



Telescopic Springs



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Company Profile

Our company was founded in 1995 for production of protective components for the moving parts of machine tools

1995

- Founding of the company HENNIG-IDEAL s.r.o.
- Beginning of the production of telescopic covers for the Czech market

1997

- Beginning of the production of steel flexible cable carriers, 95 % of which for export to Germany
- Beginning of the export of telescopic covers to Germany

1999

- The market share in telescopic covers in the Czech Republic is more than 90 %
- The share of export is 30 to 50 % of the company turnover

2001

- Beginning of the production of guide way wipers
- Moving to a new manufacturing plant with a production area of 3000 m². In this area, the production of telescopic covers can be increased to a target capacity of 2,000 to 2,500 covers per month.
- Cancel of the company HENNIG-IDEAL s.r.o.
- Founding of the company HESTEGO s.r.o.

2003

- Purchase of a CNC Trumatic 6000 L plate forming centre including a TRUMPF Sheet Master 1606 multifunctional automation control system offering a state-of-the-art punching, forming and laser cutting technology.
- ČSN EN ISO 9001 quality system introduction and certification by TÜV Rheinland.
- Beginning of preparatory and design work on the Vyškov manufacturing plant extension by 3200 m² of production area.

2005

- Building completion of the 2nd phase of our manufacturing plant with its manufacturer's area of 3200 m²
- Installation of CNC center for metal machining BYSTRONIC-BYSTAR 3015/4400 W
- Installation of powder paint line IDEAL-LINE
- Displacement of firm domicile to Vyškov
- Start of active participation in international trade fairs of engineering

The company owns a very efficient design software enabling a 3D design. Thanks to our long experience in the telescopic covers design and development we are able to comply with wishes and needs of the most demanding customers. Our firm successfully combines own production with sub-contracted orders for metal sheet made cooperation.

Telescopic Springs

We offer a new generation of high-performance telescopic springs

- Among various shapes of spindle covers telescopic springs continue to hold an important role.
- Telescopic springs are made using special machines that are permanently adjusted to the customers' requirements.
- Telescopic springs are introduced on the market as protective covers of spindles already for a long time.
- They are successfully presented on the market as indestructible, precise, and in various dimensions.
- The new standard program now includes about 1,500 types of springs in dimensions from 15 mm up to 230 mm of internal diameter.
- The extension length is up to 4,500 mm with vertical types.
- Another production variant is stainless steel springs.
- Telescopic springs are made in a standard design of blue steel.

Advantages of Telescopic Springs

- High quality of used strip steel
- ISO 9001, system of maintenance, checking and tests
- Protective packaging suitable for storage
- Additional possibility of assembly
- Possibility of assembly of counter-rotating springs or in rows of more springs.

Technical Data

Spring strip steel of extreme hardness is used for standard telescopic springs (55-58 Rockwell) and strength of up 1,800 N/m². Thickness of the strip steel is from 0.2 to 1.0 mm. If the telescopic springs are regularly exposed to effects of cooling liquid with high water ratio, it is suitable to use telescopic spring of stainless steel. Stainless steel telescopic springs show limited spring forces so they cannot be made in all sizes. Optimum operating conditions are while using in oil (greasy) environment. With minor particles and dust composed bags are alternatively used. Telescopic springs are used for speeds up to 40 m/min as standard.



Maintenance and Cleaning

Maintenance of spiral springs is unnecessary. We recommend cleaning according to the rate of pollution and then apply oil film.

Assembly and operating time

Telescopic springs have different extension according to the assembly position.

I. Horizontal position – Horizontally assembled springs are used with especially even operation while the overlap of individual threads will be larger. This means that the sag, especially with springs with a large extensive length, will be decreased and the lateral stability of springs will be improved. With horizontal use it is recommended to orient the spring so that the splinters fly from the largest diameter of the spring to the smallest diameter of the spring.

II. Vertical position – With vertical use of the springs it is possible to achieve significantly larger extensive length than with the horizontal use. Vertical springs have a high extensive force that secures perfect operation of the spring. We recommend placing the larger diameter of the spring into the upper flange for vertical use.

Flanges

Simple centring flanges are needed for assembly of telescopic springs on both ends. The flanges must allow for free movement of the spring so that jamming of the spring in the flange does not occur. The spring rotates in the flange during compression and extension. The springs must not be riveted, screwed or otherwise fixed to the flange.

