

Dual Plate Check Valves Flange Type

Design and performance Standard

Body and Plate Material

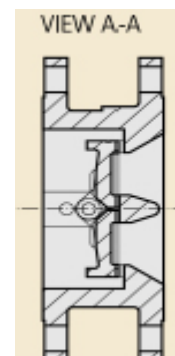
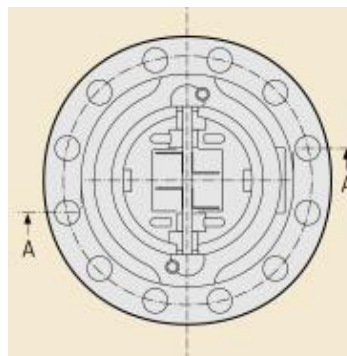
Material	Specification	Material	Specification
Carbon Steel	ASTM A216 WCB	Low Temp. Carbon Steel	ASTM A352 LCB
High Temp. Cr Mo steel	ASTM A217 WC6	Low Temp. carbon steel	ASTM A216 LCC
Low Alloy Steel	ASTM A487 GR 4N	Low Alloy Steel	ASTM A487 GR 4C
Stainless steel 410	ASTM A217CA15	5% Cr. Steel	ASTM A217C5
9% Cr. Steel	ASTM A217C5	Low Temp. 13%Cr4%Ni	ASTM A352 CA6NM
316 Stainless steel	ASTM A182 F316/ A351 CF8M	316 Stainless steel	ASTM A 182 F316L/ A351 CF3M
347 stainless steel (high Temp)	ASTM CF8C	22% Chrome Duplex	ASTM A890 4A
Ferralium 255-3SC	UNS S32550	25% Chrome supper Duplex	UNS S32760
Alloy 825	UNS N008825	Alloy 625	ASTM A494 CW6MC
Hastelloy C276	ASTM A494 CWRMN	Monel	ASTM A494-M35-2
Nickel Aluminium Bronze	ASTM B148 C95800	Chromium Moly. Steel	AST A217 GR WC9
3,5% Nickel Steel	ASTM A352 LC3	304 Stainless steel	ASTM A351 CF8
304 stainless steel	ASTM A351 CF3	Alloy20	ASTM A351 CN7M
317 Stainless steel	ASTM A352 CG8M	Carbon Moly. Steel	ASTM A352 LC1
Gray Iron	ASTM A126 Class B	Ductile Iron	ASTM 395

Spring Material:

- 316 Stainless steel
- Inconel X750
- Inconel 625
- Monel K500
- Carpenter 20

Seat Material:

- Buna (NBR)
- EPDM
- PTFE
- Metal Overlay as Body
- Metal to Metal
- Viton
- Neoprene
- Other material on request



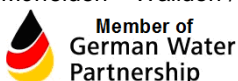
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Mörfelden – Walldorf / Germany

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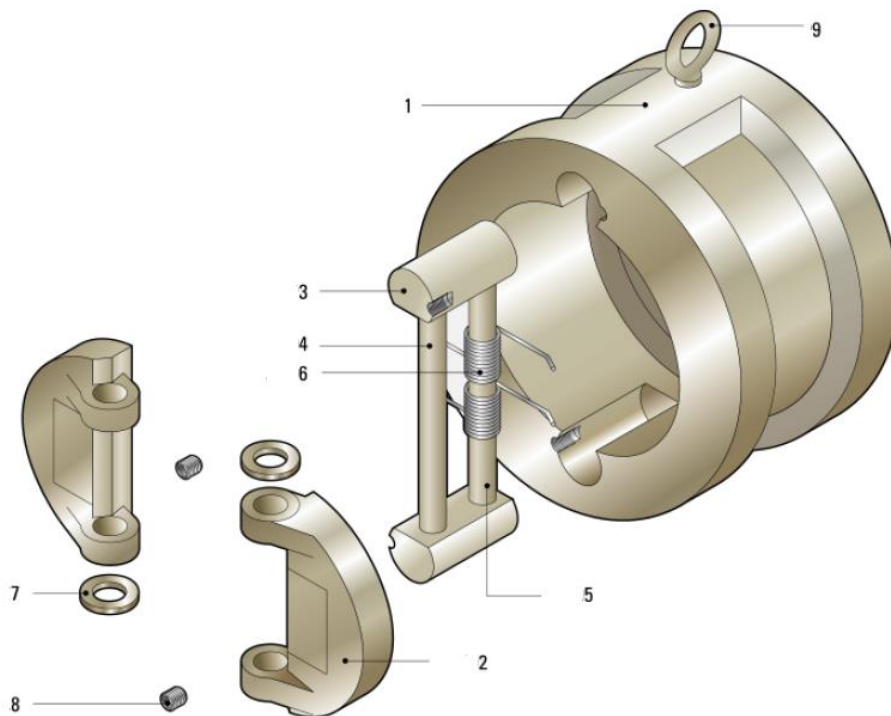


