

Sunfab SCM is a range of robust axial piston motors especially suitable for mobile hydraulics.

Sunfab SCM is of the bent-axis type with spherical pistons. The design results in a compact motor with few moving parts, high starting torque and high reliability.

The SCM covers the entire displacement range 12-130 cm³/rev at a maximum working pressure of 40 MPa.

Sunfab SCM's well dimensioned, double tapered roller bearings permit high shaft loads and lead to excellent speed characteristics.

Sunfab SCM's high level of reliability is based on the choice of materials, hardening methods, surface structures and the quality assured manufacturing process.

Type		012	017	025	034	047	056	064	084	090	108	130	
Displacement	cm ³ /rev.	12.6	17.0	25.4	34.2	47.1	56.0	63.5	83.6	90.7	108.0	130.0	
Working pressure	max. intermittent	MPa	40	40	40	40	40	40	40	40	40	35	
	max. continuous	MPa	35	35	35	35	35	35	35	35	35	30	
Revolutions	max. intermittent	rpm	8800	8800	7000	7000	6300	6300	6300	5200	5200	5200	
	max. continuous	rpm	8000	8000	6300	6300	5700	5700	5700	4700	4700	4700	
	min. continuous	rpm	300	300	300	300	300	300	300	300	300	300	
Power	max. intermittent	kW	54	74	86	115	145	175	195	215	230	275	285
	max. continuous	kW	20	25	40	55	65	80	90	100	110	130	135
Start torque theoretical value	Nm/MPa	2.0	2.7	4.0	5.4	7.5	8.9	10.0	13.3	14.4	17.1	20.5	
Mass moment of inertia (x 10 ⁻³)	kg m ²	0.9	0.9	1.1	1.1	2.6	2.6	2.6	7.4	7.4	7.4	7.4	
Weight	kg	8.5	8.5	9.5	9.5	16.5	16.5	16.5	28.0	28.0	30.5	30.5	

Data concerning RPM are based on maximum permitted peripheral velocity for the tapered roller bearings.

Intermittent power data are based on maximum continuous speed and maximum working pressure.

Continuous power data are based on maximum output power without external cooling of the motor housing.

Intermittent duty is defined as follows: max 6 seconds per minute, e.g. peak RPM when unloading or accelerating.

Versions, main data

Example

M-012 W/N-14 A/G-S

Type:

M Motor with fixed displacement

Size:

012 Displacement cm³/rev.

017

025

034

047

056

064

084

090

108

130

Direction of rotation:

W Independent

Shaft seal:

N Nitrile

H Nitrile, high pressure

V Viton, high temperature

Connection cover

SCM 012-084, 108-130 S Angled 40° to the shaft center line

SCM 012-034 K Combi

SCM 012-084, 108-130 R Side port connection

SCM 012-130 V Angled 90° to the shaft center line

Connections:

SCM 012-034 G ISO G thread

SCM 047-130 F Flange (SAE J518, code 62)

Type of shaft:

Spline shaft (DIN 5480)

A

C

E

SCM 012-017 W25x1.25x18x9g

W20x1.25x14x9g

SCM 025 W30x2x14x9g

W25x1.25x18x9g

SCM 034 W30x2x14x9g

SCM 047-056 W35x2x16x9g

W32x2x14x9g

W30x2x14x9g

SCM 064 W35x2x16x9g

SCM 084-090 W40x2x18x9g

W35x2x16x9g

SCM 108 W45x2x21x9g

W40x2x18x9g

SCM 130 W45x2x21x9g

Key shaft (DIN 6885)

B

D

SCM 012-017 Ø 25 k6

Ø 20 k6

SCM 025 Ø 30 k6

Ø 25 k6

SCM 034 Ø 30 k6

SCM 047-056 Ø 35 k6

Ø 30 k6

SCM 064 Ø 35 k6

SCM 084-090 Ø 40 k6

SCM 108-130 Ø 45 k6

Mounting flange:

14 ISO 4-bolt (ISO 3019-2)

Choice of shaft seal

Motor SCM	Code	Temp. °C	Max. housing pressure MPa at rpm								
			1000	2000	3000	4000	5000	6000	7000	8000	9000
012-034	N	75	0.55	0.27	0.18	0.14	0.11	0.09	0.08	0.07	0.06
	H	75	2.46	1.23	0.82	0.61	0.49	0.41	0.35	0.31	0.27
	V	90	0.55	0.27	0.18	0.14	0.11	0.09	0.08	0.07	0.06
047-064	N	75	0.55	0.27	0.18	0.14	0.11	0.09	0.08		
	H	75	2.46	1.23	0.82	0.61	0.49	0.41	0.35		
	V	90	0.55	0.27	0.18	0.14	0.11	0.09	0.08		
084-130	N	75	0.38	0.19	0.13	0.10	0.08	0.06			
	H	75	1.72	0.86	0.57	0.43	0.34	0.29			
	V	90	0.38	0.19	0.13	0.10	0.08	0.06			

