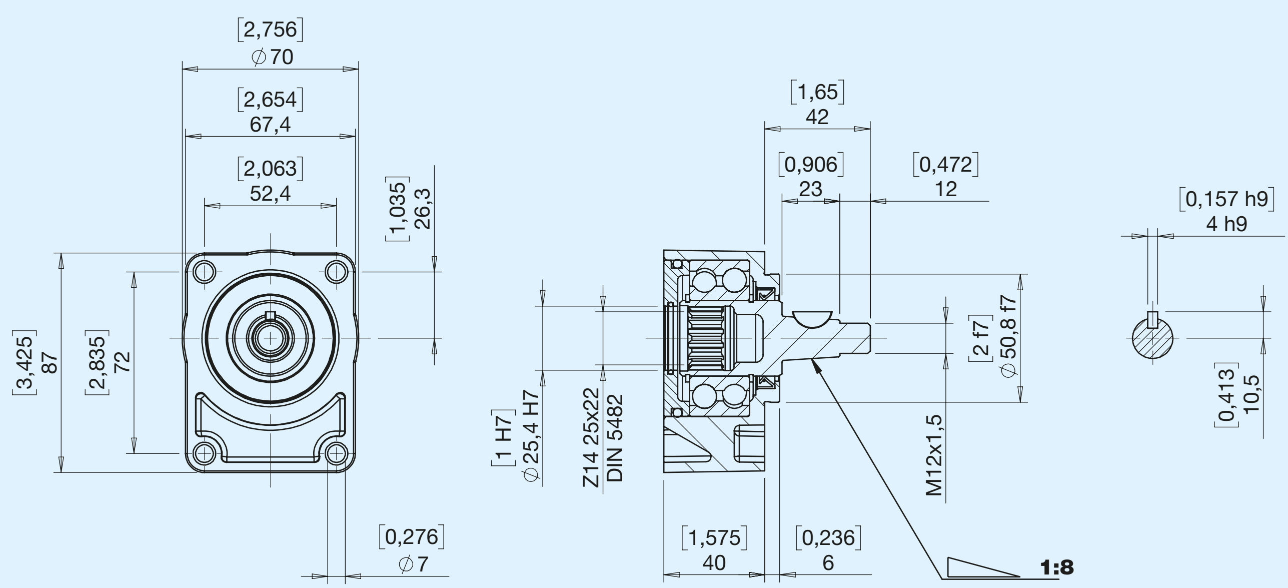
Shafts	Flanges D	E	G	J
D	•	•		
E	•	•		
F				•
G			•	
H	•			
I				•
J	•		•	
K			•	
T	•	•		

I5 Standard European flange round shaft D18



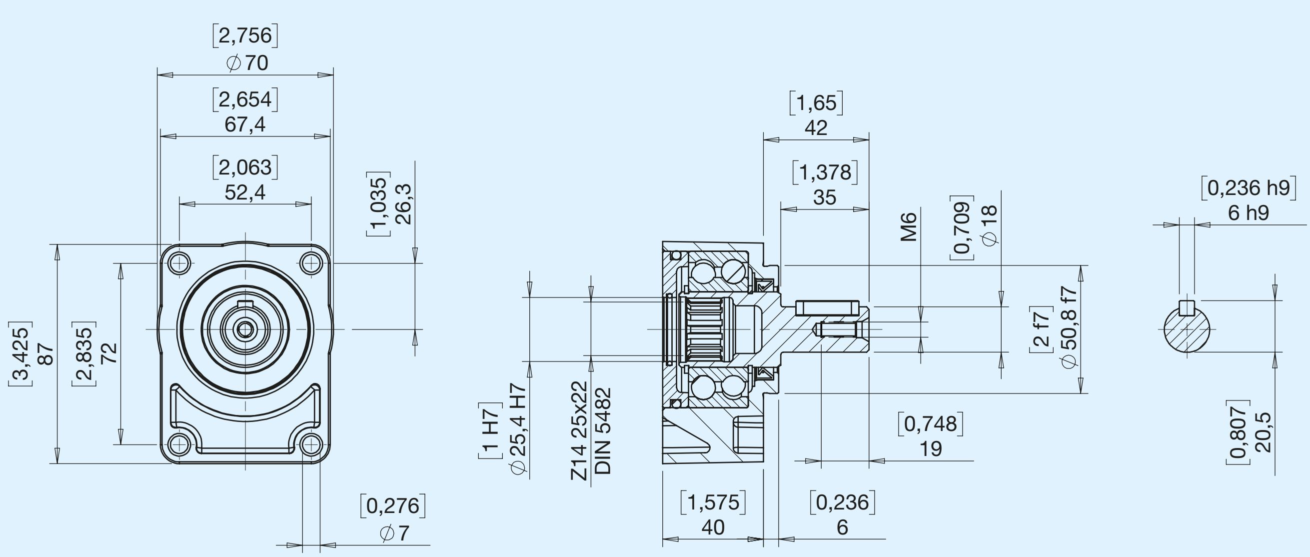
BONDIOLI & PAVESI HP Hydraulic

C1 Centring D50.80 tapered shaft (1:8)



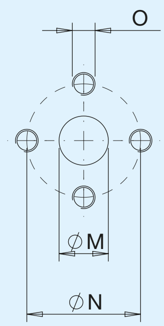
Can be ordered separately Code HPL5921C1R

C2 Centring D50.80 round shaft D18



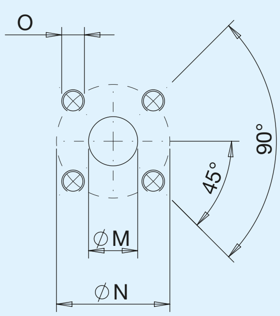
Can be ordered separately Code HPL5921C2R

E Lateral



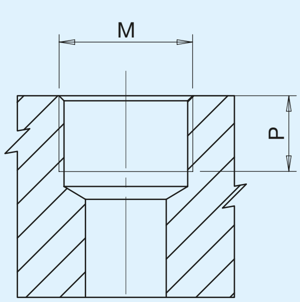
Type	M		N		O	
	mm	**in**	**mm**	**mm**		**Nm**
E2	13	0.51	26	1.02	M5	6
E3	13	0.51	30	1.18	M6	10

X Lateral



Type	M		N		O	
	mm	**in**	**mm**	**mm**		**Nm**
X3	13	0.51	30	1.18	M6	10

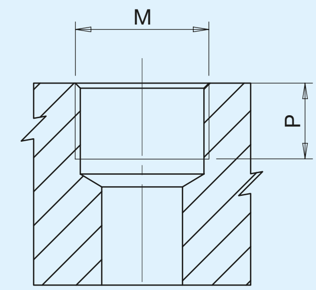
G Lateral / Drain



Type	M		P	
		Nm	**mm**	**in**
G2*	PORT ISO 1179-1-G 1/4	17	12	0.47
G3	PORT ISO 1179-1-G 3/8	38	12	0.47
G4	PORT ISO 1179-1-G 1/2	50	14.5	0.57

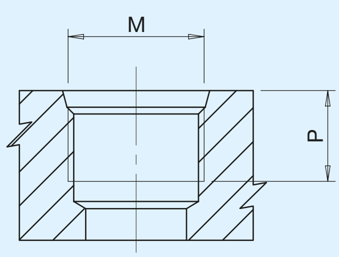
*Drain

T Rear



Type	M		P	
		Nm	mm	in
T3	PORT ISO 1179-1-G 3/8	38	12	0.47

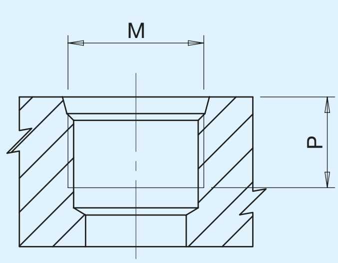
U Lateral / Drain



Type	Dim.	M		P	
			Nm	mm	in
U2*	1/4'	PORT ISO 11926-1 - 7/16-20	17	12	0.47
U3	3/8'	PORT ISO 11926-1 - 9/16-18	25	13	0.51
U4	1/2'	PORT ISO 11926-1 - 3/4-16	47	15	0.59

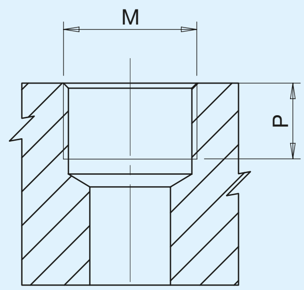
*Drain

C Rear



Type	Dim.	M		P	
			Nm	mm	in
C3	3/8'	PORT ISO 11926-1 - 9/16-18	25	13	0.51

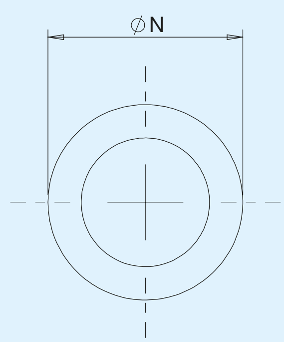
M Lateral / Drain



Type	M		P	
		Nm	mm	in
M1*	PORT ISO 6149 - 1 - M12x1.5	15	12	0.47
M2	PORT ISO 6149 - 1 - M14x1.5	17	12	0.47
M4	PORT ISO 6149 - 1 - M18x1.5	40	14.5	0.57

*Drain

H Front



Type	Front seal	N	
		mm	in
H1	Port ISO 1179-1 - G 1/4	12.7	0.50

Combinations

Combination of ports/flanges

Ports	Flanges D	E	G	J
E	●	●		
X	●	●	●	
G	●	●	●	●
T	●	●	●	
U				●
C				●
M	●	●	●	
H			●	

Combination of round ports for one-way pumps/motors

Ports	Round 14 19 24 31 IN/OUT ports	36 44 48 IN/OUT ports	60 70 80 IN/OUT ports
E	E2 E2	E3 E3	E3 E3
X	X3 X3	X3 X3	X3 X3
G	G3 G3	G3 G3	G4 G4
T	T3 T3	T3 T3	-
U	U3 U3	U3 U3	U4 U4
C	C3 C3	C3 C3	-
M	M4 M2	M4 M2	M4 M4
HT	T3 H1	T3 H1	-

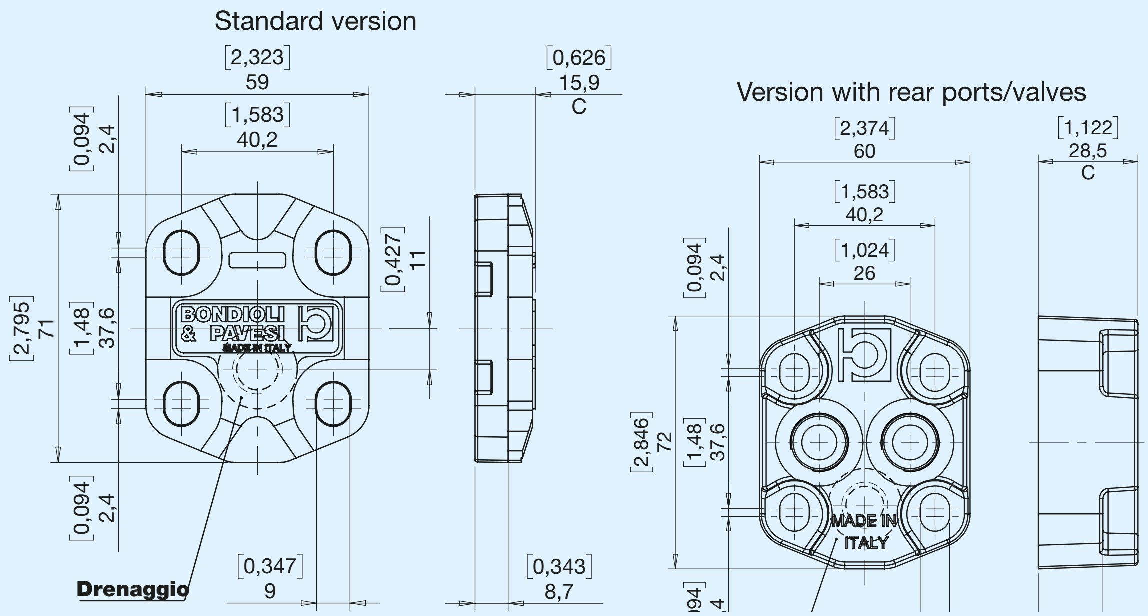
Combinations

Combination of round ports for bidirectional pumps/motors

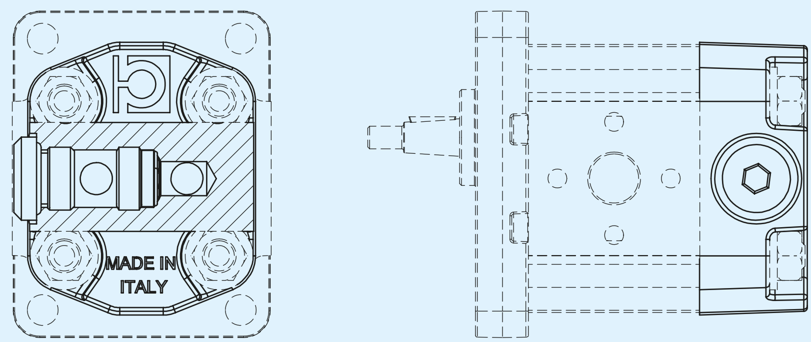
Ports	Round 19 24 31 IN/OUT ports	36 44 48 IN/OUT ports	60 70 80 IN/OUT ports	Drain line
E	E2 E2	E3 E3	E3 E3	M1
X	X3 X3	X3 X3	X3 X3	M1
G	G3 G3	G3 G3	G4 G4	G2
T	T3 T3	T3 T3	-	G2
U	U3 U3	U3 U3	U4 U4	U2
C	C3 C3	C3 C3	-	U2
M	M2 M2	M4 M4	M4 M4	M1

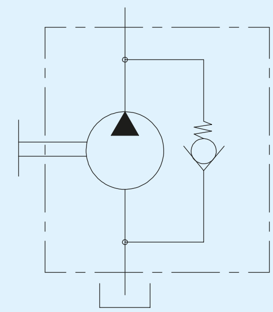
Other combinations of ports are available. For more information, please contact our technical sales department.

ST Aluminium

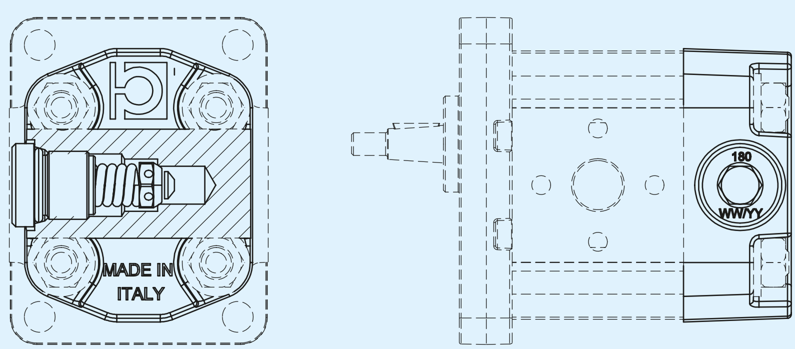


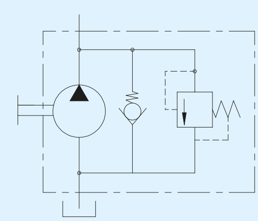
VA Check valve



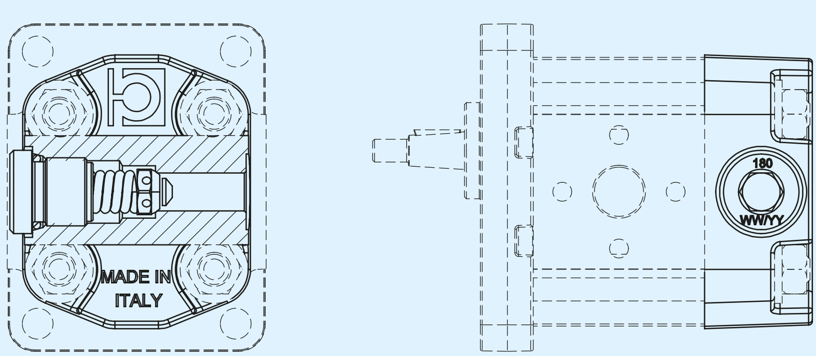


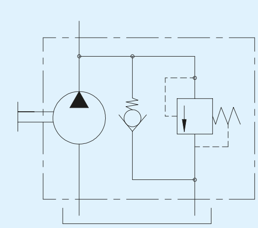
VB Fixed setting pressure relief valve with internal drain





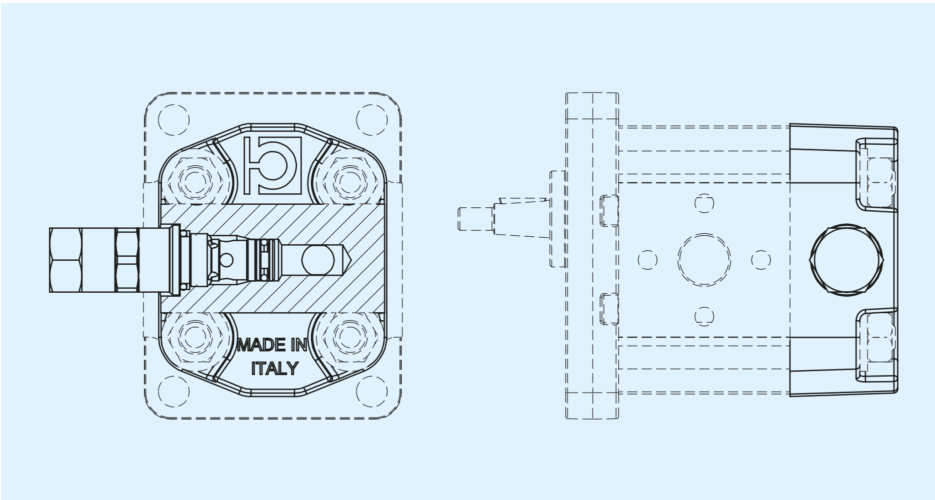
VC Fixed setting pressure relief valve with external drain

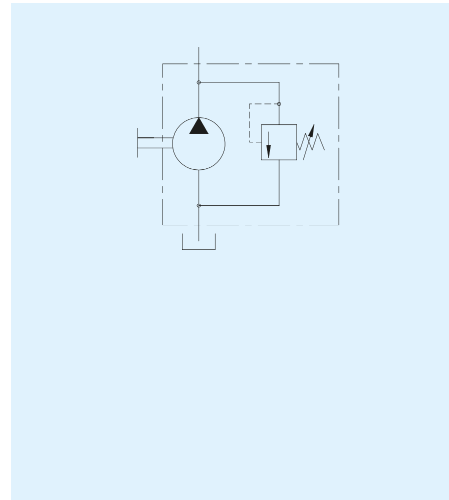




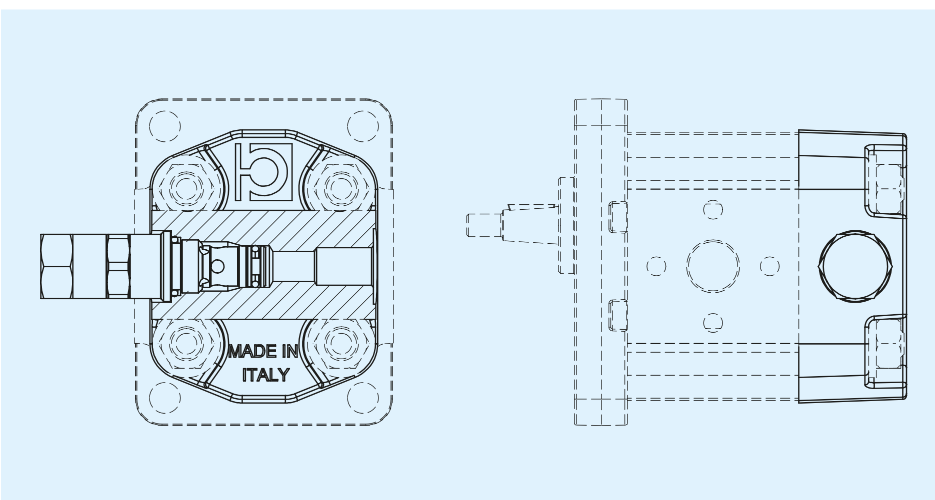
Covers with valves

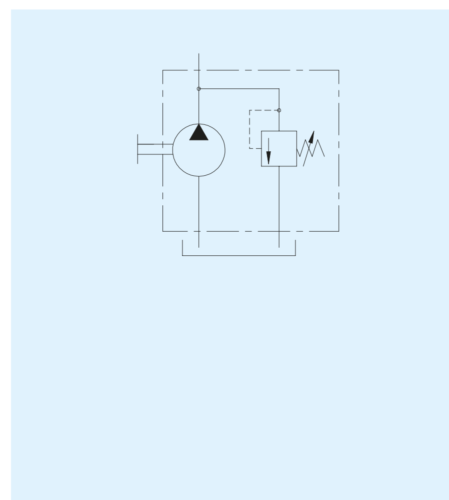
VD Adjustable pressure relief valve with internal drain





VE Adjustable pressure relief valve with external drain





For more information, please contact the technical sales department

For pressure relief valves, please indicate the setting

Instructions for ordering

HPL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

1 2 3 — Series

PA1	Gear pump Group 1	**MA1**	Gear motor Group 1

4 5 — Displacement

14	**31**	**48**	**80**
19	**36**	**60**	
24	**44**	**70**	

6 — Direction of rotation

S	Anti-clockwise/left	**D**	Clockwise/right	**H**	Bidirectional internal drainage	**B**	Bidirectional rear external drainage

7 8 — Front flanges - Shafts

DD	European D25.4 - Tapered (1:8)	**DT**	European D25.4 - High torque tapered (1:8)	**GG**	German - Tapered (1:5)	**JI**	SAE AA - Splined SAE AA
DE	European D25.4 - European round	**ED**	European D30 - Tapered (1:8)	**GJ**	German - Protruding front tooth without joint		
DH	European D25.4 - Splined DIN 5482	**EE**	European D30 - European round	**GK**	German - Front tooth		
DJ	European D25.4 - Protruding front tooth	**ET**	European D30 - High torque tapered (1:8)	**JF**	SAE AA - SAE AA round		

