



SAM 010-130 DIN is a series of light weight casing axial piston motors, particularly suitable for mobile hydraulics. SAM 010-130 DIN is of the bent-axis type with spherical pistons.

The design gives a compact motor with few moving parts, high starting torque and high operational reliability. It covers the entire displacement range 0.59 - 7.93 cu in/rev. with maximum pressure 5075 psi.

The high level of reliability is due to the choice of materials, hardening methods, surface structures and the quality assured manufacturing process.

Other advantages:

- Corrosion free light metal-housing
- Smooth operation over the entire speed range
- High efficiency
- Suitable for applications with high angular accelerations due to its high rotary stiffness
- Light weight
- Less heat generation due to better ability to dissipate heat through housing

Versions, main data

Example

| | | | | | | | | | | | | | | | | |
|------|---|---|-----|---|---|---|---|-----|---|-----|---|----|---|---|---|----|
| SA | M | - | 012 | W | - | N | - | DL4 | - | L35 | - | S3 | G | - | 1 | 00 |
| Line | 1 | | 2 | 3 | | 4 | | 5 | | 6 | | 7 | 8 | | 9 | 10 |

| | | |
|------|----|------------------|
| Line | SA | Sunfab Aluminium |
|------|----|------------------|

| | | |
|---------|---|-------|
| 1. Type | M | Motor |
|---------|---|-------|

| | | | | | | | | | | | | | |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2. Displacement | 010 | 012 | 017 | 025 | 034 | 040 | 047 | 056 | 064 | 084 | 090 | 108 | 130 |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

| | | |
|--------------------------|---|-------------|
| 3. Direction of rotation | W | Independent |
|--------------------------|---|-------------|

| | | |
|------------|---|---------|
| 4. Sealing | N | Nitrile |
|------------|---|---------|

| | |
|--------------------|------------|
| 5. Mounting flange | ISO 7653-D |
| DL4 | ø 80 |

| | |
|----------|-------------------|
| 6. Shaft | DIN 5462 / ISO 14 |
| L35 | 8x32x34.9 |

| | | | | | | | | | | | | | | |
|---------------------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 7. Connection cover | | 010 | 012 | 017 | 025 | 034 | 040 | 047 | 056 | 064 | 084 | 090 | 108 | 130 |
| S3 | 40° Threaded connection | X | X | X | X | X | X | X | X | X | X | X | X | X |

| | | | | | | | | | | | | | | |
|----------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 8. Connections | | 010 | 012 | 017 | 025 | 034 | 040 | 047 | 056 | 064 | 084 | 090 | 108 | 130 |
| G | ISO G | X | X | X | X | X | X | X | X | X | X | X | X | X |

| | | | |
|----------------|--|---|-------------------|
| 9. Accessories | | 1 | External drainage |
|----------------|--|---|-------------------|

| | | | | | | | | | | | | | | |
|------------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 10. Speed Sensor | | 010 | 012 | 017 | 025 | 034 | 040 | 047 | 056 | 064 | 084 | 090 | 108 | 130 |
| 00 | No Speed Sensor | X | X | X | X | X | X | X | X | X | X | X | X | X |

