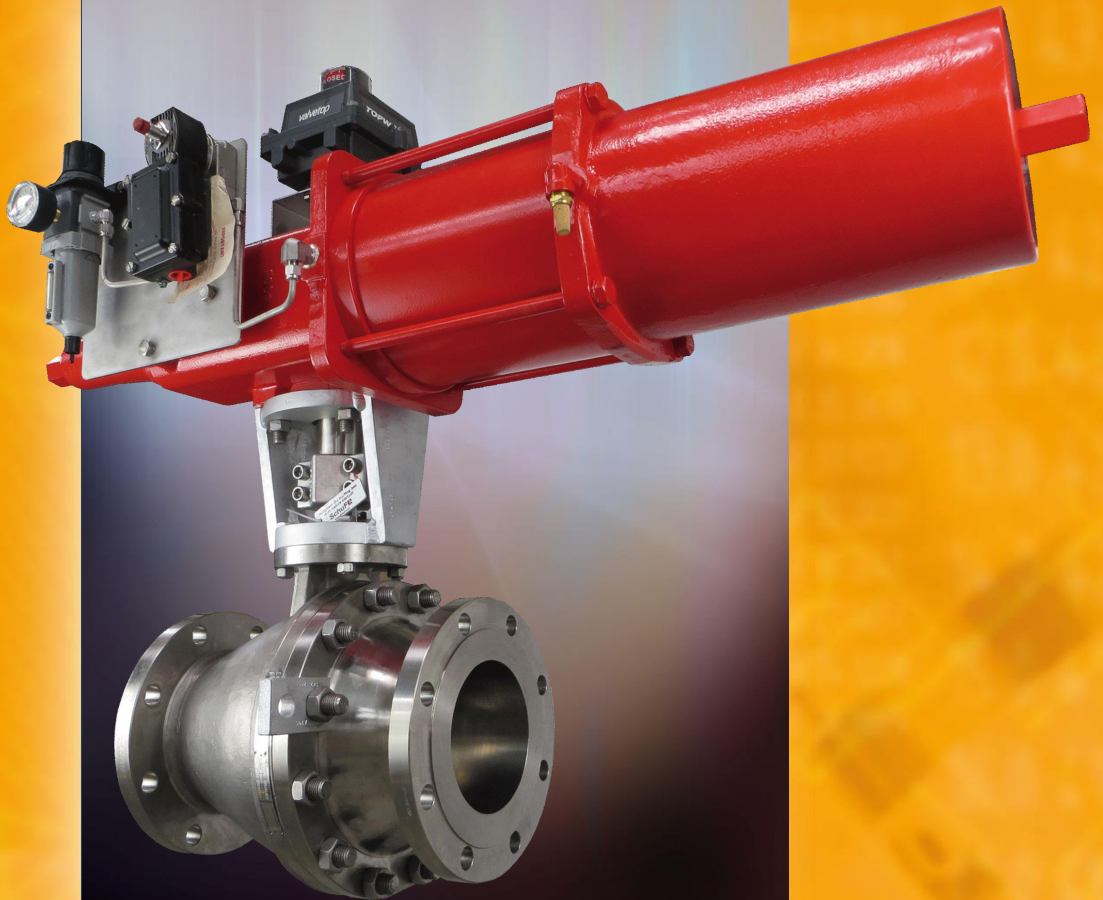


# Ball Valves

## Floating & Trunnion Ball Valves



**SchuF** 



## Features

### Actuators

Self and powered actuation options are available and can be designed per customer specific specifications

### Packing Design

Available with live load packing and easy access for maintenance and servicing in the field

### Stem Design

One piece blowout proof stem design for optimal production performance

### Body Construction

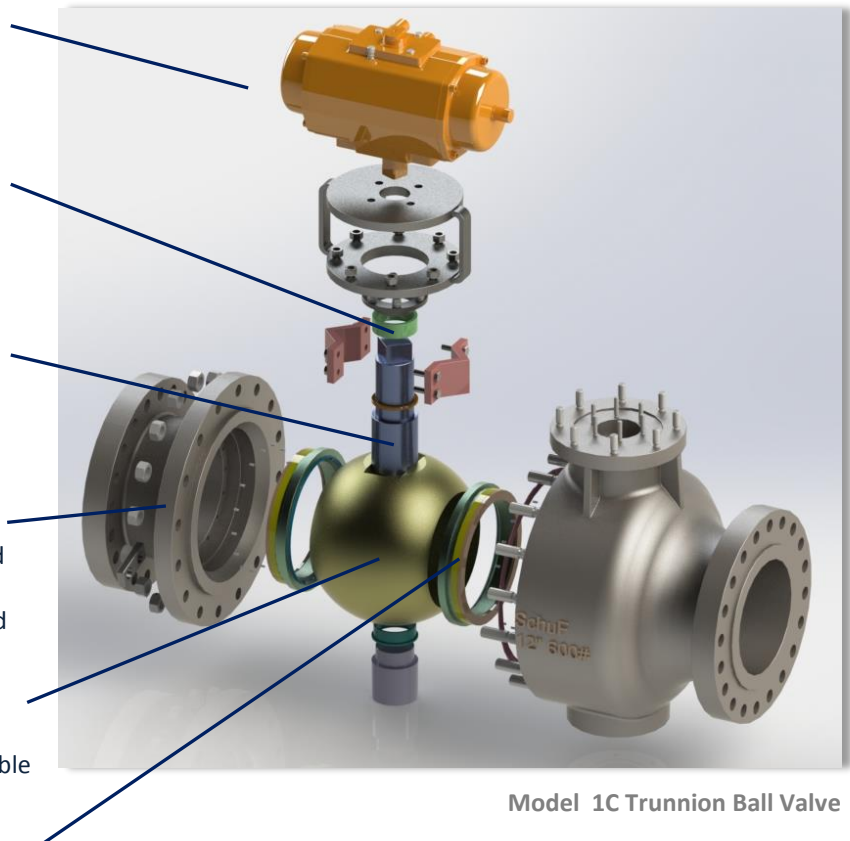
Split-body and top entry designs are available in a wide selection of forged and special materials

### Ball Design

Full and regulating Port Floating and Trunnion designs are available in a wide variety of special materials and coatings

### Seat & Sealing options

Self energizing individually replaceable seals designed specifically based on the valve application



Model 1C Trunnion Ball Valve

SchuF Ball Valves are designed and manufactured to exceed the leading industry standards. Every valve produced at SchuF is individually and specifically designed around the operating conditions and its operational medium.

