KOFLOW

BALL VALVES

Ball Valve Model Schedule Illustration

1 2 3 4 5 6 7 8

① Codes of Nominal Diameter

British series indicated by A××in value, and metric series indicated by G××mm value.

② Codes of Driving Modes (For handle or lever drive, this code can be omitted.)

3—Manual Operator; 6—Pneumatic; 6S—Pneumatic Spring Return; 6A—Pneumatic Control; 5—Gear Drive; 7—Hydraulic; 8—Airdraulic; 8H—Airdraulic with Emergency Cutoff; 9—Electric

③ Codes of Valve Types

FB-Float Ball Valve; TB-Fixed Ball Valve

④ Codes of Nominal Pressure Class

1—PN1.6 class150 ; 2—PN2.5; 3—class300; 4—PN4.0 class400 ; 6—PN6.4 class600

9—class900; 10—PN10.0; 15—class1500; 16—PN16.0; 20—PN20.0; 25—class2500;

⑤ Codes of Connecting Modes

RF—Raised Face Flange; FF—Fully Flat Face Flange; MFM—Male and Female Flange; TG—Tongued and Grooved Flange; RJ—Ring Junction Flange; BW—Butt Welding; SW—Socket Welding; NPT—Threaded Connection

⑥Codes of Structural Modes

1—Full Bore Straightway; 2—Reducing Straightway; 3T—T-shaped Three-Way; 3L—L-shaped Three-way; 4—Four-way; 5—Overall Top Installed (Full Bore); 5A—Overall Top Installed (Reducing); 6—Track Ball Valve (Full Bore); 6A—Track Ball Valve (Reducing); 7H—Eccentric Half Ball; 7F—Eccentric Full Ball; 8—All Welded (Full Bore); 8A—All Welded (Reducing)

⑦ Codes of Shell Materials

C—WCB; C5—C5; C6—WC6; C9—WC9; BL—LCB; CL—LCC

8—CF8; 8M—CF8M; 3—CF3; 3M—CF3M; ML—MONEL

⑧ Codes of Ball Materials

1—WCB; 2—CF8; 3—CF8M; 4—CF3; 5—CF3M

1F—A105or25 2F—304; 3F—316; 4F—304L; 5F—316L

⑨ Codes of Seat Materials

F—PTFE; N—Nylon; G—Carbon Fiber; P—PPL; E—PEEK; M—MOLON

Note:* The letters of " K " 、 " E " 、 " O " and " J " are placed in front of the codes of valve types, respectively representing hydrogen sulphide resistant, extension bar, oxygen, and jacketed ball valve.

Example: A8 " TB3RF1C2F means API 8 " worm gear drive, fixed ball valve, 300Lb, raised face flange, full bore, body material WCB, ball material CF8, and seat of F4.

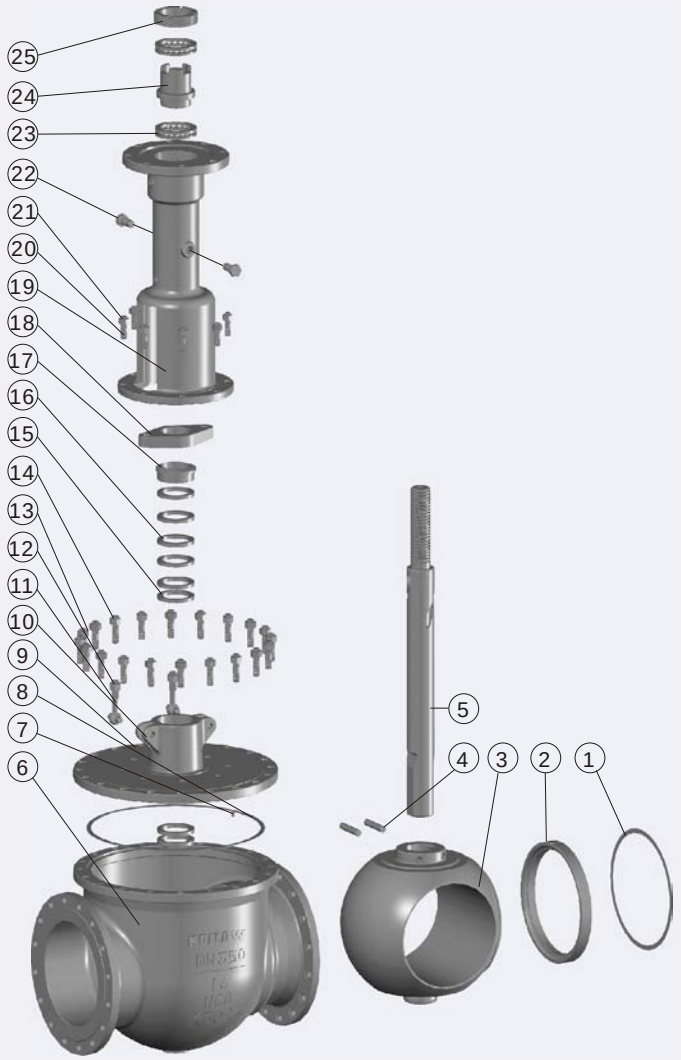
*** The figures mentioned hereunder don't have the codes of caliber and valve material, they are to be specified by users.**