- = Not available
 X = Standard, preferred
 O = Contact Sunfab

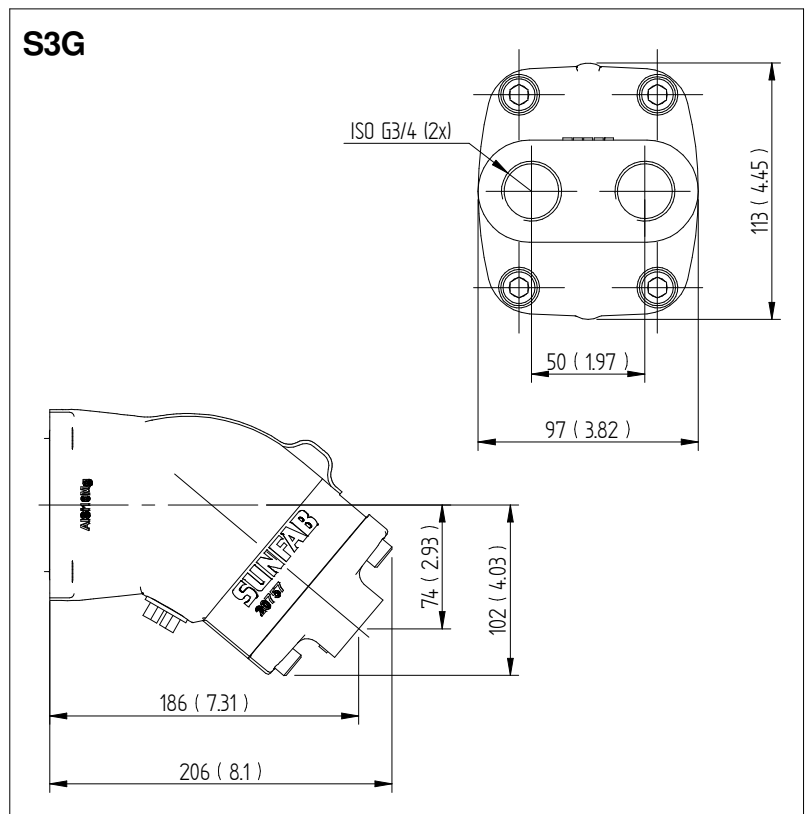
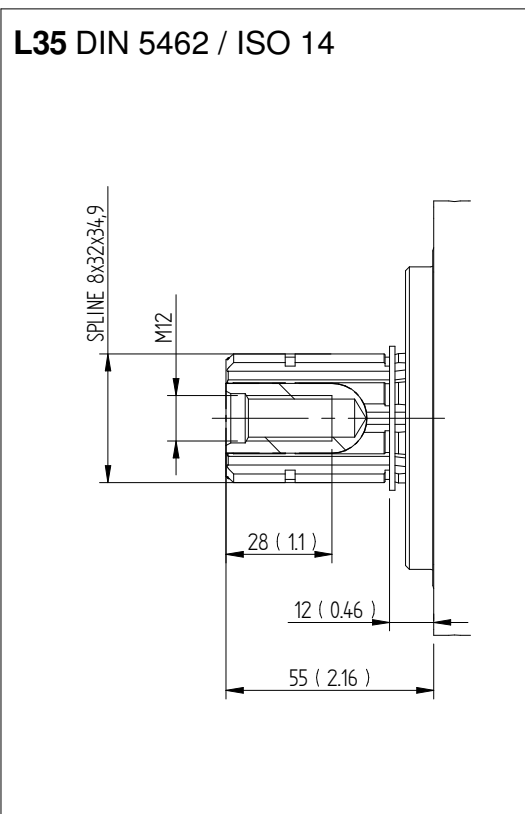
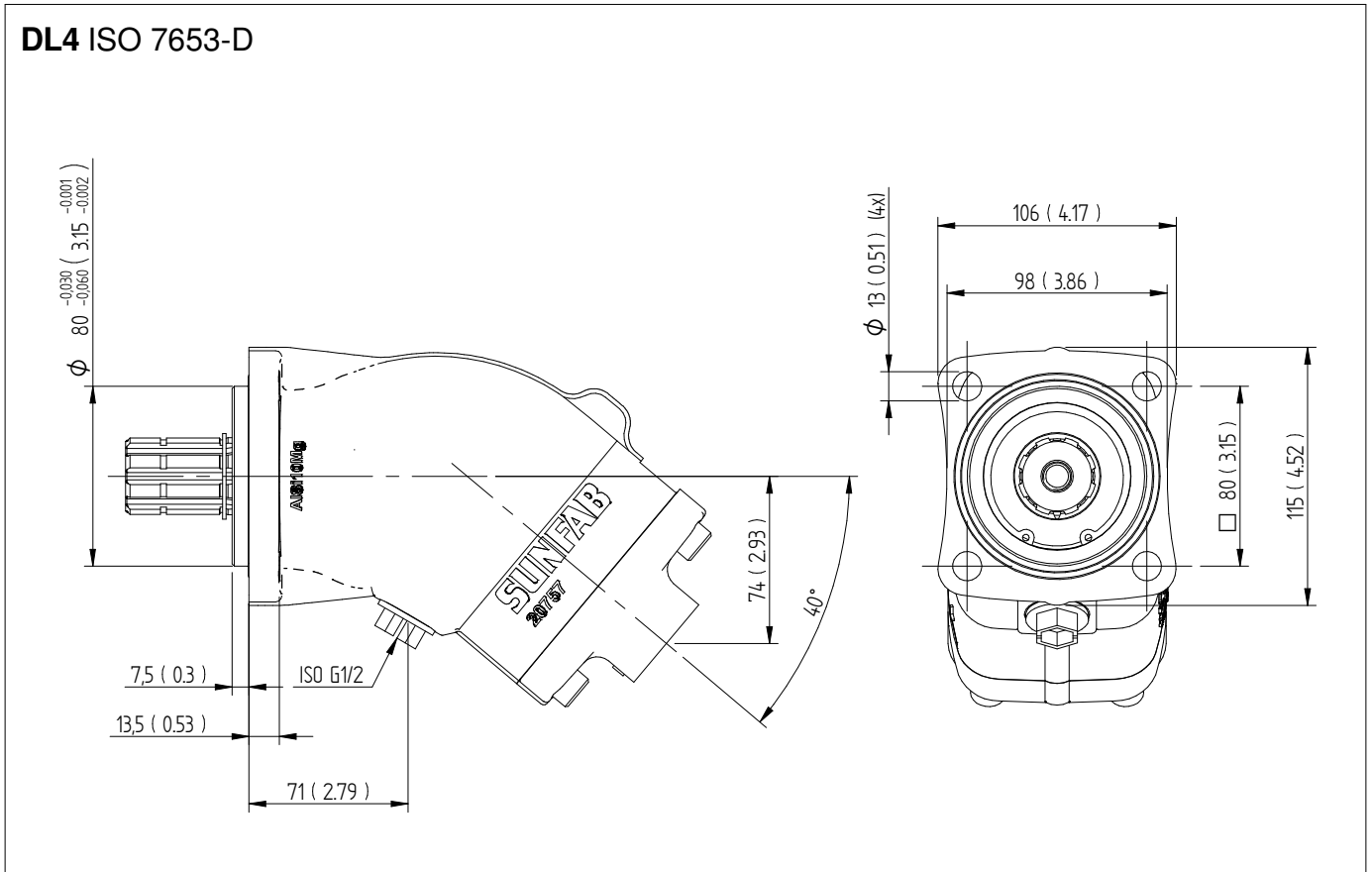
| SAM 010-130 DIN | | 010 | 012 | 017 | 025 | 034 | 040 | 047 | 056 | 064 | 084 | 090 | 108 | 130 |
|-----------------------------------------|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Displacement | cu in/rev | 0.59 | 0.77 | 1.04 | 1.55 | 2.09 | 2.51 | 2.87 | 3.42 | 3.88 | 5.10 | 5.53 | 6.59 | 7.93 |
| Working pressure | | | | | | | | | | | | | | |
| <i>max intermittent</i> | psi | 5800 | 5800 | 5800 | 5800 | 5800 | 5800 | 5800 | 5800 | 5800 | 5800 | 5800 | 5800 | 4785 |
| <i>max continuous</i> | | 5075 | 5075 | 5075 | 5075 | 5075 | 5075 | 5075 | 5075 | 5075 | 5075 | 5075 | 5075 | 4060 |
| Revolutions | | | | | | | | | | | | | | |
| <i>max intermittent</i> | rpm | 3000 | 3000 | 3000 | 3000 | 3000 | 2500 | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 2000 |
