

WLG Series

Glass Level Gauge Solutions

WIKA

Smart in sensing





Glass Level Gauge

Model WLG-20

The WLG series 20 liquid level gauge is a general purpose gauge for mid-range pressure and temperature applications. Standard construction includes solid one-piece chamber and covers machined from carbon steel bar, tempered glass and chrome-molybdenum bolts and nuts. Recessed gasket seats prevent movement and insure leak-free service.

APPLICATIONS

WLG series 20 level Indicators are suitable for most industrial and commercial applications including:

- Chemical and petrochemical industries
- Energy and power plant technology
- Feed water heaters or boilers
- Oil and gas industries
- Offshore exploration and drilling
- Pipeline compressor applications
- Pulp and paper
- Food and beverage
- Gas plants
- Pharmaceutical

STANDARD FEATURES

- Nine standard visible glass lengths. Multiple windows on a single piece liquid chamber are used for longer lengths.
- The liquid chamber is machined from solid bar stock with recessed gasket seats to prevent movement.
- All carbon steel covers and chambers are zinc phosphate coated prior to assembly.
- Carbon steel A193 B7M U-bolts and A194 2H nuts. Treated to prevent rust.
- Tempered borosilicate glass windows that are resistant to thermal and mechanical shock. Note: Transparent glass may be protected by mica shields.
- Ultragraf- EFX gaskets
- Ultrapac - 8600 cushions
- A350 LF2 carbon steel chambers and covers.
- NACE compliant wetted materials.
- Service Range. -50...+500°F carbon steel
  -140...+500°F stainless steel

CONSTRUCTION

Gauge body - Base body of the glass level gauge, contains the liquid channel

Cover - For the clamping of the sight glass plates

Flat gasket - Chambered sealing between the liquid channel and the environment

Glass - Sight glass plates per DIN 7081 from borosilicate glass

Cushion - Mechanical protection between cover and glass

U-bolt, nut - Hold the forces from the internal pressure

Glass size - Standard lengths L of sight glass plates per DIN 7081, width 1.34" (34 mm), thickness 0.67" (17 mm)

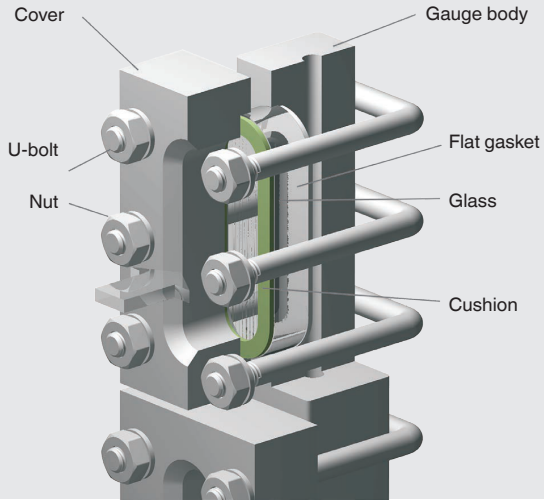
Visible length SL - The entire visible length in the sight glass, glass separations are included

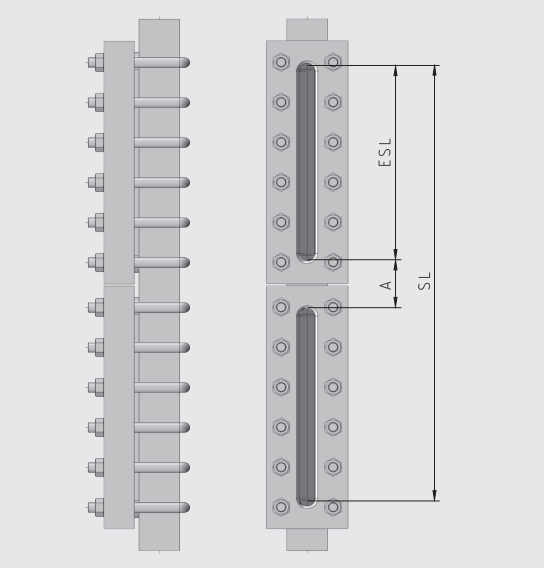
Individual visible length ESL - Visible range of a single segment

Segment - Field of view consisting of a single sight glass plate

Glass separation A - Non-visible range, results from the linking together of segments

Example





CARBON STEEL MANUFACTURING PROCESS

Confidence starts with quality. WIKA's carbon steel level assemblies are built with 100% traceability, giving customers full visibility and accountability throughout the manufacturing process. To ensure long-lasting protection, **every level assembly is treated internally and externally with a zinc phosphate** protection to guard against corrosion and maintain peak performance.

