Colima Visco and Colima Viscorol Magnetic Level Indicators

Description

Colima Visco and Colima Viscorol magnetic level indicators have been designed for optical viewing of liquid levels in most industrial applications. They are also suitable for high pressure and high temperature applications and the range is complemented by having a pharmaceutical grade option available when requested. The indicators can be equipped with electrical contacts or with a potentiometer transmitter for full automation of process management, including pressurised tanks, vats, boilers, for the control of pumps, valves and alarm systems.

Mounting

The Colima Visco and Colima Viscorol magnetic level indicators are installed on the side of the tank (bypass system) or vertically on the top of the tank.

Available types

LL	Side/side mounted
LF	Side/base mounted
LT	Side/top mounted
TF	Top/base mounted
R	Top insertion only
GV / **GDV**	Side/side mounted. Specifically designed to control methane-gas odorant

Indicator body sizes

Steel	25	Ø tube 25 - R type only
	50	Ø tube 48 - Maximum pressure 12 bar g
	60	Ø tube 60
	70	Ø tube 76
Plastic	70	Ø tube 76 - Maximum pressure 16 bar g

Colima Visco

Colima Viscorol

Options

Electrical bistable reed switch contacts, placed at the required levels, thus allowing control of several operating points with a single instrument.
When equipped with a potentiometer transmitter, they allow continuous reading of liquid level.

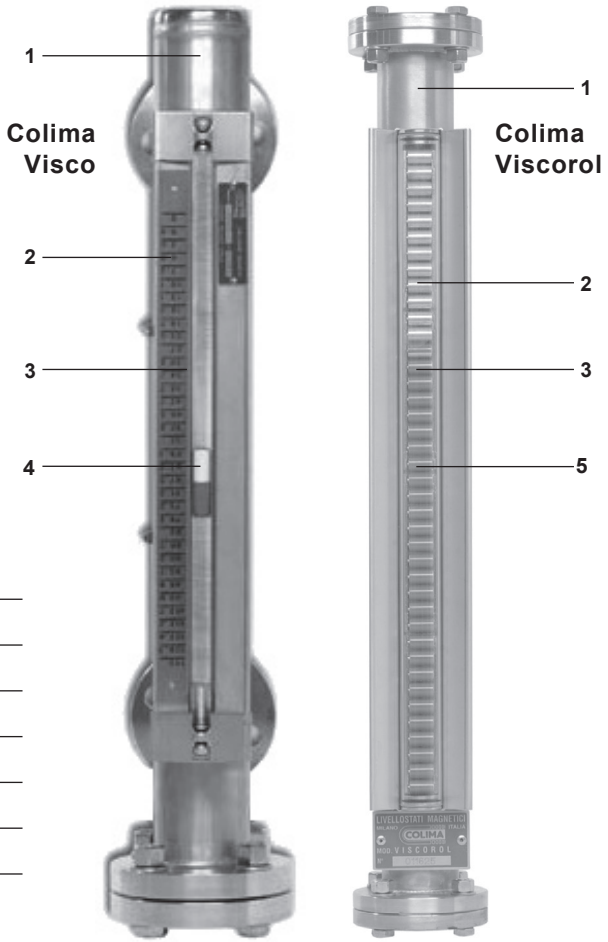
Standards and certification

Colima Visco and Colima Viscorol magnetic level indicators comply with the following European Directives:

- PED 97/23/EC - up to Class IV.
- ATEX 94/9/EC (for electrical equipment only).
- 73/23 CEE (for electrical equipment only).
- Products intended for use in the Naval and Marine sectors are RINA and M.M.I (Italian navy) approved.

Body sizes and end connections

Flanged: DN20, DN25, DN40, DN50, DN65 and DN80
Screwed, socket weld and butt weld: ½", ¾", 1", 1½", 2", 2½" and 3"
Please note: See page 3 for the full data regarding the range of connections available.



