



**ball valve  
soft seated  
maintenance-free  
with floating ball**

**Flanged ends  
PN 10 – 40  
DN 15 – 150**

The sealing variants are approved in accordance with the German clear air regulations „TA-Luft 2002“

**Type VFD**

## Fields of application

General industry, power plants, chemical, oil and petrochemical industry

## Operating data

Temperature range, depending on the operating pressure: -10°C to +200°C  
See table at page 7

## Design

Two-piece body, full bore  
Encapsulated seat rings  
Antistatic (as) – feature

**Pressure equipment directive (PED) 97/23/EG (category III)**  
**TRB 801 Nr. 45**  
**VdTÜV 1065, VbF, Gas-HL-VO, WHG**  
**„TA-Luft“ approved**  
**Fire-Safe acc. to BS 67 55 part 2 and ISO 10497**  
Mounting flange acc. to DIN ISO 5211

## Coating

Alkyd resin lacquer, Pacific Blue- RAL 5002  
Stainless steel without coating

## Materials (acc. to DIN)

body:	forged steel	- 1.0460
	casted steel	- 1.0619
	forged stainless steel	- 1.4404
	casted stainless steel	- 1.4408

ball:	- 1.4404
	- 1.4408

sealings: sealrings	- pure TFM
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**other materials on request.**

## Order specification

Ball valve Topi 210  
Nominal diameter DN  
Nominal pressure PN  
Operating conditions  
Flow media, temperature, pressure  
Connection acc. to DIN EN  
Identification number

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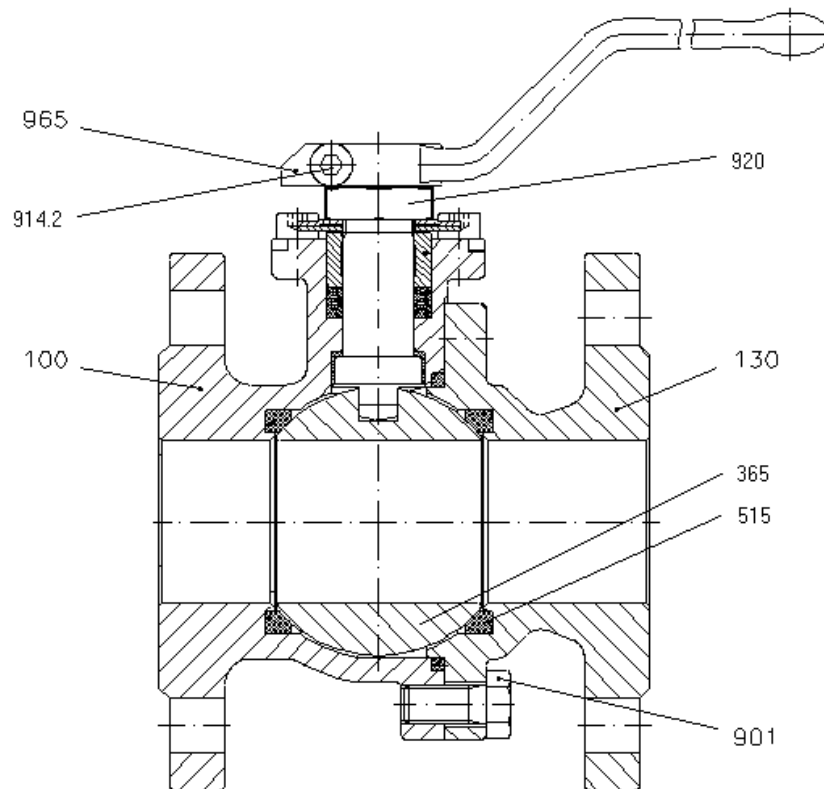
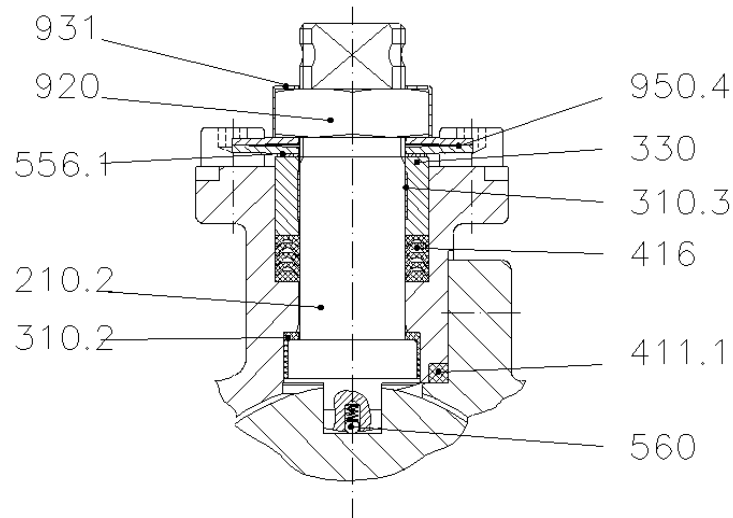


