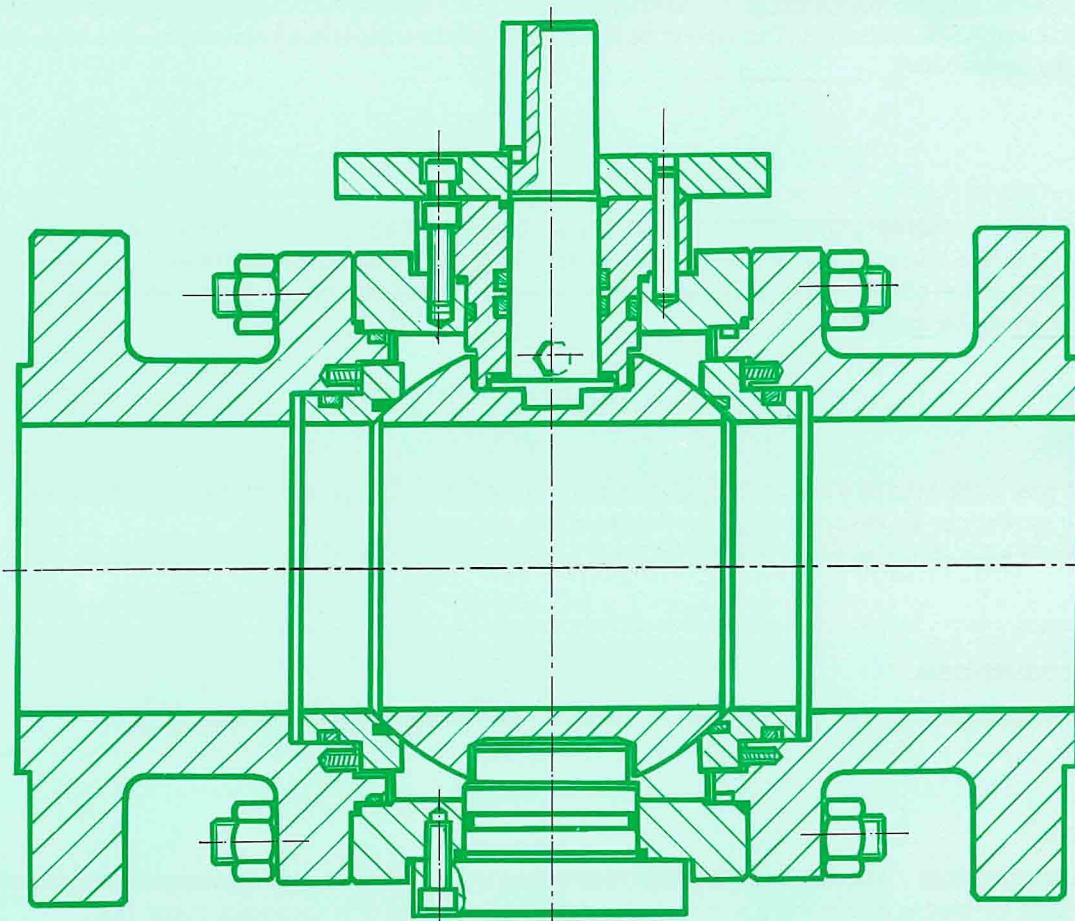


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## **"TRUNNION MOUNTED" BALL VALVES**



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Ed. 0001/01.06

Design and specifications are subject to change without notice, except those established by international standards.

## **ALFA VALVOLE "TRUNNION MOUNTED" SIDE ENTRY BALL VALVES**

### **GENERAL DESCRIPTION**

**ALFA VALVOLE "TRUNNION MOUNTED"** Ball Valves are designed to satisfy all the requirements of API 6D for pipeline service by utilizing the proper materials to meet the requirements of the service conditions for different fluids and pressures up to ANSI class 2500/PN 420. **ALFA VALVOLE "TRUNNION MOUNTED"** Ball Valves are designed to withstand hydrocarbon corrosion as well as the severe service conditions that occur during start-up, ensuring a long life. The technical solutions drawn up for the petro-chemical industry can be successfully used in other industrial fields.

Easy maintenance can be carried out in the dynamic seal areas.

### **CONSTRUCTION**

#### **BODY**

The body of the **ALFA VALVOLE "TRUNNION MOUNTED"** Ball Valve is manufactured from forged pieces in compliance with ASTM standards. This type of design gives a good homogeneous material structure ensuring a long working life for the valve.

#### **STEM**

The stem is constructed separately from the ball. The stem is designed with an integral pin which permits perfect positioning with the ball. The stem is of an anti blow out design. The load pressure on the ball (thrust) is absorbed by special bearings fitted on the ball trunnions (upper and lower), thus ensuring no side thrust on the stem, which permits a very low operating torque and a long life.

#### **STEM SEAL**

The stem seal is obtained by a set of three gaskets (triple barrier) ensuring perfect tightness. Furthermore, if required, the upper gasket can be easily replaced by disassembling the upper part only.

On request a lubricator is available in order to inject lubricant and/or sealing grease, if necessary.

#### **BODY/CLOSURE SEAL**

A set of two gaskets ensures tightness even in the case of an environmentally harmful medium.

#### **SEAT SEAL**

**ALFA VALVOLE "TRUNNION MOUNTED"** Ball Valves are designed to guarantee a perfect tightness between ball and seat, by means of a primary soft seal of suitable material and of a secondary metal seal. Tightness is obtained by providing the necessary seat thrust on the ball.

# "TRUNNION MOUNTED" BALL VALVE

**ALFA**

**ALFA VALVOLE "TRUNNION MOUNTED"** Ball Valve seats are manufactured in two basic types:

## 1) SELF RELIEVING SEAT (fig. 1 and fig. 2)

- fig. 1) Shows that inlet pressure works on seat area "A" which is wider than area "B"; therefore the differential area creates a piston effect which forces the seat against the ball surface producing a tight effective seal.
- fig. 2) Shows the self relieving feature when the pressure in the body cavity exceeds the inlet or the outlet pressure. In this case area "C" is wider than area "D" and when the piston effect created becomes greater than the constant spring load, the self relieving effect is obtained.

