

**WAFFER PATTERN  
V-PORT BALL VALVE  
stainless steel**

**465 series**



## Description

Edition 15-04-2015

Högfors ball sector valve series 465 is specially designed for control applications of various medium like liquids, pulps and steam.

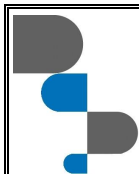
465KC is used for sticky and crystallizing mediums, because of cleaning function of metal seat for both control and on/off applications where std PTFE seated valves does not lasting. If the medium contains solid particles, the geometry of metal seat and segment will warranty better function as std. valves.

These valves are tight to one direction which is shown by an arrow according to EN 12266-1.

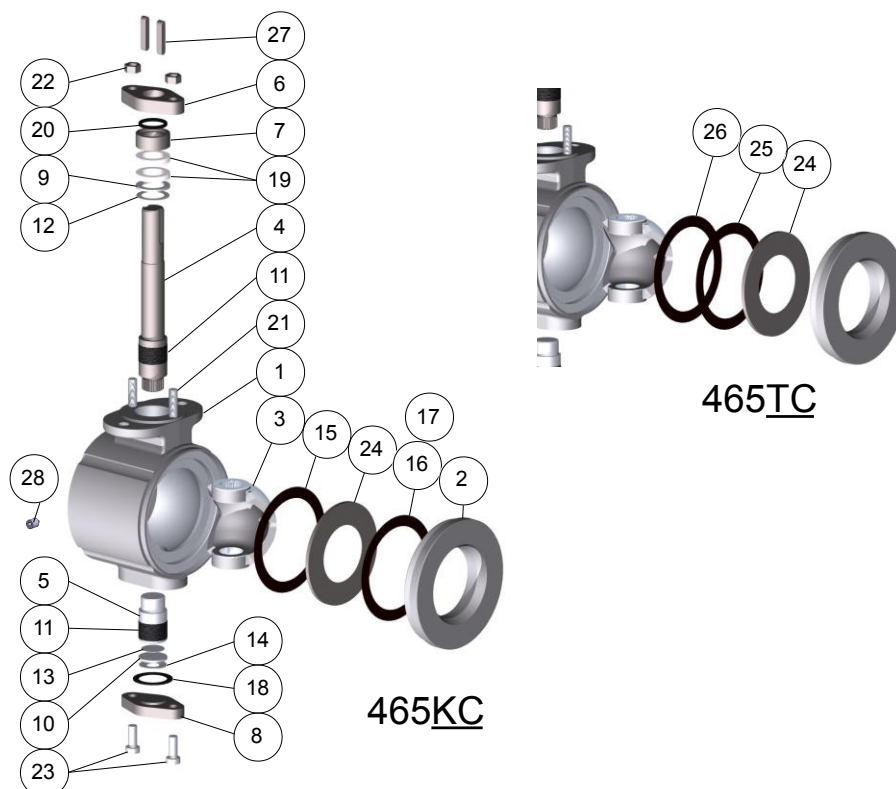
The wafer pattern ball sector valve is a reduced bore valve manufactured in stainless steel throughout with a hard chromed ball sector and Stellite or PTFE seat. The V-port gives an excellent control characteristic which is intermediate between linear and equal percentage. The shaft packing box has tightable graphite seals.

Nominal dimensions:	DN 25 – 200	
Nominal pressure	PN 40 DN 25 - 100 PN 16 DN 150 - 200	
Ball seal alternatives	Stellite (KC)	PTFE (TC)
Tightness class ISO 5208, EN 12266-1	RATE D	RATE A
Working temperature of liquid media (version for steam also available)	+260°C -40°C	+200°C -40°C
Connection	Connection between flanges EN1092-1, Facing Type B.	
Safety	<p>Conform to the requirements of the Council Directive 97/23/EC on Pressure Equipment, marking: Class: gas, group 1.</p> <p>Explosion-proof design is available as per special order. Marking in accordance to ATEX Directive 94/9/EC: group II 2 GD, protection concept of non-electrical components: c T6.</p>	



