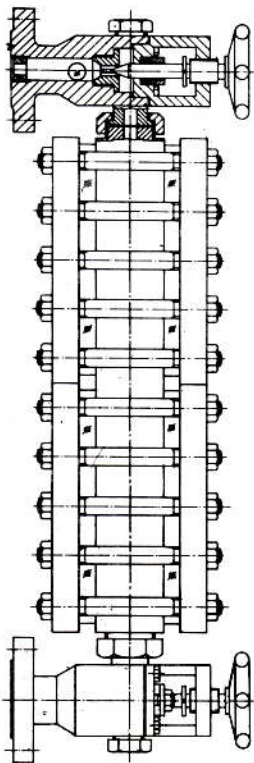
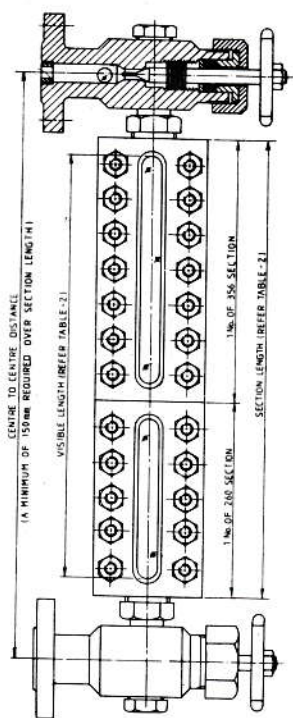


**ASVIN  
LEVEL  
INDICATORS**  
**For Process Industries**

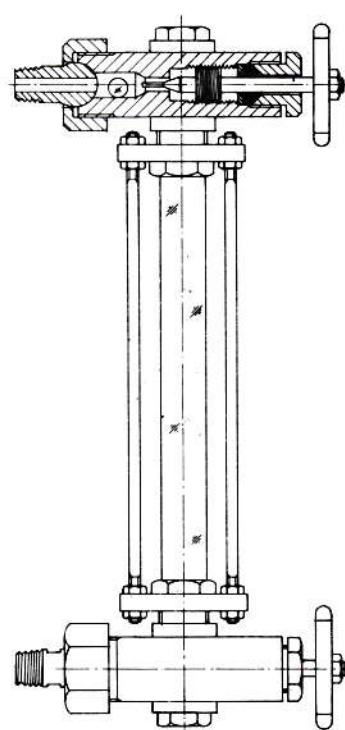
The highly specialised experience of **Asian Industrial Valves and Instruments** is available to help you for liquid level measurement. ASVIN liquid level Indicators have been meeting the special requirements of process industries which must measure and observe liquid level under difficult or hazardous conditions caused by high pressure or the nature of liquid. ASVIN Indicators manufactured by **Asian Industrial Valves and Instruments**, are ruggedly designed and constructed to the highest industry standard for trouble free service and to fill the need for an economical high range pressure group level Indicators. Dependability of ASVIN Indicators under difficult high pressure operating conditions is well known. Internationally accepted Toughened Borosilicate glass used in ASVIN Indicators. ASVIN Indicators provide a high strength glass resistant to both thermal (BS; 3463:1975) and mechanical shock with the highest degree of visibility and the utmost safety. ASVIN Indicators are available in size of 218 mm and 314 mm visible length in single section. Upto 12 sections may be specified in a single chamber with overall length to 3138 mm. ASVIN Level Indicator Valves are available in a variety of connection combination to meet your installation requirements. ASVIN Indicator Valves are offset or straight pattern to permit flexibility for easy installation in every situation. Standard construction includes a solid one-piece main chamber machined from bar steel with Forged Carbon Steel Cover plates, Toughened Borosilicate glass and High Tensile bolts and nuts and all metal parts rust proofed.



