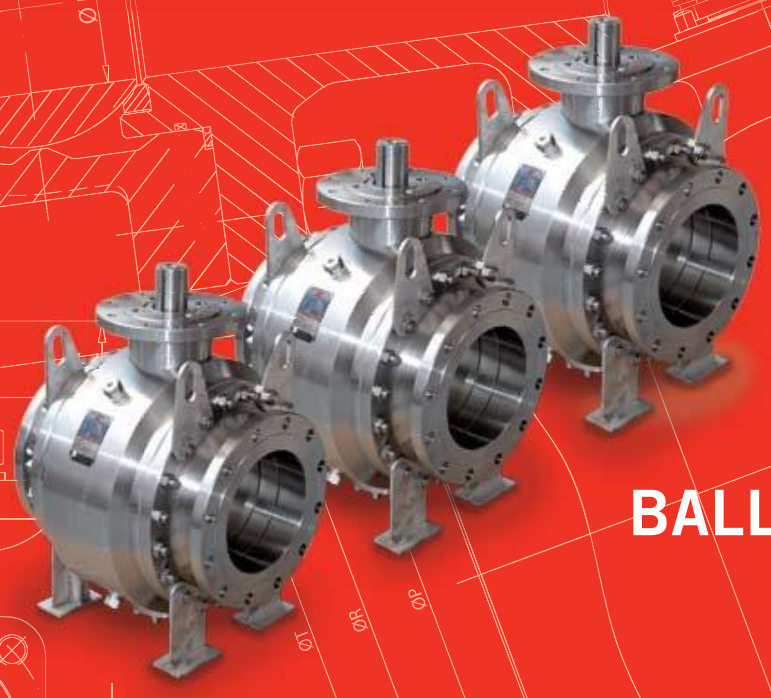
JC VALVES

The quality option



BALL VALVES

I BALL VALVES I

METAL SEATED

½" - 24" I Class 150 - Class 1500
DN 15 - DN 300 I PN 16 - PN 40

JC offers also a large range of metal seated ball valves for diferent services (slurries, pulp and liquors, high temperature, abrasive or sticking fluids, control).

- **Bubble tight sealing up to 327 ºC and Class V up to 500 ºC**
- **Low coefficient of friction**
- **Excellent sliding and running properties**
- **Hardens the complete surface of ball and seats**

WHY METAL SEATED BALL VALVES?

METAL SEATED BALL VALVES ARE MAINLY USED FOR HEAVY DUTY APPLICATIONS SUCH AS:

- **High temperatures: above 260 ºC the use of soft seats is not recommended.**
- **Abrassive media: even small particles can damage soft seats.**
- **High Velocity in opening/closing cycles: this action can perfectly deform the soft ring and destroy the seat.**

HARDERING TREATMENTS

HT-65

Max. Temperature: 500 ºC
Corrosion Resistance: Medium
Abrasion Resistance: Medium

This is an exclusive treatment developed by JC with two main advantages, first all the ball and seat surface is hardened and second there is no additional overlay on the seat surface. This gives a very good thightness and a lower torque. The surface is hardened to 70 Rockwell C and it is valid to work upto 500 ºC.

CT-70

Max. Temperature: 550 ºC
Corrosion Resistance: Medium
Abrasion Resistance: High

Is a Tungsten Carbide coating in a metallic matrix bonded. Mechanically to the base material by HVOF methods. This treatment gives a very good resistance to abrassion and impact and is suitable to work upon 550 ºC.

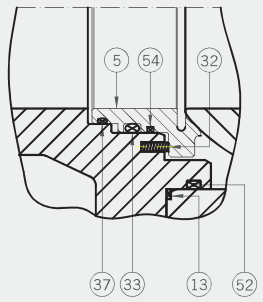
CC-60

Max. Temperature: 800 ºC
Corrosion Resistance: High
Abrasion Resistance: High

Is a Chromium Carbide coating in a nickel-chrome base in a metallic matrix bonded mechanically to the base material by HVOF methods. This treatment gives a very good resistance to abrassion and is the best choice for severe corrosion applications. It is suitable to work up to 800 ºC.