## 2) DOUBLE PISTON EFFECT SEAT (fig. 3 and fig. 4)

- fig. 3) Shows that inlet pressure works on seat area "A" which is wider than area "B"; therefore the differential area creates a piston effect which forces the seat against the ball surface, producing a tight effective sealing.
- fig. 4) Shows the pressure inside the body on seat area "D" which is wider than area "C"; therefore the differential area creates a piston effect which forces the seat against the ball, producing a tight effective seal.

### LOW OPERATING TORQUE

The ball operates on a fixed axis established by bearing blocks located on the upper and lower ball trunnions. The ball trunnions revolve in an oilless bearing which does not require lubrication. The main feature of this bearing is a reduced friction factor with a better load resistance.

This feature combines to assure lower operating torque.

### DOUBLE BLOCK AND BLEED

This is the capability of a valve, in a pipeline under pressure, to have its body cavity bled down to atmospheric pressure when the valve is in fully closed position.

**ALFA VALVOLE "TRUNNION MOUNTED"** Ball Valves are designed for services requiring "double block and bleed". The upstream and downstream seat bubble-tight design permits venting and draining of line fluids from the body cavity. Small body cavities permit rapid drainage.

Bubble-tight sealing is achieved without lubricants, which completely eliminates product contamination. Double block and bleed design with emergency grease seal is available on request.

**"TRUNNION MOUNTED"  
BALL VALVE**

**ALFA**

**SELF RELIEVING SEATS  
STANDARD EXECUTION**

FIG. 1

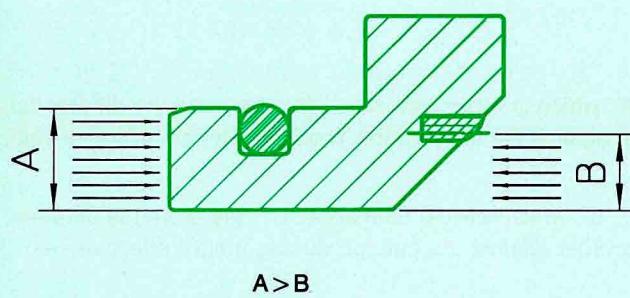
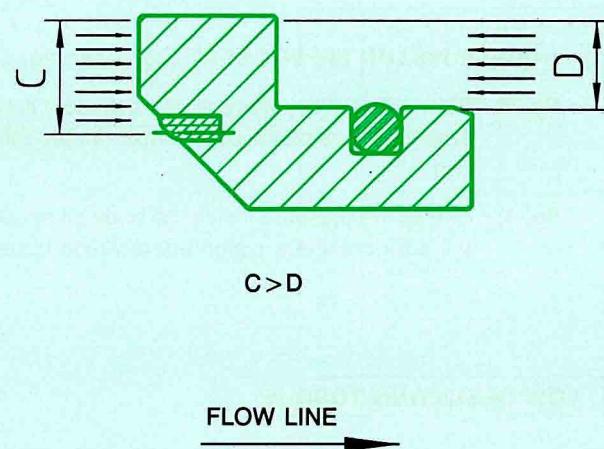


FIG. 2



**DOUBLE PISTON EFFECT**

FIG. 3

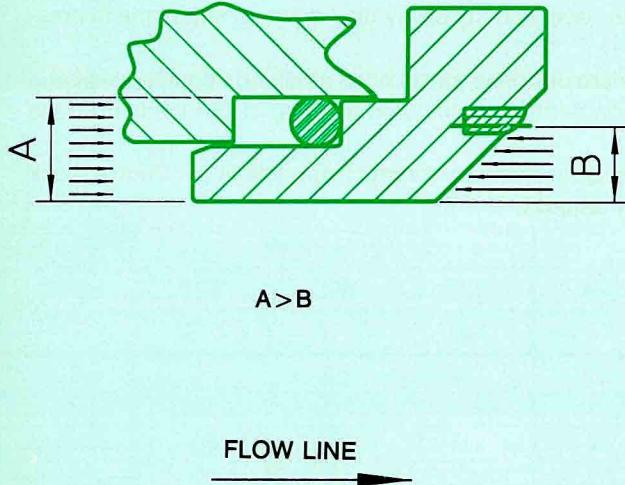
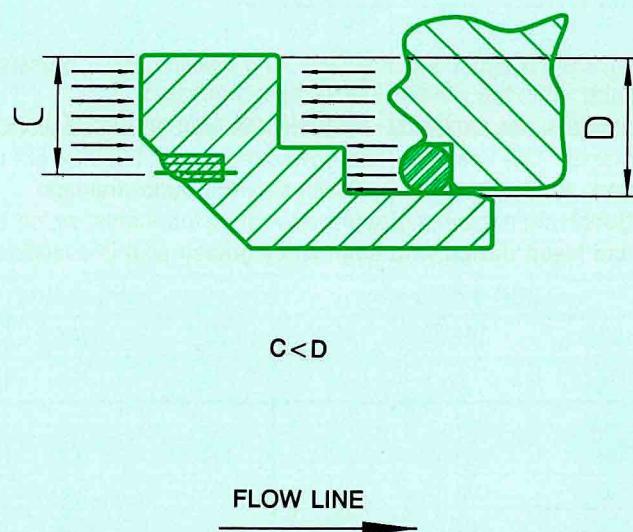