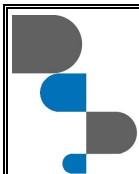


## Exploded view

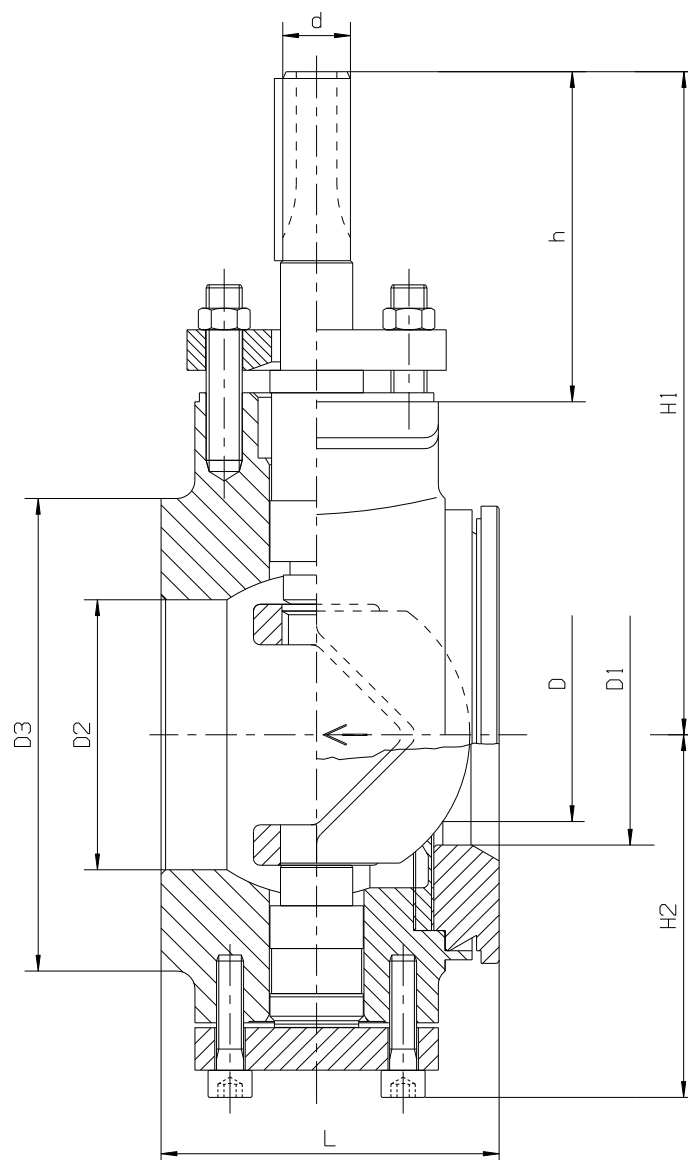


## Parts list and standard materials

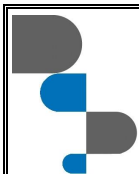
	Part	Material
1	Body	Stainless steel ASTM A351 CF8M
2	End piece	Stainless steel ASTM A351 CF8M
3	V-ball	Stainless steel ASTM A351 CF8M
4	Stem	Stainless steel 1.4404
5	Subshaft	Stainless steel 1.4404
6	Gland	Stainless steel 1.4404
7	Spacer ring	Stainless steel 1.4404
8	Subshaft cover	Stainless steel 1.4404
9	Thrust bearing ring	Stainless steel 1.4404
10	Thrust bearing plate	Stainless steel 1.4404
11	Shaft bearing	PTFE on stainless steel net ("Pampus")
12	Upper thrust bearing	PTFE on stainless steel net ("Pampus")
13	Lower thrust bearing	PTFE on stainless steel net ("Pampus")
14	Cup spring	Stainless steel 1.4404
15, 16, 17	Shim	Carbon Fibre SFS5811/ Graphite
18	Subshaft cover packing	Carbon Fibre SFS5811/ Graphite
19	Packing	Graphite
20	O-ring	EPDM
21, 22	Bolt or stud and nut	Stainless steel ISO 3506 A4-80
23	Hexagonal socket screw	Stainless steel ISO 3506 A4-80
24	T-seat	PTFE
24	K-seat	Stellite
25	Support ring	Stainless steel 1.4404
26	Shim	Carbon Fibre SFS5811/ Graphite
27	Key	Carbon steel
28	Screw (for version with screw)	Stainless steel A4 DIN914