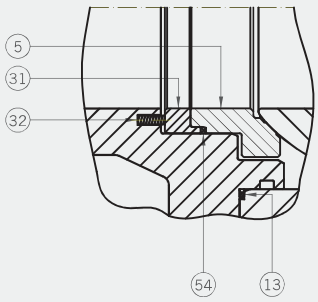
DIFFERENT SEAT DESIGNS

Metallic Seat with O'ring



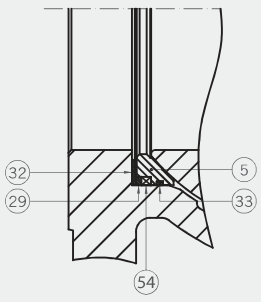
(5) Seat
(32) Helicol spring
(33) (37) O'rings
(13) (54) Graphite gasket
(52) O'ring

Metallic Seat with Graphite



(5) Seat
(13) Spiralwound
(31) Seat carrier
(32) Helicol spring
(54) Graphite gasket

Metallic Seat for Floating Valves



(5) Seat
(29) Washer
(33) O'ring
(32) Belleville spring
(54) Graphite gasket

RANGE OF METAL SEATED BALL VALVES

JC can produce the following metal seated ball valves:

Pressure Class	Floating	Monoblock	Trunnion
150	1/2" upto 8"	-	2" upto 24"
300	1/2" upto 4"	-	2" upto 24"
600	1/2" upto 2"	-	2" upto 24"
800	-	1/2" upto 2"	-
900	-	-	2" upto 12"
1500	-	1/2" upto 2"	2" upto 8"

