

# SpaceLogic VGS211F

## 15...100CS

Two-way Flanged Globe valve, 200 °C steam, PN16



The VGS211F 15-100CS range of valves are primary designed for steam applications although they may be used for other HVAC applications within heating, cooling and air handling applications.

The valve will handle the following types of media:

- Steam up to 200 °C
- Hot and chilled water.
- Water with antifreeze additives such as glycol (50%)

If the valve is used for media at temperatures below 0 °C, it should be equipped with a stem heater in order to prevent ice formation on the valve stem.

### Specifications

Design	Two-way plug valve
Valve closed position	Stem Down closed
Pressure class	PN 16
Flow characteristic	Equal percentage
Rangeability Kvs/Kv <sub>min</sub>	
DN15...20	>50
DN25...100	>35
Leakage	0,02% of Kvs
ΔPm	6 bar
Max. temperature of medium:	200 °C
Min. temperature of medium:	-10 °C
Connections	Flanged ISO 7005-2
General Construction Materials	
Body	Cast iron (EN JL1040)
Stem	Stainless steel (AISI 303)
Plug	Stainless steel (AISI 304)
Seat	Stainless steel (AISI 304)
Stem Packing	PTFE

Note: It is the responsibility of the end user/ installer to check valve material compatibility against any media containing anti-freeze or anti-rust additives or water conditioners with the manufacturer or supplier of such solutions.

### Ordering Table

Size DN	Kvs (m <sup>3</sup> /h)	Part number	Type Designation	Stroke (mm)
15	0.6	VGS211F-15CS03	VGS211F-15CS 0.63M SD00	16.5
	1	VGS211F-15CS04	VGS211F-15CS 1M SD00	
	1.6	VGS211F-15CS05	VGS211F-15CS 1.6M SD00	
	2.5	VGS211F-15CS07	VGS211F-15CS 2.5M SD00	
	4.0	VGS211F-15CS08	VGS211F-15CS 4M SD00	
20	6.3	VGS211F-20CS	VGS211F-20CS 6.3 M SD00	25
25	10	VGS211F-25CS	VGS211F-25CS 10M SD00	
32	16	VGS211F-32CS	VGS211F-32CS 16M SD00	
40	24	VGS211F-40CS	VGS211F-40CS 24M SD00	45
50	32	VGS211F-50CS	VGS211F-50CS 32M SD00	
65	63	VGS211F-65CS	VGS211F-65CS 63M SD00	
80	110	VGS211F-80CS	VGS211F-80CS 110M SD00	
100	140	VGS211F-100CS	VGS211F-100CS 140M SD00	

### Key to technical specification

- The rangability is the ratio of Kvs and Kv<sub>min</sub>
- Kvs is the maximum flow capacity (m<sup>3</sup>/h) of a fully open valve at a pressure drop of 100 kPa across the seat.
- Kv<sub>min</sub> is the minimum controllable flow (m<sup>3</sup>/h) at a pressure drop of 100 kPa
- ΔPm is the maximum pressure drop across a fully open valve.

### Recommendations

It is recommended to fit a strainer upstream if the valve to increase reliability and to follow waste treatment guidelines as detailed in VDI 2035. Valves should be installed in the return pipe to reduce exposure to media temperature extremes.

## Function

The valve opens with the stem up.  
When the stem is down, the valve is closed.

## Installation

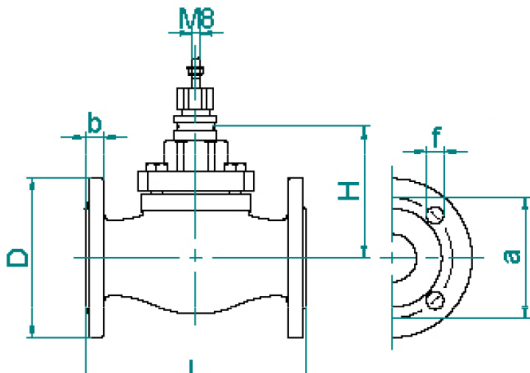
The valve should be mounted with flow direction in accordance with the valve marking.  
It is recommended to install the valve in the return pipe, to reduce the influence from heat transfer into the actuator to prolong the service life of the valve and actuator.  
The valve must not be installed with the actuator mounted below the valve.  
Where reasonably possible, it is recommend to install the actuator at 45° to the vertical so the actuator is less influenced from the radiant heat of the pipework.

## Pressure Drop Performance Vs Actuator

Size	Kvs (m³/h)	M700	MG900 SR	M800	M1500/MV15B	M3000
DN	Δpc (kPa)					
15	0.6	1600	1600	1600	1600	--
	1					
	1.6					
	2.5					
4.0						
20	6.3	1450				
25	10	900	1250	1000	1350	
32	16					
40	24	600	840	680	900	
50	32	380	550	430	350	
65	63	150	220	170	200	855
80	110	100	--	110	150	550
100	140	60	--	70		350

ΔP<sub>c</sub> = Maximum allowed pressure drop across a closed valve (that the nominal force of the actuator will open or close against).