Nero dual plate check Valves flange Type

Design and performance Standard

ANSI B16.5 (1,5 up to 24 inch), flange dimension
ANSI B16.47 Series A (26 up to 60 inch), flange dimension
API 594- Materials, design & face to Face
API 605(B16.47)- Flange Dimension
API 6A- Flange Dimension & Face to Face
API 6D- Materials, testing procedure
API 598- Testing, allowable leakage Rate
ANSI B16.34- Wall Thickness
AWWA 207- Flange Dimension (66 up to 140 inch)

Valves Components



Item	parts	Qty.
1.	Body	1
2.	Disc	2
3.	Insert	2
4.	Stop Pin	1
5.	Hinge Pin	1
6.	Spring	1 to 4
7.	Washer	2 over
8.	Set Screw	2 or 4
9.	E.-Bolt	10 " over

Note: E Bolt is only available from size 10 inch

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Industrial Valves: DIN · API · ASME

Nero dual plate check Valves flange Type

Lapped Body / Disc seats (Metal to Metal)

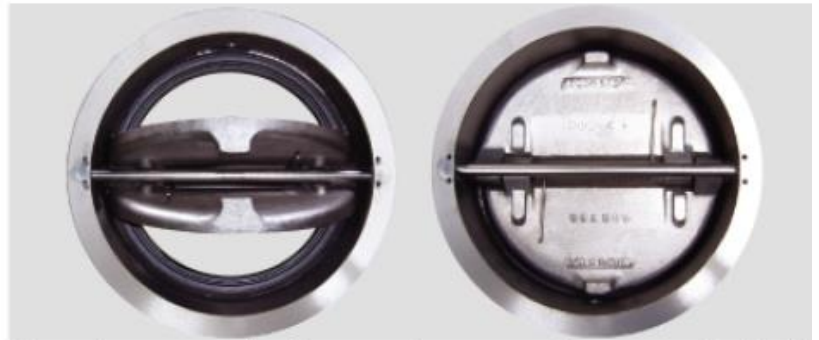


This valve is tested API 598 which has a metal to metal seat permitted leakage of 3cc/inch of bore/min. This small but significant arises because it is more difficulty to obtain a perfect seal on a shaped seat compared to a circular seat.

The disc has been specially designed to overcome this problem and to be better at sealing than another, such that near zero leakage can be economically achieved on metal to metal seats. This characteristic enables S&W to provide dual plate check valves with substantially lower leakage rates than specified in API 598.

Shock Bumpers

The plates that has bump in edge or shulder is accepted fact that there will be occasions when the plates don't arrive fully open at the same instance. Clearance on the bumper allow and ensure the plates to hit each other rather than the stop pin. This helps prevent large forces being exerted on the stop pin which coule couse damage.



The stop pin has only one purpose, to stop a plate going over top dead center when reverse flow occurs. If this did occur both plates would be on the same side of the valve leaving one port open. Therby stopping the valve performing its sole function of preventing reverse flow.

Seat Life

Increased seat life is obtained by eliminating the problem of the dragging on the seat when opening.

