

HIGH PERFORMANCE BUTTERFLY VALVE HP 111



Wafer type butterfly valve in double-eccentric construction. Reliable sealing even with extreme temperature and pressure conditions.

TECHNICAL DATA

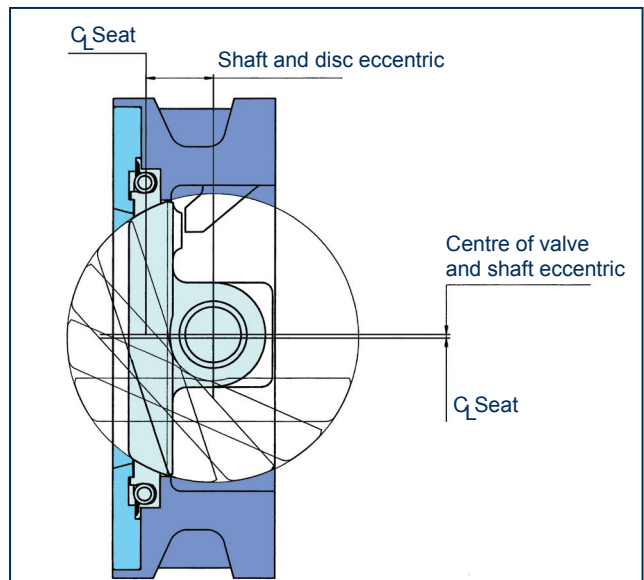
Nominal diameter:	DN 50 - DN 1200 Metallically up to DN 800 max. PN 16
Face-to-face:	EN 558 Series 20, optional Series 25 ISO 5752 Series 20 API 609 Table 1
Flange accommodation:	EN 1092 PN 10/16/25/40 (to DN 150) EN 1092 PN 10/16/25 (DN 200-DN 1200) ASME Class 150 AS 4087 PN16/21
Flange Surface Design:	EN 1092, Form A/B, ASME RF,FF
Top flange:	EN ISO 5211
Marking:	EN 19
Tightness check	
- for R-PTFE seat:	EN 12266 (Leakage rate A)
- for Inconel seat:	EN 12266 (Leakage rate B) ISO 5208, Category 3
Temperature range:	-60°C to +600°C
Differential pressure:	≤ DN150 max. 40 bar > DN150 max. 25 bar
Vacuum:	up to 1mbar absolute

FEATURES

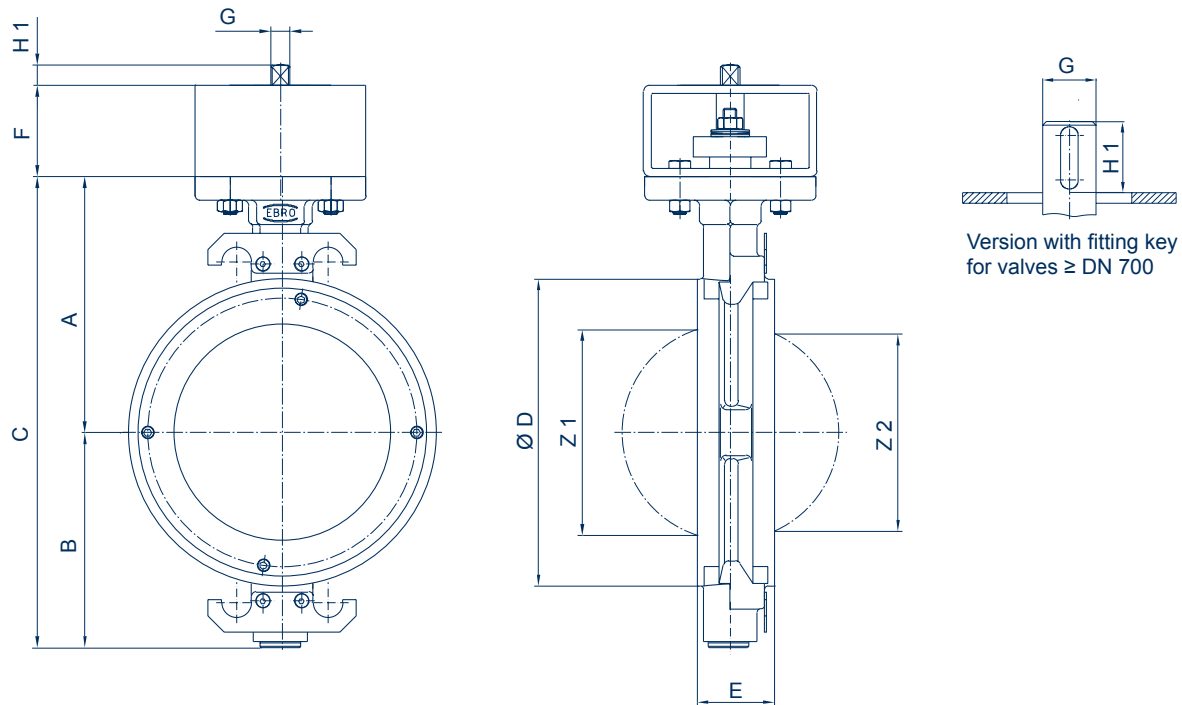
- Shut-off and control of gaseous and liquid media
- Disc and shaft have double-eccentric bearing
- Centering pieces can be used as installation aid
- Two seat ring systems available: R-PTFE and Inconel
- Seal variants:
soft-sealing (R-PTFE) max. 230°C
metallic sealing (Inconel) max. 600°C
- Maintenance-free
- Long service life, even at high switching frequencies
- FIRE SAFE BS 6755 PART 2