No coating

- Corrosion prone
- Raw steel surface exposed



Uncoated internals



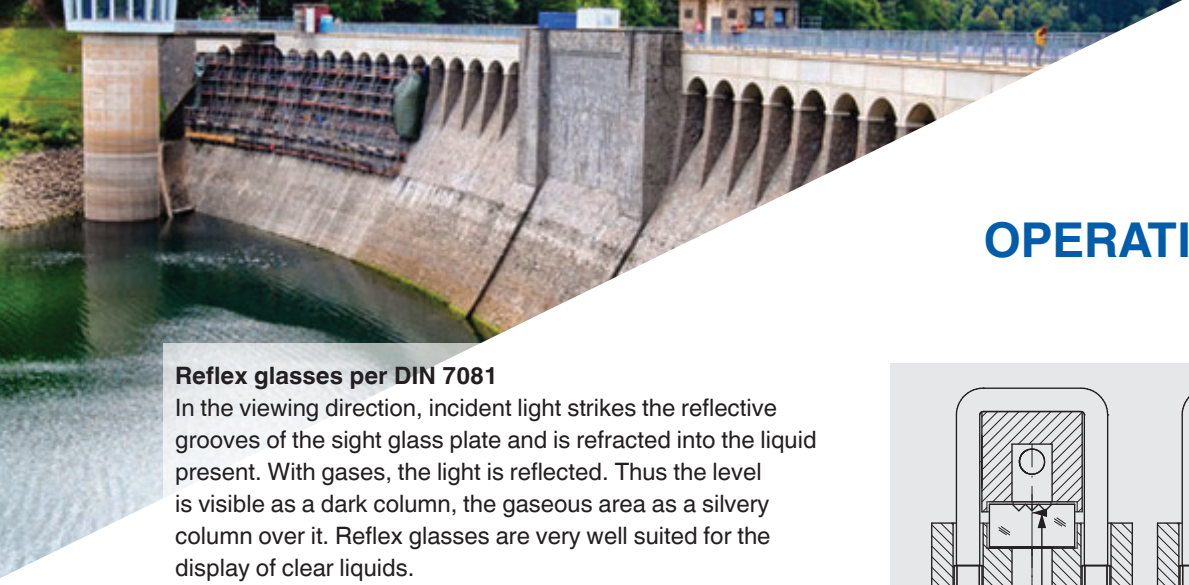
Zinc phosphate coated internals

Zinc phosphate

- Improved corrosion resistance
- Uniform matte finish

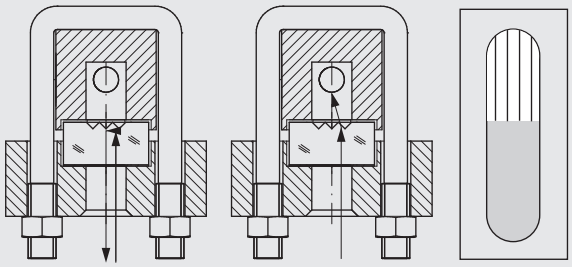
CANADIAN REGISTRATION NUMBER (CRN)

Our level gauges are supplied with a CRN and are backed by a complete portfolio of CRN-registered gauge assemblies and valves, helping customers meet Canadian code requirements with ease. To ensure dependable performance in the field, every assembly undergoes 100% pressure testing prior to shipment. The result is a reliable, compliant solution that minimizes project risk, streamlines installation, and provides confidence from startup to operation.