The soften seat has molded the seat to the body by suitable heating temperature in accordance to the materials.



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Nero dual plate check Valves flange Type

Minimal Seat Wear

The dual Disc Check Valve was designed to eliminate the possibility of seat wear caused by friction at the heel of the dual discs while maintaining low backpressure sealing capabilities. The clearance between the body, disc and hinge pin results in the discs cracking open at the heel location first(Fig.5). When the valve opens, the heel does not drag across the seating surface and cause wear (fig.6). As the Valve closes, the spring will take the toe of the disc into the seating surface first, while the line backpressure will force the heels and hinge pin back to the seat to complete the seal (Fig.7)

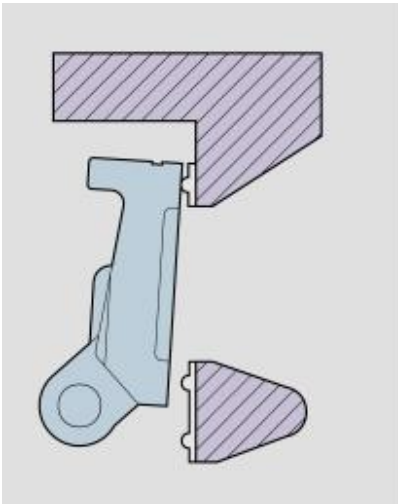


Fig.5

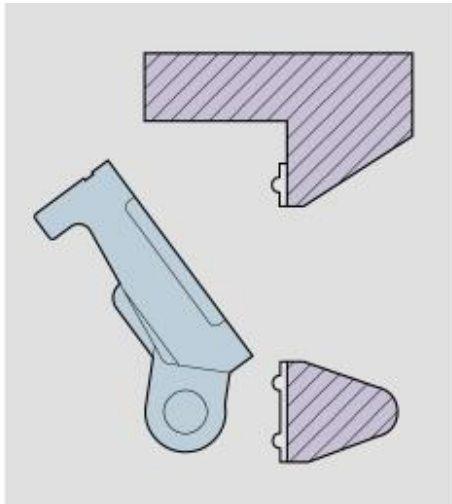


Fig 6

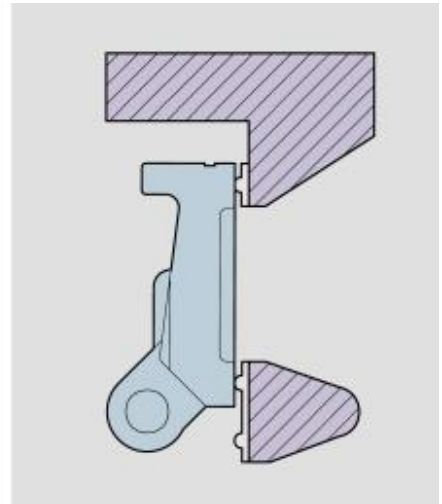


Fig.7

Resilient Seat

The basic design of the Dual Disc Check Valve is illustrated in Fig.2. This seal is chemically bonded using specially designed adhesives that provide rubber tearing bonds throughout the operating range of the seat material. In case of resilient seat failure, the design permits the discs to float and make contact with the metal surface the seats were adhered to. This feature allows the valve to function even if the resilient seat is not present. We also have available a seat design illustrated in Fig.3

This design results in a controlled seat squeeze and provides a metal to metal back up seal (Fig. 4)

