

INTRA-AUTOMATION



MESS- UND REGELINSTRUMENTE / MEASUREMENT AND CONTROL

LEVEL GAUGES WITH DIRECT LIQUID VISIBILITY

Tubular/Reflex/Transparent types

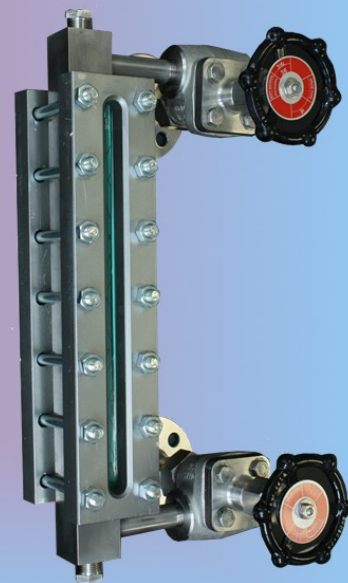
Series: ITA-GG / ITA-RG / ITA-TG



Tubular Level Gauge
Series ITA-*-GG



Reflex Level Gauge
Series ITA-*-RG



Transparent Level Gauge
Series ITA-*-TG

Technical Information

05/2022

THE EXPERT IN LEVEL AND FLOW

Intra-Automation

LEVEL GAUGES WITH DIRECT LIQUID VISIBILITY

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LEVEL GAUGES WITH DIRECT LIQUID VISIBILITY

Tubular/Reflex/Transparent types

Series: ITA-GG / ITA-RG / ITA-TG

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Due to some reasons (obligations by law, practical reasons or similar) it can be necessary, that a fluid level can be observed directly. For that kind of applications, Intra-Automation has developed its own series of Tubular Level Gauges (ITA-GG), Reflex Level Gauges (ITA-RG) and Transparent Level Gauges (ITA-TG). Together with our Magnetically Controlled Level Gauge (ITA) and several electronic transmitters, we now have a complete product line for level monitoring. In this brochure, the devices for direct visibility of levels are to be described.

ITA Level Gauges are coded as follows:

| ITA- | Device for level measurement |
|------|---|
| 3 | up to PN16 / 150 lbs, material: stainless steel |
| 6 | up to PN40 / 300 lbs, material: stainless steel |
| 7 | up to PN63 / 300 lbs, material: stainless steel |
| 10 | up to PN100 / 600 lbs, material: stainless steel |
| 11 | up to PN160 / 900 lbs, material: stainless steel |
| 12 | up to PN250 / 1500 lbs, material: stainless steel |
| 13 | up to PN320 / 2500 lbs, material: stainless steel |
| -GG | Tubular type |
| -RG | Reflex type |
| -TG | Transparent type |

Please note that not all level gauge types are suitable for all pressure ratings!

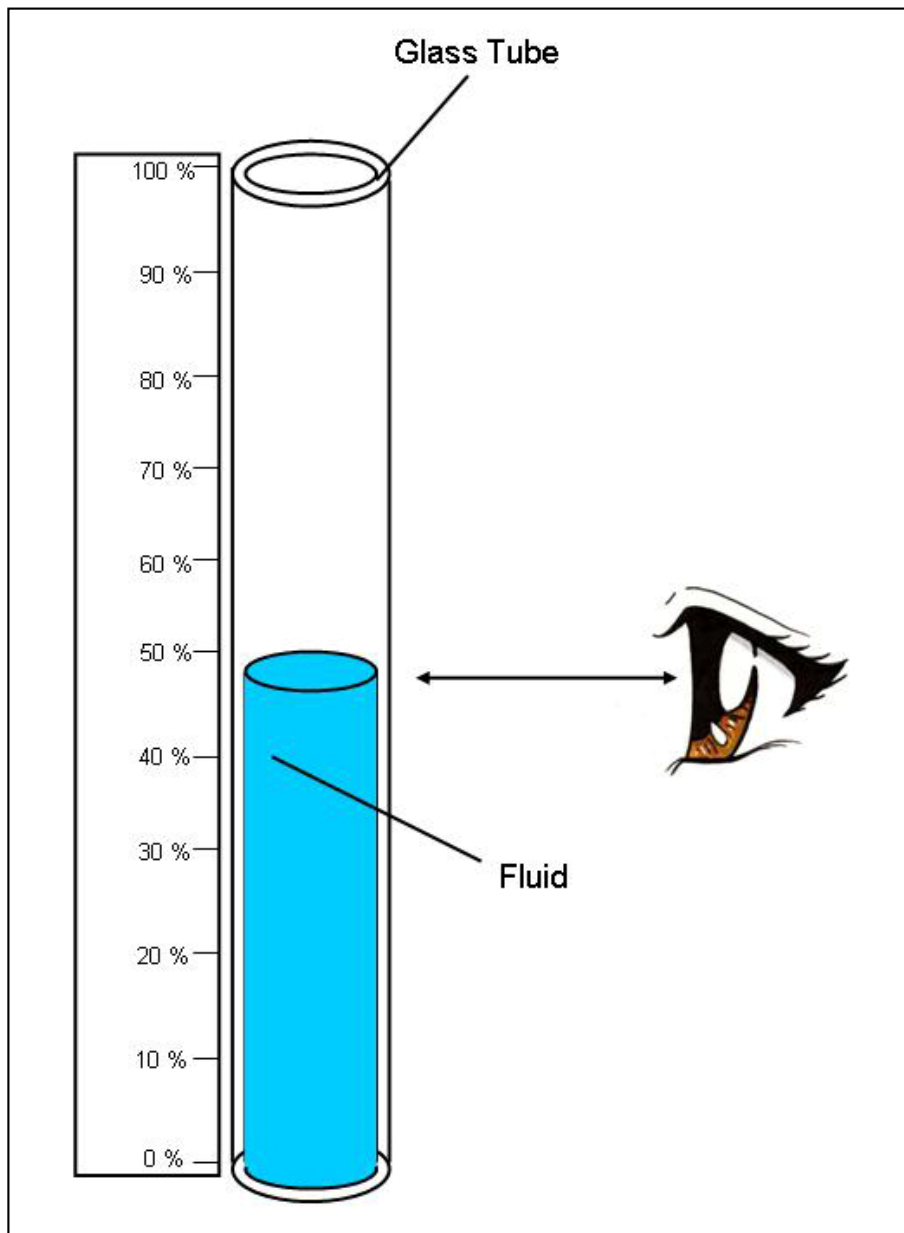
ITA-GG

2. Tubular Level Gauges

ITA-GG

2.1 Description / Functional Principle

A tubular level gauge consists of a glass tube between two shut-off-safety-valves. The valves also serve as process connection via flange, thread or welding end.



