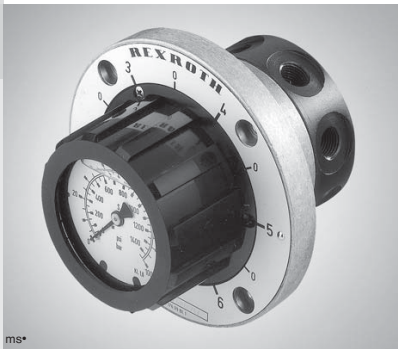
Multi-circuit gauge isolator

RE 50034/09.05 1/8
Replaces: 01.03

Types MS / MSL



Models 2, 4, 5, 6 and 7
Series 2X
Maximum operating pressure 315 bar

Overview of contents

Features

- Valve housing with threaded connections
- With flange mounting
- Optionally available with:
  - 5 measuring points
  - 6 measuring points
  - 8 measuring points
  - 9 measuring points
- Either with or without built-in pressure gauge (types MS 2/MSL 2)
- Leak-free isolation (type MSL 2)

Ordering details: types MS 2 / MSL 2

	2		**2X/**			*

Multi-circuit gauge isolator
Standard version **= MS**
Leak-free version **= MSL**

With built-in pressure gauge (6 measuring connections) **= 2**

Connection type
G 1/4 DIN/ISO 228 **= A**
M 8 x 1 **= B**
Flanged connection (Only for type MSL) **= C**
M 10 x 1 **= E**
G 1/8 DIN/ISO 228 **= F**
1/4" NPTF **= G**
7/16"-20 UNF **= H**

Series 20 to 29 **= 2X**
(20 to 29: unchanged installation and connection dimensions)

Further details in clear text

No code = **Without** connection for external pressure gauge (only type MSL)
D = **With** connection for external pressure gauge (only type MSL)

No code = NBR seals
V = FKM seals
(other seals on request)
⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

40 = Max. usable indication range 40 bar/ 570 PSI
63 = Max. usable indication range 63 bar/ 900 PSI
100 = Max. usable indication range 100 bar/ 1400 PSI
180 = Max. usable indication range 180 bar/ 2600 PSI
315 = Max. usable indication range 315 bar/ 4500 PSI

Ordering details: types MS 4 to MS 7

MS		**A**	**2X/**		*

Multi-circuit gauge isolator **= MS**

Pressure indication by pressing the rotary knob (6 measuring connections) **= 4**
Direct indication (5 measuring connections) **= 5**
Pressure indication by pressing the rotary knob (9 measuring connections) **= 6**
Direct indication (8 measuring connections) **= 7**

Connection type
Threaded connections **= A**

Series 20 to 29 **= 2X**
(20 to 29: unchanged installation and connection dimensions)

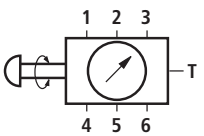
Further details in clear text

No code = Threaded connections G 1/4 DIN/ISO 228 for MS 4 and MS 5
Threaded connections G 1/8 DIN/ISO 228 for MS 6 and MS 7
/5 = Threaded connections NPT valve fixing holes for UNC screws

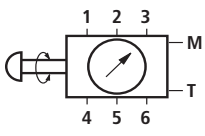
No code = NBR seals
V = FKM seals
(other seals on request)
⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

