

# 非标系列



十一字盘头台阶螺丝  
Cross-slotted pan head step screw



外六角轴位螺栓  
Outer hexagon axial bolt



六角多攻位台阶螺母  
Hexagon multi-tapping step nut



一字梅花槽自攻螺丝  
Cross-slotted self-tapping screw



四方垫片组合螺丝  
Square head gasket combination screw



内六角弹垫组合螺丝  
Hexagon socket spring washer combination screw



加厚法兰螺母  
Thickened hexagonal flange nuts



半圆键  
Woodruff key



方型平头非标螺丝  
Square flat head non-standard screw



平圆头自攻螺丝  
Flat round head tapping screws



镀绿彩十字盘头螺丝  
Green-plated cross pan head screw



非标插销螺丝  
Non-standard latch screw



竹节汽车非标螺丝  
Zhuji Auto non-standard screw



镀铜十字圆柱头螺丝  
Copper-plated cross cheese head screw



马车螺丝  
Carriage bolt



梅花槽法兰防松螺栓  
Torx flange check bolt



耐落胶内六角沉头螺丝  
Teflon paste hexagonal countersunk screw



镀彩锌非标六角螺栓  
Zinc plating-coloring non-standard hexagon bolt



平头倒扣牙螺丝  
Flat head back-off screw



内六角多攻位螺丝  
Hexagonal multi-tapping screw

## 标准系列



高强度内六角螺栓  
High-strength hexagon socket Bolts



高强度外六角螺栓  
High-strength hexagonal Head Bolts



内六角平端紧定螺丝  
Hexagon Socket Set Screws With Flat Point



内六角圆柱头螺丝  
Hexagon socket head cap screw



外六角螺栓  
Outer Hexagon Head Bolts



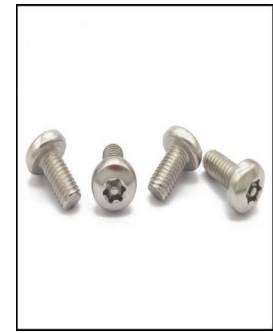
内六角半圆头螺丝  
Hexagon half-round head screw



内六角沉头螺丝  
Hexagon socket countersunk head screw



十字槽沉头螺丝  
Cross Recessed Countersunk Head Screws



盘头内梅花防盗螺钉  
Hexagon socket head cap nylok screw



大圆头马车螺丝  
Cup head square neck bolts with large head



双头螺栓  
Double end bolt



十字沉头自攻螺丝  
Cross-recessed countersunk self-tapping screw

## 垫圈与螺母



波形垫圈  
Wave Spring Washers



双叠自锁垫圈  
Double fold self-locking washer



双面齿防松垫圈  
Double-sided tooth lock washer



直纹法式垫圈  
Straight French Washer



轻型定位介子  
Lightweight positioning meson



内外齿锁紧垫圈  
Internal or external teeth lock washer



碟形垫圈  
Disc Springs Washers



四叠法式垫圈  
Four Disc French Washer



挡圈  
Retaining ring



六角螺母  
Hexagon nut

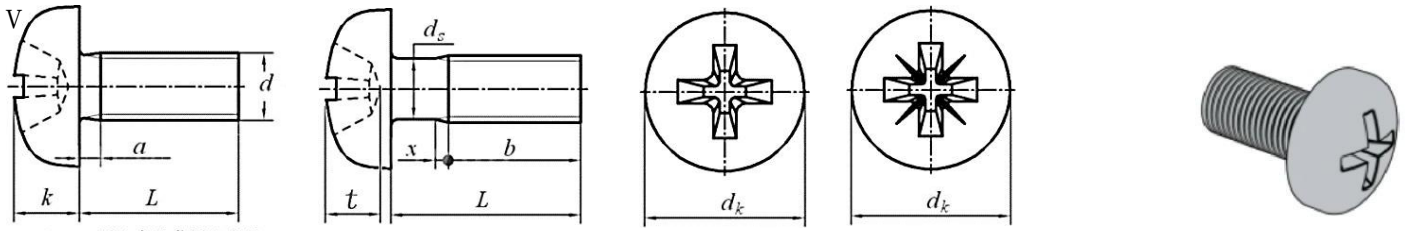


六角法兰螺母  
Hexagon nut with flange



六角盖型螺母  
Hexagon domed cap nut

## Pan Head Screws With Cross Recess 十字盘头螺丝



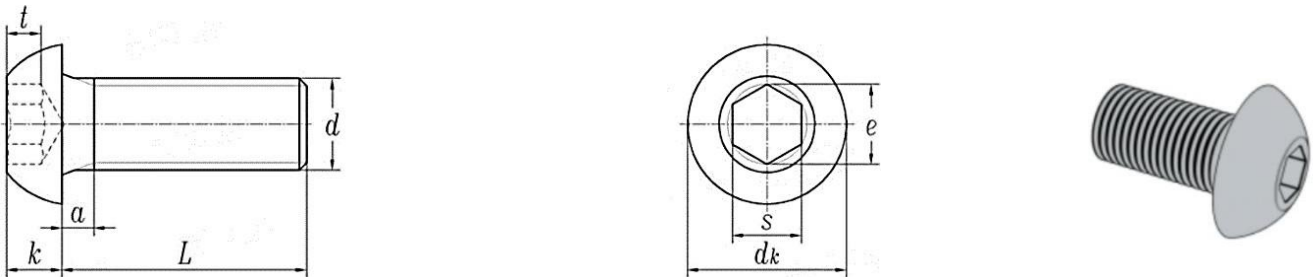
$d_s \approx$  螺纹中径或螺纹大径

GB818

Unit: mm

Screw Thread d		M1.6	M2	M2.5	M3	M4	M5	M6	M8	M10
<b>P</b>	Pitch	0.35	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5
<b>a</b>	Max	0.7	0.8	0.9	1	1.4	1.6	2	2.5	3
<b>b</b>	Min	25	25	25	25	38	38	38	38	38
<b>dk</b>	Max=nominal size	3.2	4.0	5.0	5.6	8.0	9.50	12.00	16	20.00
	Min	2.9	3.7	4.7	5.3	7.64	9.14	11.57	15.57	19.48
<b>k</b>	Max=nominal size	1.30	1.60	2.10	2.40	3.10	3.70	4.6	6.0	7.50
	Min	1.16	1.46	1.96	2.26	2.92	3.52	4.3	5.7	7.14
<b>x</b>	Max	0.9	1	1.1	1.25	1.75	2	2.5	3.2	3.8
<b>Socket No.</b>		0	0	1	1	2	2	3	4	4
<b>t</b>	Max	0.95	1.2	1.55	1.8	2.4	2.9	3.6	4.6	5.8
	Min	0.7	0.9	1.15	1.4	1.9	2.4	3.1	4	5.2

## Hexagon Socket Button Head Screws 内六角盘头螺丝

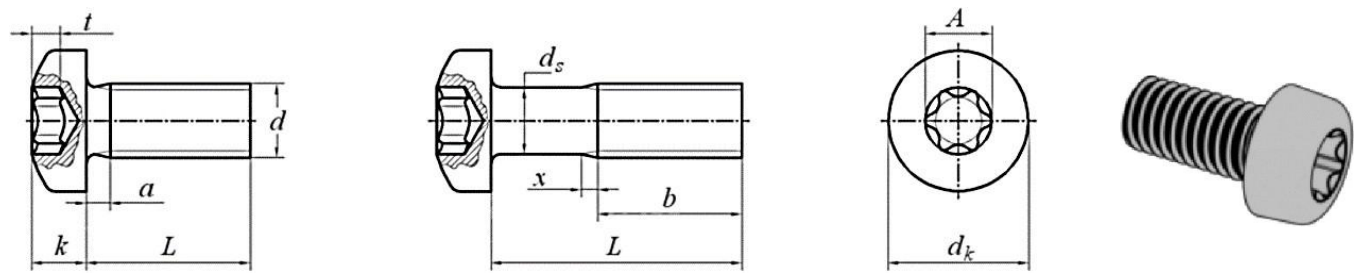


ISO7380

Unit: mm

Screw Thread d		M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16
<b>P</b>	Pitch	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	1.75	2
<b>a</b>	Max	-	-	1	1.4	1.6	2	2.5	3	3.5	4
	Min	-	-	0.5	0.7	0.8	1	1.25	1.5	1.75	2
<b>dk</b>	Max	3.5	4.7	5.7	7.6	9.50	10.50	14	17.50	21.00	28.00
	Min	3.2	4.5	5.4	7.24	9.14	10.07	13.57	17.07	20.48	27.48
<b>k</b>	Max	1.3	1.5	1.65	2.20	2.75	3.3	4.4	5.5	6.60	8.80
	Min	1.16	1.36	1.4	1.95	2.50	3.0	4.1	5.2	6.24	8.44
<b>s</b>	Nominal Size	1.3	1.5	2	2.5	3	4	5	6	8	10
	Max	1.36	1.56	2.080	2.580	3.080	4.095	5.140	6.140	8.175	10.175
	Min	1.32	1.52	2.020	2.520	3.020	4.020	5.020	6.020	8.025	10.025
<b>t</b>	Min	0.6	0.8	1.04	1.3	1.56	2.08	2.6	3.12	4.16	5.2

## Hexalobular Socket Pan Head Screws 梅花槽盘头螺丝

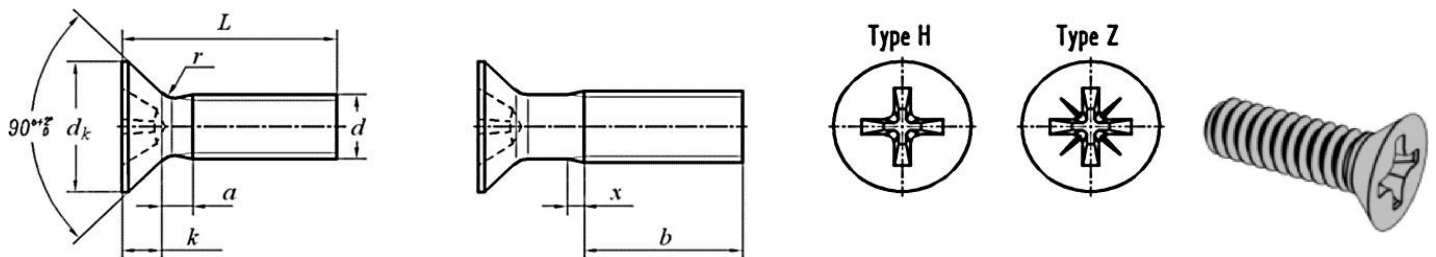


GB2672

Unit:mm

Screw Thread d		M2	M2.5	M3	M3.5	M4	M5	M6	M8	M10	M12
<b>P</b>	Pitch	0.4	0.45	0.5	0.6	0.7	0.8	1	1.25	1.5	1.75
<b>a</b>	Max	0.8	0.9	1	1.2	1.4	1.6	2	2.5	3	3.5
<b>b</b>	Min	25	25	25	38	38	38	38	38	38	38
<b>dk</b>	Max=Nominal Size	4	5	5.6	7	8	9.5	12	16	20	24
	Min	3.7	4.7	5.3	6.64	7.64	9.14	11.57	15.57	19.48	23.48
<b>k</b>	Max=Nominal Size	1.6	2.1	2.4	2.6	3.1	3.7	4.6	6	7.5	9
	Min	1.46	1.96	2.26	2.46	2.92	3.52	4.3	5.7	7.14	8.64
<b>x</b>	Max	1	1.1	1.25	1.5	1.75	2	2.5	3.2	3.8	4.5
<b>Socket No.</b>		6	8	10	15	20	25	30	45	50	55
<b>A</b>	Ref.	1.75	2.4	2.8	3.35	3.95	4.5	5.6	7.95	8.95	8.2
<b>t</b>	Max	0.77	1.04	1.27	1.33	1.66	1.91	2.42	3.18	4.02	3.80
	Min	0.63	0.91	1.01	1.07	1.27	1.52	2.02	2.79	3.62	3.32