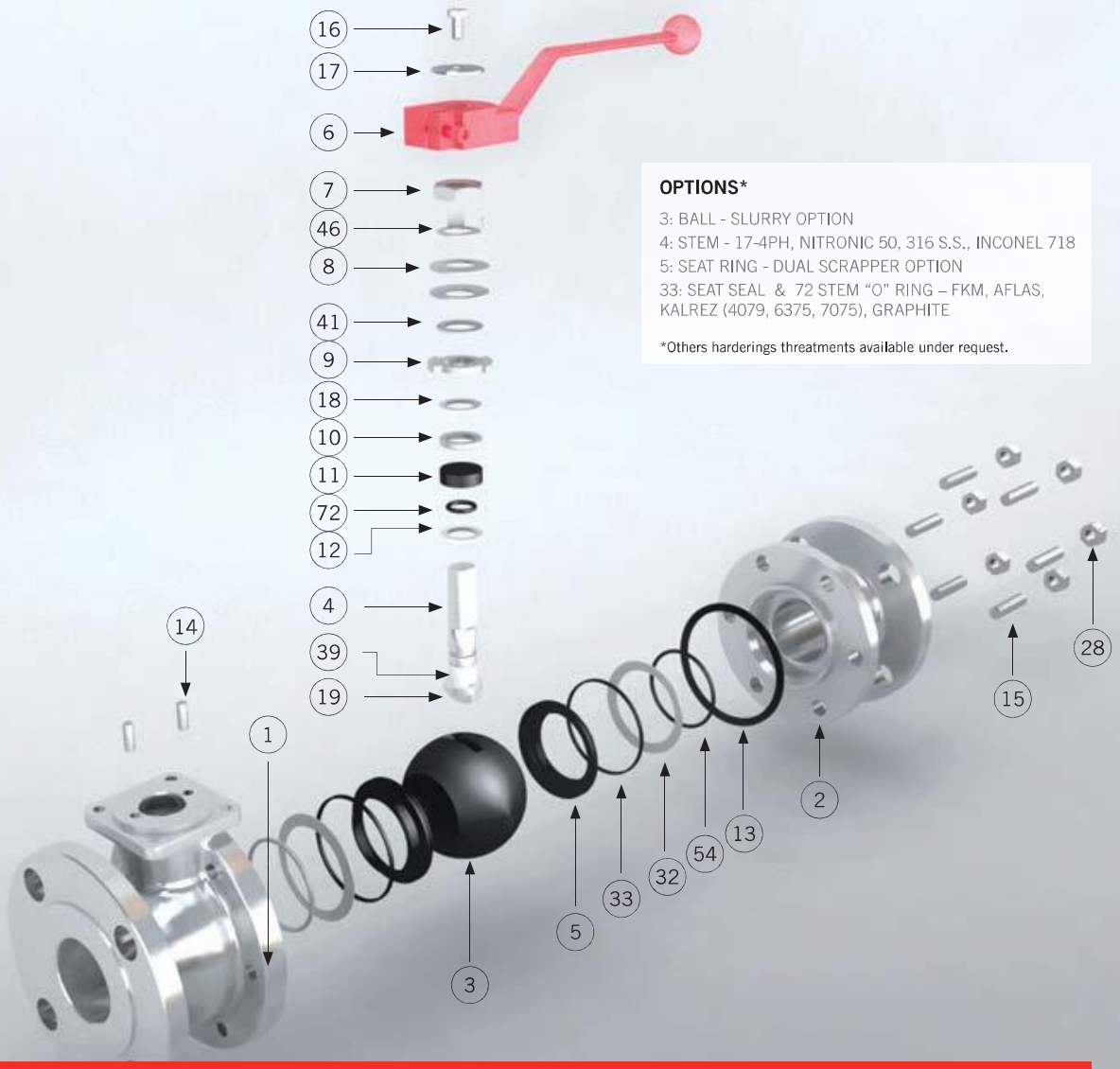
PRODUCTION OF METAL SEATED BALL VALVES

Metal seated vall valves are mainly used for heavy duty applications.

One of the main avantages of using JC metal seated ball valves is the fact that we can transform a soft seated stock valves into a metal seated valve.

THE STEPS TO BE DONE ARE:

- **Re-machining of the body.**
- **Lapping of the ball and seats.**
- **Hardening treatment to ball and seats.**
- **Final adjustment of the ball with its seats.**
- **Assembly and test.**



OPTIONS*

3: BALL - SLURRY OPTION
4: STEM - 17-4PH, NITRONIC 50, 316 S.S., INCONEL 718
5: SEAT RING - DUAL SCRAPPER OPTION
33: SEAT SEAL & 72 STEM "O" RING – FKM, AFLAS, KALREZ (4079, 6375, 7075), GRAPHITE

*Others harderings threatments available under request.

