



Sunfab SCM M2 is a range of robust axial piston motors especially suitable for winch-, slewing-, wheel- and track drives.

Sunfab SCM M2 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 M2 covers the entire displacement range 47-90 cm³/rev at a maximum working pressure of 40 MPa.

Sunfab SCM M2's well dimensioned, double tapered roller bearings permit high shaft loads and lead to excellent speed characteristics.

Sunfab SCM M2's high level of reliability is based on the choice of materials, hardening methods, surface structures and the quality assured manufacturing process.

Type		047	056	064	084	090
Displacement	cm ³ /rev.	47.1	56.0	63.5	83.6	90.7
Working pressure	<i>max. intermittent</i>	40	40	40	40	40
	<i>max. continuous</i>	35	35	35	35	35
Revolutions	<i>max. intermittent</i>	6300	6300	6300	5200	5200
	<i>max. continuous</i>	5700	5700	5700	4700	4700
	<i>min. continuous</i>	300	300	300	300	300
Power	<i>max. intermittent</i>	145	175	195	215	230
	<i>max. continuous</i>	65	80	90	100	110
Start torque theoretical value	Nm/MPa	7.5	8.9	10.0	13.3	14.4
Mass moment of inertia (x 10 ⁻³)	kg m ²	2.6	2.6	2.6	7.4	7.4
Weight	kg	18.3	18.3	18.3	26.0	26.0

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.

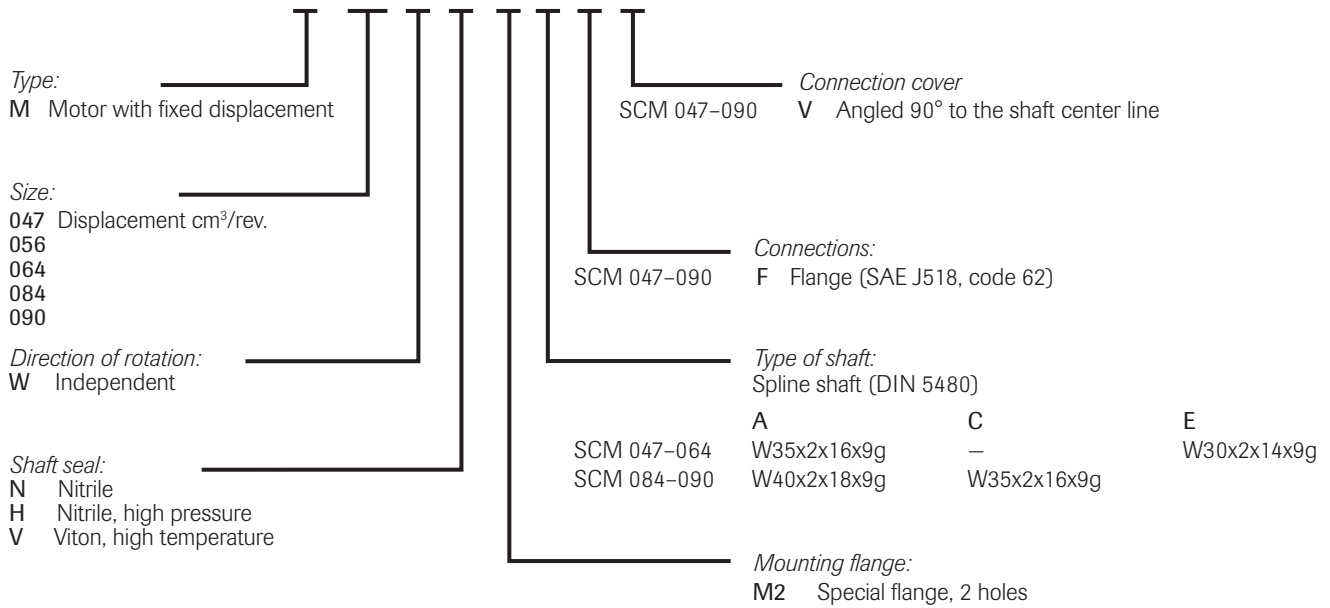
Continuous power data are based on maximum output power without external cooling of the motor housing.

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

Versions, main data

Example

M - 064 W/N-M2 A / F - V



Choice of shaft seal

Motor SCM	Code	Temp. °C	Max. housing pressure MPa at rpm						
			1000	2000	3000	4000	5000	6000	7000
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
084-090	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

