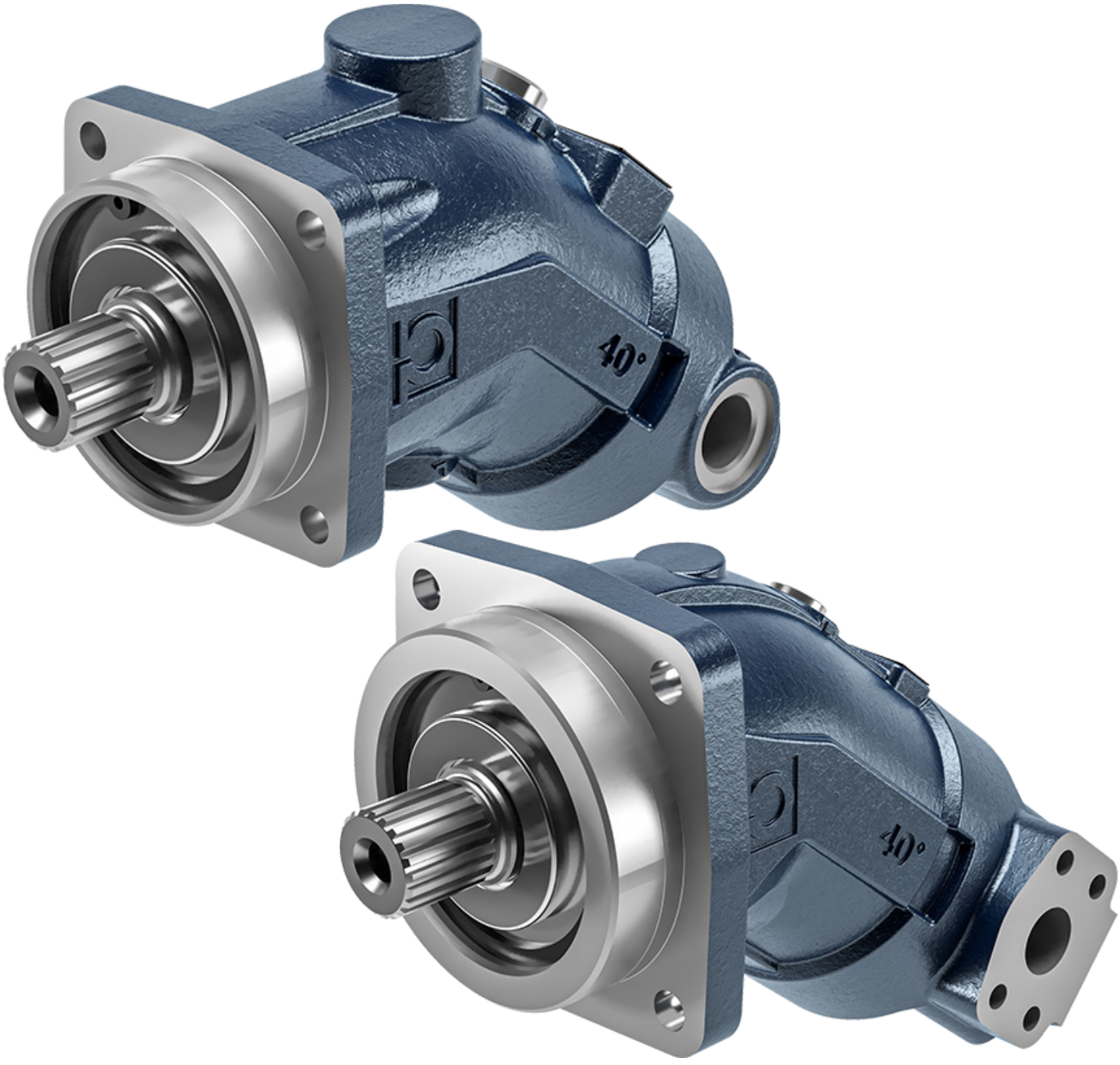
Bent axis fixed displacement axial piston motors



Contents

HPBF

Introduction

The HMBF series bent axis axial piston motors have a fixed displacement and were designed to work both in closed and open circuits.
The system has been designed to obtain a 40° angle of inclination of the pumps to the output shaft axis.
This geometry allows:

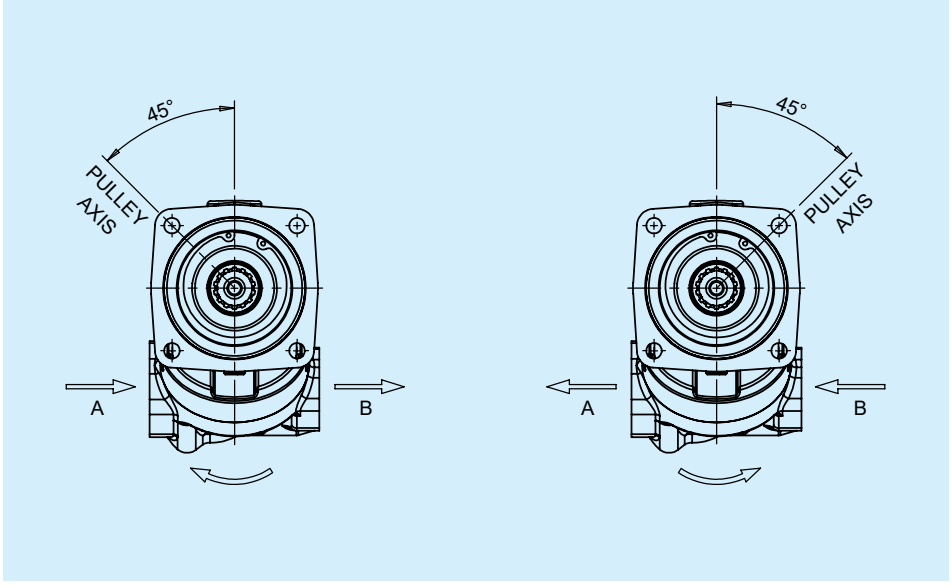
- high starting torque;
- high volumetric and mechanical efficiency;
- high maximum speed;
- high maximum pressures.
-

Bondioli & Pavesi HMBF motors may be supplied (upon request) with flushing valve, speed sensor, and anti-cavitation relief valve.

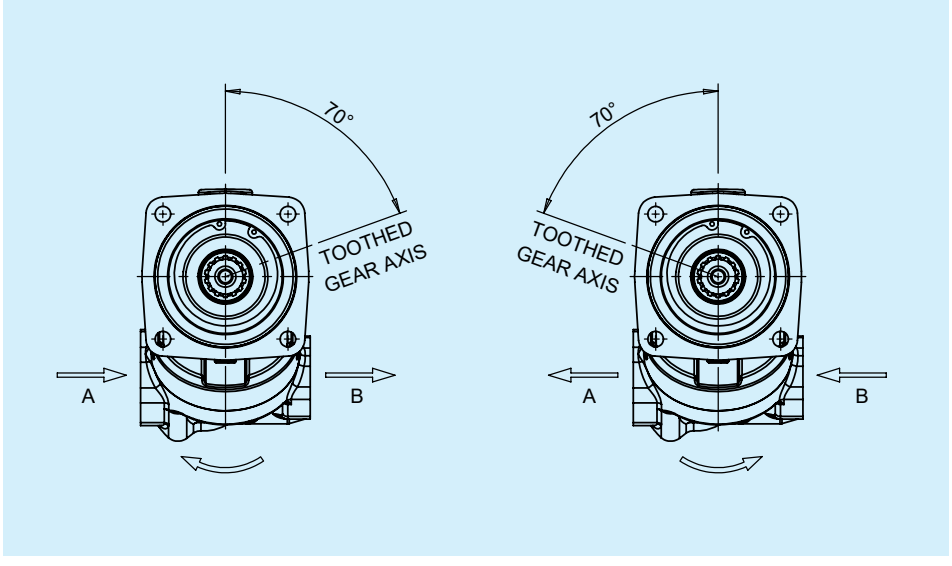
Optimization of service life of bearings in applications with radial load

The direction of application of the radial load affects the service life of the motor bearings.
An optimal direction of the force reduce the stress on the bearings and gives them a longer service life. The recommended angle of load application depends on the direction of rotation and the type of application.

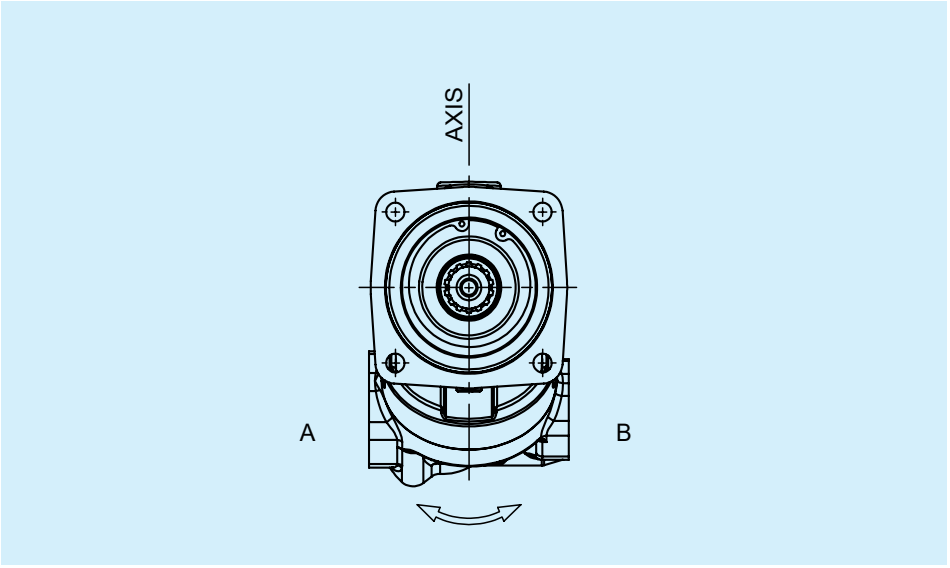
Pulley axis



Toothed gear axis

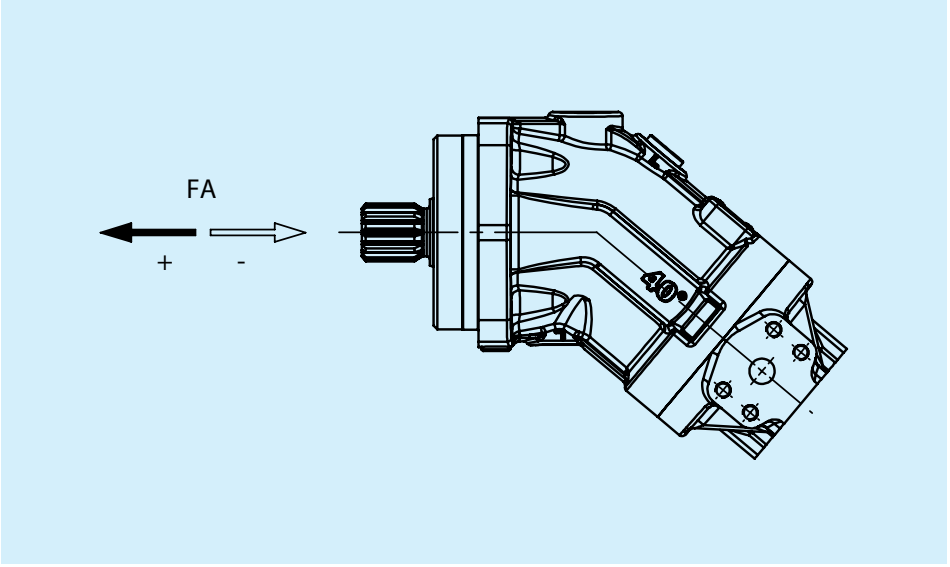


Axis for any application (alternating direction of rotation)



Axial force application

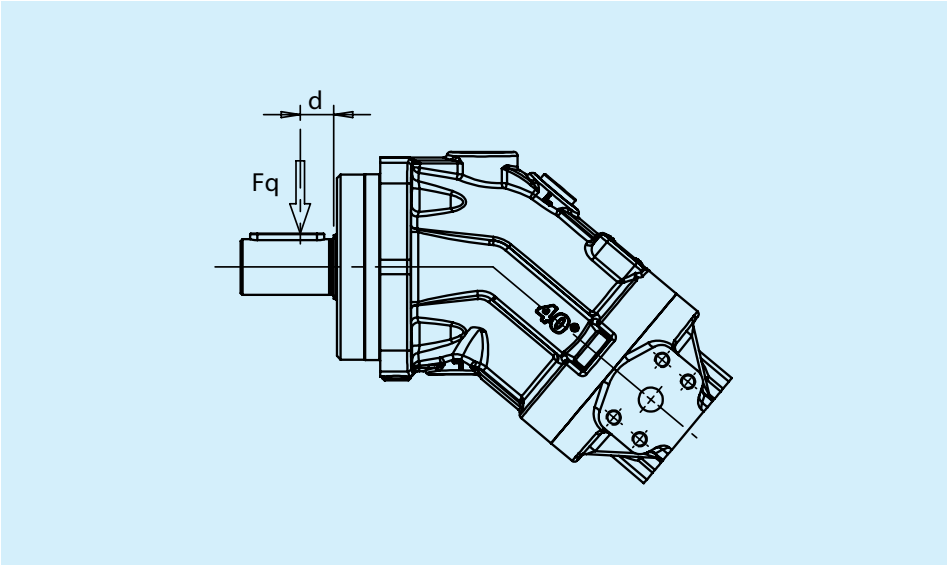
Axial compressive forces can be applied to the shaft (see table).
Axial tensile loads, on the other hand, which can reduce the service life of the main bearing, should be avoided.



Nominal displacement		MAX axial load without pressure (*)	MAX axial load at working pressure
cm3	in3	N	N/bar
10	0.61	320	3
12	0.73	320	3
16	0.98	320	3
23	1.4	500	5.2
28	1.71	500	5.2
32	1.95	500	5.2
45	2.75	630	7
56	3.42	800	8.7
63	3.84	800	8.7
80	4.88	1000	10.6
90	5.49	1000	10.6
107	6.53	1250	12.9
125	7.63	1250	12.9

(*) The values indicated are maximum values and should not be applied during continuous operation.

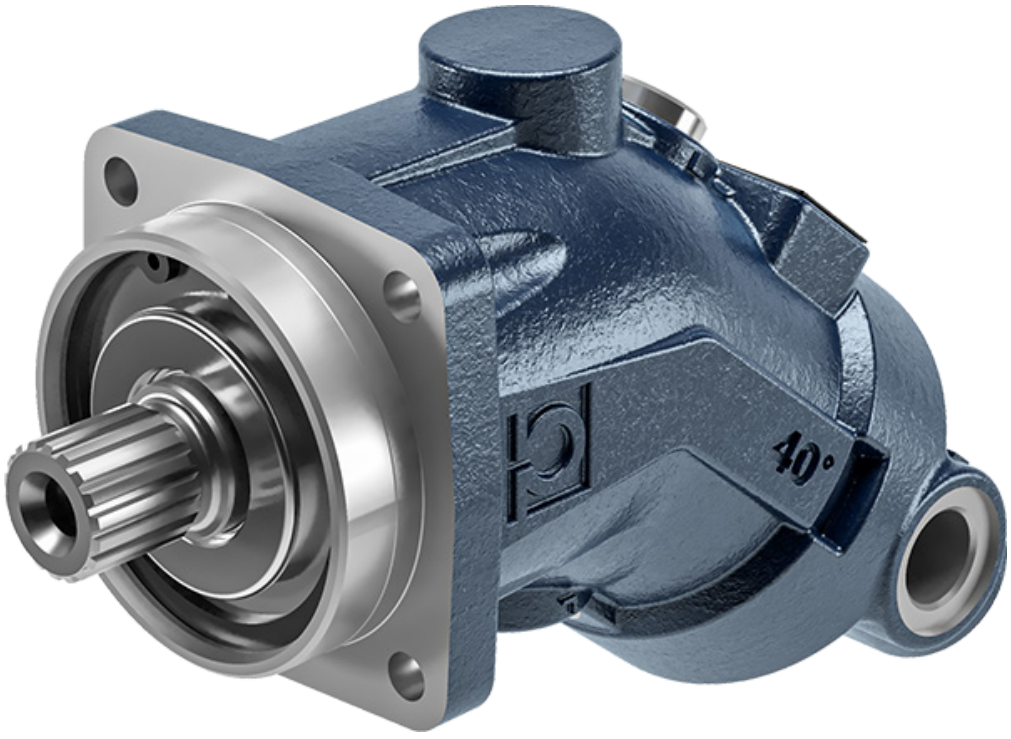
Radial force application Radial loads allowed



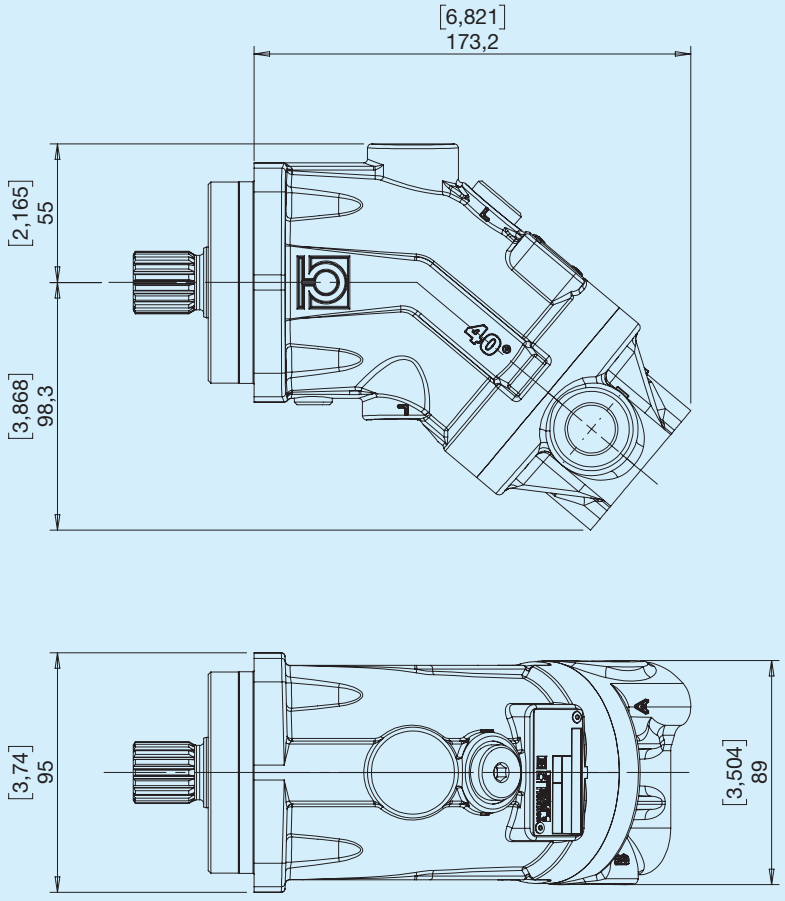
Nominal displacement		MAX axial load without pressure (*)	MAX axial load at working pressure
cm3	in3	N	N/bar
10	0.61	2350	16
12	0.73	2750	16
16	0.98	3700	16
23	1.4	4300	16
28	1.71	5400	16
32	1.95	6100	16
45	2.75	8150 (6150 with x shaft)	18
56	3.42	9200 (6500 with x shaft)	18
63	3.84	10300	18
80	4.88	11500 (6500 with x shaft)	20
90	5.49	12900	20
107	6.53	13600	20
125	7.63	15900	20

(*) The values indicated are maximum values and should not be applied during continuous operation.

Fixed-displacement motors HPBF 10-12-16



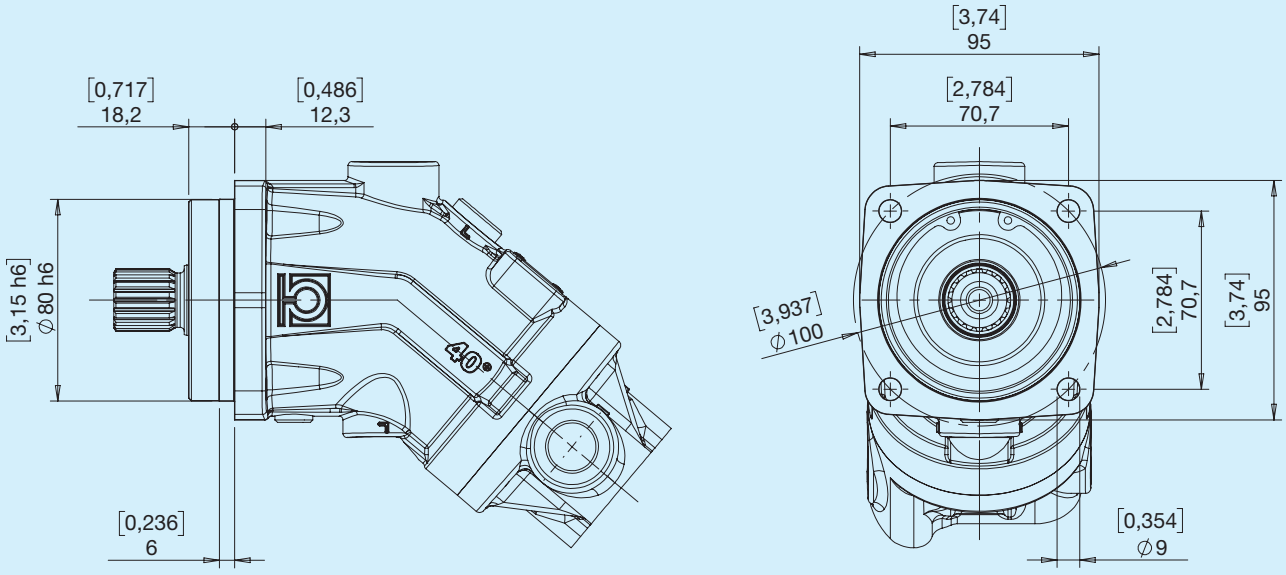
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF CLOSED CIRCUIT AXIAL PISTON PUMPS AND MOTORS.



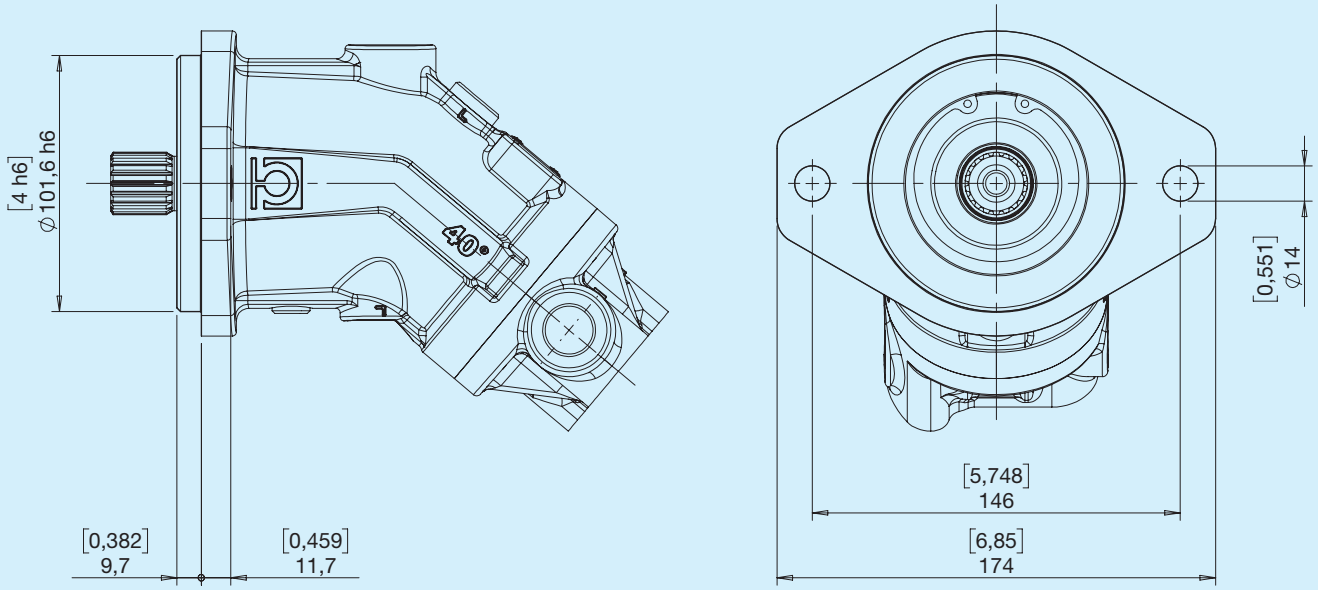
B - See port position section

HPBF	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed			Weight		Polar moment of inertia
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**MAX CONTIN. min⁻¹**	**MAX INTERMITT. min⁻¹**	**MINIMUM min⁻¹**	**kg**	**lbs**	**kg • m²**
10	10	0.61	350	5076	400	5801	450	6527	8000	**8800**	50	6.6	14.5	0,0004
12	12	0.73	350	5076	400	5801	450	6527	8000	**8800**	50	6.6	14.5	0,0004
16	16	0.98	350	5076	400	5801	450	6527	8000	**8800**	50	6.6	14.5	0,0004

I ISO 4 holes

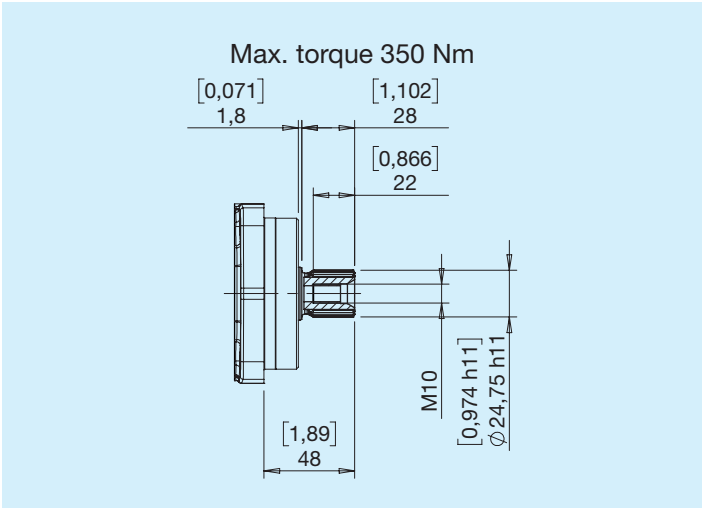


S SAE B



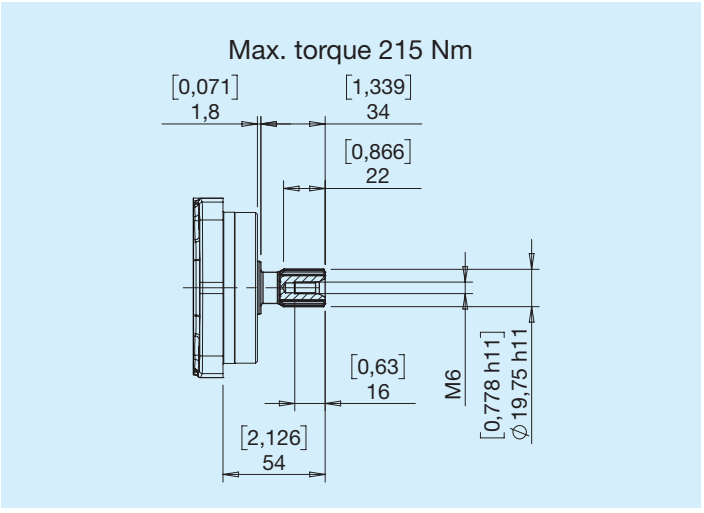
Shaft profile: ISO Flanges

Z DIN 5480 W25x1.25x30x18



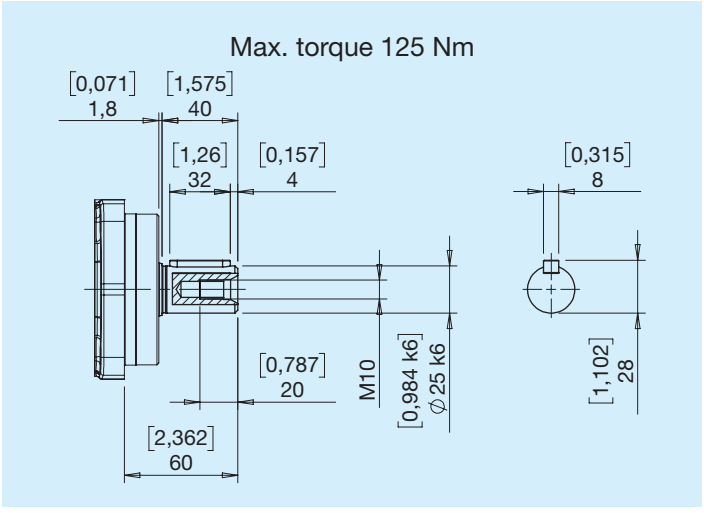
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

X DIN 5480 W20x1.25x30x14



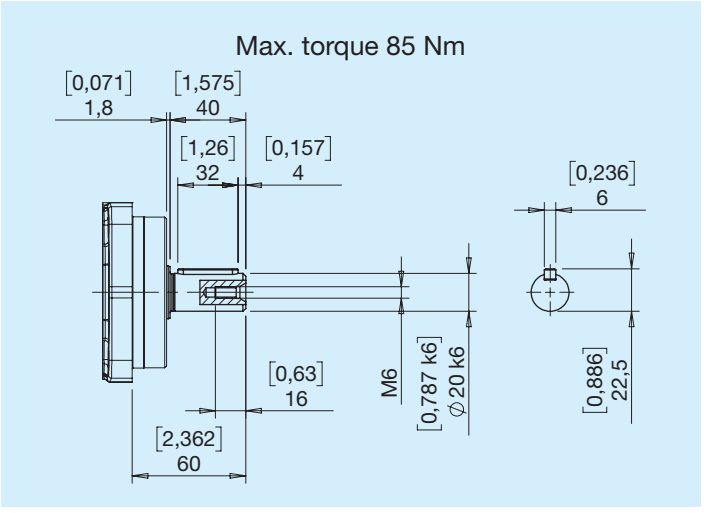
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

C Cylindrical Ø25



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

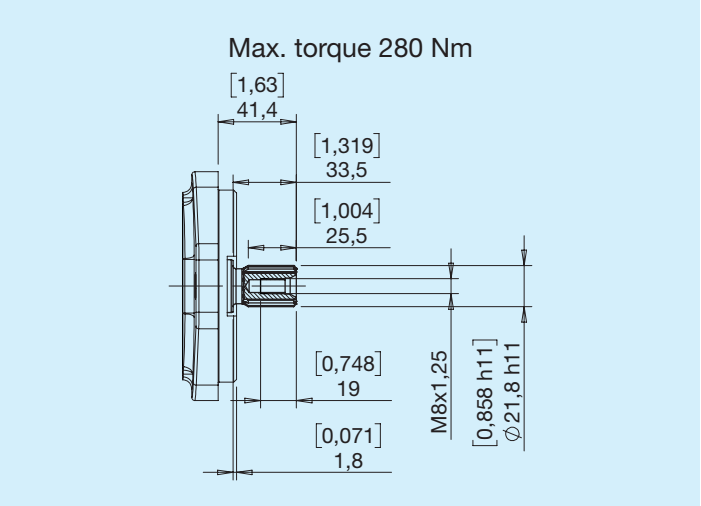
Y Cylindrical Ø20



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

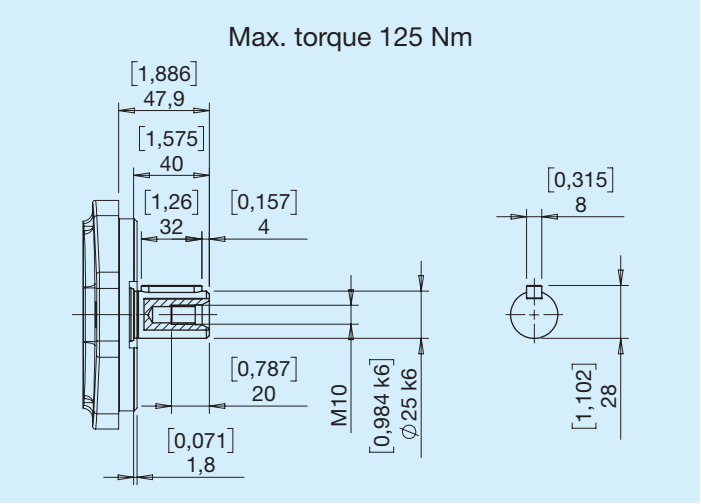
For applications with radial load on the drive shaft (pinions, V-belts), with X and Y type shaft, the allowed pressure is 315 bar / 4569 psi (Pmax = 350 bar / 5076 psi).
For pulsating load greater than 315 bar / 4569 psi, use the version with male splined shaft.

S SAE 13T 16/32 DP



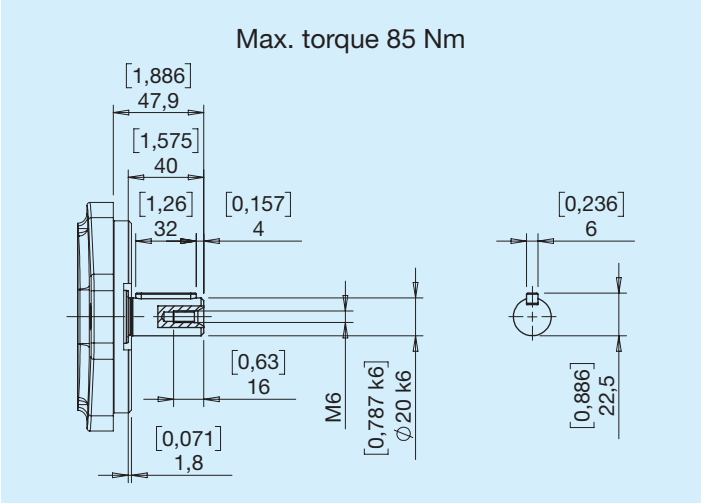
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

C Cylindrical Ø25



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

Y Cylindrical Ø20

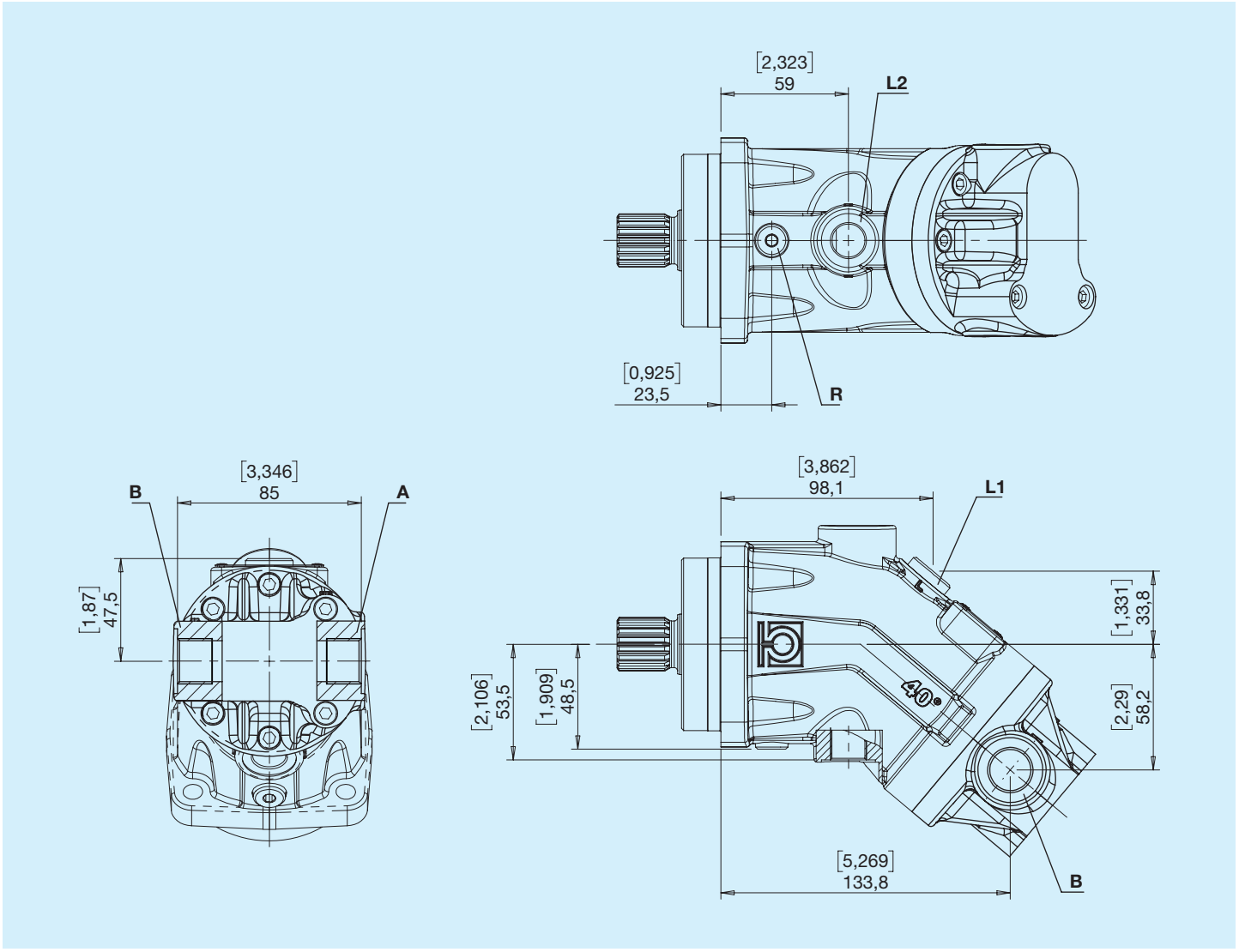


Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

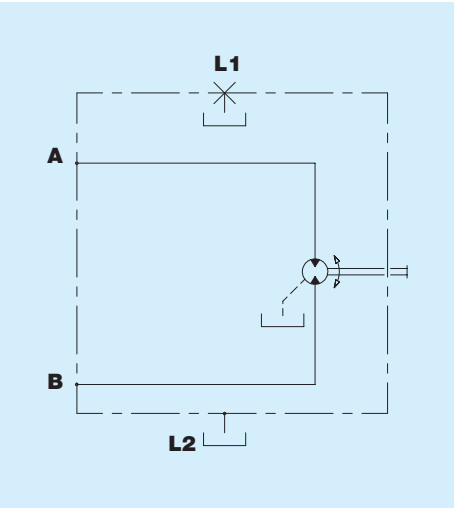
For applications with radial load on the drive shaft (pinions, V-belts), with X and Y type shaft, the allowed pressure is 315 bar / 4569 psi (Pmax = 350 bar / 5076 psi).
For pulsating load greater than 315 bar / 4569 psi, use the version with male splined shaft.