Symbols

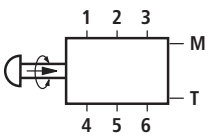
Type MS 2/MSL 2



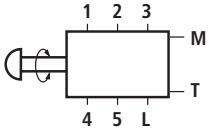
Type MSL 2...D



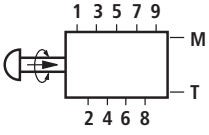
Type MS 4



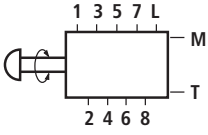
Type MS 5



Type MS 6



Type MS 7



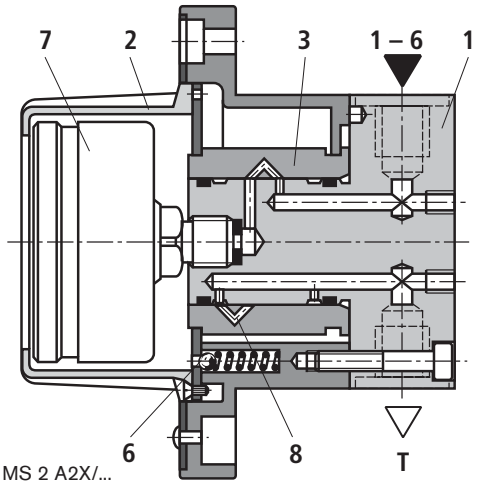
Function, section

Multi-circuit gauge isolators type MS are rotary spool valves. They offer the possibility of selecting measuring points within a hydraulic system and checking the operating pressure at these points using only one pressure gauge. The measuring connections are arranged around the circumference of the housing (1).

Mult-circuit gauge isolators type MS 2 with built-in pressure gauge (6 measuring points)
With this valve, the rotary knob (2) is fitted with a glycerine filled pressure gauge (7). By turning the rotary knob (2) and the sleeve (3) which is connected to it, until the indicator on the rotary knob (2) points to one of the 6 measuring points, 1 measuring point is connected to the pressure gauge (7).

In order to unload the pressure gauge (7) there are zero points between each measuring point. In this way the pressure gauge (7) is connected to the reservoir (connection T) via the drilling (8) in sleeve (3) and is thereby unloaded.

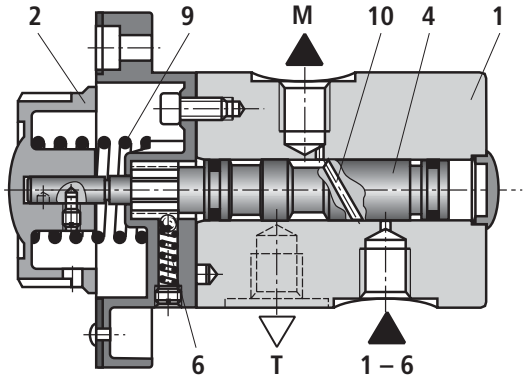
A built-in detent (6) holds each selected position. Which measuring point is connected to the pressure gauge, is indicated by the arrow which is situated on the rim of the rotary knob.



Type MS 2 A2X/...

Mult-circuit gauge isolators type MSL 2 (leak-free) with built-in pressure gauge (6 measuring points)
The multi-circuit gauge isolators have the same function as the type MS 2, the measuring points, however isolate leak-free. The application of these isolators is advantagous in hydraulic systems where, due to pressure holding functions, pressure gauge isolator valves with internal leakage cannot be used.

Multi-circuit gauge isolators types MS 4 and MS 6 without pressure gauge (6 or 9 measuring points)
These gauge isolators are suitable for checking 6 or 9 measuring points. They are, however supplied without a built-in pressure gauge.
The pressure gauge is mounted separately and is connected to port M of the multi-circuit gauge isolator by means of a pipe or hose.
Pressure indication is achieved when the correct rotary position has been selected, then by pressing the rotary knob (2) in an axial direction against the spring (9). The spool (4) moves to connect the selected test point to the gauge via drilling (10). Releasing the rotary knob (2) returns the spool (4) to its rest position and connects the pressure gauge to tank (port T) and is thereby unloaded. A built-in detent (6) holds any selected position.



Type MS 4 A2X/...

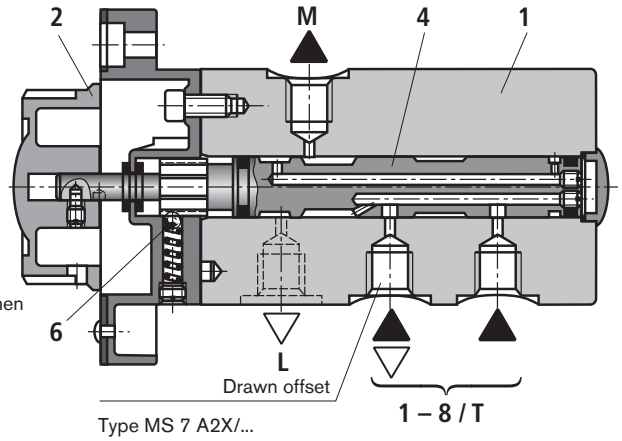
Multi-circuit gauge isolator types MS 5 and MS 7 (5 or 8 measuring points)

These multi-circuit gauge isolators are suitable for checking 5 or 8 measuring points.

