

**LÒ XO XOẮN TRỤ NÉN VÀ KÉO LOẠI I,
CẤP 3 BẰNG THÉP MẶT CẮT TRÒN**

Thông số cơ bản

Пружины витовые цилиндрические сжатия и растяжения I класса, разряда 3 из стали круглого сечения. Основные параметры витков

Cylindrical helical compression (tension) springs of I class and of 3 category made of round steel. Main parameters of coils.

TCVN

2022 – 77

Khuyến khích
áp dụng

1. Tiêu chuẩn này áp dụng cho lò xo xoắn trụ nén và kéo loại I, cấp 3 có lực khi biến dạng lớn nhất P_3 từ 140 đến 6000 N.
2. Thông số cơ bản của lò xo phải phù hợp với chỉ dẫn trong bảng.
3. Vật liệu: dây thép * có đường kính từ 3 đến 12 mm.
4. Phân loại lò xo – theo TCVN 2018 – 77.
5. Phương pháp xác định kích thước của lò xo – theo TCVN 2019 – 77.

Số hiệu của lò xo	Lực lò xo khi biến dạng lớn nhất P_3 , N	Đường kính dây d , mm	Đường kính ngoài của lò xo D , mm	Độ cứng của một vòng Z_1 , N/mm	Biến dạng lớn nhất của một vòng f_3 , mm
1	140	3,0	40	16,00	8,750
2	150		38	18,88	7,945
3	160		36	22,54	7,098
4	170		34	27,22	6,245
5	180		32	33,18	5,425

* Tạm thời theo ГОСТ 14963 – 69 của Liên-xô hay các tiêu chuẩn tương ứng của các nước khác cho đến khi có tiêu chuẩn Việt nam tương ứng.

(tiếp theo)

1	2	3	4	5	6
6	190	3,0	30	41,15	4,617
7		3,5	45	20,98	9,056
8	200	3,0	28	51,84	3,858
9		3,5	42	26,30	7,604
10	212	3,0	26	66,57	3,185
11		3,5	40	30,85	6,872
12	224	3,0	25	76,07	2,945
13		3,5	38	36,51	6,135
14	236	3,0	24	87,46	2,698
15		3,5	36	43,71	5,399
16	250	3,0	22	118,30	2,113
17		3,5	31	52,89	4,727
18		4,0	52	23,15	10,800
19	265	3,0	21	138,90	1,908
20		3,5	32	64,82	4,088
21		4,0	50	26,30	10,080
22	280	3,0	20	164,60	1,701
23		3,5	30	80,64	3,473
24		4,0	48	30,05	9,318
25	300	3,0	19	198,10	1,514
26		3,5	28	102,00	2,941
27		4,0	45	37,14	8,078
28	315	3,0	18	240,00	1,312
29		3,5	26	131,70	2,392
30		4,0	42	46,65	6,752
31		4,5	60	24,01	13,120
32	335	3,0	17	294,60	1,137
33		3,5	25	151,20	2,216
34		4,0	40	54,87	6,105
35		4,5	55	31,84	10,520

(tiếp theo)

1	2	3	4	5	6
36	355	3,0	16	368,70	0,963
37		3,5	24	173,90	2,041
38		4,0	38	65,15	5,449
39		4,5	52	38,26	9,278
40	375	3,0	15	468,80	0,800
41		3,5	22	237,00	1,582
42		4,0	36	78,12	4,800
43		4,5	50	43,54	8,613
44		5,0	65	28,94	12,960
45	400	3,5	21	280,00	1,428
46		4,0	34	94,81	4,219
47		4,5	48	49,77	8,037
48		5,0	63	32,03	12,490
49	425	3,5	20	334,10	1,272
50		4,0	32	116,60	3,644
51		4,5	45	61,73	6,885
52		5,0	60	37,56	11,320
53	450	3,5	19	402,60	1,118
54		4,0	30	145,70	3,088
55		4,5	42	77,76	5,788
56		5,0	55	50,00	9,000
57		5,5	75	27,26	16,510
58	475	3,5	18	492,20	0,965
59		4,0	28	185,20	2,565
60		4,5	40	91,65	5,183
61		5,0	52	60,20	7,890
62		5,5	70	34,10	13,930
63	500	3,5	17	609,90	0,820
64		4,0	26	240,40	2,080
65		4,5	38	109,30	4,575
66		5,0	50	68,59	7,290
67		5,5	65	43,41	11,510
68	530	4,0	25	276,40	1,917