GENERAL APPLICATIONS

- Chemical and petrochemical industry
- Hot water and steam systems
- District heat supply
- Vacuum systems
- Shipbuilding
- Gas process technology
- Heavy duty services



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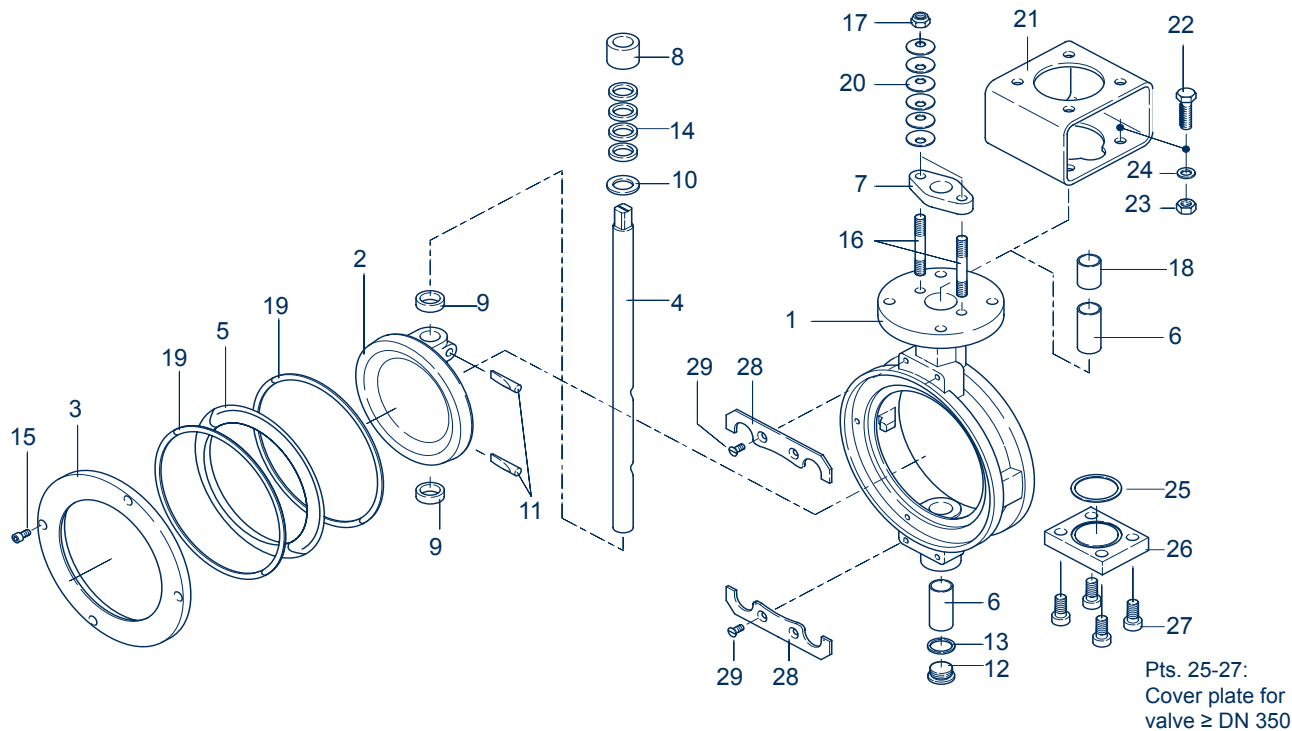
HP 111 with bare shaft end acc. to EN ISO 5211