As with types MS 4 / MS 6, no pressure gauge is built-in. The gauge has to be separately mounted and connected to port M of the multi-circuit gauge isolator.

The pressure indication is directly obtained, by turning the rotary knob (2) and its direcly coupled spool (4), when the indication point on the rotary knob points towards a measuring point. An additional zero point allows the pressure gauge to be unloaded to the tank (port T).

A built-in detent (6) holds each selected position.



Type MS 7 A2X/...

Technical data (for applications outside these parameters, please consult us!)

Series		MS 2/MSL 2 [1]	MS 4	MS 5	MS 6	MS 7
Weight	kg	1.7	1.4		1.9	
Max. operating pressure	bar	Up to 315				
Max. back pressure on the tank connection	bar	Up to 10				
Max. back pressure on the drain connection	bar	–	–	10	–	10
Built-in pressure gauge indication accuracy (types MS 2/MSL 2)	bar	The built-in pressure gauge indication accuracy is 1.6 % of the red scale value at 20 °C. The indication error for each 10 °C increase in temperature is + 0.3 %, and – 0.3 % per 10 °C reduction in temperature of the red scale value.				
Pressure fluid	bar	Mineral oil (HL, HLP) to DIN 51524 [2]; Fast bio-degradable pressure fluids to VDMA 24568 (also see RE 90221); HETG (rape seed oil) [2]; HEPG (polyglycols) [3]; HEES (synthetic ester) [3]; Other pressure fluids on request				
Pressure fluid temperature range	°C	– 20 to + 80				
Viscosity range	mm^2/s	2.8 to 380				
Required fluid cleanliness class for type MSL		ISO 4406 (c)				
Installation		Optional				

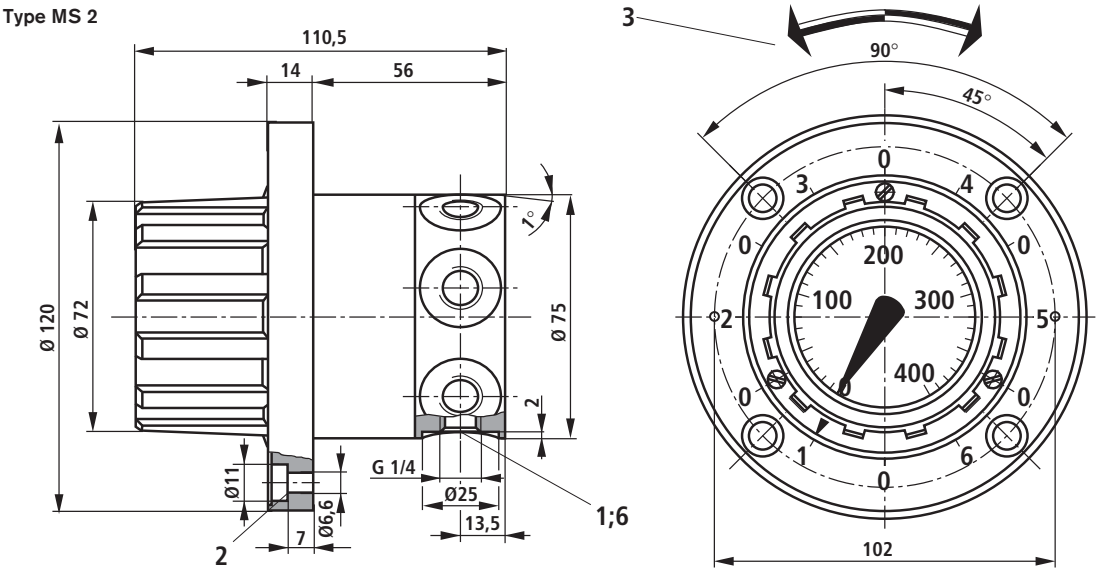
[1] The maximum permissible operating pressure for the types MS 2 / MSL 2 relates to the scale value of the built-in pressure gauge. From the peak value of the permissible pressure range (pressure gauge) up to the scale value, the scale values are printed in red.

