

Wire Springs
Schraubendruckfedern
Molle a Filo

OMCR[®]
STANDARD DIE COMPONENTS

Wire Springs

Schraubendruckfedern

Molle a Filo

Ⓞ Springs are mechanical parts, that in working condition are having elastic deformations, without permanent deformations. OMCR offers a wide range in this catalog, which allows for different classes of load for the same diameter. The more widespread use is in the dies for sheet metal working, here die springs are avoiding wrinkles and making easier the extraction of the punches. However recently die springs have started to be used in other areas, such as plastic molding and industrial applications.

Ⓞ Federn sind mechanische Bauteile, die sich bei Belastung elastisch verformen, jedoch danach wieder in ihren Ursprungszustand zurückkehren. Druckfedern sind so konzipiert, dass sie großen Kräften auf engstem Raum standhalten. Druckfedern der Firma OMCR finden ihren Einsatz hauptsächlich bei der Blechbearbeitung. Sie dienen zur Vermeidung von Faltenbildung und erleichtern das Herausziehen der Stempelwerkzeuge während der Blechbearbeitung. Die Druckfedern werden seit einigen Jahren in vielen Bereichen der Industrie eingesetzt.

Ⓞ Le molle sono elementi meccanici che in esercizio subiscono deformazioni elastiche, senza presentare deformazioni permanenti. Le molle sono studiate per sopportare carichi elevati in ingombri limitati. Esse sono molto diffuse negli stampi per la lavorazione della lamiera, in cui consentono di evitare le grinze e agevolare l'estrazione dei punzoni. Tuttavia nel tempo si sono notevolmente diffuse anche nello stampaggio della plastica e in svariate applicazioni industriali.

OMCR[®]

STANDARD DIE COMPONENTS



GB DIE SPRINGS FEATURES

Springs are manufactured, using special high performance steels and designed to withstand high loads in restricted spaces. Through the continuous improvement, high quality springs, are manufactured by modern equipments and reliable production processes. Springs production processes have very low environmental impact and our products are fully compliant to RoHS and Reach specs. The certifications according to ISO TS 16949, ISO 9001 and ISO 14001 * (Environment) are evidences of our efforts in satisfying the customer through a sustainable production. The high quality of the springs is confirmed by the excellent results of endurance and life fatigue tests daily leaded in Q/dept. In this catalog OMCR offers a wide range of die springs, so that you could have different loads in the same dimensions, diameter and length.

CRITERIA FOR SELECTION ON WIRE SPRINGS

For obtaining excellent performances by the die springs, it is very important to figure out the most appropriate one in terms of loads and stress. An inaccurate choice of the die springs can compromise the functionality of the application, causing early breakages. Here below we present some considerations and diagrams, useful for helping the user in choosing the most appropriate spring for its own application. This criteria is based on fBL (solid block), i.e. the maximum deflection available for the spring. Picture 1 shows the "Working Conditions" of springs. The spring is preloaded to f1 and to cyclically stressed till to f2 (working deflection). The graph in Figure 2, "Conditions of Work and Fatigue Resistance", expresses the relationship between the percentage of use of the solid block (%fBL) and stress (τ); the stress (τ) increases, as much as %fBL grows. The graph suggests to use springs giving them a pre-load (f1) of at least 13% of fBL; it doesn't recommend to apply to springs a working deflection (f2) over 80% of fBL (1). For the selection and verification of the correct use of springs, it is preferred to convert f1 and f2, as percentages of the Solid Block fBL, respectively $\%1=f1/fBL \times 100$ e $\%2=f2/fBL \times 100$. The color scale provides a qualitative indication of the fatigue life. So, we deduce from the graph that subjecting a spring to low stress and limiting the use of fBL% (left side of the graph), we obtain a greater fatigue life. On the other side submitting the spring to high stresses and/or extensive use of fBL% (right side of the graph), the chance of early breaking increases.

USE RECOMANDATION

Springs are designed for being used in normal environmental conditions (temperature from -5° to 70°C, non-aggressive atmosphere, etc.) and they have several applications. OMCR strongly discourages to use the springs overlapped in vertical group and recommends to guide the springs during their use. Please note that the contents of the catalog are based on experimental data. Information on the fatigue life are qualitative and the duration is expected to be reached or exceeded by 90% of the springs belonging to the same production batch.

① EINFÜHRUNG

Federn sind mechanische Bauteile, die sich bei Belastung elastisch verformen, jedoch danach wieder in ihren Ursprungszustand zurückkehren. Druckfedern sind so konzipiert, dass sie großen Kräften auf engstem Raum standhalten. Druckfedern der Firma OMCR finden ihren Einsatz hauptsächlich bei der Blechbearbeitung. Sie dienen zur Vermeidung von Faltenbildung und erleichtern das Herausziehen der Stempelwerkzeuge während der Blechbearbeitung. Die Druckfedern werden seit einigen Jahren in vielen Bereichen der Industrie eingesetzt.

EIGENSCHAFTEN DER SCHRAUBENDRUCKFEDERN

Die Druckfedern sind aus hochfesten Federstahldrähten gefertigt, die höchste Leistung auf engstem Raum gewährleisten. Das etablierte Umweltmanagement steht für sichere und effiziente Produktionsverfahren, die nach ISO TS 16949 und der ISO 14001 (Umweltschutz) zertifiziert ist. Unsere Produkte halten alle strengen Richtlinien für gefährliche Stoffe (RoHS und Reach) ein. Sie werden einer ständigen Qualitätskontrolle unterzogen. Auf speziellen Prüfanlagen werden Dauertests gefahren.

AUSWAHLKRITERIEN FÜR SCHRAUBENDRUCKFEDERN

Die „falsche“ Berechnung der Druckfeder kann die Lebensdauer beeinträchtigen und kann zu Funktionsstörungen oder sogar Brüchen führen. Vor der Berechnung sollten die Anforderungen bezüglich der Abmessung der Federn, der geforderte Federweg, die Federkraft und die Beanspruchung der Feder genau definiert werden. Die folgenden Ausführungen und Diagramme können Ihnen bei der Auswahl ihrer Federn helfen. Das Diagramm „fig.1“ zeigt die Arbeitsbedingung. Die Druckfeder wird vorgespannt auf f_1 (Vorspannung) und zyklisch beansprucht bis f_2 (Endfederweg). Das Diagramm „fig.2“ zeigt die Arbeitsbedingungen und den Dauerfestigkeitsbereich. Es wird das Verhältnis zwischen der Spannung (τ) und der % Blockweges angezeigt (%fBL). Das Diagramm empfiehlt einen Vorspannungsweg (f_1) für die Druckfeder von mindestens 13 % fBL und rät von einem Federweg von über 80% fBL ab. Die farbliche Darstellung zeigt die zu erwartende Dauerfestigkeit der Feder. Grüner Bereich: optimaler Einsatzbereich. Die Federn sind geringeren Belastungen ausgesetzt. Gelber Bereich: Grenzbereich. Die Federn sind Belastungen ausgesetzt, die die Dauerfestigkeit verringern können. Roter Bereich: niedrige Dauerfestigkeit, Bruchgefahr.

BENUTZERHINWEISE

Alle Federn sind für Temperaturen von -5°C bis ca. 100°C ausgelegt. Es muss darauf geachtet werden, dass die Federn nicht für einen Gebrauch in aggressiven Atmosphären gedacht sind. Jegliche Abweichung kann zur Beeinträchtigung der Leistungen der Druckfedern führen. Wir raten davon ab, die Druckfedern ohne vollständige Führung übereinander zu setzen. Alle im Katalog genannten Daten beruhen auf jahrelangen Erfahrungswerten. Die Angaben zur Dauerfestigkeit sind qualitativ, und es wird erwartet, dass 90 % der Federn einer Charge die erwartete Lebensdauer erreichen oder überschreiten.

① CARATTERISTICHE DELLE MOLLE A FILO

Le molle OMCR sono molle di elevata qualità, realizzate con acciai speciali ad alte prestazioni. I materiali vengono trasformati da moderni macchinari, attraverso processi produttivi affidabili e migliorati costantemente. I processi produttivi sono a limitato impatto ambientale, certificati da un sistema di gestione ambientale conforme alla ISO 14001 e rispettano le direttive RoHS e Reach, circa l'assenza di sostanze pericolose. Un sistema di gestione per la Qualità, certificato secondo la ISO/TS16949 è un ulteriore garanzia di competenza e professionalità per gli utilizzatori finali. Ma sono i severi test di durata a fatica, quotidianamente effettuati sui banchi di prova, a confermare l'elevato livello di affidabilità delle nostre molle.

CRITERI DI SCELTA DELLE MOLLE A FILO

La scelta della molla corretta per dimensioni, carichi e sollecitazioni è il prerequisito per un funzionamento efficace ed efficiente dell'applicazione in cui è usata. La scelta della molla non idonea per un'applicazione, può comportare un cattivo funzionamento del sistema o problemi di rotture. Nel seguito riportiamo delle considerazioni e dei grafici che possono aiutare l'utilizzatore nella scelta della molla più idonea per la propria applicazione. Tali considerazioni si basano sulla fBL (freccia a blocco), ossia la massima deflessione possibile per la molla. Il disegno in fig.1 mostra le "Condizioni di Lavoro". La molla viene precaricata a f_1 e sollecitata ciclicamente fino a f_2 (freccia di lavoro). Il grafico di fig.2, "Condizioni di Lavoro e Resistenza a Fatica", esprime la relazione tra la percentuale di utilizzo della freccia a blocco (%fBL) e la sollecitazione unitaria (τ): al crescere di %fBL, cresce il valore della sollecitazione unitaria τ . Il grafico raccomanda di utilizzare le molle con una precarica (f_1) pari almeno 13% fBL., mentre sconsiglia di sottoporre le molle a frecce di lavoro (f_2) oltre 80% fBL(1). La scala cromatica fornisce un'indicazione qualitativa della resistenza a fatica. Quindi dal grafico deduciamo che sottoponendo una molla a basse sollecitazioni e limitato utilizzo della %fBL (parte sx del grafico), si ottiene una maggiore resistenza a fatica. Al contrario applicando alla molla elevate sollecitazioni e/o ampio utilizzo della %fBL. (zona dx del grafico), aumenta la possibilità di rotture precoci.

RACCOMANDAZIONI PER L'UTILIZZO

Tutte le molle sono progettate per un utilizzo in condizioni ambientali normali (temperature -5° ÷ 100° C, atmosfera non aggressiva, ecc): in condizioni diverse le performance delle molle potrebbero subire alcune variazioni. Sconsigliamo vivamente l'utilizzo di molle sovrapposte e raccomandiamo anche di tenere le molle guidate durante il loro impiego. Precisiamo che i contenuti del catalogo sono stati costruiti in base a dati sperimentali. Le informazioni relative alla resistenza a fatica sono qualitative, inoltre la durata attesa si prevede possa essere raggiunta o superata dal 90% delle molle, appartenenti ad un unico lotto.