(tiếp theo)

1	2	3	4	5	6
69	530	4,5	36	131,20	4,040
70		5,0	48	78,60	6,743
71		5,5	63	48,14	11,010
72	560	4,0	21	320,00	1,750
73		4,5	34	159,70	3,506
74		5,0	45	97,66	5,734
75		5,5	60	56,53	9,906
76		6,0	80	32,01	17,490
77	600	4,0	22	439,00	1,367
78		4,5	32	197,30	3,041
79		5,0	42	123,40	4,862
80		5,5	55	75,44	7,953
81		6,0	75	39,45	15,210
82	630	4,0	21	521,00	1,209
83		4,5	30	246,90	2,552
84		5,0	40	145,80	4,321
85		5,5	52	91,03	6,921
86		6,0	70	49,39	12,760
87	670	4,0	20	625,00	1,072
88		4,5	28	316,40	2,118
89		5,0	38	173,90	3,852
90		5,5	50	103,80	6,455
91		6,0	65	63,10	10,620
92	710	4,5	26	412,60	1,721
93		5,0	36	209,80	3,384
94		5,5	48	119,20	5,956
95		6,0	63	70,00	10,140
96	750	4,5	25	476,00	1,576
97		5,0	34	256,30	2,926
98		5,5	45	148,50	5,050
99		6,0	60	82,30	9,113
100	800	4,5	24	553,00	1,447
101		5,0	32	317,50	2,520

(tiếp theo)

1	2	3	4	5	6
102	800	5,5	42	188,20	4,362
103		6,0	55	110,06	7,273
104		7,0	90	41,96	19,060
105	850	4,5	22	764,50	1,112
106		5,0	30	400,00	2,125
107		5,5	40	222,80	3,815
108		6,0	52	133,00	6,391
109		7,0	85	50,63	16,790
110	900	5,0	28	513,70	1,752
111		5,5	38	266,60	3,376
112		6,0	50	152,40	5,906
113		7,0	80	61,70	14,590
114	950	5,0	26	674,80	1,408
115		5,5	36	322,60	2,945
116		6,0	48	174,90	5,432
117		7,0	75	76,36	12,440
118	1000	5,0	25	781,20	1,280
119		5,5	34	395,20	2,530
120		6,0	45	218,50	4,577
121		7,0	70	96,02	10,410
122		8,0	105	44,94	22,250
123	1060	5,5	32	491,80	2,155
124		6,0	42	277,80	3,816
125		7,0	65	123,30	8,597
126		8,0	100	52,60	20,150
127	1120	5,5	30	622,40	1,799
128		6,0	40	329,70	3,397
129		7,0	63	136,70	8,193
130		8,0	95	62,20	18,010
131	1180	5,5	28	803,30	1,469
132		6,0	38	396,20	2,978
133		7,0	60	161,40	7,211
134		8,0	90	74,29	15,880

(tiếp theo)