FIG. 4



# "TRUNNION MOUNTED" BALL VALVE

**ALFA**

## ALFA VALVOLE "TRUNNION MOUNTED" SIDE ENTRY BALL VALVES

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### MAIN CHARACTERISTICS

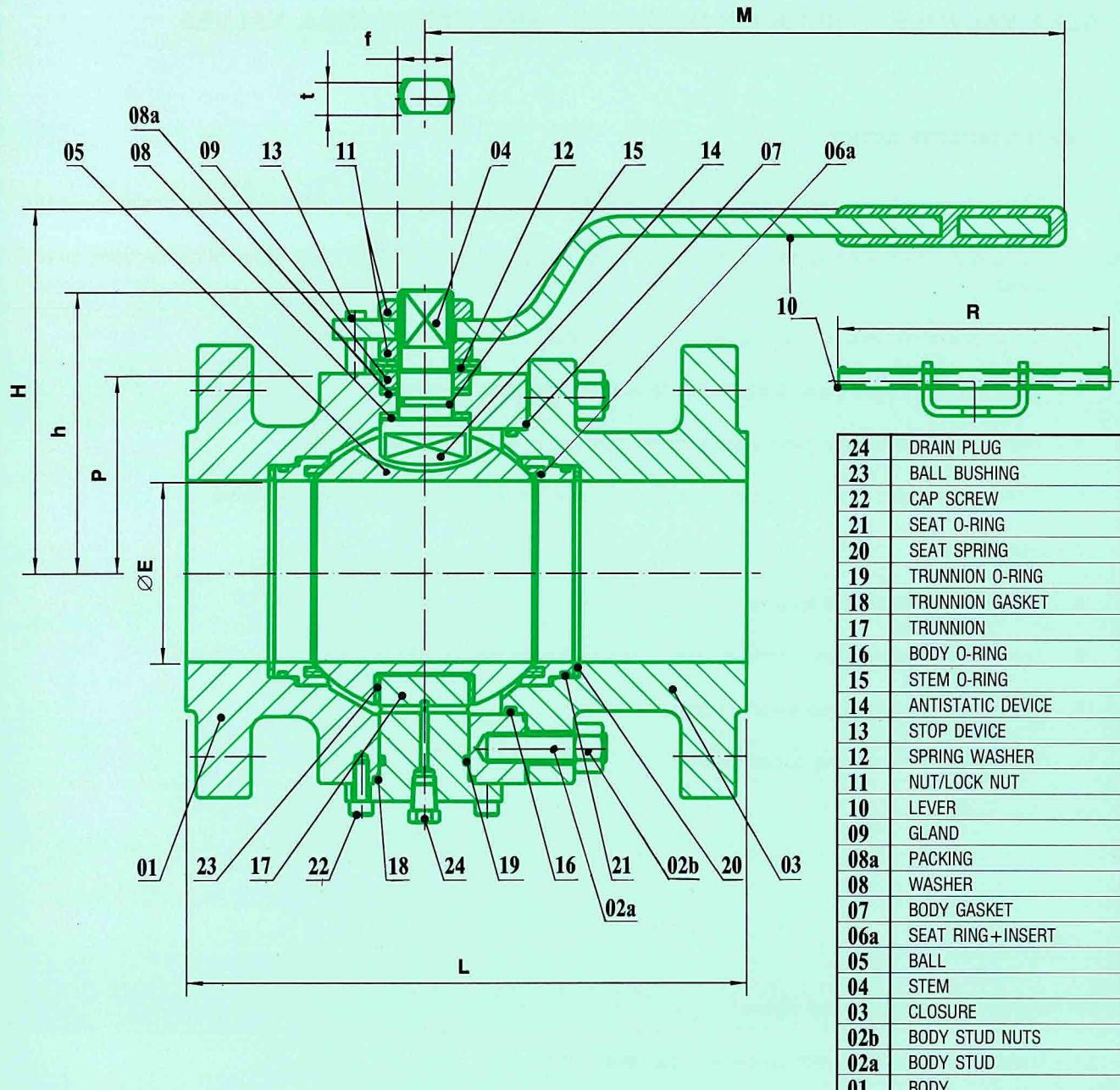
- 1 - Face to face and bore dimensions according to API 6D standard, latest edition; different dimensions on request.
- 2 - Flanged and butt welding ends according to ANSI B16.5 and ANSI B16.25; other types of connections on request.
- 3 - Nickel-plated ball and seat (for Carbon Steel material); other materials on request.
- 4 - Valve body in forged steel. Body and side end are designed to withstand bending loads.
- 5 - The stem is constructed separately from the ball and is of anti blow out design.
- 6 - Triple-barrier stem sealing. Upper stem seal ring can be replaced on line under pressure.
- 7 - Self relieving.
- 8 - Double block and bleed feature.
- 9 - The adapter plate is constructed to easily match stem extension, gearing and power operators.
- 10 - Full bore and reduced bore construction available.
- 11 - Bubble-tight seat sealing construction.
- 12 - Low operating torque.

### ON REQUEST

- 13 - Teflon impregnated metal sleeve.
- 14 - Metal to metal sealing with precision metal seat rings.
- 15 - Double-piston effect feature.
- 16 - Body relief valve.
- 17 - Secondary sealing device. Valves can be supplied with a sealant injection system for emergency shut-off and for high pressure services.
- 18 - Fire-safe according to EN ISO 10497 - API 607 V ed.
- 19 - Antistatic device according to BS 5146.
- 20 - Extended stem.
- 21 - Material and special execution according to Customer Specs (carbon steel, inox steel, special alloys).

**"TRUNNION MOUNTED"  
BALL VALVE**  
FULL BORE  
2 PIECES CLASS ANSI 150/300/600

**ALFA T2 FB**



Ed. 0001/01.06/P/0001

Design and specifications are subject to change without notice, except those established by international standards.

CLASS	ANSI 150				ANSI 300				ANSI 600			
	DN	40	50	80	100	40	50	80	100	40	50	80
Ø"	11/2"	2"	3"	4"	11/2"	2"	3"	4"	11/2"	2"	3"	4"
ØE	38	51	76	102	38	51	76	102	38	51	76	102
L (RF)	165	178	203	229	191	216	283	305	241	292	356	432
L (BW)	191	216	283	305	191	216	283	305	241	292	356	432
L (RJ)	178	191	216	241	203	232	298	321	241	295	359	435
M / R	275 / —	275 / —	380 / —	440 / 500	275 / —	275 / —	380 / —	440 / 500	380 / —	380 / —	440 / 500	— / 800
H	118	128	144	200	118	128	144	200	135	146	185	244
h	96	103	128	157	96	103	128	157	104	115	141	198
P	63	69	89	111	63	69	89	111	65	75	95	124
f / t	16 / 10	16 / 10	22 / 14	30 / 18	16 / 10	16 / 10	22 / 14	30 / 18	22 / 14	22 / 14	30 / 18	45 / 30
Kg. (RF)	14	18	31	44	16	21	42	59	20	26	53	106
Kg. (BW)	11	14	28	41	11	14	28	41	15	19	43	79