DN [mm]	Size [in]	Dimensions [mm]											min. pipe-Ø	Weight [kg]
		A	B	C	D	E	F	Flange	G	H1	Z1	Z2		
50	2	133	99	232	112	43	80	F05	12	15	40,9	-	51	7,4
65	2½	133	99	232	112	43	80	F05	12	15	40,9	-	51	7,4
80	3	142	113	255	138	46	80	F05	12	15	70,7	54,4	80	8,0
100	4	158	124	282	160	52	80	F05	12	15	94,2	81,6	103	8,6
125	5	181	140	321	192	56	80	F07	14	18	114,5	105,3	124	12,6
150	6	195	154	349	216	56	80	F07	14	18	143,5	135,4	151	14,8
200	8	225	191	416	270	60	80	F10	17	18	187,4	181,2	196	22,9
250	10	268	222	490	326	68	80	F12	22	23	235,2	228,8	245	33,5
300	12	300	255	555	378	78	90	F12	27	28	280,7	275,8	296	48,0
350	14	345	304	649	438	92	100	F14	27	28	322,8	315,9	334	94,7
400	16	375	339	714	488	102	100	F14	36	36	371,6	363,9	385	115,0
450	18	412	340	752	530	114	120	F16	36	36	426,8	426,8	438	141,0
500	20	425	399	824	593	127	120	F16	46	46	468,7	466	484	186,0
550	22	456	405	861	635	154	200	F25	46	46	525,7	525,7	540	236,0
600	24	490	468	958	692	154	200	F25	55	55	544,2	542,2	560	310,0
700	28	554	522	1076	820	165	200	F25	80	130	673	659	678	430,0
800	32	605	566	1171	902	190	200	F30	90	130	748	736	776	551,0
900	36	660	637	1297	1006	204	200	F30	100	145	847	833	876	732,0
1000	40	715	687	1402	1112	216	200	F30	100	145	944	935	975	802,0
1200	48	815	800	1615	1328		200	F35	110	185	1139	1135	1175	1300,0

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MATERIAL SPECIFICATION AND PARTS LIST



Pt.	Description	Material	Material No.	ASTM	Pt.	Description	Material	Material No.	ASTM
1	Body	Carbon Steel	GS-C25N	1.0619	WCB	14	Shaft seal		
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M		PTFE		
							Graphite		
2	Disc	Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	15	Hex.-socket screw		
							Stainless Steel	A4-70	1.4401
3	Clamping ring								B8M
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	16	Threaded pin		
		Stainless Steel	X2CrNiMo17-12-2	1.4404	316 L		Stainless Steel	A2-70	1.4301
		Steel	St37-2	1.0037					B 8
4	Shaft				17	Hex. nut			
		Stainless Steel	X4CrNiMo16-5-1	1.4418			Stainless Steel	A 2	1.4301
5	Seat ring								8
		R-PTFE	PTFE-Compound		18	Spacer sleeve			
		Inconel	Inconel 625				Stainless Steel	X6CrNiMoTi17-12-2	1.4971
		FireSafe	PTFE/Inconel 625						316 Ti
6	Shaft bearing				19	Graphite seal (for metal seat)			
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571			Graphite		
7	Gland flange				20	Belleville spr. washer			
		Stainless Steel	X5CrNi18-10	1.4301			Stainless Steel	X10CrNi18-8	1.4310
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408					301 Ti
8	Thrust collar				21	Bracket			
		Stainless Steel	X5CrNi18-10	1.4301			Steel	St37-2 galvanized	1.0037
9	Bearing ring								283-C
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571					
10	Suppor. washer				22	Hex. bolt			
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571			Steel	St galvanized	CS
11	Taper pin								
		Stainless Steel	X4CrNiMo16-5-1	1.4418	23	Hex. nut			
12	Plug screw DIN 908						Steel	St galvanized	CS
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408					
13	Seal				24	Washer			
		PTFE					Steel	St galvanized	CS
		Graphite			25	Seal			
							Graphite		
					26	Cover plate			
							Steel	St37-2 galvanized	1.0037
							Stainless Steel	G-X5CrNiMo19-11-2	1.4408
					27	Hex.-socket screw			
							Stainless Steel	A2-70	1.4301
									B 8
					28	Centering piece			
							Stainless Steel	X6CrNiMoTi17-12-2	1.4571
									316 Ti
					29	Countersunk screw			
							Stainless Steel	A 2	1.4301
									SS
							Other materials upon request		