| <i>max continuous</i> | | 2400 | 2400 | 2400 | 2400 | 2400 | 2000 | 2000 | 2000 | 2000 | 1600 | 1600 | 1600 | 1600 |
| <i>min continuous</i> | | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Power | | | | | | | | | | | | | | |
| <i>max intermittent</i> | hp | 19 | 24 | 32 | 48 | 66 | 76 | 87 | 105 | 118 | 125 | 136 | 161 | 166 |
| <i>max continuous</i> | | 15 | 19 | 25 | 39 | 52 | 62 | 70 | 83 | 54 | 99 | 110 | 129 | 133 |
| Starting torque theoretical value | lb-ft/1000psi | 8 | 10 | 14 | 20 | 27 | 33 | 38 | 45 | 51 | 67 | 73 | 87 | 105 |
| Moment of inertia (x 10 ⁻³) | lb-ft-sec ² | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 1.9 | 1.9 | 1.9 | 1.9 | 5.5 | 5.5 | 5.5 | 5.5 |
| Max intermittent housing pressure | psi | 72.5 | 72.5 | 72.5 | 72.5 | 72.5 | 72.5 | 72.5 | 72.5 | 72.5 | 72.5 | 75.5 | 72.5 | 72.5 |
| Weight | lb | 15.2 | 15.2 | 15.2 | 15.7 | 15.7 | 21.6 | 21.6 | 21.6 | 21.6 | 30.6 | 30.6 | 30.6 | 30.6 |