Abbreviations

SD Maximum external diameter of the covered part

ID Internal diameter of the spiral spring

IF Internal diameter of the centring flange (ID - 2 mm)

AD External diameter of the spiral spring (±2 mm)

AF Internal diameter of the large centring flange (AD + 4 mm)

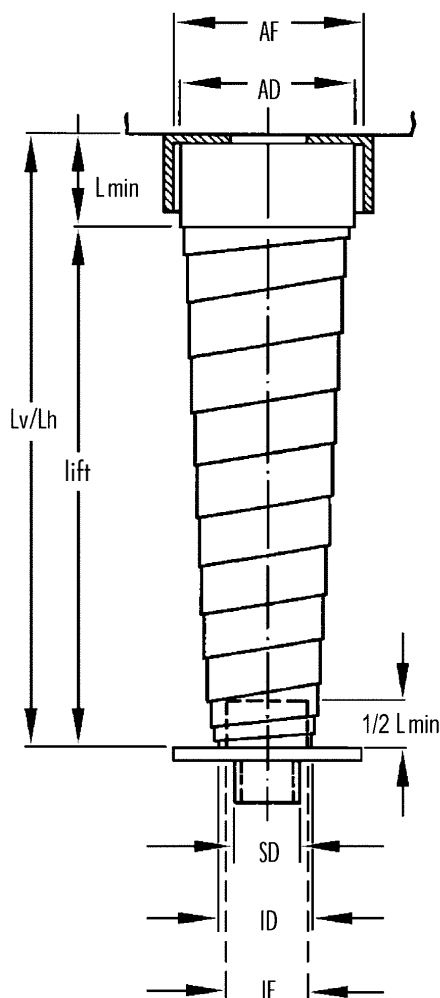
Lh Maximum extension with horizontal use

Lv Maximum extension with vertical use

BB Used strip width (corresponds to Lmin)

n Not supplied

All dimensions are stated in mm



Type	SD	ID	AD	Lh	Lv	BB
15-70-20	11	15	22	na	70	20
15-100-20	11	15	22	60	100	20
15-120-20	11	15	22	90	120	20
15-150-20	11	15	25	110	150	20
15-200-20	11	15	28	160	200	20
15-300-20	11	15	30	260	300	20
20-100-20	16	20	31	60	100	20
20-150-20	16	20	34	110	150	20
20-200-20	16	20	36	160	200	20
20-250-20	16	20	40	210	250	20
20-300-20	16	20	41	260	300	20
20-250-30	16	20	36	210	250	30
20-300-30	16	20	39	260	300	30
20-350-30	16	20	42	310	350	30
20-400-30	16	20	45	360	400	30
20-400-40	16	20	38	360	400	40
20-450-40	16	20	41	410	450	40
20-500-40	16	20	48	460	500	40
25-100-20	21	25	35	60	100	20
25-150-20	21	25	38	110	150	20
25-200-20	21	25	41	160	200	20
25-250-20	21	25	44	210	250	20
25-300-20	21	25	47	260	300	20
25-300-30	21	25	43	240	300	30
25-350-30	21	25	46	290	350	30
25-400-30	21	25	49	340	400	30
25-450-30	21	25	48	390	450	30

Type	SD	ID	AD	Lh	Lv	BB
25-450-40	21	25	48	370	450	40
25-500-40	21	25	51	420	500	40
25-450-50	21	25	40	390	450	50
25-500-50	21	25	42	440	500	50
25-550-50	21	25	43	490	550	50
25-600-50	21	25	44	540	600	50
25-650-50	21	25	45	590	650	50
25-750-50	21	25	47	690	750	50
25-900-50	21	25	57	840	900	50
30-150-30	26	30	39	90	150	30
30-200-30	26	30	42	140	200	30
30-250-30	26	30	44	190	250	30
30-300-30	26	30	46	240	300	30
30-350-30	26	30	49	290	350	30
30-400-30	26	30	52	340	400	30
30-450-30	26	30	53	390	450	30
30-450-40	26	30	53	370	450	40
30-500-40	26	30	56	440	500	40
30-550-40	26	30	58	490	550	40
30-600-40	26	30	60	540	600	40
30-650-40	26	30	62	590	650	40
30-700-40	26	30	64	640	700	40
30-150-50	26	30	40	90	150	50
30-250-50	26	30	43	190	250	50
30-350-50	26	30	46	290	350	50
30-450-50	26	30	48	390	450	50
30-550-50	26	30	50	490	550	50