[2] Suitable for NBR **and** FKM seals

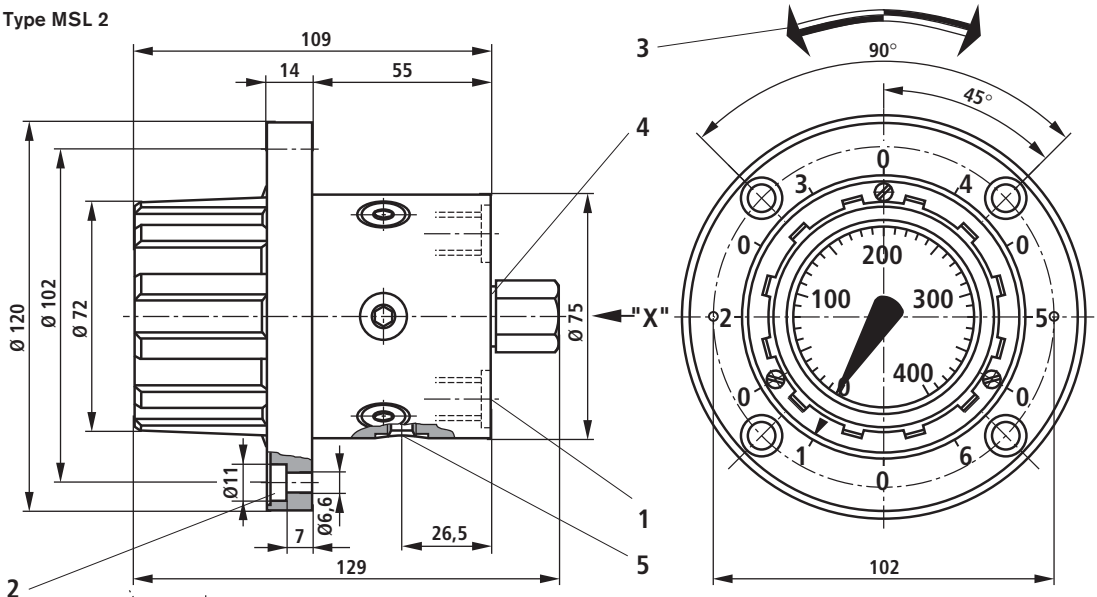
[3] **Only** suitable for FKM seals

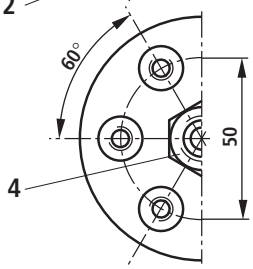
Unit dimensions: types MS 2 / MSL 2 (dimensions in mm)

Type MS 2



Type MSL 2





View "X"

1 6 measuring connections and 1 tank port are equally spaced around the circumference

2 4 fixing screw holes

3 Readings are obtained by turning the rotary knob to the left or right. Zero points are arranged between the indicating points

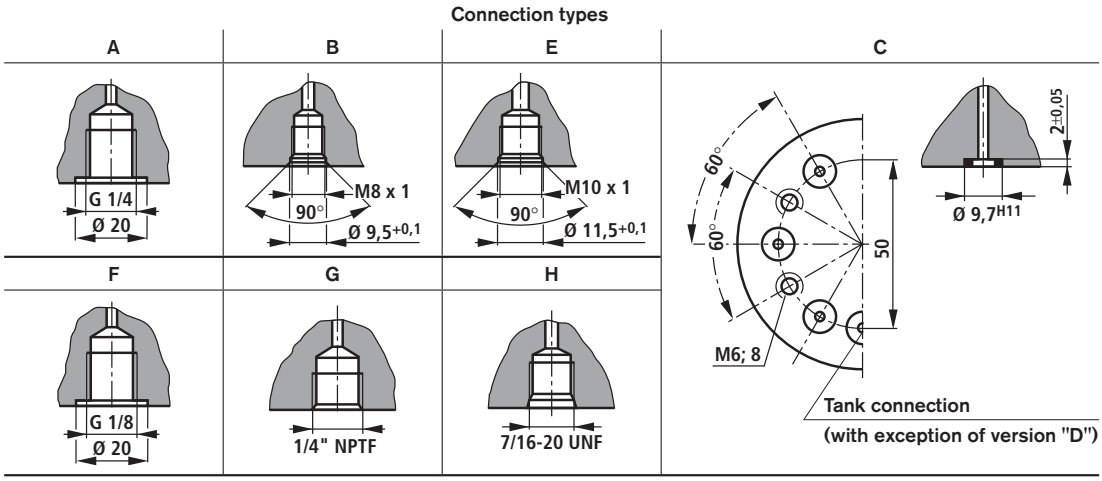
4 Adaptor for tank connection, for version D for external pressure gauge