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

Dimensions SAM 010-034

Flange, shaft & connection cover

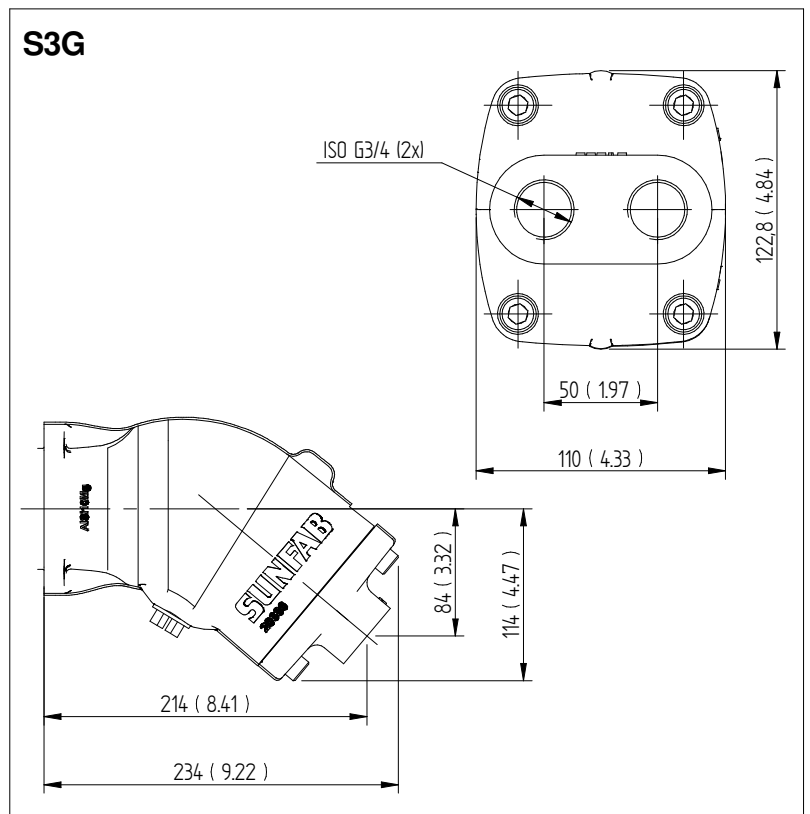