Bild 1: ball valve with full bore

**Table1: materials**

Item no.	designation	DN	material	
100	body	15 to 150	C22.8	1.0460
			GS-C 25 N	1.0619
			G-X6CrNiMo 18. 10	1.4408
130	Body part	15 to 150	C22.8	1.0460
			GS-C 25 N	1.0619
			G-X6CrNiMo 18. 10	1.4408
365	ball	15 to 100	X2CrNiMo 17 132	1.4404
		65 to 150	G-X6CrNiMo 18. 10	1.4408
515	Seat ring		Pure TFM (Standard)	
901	Hex. head bolt		A2 – 70 / A4 – 70	
914.2	Hex. Socket bolt		10.9, galv.	
920	nut		A2 – 70	
965	handle		Stainless Steel/Carbon steel galv.	

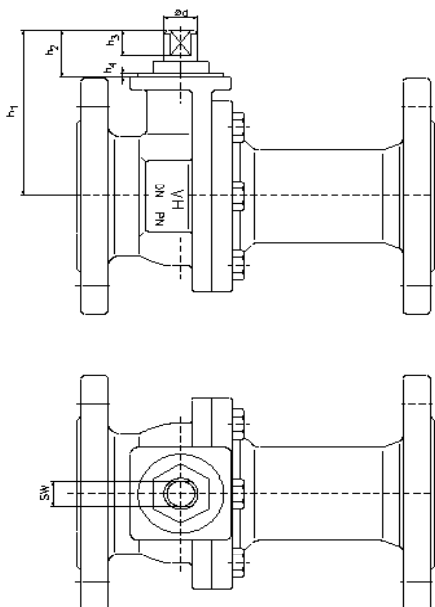


Variante 1: cup seal (graphite free) ("TA-Luft 2002" approved)

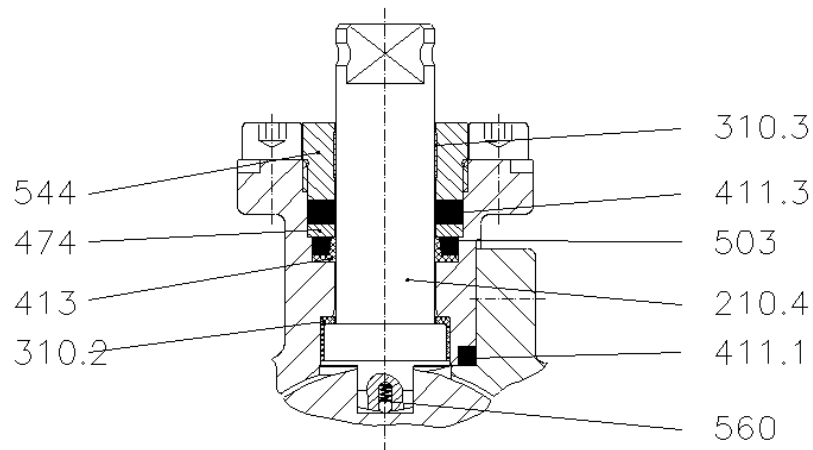
**Table 1: materials**

Item no..	designation	material
210.2	stem	1.4462
310.2	Lower control shaft bearing	Pure TFM
310.3	upper control shaft bearing	1.4401 / PTFE
330	Bearing bracket	1.4404
411.1	Joint ring	PTFE, rein
416	Cup seal	PTFE, rein
556.1	Sliding disc	1.4401 / PTFE
560	Antistatic device	1.4310
920	nut	A2 – 70
931	Safety plate	1.4301
950.4	Disc spring	1.4310

**Control shaft dimensions Var 1**



DN	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	ø d	SW	DIN ISO
15	57	22	9	2	11,5	9	F05
20	68	22	9	2	11,5	9	F05
25	73	24	9	2	16	11	F05
32	83	24	9	2	16	11	F05
40	111	36	17	3	22	17	F07
50	119	36	17	3	22	17	F07
65	130	36	17	3	22	17	F07
80	142	41	19	3	26	19	F10
100	160	41	19	3	26	19	F10
150	213	53	25	3	40	27	F12