## Cross Recessed Countersunk Head Screws 十字槽沉头螺丝

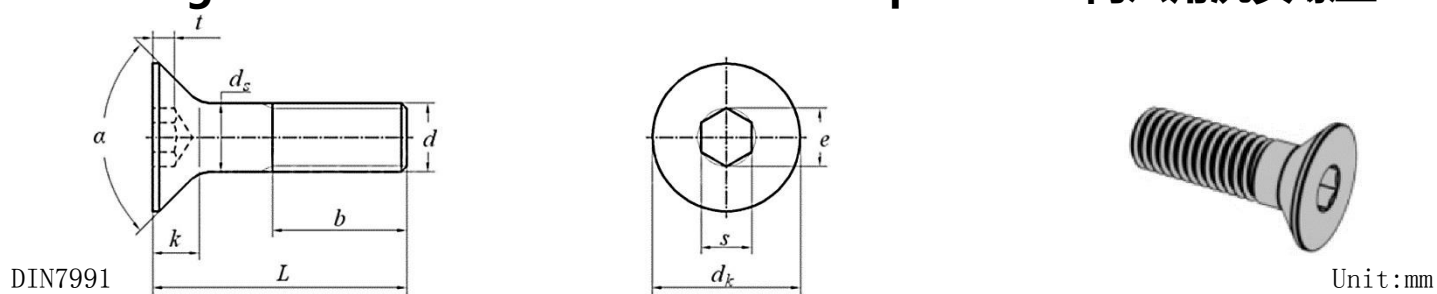


GB819

Unit:mm

Screw Thread d		M1.6	M2	M2.5	M3	M4	M5	M6	M8	M10	
<b>P</b>	Pitch	0.35	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	
<b>a</b>	Max	0.7	0.8	0.9	1	1.4	1.6	2	2.5	3	
<b>b</b>	Min	25	25	25	25	38	38	38	38	48	
<b>dk</b>	Theoretical	Max	3.6	4.4	5.5	6.3	9.4	10.4	12.6	17.3	20
		Max	3	3.8	4.7	5.5	8.4	9.3	11.3	15.8	18.3
	Actual	Min	2.7	3.5	4.4	5.2	8	8.9	10.9	15.4	17.8
<b>k</b>	Max	1	1.2	1.5	1.65	2.7	2.7	3.3	4.65	5	
<b>x</b>	Max	0.9	1	1.1	1.25	1.75	2	2.5	3.2	3.8	
<b>Socket No.</b>		0	0	1	1	2	2	3	4	4	
<b>t</b>	Max	0.95	1.2	1.55	1.8	2.4	2.9	3.6	4.6	5.8	
	Min	0.7	0.9	1.15	1.4	1.9	2.4	3.1	4	5.2	

# Hexagon Socket Countersunk Head Cap Screws 内六角沉头螺丝

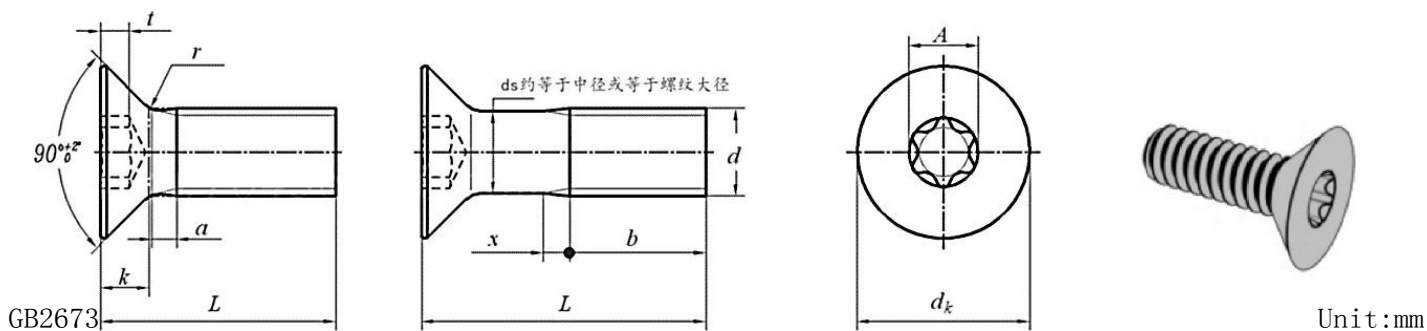


DIN7991

Unit:mm

Screw Thread d		M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20
<b>P</b>	Pitch	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	1.75	2	2.5
<b>α</b>	Tol.(+2°)	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°
<b>b</b>	L ≤ 125mm	/	/	12	14	16	18	22	26	30	38	46
	125 ≤ L ≤ 200	/	/	/	/	/	24	28	32	36	44	52
	L > 200mm	/	/	/	/	/	/	/	45	49	57	65
<b>dk</b>	Max=Nominal Size	4	5	6	8	10	12	16	20	24	30	36
	Min	3.7	4.7	5.7	7.64	9.64	11.57	15.57	19.48	23.48	29.48	35.38
<b>ds</b>	Max=Nominal Size	/	/	3	4	5	6	8	10	12	16	20
	Min	/	/	2.86	3.82	4.82	5.82	7.78	9.78	11.73	15.73	19.67
<b>k</b>	Max	1.3	1.6	1.7	2.3	2.8	3.3	4.4	5.5	6.5	7.5	8.5
<b>s</b>	Nominal Size	1.3	1.5	2	2.5	3	4	5	6	8	10	12
	Max	1.3	1.56	2.1	2.6	3.1	4.12	5.14	6.14	8.175	10.175	12.212
	Min	1.27	1.52	2.02	2.52	3.02	4.02	5.02	6.02	8.025	10.025	12.032
<b>t</b>	Max=Nominal Size	0.75	0.8	1.2	1.8	2.3	2.5	3.5	4.4	4.6	5.3	5.9
	Min	0.6	0.65	0.95	1.55	2.05	2.25	3.2	4.1	4.3	5	5.6

# Hexalobular Lobular Socket Countersunk Head Screws 梅花槽沉头螺丝

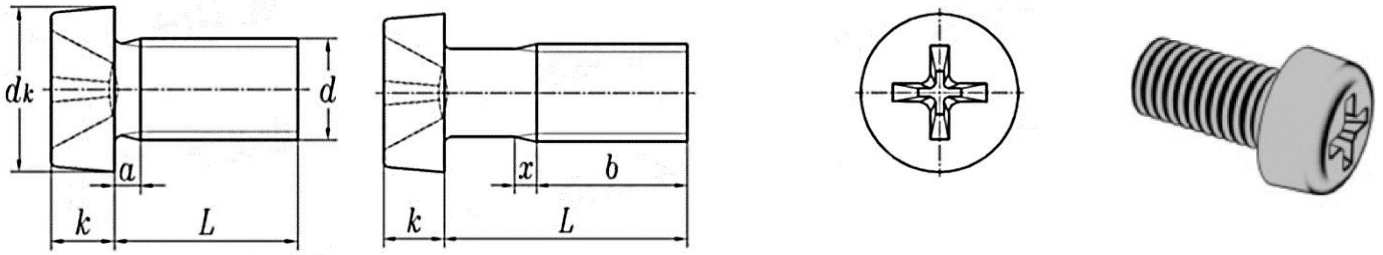


GB2673

Unit:mm

Screw Thread d		M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16
<b>P</b>	Pitch	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	1.75	2
<b>a</b>	Max	0.8	0.9	1	1.4	1.6	2	2.5	3	3.5	4
<b>b</b>	Min	25	25	25	38	38	38	38	38	48	48
<b>dk</b>	Max=Nominal Size	3.8	4.7	5.5	8.4	9.3	11.3	15.8	18.3	22	29
	Min	3.5	4.4	5.2	8	8.9	10.9	15.4	17.8	21.5	28.5
<b>k</b>	Max	1.2	1.5	1.65	2.7	2.7	3.3	4.65	5	6	8
<b>Socket No.</b>		6	8	10	15	20	30	40	50	55	60
<b>A</b>	Ref.	-	-	-	-	-	5.6	6.75	8.95	11.35	13.45
<b>t</b>	Max	0.78	0.95	1.1	1.45	1.7	1.8	2.5	2.7	3.5	4.1
	Min	0.6	0.7	0.9	1.1	1.3	1.4	2.1	2.3	3.02	3.62

# Cheese Head Screws With Cross Recess 十字槽圆柱头螺丝

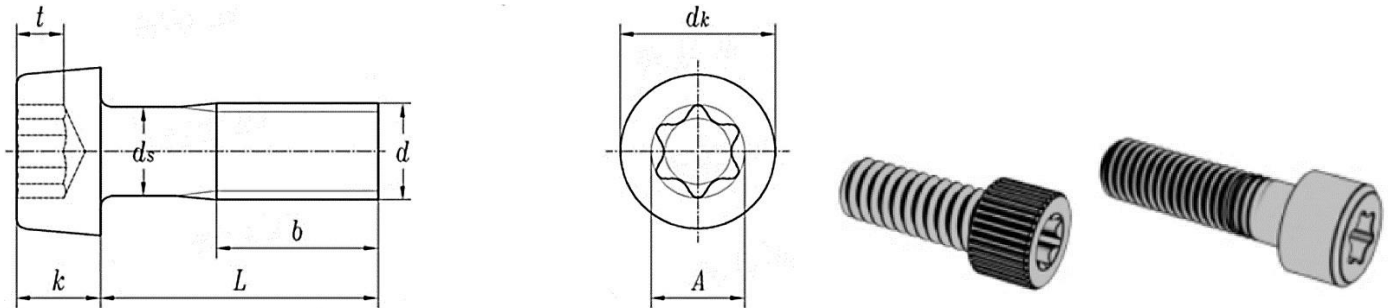


GB822

Unit: mm

Screw Thread d		M2.5	M3	M3.5	M4	M5	M6	M8
<b>P</b>	Pitch	0.45	0.5	0.6	0.7	0.8	1	1.25
<b>a</b>	Max	0.9	1	1.2	1.4	1.6	2	2.5
<b>b</b>	Min	25	25	38	38	38	38	38
<b>dk</b>	Max	4.5	5.50	6.00	7.00	8.5	10.00	13.00
	Min	4.32	5.32	5.82	6.78	8.28	9.78	12.73
<b>k</b>	Max	1.8	2.00	2.40	2.60	3.30	3.9	5.0
	Min	1.66	1.86	2.26	2.46	3.12	3.6	4.7
<b>x</b>	Max	1.1	1.25	1.5	1.75	2	2.5	3.2
<b>Socket No.</b>		1	2	2	2	2	3	3
<b>t</b>	Max	1.62	1.43	1.73	2.03	2.73	2.86	4.36
	Min	1.2	0.86	1.15	1.45	2.14	2.25	3.73

# Hex lobular Socket Head Cap Screws 梅花槽圆柱头螺丝

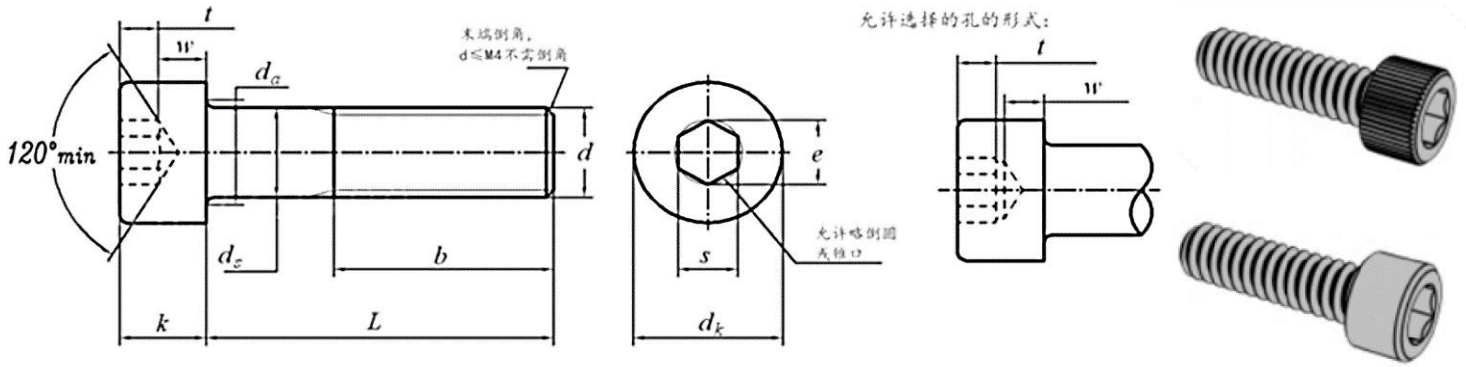


GB2671. 2

Unit: mm

Screw Thread d		M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
<b>P</b>	Pitch	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	1.75	2	2	2.5	2.5
<b>b</b>	Max	16	17	18	20	22	24	28	32	36	40	44	48	52
<b>dk</b>	Max	3.8	4.5	5.5	7	8.5	10	13	16	18	21	24	27	30
	Min	3.98	4.68	5.68	7.22	8.72	10.22	13.27	16.27	18.27	21.33	24.33	27.33	30.33
<b>k</b>	Max	2	2.5	3	4	5	6	8	10	12	14	16	18	20
	Min	1.86	2.36	2.86	3.82	4.82	5.7	7.64	9.64	11.57	13.57	15.57	17.57	19.48
<b>Socket No.</b>		T6	T8	T10	T20	T25	T30	T45	T50	T55	T60	T70	T80	T90
<b>A</b>	Ref.	1.75	2.4	2.8	3.95	4.5	5.6	7.95	8.95	11.35	13.45	15.7	17.75	20.2
<b>t</b>	Max	0.84	1.04	1.27	1.8	2.03	2.42	3.31	4.02	5.21	5.99	7.01	8	9.2
	Min	0.71	0.91	1.01	1.42	1.65	2.02	2.92	3.62	4.82	5.62	6.62	7.5	8.69

