



### APPLICATION:

Observation of liquid level inside closed vessels (boilers, tanks, silos, etc.).

Sight glass fittings type 330 are rectangular longitudinal sight glass fittings for welding in or on, each completed with a sight glass plate inserted between the gaskets and screwed tight.

### Operating conditions:

Temperature: (depending on glass and gasket)	up to <b>243°C</b> with Borosilicate glass Reflex and Transparent DIN 7081 (saturated steam or hot water pressure) up to <b>280°C</b> with Borosilicate glass Reflex and Transparent DIN 7081 (without technically significant glass attack) up to <b>320°C</b> with Borosilicate glass Transparent DIN 7081 (with mica protection)
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Pressure: -0,9<sup>1</sup> bis 16 / 40<sup>2</sup> bar(g)

<sup>1</sup> Depending on environment variables

<sup>2</sup> see pressure note on next page

### Materials:

Frame:	1.4571, 1.4404
Glass:	Borosilicate glass DIN 7081 Reflex- or Transparent glass
Gasket: <sup>3</sup>	PTFE; FKM; NBR; C4400; Silicone; EPDM; Graphite
Screws:	A4-70
Special materials on request <sup>3</sup> see INFO gaskets-leaflet	

### INSTALLATION NOTE:

After welding in the base frame, check whether the sealing surface has warped. If necessary, it must be reworked! Also observe the specified torques for the screw connection, according to the operating and maintenance instructions!

The operating pressure does not apply to the base flange, this must be verified together with the pressure vessel according to AD 2000 instruction leaflet B9 or equivalent code!

### IMPORTANT:

The design appraisal by Lloyd's Register does not replace the final acceptance of the entire plant!

A new final acceptance of the plant or vessel is required after welding of the base frame.

### REFLEX AND TRANSPARENT GLASS:

In the case of dark media, dark or non-illuminated vessels or a closed level indicator, the use of a reflex sight glass is recommended (see adjacent picture).

Due to the refraction of light in the incorporated prisms, the level can be seen better. However, if the vessel is illuminated, the medium is very clear or if the color of the medium should be visible, a transparent glass should be used.

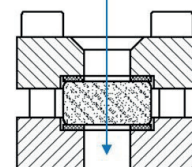
Reflex glass cannot be protected with mica glass, as this will prevent reflection.

We will be happy to help you select the appropriate design.

### With Lloyd's Register appraisal

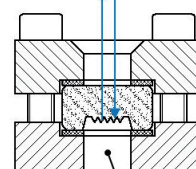


Light rays



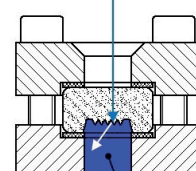
Transparent glass

Light rays



without liquid

Light rays



with liquid

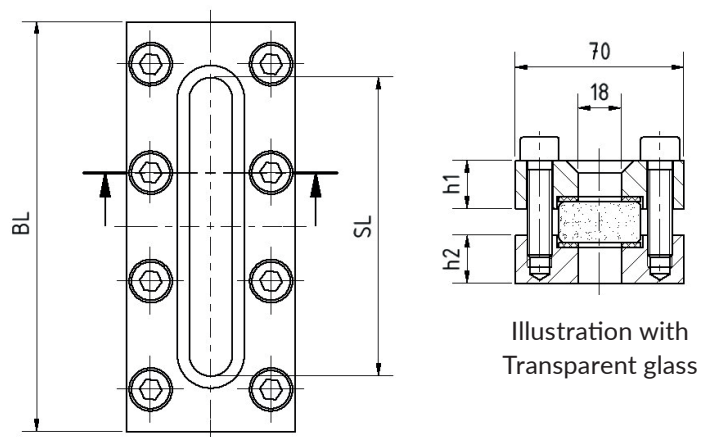
BL [mm]	140	170	220	250	300	310	350	370	400	500	600	620	700	740	800	930	1000
SL [mm]	79	124	174	204	264	264	304	324	354	454	564	574	654	694	754	884	954
Consealed view [mm]	0	0	0	0	0	0	0	0	0	1x46	1x36	1x46	1x46	1x46	1x46	2x46	3x46
h1/h2 [mm] (PN 16)	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Weight [kg] (PN 16)	2,8	3,2	4,0	4,6	5,3	5,6	6,3	6,6	7,1	9,1	10,7	11,1	12,5	13,2	14,2	16,7	18,2
h1/h2 [mm] (PN 40)	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Weight [kg] (PN 40)	3,4	4,0	5,0	5,7	6,6	6,9	7,8	8,2	8,8	11,3	13,3	13,8	15,6	16,4	17,7	20,8	22,6

### <sup>2</sup> PRESSURE NOTE:

The operating pressure of 40 bar(g) can only be realized with transparent glasses, with liquid media, without technically significant glass attack.

For transparent glasses exposed to steam or aggressive media, the maximum operating pressure is PS = 35 bar(g).

More detailed information can be found in our DIN 7081 information sheet.