Integrated supports

I5	European flange - Round D18

External supports

C1	Centring D50.80 - Tapered (1:8)	**C2**	Centring D50.80 - Round D18

9 10 — IN - Inlet ports

...	See tables Ports and Combinations

11 12 — OUT - Output ports

...	See tables Ports and Combinations

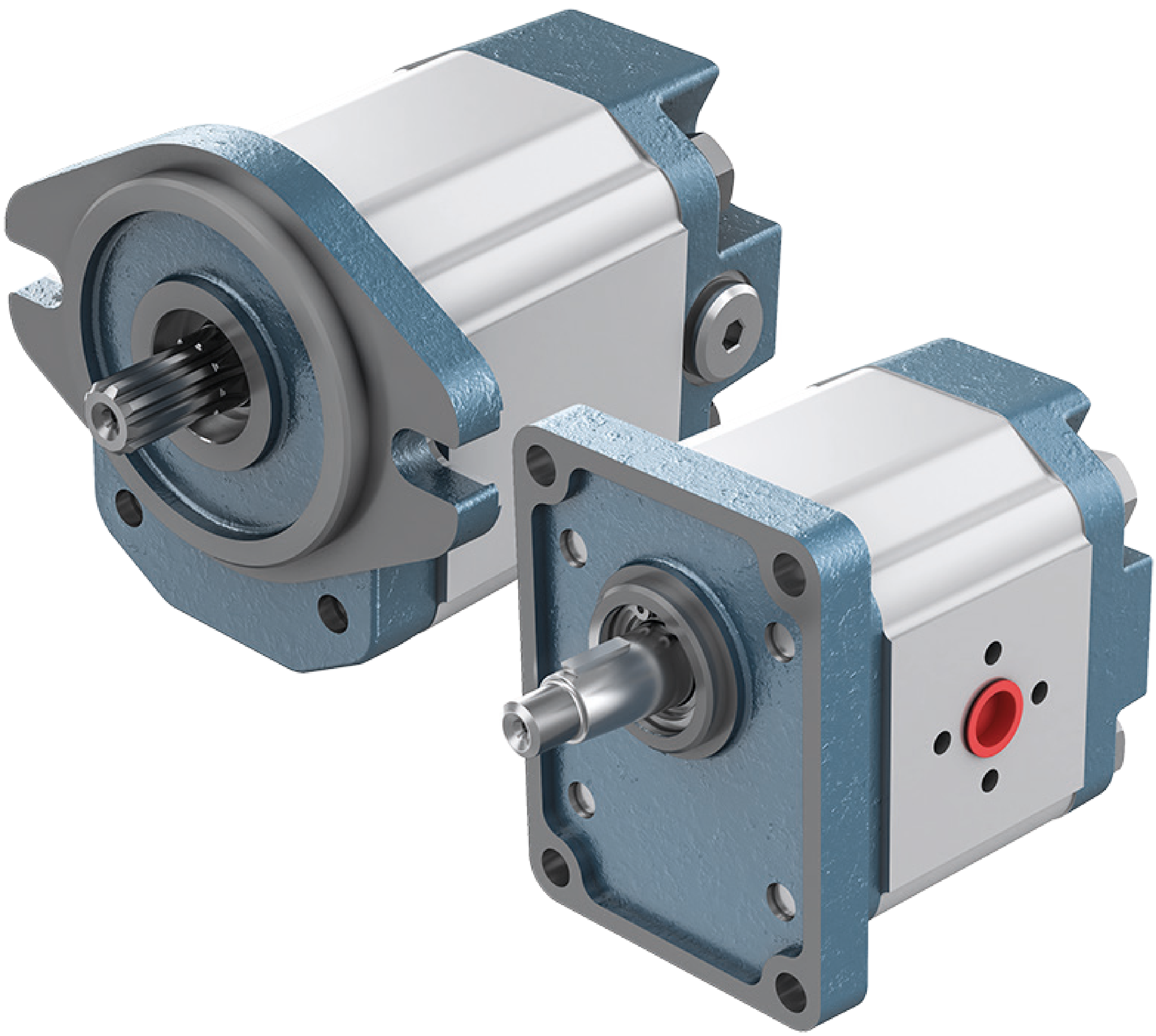
13 — Seals

B	NBR Pump	**R**	NBR Motor / Bid. pump High pressure pump	**V**	Viton Pump	**W**	Viton Motor / Bid. pump High pressure pump

14 15 — Covers

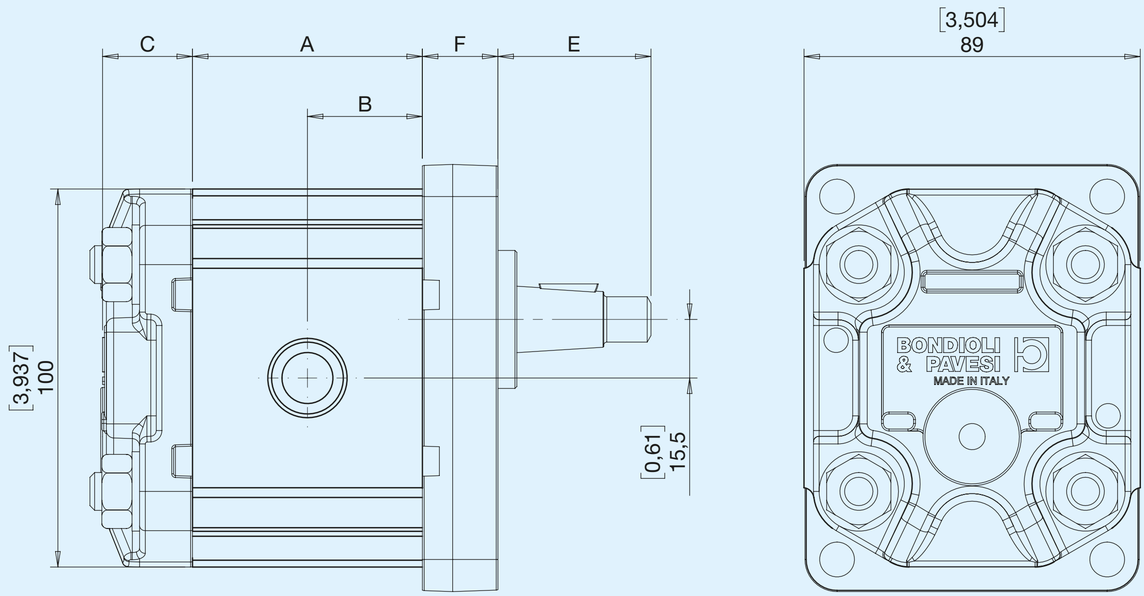
ST	Standard	**VB**	Fixed setting pressure relief valve with internal drain	**VD**	Adjustable pressure relief valve with internal drain
VA	Check valve	**VC**	Fixed setting pressure relief valve with external drain	**VE**	Adjustable pressure relief valve with external drain

HPL Series Group 2



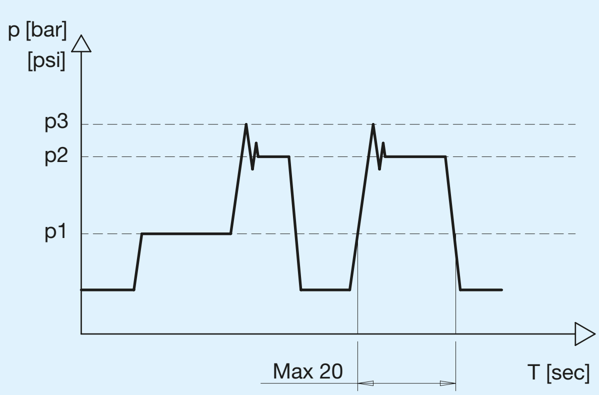
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF GEAR PUMPS AND MOTORS.

Dimensions and technical data



C - See section on covers E - See section on shafts F - See section on flanges

Pressure definition



p1	Continuous pressure
A,B - Use	Intermittent pressure Maximum pressure permitted for short periods (max. 20 sec)
L1, L2 - Drain port	Peak pressure Maximum permitted pressure intended as peak pressure of Vmax

Dimensions and technical data

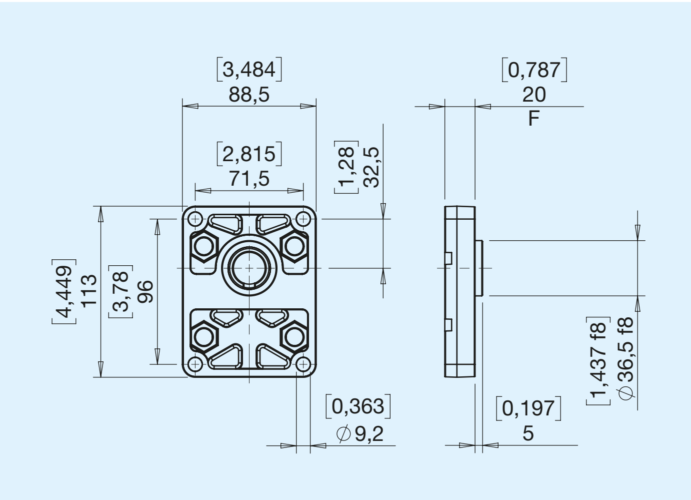
Pump dimensions and technical data

HPLPA2	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed		Weight		A		B	
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**min⁻¹**	**min⁻¹**	**kg**	**lbs**	**mm**	**in**	**mm**	**in**
05	4.50	0.27	240	3481	260	3771	300	4351	3500	700	2.30	5.07	49.15	1.935	24.6	0.968
06	6.00	0.37	240	3481	260	3771	300	4351	3500	700	2.40	5.29	51.85	2.041	25.9	1.021
08	8.50	0.52	230	3336	250	3626	280	4061	3500	700	2.40	5.29	56.35	2.219	28.2	1.109
11	11.00	0.67	230	3336	250	3626	280	4061	3500	700	2.40	5.29	60.85	2.396	30.4	1.198
14	14.50	0.88	230	3336	250	3626	280	4061	3500	700	2.80	6.17	67.25	2.648	33.6	1.324
17	17.00	1.04	230	3336	250	3626	280	4061	3500	700	2.80	6.17	71.25	2.825	35.9	1.412
20	19.50	1.19	200	2901	220	3191	250	3626	3500	700	2.80	6.17	76.25	3.002	38.1	1.501
26	26.00	1.59	180	2611	190	2756	210	3046	3000	700	3.10	6.83	88.55	3.486	44.3	1.743
34	34.00	2.07	150	2175	170	2466	190	2756	3000	700	3.40	7.50	102.55	4.037	51.3	2.019
40	40.50	2.47	140	2031	160	2321	180	2611	2500	700	3.60	7.94	115.07	4.530	57.5	2.265

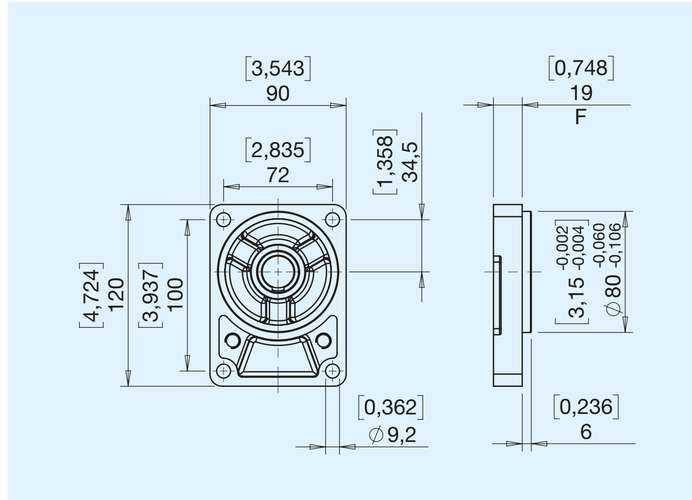
Motor dimensions and technical data

HPLMA2	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed		Weight		A		B	
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**min⁻¹**	**min⁻¹**	**kg**	**lbs**	**mm**	**in**	**mm**	**in**
06	6.00	0.37	240	3481	260	3771	300	4351	4000	700	2.40	5.29	51.85	2.041	25.9	1.021
08	8.50	0.52	230	3336	250	3626	280	4061	4000	700	2.40	5.29	56.35	2.219	28.2	1.109
11	11.00	0.67	230	3336	250	3626	280	4061	4000	700	2.40	5.29	60.85	2.396	30.4	1.198
14	14.50	0.88	230	3336	250	3626	280	4061	4000	700	2.80	6.17	67.25	2.648	33.6	1.324
17	17.00	1.04	230	3336	250	3626	280	4061	4000	700	2.80	6.17	71.25	2.825	35.9	1.412
20	19.50	1.19	200	2901	220	3191	250	3626	4000	700	2.80	6.17	76.25	3.002	38.1	1.501
26	26.00	1.59	180	2611	190	2756	210	3046	3400	700	3.10	6.83	88.55	3.486	44.3	1.743

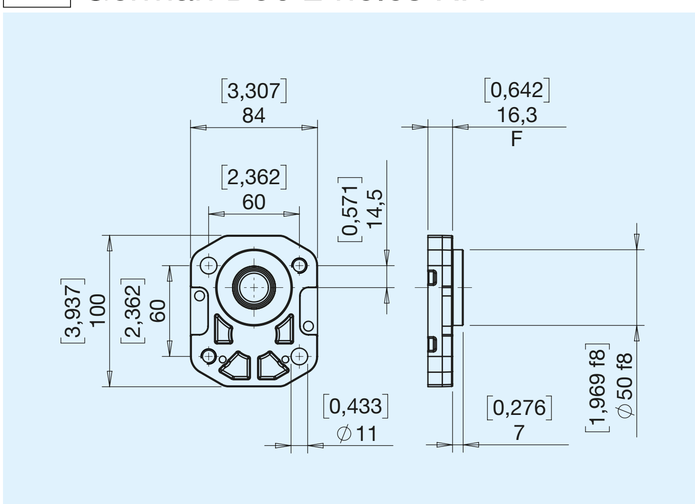
M European



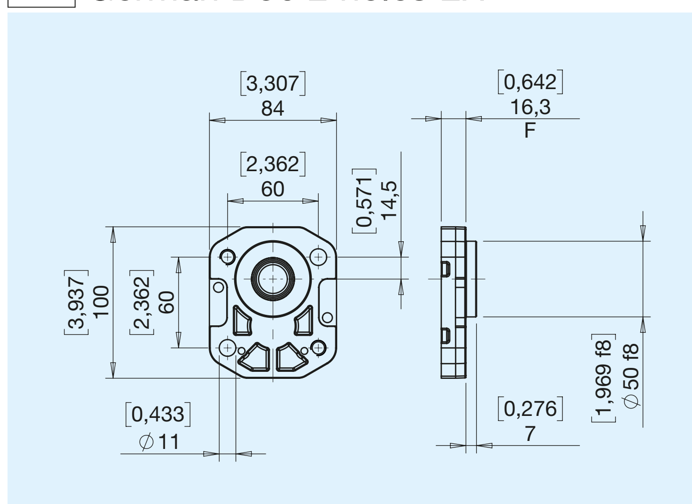
N German



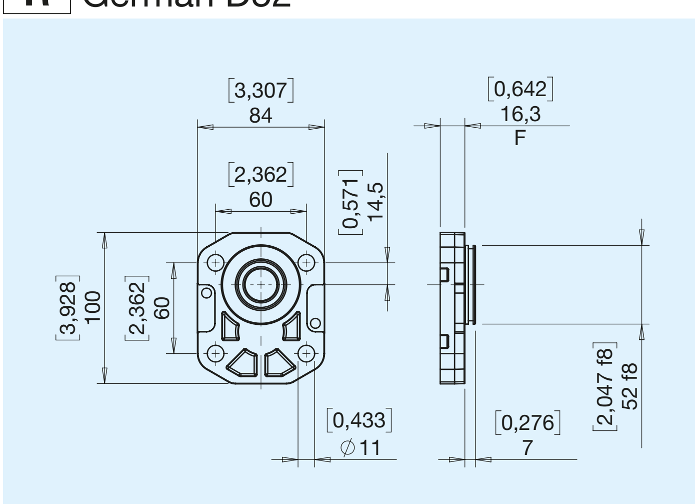
O German D50 2 holes RH



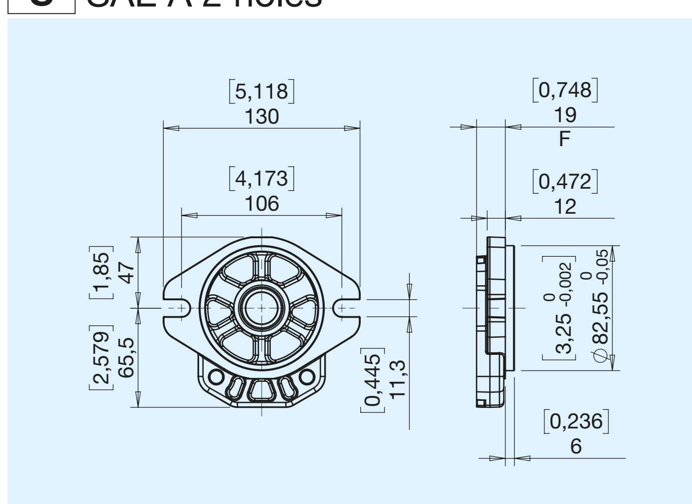
P German D50 2 holes LH



R German D52

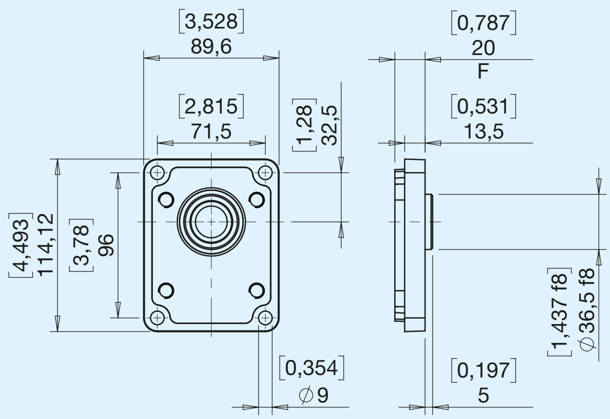


S SAE A 2 holes

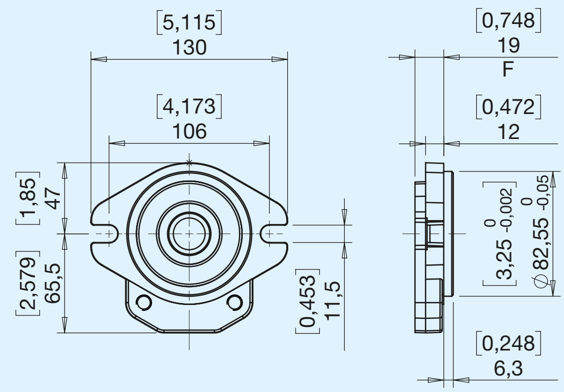


BONDIOLI & PAVESI
HP Hydraulic

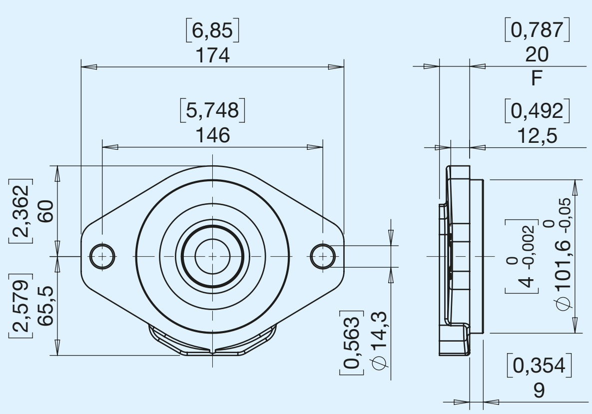
L European



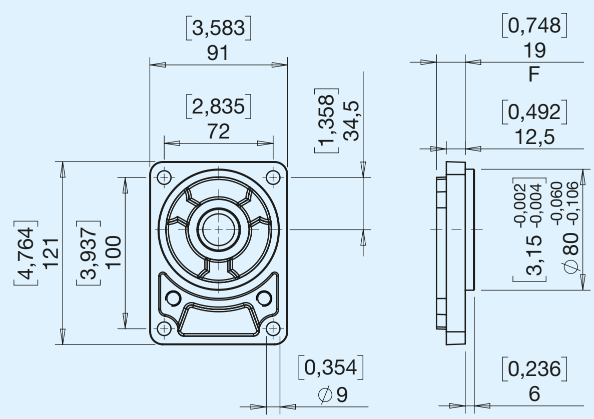
Q SAE A 2 holes



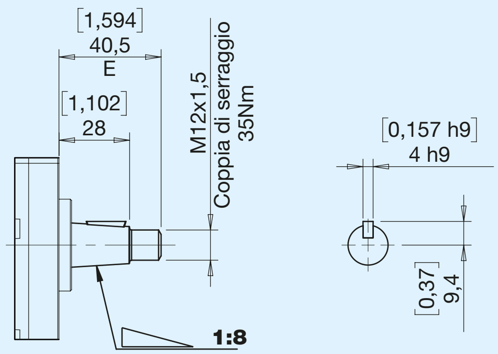
T SAE B 2 holes



V German

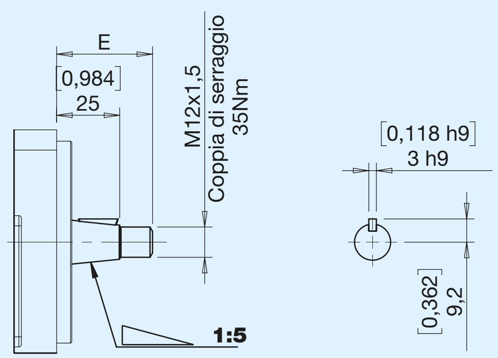


L Tapered (1:8)



Max. torque 140 Nm

M Tapered (1:5)

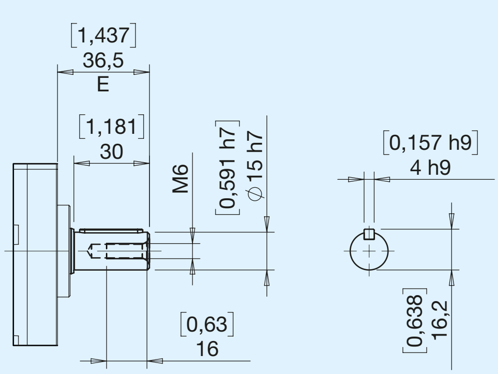


Max. torque 120 Nm

M shaft extension table

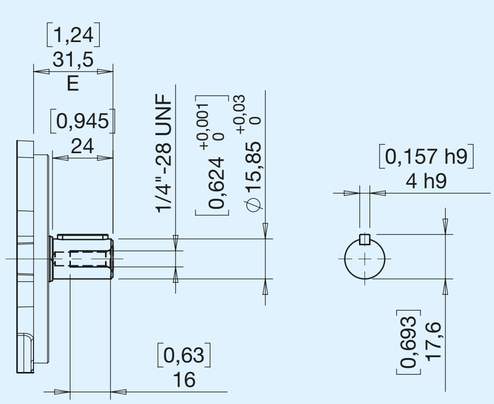
	Flanges			
	mm	in	mm	in
N6	19	0.75	50.8	2