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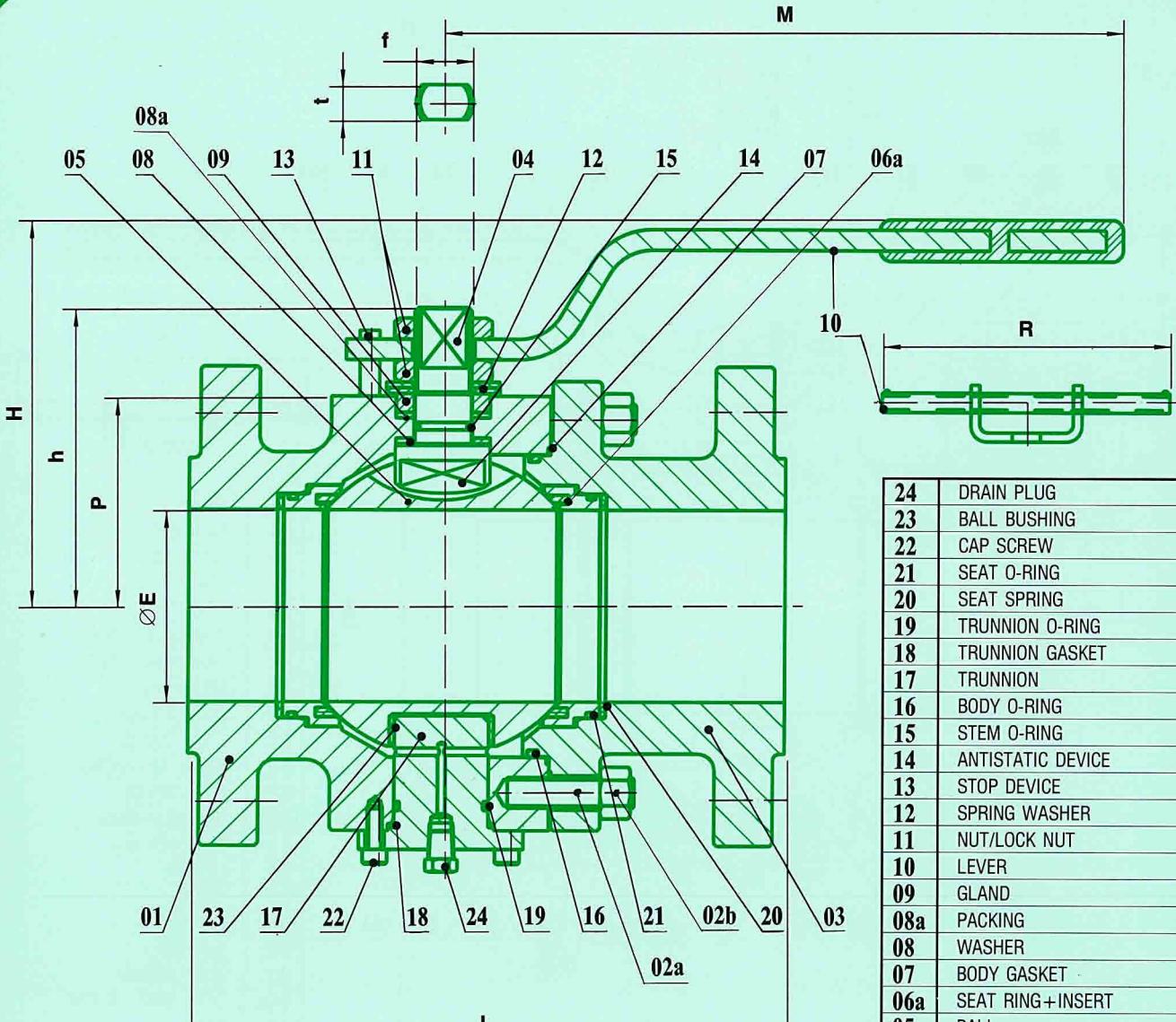
# "TRUNNION MOUNTED"

## BALL VALVE

FULL BORE

2 PIECES CLASS ANSI 900/1500/2500

# ALFA T2 FB



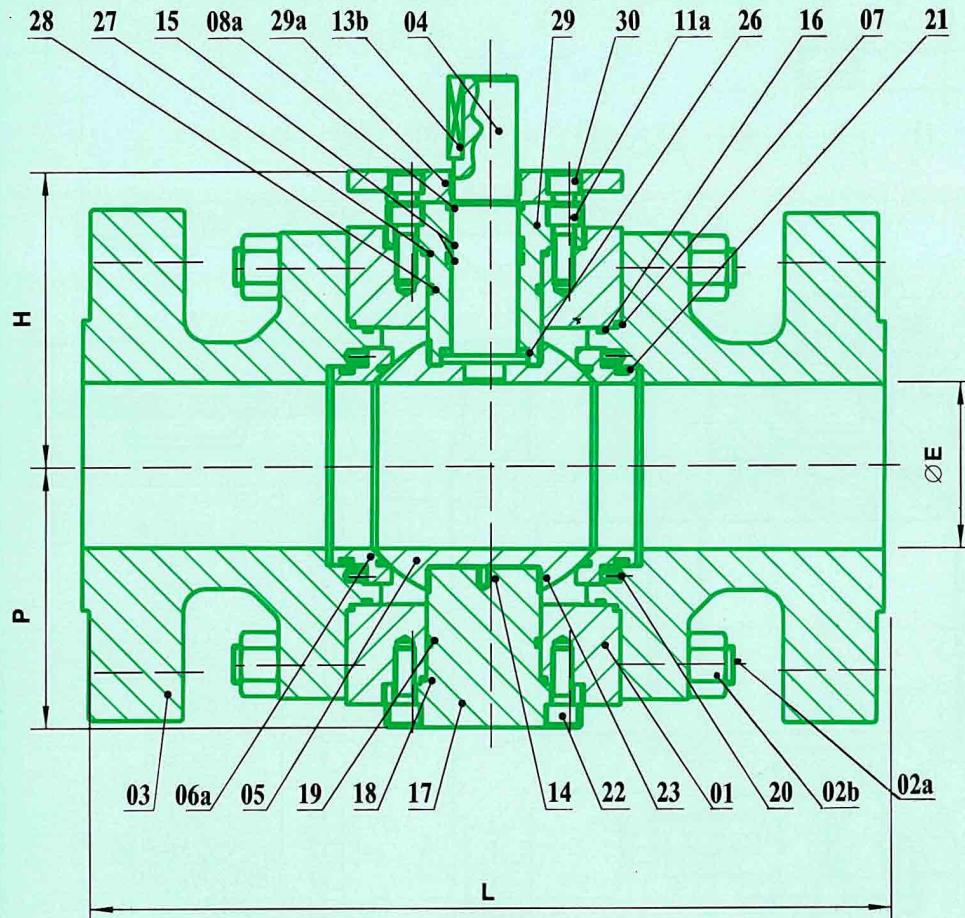
(\*) Three piece construction on request