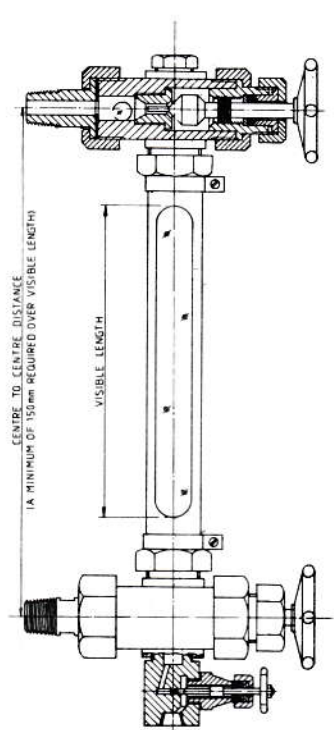
*Transparent Level Indicator with B2 type valves flanged connection - Vent & Drain plugged*



*Reflex Level Indicator with N2 type valves. flanged connection - Vent & Drain plugged*



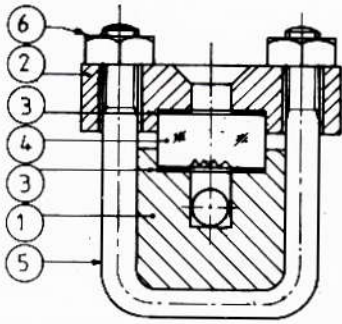
*Tubular Level Indicator with N1 type valves spherical union screwed. male connection - Guard rod protector - Vent & Drain plugged*



*Tubular Level Indicator with S1 type valves union screwed male connection - Pipe shield protector - Vent plugged with Drain valve*

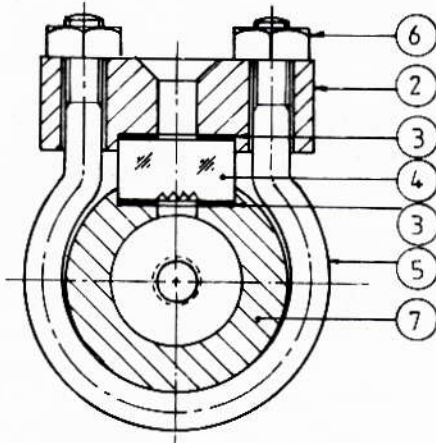
**ASVIN REFLEX LEVEL INDICATORS :** The principle of the reflex glass is based on the difference in the refractive indices of liquid and gas. It is a tough, durable moulded glass which produces sharp prisms with maximum reflectability. If a ray of light encounters the surface of one of the 45° slanted grooves in the gas or steam space, it is reflected to the opposite surface of the groove and from there totally reflected. The steam or gas

space therefore appears as silver white. Rays of light are not reflected when the grooves are filled up with liquid and appears as black in the lower side. On steam boilers where the pressure does not exceed 40 kg/cm<sup>2</sup>, ASVIN Reflex Level Indicators are the best and most economical solution (for other medias max. 350 kg/cm<sup>2</sup> pressure with max temp. of 350°C). The advantage of ASVIN Reflex Level Indicator is its clear, unambiguous readability.



Sl. No.	Part name
1	Main Chamber
2	Cover plate
3	Gasket
4	Glass
5	Stud
6	Nut
7	Large Chamber

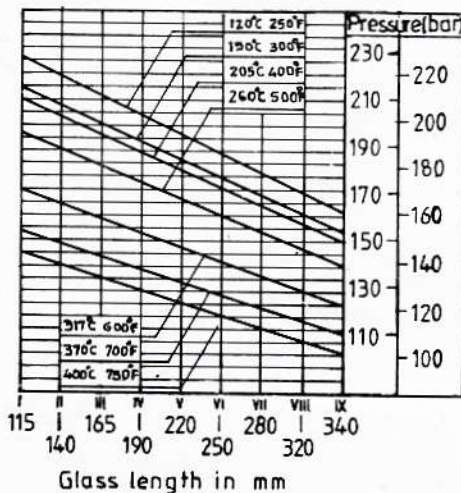
ASVIN Reflex Level Indicator for Low Pressure Application



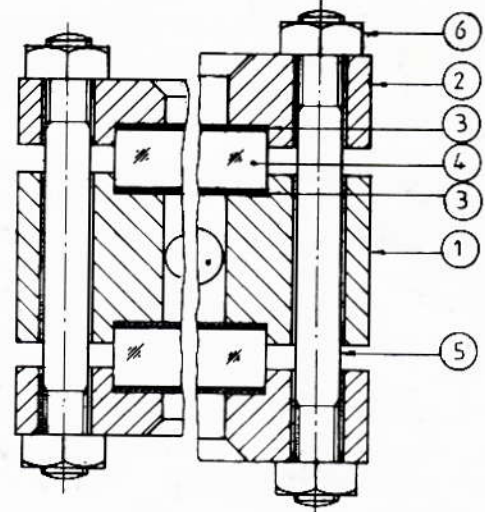
ASVIN Large Chamber Reflex Level Indicator