Type	SD	ID	AD	Lh	Lv	BB
30-650-50	26	30	55	590	650	50
30-750-50	26	30	59	690	750	50
30-650-60	26	30	52	590	650	60
30-750-60	26	30	57	690	750	60
30-900-60	26	30	59	840	900	60
30-1000-60	26	30	62	940	1000	60
35-100-20	31	35	46	60	100	20
35-100-30	31	35	44	60	100	30
35-150-30	31	35	48	90	150	30
35-200-30	31	35	50	140	200	30
35-250-30	31	35	52	190	250	30
35-300-30	31	35	55	240	300	30
35-350-30	31	35	61	290	350	30
35-400-30	31	35	63	340	400	30
35-300-40	31	35	48	240	300	40
35-350-40	31	35	50	290	350	40
35-400-40	31	35	54	340	400	40
35-450-40	31	35	58	390	450	40
35-500-40	31	35	60	440	500	40
35-550-40	31	35	62	490	550	40
35-350-50	31	35	52	290	350	50
35-400-50	31	35	54	340	400	50
35-450-50	31	35	54	390	450	50
35-500-50	31	35	56	440	500	50
35-550-50	31	35	58	490	550	50
35-650-50	31	35	61	590	650	50
35-750-50	31	35	65	690	750	50



Type	SD	ID	AD	Lh	Lv	BB
35-850-50	31	35	65	790	850	50
35-450-60	31	35	53	390	450	60
35-550-60	31	35	56	490	550	60
35-650-60	31	35	59	590	650	60
35-750-60	31	35	64	690	750	60
35-850-60	31	35	64	790	850	60
35-550-75	31	35	55	490	550	75
35-650-75	31	35	57	590	650	75
35-750-75	31	35	58	690	750	75
35-850-75	31	35	59	790	850	75
40-150-30	36	40	51	90	150	30
40-250-30	36	40	56	190	250	30
40-350-30	36	40	60	290	350	30
40-450-30	36	40	65	390	450	30
40-350-40	36	40	62	290	350	40
40-400-40	36	40	63	340	400	40
40-450-40	36	40	65	390	450	40
40-500-40	36	40	66	440	500	40
40-550-40	36	40	68	490	550	40
40-350-50	36	40	55	250	350	50
40-450-50	36	40	59	350	450	50
40-550-50	36	40	61	450	550	50
40-650-50	36	40	66	550	650	50
40-750-50	36	40	69	650	750	50
40-850-50	36	40	71	750	850	50
40-350-60	36	40	55	230	350	60
40-450-60	36	40	55	330	450	60
40-550-60	36	40	58	430	550	60
40-650-60	36	40	62	530	650	60
40-750-60	36	40	66	630	750	60
40-900-60	36	40	70	780	900	60
40-650-75	36	40	63	500	650	75
40-750-75	36	40	66	600	750	75
40-900-75	36	40	72	750	900	75
40-1100-75	36	40	78	950	1100	75
40-1300-75	36	40	84	1150	1300	75
40-1500-75	36	40	87	na	1500	75
40-1000-100	36	40	69	800	1000	100
40-1200-100	36	40	71	1000	1200	100
40-1300-100	36	40	75	1100	1300	100
40-1400-100	36	40	76	1200	1400	100
40-1500-100	36	40	79	1300	1500	100
40-1600-100	36	40	81	1400	1600	100
40-1800-100	36	40	82	1600	1800	100
40-1800-120	36	40	83	1560	1800	120
40-2000-120	36	40	86	1760	2000	120
40-2200-120	36	40	91	na	2200	120
45-150-30	41	45	56	90	150	30
45-250-30	41	45	62	190	250	30
45-350-30	41	45	65	290	350	30
45-400-30	41	45	66	340	400	30
45-350-40	41	45	67	290	350	40
45-400-40	41	45	68	340	400	40
45-450-40	41	45	69	390	450	40
45-500-40	41	45	71	na	500	40
45-450-50	41	45	67	350	450	50
45-550-50	41	45	68	450	550	50
45-650-50	41	45	72	550	650	50
45-350-60	41	45	63	230	350	60
45-450-60	41	45	64	330	450	60
45-550-60	41	45	65	430	550	60
45-650-60	41	45	70	530	650	60