The level gauge is mounted to the tank as a bypass chamber. It works according to the law of communicating tubes. The level in the glass tube is identical to the level in the tank and can be monitored directly.



LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-GG

2.2. Order codes

| | |
|---------|------------------------------|
| Type: | Tubular-Level-Gauge |
| Rating: | max. 30 bar / 435 PSI |
| Appli.: | Liquids |

| Code: | Description: |
|-------|--|
| | 1. Design: |
| ITA- | level gauge |
| | 1.1 Rating |
| 3- | max. 30 bar@20°C or 435 PSI @68°F |
| | 1.2 Type |
| GG- | Glass tube |
| | 2. C to C dimension (mm): |
| C/C- | |
| | 3. Visible length (mm): |
| VL- | |
| | 4. Glass |
| | 4.0. material/size |
| 1- | Duran / Ø 16 x 2,5 mm |
| Y- | Special design |
| | 4.1. glass tube protection / material |
| E- | U-profile, stainless steel |
| Y- | Special design |
| | 4.2. gasket |
| P- | PTFE (max. 200°C/392°F) |
| Y- | Special design |
| | 5. Process connection |
| | 5.0. alignment |
| BT- | bottom/top |
| YY- | Special design |
| | 5.1. orientation |
| L- | left hand of gauge |
| R- | right hand of gauge |
| B- | back hand of gauge |
| Y- | Special Design |
| | 5.2. type |
| W- | welding connection (please specify) |
| N- | threaded connection (please specify) |
| E- | WN flange facing EN Form B1/B2 |
| A- | WN flange facing ASME RF |
| Y- | Special design |
| | 5.3. size |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" (on concentric reducer) |
| 3- | DN 25 / 1" (on concentric reducer) |
| 4- | DN 40 / 1-1/2" (on concentric reducer) |
| 5- | DN 50 / 2" (on concentric reducer) |
| Y- | Special design |

ITA-GG

2.2 Order codes (continuation)

| | |
|---------|------------------------------|
| Type: | Tubular-Level-Gauge |
| Rating: | max. 30 bar / 435 PSI |
| Appli.: | Liquids |

| Code: | Description: |
|-------|---|
| | 5.4. pressure rating |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| Y- | Special design |
| | 6. Material of construction ASTM/EN (DIN) |
| | 6.1 process connection |
| N- | ASTM A234/ P235GH (1.0305) -only thread or weld connection- |
| C- | A105/P250GH (1.0460) |
| S- | 316L/X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti/X6CrNiTi18-10 (1.4571) |
| Y- | Special Design |
| | 7. Vent at top |
| | 7.1. plug |
| 0- | Without |
| 1- | G1/2" with soft iron gasket |
| 2- | 1/2"-NPT, plugged |
| Y- | Special design |
| | 7.2. flange |
| 0- | Without |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" |
| 3- | DN25 / 1" |
| 4- | DN40 / 1-1/2" |
| Y- | Special design |
| | 7.2.1 rating |
| 0- | Without |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| Y- | Special design |
| | 7.2.2 material |
| N- | ASTM A234/ P235GH (1.0305) -only thread or weld connection- |
| C- | A105/P250GH (1.0460) |
| S- | 316L/X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti/X6CrNiTi18-10 (1.4571) |
| Y- | Special Design |

LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-GG

2.2. Order codes (continuation)

| | |
|---------|------------------------------|
| Type: | Tubular-Level-Gauge |
| Rating: | max. 30 bar / 435 PSI |
| Appli.: | Liquids |

| Code: | Description: |
|-------|---|
| | 8. Drain at bottom |
| | 8.1. plug |
| 0- | Without |
| 1- | G1/2" with soft iron gasket |
| 2- | 1/2"-NPT, plugged |
| Y- | Special design |
| | 8.2. flange |
| 0- | without |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" |
| 3- | DN25 / 1" |
| 4- | DN40 / 1-1/2" |
| Y- | Special design |
| | 8.2.1 rating |
| 0- | without |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| Y- | Special design |
| | 8.2.2 material |
| N- | ASTM A234/ P235GH (1.0305) -only thread or weld connection- |
| C- | A105/P250GH (1.0460) |
| S- | 316L/X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti/X6CrNiTi18-10 (1.4571) |
| Y- | Special design |
| | 9. Process ball-check shut-off-valve, PN40 |
| S- | 316L/X2CrNiMo17-12-2 (1.4404) |
| Y- | Special design |
| | 10. Accessories |
| 00- | without |
| BV- | vent ball valve, PN40, 1/2"-NPT, material body/ packing: 316L/ PTFE |
| BD- | drain ball valve, PN40, 1/2"-NPT, material body/ packing: 316L/ PTFE |
| VV- | vent needle valve, PN400, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| VD- | drain needle valve, PN400, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| GV- | vent gate valve, 800lbs, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| GD- | drain gate valve, 800lbs, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| A0- | scale, Aluminium -graduation to be specified- |
| S0- | scale, 316SS -graduation to be specified- |
| P0- | painting, Celerol, max. 300 °C -rust protection- |
| Y0- | Special design |

ITA-GG

2.2 Order codes (continuation)

| | |
|---------|------------------------------|
| Type: | Tubular-Level-Gauge |
| Rating: | max. 30 bar / 435 PSI |
| Appl.: | Liquids |

| Code: | Description: |
|-------|---|
| | 11. Documentation |
| +00- | without |
| +A1- | EN10204 –3.1 material certificate |
| +A2- | EN10204 –3.1 material certificate; NACE MR0175 |
| +F1- | hydrostatic pressure test certificate (1,5 times P design@20°C) |
| +FA- | dimensional drawing (PDF-file) |
| +FC- | certificate of conformance |
| +YY- | Special design |

LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-RG

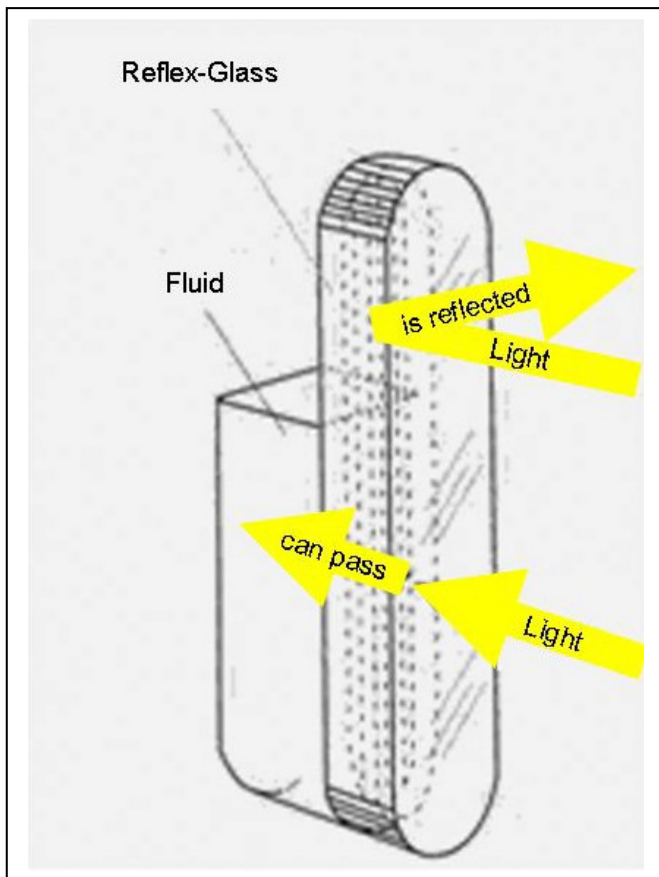
3. Reflex Level Gauges

ITA-RG

3.1 Description / Functional Principle

Reflex Level Gauges are designed to be connected sideways to the tank as a bypass tube. They are customized to the client's requirements. They fit exactly to the application, provided the client's information is exact. The tank connections are equipped with safety valves to avoid letting flow out the liquid in case of a glass break. For a safe shut-off, the needed pressure is 2 bar (min.). The gauge body itself consists of a stand pipe, which contains the fluid to be measured, of Reflex-glass segments (DIN glasses) and of a cover, which fixes the Reflex glass at the cut-out of the stand pipe.

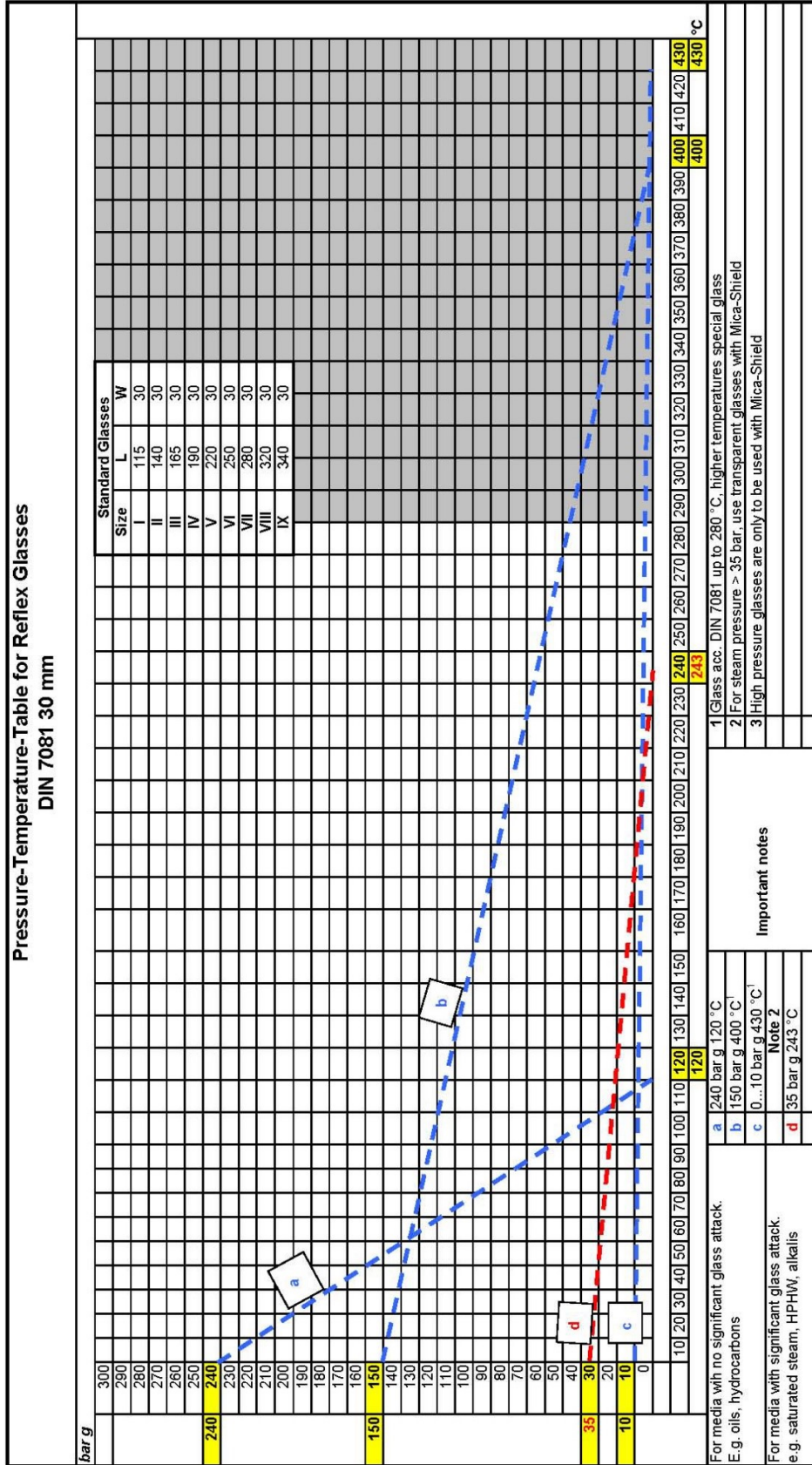
Intra-Reflex Level Gauges are made from stainless steel 316L (1.4404) or from carbon steel. The glass is borosilicate. For higher temperatures the gauges are equipped with a heat protection.



The glass of a Reflex Level Gauge is ground in a way to enable it to refract light like a prism. At the zone of liquid to measure, the light gets almost absorbed. That makes this zone very much darker than the zone of gas. By this contrast the liquid level can be observed clearly.

The Reflex Level Gauge is connected to the tank by two process connections, one at the upper end of the gauge and one at the lower end. So the tank and the gauge act as "communicating" tubes. So the liquid level in the gauge always corresponds exactly to the liquid level in the tank.