**ASVIN LARGE CHAMBER LEVEL INDICATORS** are primarily for media with boiling point in the low temperature region and are recommended for liquid with high rate of bubbling and vapourising. ASVIN Large Chamber Indicators are of Reflex or Transparent design. The indicator and valves should be insulated and the indicator is equipped with a non-frosting unit.

**Reflex type toughened borosilicate glass (34 mm width, 17mm thick) application range**



**ASVIN TRANSPARENT LEVEL INDICATORS :** The liquid column is contained between two transparent flat glasses which are clamped in the main chamber and seal off the liquid space at front and back. If the medium is dirty, viscous or aggressive, flat transparent glasses guarantee better indication. The glass surface can be protected by mica shields against serious attack by medium. If visibility is not clear and the medium is water-clear, ASVIN illuminator can be fitted to ensure perfect indication. ASVIN Transparent Level Indicators are offered for pressure range upto 400 kg/cm<sup>2</sup>.



ASVIN Transparent Level Indicator for Medium/High Pressure Application

**ASVIN TUBULAR LEVEL INDICATORS : (with glass protector)**

The glass tube is the oldest and simplest method of observing the liquid level in a vessel on the basis of the principle of communicating vessel. If a tubular level indicator is used on a pressure vessel and breakage occurs during observation, personnel can be endangered through glass splinters. To prevent the medium from escaping, the indicator valves are provided with auto shut off ball check arrangements as standard. These indicators are used for non-hazardous media upto a working pressure of 13 kg/cm<sup>2</sup>. For centre to centre distance exceeding 1500 mm and multiples thereof, one or more union pieces are used. Minimum 150mm has to be deducted from centre to centre distance for visible range. 19mm OD glass tubes are standard and other standard glass tubes can be offered with valves on request. These glass indicators can be completely enclosed with safety glass for 360° visibility. Mild steel protective guards, Mild steel protective shield, plastic protective shields can also be provided.

**Glass Sealing Gasket and Cushion Gasket :** The sight glass is invariably installed between the sealing gasket and cushion gasket in the indicator chamber. The sealing gasket is made from high quality material. Through its compressibility and resilience this ensures uniform pressure on the glass.

**Mica Protection :** Only transparent glasses can be mica protected. Indicator glasses must be mica protected on the side of facing the medium when used with steam at pressures over 40 kg/cm<sup>2</sup> or with media which causes rapid wear of the glasses.

**Explosion Proof Illuminators :** If the medium is water-clear and a Transparent indicator is used, an illuminator must be provided to ensure clear indication of the level. Illuminators are available in flame proof and weather proof categories. Explosion proof illuminators can be supplied on request.

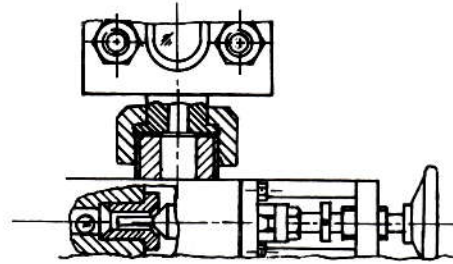
**Ancillary Heating System :** Media which tend to harden or solidify must be kept liquid by means of an ancillary heating system. ASVIN provide heating system for all indicator types. Heated indicator valves can also be supplied on request. When ordering, heating medium and type of connection for the heating jacket must be furnished.

**Steam Gauge with Expansion Compensator :** At high pressures in temperatures in boiler design, the differential expansions of individual structural elements must be taken into account. Large differences in lengthwise expansion cause excessive stresses and lead to leakage at the sealing points where ASVIN advise the use of an expansion bend. In this case a minimum difference of 500 mm is required between centre to centre distance of valves and visible length of Level Indicator.

