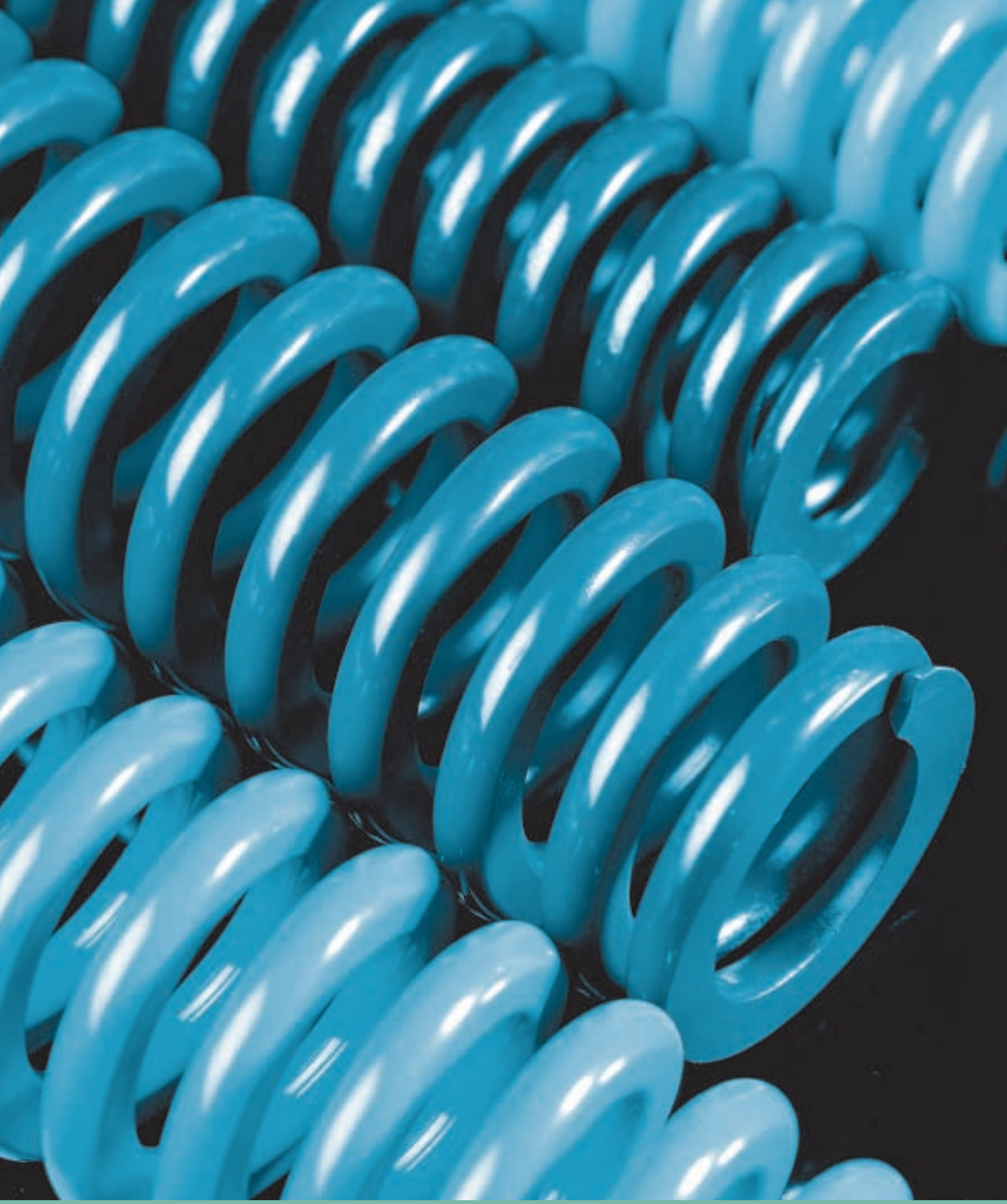


Molle per stampi

DIE SPRINGS ISO 10243

tipcocima

Die springs
Molle per stampi

Located in Colnago, Milano TIPCOCIMA S.r.l. is a joint-venture between TIPCO Inc., a global supplier of pierce punches and die buttons and CIMA S.p.A. a leading company in Springs and Fasteners for the Appliance and Automotive industries worldwide.
This combined know-how and products range make TIPCOCIMA a unique source to the European market with state-of-the-art production lines and quality products.
Both TIPCO and CIMA have set new standards for manufacturing superiority and Customer service. TIPCOCIMA has inherited this "attitude" from the 55 + years experience of CIMA and the 40 + years experience of TIPCO, allowing its Customers to receive a service not otherwise available elsewere.

Situata a Colnago, Milano, TIPCOCIMA S.r.l. è una joint-venture tra TIPCO Inc., un fornitore mondiale di punzoni e matrici e la CIMA S.p.A. società leader di molle e fissaggi per l'industria elettrodomestica ed automobilistica nel mondo.
Questa combinazione di know-how e di gamma prodotti fa di TIPCO CIMA un'unica fonte per il mercato europeo con linee di produzione ad altissima tecnologia e prodotti di qualità.
Sia TIPCO Inc. che CIMA S.p.A. hanno creato nuovi standard per superiorità di produzione e servizio clienti. TIPCOCIMA ha ereditato questa attitudine da 55 anni di esperienza CIMA e 40 anni di esperienza TIPCO, permettendo ai clienti di ricevere un servizio che non troverebbero altrove.

Light load — *Carico leggero** **Pag. 5**

Medium Load — *Carico medio** **Pag. 7**

Heavy load — *Carico forte** **Pag. 9**

Extra heavy load — *Carico extra forte** **Pag. 11**

ISO 10243 standard states the following parameters for rectangular wire compression springs:
D: housing diameter (or external diameter);
d: spring-guide pin diameter (or internal diameter);
Lo: lenght of the spring at rest (or free lenght);
R: load, in Newton, necessary to deflect the spring by 1 mm (1 Newton = 0.102 kg).