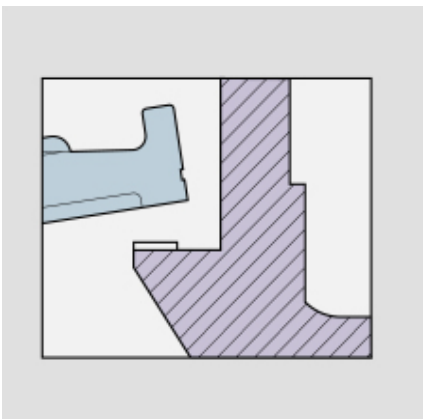


Fig.2

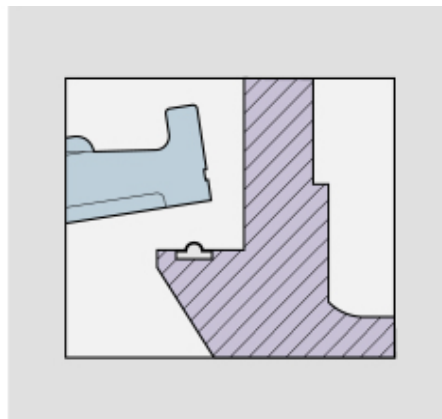


Fig 3

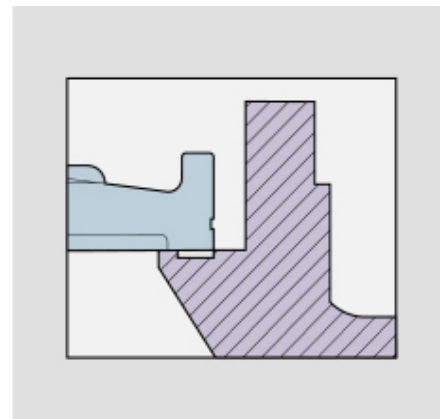


Fig.4

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Nero dual plate check Valves flange Type

Lower Pressure Drop

The two factors that affect pressure drop across any valve are:

- 1) The unobstructed flow area
- 2) The energy required to maintain the valve in the open position.

Specifically, full-bodied swing check valves have a disc which is hinged at the top with gravity working to keep it in the closed position. Flow must provide sufficient energy to overcome this force of gravity and lift the disc. This energy requirement increases dramatically in larger size. S&W valves are installed such that the flappers are hinged at their sides like a door. Thus, the effect of gravity is eliminated. Consequently, very little energy is needed to open the valve and maintain this position, resulting in lower energy costs.

Stronger

Lighter weight doesn't mean, however, that strength has been sacrificed. In fact a S&W check valve is actually stronger than the equivalent length of pipe. The wall thickness of body has been designed more than API specification.

Valve Location and Orientation in piping

Check valve should be installed if possible a minimum of 6 pipe diameters from other line elements. i.e. elbow, pumps, valves, etc

Horizontal lines

Valve installed in horizontal lines must be bolted in place with the hinge post in the vertical position. i.e. in such a manner that the hinge pin retainers are at the top and bottom of installed valve, perpendicular to the flow.

Vertical lines

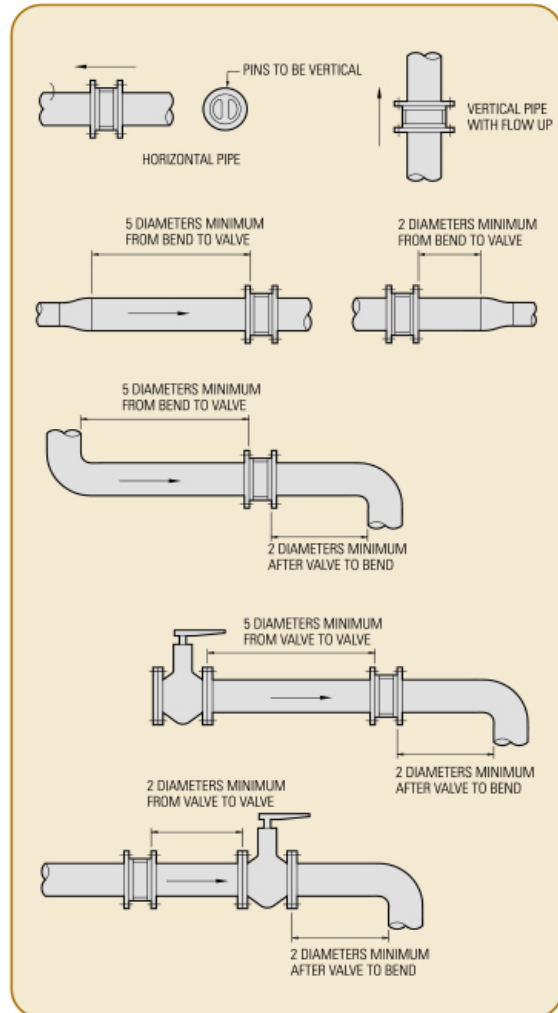
In the upward position, no special attention needs to be given to the hinge position. The only exception being when mounted directly downstream of an elbow. In this case the hinge post should be mounted perpendicular to the outermost portion of an elbow.