Technical Specifications of Ball Valve

Technical Specifications	API Series	GB Series
Design Specifications	API6D、API608、BS5351	GB/T12237、JB/T7745
Pressure and Temperature Class	ASME B16.34	GB/T9124
Face-to-face	ASME B16.10	GB/T12221、GB/T15188.1
Flange Type and Dimensions	ASME B16.5 、ASME B16.47	GB/T9113 、JB/T79
Butt Welded	ASME B16.25	GB/T12224
Socket Welded	ASME B16.11	/
Threaded	ASME B16.1.20	/
Inspection and Test	API598 、API6D	JB/T9092、GB/T13927
Fireproofing Test	API6FA 、API607	JB/T6899-1993
Quality Inspection of Cast Steel Body	MSS -SP-55	JB/T9092-1999

ORBIT BALL VALVE

Valve Structural Diagram



Product outline drawing

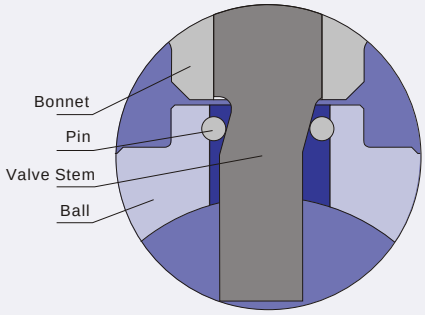
Electric, pneumatic and manual options for the actuator

Materials of Main Parts

No.	Part Name	Materials			No.	Part Name	Materials		
		Carbon Steel	Stainless Steel	Low Temperature Steel			Carbon Steel	Stainless Steel	Low Temperature Steel
1	Valve seat gasket	Flexible graphite+SS			15	Packing Seat	A182 F6a	A182 F316	A182 F316
2	Valve Seat	A105+ENP	A182 F316	A350 LF3	16	Packing	Flexible graphite		
3	Ball	A105+ENP	A182 F316	A350 LF3	17	Packing Gland	A182 F6a	A182 F316	A350 LF3
4	Pin	A182 F6a			18	Pressure Plate	A216 WCB		
5	Valve Stem	A182 F6a	A182 F316	A182 F316	19	Yoke	A216 WCB		
6	Valve Body	A216 WC	A351 CF8M	A352 LCB	20	Stud	A193 B7	A193 B8	A320 L7
7	Limit screw	A193 B7	A193 B8	A320 L7	21	Nut	A194 2H	A194 8	A194 4
8	Gasket	Flexible graphite+SS			22	Guide screw	A193 B7		
9	Bonnet	A216 WCB	A351 CF8M	A352 LCB	23	Thrust ball bearing	/		
10	Pin	A182 F6a			24	Stem Nut	A439 D2		
11	Eyebolt	A193 B7			25	Bearing gland	ANSI 1045+ENP		
12	Nut	A194 2H			Note: 1. Different materials to be used to deal with different working conditions and different requests of users. 2. Different sealing materials available for valve seals according to users' requests (including stainless steel, hard alloy, PTFE and etc.)				
13	Stud	A193 B7	A193 B8	A320 L7					
14	Nut	A194 2H	A194 8	A194 4					