1	2	3	4	5	6
135	1250	6,0	36	480,00	2,604
136		7,0	55	216,80	5,766
137		8,0	85	89,72	13,930
138		9,0	120	47,98	26,050
139	1320	6,0	34	590,40	2,236
140		7,0	52	263,40	5,011
141		8,0	80	109,70	12,030
142		9,0	110	63,72	20,720
143	1400	6,0	32	737,40	1,899
144		7,0	50	302,40	4,630
145		8,0	75	135,90	10,300
146		9,0	105	74,16	18,880
147	1500	6,0	30	937,50	1,600
148		7,0	48	347,90	4,312
149		8,0	70	171,80	8,731
150		9,0	100	87,09	17,320
151		10,0	130	57,87	25,920
152	1600	7,0	45	437,60	3,657
153		8,0	65	221,20	7,234
154		9,0	95	103,00	15,530
155		10,0	125	65,75	24,330
156	1700	7,0	42	560,00	3,036
157		8,0	63	245,60	6,922
158		9,0	90	123,50	13,770
159		10,0	120	75,13	22,630
160	1800	7,0	40	668,10	2,694
161		8,0	60	291,30	6,179
162		9,0	85	149,70	12,020
163		10,0	110	100,00	18,000
164	1900	7,0	38	805,90	2,358
165		8,0	55	394,50	4,816
166		9,0	80	183,20	10,370

(tiếp theo)

1	2	3	4	5	6
167	1900	10,0	105	116,60	16,300
168	2000	7,0	36	984,50	2,032
169		8,0	52	480,80	4,160
170		9,0	75	228,20	8,764
171		10,0	100	137,20	14,580
172		11,0	140	68,15	29,350
173	2120	8,0	50	552,90	3,834
174		9,0	70	288,70	7,343
175		10,0	95	162,80	13,020
176		11,0	130	86,88	24.400
177	2240	8,0	48	640,00	3,500
178		9,0	65	374,10	5,988
179		10,0	90	195,30	11,470
180		11,0	125	98,83	22,670
181		12,0	160	64,02	34,990
182	2360	8,0	45	808,60	2,919
183		9,0	63	416,70	5,664
184		10,0	85	237,00	9,958
185		11,0	120	113,00	20,880
186		12,0	150	78,90	29,910
187	2500	8,0	42	1042,00	2,399
188		9,0	60	494,60	5,055
189		10,0	80	291,50	8,576
190		11,0	110	150,90	16,570
191		12,0	140	98,88	25,290
192	2650	8,0	40	1250,00	2,120
193		9,0	55	674,10	3,931
194		10,0	75	364,20	7,276
195		11,0	105	176,30	15,030
196		12,0	130	126,30	20,980
197	2800	9,0	52	825,20	3,393
198		10,0	70	463,00	6,048

(tiếp theo)

1	2	3	4	5	6
199	2800	11,0	100	207,70	13,480
200		12,0	125	143,70	19,480
201	3000	9,0	50	951,90	3,152
202		10,0	65	601,10	4,991
203		11,0	95	246,70	12,160
204		12,0	120	164,60	18,230
205	3150	9,0	48	1109,00	2,841
206		10,0	63	671,70	4,690
207		11,0	90	297,20	10,600
208		12,0	110	220,10	14,310
209	3350	9,0	45	1406,00	2,383
210		10,0	60	800,00	4,188
211		11,0	85	360,90	9,282
212		12,0	105	257,80	12,990
213	3550	10,0	55	1097,00	3,236
214		11,0	80	446,20	7,953
215		12,0	100	304,30	11,670
216	3750	10,0	52	1350,00	2,778
217		11,0	75	558,50	6,714
218		12,0	95	362,70	10,340
219	4000	10,0	50	1562,00	2,561
220		11,0	70	712,90	5,611
221		12,0	90	437,00	9,153
222	4250	11,0	65	929,80	4,571
223		12,0	85	533,00	7,973
224	4500	11,0	63	1040,00	4,327
225		12,0	80	659,50	6,823
226	4750	11,0	60	1218,00	3,896
227		12,0	75	329,30	5,728

(tiếp theo)

1	2	3	4	5	6
228	5000	11,0	55	1719,00	2,909
229		12,0	70	1063,00	4,705
230	5300		65	1390,00	3,813
231	5600		63	1563,00	3,583
232	6000		60	1875,00	3,200