5 For version D, tank connection corresponds to connection type

6 For other types of connections, see page 5

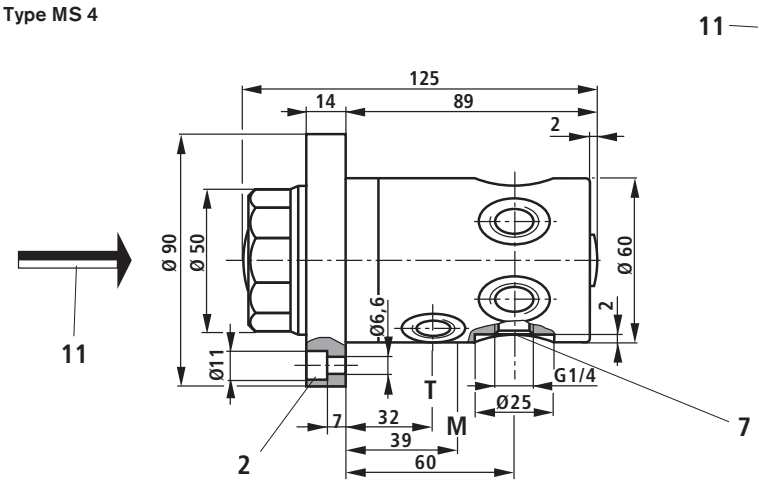
Installation notes:
Considering the operating force, it is recommended that the pressures at diametrically opposite ports be approx. in balance. Unused ports should be plugged.

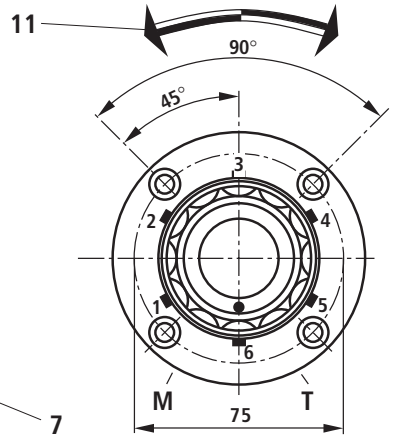
Unit dimensions: connection types for types MS 2/MSL 2 (dimensions in mm)



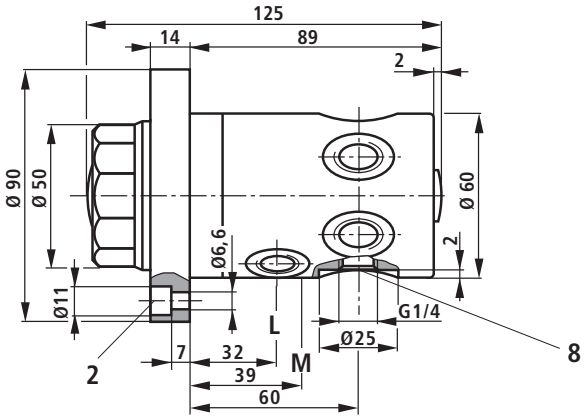
Unit dimensions: types MS 4 and MS 5 (dimensions in mm)

