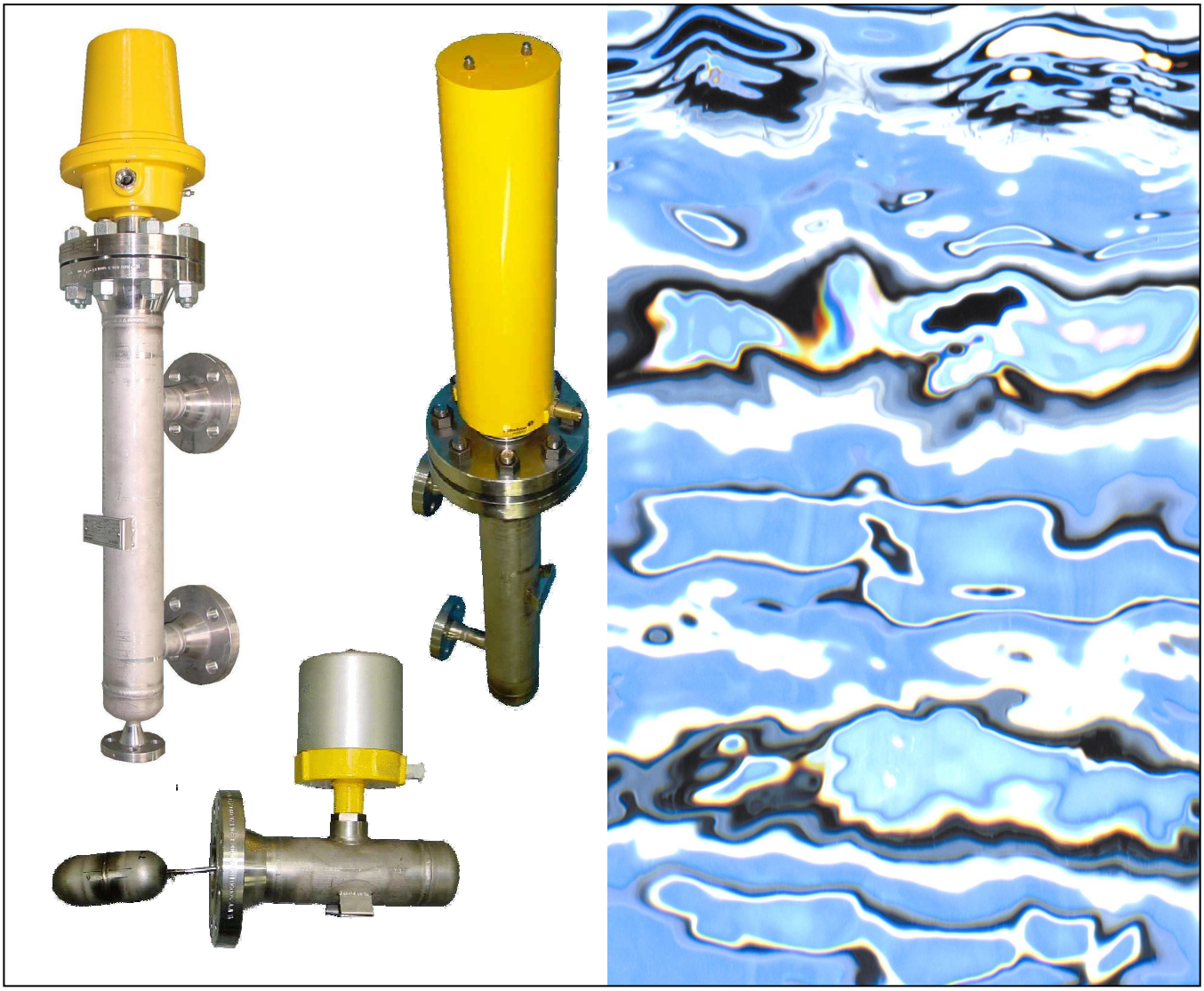
Technical data Sheet
50466-609
July 2017

Level Switch

Type ANV... - ANH...
MAGNETIC LEVEL SWITCH

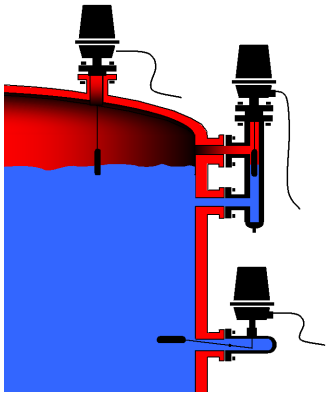


Use

The vertical (series ANV) or horizontal (series ANH) level switches are designed to detect level variations in tanks containing liquids. The alarm switches commute electric or pneumatic circuits to switch relays, pumps, electric valves... or control luminous signal or alarms. They can be used for normal, corrosive or dangerous liquids with particular severe conditions of most industrial processes.

