

GW C300 FLUID CONTROL VALVE

SPRINKLER
PRESSURE REDUCING



GW SPRINKLER A/S



PART NUMBER			
	Ni Al Bronze	Super Duplex	Titanium
3"	CV64.514.24		CV64.520.07
4"	CV64.521.24		CV64.521.07
6"	CV64.522.24		CV64.522.07
8"			
10"			
12"			

Function: This valve is fitted into a fire water supply to provide a regulated downstream pressure to automatic sprinkler heads in a wet sprinkler system. Upon operation the valve provides an alarm, typical via a pressure switch connected to the alarm port (TP5). The GW C-300 sprinkler valve is "self-powered" – and utilizes the system upstream (inlet) pressure to regulate and maintain downstream pressure in line with the pre-determined set-pressure. The valve principle is "elastomeric sleeve type" where the annular valve orifice is adjustable by expansion/contraction of the rubber flow sleeve.

Operation: Under operational conditions, the initial pressure drop in the downstream pressure, caused by the operation of one or more sprinkler heads, is sensed by the valve pilot, causing it to open the alarm port and by-pass ports. The water surrounding the elastomeric flow control sleeve is hereby drained to downstream, allowing the flow sleeve to lift from the seat, and open the GW C-300 sprinkler valve. As the downstream pressure increases, the pilot valve operates to regulate the by-pass port and the elastomeric sleeve pressure becomes balanced to provide a constant valve orifice for the flow conditions. Any change in the flow condition /downstream pressure, i.e. more sprinkler heads opening, is sensed by the pilot causing it to release more pressure from the sleeve cavity thus increasing the valve orifice to supply more flow. The GW C-300 sprinkler valve will constantly continue to monitor the downstream pressure and adjust the valve orifice as long as water is supplied to the system. The check valve connected externally across TP2 and TP4 ensures that the GW C-300 sprinkler valve will remain closed in the event of an upstream water supply failure.

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- Installation:** Horizontally or vertically.
Fits between ANSI /ASME B16.5 Class 150 or 300 lbs. flanges
- Design:** The GW C-300 deluge valve is developed and designed for maximum reliability when installed and operated in the harshest on-shore and off-shore environments. To prevent any malfunctioning due to components seizing, sticking or corroding, the number of moving mechanical parts has been reduced to an absolute minimum, and the few moving parts present are ALL 100% isolated from the flow media - i.e. no water contact. The only moving components in contact with the flow media are the elastomeric parts. A strainer is fitted in the inlet of the valve center block to prevent any debris from entering the hydraulic pilot regulating system.
- Pressure Reduction:** The GW C-300 valve is designed to handle large pressure reductions, and minimize the effects of cavitation and noise. The multi finger construction of the water passageways through the valve, in combination with the conical shaped core, ensures that the pressure is reduced at multiple sites, which avoids large cavitation concentrations and resultant noise and valve damage. The exiting cone in the valve outlet ensures that the cavitation stays longer in the water flow stream thus reducing concentrated damage to valve internals and pipework walls.
- Material:** All materials used in the valve have been rigorously selected to ensure durability when installed and operated in the heavy-duty applications the valve is designed for. All wetted parts are as standard in the material Nickel Aluminum Bronze and piping in CuNi 90/10.
- Finish:** Natural (metallic, non-painted surface).
- Approval:** No approval.
- Specials:** Client specified solutions can be accommodated on request – e.g. special instrumentation, special fittings, surface treatment, pressure setting. Consult GW for options.
- Weights:** (in kilograms, approximate)

	80mm (3")	100mm (4")	150mm (6")			
Ni.Al.Bronze	20	25	44			
Super Duplex	21	27	48			
Titanium	12	14	26			

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Maintenance: Every 3 year the valve should be disassembled, inspected and the elastomeric components replaced – i.e. replace the elastomeric sleeve, diaphragms and seals in service and those held unused as spare stock. Spares should be used within a two year shelf life to provide a 3 year “in service” life (5 year total life).
 The “in service” life of the elastomeric sleeve can be extended annually to a maximum “in service” period of 5 years from the date of first installation or 6 years from manufacture, whichever is the sooner, provided that a “maximum extension test” (see IOM manual no. 6470603) to fully stretch the flow control sleeve within the deluge valve body, is performed.

Spare Parts: Refer to data sheet no.: DV070 1001 - GW C-300 General Spares Schedule.