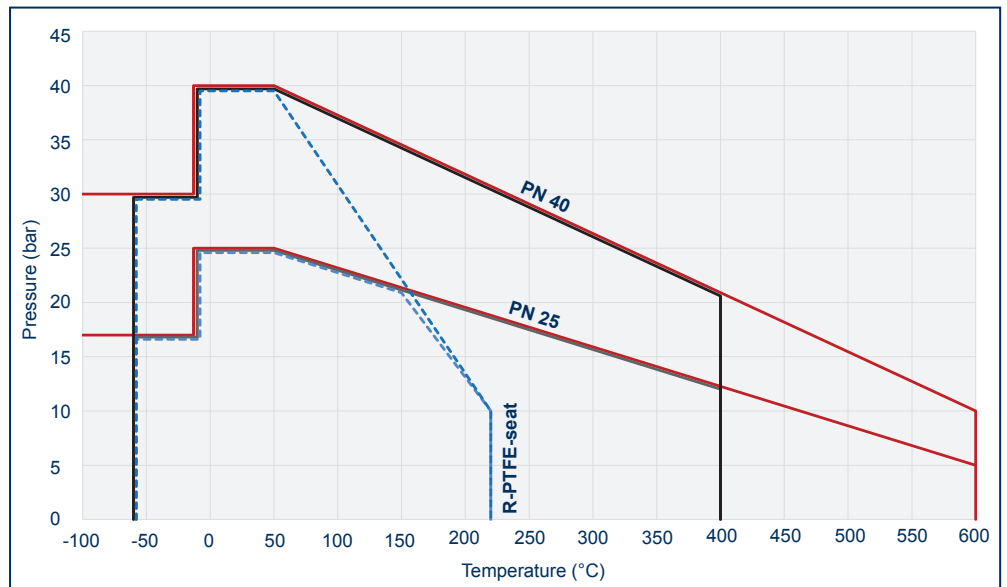
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PRESSURE/TEMPERATURE DIAGRAM

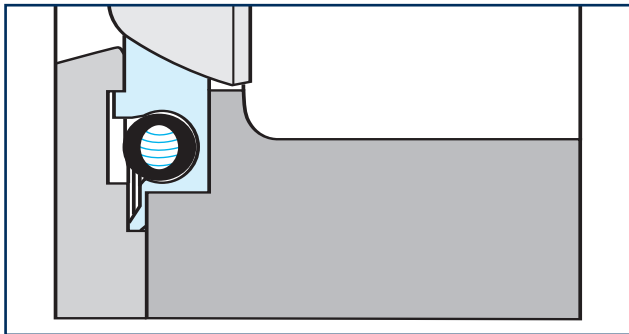
- Pressure control line for 1.0619 body material and metal seat
- Pressure control line for 1.4408 body material and metal seat
- - - Pressure control line for R-PTFE

The diagram illustrates the performance of the standard version of our valve type HP. Valves for higher pressure or deviating temperature are available upon request.



