



Level indicators with rear welding sockets for operating pressures up to 40 barg

### USAGE

The level indicator type 411 serves as a liquid indicator in bypass for reliable level control on boilers and tanks. The indicator features a square flange design with two rear  $\varnothing 20$  mm welding ends.

Operating condition		
Temperature: (depending on glass and gasket)	$\leq 243$ °C	Reflective glass DIN 7081 made of borosilicate glass
	$\leq 280$ °C	Reflective glass DIN 7081 made of borosilicate glass (without technically significant glass attack)
Pressure:	$\leq 35/40^1$ barg	

1) Depending on the medium and ssee pressure note on the next page

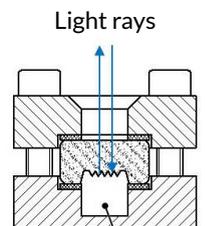
Materials	
Base frame:	1.4571
Glass:	Borosilicate glass DIN 7081 Reflective glass
Gasket:	PTFE; C4400; Graphite
Screws:	A2-70 / A4-70
Special materials upon request	

### INSTALLATION NOTE

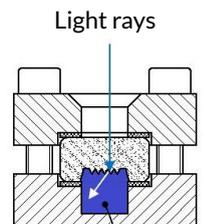
After welding the pipe stub ends to the pipeline, it must be checked whether the sealing surfaces on the base frame have warped. If necessary, reworking must be done! Also, pay attention to the specified tightening torques for the bolting according to the working and maintenance manual!

### REFLECTIVE AND TRANSPARENT GLASS

Closed level indicators are equipped with reflective glass by default. The prism structures integrated into the glass cause a targeted light refraction, allowing the liquid level in the housing to be read clearly and with high contrast.



Reflective glass  
without liquid



Reflective glass  
with liquid

BL	V	S	Concealed view	h	kg
140	79	60	0	25	3.4
170	124	100	0	25	4.0
220	174	150	0	25	5.0
250	204	180	0	25	5.7
300	264	240	0	25	6.7
310	264	240	0	25	7.0
350	304	280	0	25	7.8
370	324	300	0	25	8.2
400	354	330	0	25	8.9
500	454	430	1x46	25	11.4
600	564	540	1x46	25	13.4
620	574	550	1x46	25	13.9
700	654	630	1x46	25	15.7
740	694	670	1x46	25	16.5
800	754	730	1x46	25	17.8
930	884	860	2x46	25	20.9
1000	954	930	3x46	25	22.8

### PRESSURE NOTE

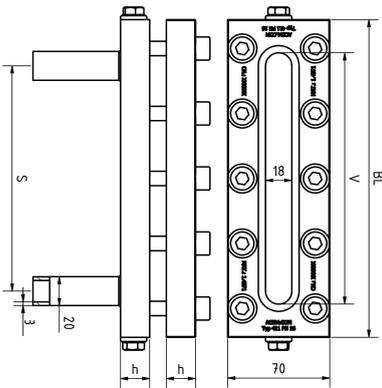
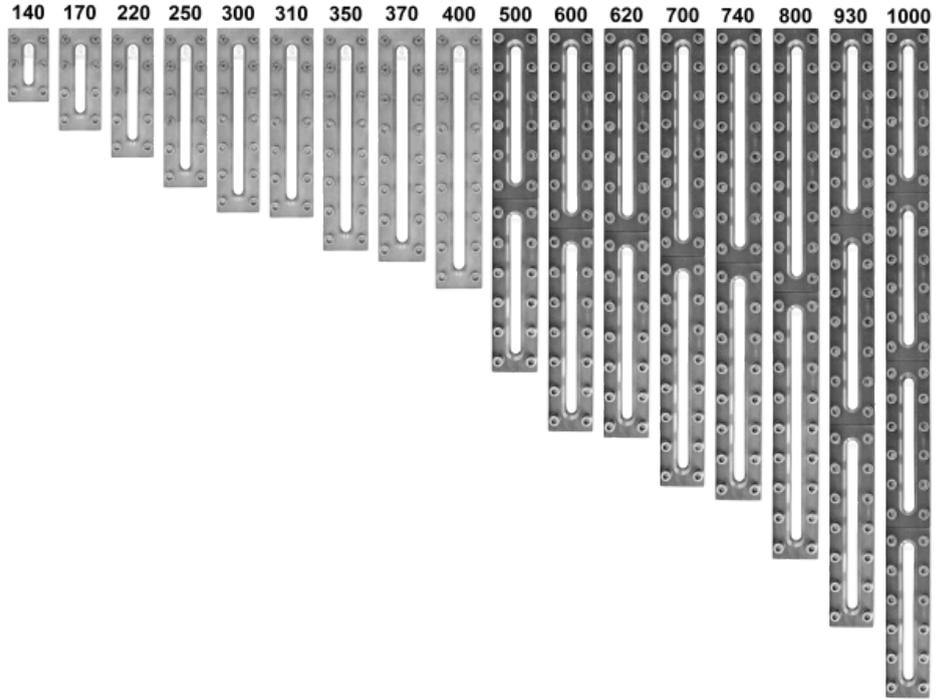
The working pressure of 40 barg is only achievable with liquid media, without technically significant glass attack. In applications with the influence of steam or aggressive media, the maximum working pressure PS = 35 barg at a maximum of 243 °C.