The standard also gives the maximum total working stroke permissible for each spring, the tolerances for the free lenght and the identifying color for each rate.

Lo standard ISO 10243 definisce i seguenti parametri per le molle a compressione in filo a sezione rettangolare:
D: *diametro dell'alloggiamento, detto anche diametro esterno;*
d: *diametro della spina di guida, detto anche diametro interno;*
Lo: *lunghezza della molla a riposo, detta anche lunghezza libera;*
R: *carico, espresso in Newton, necessario per deflettere la molla di mm 1 (1 Newton = 0.102 kg).*

Lo standard definisce inoltre i valori di deflessione massima di lavoro consentita per ciascuna molla, la tolleranza della lunghezza libera ed i colori identificativi del carico.

Tolerance *Tolleranze*

Spring rate: ± 10%;
Free length: ± 1%, minimum ± 0.75 mm;
External diameter: the external diameter of the spring is always smaller than the housing diameter indicated in the catalogue;
Internal diameter: the internal diameter of the spring is always greater than the diameter of the guiding pin indicated in the catalogue.

Rigidità: *± 10%;*
Lunghezza libera: *± 1%, minimo ± 0.75 mm;*
Diametro esterno: *il diametro esterno della molla è sempre inferiore al diametro dell'alloggiamento indicato a catalogo;*
Diametro interno: *il diametro interno della molla è sempre maggiore del diametro della spina di guida, indicato a catalogo.*

How to order *Come ordinare*

When ordering, follow the indications:

LG Light Load Green
MB Medium Load Blue
HR Heavy Load Red
EHY Extra Heavy Load Yellow

Per ordinare le molle del presente catalogo, seguire le indicazioni:

LG *Carico Leggero (Verde)*
MB *Carico Medio (Blu)*
HR *Carico Forte (Rosso)*
EHY *Carico Extra Forte (Giallo)*

Example *Esempio:* **MB25051 n° 20**

It's an order for 20 springs of the Medium load series (blue color) for a 25 mm housing and with a 51 mm free length.

È un ordine per n° 20 molle della serie carico Medio, colore Blu, di diametro esterno 25 mm e lunghezza libera 51 mm.

Spring selection *Selezione della molla*

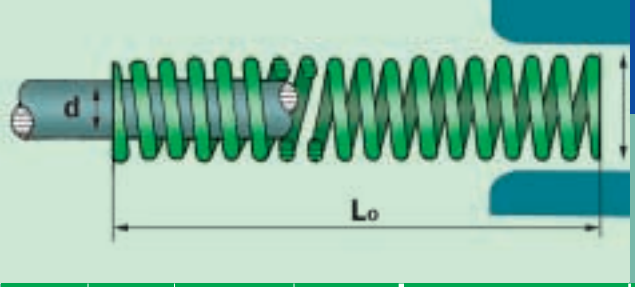
Selection of springs is facilitated by the following tables in our catalogue, in which two different working deflection hypothesis are shown, plus the deflection to solid.
The following table summarizes the percentages of deflection calculated for each series.

La selezione della molla è facilitata dalle tabelle di catalogo, che indicano i valori di carico e corsa in due diverse ipotesi di deflessione di lavoro. Vengono inoltri forniti i valori di carico e corsa approssimativi per molla a blocco.
Il seguente prospetto riassume le deflessioni calcolate per ciascuna serie.

	Load *Carico*	**Long life** *Lunga durata* **Deflection** *Deflessione*	**Max working travel** *Max consentita* **Deflection** *Deflessione*	**Deflection to solid** *Deflessione a blocco*
ISO 10243	Light *Leggero*	30%	40%	Approx. 50%
ISO 10243	Medium *Medio*	25%	37.5%	Approx. 45%
ISO 10243	Heavy *Forte*	20%	30%	Approx. 40%
ISO 10243	Extra Heavy *Extra Forte*	17%	25%	Approx. 35%