Materials

No.	Part	Material
1	Indicator body	304/316L/316Ti/PVC/PP/PVDF
2	Scale	Graduated or neutral
3	Glass tube	Polycarbonate or Pyrex
4	Two colour indicator	Plastic or alnico
5	Two colour rollers	Plastic or aluminium
6	Float (not shown)	316L/316Ti/Titanio/Hastelloy PVC/PP/ PVDF/Buna N

Design conditions

TMA Maximum allowable temperature	Steel		-25 to+350 °C
	Plastic	PVC	-20 to +70 °C
		PP	-20 to+105 °C
		PVDF	-20 to+130 °C
PMA Maximum allowable pressure	Steel		< 125 bar g
	Plastic		< 16 bar g
Specific gravity of fluid	Steel and plastic		> 0.8 kg/l
	Buna N/Titanium		> 0.5 kg/l
Two-colour line marker material and rollers	Polycarbonate		T < 180 °C
	Aluminium		T < 350 °C

Body sizes and end connections

Flanged, screwed, socket weld and butt weld	DN20, DN25, DN40, DN50, DN65 and DN80 ½", ¾", 1", 1½", 2", 2½" and 3"

Side process connections (types LL, LF, LT)

Please note that other screwed and flanged connections are available on request.

Flanged (FL) EN 1092 and ASME (ANSI)

EN 1092	**UA**	DN20	PN16
	UB	DN20	PN40
	UC	DN20	PN64
	UD	DN20	PN100
	UE	DN25	PN16
	UF	DN25	PN40
	UG	DN25	PN64
	UH	DN25	PN100
	UI	DN40	PN16
	UL	DN40	PN40
	UM	DN40	PN64
	UN	DN40	PN100

ASME	**AA**	¾"	Class 150
	AB	¾"	Class 300
	AC	¾"	Class 600
	AD	¾"	Class 1500
	AE	1"	Class 150
	AF	1"	Class 300
	AG	1"	Class 600
	AJ	1"	Class 1500
	AK	1½"	Class 150
	AH	1½"	Class 300
	AI	1½"	Class 600
	AL	1½"	Class 1500

Screwed (TH)

Gk M	**GA**	½"
	GB	¾"
	GC	1"
	GD	1½"
NPT-M	**NA**	½"
	NB	¾"
	NC	1"
	ND	1½"

Socket weld (SW) or Butt weld (BW)

SW	**SA**	½"
	SB	¾"
	SC	1"
	SD	1½"
BW	**BA**	½"
	BB	¾"
	BC	1"
	BD	1½"

Top and bottom process connections (types TF, LF, LT)

Please note that other screwed and flanged connections are available on request.

Flanged (FL) EN 1092 and ASME (ANSI)

EN 1092	**UA**	DN50	PN16
	UB	DN50	PN40
	UC	DN50	PN64
	UD	DN50	PN100
	UE	DN65	PN16
	UF	DN65	PN40
	UG	DN65	PN64
	UH	DN65	PN100
	UI	DN80	PN16
	UL	DN80	PN40
	UM	DN80	PN64
	UN	DN80	PN100

ASME	**AA**	2"	Class 150
	AB	2"	Class 300
	AC	2"	Class 600
	AD	2"	Class 1500
	AE	2½"	Class 150
	AF	2½"	Class 300
	AG	2½"	Class 600
	AH	2½"	Class 1500
	AI	3"	Class 150
	AJ	3"	Class 300
	AK	3"	Class 600
	AL	3"	Class 1500

Screwed (TH) on the counterflange

Gk M	**GA**	½"
	GB	¾"
	GC	1"
NPT-M	**NA**	½"
	NB	¾"
	NC	1"