- Sealing options are available in both soft and metal, with hand lapping for 100% seal contact.
- SchuF Ball Valves are highly customizable, with a wide variety of coatings and special material options available.
- Customer specific connections along with heating jackets, drains, purges, flushing ports, and lantern rings are available.
- Fire-Safe applications which are designed and tested in accordance with API 6FA.



## Designs

The SchuF Fetterolf **1A, 1B, 1C, and 1D** series Ball valves are ideal for severe service applications in both Chemical and Petrochemical industries.

### Model **1A** – Floating Ball Valve

This valve offers the simplicity of design and construction with very few parts and reliable downstream sealing in all process conditions. Valve can be supplied with soft seats for moderate temperature applications. Metal and carbon seats and seals are also available for severe service applications. **Available in sizes up to 6" (DN 150)**

### Model **1B** – Top Entry Floating Ball Valve

This valve offers all the advantages of the Model 1A, but with the possibility of in-line maintenance. Seats and ball can be replaced without removing the valve body from the piping. This model also can accommodate a heating jacket, if required. **Available in sizes up to 6" (DN 150)**



Model 1A Floating Ball Valve

### Model **1C** – Trunnion Ball Valve

Trunnion Ball valves use spring activated piston effect seats to achieve a reliable seal in both low and high pressure applications. These valves can be provided with Single Piston Effect Seats, for cavity relief to the pipeline or with Double Piston Effect Seats, for double barrier sealing and Double Block and Bleed capability. They are available in both a two-piece design with cast body and three-piece design with forged body; Soft seats for moderate temperature applications as standard. Metal and carbon seats are available for severe service applications. **Available in sizes up to 36" (DN 900)**

### Model **1D** – Top Entry Trunnion Ball Valve

Trunnion Ball Valves can also be provided in Top Entry configuration for in-line maintenance capability. The ball and seats can be replaced or repaired without removing the valve body from the piping. The valve can be provided with Single Piston Effect Seats, for cavity relief to the pipeline or with Double Piston Effect Seats, for double barrier sealing and Double Block and Bleed capability. Available in single part design with cast or forged bodies. Soft seats for moderate temperature applications are standard; however metal and carbon seats are available for severe service applications. This model also can accommodate a heating jacket, if required.

**Available in sizes up to 36" (DN 900)**



## Model 1A – Floating Ball Valves (examples)

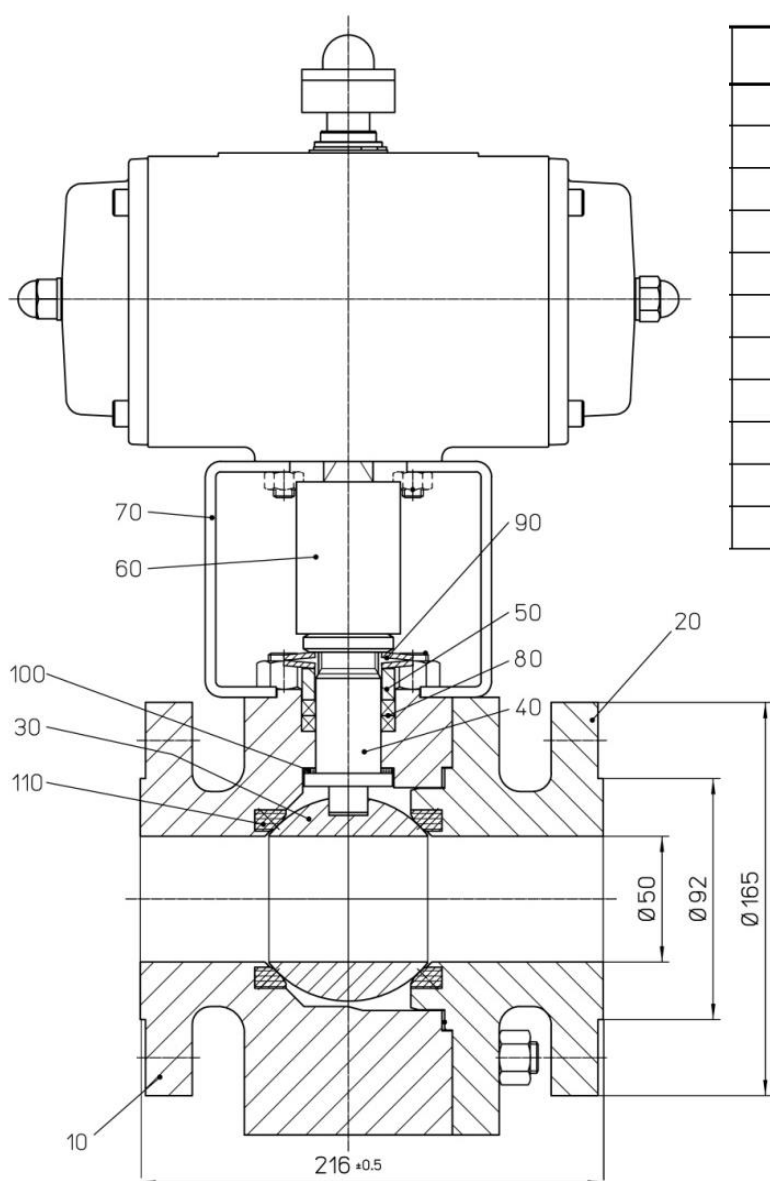
### Different materials and design features

#### Design features

- Size: 2", ASME 300RF
- Two pieces side entry body
- Full bore
- Stuffing box seal to atmosphere
- Blow out proof stem
- Fire safe design