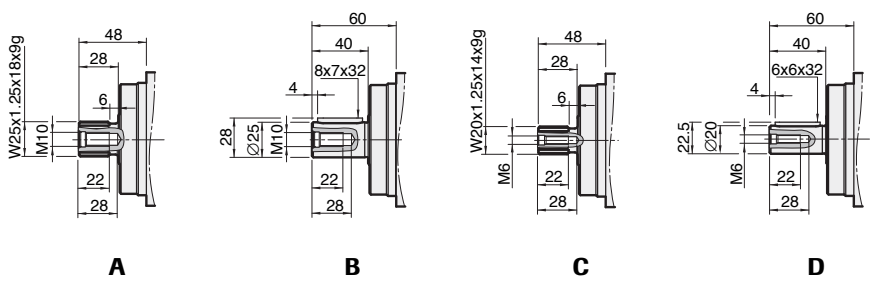
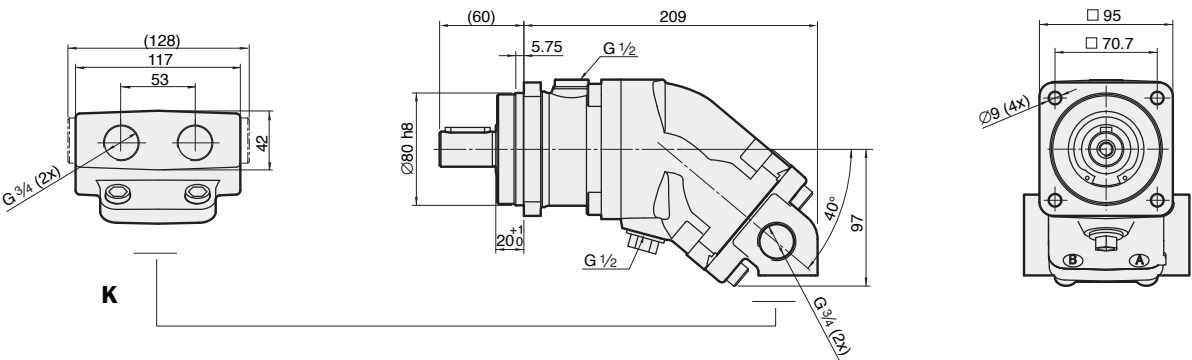
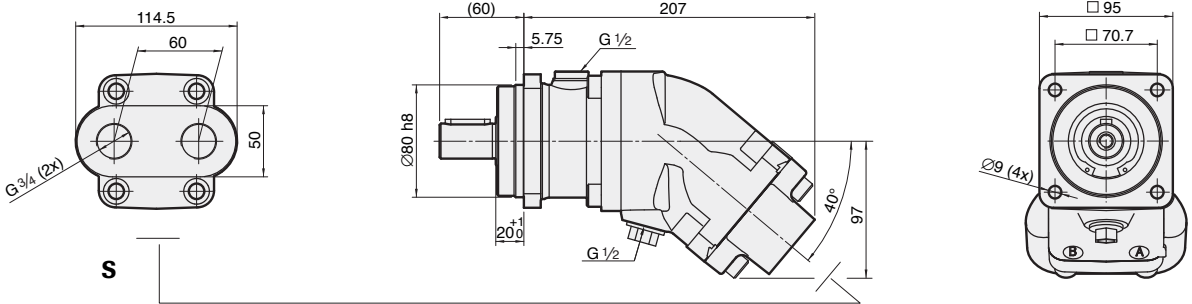
Subject to design modifications
without notice

Factors affecting the choice of shaft seal include the hydraulic motor housing pressure and the drainage oil temperature.

