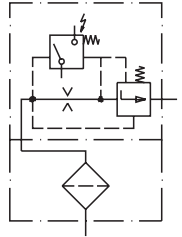


Figure 1

**Volume flow limiter
with connecting plate
VUL-A**



- Volume flow limiter with pressure scales
- Mounting on connecting plates
- with filter mount, if needed
- 3 ... 16 l/min.

- Subject to modifications -

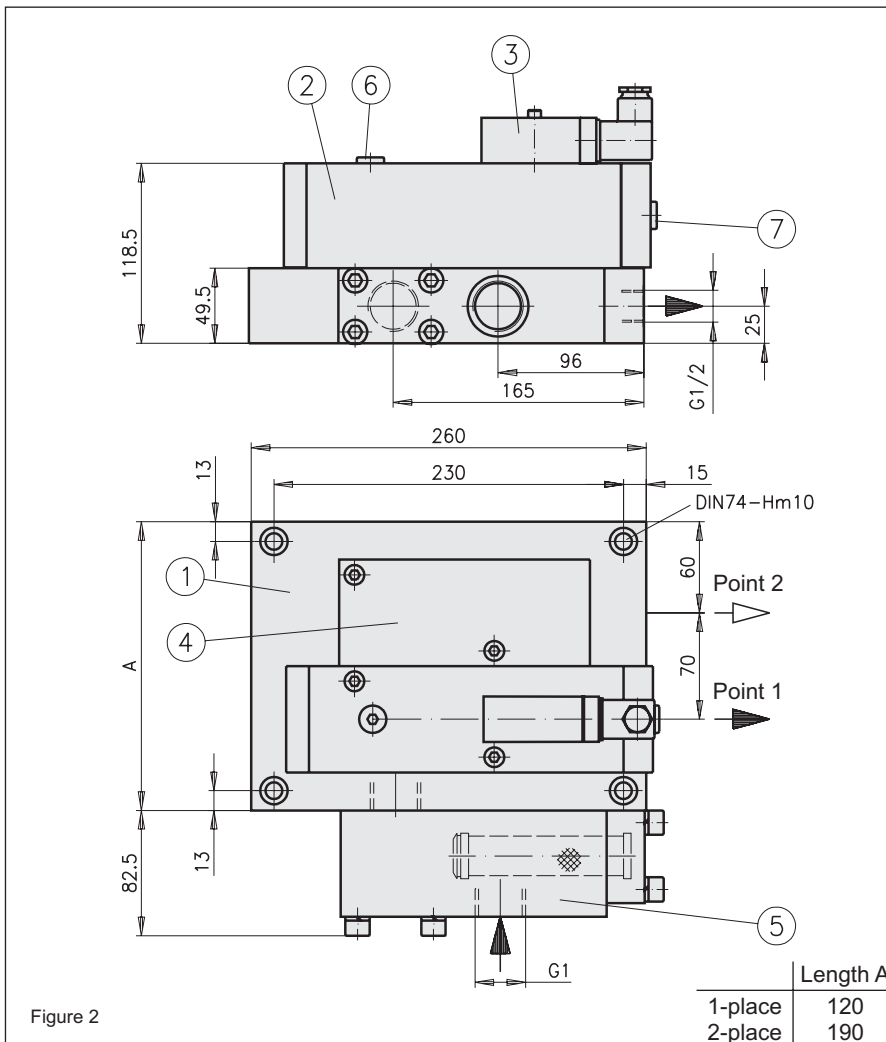


Figure 2

Technical data:

Operating pressure at max.:	100 bar
Differential pressure between inlet and outlet at min.:	6 bar
Viscosity density ratio:	20 ... 1000 mm ² /s
Installation position:	as needed
Casing material:	Aluminium hard-coated
Functional components:	Aluminium
Connecting plate:	Aluminium
Gasket material:	FPM (Viton)
Filter insert mesh width:	300 µm

Notes to dimensional drawing:

- Item
- 1 = Connecting plate
 - 2 = Volume flow regulator
 - 3 = Control element
 - 4 = Dummy element
 - 5 = Filter mount
 - 6 = G1/4 connection for checking the input pressure
 - 7 = G1/4 connection for checking the output pressure

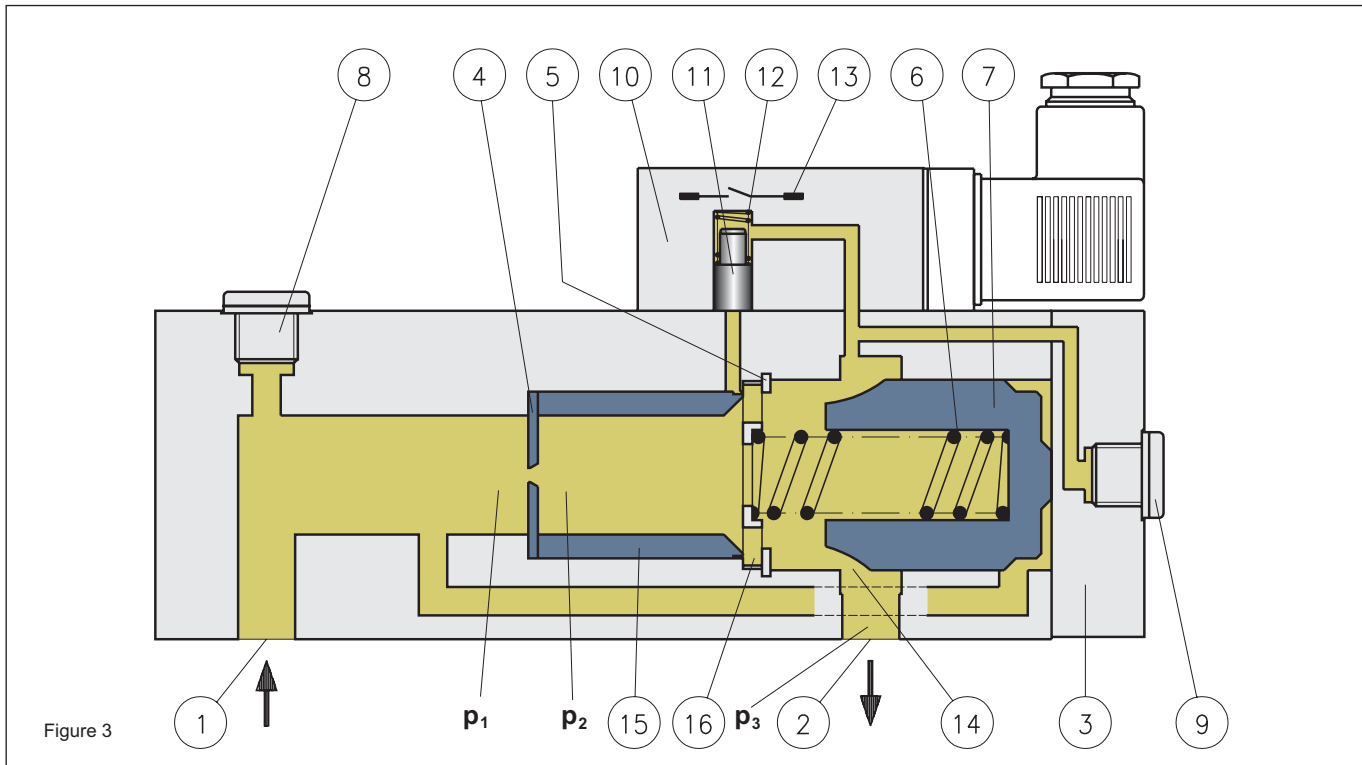


Figure 3

Mode of operation:

Constant volume flow presupposes a constant pressure inclination (p_1-p_2) at the orifice (4). Depending on the inlet pressure p_1 , outlet pressure p_3 , and the orifice (4), the throttle piston (7) is shifted against the spring (6), thus regulating a constant pressure inclination (p_1-p_2) by changing the throttle point (14).