Position of ports: ISO Flanges

FL Lateral threaded



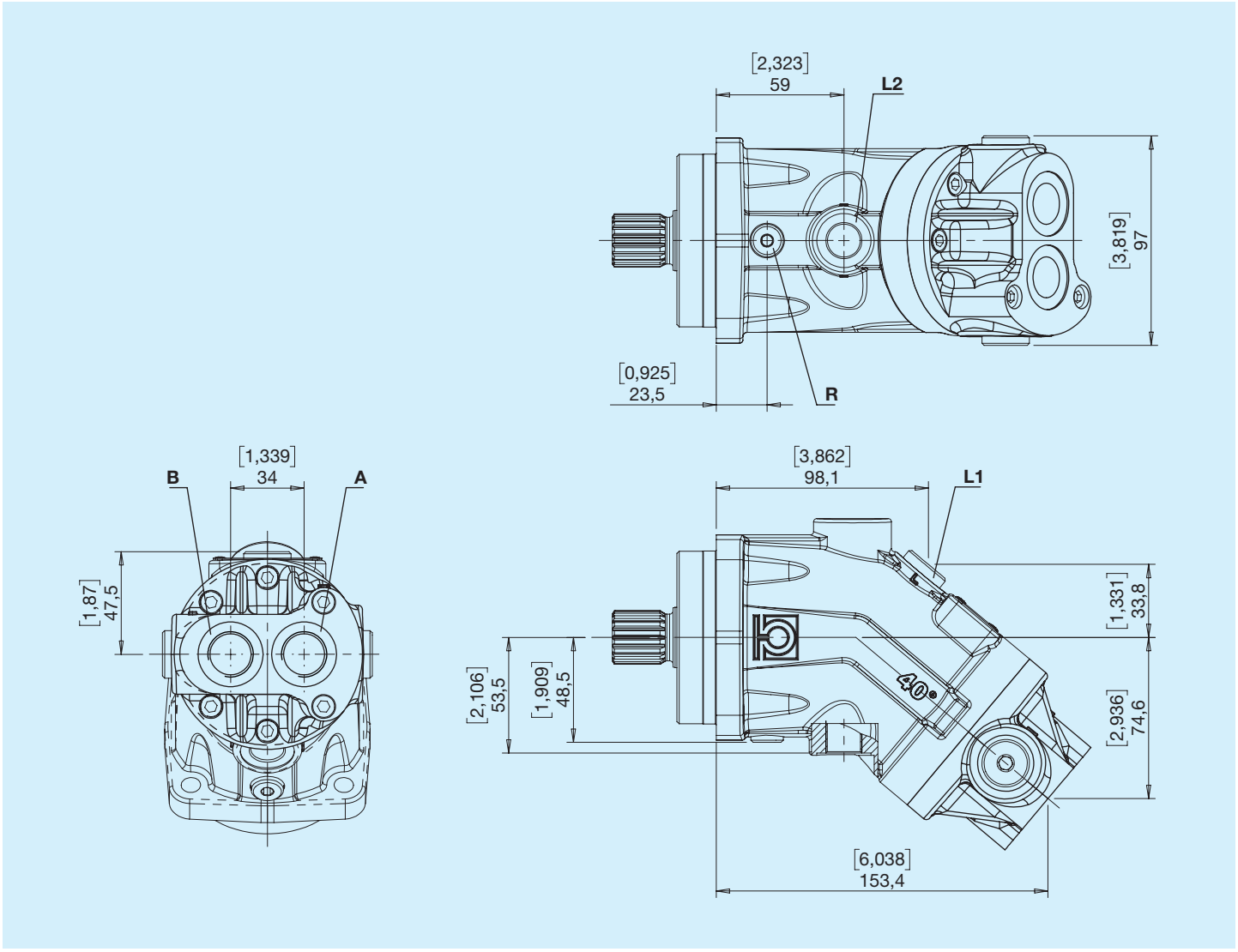
Hydraulic diagram



A,B - Use
L1, L2 - Drain port
S - Inlet

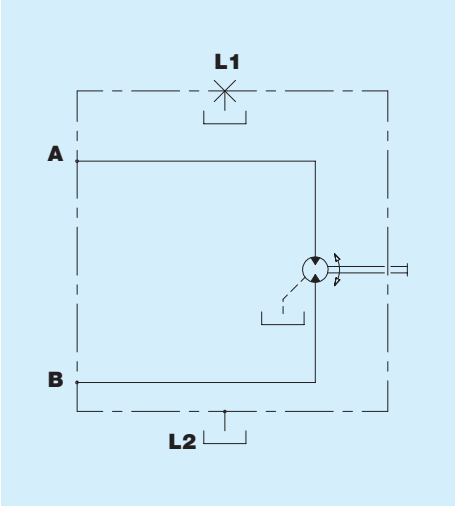
Position of ports: ISO Flanges

FP Rear threaded



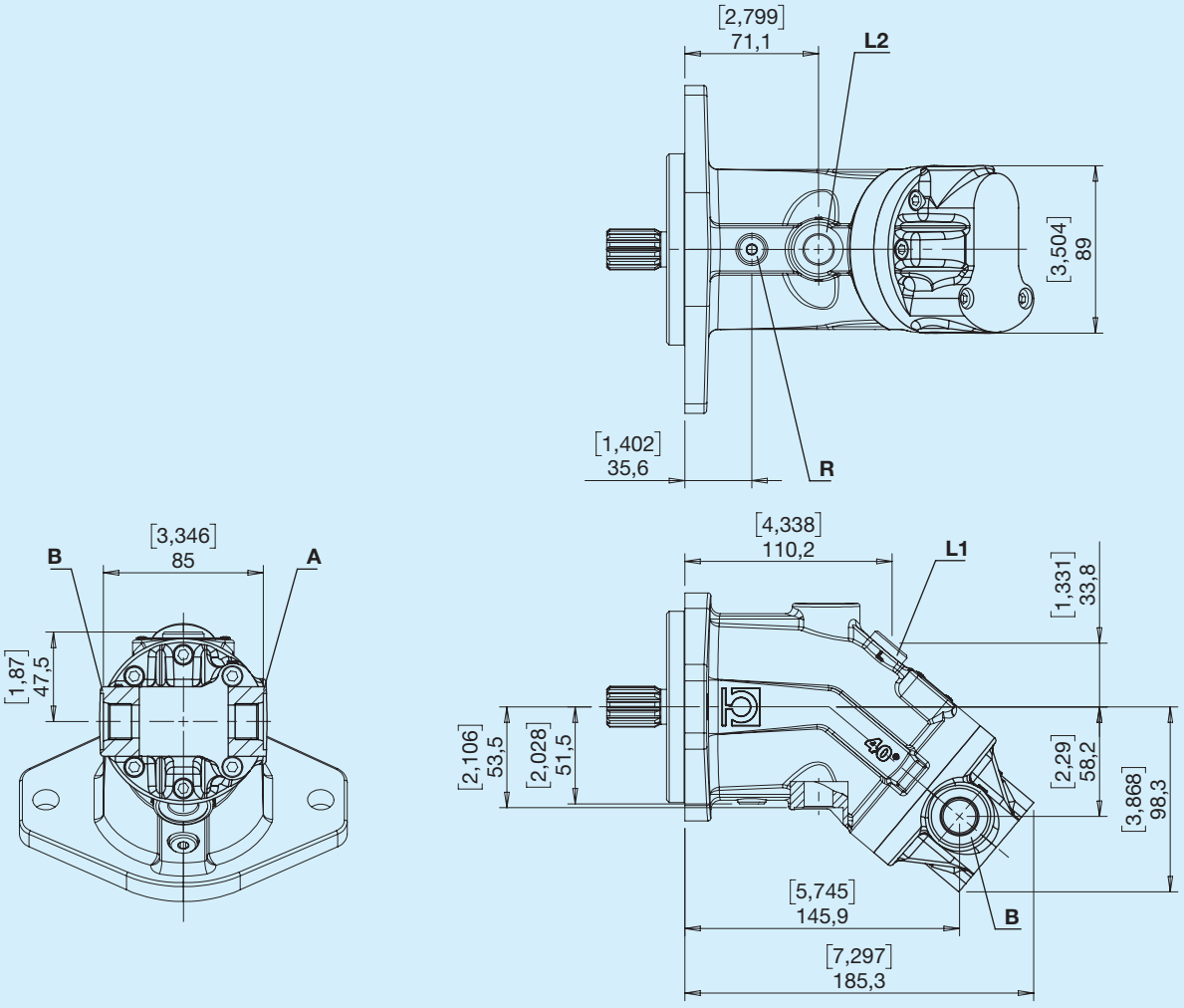
A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram



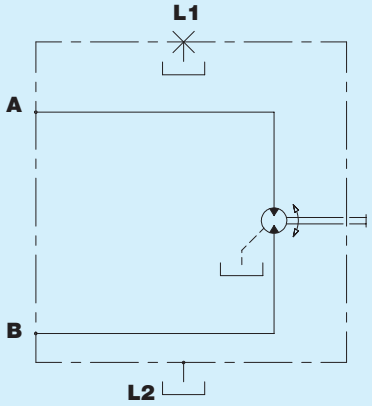
Position of ports: SAE Flanges

UL Lateral threaded

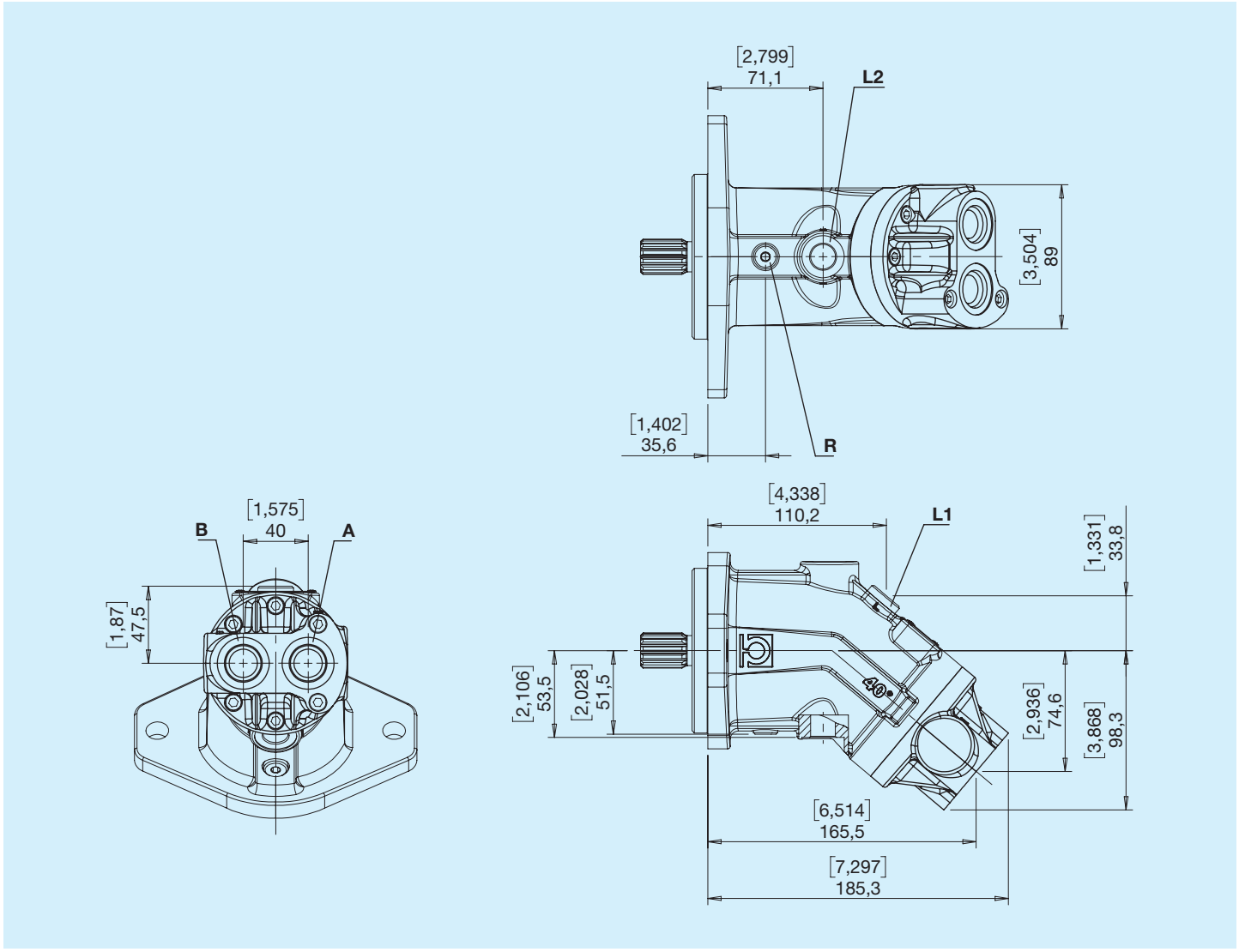


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

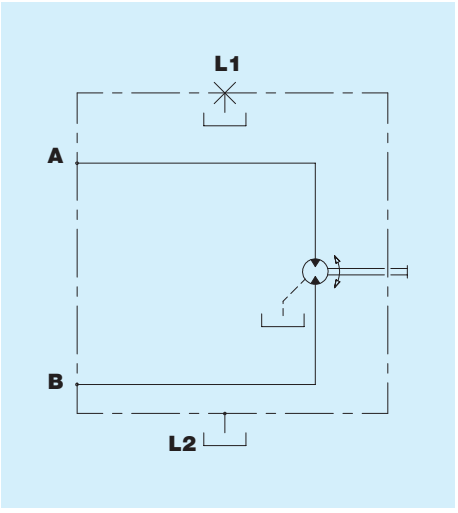


UP Rear threaded

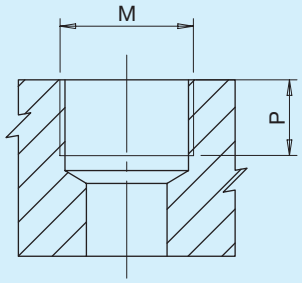


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

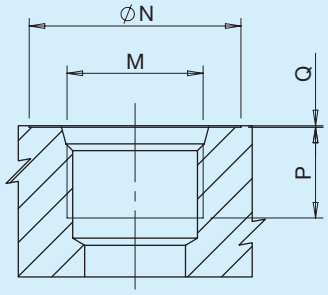


Type G - Gas



Type	M		P	
		Nm	**mm**	**in**
G1	Port ISO 1179-1 - G 1/8	8	8	0.31
G3	Port ISO 1179-1 - G 3/8	38	12	0.47
G4	Port ISO 1179-1 - G 1/2	70	14	0.55

Type U - Unf

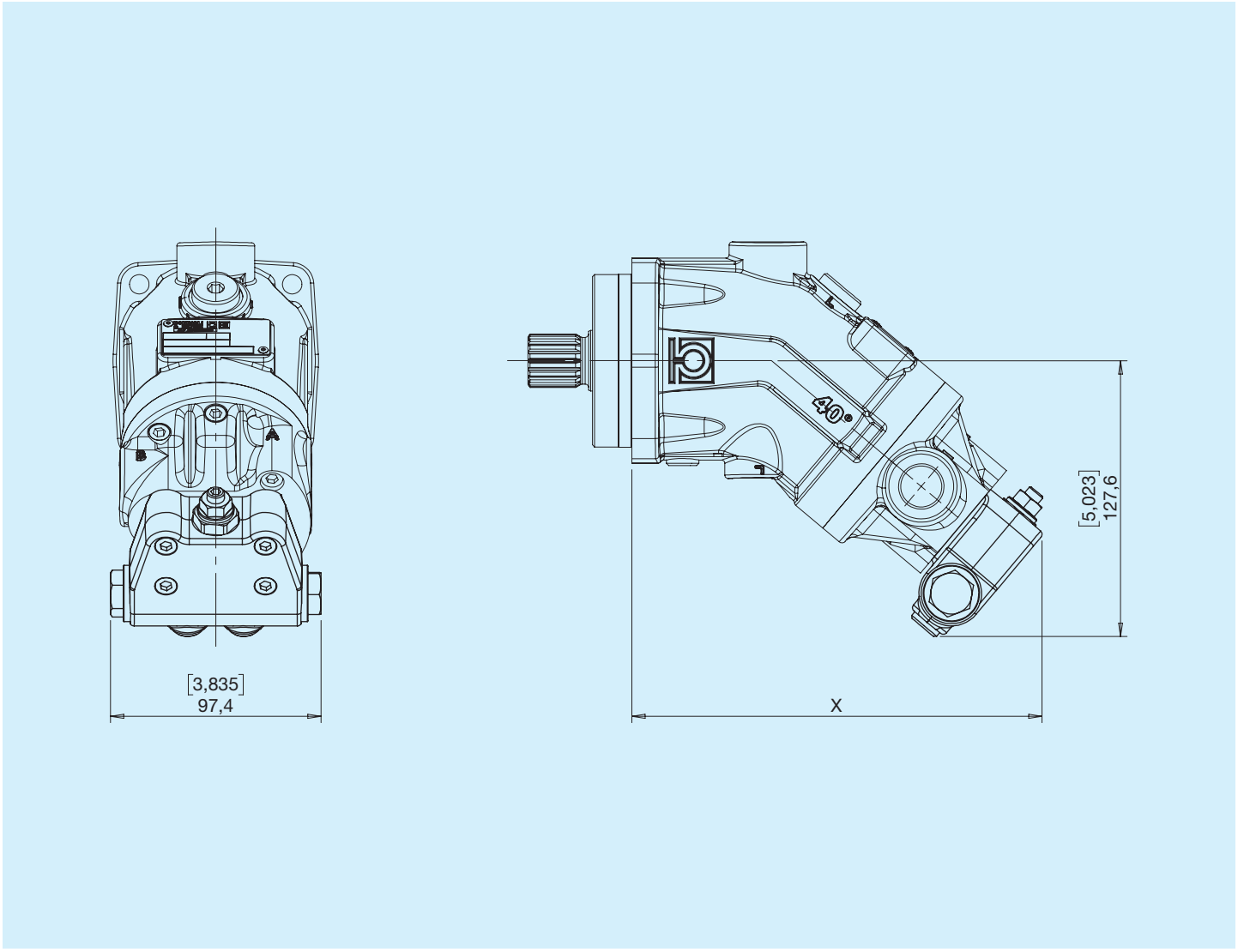


Type	Dim.	N		P		Q		M	
		mm	**in**	**mm**	**in**	**mm**	**in**		**Nm**
U2	1/4'	21	0.83	12	0.47	1	0.04	PORT ISO 11926-1 - 7/16-20	17
U3	3/8'	26	1.02	13	0.51	1	0.04	PORT ISO 11926-1 - 9/16-18	38
U4	1/2'	30	1.18	15	0.59	1	0.04	Port ISO 11926-1-3/4-16	47

Combinations

Position of ports	Input/Output **A-B**	Drain port **L1-L2**	Purge **R**
G	G4	G3	G4
FP	G4	G3	G1
UL	U4	U3	U2
UP	U4	U3	U2

V Adjustable flushing valve

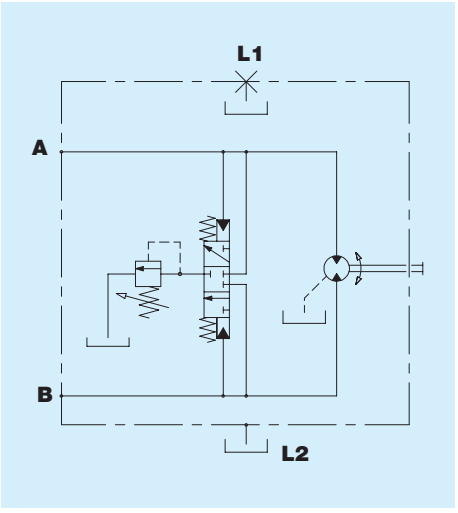


Note: Available only with ports **FL** and **UL**

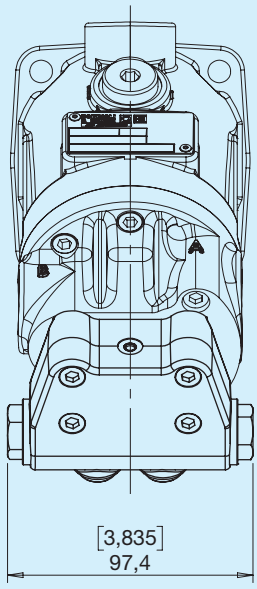
Flushing valve protrusion

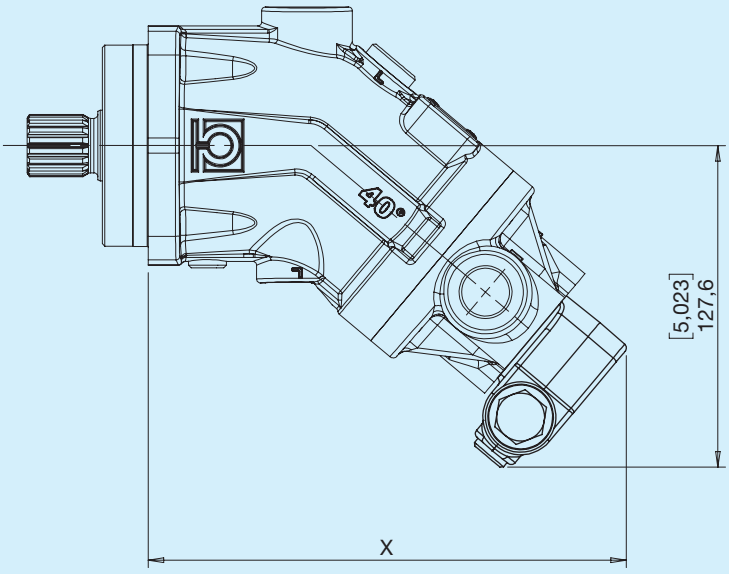
	Flanges	
	mm	**S**
N6	19	201.8

Hydraulic diagram



U Fixed flushing valve



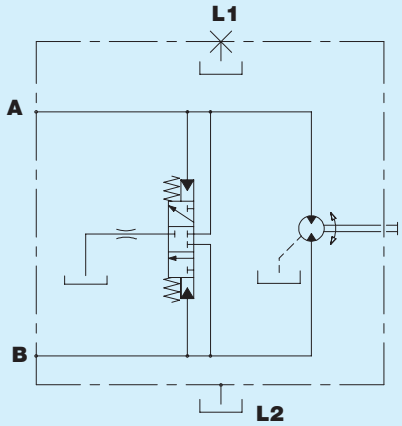


Note: Available only with ports **FL** and **UL**

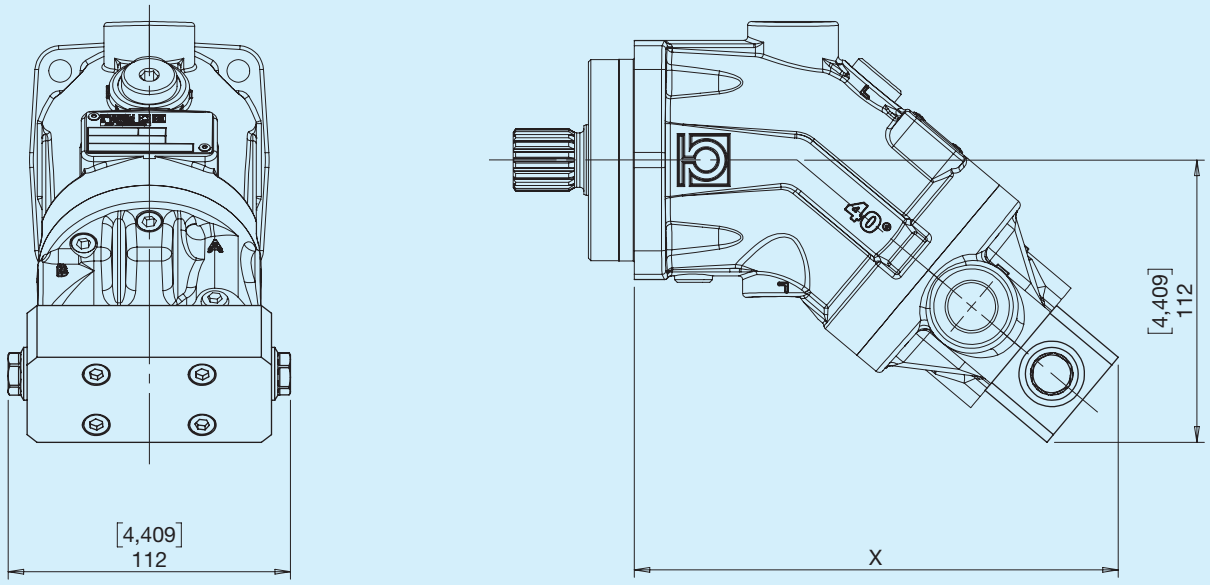
Flushing valve protrusion

	Flanges	
	mm	**S**
N6	19	201.8

Hydraulic diagram



* Pressure limiter and anti-cavitation check valves

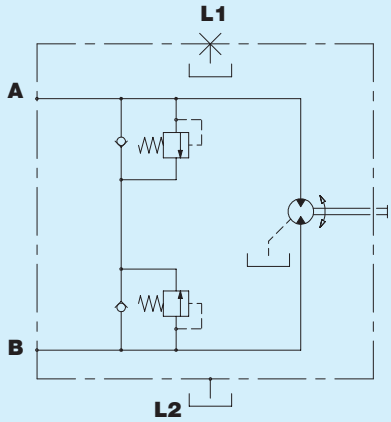


Note: Available only with ports
FL and **UL**
* See Ordering Instructions page

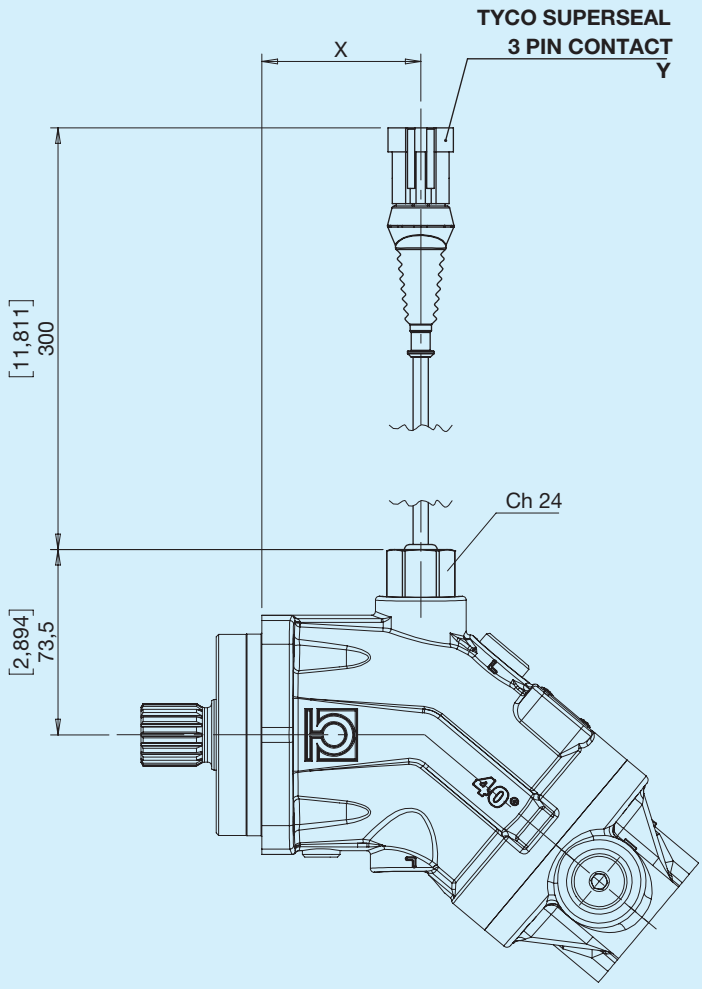
Relief valve block protrusion

	Flanges	
	mm	**S**
N6	19	204.1

Hydraulic diagram



S Speed sensor

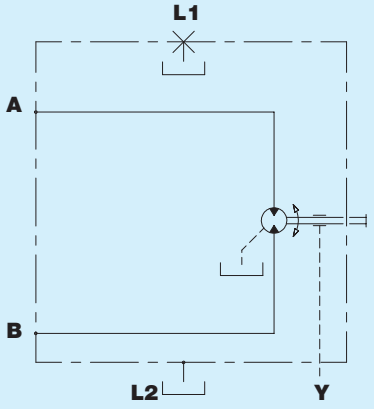


This version is equipped with a toothed shaft that generates a signal, detected by the sensor during rotation.

Speed sensor seat

	Flanges	
	mm	S
N6	19	75.1

Hydraulic diagram



Instructions for ordering

	1	2	3	4	5	6	7	6	7	8	9	10	11	12
HPBF														

1 2 3 Displacement

010	**012**	**016**

4 Flanges

I	ISO 4 holes	**S**	SAE B

5 Shaft profile

Z	DIN 5480 W25x1.25x30x18	**C**	Cylindrical Ø25	**S**	SAE 13T 16/32 DP
X	DIN 5480 W20x1.25x30x14	**Y**	Cylindrical Ø20		

6 7 Position of ports: ISO Flanges

FL	Lateral threaded	**FP**	Rear threaded

6 7 Position of ports: SAE Flanges

UL	Lateral threaded	**UP**	Rear threaded

8 Gasket

0	NBR application range -30 °C to +100 °C	**F**	FKM (VITON) application range -20 °C to +200 °C

9 Valves

0	No valve	**D**	180 bar relief valves	**I**	280 bar relief valves	**P**	400 bar relief valves
V	Adjustable flushing valve	**E**	210 bar relief valves	**L**	300 bar relief valves		
U	Fixed flushing valve	**H**	230 bar relief valves	**M**	320 bar relief valves		
B	150 bar relief valves	**G**	250 bar relief valves	**O**	350 bar relief valves		

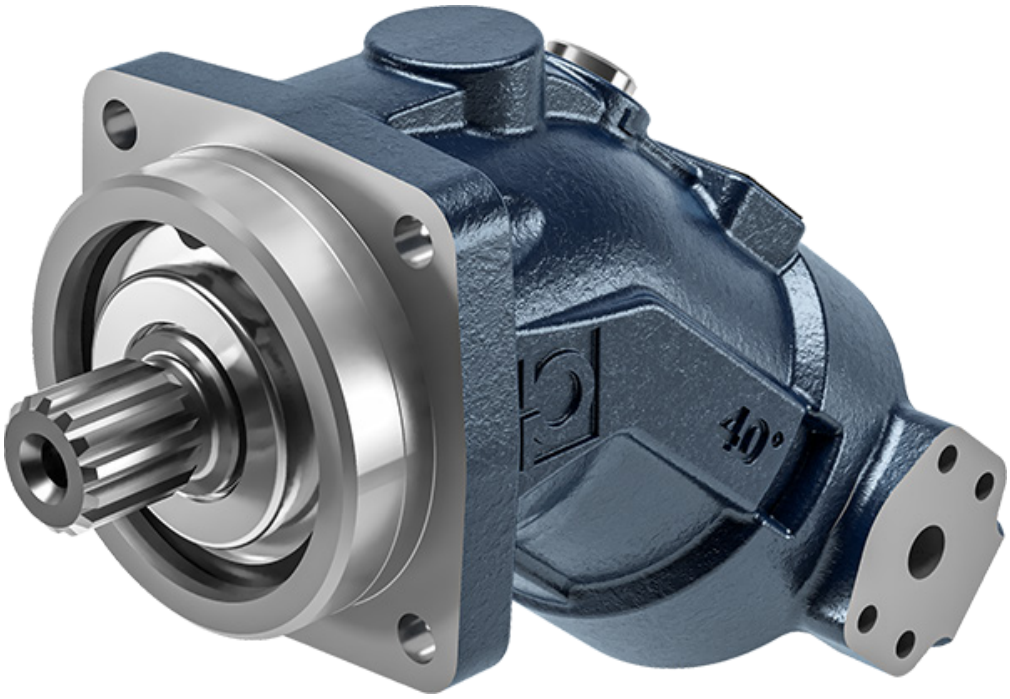
10 Accessories

0	No option	**C**	Painting	**S**	Speed sensor

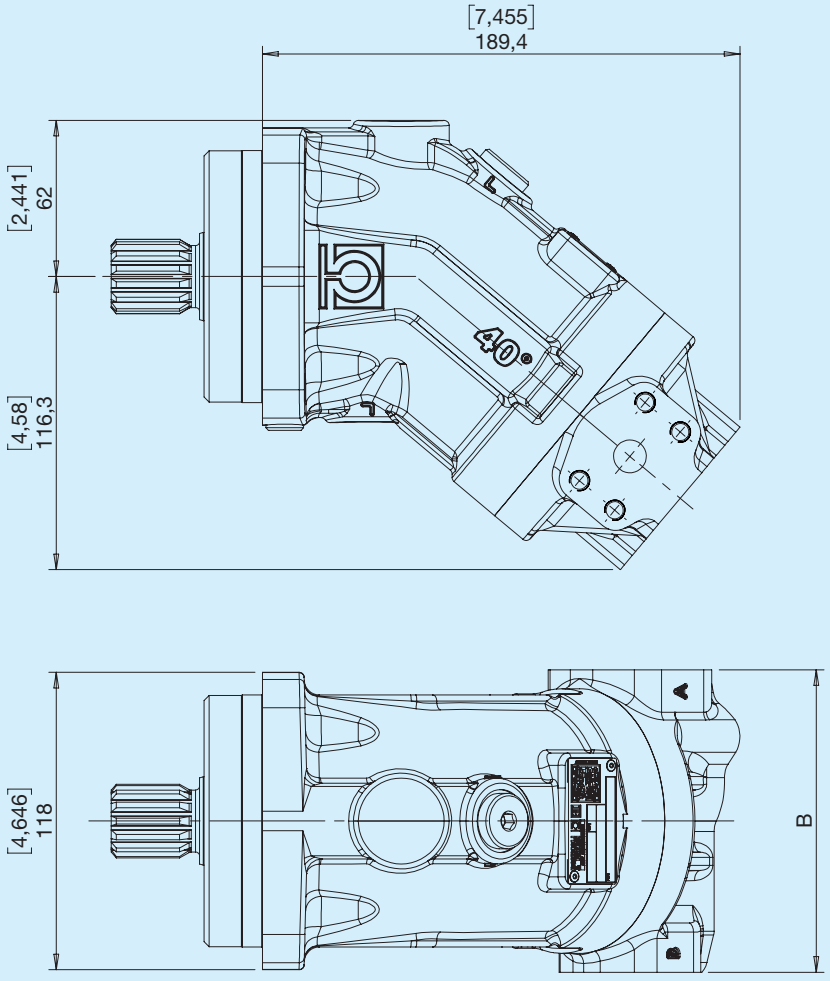
11 12 Special versions

...

Fixed-displacement motors HPBF 23-28-32



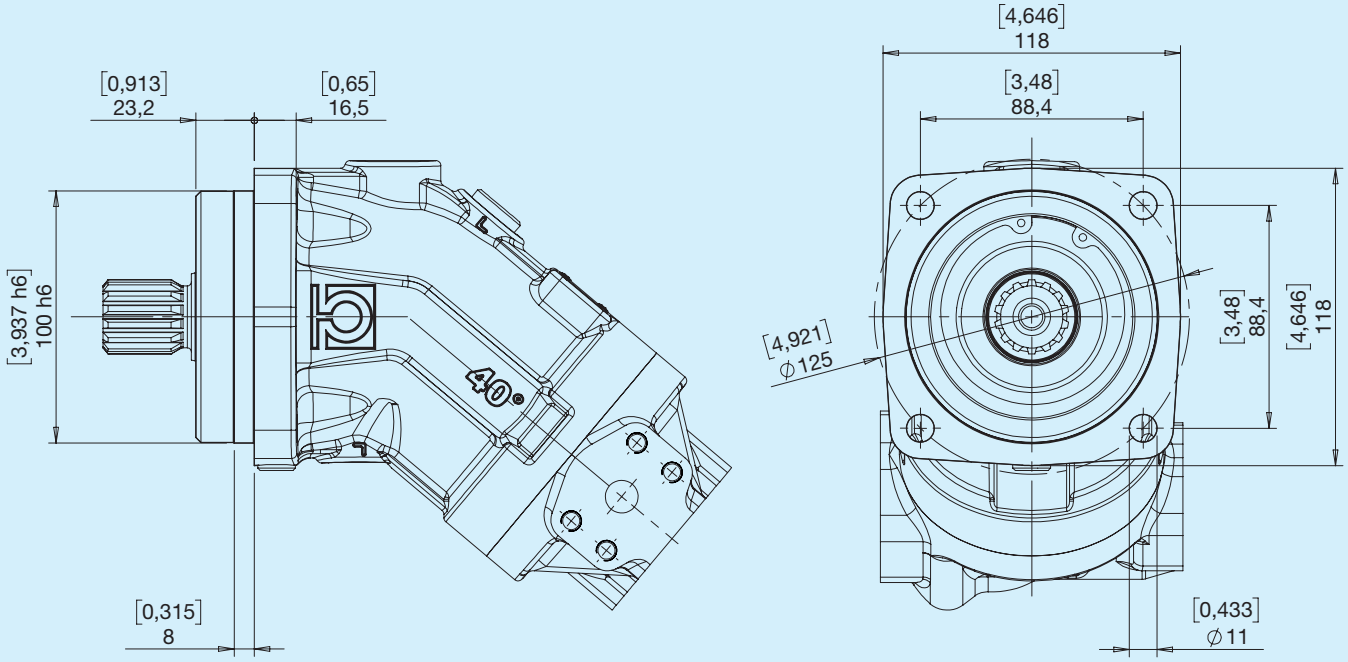
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF CLOSED CIRCUIT AXIAL PISTON PUMPS AND MOTORS.