Light load
Carico leggero

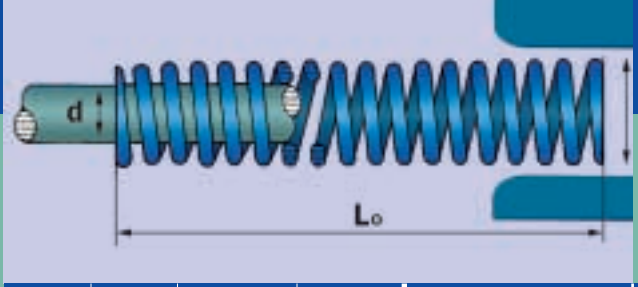
	D	d	L_0	R	30% Long Life deflection / Defless. per lunga durata		40% Max working deflection / Defless. max di lavoro		APPROX ⚠ Spring to solid / Molla a blocco
Ctlg. nr. *Codice*	**Housing** *Sede* Ø mm	**Rod** *Spina* Ø mm	**Free length** *Lungh. libera* mm	**Rate** *Rigidità* N/mm	**Deflection** *Deflessione* mm	**Load** *Carico* N	**Deflection** *Deflessione* mm	**Load** *Carico* N	**Deflection** *Deflessione* mm
LG10-025	**10**	**5**	25	10.0	7.5	75	10.0	100	13
LG10-032			32	8.5	9.6	82	12.8	109	17
LG10-038			38	6.8	11.4	78	15.2	103	20
LG10-044			44	6.0	13.2	79	17.6	106	24
LG10-051			51	5.0	15.3	77	20.4	102	28
LG10-064			64	4.3	19.2	83	25.6	110	38
LG10-076			76	3.2	22.8	73	30.4	97	41
LG10-305			305	1.1	91.5	101	122.0	134	177
LG13-025	**12,5**	**6,3**	25	17.9	7.5	134	10.0	179	13
LG13-032			32	16.4	9.6	157	12.8	210	17
LG13-038			38	13.6	11.4	155	15.2	207	21
LG13-044			44	12.1	13.2	160	17.6	213	25
LG13-051			51	11.4	15.3	174	20.4	233	31
LG13-064			64	9.3	19.2	179	25.6	238	38
LG13-076			76	7.1	22.8	162	30.4	216	44
LG13-089			89	5.4	26.7	144	35.6	192	50
LG13-305			305	1.4	91.5	128	122.0	171	165
LG16-025	**16**	**8**	25	23.4	7.5	176	10.0	234	12
LG16-032			32	22.9	9.6	220	12.8	293	16
LG16-038			38	19.3	11.4	220	15.2	293	21
LG16-044			44	17.1	13.2	226	17.6	301	25
LG16-051			51	15.7	15.3	240	20.4	320	31
LG16-064			64	10.7	19.2	205	25.6	274	36
LG16-076			76	10.0	22.8	228	30.4	304	40
LG16-089			89	8.6	26.7	230	35.6	306	47
LG16-102			102	7.8	30.6	239	40.8	318	56
LG16-305			305	2.5	91.5	229	122.0	305	168
LG20-025	**20**	**10**	25	55,8	7,5	419	10,0	558	13
LG20-032			32	45.0	9.6	432	12.8	576	16
LG20-038			38	33.3	11.4	380	15.2	506	18
LG20-044			44	30.0	13.2	396	17.6	528	23
LG20-051			51	24.5	15.3	375	20.4	500	26
LG20-064			64	20.0	19.2	384	25.6	512	34
LG20-076			76	16.0	22.8	365	30.4	486	40
LG20-089			89	14.0	26.7	374	35.6	498	48
LG20-102			102	12.0	30.6	367	40.8	490	55
LG20-115			115	10.9	34.5	376	46.0	501	64
LG20-127			127	9.5	38.1	362	50.8	483	69
LG20-139			139	8.4	41.7	350	55.6	467	74
LG20-152			152	7.5	45.6	342	60.8	456	83
LG20-305			305	4.0	91.5	366	122.0	488	170
LG25-025	**25**	**12,5**	25	100.0	7.5	750	10.0	1000	12
LG25-032			32	80.3	9.6	771	12.8	1028	16
LG25-038			38	62.0	11.4	707	15.2	942	20
LG25-044			44	52.9	13.2	698	17.6	931	22
LG25-051			51	44.0	15.3	673	20.4	898	25
LG25-064			64	35.2	19.2	676	25.6	901	34
LG25-076			76	28.0	22.8	638	30.4	851	39
LG25-089			89	24.0	26.7	641	35.6	854	46
LG25-102			102	21.1	30.6	646	40.8	861	54
LG25-115			115	18.7	34.5	645	46.0	860	62
LG25-127			127	16.7	38.1	636	50.8	848	68
LG35-139			139	15.3	41.7	638	55.6	851	75
LG35-152			152	14.0	45.6	638	60.8	851	83
LG25-178			178	12.5	53.4	668	71.2	890	101
LG25-203			203	10.4	60.9	633	81.2	844	111



	D	d	Lo	R	30% Long Life deflection / Defless. per lunga durata		40% Max working deflection / Defless. max di lavoro		APPROX ⚠ Spring to solid / Molla a blocco
Ctlg. nr. *Codice*	**Housing** *Sede Ø mm*	**Rod** *Spina Ø mm*	**Free length** *Lungh. libera mm*	**Rate** *Rigidità N/mm*	**Deflection** *Deflessione mm*	**Load** *Carico N*	**Deflection** *Deflessione mm*	**Load** *Carico N*	**Deflection** *Deflessione mm*
LG25-305	**25**	**12,5**	305	7.0	91.5	641	122.0	854	170
LG32-038	**32**	**16**	38	94.0	11.4	1072	15.2	1429	18
LG32-044			44	79.5	13.2	1049	17.6	1399	21
LG32-051			51	67.0	15.3	1025	20.4	1367	25
LG32-064			64	53.0	19.2	1018	25.6	1357	33
LG32-076			76	44.0	22.8	1003	30.4	1338	40
LG32-089			89	37.2	26.7	993	35.6	1324	48
LG32-102			102	32.0	30.6	979	40.8	1306	55
LG32-115			115	29.0	34.5	1001	46.0	1334	64
LG32-127			127	25.0	38.1	953	50.8	1270	69
LG32-139			139	23.0	41.7	959	55.6	1279	77
LG32-152			152	21.5	45.6	980	60.8	1307	86
LG32-178			178	18.2	53.4	972	71.2	1296	101
LG32-203			203	15.8	60.9	962	81.2	1283	115
LG32-254			254	12.5	76.2	953	101.6	1270	145
LG32-305			305	10.3	91.5	942	122.0	1257	177
LG40-051	**40**	**20**	51	92.0	15.3	1408	20.4	1877	25
LG40-064			64	73.0	19.2	1402	25.6	1869	33
LG40-076			76	63.0	22.8	1436	30.4	1915	41
LG40-089			89	51.0	26.7	1362	35.6	1816	47
LG40-102			102	43.0	30.6	1316	40.8	1754	54
LG40-115			115	39.6	34.5	1366	46.0	1822	59
LG40-127			127	37.0	38.1	1410	50.8	1880	67
LG40-139			139	32.0	41.7	1334	55.6	1779	72
LG40-152			152	28.0	45.6	1277	60.8	1702	76
LG40-178			178	25.2	53.4	1346	71.2	1794	95
LG40-203			203	22.7	60.9	1382	81.2	1843	112
LG40-254			254	17.0	76.2	1295	101.6	1727	135
LG40-305			305	14.8	91.5	1354	122.0	1806	166
LG50-064	**50**	**25**	64	156.0	19.2	2995	25.6	3994	28
LG50-076			76	125.0	22.8	2850	30.4	3800	34
LG50-089			89	109.0	26.7	2910	35.6	3880	43
LG50-102			102	94.0	30.6	2876	40.8	3835	50
LG50-115			115	81.0	34.5	2795	46.0	3726	57
LG50-127			127	71.0	38.1	2705	50.8	3607	62
LG50-139			139	66.5	41.7	2773	55.6	3697	71
LG50-152			152	60.0	45.6	2736	60.8	3648	77
LG50-178			178	52.0	53.4	2777	71.2	3702	94
LG50-203			203	44.0	60.9	2680	81.2	3573	105
LG50-229			229	38.2	68.7	2624	91.6	3499	127
LG50-254			254	35.0	76.2	2667	101.6	3556	138
LG50-305			305	28.5	91.5	2608	122.0	3477	164
LG63-076	**63**	**38**	76	189.0	22.8	4309	30.4	5746	35
LG63-089			89	158.0	26.7	4219	35.6	5625	43
LG63-102			102	131.0	30.6	4009	40.8	5345	49
LG63-115			115	116.0	34.5	4002	46.0	5336	57
LG63-127			127	103.0	38.1	3924	50.8	5232	64
LG63-152			152	84.3	45.6	3844	60.8	5125	78
LG63-178			178	71.5	53.4	3818	71.2	5091	94
LG63-203			203	61.7	60.9	3758	81.2	5010	108
LG63-254			254	47.0	76.2	3581	101.6	4775	136
LG63-305			305	38.2	91.5	3495	122.0	4660	163