N European round D15



Max. torque 65 Nm

P Round SAE A

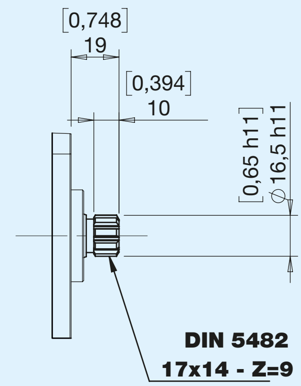


Max. torque 70 Nm

BONDIOLI & PAVESI HP Hydraulic

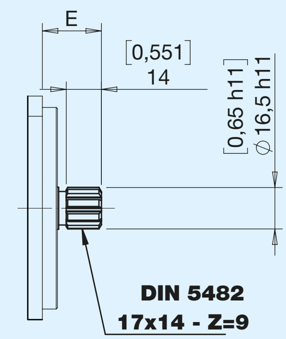
U Splined DIN 5482

U shaft Standard version



Max. torque 80 Nm

U shaft for German flange

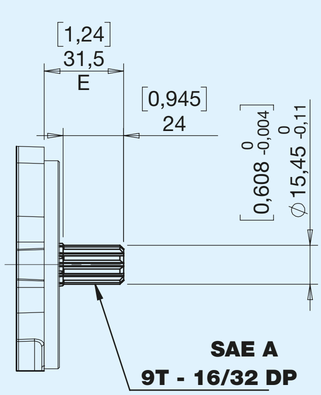


Max. torque 110 Nm

U shaft extension for German flange table

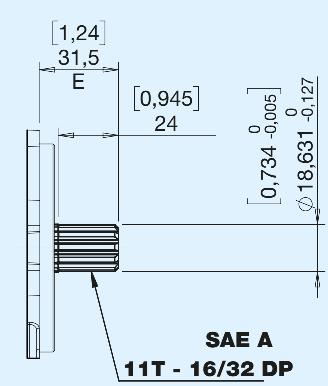
	Flanges			
	mm	in	mm	in
N6	19	0.75	50.8	2

V Splined SAE A 9T



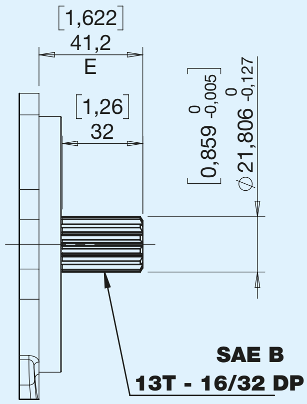
Max. torque 120 Nm

X Splined SAE A 11T



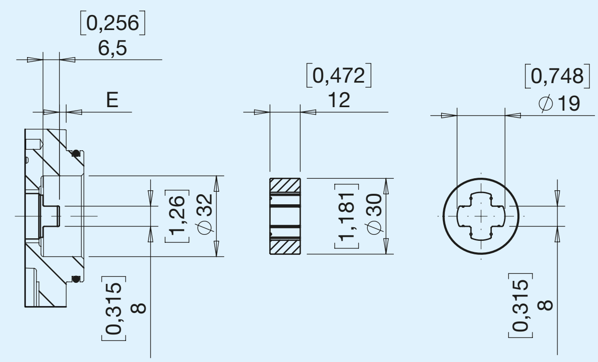
Max. torque 160 Nm

Y Splined SAE B 13T



Max. torque 310 Nm

Z Tang drive

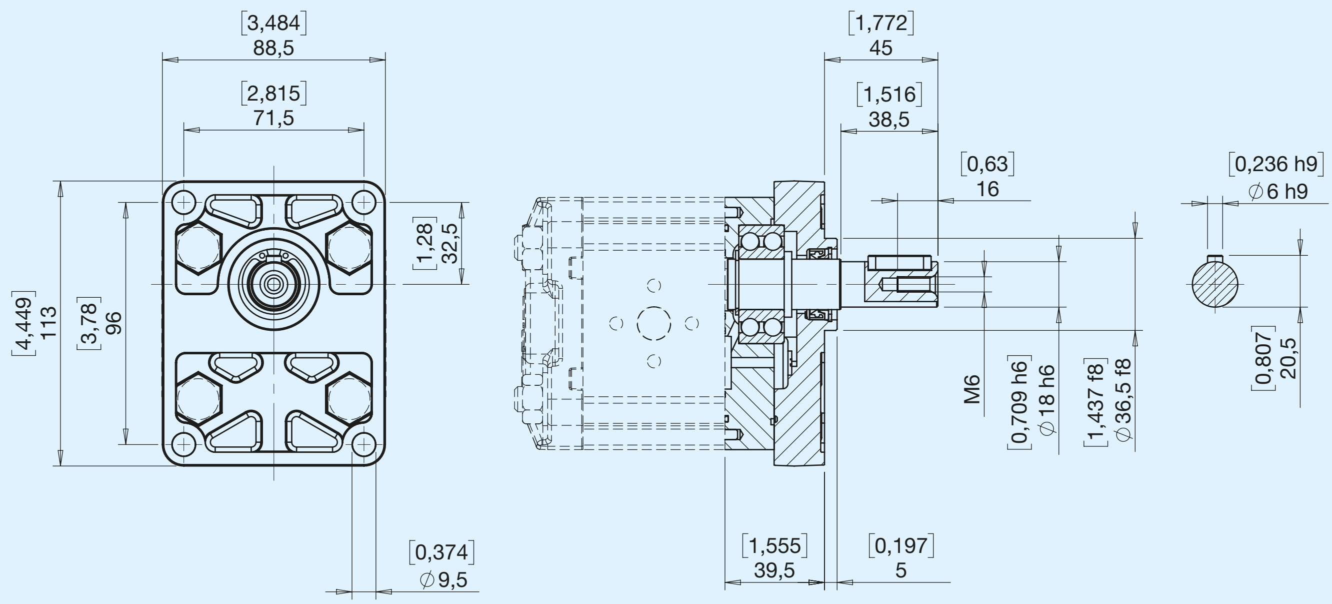


Max. torque 70 Nm

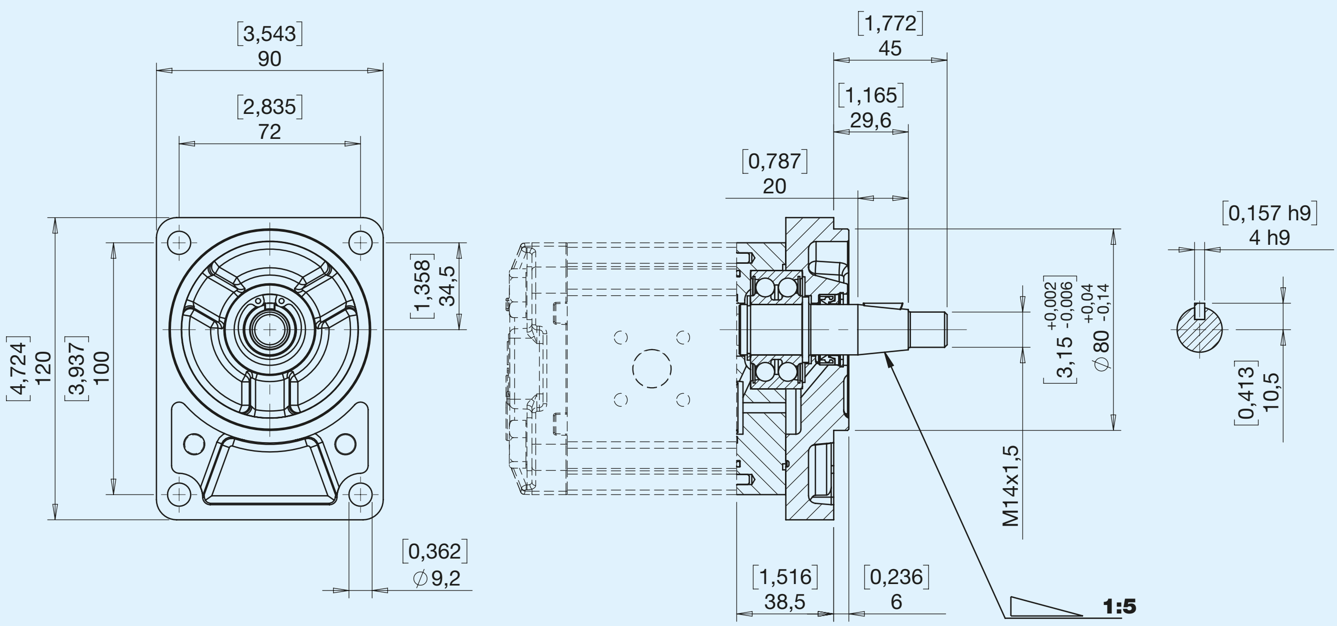
Combinations of shaft - flange

Shafts	Flanges M	L	N	V	O	P	R	S	Q	T
L	•	•								
M			•	•	•	•				
N	•	•								
P								•	•	
U	•	•	•	•	•	•				
V								•	•	
X								•	•	
Y										•
Z							•			

I1 Standard European flange round shaft D18



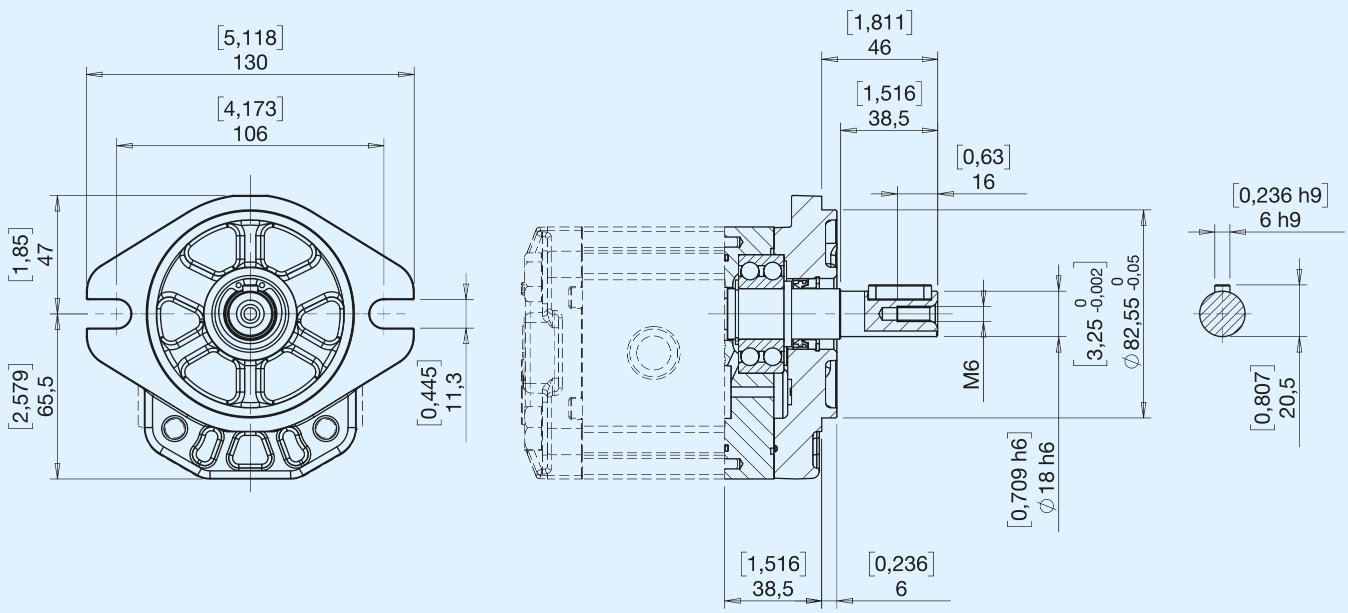
I2 German flange tapered shaft (1:5)



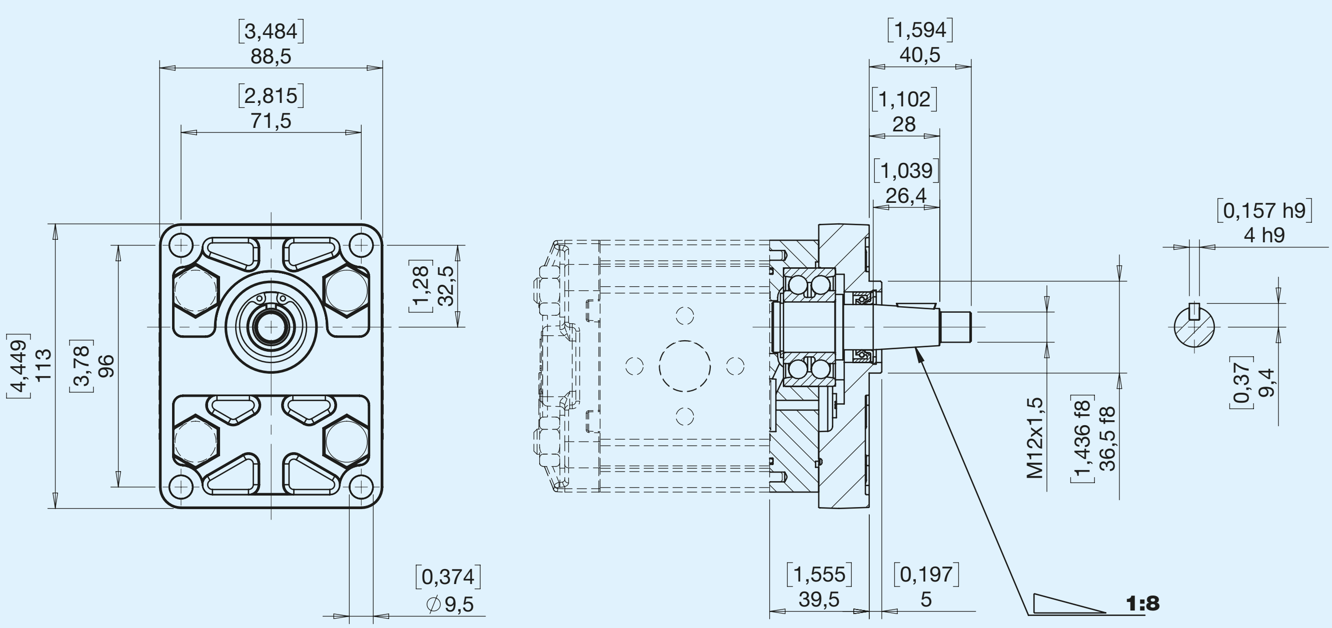
BONDIOLI & PAVESI HP Hydraulic

Integrated aluminium supports

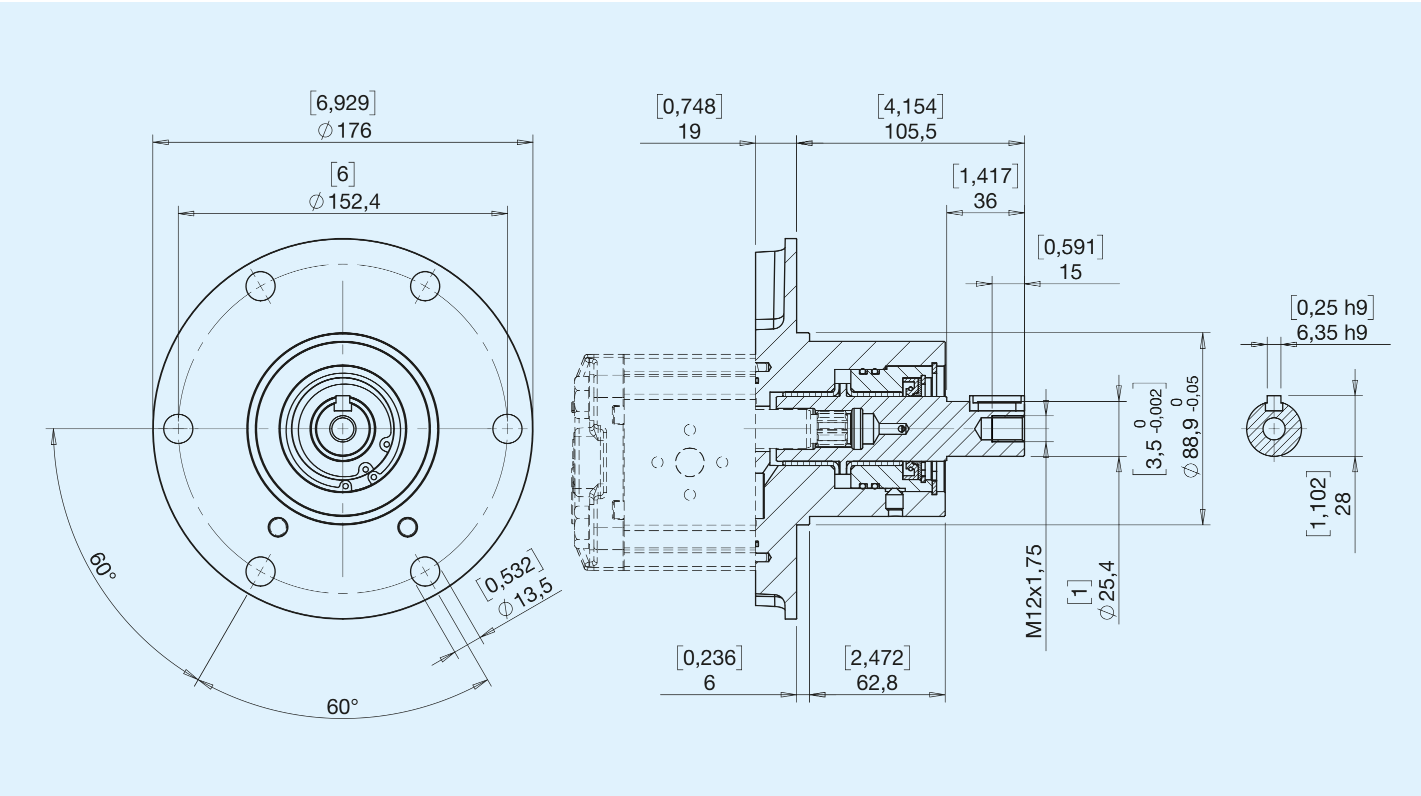
I3 Standard SAE A flange round shaft D18



I7 Standard European flange tapered shaft (1:8)



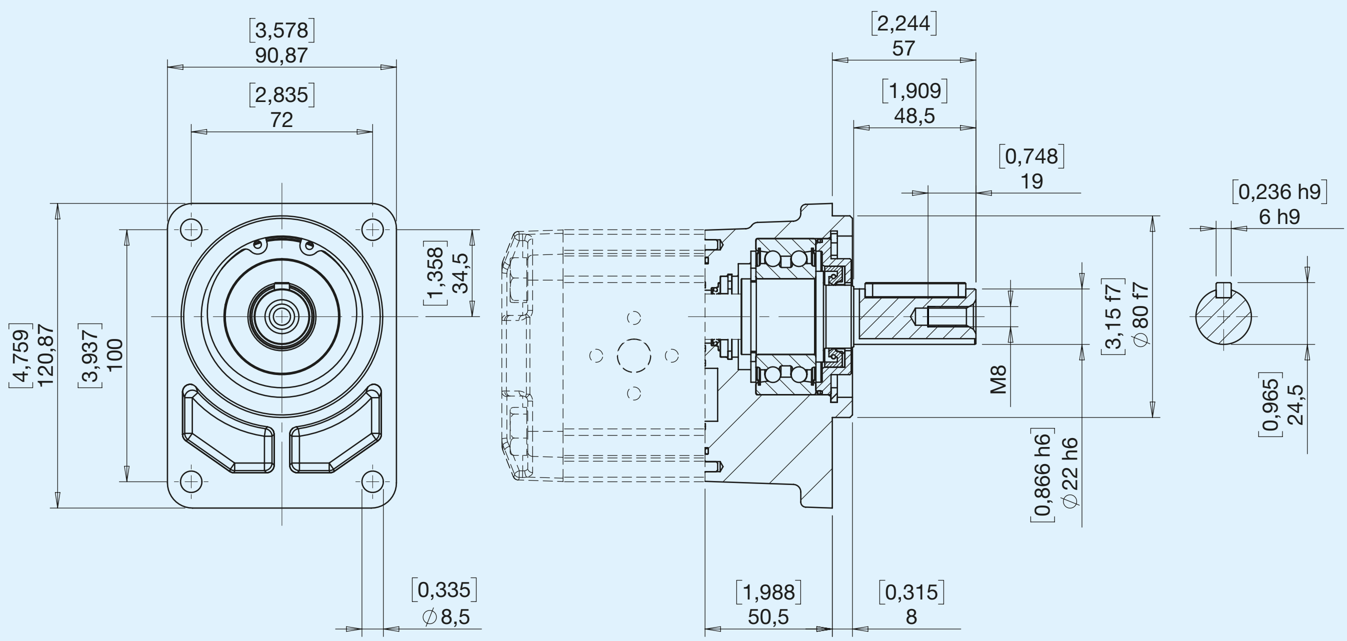
IS Special flange round shaft D25.40



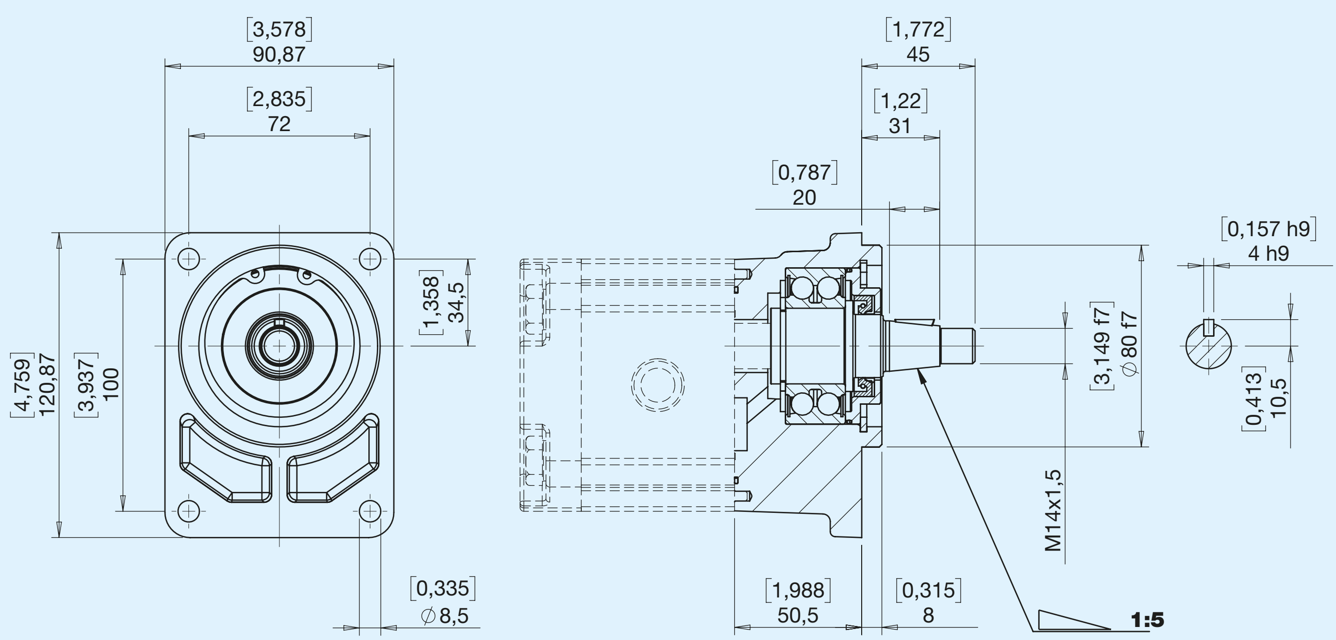
Integrated supports I1 - I2 - I3 - I7 are available in cast iron. For more information, please contact our technical sales department.