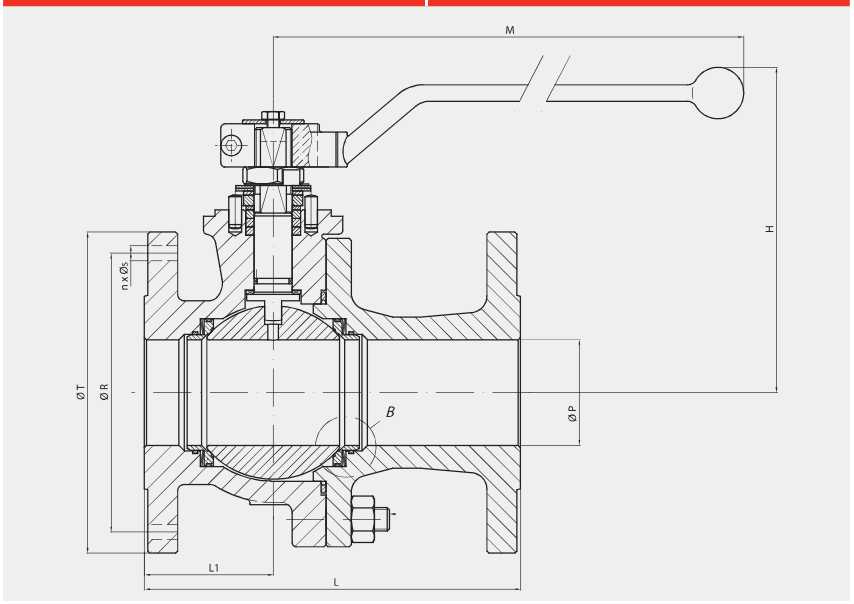
Materials

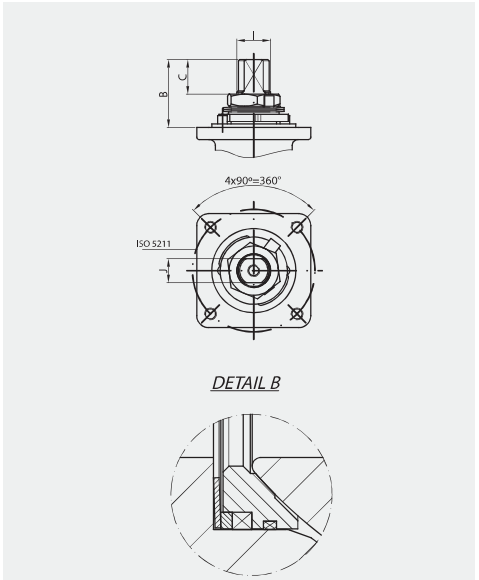
	EN-DIN		ASME	
	3516 AIM 3540 AIM	3516 IIM 3540 IIM	3515 AIM 3530 AIM	3515 IIM 3530 IIM
Item	Description	Material	Material	
1	Body	1.0619	1.4408	A216 Gr.WCB (C≤0,25%)	A351 Gr. CF8M
2	Body connector	1.0619	1.4408	A216 Gr.WCB (C≤0,25%)	A351 Gr. CF8M
3	Ball	316 S.S. + HT70		316 S.S. + HT70	
4	Stem	See options		See options	
5	Seat ring	316 S.S. + HT70		316 S.S. + HT70	
6	Wrench	Nodular Iron		Nodular Iron	
7	Gland nut	Zinc plated carbon steel	AISI 303	Zinc plated carbon steel	AISI 303
8	Disk spring	Carbon steel	ENP Carbon Steel	Carbon steel	ENP Carbon Steel
9	Stop plate	Carbon steel	AISI 304	Carbon steel	AISI 304
10	Gland	AISI 303	AISI 316	AISI 303	AISI 316
11	Gland packing	Graphite		Graphite	
12	Stem thrust seal	316 S.S. + HT-65		316 S.S. + HT-65	
13	Body connector seal	AISI 316L +Graphite		AISI 316L + Graphite	
14	Stop pin	Carbon St.	Stainless St.	Carbon St.	Stainless St.
15	Stud (DN 32 to DN 100)	A4-70		A193Gr. B7M Zinc dichromate	A193 Gr. B8M
15.1	Bolt	A4-70		-	-
16	Bolt	DIN 933 A4-70		DIN 933 A4-70	
17	Washer	Zinc plated carbon steel	AISI 304	Zinc plated carbon steel	AISI 304
18	Thrust washer	316 S.S. + HT65		316 S.S. + HT65	
19	Antistatic device	Stainless St.		Stainless St.	
28	Nut (DN 32 to DN 100)	A4-70		A194 Gr. 2HM Zinc dichromate	A194 Gr. 8M
32	Seat disk spring	Inconel X-750		Inconel X-750	
33	Seat Ring	See options		See options	
39	Stem bushing	25% G.F. PTFE		25% G.F. PTFE	
41	Spacer (DN 40 to DN200)	Carbon steel	AISI 304	Carbon steel	AISI 304
46	Locking washer	AISI 304		AISI 304	
54	Seat Seal	Graphite		Graphite	
72	Stem "O" Ring	See options		See options	

EN-DIN 3516 / 3540 — PN 16 / 40 — Full Bore

PN 16. From DN 65 to DN 200

PN 40. From DN 15 to DN 150





(*) Dimensions of diameters of drills ISO 5211 refer to table from page 60.

Pressure - Temperature

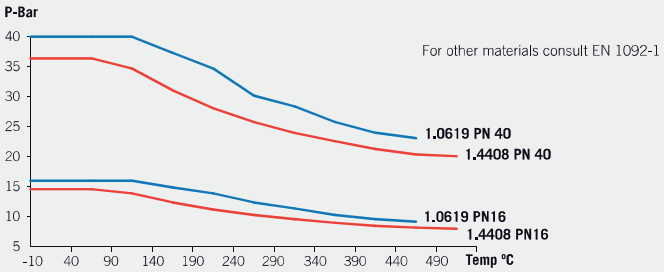


Fig. 3516 (PN 16)

DN	ØP	L	L1	ØR	n x ØS	ØT	H	M	ISO 5211	B	C	I	J	WEIGHT 3516	WEIGHT 3316	TORQUE	Kv
65	65	170	76	145	4x18	185	169	348	F07	44	19,7	M22x1.5	16	16	18,3	180	550
80	80	180	82	160	8x18	200	207	445	F10	44,5	19,7	M25x1.5	18	22	25	250	1000
100	100	190	90	180	8x18	220	231	495	F10	56,5	29,2	M28x1.5	20	32	36	390	1650
125	125	325	120	210	8x18	250	262	698	F12	56	27,6	M35x2	25	52,5	-	500	3000
150	151	350	135	240	8x22	285	298	698	F12	68	38,5	M40x1.5	29	76	-	800	4200
200	203	400	200	295	12x22	340	352	868	F14	72	39	M45x2	32	111	-	1200	9000