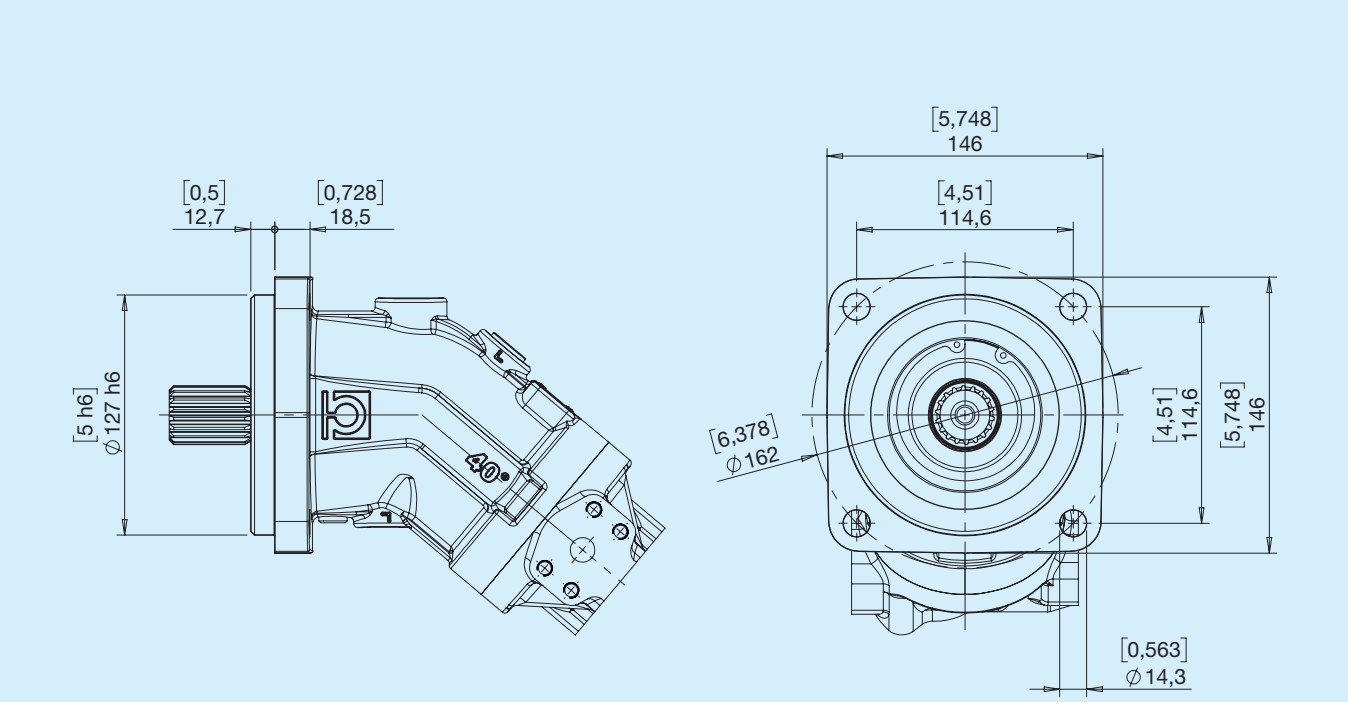
B - See port position section

HPBF	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed			Weight		Polar moment of inertia
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**MAX CONTIN. min⁻¹**	**MAX INTERMITT. min⁻¹**	**MIN min⁻¹**	**kg**	**lbs**	**kg • m²**
23	23	1.40	350	5076	400	5801	450	6527	6300	**6900**	50	10.9	24	0,0012
28	28	1.71	350	5076	400	5801	450	6527	6300	**6900**	50	10.9	24	0,0012
32	32	1.95	350	5076	400	5801	450	6527	6300	**6900**	50	10.9	24	0,0012

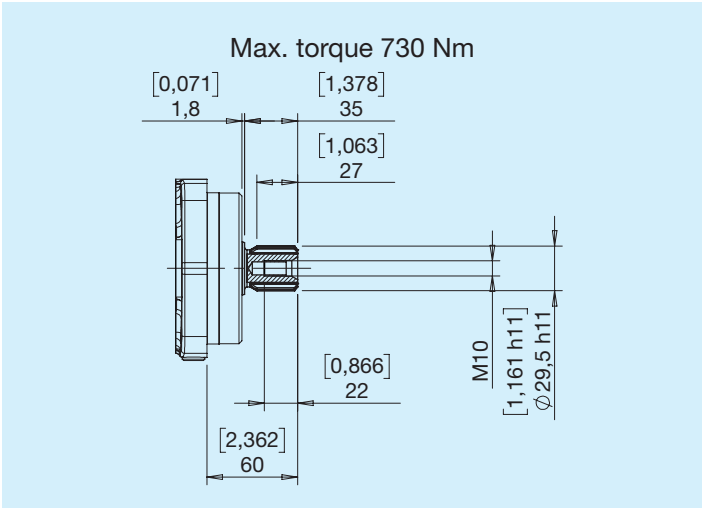
I ISO 4 holes



S SAE C

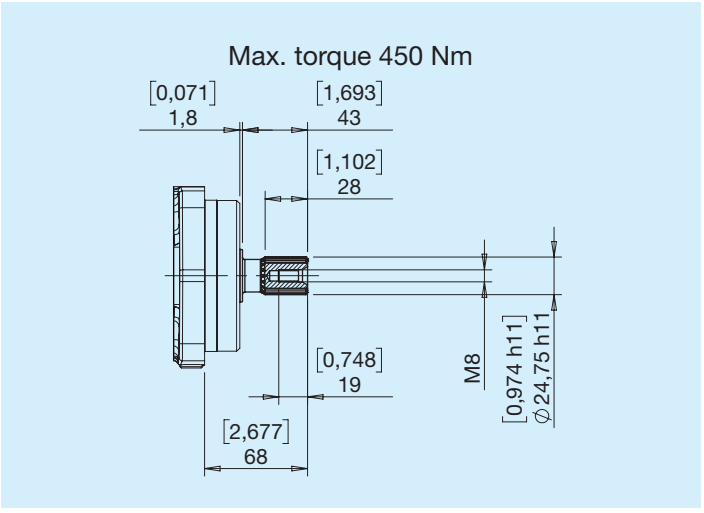


Z DIN 5480 W30x2x30x14



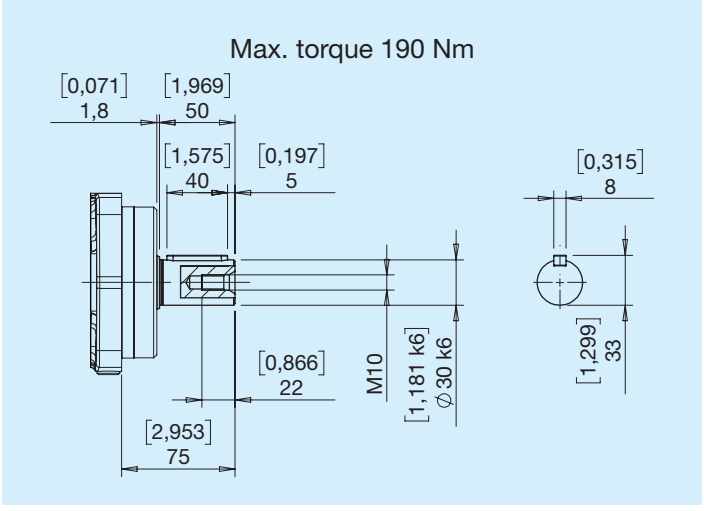
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

X DIN 5480 W25x1.25x30x18



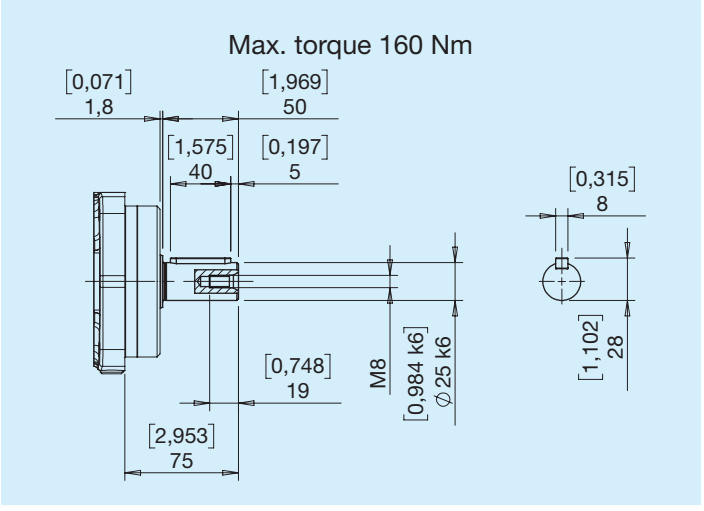
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

C Cylindrical Ø30



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

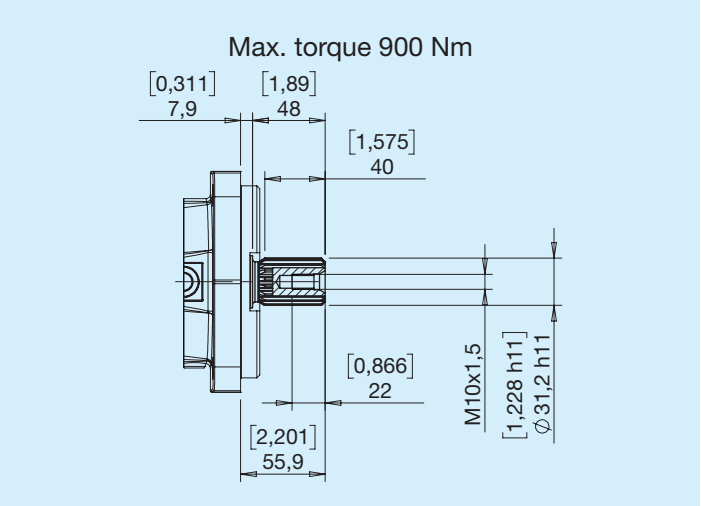
Y Cylindrical Ø25



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

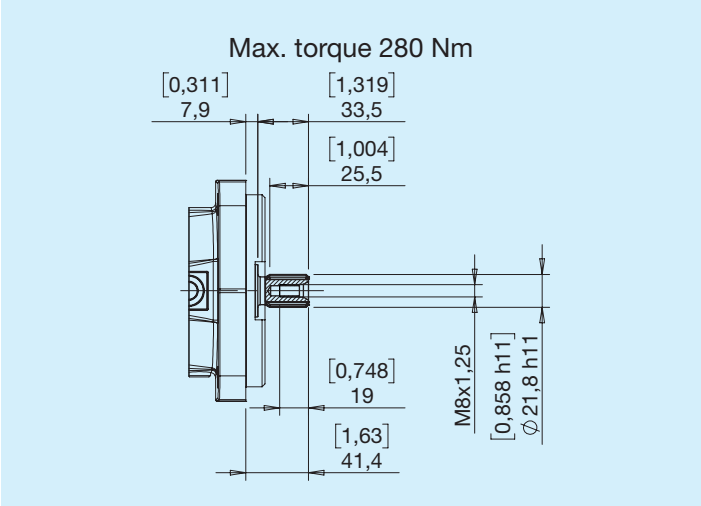
For applications with radial load on the drive shaft (pinions, V-belts), with X and Y type shaft, the allowed pressure is 315 bar / 4569 psi (Pmax = 350 bar / 5076 psi).
For pulsating load greater than 315 bar / 4569 psi, use the version with male splined shaft.

S SAE 14T 12/24 DP



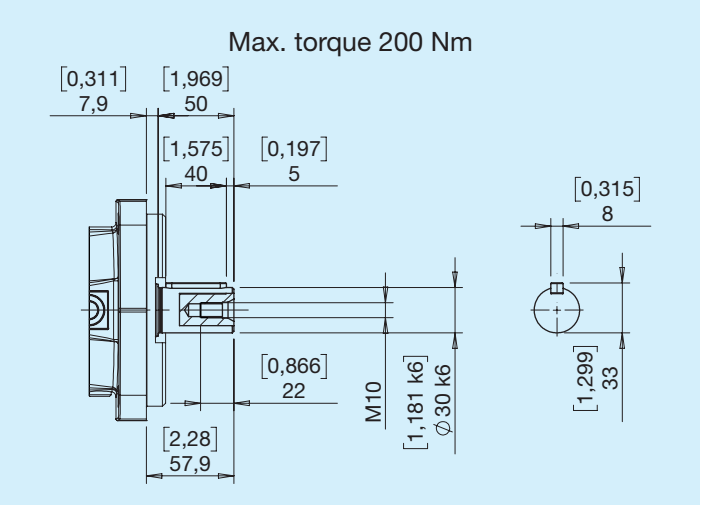
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

9 SAE 13T 16/32 DP



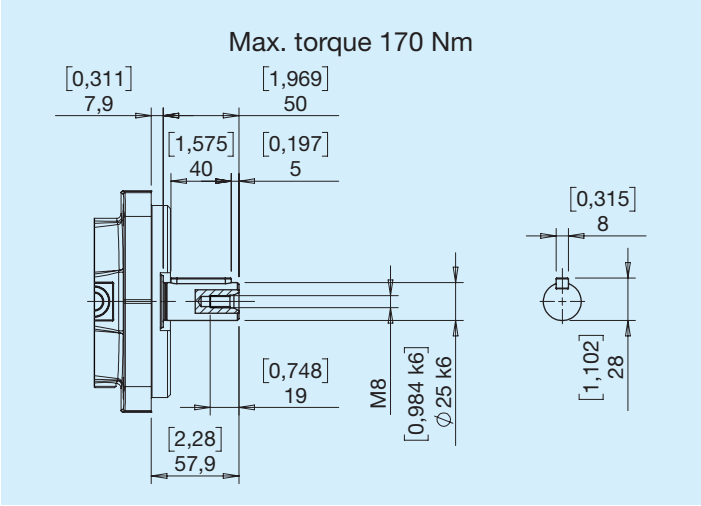
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

C Cylindrical Ø30



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

Y Cylindrical Ø25

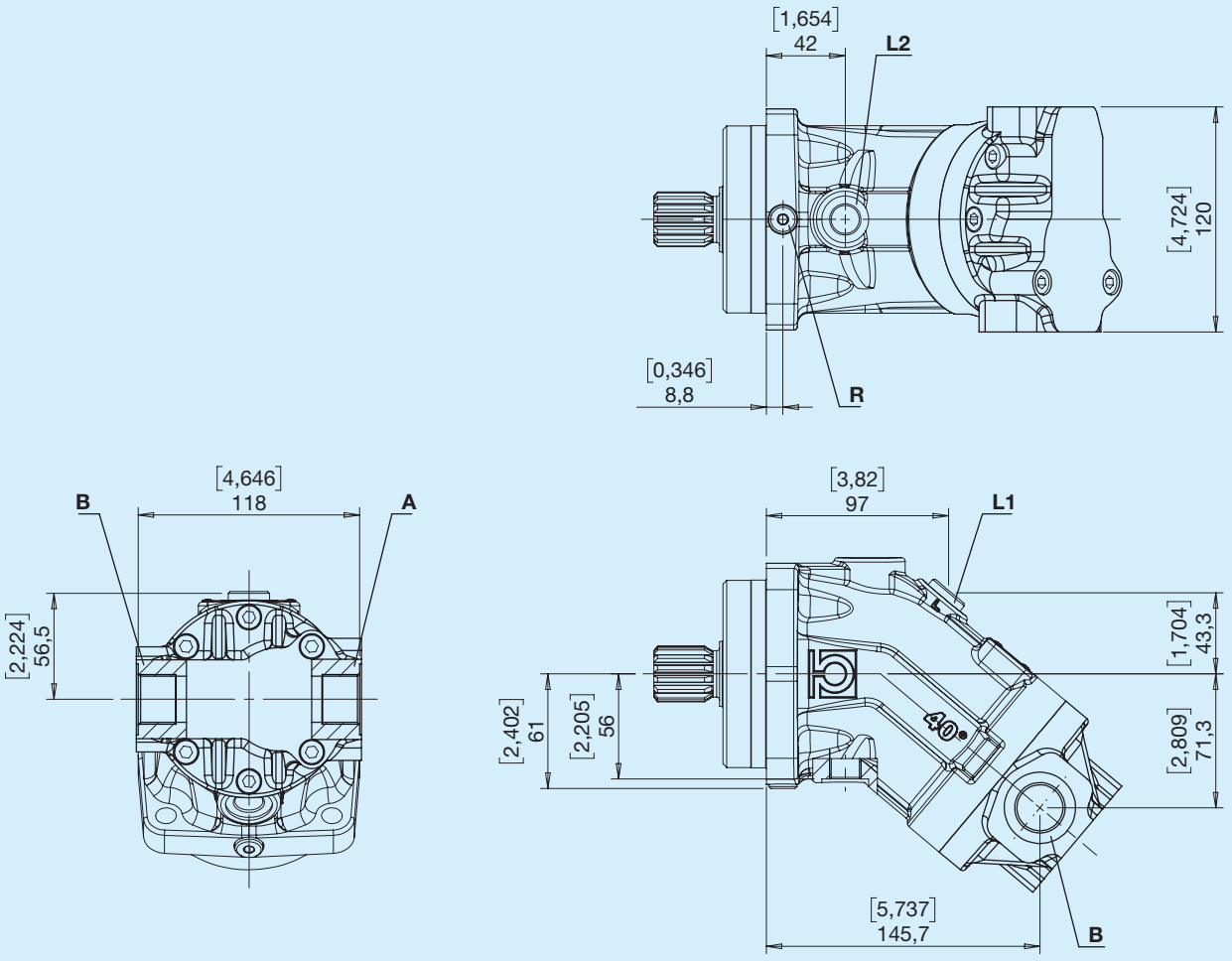


Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

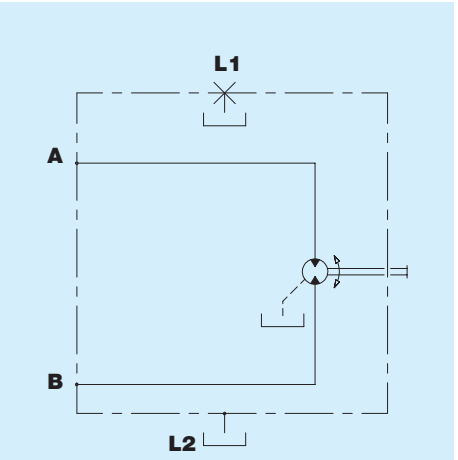
For applications with radial load on the drive shaft (pinions, V-belts), with X and Y type shaft, the allowed pressure is 315 bar / 4569 psi (Pmax = 350 bar / 5076 psi).
For pulsating load greater than 315 bar / 4569 psi, use the version with male splined shaft.

Position of ports: ISO Flanges

FL Lateral threaded

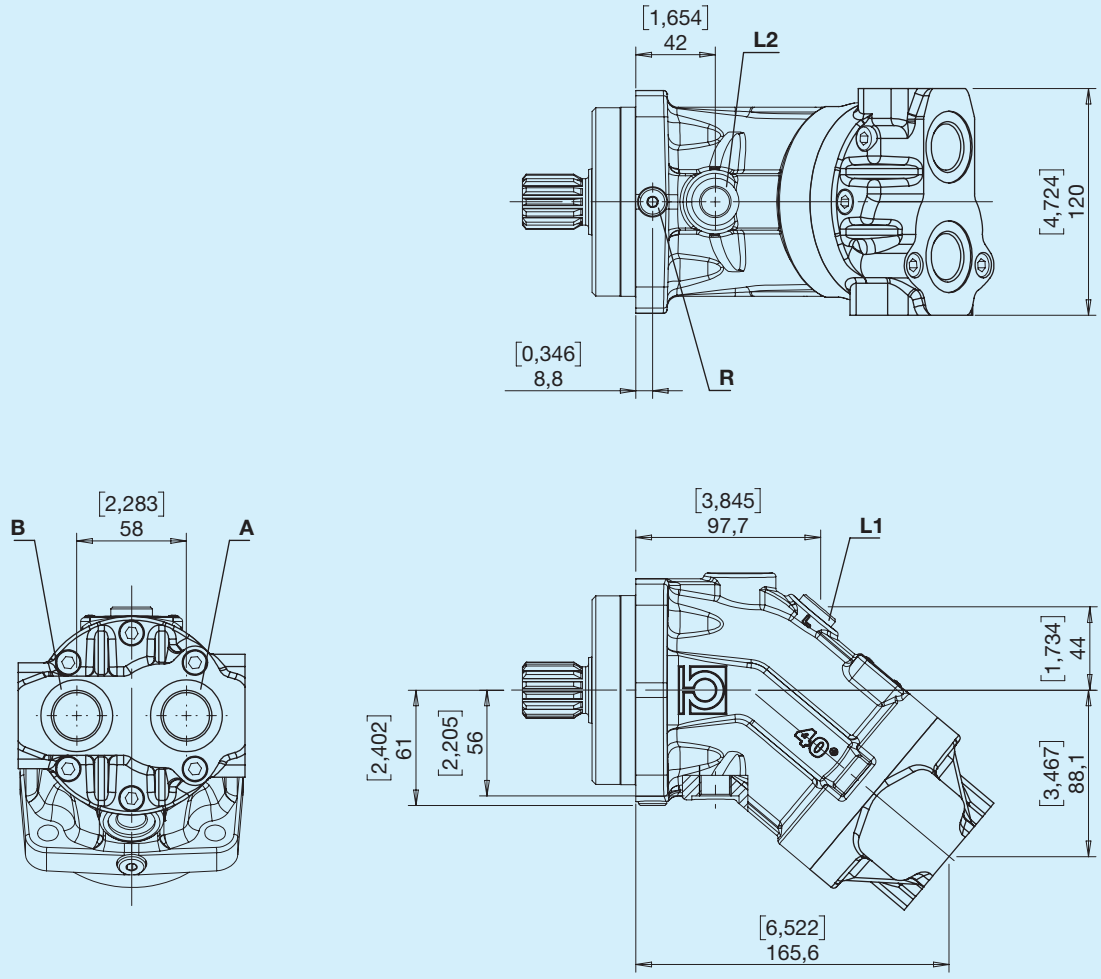


Hydraulic diagram



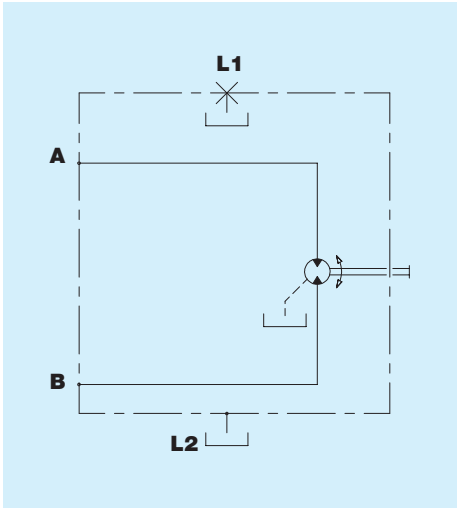
A,B - Use
L1, L2 - Drain port
S - Inlet

FP Rear threaded



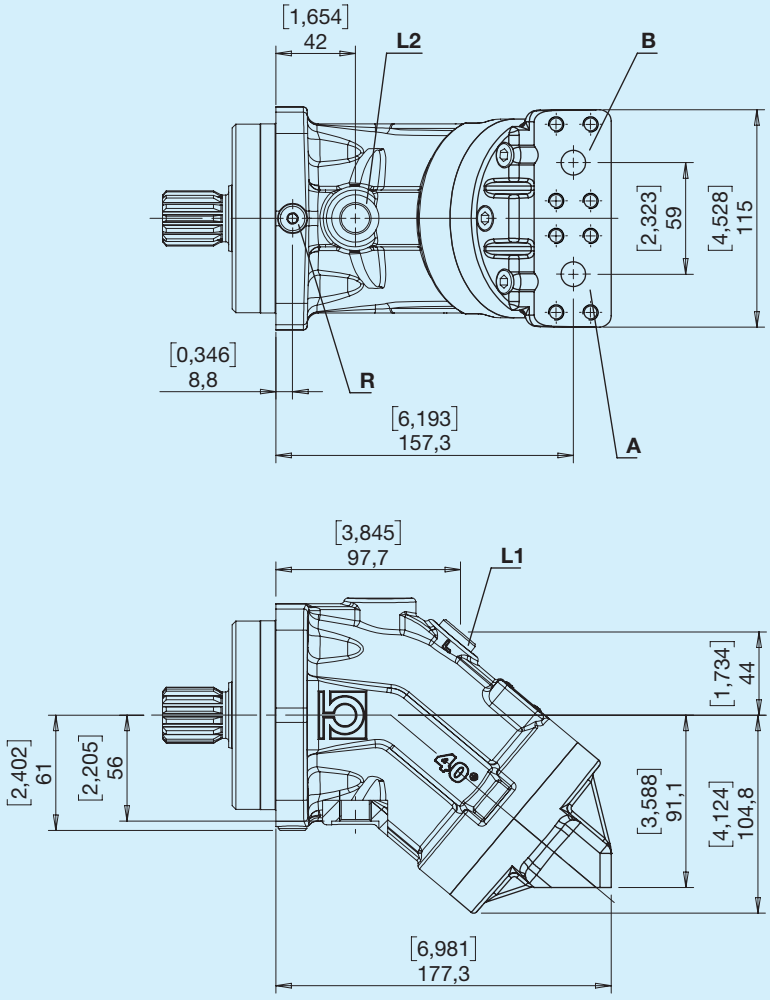
A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram



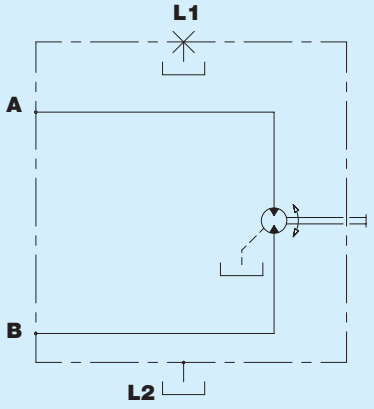
Position of ports: ISO Flanges

SB Bottom SAE flanges

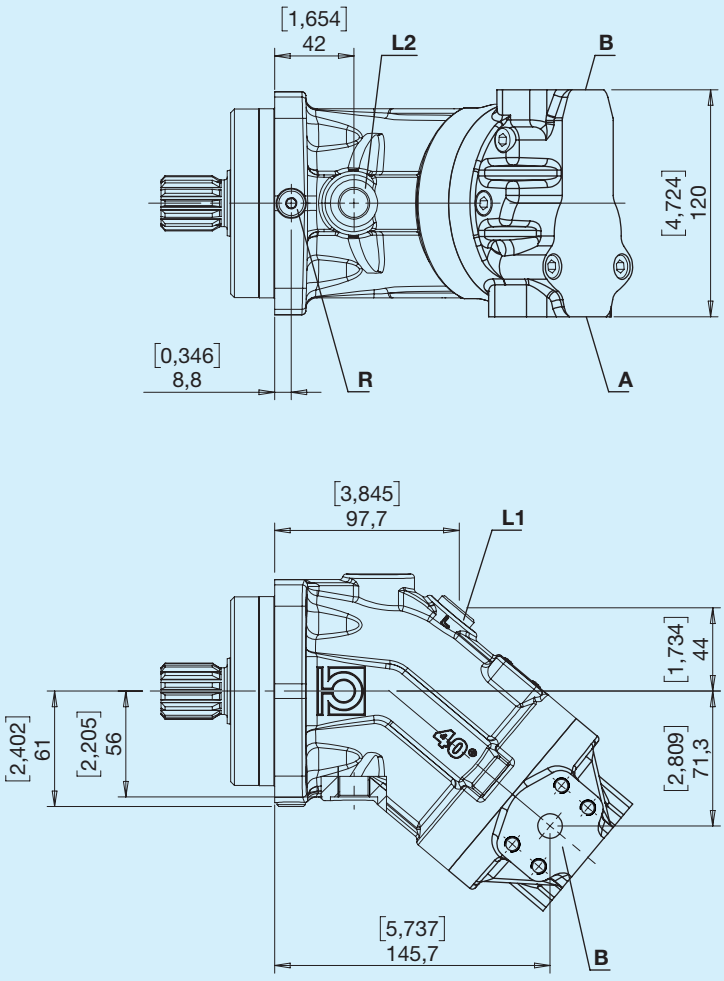


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

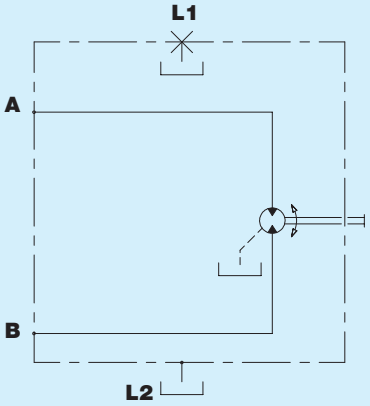


SL Lateral SAE flanges



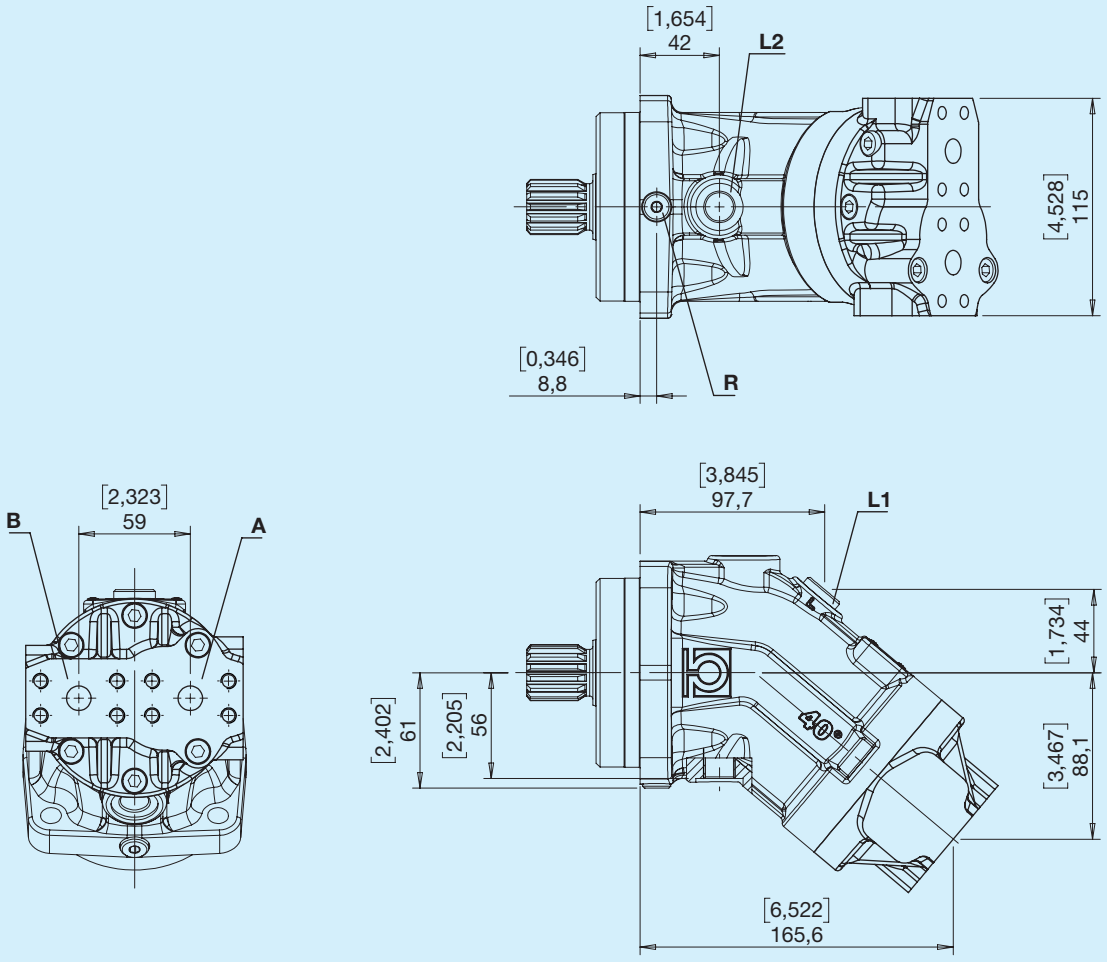
A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

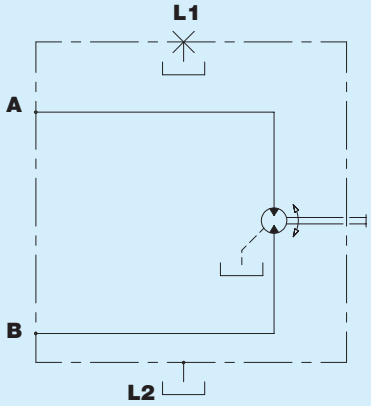


Position of ports: ISO Flanges

SP Rear SAE flanges

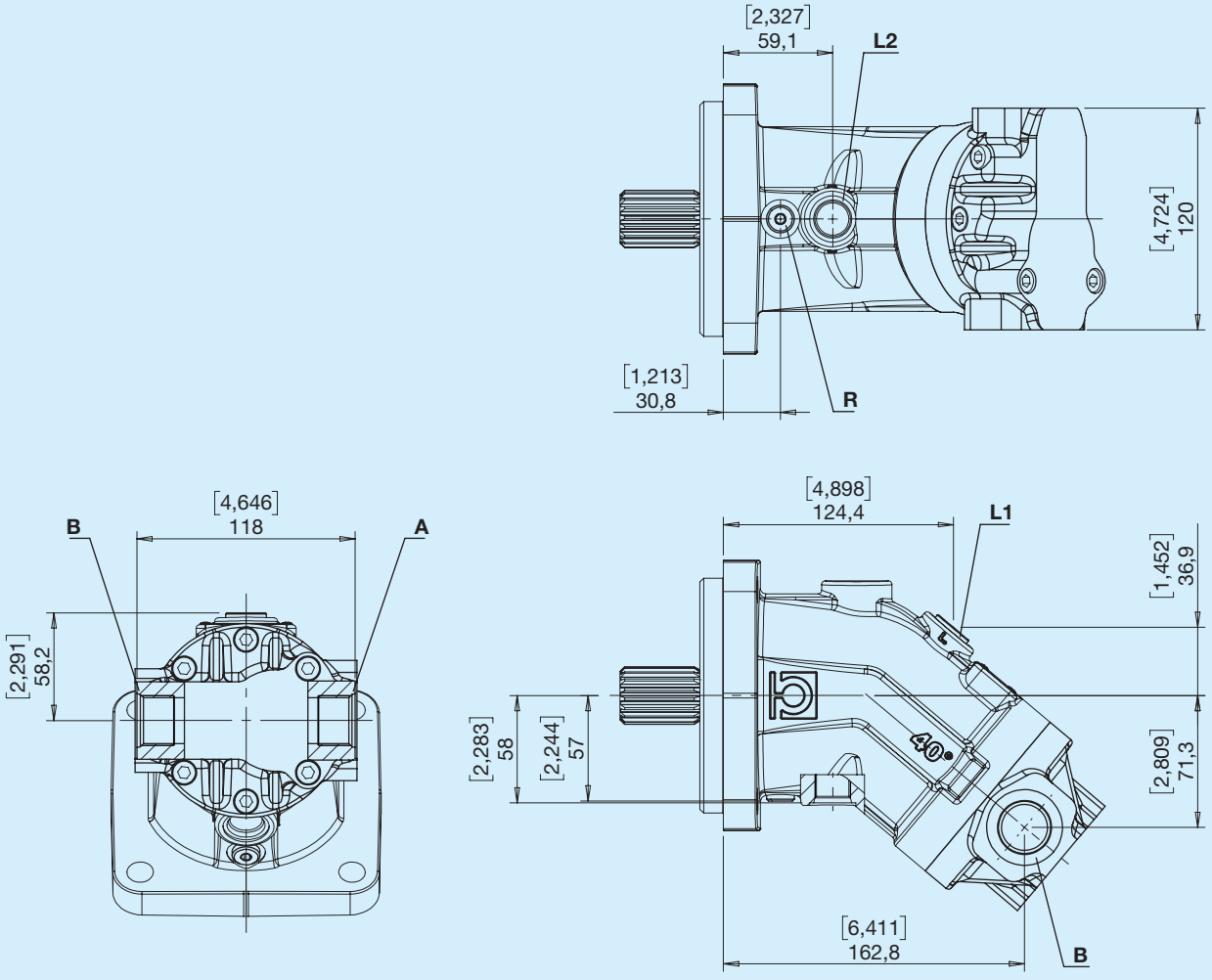


Hydraulic diagram



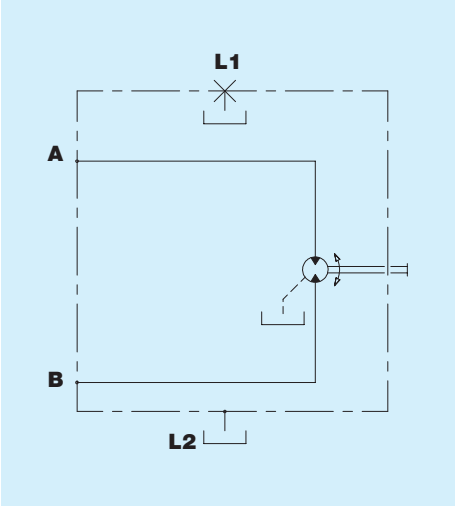
A,B - Use
L1, L2 - Drain port
S - Inlet

UL Lateral threaded



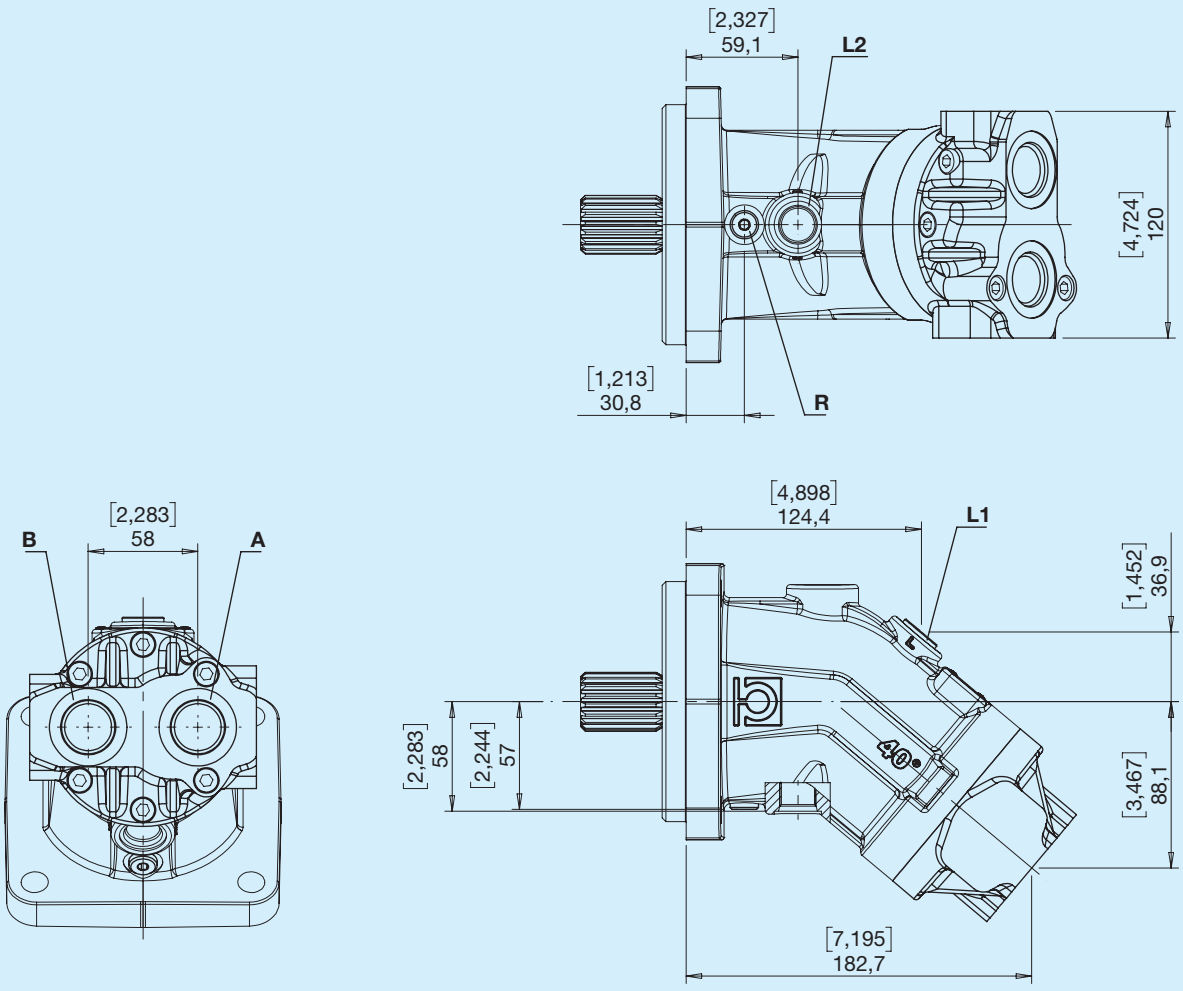
A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram



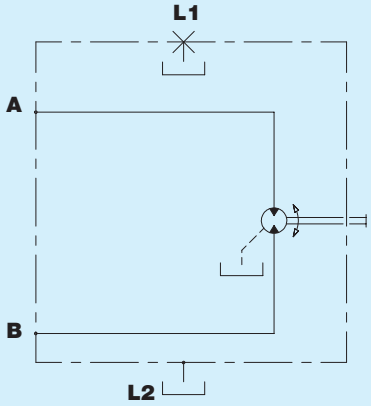
Position of ports: SAE Flanges

UP Rear threaded

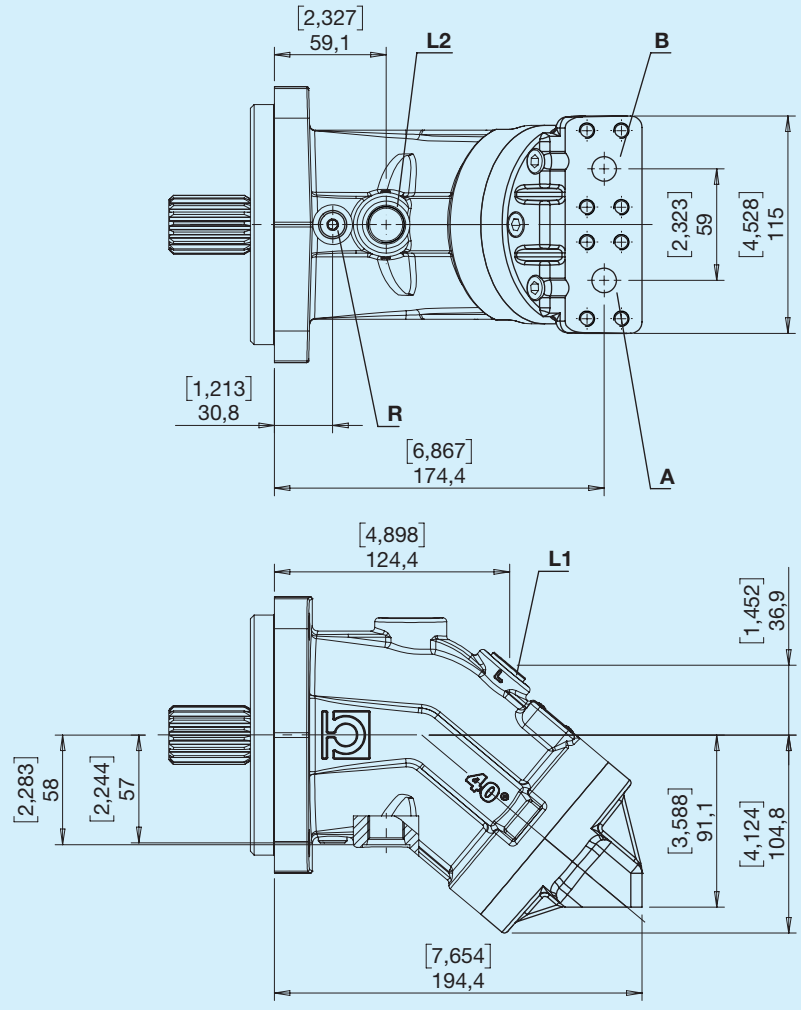


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

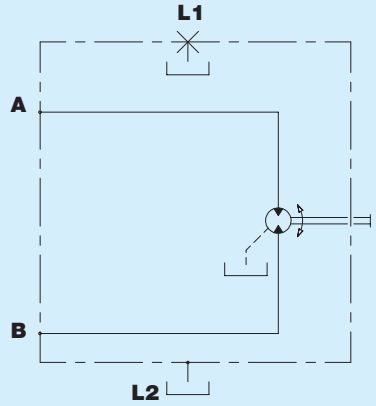


SB Bottom SAE flanges



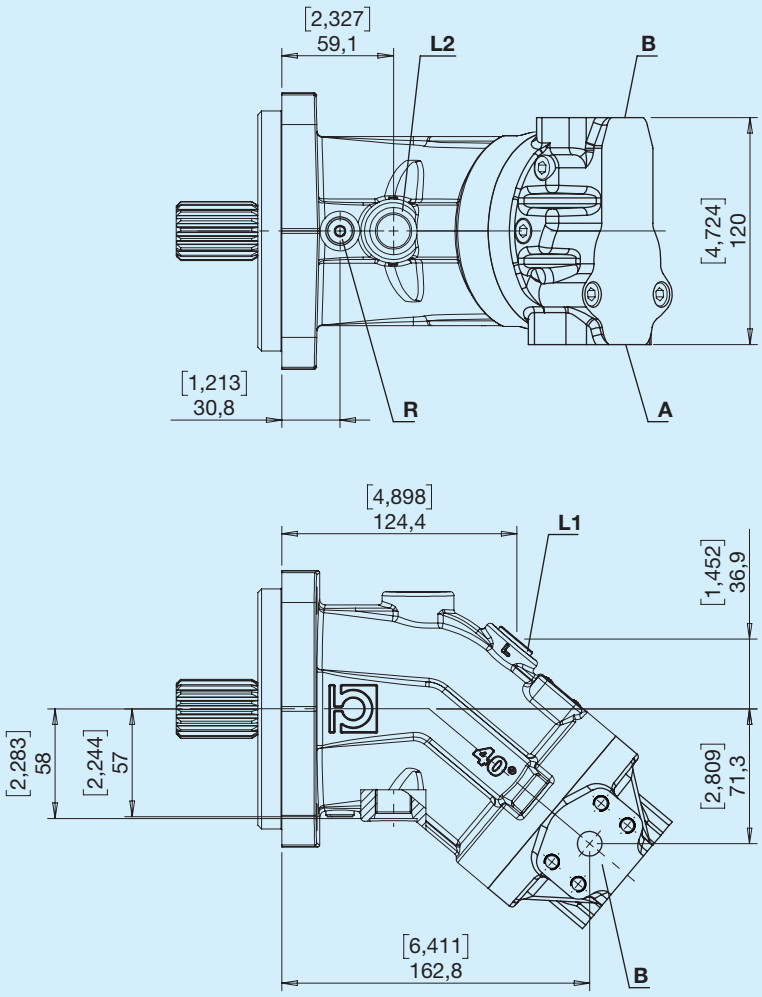
A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram



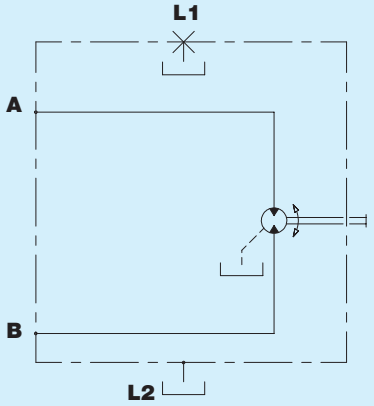
Position of ports: SAE Flanges

SL Lateral SAE flanges

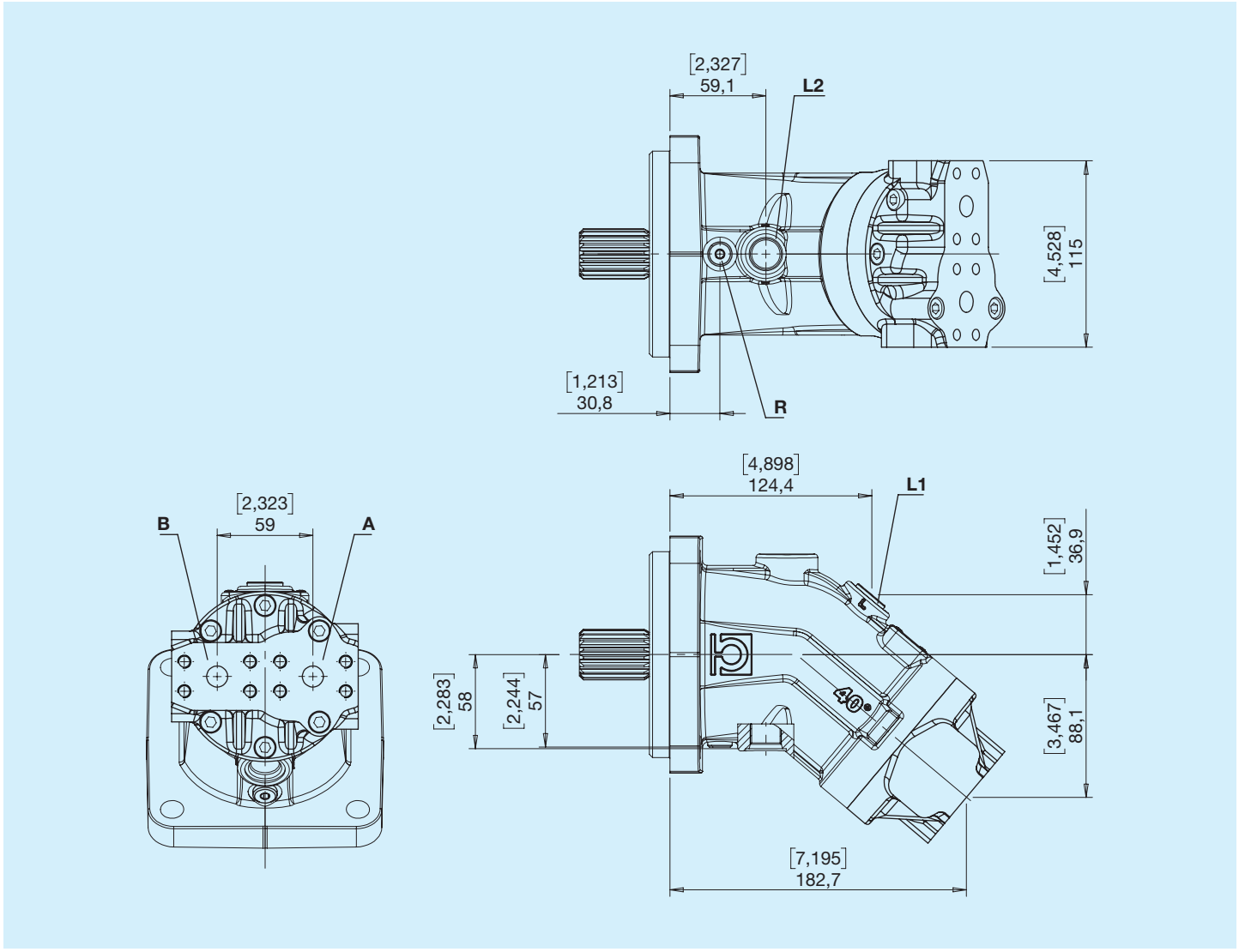


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

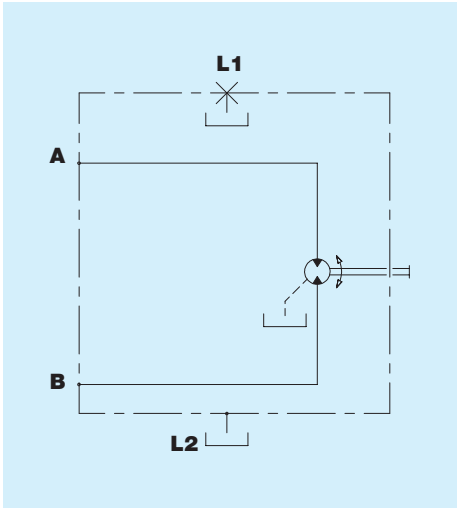


SP Rear SAE flanges

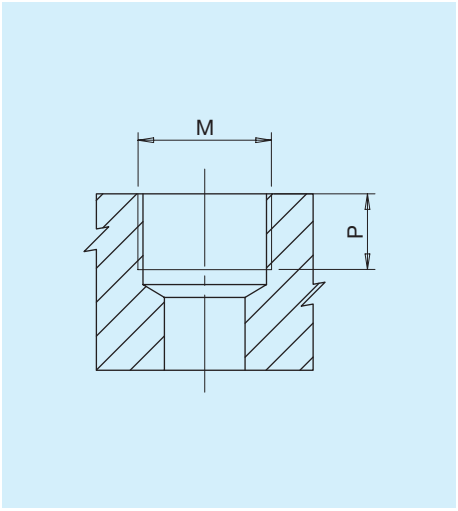


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

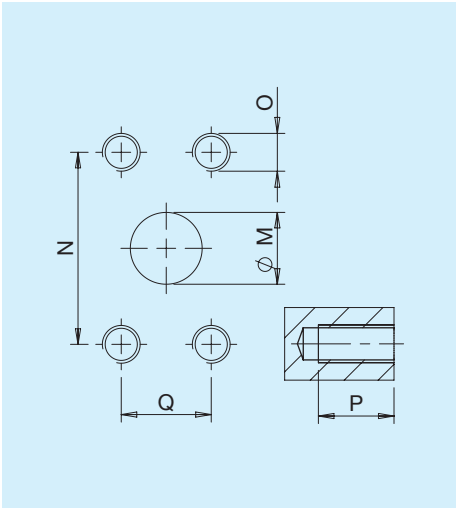


Type G - Gas



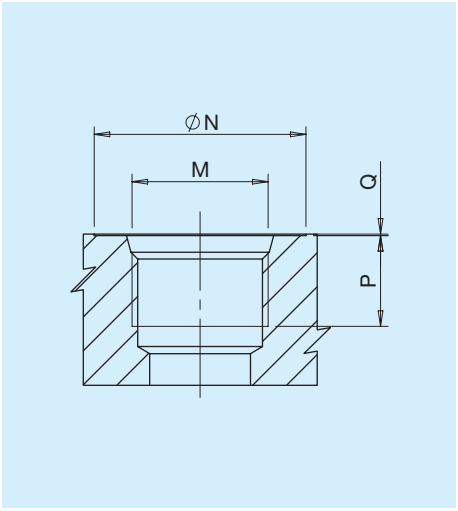
Type	M		P	
		Nm	mm	in
G1	Port ISO 1179-1 - G 1/8	8	8	0.31
G2	Port ISO 1179-1 - G 1/4	17	12	0.47
G3	Port ISO 1179-1 - G 3/8	38	12	0.47
G6	Port ISO 1179-1 - G 3/4	90	20	0.79

Type N - SAE



Type	M		N		Q		P		O	
	mm	in	mm	in	mm	in	mm	in		Nm
N	13	0.51	40.5	1.59	18.2	0.72	15	0.59	M8	17

Type U - Unf



Type	Dim.	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U2	1/4'	21	0.83	13	0.51	1	0.04	Port ISO 11926-1 - 7/16-20	17
U4	1/2'	25	0.98	15	0.59	1	0.04	Port ISO 11926-1 - 3/4-16	47
U6	3/8'	41	1.61	20	0.79	1	0.04	Port ISO 11926-1 - 1 1/16-12	90

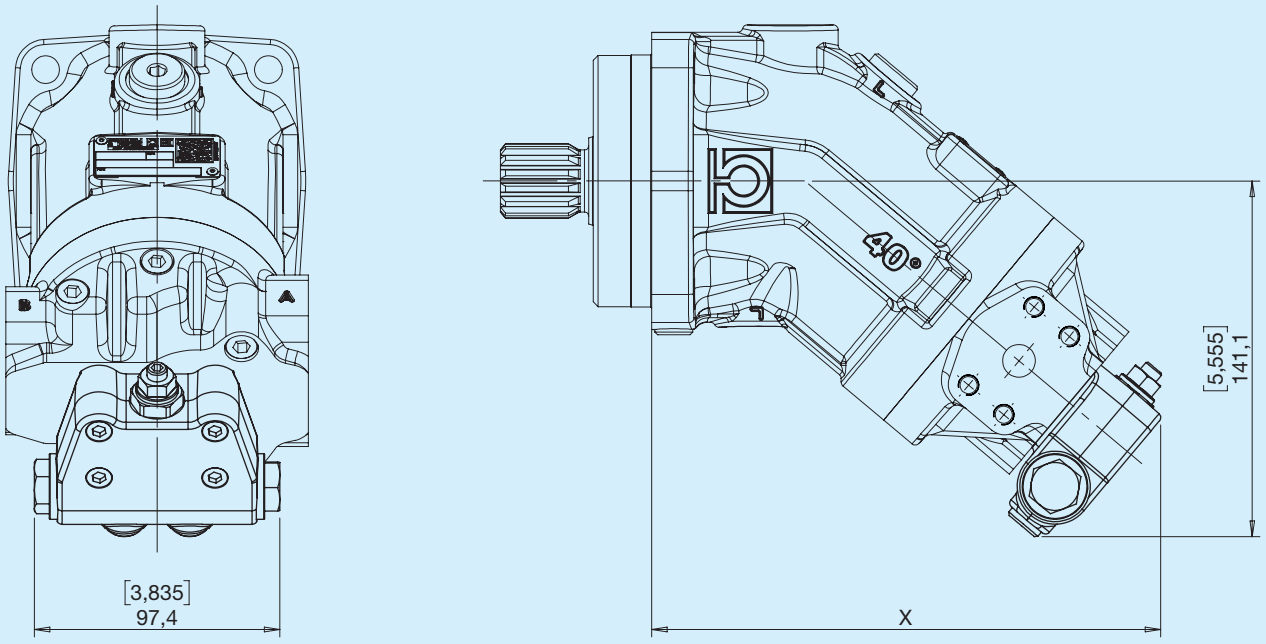
Combinations - ISO flange

Position of ports	Input/Output **A-B**	Drain port **L1-L2**	Gauge ports **MA - MB**	Purge **R**
G	G4	G3	G4	G1
FP	G6	G3	G2	G1
SB	N	G3	G2	G1
SL	N	G3	G2	G1
SP	N	G3	G2	G1

Combinations - SAE flange

Position of ports	Input/Output **A-B**	Drain port **L1-L2**	Gauge ports **MA - MB**	Purge **R**
G	G4	U4	G4	U2
UP	U6	U4	G2	U2
SB	N	U4	G2	U2
SL	N	U4	G2	U2
SP	N	U4	G2	U2

V Adjustable flushing valve

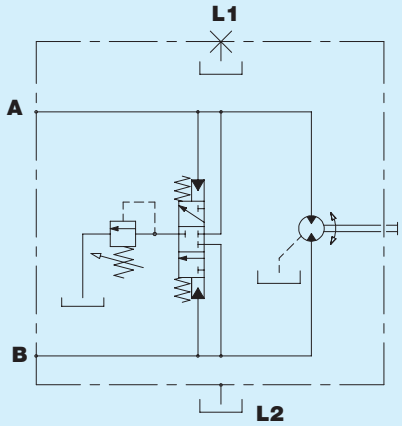


Note: Available only with ports **FL**, **SL** and **UL**

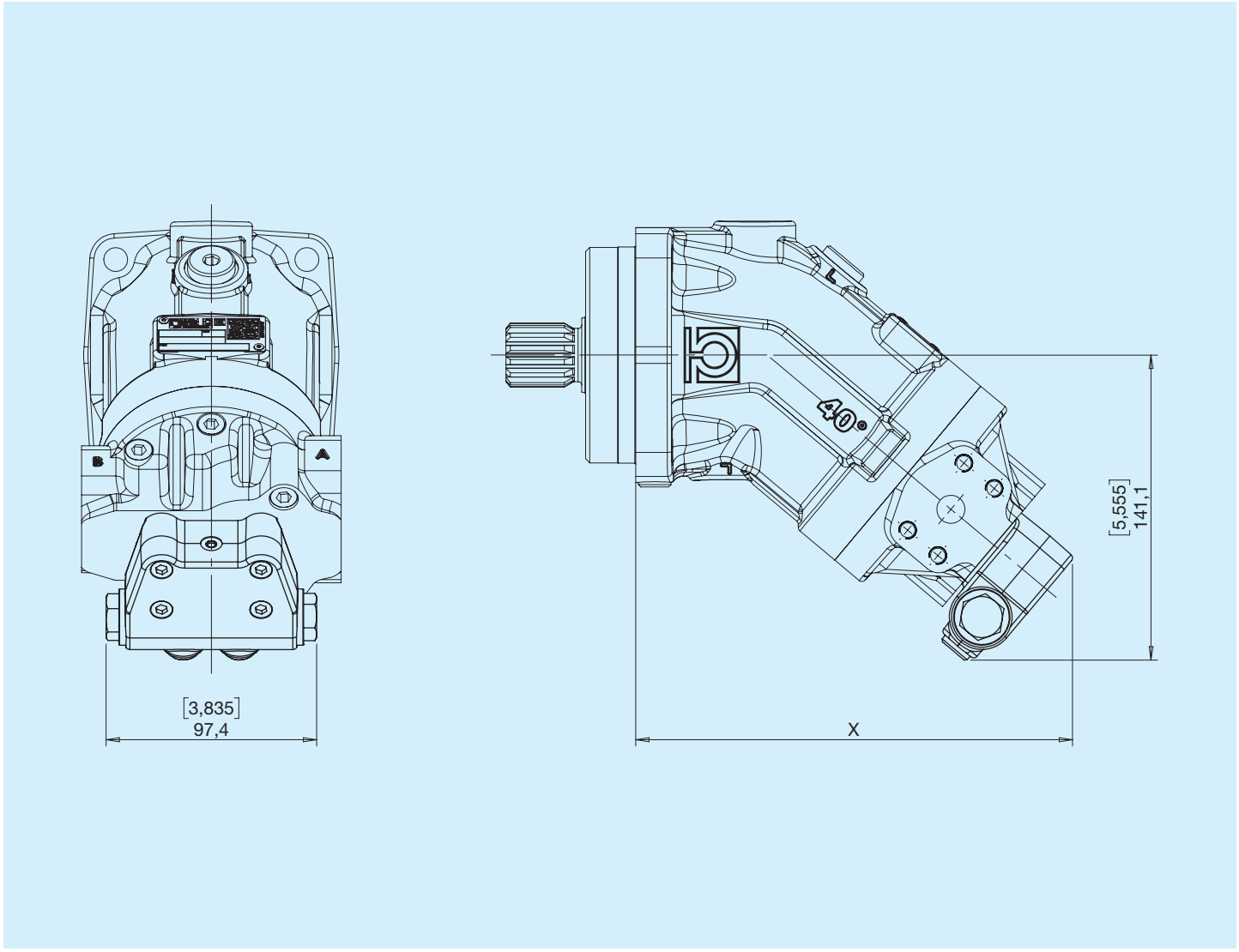
Flushing valve protrusion

	Flanges	
	mm	**S**
N6	19	219.1

Hydraulic diagram



U Fixed flushing valve

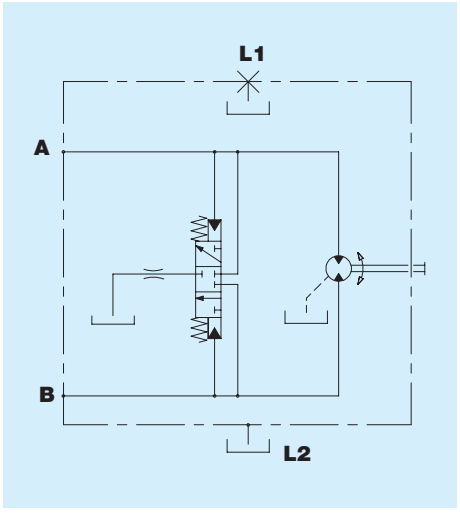


Note: Available only with ports **FL** and **SL**

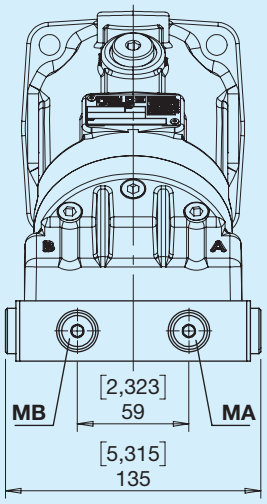
Flushing valve protrusion

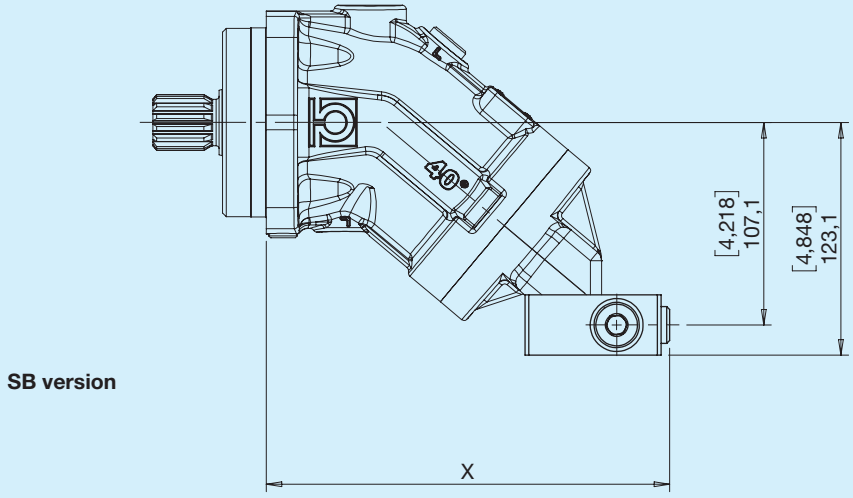
	Flanges	
	mm	**S**
N6	19	219.1

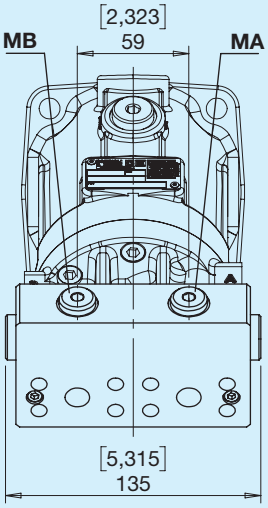
Hydraulic diagram

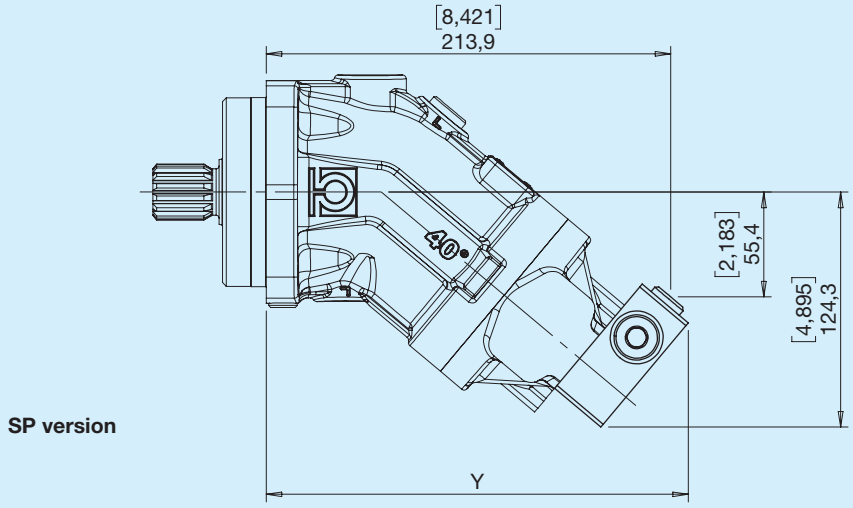


* Pressure limiter and anti-cavitation check valves







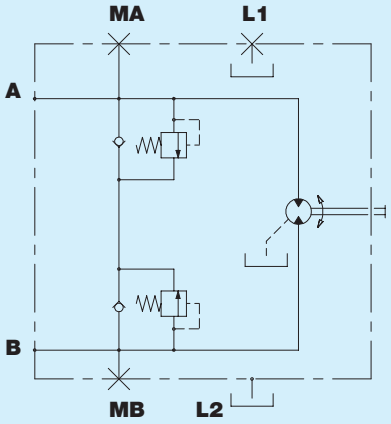


* See Ordering Instructions page

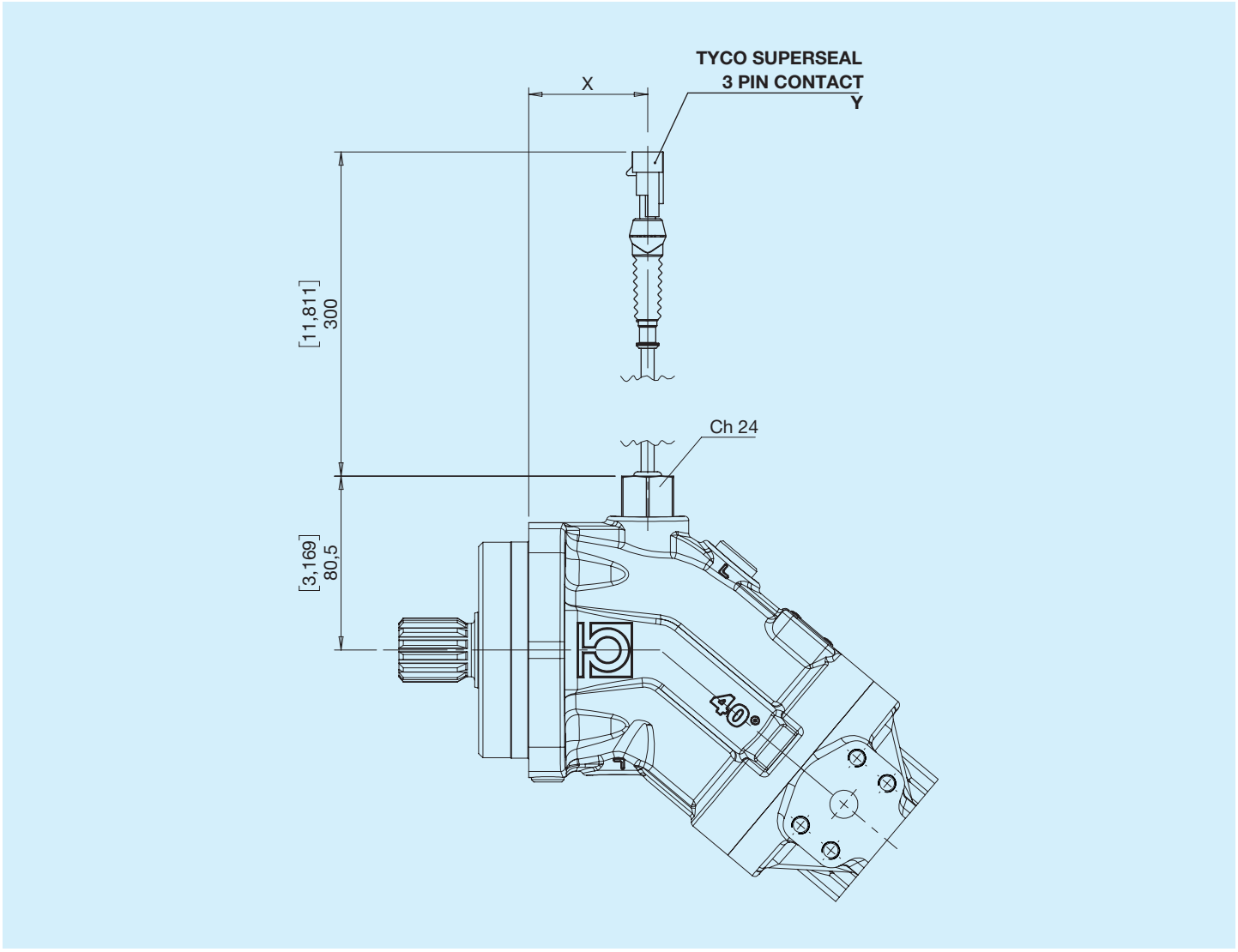
Relief valve block protrusion

	Flanges	
	mm	**S**
N6	19	230.4
Y	223,3	240.4

Hydraulic diagram



S Speed sensor

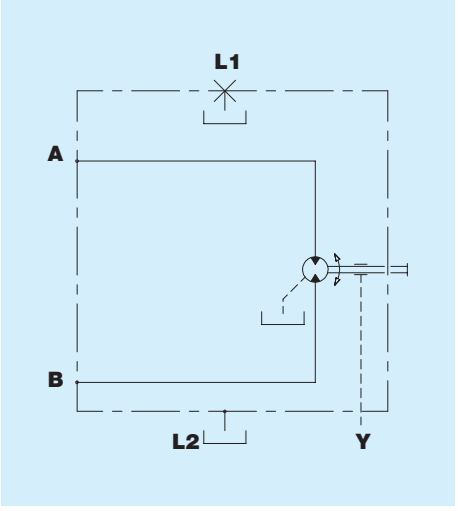


This version is equipped with a toothed shaft that generates a signal, detected by the sensor during rotation.

Speed sensor seat

	Flanges	
	mm	S
N6	19	72.1

Hydraulic diagram



Instructions for ordering

HPBF	1 2 3	4	5	6 7	6 7	8	9	10	11 12

1 2 3 Displacement

023	**028**	**032**

4 Flanges

I	ISO 4 holes	**S**	SAE C

5 Shaft profile

Z	DIN 5480 W30x2x30x14	**C**	Cylindrical Ø30	**S**	SAE 14T 12/24 DP
X	DIN 5480 W25x1.25x30x18	**Y**	Cylindrical Ø25	**9**	SAE 13T 16/32 DP

6 7 Position of ports: ISO Flanges

FL	Lateral threaded	**SB**	Bottom SAE flanges	**SP**	Rear SAE flanges
FP	Rear threaded	**SL**	Lateral SAE flanges		

6 7 Position of ports: SAE Flanges

UL	Lateral threaded	**SB**	Bottom SAE flanges	**SP**	Rear SAE flanges
UP	Rear threaded	**SL**	Lateral SAE flanges		

8 Gasket

0	NBR application range -30 °C to +100 °C	**F**	FKM (VITON) application range -20 °C to +200 °C

9 Valves

0	No valve	**D**	180 bar relief valves	**I**	280 bar relief valves	**P**	400 bar relief valves
V	Adjustable flushing valve	**E**	210 bar relief valves	**L**	300 bar relief valves		
U	Fixed flushing valve	**H**	230 bar relief valves	**M**	320 bar relief valves		
B	150 bar relief valves	**G**	250 bar relief valves	**O**	350 bar relief valves		

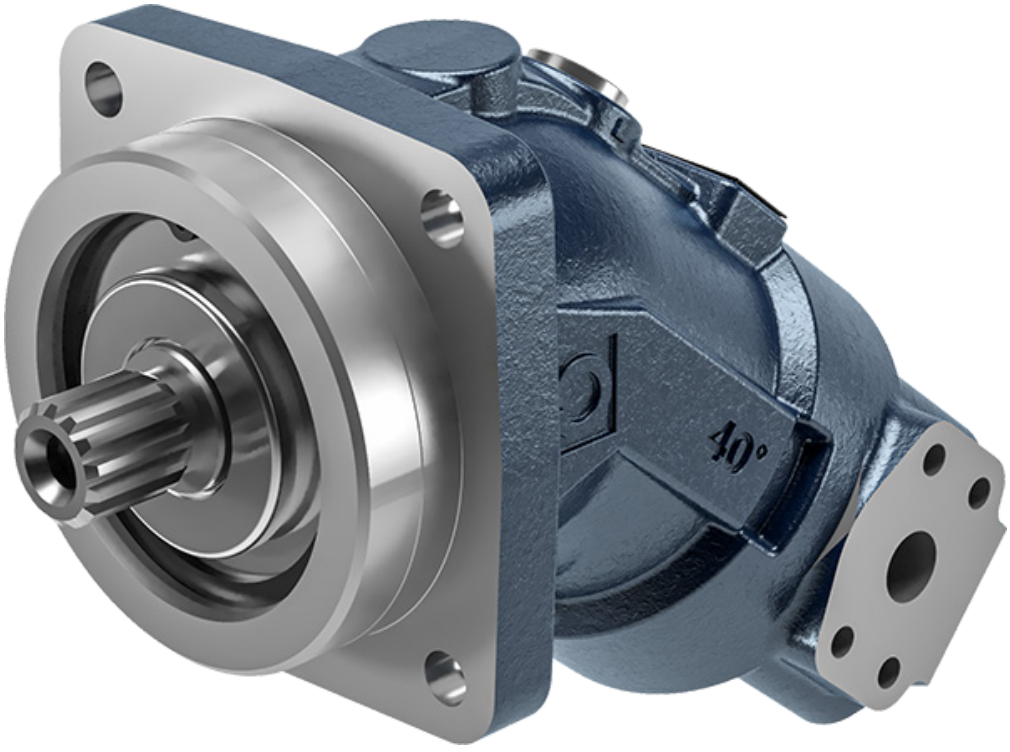
10 Accessories

0	No option	**C**	Painting	**S**	Speed sensor

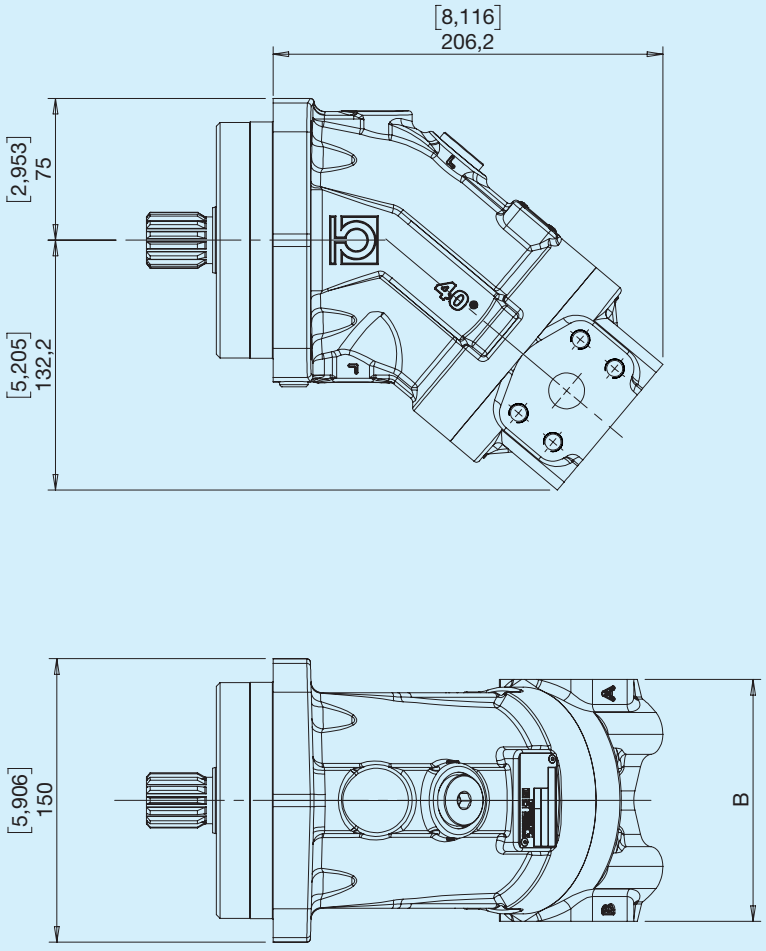
11 12 Special versions

...

Fixed-displacement motors HPBF 45



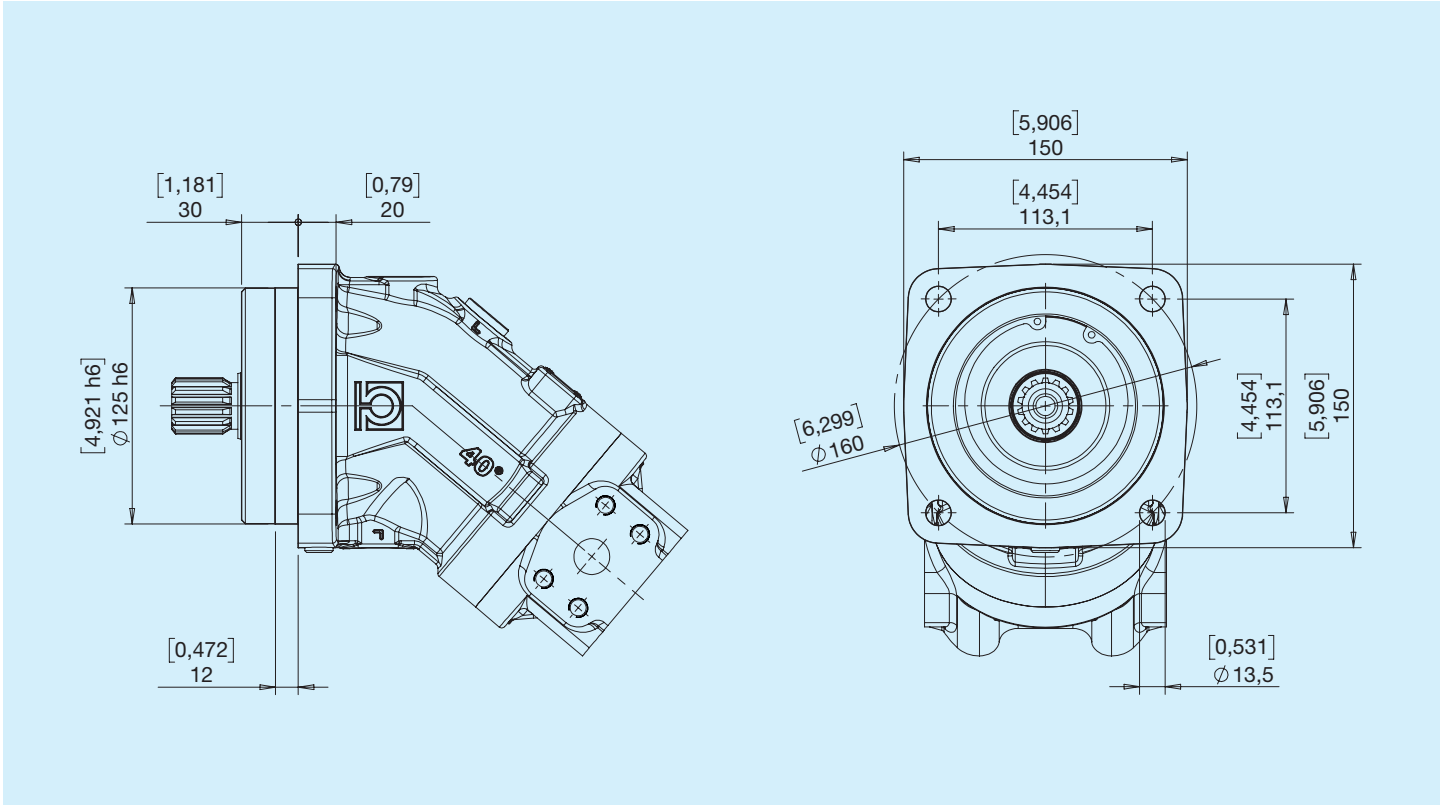
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF CLOSED CIRCUIT AXIAL PISTON PUMPS AND MOTORS.