Integrated cast iron supports

IB German flange round shaft D22

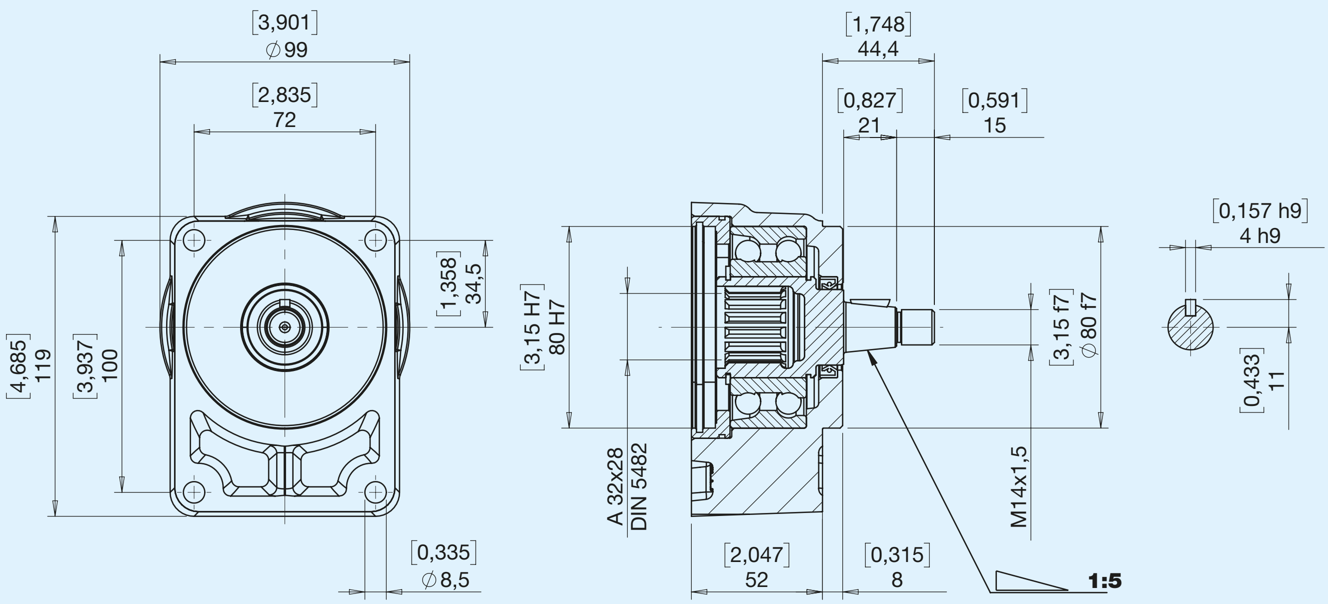


IC German flange tapered shaft (1:5)



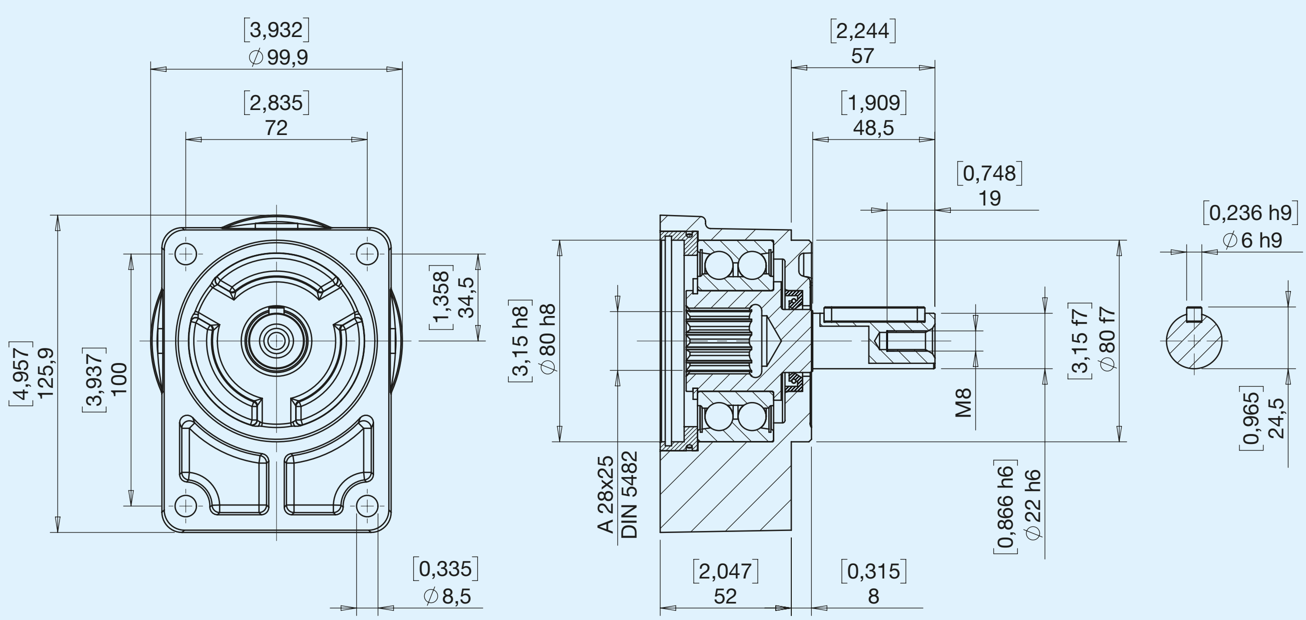
External aluminium supports

B1 Centring D80 tapered shaft (1:5)



Can be ordered separately Code HPL5922B1R

B3 Centring D80 round shaft D22

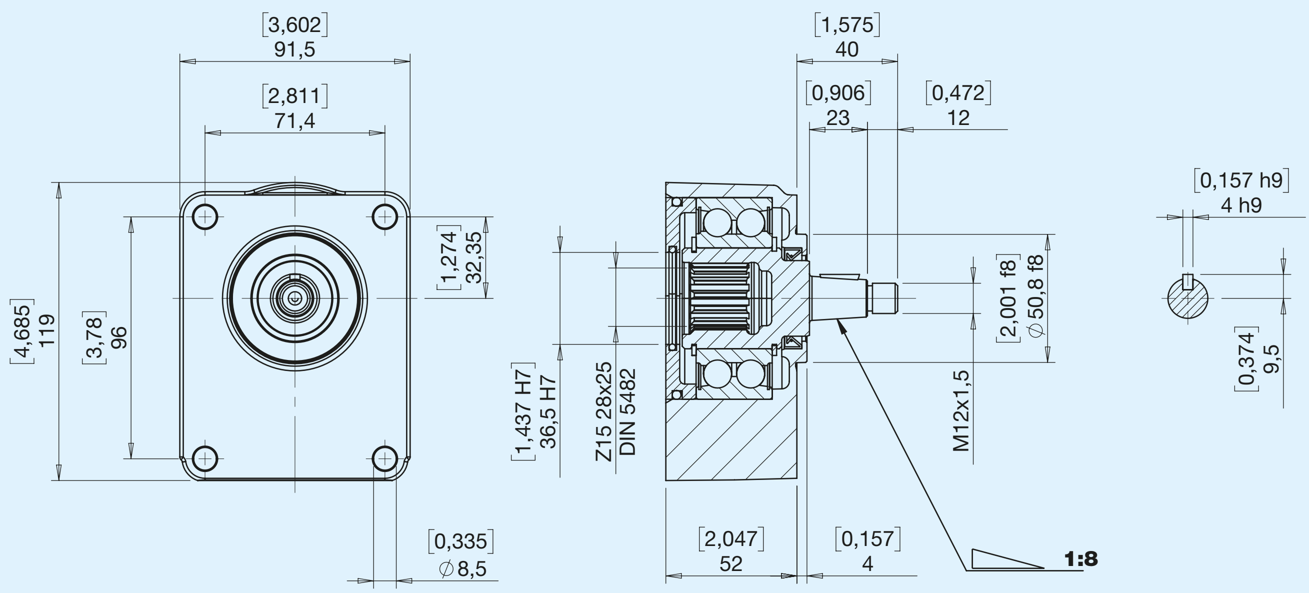


Can be ordered separately Code HPL5922B3R

BONDIOLI & PAVESI HP Hydraulic

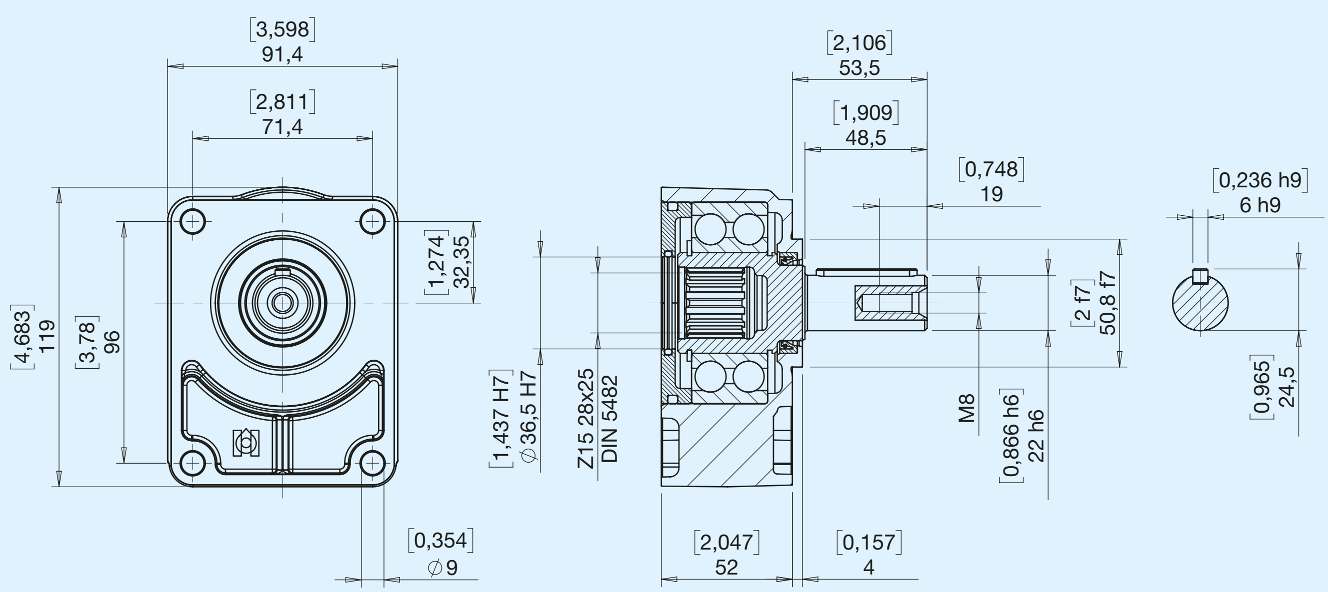
External aluminium supports

C3 Centring D50.80 tapered shaft (1:8)



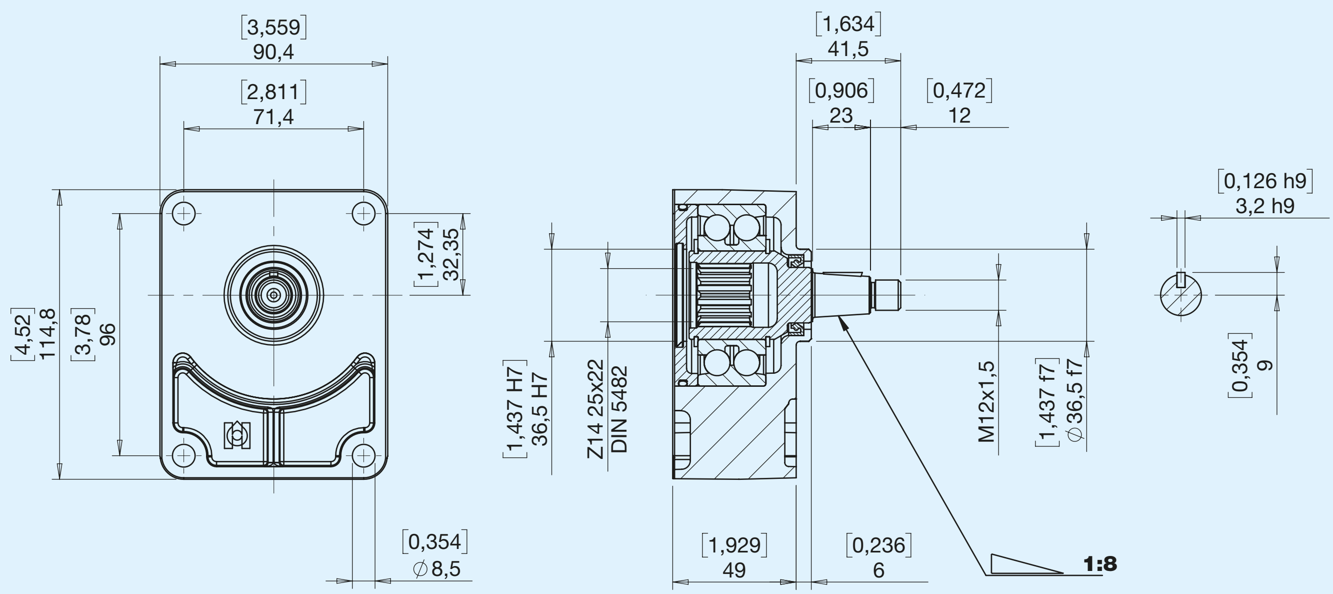
Can be ordered separately Code HPL5922C3R

C4 Centring D50.80 round shaft D22



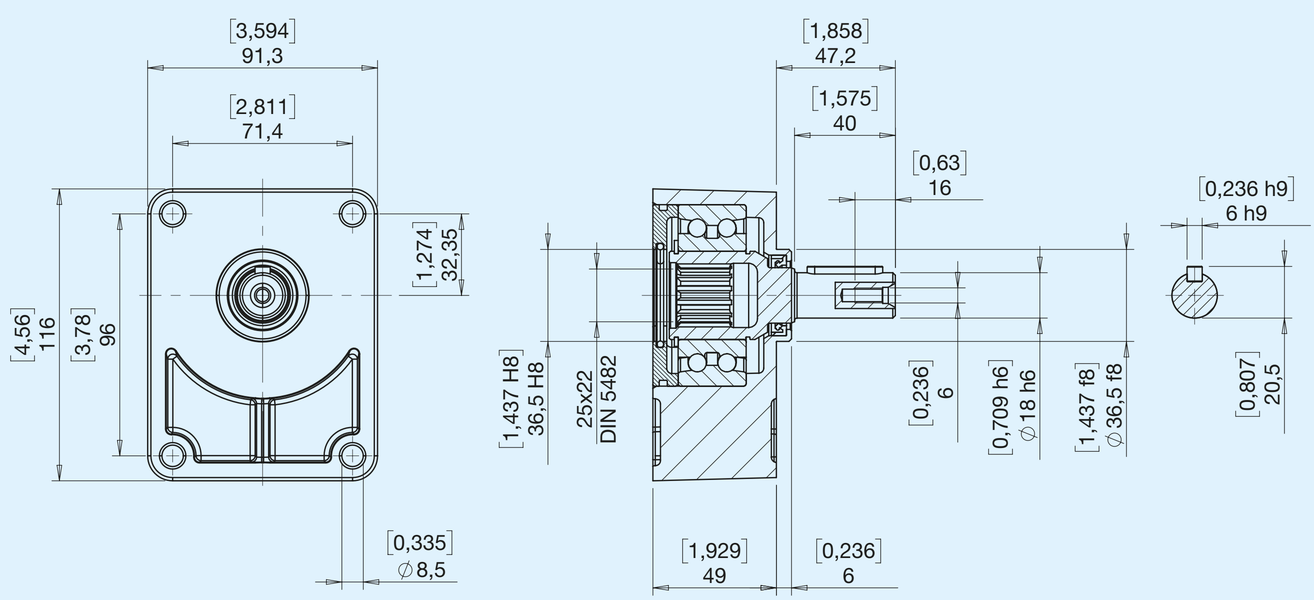
Can be ordered separately Code HPL5922C4R

C5 Centring D36.50 tapered shaft (1:8)



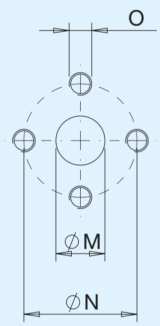
Can be ordered separately Code HPL5922C5R

C6 Centring D36.50 round shaft D18



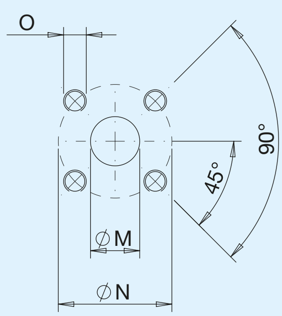
Can be ordered separately Code HPL5922C6R

E Lateral



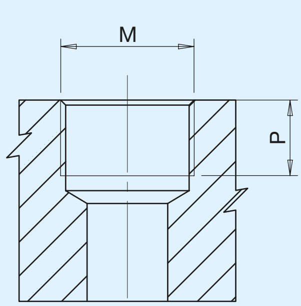
Type	M		N		O	
	mm	in	mm	mm		Nm
E3	13	0.51	30	1.18	M6	10
E5	20	0.79	40	1.57	M8	15

X Lateral



Type	M		N		O	
	mm	in	mm	mm		Nm
X4	15	0.59	35	1.38	M6	10
X5	15	0.59	40	1.57	M6	10
X6	20	0.79	40	1.57	M6	10
X8	27	1.06	55	2.17	M8	15

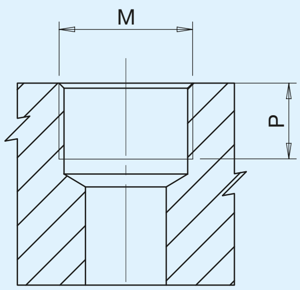
G Lateral / Drain



Type	M		P	
		Nm	mm	in
G3*	PORT ISO 1179-1-G 3/8	38	12	0.47
G4	PORT ISO 1179-1-G 1/2	50	16	0.63
G6	PORT ISO 1179-1-G3/4	90	19	0.75
G7	PORT ISO 1179-1-G 1	130	19	0.75

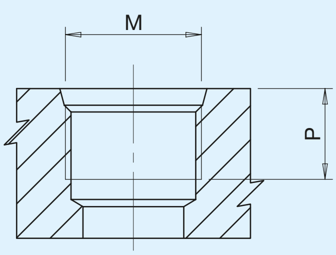
*Drain

T Rear



Type	M		P	
		Nm	**mm**	**in**
T4	PORT ISO 1179-1-G 1/2	50	16	0.63
T6	PORT ISO 1179-1-G3/4	90	19	0.75

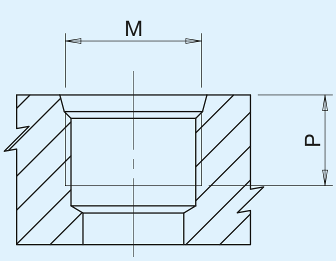
U Lateral / Drain



Type	Dim.	M		P	
			Nm	**mm**	**in**
U3*	3/8'	PORT ISO 11926-1 - 9/16-18	25	13	0.51
U5	5/8'	PORT ISO 11926-1 - 7/8-14	70	17	0.67
U6	3/4'	PORT ISO 11926-1 - 1 1/16-12	90	19	0.75
U7	1'	PORT ISO 11926-1 - 1 5/16-12	130	20	0.79

*Drain

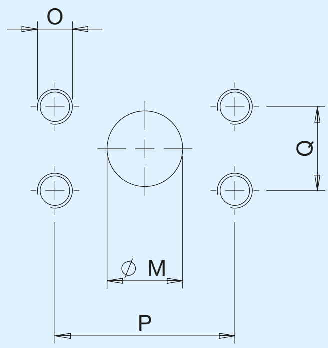
C Rear



Type	Dim.	M		P	
			Nm	**mm**	**in**
C5	5/8'	PORT ISO 11926-1 - 7/8-14	70	17	0.67
C6	3/4'	PORT ISO 11926-1 - 1 1/16-12	90	19	0.75

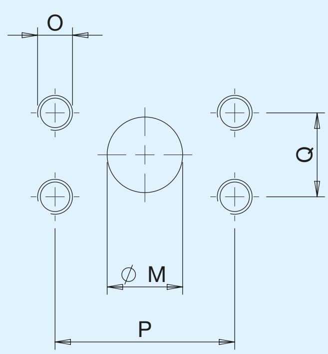
Ports

N Lateral



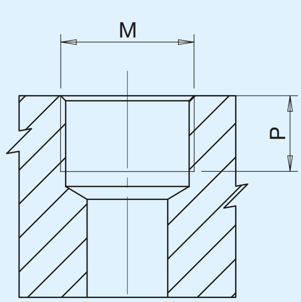
Type	Dim.	M		P		Q		O	
		mm	**in**	**mm**	**in**	**mm**	**in**		**Nm**
N4	1/2'	13	0.51	38.1	1.49	17.5	0.68	5/16-18 UNC-2B	17
N6	3/4'	20	0.79	47.6	1.87	22.2	0.87	3/8-16 UNC-2B	38
N7	1'	27	1.06	52.4	2.60	26.2	1.03	3/8-16 UNC-2B	38

F Lateral



Type	Dim.	M		P		Q		O	
		mm	**in**	**mm**	**in**	**mm**	**in**		**Nm**
F4	1/2'	13	0.51	38.1	1.49	17.5	0.68	M8	17
F6	3/4'	20	0.79	47.6	1.87	22.2	0.87	M10	38
F7	1'	25.4	1	52.4	2.60	26.2	1.03	M10	38

M Drain



Type	M		P	
		Nm	**mm**	**in**
M2*	PORT ISO 6149 - 1 - M14x1.5	17	12	0.47

*Drain

Combination of ports/flanges

Ports	Flanges M	L	N	V	O	P	R	S	Q	T
E	●	●								
G	●	●						●	●	●
X			●	●	●	●	●			
U								●	●	●
F								●	●	●
N								●	●	●
C								●	●	●
T	●	●	●	●	●	●	●	●	●	●

Combination of round ports for one-way pumps/motors

Ports	Round 5 6 8 IN/OUT ports	11 IN/OUT ports	14 17 20 IN/OUT ports	26 IN/OUT ports	34 40 IN/OUT ports
E	E3 E3	E3 E3	E5 E3	E5 E5	E5 E5
G	G4 G4	G4 G4	G6 G4	G6 G6	G7 G6
X	X5 X4	X6 X4	X6 X4	X6 X5	X8 X6
U	U6 U5	U6 U5	U6 U5	U6 U5	U7 U6
F	-	F4 F4	F6 F4	F7 F6	F7 F6
N	-	N4 N4	N6 N4	N7 N6	N7 N6
C	C6 C5	C6 C5	C6 C5	C6 C5	-
T	T6 T4	T6 T4	T6 T4	T6 T4	-