Type	SD	ID	AD	Lh	Lv	BB
45-700-60	41	45	70	630	700	60
45-650-75	41	45	68	500	650	75
45-750-75	41	45	76	600	750	75
45-900-75	41	45	78	750	900	75
45-1100-75	41	45	84	950	1100	75
45-1200-75	41	45	86	1150	1200	75
45-1300-75	41	45	89	na	1300	75
45-1000-100	41	45	71	800	1000	100
45-1200-100	41	45	75	1000	1200	100
45-1300-100	41	45	79	1100	1300	100
45-1400-100	41	45	81	1200	1400	100
45-1500-100	41	45	84	1300	1500	100
45-1600-100	41	45	87	1400	1600	100
45-1800-100	41	45	87	na	1800	100
45-1800-120	41	45	90	1560	1800	120
45-2000-120	41	45	91	1760	2000	120
45-2200-120	41	45	100	na	2200	120
50-150-30	46	50	63	90	150	30
50-250-30	46	50	68	190	250	30
50-350-30	46	50	68	290	350	30
50-250-50	46	50	62	150	250	50
50-350-50	46	50	66	250	350	50
50-450-50	46	50	70	350	450	50
50-550-50	46	50	73	450	550	50
50-650-50	46	50	76	550	650	50
50-350-60	46	50	67	230	350	60
50-450-60	46	50	66	330	450	60
50-550-60	46	50	68	430	550	60
50-650-60	46	50	73	530	650	60
50-750-60	46	50	76	630	750	60
50-900-60	46	50	82	780	900	60
50-750-75	46	50	78	600	750	75
50-900-75	46	50	84	750	900	75
50-1100-75	46	50	90	950	1100	75
50-1200-75	46	50	94	1050	1200	75
50-1100-100	46	50	77	900	1100	100
50-1300-100	46	50	80	1100	1300	100
50-1500-100	46	50	87	1300	1500	100
50-1600-100	46	50	92	1400	1600	100
50-1700-100	46	50	93	na	1700	100
50-1800-100	46	50	94	na	1800	100
50-1700-120	46	50	91	1460	1700	120
50-1900-120	46	50	97	1660	1900	120
50-2100-120	46	50	102	1860	2100	120
50-2300-120	46	50	105	na	2300	120
50-2500-120	46	50	111	na	2500	120
50-2800-120	46	50	119	na	2800	120
50-2500-150	46	50	117	2200	2500	150
50-2800-150	46	50	119	2500	2800	150
50-3000-150	46	50	124	na	3000	150
50-3000-180	46	50	123	2640	3000	180
50-3250-180	46	50	130	na	3250	180
50-3250-200	46	50	128	2850	3250	200
50-3500-200	46	50	134	na	3500	200
55-150-30	51	55	68	90	150	30
55-250-30	51	55	73	190	250	30
55-300-40	51	55	71	220	300	40
55-450-40	51	55	76	370	450	40
55-250-50	51	55	66	150	250	50
55-350-50	51	55	71	250	350	50
55-450-50	51	55	74	350	450	50
55-550-50	51	55	77	450	550	50

Type	SD	ID	AD	Lh	Lv	BB
55-650-50	51	55	80	450	650	50
55-550-60	51	55	75	430	550	60
55-650-60	51	55	79	530	650	60
55-750-60	51	55	83	630	750	60
55-800-60	51	55	86	680	800	60
55-900-60	51	55	89	780	900	60
55-1000-60	51	55	92	na	1000	60
55-600-75	51	55	86	450	600	75
55-750-75	51	55	83	600	750	75
55-900-75	51	55	89	750	900	75
55-1100-75	51	55	94	950	1100	75
55-1100-100	51	55	88	900	1100	100
55-1300-100	51	55	89	1100	1300	100
55-1500-100	51	55	94	1300	1500	100
55-1800-100	51	55	102	na	1800	100
55-1300-120	51	55	86	1060	1300	120
55-1500-120	51	55	94	1260	1500	120
55-1700-120	51	55	96	1460	1700	120
55-1900-120	51	55	103	1660	1900	120
55-2100-120	51	55	106	1860	2100	120
55-2300-120	51	55	110	2060	2300	120
55-2500-120	51	55	117	na	2500	120
55-2800-120	51	55	119	na	2800	120
55-2500-150	51	55	121	2200	2500	150
55-2800-150	51	55	122	2500	2800	150
55-3000-150	51	55	126	na	3000	150
55-3500-150	51	55	130	na	3500	150
55-2800-180	51	55	116	2500	2800	180
55-3000-180	51	55	127	2640	3000	180
55-3250-180	51	55	130	na	3250	180
55-3500-180	51	55	132	na	3500	180
60-150-30	56	60	73	90	150	30
60-250-30	56	60	78	190	250	30
60-250-50	56	60	72	150	250	50
60-350-50	56	60	78	250	350	50
60-450-50	56	60	82	350	450	50
60-550-50	56	60	86	450	550	50
60-450-60	56	60	78	430	450	60
60-550-60	56	60	81	430	550	60
60-650-60	56	60	85	530	650	60
60-750-60	56	60	89	630	750	60
60-800-60	56	60	96	680	800	60
60-900-60	56	60	97	na	900	60
60-750-75	56	60	89	600	750	75
60-900-75	56	60	95	750	900	75
60-1100-75	56	60	102	950	1100	75
60-1300-75	56	60	104	1150	1300	75
60-900-100	56	60	85	700	900	100
60-1100-100	56	60	90	900	1100	100
60-1300-100	56	60	94	1100	1300	100
60-1500-100	56	60	101	1300	1500	100
60-1800-100	56	60	109	na	1800	100
60-1700-120	56	60	101	1460	1700	120
60-1900-120	56	60	104	1660	1900	120
60-2100-120	56	60	112	1860	2100	120
60-2300-120	56	60	114	2060	2300	120
60-2500-120	56	60	119	na	2500	120
60-2800-120	56	60	127	na	2800	120
60-2500-150	56	60	118	2300	2500	150
60-2800-150	56	60	123	2500	2800	150
60-3000-150	56	60	129	na	3000	150
60-3500-150	56	60	140	na	3500	150