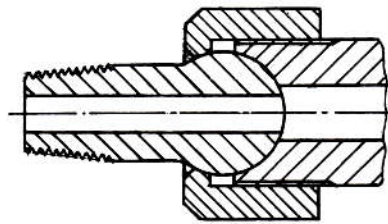
**Non frosting blocks :** With cold media there is a danger of ice forming on the indicator glass from atmospheric moisture. ASVIN non frosting blocks (acrylic

glass) keep the sight area free of ice and ensure unimpaired observation of the liquid level. The width of the block is matched to the visible width of the glass. With transparent gauges, non-frosting blocks must be provided on both sides of indicator glasses.

**ASVIN VALVES FOR LEVEL INDICATORS :** A wide selection of optional features permit a high degree of customizing to meet very specific demands. ASVIN Indicator Valves are equipped with a stainless steel ball check which instantaneously shuts off flow medium being indicated in case of indicator glass breakage. Union gauge connection makes possible removal of the indicator without removing the valves.



The indicator and drain connections are offset and by removing the vent and drain plug, the interior of a top and bottom connected level indicator glass may be swabbed without removing the indicator.

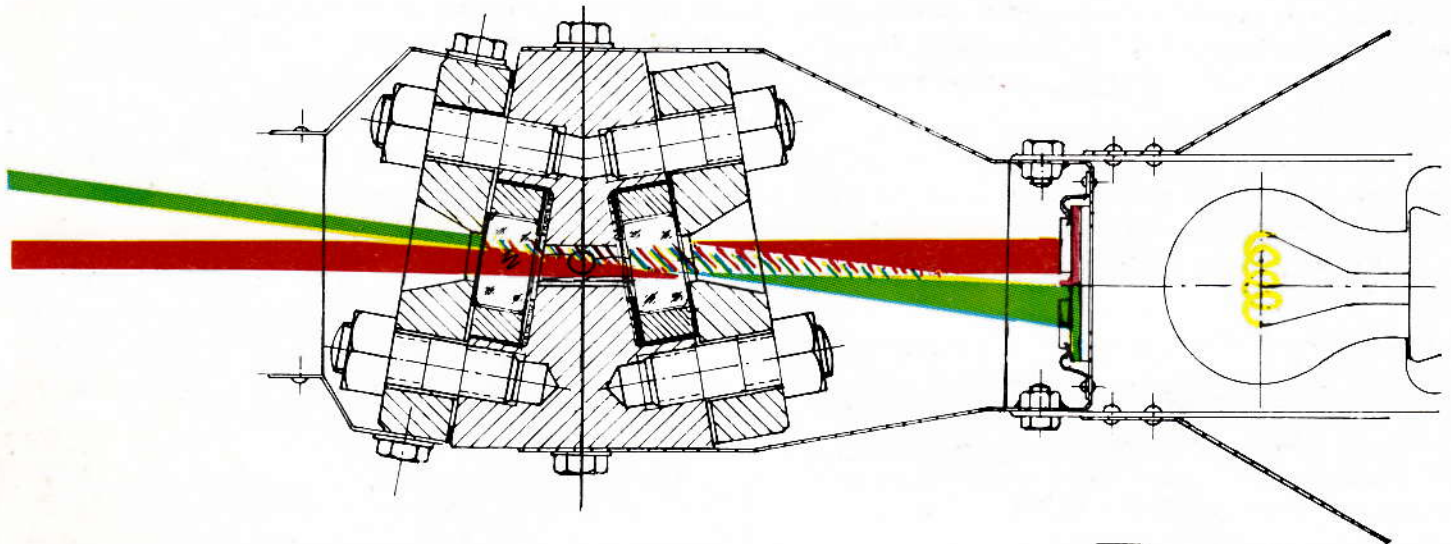


Spherical unions are available on both vessel and indicator connections which will compensate for upto 10° misalignment of tapping.