# Hexagon socket head cap screws 内六角圆柱头螺丝



GB70. 1 or DIN 912

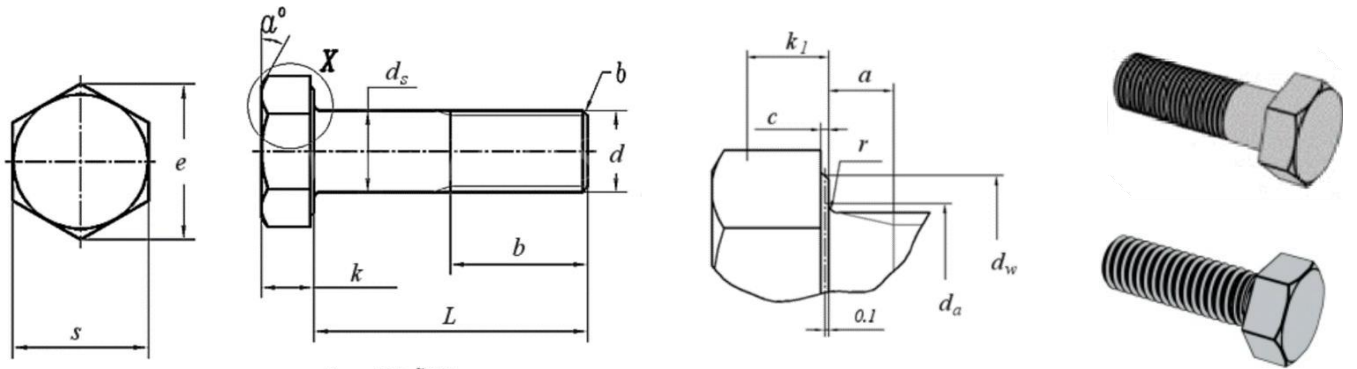
Unit: mm

Screw Thread d		M1.4	M1.6	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14
P	Coarse thread	0.3	0.35	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	1.75	2
	Fine thread	-	-	-	-	-	-	-	-	1	1.25	1.25	1.5
b	Ref.	14	15	16	17	18	20	22	24	28	32	36	40
dk	Max plain head	2.6	3	3.8	4.5	5.5	7	8.5	10	13	16	18	21
	Max knurled heads	2.74	3.14	3.98	4.68	5.68	7.22	8.72	10.22	13.27	16.27	18.27	21.33
	Min	2.46	2.86	3.62	4.32	5.32	6.78	8.28	9.78	12.73	15.73	17.73	20.67
da	Max	1.8	2	2.6	3.1	3.6	4.7	5.7	6.8	9.2	11.2	13.7	15.7
ds	Max	1.4	1.6	2	2.5	3	4	5	6	8	10	12	14
	Min	1.26	1.46	1.86	2.36	2.86	3.82	4.82	5.82	7.78	9.78	11.73	13.73
k	Max	1.4	1.6	2	2.5	3	4	5	6	8	10	12	14
	Min	1.26	1.46	1.86	2.36	2.86	3.82	4.82	5.7	7.64	9.64	11.57	13.57
s	Nominal Size	1.3	1.5	1.5	2	2.5	3	4	5	6	8	10	12
	Max	1.32	1.52	1.52	2.02	2.52	3.02	4.02	5.02	6.02	8.025	10.025	12.032
	Min	1.36	1.56	1.56	2.06	2.58	3.08	4.095	5.14	6.14	8.175	10.175	12.212
t	Min	0.6	0.7	1	1.1	1.3	2	2.5	3	4	5	6	7

Screw Thread d		M16	M18	M20	M22	M24	M27	M30	M33	M36	M42	M48	M56
P	Coarse thread	2	2.5	2.5	2.5	3	3	3.5	3.5	4	4.5	5	6.5
	Fine thread 1	1.5	1.5	1.5	1.5	2	2	2	2	3	3	3	4
	Fine thread 2	-	2	2	2	-	-	-	-	-	-	-	-
b	Ref.	44	48	52	56	60	66	72	78	84	96	108	124
dk	Max plain head	24	27	30	33	36	40	45	50	54	63	72	84
	Max knurled heads	24.33	27.33	30.33	33.39	36.39	40.39	45.39	50.39	54.46	63.46	72.46	84.54
	Min	23.67	26.67	29.67	32.61	35.61	39.61	44.61	49.61	53.54	62.54	71.54	83.46
da	Max	17.7	20.2	22.4	24.4	26.4	30.4	33.4	36.4	39.4	45.5	52.6	63
ds	Max	16	18	20	22	24	27	30	33	36	42	48	56
	Min	15.73	17.73	19.67	21.67	23.67	26.67	29.67	32.61	35.61	41.61	47.61	55.54
k	Max	16	18	20	22	24	27	30	33	36	42	48	56
	Min	15.57	17.57	19.48	21.48	23.48	26.48	29.48	32.38	35.38	41.38	47.38	55.26
s	Nominal Size	14	14	17	17	19	19	22	24	27	32	36	41
	Min	14.032	14.032	17.05	17.05	19.065	19.065	22.065	24.065	27.065	32.08	36.08	41.08
	Max	14.212	14.212	17.23	17.23	19.275	19.275	22.275	24.275	27.275	32.33	36.33	41.33
t	Min	8	9	10	11	12	13.5	15.5	18	19	24	28	34



# Hexagon Head Screws 外六角螺丝



- a.  $\alpha^\circ = 15^\circ \sim 30^\circ$   
 b. 末端应倒角, 对螺纹规格 $\leq M4$ 可为滚制末端

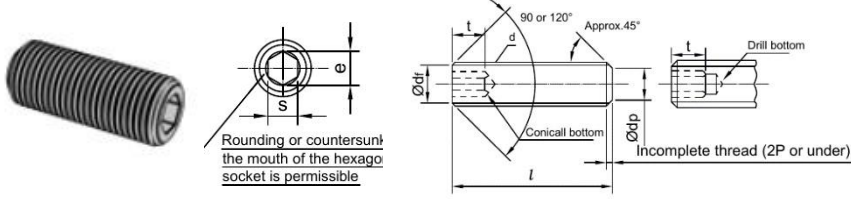
DIN933-DIN931 or GB5782-GB5783

Unit: mm

Screw Thread d		M1.6	M2	M2.5	M3	M3.5	M4	M5	M6	M7	M8	M10	M12	M14	M16	
<b>P</b>	Pitch	0.35	0.4	0.45	0.5	0.6	0.7	0.8	1	1	1.25	1.5	1.75	2	2	
<b>b</b>	$L \leq 125$	9	10	11	12	13	14	16	18	-	22	26	30	34	34	
	$125 < L \leq 200$	15	16	17	18	19	20	22	24	-	28	32	36	40	40	
	$L > 200$	28	29	30	31	32	33	35	37	-	41	45	49	53	57	
<b>a</b>	Max	1.05	1.2	1.35	1.5	1.8	2.1	2.4	3	3	3.75	4.5	5.25	6	6	
<b>da</b>	Max	2	2.6	3.1	3.6	4.1	4.7	5.7	6.8	7.8	9.2	11.2	13.7	15.7	17.7	
<b>dw</b>	Grade A	Min	2.4	3.2	4.1	4.6	5.1	5.9	6.9	8.9	9.6	11.6	15.6	17.4	20.5	22.5
	Grade B	Min	-	-	-	-	-	5.7	6.7	8.7	9.4	11.4	15.4	17.2	20.1	22
<b>k</b>	Nominal Size		1.1	1.4	1.7	2	2.4	2.8	3.5	4	4.8	5.3	6.4	7.5	8.8	10
	Grade A	Min	0.98	1.28	1.58	1.88	2.28	2.68	3.35	3.85	4.85	5.15	6.22	7.32	8.62	9.82
		Max	1.22	1.52	1.82	2.12	2.52	2.92	3.65	4.15	4.95	5.45	6.56	7.68	8.98	10.18
	Grade B	Min	-	-	-	-	-	2.6	3.26	3.76	4.56	5.06	6.11	7.21	8.51	9.71
		Max	-	-	-	-	-	3	3.74	4.24	5.04	5.54	6.69	7.79	9.09	10.29
<b>s</b>	Max=Nominal Size		3.2	4	5	5.5	6	7	8	10	11	13	17	19	22	21
	Grade A	Min	3.02	3.82	4.82	5.32	5.82	6.78	7.78	9.78	10.73	12.73	16.73	18.67	21.67	23.67
	Grade B	Min	-	-	-	-	-	6.64	7.64	9.64	10.57	12.57	16.57	18.48	21.16	23.16

Screw Thread d		M18	M20	M22	M24	M27	M30	M33	M36	M39	M42	M45	M48	M52	
<b>P</b>	Pitch	2.5	2.5	2.5	3	3	3.5	3.5	4	4	4.5	4.5	5	5	
<b>b</b>	$L \leq 125$	42	46	50	54	60	66	-	-	-	-	-	-	-	
	$125 < L \leq 200$	48	52	56	60	66	72	78	84	90	96	102	108	116	
	$L > 200$	61	65	69	73	79	85	91	97	103	109	115	121	129	
<b>a</b>	Max	7.5	7.5	7.5	9	9	10.5	10.5	12	12	13.5	13.5	15	15	
<b>da</b>	Max	20.2	22.4	24.4	26.4	30.4	33.4	36.4	39.4	42.4	45.6	48.6	52.56	56.6	
<b>dw</b>	Grade A	Min	25.3	28.2	30	33.6	-	-	-	-	-	-	-	-	
	Grade B	Min	24.8	27.7	29.5	33.2	38	42.7	46.5	51.1	55.9	59.9	64.7	69.4	74.2
<b>k</b>	Nominal Size		11.5	12.5	14	15	17	18.7	21	22.5	25	26	28	30	33
	Grade A	Min	11.28	12.28	13.78	14.78	-	-	-	-	-	-	-	-	-
		Max	11.72	12.72	14.22	15.22	-	-	-	-	-	-	-	-	-
	Grade B	Min	11.15	12.15	13.65	14.65	16.65	18.28	20.58	22.08	24.58	25.58	27.58	29.59	32.5
		Max	11.85	12.85	14.35	15.35	17.35	19.12	21.42	22.92	25.42	26.42	28.42	30.42	33.5
<b>s</b>	Max=Nominal Size		27	30	32	36	41	46	50	55	60	65	70	75	80
	Grade A	Min	26.67	29.67	31.61	35.38	-	-	-	-	-	-	-	-	-
	Grade B	Min	26.15	29.16	31	35	40	45	49	53.8	58.8	63.1	68.1	73.1	78.1

# Hex. Socket Head Set Screw 内六角紧定螺钉



Material 材质	硬度 Hardness
碳钢 carbon steel	22-50HRC
不锈钢 Stainless Steels	≤210HV

Finish: Oxidation blackening, Ni plating,

Zn plating, Decromet.

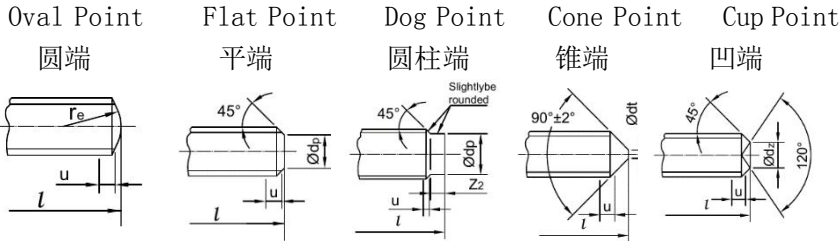
表面处理: 发黑, 镀镍, 镀锌, 达克罗。

Unit:mm

Normal Screw Size	M1.6	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24		
Pitch	0.35	0.4	0.45	0.5	0.7	0.8	1.0	1.25	1.5	1.75	2.0	2.5	3.0		
df	Approximate minor diameter of external thread														
e	Min.	0.803	1.003	1.427	1.73	2.30	2.87	3.44	4.58	5.72	6.86	9.15	11.43	13.72	
s	Normal size	0.7	0.9	1.3	0.15	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
	Min	0.711	0.889	1.270	1.520	2.020	2.520	3.020	4.020	5.020	6.020	8.025	10.025	12.032	
	Max	0.724	0.902	1.295	1.545	2.045	2.560	3.071	4.084	5.084	6.095	8.115	10.115	12.142	
t	Min	(1)	0.7	0.8	1.2	1.2	1.5	2.0	2.0	3.0	4.0	4.8	6.4	8.0	10.0
		(2)	1.5	1.7	2.0	2.0	2.5	3.0	3.5	5.0	6.0	8.0	10.0	12.0	15.0

- The values in upper row of t min. apply to the short-length screws of nominal length() situated above the stepped double lines.
- The values in lower row of t min. apply to the short-length screws of nominal length() situated under the stepped double lines.

## Ends of Parts with External Metric Screw Thread



Material 材质	硬度 Hardness
碳钢 carbon steel	22-50HRC
不锈钢 Stainless Steels	≤210HV

Finish: Oxidation blackening, Ni plating,

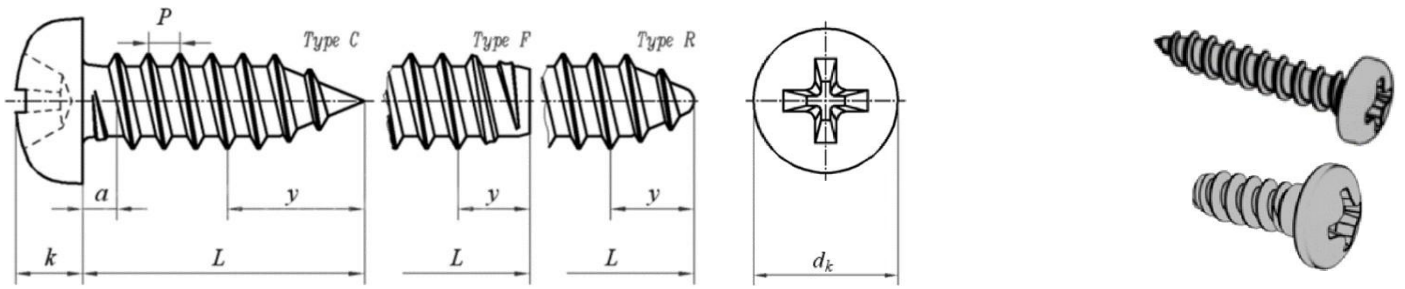
Zn plating, Decromet.