Medium Load
Carico medio

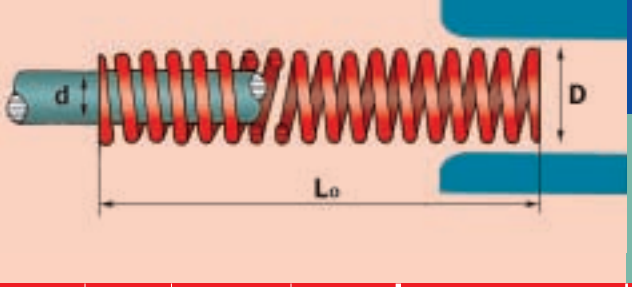
	D	d	L_0	R	25% Long Life deflection / Defless. per lunga durata		37,5% Max working deflection / Defless. max di lavoro		APPROX Spring to solid / Molla a blocco
Ctlg. nr. *Codice*	**Housing** *Sede* Ø mm	**Rod** *Spina* Ø mm	**Free length** *Lungh. libera* mm	**Rate** *Rigidità* N/mm	**Deflection** *Deflessione* mm	**Load** *Carico* N	**Deflection** *Deflessione* mm	**Load** *Carico* N	**Deflection** *Deflessione* mm
MB10-025	**10**	**5**	25	16.0	6.3	100	9.4	150	12
MB10-032			32	13.0	8.0	104	12.0	156	16
MB10-038			38	11.9	9.5	113	14.3	170	21
MB10-044			44	10.3	11.0	113	16.5	170	23
MB10-051			51	8.9	12.8	113	19.1	170	27
MB10-064			64	7.5	16.0	120	24.0	180	31
MB10-076			76	5.3	19.0	101	28.5	151	38
MB10-305			305	1.6	76.3	122	114.4	183	139
MB13-025	**12,5**	**6,3**	25	30.0	6.3	188	9.4	281	10
MB13-032			32	24.8	8.0	198	12.0	298	14
MB13-038			38	21.4	9.5	203	14.3	305	18
MB13-044			44	18.5	11.0	204	16.5	305	21
MB13-051			51	15.5	12.8	198	19.1	296	25
MB13-064			64	12.1	16.0	194	24.0	290	29
MB13-076			76	10.2	19.0	194	28.5	291	36
MB13-089			89	8.4	22.3	187	33.4	280	43
MB13-305			305	2.1	76.3	160	114.4	240	129
MB16-025	**16**	**8**	25	49.4	6.3	309	9.4	463	11
MB16-032			32	37.1	8.0	297	12.0	445	15
MB16-038			38	33.9	9.5	322	14.3	483	21
MB16-044			44	30.0	11.0	330	16.5	495	22
MB16-051			51	26.4	12.8	337	19.1	505	24
MB16-064			64	20.5	16.0	328	24.0	492	28
MB16-076			76	17.8	19.0	338	28.5	507	36
MB16-089			89	15.2	22.3	338	33.4	507	43
MB16-102			102	13.5	25.5	344	38.3	516	49
MB16-305			305	4.8	76.3	366	114.4	549	141
MB20-025	**20**	**10**	25	98.0	6.3	613	9.4	919	10
MB20-032			32	72.6	8.0	581	12.0	871	14
MB20-038			38	56.0	9.5	532	14.3	798	16
MB20-044			44	47.5	11.0	523	16.5	784	19
MB20-051			51	41.7	12.8	532	19.1	798	24
MB20-064			64	32.3	16.0	517	24.0	775	30
MB20-076			76	25.1	19.0	477	28.5	715	34
MB20-089			89	22.0	22.3	490	33.4	734	42
MB20-102			102	19.8	25.5	505	38.3	757	50
MB20-115			115	18.1	28.8	520	43.1	781	59
MB20-127			127	16.6	31.8	527	47.6	791	66
MB20-139			139	15.1	34.8	525	52.1	787	73
MB20-152			152	13.2	38.0	502	57.0	752	76
MB20-305			305	6.1	76.3	465	114.4	698	148
MB25-025	**25**	**12,5**	25	147.0	6.3	919	9.4	1378	10
MB25-032			32	118.0	8.0	944	12.0	1416	15
MB25-038			38	93.0	9.5	884	14.3	1325	18
MB25-044			44	80.8	11.0	889	16.5	1333	22
MB25-051			51	68.6	12.8	875	19.1	1312	25
MB25-064			64	53.0	16.0	848	24.0	1272	34
MB25-076			76	43.2	19.0	821	28.5	1231	39
MB25-089			89	38.2	22.3	850	33.4	1275	47
MB25-102			102	33.0	25.5	842	38.3	1262	55
MB25-115			115	28.0	28.8	805	43.1	1208	60
MB25-127			127	25.9	31.8	822	47.6	1233	68
MB25-139			139	23.2	34.8	806	52.1	1209	70
MB25-152			152	20.8	38.0	790	57.0	1186	76
MB25-178			178	17.8	44.5	792	66.8	1188	86
MB25-203			203	15.8	50.8	802	76.1	1203	98



