

NSF-1...
NSF-1K/40

NSF-3E...6E



NSF-2...PL



LIQUID FLOW SWITCHES

NSF

FUNCTION

Flow control of aggressive media, water and normal media (depending on model).

Alarm signal of flow shortage (safety switch).

Available in brass, suitable for normal media, and in stainless steel V4A, suitable for sea water and aggressive media.

APPLICATIONS

Well-suited in pipes of general industrial plants:

- heating and air conditioning systems;
- refrigeration systems;
- sprinkler or anti-fire systems;
- heat pumps;
- devices for oil monitoring;
- lubrication circuits.

TYPE	PIPE Ø	MAX PRESSURE bar	NORMAL MEDIA (body in brass)	AGRESSIVE MEDIA (body in stainless steel AISI 316L)	BODY WITH PIPE FITTING "T"	PROTECTION	FLOW RATE
NSF-1K	1...8"	11	•			IP65	1
NSF-1K/40	1...8"	11	•			IP40	1
NSF-1E*	1...8"	11	•			IP65	1
NSF-1RE	1...8"	11	•			IP65	2
NSF-2E*	1...8"	30		•		IP65	1
NSF-2RE	1...8"	30		•		IP65	2
NSF-3E	1/2"	11	•		•	IP65	3
NSF-4E	3/4"	11	•		•	IP65	3
NSF-5E	3/8"	11	•		•	IP65	3
NSF-6E	1"	11	•		•	IP65	3

SPECIAL VERSIONS

L	suitable for pressure up to 22 bar
NPT	1" NPT connector
B	2 parallel built-in microswitches
G	microswitch with gold contacts for low voltage
PL	ABS cover, Byblend base (IP65)

* Models with TÜV approval:

NSF-1E and NSF-1EPL (S 04-025)
NSF-2E and NSF-2EPL (S 02-026)

TECHNICAL FEATURES

Contacts:	dust-tight microswitch with switching contacts (n.c./n.o.)
Switch capacity:	15 (8) A, 24...250 Vac
Working:	-40...+85 °C 10...90% r.h. (non condensing)
Max liquid temperature:	-40...+120 °C
Max pressure:	11 bar (NSF-2: 30 bar)
Fitting:	see flow rate schedule
Body:	see schedule below
Paddles:	stainless steel AISI 316L
Housing:	galvanized steel sheet plate, ABS cover version PL: Byblend base, ABS cover
Protection:	IP65, class I
Size:	113 x 70 x 65 mm version PL: 108 x 70 x 72 mm
Peso:	950 g



①

**FLOW RATE
NSF-1K/NSF-1E/NSF-2E**

Pipe connector	Min. adjustment	Max. adjustment
∅	m/h cut-off (cut-in)	m/h cut-off (cut-in)
1"	0,6 (1,0)	2,0 (2,1)
1 1/4"	0,8 (1,3)	2,8 (3,0)
1 1/2"	1,1 (1,7)	3,7 (4,0)
2"	2,2 (3,1)	5,7 (6,1)
2 1/2"	2,7 (4,0)	6,5 (7,0)
3"	4,3 (6,2)	10,7 (11,4)
4"	11,4 (14,7)	27,7 (29,0)
4" Z	6,1 (8,0)	17,3 (18,4)
5"	22,9 (28,4)	53,3 (55,6)
5" Z	9,3 (12,9)	25,2 (26,8)
6"	35,9 (43,1)	81,7 (85,1)
6" Z	12,3 (16,8)	30,6 (32,7)
8"	72,6 (85,1)	165,7 (172,5)
8" Z	38,6 (46,5)	90,8 (94,2)

②

**FLOW RATE
NSF-1RE/NSF-2RE**

Pipe connector	Min. adjustment	Max. adjustment
∅	m/h cut-off (cut-in)	m/h cut-off (cut-in)
1"	0,2 (0,6)	1,0 (1,1)
1 1/4"	0,25 (0,9)	1,4 (1,6)
1 1/2"	0,5 (1,2)	1,6 (2,2)
2"	0,9 (2,3)	3,6 (4,1)
2 1/2"	1,2 (3,1)	4,9 (5,5)
3"	2,1 (4,9)	7,4 (8,2)
4"	4,9 (11,3)	17,1 (19,1)
4" Z	3,3 (7,7)	11,6 (13,0)
5"	9,7 (22,4)	34,0 (37,9)
5" Z	5,0 (11,5)	17,5 (19,6)
6"	13,6 (31,5)	47,6 (53,2)
6" Z	6,1 (14,1)	21,4 (23,9)
8"	25,7 (59,6)	90,1 (100,7)
8" Z	21,7 (36,5)	55,3 (61,8)

For models with suffix "Z" the longest paddle must be used to obtain the values indicated on the table.