1. Temperature-pressure relation:



LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-RG

3.3 Order codes

| | |
|---------|---|
| Type: | Reflex-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|--|
| | 1. Design: |
| ITA- | Level gauge |
| | 1.1 Rating |
| 3- | PN16 or ANSI 150 lbs |
| 6- | PN40 or ANSI 300 lbs |
| 7- | PN63 |
| 10 | PN100 or ANSI 600 lbs |
| -11 | PN160 or ANSI 900 lbs |
| -12 | PN250 or ANSI 1500 lbs |
| | 1.2. Type: |
| RG- | Reflex-Gauge |
| | 2. C to C dimension (mm): |
| C/C- | |
| | 3. Visible length (mm): |
| VL- | |
| | 4. Glass |
| | 4.0. material/type/standard/size (LxWxH) [x=quantity] |
| 1x- | Borosilicate /1 / DIN7081 / 115 x 30 x 17 mm |
| 2x- | Borosilicate /2 / DIN7081 / 140 x 30 x 17 mm |
| 3x- | Borosilicate /3 / DIN7081 / 165 x 30 x 17 mm |
| 4x- | Borosilicate /4 / DIN7081 / 190 x 30 x 17 mm |
| 5x- | Borosilicate /5 / DIN7081 / 220 x 30 x 17 mm |
| 6x- | Borosilicate /6 / DIN7081 / 250 x 30 x 17 mm |
| 7x- | Borosilicate /7 / DIN7081 / 280 x 30 x 17 mm |
| 8x- | Borosilicate /8 / DIN7081 / 320 x 30 x 17 mm |
| 9x- | Borosilicate /9 / DIN7081 / 340 x 30 x 17 mm |
| YY- | Special design |
| | 4.1 protection |
| 0- | Without |
| Y- | Special design |
| | 4.2 gaskets / cushion |
| K- | Klingersil C4400 |
| G- | Graphite |
| Y- | Special design |
| | 5. Process connection (upper/lower) |
| | 5.0. alignment (upper/lower) |
| SS- | side/side |
| BT- | top/bottom |
| BS- | side/bottom |
| TS- | top/side |
| YY- | Special design |

ITA-RG

3.3 Order codes (continuation)

| | |
|---------|---|
| Type: | Reflex-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|--|
| | 5.1 orientation |
| L- | left hand of gauge |
| R- | right hand of gauge |
| B- | back hand of gauge |
| Y- | Special design |
| | 5.2 type |
| WX- | welding connection (please specify) |
| NX- | threaded connection (please specify) |
| E1- | WN flange facing EN Form B1/B2 |
| A1- | WN flange facing ASME RF |
| A2- | WN flange facing ASME RTJ |
| Y9- | Special design |
| | 5.3. Size: |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" |
| 3- | DN25 / 1" (on concentric reducer) |
| 4- | DN40 / 1 1/2" (on concentric reducer) |
| 5- | DN50 / 2" (on concentric reducer) |
| 6- | DN65 / 2 1/2" (on concentric reducer) |
| 7- | DN80 / 3" (on concentric reducer) |
| 9- | Special Design |
| | 5.4. Pressure rating: |
| 0- | Without |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| E- | PN63 |
| F- | PN100 or ANSI 600 lbs |
| G- | PN160 or ANSI 900 lbs |
| H- | PN250 |
| I- | PN320 or ANSI 1500 lbs |
| J- | PN400 or ANSI 2500 lbs |
| Y- | Special Design |
| | 6. Material of construction ASTM/EN (DIN) |
| | 6.0. Pressure chamber |
| 1- | ASTM A 242 / S355J2H (1.0570) |
| 2- | 316L / X2CrNiMo17-12-2 (1.4404) |
| 3- | 316Ti / X6CrNiTi18-10 (1.4571) |
| 4- | A350LF2 / TStE355 (1.0566) |
| 9- | Special Design |

LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-RG

3.3 Order codes (continuation)

| | |
|---------|---|
| Type: | Reflex-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|---|
| | 6.1 Cover plate |
| C- | ASTM A 242 / S355J2H (1.0570) |
| S- | 316L / X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti / X6CrNiTi18-10 (1.4571) |
| A- | A350LF2 / TStE355 (1.0566) |
| Y | Special Design |
| | 6.2 Process connection |
| N- | ASTM A 234 / P235GH (1.0305) - only thread or weld connection - |
| C- | ASTM A 242 / S355J2H (1.0570) |
| S- | 316L / X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti / X6CrNiTi18-10 (1.4571) |
| A- | A350LF2 / TStE355 (1.0566) |
| Y | Special Design |
| | 6.3. Bolts / nuts: |
| C- | C.S., zinc-plated |
| S- | 316SS |
| Y- | Other |
| | 7.0 Vent at top |
| | 7.1 Plug |
| 0- | without |
| 1- | G1/2" with soft iron seal |
| 2- | 1/2"-NPT, plugged |
| 3- | 3/4"-NPT, plugged |
| 9- | Special design |
| | 7.2 Flange |
| 0- | without |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" |
| 3- | DN25 / 1" |
| 4- | DN40 / 1 1/2" |
| 5- | DN50 / 2" |
| | 7.2.1 Rating |
| 0- | Without |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| E- | PN63 |
| F- | PN100 or ANSI 600 lbs |
| G- | PN160 or ANSI 900 lbs |
| H- | PN250 |
| I- | PN320 or ANSI 1500 lbs |
| J- | PN400 or ANSI 2500 lbs |
| Y- | Special design |

ITA-RG

3.3 Order codes (continuation)

| | |
|---------|---|
| Type: | Reflex-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|---|
| | 7.2.2 Material |
| N- | 316Ti/ X6CrNiTi18-10 (1.4571) -only for plug- |
| C- | A105/ P250GH (1.0460) |
| S- | 316L/ X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti/ X6CrNiTi18-10 (1.4571) |
| A- | A350LF2/ P355QH (1.0566) |
| Y- | Special design |
| | 8.0 Drain at bottom |
| | 8.1 Plug |
| 0- | without |
| 1- | G1/2" with soft iron seal |
| 2- | 1/2"-NPT, plugged |
| 3- | 3/4"-NPT, plugged |
| 9- | Special design |
| | 8.2 Flange |
| 0- | without |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" |
| 3- | DN25 / 1" |
| 4- | DN40 / 1 1/2" |
| 5- | DN50 / 2" |
| | 8.2.1 Rating |
| 0- | Without |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| E- | PN63 |
| F- | PN100 or ANSI 600 lbs |
| G- | PN160 or ANSI 900 lbs |
| H- | PN250 |
| I- | PN320 or ANSI 1500 lbs |
| J- | PN400 or ANSI 2500 lbs |
| Y- | Special design |
| | 8.2.2 Material |
| N- | 316Ti/ X6CrNiTi18-10 (1.4571) -only for plug- |
| C- | A105/ P250GH (1.0460) |
| S- | 316L/ X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti/ X6CrNiTi18-10 (1.4571) |
| A- | A350LF2/ P355QH (1.0566) |
| Y- | Special design |

LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-RG

3.3 Order codes (continuation)

| | |
|---------|---|
| Type: | Reflex-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|---|
| | 9. Process ball-check shut-off-valve, 2500 lbs |
| 1- | A105 / C21 (1.0432); trim: 316SS |
| S- | 316L/ X2CrNiiMo17-12-2 (1.4404); trim: 316SS |
| T- | DUPLEX/ X2CrNiMON22-5-3 (1.4462); trim: Monel |
| A- | A350LF2/ P355QH (1.0566) |
| Y | Special Design |
| | 10. Accessories (multiple choice possible) |
| 00- | without |
| BV- | vent ball valve, PN40, 1/2"-NPT, material body/ packing: 316L/ PTFE |
| BD- | drain ball valve, PN40, 1/2"-NPT, material body/ packing: 316L/ PTFE |
| VV- | vent needle valve, PN400, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| VD- | drain needle valve, PN400, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| GV- | vent gate valve, 800lbs, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| GD- | drain gate valve, 800lbs, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| IO- | illuminator, 230V 50/60Hz; IP6x; LED |
| IX- | illuminator, 230V 50/60Hz; IP6x; LED; Ex d IIB T4 Gb Ta -40°C to +85°C |
| A0- | scale, Aluminium -graduation to be specified- |
| S0- | scale, 316SS -graduation to be specified- |
| P0- | painting, Celerol, max. 300 °C -rust protection- |
| Y0- | Special design |
| | 11. Documentation (multiple choice possible) |
| +00- | without |
| +A1- | EN10204-3.1 material certificate |
| +A2- | EN10204-3.1 material certificate; NACE MR0175 |
| +F1- | hydrostatic pressure test certificate (1,5 times Pdesign@20°C) |
| +F9- | hydrostatic pressure test certificate (1,5 times Pdesign@20°C) |
| +FA- | positive material inspection certificate (PMI) |
| +FC- | certificate of conformance |
| +YY- | Special Design |

ITA-TG

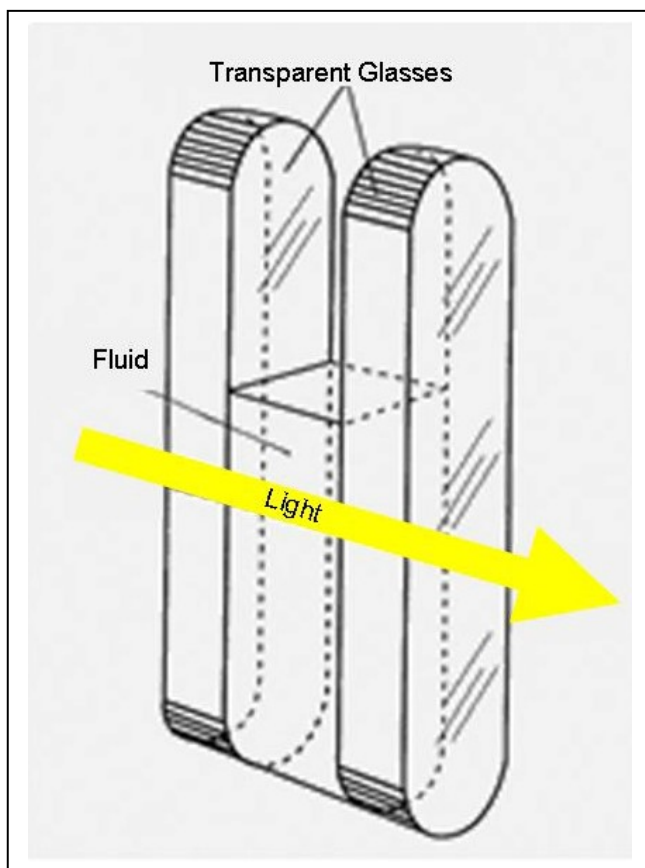
4. Transparent Level Gauges

ITA-TG

4.1 Description / Functional Principle

Transparent Level Gauges are designed to be connected sideways to the tank as a bypass tube. They are customized to the client's requirements. They fit exactly to the application, provided the client's information is exact. The tank connections are equipped with safety valves to avoid to let flow out the liquid in case of a glass break. For a safe shut-off, the needed pressure is 2 bar (min.). The gauge body itself consists of a stand pipe, which contains the fluid to be measured, of Transparent-glass segments (DIN glasses) and of covers, which fix the Transparent glasses at the cut-outs of the stand pipe.

Intra-Transparent Level Gauges are made from stainless steel 316L (1.4404) or from carbon steel. The glasses are borosilicate. For higher temperatures the gauges are equipped with a heat protection.



Inside the stand pipe of a Transparent Level Gauge, the liquid column is placed between two glass panels, which enable to see through. This transparency makes observation of the liquid level easily possible.