Socket weld (SW) or Butt weld (BW) on the counterflange

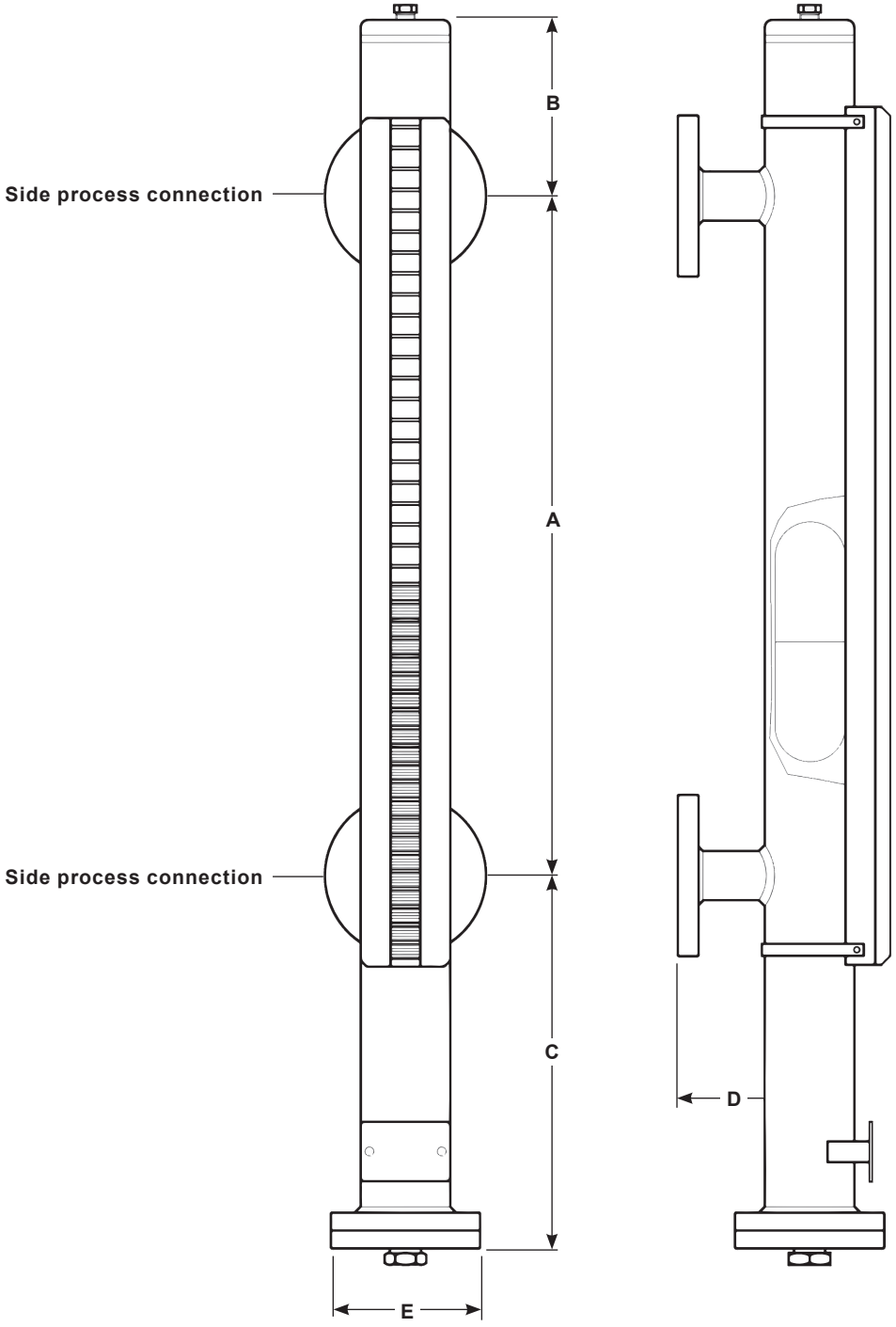
SW	**SA**	½"
	SB	¾"
	SC	1"
BW	**BA**	½"
	BB	¾"
	BC	1"

Connection type R

External diameter flange: minimum 100 mm

Dimensions/weights (approximate) in mm and kg

A		Minimum length	200
		Maximum length	5700
B	Minimum		100
C	Depending on fluid specific gravity and pressure	Starting from	250
D	Depending on fluid specific gravity and pressure	Starting from	80
E	Depending on fluid specific gravity and pressure	Starting from	85
Weights Dependent on dimension **A**			



Accessories

Contacts
Bistable SPDT or DPDT contacts, fixed onto the guide system fitted outside of the indicator body.

Also available in explosion-proof type, ATEX Ⓔx II 1/2 G EEx d IIC T6, T5 resp. T4 certified. Protection degree IP67.
Operation points are always field adjustable.

