

# C 903 RH

Control valves

Flow limiter and altitude valve pilot operated

Bottom-fill version

## Technical Data Sheet



## Description

The control valves C 903 RH controls and maintains a maximum flow and high level in a tank by means of a modulating altitude pilot. Opening and closing are very progressive in the few centimeters near the required level. This type of valve must be used when the supply pressure is noticeably higher (1 bar) than the charge of full tank. Equipped with non-return valves, it closes automatically in case of backflow (C903C - consult us).



### C 903 RH

Flow limiter and altitude valve pilot operated / Bottom-fill version

DN mm	PN	PFA in bar	PS				Cat	Ref.	Weight* Kg
			L1	L2	G1	G2			
40	10/16/25	25	25	25	x	x	4.3	<b>149B011549</b>	15
50	10/16/25	25	25	25	x	x	4.3	<b>149B011551</b>	16
65	10/16/25	25	25	25	x	x	4.3	<b>149B90306N</b>	24
80	10/16/25	25	25	25	x	x	4.3	<b>149B90308N</b>	29
100	10/16	16	16	16	x	x	4.3	<b>149B90310N</b>	42
125	10/16	16	16	16	x	x	4.3	<b>149B90311N</b>	63
150	10/16	16	16	16	x	x	4.3	<b>149B90312N</b>	77
200	10	10	10	10	x	x	4.3	-	127
250	10	10	10	10	x	x	I	-	218
300	10	10	10	10	x	x	I	-	348

\* Weight of valve alone

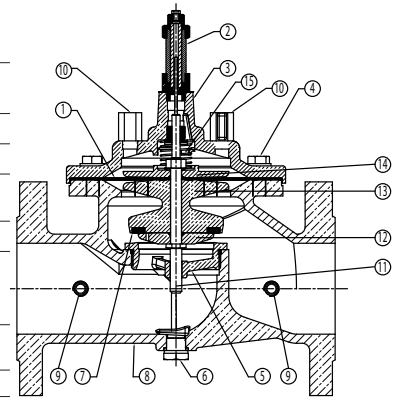
#### Important notice :

The indicated pressure for the different categories of fluids (L1/L2/G1/G2) is under no condition a guarantee of use. Therefore, it is essential to validate the use of products under given operating conditions.

Technical features	
Operating temperature	-10 °C to 90 °C
Upstream pressure	Mini. : 1,5 bar / Maxi. : 25 bar (see table above)
Connection	With flange PN (see table above)
Mediums	Clear water 2 mm
Viscosity	< to 40 cst
Vertical mounting	See option n°7



## Nomenclature and materials

N°	Description	Materials	EURO	ANSI
1	Membrane	EPDM / Polyamide		
2	Position indicator with drain	Brass and stainless steel EPDM Cu	EN 12164-CuZn39Pb3-R360min EN 10088-3-X5CrNi18-10	ASTM B36 / ASTM B121 AISI 304 / ASTM A240 UNS C10200
3	Valve head high pressure	Cast iron / Epoxy Int/Ext	EN 1563 EN-GJS-400-15 except DN 125 : EN 1561-EN-GJL-300	ASTM A536 60-40-18 ASTM A48 class 45B
4	Nuts and bolts	Stainless steel	EN 10088-3-X5CrNi18-10	AISI 304 / ASTM A240
5	Removable seat	Stainless steel	EN 10213-GX5CrNi19-10+AT	AISI 304 / ASTM A240
6	Body drain plug and valve	Brass	EN 12164-CuZn39Pb3-R360min	ASTM B36 / ASTM B121
7	Reversible seat seal	EPDM		
8	Body high pressure	Cast iron / Epoxy Int/Ext 200µ ± 40µ	EN 1563 EN-GJS-400-15 except DN 125 : EN 1561-EN-GJL-300	ASTM A536 60-40-18 ASTM A48 class 45B
9-10	Pressure connection drilling	Chromed brass		
11	Stem	Stainless steel	EN10213-GX5CrNi19-10-AT	AISI 304 / ASTM A240
12	Flange	Stainless steel	EN10088-3X5CrNi18-10	AISI 304 / ASTM A240
13	Seal carrier	Bronze (DN40-50) Ductile iron / Epoxy	EN1982 CuSn5Zn5Pb2-C GS EN1561-EN-GJL-250	ASTM A 48 35 B
14	Plate	Bronze (DN40-50) Ductile iron / Epoxy	EN1982 CuSn5Zn5Pb2-C GS EN1561-EN-GJL-250	ASTM A 48 35 B
15	Spring	Stainless steel	EN10270-3 X10CrNi18-8	AISI 302