Pressure data:

	Min.	Max.	Note
Design pressure		20 bar	
Recommended operating pressure	5 to 8 bar above valve set-pressure		
Regulated pressure (outlet pressure) – std.	3 bar	7 bar	(blue spring) standard
Set-pressure (factory setting) – standard.		4 bar	(or to specification)
Regulated pressure (outlet pressure) – high	7 bar	12 bar	(silver spring) optional
Regulated pressure (outlet pressure) – high	Set-pressure in excess of 12 bar – consult GW.		
Inlet pressure to achieve full open	4 bar		

Materials:

	Valve		
	Ni.Al.Bronze	Super Duplex	Titanium
Wetted parts	Ni.Al.Bronze to UNS C95800, UNS C63000	SuperDuplex Cr.25 to ASTM A890, UNS J92205	Titanium (unalloyed) to ASTM B367, B348 UNS R50400 – Gr.2
Non-wetted parts	Gun Metal to UNS C93200, St.Steel to UNS S31600 /03	Gun Metal (NiSn plated) UNS C93200, St.Steel to UNS S31600 /03	Gun Metal (NiSn plated) UNS C93200, St.Steel to UNS S31600 /03
Pipes	Cupronickel CuNi 9010, UNS C70600	Titanium (unalloyed) to ASTM B338, UNS R50400 – Gr.2	Titanium (unalloyed) to ASTM B338, UNS R50400 – Gr.2
Compress fittings	Ni.Al.Bronze to UNS C63000	SuperDuplex Cr.25 to UNS S32750	Titanium (unalloyed) to ASTM B348 UNS R50400 – Gr.2
Flow Ctrl. Sleeve	Natural Rubber	Natural Rubber	Natural Rubber

Material certification to EN10204 3.1, and PMI-test (Positive Material Identification) on request.

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Pressure loss:

	80mm (3")	100mm (4")	150mm (6")			
Cv	240	430	880			
Kv	206	370	757			
Friction loss @ 50% of max. flow (bar)	0,11	0,32	0,11			

Cv: Flow coefficient (imperial) = flow rate (US gal/min) across valve @ 1 psi head loss.

Kv: Flow factor (metric) = flow rate (m3/hr.) across valve @ 1 bar head loss.

Testing: Every valve is factory tested - i.e. static body & seat pressure test + functional flow test.
 An individual test report is issued for each valve.

Set-pressure: For pilot operated pressure reducing valves the SET-pressure is the outlet residual pressure for which the pilot regulator of the valve has been adjusted and is expected to maintain, regardless of changing flow rate and varying inlet pressures.

Pressure gauges: Optional – on request (**not standard**).
 The GW C-300 Pressure Reducing Valve can be fitted with a Gauge Block on the upstream and downstream side of the Center Block. Each Gauge Block provides 3 off ¼" NPT female ports for connection of pressure gauge, pressure switch etc. All 3 ports can be blocked by a central restrictor, for safe in-service removal of connected instruments. An FM approved pressure gauge is fitted to each Gauge Block (2 off) to monitor upstream and downstream pressure (see valve with gauges on page 5).

Environment: The GW C-300 Pressure Reducing valves shall be installed in such way to avoid physical damage and exposure to freezing temperatures.

Service: If required, GW Sprinkler A/S can undertake a full overhaul/refurbishment of your GW C-300 deluge valve at the factory in Denmark. This will include complete dismantling of the valve, glass blast cleaning of corroded parts, assessment of wear/corrosion, replacement of elastomeric parts, replacement of corroded/damaged parts (in dialogue with customer), static pressure test, functional test, set-pressure adjustment, full test report.

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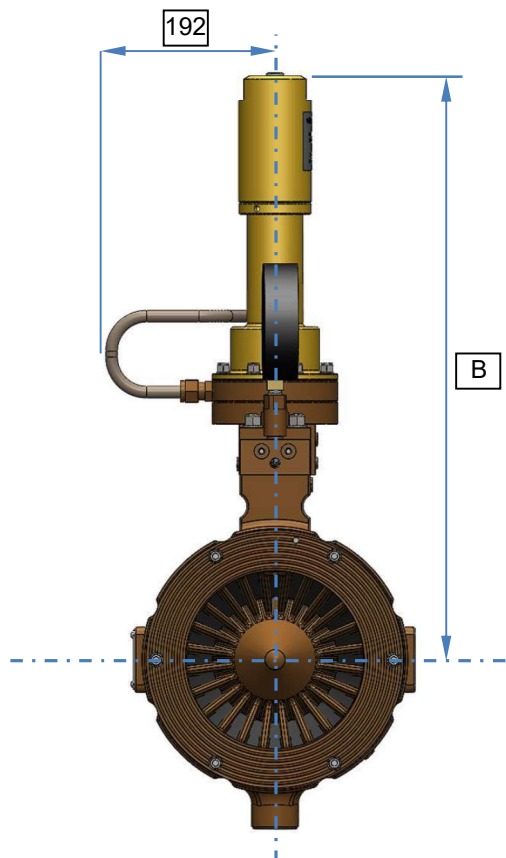
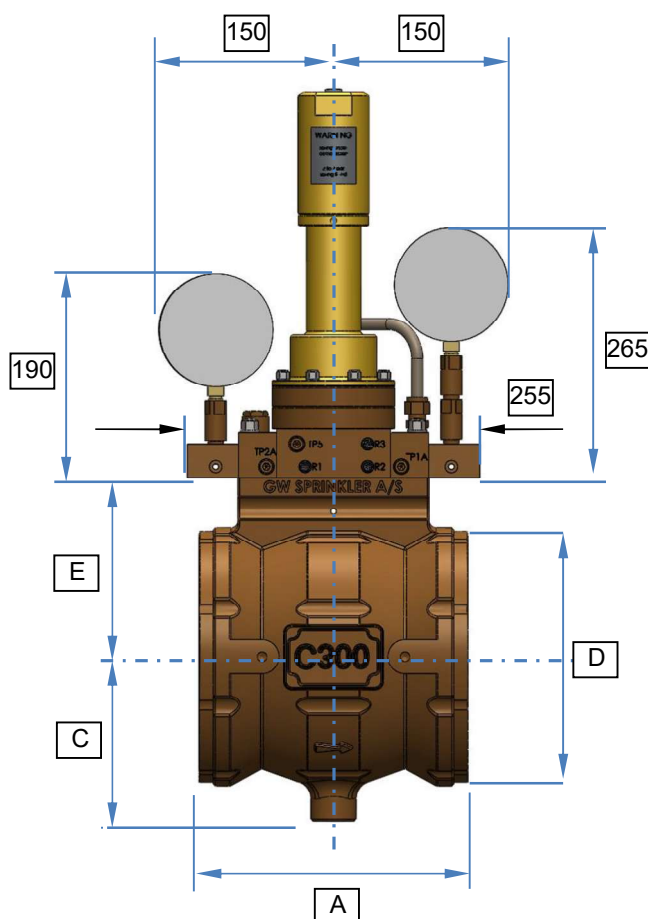
All dimensions in mm.