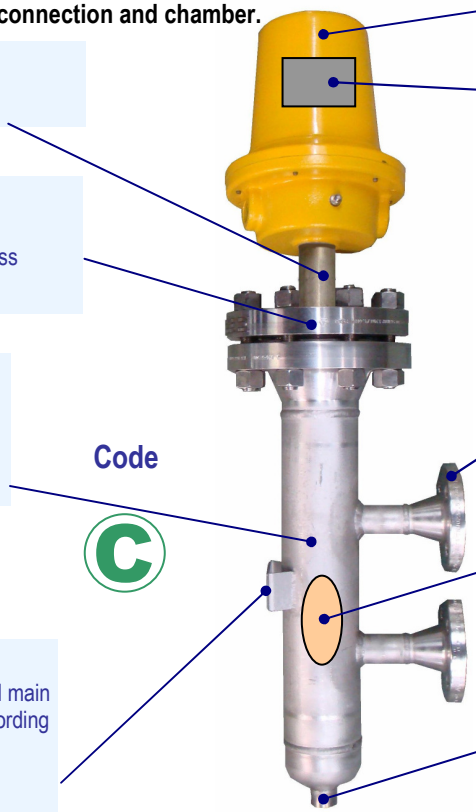
Principle

A stainless steel float follows the liquid level variations and transmits its movement to a rod equipped with an emitter. The rod and emitter assembly moves into a scaled non-magnetic guide-tube and magnetically controls the changeover of the switch which is protected by a waterproof of ADF case-housing.
The ANV models must be mounted vertically, either directly on the top of the tank (series ANV-T) or on the side of the tank through an independent chamber fitted with two side connections (series ANV-C)
The ANH models must be mounted horizontally, directly on the side of the tank or through an independent chamber (type ANH-C).



Description

This equipment consists of standard components case switches and customized connection and chamber.



Case Housing
According to process condition STD, EX, R

Code H

Alarm Contacts
According to CP piston emitter or MA magnet emitter. Standard version or ATEX flame-proof version (EExd.)

Code S

Extension
High temperature extension

Normalized Flanges
according to process condition,
Bolts and gaskets according to process condition

Process Connections
Many options for process tank connections.

Code C

Body
According to process condition
standard carbon steel (AC) and 316L stainless steel (SS)

Code C

Float
Follows the variations of liquid inside the chamber.
Types and pressure rating on request.

Code M

Name plate
Manufacturer name plate including all main technical data and specifications according to applicable rules and standards.
In stainless steel French/ English in standard.

Drain
For draining according to customer process or application

Code P

ORDERING Information - Coding

Example:

ANV CM EX – CP -AC – 20 –CC6 – PO – MO – H – S – Z – D

Design type	*Construction type*	*Housing type*	*Emitter*	*Material type*	*Rating Flange*	*Connection type*	*Drain type*	*Float type*	*Care Housing Type*	*Switch type*	*Option types*	*Documents*
see Page 3	see Page 3	see Page 3	see Page 4	see Page 8	see Page 8	see Page 5	see Page 5	see Page 6	see Page 2	see Page 4	see Page 8	

CONSTRUCTION CODING = CODAP 2005 div1 or div2 – Instructions for pressure instruments 2014/68/UE – module H or H1 / Electric equipments: STD, ATEX //ISO 9001/2008 Certification

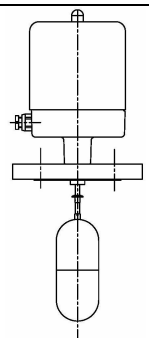
TYPES OF CONSTRUCTION

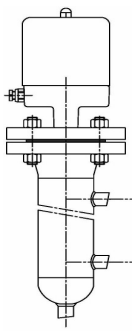
Top Mounting Version Series ANV…T…

Designed for direct mounting on the container through an adapted flange.

Flange materials:
Carbon steel BF48N/A105
Stainless steel 316L or 304L
Other materials on request

Detailed characteristics see table on pages 4 and 5





Machined Welded Chamber Series ANV…CM…

Chamber model with machined welded elements. It allows realisation according to customer requirement.

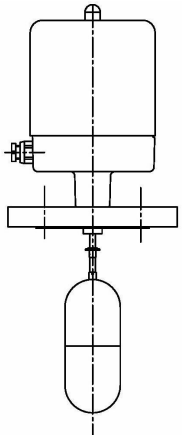
Materials:
Carbon steel version
Stainless steel version
316L (304L in option)
Other materials on request

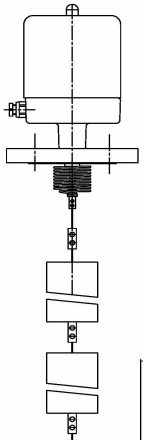
TYPES OF MEASURE

Float Version see code M
Used as standard for normal applications
Min. specific gravity: 0.65
Max. operating pressure: 100 bars
Max. operating temperature: 350°C
Material: stainless steel Z2CND17-12(316L)
Other material on request

NOTA: The adjustment of switching levels must only be made by changing the float position on the rod or on the cable.
DO NOT CHANGE THE POSITION OF THE MECHANISM IN THE CASE HOUSING