D	d	L0	R	25% Long Life deflection / Defless. per lunga durata		37,5% Max working deflection / Defless. max di lavoro		APPROX ⚠ Spring to solid / Molla a blocco
Ctlg. nr. *Codice*	**Housing** *Sede Ø mm*	**Rod** *Spina Ø mm*	**Free length** *Lungh. libera mm*	**Rate** *Rigidità N/mm*	**Deflection** *Deflessione mm*	**Load** *Carico N*	**Deflection** *Deflessione mm*	**Load** *Carico N*	**Deflection** *Deflessione mm*
MB25-305	**25**	**12,5**	305	10.2	76.3	778	114.4	1167	151
MB32-038	**32**	**16**	38	185.0	9.5	1758	14.3	2636	16
MB32-044			44	158.0	11.0	1738	16.5	2607	20
MB32-051			51	134.0	12.8	1709	19.1	2563	24
MB32-064			64	99.0	16.0	1584	24.0	2376	30
MB32-076			76	80.5	19.0	1530	28.5	2294	36
MB32-089			89	69.1	22.3	1537	33.4	2306	44
MB32-102			102	58.8	25.5	1499	38.3	2249	50
MB32-115			115	51.5	28.8	1481	43.1	2221	57
MB32-127			127	44.8	31.8	1422	47.6	2134	61
MB32-139			139	42.3	34.8	1470	52.1	2205	70
MB32-152			152	37.8	38.0	1436	57.0	2155	76
MB32-178			178	32.5	44.5	1446	66.8	2169	90
MB32-203			203	28.9	50.8	1467	76.1	2200	102
MB32-254			254	21.4	63.5	1359	95.3	2038	125
MB32-305			305	18.3	76.3	1395	114.4	2093	152
MB40-051	**40**	**20**	51	181.6	12.8	2315	19.1	3473	21
MB40-064			64	140.0	16.0	2240	24.0	3360	29
MB40-076			76	108.0	19.0	2052	28.5	3078	33
MB40-089			89	90.7	22.3	2018	33.4	3027	40
MB40-102			102	81.0	25.5	2066	38.3	3098	48
MB40-115			115	71.8	28.8	2064	43.1	3096	55
MB40-127			127	62.7	31.8	1991	47.6	2986	60
MB40-139			139	57.5	34.8	1998	52.1	2997	67
MB40-152			152	51.6	38.0	1961	57.0	2941	73
MB40-160			160	47.5	40.0	1900	60.0	2850	75
MB40-178			178	44.1	44.5	1962	66.8	2944	87
MB40-203			203	36.7	50.8	1863	76.1	2794	96
MB40-254			254	30.1	63.5	1911	95.3	2867	119
MB40-305			305	24.6	76.3	1876	114.4	2814	150
MB50-064	**50**	**25**	64	209.0	16.0	3344	24.0	5016	30
MB50-076			76	168.0	19.0	3192	28.5	4788	36
MB50-089			89	140.0	22.3	3115	33.4	4673	44
MB50-102			102	119.0	25.5	3035	38.3	4552	48
MB50-115			115	106.0	28.8	3048	43.1	4571	56
MB50-127			127	97.0	31.8	3080	47.6	4620	63
MB50-139			139	87.0	34.8	3023	52.1	4535	67
MB50-152			152	80.0	38.0	3040	57.0	4560	74
MB50-160			160	76.0	40.0	3040	60.0	4560	79
MB50-178			178	69.5	44.5	3093	66.8	4639	87
MB50-203			203	59.8	50.8	3035	76.1	4552	97
MB50-229			229	50.9	57.3	2914	85.9	4371	115
MB50-254			254	43.9	63.5	2788	95.3	4181	124
MB50-305			305	38.6	76.3	2943	114.4	4415	153
MB63-076	**63**	**38**	76	312.0	19.0	5928	28.5	8892	30
MB63-089			89	260.0	22.3	5785	33.4	8678	37
MB63-102			102	221.0	25.5	5636	38.3	8453	43
MB63-115			115	187.0	28.8	5376	43.1	8064	49
MB63-127			127	168.0	31.8	5334	47.6	8001	51
MB63-152			152	136.0	38.0	5168	57.0	7752	66
MB63-160			160	128.0	40.0	5120	60.0	7680	69
MB63-178			178	114.0	44.5	5073	66.8	7610	78
MB63-203			203	100.0	50.8	5075	76.1	7613	88
MB63-229			229	89.2	57.3	5107	85.9	7660	103
MB63-254			254	78.4	63.5	4978	95.3	7468	113
MB63-305			305	64.7	76.3	4933	114.4	7400	136