24	DRAIN PLUG
23	BALL BUSHING
22	CAP SCREW
21	SEAT O-RING
20	SEAT SPRING
19	TRUNNION O-RING
18	TRUNNION GASKET
17	TRUNNION
16	BODY O-RING
15	STEM O-RING
14	ANTISTATIC DEVICE
13	STOP DEVICE
12	SPRING WASHER
11	NUT/LOCK NUT
10	LEVER
09	GLAND
08a	PACKING
08	WASHER
07	BODY GASKET
06a	SEAT RING+INSERT
05	BALL
04	STEM
03	CLOSURE
02b	BODY STUD NUTS
02a	BODY STUD
01	BODY



**"TRUNNION MOUNTED"  
BALL VALVE  
FULL BORE  
3 PIECES CLASS ANSI 150/300/600**

**ALFA T3 FB**



30	ADAPTER PLATE SCREW
29a	ADAPTER PLATE
29	GLAND PLATE
28	GLAND PLATE O-RING
27	GLAND PLATE GASKET
26	STEM WASHER
25	BLEED VALVE
24	DRAIN PLUG
23	BALL BUSHING
22	CAP SCREW
21	SEAT O-RING
20	SEAT SPRING
19	TRUNNION O-RING
18	TRUNNION GASKET
17	TRUNNION
16	BODY O-RING
15	STEM O-RING
14	ANTISTATIC DEVICE
13b	KEY
11a	ADAPTER PLATE BOLTING
08a	PACKING
07	BODY GASKET
06a	SEAT RING+INSERT
05	BALL
04	STEM
03	CLOSURE
02b	BODY STUD NUTS
02a	BODY STUD
01	BODY

Ed. 0001/01-06/P0001

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GEAR OPERATED VALVES

CLASS	ANSI 150			ANSI 300			ANSI 600		
DN	150	200	250	150	200	250	150	200	250
Ø"	6"	8"	10"	6"	8"	10"	6"	8"	10"
ØE	152	203	254	152	203	254	152	203	254
L (RF)	394	457	533	403	502	568	559	660	787
L (BW)	457	521	559	457	521	559	559	660	787
L (RJ)	406	470	546	419	518	584	562	664	791
H	200	236	275	200	236	275	200	251	298
P	176	205	245	176	205	245	176	225	260
Kg. (RF)	185	350	497	202	368	553	250	425	710
Kg. (BW)	177	323	485	177	323	485	197	365	600

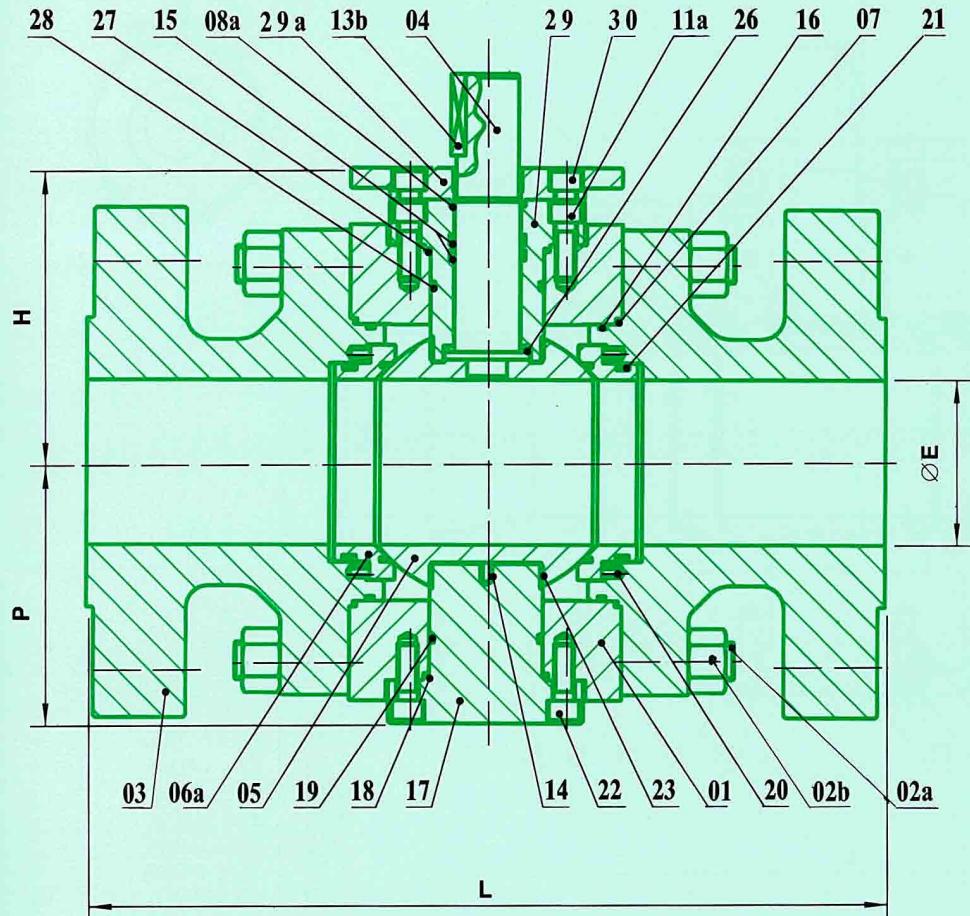
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**"TRUNNION MOUNTED"  
BALL VALVE**  
**FULL BORE**  
**3 PIECES CLASS ANSI 900/1500/2500**