- Ⓒ TIME AND SPRING LIFE DIAGRAM
- Ⓓ ZEIT-UND DAUERFESTIGKEITSSCHAUBILD
- Ⓙ IL DIAGRAMMA DELLE SOLLECITAZIONI

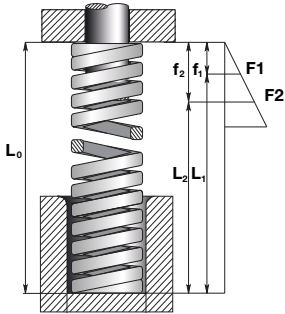


FIG.1 Condizioni di Lavoro
 f_1 = freccia di precarica, minimo 13% di f_{BL}
F1 = carico della molla compressa a f_1
 f_2 = freccia di lavoro, massimo 80% di f_{BL}
F2 = carico della molla compressa a f_2

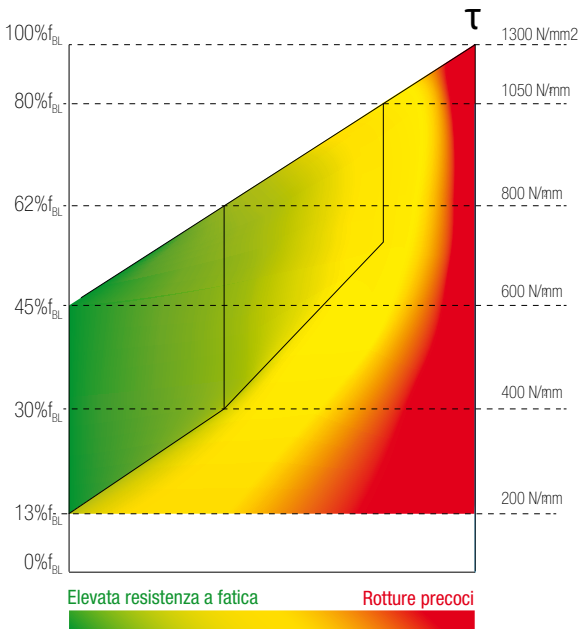




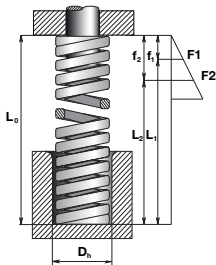


FIG.2 Condizioni di Lavoro e Resistenza a Fatica

| LIGHT LOADS | MEDIUM LOADS | STRONG LOADS | EXTRA STRONG LOADS |
|--|---|---|--|
| F01.05 | F01.10 | F01.15 | F01.20 |
|  |  |  |  |
| DIN ISO 10243 WIRE SPRING GREEN SCHRAUBENDRUCKFEDER GRÜN MOLLA A FILO VERDE | DIN ISO 10243 WIRE SPRING BLUE SCHRAUBENDRUCKFEDER BLAU MOLLA A FILO BLU | DIN ISO 10243 WIRE SPRING RED SCHRAUBENDRUCKFEDER ROT MOLLA A FILO ROSSA | DIN ISO 10243 WIRE SPRING YELLOW SCHRAUBENDRUCKFEDER GELB MOLLA A FILO GIALLA |
| 1166 | 1168 | 1170 | 1172 |



WIRE SPRING, COLOUR "GREEN" DIN ISO 10243
SCHRAUBENDRUCKFEDER, KENNFARBE "GRÜN" DIN ISO 10243
MOLLA A FILO, COLORE "VERDE" DIN ISO 10243



Ø 10 - 25

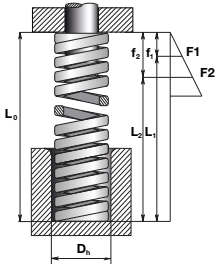


Work Conditions
f1 = pre-compression, min 13% Fbl
F1 = spring force when compressed f1
f2 = work travel, max 80% Fbl
F2 = spring force when compressed f2 (N)
Dh = Hole diameter (mm)
Ds = Rod Diameter (mm)
L0 = Free lenght (mm)
Rg = Force / displacement rate (N/mm)
Fbl = Max deflection (mm)

| | | | |
|---------------|--------|---------------------|---------------------|
| ORDER EXAMPLE | Art. | D _s = 10 | L ₀ = 44 |
| | F01.05 | 10 | 044 |

| OMCR CODE | D _h | D _s | L ₀ | R _g | f _{BL} | 30% _{f_{BL}} | | 45% _{f_{BL}} | | 62% _{f_{BL}} | | 80% _{f_{BL}} | |
|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------------------|-----|-------------------------------|-----|-------------------------------|-----|-------------------------------|------|
| | | | | | | mm | N | mm | N | mm | N | mm | N |
| F01.05.10025 | 10 | 5 | 25 | 10 | 13 | 3,9 | 39 | 5,8 | 58 | 8,0 | 80 | 10,3 | 103 |
| F01.05.10032 | | | 32 | 8,5 | 16 | 4,9 | 42 | 7,4 | 63 | 10,2 | 86 | 13,1 | 111 |
| F01.05.10038 | | | 38 | 6,8 | 20 | 5,9 | 40 | 8,8 | 60 | 12,1 | 82 | 15,6 | 106 |
| F01.05.10044 | | | 44 | 6 | 23 | 6,8 | 41 | 10,1 | 61 | 14,0 | 84 | 18,0 | 108 |
| F01.05.10051 | | | 51 | 5 | 26 | 7,8 | 39 | 11,8 | 59 | 16,2 | 81 | 20,9 | 105 |
| F01.05.10064 | | | 64 | 4,3 | 33 | 9,8 | 42 | 14,6 | 63 | 20,2 | 87 | 26,0 | 112 |
| F01.05.10076 | | | 76 | 3,2 | 39 | 11,7 | 37 | 17,6 | 56 | 24,2 | 77 | 31,2 | 100 |
| F01.05.10305 | | | 305 | 1,1 | 156 | 46,9 | 52 | 70,3 | 77 | 96,9 | 107 | 125,0 | 138 |
| F01.05.13025 | | | 25 | 17,9 | 13 | 3,9 | 69 | 5,8 | 104 | 8,0 | 143 | 10,3 | 184 |
| F01.05.13032 | | | 32 | 16,4 | 16 | 4,9 | 81 | 7,4 | 121 | 10,2 | 167 | 13,1 | 215 |
| F01.05.13038 | 38 | 13,6 | 20 | 5,9 | 80 | 8,8 | 119 | 12,1 | 164 | 15,6 | 212 | | |
| F01.05.13044 | 44 | 12,1 | 23 | 6,8 | 82 | 10,1 | 123 | 14,0 | 169 | 18,0 | 218 | | |
| F01.05.13051 | 51 | 11,4 | 26 | 7,8 | 89 | 11,8 | 134 | 16,2 | 185 | 20,9 | 238 | | |
| F01.05.13064 | 64 | 9,3 | 33 | 9,9 | 92 | 14,8 | 138 | 20,4 | 190 | 26,3 | 245 | | |
| F01.05.13076 | 76 | 7,1 | 39 | 11,7 | 83 | 17,6 | 125 | 24,2 | 172 | 31,2 | 222 | | |
| F01.05.13089 | 89 | 5,4 | 46 | 13,7 | 74 | 20,5 | 111 | 28,3 | 153 | 36,5 | 197 | | |
| F01.05.13305 | 305 | 1,4 | 156 | 46,9 | 66 | 70,3 | 98 | 96,9 | 136 | 125,0 | 175 | | |
| F01.05.16025 | 16 | 8 | 25 | 23,4 | 13 | 3,9 | 90 | 5,8 | 136 | 8,0 | 187 | 10,3 | 241 |
| F01.05.16032 | | | 32 | 22,9 | 16 | 4,9 | 112 | 7,4 | 169 | 10,2 | 232 | 13,1 | 300 |
| F01.05.16038 | | | 38 | 19,3 | 20 | 5,9 | 113 | 8,8 | 169 | 12,1 | 233 | 15,6 | 301 |
| F01.05.16044 | | | 44 | 17,1 | 23 | 6,8 | 115 | 10,1 | 173 | 14,0 | 239 | 18,0 | 308 |
| F01.05.16051 | | | 51 | 15,7 | 26 | 7,8 | 123 | 11,8 | 185 | 16,2 | 254 | 20,9 | 328 |
| F01.05.16064 | | | 64 | 10 | 33 | 9,9 | 106 | 14,8 | 158 | 20,4 | 218 | 26,3 | 281 |
| F01.05.16076 | | | 76 | 8,0 | 39 | 11,7 | 117 | 17,6 | 176 | 24,2 | 242 | 31,2 | 312 |
| F01.05.16089 | | | 89 | 8 | 46 | 13,7 | 118 | 20,5 | 177 | 28,3 | 243 | 36,5 | 314 |
| F01.05.16102 | | | 102 | 7,8 | 52 | 15,7 | 122 | 23,5 | 183 | 32,4 | 253 | 41,8 | 326 |
| F01.05.16305 | | | 305 | 2,5 | 156 | 46,9 | 117 | 70,3 | 176 | 96,9 | 242 | 125,0 | 313 |
| F01.05.20025 | 20 | 10 | 25 | 55,8 | 13 | 3,8 | 213 | 5,7 | 320 | 7,9 | 441 | 10,2 | 569 |
| F01.05.20032 | | | 32 | 45 | 16 | 4,7 | 211 | 7,0 | 316 | 9,7 | 436 | 12,5 | 563 |
| F01.05.20038 | | | 38 | 33,3 | 19 | 5,6 | 187 | 8,4 | 281 | 11,6 | 387 | 15,0 | 500 |
| F01.05.20044 | | | 44 | 30 | 22 | 6,6 | 198 | 9,9 | 297 | 13,6 | 409 | 18,0 | 540 |
| F01.05.20051 | | | 51 | 24,5 | 25 | 7,5 | 184 | 11,3 | 276 | 15,5 | 380 | 20,0 | 490 |
| F01.05.20064 | | | 64 | 20 | 31 | 9,4 | 188 | 14,1 | 281 | 19,4 | 388 | 25,0 | 500 |
| F01.05.20076 | | | 76 | 16 | 37 | 11,1 | 178 | 16,7 | 266 | 22,9 | 367 | 30,0 | 480 |
| F01.05.20089 | | | 89 | 14 | 44 | 13,1 | 184 | 19,7 | 276 | 27,1 | 380 | 35,0 | 490 |
| F01.05.20102 | | | 102 | 12 | 51 | 15,4 | 185 | 23,1 | 277 | 31,8 | 381 | 41,0 | 492 |
| F01.05.20115 | | | 115 | 10,9 | 58 | 17,3 | 188 | 25,9 | 282 | 35,7 | 389 | 46,0 | 501 |
| F01.05.20127 | 127 | 9,5 | 64 | 19,1 | 182 | 28,7 | 273 | 39,5 | 375 | 51,0 | 485 | | |
| F01.05.20139 | 139 | 8,4 | 70 | 21 | 176 | 31,5 | 265 | 43,4 | 365 | 56,0 | 470 | | |
| F01.05.20152 | 152 | 7,5 | 76 | 22,9 | 172 | 34,3 | 257 | 47,3 | 355 | 61,0 | 458 | | |
| F01.05.20305 | 305 | 4 | 153 | 45,8 | 183 | 68,6 | 275 | 94,6 | 378 | 122,0 | 488 | | |
| F01.05.25025 | 25 | 12,5 | 25 | 100 | 13 | 3,8 | 383 | 5,7 | 574 | 7,9 | 791 | 10,2 | 1020 |
| F01.05.25032 | | | 32 | 80,3 | 16 | 4,7 | 376 | 7,0 | 565 | 9,7 | 778 | 12,5 | 1004 |
| F01.05.25038 | | | 38 | 62 | 19 | 5,6 | 349 | 8,4 | 523 | 11,6 | 721 | 15,0 | 930 |
| F01.05.25044 | | | 44 | 52,9 | 22 | 6,6 | 349 | 9,9 | 524 | 13,6 | 722 | 18,0 | 952 |
| F01.05.25051 | | | 51 | 44 | 25 | 7,5 | 330 | 11,3 | 495 | 15,5 | 682 | 20,0 | 880 |
| F01.05.25064 | | | 64 | 35,2 | 31 | 9,4 | 330 | 14,1 | 495 | 19,4 | 682 | 25,0 | 880 |
| F01.05.25076 | | | 76 | 28 | 37 | 11,1 | 311 | 16,7 | 466 | 22,9 | 642 | 30,0 | 840 |
| F01.05.25089 | | | 89 | 24 | 44 | 13,1 | 315 | 19,7 | 473 | 27,1 | 651 | 35,0 | 840 |
| F01.05.25102 | | | 102 | 21,1 | 51 | 15,4 | 324 | 23,1 | 487 | 31,8 | 670 | 41,0 | 865 |
| F01.05.25115 | | | 115 | 18,7 | 58 | 17,3 | 323 | 25,9 | 484 | 35,7 | 667 | 46,0 | 860 |
| F01.05.25127 | 127 | 16,7 | 64 | 19,1 | 319 | 28,7 | 479 | 39,5 | 660 | 51,0 | 852 | | |
| F01.05.25139 | 139 | 15,3 | 70 | 21 | 321 | 31,5 | 482 | 43,4 | 664 | 56,0 | 857 | | |
| F01.05.25152 | 152 | 14 | 76 | 22,9 | 320 | 34,3 | 480 | 47,3 | 662 | 61,0 | 854 | | |
| F01.05.25178 | 178 | 12,5 | 89 | 26,6 | 333 | 39,9 | 499 | 55,0 | 688 | 71,0 | 888 | | |
| F01.05.25203 | 203 | 10,4 | 101 | 30,4 | 316 | 45,6 | 474 | 62,8 | 653 | 81,0 | 842 | | |
| F01.05.25305 | 305 | 7,0 | 153 | 45,8 | 320 | 68,6 | 480 | 94,6 | 662 | 122,0 | 854 | | |