## Dimensions (mm) and Weight

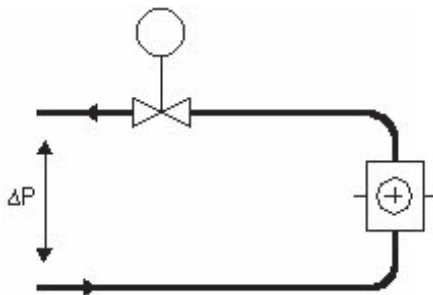


DN	L	H	Ø D	b	Ød	Øf	Flanged Bolt holes	Weight Kg
15	130	107	95	16	65	14	4	3.5
20	150	109	105		75			4.5
25	160	112	115		85			5.5
32	180	121	140	18	100	8.7		
40	200	129	150		110	10.3		
50	230	137	165	20	125	18	13.7	
65	270	175	185		145		19.6	
80	310	190	200		160		8	31.7
100	350	215	220	180	43.5			

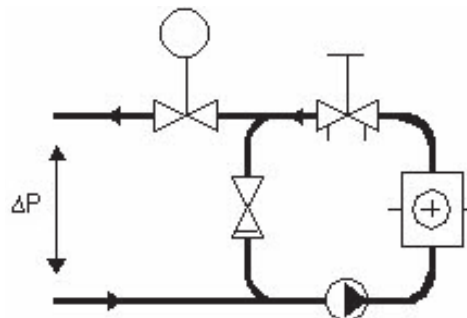
## Spares And Accessories

Stem packing gland (all sizes): 1 001 0811 0

## Schematics and Pressure Drop

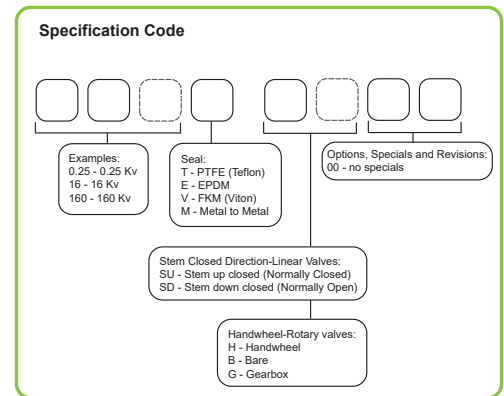
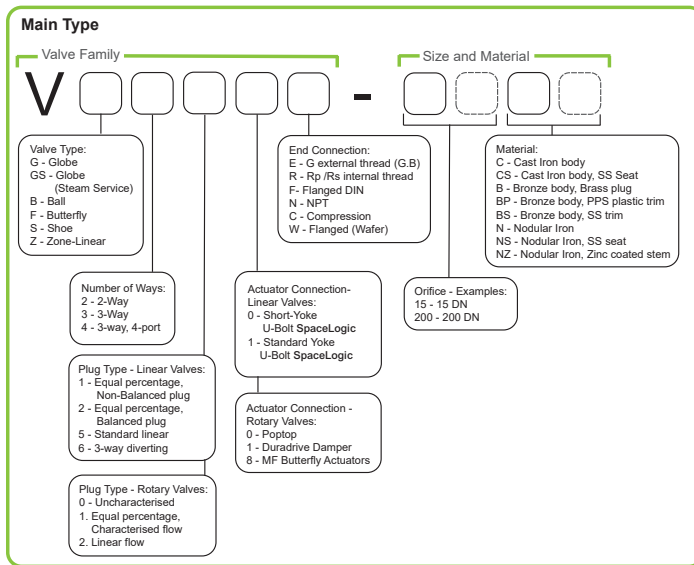


A. Typical installation without local circulating pump.  
To provide a good function, the pressure drop across the valve should be no less than half of the available pressure (Delta P). This corresponds to a valve authority of 50%.



B. Typical installation with local circulating pump.  
The KVS value of the valve is to be selected so that the entire available pressure drop (Delta P) falls across the control valve.