#### Construction materials

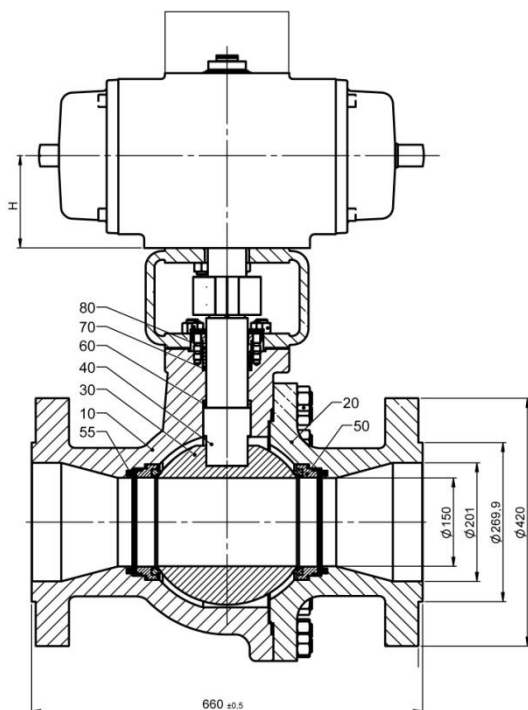
- Body and Trim in superduplex S32750
- Soft seat in TFM



Item Pos	Description Benennung	Material AISI
10	BODY GEHÄUSE	1.4410 UNS S32750
20	BODY CAP GEHÄUSE KAPPE	1.4410 UNS S32750
[30]	BALL KUGEL	1.4410 UNS S32750
[40]	STEM SPINDEL	1.4410 UNS S32750
50	GLAND DISTANZBUCHSE	1.4410 UNS S32750
60	EXTENSION VERLÄNGERUNG	1.4301 A276 F304
70	YOKE LATERNE	1.4301 A276 F304
(80)	PACKING RING PACKUNGSRING	GRAPHITE GRAPHITE
90	CUP SPRING TELLERFEDER	50CRV4 50CRV4
(100)	RING RING	PTFE PTFE
(110)	SEALING SET DICHTUNGSSATZ	TFM / UNS TFM / UNS



## Model 1A – Floating Ball Valves (examples)



### Design features

- Size: 8", ASME 600RF
- Two pieces side entry body
- Reduced bore
- Stuffing box seal to atmosphere
- Blow out proof stem
- Fire safe design

### Construction materials

- Body and Trim respectively in Ti3 and Ti5
- Carbon seated

Item Pos	Description Benennung	Material AISI
10	BODY GEHÄUSE	3.7051 B367 GR.C3
20	BODY CAP GEHÄUSE KAPPE	3.7051 B367 GR.C3
[30]	BALL KUGEL	3.7165 B348 GR.5
[40]	STEM SPINDEL	3.7165 B348 GR.5
[50]	SEAT ASSEMBLY SITZ MONTAGE	GRAPHITE GRAPHITE
[55]	SPRING FEDER	INCONEL X 750 INCONEL X 750
[60]	THRUST RING DRUCKRING	3.7035 B348 GR.2
(70)	PACKING RING PACKUNGSRING	GRAPHITE GRAPHITE
80	STUFFING BOX STOPFBUCHSE	1.4404 316L

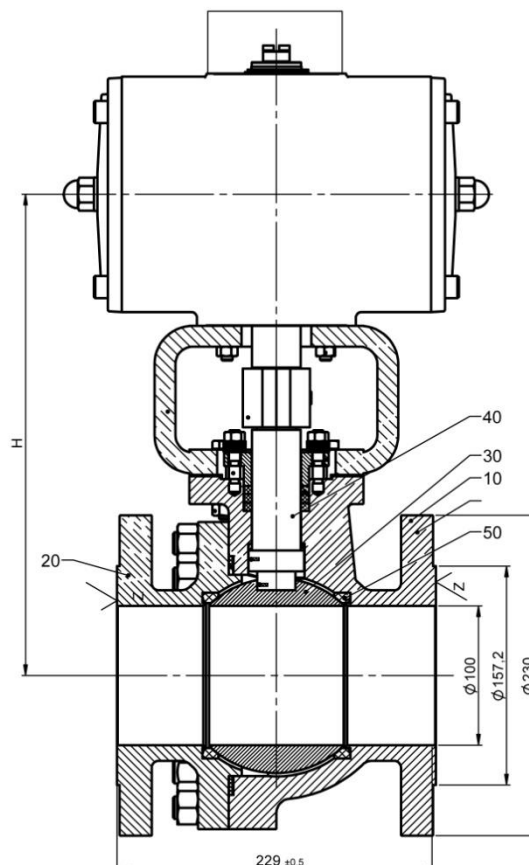
### Design features

- Size: 4", ASME 150RF
- Two pieces side entry body
- Full bore
- Stuffing box seal to atmosphere
- Blow out proof stem
- Fire safe design

### Construction materials

- Body and Trim in duplex A995 6A
- Soft seat in TFM

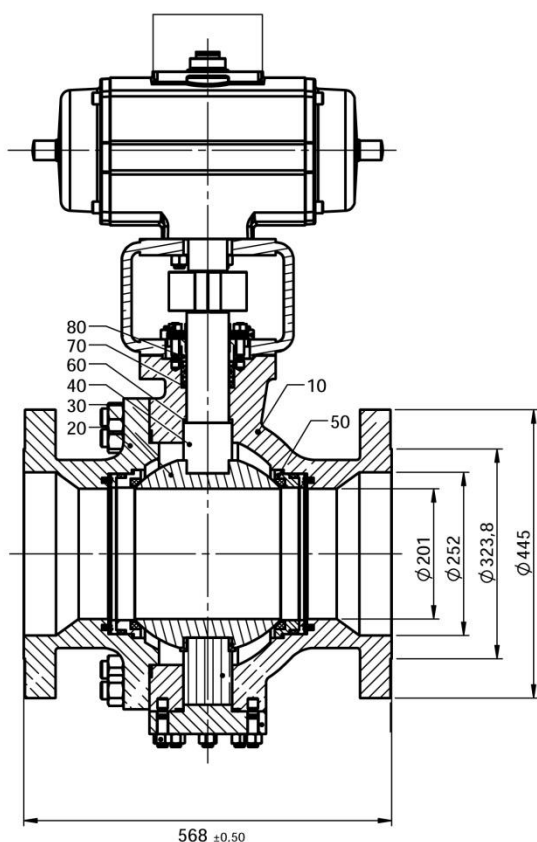
Item Pos	Description Benennung	Material AISI
10	BODY GEHÄUSE	A995 Gr.6A A995 Gr.6A
20	BODY CAP GEHÄUSE KAPPE	A995 Gr.6A A995 Gr.6A
[30]	BALL KUGEL	A995 Gr.6A A995 Gr.6A
[40]	STEM SPINDEL	1.4410 ALLOY 2507
(50)	SEAT RING SITZ RING	TFM TFM