Detailed characteristics see table on page 6





Mass Version

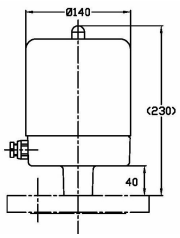
Mainly used for industrial processes with a high pressure/temperature couple and/or low specific gravity. Used when the buoyancy force is not sufficient to move the float/emitter assembly.
The float is replaced by a mass hanged to a spring. When the level gets higher, the buoyancy force on the mass reduces the tractive force on the spring which contracts.
The assembly mass/emitter gets higher and switches on the contact in the case-housing. When the level gets down, the buoyancy force on the mass decreases, the spring spreads itself, the assembly mass/emitter gets down again and the switch returns to its initial position.
It is possible to use two independent masses to control two distinct switches or to create an important re-engaging differential.
Min. specific gravity: 0.45
Max. operating pressure: 400 bars
Max. operating temperature: 350°C
Material: stainless steel Z2CND17-12(316L), other material on request.
Double level models/double float on request

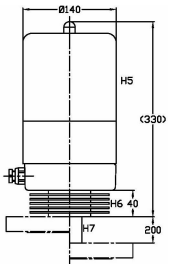
TYPE OF CASE HOUSING

Standard case-housing – IP54

Waterproof case housing IP54, enabling the adjustment of the alarm switches. Electrical cable entry with cable gland, connectors, connections according to the needs (360° orientation)

Material :
Base: alloy epoxy polyester painted
Cover : anodised aluminium
Option : protection rating IP65



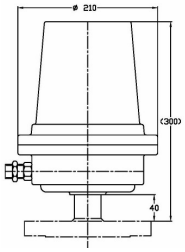


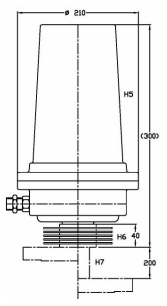
Code	Designation
H0	Standard IP54 with 1 cable gland PG11 for diam. 8 to 10 cable
H1	Standard IP54 with 2 cable glands PG11 for diam. 8 to 10 cable
H2	Standard IP54 with 1 brass gland PG16 for diam. 10 to 15 cable
H3	Standard IP54 with 1 cable gland M20 X 1.5 BV2 for diam. 8.5 to 14.5 cable
H4	Standard IP54 with 1 tap M20 X 1.5
H5	Lengthened housing (height dimension 230 becomes 330)
H6	Heat dissipater (according to the switch type)
H7	High temperature extension
H8	3 pins SOURIAU male plug (Stainless steel)
H9	7 pins SOURIAU male plug (Stainless steel)
H10	Waterproof IP65
H12	3 pins SOURIAU female (Stainless steel)
HX	Special

Explosive proof case-housing Ex d IIC T6 Gb–IP66 Code = Ex

Waterproof case housing enable to put alarm switches in electrical cable entry with cable gland, connectors, connections according to the needs and the type of contact.

Material :
Base: alloy epoxy polyester painted
Cover : alloy epoxy polyester painted

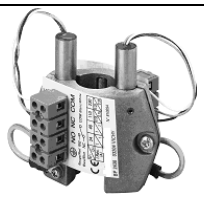




Code	Designation
H0	Standard IP66 with 1 tapped entry ¾" NPT
H1	Standard IP66 with 2 tapped entries ¾" NPT
H2	Aluminium cable gland for diam. 5 to 12 cable
H3	Bronze cable gland for diam. 9 to 15 cable
H4	Brass nickel plated steel reduction ¾" NPT- M20 X 1.5
H5	Lengthened housing (height quotation 300 becomes 400)
H6	Heat dissipater (according to the switch type)
H7	High temperature extension
H11	Brass nickel plated cable gland armoured cable diam. 6.5 to 12, diam.10.5 to 16
H13	Brass nickel plated adaptator 3/4NPT / M20 X 1.5
H14	Brass nickel plated adaptator 3/4NPT / 1/2NPT
HX	Special

TYPE OF SWITCHES

- Switches actuated by stainless steel magnetic piston (CP)



REED SWITCH

Model :	CODE
Simple	S0
Double	S1

Characteristics

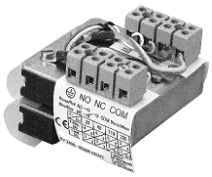
U~ / U=	24	48	110	230
I.Res. (A)	1 / 1	1 / 1	0.55 / 0.75	0.25 / 0.35

Changeover switch
Screwed electric connection S=2.5mm²
*Operating temperature : -40°C à +100°C

IS REED SWITCH

Model :	CODE
Simple	S15
Double	S16

Characteristics
Change over switch
Certificate : ATEX N° LCIE05ATEX6034X
Marking: Ex II 1 G ExiaIICT6/T5/T4Ga
Electric Parameters: Ui≤30V; Ii≤50mA; Pi≤400mW Ci=0nF ; Li=0mH
Screwed electric connection S=2.5mm²
*Operating temperature : T6: Ta=50°C max./ T5:Ta=65°C max./ T4: Ta=80°C max