表面处理: 发黑, 镀镍, 镀锌, 达克罗。

Unit:mm

Normal Screw dia.	dp		dt	dz		Z2		re
	Basic	Tol.	Max.	Basic	Tol.	Basic	Tol.	Approx.
M1.6	0.8	-0.25	0.4	0.8	-0.25	0.8	+0.25	2.2
M2	1		0.5	1		1		2.8
M2.5	1.5		0.65	1.2		1.25		3.5
M3	2	-0.30	0.75	1.4	-0.30	1.5	+0.30	4.2
M4	2.5		1	2		2		5.6
M5	3.5		1.25	2.5		2.5		7
M6	4	-0.36	1.5	3	-0.36	3	+0.36	8.4
M8	5.5		2	5		4		11
M10	7		2.5	6		5		14
M12	8.5	-0.43	3	8	-0.43	6	+0.43	17
M16			4	10		8		22
M20			5	14		10		28
M24			6	16		12		34

# Cross Recessed Pan Head Tapping Screws 十字槽盘头自攻螺丝

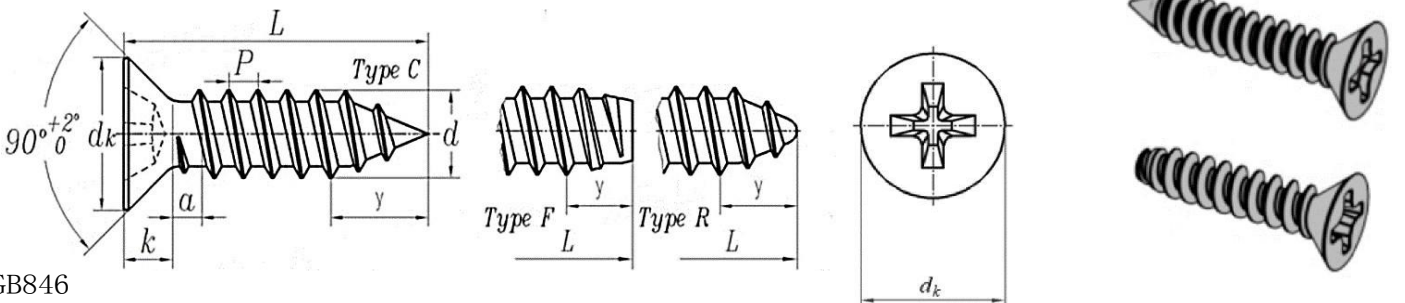


GB845

Unit: mm

Screw Thread d		ST2.2	ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3	ST8	ST9.5
<b>P</b>	Pitch	0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1
<b>a</b>	Max	0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1
<b>dk</b>	Max	4	5.6	7	8	9.5	11	12	16	20
	Min	3.7	5.3	6.64	7.64	9.14	10.57	11.57	15.57	19.48
<b>k</b>	Max	1.6	2.4	2.6	3.1	3.7	4	4.6	6	7.5
	Min	1.4	2.15	2.35	2.8	3.4	3.4	4.3	5.6	7.1
<b>Socket No.</b>		0	1	2	2	2	3	3	4	4
<b>M1</b>	Ref.	1.9	3	3.9	4.4	4.9	6.4	6.9	9	10.1
<b>t</b>	Max	1.2	1.8	1.9	2.4	2.9	3.1	3.6	4.7	5.8
	Min	0.85	1.4	1.4	1.9	2.4	2.6	3.1	4.15	5.2

# Cross Recessed Countersunk Head Tapping Screws 十字槽沉头自攻螺丝

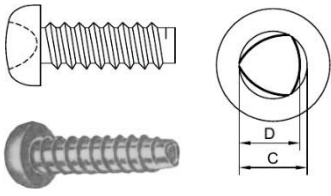


GB846

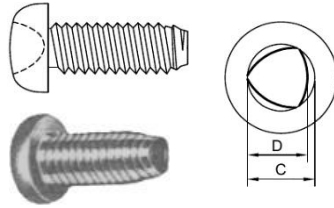
Screw Thread d		ST2.2	ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3	ST8	ST9.5	
<b>P</b>	Pitch	0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1	
<b>a</b>	Max	1.6	2.2	2.6	2.8	3.2	3.6	3.6	4.2	4.2	
<b>dk</b>	Theoretical	Max	4.4	6.3	8.2	9.4	10.4	11.5	12.6	17.3	20
		Actual	Max	3.8	5.5	7.3	8.4	9.3	10.3	11.3	15.8
	Min	3.5	5.2	6.9	8	8.9	9.9	10.9	15.4	17.8	
<b>k</b>	Max	1.1	1.7	2.35	2.6	2.8	3	3.15	4.65	5.25	
<b>Socket No.</b>		0	1	2	2	2	3	3	4	4	
<b>M1</b>	Ref.	1.9	3.2	4.4	4.6	5.2	6.6	6.8	8.9	10	
<b>t</b>	Max	1.2	2.1	2.4	2.6	3.2	3.3	3.5	4.6	5.7	
	Min	0.9	1.7	1.9	2.1	2.7	2.8	3	4	5.1	

# Taptite Screws 三角螺纹螺钉

B TYPE



C TYPE



Material 材质	硬度 Hardness
碳钢 carbon steel	22-50HRC
不锈钢 Stainless Steels	≤210HV

Finish: Nigrescence black, Ni plating,

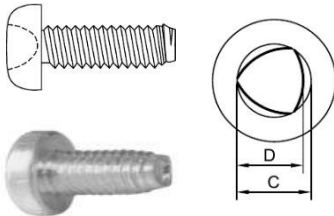
Zn plating, Decromet.

表面处理: 磷化黑, 镀镍, 镀锌, 达克罗。

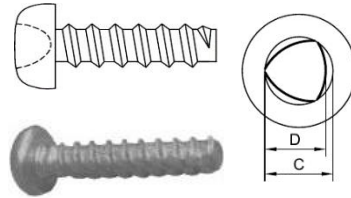
Size	Pitch (T.P.I)	Dia.			
		C mm		D mm	
		Max	Min	Max	Min
2	40	2.04	1.96	1.96	1.88
2.3	32	2.34	2.26	2.26	2.18
2.6	28	2.64	2.56	2.55	2.47
3	24	3.05	2.95	2.95	2.85
3.5	20	3.55	3.45	3.46	3.34
4	18	4.05	3.95	3.91	3.81
5	16	5.06	4.94	4.90	4.78
6	14	6.08	5.92	5.88	5.72
8	12	8.10	7.90	7.85	7.65

Size	Pitch (T.P.I)	Dia			
		C mm		D mm	
		Max	Min	Max	Min
2	0.4	1.98	1.89	1.90	1.81
2.3	0.4	2.28	2.19	2.20	2.11
2.5	0.45	2.48	2.38	2.39	2.29
2.6	0.45	2.58	2.48	2.49	2.39
3	0.5	2.98	2.87	2.88	2.77
3.5	0.6	3.47	3.36	3.35	3.24
4	0.7	3.97	3.84	3.83	3.70
5	0.8	4.97	4.84	4.81	4.68
6	1.0	5.97	5.82	5.77	5.62
8	1.25	7.96	7.79	7.74	7.54

S TYPE



P TYPE



Material 材质	硬度 Hardness
碳钢 carbon steel	22-50HRC
不锈钢 Stainless Steels	≤210HV

Finish: Nigrescence black, Ni plating,

Zn plating, Decromet.

表面处理: 磷化黑, 镀镍, 镀锌, 达克罗。

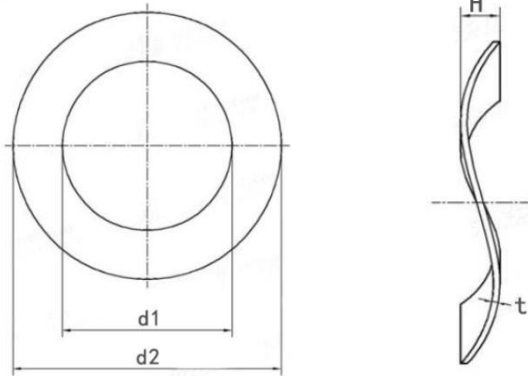
unit:mm

Size	Pitch (T.P.I)	Dia.			
		C mm		D mm	
		Max	Min	Max	Min
2	0.4	2.04	1.96	1.96	1.88
2.3	4	2.34	2.26	2.26	2.18
2.5	0.45	2.55	2.47	2.46	2.38
2.6	0.45	2.65	2.57	2.56	2.48
3	0.5	3.05	2.97	2.95	2.87
3.5	0.6	3.56	3.48	3.44	3.36
4	0.7	4.07	3.99	3.93	3.85
5	0.8	5.08	5.00	4.92	4.84
6	1.0	6.10	6.00	5.90	5.80
8	1.25	8.13	8.03	7.88	7.78

unit:mm

Size	Pitch (T.P.I)	Dia.			
		C mm		D mm	
		Max	Min	Max	Min
2	0.794 (32)	2.12	2.02	2.04	1.94
2.3	0.907 (28)	2.43	2.33	2.35	2.25
2.5	1.058 (24)	2.63	2.53	2.54	2.44
2.6	1.058 (24)	2.73	2.63	2.64	2.54
3	1.270 (20)	3.15	3.03	3.05	2.93
3.5	1.411 (18)	3.66	3.54	3.57	3.45
4	1.588 (16)	4.16	4.04	4.02	3.90
5	1.814 (14)	5.19	5.05	5.03	4.89
6	2.117 (12)	6.24	6.06	6.04	5.86
8	2.540 (10)	8.30	8.08	8.05	7.93

# 波形垫圈 Wave Washers 三波浪垫圈



JAPANESE INDUSTRIAL STANDARD

Unit: mm

Material 材质	硬度 Hardness
弹簧钢 Carbon Spring Steels	40-50HRC
不锈钢 Stainless Steels Finish: Nitrogen black, Ni plating.	300-500HV
Zn plating, Decromet.	
表面处理: 磷化黑, 镀镍, 镀锌, 达克罗。	

Size-No.	Bearing Out dia	d1	D2	H	t	Applicable bearing Nos.					
WW-	624	13	8.8	12.8	1.5	0.15	695		624	633	
	625	16	12	15	2	0.15			625	634	
	626	19	12.7	18.1	2.5	0.2	698	607	626	635	
	608	22	14.5	21	2.4	0.2	6900	608	627	636	
	629	26	19.5	24.8	3.2	0.2		6000	629	637	
	6001	28	20.9	26.9	3	0.25	6902	6001		638	
	6200	30	22	28.5	4.1	0.25	6903			639	
	6201	32	23.5	30.5	4	0.25		6002	6201		
	6202	35	26.4	33.9	3.5	0.3		6003	6202	6300	
	6203	40	29.8	38.3	5	0.3			6203		
	6302	42	30.1	40.6	4.5	0.3	6905	6004		6302	
	6303	47	33.7	45.5	5	0.3	6906	6005	6204	6303	
	6304	52	38.5	50	7	0.3			6205	6304	
	6305	62	47.2	60	6.5	0.4	6908	6007	6206	6305	6403
	6306	72	55	70.5	7	0.45	6910		6207	6306	6404
	6307	80	61.3	77.8	8.5	0.45	6911	6010	6208	6307	6405
	6308	90	69	88.5	7	0.6	6913	6011	6211	6308	6406
	6309	100	79.3	98.8	6.5	0.7	6914	6013	6211	6309	6407
	6310	110	88.9	108.9	8	0.8	6916	6014	6212	6310	6408
6311	120	95.8	118.9	8.5	0.8	6917		6213	6311	6409	
6312	130	108.3	128.3	11	0.8	6919	6017	6215	6312	6410	
6313	140	112.4	138.4	11	0.8	6920	6018	6216	6313	6411	

Note: 1. Free height H shows when 3 waves are the same height

三点波浪的三个点上的自由高度是相同的。

2. Internal diameter d1 shows inscribed circle and outer diameter D1 shows circumscribed circle

内径表示成型后内切圆尺寸, 外径表示成型后外切圆尺寸。

主要材质: C67S. 65Mn 或 SUS420J. 301. 304. 631 (A2)

Main Material: C67S. 65Mn or SUS420J. 301. 304. 631 (A2)

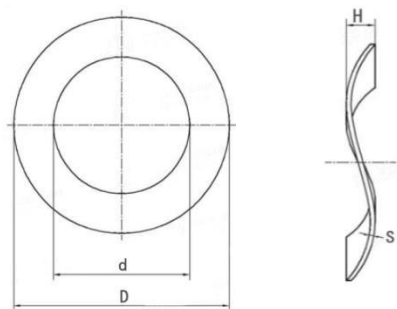
表面处理: 不锈钢硬化抛光本色或弹簧钢磷化黑。(参考制造硬度要求: 44-52HRC)

Surface Treatment: stainless steel curing polished original color or spring steel in black. (Requirements for manufacturing hardness 44-52HRC)

由于技术标准会不断更新, 我们不会另行通知!