Type	SD	ID	AD	Lh	Lv	BB
60-3000-180	56	60	128	2640	3000	180
60-3250-180	56	60	132	na	3250	180
60-3250-200	56	60	132	2850	3250	200
60-3500-200	56	60	139	na	3500	200
65-100-30	61	65	76	90	100	30
65-150-30	61	65	78	90	150	30
65-250-30	61	65	85	190	250	30
65-250-50	61	65	76	150	250	50
65-350-50	61	65	83	250	350	50
65-450-50	61	65	88	350	450	50
65-550-50	61	65	92	450	550	50
65-500-60	61	65	86	380	500	60
65-550-60	61	65	88	430	550	60
65-650-60	61	65	92	530	650	60
65-700-60	61	65	94	580	700	60
65-750-60	61	65	96	630	750	60
65-800-60	61	65	98	680	800	60
65-850-60	61	65	100	730	850	60
65-900-60	61	65	104	780	900	60
65-750-75	61	65	93	600	750	75
65-800-75	61	65	96	650	800	75
65-900-75	61	65	99	750	900	75
65-1100-75	61	65	107	900	1100	75
65-1300-75	61	65	111	1100	1300	75
65-1500-75	61	65	115	na	1500	75
65-1000-100	61	65	91	800	1000	100
65-1100-100	61	65	95	900	1100	100
65-1300-100	61	65	100	1100	1300	100
65-1500-100	61	65	109	1300	1500	100
65-1700-100	61	65	114	na	1700	100
65-1800-100	61	65	120	na	1800	100
65-1500-120	61	65	102	1260	1500	120
65-1700-120	61	65	106	1460	1700	120
65-1900-120	61	65	109	1660	1900	120
65-2100-120	61	65	113	1860	2100	120
65-2300-120	61	65	118	2060	2300	120
65-2500-120	61	65	128	na	2500	120
65-2800-120	61	65	132	na	2800	120
65-3000-120	61	65	130	na	3000	120
65-2400-150	61	65	121	2100	2400	150
65-2800-150	61	65	133	2500	2800	150
65-3000-150	61	65	139	na	3000	150
65-3000-180	61	65	136	2640	3000	180
65-3250-180	61	65	146	na	3250	180
65-3250-200	61	65	140	2850	3250	200
65-3500-200	61	65	148	na	3500	200
70-150-30	66	70	85	90	150	30
70-250-30	66	70	93	190	250	30
70-350-30	66	70	99	290	350	30
70-250-50	66	70	84	150	250	50
70-350-50	66	70	89	250	350	50
70-450-50	66	70	94	350	450	50
70-550-50	66	70	98	450	550	50
70-650-50	66	70	100	na	650	50
70-550-60	66	70	94	430	550	60
70-650-60	66	70	97	530	650	60
70-750-60	66	70	103	630	750	60
70-900-60	66	70	113	800	900	60
70-500-75	66	70	94	350	500	75
70-600-75	66	70	94	450	600	75
70-700-75	66	70	98	550	700	75
70-800-75	66	70	100	650	800	75