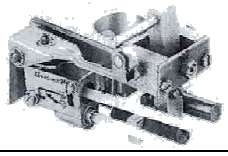
MICROSWITCH

Model :	CODE
Simple	S2
Double	S3

Characteristics

U~ / U=	24	48	110	230
I. Rés. (A)	4 / 4	4 / 4	5 / 3	3 / 2
I. Ind. (A)	2 / 2	2 / 2	2 / 0.5	2 / 0.2

Changeover switch
Screwed electric connection S=2.5mm²
*Operating temperature : -25°C to +85°C

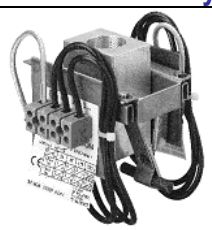


PNEUMATIC SWITCH

Model :	CODE
Simple	S6

Characteristics
Series changeover
Supply circuit : filtered air 1 to 6bar
Connection in / out : 1/4"NPT-F
*Operating temperature : -15°C to +60°C

- Switches actuated by magnet (MA)



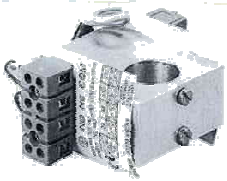
CONTACTS TYPE MICROSWITCH HERMETICALLY SEALED

Model :	CODE
Simple	S7
Double	S8

Characteristics

U~ / U=	24	48	110	230
I. Rés. (A)	7 / 4	5 / 3	3 / 1	2.5
I. Ind. (A)	5 / 2.5	3 / 1.8	2 / 0.5	1.5

Changeover switch
Screwed electric connection S=2.5mm²
*Operating temperature : -30°C à +65°C
Options : **Operating temperature : -55°C à +155°C



REED SWITCH

Model :	CODE
Simple	S9
Double	S10

Characteristics

U~ / U=	24	48	110	230
I. Rés. (A)	1 / 1	1 / 1	0.55 / 0.75	0.25 / 0.35

Changeover switch
Screwed electric connection S=2.5mm²
*Operating temperature : -40°C à +100°C

IS REED SWITCH

Modèle :	CODE
Simple	S17
Double	S18

Characteristics
Change over switch
Certificate : ATEX N° LCIE05ATEX6034X
Marking: Ex II 1 G ExiaIICT6/T5/T4Ga
Electric Parameters: Ui≤30V; Ii≤50mA; Pi≤400mW Ci=0nF ; Li=0mH
Screwed electric connection S=2.5mm²
*Operating temperature : T6: Ta=50°C max./ T5:Ta=65°C max./ T4: Ta=80°C max

*Allowable temperature at the switch level
For an allowable temperature inside (with ambient T°<40°C) it is possible to increase the maximum temperature by 80°C with standard design, by 130°C with H6 option, by 230°C with H6+H7 option.
For the explosion proof version, liquid and ambient T° must be in accordance with explosion proof certificate.

MA*= Used with switches actuated by magnet (see page 3)
CP*= Used with switches actuated by magnetic stainless steel piston (see page 3)
Interface level measures on request.

CHARACTERISTICS AND CHOICE OF CONNECTION ACCORDING TO THE TYPE OF CONSTRUCTION

ANV-T TOP MOUNTING

Carbone steel version

CODE	PN…*	DN…
CO	…*	80 (3")
C1	…*	100 (4")
C2	…*	150 (6")

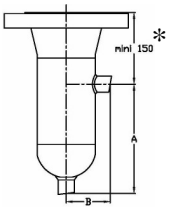
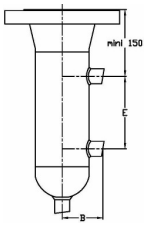
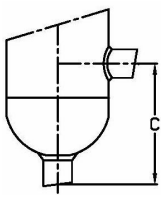
Stainless steel version 304 L

CODE	PN…*	DN…
C3	…*	80 (3")
C4	…*	100 (4")
C5	…*	150 (6")

Stainless steel version 316L

CODE	PN…*	DN…
C6	…*	80 (3")
C7	…*	100 (4")
C8	…*	150 (6")

ANV – CM With Mechanically Machined Welded Chamber DN 80 (3") (Side-bottom = CF, Side-side = CC, Drain = P)