WIRE SPRING, COLOUR "GREEN" DIN ISO 10243 SCHRAUBENDRUCKFEDER, KENNFARBE "GRÜN", DIN ISO 10243 MOLLA A FILO, COLORE "VERDE", DIN ISO 10243



Ø 32 - 63

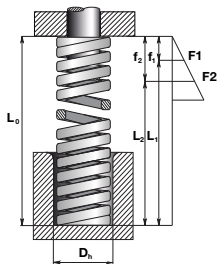


Work Conditions
f1 = pre-compression, min 13% Fbl
F1 = spring force when compressed f1
f2 = work travel, max 80% Fbl
F2 = spring force when compressed f2 (N)
Dh = Hole diameter (mm)
Ds = Rod Diameter (mm)
L0 = Free lenght (mm)
Rg = Force / displacement rate (N/mm)
Fbl = Max deflection (mm)

| | | | |
|---------------|--------|---------------------|---------------------|
| ORDER EXAMPLE | Art. | D _h = 32 | L ₀ = 44 |
| | F01.05 | 32 | 044 |

| OMCR CODE | D _h | D _s | L ₀ | R _g | f _{BL} | 30% f _{BL} | | 45% f _{BL} | | 62% f _{BL} | | 80% f _{BL} | |
|--------------|----------------|----------------|----------------|----------------|-----------------|---------------------|------|---------------------|------|---------------------|------|---------------------|------|
| | | | | | | mm | N | mm | N | mm | N | mm | N |
| F01.05.32038 | 32 | 16 | 38 | 94,0 | 19 | 5,6 | 529 | 8,4 | 793 | 11,6 | 1093 | 15,0 | 1410 |
| F01.05.32044 | | | 44 | 79,5 | 23 | 6,8 | 537 | 10,1 | 805 | 14,0 | 1109 | 18,0 | 1431 |
| F01.05.32051 | | | 51 | 67,0 | 25 | 7,5 | 503 | 11,3 | 754 | 15,5 | 1039 | 20,0 | 1340 |
| F01.05.32054 | | | 64 | 53,0 | 31 | 9,4 | 497 | 14,1 | 745 | 19,3 | 1027 | 25,0 | 1325 |
| F01.05.32076 | | | 76 | 44,0 | 38 | 11,3 | 495 | 16,9 | 743 | 23,3 | 1023 | 30,0 | 1320 |
| F01.05.32089 | | | 89 | 37,2 | 44 | 13,1 | 488 | 19,7 | 732 | 27,1 | 1009 | 35,0 | 1302 |
| F01.05.32102 | | | 102 | 32,0 | 51 | 15,4 | 492 | 23,1 | 738 | 31,8 | 1017 | 41,0 | 1312 |
| F01.05.32115 | | | 115 | 29,0 | 58 | 17,3 | 500 | 25,9 | 750 | 35,7 | 1034 | 46,0 | 1334 |
| F01.05.32127 | | | 127 | 25,0 | 64 | 19,1 | 478 | 28,7 | 717 | 39,5 | 988 | 51,0 | 1275 |
| F01.05.32139 | | | 139 | 23,0 | 70 | 21 | 483 | 31,5 | 725 | 43,4 | 998 | 56,0 | 1288 |
| F01.05.32152 | | | 152 | 21,5 | 76 | 22,9 | 492 | 34,3 | 738 | 47,3 | 1016 | 61,0 | 1312 |
| F01.05.32178 | | | 178 | 18,2 | 89 | 26,6 | 485 | 39,9 | 727 | 55,0 | 1001 | 71,0 | 1292 |
| F01.05.32203 | | | 203 | 15,8 | 101 | 30,4 | 480 | 45,6 | 720 | 62,8 | 992 | 81,0 | 1280 |
| F01.05.32254 | | | 254 | 12,5 | 128 | 38,3 | 478 | 57,4 | 717 | 79,1 | 988 | 102,0 | 1275 |
| F01.05.32305 | | | 305 | 10,3 | 153 | 45,8 | 471 | 68,6 | 707 | 94,6 | 974 | 122,0 | 1257 |
| F01.05.40051 | | | 51 | 92,0 | 25 | 7,5 | 690 | 11,3 | 1035 | 15,5 | 1426 | 20,0 | 1840 |
| F01.05.40064 | 64 | 73,0 | 31 | 9,4 | 684 | 14,1 | 1027 | 19,4 | 1414 | 25,0 | 1825 | | |
| F01.05.40076 | 76 | 63,0 | 38 | 11,3 | 709 | 16,9 | 1063 | 23,3 | 1465 | 30,0 | 1890 | | |
| F01.05.40089 | 89 | 51,0 | 44 | 13,1 | 669 | 19,7 | 1004 | 27,1 | 1383 | 35,0 | 1785 | | |
| F01.05.40102 | 102 | 43,0 | 51 | 15,4 | 661 | 23,1 | 992 | 31,8 | 1366 | 41,0 | 1763 | | |
| F01.05.40115 | 115 | 39,6 | 58 | 17,3 | 683 | 25,9 | 1025 | 35,7 | 1412 | 46,0 | 1822 | | |
| F01.05.40127 | 127 | 37,0 | 64 | 19,1 | 708 | 28,7 | 1061 | 39,5 | 1462 | 51,0 | 1887 | | |
| F01.05.40139 | 139 | 32,0 | 70 | 21 | 672 | 31,5 | 1008 | 43,4 | 1389 | 56,0 | 1792 | | |
| F01.05.40152 | 152 | 28,0 | 76 | 22,9 | 641 | 34,3 | 961 | 47,3 | 1324 | 61,0 | 1708 | | |
| F01.05.40178 | 178 | 25,2 | 89 | 26,6 | 671 | 39,9 | 1006 | 55,0 | 1367 | 71,0 | 1789 | | |
| F01.05.40203 | 203 | 22,7 | 101 | 30,4 | 690 | 45,6 | 1034 | 62,8 | 1425 | 81,0 | 1839 | | |
| F01.05.40254 | 254 | 17,0 | 128 | 38,3 | 650 | 57,4 | 975 | 79,1 | 1344 | 102,0 | 1734 | | |
| F01.05.40305 | 305 | 14,8 | 153 | 45,8 | 677 | 68,6 | 1016 | 94,6 | 1399 | 122,0 | 1806 | | |
| F01.05.50064 | 64 | 156,0 | 31 | 9,4 | 1463 | 14,1 | 2194 | 19,4 | 3023 | 25,0 | 3900 | | |
| F01.05.50076 | 76 | 125,0 | 38 | 11,3 | 1406 | 16,9 | 2109 | 23,3 | 2906 | 30,0 | 3750 | | |
| F01.05.50089 | 89 | 109,0 | 44 | 13,1 | 1431 | 19,7 | 2146 | 27,1 | 2957 | 35,0 | 3815 | | |
| F01.05.50102 | 102 | 94,0 | 51 | 15,4 | 1445 | 23,1 | 2168 | 31,8 | 2987 | 41,0 | 3854 | | |
| F01.05.50115 | 115 | 81,0 | 58 | 17,3 | 1397 | 25,9 | 2096 | 35,7 | 2888 | 46,0 | 3726 | | |
| F01.05.50127 | 127 | 71,0 | 64 | 19,1 | 1358 | 28,7 | 2037 | 39,5 | 2806 | 51,0 | 3621 | | |
| F01.05.50139 | 139 | 66,5 | 70 | 21 | 1397 | 31,5 | 2095 | 43,4 | 2886 | 56,0 | 3724 | | |
| F01.05.50152 | 152 | 60,0 | 76 | 22,9 | 1373 | 34,3 | 2059 | 47,3 | 2837 | 61,0 | 3660 | | |
| F01.05.50178 | 178 | 52,0 | 89 | 26,6 | 1385 | 39,9 | 2077 | 55,0 | 2861 | 71,0 | 3692 | | |
| F01.05.50203 | 203 | 44,0 | 101 | 30,4 | 1337 | 45,6 | 2005 | 62,8 | 2762 | 81,0 | 3564 | | |
| F01.05.50254 | 254 | 35,0 | 128 | 38,3 | 1339 | 57,4 | 2008 | 79,1 | 2767 | 102,0 | 3570 | | |
| F01.05.50305 | 305 | 28,5 | 153 | 45,8 | 1304 | 68,6 | 1956 | 94,6 | 2695 | 122,0 | 3477 | | |
| F01.05.63076 | 76 | 189,0 | 38 | 11,3 | 2126 | 16,9 | 3189 | 23,3 | 4394 | 30,0 | 5670 | | |
| F01.05.63089 | 89 | 158,0 | 44 | 13,1 | 2074 | 19,7 | 3111 | 27,1 | 4286 | 35,0 | 5530 | | |
| F01.05.63102 | 102 | 131,0 | 51 | 15,4 | 2014 | 23,1 | 3021 | 31,8 | 4163 | 41,0 | 5371 | | |
| F01.05.63115 | 115 | 116,0 | 58 | 17,3 | 2001 | 25,9 | 3002 | 35,7 | 4135 | 46,0 | 5336 | | |
| F01.05.63127 | 127 | 103,0 | 64 | 19,1 | 1970 | 28,7 | 2955 | 39,5 | 4071 | 51,0 | 5253 | | |
| F01.05.63152 | 152 | 84,3 | 76 | 22,9 | 1928 | 34,3 | 2893 | 47,3 | 3985 | 61,0 | 5142 | | |
| F01.05.63178 | 178 | 71,5 | 89 | 26,6 | 1904 | 39,9 | 2856 | 55,0 | 3934 | 71,0 | 5077 | | |
| F01.05.63203 | 203 | 61,7 | 101 | 30,4 | 1874 | 45,6 | 2811 | 62,8 | 3873 | 81,0 | 4998 | | |
| F01.05.63254 | 254 | 47,0 | 128 | 38,3 | 1798 | 57,4 | 2697 | 79,1 | 3715 | 102,0 | 4794 | | |
| F01.05.63305 | 305 | 38,2 | 153 | 45,8 | 1748 | 68,6 | 2621 | 94,6 | 3612 | 122,0 | 4660 | | |

WIRE SPRING, COLOUR "BLUE" DIN ISO 10243 SCHRAUBENDRUCKFEDER, KENNFARBE "BLAU" DIN ISO 10243 MOLLA A FILO, COLORE "BLU" DIN ISO 10243



