



## Float-Type Flow Meters and Switches

for liquids



measuring  
•  
monitoring  
•  
analysing

DSV



- Measuring range:  
0.25 - 1.25 ... 10 - 130 l/min  
water
- Accuracy:  
± 4 % of full scale
- $p_{\max}$ : 10 bar;  $t_{\max}$ : 100 °C
- Connection:  
G $\frac{1}{4}$  ... G1  $\frac{1}{4}$  female,  
 $\frac{1}{4}$  ... 1  $\frac{1}{4}$ " NPT female
- Material:  
brass or stainless steel



S2

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KOBOLD Messring GmbH  
Nordring 22-24  
D-65719 Hofheim/Ts.  
☎ Head Office:  
+49(0)6192 299-0  
+49(0)6192 23398  
info.de@kobold.com  
www.kobold.com

### Description

The proven flow meters and switches model DSV are based on the principle of the well-known float-type flow meters except for the conventional tapering measuring tube.

These instruments are provided instead with a cylindrical flow tube with conical slots around the periphery.

This eliminates the usual problems of guiding the cylindrical float within a tapering measuring glass. The novel design including the provision of an appropriately dimensioned annular gap of constant width between the float and the flow tube has enabled the sensitivity to dirt to be considerably reduced.

The float contains a permanent magnet which actuates a bistable reed contact external to the measuring tube, that is, the flowing medium is hermetically separated from the electrical contact. In addition it is embedded in a height-adjustable switch housing thus ensuring that the contact is protected even in an aggressive atmosphere.

As the medium enters the instrument the float rises. Once its magnetic field reaches the contact tips of the reed switch the contact connects. As the flow increases the float rises further until it reaches its stop. This prevents the float from going beyond the contact range of the magnetic operating tube, that is, the contact remains connected thus ensuring bistable switching. The top edge of the float serves to indicate the flow on the measuring glass in l/min.

### Applications

- Machine tools
- Glass-melting tanks
- Cooling circuits
- Welding machines
- Induction furnaces
- Pumps
- Prevention of low water levels

### Technical Details

Housing:	aluminium anodised (not media-contacted)
Connections:	DSV-x1...: brass Ms 58, nickel-plated DSV-x2...: stainless steel 1.4301
Float:	see order details
Nozzle:	DSV-x1...: brass Ms 58, nickel-plated DSV-x2...: stainless steel 1.3955
Measuring glass:	borosilicate glass
Seals:	DSV-x1...: NBR DSV-x2...: FPM
Max. temperature:	100 °C (metal float) 70 °C (PP or PVDF float)
Max. pressure:	10 bar
Accuracy:	± 4 % of full scale
Installation position:	vertical, flow in the upward direction

### Contacts for DSV-2..., DSV-3...

Electrical connection: connector DIN EN 175301-803

Electrical switching values:

N/O contact  
max. 250 V<sub>AC/DC</sub> / 1,5 A / 100 W / 100 VA  
changeover contact  
max. 250 V<sub>AC/DC</sub> / 1 A / 30 W / 60 VA  
N/O contact and  
changeover contact (cCSAus)  
max. 230 V<sub>DC</sub> / 0,26 A / 60 W,  
60 V<sub>DC</sub> / 1 A / 60 W,  
max. 240 V<sub>AC</sub> / 0,42 A / 100 W,  
100 V<sub>AC</sub> / 1 A / 100 W

### Contacts for DSV-2..., DSV-3... use in hazardous areas

Mechanics:

The apparatus can be used as follows in explosive atmospheres in accordance with the applicable erection regulations on machines, devices and plants, such as e.g. EN 1127-1, EN 60079-14 etc.:

- a) In Zone 1 (gas hazard, category 2G, EPL Gb) in the explosion groups IIA, IIB and IIC
- b) In Zone 2 (gas hazard, category 3G, EPL Gc) in the explosion groups IIA, IIB and IIC
- c) In Zone 21 (dust hazard, category 2D, EPL Db) in the explosion groups IIIA and IIIB
- d) In Zone 22 (dust hazard, category 3D, EPL Dc) in the explosion groups IIIA and IIIB

ATEX N/O contact  
type 41R57

...G0 and GG:

 II 3 G Ex ic IIC T4 Gc  
 II 3 D Ex ic IIIC T125 °C Dc  
-20 °C ≤ Ta ≤ 80 °C  
max. 250 V<sub>AC/DC</sub> / 1,5 A / 100 W / 100 VA

ATEX changeover contact

type 41R57U

...H0 and HH:

 II 3 G Ex ic IIC T4 Gc  
 II 3 D Ex ic IIIC T125 °C Dc  
-20 °C ≤ Ta ≤ 80 °C  
max. 250 V<sub>AC/DC</sub> / 1 A / 30 W / 60 VA

Hysteresis:

approx. 3.5 mm float movement

Protection:

IP 65 (electrical contact)  
IP 54 (side indicator)



**Order Details**

Flow meter model: DSV-1... (Example: DSV-1101H 00 R08)

Measuring range l/min water	Pressure loss Δ P (bar)	Float according to version		Brass	Stainless steel	Contact	Connection female thread	
		Brass	St. steel					
0.25 ... 1.25	0.04	PP	PVDF	DSV-1101H...	DSV-1201H...	..00.. = without contacts	..R08 = G ¼	..N08 = ¼" NPT
0.5 ... 2.5	0.06	PP	PVDF	DSV-1102H...	DSV-1202H...		..R15 = G ½	..N15 = ½" NPT
1 ... 4.5	0.04	PP	PVDF	DSV-1103H...	DSV-1203H...			
1 ... 10	0.04	PP	PVDF	DSV-1104H...	DSV-1204H...		..R15 = G ½	..N15 = ½" NPT
2 ... 18	0.07	brass, nickel-pl.	1.4301	DSV-1105H...	DSV-1205H...		..R20 = G ¾	..N20 = ¾" NPT
2 ... 25	0.08	PP	PVDF	DSV-1106H...	DSV-1206H...		..R20 = G ¾	..N20 = ¾" NPT
2.5 ... 50	0.14	brass, nickel-pl.	1.4301	DSV-1107H...	DSV-1207H...		..R25 = G 1	..N25 = 1" NPT
10 ... 100	0.3	brass, nickel-pl.	1.4301	DSV-1108H...	DSV-1208H...		..R25 = G 1	..N25 = 1" NPT
10 ... 130	0.4	PP	PVDF	DSV-1109H...	DSV-1209H...		..R32 = G 1 ¼	..N32 = 1" ¼ NPT

Flow meters and switches with 1 contact model: DSV-2... (Example: DSV-2101H R0 R08)

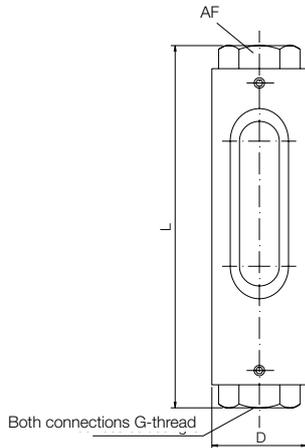
Measuring range l/min water	Pressure loss Δ P (bar)	Float according to version		Brass	Stainless steel	Contact	Connection female thread	
		Brass	St. steel					
0.25 ... 1.25	0.04	PP	PVDF	DSV-2101H...	DSV-2201H...	..R0.. = 1 N/O contact ..U0.. = 1 changeover contact	..R08 = G ¼	..N08 = ¼" NPT
0.5 ... 2.5	0.06	PP	PVDF	DSV-2102H...	DSV-2202H...		..R15 = G ½	..N15 = ½" NPT
1 ... 4.5	0.04	PP	PVDF	DSV-2103H...	DSV-2203H...	..C0.. = 1 N/O contact (cCSAus)		
1 ... 10	0.04	PP	PVDF	DSV-2104H...	DSV-2204H...	..D0.. = 1 changeover contact (cCSAus)	..R15 = G ½	..N15 = ½" NPT
2 ... 18	0.07	brass, nickel-pl.	1.4301	DSV-2105H...	DSV-2205H...		..R20 = G ¾	..N20 = ¾" NPT
2 ... 25	0.08	PP	PVDF	DSV-2106H...	DSV-2206H...	..G0.. = 1 ATEX N/O contact (model 41R57)	..R20 = G ¾	..N20 = ¾" NPT
2.5 ... 50	0.14	brass, nickel-pl.	1.4301	DSV-2107H...	DSV-2207H...		..R25 = G 1	..N25 = 1" NPT
10 ... 100	0.3	brass, nickel-pl.	1.4301	DSV-2108H...	DSV-2208H...	..H0.. = 1 ATEX changeover contact (model 41R57U)	..R25 = G 1	..N25 = 1" NPT
10 ... 130	0.4	PP	PVDF	DSV-2109H...	DSV-2209H...		..R32 = G 1 ¼	..N32 = 1" ¼ NPT

Flow meters and switches with 2 contacts model: DSV-3... (Example: DSV-3101H RR R08)