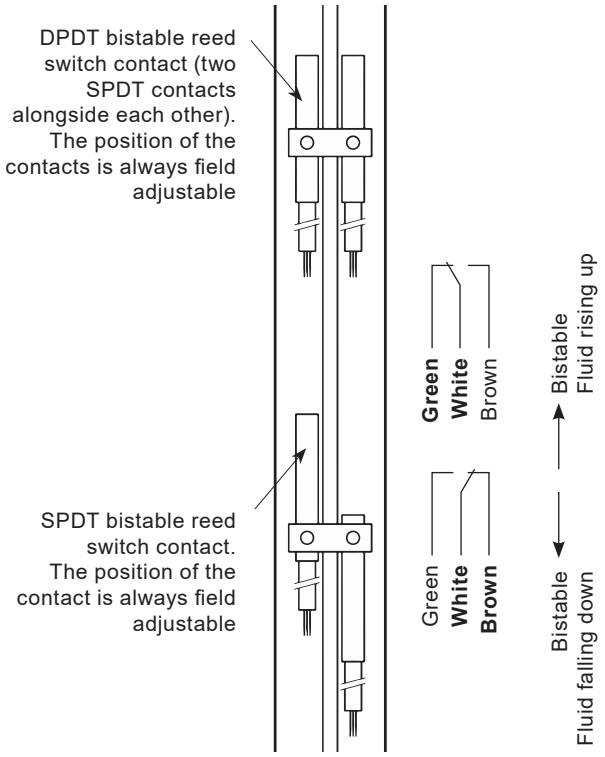
SPDT execution
DPDT execution (two simultaneous SPDT contacts)

Contact data	Reed switch contact
	Ermetically sealed in inert gas
	Tungsten, Rhodio coated.
	60 W/VA 1A 250 V ≅
	Shock and vibration resistance: 30 g 11 ms

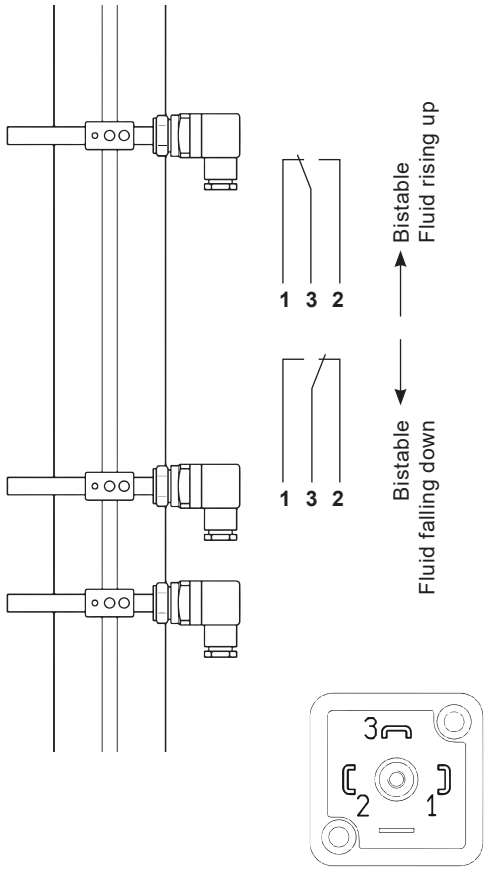
Transmitter
Potentiometer transmitter with 5, 10, 20 mm resolution for the continuous evaluation of the liquid level inside the tank.

Valves
The indicators are supplied with a hole and ss plug or with a ¼" drainage valve. A vent can also be supplied on request.
Isolation or check valves between the indicator attachments and the tank should be installed to aid maintenance work.