Ø 10 - 25



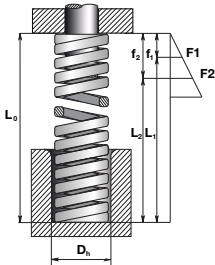
Work Conditions

- f1 = pre-compression, min 13% Fbl
- F1 = spring force when compressed f1
- f2 = work travel, max 80% Fbl
- F2 = spring force when compressed f2 (N)
- Dh = Hole diameter (mm)
- Ds = Rod Diameter (mm)
- L0 = Free lenght (mm)
- Rg = Force / displacement rate (N/mm)
- Fbl = Max deflection (mm)

| | | | |
|---------------|--------|---------------------|---------------------|
| ORDER EXAMPLE | Art. | D _h = 10 | L ₀ = 44 |
| | F01.10 | 10 | 044 |

| OMCR CODE | D _h | D _s | L ₀ | R _g | f _{BL} | 30% _{f_{BL}} | | 45% _{f_{BL}} | | 62% _{f_{BL}} | | 80% _{f_{BL}} | |
|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------------------|-----|-------------------------------|------|-------------------------------|------|-------------------------------|-----|
| | | | | | | mm | N | mm | N | mm | N | mm | N |
| F01.10.10025 | 10 | 5 | 25 | 16.0 | 12 | 3.6 | 57 | 5.3 | 86 | 7.4 | 118 | 9.5 | 152 |
| F01.10.10032 | | | 32 | 13.0 | 15 | 4.6 | 59 | 6.9 | 89 | 9.5 | 123 | 12.2 | 159 |
| F01.10.10038 | | | 38 | 11.9 | 18 | 5.4 | 64 | 8.1 | 96 | 11.2 | 133 | 14.4 | 171 |
| F01.10.10044 | | | 44 | 10.3 | 21 | 6.3 | 65 | 9.4 | 97 | 12.4 | 139 | 16.7 | 172 |
| F01.10.10051 | | | 51 | 8.9 | 24 | 7.3 | 65 | 10.9 | 97 | 15.0 | 134 | 19.4 | 173 |
| F01.10.10064 | | | 64 | 7.5 | 30 | 9.1 | 68 | 13.7 | 103 | 18.8 | 141 | 24.3 | 182 |
| F01.10.10076 | | | 76 | 5.3 | 36 | 10.8 | 57 | 16.3 | 86 | 22.4 | 119 | 28.9 | 153 |
| F01.10.10305 | | | 305 | 1.6 | 145 | 43.5 | 70 | 65.3 | 104 | 89.9 | 144 | 116.0 | 186 |
| F01.10.13025 | | | 25 | 30.0 | 12 | 3.6 | 107 | 5.3 | 160 | 7.4 | 221 | 9.5 | 285 |
| F01.10.13032 | | | 32 | 24.8 | 15 | 4.6 | 113 | 6.9 | 170 | 9.5 | 234 | 12.2 | 303 |
| F01.10.13038 | 38 | 21.4 | 18 | 5.4 | 116 | 8.1 | 173 | 11.2 | 239 | 14.4 | 308 | | |
| F01.10.13044 | 44 | 18.5 | 21 | 6.3 | 116 | 9.4 | 174 | 12.9 | 239 | 16.7 | 309 | | |
| F01.10.13051 | 51 | 15.5 | 24 | 7.3 | 113 | 10.9 | 169 | 15.0 | 233 | 19.4 | 301 | | |
| F01.10.13064 | 64 | 12.1 | 30 | 9.1 | 110 | 13.7 | 165 | 18.8 | 228 | 24.3 | 294 | | |
| F01.10.13076 | 76 | 10.2 | 36 | 10.8 | 111 | 16.3 | 166 | 22.4 | 228 | 28.9 | 295 | | |
| F01.10.13089 | 89 | 8.4 | 42 | 12.7 | 106 | 19.0 | 160 | 26.2 | 220 | 33.8 | 284 | | |
| F01.10.13305 | 305 | 2.1 | 145 | 43.5 | 91 | 65.3 | 137 | 89.9 | 189 | 116.0 | 244 | | |
| F01.10.16025 | 25 | 49.4 | 12 | 3.6 | 176 | 5.3 | 264 | 7.4 | 364 | 9.5 | 469 | | |
| F01.10.16032 | 32 | 37.1 | 15 | 4.6 | 170 | 6.9 | 255 | 9.5 | 351 | 12.2 | 453 | | |
| F01.10.16038 | 38 | 33.9 | 18 | 5.4 | 183 | 8.1 | 275 | 11.2 | 378 | 14.4 | 488 | | |
| F01.10.16044 | 44 | 30.0 | 21 | 6.3 | 188 | 9.4 | 282 | 12.9 | 388 | 16.7 | 501 | | |
| F01.10.16051 | 51 | 26.4 | 24 | 7.3 | 192 | 10.9 | 288 | 15.0 | 397 | 19.4 | 512 | | |
| F01.10.16064 | 64 | 20.5 | 30 | 9.1 | 187 | 13.7 | 280 | 18.8 | 386 | 24.3 | 498 | | |
| F01.10.16076 | 76 | 17.8 | 36 | 10.8 | 193 | 16.3 | 289 | 22.4 | 399 | 28.9 | 514 | | |
| F01.10.16089 | 89 | 15.2 | 42 | 12.7 | 193 | 19.0 | 289 | 26.2 | 398 | 33.8 | 514 | | |
| F01.10.16102 | 102 | 13.5 | 49 | 14.6 | 196 | 21.8 | 295 | 30.1 | 406 | 38.8 | 524 | | |
| F01.10.16305 | 305 | 4.8 | 145 | 43.5 | 209 | 65.3 | 313 | 89.9 | 432 | 116.0 | 557 | | |
| F01.10.20025 | 25 | 98.0 | 12 | 3.5 | 345 | 5.3 | 518 | 7.3 | 714 | 9.4 | 921 | | |
| F01.10.20032 | 32 | 72.6 | 15 | 4.5 | 327 | 6.8 | 490 | 9.3 | 675 | 12.0 | 871 | | |
| F01.10.20038 | 38 | 56.0 | 18 | 5.3 | 294 | 7.9 | 441 | 10.9 | 608 | 14.0 | 784 | | |
| F01.10.20044 | 44 | 47.5 | 21 | 6.2 | 294 | 9.3 | 441 | 12.8 | 607 | 16.5 | 784 | | |
| F01.10.20051 | 51 | 41.7 | 24 | 7.1 | 297 | 10.7 | 446 | 14.7 | 614 | 19.0 | 792 | | |
| F01.10.20064 | 64 | 32.3 | 30 | 9.0 | 291 | 13.5 | 436 | 18.6 | 601 | 24.0 | 775 | | |
| F01.10.20076 | 76 | 25.1 | 35 | 10.5 | 264 | 15.8 | 395 | 21.7 | 545 | 28.0 | 703 | | |
| F01.10.20089 | 89 | 22.0 | 41 | 12.4 | 272 | 18.6 | 408 | 25.6 | 563 | 33.0 | 726 | | |
| F01.10.20102 | 102 | 19.8 | 48 | 14.3 | 282 | 21.4 | 423 | 29.5 | 583 | 38.0 | 752 | | |
| F01.10.20115 | 115 | 18.1 | 54 | 16.1 | 292 | 24.2 | 438 | 33.3 | 603 | 43.0 | 778 | | |
| F01.10.20127 | 127 | 16.6 | 60 | 18.0 | 299 | 27.0 | 448 | 37.2 | 618 | 48.0 | 797 | | |
| F01.10.20139 | 139 | 15.1 | 65 | 19.5 | 294 | 29.3 | 442 | 40.3 | 609 | 52.0 | 785 | | |
| F01.10.20152 | 152 | 13.2 | 71 | 21.4 | 282 | 32.1 | 423 | 44.2 | 583 | 57.0 | 752 | | |
| F01.10.20305 | 305 | 6.1 | 143 | 42.8 | 261 | 64.1 | 391 | 88.4 | 539 | 114.0 | 695 | | |
| F01.10.25025 | 25 | 147.0 | 12 | 3.5 | 518 | 5.3 | 777 | 7.3 | 1071 | 9.4 | 1382 | | |
| F01.10.25032 | 32 | 118.0 | 15 | 4.5 | 531 | 6.8 | 797 | 9.3 | 1097 | 12.0 | 1416 | | |
| F01.10.25038 | 38 | 93.0 | 18 | 5.3 | 488 | 7.9 | 732 | 10.9 | 1009 | 14.0 | 1302 | | |
| F01.10.25044 | 44 | 80.8 | 21 | 6.2 | 500 | 9.3 | 750 | 12.8 | 1033 | 16.5 | 1333 | | |
| F01.10.25051 | 51 | 68.6 | 24 | 7.1 | 489 | 10.7 | 733 | 14.7 | 1010 | 19.0 | 1303 | | |
| F01.10.25064 | 64 | 53.0 | 30 | 9.0 | 477 | 13.5 | 716 | 18.6 | 986 | 24.0 | 1272 | | |
| F01.10.25076 | 76 | 43.2 | 35 | 10.5 | 454 | 15.8 | 680 | 21.7 | 937 | 28.0 | 1210 | | |
| F01.10.25089 | 89 | 38.2 | 41 | 12.4 | 473 | 18.6 | 709 | 25.6 | 977 | 33.0 | 1261 | | |
| F01.10.25102 | 102 | 33.0 | 48 | 14.3 | 470 | 21.4 | 705 | 29.5 | 972 | 38.0 | 1254 | | |
| F01.10.25115 | 115 | 28.0 | 54 | 16.1 | 452 | 24.2 | 677 | 33.3 | 933 | 43.0 | 1204 | | |
| F01.10.25127 | 127 | 25.9 | 60 | 18.0 | 466 | 27.0 | 699 | 37.2 | 963 | 48.0 | 1243 | | |
| F01.10.25139 | 139 | 23.2 | 65 | 19.5 | 452 | 29.3 | 679 | 40.3 | 935 | 52.0 | 1206 | | |
| F01.10.25152 | 152 | 20.8 | 71 | 21.4 | 445 | 32.1 | 667 | 44.2 | 919 | 57.0 | 1186 | | |
| F01.10.25178 | 178 | 17.8 | 84 | 25.1 | 447 | 37.7 | 671 | 51.9 | 924 | 67.0 | 1193 | | |
| F01.10.25203 | 203 | 15.8 | 95 | 28.5 | 450 | 42.8 | 675 | 58.9 | 931 | 76.0 | 1201 | | |
| F01.10.25305 | 305 | 10.2 | 143 | 42.8 | 436 | 64.1 | 654 | 88.4 | 901 | 114.0 | 1163 | | |

WIRE SPRING, COLOUR "BLUE" DIN ISO 10243
SCHRAUBENDRUCKFEDER, KENNFARBE "BLAU" DIN ISO 10243
MOLLA A FILO, COLORE "BLU" DIN ISO 10243



Work Conditions

- f1 = pre-compression, min 13% Fbl
- F1 = spring force when compressed f1
- f2 = work travel, max 80% Fbl
- F2 = spring force when compressed f2 (N)
- Dh = Hole diameter (mm)
- Ds = Rod Diameter (mm)
- L0 = Free lenght (mm)
- Rg = Force / displacement rate (N/mm)
- Fbl = Max deflection (mm)



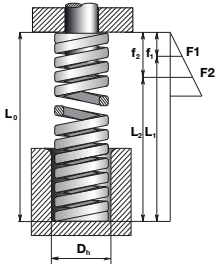
Ø 32 - 63



| | | | |
|---------------|--------|---------------------|---------------------|
| ORDER EXAMPLE | Art. | D _s = 32 | L ₀ = 44 |
| | F01.10 | 32 | 044 |