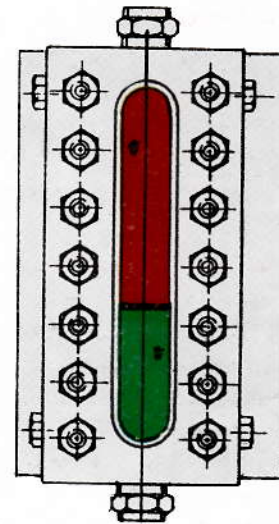
Sl. No.	Numbering 8th & 9th digit	Type of ASVIN Indicator Valves (Standard design)	Pressure & temp. ratings for Cast Carbon Steel	Maximum Weight of valves per set (Flanged connection)
1	N1	Integral valve Body and Bonnet	40 kg/cm <sup>2</sup> at 250°C 100 kg/cm <sup>2</sup> at 60°C	5.0 kg.
2	N2	Integral square valve Body and Bonnet	80 kg/cm <sup>2</sup> at 325°C 150 kg/cm <sup>2</sup> at 60°C	6.5 kg..
3	S1	Separate valve Body and Bonnet with back setting	80 kg/cm <sup>2</sup> at 250°C 120 kg/cm <sup>2</sup> at 60°C	6.5 kg..
4	S2	Separate square valve Body and Bonnet with back seating	120 kg/cm <sup>2</sup> at 325°C 180 kg/cm <sup>2</sup> at 60°C	8.0 kg..
5	B1	Bolted Bonnet, valve Body and OS & Y design	300 kg/cm <sup>2</sup> at 350°C 450 kg/cm <sup>2</sup> at 60°C	14.0 kg..
6	B2	Bolted Bonnet, square valve Body and OS & Y design	300 kg/cm <sup>2</sup> at 350°C 450 kg/cm <sup>2</sup> at 60°C	16.0 kg..

Table 1 : Type of Indicator Values with pressure and temperature ratings for cast carbon steel material

## ASVIN BI-COLOUR LIQUID LEVEL INDICATOR



ASVIN Bi-colour Level Indicator is in principle a Transparent gauge in which the centre piece has a wedge shaped section. In front of the light source, the illuminator, two colour filters are mounted-one red and another green. When seen from the front, the red colour filter is always on the left. The optical separation of the steam and water spaces is based on the differential refraction of light in steam and water. If the red light ray enters water, it is deflected sideways and absorbed. When it enters the steam space, it appears in the indication as red. Green light rays are absorbed in the steam space but pass unhindered through the water space and therefore indicated as green. ASVIN Bi-colour Level Indicators are used for high pressure steam boilers (Upto 180 kg/cm<sup>2</sup> at 350°C) and condensate accumulators. These indicators shall not be installed inclined.



INDICATION  
RED - STEAM  
GREEN - WATER

### ASVIN MAGNETIC LEVEL INDICATOR :

#### Application:

Pressures upto 140 kg/cm<sup>2</sup>  
Temperatures upto 400°C.

#### Materials :

Chamber pipe : Austenitic steel (AISI 304);  
and float other stainless steel and plastic  
chambers such as PP, PVC.

Dimensions : As specified, Centre to centre  
distance and visible length can be  
same. One piece upto 5 meter, two  
pieces or more above 5 meter.