**ALFA T3 FB**

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30	ADAPTER PLATE SCREW
29a	ADAPTER PLATE
29	GLAND PLATE
28	GLAND PLATE O-RING
27	GLAND PLATE GASKET
26	STEM WASHER
25	BLEED VALVE
24	DRAIN PLUG
23	BALL BUSHING
22	CAP SCREW
21	SEAT O-RING
20	SEAT SPRING
19	TRUNNION O-RING
18	TRUNNION GASKET
17	TRUNNION
16	BODY O-RING
15	STEM O-RING
14	ANTISTATIC DEVICE
13b	KEY
11a	ADAPTER PLATE BOLTING
08a	PACKING
07	BODY GASKET
06a	SEAT RING+INSERT
05	BALL
04	STEM
03	CLOSURE
02b	BODY STUD NUTS
02a	BODY STUD
01	BODY

GEAR OPERATED VALVES

CLASS	ANSI 900			ANSI 1500			ANSI 2500		
	DN	150	200	250	150	200	250	150	200
Ø"	6"	8"	10"	6"	8"	10"	6"	8"	10"
ØE	152	203	254	146	193	241	133	181	225
L (RF)	610	737	838	705	832	991	914	1022	1270
L (BW)	610	737	838	705	832	991	914	1022	1270
L (RJ)	613	740	841	711	841	1000	927	1038	1292
H	255	290	355	255	290	355	262	300	367
P	185	230	311	185	230	311	193	242	317
Kg. (RF)	375	562	805	514	750	1450	607	842	1563
Kg. (BW)	291	438	625	415	540	950	492	602	1052

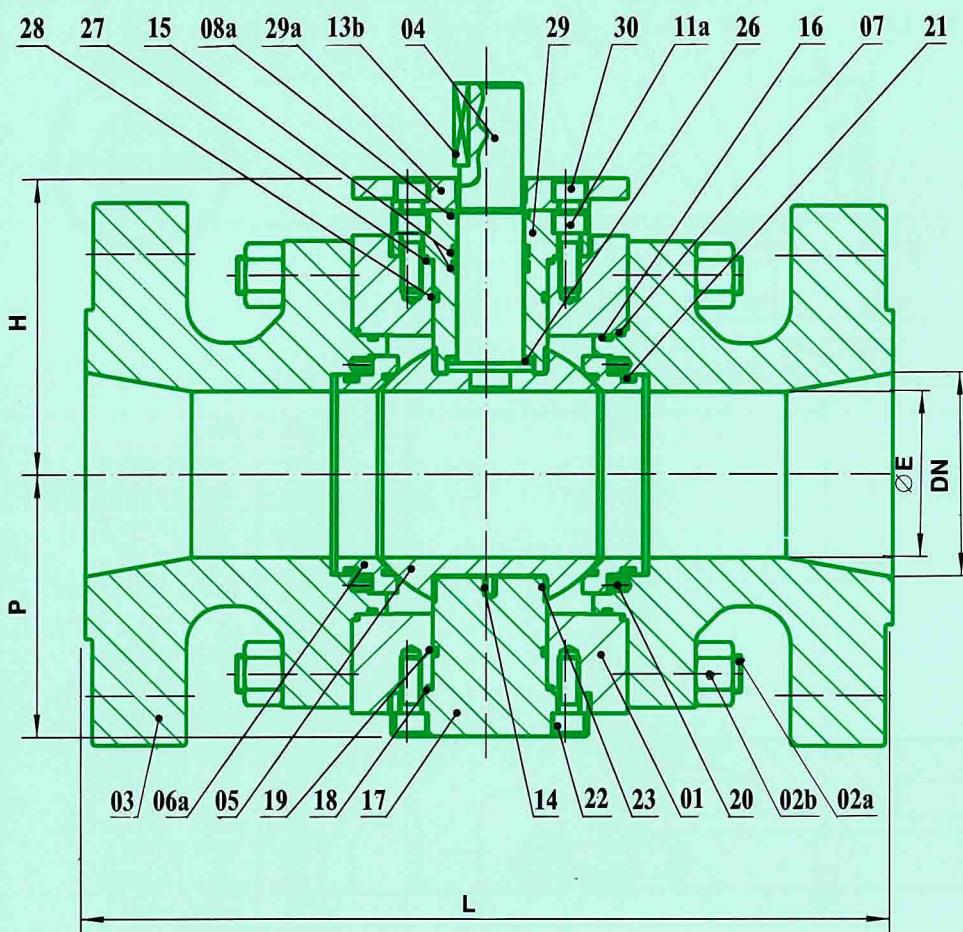
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**"TRUNNION MOUNTED"  
REDUCED BORE  
3 PIECES CLASS ANSI 900/1500/2500**

**ALFA T3 RB**

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30	ADAPTER PLATE SCREW
29a	ADAPTER PLATE
29	GLAND PLATE
28	GLAND PLATE O-RING
27	GLAND PLATE GASKET
26	STEM WASHER
25	BLEED VALVE
24	DRAIN PLUG
23	BALL BUSHING
22	CAP SCREW
21	SEAT O-RING
20	SEAT SPRING
19	TRUNNION O-RING
18	TRUNNION GASKET
17	TRUNNION
16	BODY O-RING
15	STEM O-RING
14	ANTISTATIC DEVICE
13b	KEY
11a	ADAPTER PLATE BOLTING
08a	PACKING
07	BODY GASKET
06a	SEAT RING+INSERT
05	BALL
04	STEM
03	CLOSURE
02b	BODY STUD NUTS
02a	BODY STUD
01	BODY