## Model 1C – Trunnion Ball Valves (examples)

### Different materials and design features



#### Design features

- Size: 10", ASME 300RF
- Two pieces side entry body
- Reduced bore
- Spring activated seats
- Stuffing box seal to atmosphere
- Blow out proof stem
- Fire safe design

#### Construction materials:

- Body and Trim respectively in Ti3 and Ti5
- Carbon seated

Item Pos	Description Benennung	Material AISI
10	BODY GEHÄUSE	3.7051 B367 GR.C3
20	BODY CAP GEHÄUSE KAPPE	3.7051 B367 GR.C3
[30]	BALL KUGEL	3.7165 B348 GR.5
[40]	STEM SPINDEL	3.7165 B348 GR.5
[50]	SEAT ASSEMBLY SITZ MONTAGE	GRAPHITE GRAPHITE
[55]	SPRING FEDER	INCONEL X 750 INCONEL X 750
[60]	THRUST RING DRUCKRING	3.7035 B348 GR.2
(70)	PACKING RING PACKUNGSRING	GRAPHITE GRAPHITE
80	STUFFING BOX STOPFBUCHSE	1.4404 316L

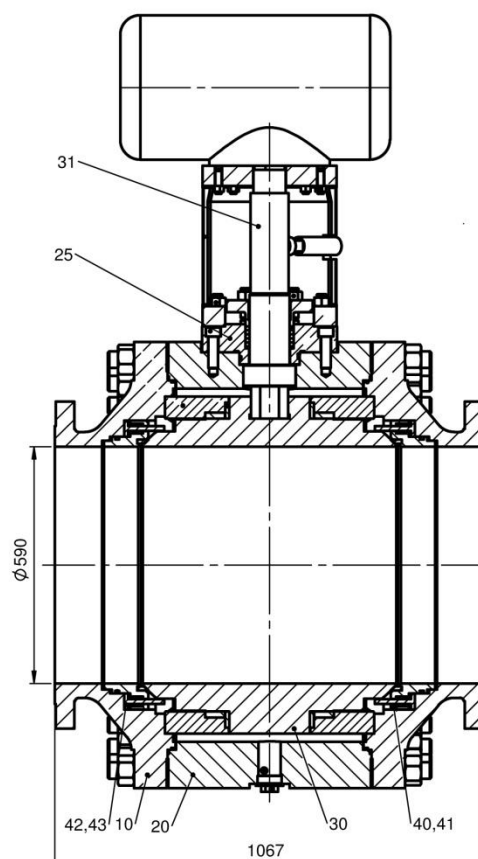
#### Design features

- Size: 24", ASME 150RF
- Three pieces forged body
- Full bore
- Spring activated seats
- Stuffing box seal to atmosphere
- Blow out proof stem
- Fire safe design

#### Construction materials

- Body and Trim respectively in Ti3 and Ti5
- Soft seat in TFM

Pos.	Benennung:	Material Mat. AISI:
10	GEHÄUSE BODY	A105 A105
20	GEHÄUSE BODY	A105 A105
25	STOPFBUCHSKÖRPER STUFFING BOX BODY	A105 A105
30	KUGEL BALL	A351 CF8M A351 CF8M
31	SPINDEL SPINDLE	1.4122 420
40	RING-JOINT DICHTUNG RING-JOINT GASKET	A105 C.St.
41	DICHTRING SEALING RING	TFM 1600 DYNELON
42	RING RING	A105 A105
43	DRUCKFEDER SPRING	1.8159 6150