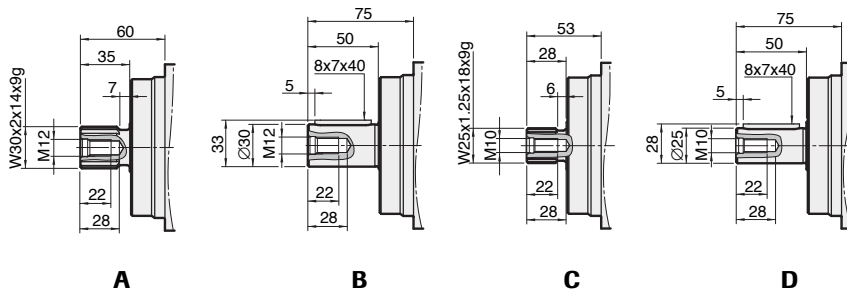
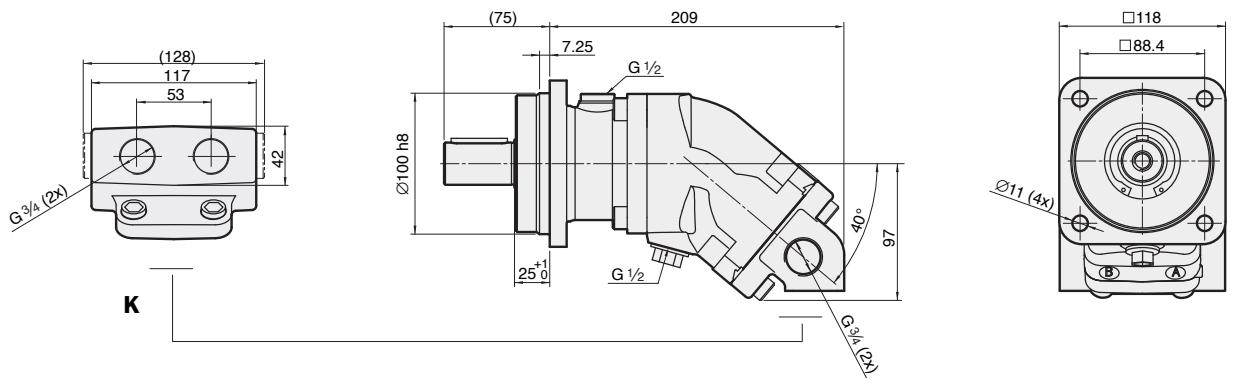
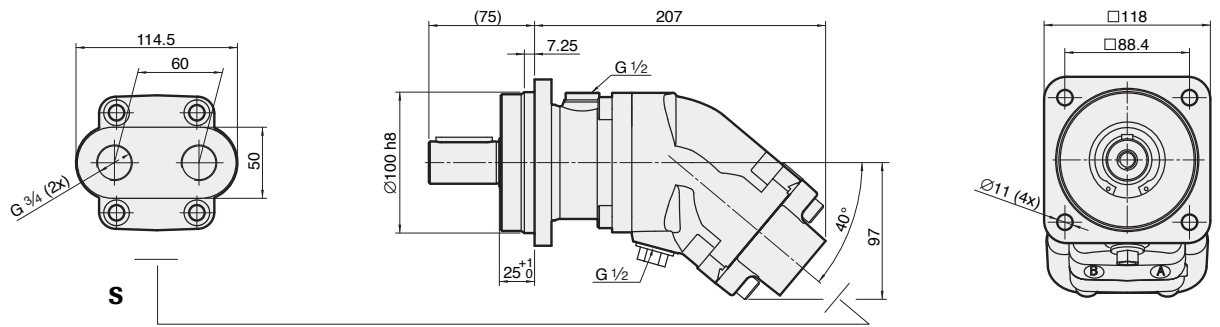
The drainage oil should have a maximum temperature of 75 °C with a Nitrile shaft seal and 90 °C with a Viton shaft seal. These temperatures must not be exceeded.

Code according to Versions, main data.