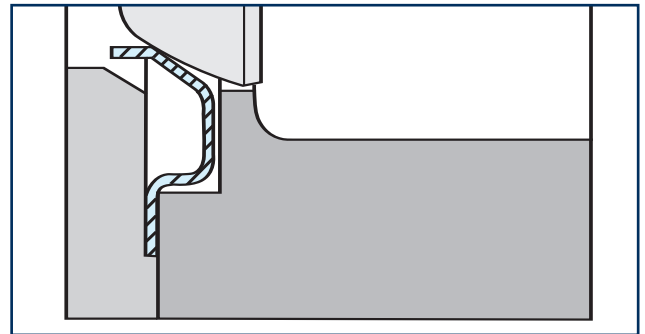
R-PTFE SEAT

The elasticity of the seat ring guarantees sealing according to EN 12266, Leakage Rate A (tight): Leak test with air. The constant test pressure corresponds to the permissible working pressure at 20 °C, not exceeding 6 bar.



INCONEL

The seat ring made of Inconel and is extremely temperaturestable. Tightness according to EN 12266 Leakage Rate B (tight): Testing conditions corresponding to EN 12266, Leakage Rate B, but test media water.



QUALITY FEATURES

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STRAIGHT THROUGH SHAFT

ensures maximum bending strength.

MAINTENANCE-FREE BEARING

For all nominal diameters maintenance free, overlong corrosion and temperature resistant bearings are used for exact centring of the valve discs.

FORCE-LOCKED CONNECTION

between disc and shaft. Low shear stresses thanks to tangentially arranged tapered pins.

INCONEL SEAT RING

The Inconel seat ring guarantees absolute tightness and compensates for wear. The seat ring can be replaced without disassembling the shaft and valve disc.