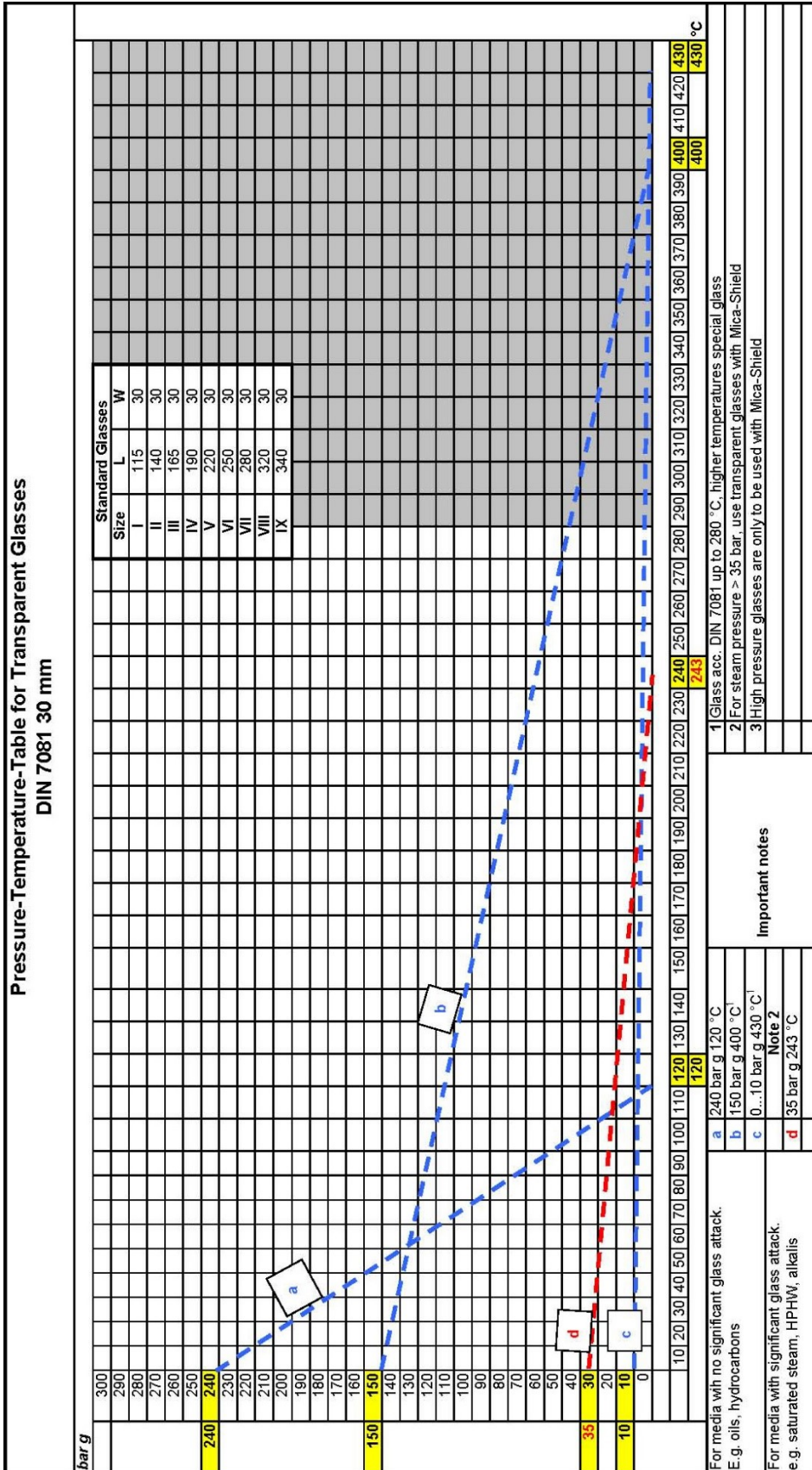
The Transparent Level Gauge is connected to the tank by two process connections, one at the upper end of the gauge and one at the lower end. So the tank and the gauge act as "communicating" tubes. So the liquid level in the gauge always corresponds exactly to the liquid level in the tank.

LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-TG

4.2 Technical Data

1. Temperature-pressure relation:



ITA-TG

4.3 Order codes

| | |
|---------|---|
| Type: | Transparent-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|--|
| | 1. Design: |
| ITA- | Level gauge |
| | 1.1 Rating |
| 3- | PN16 or ANSI 150 lbs |
| 6- | PN40 or ANSI 300 lbs |
| 7- | PN63 |
| 10 | PN100 or ANSI 600 lbs |
| -11 | PN160 or ANSI 900 lbs |
| -12 | PN250 or ANSI 1500 lbs |
| | 1.2. Type: |
| TG- | Transparent-Gauge |
| | 2. C to C dimension (mm): |
| C/C- | |
| | 3. Visible length (mm): |
| VL- | |
| | 4. Glass |
| | 4.0. material/type/standard/size (LxWxH) [x=quantity] |
| 1x- | Borosilicate /1 / DIN7081 / 115 x 30 x 17 mm |
| 2x- | Borosilicate /2 / DIN7081 / 140 x 30 x 17 mm |
| 3x- | Borosilicate /3 / DIN7081 / 165 x 30 x 17 mm |
| 4x- | Borosilicate /4 / DIN7081 / 190 x 30 x 17 mm |
| 5x- | Borosilicate /5 / DIN7081 / 220 x 30 x 17 mm |
| 6x- | Borosilicate /6 / DIN7081 / 250 x 30 x 17 mm |
| 7x- | Borosilicate /7 / DIN7081 / 280 x 30 x 17 mm |
| 8x- | Borosilicate /8 / DIN7081 / 320 x 30 x 17 mm |
| 9x- | Borosilicate /9 / DIN7081 / 340 x 30 x 17 mm |
| YY- | Special design |
| | 4.1 protection |
| 0- | Without |
| M- | MICA shields |
| Y- | Special design |
| | 4.2 gaskets / cushion |
| K- | Klingersil C4400 |
| G- | Graphite |
| Y- | Special design |
| | 5. Process connection (upper/lower) |
| | 5.0. alignment (upper/lower) |
| SS- | side/side |
| BT- | top/bottom |
| BS- | side/bottom |
| TS- | top/side |
| YY- | Special design |

LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-TG

4.3 Order codes (continuation)

| | |
|---------|---|
| Type: | Reflex-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|--|
| | 5.1 orientation |
| L- | left hand of gauge |
| R- | right hand of gauge |
| B- | back hand of gauge |
| Y- | Special design |
| | 5.2 type |
| WX- | welding connection (please specify) |
| NX- | threaded connection (please specify) |
| E1- | WN flange facing EN Form B1/B2 |
| A1- | WN flange facing ASME RF |
| A2- | WN flange facing ASME RTJ |
| Y9- | Special design |
| | 5.3. Size: |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" |
| 3- | DN25 / 1" (on concentric reducer) |
| 4- | DN40 / 1 1/2" (on concentric reducer) |
| 5- | DN50 / 2" (on concentric reducer) |
| 6- | DN65 / 2 1/2" (on concentric reducer) |
| 7- | DN80 / 3" (on concentric reducer) |
| 9- | Special Design |
| | 5.4. Pressure rating: |
| 0- | Without |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| E- | PN63 |
| F- | PN100 or ANSI 600 lbs |
| G- | PN160 or ANSI 900 lbs |
| H- | PN250 |
| I- | PN320 or ANSI 1500 lbs |
| J- | PN400 or ANSI 2500 lbs |
| Y- | Special Design |
| | 6. Material of construction ASTM/EN (DIN) |
| | 6.0. Pressure chamber |
| 1- | ASTM A 242 / S355J2H (1.0570) |
| 2- | 316L / X2CrNiMo17-12-2 (1.4404) |
| 3- | 316Ti / X6CrNiTi18-10 (1.4571) |
| 4- | A350LF2 / TStE355 (1.0566) |
| 9- | Special Design |