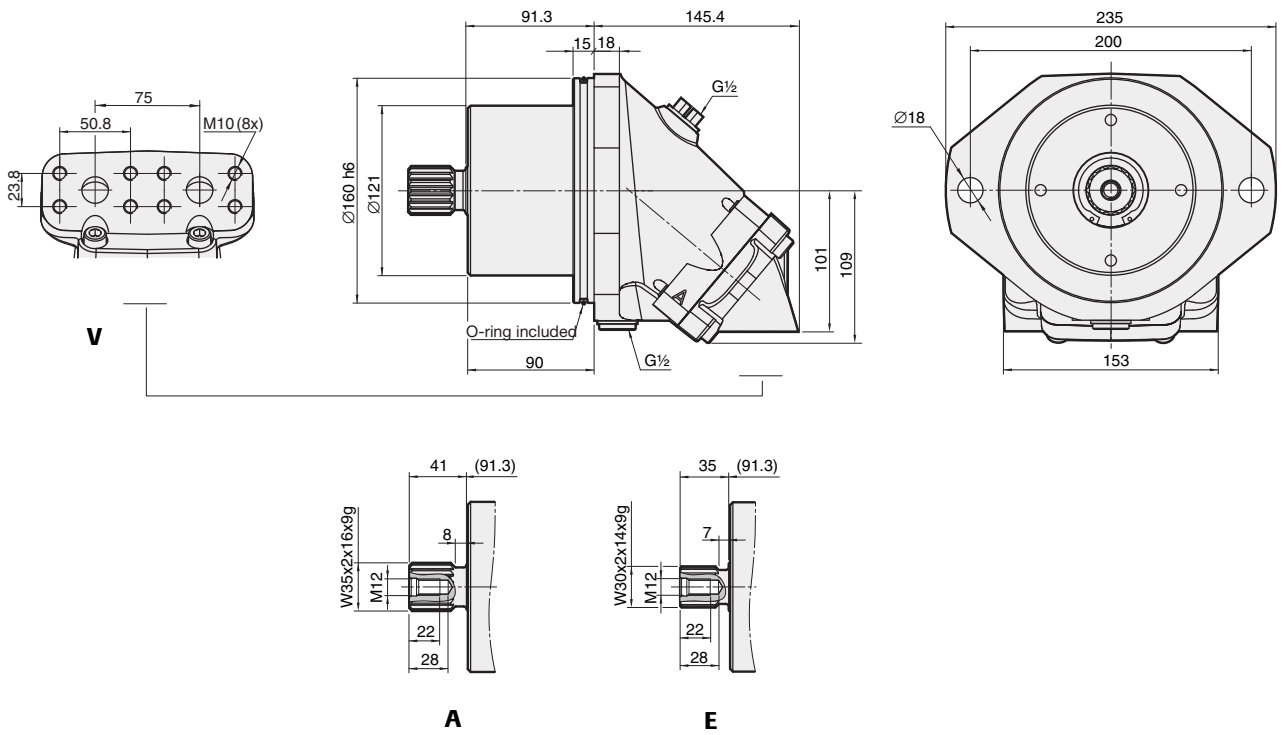
Factors affecting the choice of shaft seal include the hydraulic motor housing pressure and the drainage oil temperature.

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.

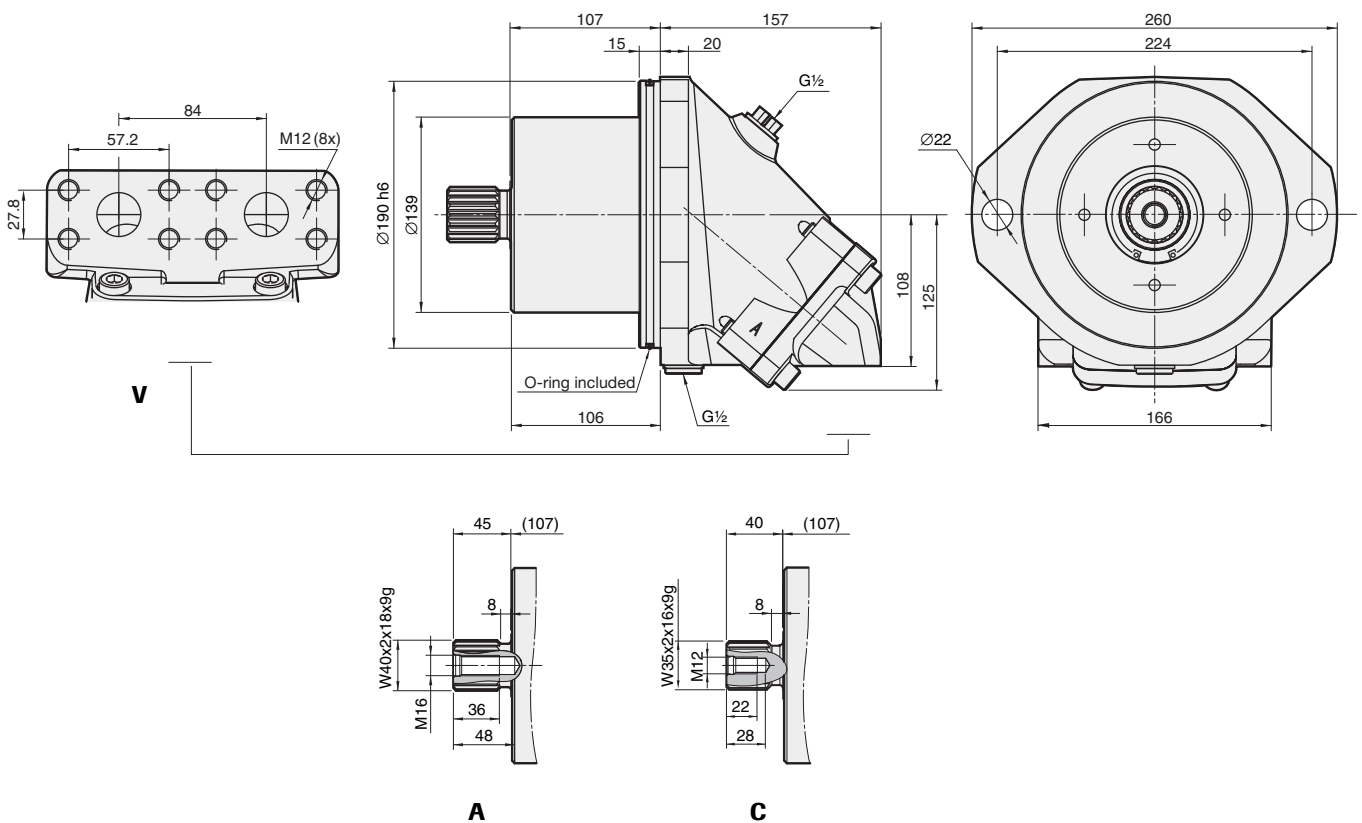
Code according to Versions, main data.