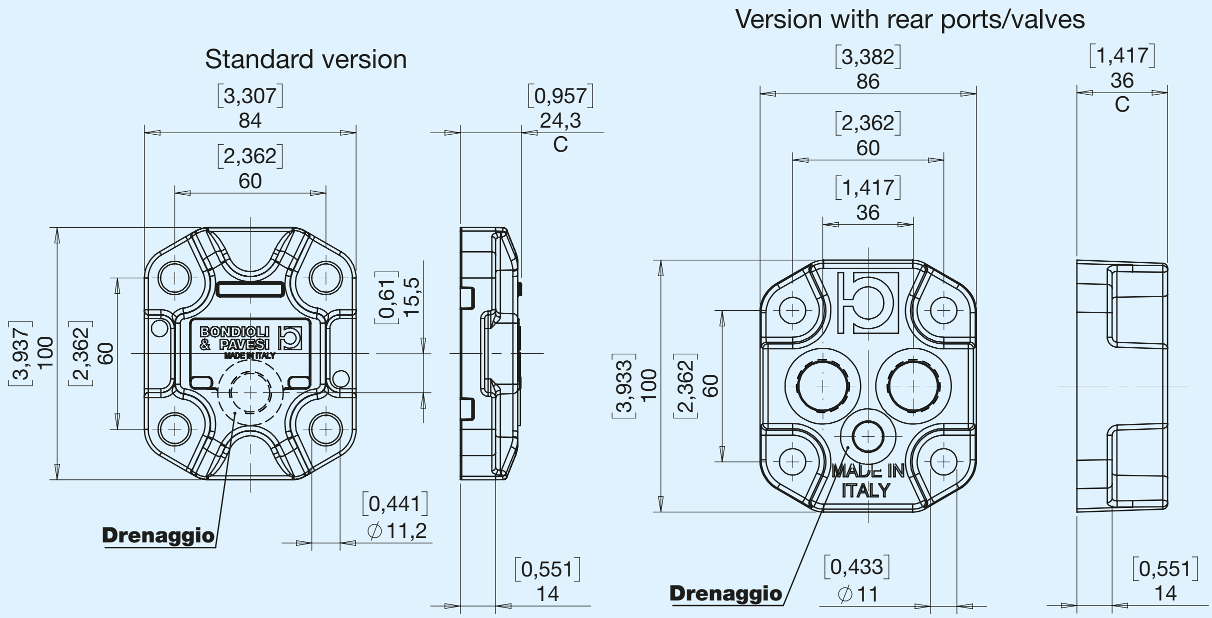
Combinations

Combination of round ports for bidirectional pumps/motors

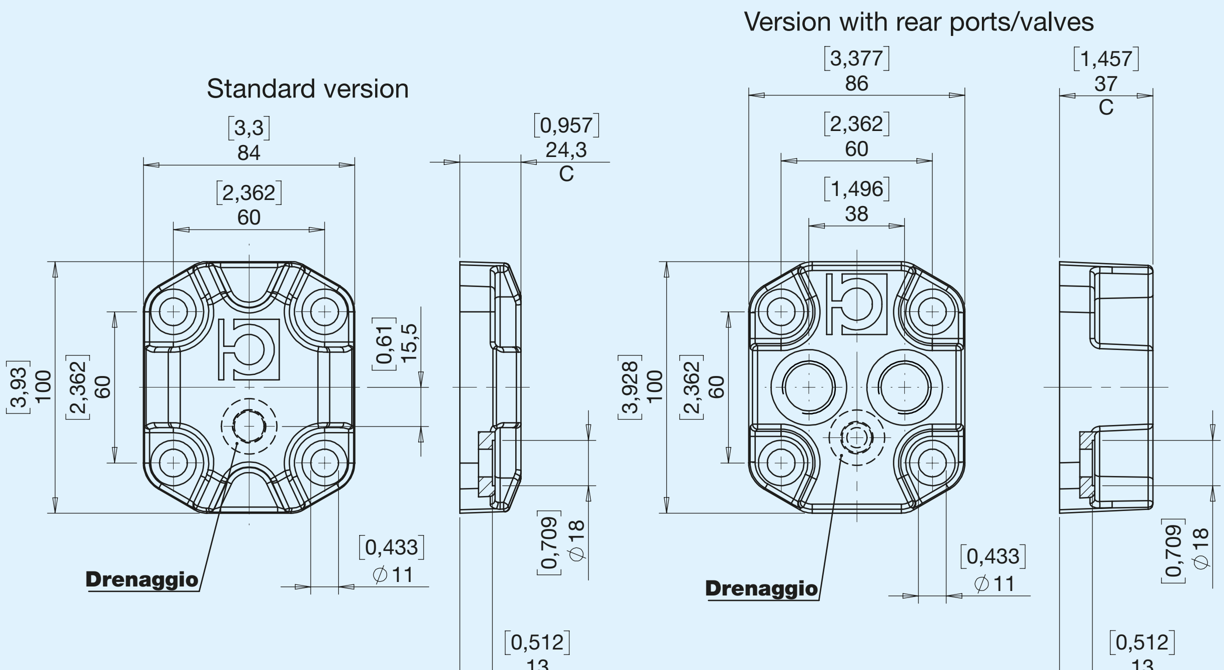
Ports	Round					
	6 8	11	14 17	20	26	
	IN/OUT ports	IN/OUT ports	IN/OUT ports	IN/OUT ports	IN/OUT ports	Drain line
E	E3 E3	E3 E3	E3 E3	E5 E5	E5 E5	M2
G	G4 G4	G4 G4	G4 G4	G6 G6	G6 G6	G3
X	X4 X4	X4 X4	X4 X4	X6 X6	X6 X6	M2
U	U5 U5	U5 U5	U5 U5	U6 U6	U6 U6	U3
F	-	F4 F4	F4 F4	F6 F6	F6 F6	M2
N	-	N4 N4	N4 N4	N6 N6	N6 N6	U3
C	C5 C5	C5 C5	C5 C5	-	-	U3
T	T4 T4	T4 T4	T4 T4	-	-	G3

Other combinations of ports are available. For more information, please contact our technical sales department.

ST Aluminium

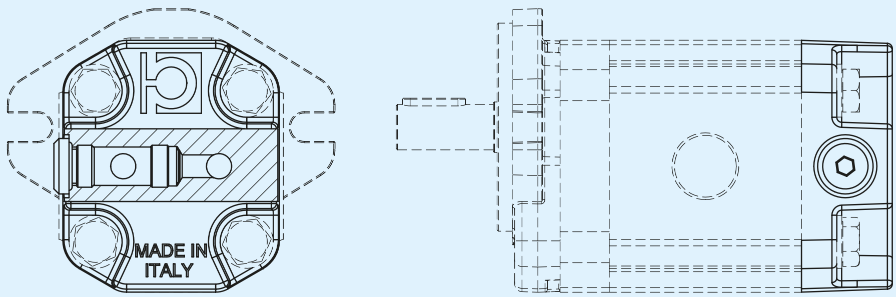


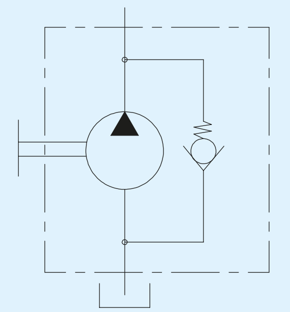
SG Cast iron



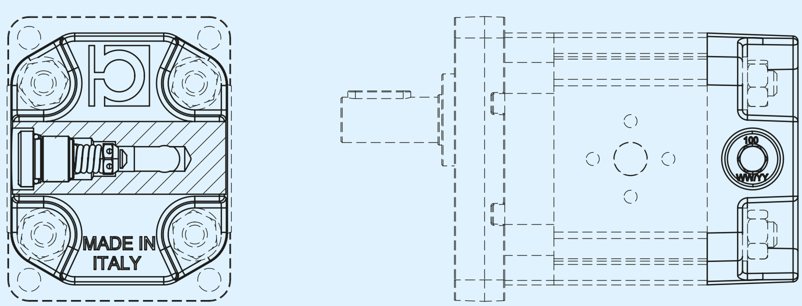
BONDIOLI & PAVESI HP Hydraulic

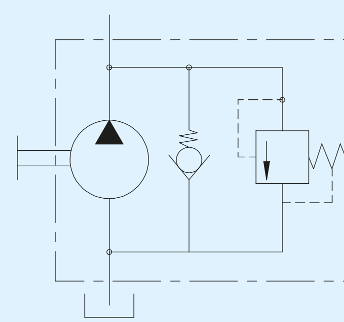
VA Check valve



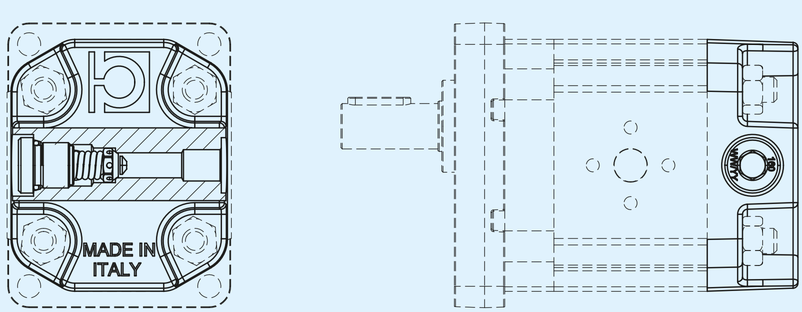


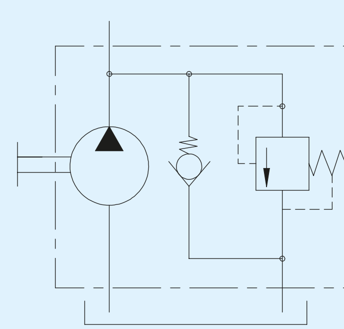
VB Fixed setting pressure relief valve with internal drain



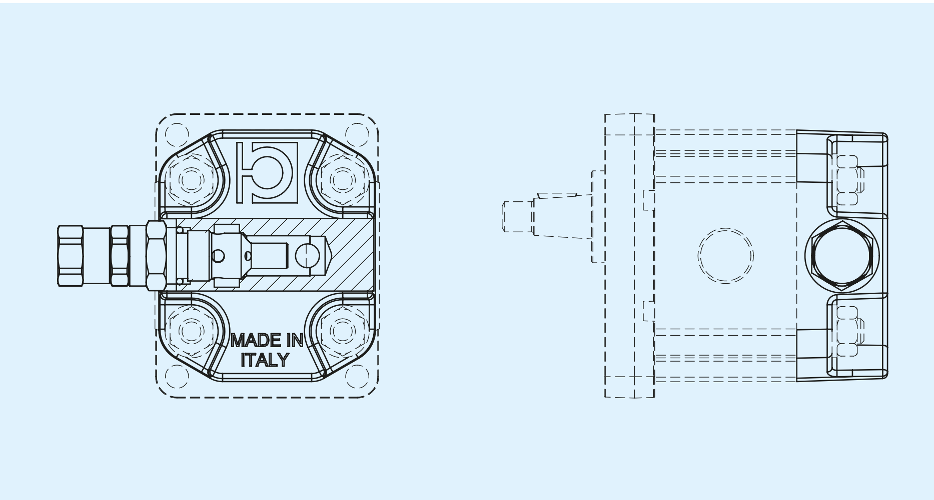


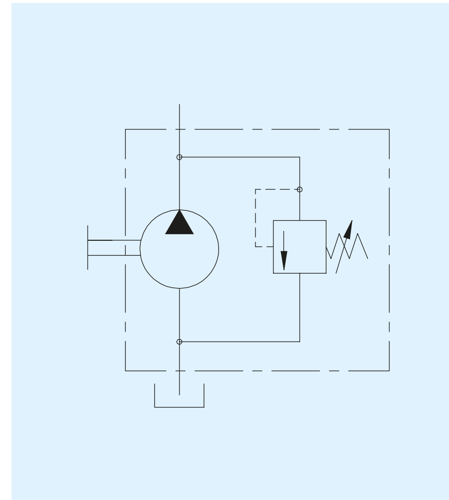
VC Fixed setting pressure relief valve with external drain



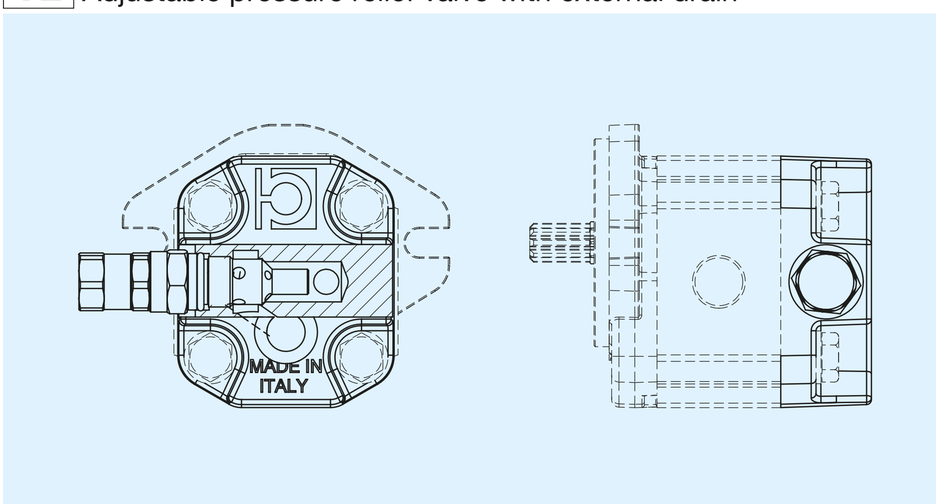


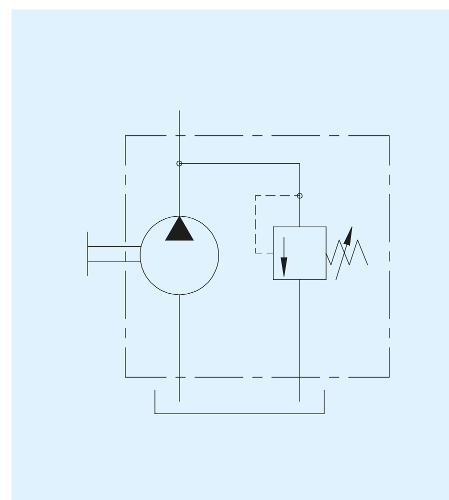
VD Adjustable pressure relief valve with internal drain



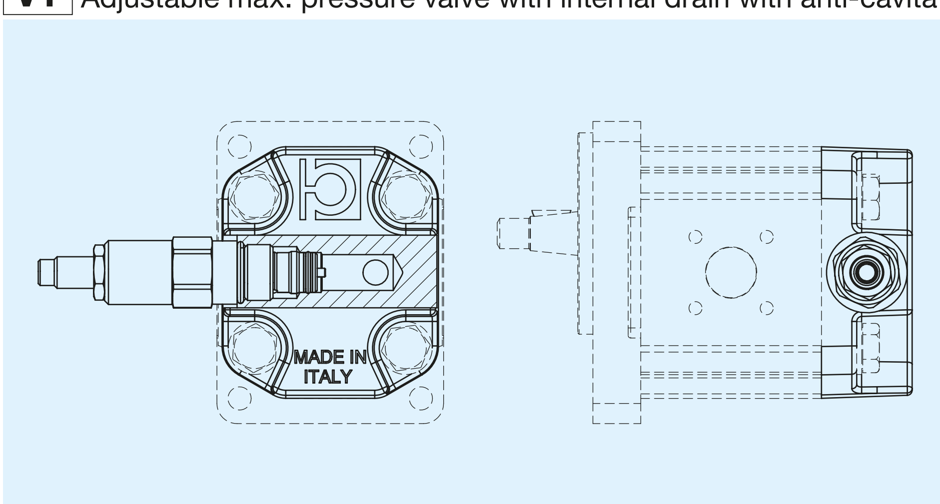


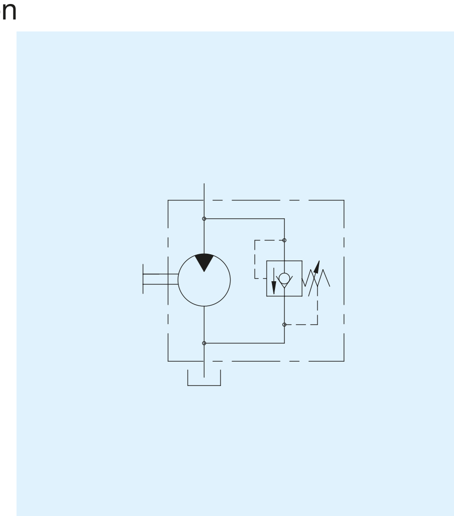
VE Adjustable pressure relief valve with external drain





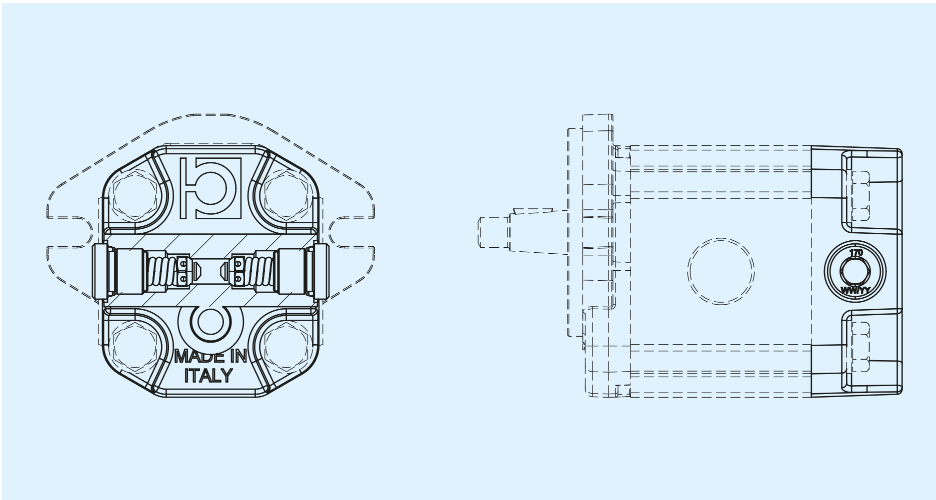
VT Adjustable max. pressure valve with internal drain with anti-cavitation

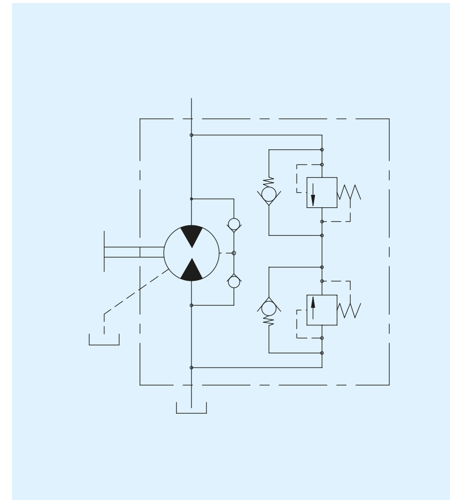




Covers with valves

VV Double fixed setting max. pressure valve with internal drain and anti-cavitation check valve with external drai





For more information, please contact the technical sales department

For pressure relief valves, please indicate the setting

Instructions for ordering

HPL..2	1	2	3	4	5	6	7	8			9	10	11	12	13	14	15

1 2 3 — Series

PA2	Gear pump Group 2	**MA2**	Gear motor Group 2

4 5 — Displacement

05	**11**	**20**	**40**
06	**14**	**26**	
08	**17**	**34**	

6 — Direction of rotation

S	Anti-clockwise/left	**D**	Clockwise/right	**H**	Bidirectional internal drainage (with cast iron flange/cover only)	**B**	Bidirectional rear external drainage

7 8 — Front flanges - Shafts

LL	European in cast iron - Tapered (1:8)	**NM**	German - Tapered (1:5)	**QP**	SAE A 2 cast iron holes - Round SAE A	**SX**	SAE A 2 holes - Splined SAE A 11T
LN	European in cast iron - European round D15	**NU**	German - Splined DIN 5482	**QV**	SAE A 2 cast iron holes - Splined SAE A 9T	**TY**	SAE B 2 cast iron holes - Splined SAE B 13T *
LU	European in cast iron - Splined DIN 5482	**OM**	German D50 2 holes RH - Tapered (1:5)	**QX**	SAE A 2 cast iron holes - Splined SAE B 11T	**VM**	German in cast iron - Tapered (1:5)
ML	European - Tapered (1:8)	**OU**	German D50 2 holes RH - Splined DIN 5482, German vers.	**RZ**	German D52 - Front tooth	**VU**	German in cast iron - Splined DIN 5482, German vers.
MN	European - European round D15	**PM**	German D50 2 holes LH - Tapered (1:5)	**SP**	SAE A 2 holes - Round SAE A		
MU	European - Splined DIN 5482	**PU**	German D50 2 holes LH - Splined DIN 5482, German vers.	**SV**	SAE A 2 holes - Splined SAE A 9T		

Integrated supports

I1	European flange - Round D18	**I3**	SAE A flange - Round D18	**IB**	German flange in cast iron - Round D22	**IS**	Special flange - Round D25.40
I2	German flange - Tapered (1:5)	**I7**	European flange - Tapered (1:8)	**IC**	German flange in cast iron - Tapered (1:5)		

External supports

B1	Centring D80 - Tapered (1:5)	**C3**	Centring D50.80 - Tapered (1:8)	**C5**	Centring D36.50 - Tapered (1:8)
B3	Centring D80 - Round D22	**C4**	Centring D50.80 - Round D22	**C6**	Centring D36.50 - Round D18

9 10 — IN - Inlet ports

...	See tables Ports and Combinations

11 12 — OUT - Output ports

...	See tables Ports and Combinations

13

Seals

B	NBR Pump	**R**	NBR Motor / Bid. pump High pressure pump	**V**	Viton Pump	**W**	Viton Motor / Bid. pump High pressure pump