B - See port position section

HPBF	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed			Weight		Polar moment of inertia
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**MAX CONTIN. min⁻¹**	**MAX INTERMITT. min⁻¹**	**MINIMUM min⁻¹**	**kg**	**lbs**	**kg • m²**
045	45	2.75	350	5076	400	5801	450	6527	5600	**6200**	50	17.2	37.9	0,0024

I ISO 4 holes


[1,181]
30
[0,79]
20
[4,921 h6]
Ø125 h6
40°
[0,472]
12
[5,906]
150
[4,454]
113,1
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Ø160
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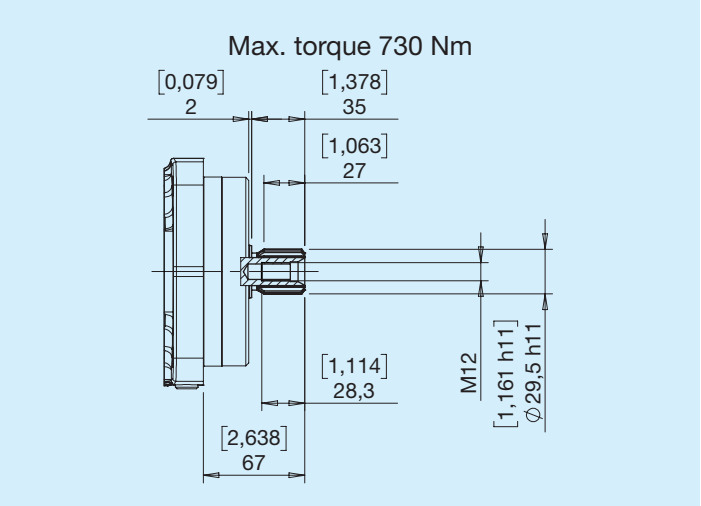
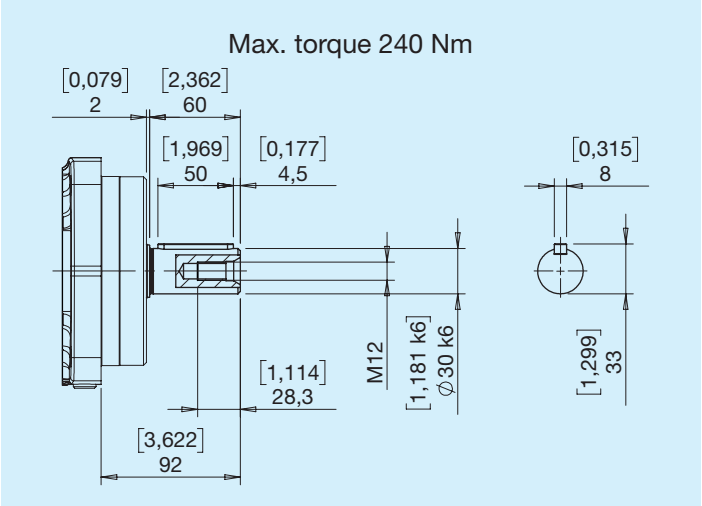
113,1
[5,906]
150
[0,531]
Ø13,5

Z DIN 5480 W30x2x30x14



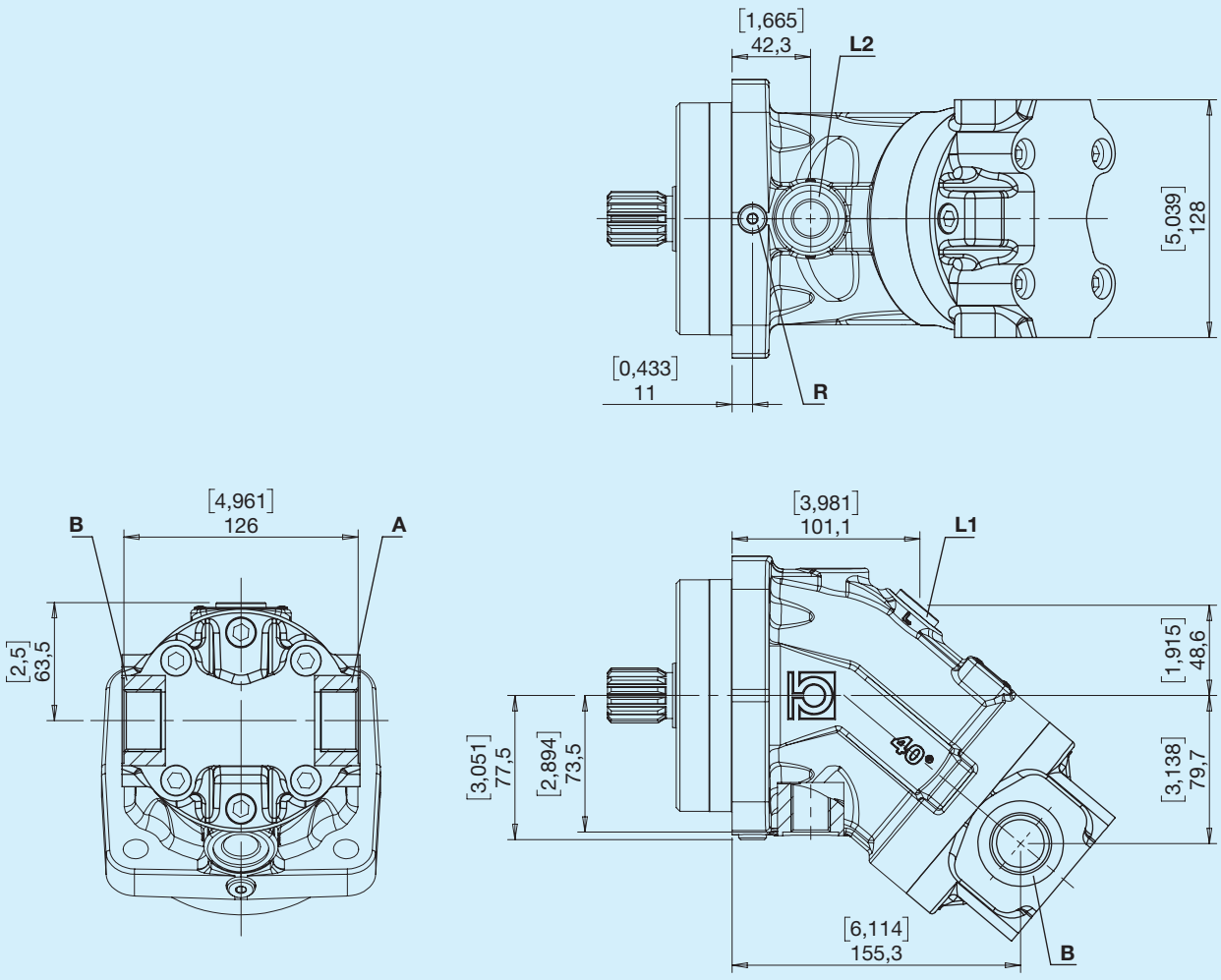
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

C Cylindrical Ø30



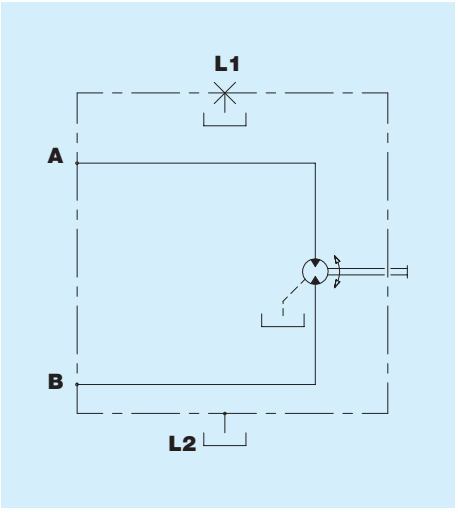
Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

FL Lateral threaded

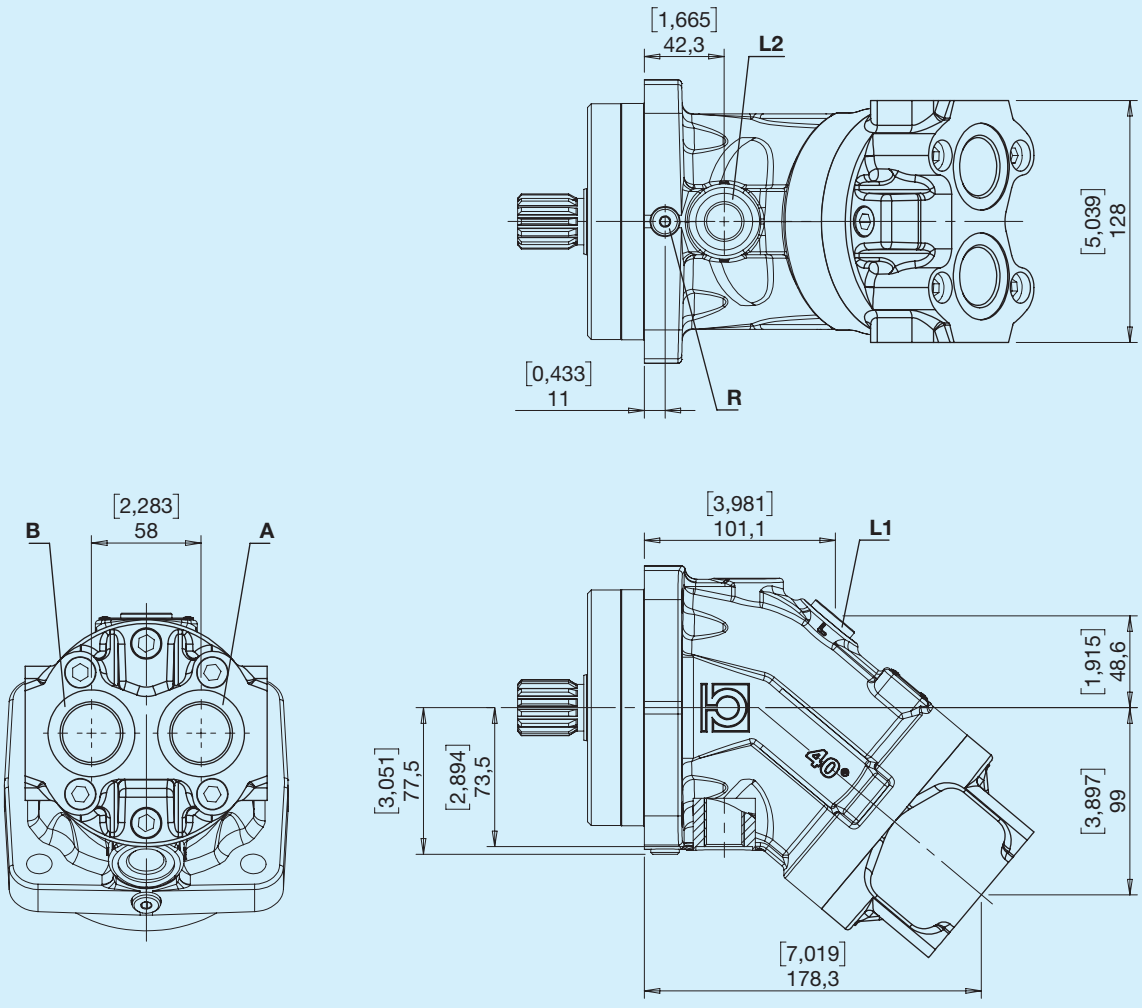


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

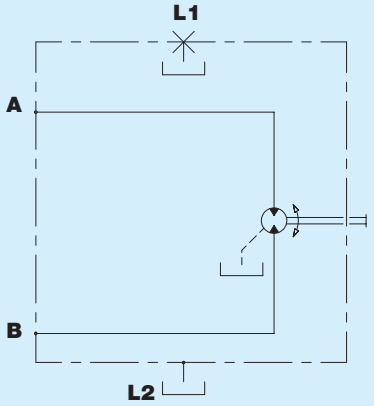


FP Rear threaded

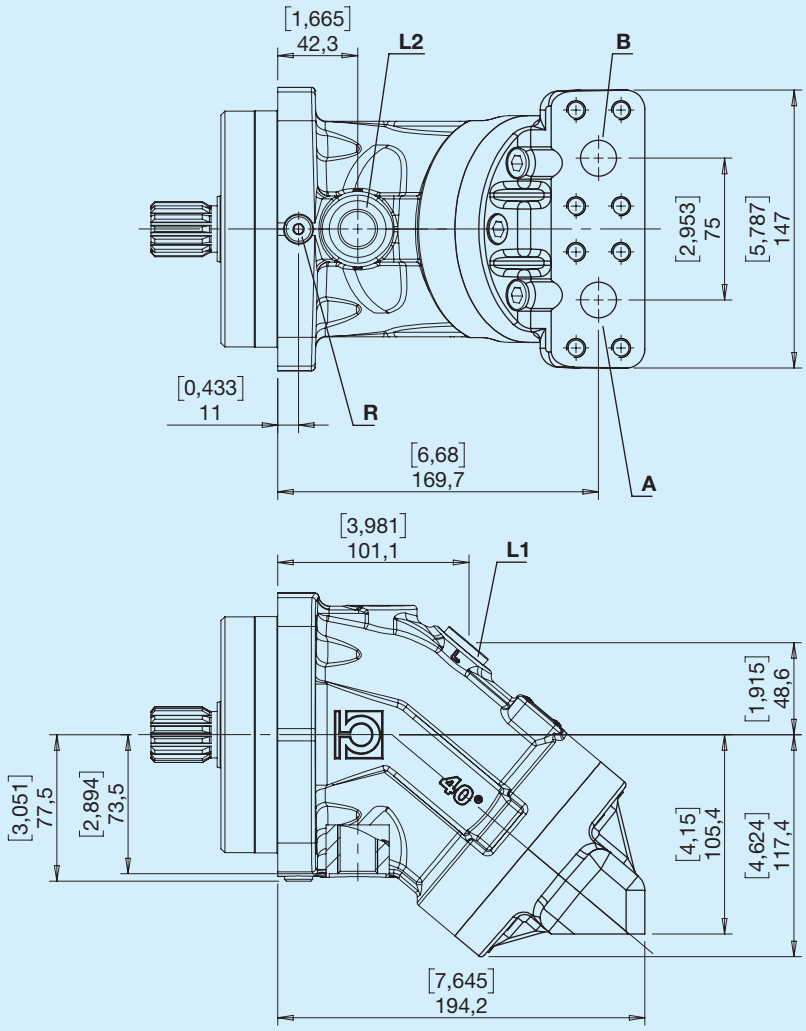


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

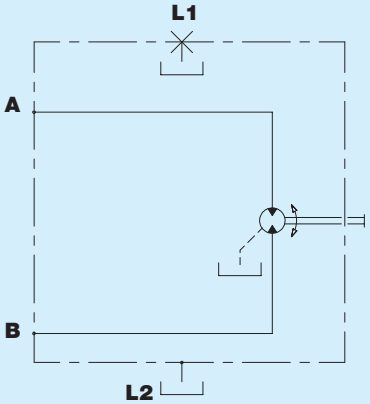


SB Bottom SAE flanges

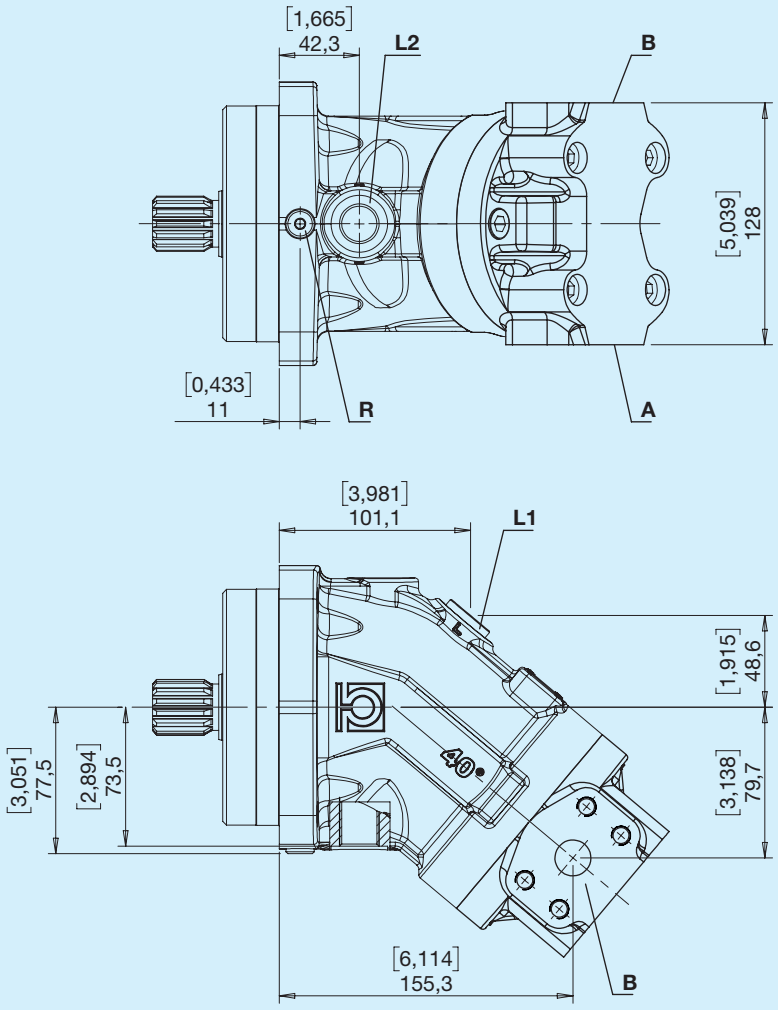


A,B - Use
L1, L2 - Drain port
S - Inlet

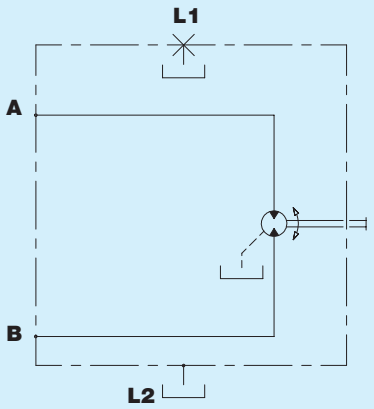
Hydraulic diagram



SL Lateral SAE flanges

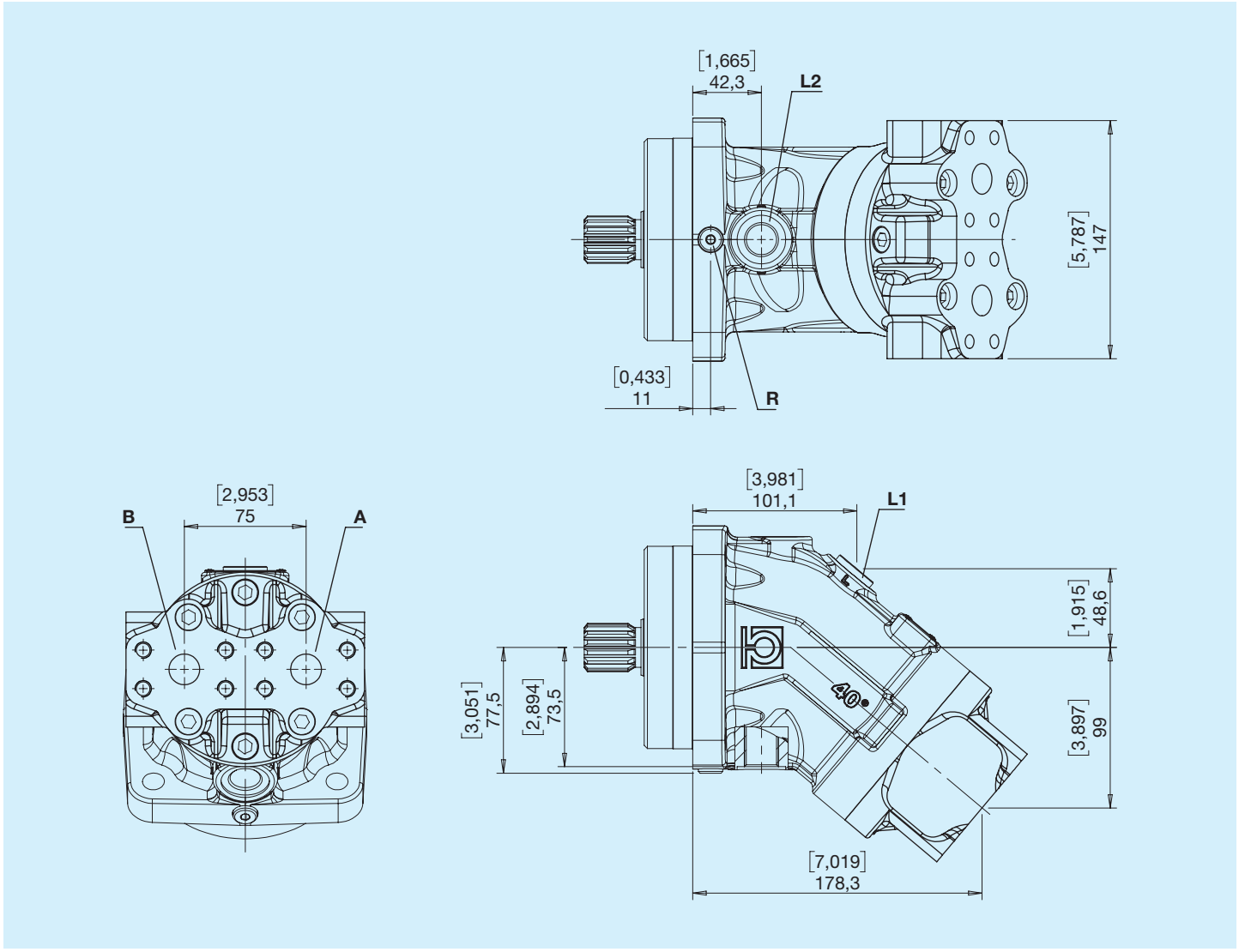


Hydraulic diagram



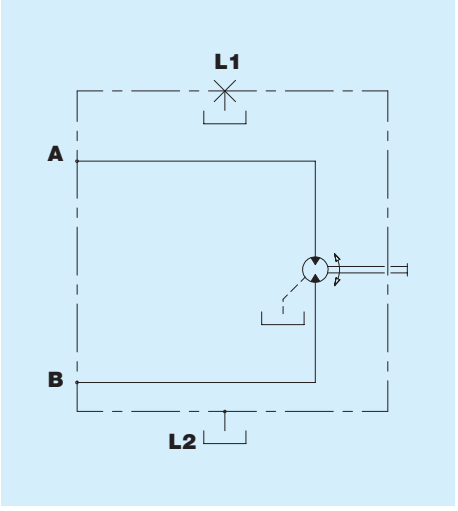
A,B - Use
L1, L2 - Drain port
S - Inlet

SP Rear SAE flanges

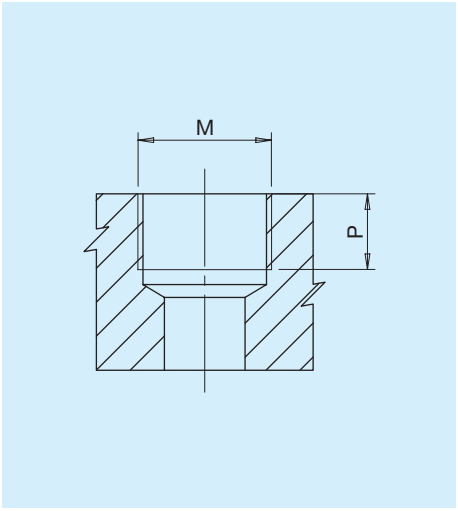


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

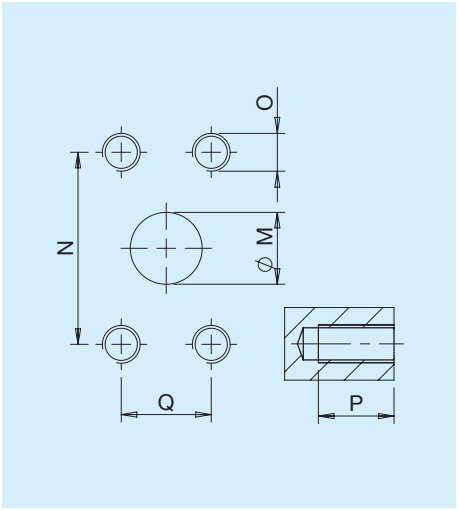


Type G - Gas



Type	M		P	
		Nm	**mm**	**in**
G1	Port ISO 1179-1 - G 1/8	8	15	0.59
G2	Port ISO 1179-1 - G 1/4	17	13	0.51
G4	Port ISO 1179-1 - G 1/2	70	16	0.63
G7	Port ISO 1179-1 - G 1	160	20	0.79

Type N - SAE

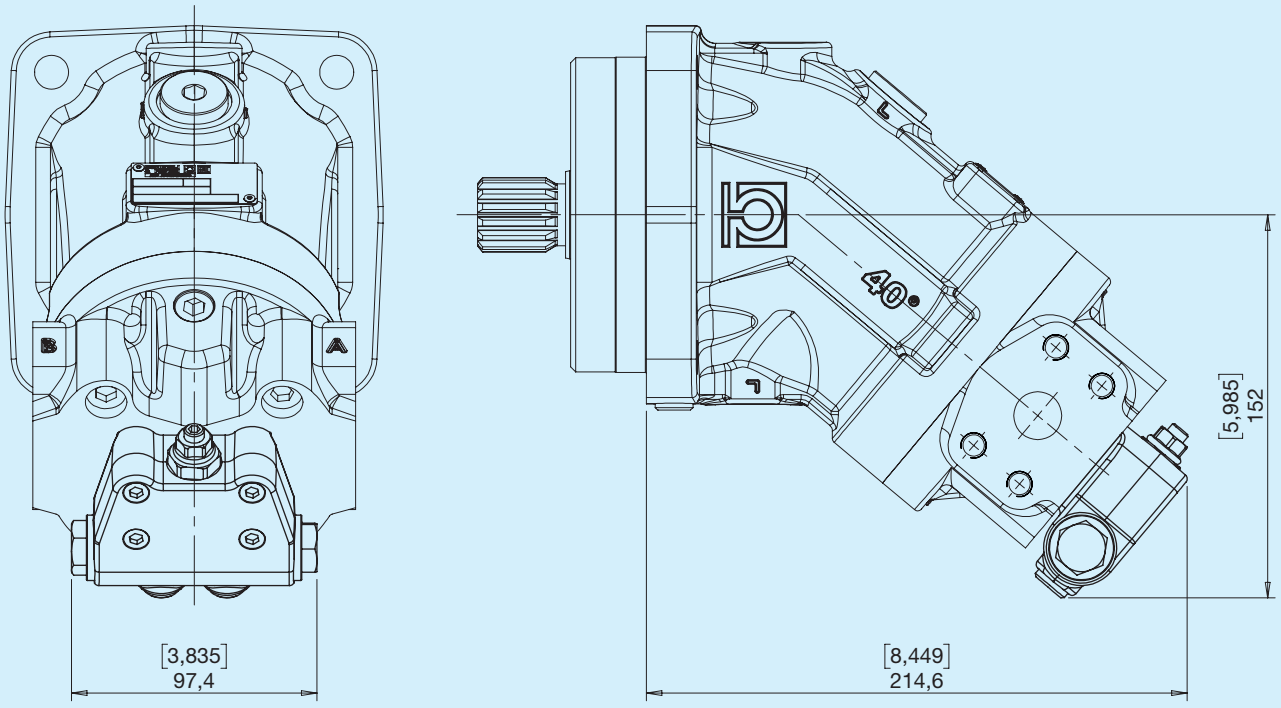


Type	M		N		Q		P		O	
	mm	**in**	**mm**	**in**	**mm**	**in**	**mm**	**in**		**Nm**
N	19	0.75	50.8	2	23.8	0.94	17	0.67	M10	38

Combinations

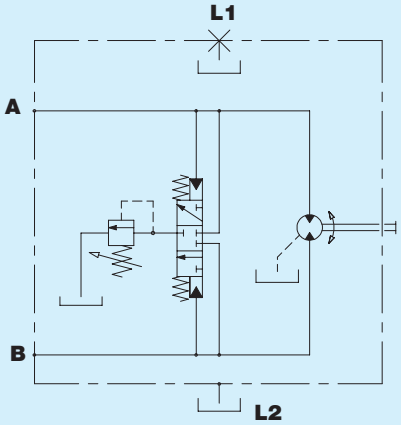
Position of ports	Einlass/Auslass **A-B**	Drain port **L1-L2**	Gauge ports **MA - MB**	Purge **R**
G	G4	G4	G4	G1
FP	G7	G4	G2	G1
SB	N	G4	G2	G1
SL	N	G4	G2	G1
SP	N	G4	G2	G1

V Adjustable flushing valve

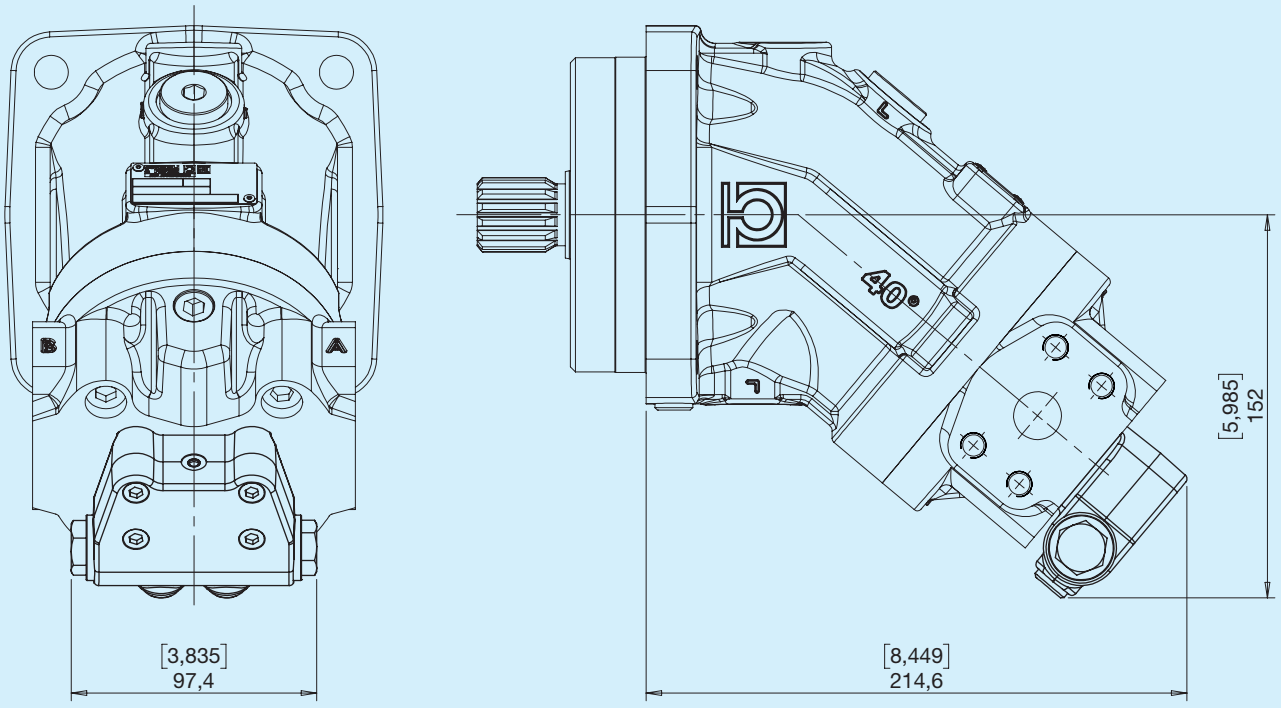


Note: Available only with ports
FL and **SL**

Hydraulic diagram

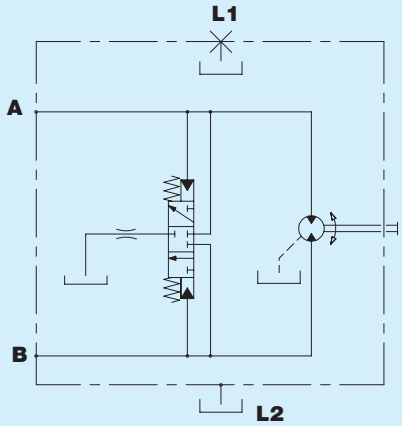


U Fixed flushing valve

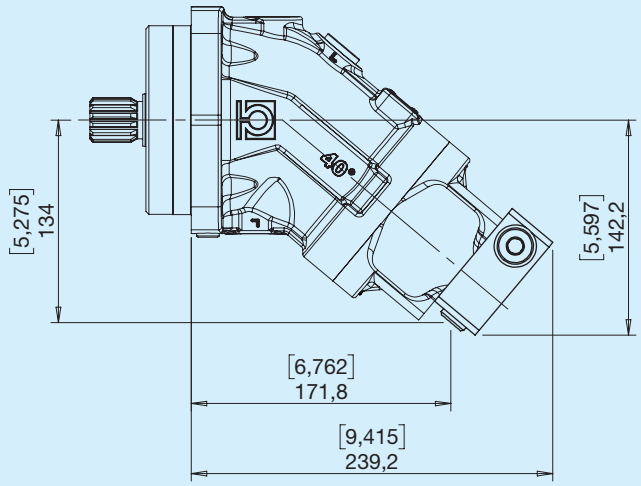


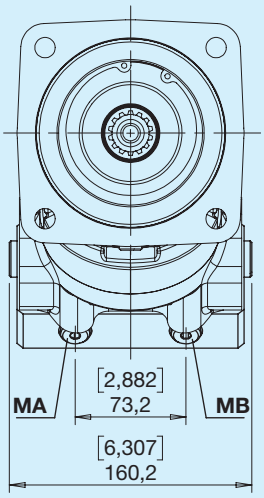
Note: Available only with ports
FL and **SL**

Hydraulic diagram

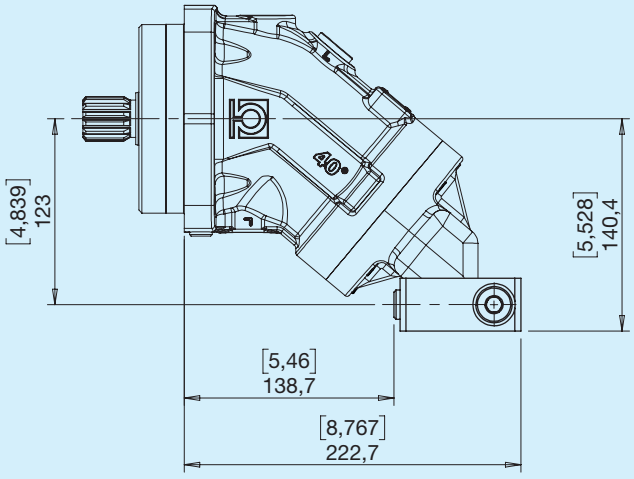


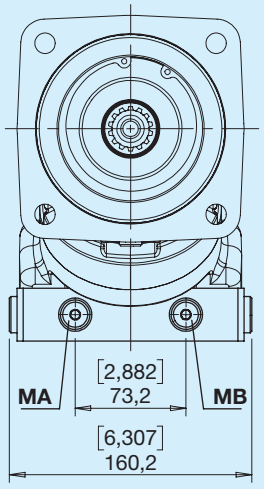
* Pressure limiter and anti-cavitation check valves





SP version

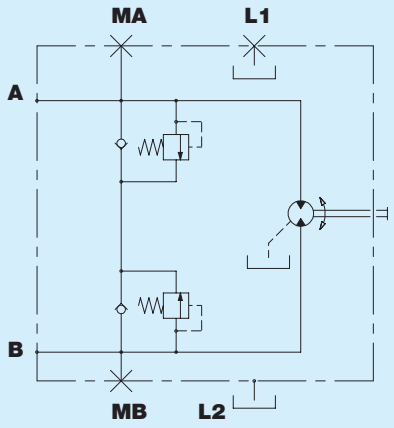




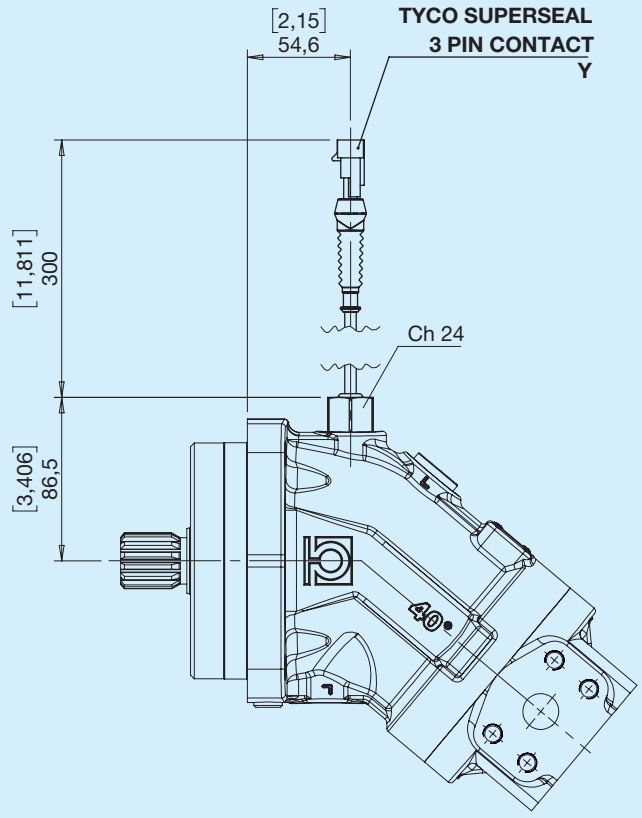
SB version

* See Ordering Instructions page

Hydraulic diagram

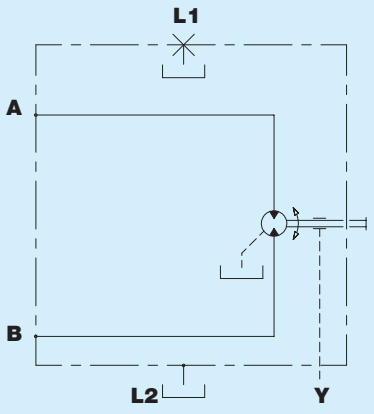


S Speed sensor



This version is equipped with a toothed shaft that generates a signal, detected by the sensor during rotation.