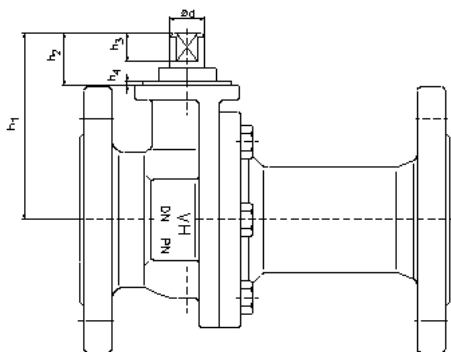
**Fire-Safe-Variant** ("TA-Luft 2002" approved)


Variant 3: with wedge ring (fire safe)

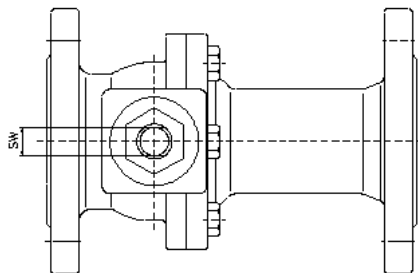
**Table 1: materials)**

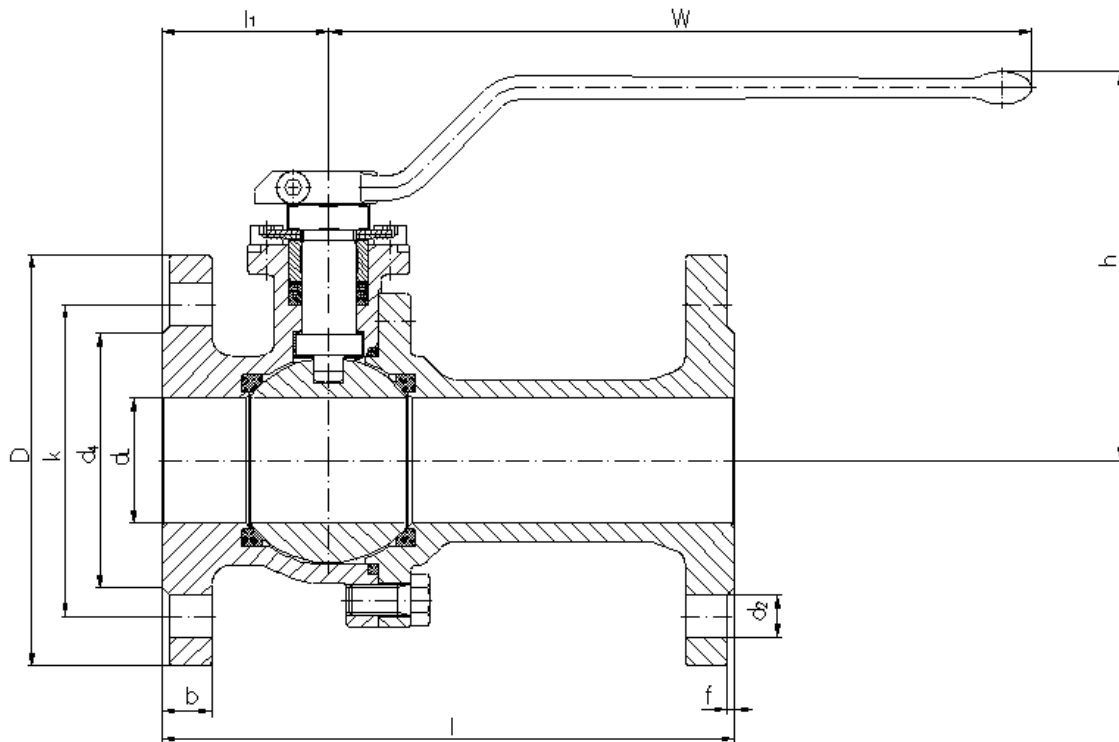
Item no.	designation	material
210.4	stem	1.4462
310.2	Lower control shaft bearing	Pure TFM
310.3	upper control shaft bearing	1.4401 / PTFE
411.1/3	Wedge-ring	Graphite
413	Wedge-facing ring	Pure PTFE
474	thrusting	1.4404
503	Wedge ring	Graphite
544	Stuffingbox screw	1.4404
560	Antistatic device	1.4571

Dimensions control shaft Var 3



DN	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	ø d	SW	DIN ISO 5211
15	55	20	9	2	12	9	F05
20	66	20	9	2	12	9	F05
25	74,5	25	14	2	18	14	F05
32	83	25	14	2	16	11	F05
40	108	32,5	17	3	22	17	F07
50	116	32,5	17	3	22	17	F07
65	127	32,5	17	3	22	17	F07
80	139	37,5	19	3	26	19	F10
100	157	37,5	19	3	26	19	F10
150	213	53	25	3	40	27	F12