standard flow valve C 900

## Approvals

ACS  PED 2014/68/UE 

### International construction Standards :

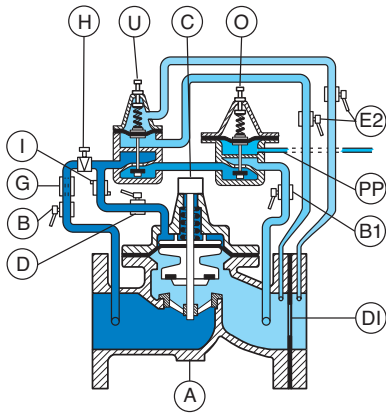
Directive 2014/68/UE

Connection with flange PN according to EN 1092-2

## Application

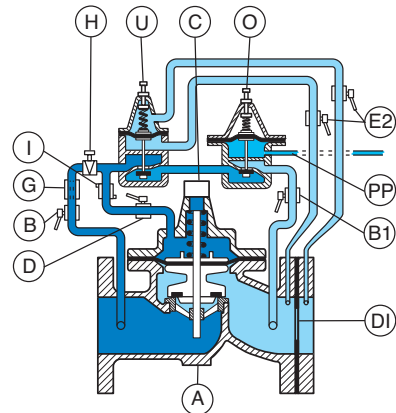
The control valves C 903 RH allows controls a high level in a tank and guarantees its filling by a maximal flowrate, thus avoiding to penalize the network.

# Operation



**Bottom-filling :**

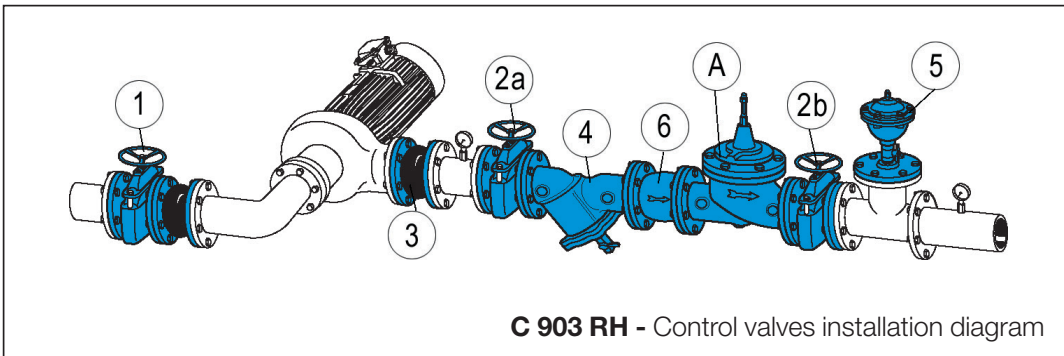
No pressure connection of pilot to the tank. When the water level becomes smaller than the preset upper level, pilot (O) is open, pilot (U) is half-open, the pressure releases out of the chamber, valve (A) opens.



**Bottom-filling :**

No pressure connection of pilot to the tank. When the water level is high, pilot (O) will close. Whatever the position of pilot (U), the upstream pressure fills the chamber and valve (A) closes.