Heavy load
Carico forte

	D	d	L_0	R	20% Long Life deflection / Defless. per lunga durata		30% Max working deflection / Defless. max di lavoro		APPROX ⚠ Spring to solid / Molla a blocco
Ctlg. nr. *Codice*	**Housing** *Sede* Ø mm	**Rod** *Spina* Ø mm	**Free length** *Lungh. libera* mm	**Rate** *Rigidità* N/mm	**Deflection** *Deflessione* mm	**Load** *Carico* N	**Deflection** *Deflessione* mm	**Load** *Carico* N	**Deflection** *Deflessione* mm
HR10-025	**10**	**5**	25	22.1	5.0	111	7.5	166	9
HR10-032			32	17.5	6.4	112	9.6	168	12
HR10-038			38	17.1	7.6	130	11.4	195	16
HR10-044			44	15.0	8.8	132	13.2	198	18
HR10-051			51	12.8	10.2	131	15.3	196	21
HR10-064			64	10.7	12.8	137	19.2	205	29
HR10-076			76	7.5	15.2	114	22.8	171	32
HR10-305			305	2.1	61.0	128	91.5	192	123
HR13-025	**12,5**	**6,3**	25	42.1	5.0	211	7.5	316	9
HR13-032			32	33.2	6.4	212	9.6	319	12
HR13-038			38	29.3	7.6	223	11.4	334	16
HR13-044			44	24.6	8.8	216	13.2	325	19
HR13-051			51	19.6	10.2	200	15.3	300	20
HR13-064			64	15.0	12.8	192	19.2	288	27
HR13-076			76	13.2	15.2	201	22.8	301	32
HR13-089			89	11.4	17.8	203	26.7	304	36
HR13-305			305	2.8	61.0	171	91.5	256	125
HR16-025	**16**	**8**	25	75.7	5.0	379	7.5	568	9
HR16-032			32	52.8	6.4	338	9.6	507	11
HR16-038			38	48.5	7.6	369	11.4	553	15
HR16-044			44	42.8	8.8	377	13.2	565	19
HR16-051			51	37.1	10.2	378	15.3	568	23
HR16-064			64	30.3	12.8	388	19.2	582	29
HR16-076			76	25.8	15.2	391	22.8	586	33
HR16-089			89	21.7	17.8	386	26.7	579	39
HR16-102			102	19.3	20.4	394	30.6	591	46
HR16-305			305	7.1	61.0	433	91.5	650	128
HR20-025	**20**	**10**	25	216.0	5.0	1080	7.5	1620	9
HR20-032			32	168.0	6.4	1075	9.6	1613	11
HR20-038			38	129.0	7.6	980	11.4	1471	13
HR20-044			44	112.0	8.8	986	13.2	1478	16
HR20-051			51	94.0	10.2	959	15.3	1438	19
HR20-064			64	72.1	12.8	923	19.2	1384	25
HR20-076			76	59.7	15.2	907	22.8	1361	30
HR20-089			89	50.5	17.8	899	26.7	1348	36
HR20-102			102	44.2	20.4	902	30.6	1353	42
HR20-115			115	38.4	23.0	883	34.5	1325	47
HR20-127			127	34.1	25.4	866	38.1	1299	51
HR20-139			139	31.0	27.8	862	41.7	1293	57
HR20-152			152	28.2	30.4	857	45.6	1286	62
HR20-305			305	15.0	61.0	915	91.5	1373	123
HR25-025	**25**	**12,5**	25	375.0	5.0	1875	7.5	2813	9
HR25-032			32	297.0	6.4	1901	9.6	2851	11
HR25-038			38	219.0	7.6	1664	11.4	2497	13
HR25-044			44	187.0	8.8	1646	13.2	2468	16
HR25-051			51	156.0	10.2	1591	15.3	2387	19
HR25-064			64	123.0	12.8	1574	19.2	2362	26
HR25-076			76	99.0	15.2	1505	22.8	2257	30
HR25-089			89	84.0	17.8	1495	26.7	2243	36
HR25-102			102	73.0	20.4	1489	30.6	2234	40
HR25-115			115	65.0	23.0	1495	34.5	2243	46
HR25-127			127	57.7	25.4	1466	38.1	2198	50
HR25-139			139	52.7	27.8	1465	41.7	2198	56
HR25-152			152	47.8	30.4	1453	45.6	2180	61
HR25-178			178	41.0	35.6	1460	53.4	2189	74
HR25-203			203	35.8	40.6	1453	60.9	2180	79