## Model 1D – Top Entry Trunnion Ball Valve (example)

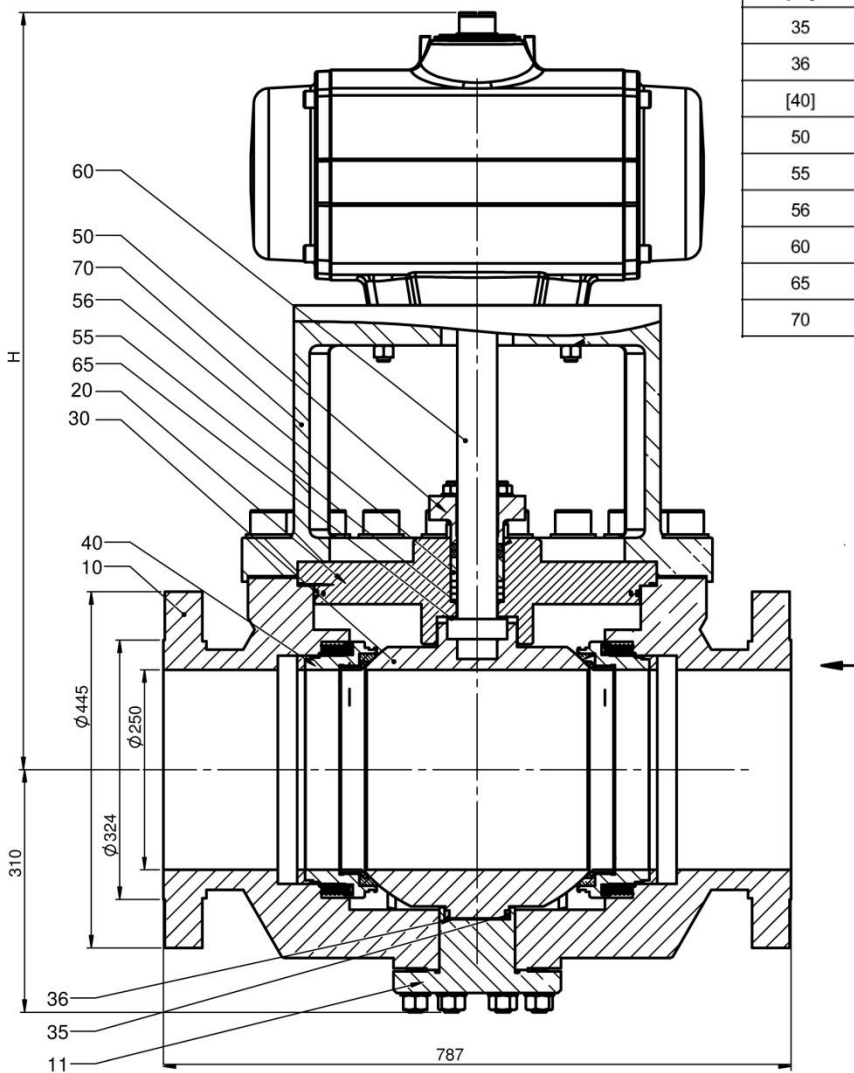
### Design features

- Size: 10", ASME 300RF
- Top entry body
- Full bore
- Spring activated seats
- Stuffing box seal to atmosphere
- Blow out proof stem
- Fire safe design

### Construction materials

- Body and Trim respectively in Ti3 and Ti5
- Carbon seated

Item Pos	Description Benennung	Material AISI
10	GEHÄUSE BODY	3.7051 B367 GRC3
11	LAGERFLANSCH PILLOW FLANGE	3.7165 B348 GR5
20	GEHÄUSEDECKEL BODY COVER	3.7165 B348 GR5
[30]	KUGEL BALL	3.7165 B348 GR5
35	FÜHRUNGSRING GUIDERING	3.7035 B348 GR2
36	SCHIBE WASHER	3.7035 B348 GR2
[40]	DICHTUNGSSATZ SEALING SET	3.7165/CARBON+ANTIMONY B348 GR5
50	STOFFBUCHSEBRILLE STUFFING BOX GLAND	1.4404 316L
55	GRUNDING BASERING	3.7035 B348 GR2
56	BUCHSE BUCHSE	3.7035 B348 GR2
60	SPINDEL SPINDEL	3.7165 B348 GR5
65	SPINDELFÜHRUNG SPINDEL GUIDE	3.7035 B348 GR2
70	LATERNE YOKE	1.0619 A216 WCB





## Technical Information

### Design Features

- API 6D (ISO 14313) Certified Design
- Full bore and reduced bore available
- Single piston effect seats as standard. Double piston effect seats available on request
- Pressure Classes: ASME 150 to ASME 2500 / PN 10 to PN 320. Higher on request
- End connections:
  - Flanged: as per ASME B16.5 for ASME-rated valves and as per EN 1092 for PN-rated valves
  - Welding ends: as per ASME B16.25
  - Other connections: Clamped connectors, upon request
- Face-to-face: as per API 6D / ASME B16.10 as standard. Others upon request

### Design Options

- Flushing valves
- Bleed/ Vent valves
- Automated actuation complete with controls
- Materials in accordance with NACE standards are available
- Integral heating jackets available

### Materials of Construction (typical)

#### Body and trim parts

- Low-alloy steels: ASTM A105 / ASTM A216 WCB
- Stainless steels: ASTM A351 CF8M / ASTM A182 F316
- Duplex steels: UNS S32750 / UNS S31803 / ASTM A995 Gr. 4A or 5A
- Titanium: Grade 2 / 3 / 5 / 7 / 12
- Incoloy®, Inconel® & Hastelloy® available

#### Seat materials

- Soft seats: PTFE (with additives), TFM, PEEK
- Carbon seats
- Metal to Metal Seats

Other materials available on request



Model 1B Trunnion Ball Valve



# Bottom Outlet Ball Valves - Models 10A2/11A2/11A3

## Designs

The SchuF **10A** & **11A** series valves are ideal for tight dead Space free applications and are readily available in most sizes.

### Model **10A2** – ILBV

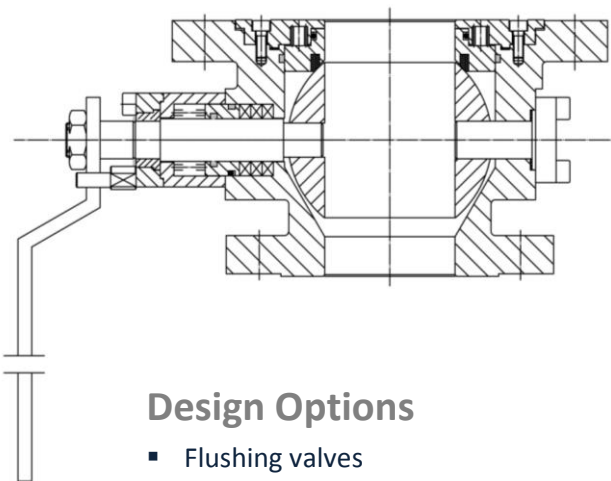
This valve offers a highly customizable separable seat design, with integrated twin seal rings. The compact design of this valve allows for fitment in tight applications.

### Model **11A2** – BOBV

The integrated pad flange design of this valve makes it ideal for even the tightest of installations. With a tilted spindle design, the actuator is given greater clearance for tank installations, while optimally reducing the dead space between the tank and the valve. The outlet flange on this valve can be customized to fit virtually any connection required.