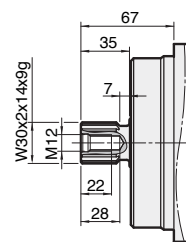
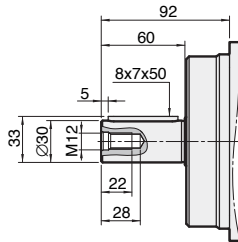
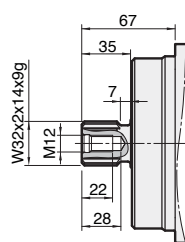
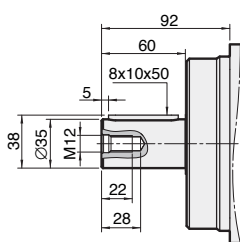
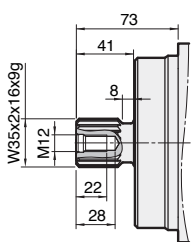
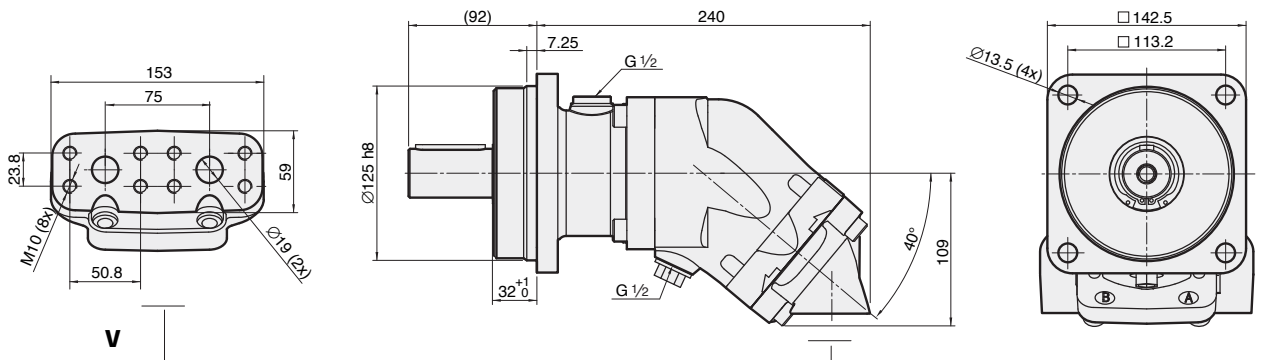
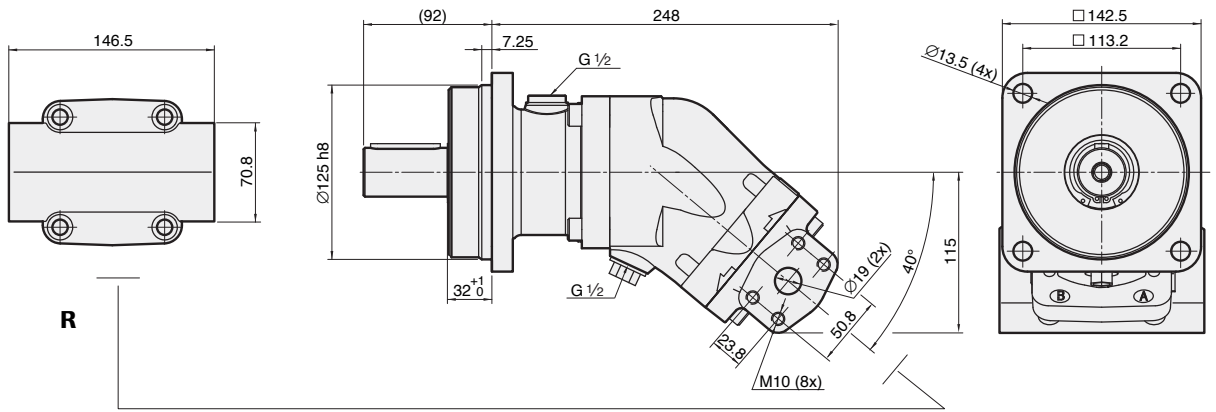
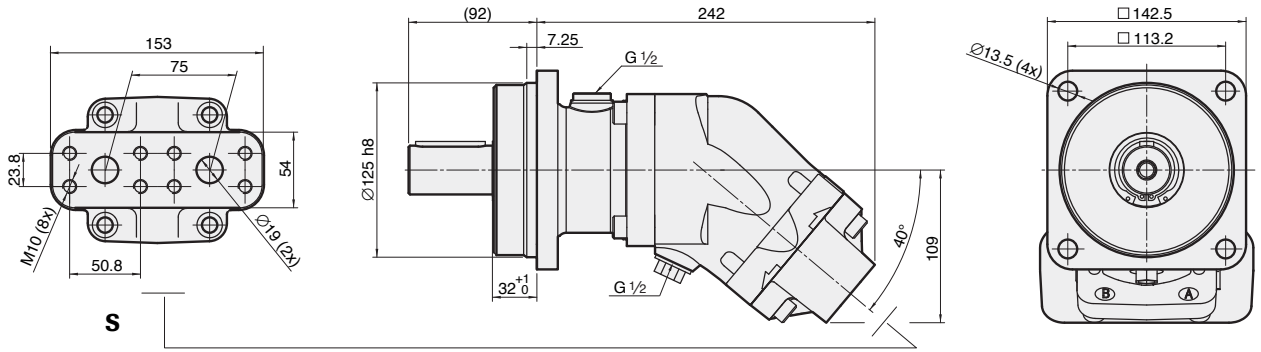
Dimensions SCM 012-017