| OMCR CODE | D _h | D _s | L ₀ | R _g | f _{BL} | 30% _{f_{BL}} | | 45% _{f_{BL}} | | 62% _{f_{BL}} | | 80% _{f_{BL}} | |
|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------------------|------|-------------------------------|------|-------------------------------|------|-------------------------------|------|
| | | | | | | mm | N | mm | N | mm | N | mm | N |
| F01.10.32038 | 32 | 16 | 38 | 185.0 | 18 | 5.3 | 971 | 7.9 | 1457 | 10.9 | 2007 | 14.0 | 2590 |
| F01.10.32044 | | | 44 | 158.0 | 21 | 6.2 | 978 | 9.3 | 1466 | 12.8 | 2020 | 16.5 | 2607 |
| F01.10.32051 | | | 51 | 134.0 | 24 | 7.1 | 955 | 10.7 | 1432 | 14.7 | 1973 | 19.0 | 2546 |
| F01.10.32054 | | | 64 | 99.0 | 30 | 9.0 | 891 | 13.5 | 1337 | 18.2 | 1879 | 24.0 | 2376 |
| F01.10.32076 | | | 76 | 80.5 | 35 | 10.5 | 845 | 15.8 | 1268 | 21.7 | 1747 | 28.0 | 2254 |
| F01.10.32089 | | | 89 | 69.1 | 41 | 12.4 | 855 | 18.6 | 1283 | 25.6 | 1767 | 33.0 | 2280 |
| F01.10.32102 | | | 102 | 58.8 | 48 | 14.3 | 838 | 21.4 | 1257 | 29.5 | 1732 | 38.0 | 2234 |
| F01.10.32115 | | | 115 | 51.5 | 54 | 16.1 | 830 | 24.2 | 1246 | 33.3 | 1716 | 43.0 | 2215 |
| F01.10.32127 | | | 127 | 44.8 | 60 | 18.0 | 806 | 27.0 | 1210 | 37.2 | 1667 | 48.0 | 2150 |
| F01.10.32139 | | | 139 | 42.3 | 65 | 19.5 | 825 | 29.3 | 1237 | 40.3 | 1705 | 52.0 | 2200 |
| F01.10.32152 | | | 152 | 37.8 | 71 | 21.4 | 808 | 32.1 | 1212 | 44.2 | 1670 | 57.0 | 2155 |
| F01.10.32078 | | | 178 | 32.5 | 84 | 25.1 | 817 | 37.7 | 1225 | 51.9 | 1688 | 67.0 | 2178 |
| F01.10.32203 | | | 203 | 28.9 | 95 | 28.5 | 824 | 42.8 | 1235 | 58.9 | 1702 | 76.0 | 2196 |
| F01.10.32254 | | | 254 | 21.4 | 119 | 35.6 | 762 | 53.4 | 1144 | 73.6 | 1576 | 95.0 | 2033 |
| F01.10.32305 | | | 305 | 18.3 | 143 | 42.8 | 782 | 64.1 | 1173 | 88.4 | 1617 | 114.0 | 2086 |
| F01.10.40051 | | | 51 | 181.6 | 24 | 7.1 | 1294 | 10.7 | 1941 | 14.7 | 2674 | 19.0 | 3450 |
| F01.10.40064 | 64 | 140.0 | 30 | 9.0 | 1260 | 13.5 | 1890 | 18.6 | 2604 | 24.0 | 3360 | | |
| F01.10.40076 | 76 | 108.0 | 35 | 10.5 | 1134 | 15.8 | 1701 | 21.7 | 2344 | 28.0 | 3024 | | |
| F01.10.40089 | 89 | 90.7 | 41 | 12.4 | 1122 | 18.6 | 1684 | 25.6 | 2320 | 33.0 | 2993 | | |
| F01.10.40102 | 102 | 81.0 | 48 | 14.3 | 1154 | 21.4 | 1731 | 29.5 | 2385 | 38.0 | 3078 | | |
| F01.10.40115 | 115 | 71.8 | 54 | 16.1 | 1158 | 24.2 | 1737 | 33.3 | 2393 | 43.0 | 3087 | | |
| F01.10.40127 | 127 | 62.7 | 60 | 18.0 | 1129 | 27.0 | 1693 | 37.2 | 2332 | 48.0 | 3010 | | |
| F01.10.40139 | 139 | 57.5 | 65 | 19.5 | 1121 | 29.3 | 1682 | 40.3 | 2317 | 52.0 | 2990 | | |
| F01.10.40152 | 152 | 51.6 | 71 | 21.4 | 1103 | 32.1 | 1654 | 44.2 | 2279 | 57.0 | 2941 | | |
| F01.10.40178 | 178 | 44.1 | 84 | 25.1 | 1108 | 37.7 | 1662 | 51.9 | 2290 | 67.0 | 2955 | | |
| F01.10.40203 | 203 | 36.7 | 95 | 28.5 | 1046 | 42.8 | 1569 | 58.9 | 2162 | 76.0 | 2789 | | |
| F01.10.40254 | 254 | 30.1 | 119 | 35.6 | 1072 | 53.4 | 1608 | 73.6 | 2216 | 95.0 | 2860 | | |
| F01.10.40305 | 305 | 24.6 | 143 | 42.8 | 1052 | 64.1 | 1577 | 88.4 | 2173 | 114.0 | 2804 | | |
| F01.10.50064 | 64 | 209.0 | 30 | 9.0 | 1881 | 13.5 | 2822 | 18.6 | 3887 | 24.0 | 5016 | | |
| F01.10.50076 | 76 | 168.0 | 35 | 10.5 | 1764 | 15.8 | 2646 | 21.7 | 3646 | 28.0 | 4704 | | |
| F01.10.50089 | 89 | 140.0 | 41 | 12.4 | 1733 | 18.6 | 2599 | 25.6 | 3581 | 33.0 | 4620 | | |
| F01.10.50102 | 102 | 119.0 | 48 | 14.3 | 1696 | 21.4 | 2544 | 29.5 | 3505 | 38.0 | 4522 | | |
| F01.10.50115 | 115 | 106.0 | 54 | 16.1 | 1709 | 24.2 | 2564 | 33.3 | 3532 | 43.0 | 4558 | | |
| F01.10.50127 | 127 | 97.0 | 60 | 18.0 | 1746 | 27.0 | 2619 | 37.2 | 3608 | 48.0 | 4656 | | |
| F01.10.50139 | 139 | 87.0 | 65 | 19.5 | 1697 | 29.3 | 2545 | 40.3 | 3506 | 52.0 | 4524 | | |
| F01.10.50152 | 152 | 80.0 | 71 | 21.4 | 1710 | 32.1 | 2565 | 44.2 | 3534 | 57.0 | 4560 | | |
| F01.10.50178 | 178 | 69.5 | 84 | 25.1 | 1746 | 37.7 | 2619 | 51.9 | 3609 | 67.0 | 4657 | | |
| F01.10.50203 | 203 | 59.8 | 95 | 28.5 | 1704 | 42.8 | 2556 | 58.9 | 3522 | 76.0 | 4545 | | |
| F01.10.50229 | 229 | 50.9 | 108 | 32.3 | 1642 | 48.4 | 2462 | 66.7 | 3392 | 86.0 | 4377 | | |
| F01.10.50254 | 254 | 43.9 | 119 | 35.6 | 1564 | 53.4 | 2346 | 73.6 | 3232 | 95.0 | 4171 | | |
| F01.10.50305 | 305 | 38.6 | 143 | 42.8 | 1650 | 64.1 | 2475 | 88.4 | 3410 | 114.0 | 4400 | | |
| F01.10.63076 | 76 | 312.0 | 35 | 10.5 | 3276 | 15.8 | 4914 | 21.7 | 6770 | 28.0 | 8736 | | |
| F01.10.63089 | 89 | 260.0 | 41 | 12.4 | 3218 | 18.6 | 4826 | 25.6 | 6650 | 33.0 | 8580 | | |
| F01.10.63102 | 102 | 221.0 | 48 | 14.3 | 3149 | 21.4 | 4724 | 29.5 | 6508 | 38.0 | 8398 | | |
| F01.10.63115 | 115 | 187.0 | 54 | 16.1 | 3015 | 24.2 | 4523 | 33.3 | 6232 | 43.0 | 8041 | | |
| F01.10.63127 | 127 | 169.0 | 60 | 18.0 | 3024 | 27.0 | 4536 | 37.2 | 6250 | 48.0 | 8064 | | |
| F01.10.63152 | 152 | 136.0 | 71 | 21.4 | 2907 | 32.1 | 4361 | 44.2 | 6008 | 57.0 | 7752 | | |
| F01.10.63178 | 178 | 114.0 | 84 | 25.1 | 2864 | 37.7 | 4296 | 51.9 | 5919 | 67.0 | 7638 | | |
| F01.10.63203 | 203 | 100.0 | 95 | 28.5 | 2850 | 42.8 | 4275 | 58.9 | 5890 | 76.0 | 7600 | | |
| F01.10.63229 | 229 | 89.2 | 108 | 32.3 | 2877 | 48.4 | 4315 | 66.7 | 5945 | 86.0 | 7671 | | |
| F01.10.63254 | 254 | 78.4 | 119 | 35.6 | 2793 | 53.4 | 4190 | 73.6 | 5772 | 95.0 | 7448 | | |
| F01.10.63305 | 305 | 64.7 | 143 | 42.8 | 2766 | 64.1 | 4149 | 88.4 | 5716 | 114.0 | 7376 | | |

WIRE SPRING, COLOUR "RED" DIN ISO 10243
SCHRAUBENDRUCKFEDER, KENNFARBE "ROT" DIN ISO 10243
MOLLA A FILO, COLORE "ROSSO" DIN ISO 10243



Ø 10 - 25

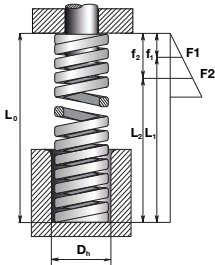


Work Conditions
f1 = pre-compression, min 13% Fbl
F1 = spring force when compressed f1
f2 = work travel, max 80% Fbl
F2 = spring force when compressed f2 (N)
Dh = Hole diameter (mm)
Ds = Rod Diameter (mm)
L0 = Free lenght (mm)
Rg = Force / displacement rate (N/mm)
Fbl = Max deflection (mm)

| | | | |
|---------------|--------|---------------------|---------------------|
| ORDER EXAMPLE | Art. | D _h = 10 | L ₀ = 44 |
| | F01.15 | 10 | 044 |