GEAR OPERATED VALVES

CLASS	ANSI 900				ANSI 1500				ANSI 2500			
	DN	200x150	250x150	300x200	350x250	200x150	250x150	300x200	350x250	200x150	250x150	300x200
Ø"	8"x6"	10"x6"	12"x8"	14"x10"	8"x6"	10"x6"	12"x8"	14"x10"	8"x6"	10"x6"	12"x8"	
ØE	152	152	203	254	146	146	193	241	133	133	181	
L (RF)	737	838	965	1029	832	991	1130	1257	1022	1270	1422	
L (BW)	737	838	965	1029	832	991	1130	1257	1022	1270	1422	
L (RJ)	740	841	968	1038	841	1000	1146	1276	1038	1292	1445	
H	255	255	290	355	255	295	290	355	262	262	300	
P	185	185	230	311	185	185	230	311	193	193	242	
Kg. (RF)	440	565	795	1120	640	760	1190	1600	725	854	1380	
Kg. (BW)	350	410	675	920	510	590	790	1100	552	665	908	

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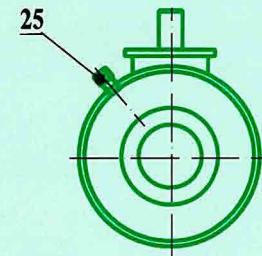
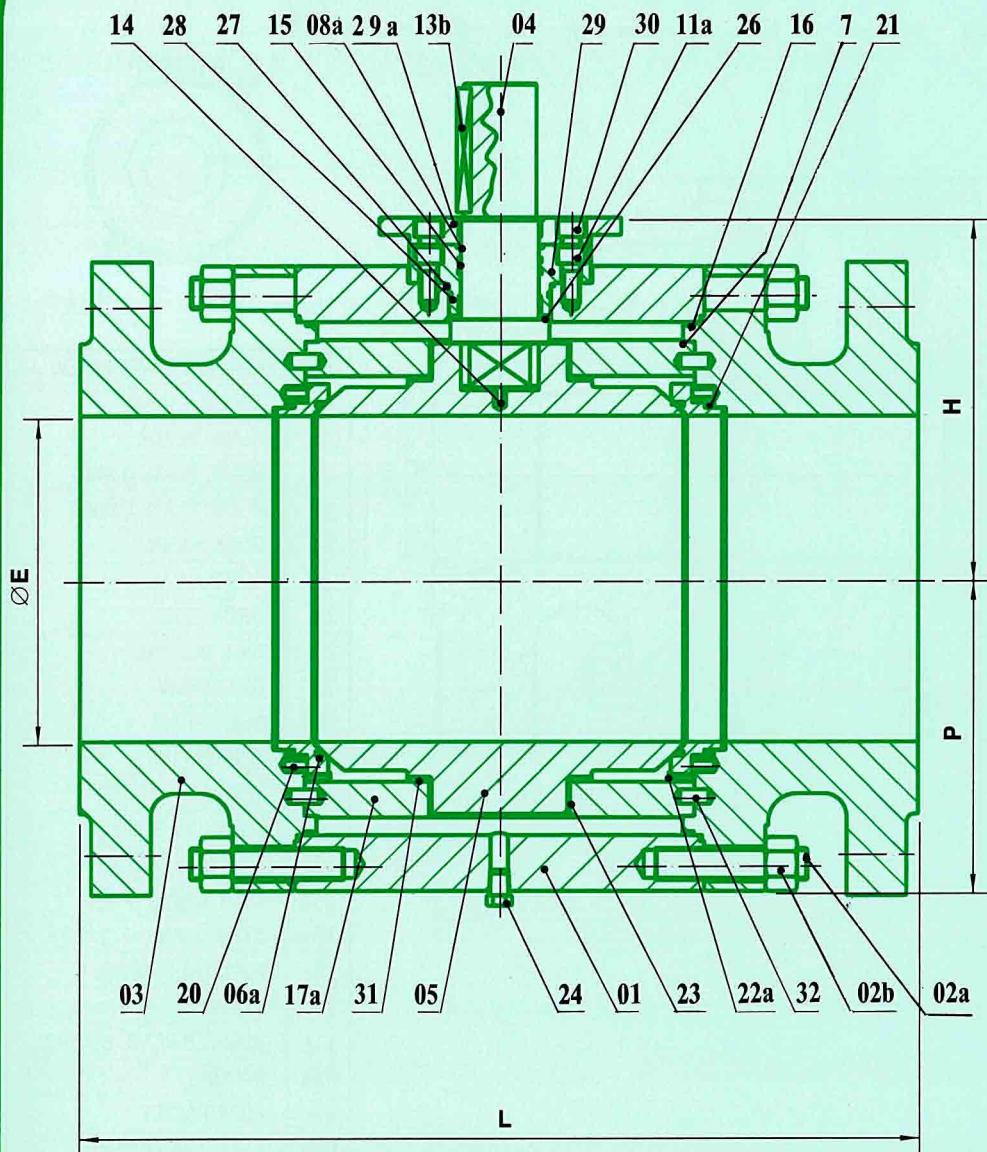
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**"TRUNNION MOUNTED"  
BALL VALVE  
FULL BORE  
3 PIECES CLASS ANSI 150/300/600**

**ALFA T3 FB**



32	PIN
31	THRUST WASHER
30	ADAPTER PLATE SCREW
29a	ADAPTER PLATE
29	GLAND PLATE
28	GLAND PLATE O-RING
27	GLAND PLATE GASKET
26	STEM WASHER
25	BLEED VALVE
24	DRAIN PLUG
23	BALL BUSHING
22a	SEAT STOP SCREW
21	SEAT O-RING
20	SEAT SPRING
17a	BALL TRUNNION
16	BODY O-RING
15	STEM O-RING
14	ANTISTATIC DEVICE
13b	KEY
12	SPRING WASHER
11a	ADAPTER PLATE BOLTING
08a	PACKING
07	BODY GASKET
06a	SEAT RING+INSERT
05	BALL
04	STEM
03	CLOSURE
02b	BODY STUD NUTS
02a	BODY STUD
01	BODY