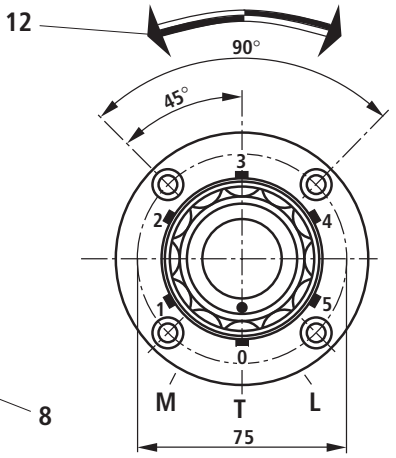
Type MS 4





Type MS 5

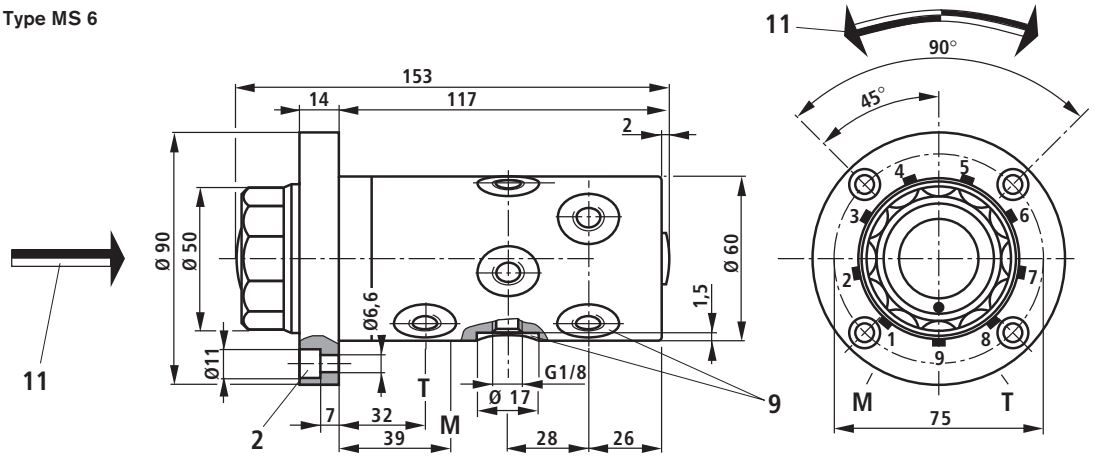




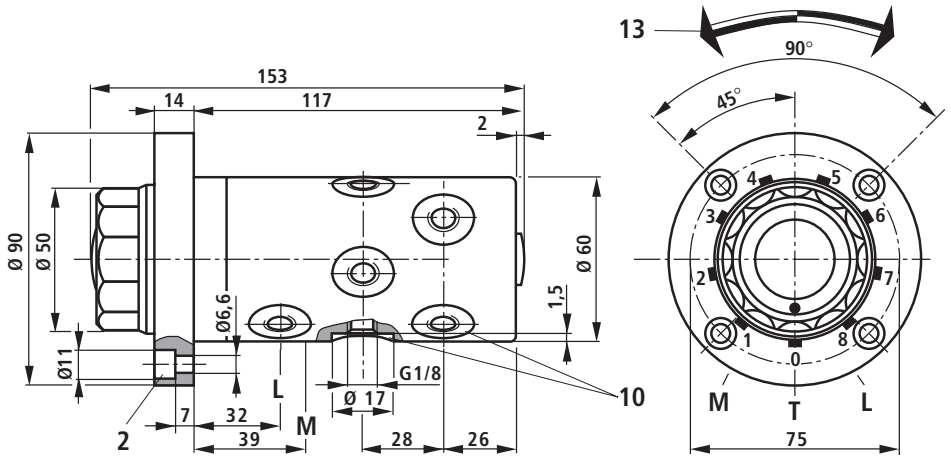
For item no. explanation see page 7!

Unit dimensions: types MS 6 and MS 7 (dimensions in mm)

Type MS 6



Type MS 7



2 4 fixing screw holes

7 6 measuring points equally spaced around the circumference

8 5 measuring points and 1 tank port equally spaced around the circumference

9 9 measuring points equally spaced around the circumference

10 8 measuring points and 1 tank port equally spaced around the circumference

11 Operation is by rotating the knob to the left or right and then by pressing the knob

12 Operation is by rotating the knob to the left or right. A zero point is situated between ports 5 and 1

13 Operation is by rotating the knob to the left or right. A zero point is situated between port 8 and 1

Installation notes:
Considering the operating force, it is recommended that the pressures at diametrically opposite ports be approx. in balance. Unused ports should be plugged.

Notes