## Type Designation



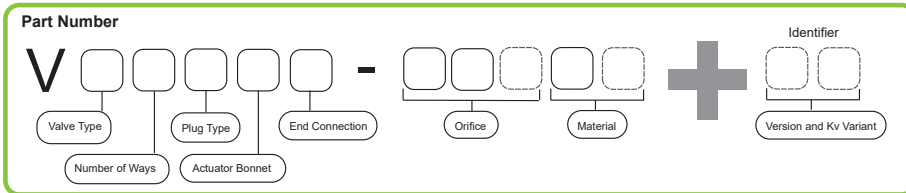
**Construction Guide:**

The updated designation covering the changes in one of the large 2 way cast iron valves are:

**Full Type Designation:**  
 VGS211F-15CS 0.63M SD00

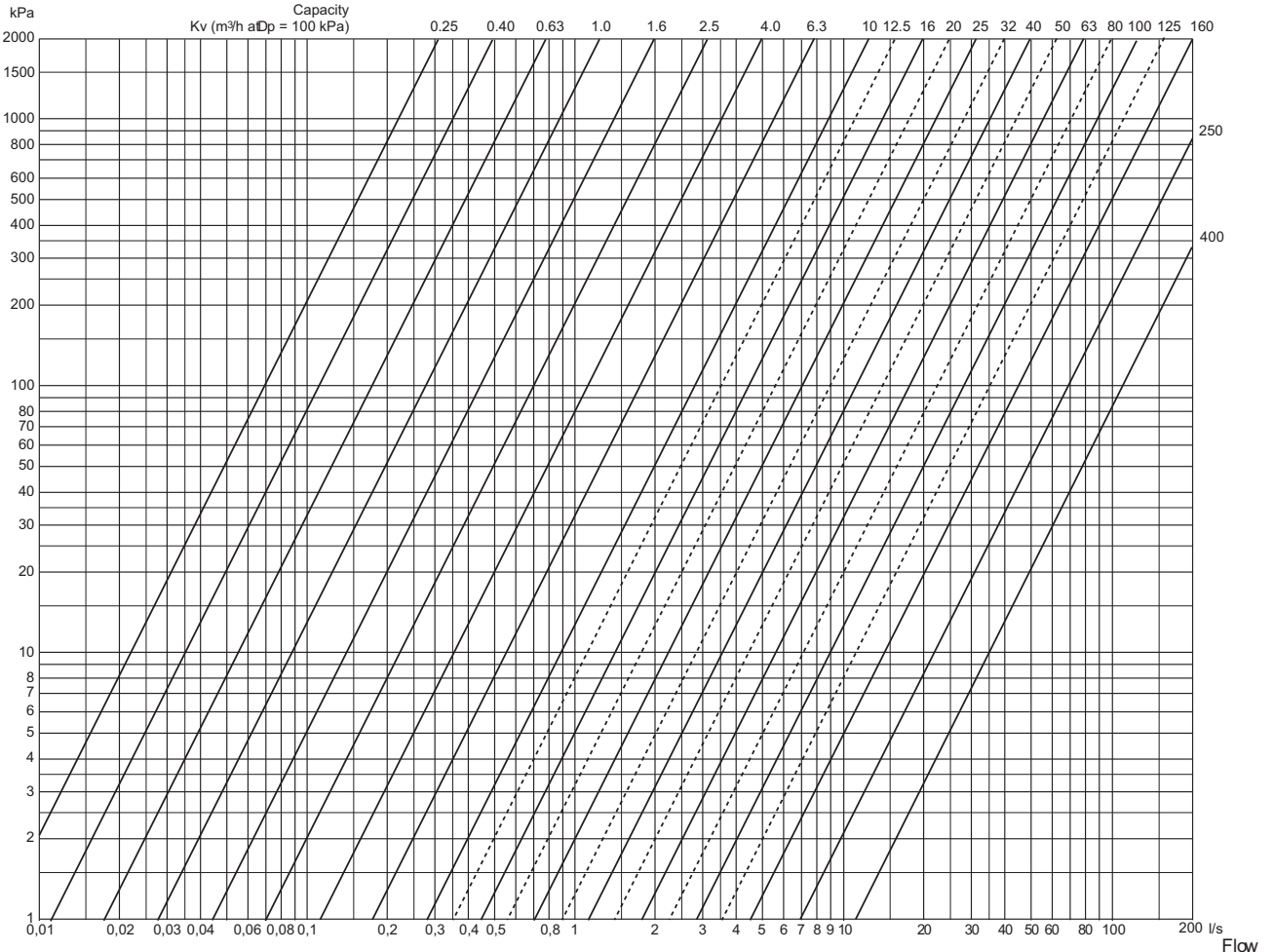
**Family:**  
 VGS211F 15-100CS

**Part Number:**  
 VGS211F-15CS03

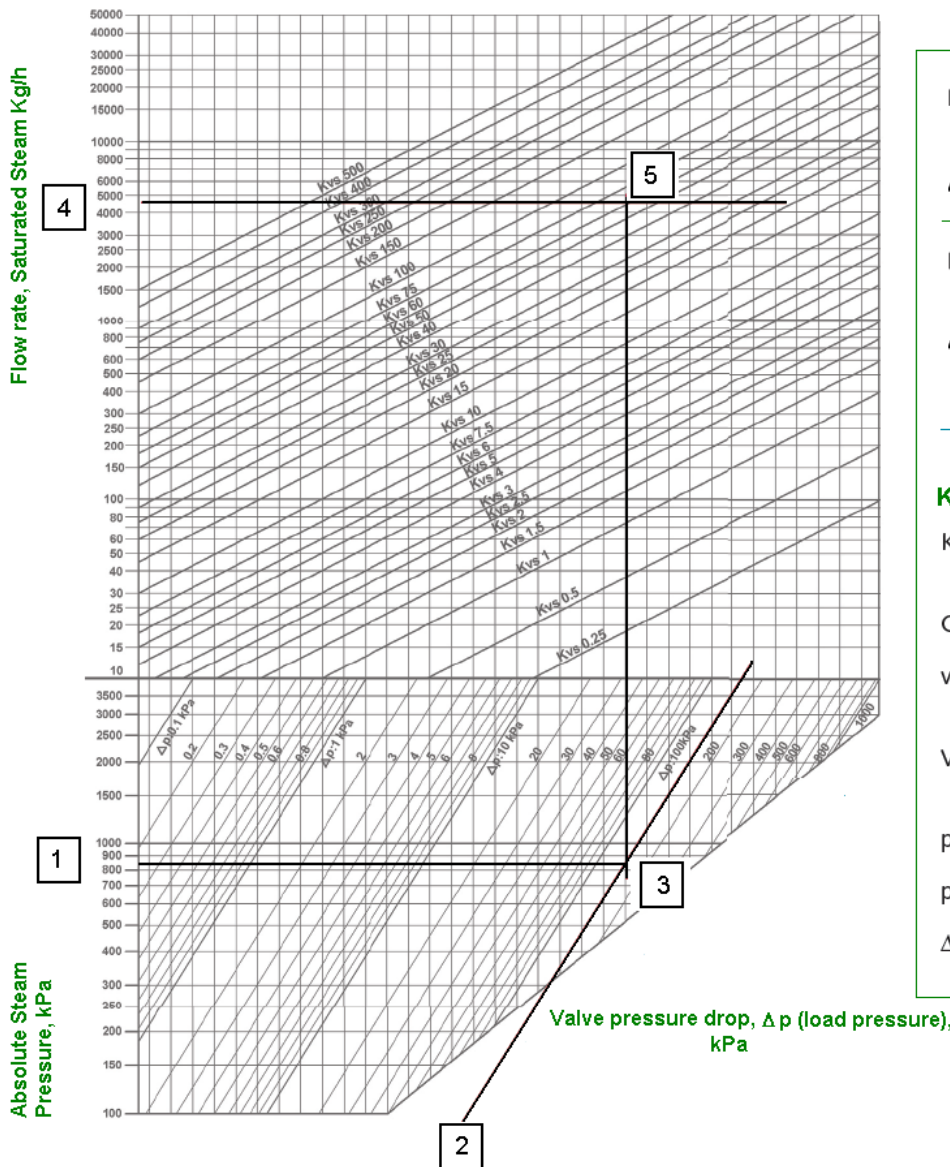


## Pressure Drop - Water

Pressure drop



Pressure Drop - Steam



$$P_2 > \frac{P_1}{2}$$

$$K_{vs} = \frac{G}{31.6} \times \sqrt{\frac{v_2}{\Delta p}}$$

$$\Delta P > \frac{P_1}{2}$$

$$P_2 < \frac{P_1}{2}$$

$$K_{vs} = \frac{G}{31.6} \times \sqrt{\frac{2 \times v^*}{p_1}}$$

$$\Delta P > \frac{P_1}{2}$$

**Key**

Kvs = Valve flow co-efficient, (Control valve fully open).

G = Mass flow rate (Kg/h)

v<sub>2</sub> = Specific volume (from steam table) for p<sub>2</sub> and t<sub>1</sub> condition

V\* = Specific volume (from steam table) for  $\frac{p_1}{2}$  and t<sub>1</sub> condition

p<sub>1</sub> = pressure before valve

p<sub>2</sub> = pressure after valve

Δp = Valve Pressure drop (bar)

Example for saturated Steam:

Flow rate, (G): 4700 Kg/h

Abs. Pressure upstream (p<sub>1</sub>): 850 kPa

Load Pressure (ΔP<sub>v</sub>): 160 kPa

Mark the point of intersection [3] between the line originating from the absolute upstream pressure [1] and the inclined line corresponding to the load pressure (valve pressure drop) [2].

Identify the point of intersection between point [3] found above and the flow rate of Saturated steam [4]

The last found point would correspond to a valve with a Kvs of 63 [5]