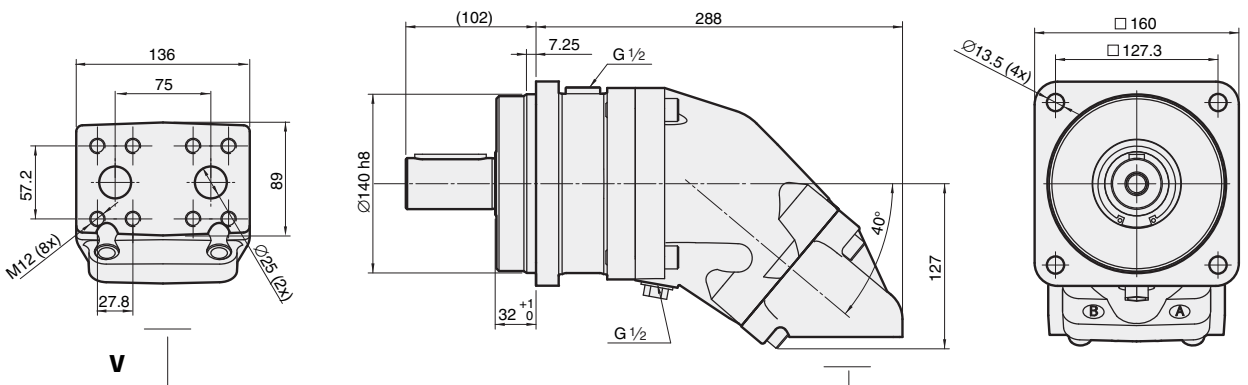
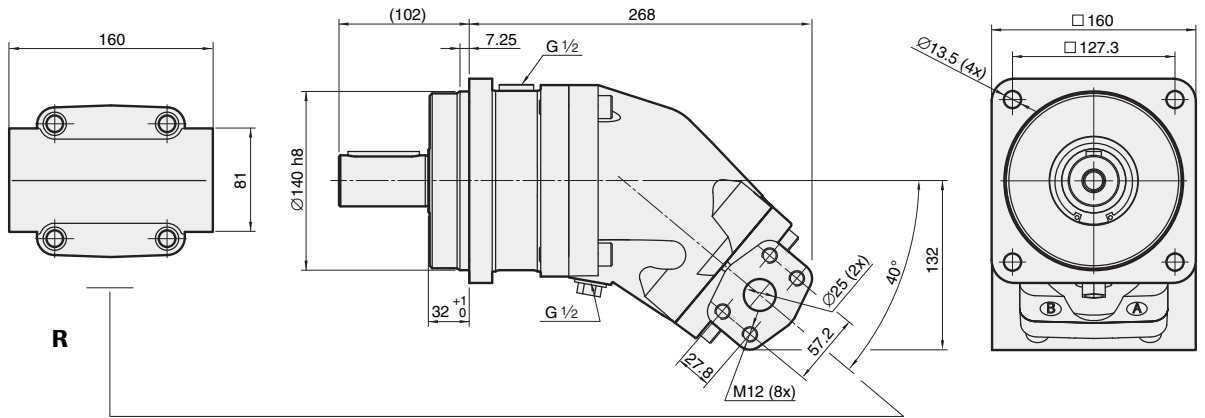
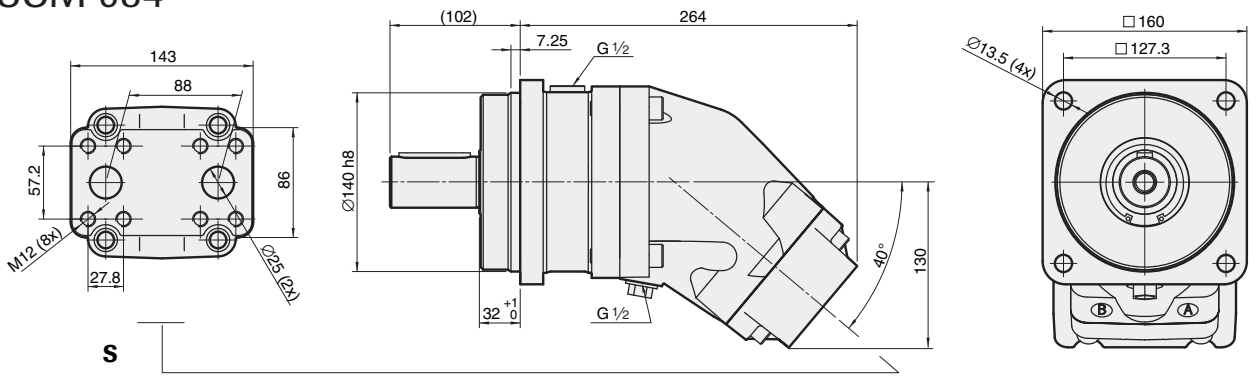
SCM 025-034