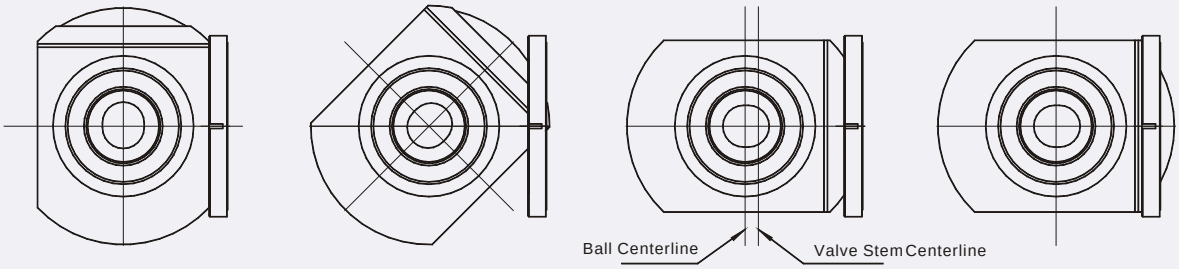
ORBIT BALL VALVE

Operating Principle of Orbit Ball Valve

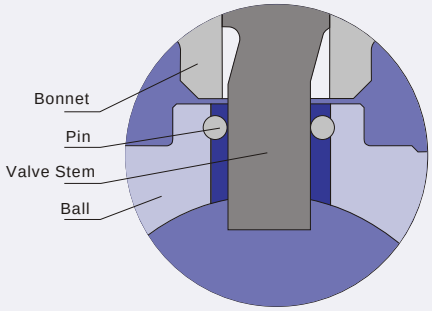


Operating Principle

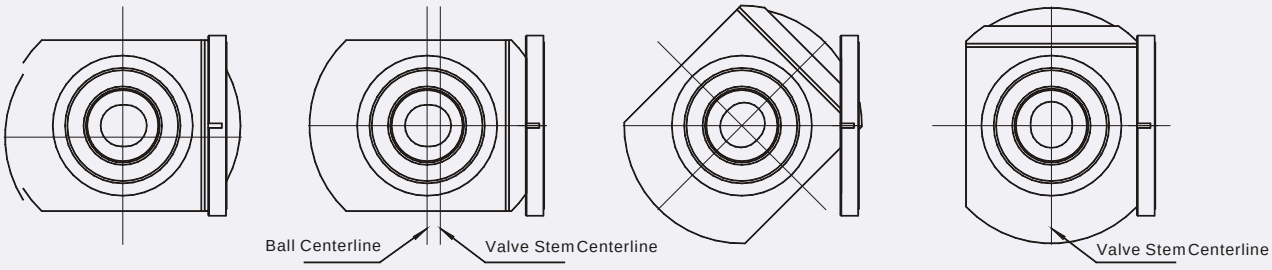
1、When closing the valve, turn the handwheel to make stem lowered. The interaction between precision helical guideway and guide pin makes stem and ball rotating synchronously, and the ball rotating frictionless by 90°. Continue to turn the handwheel to lower the stem, thus to make the ball and valve seat closely contacted.



The process of valve closed



2、When opening the valve, the interaction between pin and guideway will be acted on the ball through the stem, making the ball detached from the seat, and then rotating by 90°. There is no friction between seat and ball, which can lengthen its service life.



The process of valve opened

Structural Features:

1、Frictionless sealing structure, upon opening the valve, the ball will be detached from the seat, and then rotating. As there is no scraping between seal faces, this valve is quite durable.
2、Upon closing the valve, the interaction between pin and guideway performs more dependable seal.
3、Upon closing the valve, the ball is kept a certain space from the seat during the process of rotation. With the rotation of the ball, flow rate will be reduced and flow velocity will be increased to make the seal faces clean.
4、Small volume, compact structure, easy operation and installation, in-line repair accessible, and long service life.
5、With electric or pneumatic device, remote control may be effected to deal with dangerous working conditions, thus to ensure personal safety.