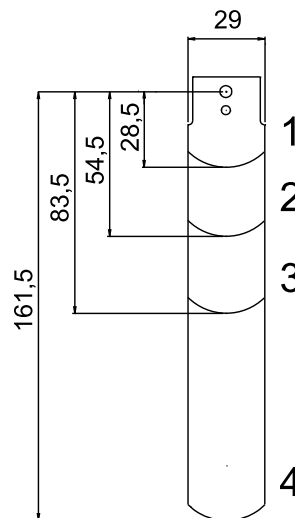
Paddles (models without "T" pipe fitting)

③

**FLOW RATE WITH "T" PIPE FITTING
NSF-3E / -4E / -5E / -6E**

NSF-	Pipe connector with „T“ pipe fitting	Min. adjustment	Max. adjustment
	∅	m/h cut-off (cut-in)	m/h cut-off (cut-in)
3E	1/2"	0,174 (0,480)	0,846 (0,948)
4E	3/4"	0,138 (0,408)	0,768 (0,858)
6E	1"	0,200 (0,600)	1,000 (1,100)
7E	1 1/4"	0,250 (0,900)	1,400 (1,600)
8E	1 1/2"	0,500 (1,200)	1,600 (2,200)
9E	2"	0,900 (2,300)	3,600 (4,100)
10E	3"	2,100 (4,900)	7,400 (8,200)

NSF-5E model mount reduction gear on 3/8"



PIPE	PADDLES
1"	1
1 1/4"	1
1 1/2"	1
2"	1,2
2 1/2"	1,2
3"	1,2,3
4"	1,2,3
4" Z	1,2,3,4
5"	1,2,3
5" Z	1,2,3,4
6"	1,2,3
6" Z	1,2,3,4
8"	1,2,3
8" Z	1,2,3,4

ELECTRICAL WIRING

Diagram during flow presence.

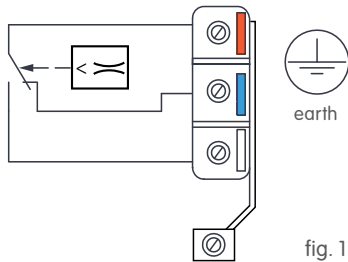


fig. 1

Adjustment screw for flowrate

Connect the red and the white contacts of the microswitch (fig. 1). The contact red-white opens when the flow drops below the set level.

When the flow is missing the contact red-blue closes and can be used as a signal or alarm contact.

INSTALLATION

The flowswitch can be installed in every position far from elbows or throttlings, with arrow on flow direction. If pipe is vertical, recalibrate range to balance paddle weight. If the device is downwards mounted take care to slugs, and apply it in a straight pipe far from filters, valves, etc with length at least 5 times the diameter of pipe upstream and downstream the unit.

NOTE

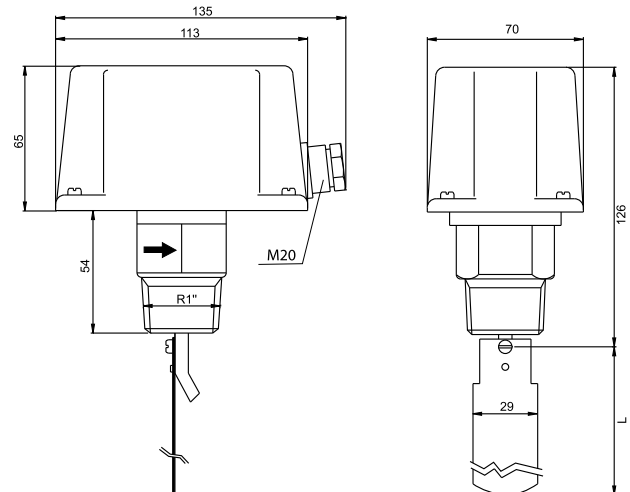
The flowswitch is factory calibrated at its min. sensitivity. To increase the set value turn clockwise the adjustment screw. The cut-out value must be >- the minimum flow necessary to guarantee the protection of the plant. The units without "T" fittings are supplied with 4 paddles, which must be cut off according to the pipe. All devices can be supplied with "T" connection on request as schedule indications.

ATTENTION

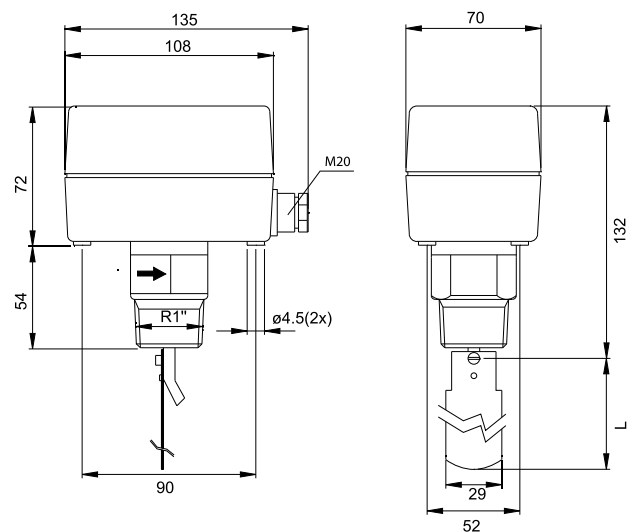
If flowswitch is used as a minimum flow controller, it is necessary to add another device downstream for alarm condition activation.

DIMENSIONS (mm)

NSF



NSF/PL



L changeable length (see the drawing of the paddles)