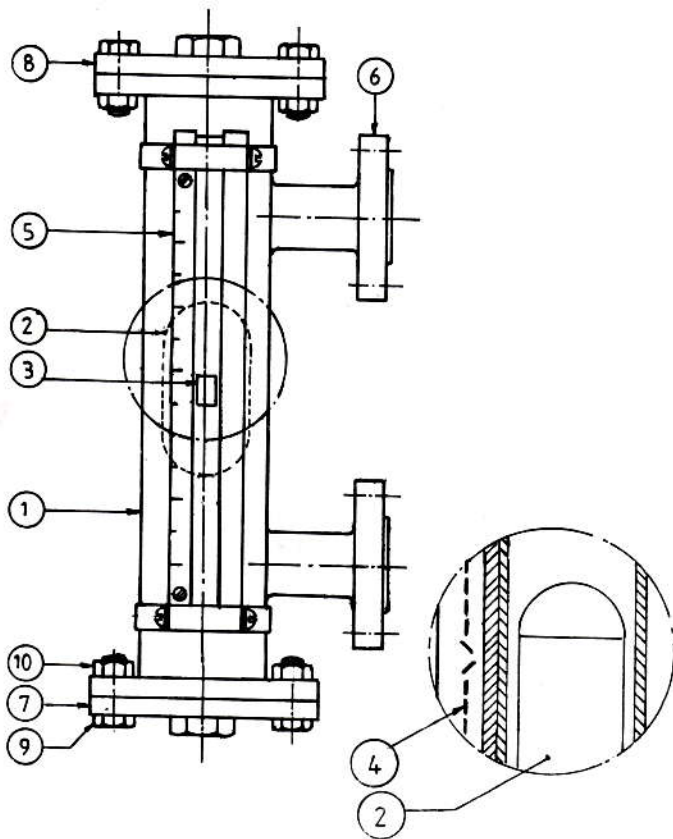
Types : Side mounted, Top mounted

Accessories : High and Low level alarm  
switches

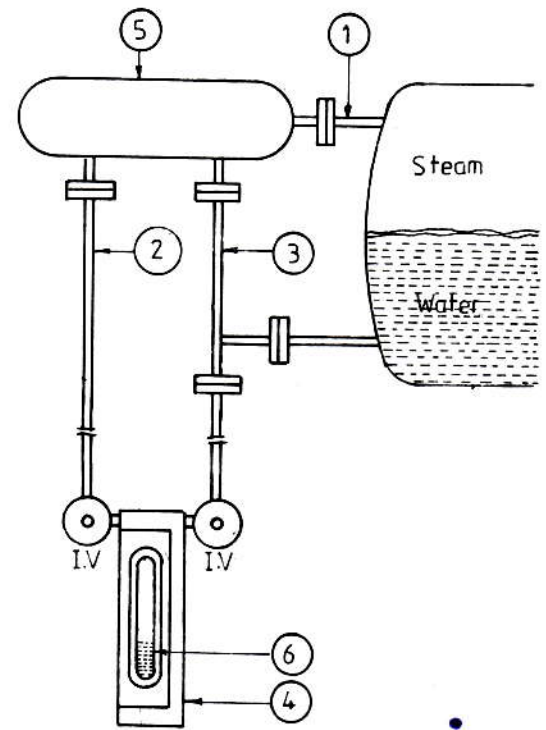
ASVIN Magnetic Level Indicator can be fitted to the side of the tank or top of the tank as a communicating,

pressure resistant pipe. A stainless steel float fitted with a permanent magnet moves freely in the float chamber, follows the liquid level as a result of its buoyancy and transfers the level magnetically to the indication rail mounted on the exterior of the float housing. The outside bar magnet or wafers in the indication rail are protected against outside interference, such as vibration or impurities so that float alone can activate it. If the level raises or falls, the magnet in the float causes the two colour wafers, in the indication rail to turn from the white side to the red side which indicates the level or vice versa. If a bar magnet is provided, as follower magnet in the indication rail (instead of wafers), it moves alongwith the float inside the chamber which shows the actual level. ASVIN Magnetic Level Indicator is of particular advantage whenever dangerous and toxic media call for careful level monitoring. Since the medium is completely separated from the indicator system, there is no leakage and no hazard to environment. These indicators are also recommended for corrosive and semi-solid applications. Providing valves are optional. Ball check arrangement for valves are not required.

Sl. No.	Item	Sl. No.	Item
1.	Float Chamber	6.	Connection flange
2.	Float	7.	Drain flange
3.	Indicator magnet	8.	Vent Flange
4.	Wafers	9.	Bolt
5.	Indication rail	10.	Nut



ASVIN Magnetic Level Indicator



ASVIN Remote Water Level Indicator

Sl. No.	Description
1.	Steam line
2.	Constant head line
3.	Equalising tube (static column)
4.	Indicator with isolation valves
5.	Condensation pot
6.	Indicator liquid

The principle of the remote indicator is shown in the figure above. Insoluble Indicator liquid is provided in branch of equalising tube on indicator. One end of equalizing tube is connected to the water container. By condensation of water, the level in the branch '2' is kept constant. Excess condensed water runs continuously back into the vessel. This prevents the flow of dirty water from the boiler to the indicator. Every displacement of the indicator liquid in indicator instrument corresponds exactly in magnitude to the change in the water level in the boiler or vessel. It can be read on the remote indicator as well as direct indicator.