ITA-TG

4.3 Order codes

| | |
|---------|---|
| Type: | Transparent-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|---|
| | 6.1 Cover plate |
| C- | ASTM A 242 / S355J2H (1.0570) |
| S- | 316L / X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti / X6CrNiTi18-10 (1.4571) |
| A- | A350LF2 / TStE355 (1.0566) |
| Y- | Special Design |
| | 6.2 Process connection |
| N- | ASTM A 234 / P235GH (1.0305) - only thread or weld connection - |
| C- | ASTM A 242 / S355J2H (1.0570) |
| S- | 316L / X2CrNiMo17-12-2 (1.4404) |
| T- | 316Ti / X6CrNiTi18-10 (1.4571) |
| A- | A350LF2 / TStE355 (1.0566) |
| Y- | Special Design |
| | 6.3. Bolts / nuts: |
| C- | C.S., zinc-plated |
| S- | 316SS |
| Y- | Other |
| | 7.0 Vent at top |
| | 7.1 Plug |
| 0- | without |
| 1- | G1/2" with soft iron seal |
| 2- | 1/2"-NPT, plugged |
| 3- | 3/4"-NPT, plugged |
| 9- | Special design |
| | 7.2 Flange |
| 0- | without |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" |
| 3- | DN25 / 1" |
| 4- | DN40 / 1 1/2" |
| 5- | DN50 / 2" |
| | 7.2.1 Rating |
| 0- | Without |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| E- | PN63 |
| F- | PN100 or ANSI 600 lbs |
| G- | PN160 or ANSI 900 lbs |
| H- | PN250 |
| I- | PN320 or ANSI 1500 lbs |
| J- | PN400 or ANSI 2500 lbs |
| Y- | Special design |

LEVEL GAUGES WITH DIRECT VISIBILITY

ITA-TG

4.3 Order codes (continuation)

| | |
|---------|---|
| Type: | Transparent-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|---|
| | 7.2.2 Material |
| N- | 316Ti/ X6CrNiTi18-10 (1.4571) -only for plug- |
| C- | A105/ P250GH (1.0460) |
| S- | 316L/ X2CrNiiMo17-12-2 (1.4404) |
| T- | 316Ti/ X6CrNiTi18-10 (1.4571) |
| A- | A350LF2/ P355QH (1.0566) |
| Y- | Special design |
| | 8.0 Drain at bottom |
| | 8.1 Plug |
| 0- | without |
| 1- | G1/2" with soft iron seal |
| 2- | 1/2"-NPT, plugged |
| 3- | 3/4"-NPT, plugged |
| 9- | Special design |
| | 8.2 Flange |
| 0- | without |
| 1- | DN15 / 1/2" |
| 2- | DN20 / 3/4" |
| 3- | DN25 / 1" |
| 4- | DN40 / 1 1/2" |
| 5- | DN50 / 2" |
| | 8.2.1 Rating |
| 0- | Without |
| A- | PN6 |
| B- | PN10 |
| C- | PN16 or ANSI 150 lbs |
| D- | PN40 or ANSI 300 lbs |
| E- | PN63 |
| F- | PN100 or ANSI 600 lbs |
| G- | PN160 or ANSI 900 lbs |
| H- | PN250 |
| I- | PN320 or ANSI 1500 lbs |
| J- | PN400 or ANSI 2500 lbs |
| Y- | Special design |
| | 8.2.2 Material |
| N- | 316Ti/ X6CrNiTi18-10 (1.4571) -only for plug- |
| C- | A105/ P250GH (1.0460) |
| S- | 316L/ X2CrNiiMo17-12-2 (1.4404) |
| T- | 316Ti/ X6CrNiTi18-10 (1.4571) |
| A- | A350LF2/ P355QH (1.0566) |
| Y- | Special design |