## Dimensions: 465 series valve



DN	L	D	D1	D2	D3	d	h	H1	H2	Weight kg
25	50	20	25	30	65	11	85	143	58	1.6
32	55	27	32	36	75	11	85	143	65	1.9
40	60	35	40	48	90	15	95	165	79	3.2
50	75	45	49	60	105	15	95	169	83	4.5
65	100	53	65	73	123	20	110	195	87	7.5
80	100	72	77	87	140	20	110	213	97	8.4
100	115	89	96	112	160	25	115	233	126	12.6
150	160	112	118	162	216	25	115	263	135	28.0
200	200	167	170	213	273	30	150	342	194	41.0



## Operation

Högfors valves can be equipped with an actuator to your specification.

- bare shaft,
- hand lever,
- manual gear,
- electric actuator,
- pneumatic or hydraulic actuator.

## Operation torque

DN	25	32	40	50	65	80	100	150	200
Torque*, Nm (KC and TC)	20	20	28	39	52	70	100	150	340

\*) for steam duty use the next size up.

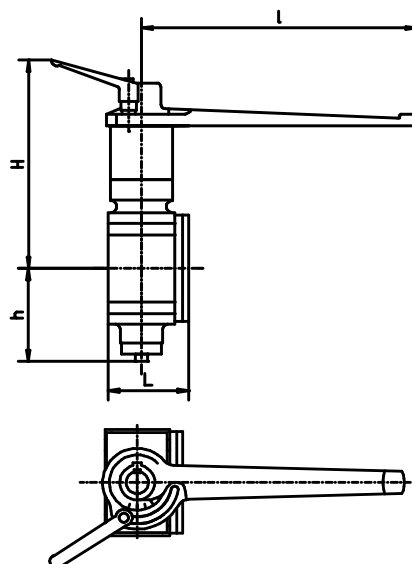
## Handlever

Sizes, DN 25-150 can be operated with handlever.

The opening and closing of valves is stepless.

The valve is open when the handlever is in line with pipe.

DN	L	I	H	h
25	50	185	180	58
32	55	185	180	65
40	60	300	200	79
50	75	300	205	83
65	100	300	228	87
80	100	300	245	97
100	115	420	270	126
150	160	420	300	135

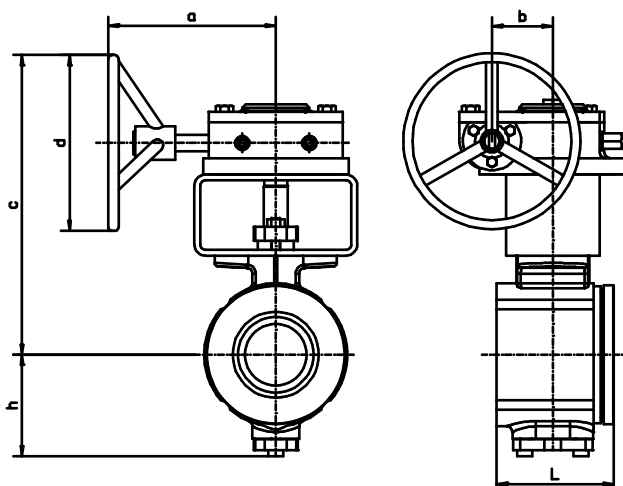


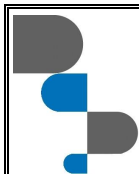
## Manual gear

Opening and closing of the valves from the handwheel.