When the unit is fitted with the control element (10), the pressure inclination (p_1-p_2) at the orifice (4), and thus the volume flow as well, is monitored. Should the volume flow as predetermined by the orifice (4) not be reached (p_1-p_2 too little), the spring (12) displaces the actuation piston (11) and causes the Reed contact (13) to open.

Orifice replacement:

- Remove locking plate (3).
- Take throttle piston (7) and spring (6) out.
- Demount DIN471 safety ring (5).
- Take punched disk (16) and sleeve (15) out.
- Replace orifice (4).
- Remount in reverse order.

Items

- 1 - Inlet
- 2 - Outlet
- 3 - Locking plate
- 4 - Orifice
- 5 - Safety ring
- 6 - Spring
- 7 - Throttle piston
- 8 - Locking screw G1/4
(Connection of a manometer for checking the inlet pressure possible)
- 9 - Locking screw G1/4
(Connection of a manometer for checking the outlet pressure possible)
- 10 - Control element
- 11 - Switch-actuating piston
- 12 - Spring
- 13 - Reed contact
- 14 - Throttle point
- 15 - Sleeve
- 16 - Punched disk

Flow volumes and orifice-purchase numbers:

Ød [mm]	V̇ [l/min]		Purchase-no.
	400mm ² /s	600mm ² /s	
2,0	3,4	3,0	357.346-45
2,1	3,8	3,4	357.347-45
2,2	4,2	3,8	357.348-45
2,3	4,5	4,1	357.349-45
2,4	4,9	4,5	357.350-45
2,5	5,3	4,9	357.351-45
2,6	5,7	5,3	357.352-45
2,7	6,1	5,7	357.353-45
2,8	6,6	6,2	357.354-45
2,9	7,0	6,6	357.355-45
3,0	7,5	7,1	357.356-45
3,1	7,9	7,6	357.357-45
3,2	8,4	8,2	357.358-45
3,3	8,9	8,7	357.359-45
3,4	9,4	9,3	357.360-45
3,5	9,9	9,8	357.361-45
3,6	10,5	10,4	357.362-45
3,7	11,0	10,9	357.363-45
3,8	11,6	11,5	357.364-45
3,9	12,2	12,2	357.365-45
4,0	13,0	13,0	357.366-45
4,2	14,6	14,6	357.368-65
4,4	16,2	16,2	357.367-45

Mind direction of flow, when replacing the orifice!