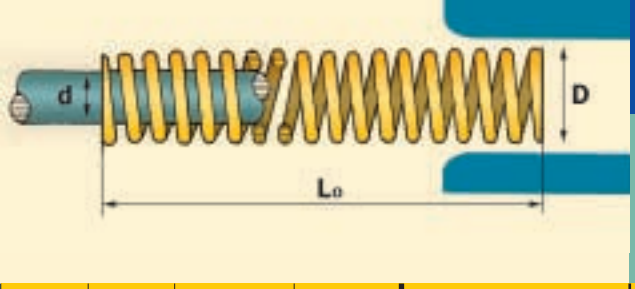


	D	d	L₀	R	20% Long Life deflection *Defless. per lunga durata*		30% Max working deflection *Defless. max di lavoro*		APPROX ⚠ Spring to solid *Molla a blocco*
Ctlg. nr. *Codice*	**Housing** *Sede Ø mm*	**Rod** *Spina Ø mm*	**Free length** *Lungh. libera mm*	**Rate** *Rigidità N/mm*	**Deflection** *Deflessione mm*	**Load** *Carico N*	**Deflection** *Deflessione mm*	**Load** *Carico N*	**Deflection** *Deflessione mm*
HR25-305	**25**	**12,5**	305	22.9	61.0	1397	91.5	2095	121
HR32-038	**32**	**16**	38	388.0	7.6	2949	11.4	4423	13
HR32-044			44	324.0	8.8	2851	13.2	4277	15
HR32-051			51	272.0	10.2	2774	15.3	4162	17
HR32-064			64	212.0	12.8	2714	19.2	4070	24
HR32-076			76	172.0	15.2	2614	22.8	3922	29
HR32-089			89	141.0	17.8	2510	26.7	3765	33
HR32-102			102	122.0	20.4	2489	30.6	3733	39
HR32-115			115	107.0	23.0	2461	34.5	3692	45
HR32-127			127	93.0	25.4	2362	38.1	3543	48
HR32-139			139	86.0	27.8	2391	41.7	3586	55
HR32-152			152	78.0	30.4	2371	45.6	3557	60
HR32-178			178	67.2	35.6	2392	53.4	3588	71
HR32-203			203	59.1	40.6	2399	60.9	3599	83
HR32-254			254	46.4	50.8	2357	76.2	3536	101
HR32-305			305	38.0	61.0	2318	91.5	3477	120
HR40-051	**40**	**20**	51	350.0	10.2	3570	15.3	5355	18
HR40-064			64	269.0	12.8	3443	19.2	5165	25
HR40-076			76	219.0	15.2	3329	22.8	4993	30
HR40-089			89	190.0	17.8	3382	26.7	5073	37
HR40-102			102	163.0	20.4	3325	30.6	4988	42
HR40-115			115	142.0	23.0	3266	34.5	4899	48
HR40-127			127	128.0	25.4	3251	38.1	4877	54
HR40-139			139	115.0	27.8	3197	41.7	4796	58
HR40-152			152	105.0	30.4	3192	45.6	4788	63
HR40-178			178	89.0	35.6	3168	53.4	4753	73
HR40-203			203	77.0	40.6	3126	60.9	4689	84
HR40-254			254	61.0	50.8	3099	76.2	4648	103
HR40-305			305	51.0	61.0	3111	91.5	4667	128
HR50-064	**50**	**25**	64	413.0	12.8	5286	19.2	7930	25
HR50-076			76	339.0	15.2	5153	22.8	7729	29
HR50-089			89	288.0	17.8	5126	26.7	7690	36
HR50-102			102	245.0	20.4	4998	30.6	7497	42
HR50-115			115	215.0	23.0	4945	34.5	7418	45
HR50-127			127	192.0	25.4	4877	38.1	7315	55
HR50-139			139	168.0	27.8	4670	41.7	7006	59
HR50-152			152	154.0	30.4	4682	45.6	7022	66
HR50-178			178	134.0	35.6	4770	53.4	7156	77
HR50-203			203	117.0	40.6	4750	60.9	7125	89
HR50-254			254	89.0	50.8	4521	76.2	6782	109
HR50-305			305	73.0	61.0	4453	91.5	6680	132
HR63-076	**63**	**38**	76	630.0	15.2	9576	22.8	14364	24
HR63-089			89	485.0	17.8	8633	26.7	12950	32
HR63-102			102	434.0	20.4	8854	30.6	13280	36
HR63-115			115	384.0	23.0	8832	34.5	13248	40
HR63-127			127	349.0	25.4	8865	38.1	13297	44
HR63-152			152	276.0	30.4	8390	45.6	12586	56
HR63-178			178	237.0	35.6	8437	53.4	12656	65
HR63-203			203	210.0	40.6	8526	60.9	12789	74
HR63-254			254	165.0	50.8	8382	76.2	12573	94
HR63-305			305	134.0	61.0	8174	91.5	12261	115

Extra heavy load

Carico extra forte

	D	d	L_0	R	17% Long Life deflection / Defless. per lunga durata		25% Max working deflection / Defless. max di lavoro		APPROX ⚠ Spring to solid / Molla a blocco
Ctlg. nr. *Codice*	**Housing** *Sede Ø mm*	**Rod** *Spina Ø mm*	**Free length** *Lungh. libera mm*	**Rate** *Rigidità N/mm*	**Deflection** *Deflessione mm*	**Load** *Carico N*	**Deflection** *Deflessione mm*	**Load** *Carico N*	**Deflection** *Deflessione mm*
EHY10-025	**10**	**5**	25	36.8	4.3	156	6.3	230	9
EHY10-032			32	27.9	5.4	152	8.0	223	12
EHY10-038			38	23.7	6.5	153	9.5	225	15
EHY10-044			44	19.2	7.5	144	11.0	211	16
EHY10-051			51	16.5	8.7	143	12.8	210	19
EHY10-064			64	13.2	10.9	144	16.0	211	25
EHY10-076			76	10.9	12.9	141	19.0	207	30
EHY10-305			305	2.6	51.9	135	76.3	198	119
EHY13-025	**12,5**	**6,3**	25	58.5	4.3	249	6.3	366	9
EHY13-032			32	43.9	5.4	239	8.0	351	12
EHY13-038			38	36.0	6.5	233	9.5	342	14
EHY13-044			44	30.3	7.5	227	11.0	333	18
EHY13-051			51	26.2	8.7	227	12.8	334	21
EHY13-064			64	21.2	10.9	231	16.0	339	28
EHY13-076			76	17.1	12.9	221	19.0	325	32
EHY13-089			89	14.5	15.1	219	22.3	323	38
EHY13-305			305	4.3	51.9	223	76.3	328	118
EHY16-025	**16**	**8**	25	118.0	4.3	502	6.3	738	9
EHY16-032			32	89.0	5.4	484	8.0	712	12
EHY16-038			38	72.1	6.5	466	9.5	685	14
EHY16-044			44	60.9	7.5	456	11.0	670	16
EHY16-051			51	52.3	8.7	453	12.8	667	20
EHY16-064			64	41.2	10.9	448	16.0	659	26
EHY16-076			76	34.1	12.9	441	19.0	648	31
EHY16-089			89	29.5	15.1	446	22.3	656	37
EHY16-102			102	25.6	17.3	444	25.5	653	40
EHY16-305			305	8.4	51.9	436	76.3	641	122
EHY20-025	**20**	**10**	25	293.0	4.3	1245	6.3	1831	7
EHY20-032			32	224.0	5.4	1219	8.0	1792	9
EHY20-038			38	177.0	6.5	1143	9.5	1682	11
EHY20-044			44	149.0	7.5	1115	11.0	1639	14
EHY20-051			51	128.0	8.7	1110	12.8	1632	17
EHY20-064			64	99.0	10.9	1077	16.0	1584	22
EHY20-076			76	81.7	12.9	1056	19.0	1552	26
EHY20-089			89	69.5	15.1	1052	22.3	1546	32
EHY20-102			102	60.6	17.3	1051	25.5	1545	38
EHY20-115			115	53.0	19.6	1036	28.8	1524	42
EHY20-127			127	47.5	21.6	1026	31.8	1508	47
EHY20-139			139	43.0	23.6	1016	34.8	1494	51
EHY20-152			152	39.0	25.8	1008	38.0	1482	54
EHY20-305			305	21.2	51.9	1099	76.3	1617	107
EHY25-032	**25**	**12,5**	32	374.4	5.4	2037	8.0	2995	11
EHY25-038			38	346.0	6.5	2335	9.5	3287	13
EHY25-044			44	244.0	7.5	1825	11.0	2684	14
EHY25-051			51	207.5	8.7	1799	12.8	2646	17
EHY25-064			64	161.0	10.9	1752	16.0	2576	23
EHY25-076			76	130.8	12.9	1690	19.0	2485	28
EHY25-089			89	110.5	15.1	1672	22.3	2459	31
EHY25-102			102	96.3	17.3	1670	25.5	2456	36
EHY25-115			115	85.7	19.6	1675	28.8	2464	43
EHY25-127			127	76.3	21.6	1647	31.8	2423	47
EHY25-152			152	63.5	25.8	1641	38.0	2413	53
EHY25-178			178	53.9	30.3	1631	44.5	2399	64
EHY25-203			203	47.0	34.5	1622	50.8	2385	71
EHY25-305			305	30.9	51.9	1602	76.3	2356	115