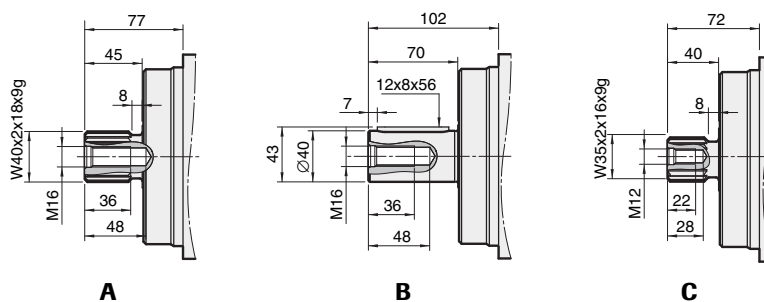
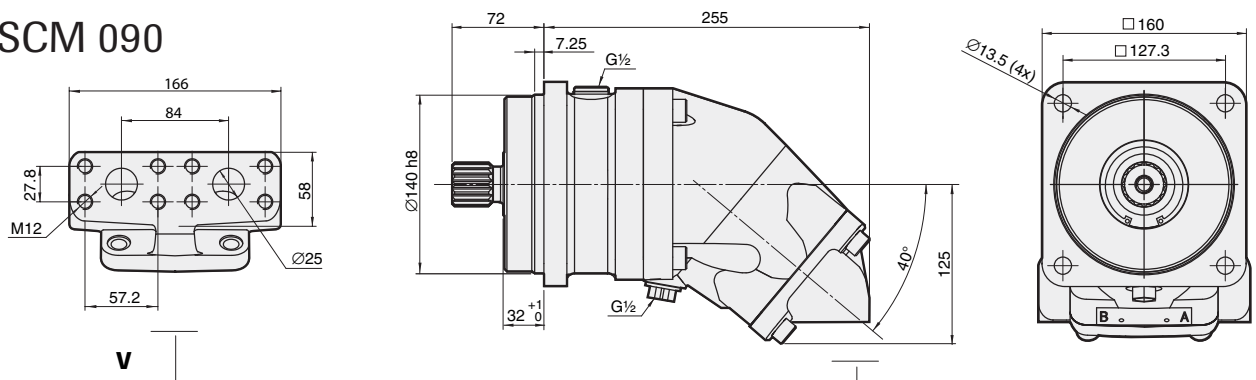
SCM 047-064