The position of the ball can be seen on a position indicator on top of the gear

DN	Pro-Gear model	a	b	c	d	h	L
25	Q400	198	52.5		200	58	50
32	Q400	198	52.5	252	200	65	55
40	Q400	198	52.5	264	200	79	60
50	Q400	198	52.5	268	200	83	75
65	Q400	198	52.5	289	200	87	100
80	Q400	198	52.5	307	200	97	100
100	Q800	293	68.75	381	300	126	115
150	Q800	293	68.75	411	300	135	160
200	Q800	293	68.75	485	300	194	200





SILVER LINE

# BALL SECTOR VALVE wafer pattern

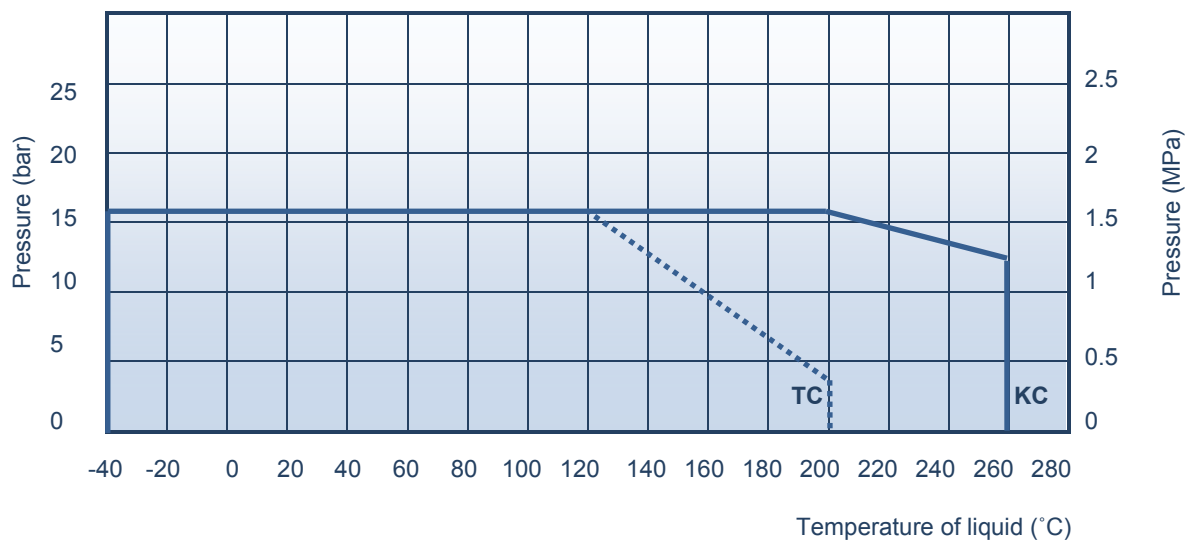


Valves

465 series

15-04-2015

## Pressure / Temperature Rating

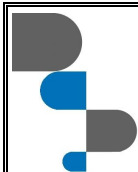


## Product codes

	Hard chromed ball sector valve	
Seat	PTFE	Stellite
handlever up to DN150	465TC__.	465KC__.
bare shaft	465TC__Z	465KC__Z
manual gear	465TC__M	465KC__M
Steam version on special order	—	46501KC__

## How to order

		4	65	01	K	C	200	M
Body material:	4 – Stainless steel							
Valve type:	65 – ball sector valve wafer pattern							
Special options:	__ – standard, 01 - For steam							
Ball seal	(K) - Stellite, (T) - PTFE							
Ball surface treatment	C – hard chrome							
Size DN								
Operation:	(_) - handlever, (Z) - bare shaft, (M) - manual gear							