Characteristics Colima Viscorol contact



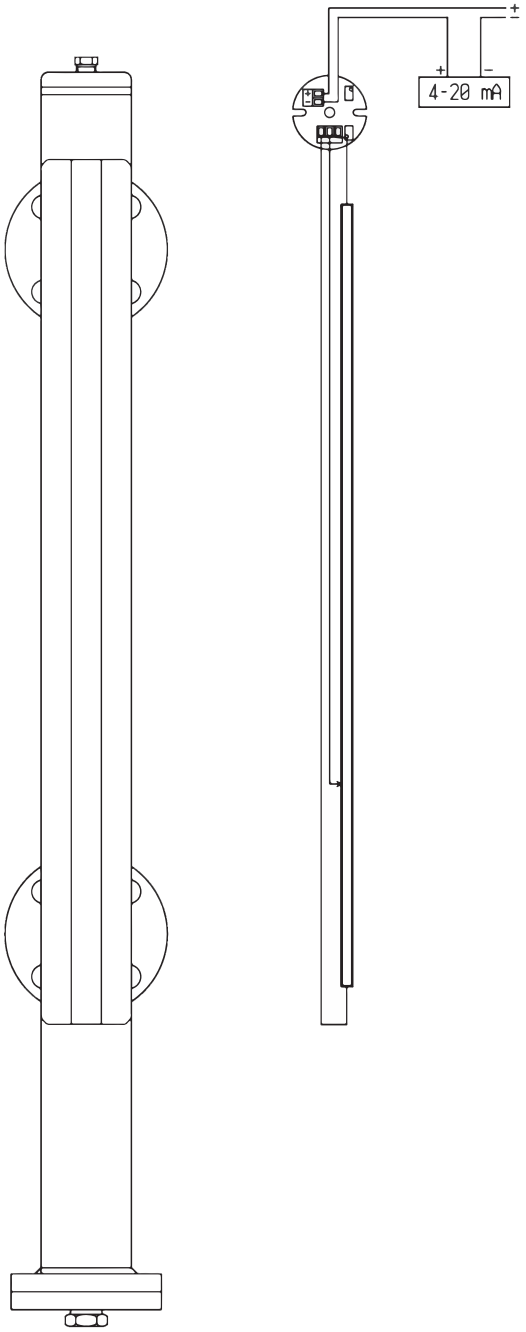
Characteristics Colima Visco contact



Potentiometer transmitter characteristics

A potentiometer is placed in the vertical weather-proof tube outside the level indicator.
The total resistance of a known value is measured at the ends of this potentiometer.
The float, following the liquid level trend, activates the potentiometer's reed contact chain through its own magnetic field, locally closing the signal.
The total value of the resistance is measured 100% at its maximum level and 0% at its minimum level.
The end poles of the potentiometer are connected to a converter that transforms the input value into Ohm and the output into mA.

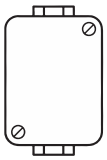
Reading resolution available	5 mm
	10 mm
	20 mm
Resistance input	1 k ÷ 100 k Ohm



Converter's housings

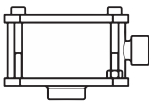
Housing for safe area

Weather-proof IP65, plastic.



Housing for safe area, low/high temperature

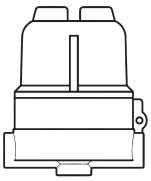
Special type suitable to low temperatures or installation in high concentration saline environments and for use in the food industry.
Entirely in stainless steel.
Protection degree IP67.
On request IP68.
Up to two cable entrances.



Housing for hazardous area, ATEX certified

ATEX certified ⟨Ex⟩ II 1/2 G EEx d IIC T6, T5 resp. T4 for use in hazardous areas.

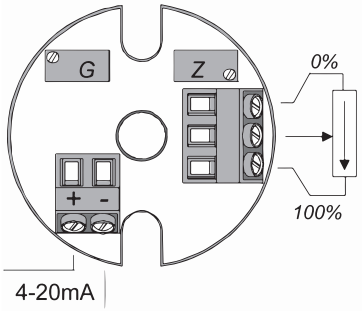
In pressure die-cast aluminium with a polyamide paint.
Protection degree IP67.
Up to two cable entrances.



Converter types

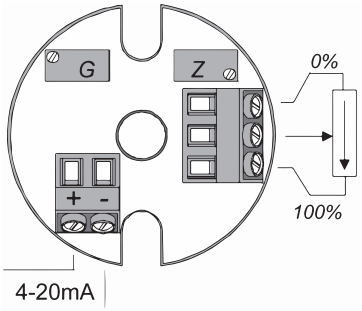
Converter for safe area

Field set using two trimmers [for the Z (zero) gauging and G (gain) gauging], without resorting to interconnecting systems.