Technical standard is subject to update without prior notice!

# Wave Washers JB7590 电机用波形垫圈



Material 材质	硬度 Hardness
弹簧钢 Carbon S ring Steels	40-50HRC
不锈钢 Stainless Steels	300-500HV

Finish: Nigrescence black, Ni plating,

Zn plating, Decromet.

表面处理: 磷化黑, 镀镍, 镀锌, 达克罗。

材料				热处理			表面处理
种类	牌号	标准		热处理的			表面处理
弹簧钢	65Mn	YB/T 5058		淬火并回火			氧化
规格	外径 D mm		内径 d mm		自由高度H mm	厚度 S Mm	波形数 n
	基本尺寸	极限偏差	基本尺寸	极限偏差			
D16	15.4	±0.40	11.74	±0.40	2.0	0.3	3
D19	18.6	±0.40	14.7	±0.40	2.7	0.3	3
D22	21.4	±0.40	15.3	±0.40	3.0	0.3	3
D26	25.0	±0.40	18.7	±0.40	4.0	0.3	3
D28	27.2	±0.40	20.8	±0.40	4.1	0.3	3
D30	29.0	±0.60	22.6	±0.60	3.1	0.5	3
D32	31.4	±0.60	26.6	±0.60	4.0	0.5	3
D35	34.0	±0.60	27.8	±0.60	4.3	0.5	3
D40	38.6	±0.60	32.8	±0.60	3.2	0.5	4
D42	40.6	±0.60	34.1	±0.60	3.3	0.5	4
D47	45.5	±0.60	38.4	±0.60	4.0	0.5	4
D52	50.5	±0.60	41.0	±0.60	3.2	0.5	5
D62	60.2	±0.60	50.2	±0.60	3.9	0.5	5
D72	69.1	±0.80	59.1	±0.80	5.5	0.5	5
D80	78.0	±0.80	70.0	±0.80	3.9	0.6	6
D85	83.1	±0.80	73.1	±0.80	4.0	0.6	6
D90	87.6	±0.80	78.1	±0.80	4.5	0.6	6
D100	97.0	±0.80	87.5	±0.80	5.6	0.6	6
D110	107.3	±0.80	97.6	±0.80	4.6	0.6	7
D120	116.4	±0.80	107.0	±0.80	5.8	0.6	7
D125	120.8	±0.80	111.6	±0.80	5.9	0.6	7
D130	128.5	±0.80	109.5	±0.80	4.8	0.8	6
D140	138.5	±1.00	119.8	±1.00	4.6	0.9	6
D150	148.8	±1.00	125.4	±1.00	4.6	0.9	6
D160	159.1	±1.00	137.1	±1.00	4.5	1.0	6
D170	169.0	±1.00	142.0	±1.00	4.3	1.0	6
D180	179.1	±1.00	145.1	±1.00	4.8	1.0	6
D190	187.5	±1.20	154.5	±1.20	5.0	1.2	6
D200	197.5	±1.20	166.5	±1.20	5.5	1.2	6
D215	212.0	±1.20	182.0	±1.20	7.0	1.4	6
D240	237.0	±1.20	204.0	±1.20	7.5	1.4	6

主要材质: C67S. 65Mn 或 SUS420J. 301. 304. 631 (A2)

Main Material: C67S. 65Mn or SUS420J. 301. 304. 631 (A2)

表面处理: 不锈钢硬化抛光本色或弹簧钢磷化黑。(参考制造硬度要求: 44-52HRC)

Surface Treatment: stainless steel curing polished original color or spring steel in black. (Requirements for manufacturing hardness 44-52HRC)

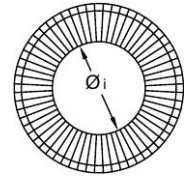
由于技术标准会不断更新, 我们不会另行通知!

Technical standard is subject to update without prior notice!

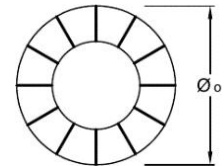
# DIN25201 双叠自锁垫圈 S60C. 35CrMo 碳钢达克罗

DIN25201 dual-stacked self-locking washer SK5.SK7 carbon steel Dacromet

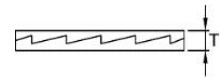
Washer size	Bolt size		$\phi_i$ [mm]	$\phi_o$ [mm]	Thickness T [mm]	Approx. weight kg/100 pairs
	Metric	UNC				
NL3	M3	#5	3.4	7.0	1.8	0.03
NL3.5	M3.5	#6	3.9	7.6	1.8	0.04
NL3.5sp	M3.5	#6	3.9	9.0	1.8	0.06
NL4	M4	#8	4.4	7.6	1.8	0.04
NL4sp	M4	#8	4.4	9.0	1.8	0.06
NL5	M5	#10	5.4	9.0	1.8	0.05
NL5sp	M5	#10	5.4	10.8	1.8	0.11
NL6	M6		6.5	10.8	1.8	0.07
NL6sp	M6		6.5	13.5	2.5	0.20
NL1/4"		1/4"	7.2	11.5	1.8	0.08
NL1/4"sp		1/4"	7.2	13.5	2.5	0.18
NL8	M8	5/16"	8.7	13.5	2.5	0.15
NL8sp	M8	5/16"	8.7	16.6	2.5	0.28
NL3/8"		3/8"	10.3	16.6	2.5	0.23
NL3/8"sp		3/8"	10.3	21.0	2.5	0.48
NL10	M10		10.7	16.6	2.5	0.22
NL10sp	M10		10.7	21.0	2.5	0.47
NL11	M11	7/16"	11.4	18.5	2.5	0.29
NL12	M12		13.0	19.5	2.5	0.29
NL12sp	M12		13.0	25.4	3.4	0.93
NL1/2"		1/2"	13.5	19.5	2.5	0.27
NL1/2"sp		1/2"	13.5	25.4	3.4	0.90
NL14	M14	9/16"	15.2	23.0	3.4	0.56
NL14sp	M14	9/16"	15.2	30.7	3.4	1.41
NL16	M16	5/8"	17.0	25.4	3.4	0.69
NL16sp	M16	5/8"	17.0	30.7	3.4	1.29
NL18	M18		19.5	29.0	3.4	0.85
NL18sp	M18		19.5	34.5	3.4	1.58
NL3/4"		3/4"	20.0	30.7	3.4	1.05
NL3/4"sp		3/4"	20.0	39.0	3.4	2.20
NL20	M20		21.4	30.7	3.4	0.95
NL20sp	M20		21.4	39.0	3.4	2.03
NL22	M22	7/8"	23.4	34.5	3.4	1.29
NL22sp	M22	7/8"	23.4	42.0	4.6	3.31
NL24	M24		25.3	39.0	3.4	1.68
NL24sp	M24		25.3	48.5	4.6	4.51
NL1"		1"	27.9	39.0	3.4	1.53
NL1"sp		1"	27.9	48.5	4.6	4.20
NL27	M27		28.4	42.0	5.8	3.29
NL27sp	M27		28.4	48.5	5.8	5.39
NL30	M30	1-1/8"	31.4	47.0	5.8	4.20
NL30sp	M30	1-1/8"	31.4	58.5	6.6	8.96
NL33	M33	1-1/4"	34.4	48.5	5.8	3.97
NL33sp	M33	1-1/4"	34.4	58.5	6.6	8.31
NL36	M36	1-3/8"	37.4	55.0	5.8	5.59
NL36sp	M36	1-3/8"	37.4	63.0	6.6	9.15
NL39	M39	1-1/2"	40.4	58.5	5.8	6.28
NL42	M42		43.2	63.0	5.8	7.47
NL45	M45	1-3/4"	46.2	70.0	7.0	10.20
NL48	M48		49.6	75.0	7.0	12.00
NL52	M52	2"	53.6	80.0	7.0	13.00
NL56	M56	2-1/4"	59.1	85.0	7.0	13.50
NL60	M60		63.1	90.0	7.0	15.20
NL64	M64	2-1/2"	67.1	95.0	7.0	16.70
NL68	M68		71.1	100.0	9.5	28.19
NL72	M72		75.1	105.0	9.5	30.70
NL76	M76	3"	79.1	110.0	9.5	33.31
NL80	M80	3-1/8"	83.1	115.0	9.5	36.02
NL85	M85		88.1	120.0	9.5	37.84
NL90	M90		92.4	130.0	9.5	47.67
NL95	M95		97.4	135.0	9.5	49.81
NL100	M100	4"	103.4	145.0	9.5	58.91
NL105	M105		108.4	150.0	9.5	61.28
NL110	M110		113.4	155.0	9.5	63.65
NL115	M115		118.4	165.0	9.5	75.28
NL120	M120		123.4	170.0	9.5	77.94
NL125	M125		128.4	173.0	9.5	76.63
NL130	M130	5"	133.4	178.0	9.5	79.17



NL3-NL8  
 $\phi_i \pm 0.1\text{mm}$   
 NL10-NL42  
 $\phi_i \pm 0.2\text{mm}$   
 NL45-NL130  
 $\phi_i +0.5/-0\text{mm}$



NL3-NL24  
 $\phi_o \pm 0.2\text{mm}$   
 NL27-NL42  
 $\phi_o \pm 0.3\text{mm}$   
 NL45-NL130  
 $\phi_o +0/-2.0\text{mm}$



NL3-NL42  
 $T \pm 0.25\text{mm}$   
 NL45-NL130  
 $T \pm 0.75\text{mm}$   
 \*NL45-NL130  
 upon inquiry

注意: 6.6mm 厚度垫圈有一个 (+0, -0.5)

主要材质: S60C、35CrMo、51CrV4 或其他特殊合金钢定制材质  
 Main Material: S60C、35CrMo、51CrV4 other special customized material

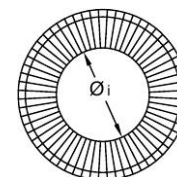
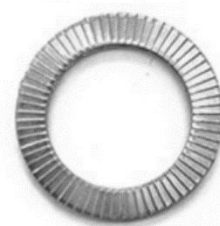
表面处理: 弹簧钢硬化磷化黑, 机械镀锌, 镀镍, 达克罗涂层处理。  
 Surface Treatment: spring steel curing in black, mechanical galvanizing, nickel plating, Dacromet coating treatment.

由于技术标准不断更新, 我们不会另行通知  
 Technical standard is subject to update without prior notice

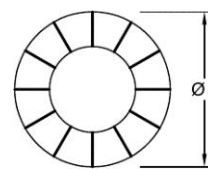
# DIN25201 双叠自锁垫圈 SUS 304. 316 (A2. A4)

## DIN25201 dual-stacked self-locking washer SUS 304. 316 (A2. A4)

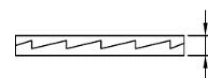
Washer size	Bolt size		$\varnothing_i$ [mm]	$\varnothing_o$ [mm]	Thickness T [mm]	Approx. weight kg/100 pairs
	Metric	UNC				
NL3	M3	#5	3.4	7.0	2.2	0.04
NL3.5	M3.5	#6	3.9	7.6	2.2	0.04
NL3.5sp	M3.5	#6	3.9	9.0	2.2	0.07
NL4	M4	#8	4.4	7.6	2.2	0.04
NL4sp	M4	#8	4.4	9.0	2.2	0.07
NL5	M5	#10	5.4	9.0	2.2	0.06
NL5sp	M5	#10	5.4	10.8	2.2	0.11
NL6	M6		6.5	10.8	2.2	0.09
NL6sp	M6		6.5	13.5	2.0	0.16
NL1/4"		1/4"	7.2	11.5	2.2	0.09
NL1/4"sp		1/4"	7.2	13.5	2.0	0.15
NL8	M8	5/16"	8.7	13.5	2.0	0.12
NL8sp	M8	5/16"	8.7	16.6	2.0	0.22
NL3/8"		3/8"	10.3	16.6	2.0	0.19
NL3/8"sp		3/8"	10.3	21.0	2.0	0.38
NL10	M10		10.7	16.6	2.0	0.18
NL10sp	M10		10.7	21.0	2.0	0.37
NL11	M11	7/16"	11.4	18.5	2.2	0.26
NL12	M12		13.0	19.5	2.0	0.25
NL12sp	M12		13.0	25.4	3.0	0.81
NL1/2"		1/2"	13.5	19.5	2.0	0.24
NL1/2"sp		1/2"	13.5	25.4	3.2	0.80
NL14	M14	9/16"	15.2	23.0	3.0	0.49
NL14sp	M14	9/16"	15.2	30.7	3.2	1.31
NL16	M16	5/8"	17.0	25.4	3.0	0.59
NL16sp	M16	5/8"	17.0	30.7	3.2	1.18
NL18	M18		19.5	29.0	3.2	0.80
NL18sp	M18		19.5	34.5	3.2	1.56
NL3/4"		3/4"	20.0	30.7	3.2	0.96
NL3/4"sp		3/4"	20.0	39.0	3.2	2.10
NL20	M20		21.4	30.7	3.2	0.89
NL20sp	M20		21.4	39.0	3.2	2.06
NL22	M22	7/8"	23.4	34.5	3.2	1.23
NL22sp	M22	7/8"	23.4	42.0	3.2	2.23
NL24	M24		25.3	39.0	3.2	1.52
NL24sp	M24		25.3	48.5	3.2	3.50
NL1"		1"	27.9	39.0	3.2	1.42
NL1"sp		1"	27.9	48.5	3.2	3.22
NL27	M27		28.4	42.0	6.8	3.45
NL27sp	M27		28.4	48.5	6.8	5.85
NL30	M30	1-1/8"	31.4	47.0	6.8	4.43
NL30sp	M30	1-1/8"	31.4	58.5	6.8	9.53
NL33	M33	1-1/4"	34.4	48.5	6.8	4.25
NL36	M36	1-3/8"	37.4	55.0	6.8	5.96
NL39	M39	1-1/2"	40.4	58.5	6.8	6.74
NL42	M42		43.2	63.0	6.8	7.96
NL45	M45	1-3/4"	46.2	70.0	6.8	10.20
NL48	M48		49.6	75.0	6.8	12.00
NL52	M52	2"	53.6	80.0	9.0	20.10
NL56	M56	2-1/4"	59.1	85.0	9.0	21.30
NL60	M60		63.1	90.0	9.0	23.50
NL64	M64	2-1/2"	67.1	95.0	9.0	25.80
NL68	M68		71.1	100.0	9.0	28.20
NL72	M72		75.1	105.0	9.0	30.70
NL76	M76	3"	79.1	110.0	9.0	33.30
NL80	M80	3-1/8"	83.1	115.0	9.0	36.00