	A	B *)	C	D **)	E
80 (3")	167	405	112	128	105
100 (4")	167	427	132	161	127
150 (6")	237	459	162	222	158
200 (8")	304	487	184	295	187
250 (10")	350	522	217	336	222
300 (12")	440	560	248	406	260

*) SET at 4 bar (blue spring)

**) Fitment: Wafer fits between ANSI/ASME B16.5
Class 150 or 300 lbs. flanges using full
length studs, nuts and washers.
Gasket to ANSI B16.21 RF.

NOTE : Pressure Gauges and Gauge Blocks are NOT standard on this valve !



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P & ID:

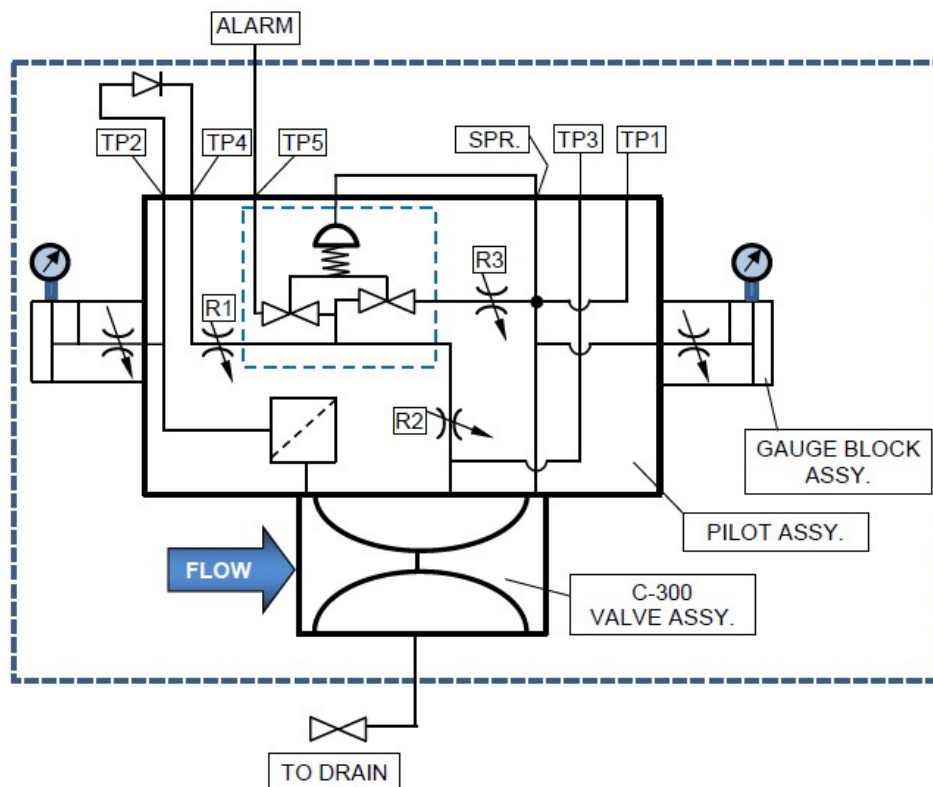
Port	Description	Size
R1	Inlet Restrictor (close)	
R2	Jacket Restrictor	
R3	Outlet Restrictor (open)	
TP1	Plugged	1/4" NPT
TP2	Upstream supply	1/4" NPT
TP3	Plugged	1/4" NPT
TP4	Pilot hydraulic supply	1/4" NPT
TP5	Plugged (alarm port)	1/4" NPT
SPR.	Downstream sensing port	
	Gauge Block Ports	1/4" NPT

R = Restrictor (needle valve)

TP = Terminal Port

IO&M manual: 64 70603

NOTE : Pressure Gauges and Gauge Blocks are NOT standard on this valve !



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