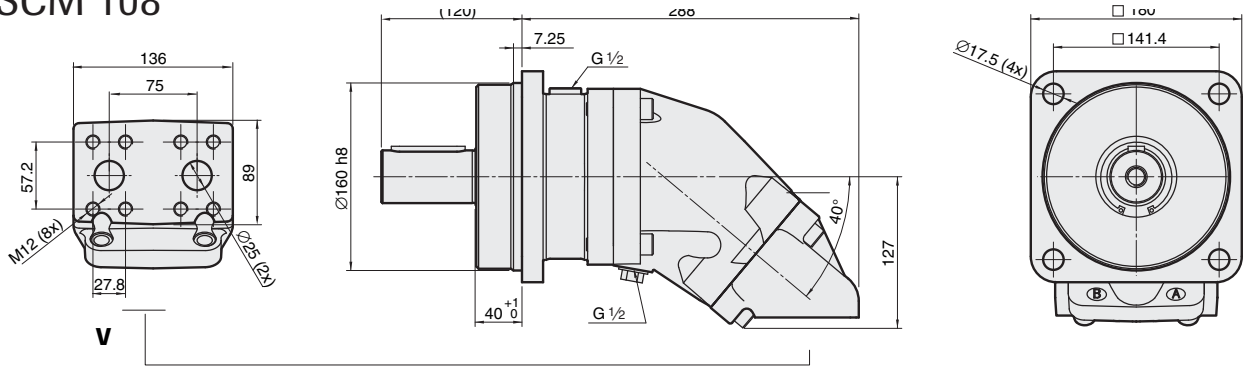
SCM 084



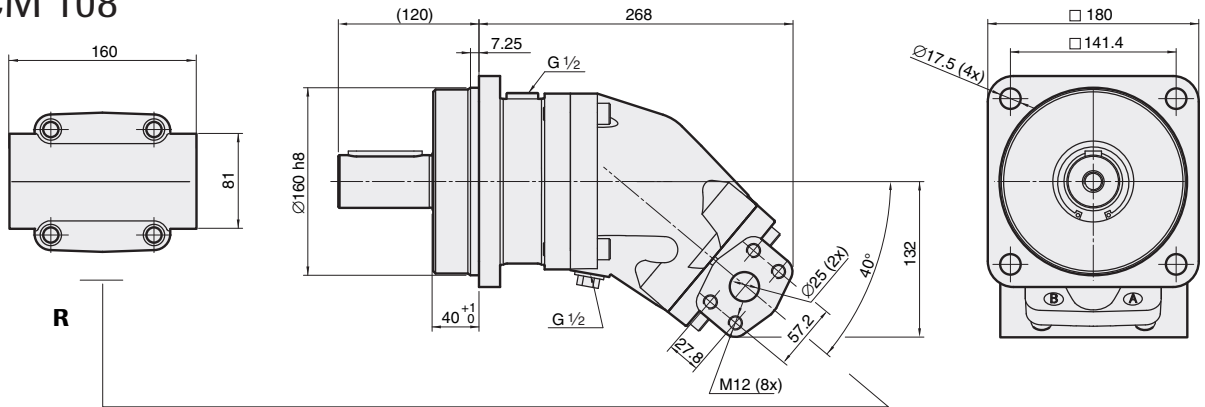
SCM 090



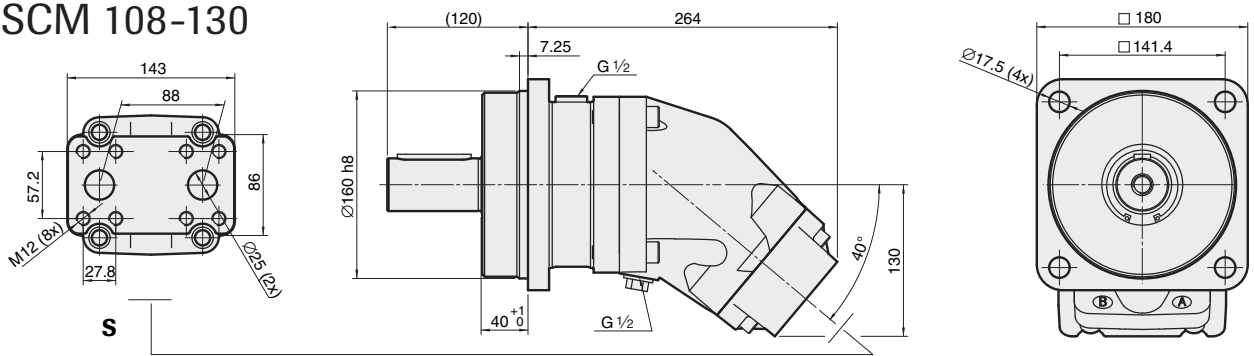
SCM 108



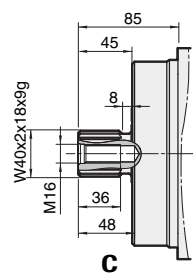
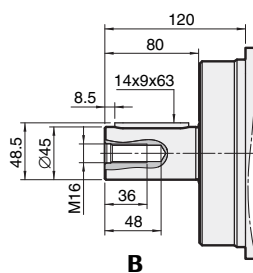
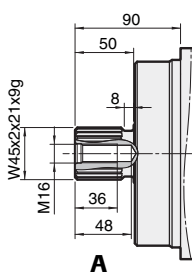
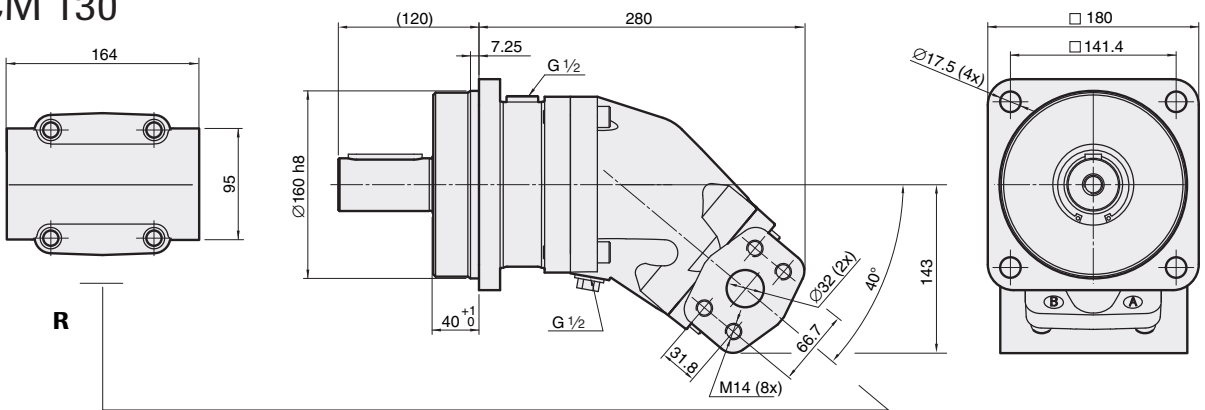
SCM 108



SCM 108-130



SCM 130



General instructions

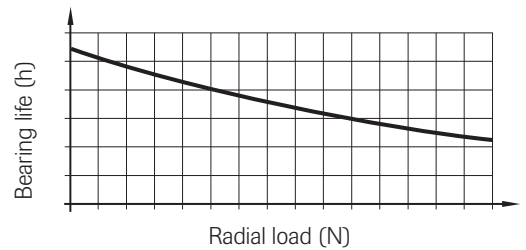
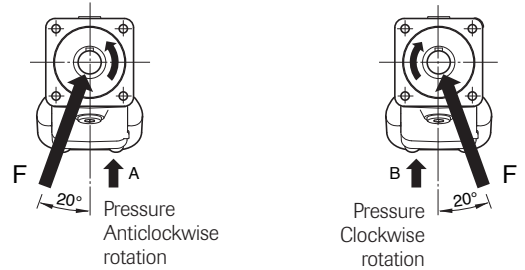
Shaft loads

The life of the motor is highly dependent on the bearing life.

The bearings are affected by operation conditions such as speed, pressure, oil viscosity and filtration. External load on the shaft, as well as its size, direction and location also affect the bearing life.

For calculation of bearing life in special applications, please contact Sunfab Hydraulics.