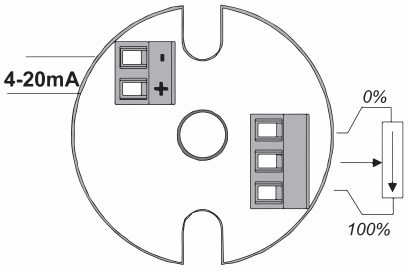
Converter for inbuilt safe area

Field set using two trimmers [for the Z (zero) gauging and G (gain) gauging], without resorting to interconnecting systems.



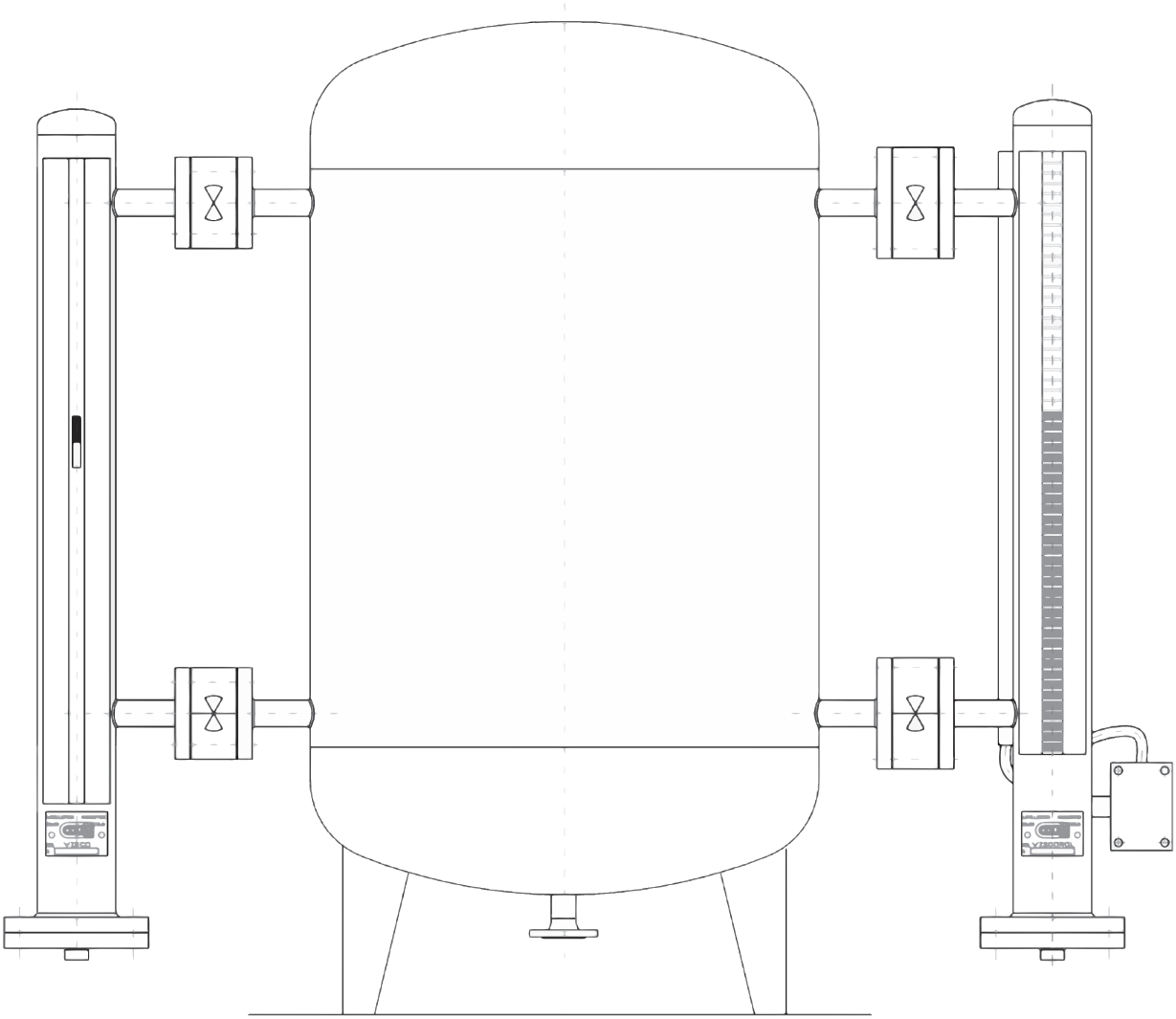
Converter Hart® protocol

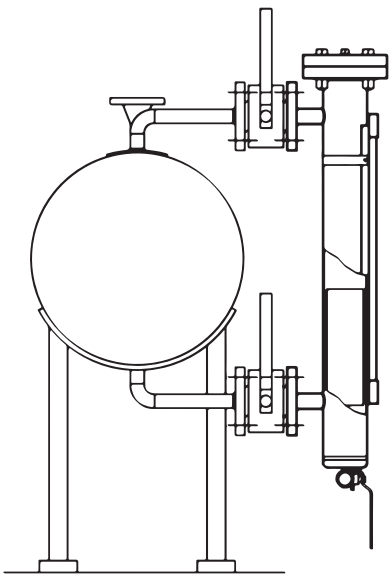
Converter regulated with an interconnection cable.

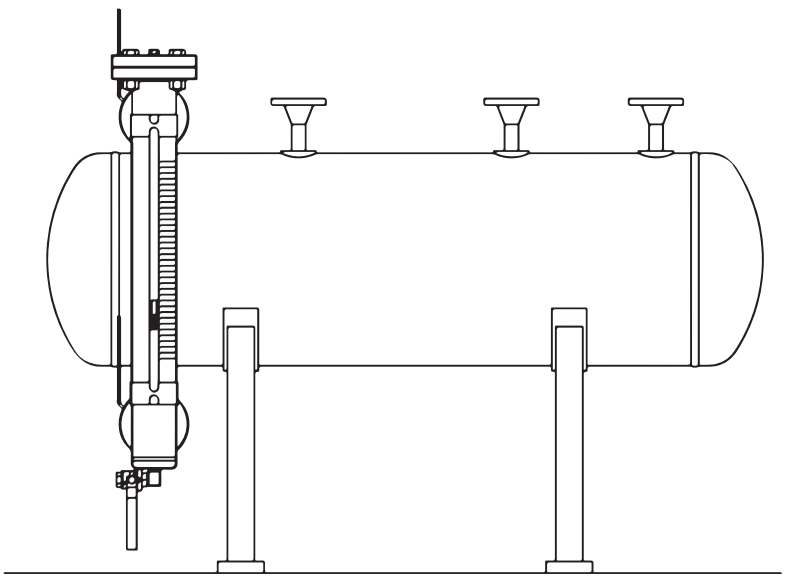


Resistance input	1 k ÷ 100 k Ohm
Current output	4÷20 mA

Typical vessel installations







Product selection and order placement

Each unit is identified by a unique alphanumeric code that defines the manufacturing characteristics that best suites the application.

Range	Colima		Colima
Model	**V**	Visco	**V**
	R	Viscorol	
Type	**LL**	Side/side mounted	**LL**
	LF	Side/base mounted	
	LT	Side/top mounted	
	TF	Top/base mounted	
	R	Top insertion only	
	GV	only Colima Visco type	
	GDV	only Colima Visco type	
Body diameter	**Ø 25** (only R type)		**60**
	Ø 50		
	Ø 60		
	Ø 70		
Indicator body material	**Steel**		**2**
	1	304L stainless steel	