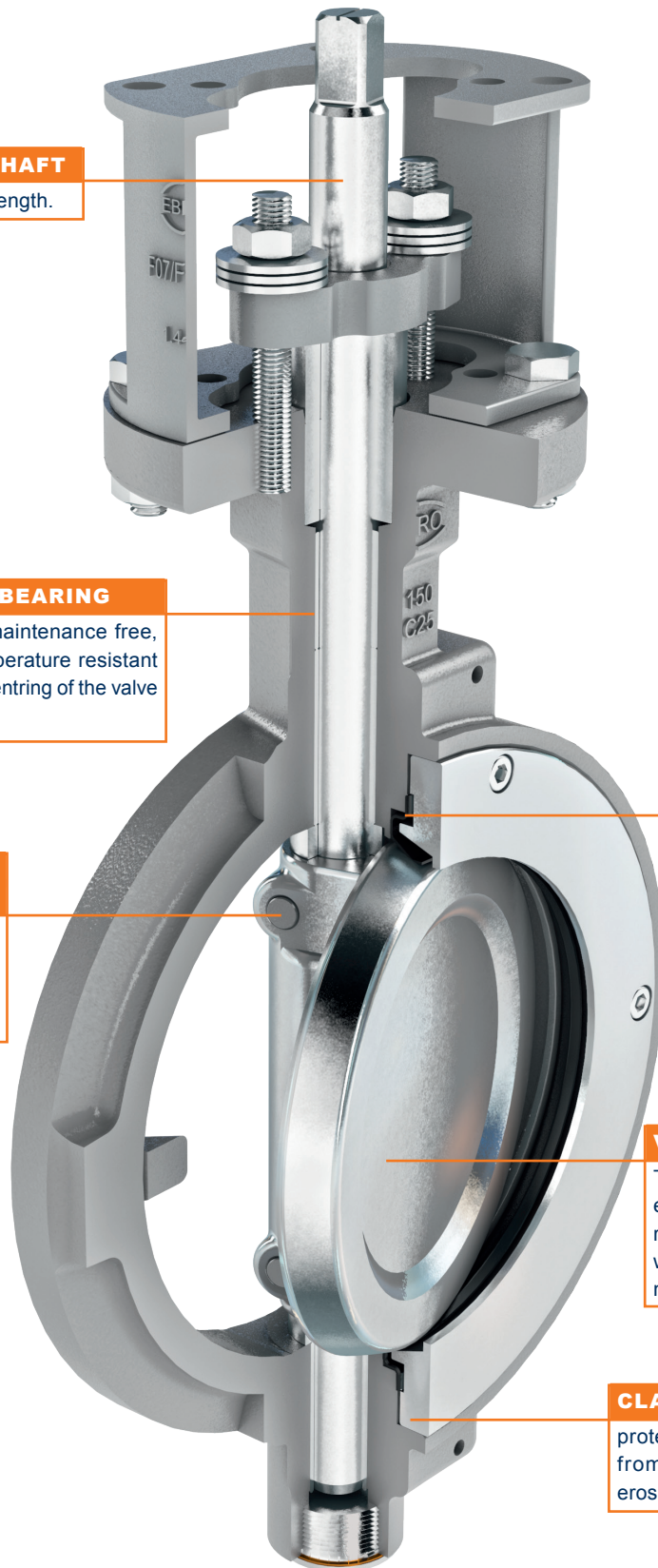
Alternative: R-PTFE or Fire-safe

VALVE DISC

The valve disc has a double eccentric bearing design, resulting in low torques and low wear. All sealing surfaces are machined.

CLAMPING RING

protects the seat ring from abrasion and erosion.



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TORQUE

- The values specified are based on the initial breakaway torque. (disc disengages from seat, torque then drops)

DN [mm]	Size [in]	Operating pressure							
		10 [bar]		16 [bar]		25 [bar]		40 [bar]	
		R-PTFE	Inconel	R-PTFE	Inconel	R-PTFE	Inconel	R-PTFE	Inconel
50-65	2-2½	27	35	28	42	30	58	31	66
80	3	28	55	30	65	34	90	38	100
100	4	51	90	61	100	80	120	93	140
125	5	63	150	83	172	95	220	125	285
150	6	125	170	136	220	168	300	220	360
200	8	205	350	260	430	280	505	-	-
250	10	485	505	550	620	600	860	-	-
300	12	584	740	700	970	855	1280	-	-
350	14	740	815	930	1050	1200	1370	-	-
400	16	1050	1530	1640	2240	2460	2900	-	-
450	18	1150	1700	1750	2500	2700	3500	-	-
500	20	1210	2010	1800	2760	2800	4260	-	-
550	22	3500	3750	4430	4550	6010	6800	-	-
600	24	4000	4500	4600	5740	6200	8080	-	-
700	28	5300	6000	6100	6800	8100	-	-	-
800	32	6400	8000	7400	9500	9800	-	-	-
900	36	7800	-	9000	-	12000	-	-	-
1000	40	9800	-	11300	-	15000	-	-	-
1200	48	14300	-	16500	-	22000	-	-	-

All values in Nm

K_V-VALUES

- The K_V-value [m³ per hour] is the flow of water at a temperature of 5°C to 30°C (41°F to 86°F) at Δp of 1 bar

- The K_V-values specified are based on tests carried out by the Delfter Hydraulics Laboratories, the Netherlands

- Permissible velocity of flow
V_{max} 4,5 m/s for liquids,
V_{max} 70 m/s for gases

- The throttle function is linear at an angle 30° to 70°

- Avoid cavitation!

For further values, please contact our engineers.

DN [mm]	Size [in]	Opening angle α°							
		20°	30°	40°	50°	60°	70°	80°	90°
50	2	1,3	6	15	18	19	21	22	23
65	2½	1,5	7	18	22	23	24	25	25
80	3	7	30	50	68	82	97	113	115
100	4	22	60	97	119	164	199	223	251
125	5	45	100	152	195	256	346	452	493
150	6	63	109	162	250	391	588	814	845
200	8	96	168	301	509	742	1107	1581	1747
250	10	264	458	682	980	1421	2083	2882	2889
300	12	397	625	956	1368	1938	2778	3794	3940
350	14	460	720	1100	1650	2500	3400	4800	5400
400	16	550	870	1250	2000	3200	4800	6800	8080
450	18	730	1200	1800	3100	4600	6400	8400	10500
500	20	920	1600	2600	4100	6000	8500	12100	12800
550	22	1090	1950	3100	4600	7500	10200	14700	15300
600	24	1370	2250	3780	4950	9000	12500	17100	18500
700	28	1999	3182	4764	7738	11451	16283	22071	25000
800	32	2795	4450	6661	10821	16014	22770	30864	34960
900	36	3590	5715	8555	13898	20567	29243	39640	44900
1000	40	4677	7447	11147	18107	26796	38101	51646	58500
1200	48	7188	11444	17130	27826	41179	58552	79367	89900

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