Type	SD	ID	AD	Lh	Lv	BB
70-900-75	66	70	106	750	900	75
70-1100-75	66	70	113	900	1100	75
70-700-100	66	70	90	700	700	100
70-900-100	66	70	98	900	900	100
70-1100-100	66	70	102	900	1100	100
70-1300-100	66	70	107	1100	1300	100
70-1500-100	66	70	115	1300	1500	100
70-1800-100	66	70	124	na	1800	100
70-1500-120	66	70	112	1260	1500	120
70-1800-120	66	70	118	1560	1800	120
70-2000-120	66	70	125	1760	2000	120
70-2200-120	66	70	130	1960	2200	120
70-2400-120	66	70	138	na	2400	120
70-2600-120	66	70	143	na	2600	120
70-2800-120	66	70	147	na	2800	120
70-3000-120	66	70	147	na	3000	120
70-2000-150	66	70	129	1700	2000	150
70-2400-150	66	70	135	2100	2400	150
70-2800-150	66	70	139	na	2800	150
70-3000-150	66	70	149	na	3000	150
70-2800-180	66	70	138	2440	2800	180
70-3000-180	66	70	141	na	3000	180
70-3250-180	66	70	153	na	3250	180
70-3250-200	66	70	144	2850	3250	200
70-3500-200	66	70	155	na	3500	200
75-150-30	71	75	92	90	150	30
75-250-30	71	75	99	190	250	30
75-250-50	71	75	89	150	250	50
75-350-50	71	75	94	250	350	50
75-450-50	71	75	101	350	450	50
75-500-50	71	75	105	400	500	50
75-550-60	71	75	100	430	550	60
75-650-60	71	75	103	530	650	60
75-750-60	71	75	109	630	750	60
75-650-75	71	75	99	500	650	75
75-750-75	71	75	104	600	750	75
75-900-75	71	75	111	750	900	75
75-1000-75	71	75	120	850	1000	75
75-1100-75	71	75	125	950	1100	75
75-900-100	71	75	102	na	900	100
75-1100-100	71	75	108	900	1100	100
75-1200-100	71	75	112	1000	1200	100
75-1300-100	71	75	114	1100	1300	100
75-1500-100	71	75	120	1300	1500	100
75-1700-100	71	75	126	1500	1700	100
75-1800-100	71	75	128	1600	1800	100
75-2000-100	71	75	133	na	2000	100
75-2200-100	71	75	139	na	2200	100
75-1500-120	71	75	115	1260	1500	120
75-1800-120	71	75	125	1560	1800	120
75-2000-120	71	75	128	1760	2000	120
75-2200-120	71	75	132	na	2200	120
75-2400-120	71	75	141	na	2400	120
75-2600-120	71	75	143	na	2600	120
75-2800-120	71	75	149	na	2800	120
75-2000-150	71	75	135	1700	2000	150
75-2400-150	71	75	141	2100	2400	150
75-2600-150	71	75	144	na	2600	150
75-2800-150	71	75	145	na	2800	150
75-3000-150	71	75	153	na	3000	150
75-2800-180	71	75	143	2440	2800	180
75-3000-180	71	75	148	na	3000	180

Type	SD	ID	AD	Lh	Lv	BB
75-3250-180	71	75	156	na	3250	180
75-3250-200	71	75	148	2850	3250	200
75-3500-200	71	75	158	na	3500	200
80-150-30	76	80	98	90	150	30
80-250-30	76	80	105	190	250	30
80-250-50	76	80	96	150	250	50
80-350-50	76	80	104	250	350	50
80-450-50	76	80	111	350	450	50
80-550-50	76	80	114	450	550	50
80-450-60	76	80	102	330	450	60
80-550-60	76	80	106	430	550	60
80-650-60	76	80	110	530	650	60
80-750-60	76	80	115	630	750	60
80-550-75	76	80	99	400	550	75
80-650-75	76	80	105	500	650	75
80-750-75	76	80	109	600	750	75
80-900-75	76	80	120	750	900	75
80-1000-75	76	80	123	850	1000	75
80-1200-75	76	80	128	na	1200	75
80-900-100	76	80	108	700	900	100
80-1100-100	76	80	114	900	1100	100
80-1300-100	76	80	120	1100	1300	100
80-1500-100	76	80	126	1300	1500	100
80-1800-100	76	80	134	na	1800	100
80-1300-120	76	80	116	1060	1300	120
80-1500-120	76	80	121	1260	1500	120
80-1800-120	76	80	129	1560	1800	120
80-2000-120	76	80	134	na	2000	120
80-2200-120	76	80	137	na	2200	120
80-2400-120	76	80	144	na	2400	120
80-2800-120	76	80	147	na	2800	120
80-2000-150	76	80	139	1700	2000	150
80-2200-150	76	80	142	1900	2200	150
80-2400-150	76	80	152	2100	2400	150
80-2600-150	76	80	148	2300	2600	150
80-2800-150	76	80	152	na	2800	150
80-3000-150	76	80	159	na	3000	150
80-2800-180	76	80	127	2440	2800	180
80-3000-180	76	80	154	na	3000	180
80-3250-180	76	80	161	na	3250	180
80-3000-200	76	80	154	2600	3000	200
80-3250-200	76	80	160	na	3250	200
80-3500-200	76	80	163	na	3500	200
85-150-30	81	85	103	90	150	30
85-250-30	81	85	110	190	250	30
85-250-50	81	85	104	150	250	50
85-350-50	81	85	110	250	350	50
85-450-50	81	85	116	350	450	50
85-550-50	81	85	119	450	550	50
85-450-60	81	85	107	330	450	60
85-550-60	81	85	111	430	550	60
85-650-60	81	85	115	530	650	60
85-550-75	81	85	108	400	550	75
85-650-75	81	85	109	500	650	75
85-750-75	81	85	114	600	750	75
85-900-75	81	85	125	750	900	75
85-900-100	81	85	113	700	900	100
85-1100-100	81	85	119	900	1100	100
85-1300-100	81	85	125	1100	1300	100
85-1500-100	81	85	127	1300	1500	100
85-1300-120	81	85	120	1060	1300	120
85-1500-120	81	85	126	1260	1500	120