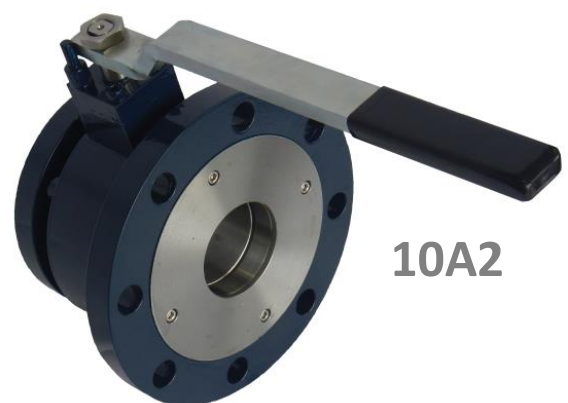
### Model **11A3** – BOBV

Similar to the 10A2 design, this valve offers a separable seat design to fit virtually any pad flange. This valve also offers the optimized dead space free tilted spindle design of the 11A2 model. This valve is especially suitable for large applications.



### Design Options

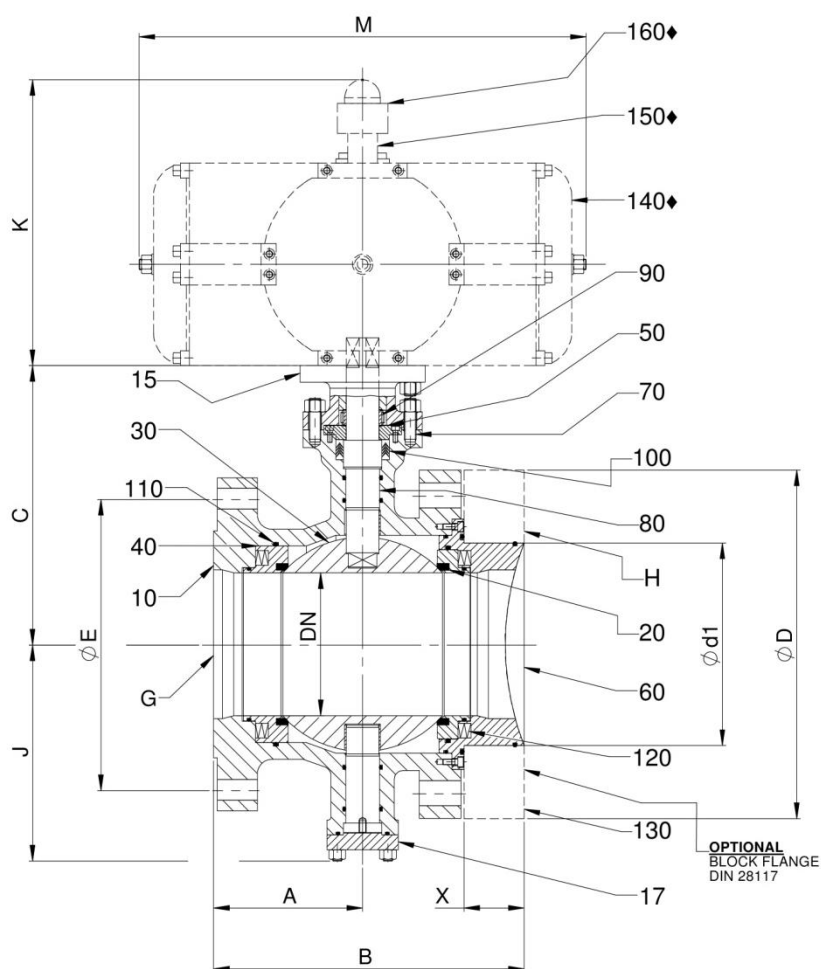
- Flushing valves
- Bleed/ Vent valves
- Automated actuation
- Extended / customizable seats available on request
- Special materials available on request
- Materials according to NACE standards available
- Integral heating jackets available on 10A2 and 11A3 models
- Model 10A2 is also offered in a free draining, single seal design (see figure above)



10A2



# ILBV DIMENSION SHEET - TYPE 10A2 (PN16/ ASME 150#)



PARTS LIST		
POS. #	DESCRIPTION	MATERIAL**
10	BODY	1.4408
15	FLANGE	1.4401/ 1.4404
17	FLANGE	1.4401/ 1.4404
20	BALL	1.4401/ 1.4404
30	COMPRESSION RING	1.4401/ 1.4404
40	GLAND FLANGE	1.4401/ 1.4404
50	OUTLET FLANGE	1.4401/ 1.4404
60	SEAT BUSHING	1.4401/ 1.4404
70	BOLT/ NUT	A4-70
80	SPINDLE	1.4122
90	BEARING	1.4571
100	PACKING	PTFE
110	O-RING	VITON
120	SPRING	1.4571
130	PAD FLANGE	1.4401/ 1.4404
140	PNEUMATIC ACTUATOR	-
150*	PROXIMITY SWITCHES	PEPPERL & FUCHS
160*	JUNCTION BOX	-

ALL DIMENSIONS ARE IN mm.

DIMENSIONS ARE FOR MAX. PN16/ ASME 150#.

## NOTES:

\* STANDARD OUTLET FLANGE SIZE, ADDITIONAL SIZES AVAILABLE UPON REQUEST. ADDITIONAL COSTS MAY APPLY.

\*\* STANDARD MATERIAL CONSTRUCTION, ALTERNATIVE MATERIALS ARE AVAILABLE UPON REQUEST. ADDITIONAL COSTS MAY APPLY.

♦ COMPONENT IS NOT INCLUDED WITH STANDARD VALVE ASSEMBLY AND IS AVAILABLE FOR PURCHASE AT EXTRA COST.

DIMENSIONS ARE APPROXIMATE AND SUBJECT TO CHANGE AT ANY TIME.