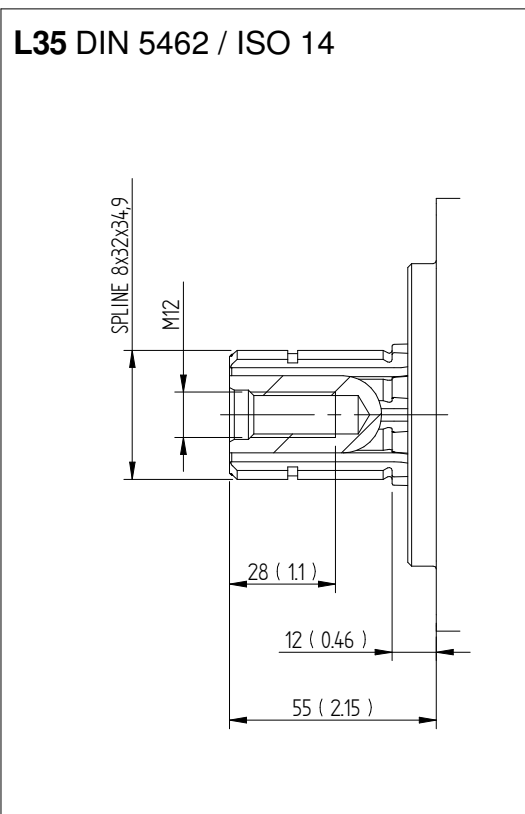
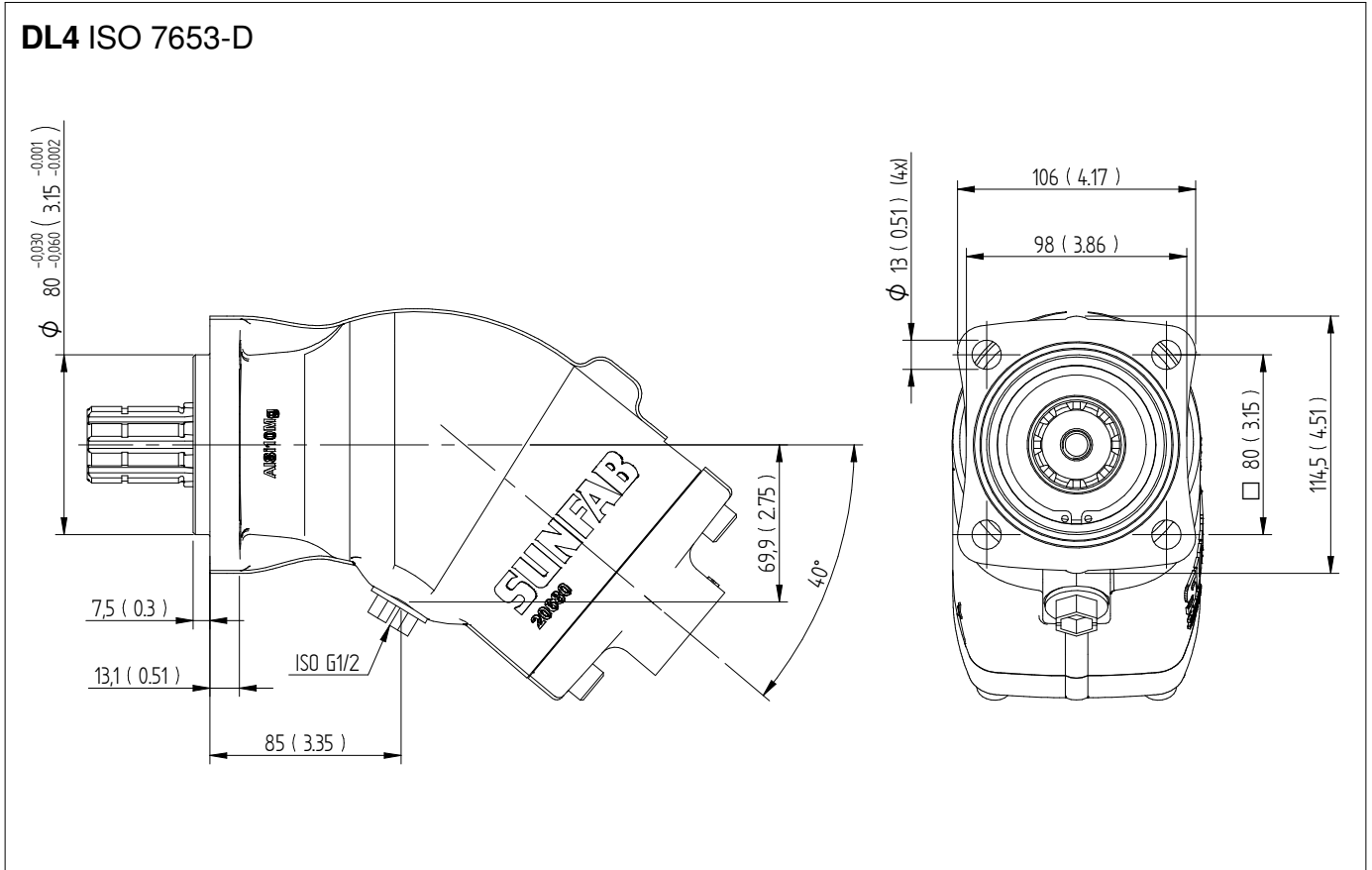
Millimeter (inch)



Dimensions SAM 040-064

Flange, shaft & connection cover

Millimeter (inch)