Hydraulic diagram



Instructions for ordering

	1	2	3	4	5	6	7	8	9	10	11	12
HPBF												

1 2 3

Displacement

045

4

Flanges

I	ISO 4 holes

5

Shaft profile

Z	DIN 5480 W30x2x30x14	**C**	Cylindrical Ø35

6 7

Position of ports

FL	Lateral threaded	**SB**	Bottom SAE flanges	**SP**	Rear SAE flanges
FP	Rear threaded	**SL**	Lateral SAE flanges		

8

Gasket

0	NBR application range -30 °C to +100 °C	**F**	FKM (VITON) application range -20 °C to +200 °C

9

Valves

0	No valve	**D**	180 bar relief valves	**I**	280 bar relief valves	**P**	400 bar relief valves
V	Adjustable flushing valve	**E**	210 bar relief valves	**L**	300 bar relief valves		
U	Fixed flushing valve	**H**	230 bar relief valves	**M**	320 bar relief valves		
B	150 bar relief valves	**G**	250 bar relief valves	**O**	350 bar relief valves		

10

Accessories

0	No option	**C**	Painting	**S**	Speed sensor

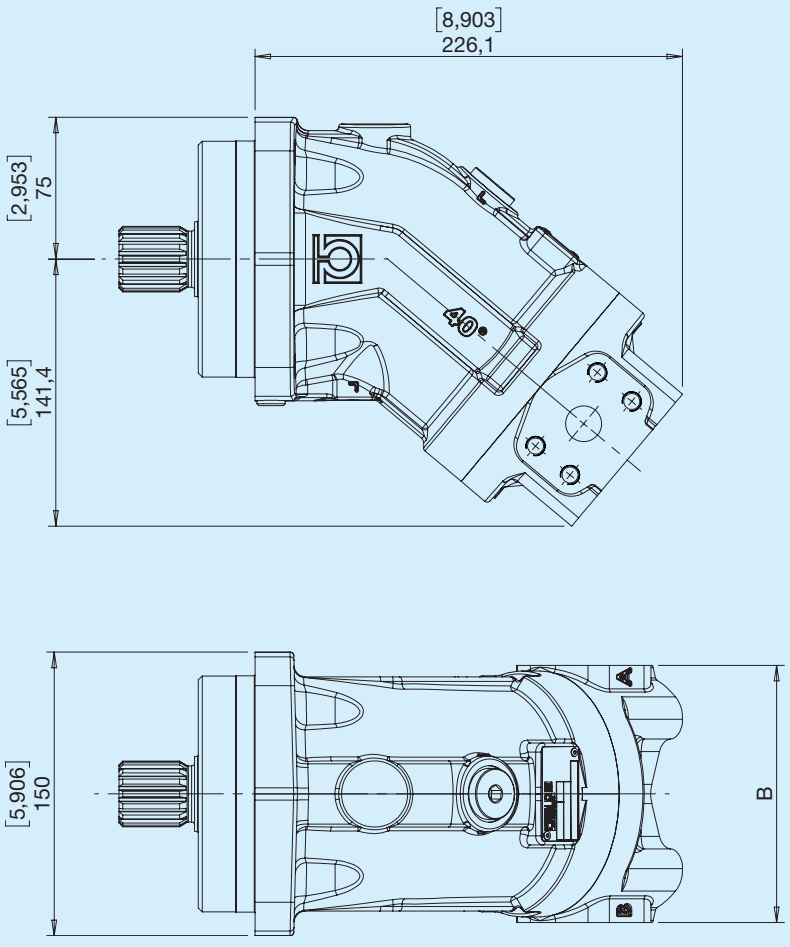
11 12

Special versions

...

Fixed-displacement motors HPBF 56-63

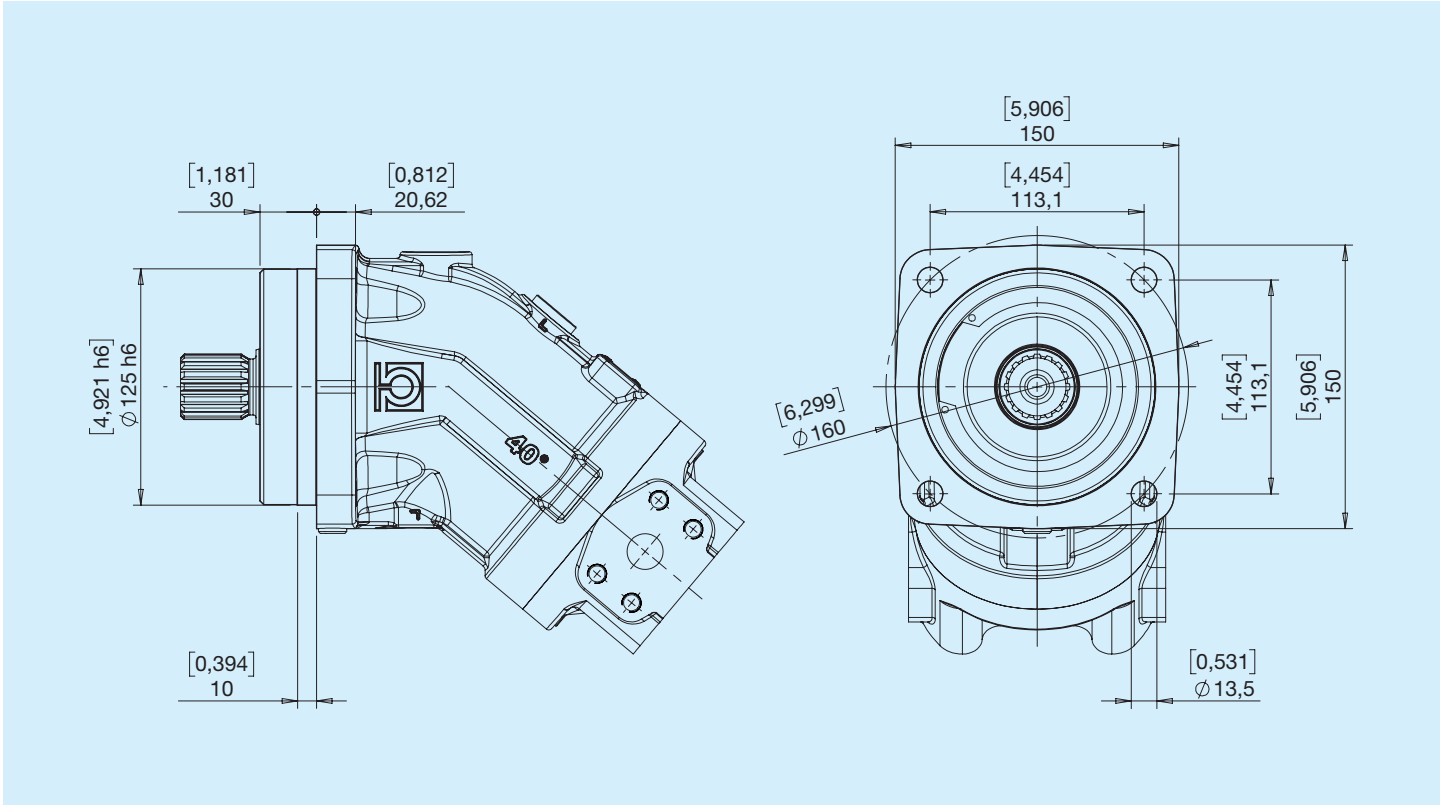
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF CLOSED CIRCUIT AXIAL PISTON PUMPS AND MOTORS.



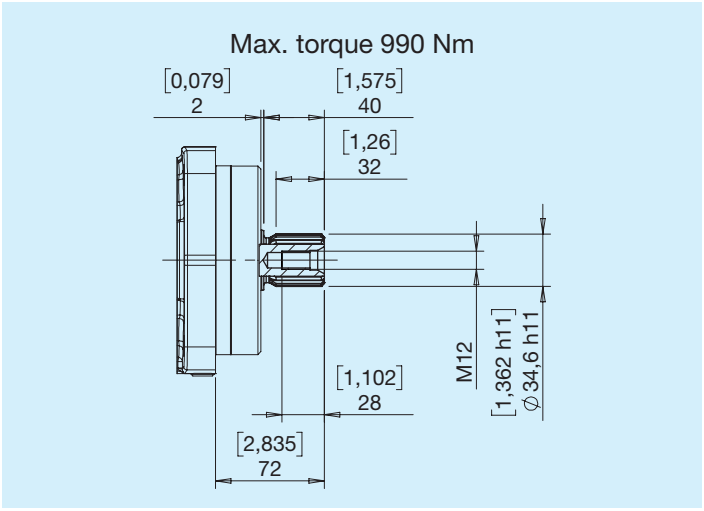
B - See port position section

HPBF	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed			Weight		Polar moment of inertia
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**MAX CONTIN. min⁻¹**	**MAX INTERMITT min⁻¹**	**MIN min⁻¹**	**kg**	**lbs**	**kg • m²**
56	56	3.42	350	5076	400	5801	450	6527	5000	**5500**	50	19.9	43.9	0,0042
63	63	3.84	350	5076	400	5801	450	6527	5000	**5500**	50	19.9	43.9	0,0042

I ISO 4 holes

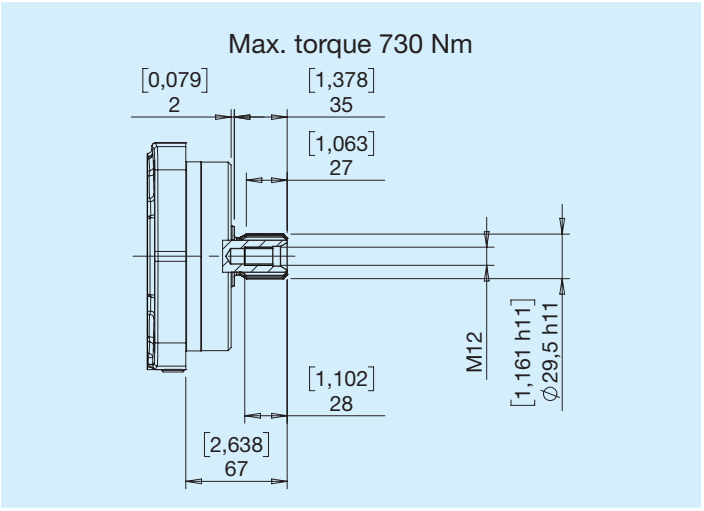

[1,181]
30
[0,812]
20,62
[4,921 h6]
∅125 h6
40°
[0,394]
10
[5,906]
150
[4,454]
113,1
[6,299]
∅160
[4,454]
113,1
[5,906]
150
[0,531]
∅13,5

Z DIN 5480 W35x2x30x16



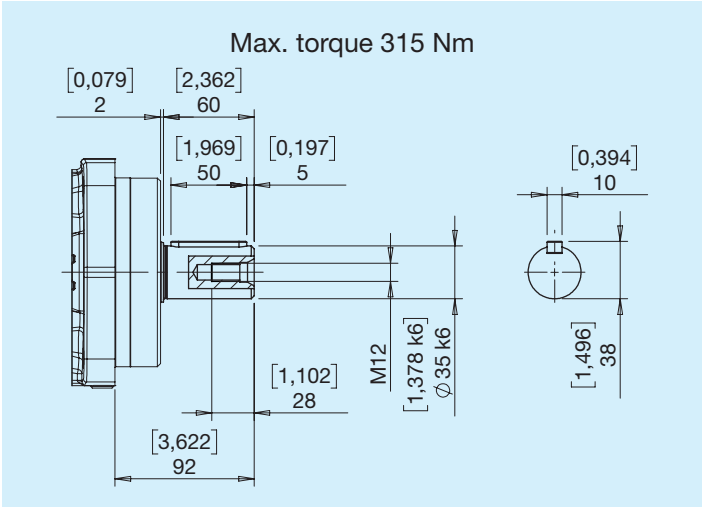
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

X DIN 5480 W30x2x30x14



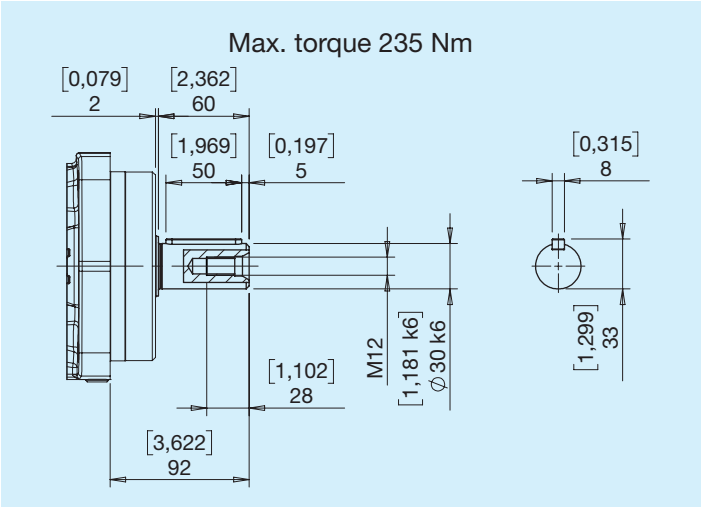
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

C Cylindrical Ø35



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

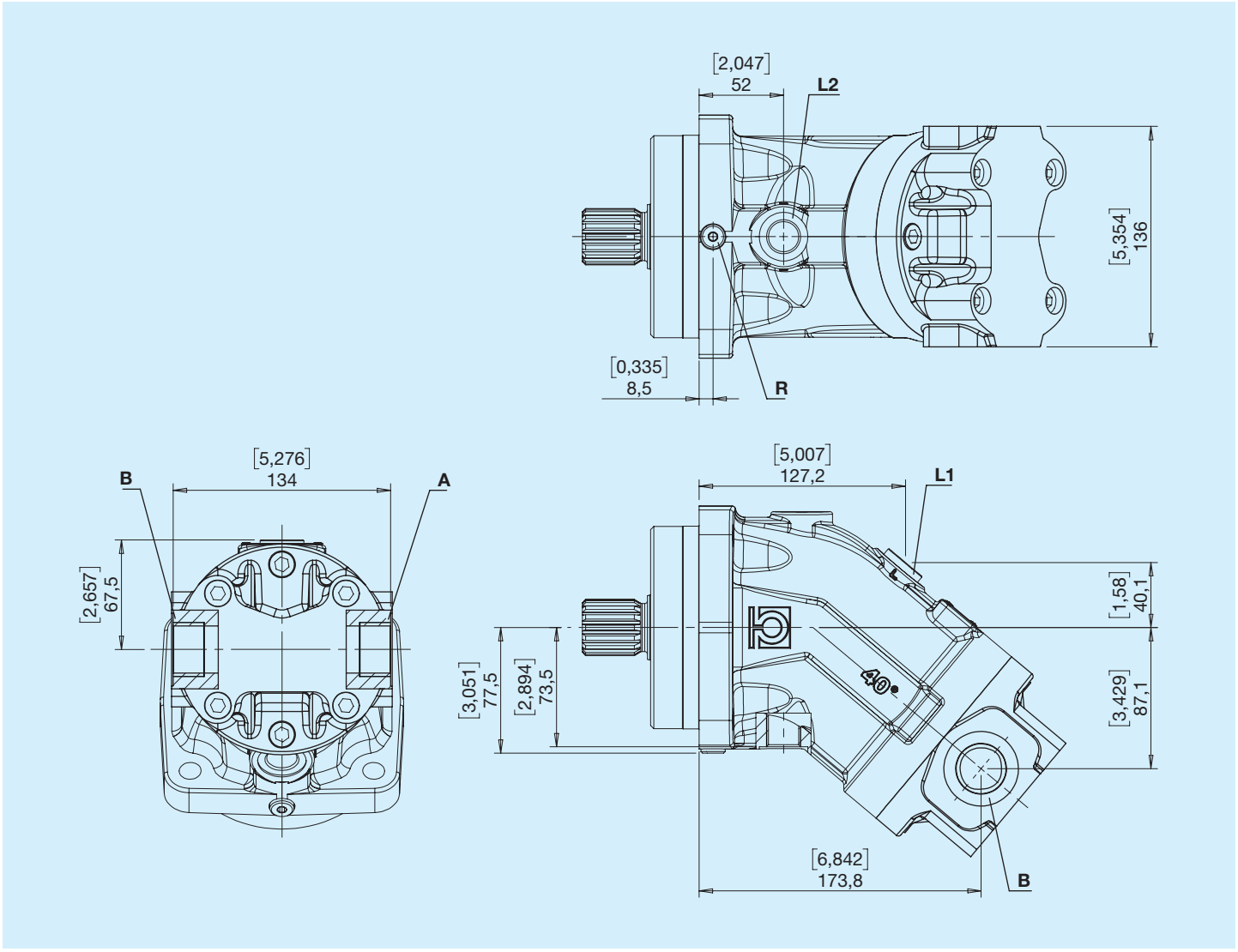
Y Cylindrical Ø30



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

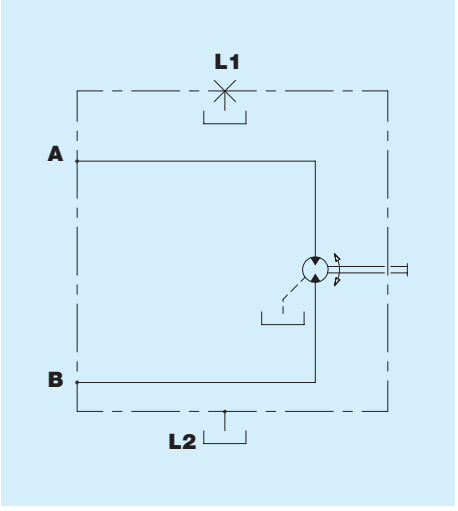
For applications with radial load on the drive shaft (pinions, V-belts), with X and Y type shaft, the allowed pressure is 315 bar / 4569 psi (Pmax = 350 bar / 5076 psi).
For pulsating load greater than 315 bar / 4569 psi, use the version with male splined shaft Z.

FL Lateral threaded

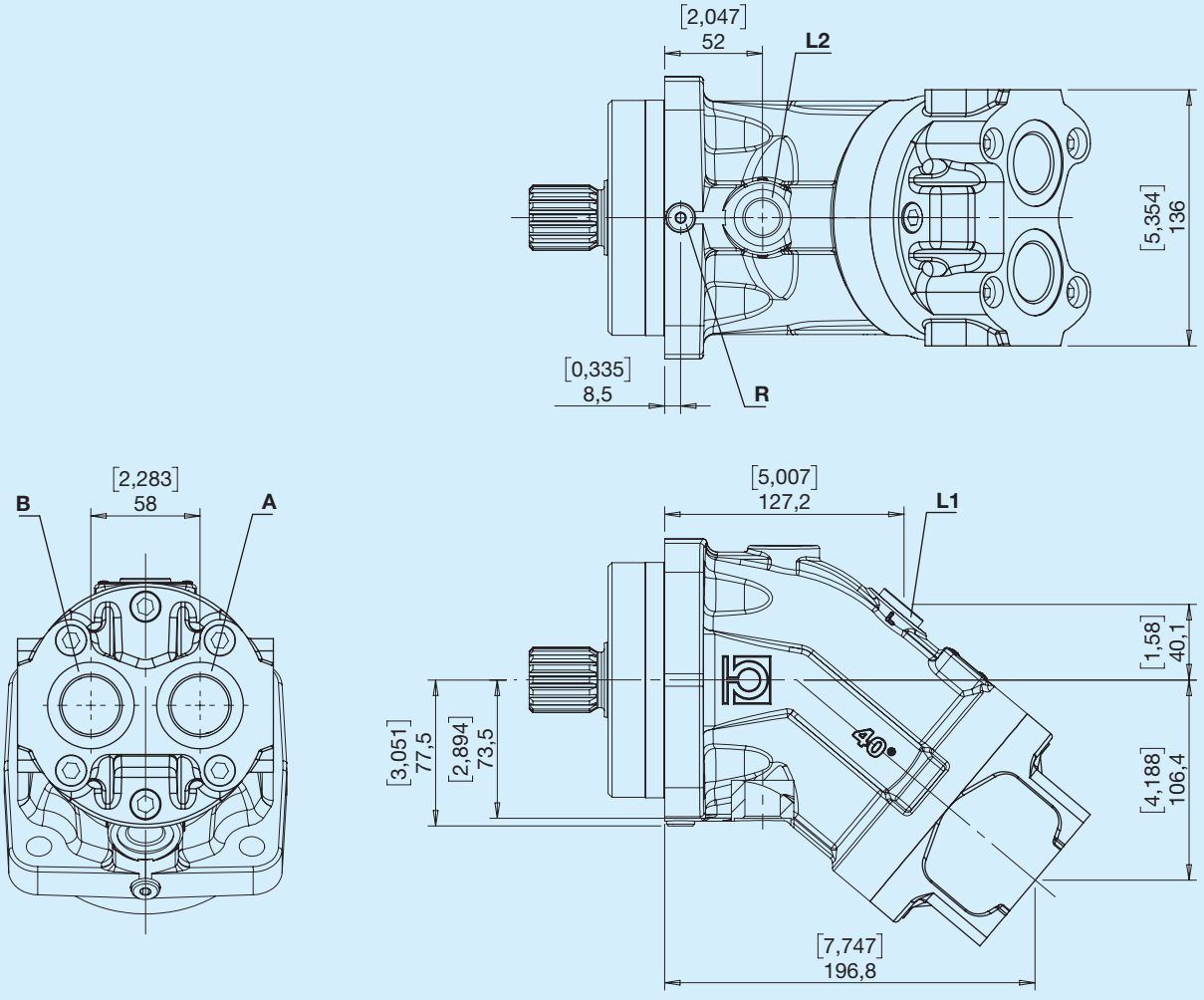


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

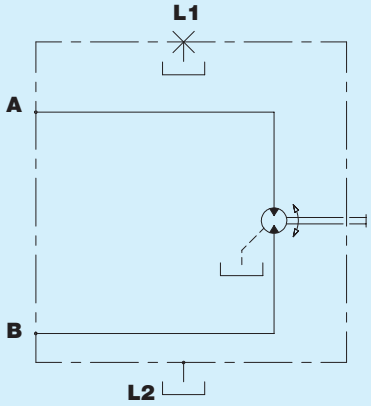


FP Rear threaded

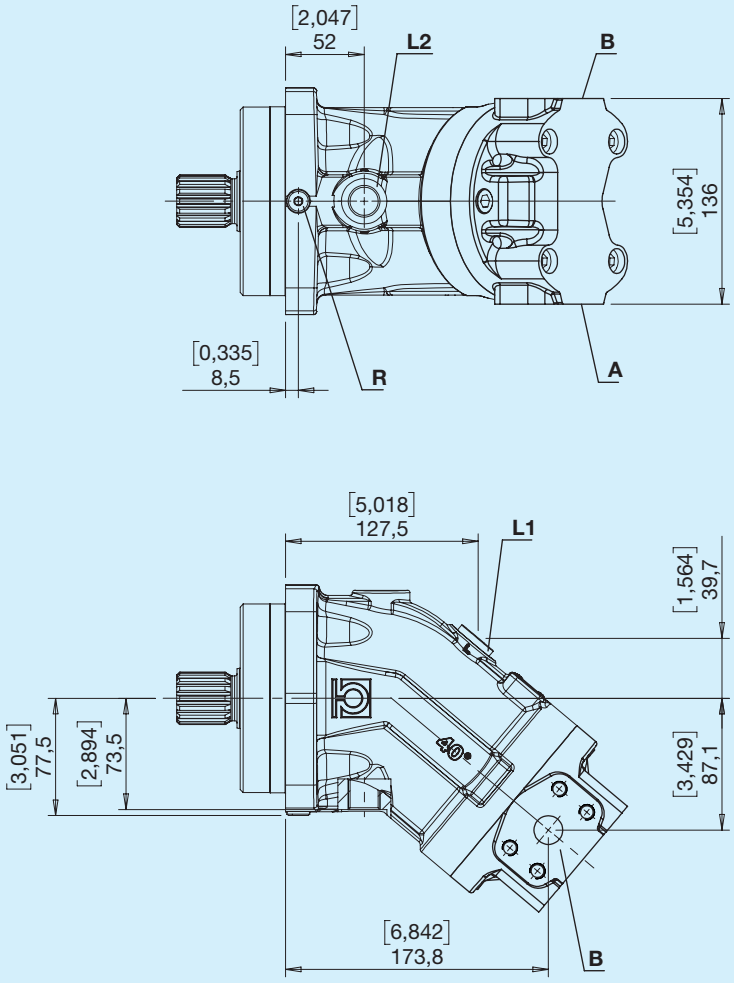


A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

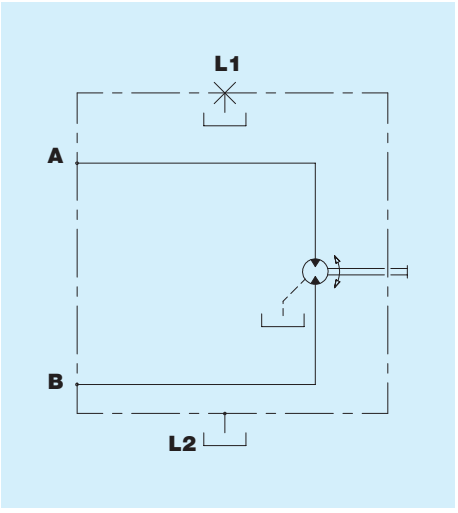


SL Lateral SAE flanges

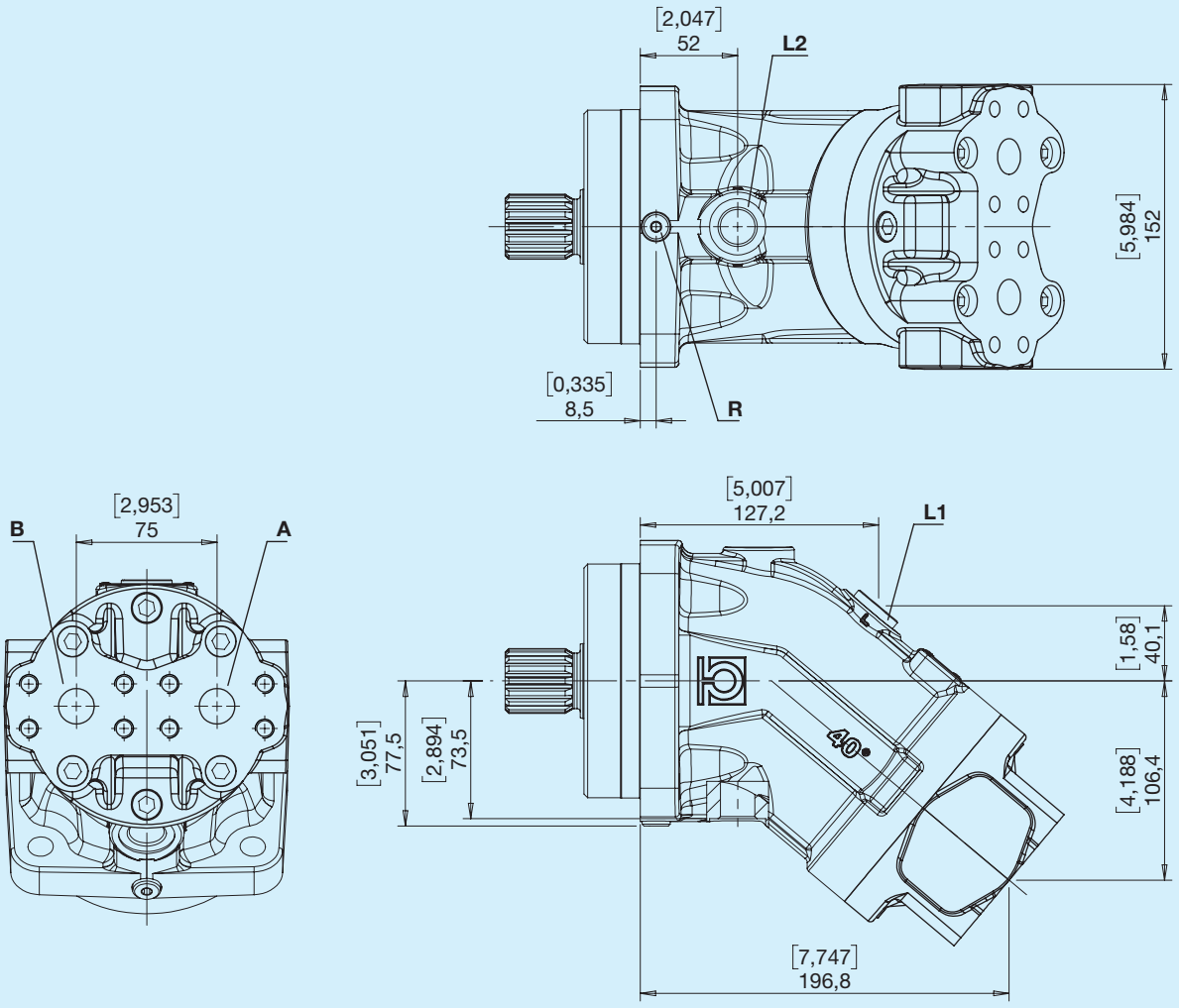


A,B - Use
L1, L2 - Drain port
S - Inlet

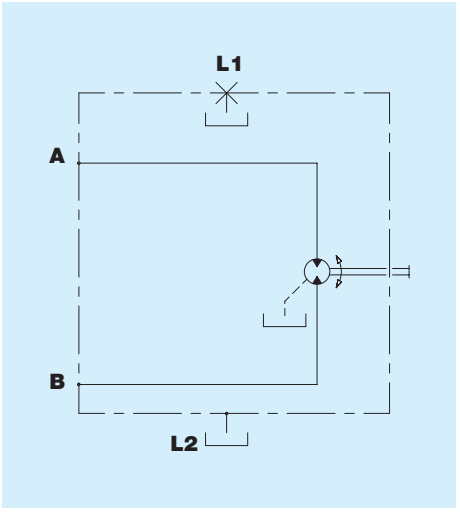
Hydraulic diagram



SP Rear SAE flanges

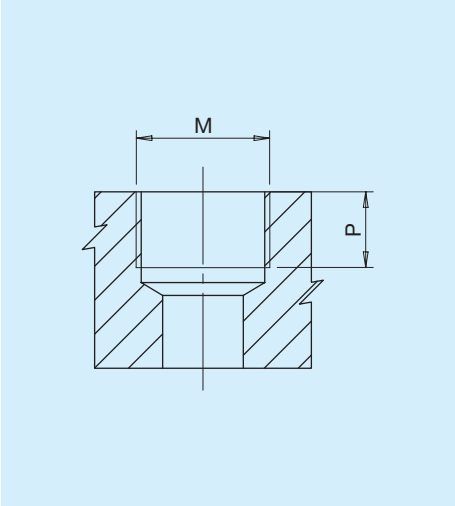


Hydraulic diagram



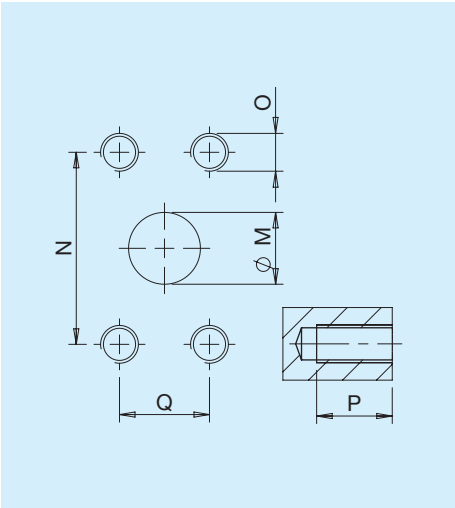
A,B - Use
L1, L2 - Drain port
S - Inlet

Type G - Gas



Type	M		P	
		Nm	**mm**	**in**
G1	Port ISO 1179-1 - G 1/8	8	15	0.59
G2	Port ISO 1179-1 - G 1/4	17	13	0.51
G4	Port ISO 1179-1 - G 1/2	70	12	0.47
G7	Port ISO 1179-1 - G 1	160	20	0.79

Type N - SAE

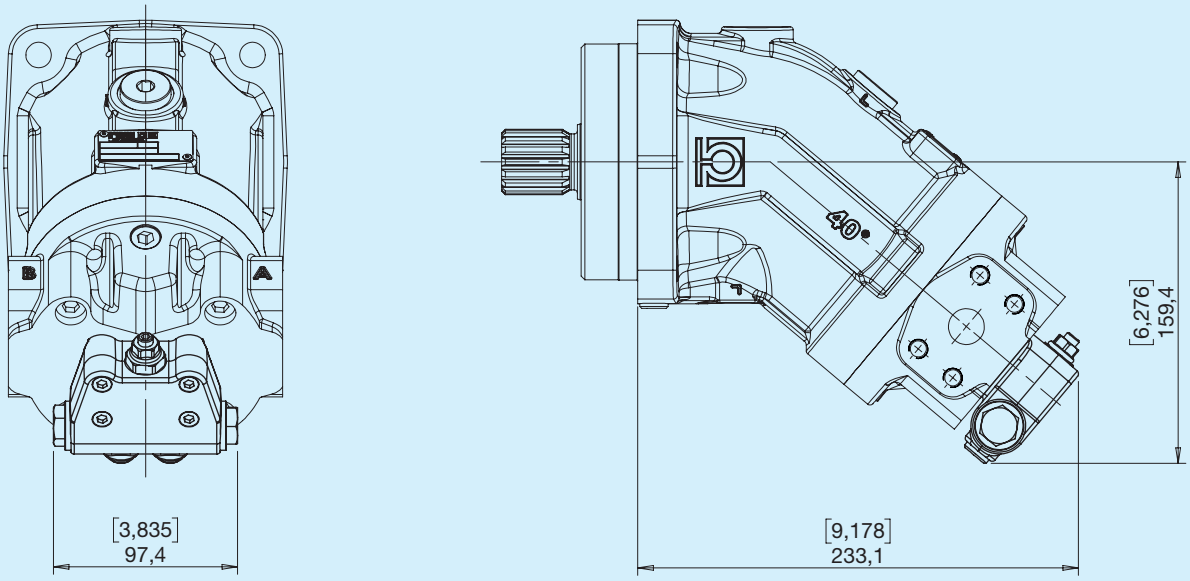


Type	M		N		Q		P		O	
	mm	**in**	**mm**	**in**	**mm**	**in**	**mm**	**in**		**Nm**
N	19	0.75	50.8	2	23.8	0.94	17	0.67	M10	47

Combinations

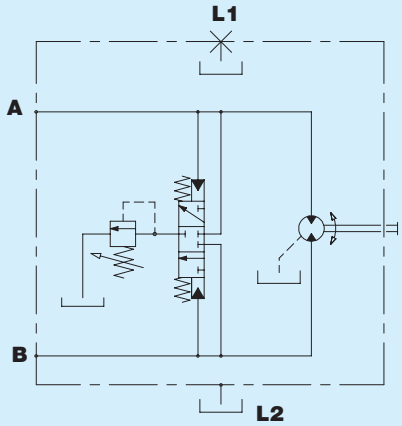
Position of ports	Einlass/Auslass **A-B**	Drain port **L1-L2**	Gauge ports **MA - MB**	Purge **R**
G	G4	G4	G4	G1
FP	G7	G4	G2	G1
SL	N	G4	G2	G1
SP	N	G4	G2	G1