Precautions

- Do not install dual plate check valves directly against another valve whereby the check discharges downstream directly into the valve.
- Do not install the valve whereby it directly discharges downstream into tee or elbow fittings.
- S&W dual plate check valves should not be used in severe pulsating services such as reciprocating compressor discharges.
- It is recommended that the check valves be installed a minimum of three pipe diameters downstream of a pump or compressor.

Maintenance

The dual plate check valves are permanently lubricated and normally require no routine maintenance.



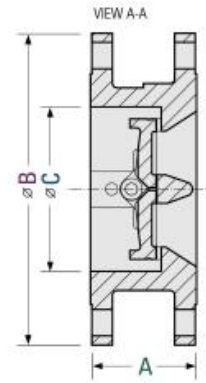
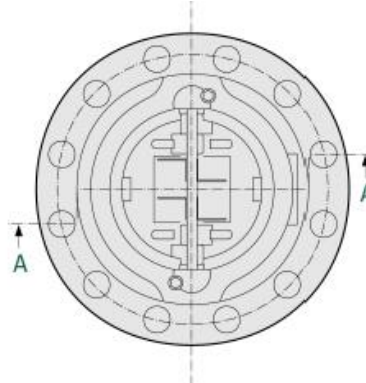
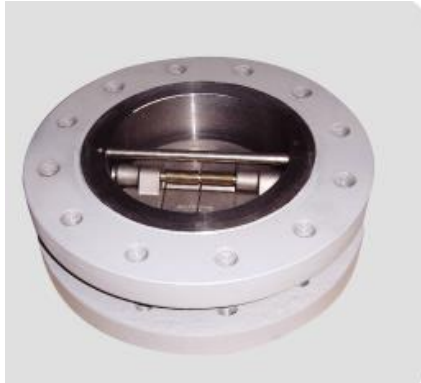
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Dual Plate Check Valves
Flange Body dimension (12 inch – Larger)