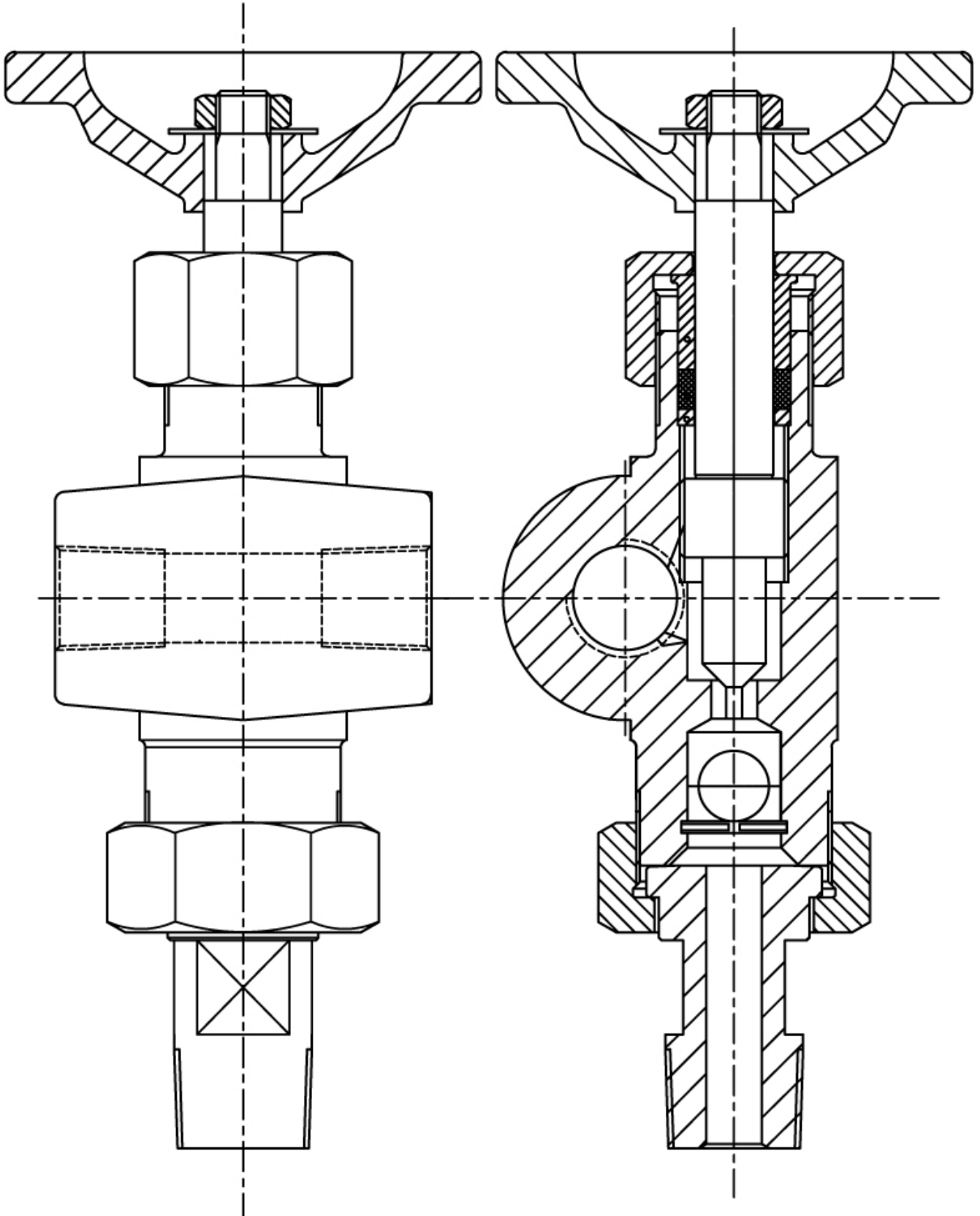
ITA-TG

4.3 Order codes

| | |
|---------|---|
| Type: | Transparent-Level-Gauge |
| Rating: | PN16 up to PN250 or 150 lbs up to 1500 lbs |
| Appl.: | Liquids / Steam |

| Code: | Description: |
|-------|---|
| | 9. Process ball-check shut-off-valve, 2500 lbs |
| 1- | A105 / C21 (1.0432); trim: 316SS |
| S- | 316L/ X2CrNiMo17-12-2 (1.4404); trim: 316SS |
| T- | DUPLEX/ X2CrNiMON22-5-3 (1.4462); trim: Monel |
| A- | A350LF2/ P355QH (1.0566) |
| Y- | Special Design |
| | 10. Accessories (multiple choice possible) |
| 00- | without |
| BV- | vent ball valve, PN40, 1/2"-NPT, material body/ packing: 316L/ PTFE |
| BD- | drain ball valve, PN40, 1/2"-NPT, material body/ packing: 316L/ PTFE |
| VV- | vent needle valve, PN400, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| VD- | drain needle valve, PN400, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| GV- | vent gate valve, 800lbs, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| GD- | drain gate valve, 800lbs, 1/2"-NPT, material body/ packing: 316L/ Graphite |
| IO- | illuminator, 230V 50/60Hz; IP6x; LED |
| IX- | illuminator, 230V 50/60Hz; IP6x; LED; Ex d IIB T4 Gb Ta -40°C to +85°C |
| A0- | scale, Aluminium -graduation to be specified- |
| S0- | scale, 316SS -graduation to be specified- |
| P0- | painting, Celerol, max. 300 °C -rust protection- |
| Y0- | Special design |
| | 11. Documentation (multiple choice possible) |
| +00- | without |
| +A1- | EN10204-3.1 material certificate |
| +A2- | EN10204-3.1 material certificate; NACE MR0175 |
| +F1- | hydrostatic pressure test certificate (1,5 times Pdesign@20°C) |
| +F9- | hydrostatic pressure test certificate (1,5 times Pdesign@20°C) |
| +FA- | positive material inspection certificate (PMI) |
| +FC- | certificate of conformance |
| +YY- | Special Design |

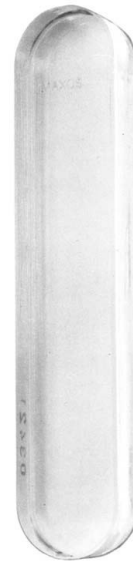
The level gauges are protected by ball check valves:



Constructional drawing ball check valve.



Reflex Glass



Transparent Glass

Intra-Automation GmbH uses toughened Borosilicate glasses according to DIN 7081 for its Reflex Level Gauges (ITA-'-RG) and Transparent Level Gauges (ITA-*'-TG). This standard is engraved in the glasses.

The capabilities of the glasses are as follows:

- 1.) Unprotected reflective or transparent panes designed for continuous exposure to saturated steam or hot water pressure **up to 35 bar** and a temperature **up to 243°C**.
- 2.) Mica-film protected reflective or transparent panes designed for continuous exposure to saturated steam or hot water pressure **up to 70 bar** and a temperature **up to 300°C**¹.
- 3.) Panes designed for continuous exposure to non-aggressive media at a temperature **up to 280°C** (under special conditions, panes may be used at temperatures **up to 300°C**¹).

¹: Panes designed for continuous service shall resist temperatures up to 280°C. Temperatures exceeding 280°C may cause the induced compressive stress to be relieved, reducing it to approximately 90 % of its initial value following a service of 300 hours at 300°C. Panes may be used at temperatures between 280°C and 300°C provided the pane is protected using a Mica-film, and the service hours above 280°C total no more than 300.

Dimensions of glass panes:

| Type of Gauge | Glass no. | | | | | | | | |
|---------------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Dimension in mm: | | | | | | | | |
| Reflex | 115 | 140 | 165 | 190 | 220 | 250 | 280 | 320 | 340 |
| Transparent | 115 | 140 | 165 | 190 | 220 | 250 | 280 | 320 | 340 |

CONTACT

DO YOU NEED SUPPORT?

Are you searching for solutions regarding level and flow measurement?

Do you search for special accessories for your metering point?

Do you need support regarding calculation or design of your special application?





Please contact us! Intra-Automation is not just manufacturer and supplier of hardware, we are also

THE EXPERT IN LEVEL AND FLOW

and are willing to share our knowledge on request.



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INTRA-AUTOMATION



MESS- UND REGELINSTRUMENTE / MEASUREMENT AND CONTROL



Since its founding in 1977, Intra-Automation GmbH focused its corporate activities on measurement and control systems for flow, level, pressure, absolute pressure and differential pressure. Our mag. level gauges ITA and our flow sensors Itabar were the locomotives for the successful development of Intra-Automation GmbH.

Over the years, our product range has been extended by devices for flow correction and ultrasonic measurement as well as auxiliary equipment for flow and level. In a further step, the core competences "differential pressure flow measurement" and "bypass level measurement" have been strengthened by broadening the product line.

Today, Intra-products enjoy a good reputation in more than 72 countries and many industries all around the world, including chemical and pharmaceutical industry, the oil and gas sector, shipbuilding, machinery and plant construction, the food and beverage industry, water treatment as well as environmental engineering.

Our product range includes instruments for level measurement and control for temperatures up to 400°C and a pressure range up to PN320 as well as differential pressure measuring instruments up to 1200°C and up to PN400.

A continuous quality management according to DIN EN ISO 9001 and constant development guarantee recognized quality and reliability as well as reproducible parameters for all products.

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