Dimensions

SCM 047-064 M2



SCM 084-090 M2



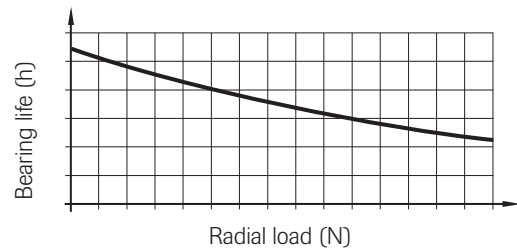
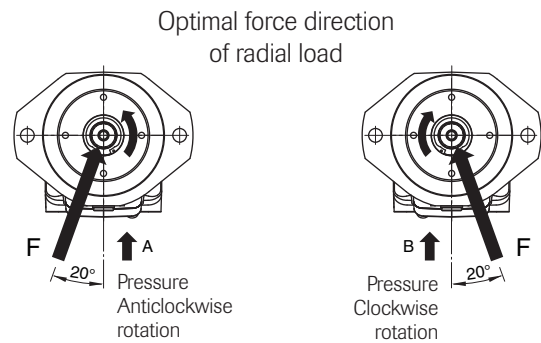
General instructions

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.

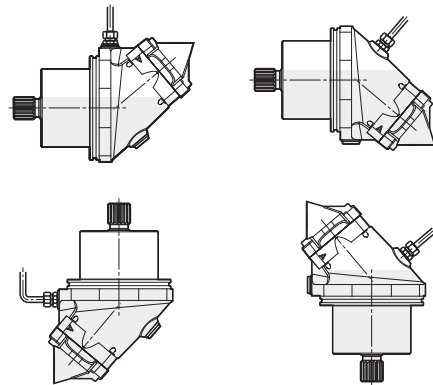
For calculation of bearing life in special applications, please contact Sunfab Hydraulics.



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.

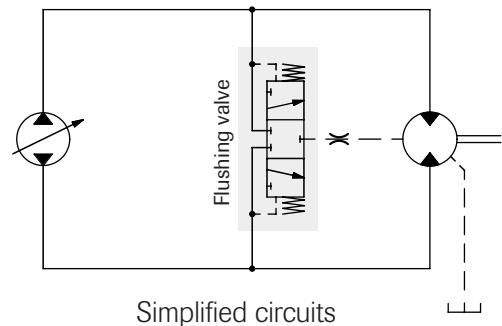
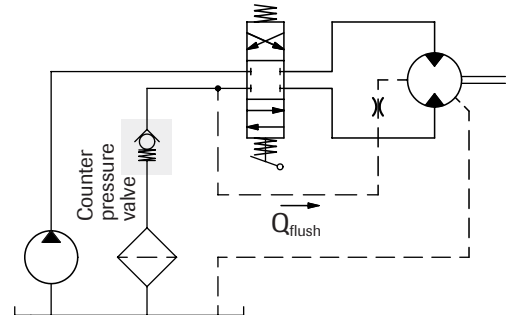
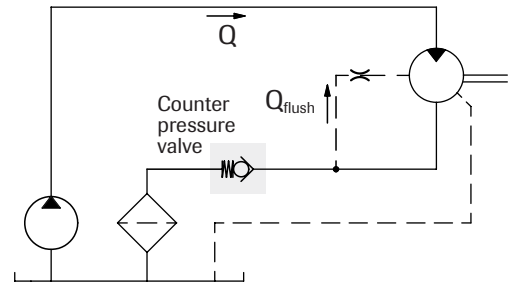
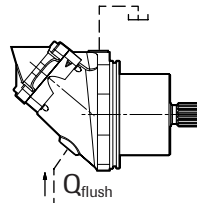
Temperatures/Housing cooling

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
047-064	4-10	≥ 2500
084-090	6-12	≥ 2200

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.



Simplified circuits

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