Type	SD	ID	AD	Lh	Lv	BB
85-1800-120	81	85	133	1560	1800	120
85-2000-120	81	85	138	na	2000	120
85-2000-150	81	85	144	1700	2000	150
85-2200-150	81	85	147	1900	2200	150
85-2400-150	81	85	152	2100	2400	150
85-2600-150	81	85	153	na	2600	150
85-2800-150	81	85	157	na	2800	150
85-3000-150	81	85	164	na	3000	150
85-2800-180	81	85	153	2440	2800	180
85-3000-180	81	85	159	na	3000	180
85-3250-180	81	85	166	na	3250	180
85-3000-200	81	85	159	2600	3000	200
85-3250-200	81	85	165	na	3250	200
85-3500-200	81	85	168	na	3500	200
90-150-30	86	90	110	90	150	30
90-250-50	86	90	116	190	250	30
90-150-50	86	90	112	50	150	50
90-250-50	86	90	116	150	250	50
90-350-50	86	90	121	250	350	50
90-450-50	86	90	125	350	450	50
90-350-60	86	90	112	230	350	60
90-450-60	86	90	114	330	450	60
90-450-75	86	90	114	300	450	75
90-550-75	86	90	119	400	550	75
90-650-75	86	90	124	500	650	75
90-750-75	86	90	128	600	750	75
90-900-75	86	90	133	750	900	75
90-750-100	86	90	116	550	750	100
90-900-100	86	90	123	700	900	100
90-1100-100	86	90	127	900	1100	100
90-1300-100	86	90	132	1100	1300	100
90-1500-100	86	90	144	1300	1500	100
90-1300-120	86	90	127	1060	1300	120
90-1500-120	86	90	131	1260	1500	120
90-1800-120	86	90	138	na	1800	120
90-2000-120	86	90	150	na	2000	120
90-1800-150	86	90	144	1500	1800	150
90-2000-150	86	90	150	1700	2000	150
90-2300-150	86	90	154	na	2300	150
90-2600-150	86	90	159	na	2600	150
90-2800-150	86	90	162	na	2800	150
90-3000-150	86	90	166	na	3000	150
90-2600-180	86	90	152	2240	2600	180
90-2800-180	86	90	158	na	2800	180
90-3000-180	86	90	164	na	3000	180
90-2600-200	86	90	155	na	2600	200
90-3000-200	86	90	162	na	3000	200
90-3250-200	86	90	166	na	3250	200
90-3500-200	86	90	170	na	3500	200
90-3700-200	86	90	173	na	3700	200
90-4000-200	86	90	180	na	4000	200
90-4200-200	86	90	185	na	4200	200
90-4500-200	86	90	194	na	4500	200
100-250-60	96	100	121	130	250	60
100-350-60	96	100	126	230	350	60
100-350-75	96	100	119	200	350	75
100-450-75	96	100	124	300	450	75
100-600-75	96	100	129	450	600	75
100-800-75	96	100	138	650	800	75
100-800-100	96	100	126	600	800	100
100-1000-100	96	100	134	800	1000	100
100-1200-100	96	100	137	1000	1200	100
100-1500-100	96	100	140	1300	1500	100