ORBIT BALL VALVE

Product Line

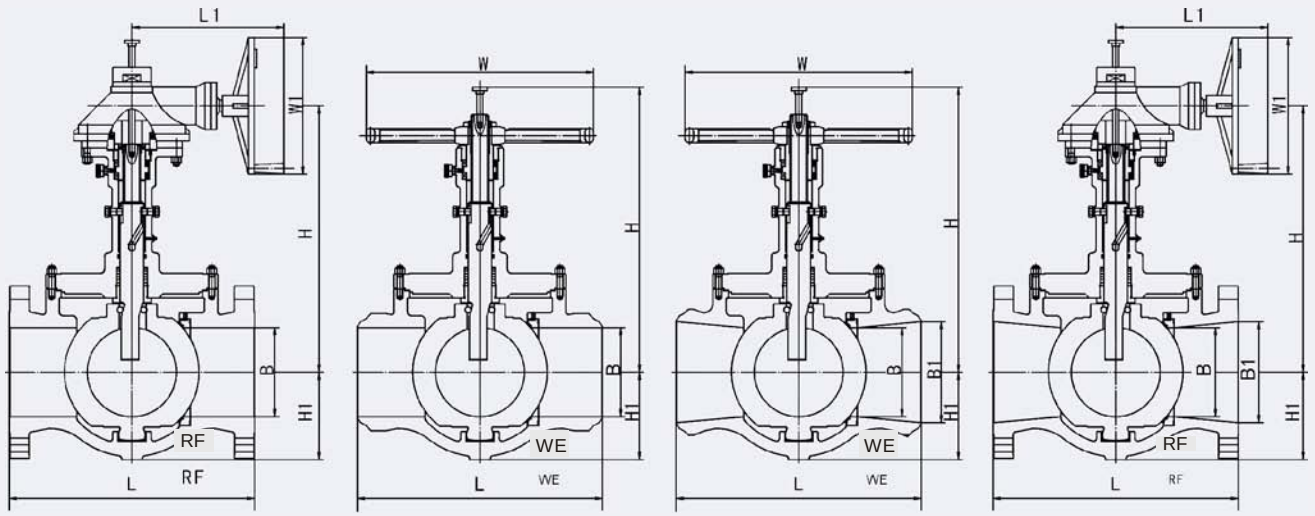
Nominal Diameter		Class					
DN	in	150	300	600	900	1500	2500
50×40	2×2 1/2	●/☆	●/☆	●/☆	/	/	/
50	2	●/☆	●/☆	●/☆	●/☆	●/☆	●/☆
80×50	3×2	●/☆	●/☆	●/☆	●/☆	●/☆	●/☆
80	3	●/☆	●/☆	●/☆	●/☆	●/☆	●/☆
100×80	4×3	●/△	●/△	●/△	●/△	●/△	●/☆
100	4	●/△	●/△	●/△	●/△	●/△	●/☆
150×100	6×4	●/△	●/△	●/△	●/△	●/△	●/☆
150	6	●/☆	●/☆	●/☆	●/☆	●/☆	●/☆
200×150	8×6	●/☆	●/☆	●/☆	●/☆	●/☆	●/☆
200	8	●/☆	●/☆	●/☆	●/☆	●/☆	●/☆
250×200	10×8	●/☆	●/☆	●/☆	●/☆	●/☆	/
250	10	●/☆	●/☆	●/☆	●/☆	●/☆	/
300×250	12×10	●/☆	●/☆	●/☆	●/☆	●/☆	/
300	12	●/☆	●/☆	●/☆	●/☆	●/☆	/
350×300	14×12	●/☆	●/☆	●/☆	●/☆	●/☆	/
350	14	●/☆	●/☆	●/☆	●/☆	/	/
400×300	16×12	●/☆	●/☆	●/☆	●/☆	/	/
400	16	●/☆	●/☆	●/☆	●/☆	/	/
450×400	18×16	●/☆	●/☆	●/☆	●/☆	/	/
450	18	/	/	/	/	/	/
500×400	20×16	●/☆	●/☆	●/☆	●/☆	/	/
500	20	/	●/☆	●/☆	●/☆	/	/
600×500	24×20	/	●/☆	●/☆	●/☆	/	/

Note: 1、● stands for handle operated valves; ☆stands for gearbox operated valves;
△ stands for air operated valves; ★stands for electrically operated valves;
/ stands for no option of this.
Those not covered in the table can be custom made to users' requirements.

Electric and pneumatic valves are not covered in the main outline dimensional drawings, contact us directly for orders of these types.

ORBIT BALL VALVE

CLASS 150~2500



Full Bore Valve

Reduced Bore Valve

Figure No.