NL3 - NL8  
 $\varnothing_i \pm 0.1\text{mm}$   
 NL10-NL42  
 $\varnothing_i \pm 0.2\text{mm}$   
 NL45-NL130  
 $\varnothing_i +0.5/-0\text{mm}$



NL3-NL24  
 $\varnothing_o \pm 0.2\text{mm}$   
 NL27-NL42  
 $\varnothing_o \pm 0.3\text{mm}$   
 NL45-NL130  
 $\varnothing_o +0/-2.0\text{mm}$



NL3-NL24  
 $T \pm 0.25\text{mm}$   
 NL27-NL42  
 $T +0/-0.5\text{mm}$   
 NL45-NL80  
 $T \pm 0.75\text{mm}$

\*NL45-NL80  
 upon inquiry

主要材质: SUS304. 316 (A2. A4) 或其他不锈钢定制材质

Main Material: SUS304. 316(A2. A4) and other special customized material.

表面处理: 不锈钢表面硬化 (HV 350-550)。

Surface Treatment: stainless steel curing (HV 350-550).

由于技术标准不断更新, 我们不会另行通知

Technical standard is subject to update without prior notice



# 安全垫圈 DIN9250S “SS” 不锈钢 X5CrNi18-10(1.4301)

Safe washer DIN9250S “SS” stainless steel X5CrNi18-10(1.4301)

商品编号	螺栓规范		尺寸					每 1000 片重量[kg]
	Nominal size [mm]	[Inch]	内径 [mm]	外径 [mm]	厚度 [mm]	h <sub>min.</sub> [mm]	h <sub>max.</sub> [mm]	
DIN 9250S-A1.2	M1.6		1.7	3.2	0.5	0.55	0.75	0.019
DIN 9250S-A2	M2		2.2	4.0	0.5	0.55	0.75	0.029
DIN 9250S-A2.5	M2.5		2.7	4.8	0.5	0.55	0.95	0.042
DIN 9250S-A3	M3	1/8	3.2	5.5	0.5	0.55	0.95	0.042
DIN 9250S-A3.5	M3.5		3.7	6.0	0.7	0.75	1.15	0.084
DIN 9250S-A4	M4	5/32	4.3	7.0	0.7	0.75	1.20	0.081
DIN 9250S-A5	M5	3/16	5.3	9.0	0.7	0.75	1.20	0.209
DIN 9250S-A6	M6		6.4	10.0	0.7	0.75	1.20	0.193
DIN 9250S-A6.35	M6.35	1/4	6.7	9.5	0.7	0.75	1.20	0.172
DIN 9250S-A8	M8	5/16	8.4	13.0	1.0	1.20	1.60	0.557
DIN 9250S-A10	M10	3/8	10.5	16.0	1.0	1.10	1.60	0.731
DIN 9250S-A11.1	M11.1	7/16	11.6	15.9	1.3	1.30	1.85	0.825
DIN 9250S-A12	M12		13.0	18.0	1.3	1.30	1.85	1.099
DIN 9250S-A12.7	M12.7	1/2	13.7	19.0	1.3	1.40	1.95	1.222
DIN 9250S-A14	M14		15.0	22.0	1.5	1.65	2.30	2.244
DIN 9250S-A16	M16	5/8	17.0	24.0	1.5	1.75	2.30	2.487
DIN 9250S-A18	M18		19.0	27.0	1.8	2.05	2.60	3.843
DIN 9250S-A19	M19	3/4	20.0	30.0	1.8	2.20	2.60	5.294
DIN 9250S-A20	M20		21.0	30.0	1.8	2.15	2.80	3.923
DIN 9250S-A22	M22	7/8	23.0	33.0	1.8	2.30	3.00	5.893
DIN 9250S-A24	M24		25.6	36.0	2.0	2.35	3.10	7.508
DIN 9250S-A25.4	M25.4	1	27.0	37.0	2.5	2.85	3.60	10.508
DIN 9250S-A27	M27		28.6	39.0	2.5	2.85	3.60	10.300
DIN 9250S-A30	M30	11/8	31.6	45.0	2.5	3.10	4.10	15.185
DIN 9250S-A36	M36	13/8	38.0	54.0	3.0	3.70	4.70	26.218



主要材质: SUS304, 316 (A2, A4) 及其它特殊定制材料。  
Main Material: SUS304, 316 (A2, A4) and other special customized material.

表面处理: 不锈钢表面硬化 (HV350-550)。  
Surface Treatment stainless steel Surface curing.

由于技术标准会不断更新, 我们不会另行通知!  
Technical standard is subject to update without prior notice

# 安全垫圈 DIN9250 “S” 弹簧钢 S60C

Safe washer DIN9250 S

商品编号	螺栓规范		尺寸					每 1000 片重量[kg]
	Nominal size [mm]	[Inch]	内径 [mm]	外径 [mm]	厚度 [mm]	h <sub>min.</sub> [mm]	h <sub>max.</sub> [mm]	
DIN 9250S-M1.6	1.6		1.7	3.2	0.35	0.38	0.6	0.013
DIN 9250S-M2	2		2.2	4.0	0.35	0.39	0.6	0.021
DIN 9250S-M2.5	2.5		2.7	4.8	0.45	0.49	0.9	0.039
DIN 9250S-M3	3	1/8	3.2	5.5	0.45	0.51	0.9	0.049
DIN 9250S-M3.5	3.5		3.7	6.0	0.45	0.52	0.9	0.055
DIN 9250S-M4	4	5/32	4.3	7.0	0.50	0.59	1.0	0.085
DIN 9250S-M5	5	3/16	5.3	9.0	0.6	0.73	1.1	0.167
DIN 9250S-M6	6		6.4	10.0	0.6	0.82	1.2	0.200
DIN 9250S-M6.35	6.35	1/4	6.7	9.5	0.6	0.79	1.2	0.150
DIN 9250S-M8	8	5/16	8.4	13.0	0.7	0.98	1.4	0.392
DIN 9250S-M10	10	3/8	10.5	16.0	0.9	1.21	1.6	0.750
DIN 9250S-M11.1	11.1	7/16	11.6	15.9	0.9	1.18	1.6	0.595
DIN 9250S-M12	12		13.0	18.0	1.0	1.31	1.7	0.879
DIN 9250S-M12.7	12.7	1/2	13.7	19.0	1.0	1.33	1.8	0.976
DIN 9250S-M14	14		15.0	22.0	1.1	1.52	2.0	1.641
DIN 9250S-M16	16	5/8	17.0	24.0	1.3	1.63	2.1	1.984
DIN 9250S-M18	18		19.0	27.0	1.4	1.85	2.3	2.970
DIN 9250S-M19	19	3/4	20.0	30.0	1.4	1.98	2.5	4.100
DIN 9250S-M20	20		21.0	30.0	1.4	1.94	2.5	3.742
DIN 9250S-M22	22	7/8	23.0	33.0	1.4	2.08	2.7	4.507
DIN 9250S-M24	24		25.6	36.0	1.6	2.32	2.9	5.910
DIN 9250S-M25.4	25.4	1	27.0	38.0	1.8	2.52	3.1	7.449
DIN 9250S-M27	27		28.6	39.0	1.8	2.52	3.1	7.369
DIN 9250S-M30	30	11/8	31.6	45.0	1.8	2.78	3.6	10.78
DIN 9250S-M33	33.5		34	50	2.5	3.25	4.0	19.8
DIN 9250S-M36	36	13/8	38.0	54.0	2.5	3.38	4.2	21.28



主要材质: S60C.C67S.65Mn 及其它特殊定制材料。

Main Material: S60C, C67S, 65Mn and other special customized material.

表面处理: 弹簧钢硬化磷化黑, 机械镀锌、镀镍, 达克罗, 不接受传统镀锌处理。

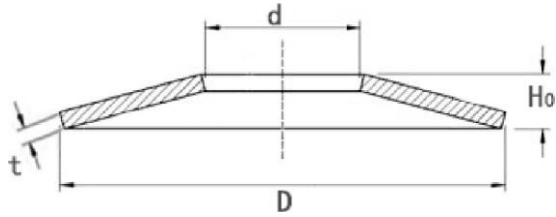
Surface Treatment: spring steel curing in black, mechanical galvanizing, nickel plating, Dacromet coating treatment.

由于技术标准会不断更新, 我们不会另行通知!

Technical standard is subject to update without prior notice

# GB/T1972A-DIN2093 碟形弹簧垫圈

GB/T1972A-DIN2093 Disc spring washer



$A D/t \approx 18$ ;  $h_o/t \approx 0.4$ ;  $E=206000 \text{ N/mm}^2$ ;  $u=0.3$

类别	D/ mm	d mm	t(t')*/ mm	ho/ mm	Ho/ mm	$f \approx 0.75h_o$					Q/ (kg1000 片)
						f/ mm	(Ho-f)/ mm	F/ N	$\sigma_{om}^b$ / (N/mm <sup>2</sup> )	$\sigma_{II}, \sigma_{III}^c$ / (N/mm <sup>2</sup> )	
1	8	4.2	0.4	0.2	0.6	0.15	0.45	210	-1200	1220*	0.114
	10	5.2	0.5	0.25	0.75	0.19	0.56	329	-1210	1240*	0.225
	12.5	6.2	0.7	0.3	1	0.23	0.77	637	-1280	1420*	0.508
	14	7.2	0.8	0.3	1.1	0.23	0.87	813	-1190	1340*	0.711
	16	8.2	0.9	0.35	1.25	0.26	0.99	1000	-1160	1290*	1.050
	18	9.2	1	0.4	1.4	0.3	1.1	1250	-1170	1300*	1.480
	20	10.2	1.1	0.45	1.55	0.34	1.21	1530	-1180	1300*	2.010
2	22.5	11.2	1.25	0.5	1.75	0.38	1.37	1950	-1170	1320*	2.940
	25	12.2	1.5	0.55	2.05	0.41	1.64	2910	-1210	1410*	4.400
	28	14.2	1.5	0.65	2.15	0.49	1.66	2850	-1180	1280*	5.390
	31.5	16.3	1.75	0.7	2.45	0.53	1.92	3900	-1190	1320*	7.840
	35.5	18.3	2	0.8	2.8	0.6	2.2	5190	-1210	1330*	11.40
	40	20.4	2.25	0.9	3.15	0.68	2.47	6540	-1210	1340*	16.40
	45	22.4	2.5	1	3.5	0.75	2.75	7720	-1150	1330*	23.50
	50	25.4	3	1.1	4.1	0.83	3.27	12000	-1250	1430*	34.30
	56	28.5	3	1.3	4.3	0.98	3.32	11400	-1180	1280*	43.00
	63	31	3.5	1.4	4.9	1.05	3.85	15000	-1140	1300*	64.90
	71	36	4	1.6	5.6	1.2	4.4	20500	-1200	1330*	91.80
	80	41	5	1.7	6.7	1.28	5.42	33700	-1260	1460*	145.0
	90	46	5	2	7	1.5	5.5	31400	-1170	1300*	184.5
	100	51	6	2.2	8.2	1.65	6.55	48000	-1250	1420*	273.7
112	57	6	2.5	8.5	1.88	6.62	13800	-1130	1240*	243.8	
3	125	64	8(7.5)	2.6	10.6	1.95	8.65	85900	-1280	1330*	533.0
	140	72	8(7.5)	3.2	11.2	2.4	8.8	85300	-1260	1280*	666.6
	160	82	10(9.4)	3.5	13.5	2.63	10.87	139000	-1320	1340*	1094
	180	92	10(9.4)	4	14	3	11	125000	-1180	1220	1387
	200	102	12(11.25)	4.2	16.2	3.15	13.05	183000	-1120	1230	2100
	225	112	12(11.25)	5	17	3.75	13.25	171000	-1120	1140	2640
	250	127	14(13.1)	5.6	19.6	4.2	15.4	249000	-1200	1220	3750

- a. 表中给出的 t 是碟簧厚度的公称直径数值, t' 是第 3 类碟簧的实际厚度。
- b.  $\sigma_{om}$  是碟簧上表面 OM 点的计算能力。
- c. 有 "\*" 号的数值是在位置 II 处的最大计算接应力, 无 "\*" 号的数值是在位置 III 处最大计算拉应力。

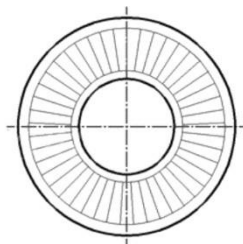
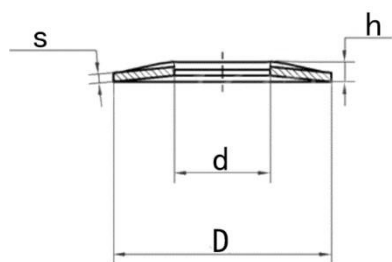
主要材质: 65Mn, 60Si2Mn, 50CrVA 或 SUS304, 316 (A2, A4) 及其它特殊定制材料。  
Main Material: 65Mn, 60Si2Mn, 50CrVA or SUS304, 316 (A2, A4) and other special customized material.