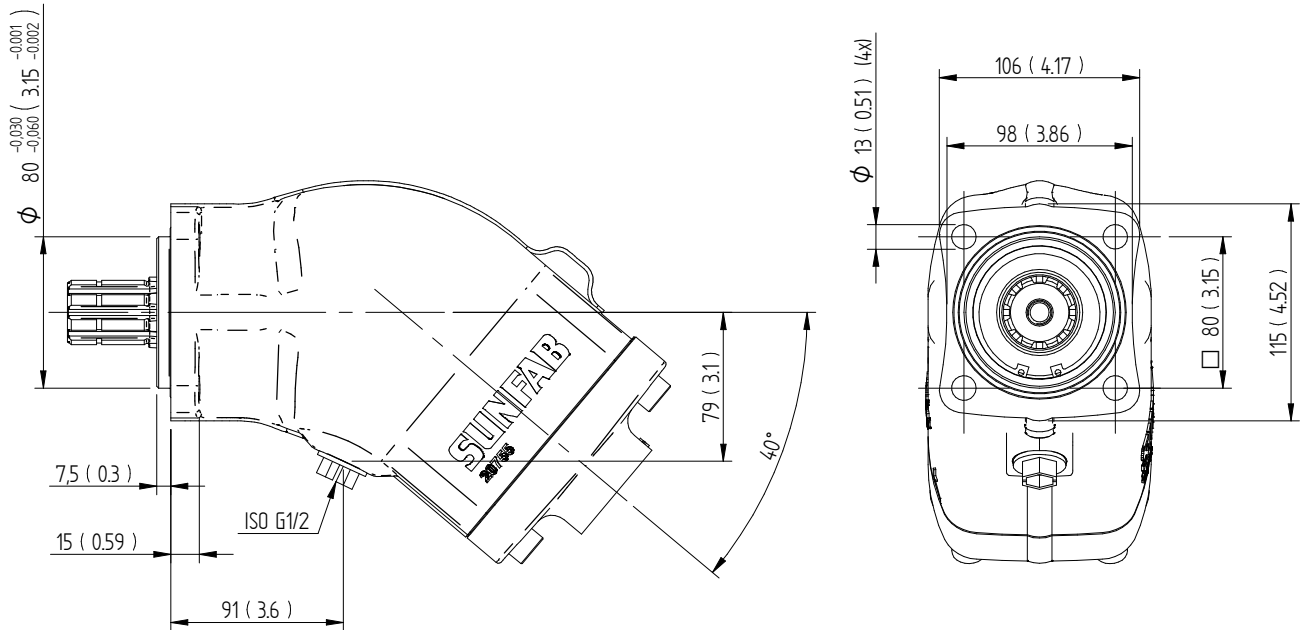


Dimensions SAM 084-130

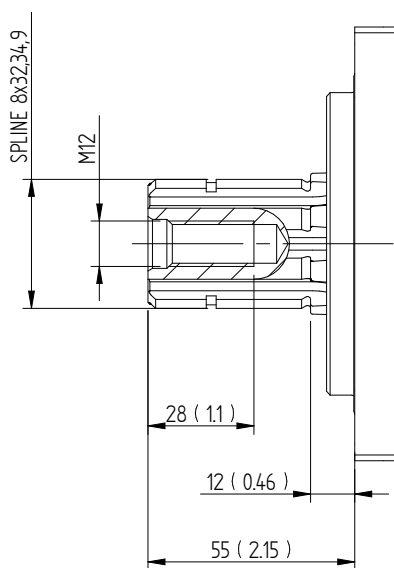
Flange, shaft & connection cover

Millimeter (inch)