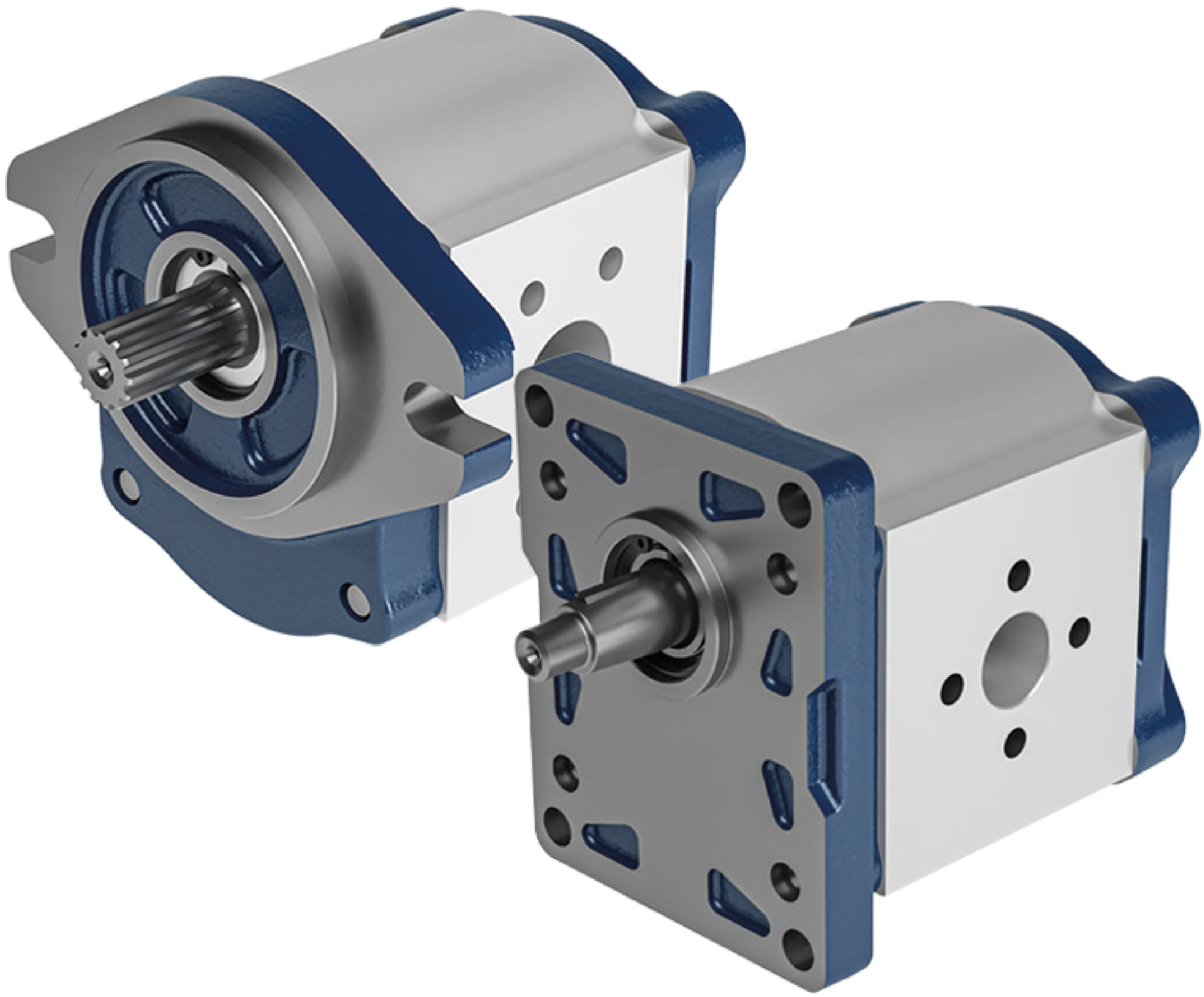
14 15

Covers

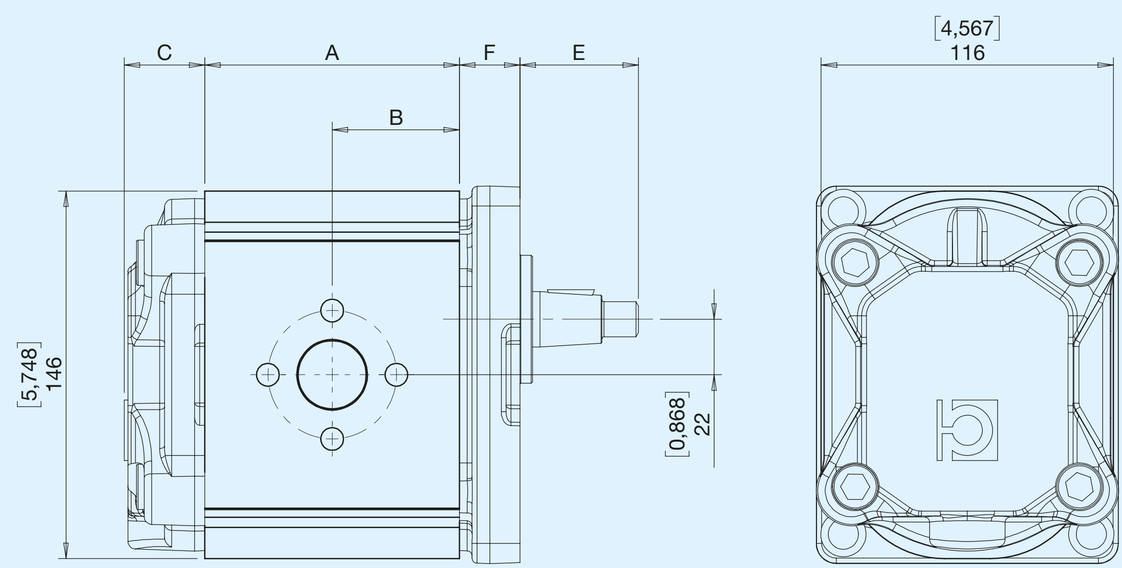
ST	Standard	**VB**	Fixed setting pressure relief valve with internal drain	**VE**	Adjustable pressure relief valve with external drain
SG	Cast iron version	**VC**	Fixed setting pressure relief valve with external drain	**VT**	Adjustable max. pressure valve with internal drain with anti-cavitation
VA	Check valve	**VD**	Adjustable pressure relief valve with internal drain	**VV**	Double valve max. pressure fixed setting with internal drain and anti-cavitation valve with external drain

Aluminium gear pumps and motors

HPL Series Group 3

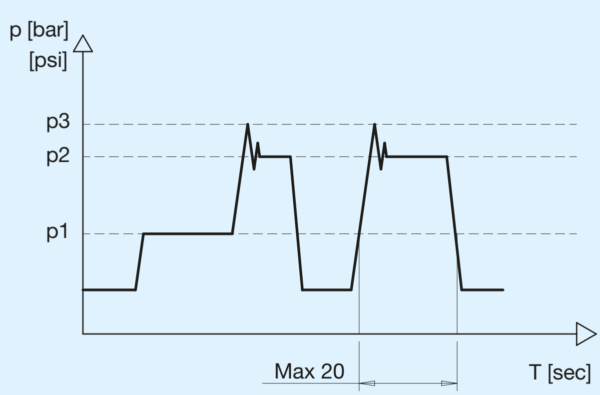


Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF GEAR PUMPS AND MOTORS.



C - See section on covers E - See section on shafts F - See section on flanges

Pressure definition



p1	Continuous pressure
A,B - Use	Intermittent pressure Maximum pressure permitted for short periods (max. 20 sec)
L1, L2 - Drain port	Peak pressure Maximum permitted pressure intended as peak pressure of Vmax

Dimensions and technical data

Pump dimensions and technical data

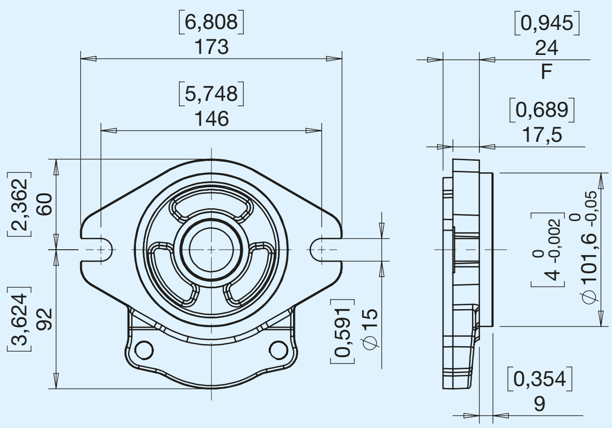
HPLPA3	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed		Weight		A		B	
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**min⁻¹**	**min⁻¹**	**kg**	**lbs**	**mm**	**in**	**mm**	**in**
22	21.50	1.31	220	3191	250	3626	310	4496	3000	700	6.20	13.67	81.07	3.192	40.5	1.594
26	26.00	1.59	210	3046	250	3626	300	4351	3000	700	6.20	13.67	84.07	3.310	42.0	1.654
31	30.50	1.86	210	3046	250	3626	280	4061	3000	700	6.20	13.67	87.07	3.428	43.5	1.714
36	36.00	2.20	210	3046	250	3626	280	4061	3000	700	6.50	14.33	91.07	3.585	45.5	1.793
41	41.50	2.53	210	3046	250	3626	280	4061	3000	700	7.20	15.87	95.07	3.743	47.5	1.870
47	46.50	2.84	180	3336	210	3626	270	3916	3000	700	7.20	15.87	98.07	3.861	49.0	1.929
51	50.50	3.08	180	2901	200	3191	270	3916	3000	700	7.20	15.87	101.07	3.979	50.5	1.990
56	55.50	3.39	170	2611	200	2756	230	3336	2500	600	7.40	16.31	104.57	4.117	52.3	2.059
61	61.00	3.72	150	2175	170	2466	200	2901	2500	600	7.60	16.76	108.57	4.274	54.3	2.137
73	72.00	4.39	140	2031	160	2321	180	2611	2500	600	8.00	17.64	116.07	4.570	58.0	2.285
90	88.00	5.37	110	1595	120	1740	170	2466	2500	600	8.60	18.96	127.07	5.003	63.5	2.501

Motor dimensions and technical data

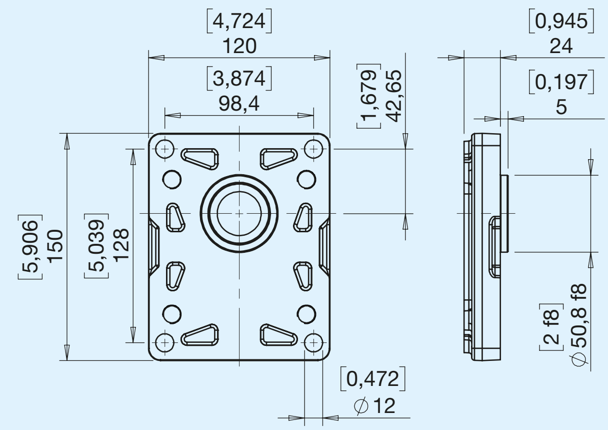
HPLMA3	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed		Weight		A		B	
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**min⁻¹**	**min⁻¹**	**kg**	**lbs**	**mm**	**in**	**mm**	**in**
22	21.50	1.31	220	3191	250	3626	310	4496	3500	700	6.20	13.67	81.07	3.192	40.5	1.594
26	26.00	1.59	210	3046	250	3626	300	4351	3500	700	6.20	13.67	84.07	3.310	42.0	1.654
31	30.50	1.86	210	3046	250	3626	280	4061	3500	700	6.20	13.67	87.07	3.428	43.5	1.714
36	36.00	2.20	210	3046	250	3626	280	4061	3500	700	6.50	14.33	91.07	3.585	45.5	1.793
41	41.50	2.53	210	3046	250	3626	280	4061	3500	700	7.20	15.87	95.07	3.743	47.5	1.870
47	46.50	2.84	230	3336	250	3626	270	3916	3500	700	7.20	15.87	98.07	3.861	49.0	1.929
51	50.50	3.08	200	2901	220	3191	270	3916	3500	700	7.20	15.87	101.07	3.979	50.5	1.990
56	55.50	3.39	180	2611	190	2756	230	3336	3000	600	7.40	16.31	104.57	4.117	52.3	2.059
61	61.00	3.72	150	2175	170	2466	200	2901	3000	600	7.60	16.76	108.57	4.274	54.3	2.137
73	72.00	4.39	140	2031	160	2321	180	2611	3000	600	8.00	17.64	116.07	4.570	58.0	2.285

Cast iron flanges

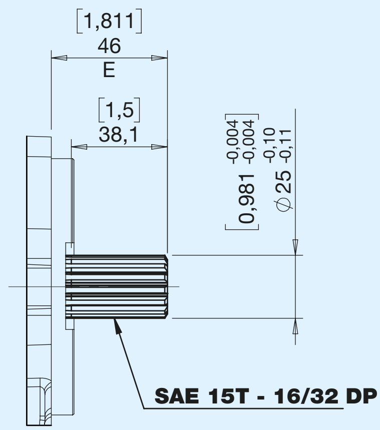
2 SAE B 2 holes



3 European D50.8

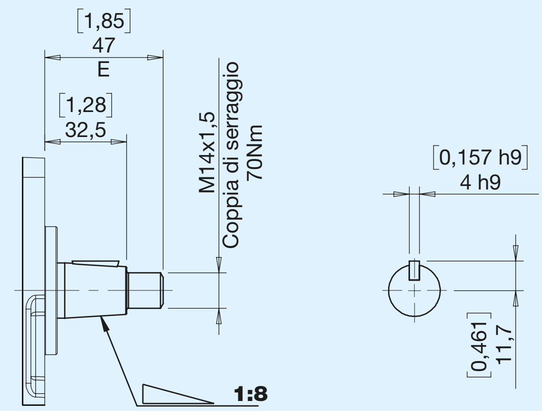


1 Splined SAE BB 15T



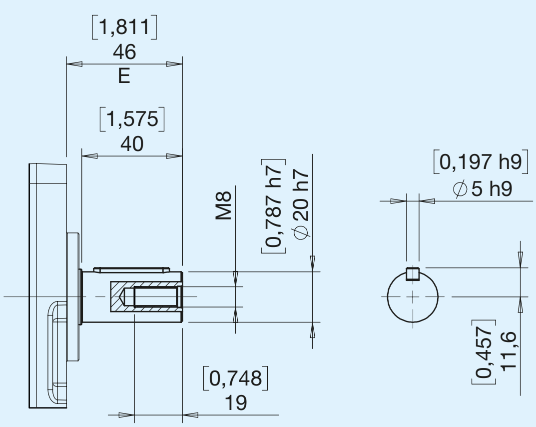
Max. torque 460 Nm

2 Tapered (1:8)



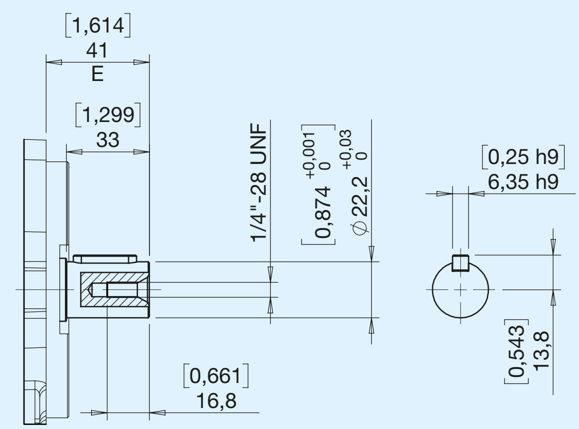
Max. torque 240 Nm

4 European round



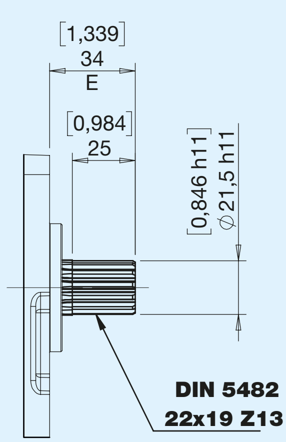
Max. torque 190 Nm

6 Round SAE B



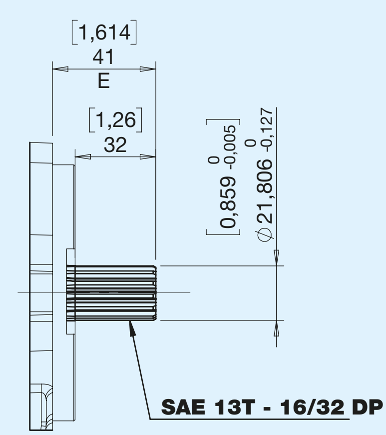
Max. torque 210 Nm

7 Splined DIN 5482



Max. torque 220 Nm

9 Splined SAE B 13T

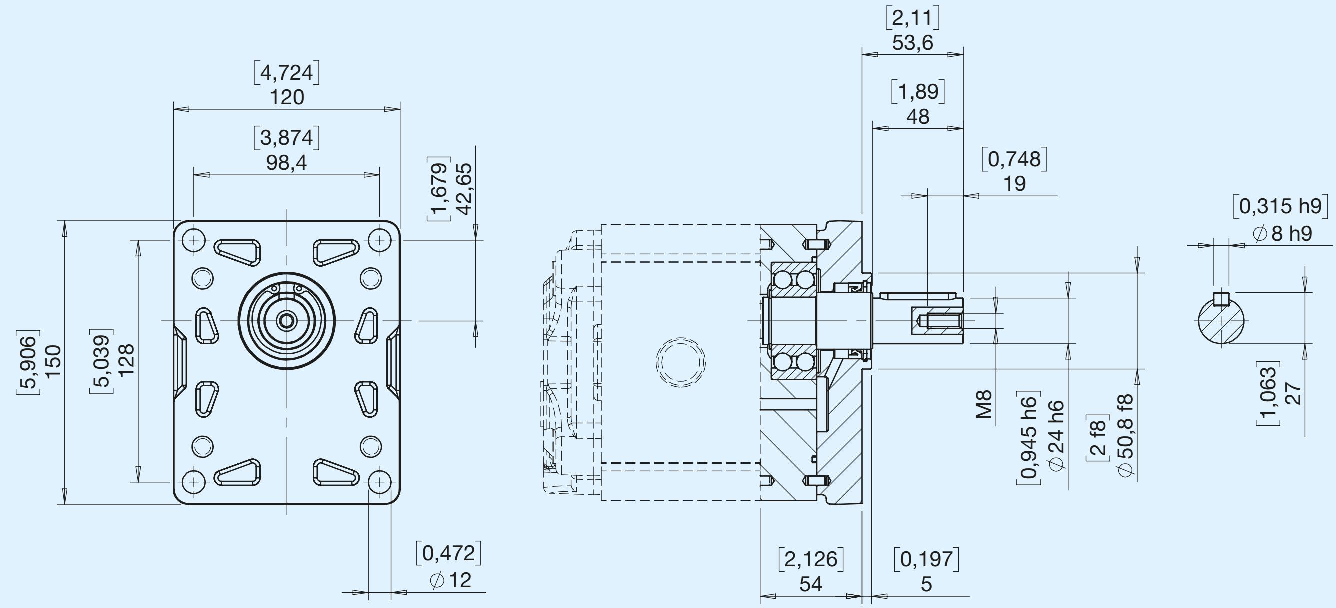


Max. torque 310 Nm

Combinations of shaft - flange

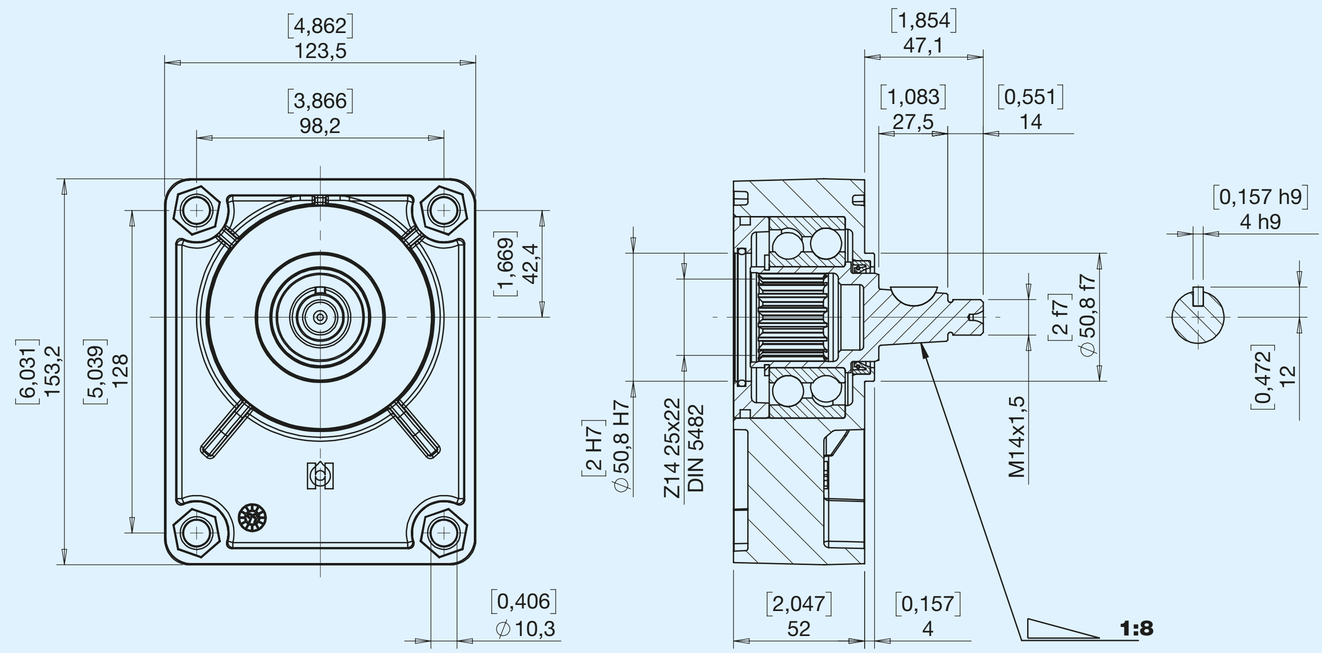
Shafts	Flanges	
	2	3
1	●	
2		●
4		●
6	●	
7		●
9	●	

I6 European flange D50.8 round shaft D24



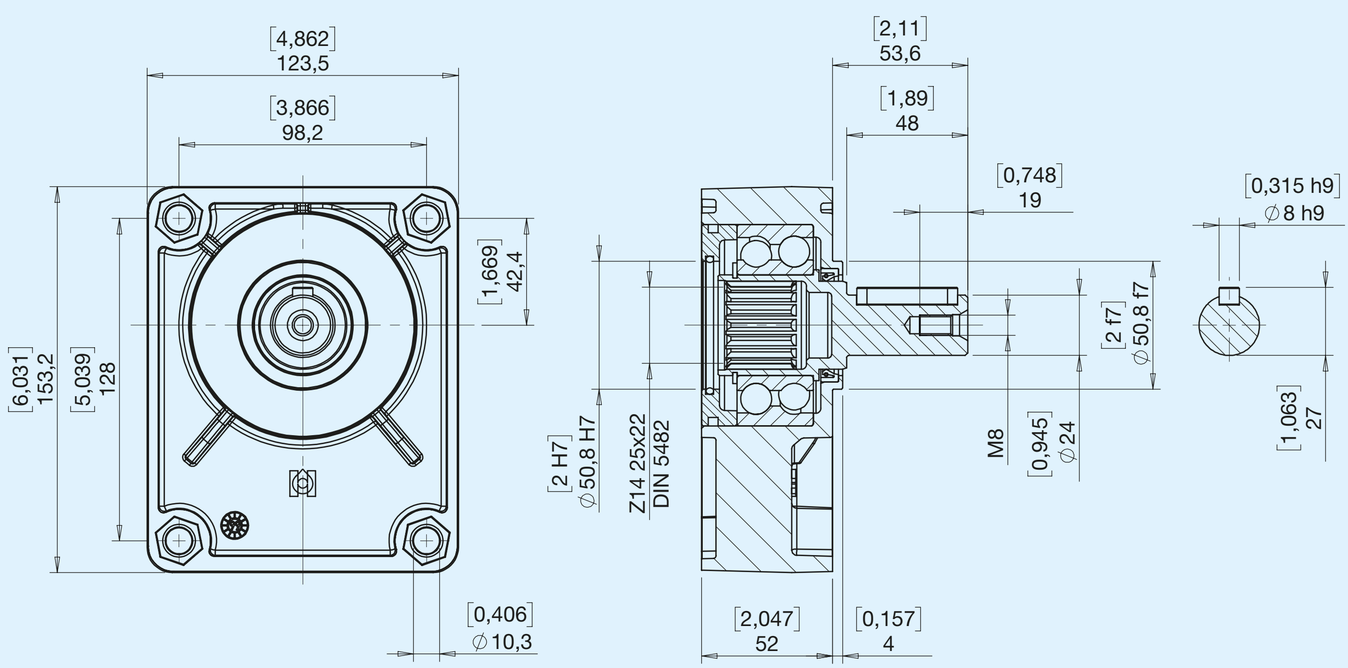
BONDIOLI & PAVESI HP Hydraulic

C7 Centring D50.8 tapered shaft (1:8)