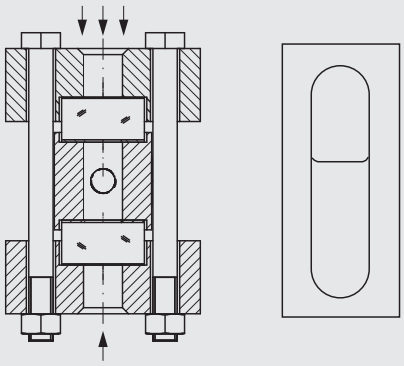


OPERATING PRINCIPLE

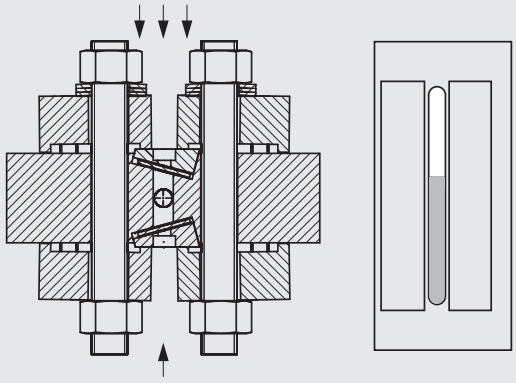
Reflex glasses per DIN 7081
In the viewing direction, incident light strikes the reflective grooves of the sight glass plate and is refracted into the liquid present. With gases, the light is reflected. Thus the level is visible as a dark column, the gaseous area as a silvery column over it. Reflex glasses are very well suited for the display of clear liquids.



Transparent glasses per DIN 7081
From the rear, incident light passes through both sight glass plates with the media between them. The level is visible as a line (meniscus) or directly due to the liquid itself.



Refraction principle with mica shields
From the rear, incident light from a lamp passes through both mica shields with the medium between them. The lamp and medium are arranged at an angle. In the gaseous phase, the light passes directly through, with liquid, the light is refracted sideways. Thus the level is visible as a black column, the gaseous area as a light column over it



If unprotected sight glasses are used in boiler systems with aqueous media, high temperatures and high pH values can lead to increased glass erosion. The effect of glass corrosion is increased with the introduction of chemical additives, such as in water treatment. The geometric changes to the sight glass resulting from the erosion lead to risks in the operational safety.

For temperatures above 469°F [243°C] , WIKA recommends the use of transparent glass with mica shields. These prevent chemical attack at high water temperatures on the otherwise unprotected glass.

	Overall length (OAL)		Visible Length SL		End Connection minimum CtoC with valves	
Size	inches	mm	inches	mm	inches	mm
11	5.250	133	3.75	95	9.00	229
12	6.250	159	4.75	121	10.00	254
13	7.250	184	5.75	146	11.00	279
14	8.250	210	6.75	171	12.00	305
15	9.375	238	7.88	200	13.13	333
16	10.625	270	9.13	232	14.38	365
17	11.750	298	10.25	260	15.50	394
18	13.375	340	11.88	302	17.13	435
19	14.125	359	12.63	321	17.88	454
23	14.500	368	13.00	330	18.25	464
24	16.500	419	15.00	381	20.25	514
25	18.750	476	17.25	438	22.50	572
26	21.250	540	19.75	502	25.00	635
27	23.500	597	22.00	559	27.25	692
28	26.750	679	25.25	641	30.50	775
29	28.250	718	26.75	679	32.00	813
36	31.875	810	30.38	772	35.63	905
37	35.250	895	33.75	857	39.00	991
38	40.125	1019	38.63	981	43.88	1114
39	42.375	1076	40.88	1038	46.13	1172
47	47.000	1194	45.50	1156	50.75	1289
48	53.500	1359	52.00	1321	57.25	1454
49	56.500	1435	55.00	1397	60.25	1530
57	58.750	1492	57.25	1454	62.50	1588
58	66.875	1699	65.38	1661	70.63	1794
59	70.625	1794	69.13	1756	74.38	1889
68	80.250	2038	78.75	2000	84.00	2134
69	84.750	2153	83.25	2115	88.50	2248
78	93.625	2378	92.13	2340	97.38	2473
79	98.875	2511	97.38	2473	102.63	2607
88	107.000	2718	105.50	2680	110.75	2813
89	113.000	2870	111.50	2832	116.75	2965
98	120.375	3058	118.88	3019	124.13	3153
99	127.125	3229	125.63	3191	130.88	3324

Pressure-Temperature Chart WLG-20-XXR

Temperature °F	Pressure (psi)	
	Carbon Steel	316/316L
100	2045	1775
200	2045	1535
300	1990	1385
400	1875	1270
500	1760	1180

WLG-20-	T1	T2	T3	-	T4	T5	T6

T1	Number of sections
1	1 section
2	2 section
3	3 section
4	4 section
5	5 section
6	6 section
7	7 section
8	8 section
9	9 section