SILVER LINE

# BALL SECTOR VALVE wafer pattern



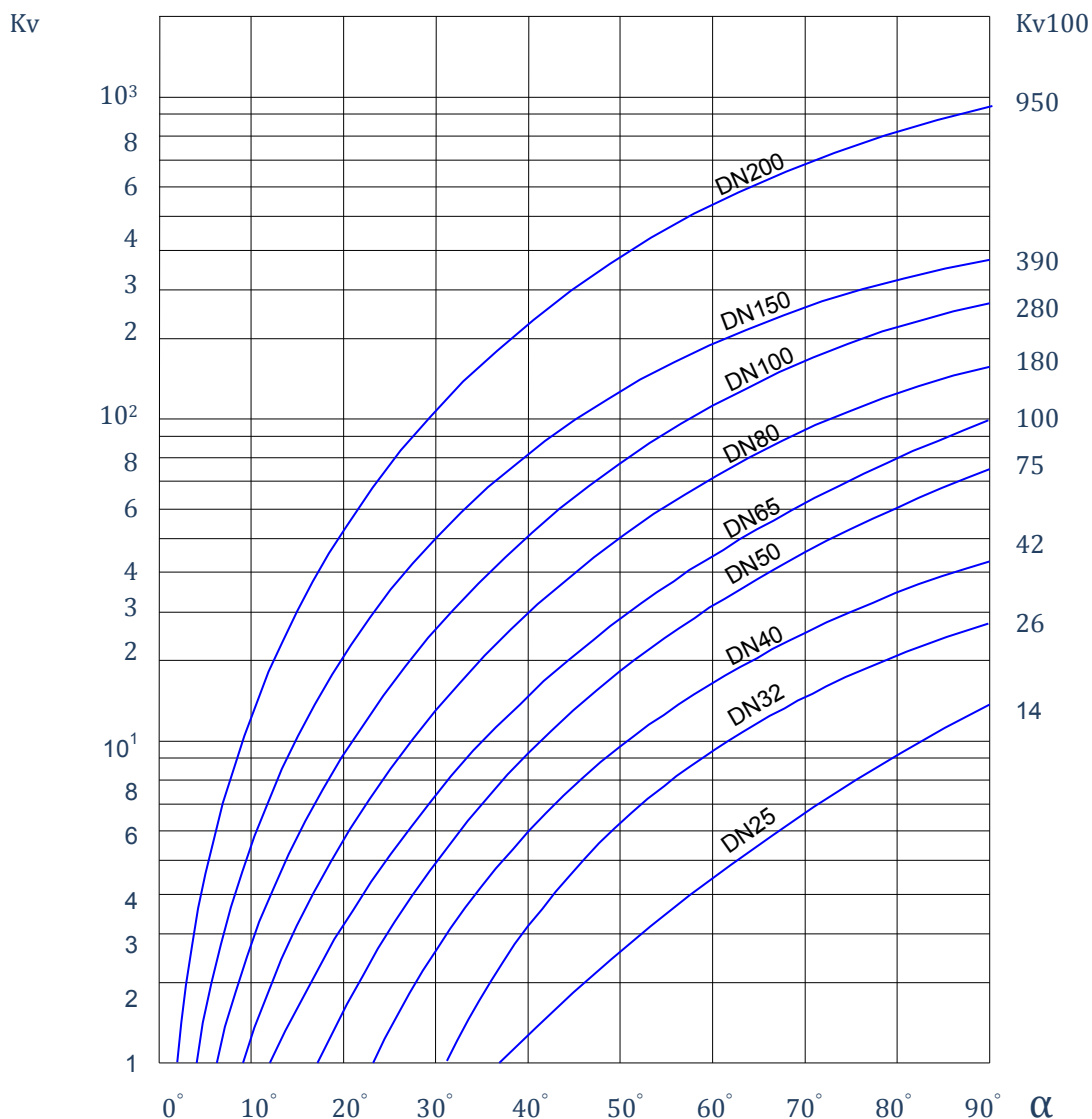
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## Flow curves

Indicating typical Kv values.



### WATER:

Volume  
flow:

$$Q = K_v \sqrt{\frac{\Delta p}{\rho}}$$

Flow  
velocity:

$$V = 354 \frac{Q}{DN^2}$$

$K_v$  = KV value – Capacity factor

DN = nominal valve size, mm

$\alpha$  = disc opening angle

$\Delta p$  = pressure difference, bar

$\rho$  = density of liquid, kg/dm<sup>3</sup>

V = flow velocity, m/s

Q = volume flow, m<sup>3</sup>/h