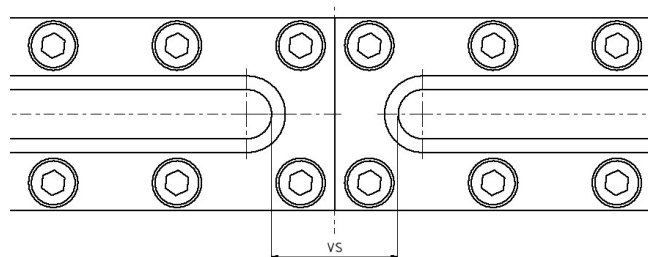
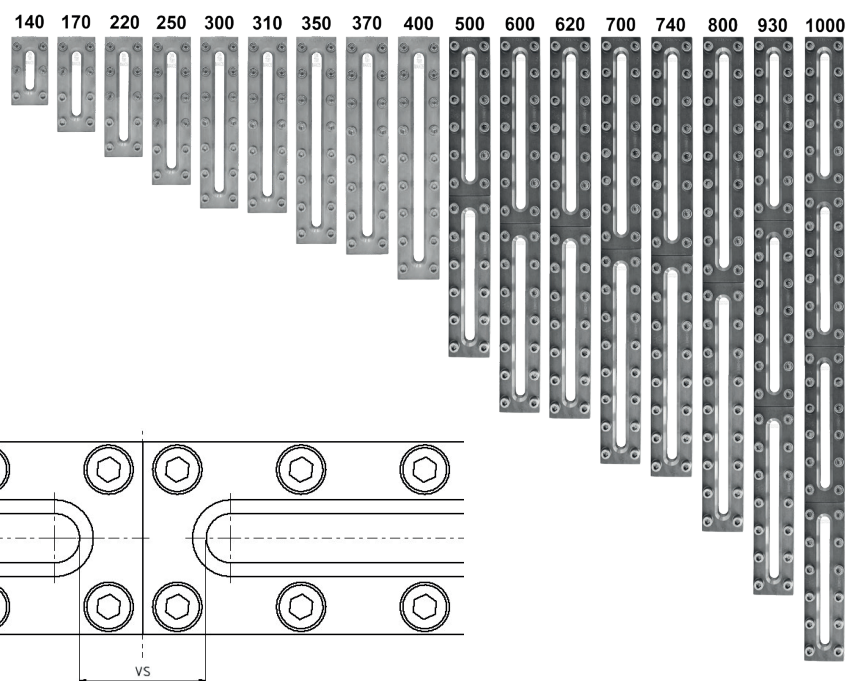
### CONSEALED VIEW (VS):

In the case of level indicators with large overall lengths, there is an consealed view in the area between the individual longitudinal glasses.

This is due to the production length of the longitudinal glasses according to DIN 7081. Therefore, an consealed view is unavoidable from an overall length of 500 mm.

The configuration of the sizes 140 mm to 1000 mm can be taken from the adjacent illustrations.

Special sizes on request.



### PRODUCTCODE:

Group	TYPE	ovr. length	Base frame*	Glass	Gasket	PN	Variant
11	330	140 170 220 250 300 310 350 370 400 500 600 620 700 740 800 930 1000	2: 1.4571 4: 1.4404 8: Special	1: Borosilicate glass (Boro) DIN 7081 Transparent glass 2: Borosilicate glass DIN 7081 Transparent glass + mica protection 3: Borosilicate glass DIN 7081 Reflex glass 5: Borosilicate glass unhardened <sup>4</sup> Transparent glass	1: PTFE 2: FKM 3: NBR 4: C4400 5: Silicone 6: EPDM 7: Graphite 8: Special	1: 16 2: 40	Assigned by ACI if requi- red

**INFO:** Unless otherwise specified, the highlighted factory standard is supplied.

\*Cover frame according to quotation / order confirmation.

### ACCESSORIES / OPTIONS:

- a) High temperature design on request <sup>4</sup>
- b) Mica protection (up to 320°C with Borosilicate glass DIN 7081)
- c) Vacuum design with O-ring on request <sup>4</sup>
- d) Spezial sizes on request <sup>4</sup>
- e) Other options on request

<sup>4</sup> without Lloyd's Register design approval

### EXAMPLE:

**11-330-400-2-1-4-1-0 equivalent to:**

ACI Type 330

400 mm long

Base frame made of 1.4571

Cover frame made of 1.4571

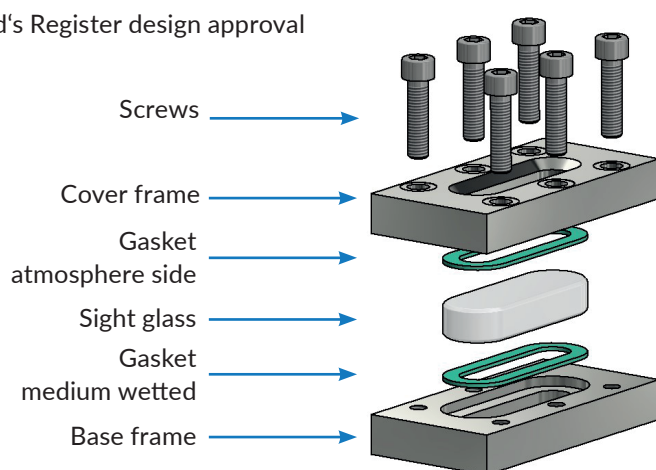
Borosilicate glass Transparent, DIN 7081

Gasket C4400

PN 16

**Standard design**

- additional accessories optional



### RECOMMENDATION:

For aggressive media or steam, mica discs should be used to protect the glasses.  
(Not possible for reflex glasses, as this would cause them to lose their function).