CODE	TYPE OF CONNECTION	CONNECTION DRAWINGS	NOTES
CF0	Socket Weld 1"	 A and B as standard construction and on request	- **Body and Head DN80 PN** … standard 20, 50, 100 - **Connections** : please precise: • The dimension of connections ABCE • The dimension PN…DN… - **Mini 150*** : depending on PN/DN flange, float type, switching level will be defined by Technical Dept - **Chamber material**: Carbon steel. Fittings A105 or equivalent, flange BF48N, tube P265GH (standard or other on request) - **Chamber material**: Stainless steel 316L. Flanges, fittings, tube, cap, 316L (standardised components, other on request), 304L in option - **Standard head Gasket**: Klingersil C4430 or according to service conditions. - **Studs and Nuts**: as standard carbon steel (B7-2H), stainless steel in option - **Various options** see page 8
CF1	Tapped ½" or ¾" NPT-F		
CF2	Tapped ½" or ¾" BSPP-F		
CF2	Threaded tube 1" (L<=150mm)		
CF4	Flange ISO PN…DN15		
CF5	Flange ISO PN…DN20		
CF6	Flange ISO PN…DN25		
Cf7	Flange ISO PN…DN40		
CF8	Flange ISO PN…DN50		
CF9	RTJ gasket facing		
CFX	Special on request		
CC0	Socket Weld 1"	 E and B as standard construction and on request	
CC1	Tapped ½" or ¾" NPT-F		
CC2	Tapped ½" or ¾" BSPP-F		
CC3	Threaded tube 1" (L<=150mm)		
CC4	Flange ISO PN…DN15		
CC5	Flange ISO PN…DN20		
CC6	Flange ISO PN…DN25		
CC7	Flange ISO PN…DN40		
CC8	Flange ISO PN…DN50		
CC9	RTJ gasket facing		
CCX	Special on request		
P0	Socket Weld 1"	 C and B as standard construction and on request	
P1	Tapped ½" or ¾" NPT-F		
P2	Tapped ½" or ¾" BSPP-F		
P3	Threaded tube 1" (L<=150mm)		
P4	Flange ISO PN…DN15		
P5	Flange ISO PN…DN20		
P6	Flange ISO PN…DN25		
P7	Flange ISO PN…DN40		
P8	Flange ISO PN…DN50		
P9	RTJ gasket facing		
PX	Special on request		

PN	EN1092	16	20	40	50	100		
NP	ANSI B16-5		150#		300#	600#		
DN	EN1092	15	20	25	40	50	80	100
ND	ANSI B16-5	1/2"	3/4"	1"	1 1/2"	2"	3"	4"

Characteristics of Chamber Construction:

- Standard construction : connection welded by fillet welds, on request, full penetration weld (code Z2 see page 8)
- Pressure/temperature limit of chambers according to the normalised rating of the flanges.
- Design conditions for construction = Service (or design) value of customer.
- Hydrostatic test (at 20°C) = service (or design) pressure X 1.5 or X 1.2 following the max. pressure for float (see page 6)
- Calculation and verification of the resistance according to CODAP (on request see D3 page 8)

NOTA:

The maximum operating pressures are limited either by the float or the flange and chamber rating.
Make sure that the tank dimensions are compatible with the necessary measuring elements (see floats page 6)

- Precise the PN (standard 16, 20, 40, 50, 100)

On request : other PN or DN
On request : other materials

Pressure/temperature LIMITS (NFE 29005) for:

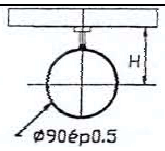
CARBON STEEL FLANGES									STAINLESS STEEL 316 L FLANGES								
PN/T°	20	50	100	150	200	250	300	350	PN/T°	20	50	100	150	200	250	300	350
16	16	16	16	15.7	15.2	14.4	12.8	11.2	16	13.5	12.9	11.8	10.8	9.7	9	8.4	8
20	19.6	19.2	17.7	15.8	14	12.1	10.2	8.4	20	15.9	15.3	13.2	12	11	10.2	9.7	8.4
40	40	40	40	39.2	38	36	32	28	40	33.8	32.4	29.5	27	24.4	22.6	21	20.1
50	51.1	50.1	46.4	45.2	43.8	41.7	38.7	37	50	41.4	40	34.5	31.2	28.7	26.7	25.2	24
100	102.1	100.2	92.8	90.5	87.6	83.4	77.5	73.9	100	82.7	79.9	69	62.5	57.4	53.4	50.5	48.1

Magnetic Level Switches

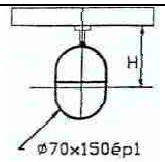
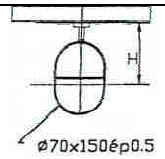
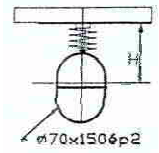
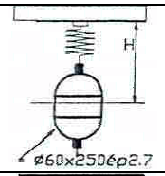
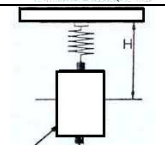
CHOICE OF THE FLOAT OR MASS

Nota: the characteristics mentioned hereafter are valid only if the chamber receiving the float or the mass, has harmonized characteristics.

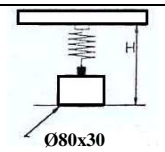
TOP MOUNTING > 4"

Min specific gravity	Max aperat. Pressure (20°C)	TYPE OF FLOAT OR MASS	CODE	Mini specific gravity according to level			CHARACTERISTICS: Standard operating pressure (bar) according to max. operating temperature C°								Test pressure 20°C
0.70 à 0.85	27 à 33 bar		**M3** Stainless steel material 316L	H	MA	CP	Temp.°C >>	20	50	100	150	200	250	300	350	
				<250	0.75	0.7	Standard	27	26	23	21	19	17.5	16	15	Test pres=Op.pres X1.5 (<=40 bar)
				<500	0.8	1.75	Maximum	33	31.5	28	25	23	21	19.5	18	Test pres=Op.pres X1.5 (<=40 bar)
				<1000	0.9	0.85										