表面处理: 不锈钢硬化抛光本色或弹簧钢磷化黑, 机械镀锌, 镀镍, 达克罗涂层处理。(制造硬度要求: 42-52HRC)  
Surface Treatment: stainless steel curing polished original color or spring steel in back, mechanical galvanizing, nickel plating, Dacromet coating treatment. (Requirements for manufacturing hardness: 42-52HRC)

由于技术标准会不断更新, 我们不会另行通知!  
Technical standard is subject to update without prior notice!

# 法式直纹垫圈

## French straight grain washer



NFE25511-Z. M. L

Unit: mm

Type	Nominal thread diam	Inside diameter d		Outside diameter D			Thickness S			Height H		Teeth Nr.	Peso/mass Kg/1000
		Nom.	Max	Nom.	Min	Max	Nomin.	Max	Min	Min	Max		
Z	M3	3.1	3.35	6	5.76	6.24	0.5	0.53	0.47	0.7	0.9	28	0.08
M		3.1	3.35	8	7.71	8.29	0.6	0.63	0.57	0.95	1	28	0.20
L		3.1	3.35	10	9.71	10.29	0.6	0.63	0.57	1	1.2	28	0.33
Z	M4	4.1	4.4	8	7.71	8.29	0.8	0.83	0.77	0.8	1.2	32	0.23
M		4.1	4.4	10	9.71	10.29	0.9	0.94	0.86	0.95	1.4	32	0.46
L		4.1	4.4	14	13.65	14.35	1.0	1.04	0.96	1	1.8	32	1.10
Z	M5	5.1	5.4	10	9.71	10.29	1.0	1.04	0.96	1.25	1.5	36	0.46
M		5.1	5.4	12	11.65	12.35	1.1	1.14	1.06	1.45	1.8	36	0.80
L		5.1	5.4	16	15.65	16.35	1.2	1.24	1.16	1.7	2.1	36	1.70
Z	M6	6.1	6.4	12	11.65	12.35	1.2	1.24	1.16	1.55	1.85	45	0.79
M		6.1	6.4	14	13.65	14.35	1.3	1.34	1.26	1.75	2.1	45	1.27
L		6.1	6.4	18	17.65	18.35	1.4	1.44	1.36	2.1	2.5	45	2.48
Z	M8	8.2	8.56	16	15.65	16.35	1.4	1.44	1.36	1.8	2.2	45	1.63
M		8.2	8.56	18	17.65	18.35	1.4	1.44	1.36	1.9	2.35	45	2.22
L		8.2	8.56	22	21.58	22.42	1.6	1.65	1.55	2.2	2.7	45	4.11
Z	M10	10.2	10.56	20	19.58	20.42	1.6	1.65	1.55	2.1	2.6	45	2.90
M		10.2	10.56	22	21.58	22.42	1.6	1.65	1.55	2.25	2.75	45	3.75
L		10.2	10.56	27	26.58	27.42	1.8	1.85	1.75	2.6	3.1	45	6.90
Z	M12	12.4	12.83	24	23.58	24.42	1.8	1.85	1.75	2.4	2.9	45	4.69
M		12.4	12.83	27	26.58	27.42	1.8	1.85	1.75	2.6		45	6.34
L		12.4	12.83	32	31.5	32.5	2.0	2.05	1.95	3.1	3.6	45	10.18
Z	M14	-	-	-	-	-	-	-	-	-	-	-	-
M		14.4	14.83	30	29.58	30.42	2.4	2.46	2.34	3.2	3.7	45	10.18
L		-	-	-	-	-	-	-	-	-	-	-	-
Z	M16	-	-	-	-	-	-	-	-	-	-	-	-
M		16.4	16.83	32	31.5	32.5	2.8	2.86	2.74	3.6	4.1	60	12.95
L		-	-	-	-	-	-	-	-	-	-	-	-
Z	M20	-	-	-	-	-	-	-	-	-	-	-	-
M		20.5	21.02	40	39.5	40.5	3.2	3.26	3.14	4.3	4.9	60	23.12
L		-	-	-	-	-	-	-	-	-	-	-	-

主要材质: S60C 或 SUS304.316(A2. A4) 及其它特殊定制材料。

Main Material: S60C or SUS304.316 (A2. A4) and other special customized material.

表面处理: 不锈钢硬化抛光本色或弹簧钢磷化黑, 机械镀锌, 镀镍, 达克罗涂层处理。(制造硬度要求: 42-47HRC)

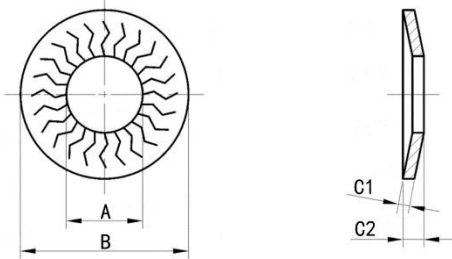
Surface Treatment: stainless steel curing polished original color or spring steel in black, mechanical galvanizing, nickel plating, Dacromet coating treatment. (Requirements for manufacturing hardness: 42-47HRC)

由于技术标准会不断更新, 我们不会另行通知!

Technical standard is subject to update without prior notice!

## SKM 型法式垫圈

Dimensions of type M spring washers (medium-width version)



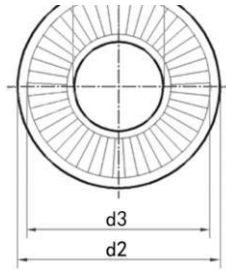
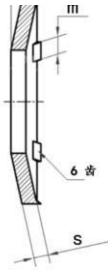
SKM or (SKS. SKZ. SKB)

Unit: mm



Nominal size	Inside Dia. A mm	Outside dia. B(max) mm	Thickness C1(max mm)	Height C2 mm	Weight (kg/1000)	Torque (Nm) for strength	
						8.8	10.9
M4	4.1 +0.48	10.2 -0.40	1.0	1.5	0.53	3.3	4.9
M5	5.1 +0.48	12.2 -0.40	1.2	1.8	0.90	6.7	9.8
M6	6.4 +0.48	14.2 -0.43	1.4	2.2	1.40	11.5	16.5
M8	8.2 +0.58	18.2 -0.52	1.4	2.4	2.30	27	40
M10	10.2 +0.58	22.25 -0.52	1.6	2.75	3.90	54	79
M12	12.4 +0.58	27.25 -0.52	1.8	3.05	6.50	92	135
M14	14.4 +0.58	30.25 -0.62	2.4	3.5	10.50	145	215
M16	16.4 +0.58	32.5 -0.62	2.5	3.95	12.00	225	330
M18	18.5 +0.75	35.0 -0.62	3.0	4.5	16.30	320	460
M20	21.0 +0.75	40.0 -0.62	3.0	4.7	22.00	460	650
M22	23.0 +0.75	45.0 -0.62	3.5	5.3	33.00	620	890
M24	25.0 +0.75	50.0 -0.62	3.5	5.6	41.00	790	1120
M27	28.0 +0.85	60.0 -0.72	4.0	6.6	70.00	1160	1650
M30	31.0 +0.85	70.0 -0.72	4.5	7.8	109.00	1550	2250

## French washer 法式接地垫圈



SN 70093

规格	d1		d2		h		h1		s		m		d3	d4		直纹数量 min
	尺寸	偏差	尺寸	偏差	尺寸	偏差	尺寸	偏差	尺寸	偏差	尺寸	偏差		Min	Min	
M3	3.1	+0.3 0	6.2	0	0.95	0	0.15	+0.2 0	0.6	+0.05 -0.07	0.8	±0.1	5.5	3.6	4.1	28
M3.5	3.6		7.2		1.1				0.7		1		6.2	4.1	4.6	30
M4	4.1		8.2		1.15				0.8		1.2		7	4.7	5.2	32
M5	5.2	+0.22 0	10.2	-0.4	1.5	0	0.4	+0.3 -0.1	1.0	+0.1 -0.1	2.0	±0.2	8	5.7	6.2	36
M6	6.1	+0.3 0	12.2		1.8				1.2		10		6.8	7.4	45	
M8	8.2	0	16.2		2.4				1.4		13		9.2	9.8	45	
M10	10.2	+0.4 0	20.2	0	2.6	0	0.4	+0.3 -0.1	1.6	+0.1 -0.1	2.6	±0.2	16	11.2	11.9	45
M12	12.4		24.2		2.6				1.6		18		13.7	14.4	45	
M16	16.4		32.3		3.95				2.5		24		17.7	18.4	60	
M20	20.5	+0.5 0	40.3	0	4.85	-0.45	0.4	+0.4 0	3	+0.1 -0.22	4.5	±0.2	30	22.1	22.8	60
M24	24.5		49.3		4.9				3		5		34	26.2	26.8	60

主要材质: S60C 或 SUS304.316 (A2. A4) 及其它特殊定制材料。(碳钢硬度: 40-47HRC) (不锈钢硬度: 300-500HV)  
Main Material: S60C or SUS304.316 (A2. A4) and other special customized material.

表面处理: 不锈钢硬化抛光本色或弹簧钢磷化黑, 机械镀锌, 镀镍, 达克罗涂层处理。

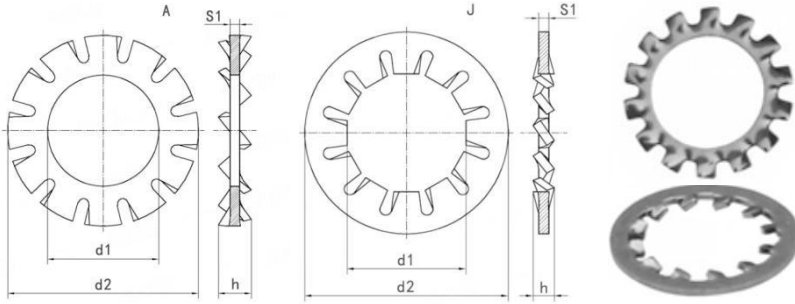
Surface Treatment: stainless steel curing polished original color or spring steel in black, mechanical galvanizing, nickel plating, Decrement coating treatment.

由于技术标准会不断更新, 我们不会另行通知!

Technical standard is subject to update without prior notice!

## DIN6797A (UNI8841A) 外齿锁紧垫圈

## DIN6797J (UNI8841J) 内齿锁紧垫圈



Material 材质	硬度 Hardness
弹簧钢 Carbon Spring Steels	40-48HRC
不锈钢 Stainless Steels	300-500HV

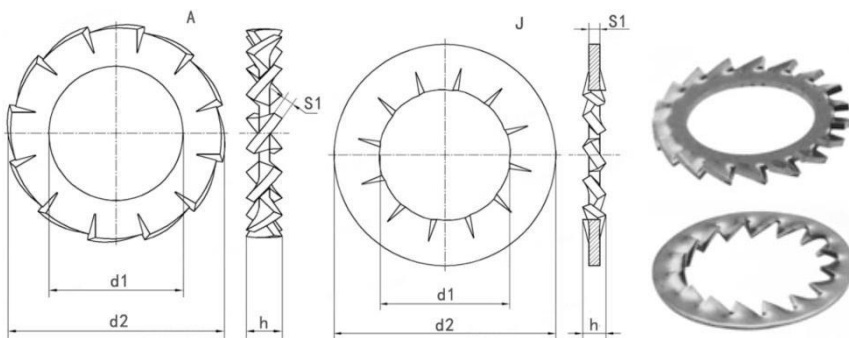
Finish: Nigrescence black, Ni plating,  
Zn plating, Decromet.

