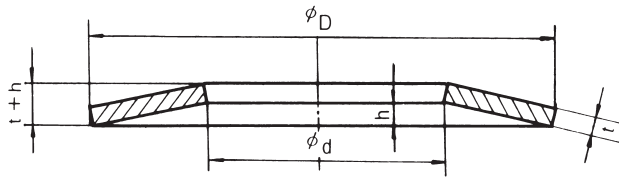


# Disc Springs For Heavy Duty

DIN 2093  
JIS B 2706 (Ref.)



Series  $\frac{D}{t} \approx 18$ ,  $\frac{h}{t} \approx 0.4$

Unit : mm

Nominals JIS	Dimensions Code	Nominals No.	Nominals non-defunct JIS	Internal Diameter		External Diameter		Thickness		Height		f=0.75h(Ref.)			
				d	Tolerance	D	Tolerance	t	h	t+h	Tolerance	Spring Force P N	Deformed Length =0.75h mm	Maximum Stress $\sigma$ N / mm <sup>2</sup>	
8	22001	1	4	4.2	+0.15 0	8	0 -0.15	0.4	0.2	0.6	±0.1	205.9	0.15	1,216.0	
10	22002	2	5	5.2		10		0.5	0.25	0.75		323.6	0.19	1,216.0	
12.5	22003	3	6	6.2		12.5	0 -0.2	0.7	0.3	1		657.1	0.22	1,382.7	
14	22004	4	7	7.2		14		0.8	0.3	1.1		794.3	0.22	1,304.3	
16	22005	5	8	8.2		16		0.9	0.35	1.25		1,029.7	0.26	1,333.7	
18	22006	6	9	9.2		18		1	0.4	1.4		1,274.9	0.3	1,323.9	
20	22007	7	10	10.2	20	0 -0.25	1.1	0.45	1.55	±0.15	1,520	0.34	1,284.7		
※ 22.5	22008	8	11	11.2	22.5		1.25	0.5	1.75		1,931.9	0.37	1,294.5		
※ 25	22009	9	12	12.2	25		1.5	0.55	2.05		2,922.4	0.41	1,422.0		
※ 28	22010	10	14	14.2	28		1.5	0.65	2.15		2,843.9	0.49	1,274.9		
※ 31.5	22011	11	16	16.3	31.5		0 -0.3	1.75	0.7		2.45	±0.2	3,873.6	0.52	1,294.5
35.5	22012	12	18	18.3	35.5			2	0.8		2.8		5,197.5	0.6	1,333.7
※ 40	22013	13	20	20.4	40	2.25		0.9	3.15	6,501.8	0.67		1,323.9		
45	22014	14	22	22.4	45	2.5		1	3.5	7,698.2	0.75		1,294.5		
50	22015	15	25	25.4	50	3	1.1	4.1	11,964	0.82	1,422.0				
56	22016	16	28	28.5	56	3	1.3	4.3	11,376	0.97	1,265.1				
63	22017	17	30	31	+0.3 0	63	0 -0.35	3.5	1.4	4.9	±0.2	15,004	1.5	1,294.5	
71	22018	18	-	36	+0.5 0	71	0 -0.5	4	1.6	5.6		20,545	1.2	1,333.7	
80	22019	19	-	41		80		5	1.7	6.7		33,588	1.3	1,451.4	
90	22020	20	-	46		90		5	2	7		31,411	1.5	1,294.5	
100	22021	21	-	51	+0.6 0	100	0 -1	6	2.2	8.2	+0.55 -0.25	48,013	1.65	1,422.0	
112	22022	22	-	57		112		6	2.5	8.5		43,757	1.9	1,235.6	
125	22023	23	-	64		125		8	2.6	10.6		85,975	1.9	1,471.0	
140	22024	24	-	72	+1 0	140	0 -1.2	8	3.2	11.2	+0.6 -0.25	85,347	2.4	1,372.9	
160	22025	25	-	82		160		10	3.5	13.5		138,333	2.5	1,480.8	
180	22026	26	-	92		180		10	4	14		125,623	3	1,294.5	

- Remarks**
- Spring force of SUS304 will be approx. 90% of above mentioned of Spring Steel.
  - Maximum stress is determined by the value of the maximal tensile stress that occurs at the bottom fringe of the disc spring.
  - ※: Height, thickness and other specifications are different from JIS.
  - Refer to technical information at the end of this book "page T3 and 4".

- Notes**
- Equate quality of stainless material with SUS-304CSP when thickness was not specified within JIS ( JIS G 4313 Stainless Spring Steels ).
  - Please contact us if any inquiry of Stainless Steel over 6 mm thickness. This thickness is a special supply.

Product code	122	Material code	02...SUS304-CSP		Part Number Structure (Standardized Product Code)										
			70...Spring Steel		Product	Surface									
Surface code	01...Burnished (SUS304-CSP)	Hardness	HRC37 ~ 46 (SUS304-CSP)		①	②	②	○	○	○	○	○	○	○	○
	03...Temper Color (Spring Steel)		HRC43 ~ 50 (Spring Steel)		Material			Dimensions code							