A(5)TB(1~25)RF6

A(5)TB(1~25)BW6

A(5)TB(1~25)BW6A

A(5)TB(1~25)RF6A

Main Dimensions

CLASS 150 mm

DN	NPS	L		B	B1	H	H1	L1	W1	W	Weight	
		RF	WE								RF	WE
50×40	2×1 1/2	178	/	43	52	378	76	/	/	180	23	/
50	2	178	216	52	/	381	76	/	/	180	27	25
80×50	3×2	203	216	52	78	381	95	/	/	180	32	32
80	3	203	295	78	/	400	95	/	/	200	36	41
100×80	4×3	229	295	78	103	400	114	/	/	200	45	45
100	4	305	368	103	/	508	114	/	/	250	82	100
150×100	6×4	394	473	103	154	508	140	/	/	250	100	127
150	6	403	508	154	/	691	159	/	/	450	172	136
200×150	8×6	457	473	154	203	691	171	/	/	450	177	209
200	8	457	594	203	/	778	171	/	/	450	236	213
250×200	10×8	533	597	203	254	778	203	/	/	600	263	236
250	10	673	673	254	/	989	235	/	/	600	517	453
300×250	12×10	762	762	254	305	989	241	/	/	600	649	522
300	12	762	762	305	/	1178	276	170	500	/	880	780
350×300	14×12	826	565	305	337	1121	278	170	500	/	957	942
350	14	826	826	337	/	1221	349	225	500	/	1030	890
400×300	16×12	902	/	305	387	1178	298	225	800	/	1041	/
400	16	902	991	387	/	1156	349	225	800	/	1610	1510
450×400	18×16	914	/	387	438	1556	349	225	800	/	1619	/
450	18	1092	/	438	/	1594	375	305	800	/	1641	/
500×400	20×26	991	/	387	489	1556	340	305	800	/	1706	/

ORBIT BALL VALVE

Main Dimensions

CLASS 300 mm

DN	NPS	L		B	B1	H	H1	L1	W1	W	Weight	
		RF	WE								RF	WE
50×40	2×1 1/2	216	/	43	52	378	83	/	/	180	27	/
50	2	216	216	52	/	381	76	/	/	180	32	25
80×50	3×2	282	216	52	78	381	105	/	/	180	36	32
80	3	282	295	78	/	400	95	/	/	200	45	41
100×80	4×3	305	295	78	103	400	127	/	/	200	54	45
100	4	305	368	103	/	508	114	/	/	250	91	100
150×100	6×4	403	473	103	154	508	159	/	/	250	118	127
150	6	403	508	154	/	691	159	/	/	450	172	136
200×150	8×6	502	473	154	203	691	191	/	/	450	191	209
200	8	502	594	203	/	778	171	/	/	450	263	223
250×200	10×8	568	597	203	254	778	222	/	/	600	304	236
250	10	673	673	254	/	989	235	/	/	600	549	453
300×250	12×10	762	762	254	305	989	260	170	500	/	750	557
300	12	762	762	305	/	1178	276	170	500	/	925	818
350×300	14×12	826	/	305	337	1178	292	225	500	/	1086	/
350	14	826	826	337	/	1221	349	225	800	/	993	995
400×300	16×12	902	/	305	387	1221	324	225	800	/	1139	/
400	16	902	991	387	/	1156	349	225	800	/	1674	1510
450×400	18×16	914	914	387	438	1556	356	305	800	/	1728	1732
450	18	/	/	/	/	/	/	/	/	/	/	/
500×400	20×26	991	/	387	489	1556	387	305	800	/	1837	/
500	20	1194	/	489	/	/	/	305	800	/	4364	/
600×500	24×20	1397	/	489	591	/	/	395	1000	/	4695	/

Main Dimensions

CLASS 600 mm

DN	NPS	L		B	B1	H	H1	L1	W1	W	Weight	
		RF	WE								RF	WE
50×40	2×1 1/2	292	/	43	52	378	83	/	/	200	34	/
50	2	292	216	52	/	381	83	/	/	200	32	25
80×50	3×2	356	216	52	78	381	105	/	/	250	50	25
80	3	356	295	78	/	492	105	/	/	250	64	50
100×80	4×3	432	295	78	103	492	137	/	/	450	82	54
100	4	432	368	103	/	575	137	/	/	450	118	100
150×100	6×4	559	473	103	154	575	178	/	/	600	168	127
150	6	559	473	154	/	945	178	/	/	600	254	209
200×150	8×6	660	473	154	203	773	210	/	/	800	295	218
200	8	660	660	203	/	933	210	/	/	800	462	395
250×200	10×8	787	787	203	254	985	254	170	500	/	544	445
250	10	787	787	254	/	1197	254	170	500	/	794	680
300×250	12×10	838	838	254	305	1197	279	225	500	/	921	700
300	12	838	838	305	/	1313	292	225	800	/	1275	1098
350×300	14×12	889	/	305	337	1313	302	225	800	/	1456	/
350	14	889	889	337	/	1313	302	225	800	/	1583	1359
400×300	16×12	991	/	305	387	1313	343	305	800	/	1547	/
400	16	991	991	387	/	1156	349	305	800	/	1814	1601
450×400	18×16	1092	/	387	438	1156	371	305	800	/	1932	/
450	18	/	/	438	/	/	/	/	/	/	/	/
500×400	20×26	1194	/	387	489	1156	406	305	800	/	2127	/
500	20	1194	/	489	/	2389	454	305	800	/	4636	/
600×500	24×20	1397	/	489	591	2389	454	395	1000	/	4914	/