- Accessories :
- : Constant head chamber / condensation pot
  - : Three way equalising tube
  - : Insoluble indicator liquid
  - : Illuminator

Please ask for detailed technical information

**ASVIN REMOTE WATER LEVEL INDICATOR :** ASVIN Remote Water Level Indicators are manufactured from forged carbon steel chamber with visible length 218 mm and 314 mm and for working pressures upto 200kg/cm<sup>2</sup> at saturated steam temperatures. Large variations of the level are transmitted at a reduced scale. The problem of indicating the water level in high pressure water boilers, vessels, etc., at the position of stoker is solved in a simple way by ASVIN Water Level Indicator. The transmission is provided by the medium itself without the aid of floats, levers, balances or other mechanical or electrical equipment. ASVIN Remote Water Level Indicator therefore operates in the event of power failure also. The indicator enables the level to be read at eye level from boilers or vessels at a higher level. With additional parts, ASVIN Remote Water Level Indicator can also be fitted above the boiler or vessel.

<b>Pressure &amp; temperature range</b>	Upto 400 kg/cm <sup>2</sup> & -- 196° C to 400° C
<b>Indicator and Valve body material</b>	Carbon steel, AISI 304, AISI 316, Alloy Steel, Alu-bronze, Monel, Inconel, Hastelloy and other corrosion resistant materials to meet specific requirement.
<b>Cover plate material</b>	Forged Carbon Steel, AISI 304, AISI 316
<b>Bolts &amp; Nuts material</b>	High Tensile group to 8.8 Grade as standard, AISI 304, or Alloy Steels to ASTM A 193 Gr B7 for studs & ASTM A194 Gr 2H for nuts.
<b>Process connection</b>	Flanged ANSI, AFNOR, DIN, IS or BS, Screwed BSP, BSPT, NPT (both Male or Female, union or spherical type), Socket weld, Butt Weld or any other standard specified by customer.
<b>Gauge Connection</b>	Spherical union, Union, Non union, Flanged
<b>Accessories</b>	Mica and/or Illuminator (for Transparent type only), heating system, expansion compensator, non-frosting blocks, mounting clamp, ball check for valves, back seating arrangement for valves, drain valve, isolation valves, linear scale.

### ASVIN - Numbering System for Level Indicators

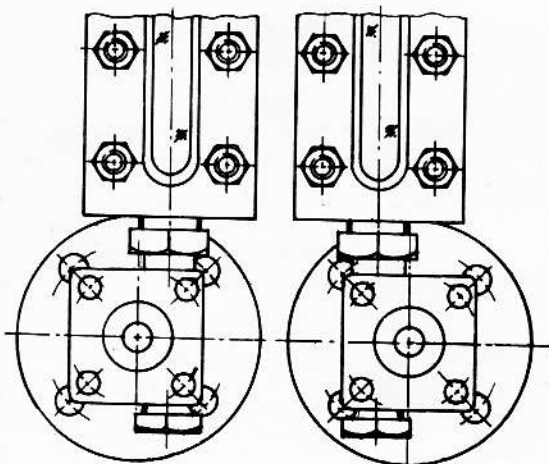
**First Two Digits :** Always first two digits designate type of ASVIN level indicators.

- RF : Reflex Level Indicator
- TR : Transparent Level Indicator
- TU : Tubular Level Indicator
- BC : Bi-colour Liquid Level Indicator
- MG : Magnetic Level Indicator
- RW : Remote Water Level Indicator

**Third and Fourth Digits :** Refer table 2 on page No. 8 for No. of sections, section and visible length of the indicator. Minimum 150 mm is required between the centre to centre distance of the indicator and section length (Not applicable for MG where centre to centre distance can be visible length). For TU No. of sections and section length are not applicable.