V Adjustable flushing valve

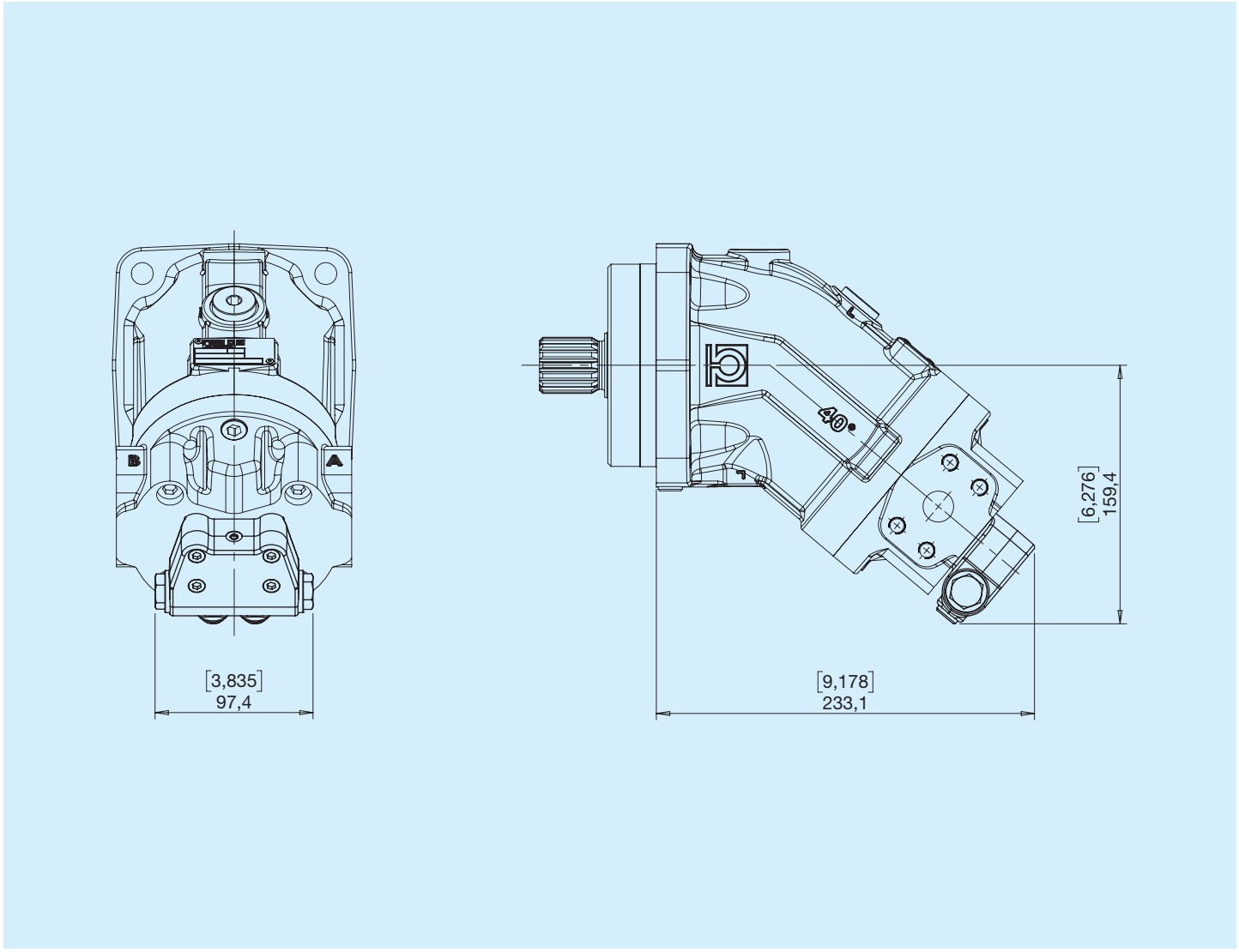


Note: Available only with ports
FL and **SL**

Hydraulic diagram

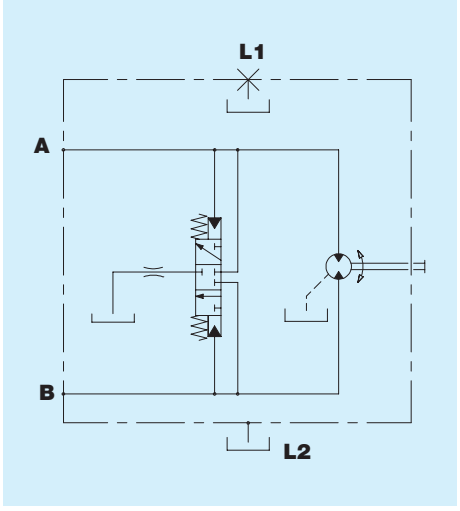


U Fixed flushing valve

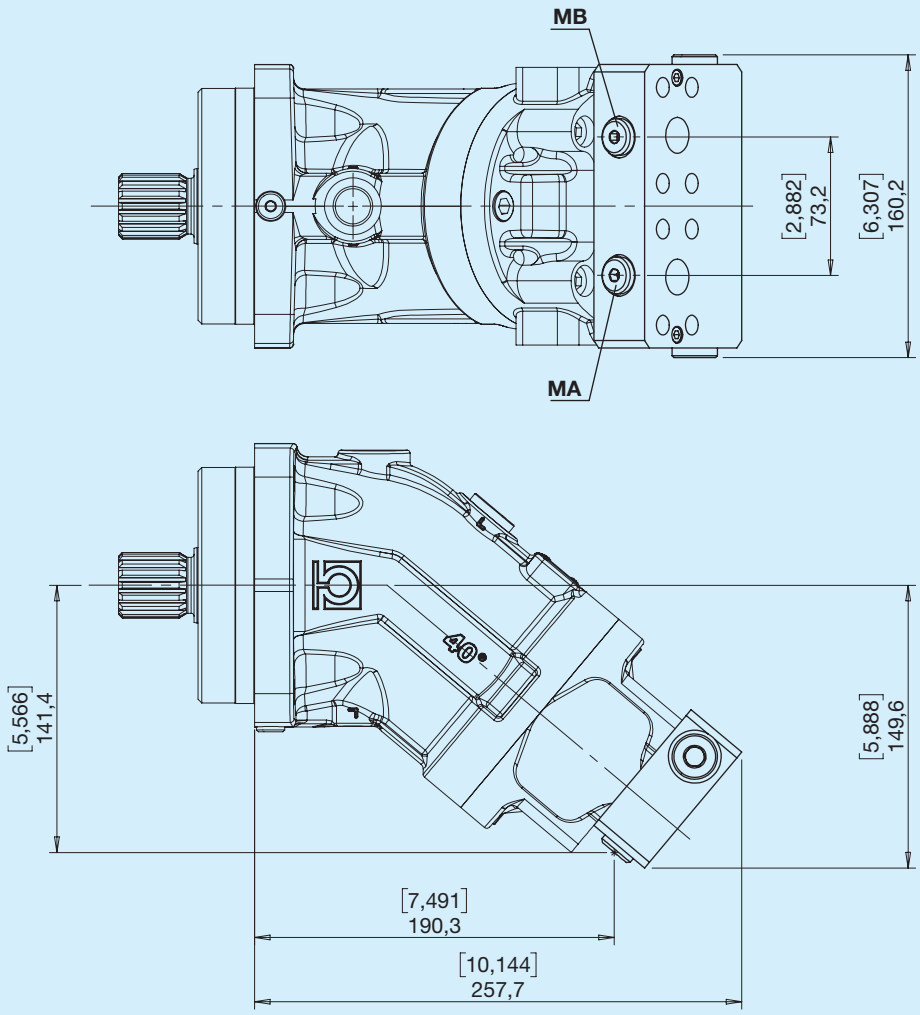


Note: Available only with ports
FL and SL

Hydraulic diagram

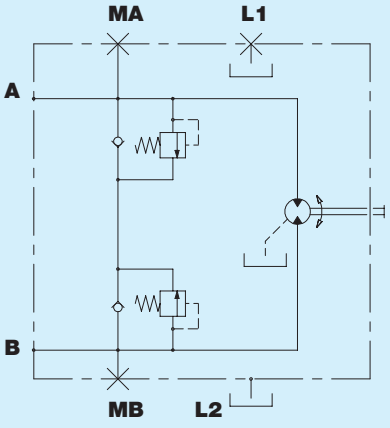


* Pressure limiter and anti-cavitation check valves

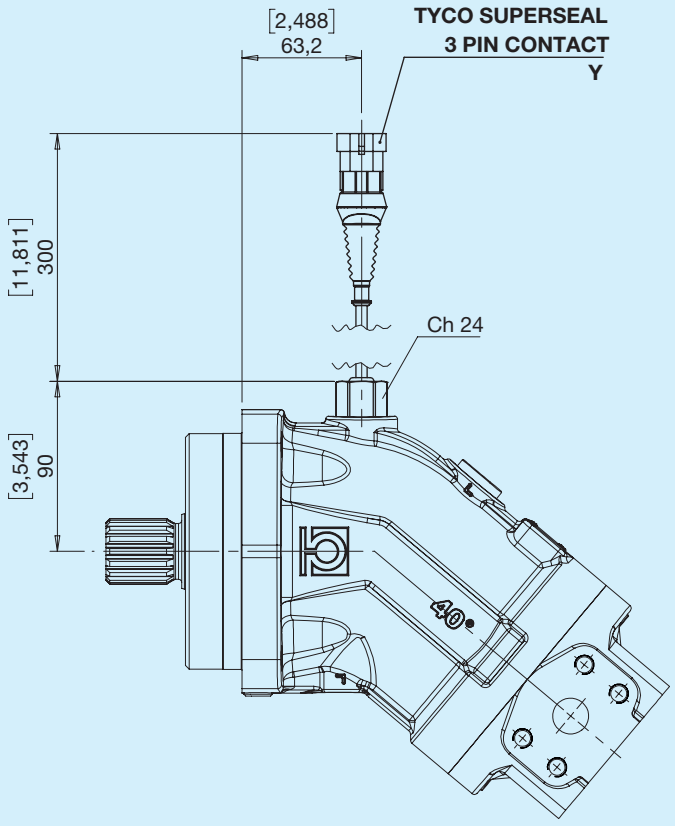


* See Ordering Instructions page

Hydraulic diagram

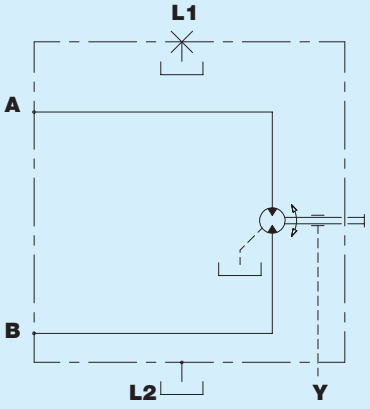


S Speed sensor



This version is equipped with a toothed shaft that generates a signal, detected by the sensor during rotation.

Hydraulic diagram



Instructions for ordering

	1	2	3	4	5	6	7	8	9	10	11	12
HPBF												

1 2 3

Displacement

056 **063**

4

Flanges

I	ISO 4 holes

5

Shaft profile

Z	DIN 5480 W35x2x30x16	**X**	DIN 5480 W30x2x30x14	**C**	Cylindrical Ø35	**Y**	Cylindrical Ø30

6 7

Position of ports

FL	Lateral threaded	**FP**	Rear threaded	**SL**	Lateral SAE flanges	**SP**	Rear SAE flanges

8

Gasket

0	NBR application range -30 °C to +100 °C	**F**	FKM (VITON) application range -20 °C to +200 °C

9

Valves

0	No valve	**D**	180 bar relief valves	**I**	280 bar relief valves	**P**	400 bar relief valves
V	Adjustable flushing valve	**E**	210 bar relief valves	**L**	300 bar relief valves		
U	Fixed flushing valve	**H**	230 bar relief valves	**M**	320 bar relief valves		
B	150 bar relief valves	**G**	250 bar relief valves	**O**	350 bar relief valves		

10

Accessories

0	No option	**C**	Painting	**S**	Speed sensor

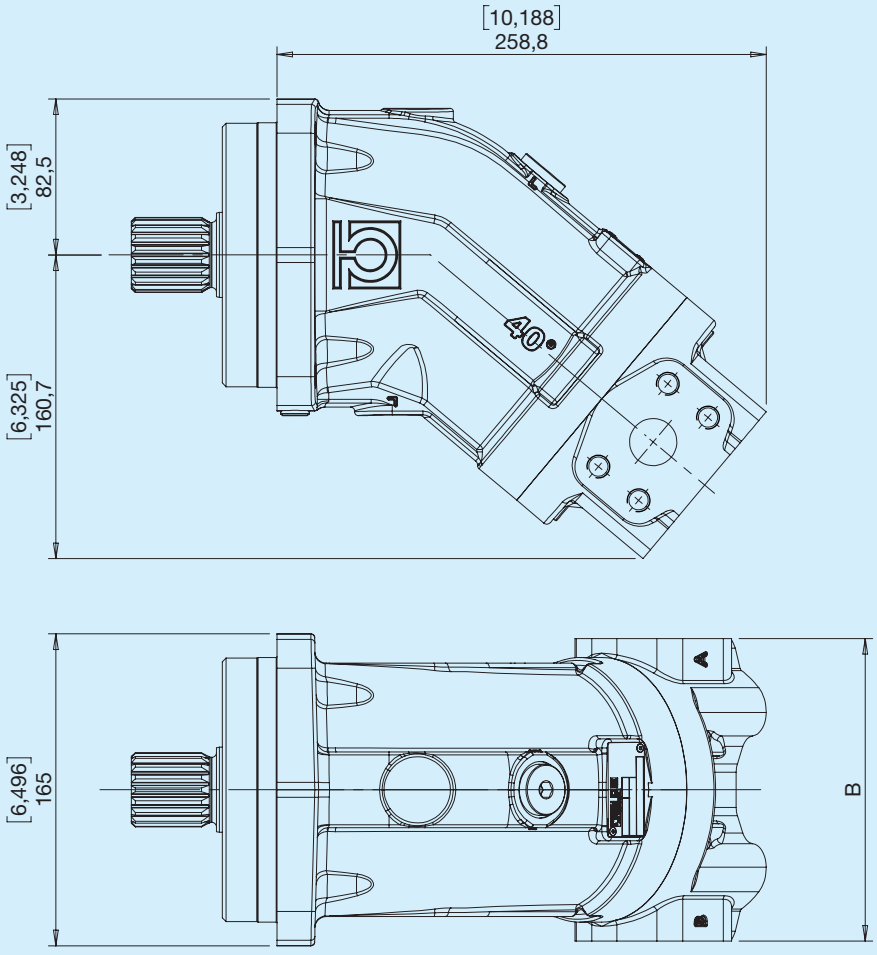
11 12

Special versions

...

Fixed-displacement motors HPBF 80-90

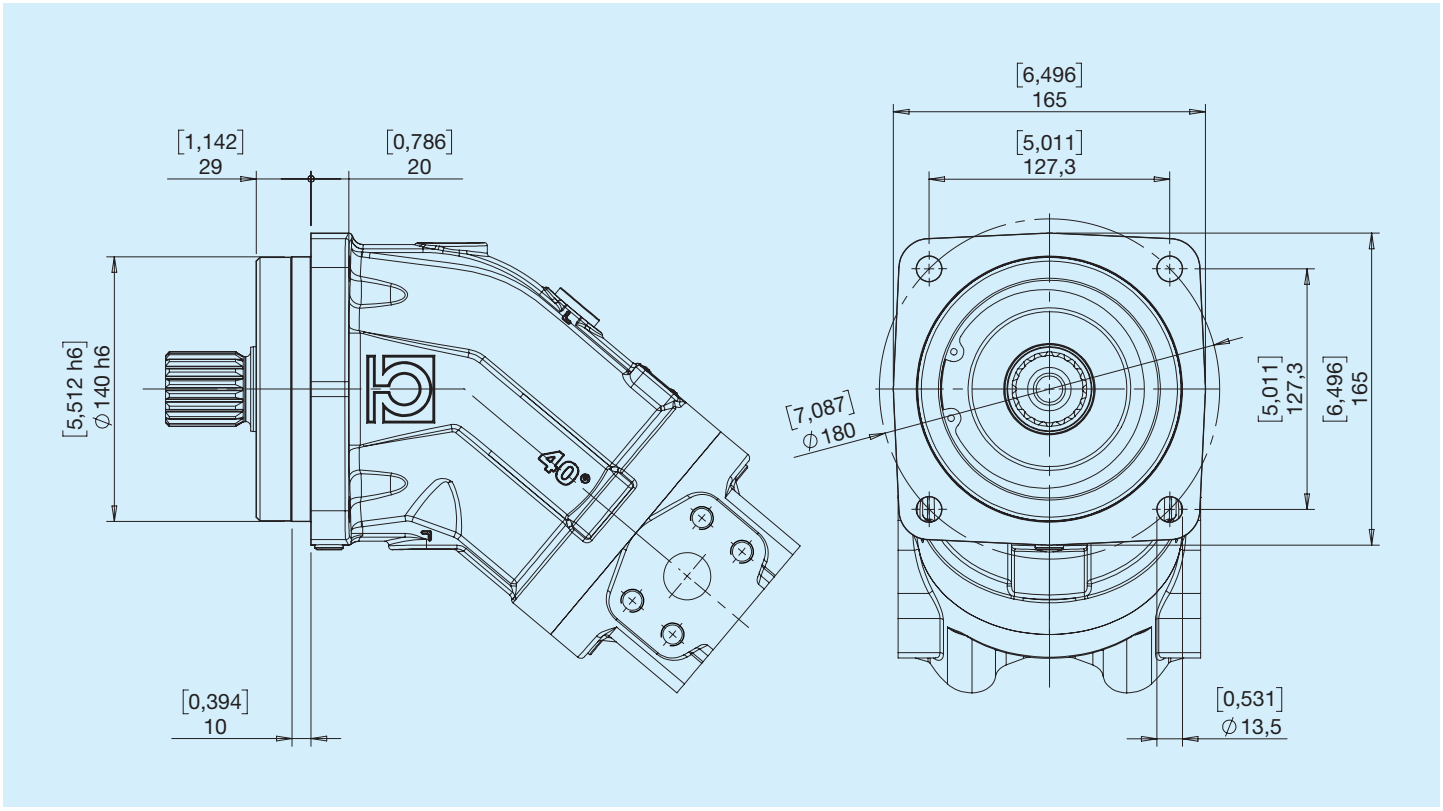
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF CLOSED CIRCUIT AXIAL PISTON PUMPS AND MOTORS.



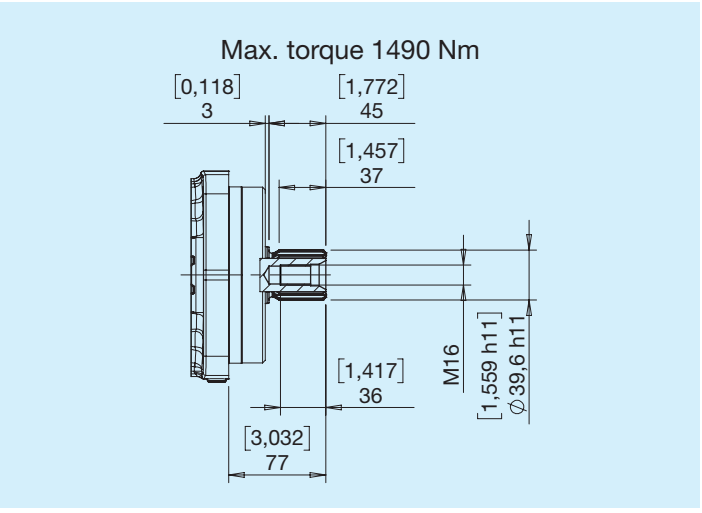
B - See port position section

HPBF	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed			Weight		Polar moment of inertia
	cm³	in³	bar	psi	bar	psi	bar	psi	MAX CONTIN. min⁻¹	MAX INTERMITT. min⁻¹	MIN min⁻¹	kg	lbs	kg • m²
80	80	4.88	350	5076	400	5801	450	6527	4500	**5000**	50	27.7	61.1	0,0072
90	90	5.49	350	5076	400	5801	450	6527	4500	**5000**	50	27.7	61.1	0,0072

I ISO 4 holes

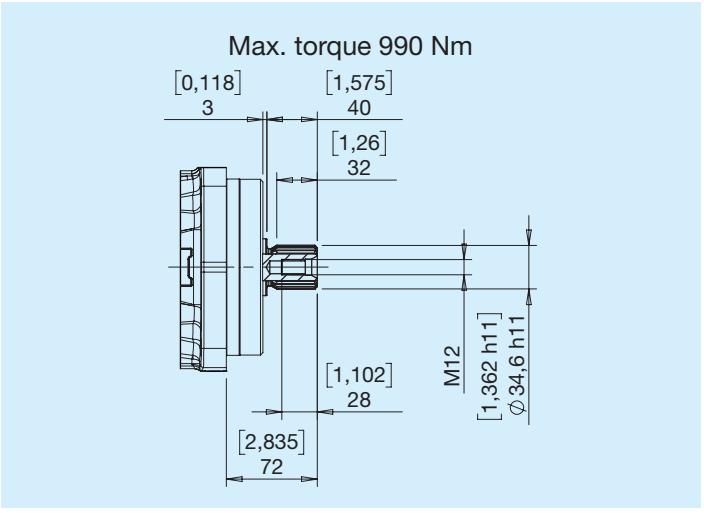

[1,142]
29
[0,786]
20
[5,512 h6]
Ø140 h6
40°
[0,394]
10
[6,496]
165
[5,011]
127,3
[7,087]
Ø180
[5,011]
127,3
[6,496]
165
[0,531]
Ø13,5

Z DIN 5480 W40x2x30x18



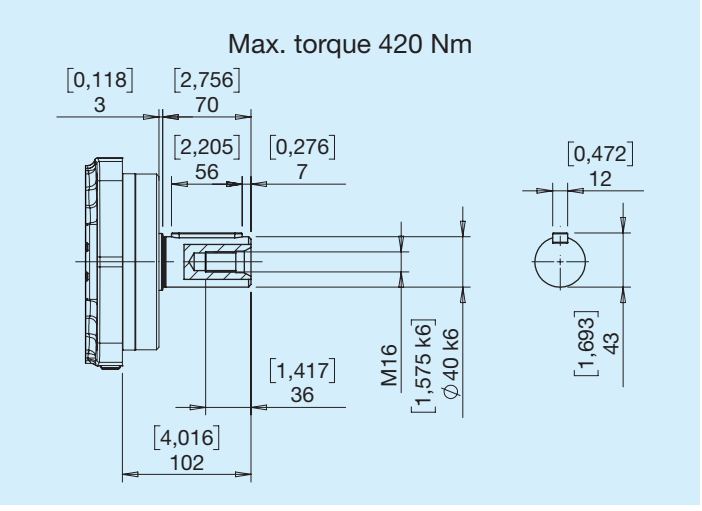
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

X DIN 5480 W35x2x30x16



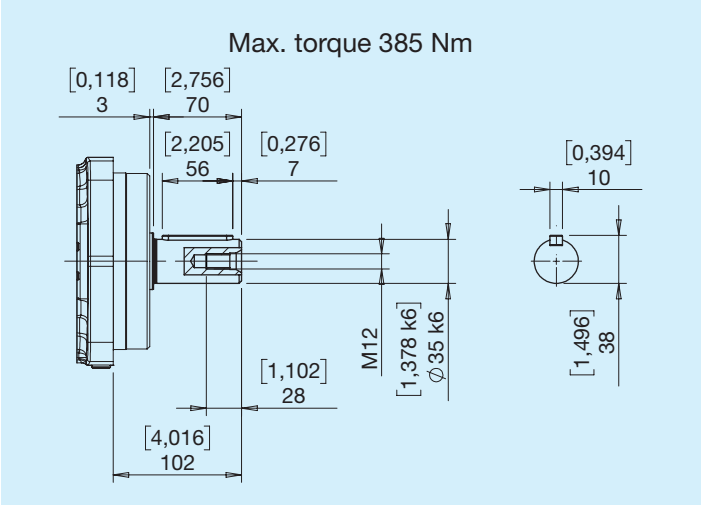
Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

C Cylindrical Ø40



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

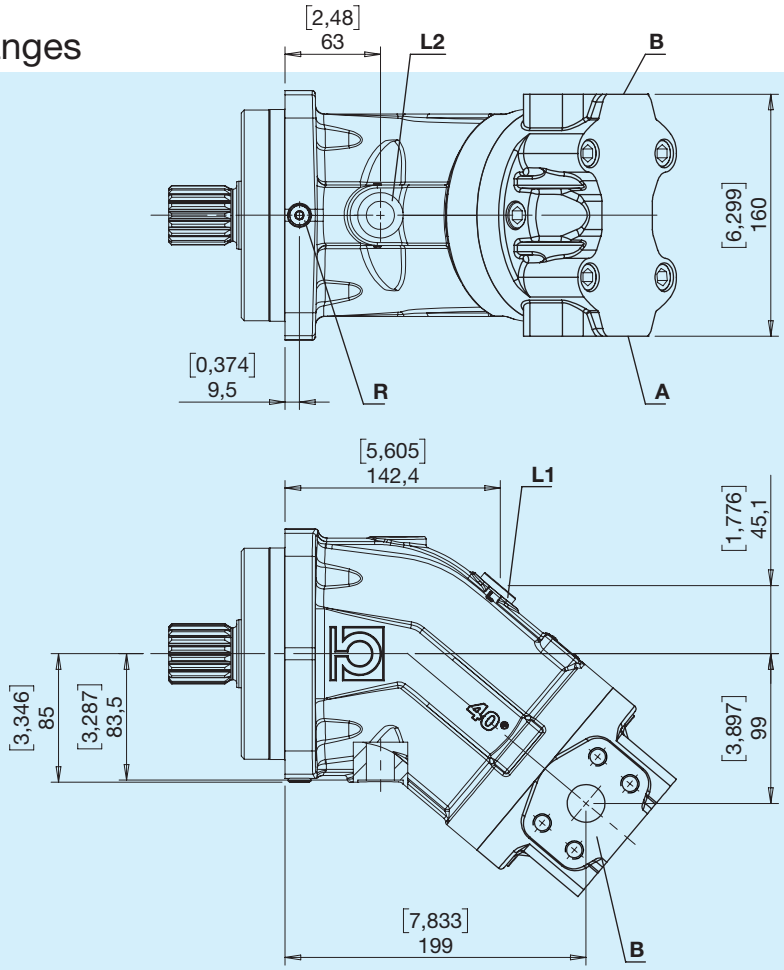
Y Cylindrical Ø35



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

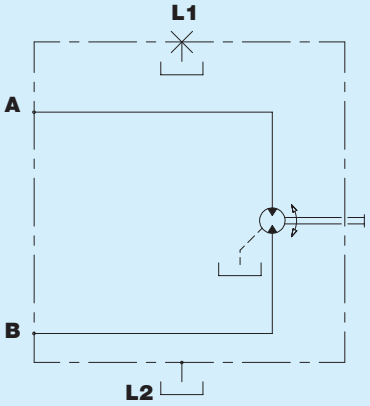
For applications with radial load on the drive shaft (pinions, V-belts), with X and Y type shaft, the allowed pressure is 315 bar / 4569 psi (Pmax = 350 bar / 5076 psi).
For pulsating load greater than 315 bar / 4569 psi, use the version with male splined shaft Z.

SL Lateral SAE flanges



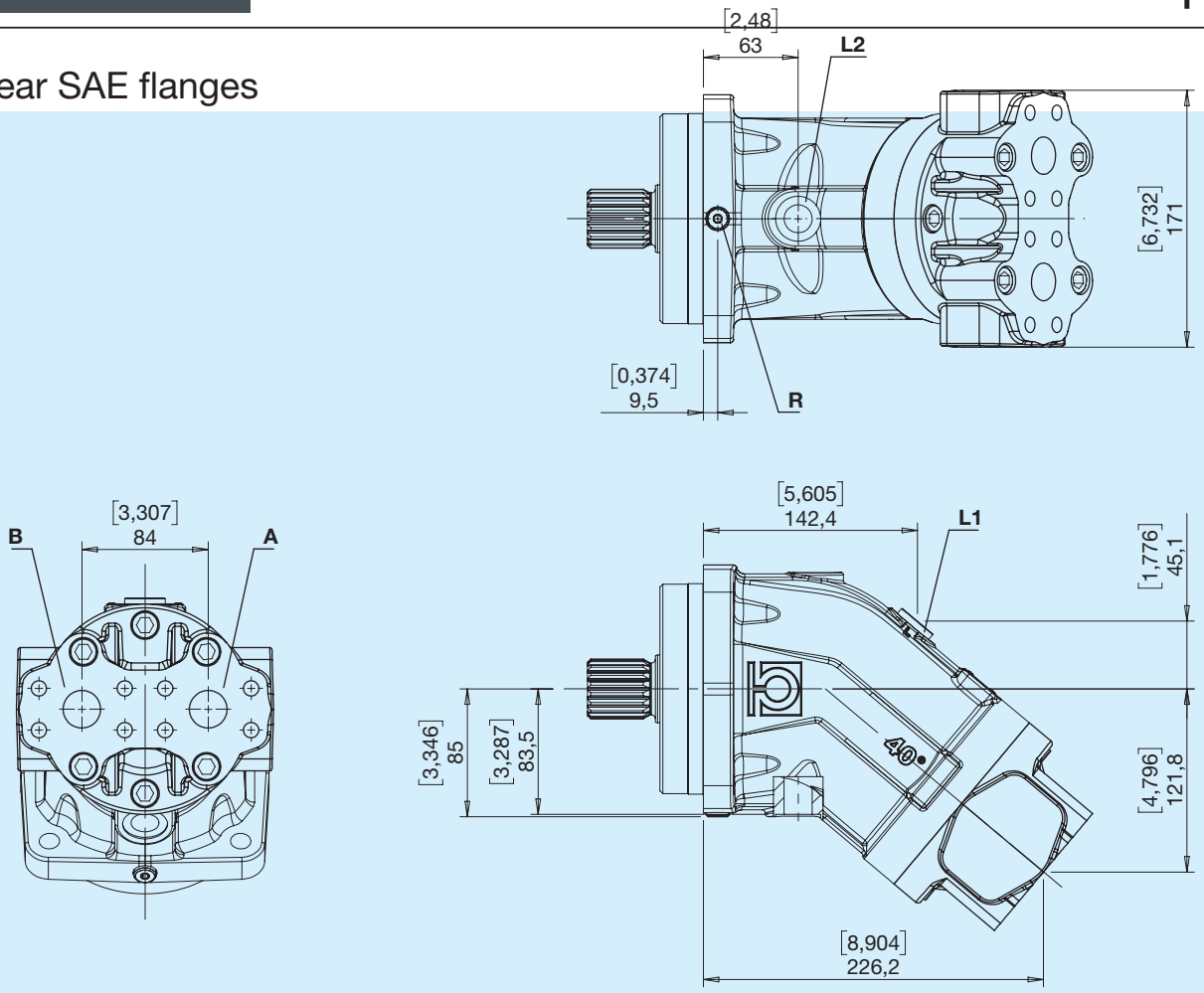
A,B - Use
L1, L2 - Drain port
S - Inlet

Hydraulic diagram

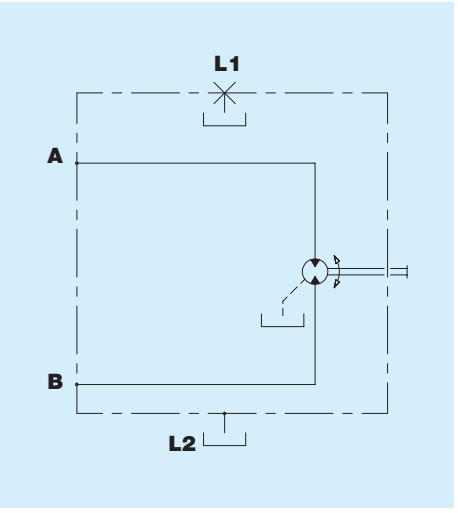


Position of ports

SP Rear SAE flanges

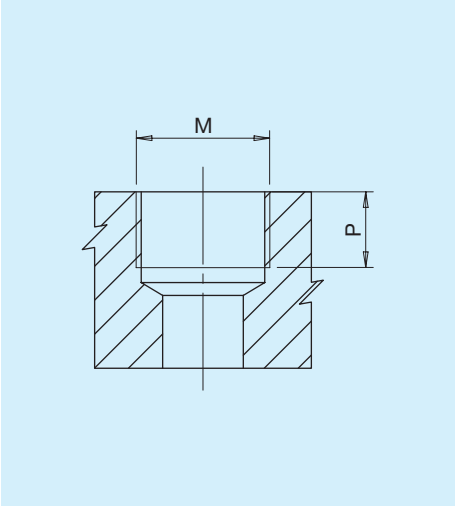


Hydraulic diagram



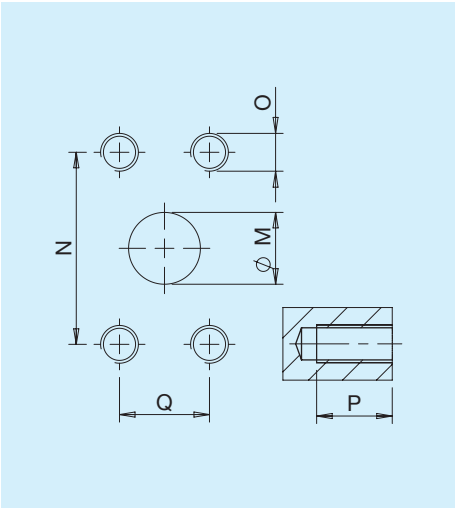
A,B - Use
L1, L2 - Drain port
S - Inlet

Type G - Gas



Type	M		P	
		Nm	**mm**	**in**
G1	Port ISO 1179-1 - G 1/8	8	15	0.59
G2	Port ISO 1179-1 - G 1/4	17	13	0.51
G4	Port ISO 1179-1 - G 1/2	70	16	0.63

Type N - SAE

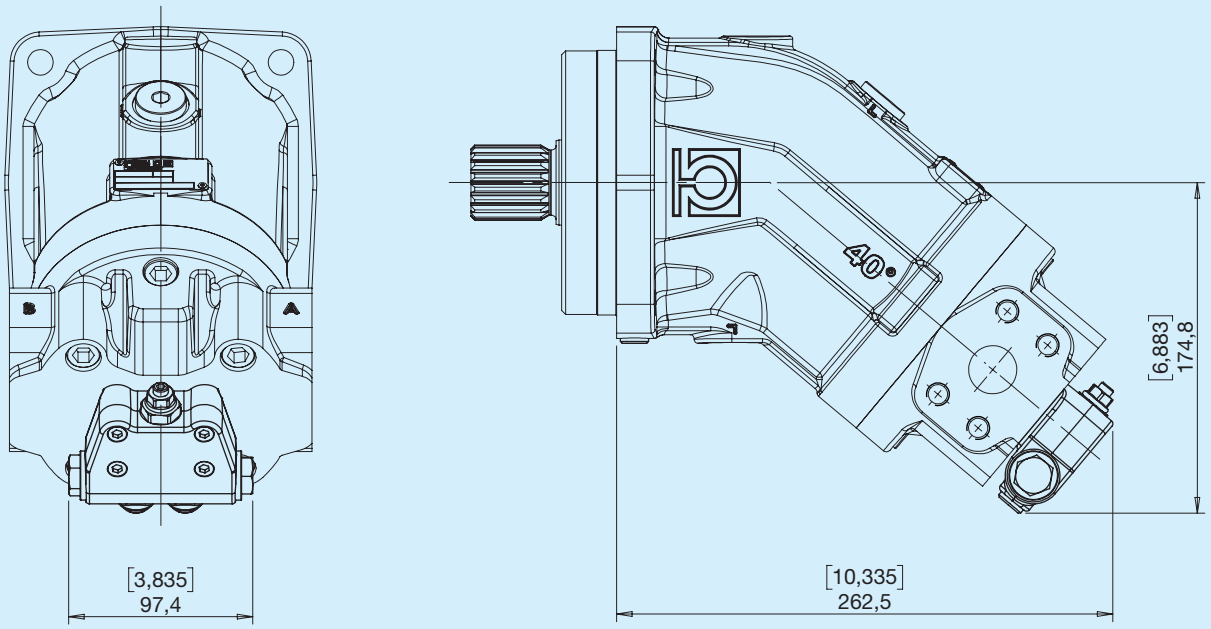


Type	M		N		Q		P		O	
	mm	**in**	**mm**	**in**	**mm**	**in**	**mm**	**in**		**Nm**
N	25	0.98	57.2	2.25	27.76	1.09	17	0.67	M12	70

Combinations

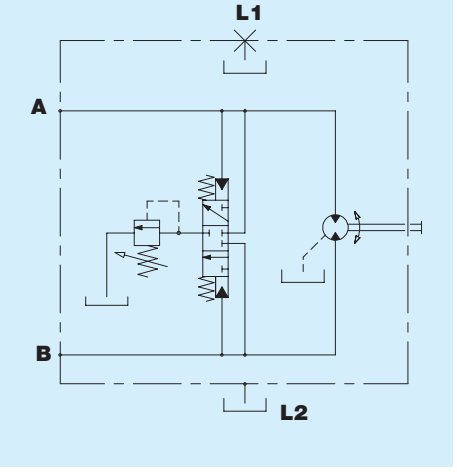
Position of ports	Einlass/Auslass **A-B**	Drain port **L1-L2**	Gauge ports **MA - MB**	Purge **R**
G	G4	G4	G4	G1
SP	N	G4	G2	G1

V Adjustable flushing valve

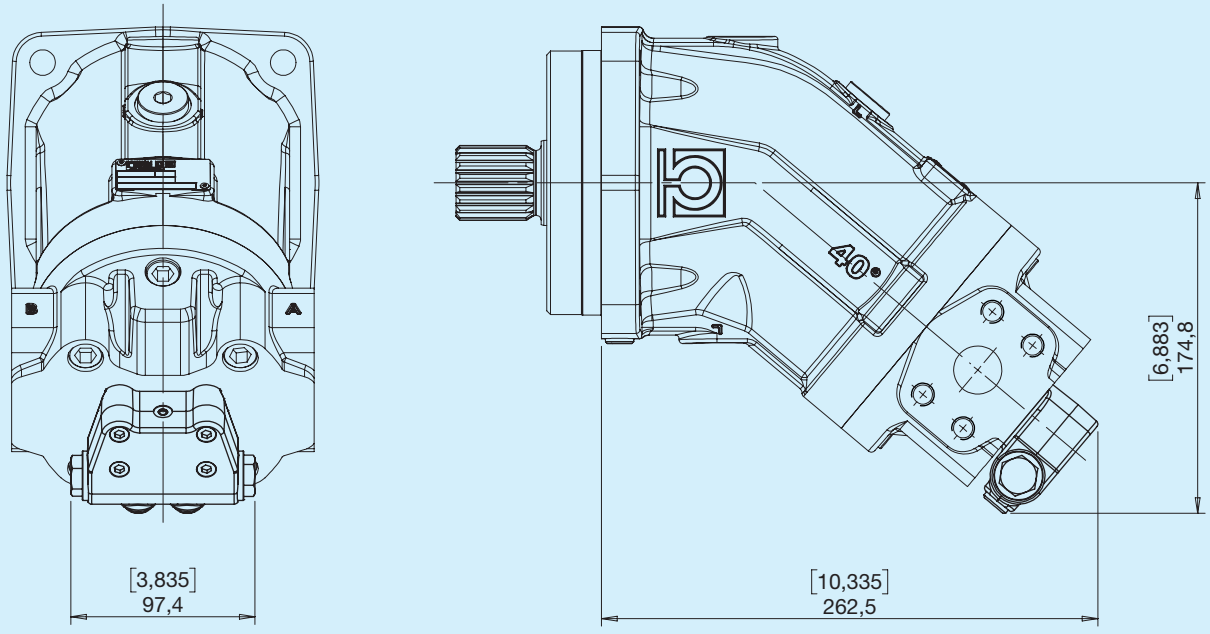


Note: Available only with ports
SL

Hydraulic diagram

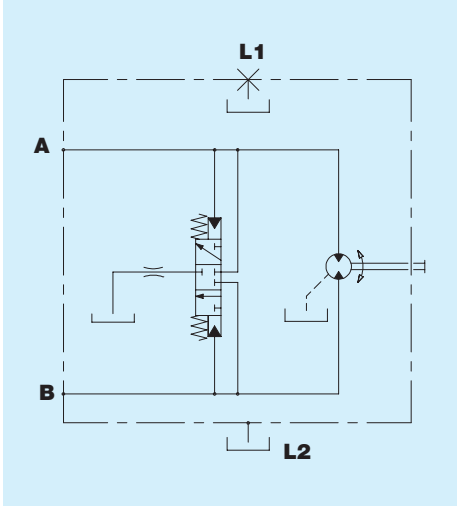


U Fixed flushing valve

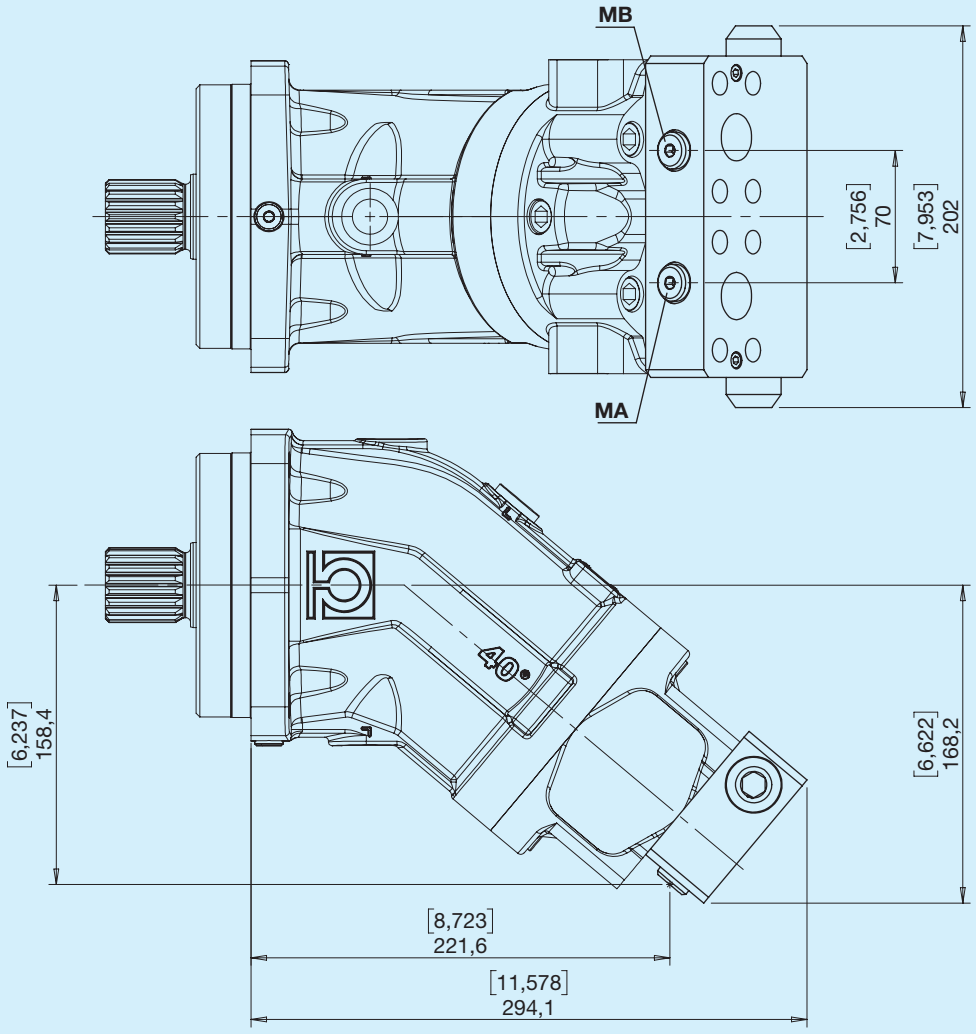


Note: Available only with ports
SL

Hydraulic diagram

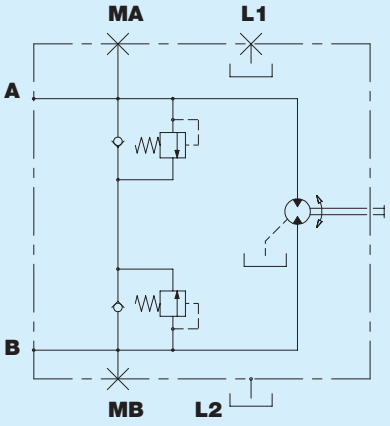


* Pressure limiter and anti-cavitation check valves

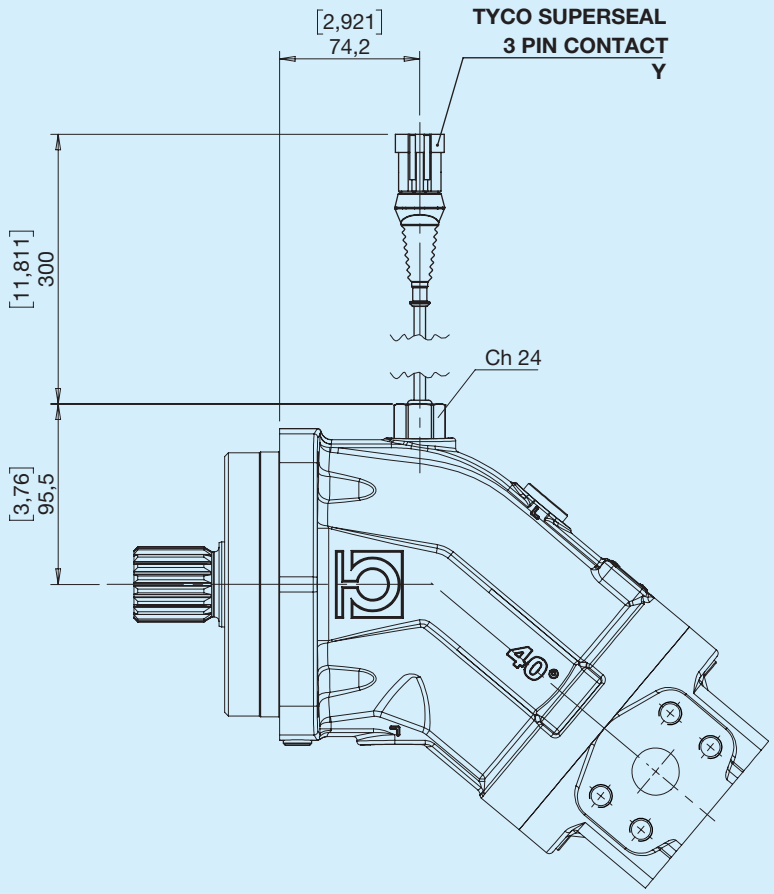


* See Ordering Instructions page

Hydraulic diagram

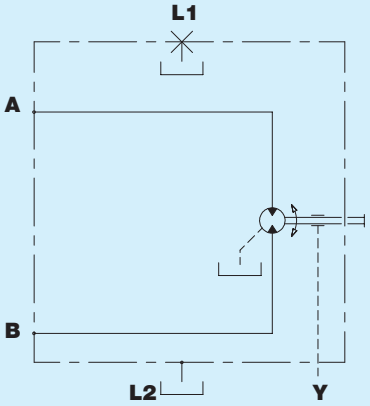


S Speed sensor



This version is equipped with a toothed shaft that generates a signal, detected by the sensor during rotation.