	2	316L stainless steel	
	3	316Ti stainless steel	
	Plastic		
	4	PVC	
	5	PP	
	6	PVDF	
Centre-to-centre measurement	**Insert required distance**		**700**
Connection type	**FL**	Flanged	**FL**
	TH	Screwed	
	SW	Socket weld	
	BW	Butt weld	
Attachment rating	**UA**		**UA**
Float material	**A**	316L stainless steel	**A**
	B	316Ti stainless steel	
	C	Titanium	
	D	Hastelloy	
	E	PVC	
	F	PP	
	G	PVDF	
	H	Buna N	

To continue with 'Product selection and order placement' and see the 'Order example', please go to the next page

Product selection and order placement (continued)

Valves	**A**	Drain valve	**VA**
	B	Vent valve	
Electrical equipment contact	**R1**	Colima Viscorol SPDT contact	**R1**
	R2	Colima Viscorol DPDT contact	
	V1	Colima Visco SPDT contact	
	V2	Colima Visco DPDT contact	
Electrical equipment transmitter	**T5**	5 mm	**T10-A-C3**
	T10	10 mm	
	T20	20 mm	
	A	Housing for safe area	
	C	Housing for safe area, low/high temperature	
	B	Housing for hazardous area	
	C3	Converter for safe area	
	C4	Converter for in built safe area	
	C5	Converter Hart® protocol	