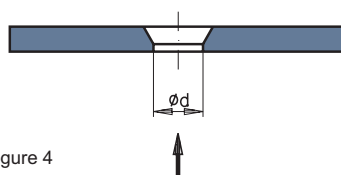


Figure 4

- Subject to modifications -



- Subject to modifications -

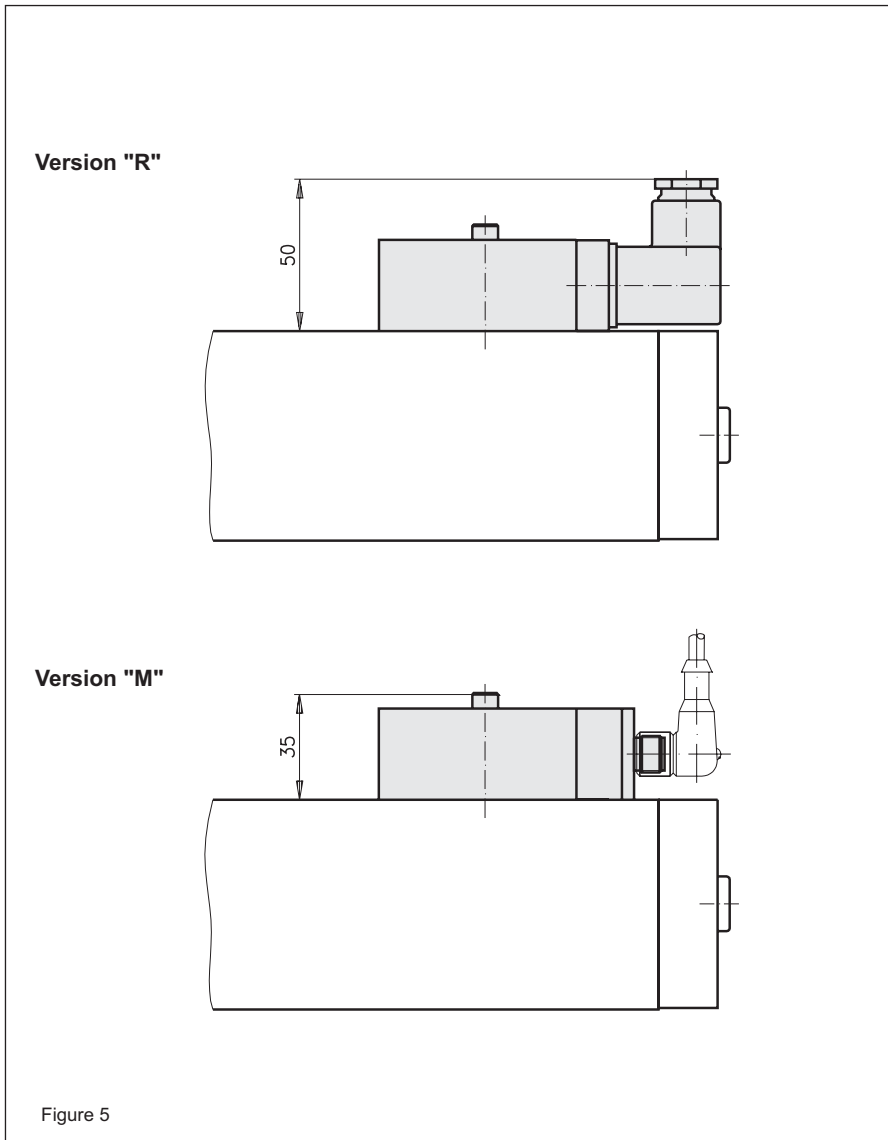


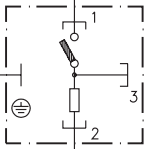
Figure 5

Functional test:

Temperature range:	-5 ... +90 °C
Switching voltage at max.:	36 V \approx
Switching current at max.:	25 mA
Switching power at max.:	0,9 W
Plug-type connection:	DIN 43650
Protection system:	IP 65

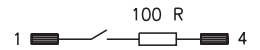
Version "R" with plug-type connection DIN 43650:

Connection diagram:



Version "M" with 4-pin unit plug (M12): (for matching cable jack see figures 6 and 7)

Connection diagram:



Auxiliaries:

Cable jack for functional test "M" (figure 5)
(state purchase-no., please)

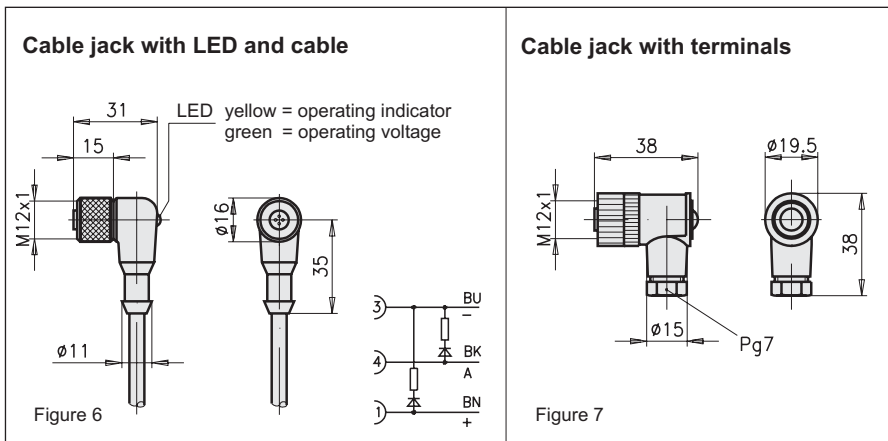


Figure 6

Figure 7

Cable jack with LED and cable:

Purchase-no.:	913.404-19
Operating voltage:	10 ... 30 VDC
Cable	
Cross section:	3x0,34 mm ²
Length:	5 m
Protection system:	IP68

Cable jack with terminals: (without LED)

Purchase-no.:	913.404-24
Connection type:	Screws
Conductor size:	at max. 0,75 mm ²
Cable diameter:	4 ... 6 mm
Protection system:	IP67

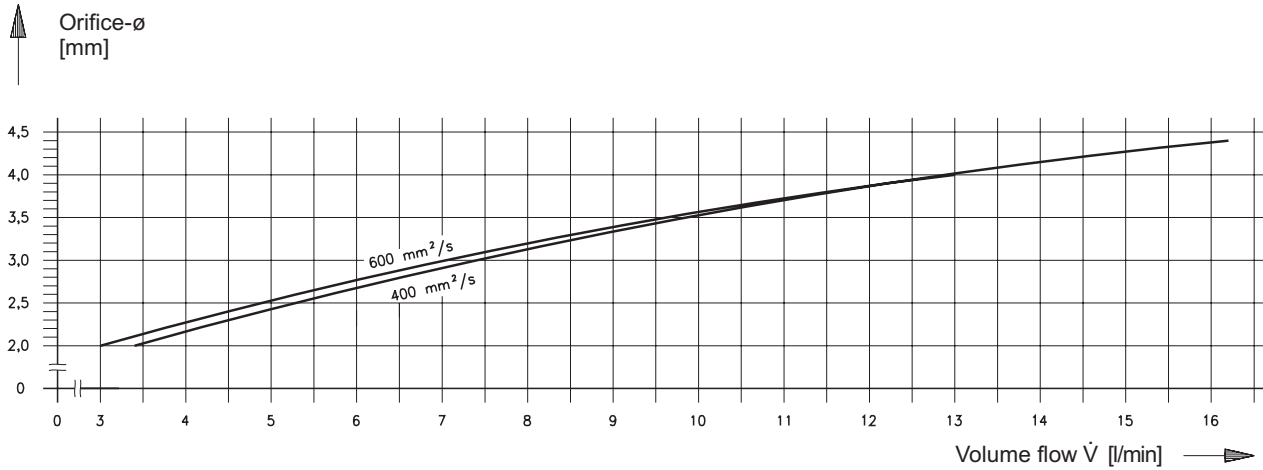


Volume flow depending on orifice- ϕ


Figure 8

Purchase-designation:
 Volume flow limiter **VUL-A** / 

Connecting plate	Filter mount	Orifice ϕ [mm]	Functional test and dummy element
1-place ①	with ④	2,0 up to 4,0 increasing by 0,1 each	Control element with plug-type connection DIN 43650 ① Control element with unit plug 4-pin ②
2-place ②	without ③	4,2 ; 4,4	without control element ③
		without volume flow regulator (dummy element) ⑤	without control element ④

Connecting plate **AUC-C** / 
 Volume flow regulator **DUL-A** / 

Purchase-example:

Connecting plate, 2-place, with filter mount and 2 volume flow regulators

Place 1: Orifice ϕ 2,5
with control element R
Place 2: Orifice ϕ 2,8
without control element

Purchase-designation:

VUL-A/2/F/2,5/R/2,8/0

Spare parts:

Designation	Purchase-no.
Dummy element	357.375-65
Functional test "R"	357.320-65
Functional test "M"	357.376-65
Filter mount	357.291-65
Filter element	357.293-65

- Subject to modifications -