| OMCR CODE | D _h | D _s | L ₀ | R _g | f _{BL} | 30% _{f_{BL}} | | 45% _{f_{BL}} | | 62% _{f_{BL}} | | 80% _{f_{BL}} | |
|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------------------|------|-------------------------------|------|-------------------------------|------|-------------------------------|-----|
| | | | | | | mm | N | mm | N | mm | N | mm | N |
| F01.15.10025 | 10 | 5 | 25 | 22,1 | 9 | 2,8 | 62 | 4,2 | 93 | 5,8 | 129 | 7,5 | 166 |
| F01.15.10032 | | | 32 | 17,5 | 12 | 3,6 | 63 | 5,4 | 95 | 7,4 | 130 | 9,6 | 168 |
| F01.15.10038 | | | 38 | 17,1 | 14 | 4,3 | 73 | 6,4 | 110 | 8,8 | 151 | 11,4 | 195 |
| F01.15.10044 | | | 44 | 15,0 | 17 | 5,0 | 74 | 7,4 | 111 | 10,2 | 153 | 13,2 | 198 |
| F01.15.10051 | | | 51 | 12,8 | 19 | 5,7 | 73 | 8,6 | 110 | 11,9 | 152 | 15,3 | 196 |
| F01.15.10064 | | | 64 | 10,7 | 24 | 7,2 | 77 | 10,8 | 116 | 14,9 | 159 | 19,2 | 205 |
| F01.15.10076 | | | 76 | 7,5 | 29 | 8,6 | 64 | 12,8 | 96 | 17,7 | 133 | 22,8 | 171 |
| F01.15.10305 | | | 305 | 2,1 | 114 | 34,3 | 72 | 51,5 | 108 | 70,9 | 149 | 91,5 | 192 |
| F01.15.13025 | | | 25 | 42,1 | 9 | 2,8 | 118 | 4,2 | 178 | 5,8 | 245 | 7,5 | 316 |
| F01.15.13032 | | | 32 | 33,2 | 12 | 3,6 | 120 | 5,4 | 179 | 7,4 | 247 | 9,6 | 319 |
| F01.15.13038 | 38 | 29,3 | 14 | 4,3 | 125 | 6,4 | 188 | 8,8 | 259 | 11,4 | 334 | | |
| F01.15.13044 | 44 | 24,6 | 17 | 5,0 | 122 | 7,4 | 183 | 10,2 | 252 | 13,2 | 325 | | |
| F01.15.13051 | 51 | 19,6 | 19 | 5,7 | 113 | 8,6 | 169 | 11,9 | 232 | 15,3 | 300 | | |
| F01.15.13064 | 64 | 15,0 | 24 | 7,2 | 108 | 10,8 | 162 | 14,9 | 223 | 19,2 | 288 | | |
| F01.15.13076 | 76 | 13,2 | 29 | 8,6 | 113 | 12,8 | 169 | 17,7 | 233 | 22,8 | 301 | | |
| F01.15.13089 | 89 | 11,4 | 33 | 10,0 | 114 | 15,0 | 171 | 20,7 | 236 | 26,7 | 304 | | |
| F01.15.13305 | 305 | 2,8 | 114 | 34,3 | 96 | 51,5 | 144 | 70,9 | 199 | 91,5 | 256 | | |
| F01.15.16025 | 25 | 75,7 | 9 | 2,8 | 213 | 4,2 | 319 | 5,8 | 440 | 7,5 | 568 | | |
| F01.15.16032 | 32 | 52,8 | 12 | 3,6 | 190 | 5,4 | 285 | 7,4 | 393 | 9,6 | 507 | | |
| F01.15.16038 | 38 | 48,5 | 14 | 4,3 | 207 | 6,4 | 311 | 8,8 | 429 | 11,4 | 553 | | |
| F01.15.16044 | 44 | 42,8 | 17 | 5,0 | 212 | 7,4 | 318 | 10,2 | 438 | 13,2 | 565 | | |
| F01.15.16051 | 51 | 37,1 | 19 | 5,7 | 213 | 8,6 | 319 | 11,9 | 440 | 15,3 | 568 | | |
| F01.15.16064 | 64 | 30,3 | 24 | 7,2 | 218 | 10,8 | 327 | 14,9 | 451 | 19,2 | 582 | | |
| F01.15.16076 | 76 | 25,7 | 29 | 8,6 | 220 | 12,8 | 330 | 17,7 | 454 | 22,8 | 586 | | |
| F01.15.16089 | 89 | 21,7 | 33 | 10,0 | 217 | 15,0 | 326 | 20,7 | 449 | 26,7 | 579 | | |
| F01.15.16102 | 102 | 19,3 | 38 | 11,5 | 222 | 17,2 | 332 | 23,7 | 458 | 30,6 | 591 | | |
| F01.15.16305 | 305 | 7,1 | 114 | 34,3 | 244 | 51,5 | 365 | 70,9 | 504 | 91,5 | 650 | | |
| F01.15.20025 | 25 | 216,0 | 9 | 2,8 | 608 | 4,2 | 911 | 5,8 | 1256 | 7,5 | 1620 | | |
| F01.15.20032 | 32 | 168,0 | 12 | 3,6 | 605 | 5,4 | 907 | 7,4 | 1250 | 9,6 | 1613 | | |
| F01.15.20038 | 38 | 129,0 | 14 | 4,1 | 532 | 6,2 | 798 | 8,5 | 1100 | 11,0 | 1419 | | |
| F01.15.20044 | 44 | 112,0 | 16 | 4,9 | 546 | 7,3 | 819 | 10,1 | 1128 | 13,0 | 1456 | | |
| F01.15.20051 | 51 | 94,0 | 19 | 5,6 | 529 | 8,4 | 793 | 11,6 | 1093 | 15,0 | 1410 | | |
| F01.15.20064 | 64 | 72,1 | 24 | 7,1 | 514 | 10,7 | 771 | 14,7 | 1062 | 19,0 | 1370 | | |
| F01.15.20076 | 76 | 59,7 | 29 | 8,6 | 515 | 12,9 | 772 | 17,8 | 1064 | 23,0 | 1373 | | |
| F01.15.20089 | 89 | 50,5 | 34 | 10,1 | 511 | 15,2 | 767 | 20,9 | 1057 | 27,0 | 1364 | | |
| F01.15.20102 | 102 | 44,2 | 39 | 11,6 | 514 | 17,4 | 771 | 24,0 | 1062 | 31,0 | 1370 | | |
| F01.15.20115 | 115 | 38,4 | 44 | 13,1 | 504 | 19,7 | 756 | 27,1 | 1042 | 35,0 | 1344 | | |
| F01.15.20127 | 127 | 34,1 | 48 | 14,3 | 486 | 21,4 | 729 | 29,4 | 1004 | 38,0 | 1296 | | |
| F01.15.20139 | 139 | 31,0 | 53 | 15,8 | 488 | 23,6 | 732 | 32,5 | 1009 | 42,0 | 1302 | | |
| F01.15.20152 | 152 | 28,2 | 58 | 17,2 | 486 | 25,9 | 730 | 35,6 | 1005 | 46,0 | 1297 | | |
| F01.15.20305 | 305 | 15,0 | 114 | 34,1 | 512 | 51,2 | 768 | 70,5 | 1058 | 91,0 | 1365 | | |
| F01.15.25025 | 25 | 375,0 | 9 | 2,8 | 1055 | 4,2 | 1582 | 5,8 | 2180 | 7,5 | 2813 | | |
| F01.15.25032 | 32 | 297,0 | 12 | 3,6 | 1069 | 5,4 | 1604 | 7,4 | 2210 | 9,6 | 2851 | | |
| F01.15.25038 | 38 | 219,0 | 14 | 4,1 | 903 | 6,2 | 1355 | 8,5 | 1867 | 11,0 | 2409 | | |
| F01.15.25044 | 44 | 187,0 | 16 | 4,9 | 912 | 7,3 | 1367 | 10,1 | 1884 | 13,0 | 2431 | | |
| F01.15.25051 | 51 | 156,0 | 19 | 5,6 | 878 | 8,4 | 1316 | 11,6 | 1814 | 15,0 | 2340 | | |
| F01.15.25064 | 64 | 123,0 | 24 | 7,1 | 876 | 10,7 | 1315 | 14,7 | 1811 | 19,0 | 2337 | | |
| F01.15.25076 | 76 | 99,0 | 29 | 8,6 | 854 | 12,9 | 1281 | 17,8 | 1765 | 23,0 | 2277 | | |
| F01.15.25089 | 89 | 84,0 | 34 | 10,1 | 851 | 15,2 | 1276 | 20,9 | 1758 | 27,0 | 2268 | | |
| F01.15.25102 | 102 | 73,0 | 39 | 11,6 | 849 | 17,4 | 1273 | 24,0 | 1754 | 31,0 | 2263 | | |
| F01.15.25115 | 115 | 65,0 | 44 | 13,1 | 853 | 19,7 | 1280 | 27,1 | 1764 | 35,0 | 2276 | | |
| F01.15.25127 | 127 | 57,7 | 48 | 14,3 | 822 | 21,4 | 1233 | 29,4 | 1699 | 38,0 | 2193 | | |
| F01.15.25139 | 139 | 52,7 | 53 | 15,8 | 830 | 23,6 | 1245 | 32,5 | 1715 | 42,0 | 2213 | | |
| F01.15.25152 | 152 | 47,8 | 58 | 17,2 | 825 | 25,9 | 1237 | 35,6 | 1704 | 46,0 | 2199 | | |
| F01.15.25178 | 178 | 41,0 | 66 | 19,9 | 815 | 29,8 | 1222 | 41,1 | 1684 | 53,0 | 2173 | | |
| F01.15.25203 | 203 | 35,8 | 76 | 22,9 | 819 | 34,3 | 1228 | 47,3 | 1692 | 61,0 | 2184 | | |
| F01.15.25305 | 305 | 22,9 | 114 | 34,1 | 782 | 51,2 | 1172 | 70,5 | 1615 | 91,0 | 2084 | | |

WIRE SPRING, COLOUR "RED" DIN ISO 10243
SCHRAUBENDRUCKFEDER, KENNFARBE "ROT" DIN ISO 10243
MOLLA A FILO, COLORE "ROSSO" DIN ISO 10243



Ø 32 - 63

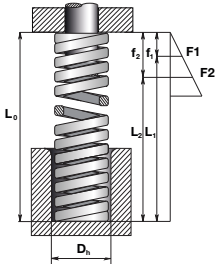


Work Conditions
f1 = pre-compression, min 13% Fbl
F1 = spring force when compressed f1
f2 = work travel, max 80% Fbl
F2 = spring force when compressed f2 (N)
Dh = Hole diameter (mm)
Ds = Rod Diameter (mm)
L0 = Free lenght (mm)
Rg = Force / displacement rate (N/mm)
Fbl = Max deflection (mm)

| | | | |
|------------------|--------|---------------------|---------------------|
| ORDER EXAMPLE | Art. | D _s = 32 | L ₀ = 44 |
| | F01.15 | 32 | 044 |

| OMCR CODE | D _h | D _s | L ₀ | R _g | f _{BL} | 30% _{f_{BL}} | | 45% _{f_{BL}} | | 62% _{f_{BL}} | | 80% _{f_{BL}} | |
|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------------------|------|-------------------------------|-------|-------------------------------|-------|-------------------------------|------|
| | | | | | | mm | N | mm | N | mm | N | mm | N |
| F01.15.32038 | 32 | 16 | 38 | 388,0 | 14 | 4,1 | 1601 | 6,2 | 2401 | 8,5 | 3308 | 11,0 | 4268 |
| F01.15.32044 | | | 44 | 324,0 | 16 | 4,9 | 1580 | 7,3 | 2369 | 10,1 | 3264 | 13,0 | 4212 |
| F01.15.32051 | | | 51 | 272,0 | 19 | 5,6 | 1530 | 8,4 | 2295 | 11,6 | 3162 | 15,0 | 4080 |
| F01.15.32064 | | | 64 | 212,0 | 24 | 7,1 | 1511 | 10,7 | 2266 | 14,7 | 3122 | 19,0 | 4028 |
| F01.15.32076 | | | 76 | 172,0 | 29 | 8,6 | 1484 | 12,9 | 2225 | 17,8 | 3066 | 23,0 | 3956 |
| F01.15.32089 | | | 89 | 141,0 | 34 | 10,1 | 1428 | 15,2 | 2141 | 20,9 | 2950 | 27,0 | 3807 |
| F01.15.32102 | | | 102 | 122,0 | 39 | 11,6 | 1418 | 17,4 | 2127 | 24,0 | 2931 | 31,0 | 3782 |
| F01.15.32115 | | | 115 | 107,0 | 44 | 13,1 | 1404 | 19,7 | 2107 | 27,1 | 2902 | 35,0 | 3745 |
| F01.15.32127 | | | 127 | 93,0 | 48 | 14,3 | 1325 | 21,4 | 1988 | 29,4 | 2739 | 38,0 | 3534 |
| F01.15.32139 | | | 139 | 86,0 | 53 | 15,8 | 1355 | 23,6 | 2032 | 32,5 | 2799 | 42,0 | 3612 |
| F01.15.32152 | | | 152 | 78,0 | 58 | 17,2 | 1346 | 25,9 | 2018 | 35,6 | 2781 | 46,0 | 3588 |
| F01.15.32078 | | | 178 | 67,2 | 66 | 19,9 | 1336 | 29,8 | 2003 | 41,1 | 2760 | 53,0 | 3562 |
| F01.15.32203 | | | 203 | 59,1 | 76 | 22,9 | 1352 | 34,3 | 2028 | 47,3 | 2794 | 61,0 | 3605 |
| F01.15.32254 | | | 254 | 46,4 | 95 | 28,5 | 1322 | 42,8 | 1984 | 58,9 | 2733 | 76,0 | 3526 |
| F01.15.32305 | | | 305 | 38,0 | 114 | 34,1 | 1297 | 51,2 | 1945 | 70,5 | 2680 | 91,0 | 3458 |
| F01.15.40051 | | | 51 | 350,0 | 19 | 5,6 | 1969 | 8,4 | 2953 | 11,6 | 4069 | 15,0 | 5250 |
| F01.15.40064 | 64 | 269,0 | 24 | 7,1 | 1917 | 10,7 | 2875 | 14,7 | 3961 | 19,0 | 5111 | | |
| F01.15.40076 | 76 | 219,0 | 29 | 8,6 | 1889 | 12,9 | 2833 | 17,8 | 3904 | 23,0 | 5037 | | |
| F01.15.40089 | 89 | 190,0 | 34 | 10,1 | 1924 | 15,2 | 2886 | 20,9 | 3976 | 27,0 | 5130 | | |
| F01.15.40102 | 102 | 163,0 | 39 | 11,6 | 1895 | 17,4 | 2842 | 24,0 | 3916 | 31,0 | 5053 | | |
| F01.15.40115 | 115 | 142,0 | 44 | 13,1 | 1864 | 19,7 | 2796 | 27,1 | 3852 | 35,0 | 4970 | | |
| F01.15.40127 | 127 | 128,0 | 48 | 14,3 | 1824 | 21,4 | 2736 | 29,4 | 3770 | 38,0 | 4864 | | |
| F01.15.40139 | 139 | 115,0 | 53 | 15,8 | 1811 | 23,6 | 2717 | 32,5 | 3743 | 42,0 | 4830 | | |
| F01.15.40152 | 152 | 108,0 | 58 | 17,2 | 1811 | 25,9 | 2717 | 35,6 | 3743 | 46,0 | 4830 | | |
| F01.15.40178 | 178 | 93,0 | 66 | 19,9 | 1769 | 29,8 | 2653 | 41,1 | 3656 | 53,0 | 4717 | | |
| F01.15.40203 | 203 | 77,0 | 76 | 22,9 | 1761 | 34,3 | 2642 | 47,3 | 3640 | 61,0 | 4697 | | |
| F01.15.40254 | 254 | 61,0 | 95 | 28,5 | 1739 | 42,8 | 2608 | 58,9 | 3593 | 76,0 | 4636 | | |
| F01.15.40305 | 305 | 51,0 | 114 | 34,1 | 1740 | 51,2 | 2611 | 70,5 | 3597 | 91,0 | 4641 | | |
| F01.15.50064 | 64 | 413,0 | 24 | 7,1 | 2943 | 10,7 | 4414 | 14,7 | 6081 | 19,0 | 7847 | | |
| F01.15.50076 | 76 | 339,0 | 29 | 8,6 | 2924 | 12,9 | 4386 | 17,8 | 6043 | 23,0 | 7797 | | |
| F01.15.50089 | 89 | 288,0 | 34 | 10,1 | 2916 | 15,2 | 4374 | 20,9 | 6026 | 27,0 | 7776 | | |
| F01.15.50102 | 102 | 245,0 | 39 | 11,6 | 2848 | 17,4 | 4272 | 24,0 | 5886 | 31,0 | 7595 | | |
| F01.15.50115 | 115 | 215,0 | 44 | 13,1 | 2822 | 19,7 | 4233 | 27,1 | 5832 | 35,0 | 7525 | | |
| F01.15.50127 | 127 | 192,0 | 48 | 14,3 | 2736 | 21,4 | 4104 | 29,4 | 5654 | 38,0 | 7296 | | |
| F01.15.50139 | 139 | 168,0 | 53 | 15,8 | 2646 | 23,6 | 3969 | 32,5 | 5468 | 42,0 | 7056 | | |
| F01.15.50152 | 152 | 154,0 | 58 | 17,2 | 2657 | 25,9 | 3985 | 35,6 | 5490 | 46,0 | 7084 | | |
| F01.15.50178 | 178 | 134,0 | 66 | 19,9 | 2663 | 29,8 | 3995 | 41,1 | 5504 | 53,0 | 7102 | | |
| F01.15.50203 | 203 | 117,0 | 76 | 22,9 | 2676 | 34,3 | 4015 | 47,3 | 5531 | 61,0 | 7137 | | |
| F01.15.50254 | 254 | 89,0 | 95 | 28,5 | 2537 | 42,8 | 3805 | 58,9 | 5242 | 76,0 | 6764 | | |
| F01.15.50305 | 305 | 73,0 | 114 | 34,1 | 2491 | 51,2 | 3737 | 70,5 | 5148 | 91,0 | 6643 | | |
| F01.15.63076 | 76 | 618,0 | 29 | 8,6 | 5330 | 12,9 | 7995 | 17,8 | 11016 | 23,0 | 14214 | | |
| F01.15.63089 | 89 | 515,0 | 34 | 10,1 | 5214 | 15,2 | 7822 | 20,9 | 10776 | 27,0 | 13905 | | |
| F01.15.63102 | 102 | 438,0 | 39 | 11,6 | 5092 | 17,4 | 7638 | 24,0 | 10523 | 31,0 | 13578 | | |
| F01.15.63115 | 115 | 370,0 | 44 | 13,1 | 4956 | 19,7 | 7284 | 27,1 | 10096 | 35,0 | 12950 | | |
| F01.15.63127 | 127 | 330,0 | 48 | 14,3 | 4745 | 21,4 | 7118 | 29,4 | 9807 | 38,0 | 12654 | | |
| F01.15.63152 | 152 | 269,0 | 58 | 17,2 | 4640 | 25,9 | 6960 | 35,6 | 9590 | 46,0 | 12374 | | |
| F01.15.63178 | 178 | 226,0 | 66 | 19,9 | 4492 | 29,8 | 6738 | 41,1 | 9283 | 53,0 | 11978 | | |
| F01.15.63203 | 203 | 198,0 | 76 | 22,9 | 4529 | 34,3 | 6794 | 47,3 | 9361 | 61,0 | 12078 | | |
| F01.15.63254 | 254 | 155,0 | 95 | 28,5 | 4418 | 42,8 | 6626 | 58,9 | 9130 | 76,0 | 11780 | | |
| F01.15.63305 | 305 | 128,0 | 114 | 34,1 | 4368 | 51,2 | 6552 | 70,5 | 9027 | 91,0 | 11648 | | |