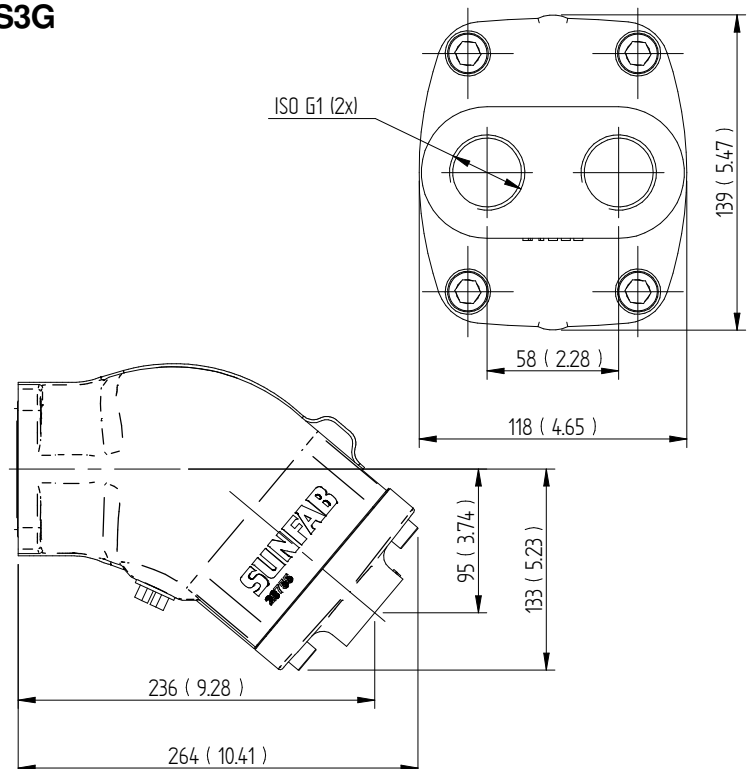
DL4 ISO 7653-D



L35 DIN 5462 / ISO 14

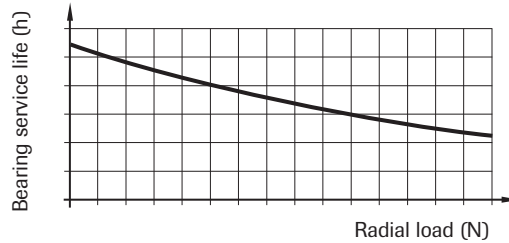
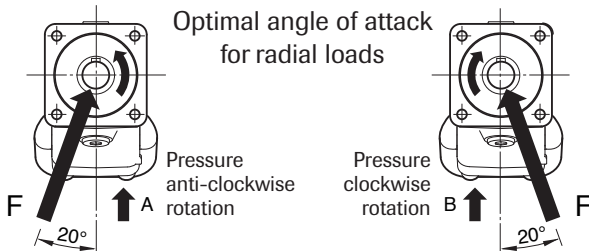


S3G



Shaft loads

The service life of the motor largely depends on the service life of the bearings. These are affected by the operating conditions such as speed, pressure, oil viscosity and degree of purification.

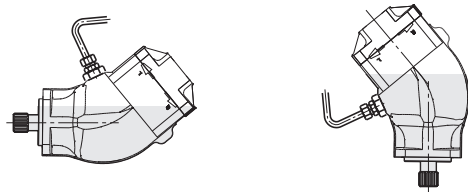


External loading of the shaft, its size, direction and location also affect the service life of the bearings.

If a calculation of bearing service life is required for special applications, contact Sunfab Hydraulics.

Installation

The motor housing is filled with oil to at least 50% of the volume before start up. The drainage hose is connected to the drainage outlet positioned highest on the motor. The other end is connected below the oil level in the oil tank.



Hydraulic fluids

High performance oil meeting the specifications of ISO type HM, DIN 51524-2HLP or better must be used. Min. viscosity 10 cSt is required to guarantee lubrication. Ideal viscosity is 20 - 40 cSt.

Pipe dimensions

The recommended flow velocity in the pressure line is max 23 ft/s.

Filtering

Cleanliness ISO norm 4406, code 16/13 is recommended.

Useful formulaes

Required flow rate $Q = \frac{D \times n}{231 \times \eta_v}$ GPM.

Speed $n = \frac{Q \times 231 \times \eta_v}{D}$ RPM

Torque $M = \frac{D \times \Delta p \times \eta_{hm}}{75.6}$ lb-ft

Power $P = \frac{Q \times \Delta p \times \eta_t}{1714}$ hp

D = displacement, cu in/rev

n = revolutions, RPM

P = power, hp

Q = flow, GPM

η_v = volumetric efficiency

η_{hm} = hydromechanical efficiency

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

M = torque, lb-ft

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



WARNING!

When the motor is in use:

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

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