Fig. 3540 (PN 40)

DN	ØP	L	L1	ØR	n x ØS	ØT	H	M	ISO 5211	B	C	I	J	WEIGHT 3540	WEIGHT 3340	TORQUE	Kv
15	15	115	53	65	4x14	95	110	164	F05	11,2	5,7	M12x1.5	9	2,8	3	26	20
20	20	120	52	75	4x14	105	117	164	F05	13,2	9,2	M12x1.5	9	3,6	-	35	40
25	25	125	49	85	4x14	115	129	164	F05	22,7	10,2	M12x1.5	9	5	5,2	40	75
32	32	130	54	100	4x18	140	131	210	F05	32	13,7	M16x1.5	12	7	7,6	60	130
40	40	140	55	110	4x18	150	148	213	F07	41,5	19,2	M18x1.5	13	9	9,6	90	170
50	50	150	61	125	4x18	165	155	213	F07	41,5	19,2	M18x1.5	13	12	12,9	120	270
65	65	170	76	145	8x18	185	169	348	F07	44	19,7	M22x1.5	16	17	-	160	550
80	80	180	75	160	8x18	200	207	445	F10	44,5	19,7	M25x1.5	18	23	-	254	1000
100	100	190	91	190	8x22	235	231	495	F10	56,5	29,2	M28x1.5	20	35	-	-	1650
125	125	325	120	220	8x26	270	262	698	F12	56	27,6	M35x2	25	57	-	-	3000
150	151	350	135	250	8x26	300	298	698	F12	68	38,5	M40x1.5	29	83,5	-	-	4200

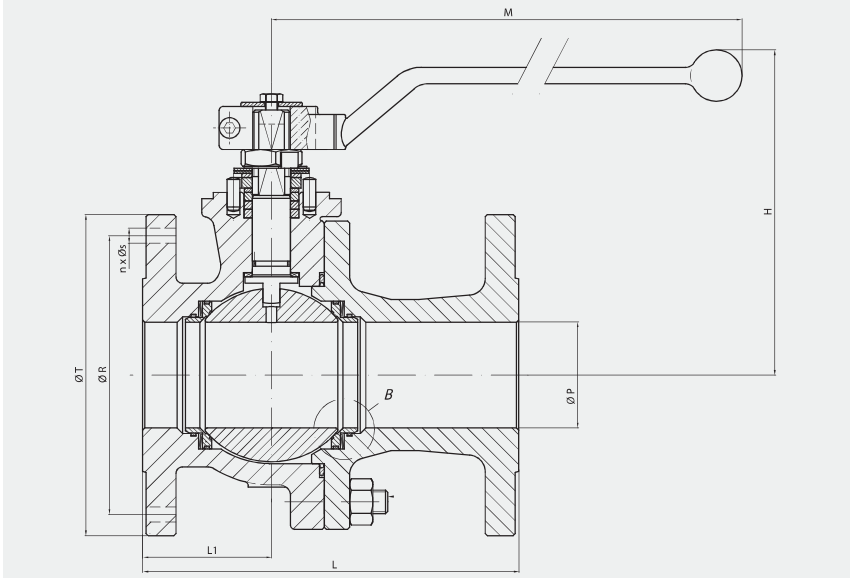
(*) Dimensions in mm and weight in kg.
(**) Weights and dimensions can be changed without notice.