How to order example:

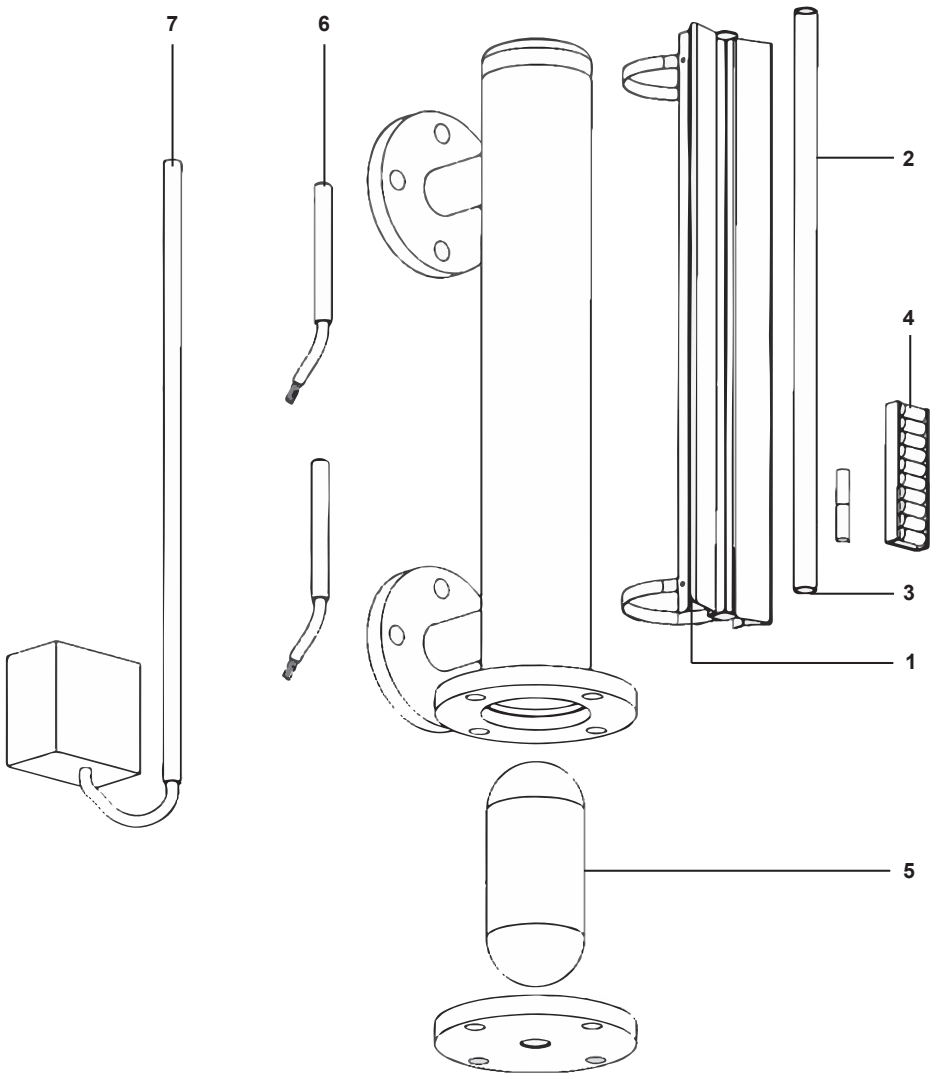
1 off Spirax Sarco Colima Visco **V** - **LL** - **60** - **2** - **700** - **FL** - **UA** - **A** - **VA** - **R1** - **T10-A-C3**

Spare parts

The available spare parts are detailed below.
No other parts are supplied as spares.

Available spares

Float	**5**
Tube with rollers/indicator	**2, 3 and 4**
Scale	**1**
Electric components	**6 and 7**



How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size and serial number of the unit which is indicated on the name-plate.
Example: 1 Float for a Spirax Sarco Colima Visco having the following serial number: .....