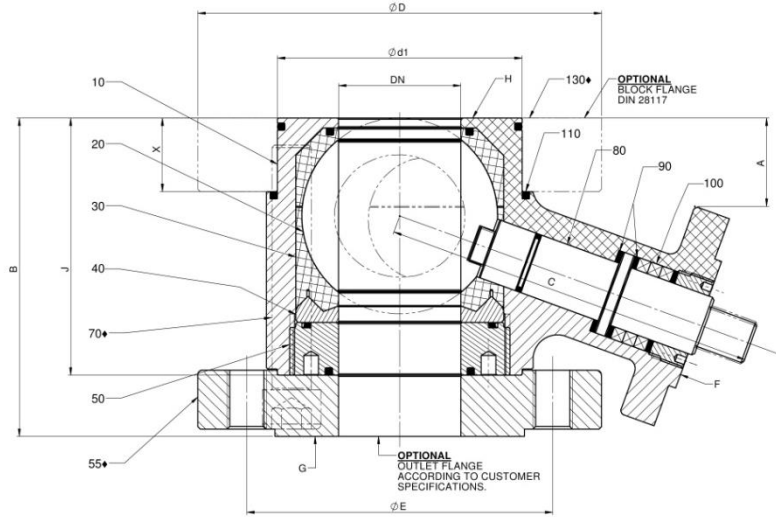
Ød1, G, H DIMENSIONS ARE MINIMUM SIZE REQUIREMENTS. LARGER VALUES AND CUSTOM FITTINGS ARE AVAILABLE UPON REQUEST. ADDITIONAL COSTS MAY APPLY.

## ILBV STANDARD DIMENSIONS

DN	ASME	B	C	Ø D	Ø d1*	Ø E*	F	MIN.		X*	J
								G*	H*		
15	½"	-	-	95	40	65	F04	DN15 PN40 FLG	DN15 PN40 FLG	25	-
20	¾"	-	-	105	44	75	F04	DN20 PN40 FLG	DN20 PN40 FLG	25	-
25	1"	-	-	115	60	85	F05	DN25 PN40 FLG	DN25 PN40 FLG	25	-
32	1¼"	-	-	140	70	100	F05	DN32 PN40 FLG	DN32 PN40 FLG	30	-
40	1½"	-	-	150	80	110	F07	DN40 PN40 FLG	DN40 PN40 FLG	30	-
50	2"	-	-	165	100	125	F07	DN50 PN40 FLG	DN50 PN40 FLG	30	-
65	2½"	-	-	185	120	145	F07	DN65 PN16 FLG	DN65 PN16 FLG	30	-
80	3"	-	-	200	130	160	F07	DN80 PN40 FLG	DN80 PN40 FLG	30	-
100	4"	-	-	220	155	180	F07	DN100 PN16 FLG	DN100 PN16 FLG	30	-
125	5"	-	-	340	200	210	F10	DN125 PN16 FLG	DN125 PN16 FLG	36	-
150	6"	-	-	405	250	240	F12	DN150 PN16 FLG	DN150 PN16 FLG	42	-
200	8"	-	-	460	300	295	F14	DN200 PN16 FLG	DN200 PN16 FLG	42	-
250	10"	-	-	520	350	355	F16	DN250 PN16 FLG	DN250 PN16 FLG	42	-
300	12"	465	470	580	400	410	F25	DN300 PN16 FLG	DN300 PN16 FLG	45	365
350	14"	-	-	715	500	470	F25	DN350 PN16 FLG	DN350 PN16 FLG	52	-
400	16"	-	-	-	-	525	F30	DN400 PN16 FLG	DN400 PN16 FLG	-	-
500	20"	-	-	-	-	650	F40	DN500 PN16 FLG	DN500 PN16 FLG	-	-



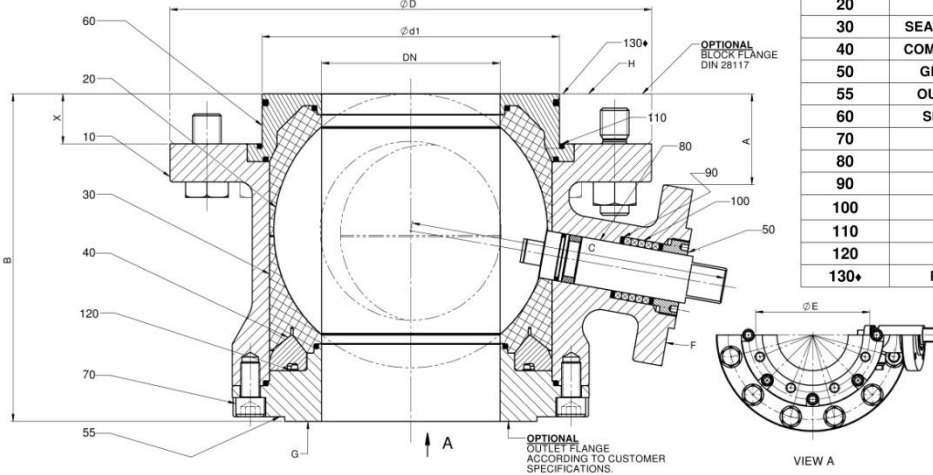
# BOBV DIMENSION SHEET - TYPE 11A2 (PN16/ ASME 150#)



PARTS LIST		
POS. #	DESCRIPTION	MATERIAL**
10	BODY	1.4408
20	BALL	1.4401/ 1.4404
30	SEAL/ SEAL SLEEVE	PTFE
40	COMPRESSION RING	1.4401/ 1.4404
50	BODY GLAND	1.4401/ 1.4404
55+	OUTLET FLANGE	1.4401/ 1.4404
70+	BOLT	A4
80	SPINDLE	1.4122
90	BEARING	1.4401/ 1.4404
100	PACKING	PTFE
110	O-RING	VITON <sub>®</sub>
120	SPRING	1.4571
130+	PAD FLANGE	1.4401/ 1.4404

BOBV STANDARD DIMENSIONS											
DN	ASME	B	C	D	d1*	E*	F	MIN.		J	MAX.
								G*	H*		X*
15	1/4"	80	110	95	40	65	F04	DN15 PN40 FLG	DN15 PN40 FLG	80	25
20	3/4"	80	115	105	44	75	F04	DN20 PN40 FLG	DN20 PN40 FLG	80	25
25	1"	100	135	115	60	85	F05	DN25 PN40 FLG	DN25 PN40 FLG	100	25
32	1 1/4"	105	140	140	70	100	F05	DN32 PN40 FLG	DN32 PN40 FLG	105	30
40	1 1/2"	130	145	150	80	110	F07	DN40 PN40 FLG	DN40 PN40 FLG	130	30
50	2"	120	155	165	100	125	F07	DN50 PN40 FLG	DN50 PN40 FLG	120	30
65	2 1/2"	145	165	185	120	145	F07	DN65 PN16 FLG	DN65 PN16 FLG	145	30
80	3"	165	175	200	130	160	F07	DN80 PN40 FLG	DN80 PN40 FLG	165	30
100	4"	195	185	220	155	180	F07	DN100 PN16 FLG	DN100 PN16 FLG	195	30