Measuring range l/min water	Pressure loss Δ P (bar)	Float according to version		Brass	Stainless steel	Contact	Connection female thread	
		Brass	St. steel					
0.25 ... 1.25	0.04	PP	PVDF	DSV-3101H...	DSV-3201H...	..RR.. = 2 N/O contact ..UU.. = 2 changeover contact	..R08 = G ¼	..N08 = ¼" NPT
0.5 ... 2.5	0.06	PP	PVDF	DSV-3102H...	DSV-3202H...		..R15 = G ½	..N15 = ½" NPT
1 ... 4.5	0.04	PP	PVDF	DSV-3103H...	DSV-3203H...	..CC.. = 2 N/O contact (cCSAus)		
1 ... 10	0.04	PP	PVDF	DSV-3104H...	DSV-3204H...	..DD.. = 2 changeover contact (cCSAus)	..R15 = G ½	..N15 = ½" NPT
2 ... 18	0.07	brass, nickel-pl.	1.4301	DSV-3105H...	DSV-3205H...		..R20 = G ¾	..N20 = ¾" NPT
2 ... 25	0.08	PP	PVDF	DSV-3106H...	DSV-3206H...	..GG.. = 2 ATEX N/O contact (model 41R57)	..R20 = G ¾	..N20 = ¾" NPT
2.5 ... 50	0.14	brass, nickel-pl.	1.4301	DSV-3107H...	DSV-3207H...		..R25 = G 1	..N25 = 1" NPT
10 ... 100	0.3	brass, nickel-pl.	1.4301	DSV-3108H...	DSV-3208H...	..HH.. = 2 ATEX changeover contact (model 41R57U)	..R25 = G 1	..N25 = 1" NPT
10 ... 130	0.4	PP	PVDF	DSV-3109H...	DSV-3209H...		..R32 = G 1 ¼	..N32 = 1" ¼ NPT

**Device versions and Dimensions**

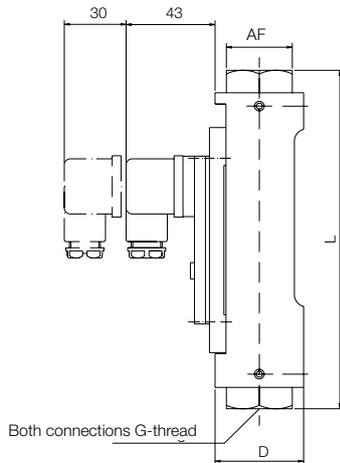
**1. Flow meter model: DSV-1...**



Model	AF [mm]	Thread G	L [mm]	D [mm]	Weight approx. [kg]
DSV-..01H	32	¼ (½*)	161 (165*)	43	0.75
DSV-..02H	32	¼ (½)	161 (165*)	43	0.75
DSV-..03H	32	¼ (½)	161 (165*)	43	0.75
DSV-..04H	32	½ (¾)	165	43	0.75
DSV-..05H	32	½ (¾)	165	43	0.75
DSV-..06H	41	¾ (1)	165 (176)	48	1.0
DSV-..07H	41	¾ (1)	165 (176)	48	1.0
DSV-..08H	41	1	204	48	1.2
DSV-..09H	46	1 ¼	222	55	1.5

\* With NPT-thread

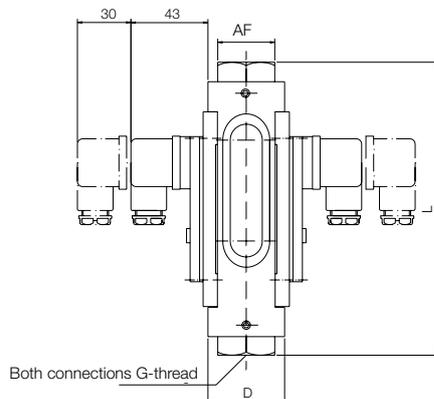
**2. Flow meters and switches with 1 contact model: DSV-2...**



Model	AF [mm]	Thread G	L [mm]	D [mm]	Weight approx. [kg]
DSV-..01H	32	¼ (½*)	161 (165*)	43	1.0
DSV-..02H	32	¼ (½)	161 (165*)	43	1.0
DSV-..03H	32	¼ (½)	161 (165*)	43	1.0
DSV-..04H	32	½ (¾)	165	43	1.0
DSV-..05H	32	½ (¾)	165	43	1.0
DSV-..06H	41	¾ (1)	165 (176)	48	1.25
DSV-..07H	41	¾ (1)	165 (176)	48	1.25
DSV-..08H	41	1	204	48	1.45
DSV-..09H	46	1 ¼	222	55	1.75

\* With NPT-thread

**3. Flow meters and switches with 2 contacts model: DSV-3...**



Model	AF [mm]	Thread G	L [mm]	D [mm]	Weight approx. [kg]
DSV-..01H	32	¼ (½*)	161 (165*)	43	1.25
DSV-..02H	32	¼ (½)	161 (165*)	43	1.25
DSV-..03H	32	¼ (½)	161 (165*)	43	1.25
DSV-..04H	32	½ (¾)	165	43	1.25
DSV-..05H	32	½ (¾)	165	43	1.25
DSV-..06H	41	¾ (1)	165 (176)	48	1.5
DSV-..07H	41	¾ (1)	165 (176)	48	1.5
DSV-..08H	41	1	204	48	1.7
DSV-..09H	46	1 ¼	222	55	2.0

\* With NPT-thread