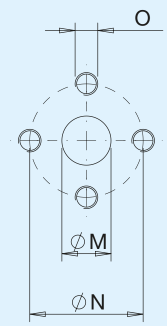
Can be ordered separately Code HPL5923C7R

C8 Centring D50.8 round shaft D24



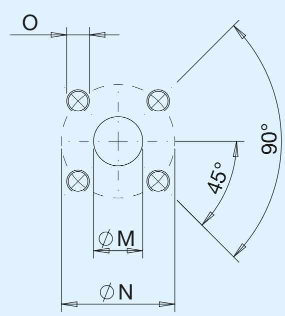
Can be ordered separately Code HPL5923C8R

E Lateral



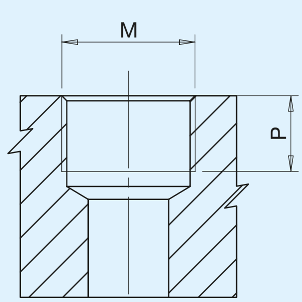
Type	M		N		O	
	mm	in	mm	in		Nm
E5	20	0.79	40	1,57	M8	17
E7	27	1,06	51	2,01	M10	38
E8	34	1,34	62	2,44	M10	38

X Lateral



Type	M		N		O	
	mm	in	mm	in	mm	in
X7	19	0.75	55	2,17	M8	15
X8	27	1,06	55	2,17	M8	15

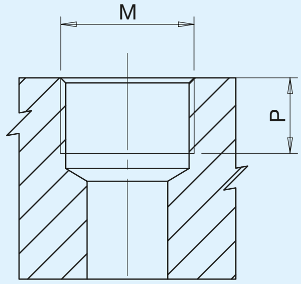
G Lateral / Drain



Type	M		P	
		Nm	mm	in
G3*	PORT ISO 1179-1-G 3/8	38	12	0.47
G6	Port ISO 1179-1 - G 3/4	90	15	0.59
G7	PORT ISO 1179-1-G 1	160	21	0,83
G8	PORT ISO 1179-1-G 1 1/4	200	21	0,83

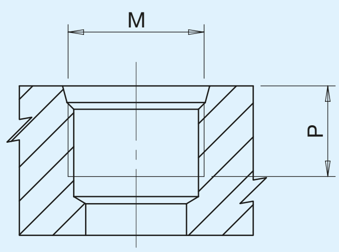
*Drain

T Rear



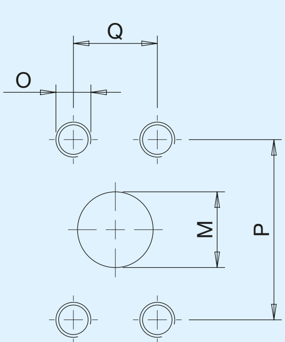
Type	M		P	
		Nm	**mm**	**in**
T6	PORT ISO 1179-1-G3/4	90	19	0,75

U Lateral / Drain



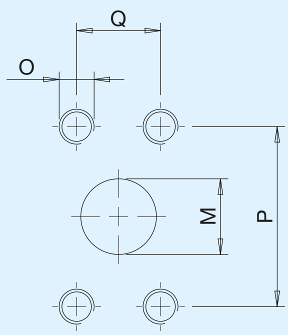
Type	Dim.	M		P	
		mm	**in**	**mm**	**in**
U6	3/4'	PORT ISO 11926-1 - 1 1/16-12	90	20	0,79
U7	1'	PORT ISO 11926-1 - 1 5/16-12	160	20	0,79
U8	1 1/4'	PORT ISO 11926-1 - 1 5/8-12	200	20	0,79

N Lateral



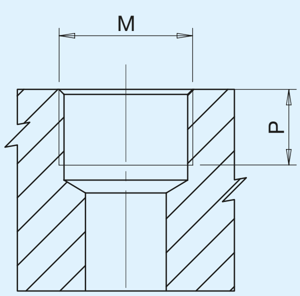
Type	Dim.	M		P		Q		O	
		mm	**in**	**mm**	**in**	**mm**	**in**		**Nm**
N6	3/4'	20	0,79	47,6	1,87	22,2	0,87	3/8-16 UNC-2B	38
N7	1'	27	1,06	52,4	2,60	26,2	1,03	3/8-16 UNC-2B	38
N8	1 1/4'	34	1,34	58,7	2,31	30,2	1,19	7/16-14 UNC-2B	45

F Lateral



Type	Dim.	M		P		Q		O	
		mm	**in**	**mm**	**in**	**mm**	**in**		**Nm**
F6	3/4'	20	0,79	47,6	1,87	22,2	0,87	M10	38
F7	1'	25,4	1	52,4	2,60	26,2	1,03	M10	38
F8	1 1/4'	30,5	1,2	58,7	2,31	30,2	1,19	M10	38

M Drain



Type	M		P	
		Nm	**mm**	**in**
M3*	PORT ISO 6149 - 1 - M16x1,5	35	14	0,55

*Drain

Combinations

Combination of ports/flanges

Ports	Flanges 2	Flanges 3
E		•
X		•
G	•	•
T	•	•
U	•	
N	•	
F	•	

Combination of round ports for one-way pumps/motors

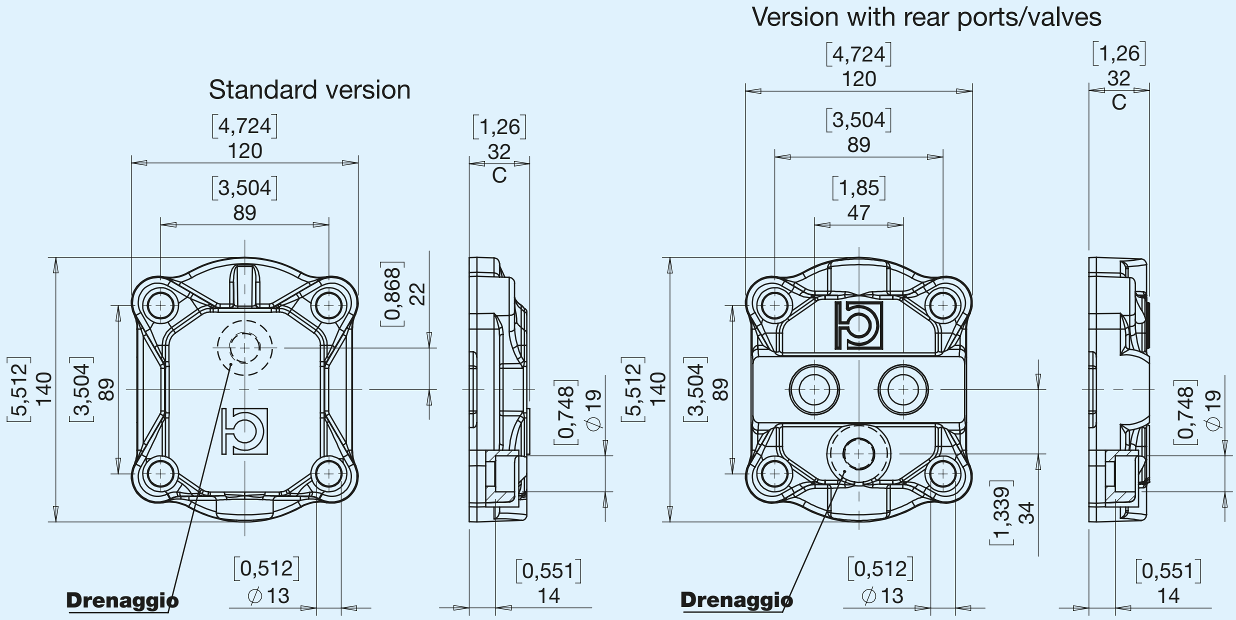
Ports	Round 22 26 31 IN/OUT ports	36 41 47 51 56 61 IN/OUT ports	73 90 IN/OUT ports
E	E5 E5	E7 E5	E8 E7
X	X8 X7	X8 X7	X8 X7
G	G6 G6	G7 G6	G8 G7
T	T6 T6	-	-
U	U7 U6	U8 U7	U8 U7
N	N7 N6	N7 N6	N8 N7
F	F7 F6	F7 F6	F8 F7

Combination of round ports for bidirectional pumps/motors

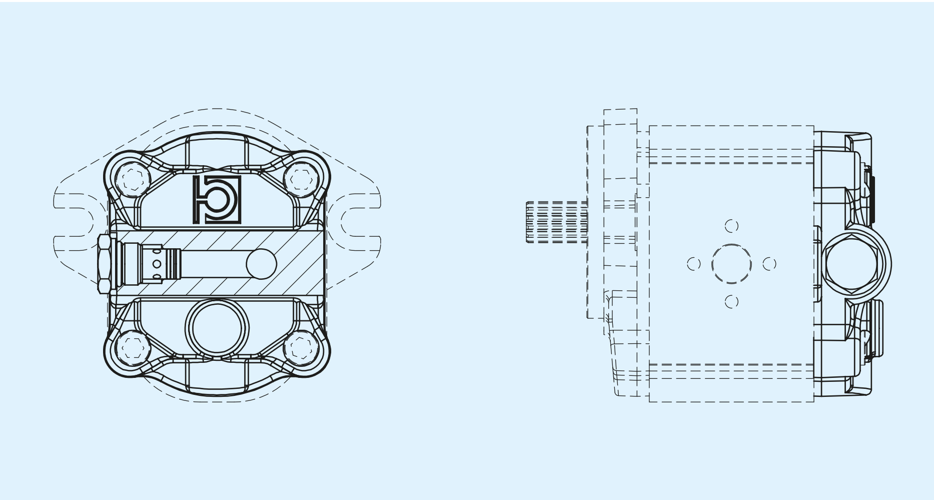
Ports	Round			
	22 26 31	36 41 47 51 56 61	73	
	IN/OUT ports	IN/OUT ports	IN/OUT ports	Drain line
E	E5 E5	E7 E7	E8 E8	M3
X	X7 X7	X8 X8	X8 X8	M3
G	G6 G6	G7 G7	G8 G8	G3
T	T6 T6	-	-	G3
U	U6 U6	U7 U7	U8 U8	M3
N	N6 N6	N7 N7	N8 N8	M3
F	F6 F6	F7 F7	F8 F8	M3

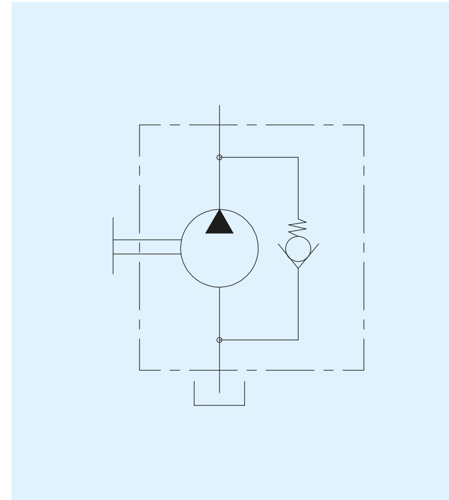
Other combinations of ports are available. For more information, please contact our technical sales department.

SG Cast iron

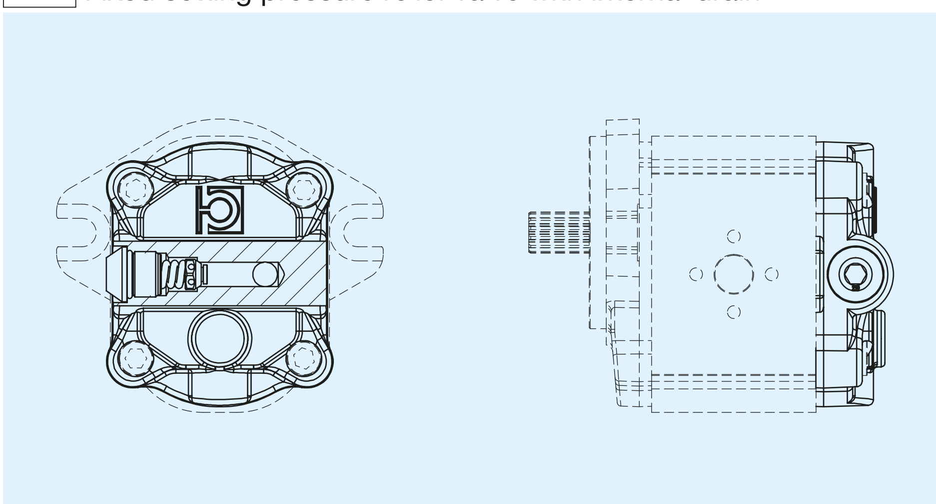

Standard version
Version with rear ports/valves
[4,724]
120
[3,504]
89
[1,85]
47
[1,26]
32
C
[5,512]
140
[3,504]
89
[0,868]
22
[0,748]
∅19
[1,339]
34
[0,512]
∅13
[0,551]
14
Drenaggio

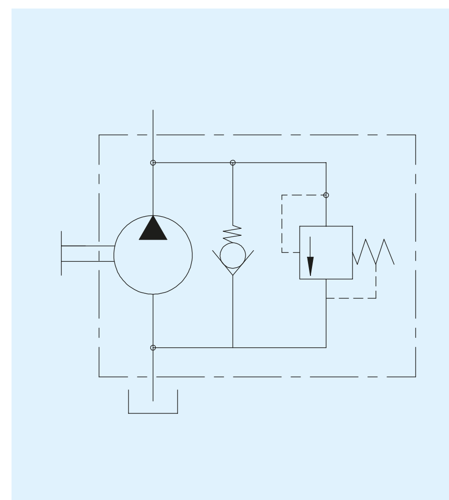
VA Check valve



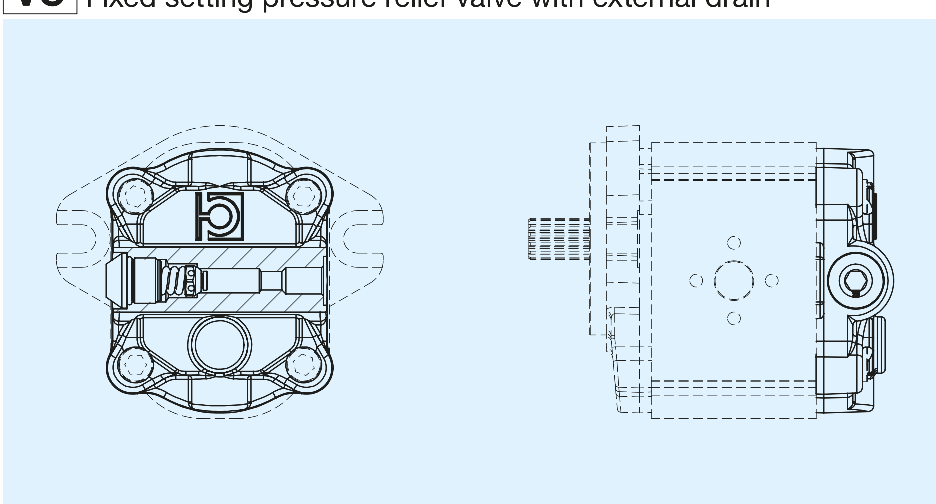


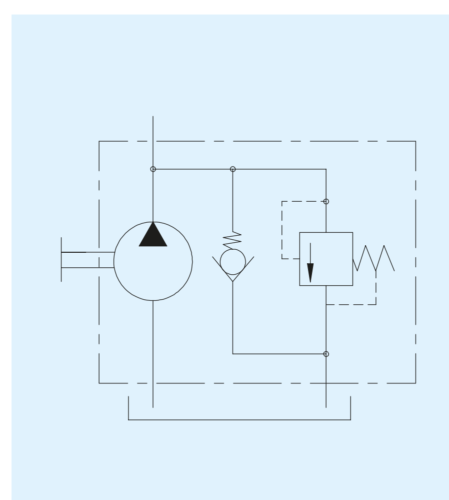
VB Fixed setting pressure relief valve with internal drain





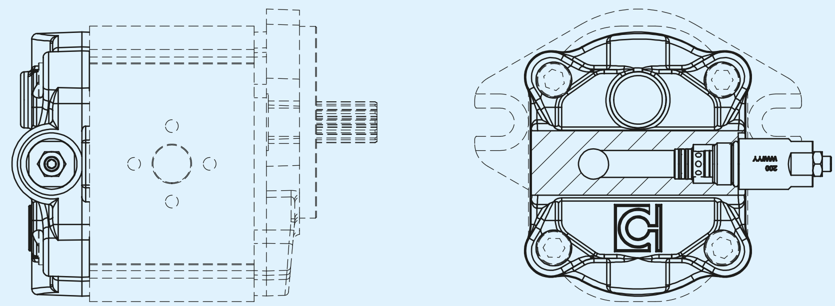
VC Fixed setting pressure relief valve with external drain

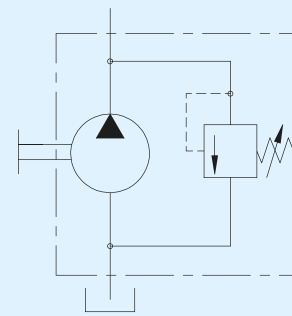




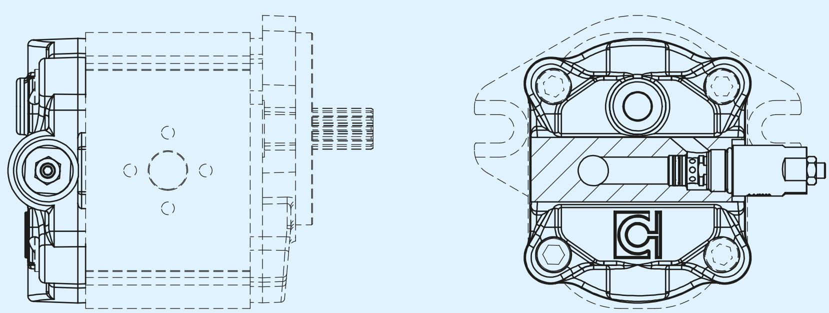
Covers with valves

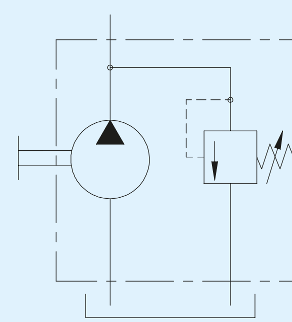
VD Adjustable pressure relief valve with internal drain



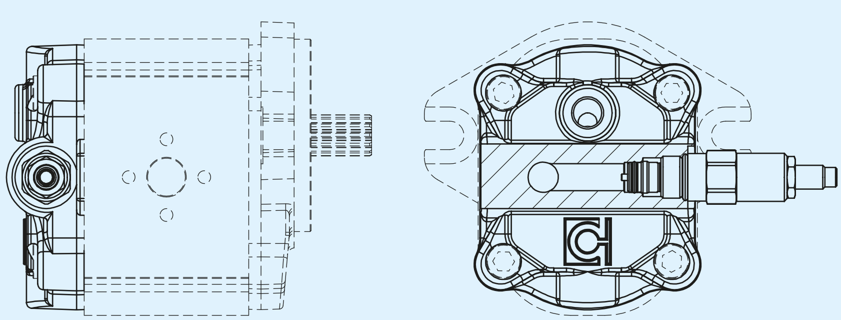


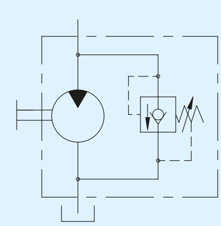
VE Adjustable pressure relief valve with external drain



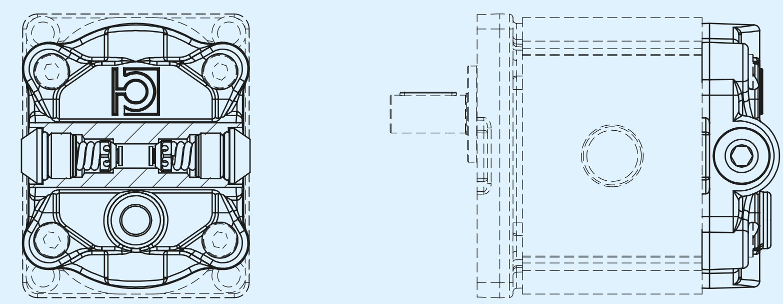


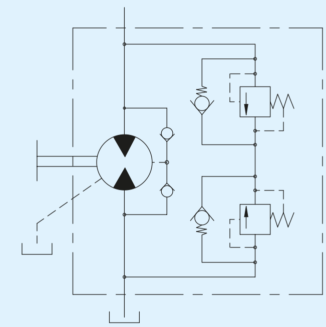
VT Adjustable max. pressure valve with internal drain with anti-cavitation





VV Double fixed setting max. pressure valve with internal drain and anti-cavitation check valve with external drain





For more information, please contact the technical sales department

For pressure relief valves, please indicate the setting

Instructions for ordering

HPL..3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

1 2 3 — Series

PA3	Gear pump Group 3	**MA3**	Gear motor Group 3

4 5 — Displacement

22	**36**	**51**	**73**
26	**41**	**56**	**90**
31	**47**	**61**	

6 — Direction of rotation

S	Anti-clockwise/left	**D**	Clockwise/right	**H**	Bidirectional internal drainage	**B**	Bidirectional rear external drainage

7 8 — Front flanges - Shafts

21	SAE B 2 holes - Splined SAE BB 15T	**29**	SAE B 2 holes - Splined SAE B 13T	**34**	European D50.8 - European round
26	SAE B 2 holes - Round SAE B	**32**	European D50.8 - Tapered (1:8)	**37**	European D50.8 - Splined DIN 5482