ORBIT BALL VALVE

Main Dimensions

CLASS 900 mm

DN	NPS	L		B	B1	H	H1	L1	W1	W	Weight	
		RJ	WE								RF	WE
50	2	371	270	52	/	478	108	/	/	450	59	41
80×50	3×2	384	270	52	78	478	121	/	/	450	64	45
80	3	384	337	78	/	559	121	/	/	600	77	64
100×80	4×3	460	337	78	103	559	146	/	/	600	91	82
100	4	460	368	103	/	699	146	/	/	800	167	100
150×100	6×4	613	473	103	154	699	191	170	500	/	223	127
150	6	613	584	154	/	953	191	170	500	/	395	309
200×150	8×6	740	584	154	203	897	235	225	500	/	491	314
200	8	740	373	203	/	1202	235	225	800	/	630	476
250×200	10×8	841	737	203	254	1202	273	225	800	/	727	479
250	10	841	838	254	/	1326	273	225	800	/	943	717
300×250	12×10	968	/	254	305	1326	305	305	800	/	10025	/
300	12	968	965	305	/	1508	305	305	800	/	1533	1239
350×300	14×12	1038	/	305	337	1508	321	305	800	/	1683	/
350	14	/	/	337	/	/	/	/	/	/	/	/
400×300	16×12	1140	/	305	387	1508	352	305	800	/	1787	/
400	16	1140	/	387	/	1902	379	305	800	/	3094	/
450×400	18×16	1232	/	387	438	1902	394	395	1000	/	3284	/
450	18	/	/	438	/	/	/	/	/	/	/	/
500×400	20×26	1334	/	387	489	1902	429	395	1000	/	3434	/
500	20	/	/	489	/	/	/	/	/	/	/	/
600×500	24×20	1549	/	489	591	2389	473	395	1000	/	5545	/

CLASS 1500 mm

DN	NPS	L		B	B1	H	H1	L1	W1	W	Weight	
		RJ	WE								RF	WE
50	2	371	270	52	/	478	108	/	/	450	59	41
80×50	3×2	473	270	52	78	478	133	/	/	600	86	45
80	3	473	337	78	/	559	133	/	/	600	113	64
100×80	4×3	549	337	78	103	559	155	/	/	800	127	82
100	4	549	546	103	/	746	155	170	500	/	177	123
150×100	6×4	711	473	103	154	746	197	170	500	/	286	136
150	6	711	705	154	/	1145	197	225	500	/	726	585
200×150	8×6	841	832	154	203	1145	241	225	800	/	930	658
200	8	841	/	203	/	1650	241	225	800	/	1274	/
250×200	10×8	1000	991	203	254	1650	292	225	800	/	1418	1386
250	10	1000	/	254	/	1865	292	305	800	/	2032	/
300×250	12×10	1146	/	254	305	1865	337	305	800	/	2313	/
300	12	1146	/	305	/	2207	340	305	800	/	2857	/
350×300	14×12	1276	/	305	337	2207	375	305	800	/	3069	/

CLASS 2500 mm

DN	NPS	L		B	B1	H	H1	L1	W1	W	Weight	
		RJ	WE								RF	WE
50	2	454	/	52	/	481	117	/	/	600	95	/
80×50	3×2	584	/	52	78	481	152	/	/	800	109	/
80	3	584	/	78	/	683	152	225	500	/	177	/
100×80	4×3	683	/	78	103	683	178	225	800	/	236	/
100	4	683	/	103	/	991	178	225	800	/	351	/
150×100	6×4	927	/	103	154	991	242	225	800	/	426	/
150	6	927	/	154	/	1115	242	305	800	/	885	/
200×150	8×6	1038	/	154	203	1115	227	305	800	/	1028	/
200	8	1036	/	203	/	1534	276	305	800	/	1676	/