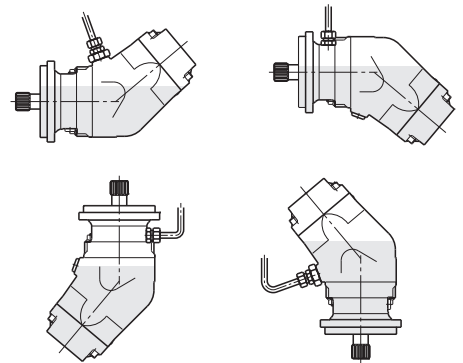
Optimal force direction of radial load



Installation

The motor housing should be filled with oil to at least 50% before starting. The drainage pipe should be connected to topmost drainage outlet.

The other end of the pipe should be connected to the oil tank at a point below the oil level.



Piping

Recommended oil velocity in pressure line max. 7 m/sec.

Filtrering

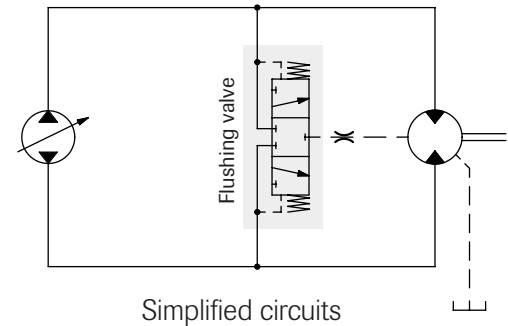
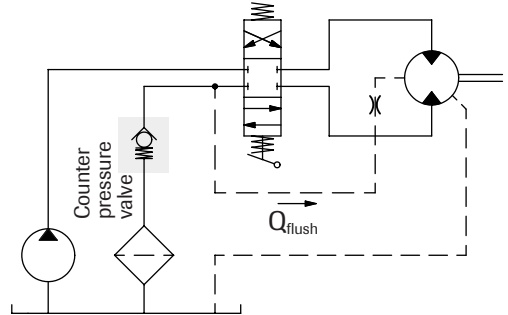
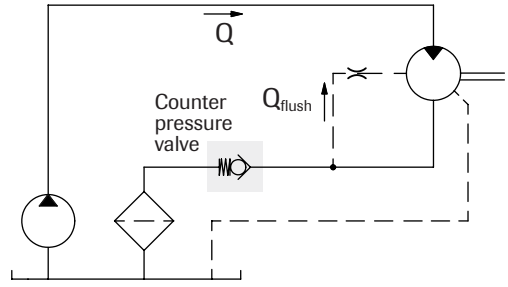
Cleanliness according to ISO norm 4406, code 16/13.

Temperatures/Housing cooling

Excessive system temperature reduces the life of the shaft seal and can lower the oil viscosity below the recommended level. A system temperature of 60 °C and a drain flow temperature of 90 °C must not be exceeded. Cooling/flushing of the motor housing can be needed to keep the drain flow temperature at an acceptable level.

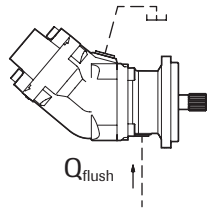
Suggested flow:

Motor SCM	Flushing l/min	Cont. RPM
012-034	2-8	≥ 2800
047-064	4-10	≥ 2500
084-130	6-12	≥ 2200



Simplified circuits

Housing flushing can be built up with the help of a flushing valve or taken directly from the return line. When the return pressure is too low this is compensated for by a counter pressure valve. The tank line is connected to the highest point as in the figure.



Hydraulic fluids

High performance oils meeting ISO specifications – such as HM, DIN 51524-2HLP, or better – must be used.

A min. viscosity of 10 cSt is required to keep the lubrication at a safe level.

The ideal viscosity is 20 - 40 cSt.

Useful formulae

Required flow rate $Q = \frac{D \times n}{1000 \times \eta_v}$ litres/min.

Speed $n = \frac{Q \times 1000 \times \eta_v}{D}$ RPM

Torque $M = \frac{D \times \Delta p \times \eta_{hm}}{6.3}$ Nm

Power $P = \frac{Q \times \Delta p \times \eta_t}{60}$ kW

D = displacement, cm³/revolution

n = speed, revolution/min

P = power, kW

Q = flow rate, litres/min

η_v = volumetric efficiency

η_{hm} = hydraulic-mechanical efficiency

η_t = overall efficiency = $\eta_v \times \eta_{hm}$

M = torque, Nm

Δp = pressure difference between the hydraulic motor inlet and outlet, MPa



SAMT



HYDRAULICS

Factory 19 / 5 Lyn Parade PRESTONS NSW 2170
Ph: (02) 9607 4100 Fax: (02) 9607 4200



WARNING

When the motor is in use:

1. Do not touch the pressure pipe
2. Beware of rotating parts
3. The motor and pipes can reach high temperatures