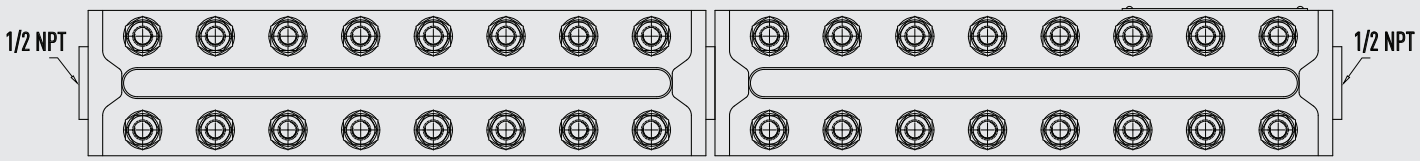
T2	Window size
1	Size 1
2	Size 2
3	Size 3
4	Size 4
5	Size 5
6	Size 6
7	Size 7
8	Size 8
9	Size 9

T3	Gauge type
R	Reflex glass
T	Transparent glass

T4	Gauge end connection size
1	1/2” NPT ***(standard)***
2	3/4” NPT

T5	Material (wetted / cover / bolting)
C	A350 / LF2 carbon steel
S	316 / 316L stainless steel

T6	NACE MR0175
N	NACE



NOTES:

1. Part number example for gauge only: WLG-20-14R-1CN.
2. Reference page 5 for glass visble length and vessel minimum center dimensions.
3. Reference page 5 for pressure and temperature chart.
4. Continue to page 7 for optional selections.

WLG-20-	T1	T2	T3	-	T4	T5	T6	-	T7	T8	T9	T10	T11
									Optional selections **Back/Side ONLY**				

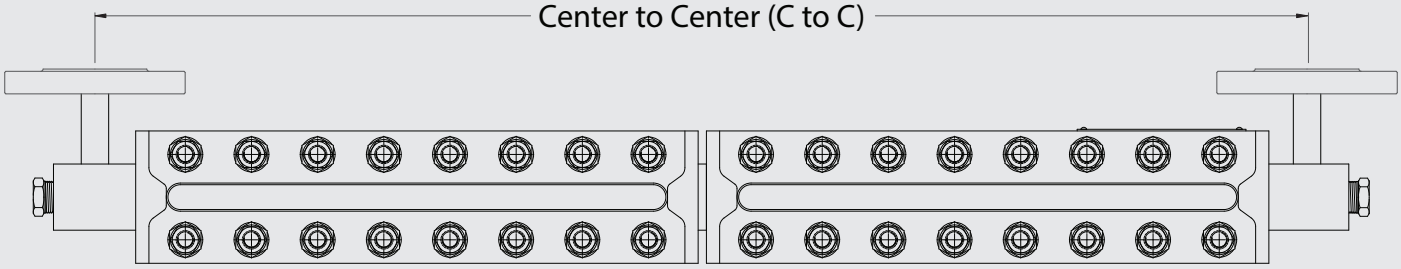
T7	Tank connection position
B	Back
S	Side

T8	Tank connection type
T	Threaded (FNPT)
S	Socketweld (female)
R	RF (Raised Face)
J	RTJ (Ring Type Joint)
L	FF (Flat Face)

T9	Tank connection size
1	1/2”
2	3/4”
3	1” (flange only)
4	1 1/2” (flange only)
5	2” (flange only)

T10	Connection rating
X	None (NPT or socketweld)
1	150#
2	300#
3	600#
4	900#
5	1500#
6	2500#

T11	Center to Center (CtoC)
XXXXX	Space between centers (in inches)
ie. 14.25” = 01425	
108.5” = 10850	

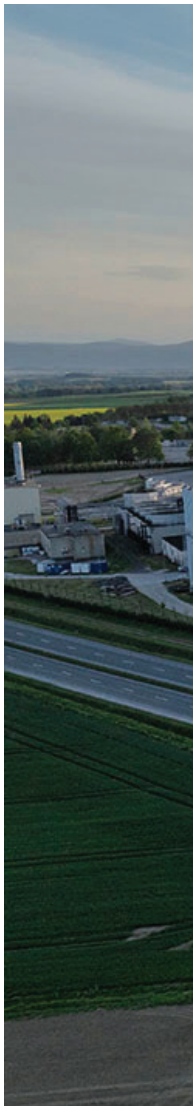


NOTES:

1. Part number example with back connection: WLG-20-26R-1CN-BR5202575
LEVEL GAUGE, 26R, REFLEX, LTCS SIZE 26, 1/2 NPT END, NACE, BACK CONNECTION, 2” 300# RF TANK CONNECTION, 25.75 C TO C



Valves are designed and manufactured for use with glass gauges and various types of instrument piping. Standard features such as back seating stems and safety shut offs make these economically priced valves the perfect choice for use with our Series 20 level gauges.