	D	d	L₀	R	17% Long Life deflection / Defless. per lunga durata		25% Max working deflection / Defless. max di lavoro		APPROX ⚠ Spring to solid / Molla a blocco
Ctlg. nr. *Codice*	**Housing** *Sede* Ø mm	**Rod** *Spina* Ø mm	**Free length** *Lungh. libera* mm	**Rate** *Rigidità* N/mm	**Deflection** *Deflessione* mm	**Load** *Carico* N	**Deflection** *Deflessione* mm	**Load** *Carico* N	**Deflection** *Deflessione* mm
EHY32-038	**32**	**16**	38	528.2	6.5	3412	9.5	5018	11
EHY32-044			44	424.4	7.5	3175	11.0	4668	14
EHY32-051			51	353.0	8.7	3061	12.8	4501	17
EHY32-064			64	269.2	10.9	2929	16.0	4307	23
EHY32-076			76	218.5	12.9	2823	19.0	4152	26
EHY32-089			89	180.3	15.1	2728	22.3	4012	34
EHY32-102			102	155.0	17.3	2688	25.5	3953	36
EHY32-115			115	140.0	19.6	2737	28.8	4025	43
EHY32-127			127	124.0	21.6	2677	31.8	3937	48
EHY32-152			152	102.0	25.8	2636	38.0	3876	57
EHY32-178			178	88.2	30.3	2669	44.5	3925	64
EHY32-203			203	76.0	34.5	2623	50.8	3857	72
EHY32-254			254	60.8	43.2	2625	63.5	3861	91
EHY32-305			305	49.0	51.9	2541	76.3	3736	104
EHY40-051	**40**	**20**	51	628.0	8.7	5445	12.8	8007	16
EHY40-064			64	487.0	10.9	5299	16.0	7792	22
EHY40-076			76	379.0	12.9	4897	19.0	7201	26
EHY40-089			89	321.0	15.1	4857	22.3	7142	29
EHY40-102			102	281.0	17.3	4873	25.5	7166	36
EHY40-115			115	245.0	19.6	4790	28.8	7044	41
EHY40-127			127	221.0	21.6	4771	31.8	7017	43
EHY40-139			139	202.0	23.6	4773	34.8	7020	48
EHY40-152			152	168.0	25.8	4341	38.0	6384	56
EHY40-178			178	148.0	30.3	4478	44.5	6586	59
EHY40-203			203	132.0	34.5	4555	50.8	6699	72
EHY40-254			254	107.0	43.2	4620	63.5	6795	94
EHY40-305			305	87.8	51.9	4552	76.3	6695	107
EHY50-064	**50**	**25**	64	709.0	10.9	7714	16.0	11344	22
EHY50-076			76	572.0	12.9	7390	19.0	10868	26
EHY50-089			89	475.0	15.1	7187	22.3	10569	29
EHY50-102			102	405.0	17.3	7023	25.5	10328	32
EHY50-115			115	352.0	19.6	6882	28.8	10120	37
EHY50-127			127	316.0	21.6	6822	31.8	10033	43
EHY50-139			139	289.0	23.6	6829	34.8	10043	49
EHY50-152			152	239.0	25.8	6176	38.0	9082	51
EHY50-178			178	216.0	30.3	6536	44.5	9612	62
EHY50-203			203	187.0	34.5	6453	50.8	9490	72
EHY50-254			254	153.0	43.2	6607	63.5	9716	92
EHY50-305			305	127.0	51.9	6585	76.3	9684	107
EHY63-076	**63**	**38**	76	842.0	12.9	10879	19.0	15998	24
EHY63-089			89	726.0	15.1	10984	22.3	16154	28
EHY63-102			102	656.0	17.3	11375	25.5	16728	31
EHY63-115			115	534.0	19.6	10440	28.8	15353	38
EHY63-127			127	480.0	21.6	10363	31.8	15240	42
EHY63-152			152	396.0	25.8	10233	38.0	15048	51
EHY63-178			178	335.0	30.3	10137	44.5	14908	60
EHY63-203			203	297.0	34.5	10249	50.8	15073	68
EHY63-254			254	235.0	43.2	10147	63.5	14923	85
EHY63-305			305	194.0	51.9	10059	76.3	14793	103

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