### Fifth and Sixth Digits :

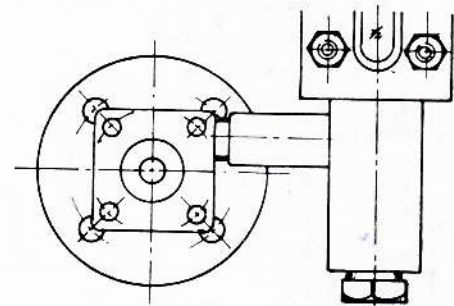
Type of vessel connection BT, BS, SS or EC



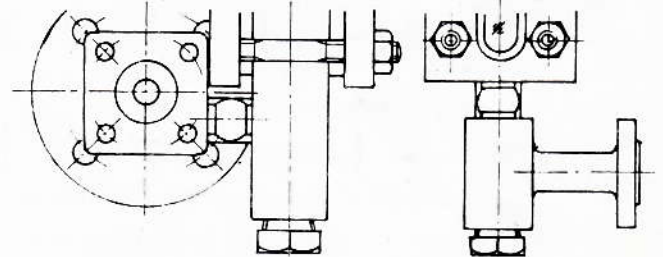
Left hand

Right hand

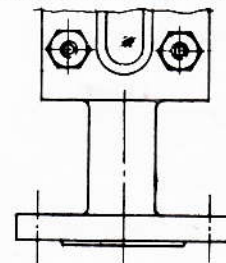
Back connection, Top & Bottom Design (BT)



Back connection, Side Design (BS)  
(left hand, outside centre is shown)



Side connection, Side Design (SS)



End Connection (EC) -- for without valves only

**Seventh Digit : ASVIN level indicator chamber type & design.** Refer table 3 on page No. 8 for maximum pressure, maximum temperature per section length. Not applicable for TU & MG. where the 7th digit will be '0'.

**Eighth and Ninth Digit :** Types of ASVIN Indicator Valves. Refer Table 1 on Page No. 4 for the pressure and temperature ratings for standard valves for ASVIN Indicators.

3rd 4th digit	No. of section		Section length mm	Visible length mm	3rd 4th digit	No. of section		Section length mm	Visible length mm	3rd 4th digit	No. of section		Section length mm	Visible length mm
	260	356				260	356				260	356		
01	1	0	260	218	17	3	2	1492	1450	33	2	5	2300	2258
02	0	1	356	314	18	6	0	1560	1518	34	5	3	2368	2326
03	2	0	520	478	19	2	3	1588	1546	35	1	6	2396	2354
04	1	1	616	574	20	5	1	1656	1614	36	4	4	2464	2422
05	0	2	712	670	21	1	4	1684	1642	37	0	7	2492	2450
06	3	0	780	738	22	4	2	1752	1710	38	3	5	2560	2518
07	2	1	876	834	23	0	5	1780	1738	39	6	3	2628	2586
08	1	2	972	930	24	3	3	1848	1806	40	2	6	2656	2614
09	4	0	1040	998	25	6	1	1916	1874	41	5	4	2724	2682
10	0	3	1068	1026	26	2	4	1944	1902	42	1	7	2752	2710
11	3	1	1136	1094	27	5	2	2012	1970	43	4	5	2820	2778
12	2	2	1232	1190	28	1	5	2040	1998	44	0	8	2848	2806
13	5	0	1300	1258	29	4	3	2108	2066	45	3	6	2916	2874
14	1	3	1328	1286	30	0	6	2136	2094	46	6	4	2984	2942
15	4	1	1396	1354	31	3	4	2204	2162	47	2	7	3012	2970
16	0	4	1424	1382	32	6	2	2272	2230	48	5	5	3080	3038

Table 2 : Third and fourth digit details for Model number -- No. of sections, section length & visible length

Seventh digit	ASVIN Standard Level Indicator Chamber Type & Design	Pressure max. *	Temperature max. *	Wt. per section in kgs. Approx.	
		kg/cm <sup>2</sup>	°C	260	356
1	Low pressure, Reflex Level Indicator	40	250	7.3	10.4
2	Low pressure Transparent Level Indicator	36	250	10.0	14.3
3	Medium pressure Reflex Level Indicator*	120	300	10.0	14.0
4	Medium pressure Transparent Level Indicator	85	325	13.7	19.3
5	High pressure application Reflex Level Indicator	250	300	12.3	17.3
6	High pressure application Transparent Level Indicator	200	350	16.2	22.5
7	Large chamber type Reflex Level Indicator	80	-80 to -196	8.7	12.0
8	Large chamber type Transparent Level Indicator	60	-80 to -196	20.6	25.8

Table 3 : Maximum working pressure, temperature and weight of the indicator per section length

\* Apart from the standard indicators, special designs are available for very high temperature and pressure.

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