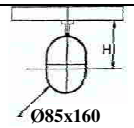
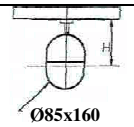
WELDED CHAMBER 3"OR TOP MOUNTING

Min specific gravity	Max aperat. Pressure (20°C)	TYPE OF FLOAT OR MASS	CODE	Mini specific gravity according to level			CHARACTERISTICS: Standard operating pressure (bar) according to max. operating temperature C°								Test pressure 20°C
0.85 à 1	40 à 50 bar		**M0** Stainless steel material 316L	H	MA	CP	Temp.°C >>	20	50	100	150	200	250	300	350	
				<250	0.9	0.85	Standard	40	38	34	31	28	26	24	22	Test pres=Op.pres X1.5 (<=60 bar)
				<500	0.95	0.9	Maximum	50	47.5	42	38.5	35	32.5	30	28	Test pres=Op.pres X1.2 (<=60 bar)
				<1000	1.05	1										
0.65 à 0.8	12 à 15 bar		**M1** Stainless steel material 316L	H	MA	CP	Temp.°C >>	20	50	100	150	200	250	300	350	
				<250	0.7	0.75	Standard	12	11.5	10	9	8.5	7.5	7	6	Test pres=Op.pres X1.5 (<=18 bar)
				<500	0.75	0.7	Maximum	15	14	12	11.5	10.5	9.5	9	8	Test pres=Op.pres X1.2 (<=18 bar)
				<1000	0.85	0.8										
>0.6	155 à 188 bar		**M5** Stainless steel material 316L	H	MA	CP	Temp.°C >>	20	50	100	150	200	250	300	350	
				<1000	0.6	0.6	Standard	155	140	130	125	115	110	100	90	Test pres=Op.pres X1.5 (<=230 bar)
							Maximum	188	170	158	142	140	134	122	110	Test pres=Op.pres X1.2 (<=230 bar)
>0.45	150 à 190 bar		**M6** Stainless steel material 316L	H	MA	CP	Temp.°C >>	20	50	100	150	200	250	300	350	
				<3000	0.45	0.45	Standard	150	143	126	116	105	97	88	83	Test pres=Op.pres X1.5 (<=230 bar)
							Maximum	190	180	160	147	133	123	112	104	Test pres=Op.pres X1.2 (<=230 bar)
0.9 à **	16 à 20 bar		**M11** Stainless steel material 316L	H	MA	CP	Temp.°C >>	20	50	100	150	200	250	300	350	
				<12000		0.9	Standard	16	14.5	13.5	13	12	11	11	11	Test pres=Op.pres X1.5 (<=25 bar)
							Maximum	20	17.5	16.5	16	14.5	13.5	13.5	13.5	Test pres=Op.pres X1.2 (<=25 bar)

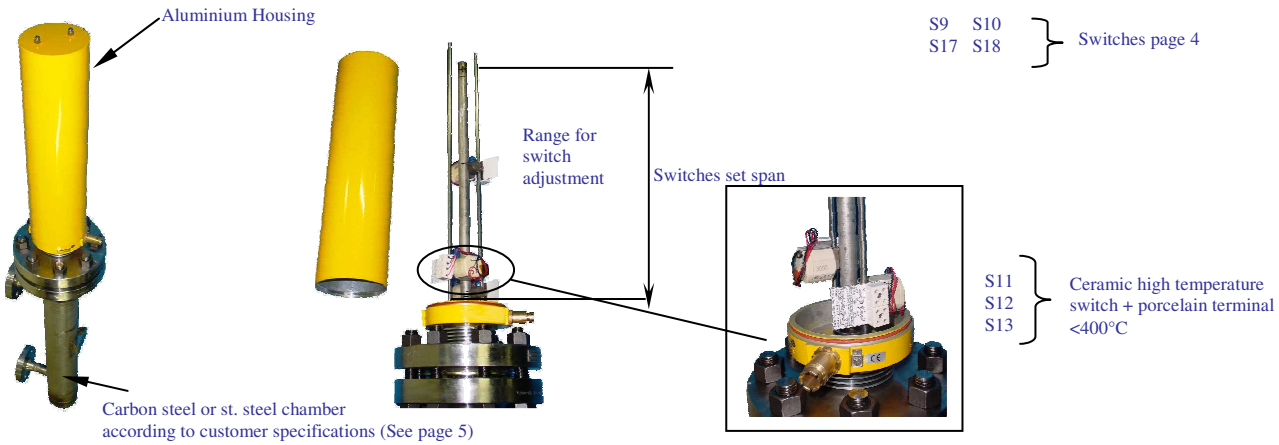
FLOATING ROOF

	0 à 400 bar		**M10** Stainless steel material 316L	H	MA	CP	Temp.°C >>	20	50	100	150	200	250	300	350	
				<6000	--	--	Standard		Non limited till 400bar							T pres=Op.pres X1.5 =T.pres of chamber
							Maximum		Non limited till 400bar							T pres=Op.pres X1.5 =T.pres of chamber