# Installation



N°	Description
A	Main valve
B	Upstream isolation valve
B1	Downstream isolation valve
C	Position indicator with drain
D	Chamber isolation valve
DI	Diaphragm
E2	Diaphragm isolation valve
G	Filter
H	Orifice-needle valve
I	Flow control
O	Pilot C201
PP	Outlet pressure of the tank to pilot
U	Pilot C901
1	Isolation valve
2a	Upstream isolation valve of the main pipe and of the pump
2b	Downstream isolation valve of the main water pipe
3	Rubber expansion joint
4	Filter
5	Single function air valve
6	Non return valve of the pump

**Setting range :**

Pilot C901 :

- 0 to 0,689 bar
- 0,14 to 2,41 bar

Pilot C201 :

- 0,14 to 1,38 bar
- 1,38 to 2,75 bar
- 2,07 to 5,5 bar

**Installation :**

- install an air relief valve downstream or at the high point near the control valve.
- horizontal setting up : the cap of the valve should be oriented to the top and inclined at 45°C maximum.
- vertical setting up : change the spring of the main valve (option 7)
- keep a downstream pressure.

**Other types :**

- C903S, C903M

## Maintenance

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We recommend a maintenance programme of between 6 to 12 months according to the quality of the water and to the pressure :

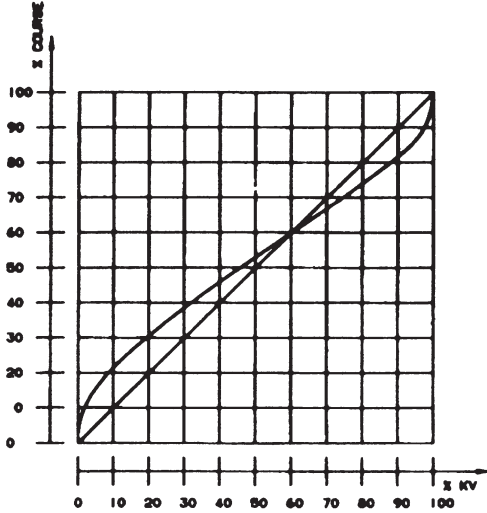
- Purging the upper chamber
- Flushing the valves not frequently used
- Checking and cleaning filters of the pilot circuit and main piping system.
- Checking the working (pressures)

Every 5 years, general maintenance is advisable :

- Dismantling
- Cleaning of main valve and pilot valve
- Preventive removing of the seals (set available - please consult us)
- Reassembling and tests.