Hydraulic diagram



Instructions for ordering

HPBF	1 2 3	4	5	6 7	8	9	10	11 12

1 2 3 Displacement

080	
090	

4 Flanges

I	ISO 4 holes

5 Shaft profile

Z	DIN 5480 W40x2x30x18	**X**	DIN 5480 W35x2x30x16	**C**	Cylindrical Ø40	**Y**	Cylindrical Ø35

6 7 Position of ports

SL	Lateral SAE flanges	**SP**	Rear SAE flanges

8 Gasket

0	NBR application range -30 °C to +100 °C	**F**	FKM (VITON) application range -20 °C to +200 °C

9 Valves

0	No valve	**D**	180 bar relief valves	**I**	280 bar relief valves	**P**	400 bar relief valves
V	Adjustable flushing valve	**E**	210 bar relief valves	**L**	300 bar relief valves		
U	Fixed flushing valve	**H**	230 bar relief valves	**M**	320 bar relief valves		
B	150 bar relief valves	**G**	250 bar relief valves	**O**	350 bar relief valves		

10 Accessories

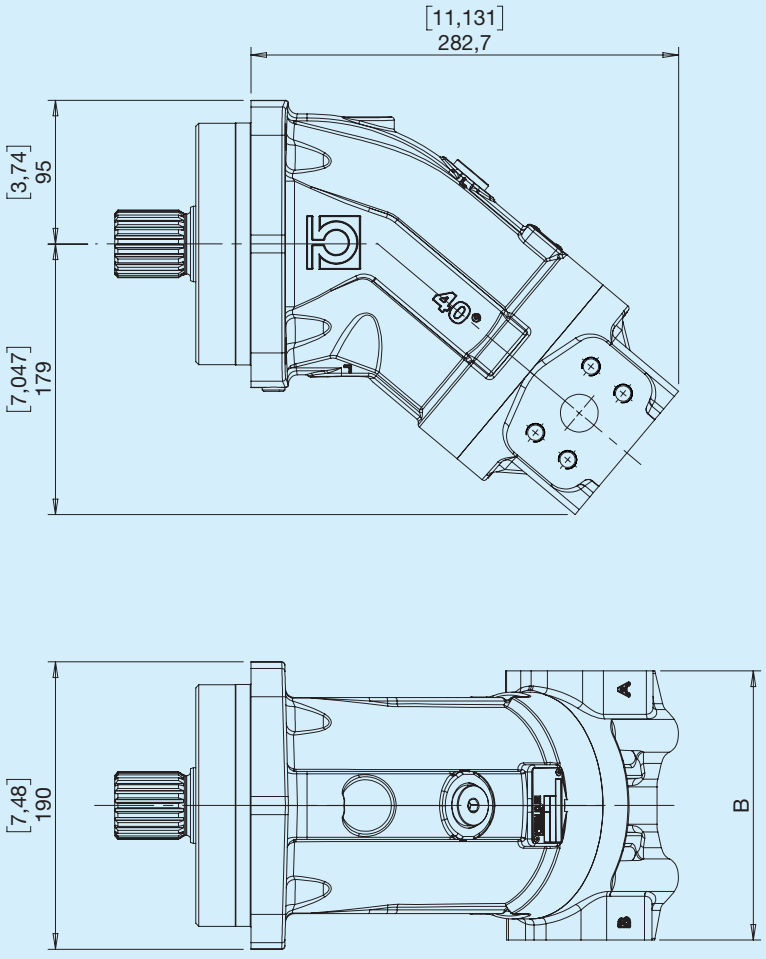
0	No option	**C**	Painting	**S**	Speed sensor

11 12 Special versions

...

Fixed-displacement motors HPBF 107-125

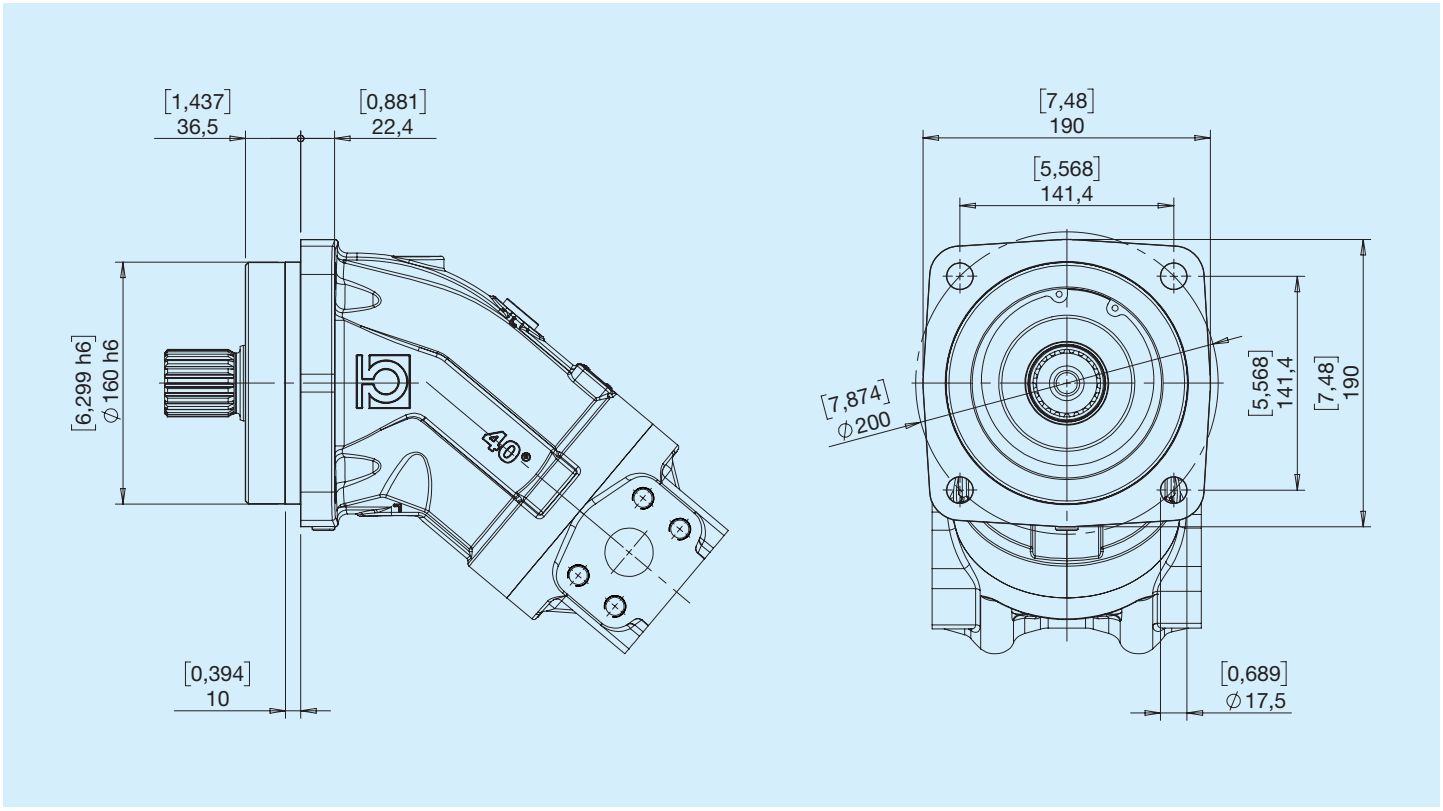
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF CLOSED CIRCUIT AXIAL PISTON PUMPS AND MOTORS.



B - See port position section

HPBF	Nominal displacement		Continuous pressure		Intermittent pressure		Peak pressure		Rotational speed			Weight		Polar moment of inertia
	cm³	**in³**	**bar**	**psi**	**bar**	**psi**	**bar**	**psi**	**MAX CONTIN. min⁻¹**	**MAX INTERMITT. min⁻¹**	**MIN min⁻¹**	**kg**	**lbs**	**kg • m²**
107	107	6.53	350	5076	400	5801	450	6527	4000	**4400**	50	37.8	83.3	0,0116
125	125	7.63	350	5076	400	5801	450	6527	4000	**4400**	50	37.8	83.3	0,0116

I ISO 4 holes


[1,437]
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22,4
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⌀160 h6
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141,4
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141,4
[7,48]
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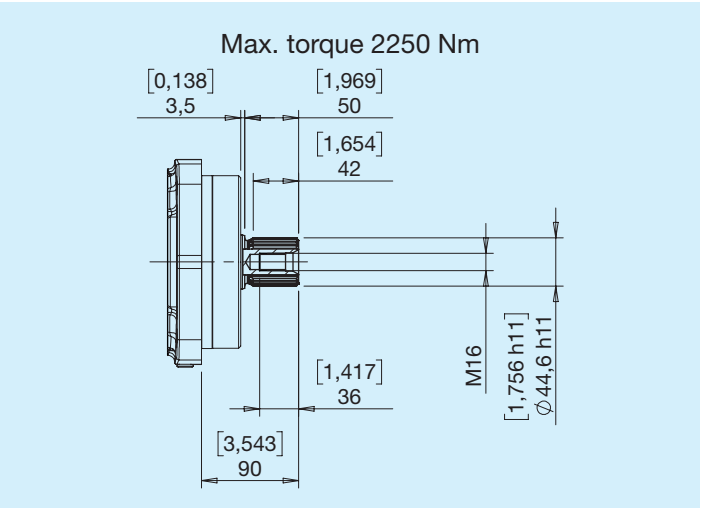
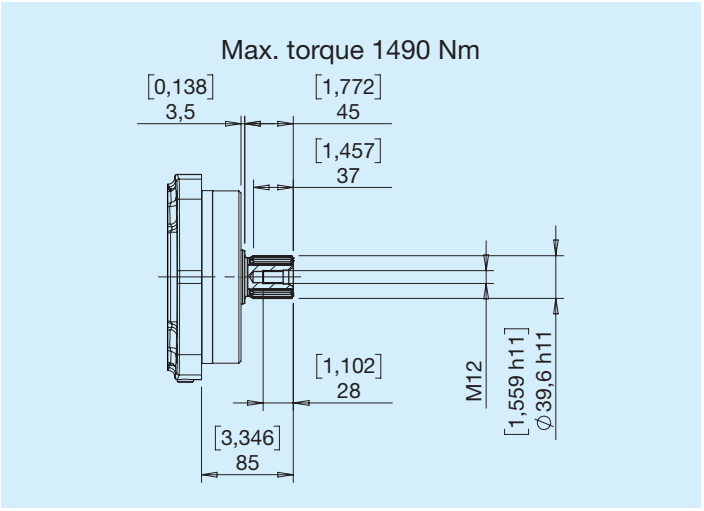
[0,689]
⌀17,5

Z DIN 5480 W45x2x30x21



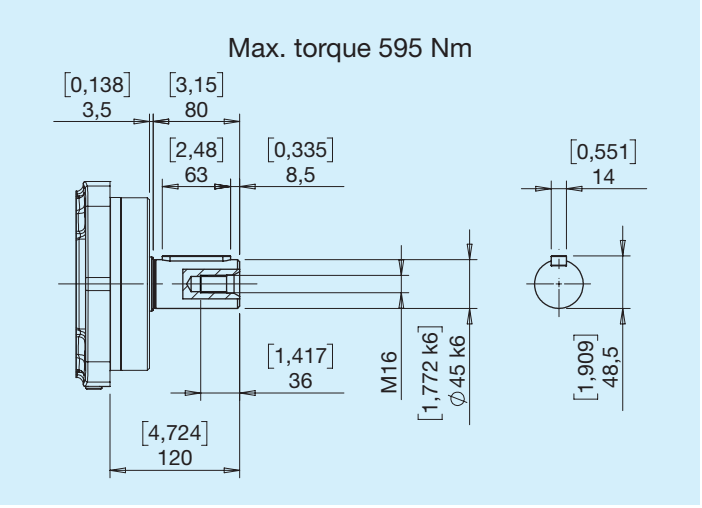
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

X DIN 5480 W40x2x30x18



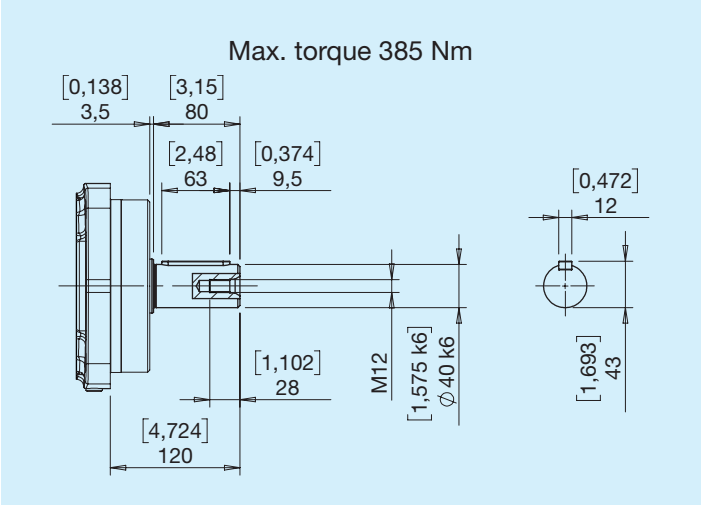
Continuous pressure 400 bar/5801 psi
Peak pressure 450 bar/6527 psi

C Cylindrical Ø45



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

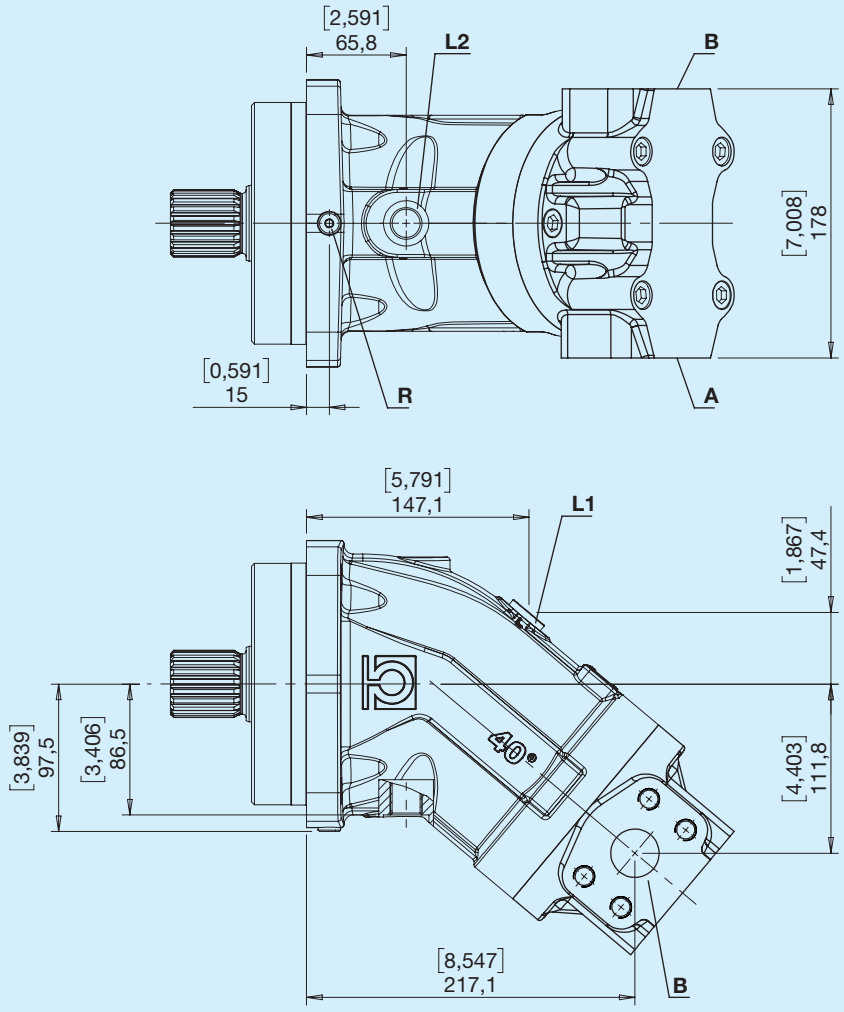
Y Cylindrical Ø40



Continuous pressure 350 bar/5076 psi
Peak pressure 400 bar/5801 psi

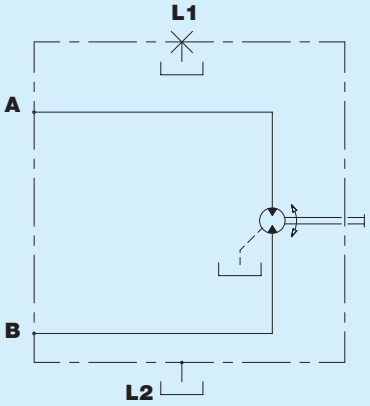
For applications with radial load on the drive shaft (pinions, V-belts), with X and Y type shaft, the allowed pressure is 315 bar / 4569 psi (Pmax = 350 bar / 5076 psi).
For pulsating load greater than 315 bar / 4569 psi, use the version with male splined shaft Z.

SL Lateral SAE flanges

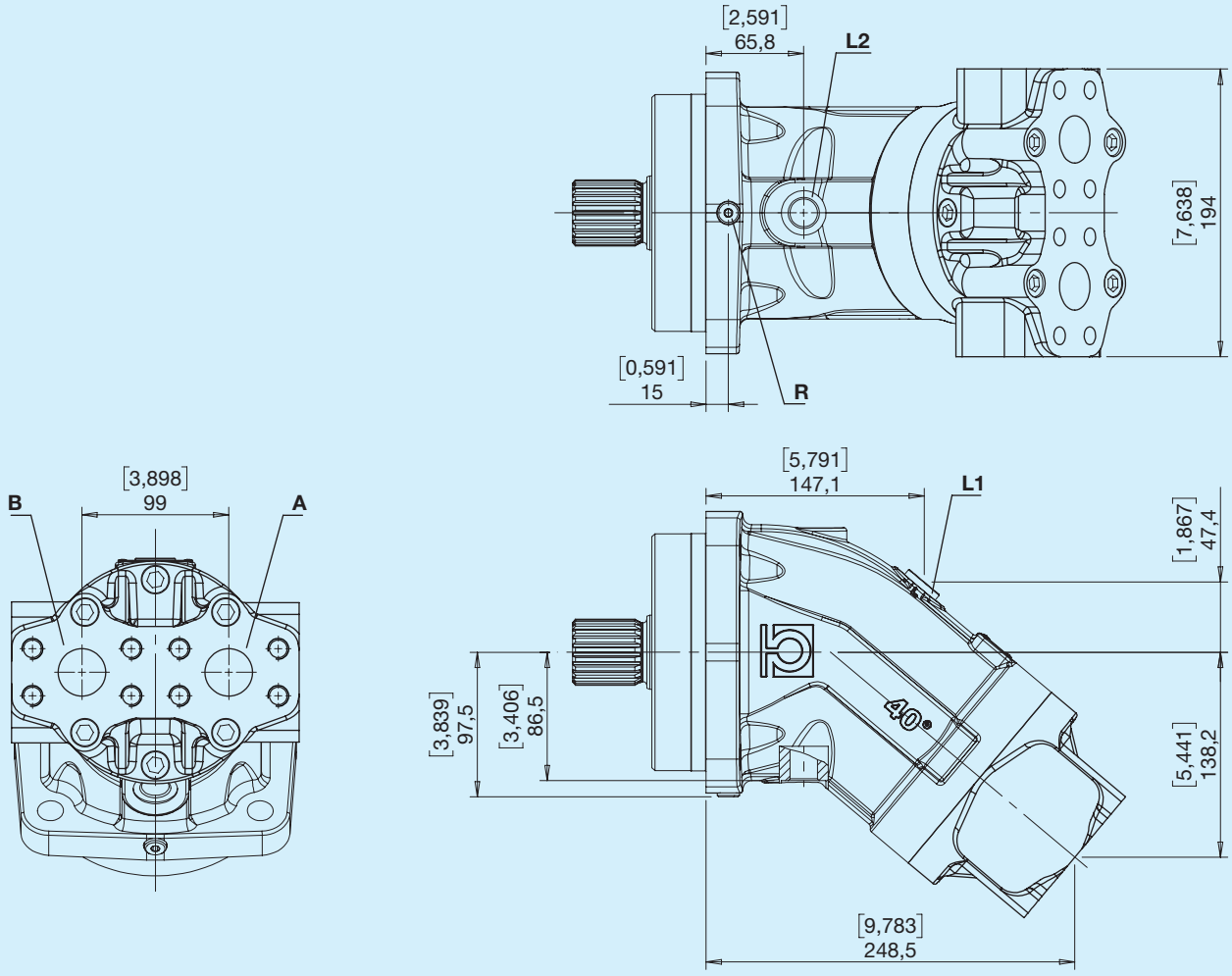


A,B - Use
L1, L2 - Drain port
S - Inlet

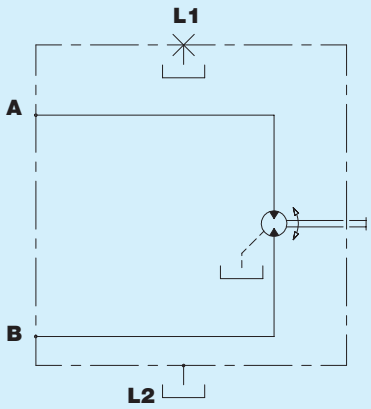
Hydraulic diagram



SP Rear SAE flanges

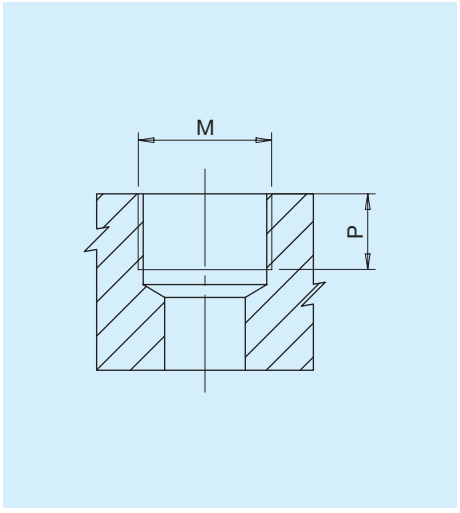


Hydraulic diagram



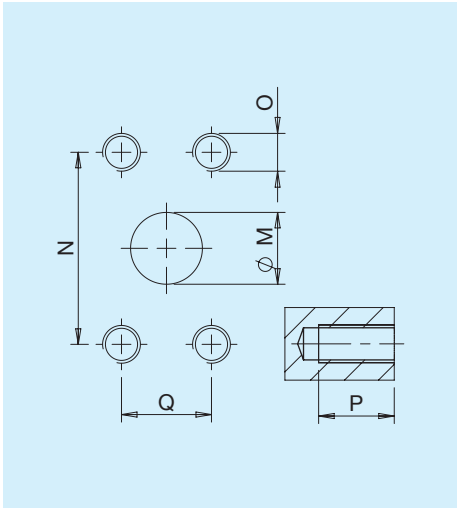
A,B - Use
L1, L2 - Drain port
S - Inlet

Type G - Gas



Type	M		P	
		Nm	**mm**	**in**
G1	Port ISO 1179-1 - G 1/8	8	15	0.59
G2	Port ISO 1179-1 - G 1/4	17	13	0.51
G4	Port ISO 1179-1 - G 1/2	70	16	0.63

Type N - SAE

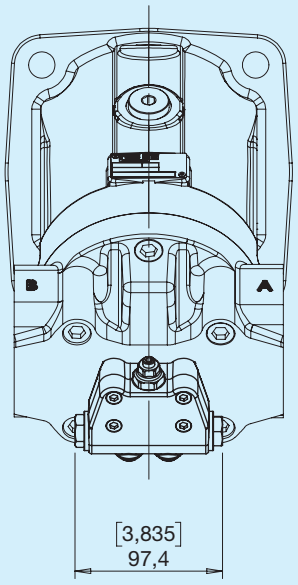


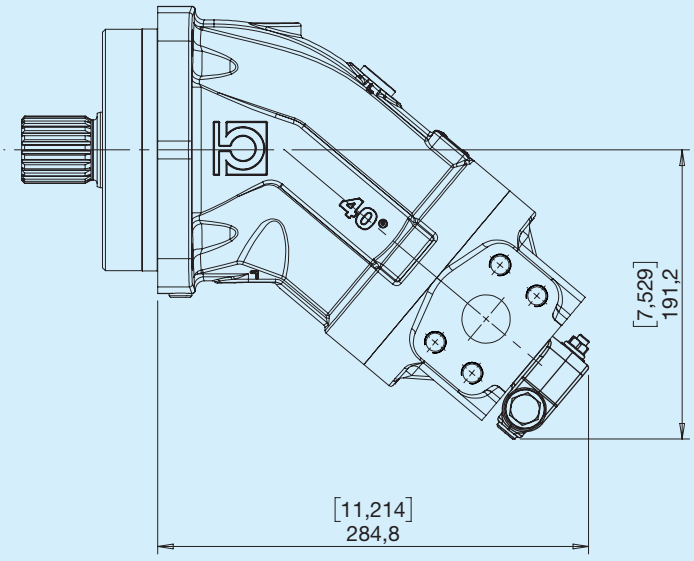
Type	M		N		Q		P		O	
	mm	**in**	**mm**	**in**	**mm**	**in**	**mm**	**in**		**Nm**
N7	25	0.98	57.2	2.25	27.76	1.09	17	0.67	M12	70
N8	32	1.26	66.7	2.63	31.75	1.25	19	0.75	M14	120

Combinations

Position of ports	Einlass/Auslass **A-B**	Drain port **L1-L2**	Gauge ports **MA - MB**	Purge **R**
G	G4	G4	G4	G1
SL 125	N8	G4	G2	G1
SP	N8	G4	G2	G1

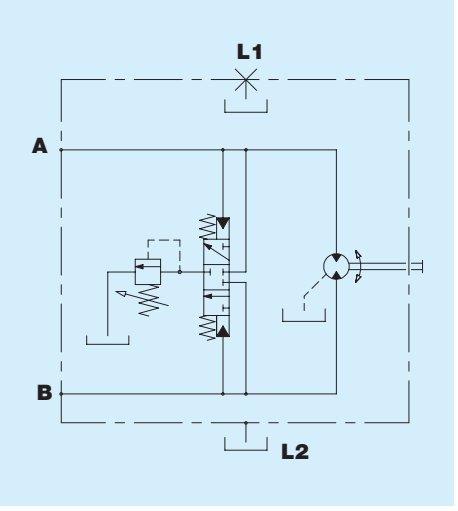
V Adjustable flushing valve



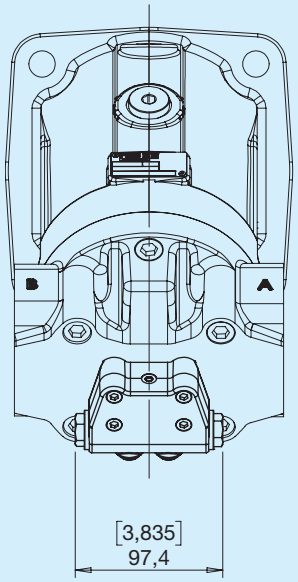


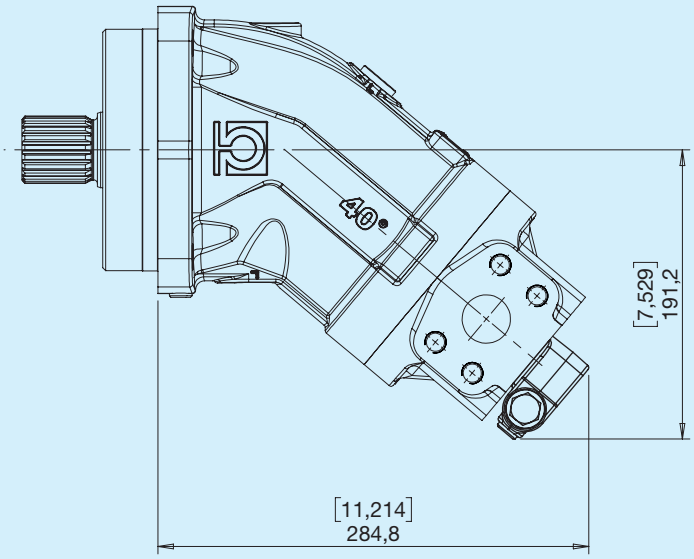
Note: Available only with ports
SL

Hydraulic diagram



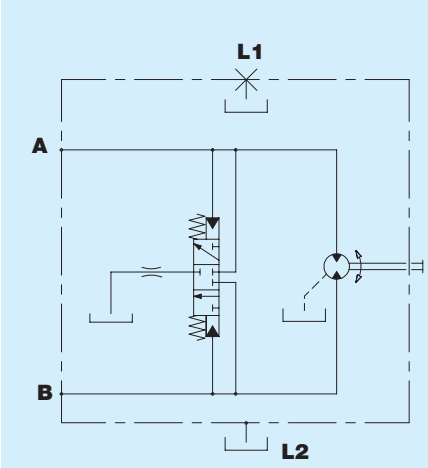
U Fixed flushing valve



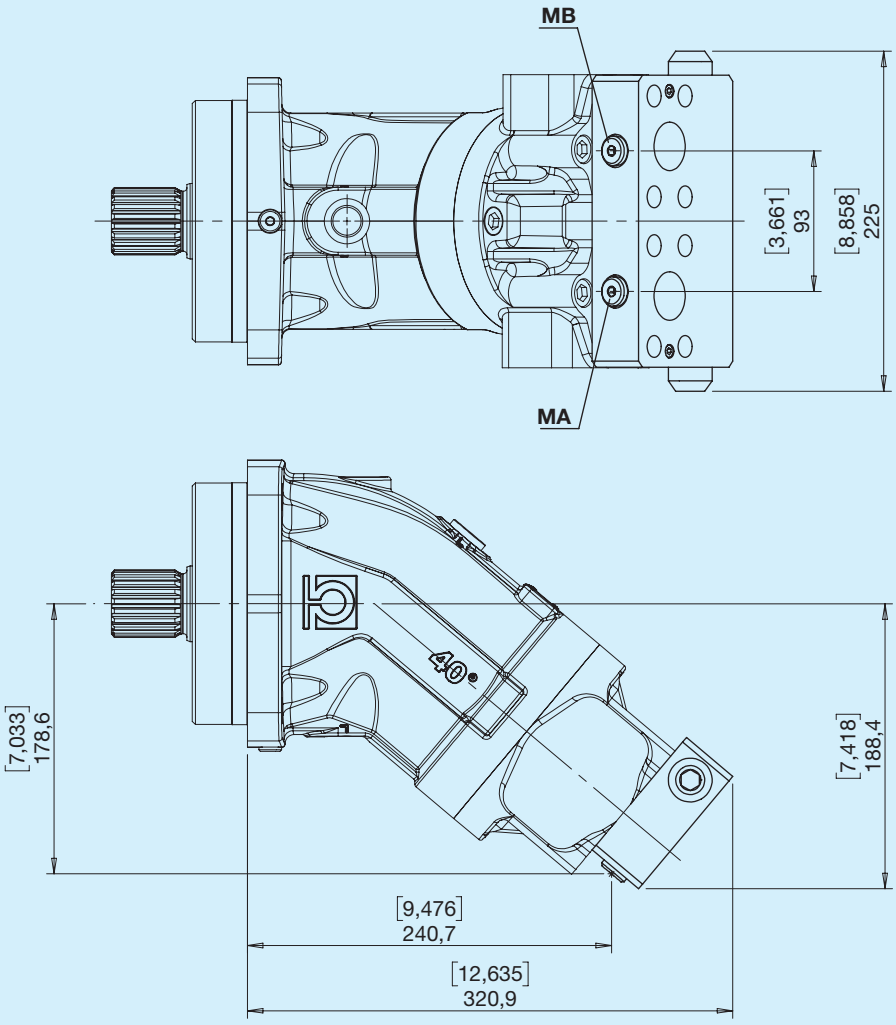


Note: Available only with ports
SL

Hydraulic diagram

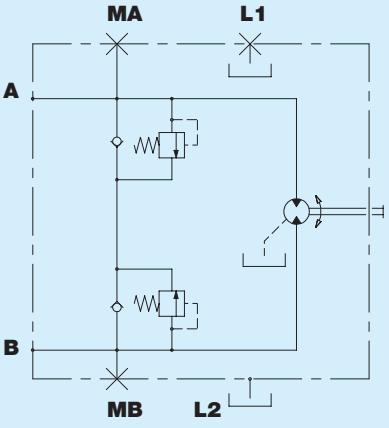


* Pressure limiter and anti-cavitation check valves

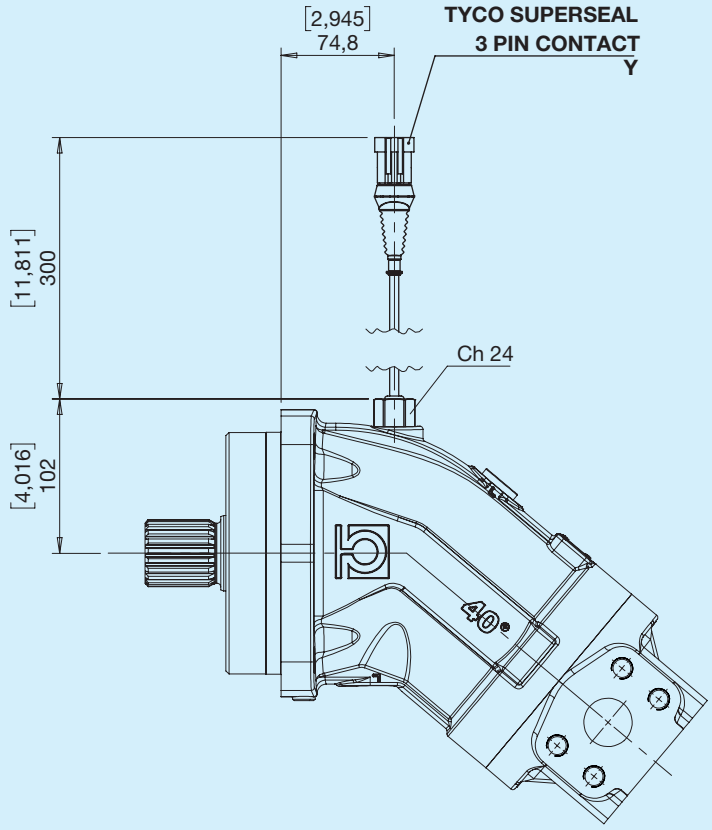


* See Ordering Instructions page

Hydraulic diagram

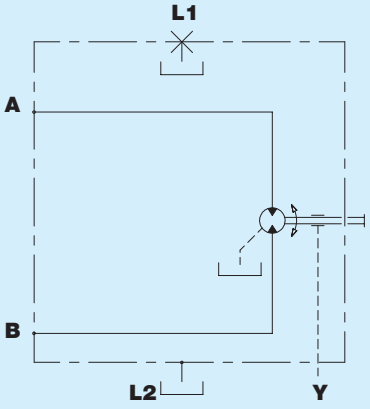


S Speed sensor



This version is equipped with a toothed shaft that generates a signal, detected by the sensor during rotation.

Hydraulic diagram



Instructions for ordering

	1	2	3		4		5		6	7		8		9		10		11	12
HPBF																			

1 2 3 Displacement

107	
125	

4 Flanges

I	ISO 4 holes

5 Shaft profile

Z	DIN 5480 W45x2x30x21	**X**	DIN 5480 W40x2x30x18	**C**	Cylindrical Ø45	**Y**	Cylindrical Ø40

6 7 Position of ports

SL	Lateral SAE flanges	**SP**	Rear SAE flanges

8 Gasket

0	NBR application range -30 °C to +100 °C	**F**	FKM (VITON) application range -20 °C to +200 °C

9 Valves

0	No valve	**D**	180 bar relief valves	**I**	280 bar relief valves	**P**	400 bar relief valves
V	Adjustable flushing valve	**E**	210 bar relief valves	**L**	300 bar relief valves		
U	Fixed flushing valve	**H**	230 bar relief valves	**M**	320 bar relief valves		
B	150 bar relief valves	**G**	250 bar relief valves	**O**	350 bar relief valves		

10 Accessories

0	No option	**C**	Painting	**S**	Speed sensor

11 12 Special versions

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