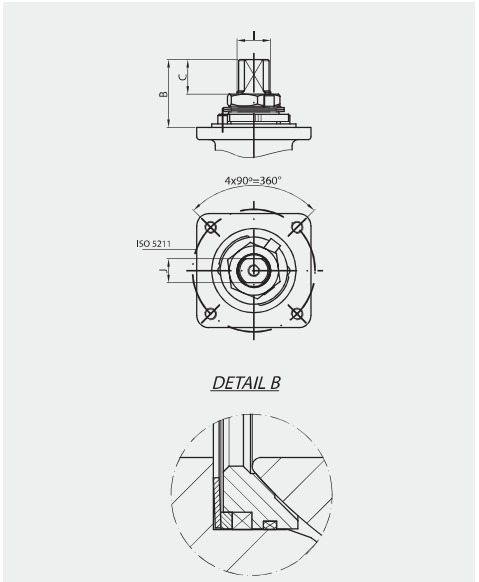
ASME 3515 / 3530

Class 150 / 300 | **Full Bore**

Class 150. From ½" to 8"

Class 300. From ½" to 6"





(*) Dimensions of diameters of drills ISO 5211 refer to table from page 60.

Pressure - Temperature

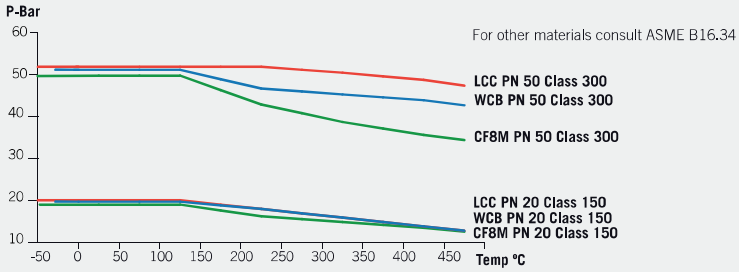


Fig. 3515 (Class 150)

DN	øP	L	L1	øR	n x øS	øT	H	M	ISO 5211	B	C	I	J	WEIGHT	TORQUE	Kv
15 (½")	15	108	47	60,3	4x15,9	90	110	164	F05	11,2	5,7	M12x1.5	9	2	22	20
20 (¾")	20	117	50	69,9	4x15,9	100	117	164	F05	13,2	9,2	M12x1.5	9	3	32	40
25 (1")	25	127	52	79,4	4x15,9	110	129	164	F05	22,7	10,2	M12x1.5	9	3,5	39	75
40 (1½")	40	165	65	98,4	4x15,9	125	148	213	F07	41,5	19,2	M18x1.5	13	8	59	170
50 (2")	50	178	61	120,7	4x19	150	155	213	F07	41,5	19,2	M18x1.5	13	11	100	270
65 (2½")	65	190	75	139,7	4x19	180	169	348	F07	44	19,7	M22x1.5	16	16	140	550
80 (3")	80	203	79	152,4	4x19	190	207	445	F10	44,5	19,7	M25x1.5	18	23	260	1000
100 (4")	100	229	90	190,5	8x19	230	231	495	F10	56,5	29,2	M28x1.5	20	38	440	1650
150 (6")	151	394	174	241,3	8x22,2	280	298	698	F12	68	38,5	M40x1.5	29	88	800	4200
200 (8")	203	457	200	298,5	8x22,2	345	352	868	F14	72	39	M45x2	32	155	1100	9000

Fig. 3530 (Class 300)

DN	øP	L	L1	øR	n x øS	øT	H	M	ISO 5211	B	C	I	J	WEIGHT	TORQUE	Kv
15 (½")	15	140	60	66,7	4x15,9	95	110	164	F05	11,2	5,7	M12x1.5	9	3	22	20
20 (¾")	20	152	65	82,6	4x19	115	117	164	F05	13,2	9,2	M12x1.5	9	4	40	40
25 (1")	25	165	70	88,9	4x19	125	129	164	F05	22,7	10,2	M12x1.5	9	5	45	75
40 (1½")	40	190	80	114,3	4x22,2	155	148	213	F07	41,5	19,2	M18x1.5	13	11	80	170
50 (2")	50	216	83	127	8x19	165	155	213	F07	41,5	19,2	M18x1.5	13	14	150	270
80 (3")	80	283	118	168,3	8x22,2	210	207	445	F07	44,5	19,7	M25x1.5	18	32	250	550
100 (4")	100	305	133	200	8x22,2	255	231	495	F10	56,5	29,2	M28x1.5	20	52	500	1000
150 (6")	151	403	160	269,9	12x22,2	320	298	698	F10	68	38,5	M40x1.5	29	94	-	1650

(*) Dimensions in mm and weight in kg.
(**) Weights and dimensions can be changed without notice.