FLOAT FOR 4" chamber or TOP

Min specific gravity	Max aperat. Pressure (20°C)	TYPE OF FLOAT OR MASS According to flange or chamber	CODE	Mini specific gravity according to level			CHARACTERISTICS: Standard operating pressure (bar) according to max. operating temperature C°								Test pressure 20°C
>0.75	102		**M8** Stainless steel material 316	H	MA		Temp.°C >>	20	50	100	150	200	250	300	350	
				<250	0.75		Standard	102	88	79	73	69	66	63	61	Test pres= 127 bar
				<500	0.78											
				<1000	0.82											
>0.66	50		**M9** Stainless steel material 316	H	MA		Temp.°C >>	20	50	100	150	200	250	300	350	
				<250	0.66		Standard	51	44	39	37	34.5	33	31.5	30	Test pres= 63 bar
				<500	0.7											
				<1000	0.8											

ANV...R... Type



ANV-TR…- MA Top Mounting – MA Switches actuated by magnet
See ANV-T Top Mounting page

ANV-CMR… - MA
See ANV-CM with mechanically welded chamber DN 80 (3")
Use with float M0, M1, M5, M6 only (see page 6)

ANV-CMR4"…- MA

DN 100 (4") mechanically machined welded chamber DN 100 (4")
Use with float M3, M8, M9.
Type of connection = see ANV-CM DN80 (3") page 5

ANV-… -R100-

Range for switch adjustment.
Std 60, 100, 200, 300, 400, 500, 600, 800, 1000, 1200, 1400, 1600.
ANV-CMR…MA…M

Switches characteristics

S11

Characteristics

Change over switch
Screwed electric connection S= 2.5mm²
* Operating temperature: 0 to +400°C

U~ / U=	440	250
I. Rés. (A)	5 / 2000VA	/ 50W
I. Ind. (A)		/ 0.5

S13

Characteristics

Change over switch
Screwed electric connection S= 2.5mm²
Operating temperature: 0 to +400°C

U~ / U=	250	250
I. Rés. (A)	0.25 / 6 VA	/ 3.6W
I. Ind. (A)		/ 0.1

S12

Characteristics

Change over switch
Screwed electric connection S= 2.5mm²
Operating temperature: -100 to +250°C

U~ / U=	440	250
I. Rés. (A)	10 / 2000VA	/ 50W
I. Ind. (A)		/ 0.5

CONSTRUCTION VARIANTS ON REQUEST

Standard st.steel housing or lengthened (according the switches numbers)

-St.steel housing for using with ANV switches

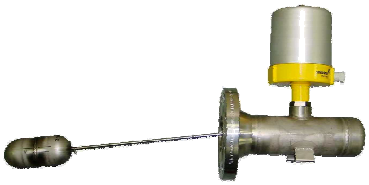
-Chambers and floats connection and mounting type ANV.

-Specific chamber on request.

-K3 Earthquake models see specific notice.

ANH-C Type (housing and switches identical to ANV model)

Standard housing



Chamber and float as customer specifications.

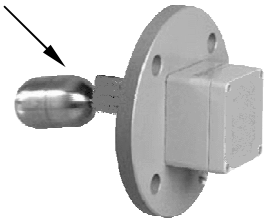
Explosion proof housing

Chamber and float as customer specifications.

ANH 410 Type

Aluminium Standard housing
St.Steel float
P<30bar 20°C
SG>0.5
Other on request

Std flange connection or specific



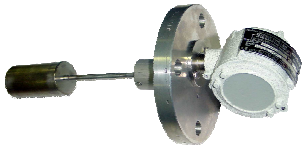
-1 or 2 reed switches SPDT

-1 or 2 reed switch SPDT EExiaIICT6

Aluminium Explosion proof housing
St steel float
P<30bar 20°C
SG>0.5
Other on request