Dimension Data (Class 150-2500)						Stud Selection			
SIZE in (mm)	ANSI Rating	End Facing	A in (mm)	B in (mm)	C in (mm)	Q'ty	Dia in (mm)	Length in (mm)	Weight kg
12(300)	150	RF	7.13(181)	19.01(483)	12.68(322)	12	0.88(22)	5.5(140)	125
	300	RF	7.13(181)	20.51(521)	12.68(322)	16	1.13(29)	7.5(191)	153
	600	RF/RJ-57	9.00(229)	22.00(559)	12.68(322)	20	1.25(32)	9(229)	239
	900	RF/RJ-57	11.50(292)	24.01(610)	12.68(322)	20	1.38(35)	10.25(260)	347
	1500	RF/RJ-58	12.00(305)	26.49(673)	12.68(322)	16	2.00(51)	23.5(600)	637
	2500	RF/RJ-60	12.00(305)	30.00(762)	12.68(322)	12	2.75(70)	34.5(876)	747
14(350)	150	RF	7.25(184)	20.98(533)	13.70(348)	12	1.00(25)	6(152)	144
	300	RF	8.75(222)	22.99(584)	13.70(348)	20	1.13(29)	7.75(197)	207
	600	RF/RJ-61	10.75(273)	23.74(603)	13.70(348)	20	1.38(35)	9.5(241)	378
	900	RF/RJ-62	14.00(356)	25.23(641)	13.70(348)	20	1.50(38)	11.25(286)	560
	1500	RF/RJ-63	14.00(356)	29.48(749)	13.70(348)	16	2.25(57)	31.5(800)	1097
16(400)	150	RF	7.50(191)	23.50(597)	16.69(424)	16	1.00(25)	6(152)	176
	300	RF	9.13(232)	25.51(648)	16.69(424)	20	1.25(32)	8.25(210)	301
	600	RF/RJ-65	12.00(305)	27.00(686)	16.69(424)	20	1.50(38)	10.25(260)	451
	900	RF/RJ-66	15.13(384)	27.75(705)	16.69(424)	20	1.63(38)	11.75(298)	547
	1500	RF/RJ-67	15.13(384)	32.52(826)	16.69(424)	16	2.50(64)	34.25(870)	1152
18(450)	150	RF	8.00(203)	25.00(635)	18.00(457)	16	1.13(29)	6.5(165)	210
	300	RF	10.38(264)	27.99(711)	18.00(457)	24	1.25(32)	8.5(216)	392
	600	RF/RJ-69	14.25(362)	29.25(743)	18.00(457)	20	1.63(41)	11(279)	598
	900	RF/RJ-70	17.75(451)	30.98(787)	18.00(457)	20	1.88(48)	13.5(343)	835
	1500	RF/RJ-71	18.44(468)	35.98(914)	18.00(457)	16	2.75(70)	39.75(1010)	1775
20(500)	150	RF	8.38(213)	27.52(699)	20.16(512)	20	1.13(29)	7(178)	270
	300	RF	11.50(292)	30.51(775)	20.16(512)	24	1.25(32)	9(229)	489
	600	RF/RJ-73	14.50(368)	32.00(813)	20.16(512)	24	1.63(41)	11.75(298)	762
	900	RF/RJ-74	17.75(451)	33.74(857)	20.16(512)	20	2.00(51)	14.5(368)	1783
	1500	RF/RJ-75	20.98(533)	38.74(984)	20.16(512)	16	3.00(76)	44.25(1124)	2675
24(600)	150	RF	8.75(222)	32.00(813)	23.75(603)	20	1.25(32)	7.5(191)	520
	300	RF	12.50(318)	35.98(914)	23.75(603)	24	1.50(38)	10.25(260)	756
	600	RF/RJ-77	17.25(438)	37.00(940)	23.75(603)	24	1.88(48)	13.5(343)	1143
	900	RF/RJ-78	19.50(495)	40.98(1041)	23.75(603)	20	2.50(64)	18.25(464)	1888
	1500	RF/RJ-79	22.00(559)	45.98(1168)	23.75(603)	16	3.50(89)	48.5(1232)	3280

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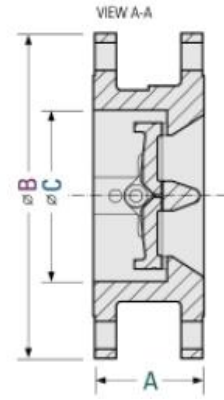
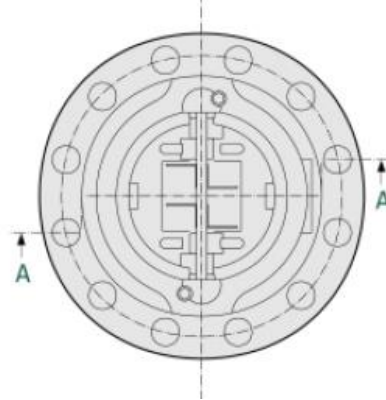


NeroValves GmbH

Industrial Valves: DIN · API · ASME

Nero dual plate check Valves flange Type

Dual Plate Check Valves
Flange Body dimension (12 inch – Larger)