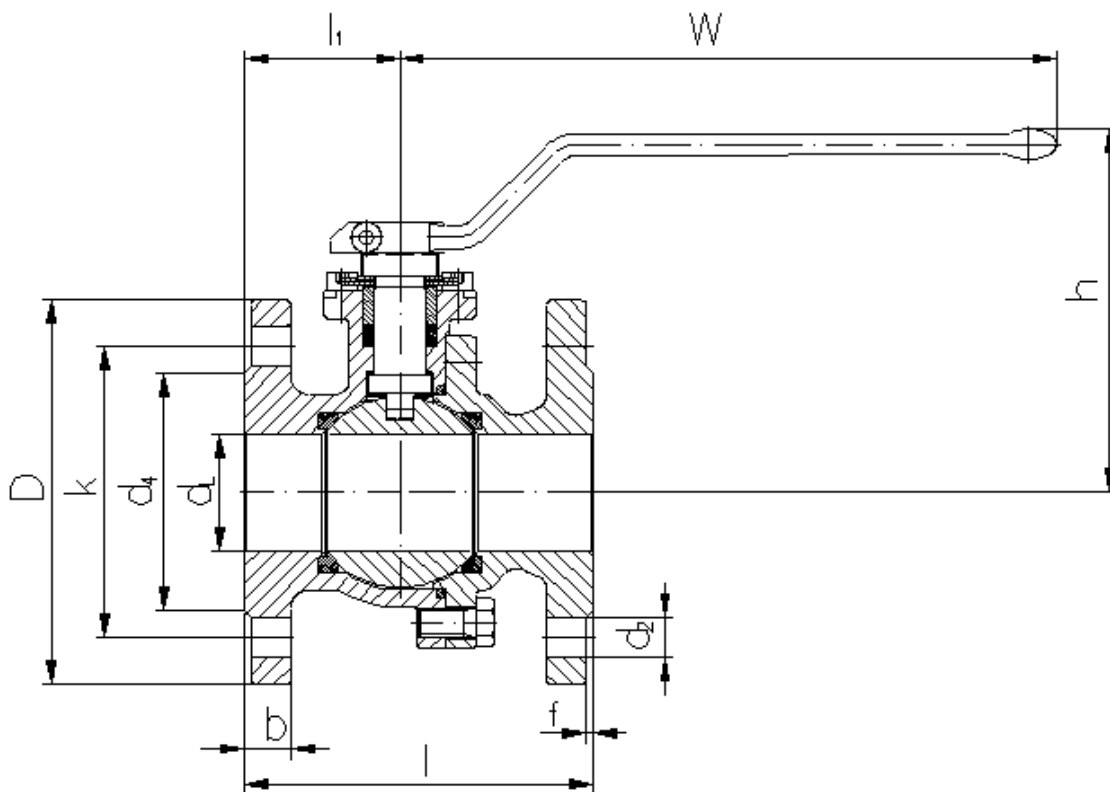


2:) Ball valve with full bore flange acc. To DIN EN 1092-1 form B1; face to face dimension row 28 acc. to DIN EN 558-1 (F17 (long) acc. to DIN 3202 part 1)

**Table 2: Dimensions and weights for ball valves Topi 210 long version (pic. 2)**

Main dimensions														
VFD														
PN	DN	d <sub>L</sub>	l	l <sub>1</sub>	h	W	D	b	k	z	d <sub>2</sub>	d <sub>4</sub> x f	ISO 5211	weight kg
10/16 to 40	15	15	130	52,5	108	210	95	16	65	4	14	45 x 2	F 05	2,5
	20	20	150	55,0	119		105	18	75			4,0		
	25	25	160	57,0	124		115	85	5,0					
	32	31	180	58,2	133		140	100	6,5					
	40	40	200	64,5	151		282	150	20		110	18		78 x 2
10/16	50	50	230	67,0	159	500	165	18	125	8	18	102 x 3	F 10	12,5
	65	65	290	71,0	170		185	18	145			16,0		
	80	77	310	83,0	199		200	20	160			22,5		
40	100	100	350	87,0	217	500	220	24	180	8	18	158 x 3	F 10	30,5
	65	65	290	71,0	170		282	22	145			16,5		
	80	77	310	83,0	199		500	24	160			23,5		
	100	100	350	87,0	217		235		190		22	158 x 3		34,0

VFD: full bore, flanged, dimensions acc. to DIN



3:) full bore ball valve with connectionflange acc. to DIN EN1092-1 form B1; face to face length row 27 acc.to EN 558-1 (F18 acc. to DIN 3202 part 1)