Features

While fully opened, the back seating stem seats against the bonnet allowing the valve to be repacked while under pressure.

- An offset body pattern allows for the interior cleaning of a top and bottom mount gauge without removing it from the vessel.
- The union gauge connection offers the ability to install top and bottom mount gauges at any angle for convenient visibility. This feature also allows you to remove the gauge without removing the valves.
- These valves can be supplied with a stainless steel ball check to stop the process flow in the event of glass breakage. The ball check operates upstream from the seat and has the option to be vacuum seated.
- Service range: -20...+750°F A105
  -50...+750°F A350 LF2
  -140...750°F 316SS

Valve Models

Item	Description	Body Material
WLG-110-1N	3/4" MNPT VESSEL, 1/2" FNPT GAUGE, 1/2" FNPT DRAIN	A105
WLG-110-2N	1/2" MNPT VESSEL, 1/2" FNPT GAUGE, 1/2" FNPT DRAIN	A105
WLG-110-3N	3/4" MNPT VESSEL, 3/4" FNPT GAUGE, 1/2" FNPT DRAIN	A105
WLG-110-4N	1" MNPT VESSEL, 1/2" FNPT GAUGE, 1/2" FNPT DRAIN	A105
WLG-110-1KN	3/4" MNPT VESSEL, 1/2" FNPT GAUGE, 1/2" FNPT DRAIN	A350 LF2
WLG-146-1SS	3/4" MNPT VESSEL, 1/2" FNPT GAUGE, 1/2" FNPT DRAIN	316SS

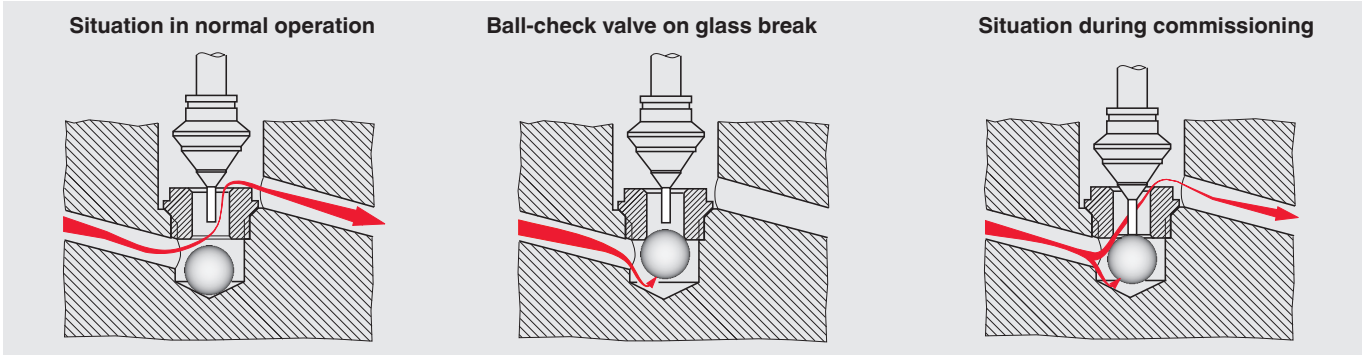
* other sizes available on request

Pressure-Temperature Chart Valves

Temperature °F	Pressure (psi)	
	Carbon Steel	316/316L
100	2400	2400
750	1400	1400

The ball-check valve should prevent any major spillage from the glass level gauge in the event of any glass or mica breakage or other sizable leakage. For this purpose there is, under the valve seat, a ball within a recess. As soon as the indicator starts to leak, the incipient flow lifts the ball from the recess and forces it against the valve seat (pressure > 7 psi). In this way, the flow is sharply reduced. The closing of the valve presses the ball back into its starting position.

Illustration of the ball-check valve principle





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