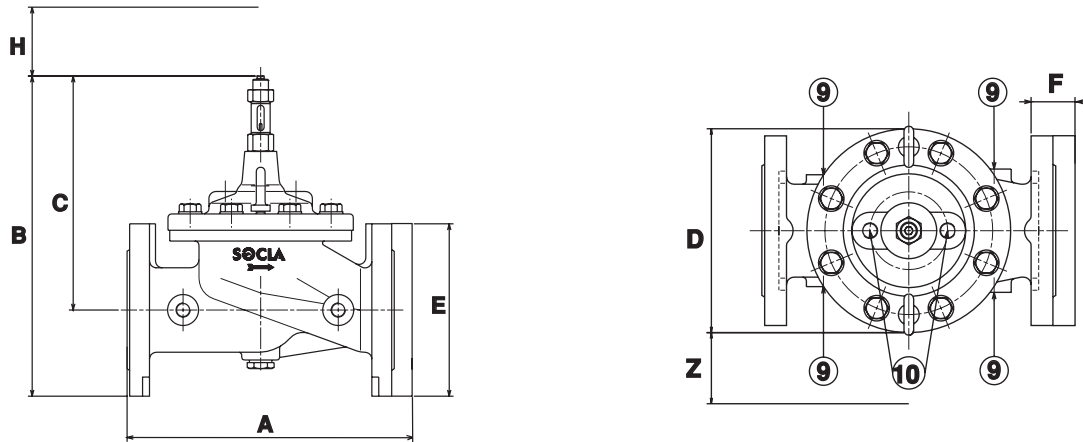
# Operating characteristics

## Choice of base valve



DN	Mini	Maxi	KV		$\zeta$	PN	PFA	PN	PFA	PN	PFA
			m <sup>3</sup> /h	m <sup>3</sup> /h		m <sup>3</sup> /h	L/s	bar	bar	bar	bar
40	4,5	32,00	45,66	12,68	1,93	10/16	16	25	25	-	-
50	7	32,00	45,66	12,68	4,70	10/16	16	25	25	-	-
65	12	54,00	57,75	16,08	8,39	10/16	16	25	25	-	-
80	18	82,00	80,00	22,22	10,00	10/16	16	25	25	-	-
100	28	127,00	136,00	37,78	8,47	10/16	16	25	25	-	-
125	44	199,00	220,00	61,11	7,90	10/16	16	25	25	-	-
150	64	286,00	264,00	73,33	11,38	10/16	16	25	25	-	-
200	113	509,00	600,00	166,67	6,96	10	10	25	25	16	16
250	177	795,00	900,00	250,00	7,56	10	10	25	25	16	16
300	255	1145,00	1224,00	340,00	8,47	10	10	25	25	16	16

# Sizing



standard flow valve C 900

DN	A	B	C	D	E	F	G	H	Z	9	10
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	"	"
40	274	285	210	170	152	23	57	55	254	1/4	1/4
50	274	285	210	170	161	23	57	55	254	1/4	1/4
60	314	352	257	200	185	24	48	76	254	3/8	1/4
65	334	372	272	217	200	26	50	90	254	3/8	3/8
100	374	423	302	241	235	28	52	90	254	3/8	3/8
125	430	506	371	296	270	30	60	100	254	3/8	3/8
150	512	551	401	363	300	20	52	100	254	3/8	3/8
200	626	709	529	467	360	22	48	114	254	3/8	3/8
250	760	844	631	587	425	24	54	127	254	1/2	1/2
300	880	975	730	680	486	27	57	140	254	1/2	1/2

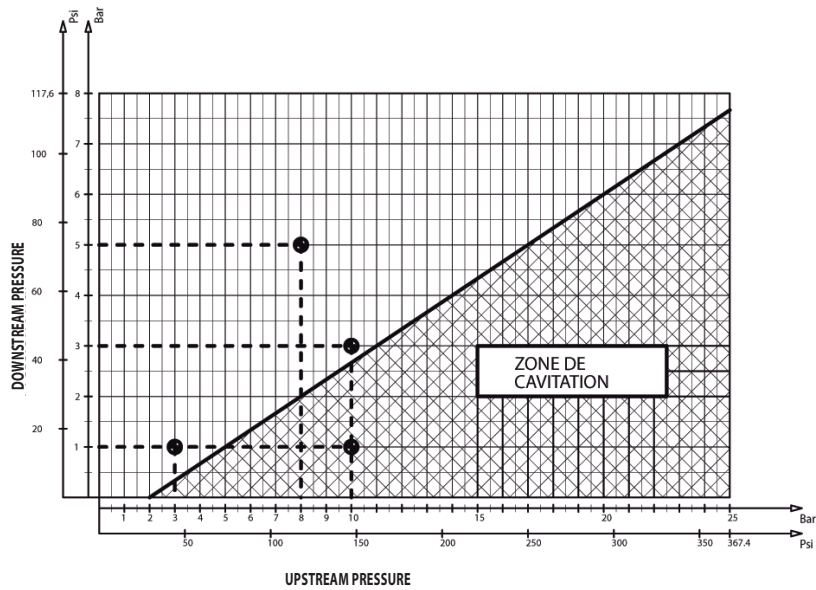
## Other operating characteristics

### Cavitation

A too large differential pressure and a low downstream pressure may result in damage to the valve by cavitation.

To avoid it, refer to the cavitation curve and if needed, reduce the differential pressure by installing and connecting two or more control valves in same line (consult us).

Stainless steel seat and counter seat are standard.



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