See also the data sheet for sight glass plates according to DIN 7081.

**HIDDEN VIEW (HV)**

With level indicators, a concealed view arises in the area between the individual longitudinal sight glasses at large total lengths. This is due to the manufacturing length of the longitudinal sight glasses according to DIN 7081. From a total length of 500 mm, a concealed view is therefore unavoidable. The configuration of the size 140 mm to 1000 mm can be taken from the adjacent representations.

Special sizes available on request.



**PRODUCT CODE**

Example for Explaining the Code Composition

**11 - 411 - 400 - 2 - 2 - 3 - 7**

GROUP	TYPE	LENGTH	PN	BASE FRAME	GLASS	GASKET	VARIANT
11	411	140	2) 40	2) 1.4571	3) Borosilicate glass DIN 7081 Reflex glass	1) PTFE	0) Standard
		170		8) Special		4) C4400	
		220				7) Graphite	
		250				8) Special	
		300					
		310					
		350					
		370					
		400					
		500					
		600					
		620					
		700					
		740					
		800					
		930					
		1000					



Unless otherwise specified, the highlighted factory standard will be delivered.

**EXAMPLE**

The product code **11-411-400-2-2-3-7-0** corresponds to the standard version:  
 ACI type 411  
 400 mm long  
 PN 40  
 Base frame made of 1.4571  
 Cover frame made of 1.4571  
 Borosilicate glass DIN 7081 reflective  
 Gasket novaphit® MST-XP

**STRUCTURE**

1. Screws
2. Cover frame
3. Glass cushion
4. Sight glass
5. Gasket
6. Base frame
7. Welding ends
8. Screw plugs



**QUICK OVERVIEW**



max. 40 barg



heat resistant up to 280  
°C



for liquid media



for gaseous media



Total length  
140 - 1000 mm



Custom made design  
possible

**OPERATING CONDITIONS**

Operating conditions depend on the choice of glass and seals:

		SIGHT GLASS		GASKETS	
		Borosilicate glass (DIN 7081) reflective glass	PTFE max. 200 °C	C4400 max. 175 °C	Graphite > 400 °C
TEMPERATURE	up to 175 °C	✓	✓	✓	✓
	up to 200 °C	✓	✓	✗	✓
	up to 243 °C	✓	✗	✗	✓
	up to 280 °C	✓	✗	✗	✓
PRESSURE	35/40 <sup>2</sup> barg	✓	✓	✓	✓

2) Depending on the medium

✓ suitable    ✗ unsuitable

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