Std flange
Or specific

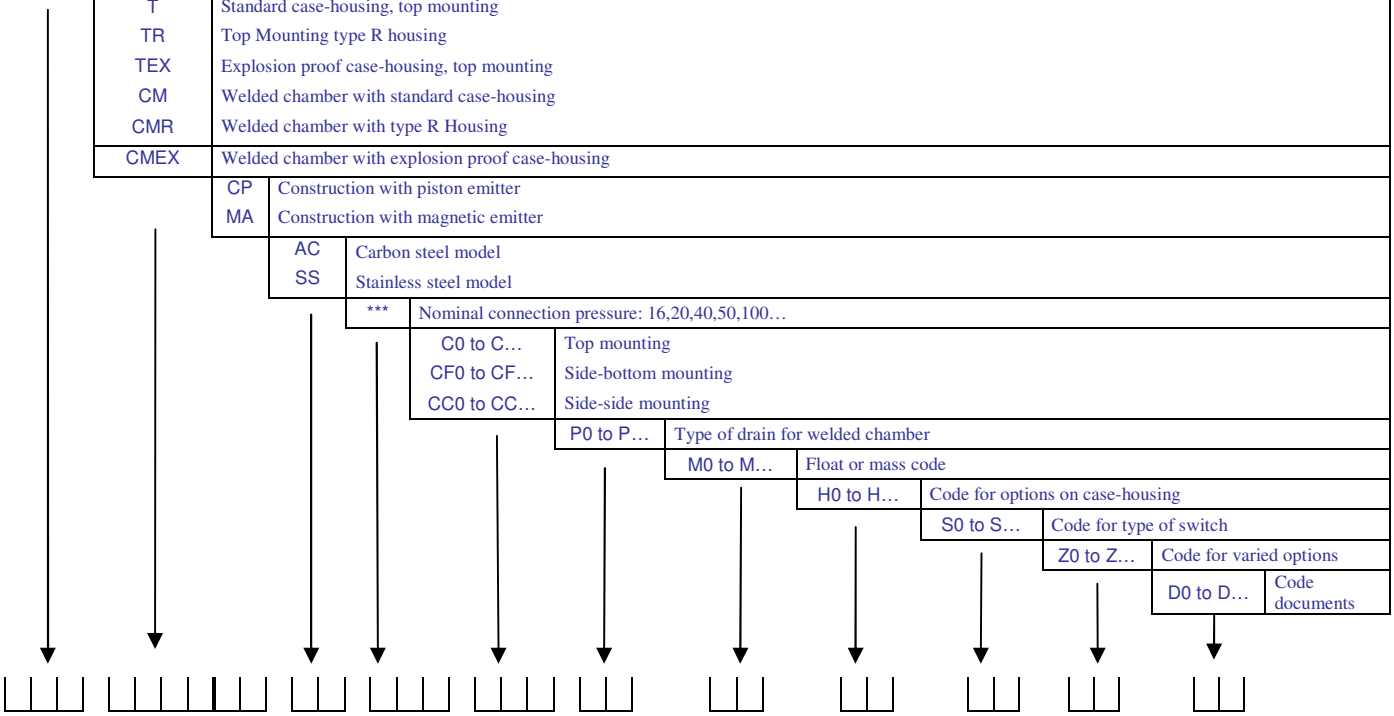
-1 reed switch SPST



Magnetic Level Switches

GENERAL CODIFICATION

ANV	Level Switch (vertical mounting)
ANH	Level Switch (horizontal mounting)
T	Standard case-housing, top mounting
TR	Top Mounting type R housing
TEX	Explosion proof case-housing, top mounting
CM	Welded chamber with standard case-housing
CMR	Welded chamber with type R Housing
CMEX	Welded chamber with explosion proof case-housing
CP	Construction with piston emitter
MA	Construction with magnetic emitter
AC	Carbon steel model
SS	Stainless steel model
***	Nominal connection pressure: 16,20,40,50,100…
C0 to C…	Top mounting
CF0 to CF…	Side-bottom mounting
CC0 to CC…	Side-side mounting
P0 to P…	Type of drain for welded chamber
M0 to M…	Float or mass code
H0 to H…	Code for options on case-housing
S0 to S…	Code for type of switch
Z0 to Z…	Code for varied options
D0 to D…	Code documents



VARIED OPTIONS

Z0	Stainless steel bolts and nuts (304 or 316)
Z1	Spiral head gasket
Z2	Full penetration weld
Z3	Welding with penetrating tube
Z4	Heat treatment (for carbon steel welded chamber)
Z5	Sand blasting SA 2.5 (for carbon steel chamber)
Z6	Epoxy paint steel chamber (cleaning + primary epoxy + epoxy finish)
Z7	Silicone paint T = 400°C (600°C for peak) (cleaning + 1 layer of silicon aluminium)

DOCUMENTS OPTIONS

D0	Material certificates 3.1.B. (must be asked when the order is placed)
D1	Nace standard certificate (curve and annealing diagram for carbon steel)
D2	Welding book (welding procedures and welders qualification)
D3	Calculation note according to CODAP (machine-welded chamber)
D4A	File according to French Pressure Vessel regulation
D5	Technical passport (according to definition)
D6	Dye penetrant test for welds
D7	10% dye penetrant test for welds by Third Party
D7A	20% dye penetrant test for welds by Third Party
D8	10 % radiography for butt welds
D8A	20% radiography for butt welds
D9	100 % radiography for butt welds
D10	Thickness test with cartography
D11	Documentation on CD ROM
D12	G/A drawing
D13	Certificate of conformity and hydraulic test (not applicable if D4A)

ESSENTIAL INFORMATIONS REQUIRED FOR PLACING AN ORDER

- Nature of the liquid to choose the compatible materials
- Specific gravity of the liquid (if interface: precise specific gravity of both liquids)
- Maximum operating temperature and pressure (and design if exists)
- Switching level and the way of (up or down)
- Dimensions and shapes of connecting systems on tank
- Type of classification desired for case-housing
  (Protection class IP…, protection class in dangerous areas, Ex dIICT…, use on IS circuit…)
- Characteristics of switched circuit
  (Voltage, current, power, resistive or inductive circuit, pressure and flow for pneumatic circuits…)
- Options and necessary documents

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