WIRE SPRING, COLOUR "YELLOW" DIN ISO 10243
SCHRAUBENDRUCKFEDER, KENNFARBE "GELB" DIN ISO 10243
MOLLA A FILO, COLORE "GIALLO" DIN ISO 10243



Work Conditions

- f1 = pre-compression, min 13% Fbl
- F1 = spring force when compressed f1
- f2 = work travel, max 80% Fbl
- F2 = spring force when compressed f2 (N)
- Dh = Hole diameter (mm)
- Ds = Rod Diameter (mm)
- L0 = Free lenght (mm)
- Rg = Force / displacement rate (N/mm)
- Fbl = Max deflection (mm)



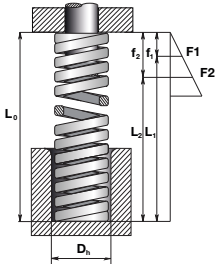
Ø 10 - 25



| | | | |
|---------------|--------|---------------------|---------------------|
| ORDER EXAMPLE | Art. | D _s = 10 | L ₀ = 44 |
| | F01.20 | 10 | 044 |

| OMCR CODE | D _h | D _s | L ₀ | R _g | f _{BL} | 30% _{f_{BL}} | | 45% _{f_{BL}} | | 62% _{f_{BL}} | | 80% _{f_{BL}} | |
|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------------------|------|-------------------------------|------|-------------------------------|------|-------------------------------|-----|
| | | | | | | mm | N | mm | N | mm | N | mm | N |
| F01.20.10025 | 10 | 5 | 25 | 36,8 | 8 | 2,3 | 86 | 3,5 | 128 | 4,8 | 177 | 6,2 | 228 |
| F01.20.10032 | | | 32 | 27,9 | 10 | 3,0 | 84 | 4,5 | 126 | 6,2 | 173 | 8,0 | 223 |
| F01.20.10038 | | | 38 | 23,7 | 12 | 3,6 | 84 | 5,3 | 127 | 7,4 | 175 | 9,5 | 225 |
| F01.20.10044 | | | 44 | 19,2 | 14 | 4,1 | 79 | 6,2 | 119 | 8,5 | 162 | 11,0 | 211 |
| F01.20.10051 | | | 51 | 16,5 | 16 | 4,9 | 80 | 7,3 | 121 | 10,1 | 166 | 13,0 | 215 |
| F01.20.10064 | | | 64 | 13,2 | 20 | 6,0 | 79 | 9,0 | 119 | 12,4 | 164 | 16,0 | 211 |
| F01.20.10076 | | | 76 | 10,9 | 24 | 7,1 | 78 | 10,7 | 117 | 14,7 | 161 | 19,0 | 207 |
| F01.20.10305 | | | 305 | 2,6 | 95 | 28,5 | 74 | 42,8 | 111 | 58,9 | 153 | 76,0 | 198 |
| F01.20.13025 | | | 25 | 58,5 | 8 | 2,3 | 136 | 3,5 | 204 | 4,8 | 281 | 6,2 | 363 |
| F01.20.13032 | | | 32 | 43,9 | 10 | 3,0 | 132 | 4,5 | 198 | 6,2 | 272 | 8,0 | 351 |
| F01.20.13038 | 38 | 36,0 | 12 | 3,6 | 128 | 5,3 | 192 | 7,4 | 265 | 9,5 | 342 | | |
| F01.20.13044 | 44 | 30,3 | 14 | 4,1 | 125 | 6,2 | 188 | 8,5 | 258 | 11,0 | 333 | | |
| F01.20.13051 | 51 | 26,2 | 16 | 4,9 | 128 | 7,3 | 192 | 10,1 | 264 | 13,0 | 341 | | |
| F01.20.13064 | 64 | 21,2 | 20 | 6,0 | 127 | 9,0 | 191 | 12,4 | 263 | 16,0 | 339 | | |
| F01.20.13076 | 76 | 17,1 | 24 | 7,1 | 122 | 10,7 | 183 | 14,7 | 252 | 19,0 | 325 | | |
| F01.20.13089 | 89 | 14,5 | 28 | 8,3 | 120 | 12,4 | 179 | 17,1 | 247 | 22,0 | 319 | | |
| F01.20.13305 | 305 | 4,3 | 95 | 28,5 | 123 | 42,8 | 184 | 58,9 | 253 | 76,0 | 327 | | |
| F01.20.16025 | 25 | 118,0 | 8 | 2,3 | 274 | 3,5 | 412 | 4,8 | 567 | 6,2 | 732 | | |
| F01.20.16032 | 32 | 89,0 | 10 | 3,0 | 267 | 4,5 | 401 | 6,2 | 552 | 8,0 | 712 | | |
| F01.20.16038 | 38 | 72,1 | 12 | 3,6 | 257 | 5,3 | 385 | 7,4 | 531 | 9,5 | 685 | | |
| F01.20.16044 | 44 | 60,9 | 14 | 4,1 | 251 | 6,2 | 377 | 8,5 | 519 | 11,0 | 670 | | |
| F01.20.16051 | 51 | 52,3 | 16 | 4,9 | 255 | 7,3 | 382 | 10,1 | 527 | 13,0 | 680 | | |
| F01.20.16064 | 64 | 41,2 | 20 | 6,0 | 247 | 9,0 | 371 | 12,4 | 511 | 16,0 | 659 | | |
| F01.20.16076 | 76 | 34,1 | 24 | 7,1 | 243 | 10,7 | 364 | 14,7 | 502 | 19,0 | 648 | | |
| F01.20.16089 | 89 | 29,5 | 28 | 8,3 | 243 | 12,4 | 365 | 17,1 | 503 | 22,0 | 649 | | |
| F01.20.16102 | 102 | 25,6 | 33 | 9,8 | 250 | 14,6 | 374 | 20,1 | 516 | 26,0 | 666 | | |
| F01.20.16305 | 305 | 8,4 | 95 | 28,5 | 239 | 42,8 | 359 | 58,9 | 495 | 76,0 | 638 | | |
| F01.20.20025 | 25 | 293,0 | 8 | 2,3 | 681 | 3,5 | 1022 | 4,8 | 1408 | 6,2 | 1817 | | |
| F01.20.20032 | 32 | 224,0 | 10 | 3,0 | 672 | 4,5 | 1008 | 6,2 | 1389 | 8,0 | 1792 | | |
| F01.20.20038 | 38 | 177,0 | 12 | 3,6 | 631 | 5,3 | 946 | 7,4 | 1303 | 9,5 | 1682 | | |
| F01.20.20044 | 44 | 149,0 | 14 | 4,1 | 615 | 6,2 | 922 | 8,5 | 1270 | 11,0 | 1639 | | |
| F01.20.20051 | 51 | 128,0 | 16 | 4,9 | 624 | 7,3 | 936 | 10,1 | 1290 | 13,0 | 1664 | | |
| F01.20.20064 | 64 | 99,0 | 20 | 6,0 | 594 | 9,0 | 891 | 12,4 | 1228 | 16,0 | 1584 | | |
| F01.20.20076 | 76 | 81,7 | 24 | 7,1 | 582 | 10,7 | 873 | 14,7 | 1203 | 19,0 | 1552 | | |
| F01.20.20089 | 89 | 69,5 | 28 | 8,3 | 573 | 12,4 | 860 | 17,1 | 1185 | 22,0 | 1529 | | |
| F01.20.20102 | 102 | 60,6 | 33 | 9,8 | 591 | 14,6 | 886 | 20,1 | 1221 | 26,0 | 1576 | | |
| F01.20.20115 | 115 | 53,0 | 36 | 10,9 | 576 | 16,3 | 865 | 22,5 | 1191 | 29,0 | 1537 | | |
| F01.20.20127 | 127 | 47,5 | 40 | 12,0 | 570 | 18,0 | 855 | 24,8 | 1178 | 32,0 | 1520 | | |
| F01.20.20139 | 139 | 43,0 | 44 | 13,1 | 564 | 19,7 | 847 | 27,1 | 1166 | 35,0 | 1505 | | |
| F01.20.20152 | 152 | 39,0 | 48 | 14,3 | 556 | 21,4 | 834 | 29,4 | 1149 | 38,0 | 1482 | | |
| F01.20.20305 | 305 | 21,2 | 95 | 28,5 | 604 | 42,8 | 906 | 58,9 | 1249 | 76,0 | 1611 | | |
| F01.20.25025 | 25 | 459,0 | 8 | 2,3 | 1067 | 3,5 | 1601 | 4,8 | 2206 | 6,2 | 2846 | | |
| F01.20.25032 | 32 | 374,0 | 10 | 3,0 | 1123 | 4,5 | 1685 | 6,2 | 2321 | 8,0 | 2995 | | |
| F01.20.25038 | 38 | 346,0 | 12 | 3,6 | 1233 | 5,3 | 1849 | 7,4 | 2547 | 9,5 | 3287 | | |
| F01.20.25044 | 44 | 244,0 | 14 | 4,1 | 1007 | 6,2 | 1510 | 8,5 | 2080 | 11,0 | 2684 | | |
| F01.20.25051 | 51 | 207,5 | 16 | 4,9 | 1012 | 7,3 | 1517 | 10,1 | 2091 | 13,0 | 2698 | | |
| F01.20.25064 | 64 | 161,0 | 20 | 6,0 | 966 | 9,0 | 1449 | 12,4 | 1996 | 16,0 | 2576 | | |
| F01.20.25076 | 76 | 130,8 | 24 | 7,1 | 932 | 10,7 | 1398 | 14,7 | 1926 | 19,0 | 2485 | | |
| F01.20.25089 | 89 | 110,5 | 28 | 8,3 | 912 | 12,4 | 1367 | 17,1 | 1884 | 22,0 | 2431 | | |
| F01.20.25102 | 102 | 96,3 | 33 | 9,8 | 939 | 14,6 | 1408 | 20,1 | 1940 | 26,0 | 2504 | | |
| F01.20.25115 | 115 | 85,7 | 36 | 10,9 | 932 | 16,3 | 1398 | 22,5 | 1926 | 29,0 | 2485 | | |
| F01.20.25127 | 127 | 76,3 | 40 | 12,0 | 916 | 18,0 | 1373 | 24,8 | 1892 | 32,0 | 2442 | | |
| F01.20.25139 | 139 | 68,9 | 44 | 13,1 | 904 | 19,7 | 1357 | 27,1 | 1869 | 35,0 | 2412 | | |
| F01.20.25152 | 152 | 63,5 | 48 | 14,3 | 905 | 21,4 | 1357 | 29,4 | 1870 | 38,0 | 2413 | | |
| F01.20.25178 | 178 | 53,9 | 55 | 16,5 | 889 | 24,8 | 1334 | 34,1 | 1838 | 44,0 | 2372 | | |
| F01.20.25203 | 203 | 47,0 | 64 | 19,1 | 899 | 28,7 | 1348 | 39,5 | 1858 | 51,0 | 2397 | | |
| F01.20.25305 | 305 | 30,9 | 95 | 28,5 | 881 | 42,8 | 1321 | 58,9 | 1820 | 76,0 | 2348 | | |