Integrated supports

I6	European flange D50.8 - round shaft D24

External supports

C7	Centring D50.80 - Tapered (1:8)	**C8**	Centring D50.80 - Round D24

9 10 — IN - Inlet ports

...	See tables Ports and Combinations

11 12 — OUT - Output ports

...	See tables Ports and Combinations

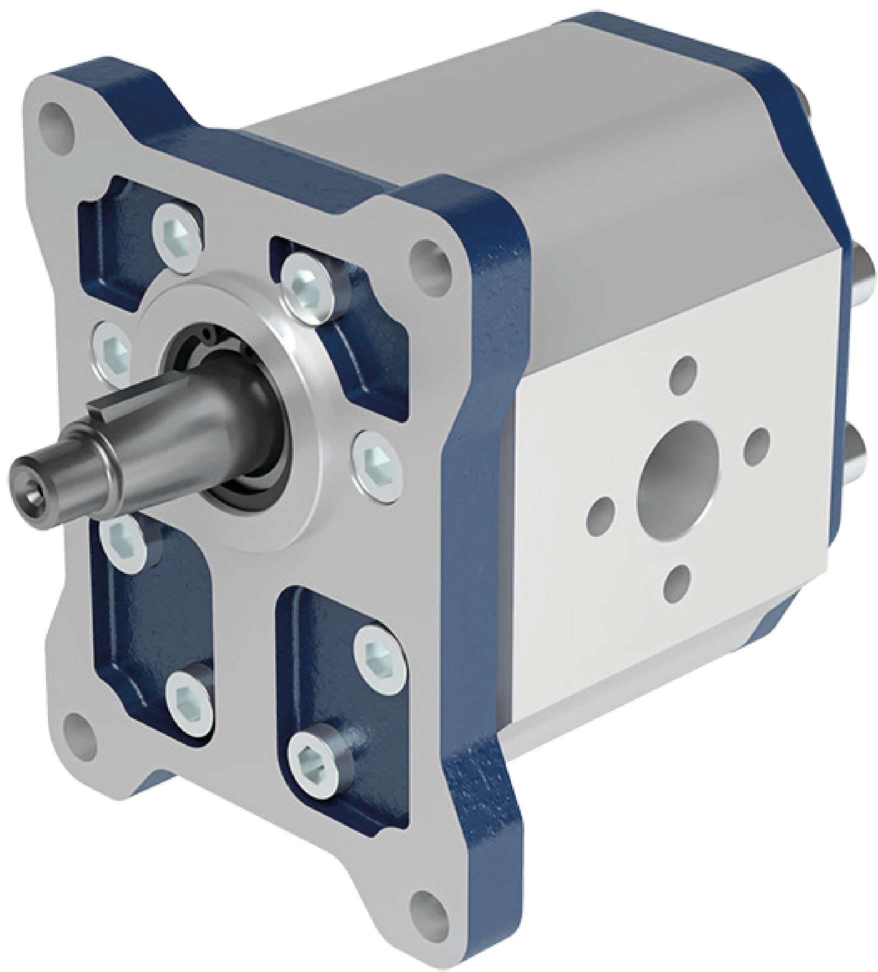
13 — Seals

1	NBR Pump	**2**	Viton Pump	**3**	NBR Motor / Bid. pump High pressure pump	**4**	Viton Motor / Bid. pump High pressure pump

14 15 — Covers

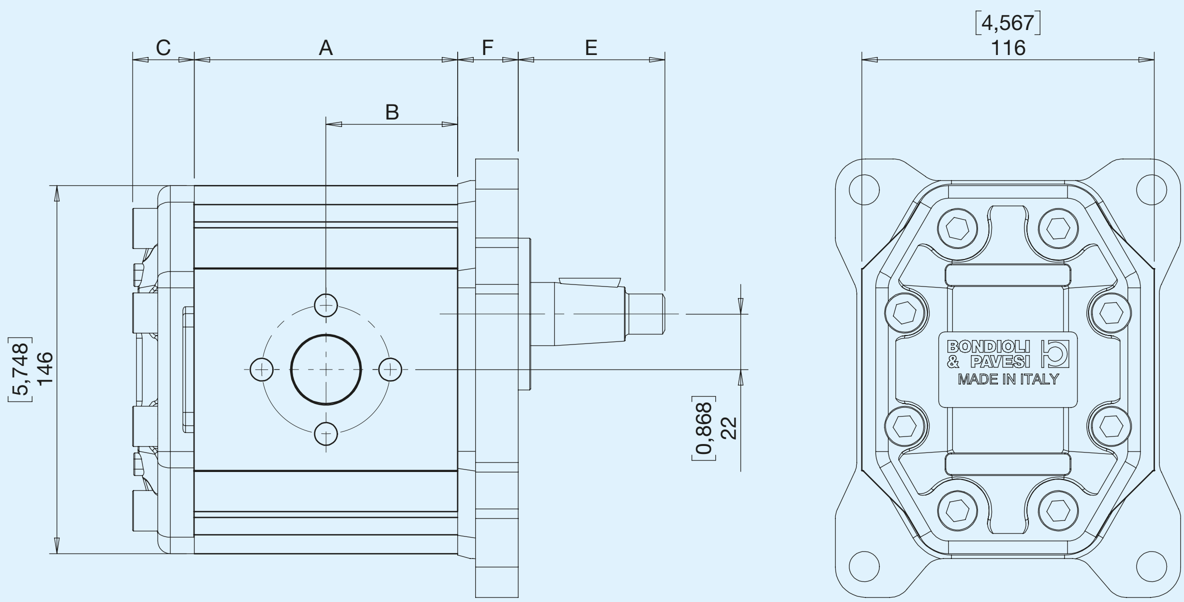
SG	Cast iron version	**VB**	Fixed setting pressure relief valve with internal drain	**VD**	Adjustable pressure relief valve with internal drain	**VT**	Adjustable max. pressure valve with internal drain with anti-cavitation
VA	Check valve	**VC**	Fixed setting pressure relief valve with external drain	**VE**	Adjustable pressure relief valve with external drain	**VV**	Double valve max. pressure fixed setting with internal drain and anti-cavitation valve with external drain

HPL Series Group 4



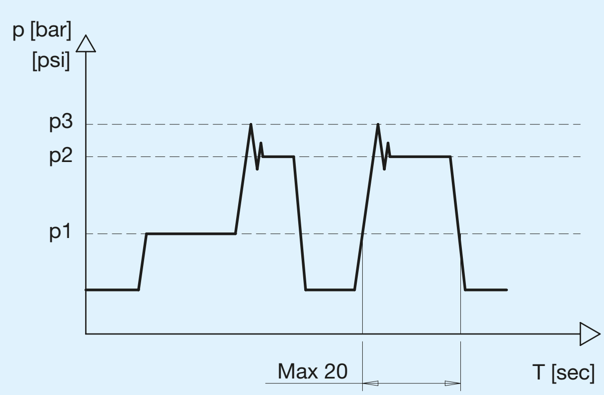
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF GEAR PUMPS AND MOTORS.

Dimensions and technical data



C - See section on covers E - See section on shafts F - See section on flanges

Pressure definition



p1	Continuous pressure
A,B - Use	Intermittent pressure Maximum pressure permitted for short periods (max. 20 sec)
L1, L2 - Drain port	Peak pressure Maximum permitted pressure intended as peak pressure of Vmax

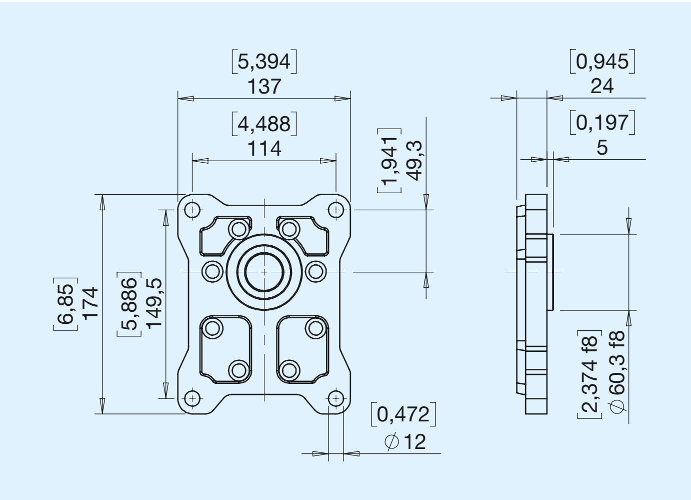
Pump dimensions and technical data

HPLPA4	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed		Weight		A		B	
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**min⁻¹**	**min⁻¹**	**kg**	**lbs**	**mm**	**in**	**mm**	**in**
14	41.50	2.53	220	3191	250	3626	300	3561	3000	700	9.20	20.58	95.07	3.743	47.5	1.870
51	50.50	3.08	190	2756	210	3046	280	4061	3000	700	9.20	20.58	101.07	3.979	50.5	1.990
61	61.00	3.72	160	2321	180	2611	200	2901	2500	600	9.60	21.16	108.57	4.274	54.3	2.137
73	72.00	4.39	150	2176	160	2321	180	2611	2500	600	9.60	21.16	116.07	4.570	58.0	2.285
90	88.00	5.37	120	1740	130	1885	170	2466	2500	600	9.60	21.16	127.07	5.003	63.5	2.501

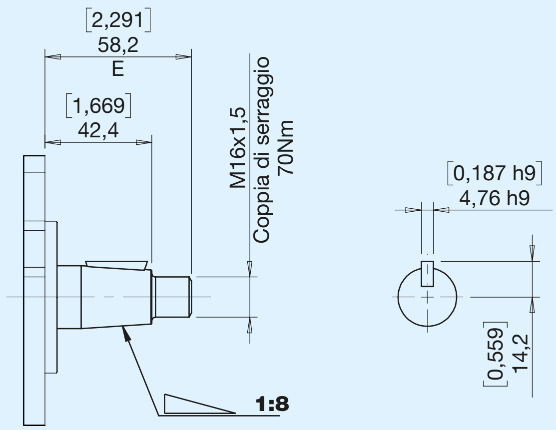
Motor dimensions and technical data

HPLMA4	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed		Weight		A		B	
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**min⁻¹**	**min⁻¹**	**kg**	**lbs**	**mm**	**in**	**mm**	**in**
14	41.50	2.53	220	3191	250	3626	300	3561	2800	600	9.20	20.58	95.07	3.743	47.5	1.870
51	50.50	3.08	190	2756	210	3046	280	4061	2800	600	9.20	20.58	101.07	3.979	50.5	1.990
61	61.00	3.72	160	2321	180	2611	200	2901	2800	600	9.60	21.16	108.57	4.274	54.3	2.137
73	72.00	4.39	150	2176	160	2321	180	2611	2800	600	9.60	21.16	116.07	4.570	58.0	2.285
90	88.00	5.37	120	1740	130	1885	170	2466	2800	600	9.60	21.16	127.07	5.003	63.5	2.501

X European D60.3

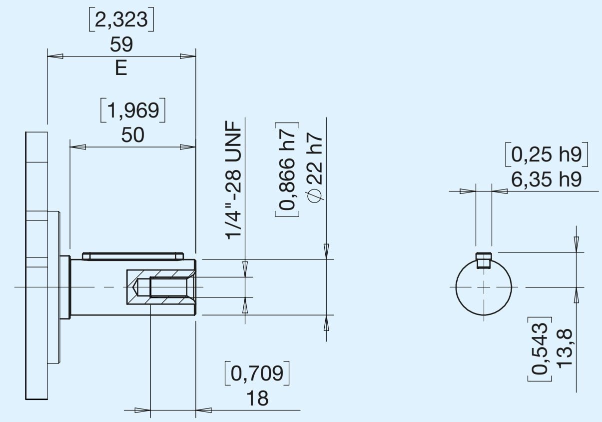


3 Tapered (1:8)



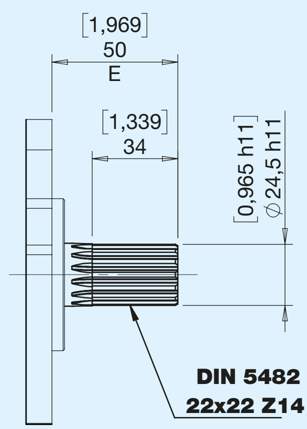
Max. torque 350 Nm

5 European round



Max. torque 210 Nm

8 Splined DIN 5482

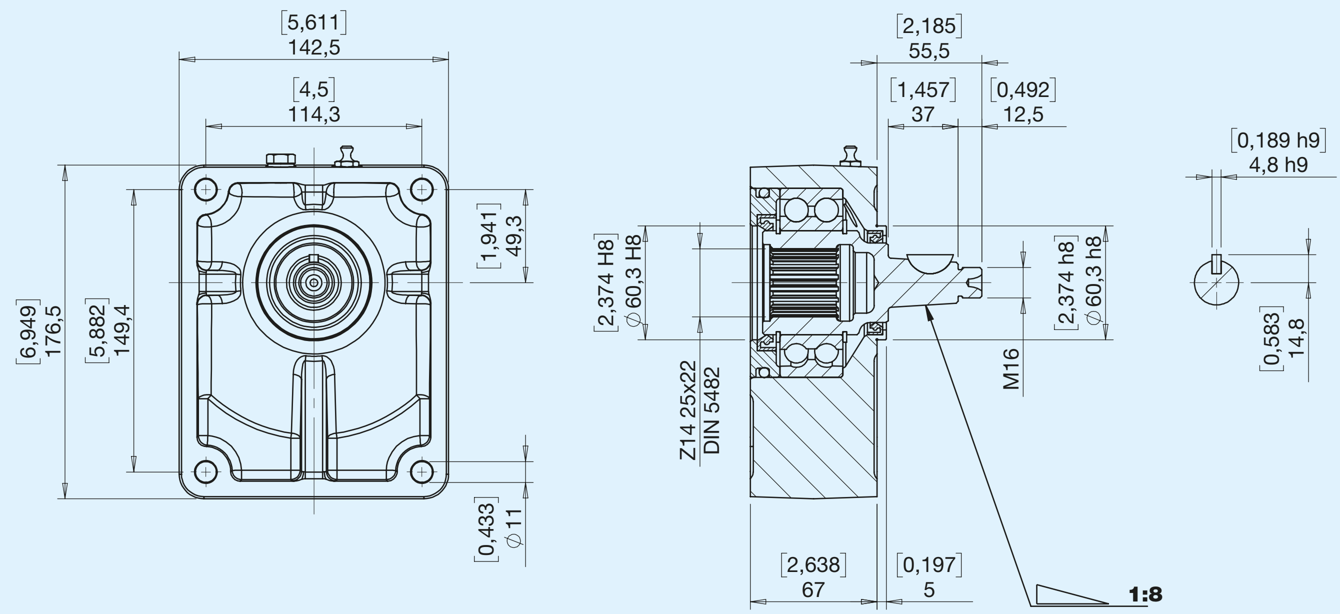


Max. torque 350 Nm

Combinations of shaft - flange

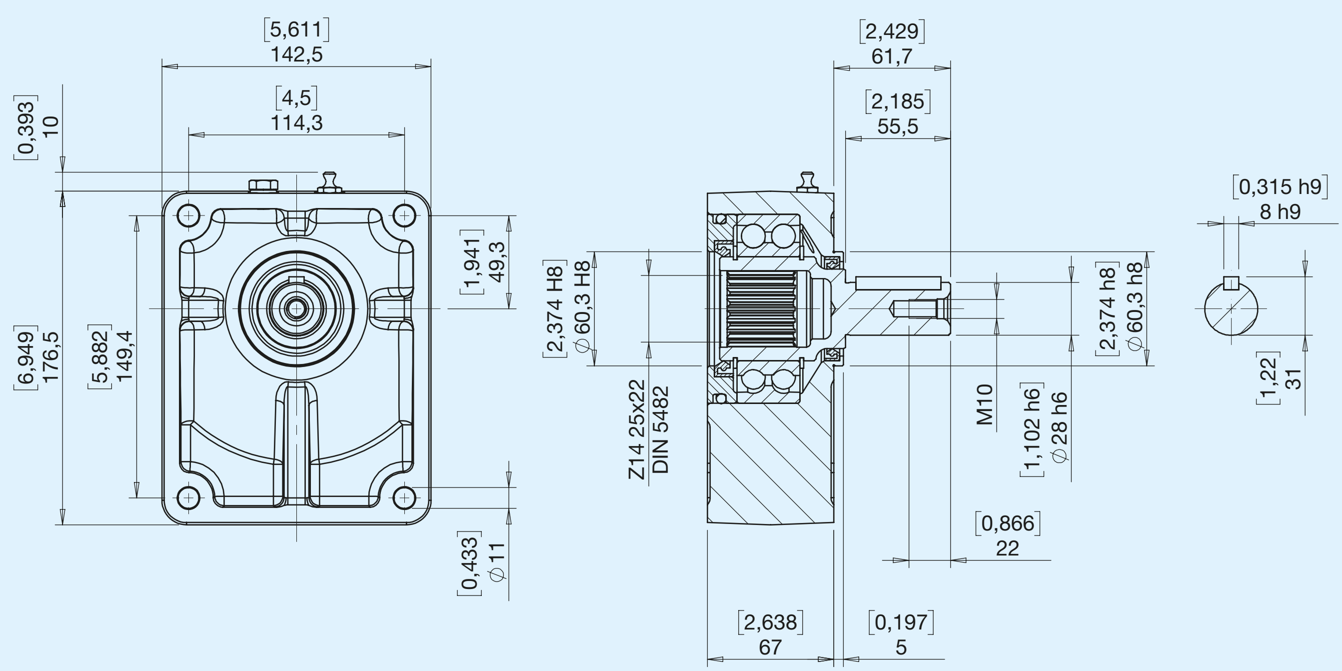
Shafts	Flanges
	X
3	•
5	•
8	•

C9 Centring D60.3 tapered shaft (1:8)



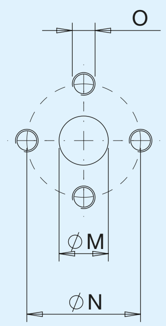
Can be ordered separately Code HPL5924C9R

C0 Centring D60.3 round shaft D28



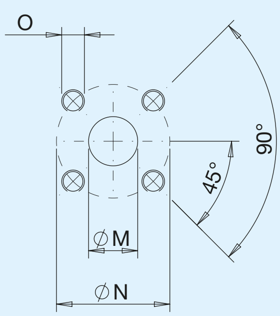
Can be ordered separately Code HPL5924C0R

E Lateral



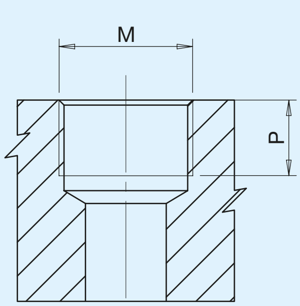
Type	M		N		O	
	mm	in	mm	mm		Nm
E7	27	1.06	51	2.01	M10	30
E8	34	1.34	62	2.44	M10	30

X Lateral



Type	M		N		O	
	mm	in	mm	mm		Nm
X7	19	0.75	55	2.17	M8	15
X8	27	1.06	55	2.17	M8	15

G Lateral / Drain



Type	M		P	
		Nm	mm	in
G3*	PORT ISO 1179-1-G 3/8	38	12	0.47
G7	PORT ISO 1179-1-G 1	130	21	0.83
G8	PORT ISO 1179-1-G 1 1/4	170	21	0.83

*Drain

Combinations

Combination of ports/flanges

Ports	Flanges X
E	•
X	•
G	•

Combination of round ports for one-way pumps/motors

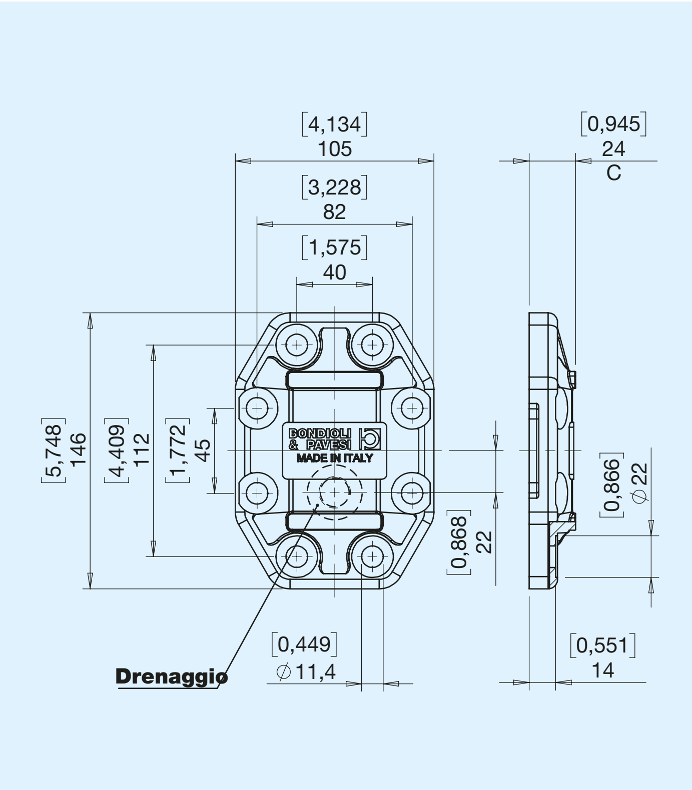
Ports	41 51 61 IN/OUT ports	73 90 IN/OUT ports
E	E7 E7	E8 E7
X	X8 X7	X8 X7
G	G7 G7	G8 G7

Combination of round ports for bidirectional pumps/motors

Ports	41 51 61 IN/OUT ports	73 90 IN/OUT ports	Drain line
E	E7 E7	E8 E8	G3
X	X7 X7	X8 X8	G3
G	G7 G7	G8 G8	G3

Other combinations of ports are available. For more information, please contact our technical sales department.

SG Cast iron


[4,134]
105
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82
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40
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24
C
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146
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112
[1,772]
45
BONDIOLI & PAVESI
MADE IN ITALY
[0,868]
22
[0,866]
∅22
[0,449]
∅11,4
[0,551]
14
Drenaggio

Instructions for ordering

HPL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

1 2 3 — Series

PA4	Gear pump Group 4	**MA4**	Gear motor Group 4

4 5 — Displacement

41	**61**	**90**
51	**73**	

6 — Direction of rotation

S	Anti-clockwise/left	**D**	Clockwise/right	**H**	Bidirectional internal drainage	**B**	Bidirectional rear external drainage

7 8 — Front flanges - Shafts

X3	European D60.3 - Tapered (1:8)	**X5**	European D60.3 - European round	**X8**	European D60.3 - Splined DIN 5482

External supports

C9	Centring D60.30 - Tapered (1:8)	**C0**	Centring D60.30 - Round D28

9 10 — IN - Inlet ports

...	See tables Ports and Combinations

11 12 — OUT - Output ports

...	See tables Ports and Combinations

13 — Seals

B	NBR Pump	**R**	NBR Motor / Bid. pump High pressure pump	**V**	Viton Pump	**W**	Viton Motor / Bid. pump High pressure pump

14 15 — Covers

SG	Cast iron version