**Table 2: Dimensions and weights for ball valves Topi 210 short version (pic. 3)**

Main dimensions														
VFD														
PN	DN	d <sub>L</sub>	l	l <sub>1</sub>	h	W	D	b	k	z	d <sub>2</sub>	d <sub>4</sub> x f	ISO 5211	weight kg
10/16 to 40	15	15	115	52,5	108	210	95	16	65	4	14	45 x 2	F 05	2,4
	20	20	120	55,0	119		105	18	75			3,5		
	25	25	125	57,0	124		115	85	5,0					
	32	31	130	58,2	132		140	100	6,5					
	40	40	140	64,5	142		282	150	110		8,5			
50	50	150	67,0	150	165	20		125	12,5					
10/16	65	65	170	71,0	161	500	185	18	145	8	18	88 x 3	F 07	8,5
	80	77	180	83,0	203		200	20	160			12,5		
	100	100	190	87,0	220		220	180	15,5					
	150	150	350	124,0	210		650	285	22		240	22,0		
40	65	65	170	71,0	161	282	185	145	145	8	22	212 x 3	F 12	75,8
	80	77	180	83,0	203		200	24	160			16,0		
	100	100	190	87,0	220		235	190	23,0					
	150	150	350	124,0	210		650	285	22		240	32,5		

VFD: full bore, flanged, dimensions acc. to DIN

**connection**

<b>DIN flange</b>		
<b>nom. pressure</b>	<b>connection</b>	<b>flange</b>
- PN 10/16, 40	Flanged ends acc. to DIN EN 1092 part 1	acc. DIN EN 1092-1 Form B 1 <sup>1)</sup> R <sub>a max</sub> : 12,5 μm RZ <sub>max</sub> : 50 μm

**Please note:**

the ball valve can be installed in any position and irrespective of flow direction.

<sup>1)</sup> other connection features on request

**technical data**
**flow characteristics – k<sub>v</sub> (m<sup>3</sup>/h)**

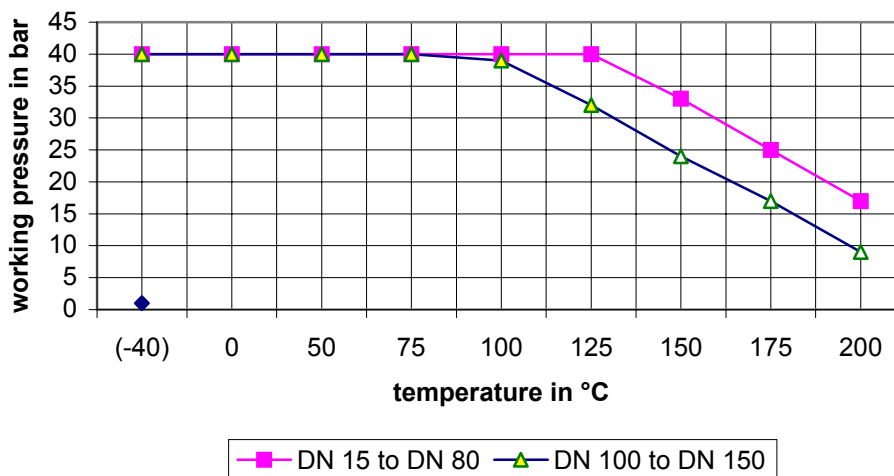
<b>DN</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>32</b>	<b>40</b>	<b>50</b>	<b>65</b>	<b>80</b>	<b>100</b>	<b>150</b>
<b>k<sub>v</sub></b>	12	23	60	72	175	360	620	930	1900	3500

**Torque in Nm**

<b>Δ p bar</b>	<b>Nominal diameter</b>									
	<b>15</b>	<b>20</b>	<b>25</b>	<b>32</b>	<b>40</b>	<b>50</b>	<b>65</b>	<b>80</b>	<b>100</b>	<b>150</b>
<b>0</b>	3	3,5	6	9	14	17	39	59	75	130
<b>10</b>	4	6	10	15	24	27	55	80	105	220
<b>16</b>	5	8	16	21	31	36	70	100	132	306
<b>25</b>	7	11	20	30	39	55	95	130	180	-
<b>40</b>	9	15	26	41	50	72	130	190	265	-

**Max. torque in Nm**

<b>DN</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>32</b>	<b>40</b>	<b>50</b>	<b>65</b>	<b>80</b>	<b>100</b>	<b>150</b>
<b>M<sub>d max</sub></b>	60	60	125	125	250	250	250	500	500	1495

**Pressure-temperature rating for TOPI 210 VFD pure TFM, (minimum value <sup>2)</sup>)**


<sup>2)</sup> for operating conditions out of range please contact VH- Armaturen GmbH