Type	SD	ID	AD	Lh	Lv	BB
100-1100-120	96	100	130	860	1100	120
100-1300-120	96	100	135	1060	1300	120
100-1500-120	96	100	144	na	1500	120
100-1800-120	96	100	148	na	1800	120
100-1500-150	96	100	147	1200	1500	150
100-1800-150	96	100	153	1500	1800	150
100-2000-150	96	100	157	1700	2000	150
100-2500-150	96	100	164	na	2500	150
100-2800-150	96	100	172	na	2800	150
100-3000-150	96	100	186	na	3000	150
100-2500-180	96	100	162	2140	2500	180
100-2800-180	96	100	168	na	2800	180
100-3000-180	96	100	174	na	3000	180
100-2800-200	96	100	169	na	2800	200
100-3000-200	96	100	188	na	3000	200
110-250-50	106	110	130	na	250	50
110-250-60	106	110	131	130	250	60
110-350-60	106	110	135	230	350	60
110-450-60	106	110	139	330	450	60
110-350-75	106	110	130	200	350	75
110-450-75	106	110	135	300	450	75
110-600-75	106	110	141	450	600	75
110-800-75	106	110	154	650	800	75
110-650-100	106	110	131	450	650	100
110-750-100	106	110	134	560	750	100
110-900-100	106	110	139	700	900	100
110-1100-120	106	110	141	860	1100	120
110-1300-120	106	110	145	1060	1300	120
110-1500-120	106	110	155	1260	1500	120
110-1500-150	106	110	155	1200	1500	150
110-1800-150	106	110	159	1500	1800	150
110-2000-150	106	110	165	na	2000	150
110-2000-180	106	110	159	1640	2000	180
110-2200-180	106	110	165	1840	2200	180
110-2400-180	106	110	170	na	2400	180
110-2400-200	106	110	163	2000	2400	200
110-2600-200	106	110	166	na	2600	200
110-2800-200	106	110	172	na	2800	200
110-3000-200	106	110	176	na	3000	200
110-3500-200	106	110	189	na	3500	200
120-250-50	116	120	140	na	250	50
120-350-50	116	120	143	na	350	50
120-250-60	116	120	141	130	250	60
120-350-60	116	120	145	230	350	60
120-450-60	116	120	150	330	450	60
120-350-75	116	120	141	200	350	75
120-450-75	116	120	145	300	450	75
120-600-75	116	120	152	450	600	75
120-650-100	116	120	141	450	650	100
120-750-100	116	120	145	550	750	100
120-900-100	116	120	150	700	900	100
120-900-120	116	120	148	660	900	120
120-1100-120	116	120	152	860	1100	120
120-1300-120	116	120	159	na	1300	120
120-1500-120	116	120	162	na	1500	120
120-1300-150	116	120	159	1000	1300	150
120-1500-150	116	120	163	1200	1500	150
120-1800-150	116	120	169	na	1800	150
120-2000-150	116	120	177	na	2000	150
120-1600-180	116	120	180	1240	1600	180
120-1800-180	116	120	180	1440	1800	180
120-2000-180	116	120	180	1640	2000	180
120-2200-180	116	120	180	na	2200	180

Type	SD	ID	AD	Lh	Lv	BB
120-2200-200	116	120	166	1800	2200	200
120-2400-200	116	120	170	na	2400	200
120-2600-200	116	120	174	na	2600	20
130-155-50	126	130	145	na	155	50
130-170-50	126	130	150	na	170	50
130-250-60	126	130	152	na	250	60
130-350-60	126	130	156	na	350	60
130-450-60	126	130	158	na	450	60
130-250-75	126	130	146	na	250	75
130-350-75	126	130	150	na	350	75
130-450-75	126	130	156	na	450	75
130-650-100	126	130	157	na	650	100
130-800-100	126	130	164	na	800	100
130-600-120	126	130	158	360	600	120
130-800-120	126	130	162	560	800	120
130-1000-120	126	130	164	760	1000	120
130-1100-120	126	130	166	na	1100	120
130-900-150	126	130	163	500	900	150
130-1300-150	126	130	172	1000	1300	150
130-1500-150	126	130	176	1200	1500	150
130-1800-150	126	130	185	na	1800	150
130-1650-180	126	130	171	1650	1650	180
130-2000-200	126	130	180	2000	2000	200
140-250-60	136	140	162	190	250	60
140-250-75	136	140	159	150	250	75
140-350-75	136	140	161	250	350	75
140-450-75	136	140	165	350	450	75
140-600-75	136	140	167	na	600	75
140-350-100	136	140	154	250	350	100
140-450-100	136	140	162	350	450	100
140-600-100	136	140	172	na	600	100
140-700-120	136	140	173	460	700	120
140-1000-120	136	140	192	na	1000	120
140-1000-150	136	140	182	700	1000	150
140-1300-150	136	140	187	1000	1300	150
140-1500-150	136	140	192	na	1500	150
140-1900-200	136	140	185	1500	1900	200
140-2000-200	136	140	193	na	2000	200
140-2400-200	136	140	204	na	2400	200
150-350-60	146	150	172	na	350	60
150-450-75	146	150	188	na	450	75
150-500-75	146	150	190	na	500	75
150-600-75	146	150	194	na	600	75
150-750-150	146	150	180	na	750	100
150-850-150	146	150	182	na	850	100
150-1100-150	146	150	190	na	1100	100
150-1300-150	146	150	197	na	1300	100
160-250-60	156	160	178	na	250	60
160-250-75	156	160	179	na	250	75
160-450-75	156	160	183	na	450	75
160-450-100	156	160	182	na	450	100
160-650-120	156	160	192	na	650	120
160-750-120	156	160	193	na	750	120
160-800-150	156	160	198	na	800	150
160-950-150	156	160	201	na	950	150
160-1000-150	156	160	202	na	1000	150
160-1200-150	156	160	204	na	1200	150
160-1200-200	156	160	193	na	1200	200
160-1300-200	156	160	200	na	1300	150
160-1400-200	156	160	212	na	1400	200
160-2000-200	156	160	222	na	2000	200