Dimension Data (Class 150-2500)						Stud Selection			
SIZE in (mm)	ANSI Rating	End Facing	A in (mm)	B in (mm)	C in (mm)	Q'ty	Dia in (mm)	Length in (mm)	Weight kg
26(650)	150	RF	11.26(286)	34.25(870)	24.78(629)	24	1.25(32)	9(229)	1007
	300	RF	14.01(356)	38.25(972)	24.78(629)	28	1.63(41)	11(279)	1238
	600	RF/RJ-73	17.99(457)	40(1016)	24.78(629)	28	1.87(47)	14.63(372)	1418
	900	RF/RJ-100	20.98(533)	42.75(1086)	24.78(629)	20	2.75(69)	19.13(486)	1991
28(700)	150	RF	12.64(321)	36.5(927)	27.64(702)	28	1.25(32)	9.25(235)	1025
	300	RF	15.00(381)	40.75(1035)	27.64(702)	28	1.62(41)	11.5(292)	1120
	600	RF/RJ-94	19.00(483)	42.25(1073)	27.64(702)	28	2.00(51)	15.38(391)	1467
	900	RF/RJ-101	22.52(572)	46(1168)	27.64(702)	20	3.00(76)	20.5(521)	2426
30(750)	150	RF	12.00(305)	38.75(984)	30.12(765)	28	1.25(32)	9.5(241)	793
	300	RF	14.49(368)	43(1092)	30.12(765)	28	1.75(44)	12(305)	1603
	600	RF/RJ-95	19.88(505)	44.5(1130)	30.12(765)	28	2.00(51)	16(406)	2445
	900	RF/RJ-102	25.00(635)	48.5(1232)	30.12(765)	20	3.00(76)	21.38(543)	3080
32(800)	150	RF	14.01(356)	41.75(1060)	30.87(784)	28	1.50(38)	10.5(268)	844
	300	RF	15.98(406)	45.25(1149)	30.87(784)	28	1.88(48)	12.63(321)	1331
	600	RF/RJ-96	20.98(533)	47(1194)	30.87(784)	28	2.25(57)	17.13(435)	1747
	900	RF/RJ-105	25.98(660)	51.75(1314)	30.87(784)	28	3.25(83)	22.75(578)	2620
36(900)	150	RF	14.50(368)	46(1168)	34.00(864)	32	1.50(38)	11.25(286)	1060
	300	RF	19(483)	50(1270)	34.00(864)	32	2(51)	13.75(349)	2137
	600	RF/RJ-98	25(635)	51.75(1314)	34.00(864)	28	2.5(64)	18.75(476)	4735
	900	RF/RJ-105	28.25(718)	57.5(1461)	34.00(864)	20	3.5(89)	24.88(632)	6120
40(1000)	150	RF	17.00(432)	50.75(1289)	38.86(987)	36	1.50(38)	11.25(286)	1423
	300	RF	21.5(546)	48.75(1238)	38.86(987)	32	1.625(41)	13.25(337)	3073
	600	RF	26(660)	52(1321)	38.86(987)	32	2.25(57)	18.25(464)	6314
	900	RF	30(762)	59.5(1511)	38.86(987)	24	3.5(89)	25.63(651)	6688
42(1050)	150	RF	17.00(432)	53(1346)	39.21(996)	36	1.50(38)	11.63(295)	1651
	300	RF	22.28(568)	50.75(1289)	39.21(996)	32	1.63(41)	13.63(346)	4429
	600	RF	27.63(702)	55.25(1403)	39.21(996)	28	2.5(64)	19.5(495)	5278
	900	RF	31(787)	61.5(1562)	39.21(996)	24	3.5(89)	26.25(667)	6317
48(1200)	150	RF	20.63(524)	59.8(1511)	46.97(1193)	44	1.50(38)	12.5(318)	2524
	300	RF	24.75(629)	57.75(1467)	46.97(1193)	32	1.88(48)	15.25(387)	5010
	600	RF	31(787)	62.75(1594)	46.97(1193)	32	2.75(70)	22(559)	6029
54(1350)	150	RF	21.25(540)	66.25(1683)	47.95(1218)	44	1.75(44)	14(356)	3227
	300	RF	28.25(718)	65.25(1581)	47.95(1218)	28	2.25(57)	17.5(446)	4217

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