GEAR OPERATED VALVES

CLASS	ANSI 150			ANSI 300			ANSI 600		
DN	300	350	400	300	350	400	300	350	400
Ø"	12"	14"	16"	12"	14"	16"	12"	14"	16"
ØE	305	337	387	305	337	387	305	337	387
L (RF)	610	686	762	648	762	838	838	889	991
L (BW)	635	762	838	635	762	838	838	889	991
L (RJ)	622	699	775	664	778	854	841	892	994
H	317	360	420	317	360	420	372	400	459
P	310	328	347	310	328	347	315	336	390
Kg. (RF)	630	850	1150	680	890	1350	905	1220	1554
Kg. (BW)	590	810	1090	590	820	1130	757	1050	1279

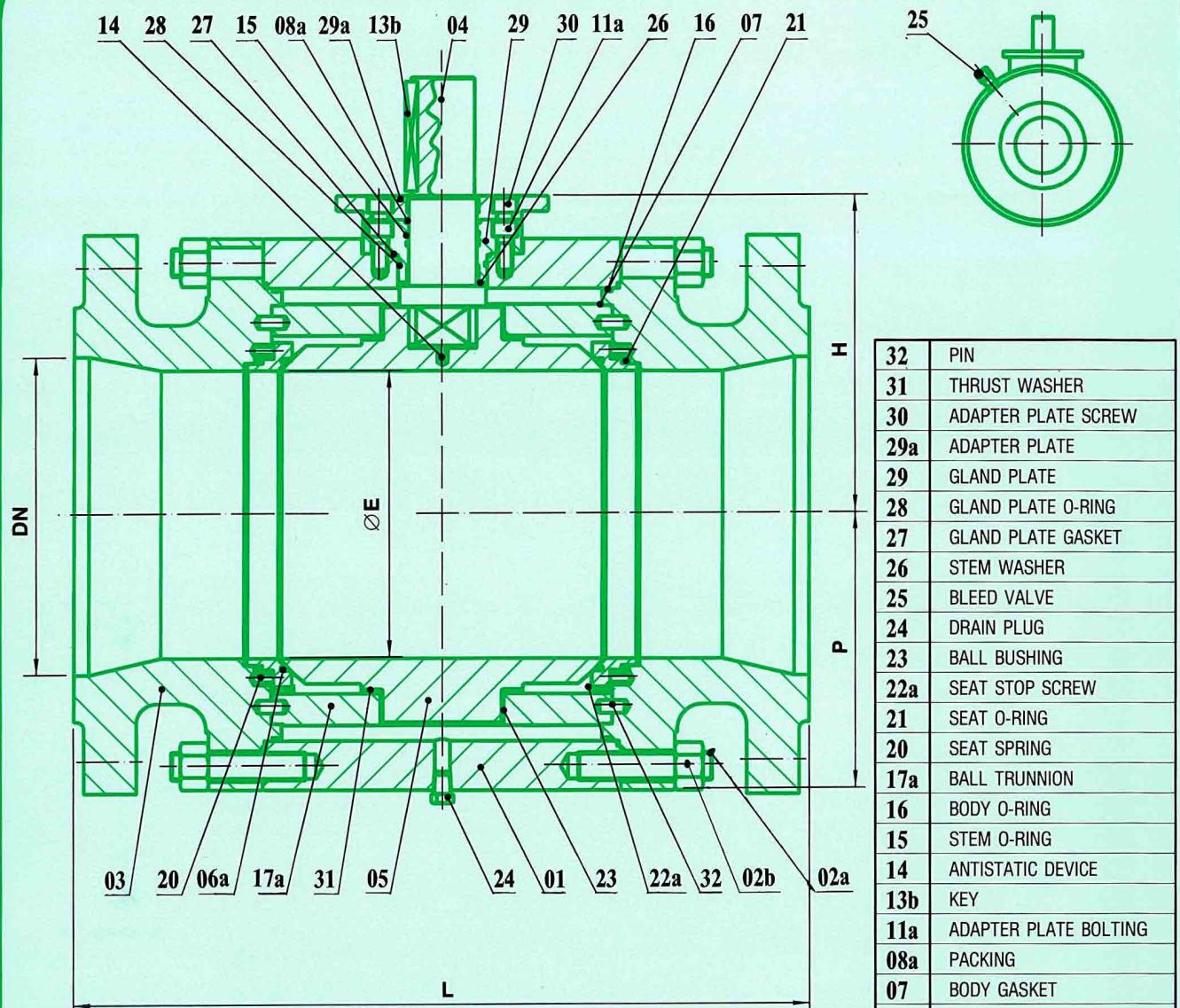
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**"TRUNNION MOUNTED"  
BALL VALVE  
REDUCED BORE  
3 PIECES CLASS ANSI 150/300/600**

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32	PIN
31	THRUST WASHER
30	ADAPTER PLATE SCREW
29a	ADAPTER PLATE
29	GLAND PLATE
28	GLAND PLATE O-RING
27	GLAND PLATE GASKET
26	STEM WASHER
25	BLEED VALVE
24	DRAIN PLUG
23	BALL BUSHING
22a	SEAT STOP SCREW
21	SEAT O-RING
20	SEAT SPRING
17a	BALL TRUNNION
16	BODY O-RING
15	STEM O-RING
14	ANTISTATIC DEVICE
13b	KEY
11a	ADAPTER PLATE BOLTING
08a	PACKING
07	BODY GASKET
06a	SEAT RING+INSERT
05	BALL
04	STEM
03	CLOSURE
02b	BODY STUD NUTS
02a	BODY STUD
01	BODY

GEAR OPERATED VALVES

CLASS	ANSI 150			ANSI 300			ANSI 600		
	DN	400x300	450x350	500x400	400x300	450x350	500x400	400x300	450x350
Ø"	16"x12"	18"x14"	20"x16"	16"x12"	18"x14"	20"x16"	16"x12"	18"x14"	20"x16"
ØE	305	337	387	305	337	387	305	337	387
L (RF)	762	864	914	838	914	991	991	1092	1194
L (BW)	838	914	991	838	914	991	991	1092	1194
L (RJ)	775	876	927	854	930	1010	994	1095	1200
H	317	360	420	317	360	420	372	400	459
P	310	328	347	310	328	347	315	336	390
Kg. (RF)	750	1100	1390	845	1180	1470	1350	1470	1960
Kg. (BW)	700	1000	1290	745	1040	1240	1100	1290	1720

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