# BOBV DIMENSION SHEET - TYPE 11A3 (PN16/ ASME 150#)

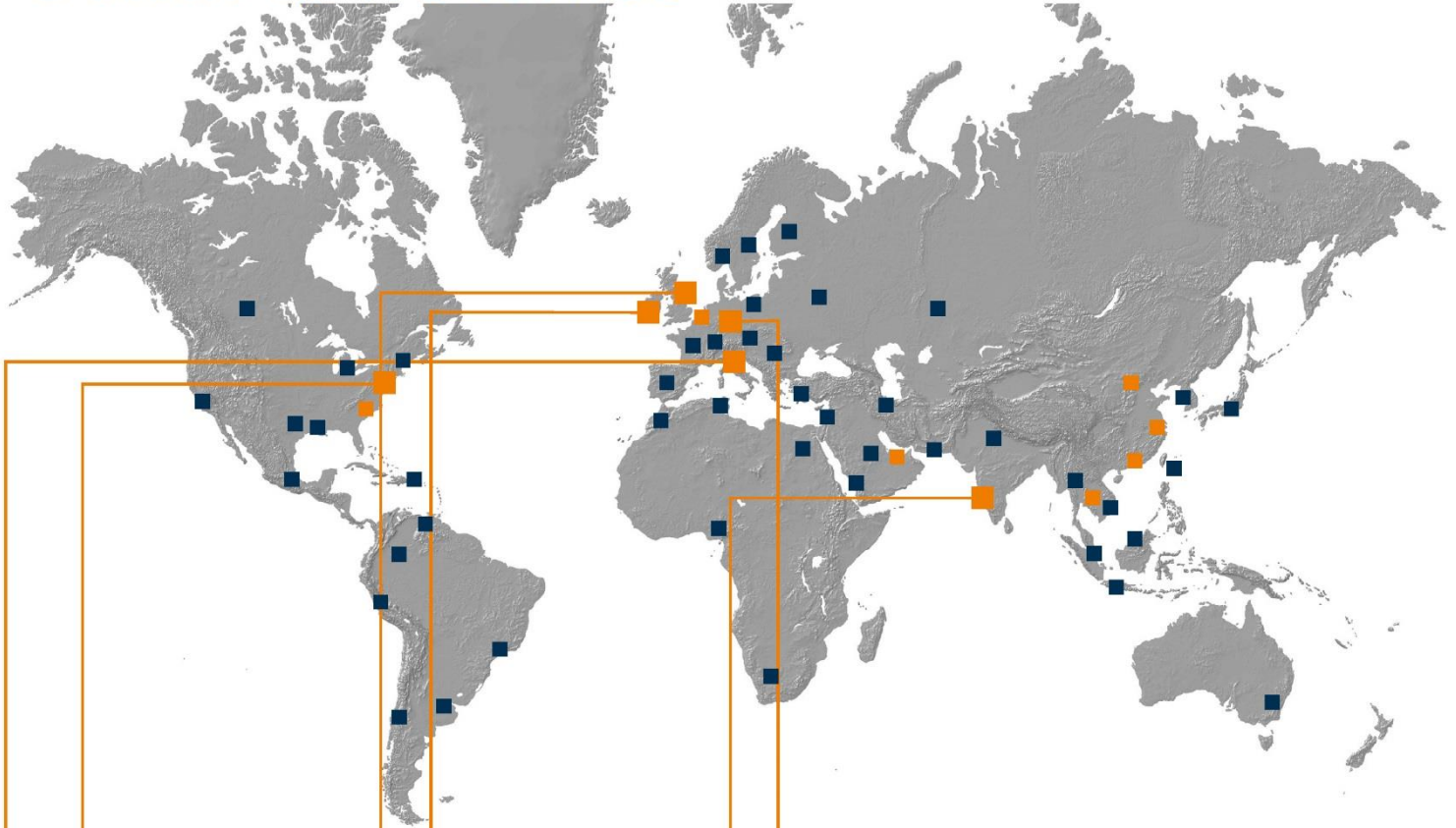


PARTS LIST		
POS. #	DESCRIPTION	MATERIAL**
10	BODY	1.4408
20	BALL	1.4401/ 1.4404
30	SEAL/ SEAL SLEEVE	PTFE
40	COMPRESSION RING	1.4401/ 1.4404
50	GLAND FLANGE	1.4401/ 1.4404
55	OUTLET FLANGE	1.4401/ 1.4404
60	SEAT BUSHING	1.4401/ 1.4404
70	BOLT/ NUT	A4-70
80	SPINDLE	1.4122
90	BEARING	1.4401/ 1.4404
100	PACKING	PTFE
110	O-RING	VITON <sub>®</sub>
120	SPRING	1.4571
130+	PAD FLANGE	1.4401/ 1.4404

BOBV STANDARD DIMENSIONS											
DN	ASME	B	C	D	d1*	E*	F	MIN.		J	MAX.
								G*	H*		X*
125	5"	-	-	340	200	210	F10	DN125 PN16 FLG	DN200 PN16 FLG	36	
150	6"	275	267	405	250	240	F12	DN150 PN16 FLG	DN250 PN16 FLG	42	
200	8"	-	-	460	300	295	F14	DN200 PN16 FLG	DN300 PN16 FLG	42	
250	10"	-	-	520	350	355	F16	DN250 PN16 FLG	DN350 PN16 FLG	42	
300	12"	-	-	580	400	410	F25	DN300 PN16 FLG	DN400 PN16 FLG	45	
350	14"	-	-	715	500	470	F25	DN350 PN16 FLG	DN500 PN16 FLG	52	
400	16"	-	-	-	-	525	F30	DN400 PN16 FLG	CUSTOM FLG	-	
500	20"	-	-	-	-	650	F40	DN500 PN16 FLG	CUSTOM FLG	-	



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