WIRE SPRING, COLOUR "YELLOW" DIN ISO 10243
SCHRAUBENDRUCKFEDER, KENNFARBE "GELB" DIN ISO 10243
MOLLA A FILO, COLORE "GIALLO" DIN ISO 10243



Ø 32 - 63



Work Conditions
f1 = pre-compression, min 13% Fbl
F1 = spring force when compressed f1
f2 = work travel, max 80% Fbl
F2 = spring force when compressed f2 (N)
Dh = Hole diameter (mm)
Ds = Rod Diameter (mm)
L0 = Free lenght (mm)
Rg = Force / displacement rate (N/mm)
Fbl = Max deflection (mm)

| | | | |
|---------------|--------|---------------------|---------------------|
| ORDER EXAMPLE | Art. | D _h = 32 | L ₀ = 44 |
| | F01.20 | 32 | 044 |

| OMCR CODE | D _h | D _s | L ₀ | R _g | f _{BL} | 30% _{f_{BL}} | | 45% _{f_{BL}} | | 62% _{f_{BL}} | | 80% _{f_{BL}} | |
|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------------------|-------|-------------------------------|-------|-------------------------------|-------|-------------------------------|------|
| | | | | | | mm | N | mm | N | mm | N | mm | N |
| F01.20.32038 | 32 | 16 | 38 | 528,2 | 12 | 3,6 | 1882 | 5,3 | 2823 | 7,4 | 3889 | 9,5 | 5018 |
| F01.20.32044 | | | 44 | 424,4 | 14 | 4,1 | 1751 | 6,2 | 2626 | 8,5 | 3618 | 11,0 | 4668 |
| F01.20.32051 | | | 51 | 353,0 | 16 | 4,9 | 1721 | 7,3 | 2581 | 10,1 | 3557 | 13,0 | 4589 |
| F01.20.32064 | | | 64 | 269,2 | 20 | 6,0 | 1615 | 9,0 | 2423 | 12,4 | 3338 | 16,0 | 4307 |
| F01.20.32076 | | | 76 | 218,5 | 24 | 7,1 | 1557 | 10,7 | 2335 | 14,7 | 3217 | 19,0 | 4152 |
| F01.20.32089 | | | 89 | 180,3 | 28 | 8,3 | 1488 | 12,4 | 2231 | 17,1 | 3074 | 22,0 | 3967 |
| F01.20.32102 | | | 102 | 155,0 | 33 | 9,8 | 1511 | 14,6 | 2267 | 20,1 | 3123 | 26,0 | 4030 |
| F01.20.32115 | | | 115 | 140,0 | 36 | 10,9 | 1523 | 16,3 | 2284 | 22,5 | 3147 | 29,0 | 4060 |
| F01.20.32127 | | | 127 | 124,0 | 40 | 12,0 | 1488 | 18,0 | 2232 | 24,8 | 3075 | 32,0 | 3968 |
| F01.20.32139 | | | 139 | 112,3 | 44 | 13,1 | 1474 | 19,7 | 2211 | 27,1 | 3046 | 35,0 | 3931 |
| F01.20.32152 | | | 152 | 102,0 | 48 | 14,3 | 1454 | 21,4 | 2180 | 29,4 | 3004 | 38,0 | 3876 |
| F01.20.32078 | | | 178 | 88,2 | 55 | 16,5 | 1455 | 24,8 | 2183 | 34,1 | 3008 | 44,0 | 3881 |
| F01.20.32203 | | | 203 | 76,0 | 64 | 19,1 | 1454 | 28,7 | 2180 | 39,5 | 3004 | 51,0 | 3876 |
| F01.20.32254 | | | 254 | 60,8 | 80 | 24,0 | 1459 | 36,0 | 2189 | 49,6 | 3016 | 64,0 | 3891 |
| F01.20.32305 | | | 305 | 49,0 | 95 | 28,5 | 1397 | 42,8 | 2095 | 58,9 | 2886 | 76,0 | 3724 |
| F01.20.40051 | | | 51 | 628,0 | 16 | 4,9 | 3062 | 7,3 | 4592 | 10,1 | 6327 | 13,0 | 8164 |
| F01.20.40064 | 64 | 487,0 | 20 | 6,0 | 2922 | 9,0 | 4383 | 12,4 | 6039 | 16,0 | 7792 | | |
| F01.20.40076 | 76 | 379,0 | 24 | 7,1 | 2700 | 10,7 | 4051 | 14,7 | 5581 | 19,0 | 7201 | | |
| F01.20.40089 | 89 | 321,0 | 28 | 8,3 | 2648 | 12,4 | 3972 | 17,1 | 5473 | 22,0 | 7062 | | |
| F01.20.40102 | 102 | 281,0 | 33 | 9,8 | 2740 | 14,6 | 4110 | 20,1 | 5662 | 26,0 | 7306 | | |
| F01.20.40115 | 115 | 245,0 | 36 | 10,9 | 2664 | 16,3 | 3997 | 22,5 | 5506 | 29,0 | 7105 | | |
| F01.20.40127 | 127 | 221,0 | 40 | 12,0 | 2652 | 18,0 | 3978 | 24,8 | 5481 | 32,0 | 7072 | | |
| F01.20.40139 | 139 | 190,0 | 44 | 13,1 | 2494 | 19,7 | 3741 | 27,1 | 5154 | 35,0 | 6650 | | |
| F01.20.40152 | 152 | 168,0 | 48 | 14,3 | 2394 | 21,4 | 3591 | 29,4 | 4948 | 38,0 | 6384 | | |
| F01.20.40178 | 178 | 146,0 | 55 | 16,5 | 2409 | 24,8 | 3614 | 34,1 | 4979 | 44,0 | 6424 | | |
| F01.20.40203 | 203 | 132,0 | 64 | 19,1 | 2525 | 28,7 | 3787 | 39,5 | 5217 | 51,0 | 6732 | | |
| F01.20.40254 | 254 | 107,0 | 80 | 24,0 | 2568 | 36,0 | 3852 | 49,6 | 5307 | 64,0 | 6848 | | |
| F01.20.40305 | 305 | 87,8 | 95 | 28,5 | 2502 | 42,8 | 3753 | 58,9 | 5171 | 76,0 | 6673 | | |
| F01.20.50064 | 64 | 709,0 | 20 | 6,0 | 4254 | 9,0 | 6381 | 12,4 | 8792 | 16,0 | 11344 | | |
| F01.20.50076 | 76 | 572,0 | 24 | 7,1 | 4076 | 10,7 | 6113 | 14,7 | 8423 | 19,0 | 10868 | | |
| F01.20.50089 | 89 | 475,0 | 28 | 8,3 | 3919 | 12,4 | 5878 | 17,1 | 8099 | 22,0 | 10450 | | |
| F01.20.50102 | 102 | 405,0 | 33 | 9,8 | 3949 | 14,6 | 5923 | 20,1 | 8161 | 26,0 | 10530 | | |
| F01.20.50115 | 115 | 352,0 | 36 | 10,9 | 3828 | 16,3 | 5742 | 22,5 | 7911 | 29,0 | 10208 | | |
| F01.20.50127 | 127 | 316,0 | 40 | 12,0 | 3792 | 18,0 | 5688 | 24,8 | 7837 | 32,0 | 10112 | | |
| F01.20.50139 | 139 | 274,0 | 44 | 13,1 | 3596 | 19,7 | 5394 | 27,1 | 7432 | 35,0 | 9590 | | |
| F01.20.50152 | 152 | 239,0 | 48 | 14,3 | 3406 | 21,4 | 5109 | 29,4 | 7039 | 38,0 | 9082 | | |
| F01.20.50178 | 178 | 215,0 | 55 | 16,5 | 3548 | 24,8 | 5321 | 34,1 | 7332 | 44,0 | 9460 | | |
| F01.20.50203 | 203 | 187,0 | 64 | 19,1 | 3576 | 28,7 | 5365 | 39,5 | 7391 | 51,0 | 9537 | | |
| F01.20.50254 | 254 | 153,0 | 80 | 24,0 | 3672 | 36,0 | 5508 | 49,6 | 7589 | 64,0 | 9792 | | |
| F01.20.50305 | 305 | 127,0 | 95 | 28,5 | 3620 | 42,8 | 5429 | 58,9 | 7480 | 76,0 | 9652 | | |
| F01.20.63076 | 76 | 952,0 | 24 | 7,1 | 6783 | 10,7 | 10175 | 14,7 | 14018 | 19,0 | 18088 | | |
| F01.20.63089 | 89 | 819,0 | 28 | 8,3 | 6757 | 12,4 | 10135 | 17,1 | 13964 | 22,0 | 18018 | | |
| F01.20.63102 | 102 | 700,0 | 33 | 9,8 | 6825 | 14,6 | 10238 | 20,1 | 14105 | 26,0 | 18200 | | |
| F01.20.63115 | 115 | 620,0 | 36 | 10,9 | 6743 | 16,3 | 10114 | 22,5 | 13935 | 29,0 | 17980 | | |
| F01.20.63127 | 127 | 565,0 | 40 | 12,0 | 6780 | 18,0 | 10170 | 24,8 | 14012 | 32,0 | 18080 | | |
| F01.20.63152 | 152 | 459,0 | 48 | 14,3 | 6527 | 21,4 | 9790 | 29,4 | 13488 | 38,0 | 17404 | | |
| F01.20.63178 | 178 | 384,0 | 55 | 16,5 | 6336 | 24,8 | 9504 | 34,1 | 13094 | 44,0 | 16896 | | |
| F01.20.63203 | 203 | 337,0 | 64 | 19,1 | 6445 | 28,7 | 9668 | 39,5 | 13320 | 51,0 | 17187 | | |
| F01.20.63254 | 254 | 263,0 | 80 | 24,0 | 6312 | 36,0 | 9468 | 49,6 | 13045 | 64,0 | 16832 | | |
| F01.20.63305 | 305 | 218,0 | 95 | 28,5 | 6213 | 42,8 | 9320 | 58,9 | 12840 | 76,0 | 16568 | | |