表面处理: 磷化黑, 镀镍, 镀锌, 达克罗。

Für Gewinde- Nenn durch- messer	d <sub>1</sub>		d <sub>2</sub>		S <sub>1</sub> 1)	Anzahl der Zahne min	Gewicht (7.85kg/dm <sup>3</sup> ) ke je 1000 stück ≈ Form	
	min. = Nennma ß	max	max. = Nennma ß	min			A	J
M1.6	1.7	1.84	3.6	3.3	0.3	6	0.01	-
M2	2.2	2.34	4.5	4.2	0.3	6	0.025	0.04
M2.5	2.7	2.84	5.5	5.2	0.4	6	0.04	0.045
M3	3.2	3.38	6	5.7	0.4	6	0.045	0.045
M3.5	3.7	3.88	7	6.64	0.5	6	0.075	0.85
M4	4.3	4.48	8	7.64	0.5	8	0.095	0.1
M5	5.3	5.48	10	9.64	0.6	8	0.18	0.2
M6	6.4	6.62	11	10.57	0.7	8	0.22	0.25
M7	7.4	7.62	12.5	12.07	0.8	8	0.3	0.35
M8	8.4	8.62	15	14.57	0.8	8	0.45	0.55
M10	10.5	10.77	18	17.57	0.9	9	0.8	0.9
M12	13	13.27	20.5	19.98	1	10	1.0	1.2
M14	15	15.27	24	23.48	1	10	1.6	1.9
M16	17	17.27	26	25.48	1.2	12	2.0	2.4
M18	19	19.33	30	29.48	1.4	12	3.5	3.7
M20	21	21.33	33	32.38	1.4	12	3.8	4.1
M22	23	23.33	36	35.38	1.5	14	5	6
M24	25	25.33	38	37.38	1.5	14	6	6.5
M27	28	28.33	44	43.38	1.6	14	8	8.5
M30	31	31.39	48	47.38	1.6	14	9	9.5

## DIN6798A (UNI8842A) 外锯齿锁紧垫圈

## DIN6798J (UNI8842J) 内锯齿锁紧垫圈



Material 材质	硬度 Hardness
弹簧钢 Carbon Spring Steels	40-48HRC
不锈钢 Stainless Steels	300-500HV

Finish: Nigrescence black, Ni plating,  
Zn plating, Decromet.

表面处理: 磷化黑, 镀镍, 镀锌, 达克罗

For nominall thread diameter	d <sub>1</sub>		d <sub>2</sub>		s <sub>1</sub>	Minimum number of teeth		Mass (7.85kg/dm <sup>3</sup> ) per 1000units in kg, for types A and J≈
	min-nominal dimersion	max	max-nominal dimersion	min		A	J	
M1.6	1.7	1.84	3.8	3.3	0.3	9	7	0.02
M2	2.2	2.34	4.5	4.2	0.3	9	7	0.03
M2.5	2.7	2.84	5.5	5.2	0.4	9	7	0.045
M3	3.2	3.38	6	5.7	0.4	9	7	0.06
M3.5	3.7	3.88	7	6.64	0.5	10	8	0.11
M4	4.3	4.48	8	7.64	0.5	11	8	0.14
M5	5.3	5.48	10	9.64	0.6	11	8	0.28
M6	6.4	6.62	11	10.57	0.7	12	9	0.36
M7	7.4	7.62	12.5	12.07	0.8	14	10	0.5

M8	8.4	8.62	15	14.57	0.8	14	10	0.8
M10	10.5	10.77	18	17.57	0.9	16	12	1.25
M12	13	13.27	20.5	19.98	1	16	12	1.6
M14	15	15.27	24	23.48	1	18	14	2.3
M16	17	17.27	26	25.48	1.2	18	14	2.9
M18	19	19.33	30	29.48	1.4	18	14	5
M20	21	21.33	33	32.38	1.4	20	16	6
M22	23	23.33	36	35.38	1.5	20	16	7.5
M24	25	25.33	38	37.38	1.5	20	16	8
M27	28	28.33	44	43.38	1.6	22	18	12
M30	31	31.39	48	47.38	1.6	22	18	14

主要材质：S60C. 65Mn 或 SUS304. 316(A2. A4) 及其它特殊定制材料。

Main Material: S60C. 65Mn, SUS304. 316(A2. A4) and other special customized material.

表面处理：不锈钢硬化抛光本色或弹簧钢磷化黑，机械镀锌，镀镍，达克罗涂层处理。（制造硬度要求：40-48HRC）

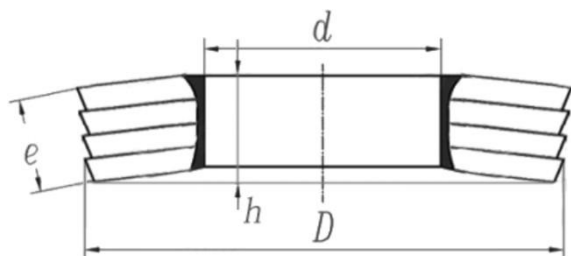
Surface Treatment: stainless steel curing polished original color or spring steel in black, mechanical galvanizing, nickel plating, Dacromet coating treatment. (Requirements for manufacturing hardness: 40-48HRC)

由于技术标准会不断更新，我们不会另行通知！

Technical standard is subject to update without prior notice!

## NFE-4L 法式四叠垫圈

NFE-4L Triple Fold, Four Disc Washer



Nominal Diameter	D	d	e	h after test	h	1000 件重量 /kg	Minimum load in da/N
M6	17	6.5	2.4	0.6	0.8	3.60	320
M8	20	8.5	2.8	0.7	0.95	5.60	400
M10	23	10.5	3.2	0.8	1.05	7.90	600
M12	26	12.5	4.0	1.0	1.3	13.00	1150
M14	29	15	4.8	0.9	1.3	18.00	1300
M16	33	17	4.8	1.1	1.4	24.00	1250
M18	37	19	6.0	1.2	1.52	35.00	2100
M20	41	21	6.0	1.4	1.85	45.00	2100
M22	45	23	7.2	1.4	1.67	60.00	2700
M24	50	25	7.2	1.6	1.84	81.00	2900
M27	56	28.5	8.0	1.6	1.8	115.00	3600
M30	60	32	8.8	1.8	2.3	135.00	4200
M33	64	35	10.0	2.0	2.57	170.00	6300
M36	68	38	10.0	2.0	2.5	190.00	6200
M39	72	41	10.0	2.2	2.45	210.00	5500
M42	76	44	10.0	2.4	3.2	223.00	5700
M45	80	47	10.0	2.5	2.75	240.00	6500
M48	85	50	10.0	2.6	2.85	280.00	5700
M52	90	54	12.0	2.8	3.55	370.00	7500
M56	95	58	12.0	3.0	3.22	405.00	7200
M60	100	62	12.0	3.0	3.25	441.00	7000

主要材质：60SiMn. 50CrVA 或 SUS304. 316(A2. A4) 及其它特殊定制材料。

Main Material: 60SiMn. 50CrVA, SUS304. 316(A2. A4) and other special customized material.

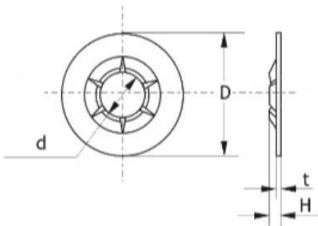
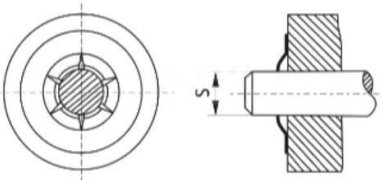
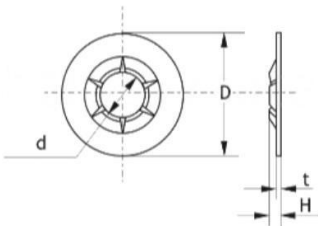
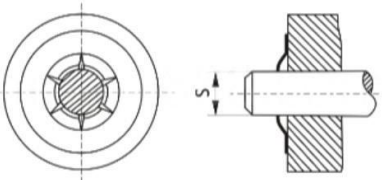
表面处理：不锈钢硬化抛光本色或弹簧钢磷化黑，机械镀锌，镀镍，达克罗涂层处理。（制造硬度要求：40-48HRC）

Surface Treatment: stainless steel curing polished original color or spring steel in black, mechanical galvanizing, nickel plating, Dacromet coating treatment. (Requirements for manufacturing hardness: 40-48HRC)

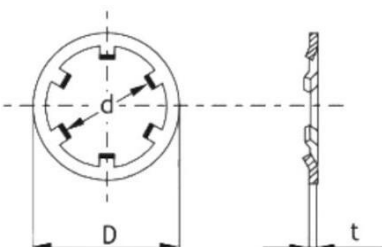
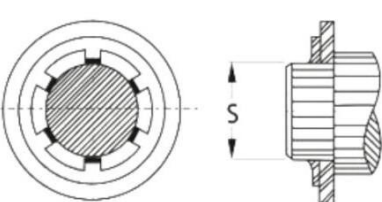
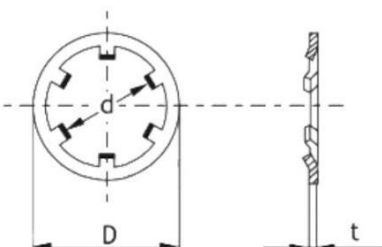
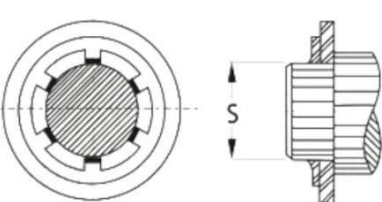
由于技术标准会不断更新，我们不会另行通知！

Technical standard is subject to update without prior notice!

## (Heavy retaining ring) SPN 重型定位介子

Ring dimension 挡圈尺寸		Groove dimension 装配尺寸				Material 材质		硬度 Hardness		
						弹簧钢 Carbon Spring Steels		40 -50HRC		
						不锈钢 Stainless Steels		300-500HV		
						Finish: Nigrescence black, Ni plating, Zn plating 表面处理: 磷化黑, 镀镍, 镀锌。				
Unit: mm										
Size-No.		Ring dimension					Applicable shaf(参考)		Nos. Of Teeth	Thrust Load Kgf
		d		D	H Approx.	t	S			
SPN-	M1.2	1.1	±0.1				4.5	0.6	0.25	1.2
	M1.5	1.4		5.2	0.6	0.25	1.5	4	20	
	M2	1.9		6	0.7	0.25	2	4	20	
	M2.4	2.3	+0 -0.15	7	0.8	0.25	2.4	6	45	
	M2.6	2.5		7	0.9	0.25	2.6	6	45	
	M3	2.9		10	1.3	0.3	3	6	100	
	M4	3.9		12	1.4	0.3	4	6	100	
	M5	4.9		14	1.55	0.4	5	6	150	
	M6	5.9		16	1.75	0.4	6	6	170	
	M8	7.9	17.5	1.8	0.5	8	6	180		
	M10	9.9	21	2.2	0.7	10	6	320		
	M12	11.9	27	2.8	0.9	12	6	400		

## (Light retaining ring) CSTW 轻型定位介子

Ring dimension 挡圈尺寸		Groove dimension 装配尺寸				Material 材质		硬度 Hardness			
						弹簧钢 Carbon Spring Steels		40 -50HRC			
						不锈钢 Stainless Steels		300-500HV			
						Finish: Nigrescence black, Ni plating, Zn plating 表面处理: 磷化黑, 镀镍, 镀锌。					
Unit: mm											
Size-No.		Ring dimension				Applicable shaft(参考)			Thrust Load Kgf		
		d		D		t	Nos. of Teeth	s			
CSTW-	M2	1.9	±0.05	6	±0.2			0.25	3	2	+0.03 -0
	M2.4	2.2		6.4		0.25	3	2.4	6		
	M2.5	2.3		7.0		0.25	3	2.5	6		
	M3	2.8	+0.1 -0	8		0.25	4	3	±0.03	9	
	M3.5	3.3		7.5		0.25	4	3.5		10	
	M4	3.8		9		0.25	4	4		12	
	M4.5	4.3		10		0.25	5	4.5		14	
	M5	4.8		10		0.25	5	5		16	
	M6	5.8		11		0.25	5	6		18	
	M8	7.8	13	0.25		5	8	21			
	M10	9.8	15.4	0.25		6	10	21			
	M12	11.8	17.8	±0.3		0.4	6	12	±0.05	23	
	M14	13.8	20.3		0.4	6	14	23			
	M16	15.8	22.8		0.4	6	16	23			
	M18	17.8	25		0.4	8	18	25			
	M19	18.7	±0.15 25.4		0.4	6	19	25			
M20	19.8	+0.1 -0 28	0.4		8	20	25				
M22	21.7	±0.15 28.5	0.4	6	22	25					

主要材质: C67S. 65Mn 或 420J. 301 . 304. (A2)

Main Material: C67S. 65Mn or SUS420J. 301. 304. (A2)

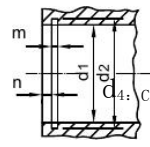
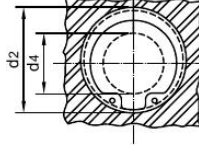
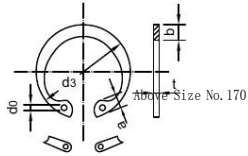
表面处理: 不锈钢硬化抛光本色或弹簧钢磷化黑, 机械镀锌, 镀镍。(制造硬度要求: 40-50HRC)

Surface Treatment: stainless steel curing polished original color or spring steel in black, mechanical galvanizing, nickel plating. (Requirements for manufacturing hardness 40-50HRC)

由于技术标准会不断更新, 我们不会另行通知!

Technical standard is subject to update without prior notice!

# Retaining Rings (Internal)      孔用弹性挡圈



The dimension  $d_1$  is the Maximum diameter of inner Periphery when the retaining ring is set in the shaft.

JIS B 2804

Unit: mm

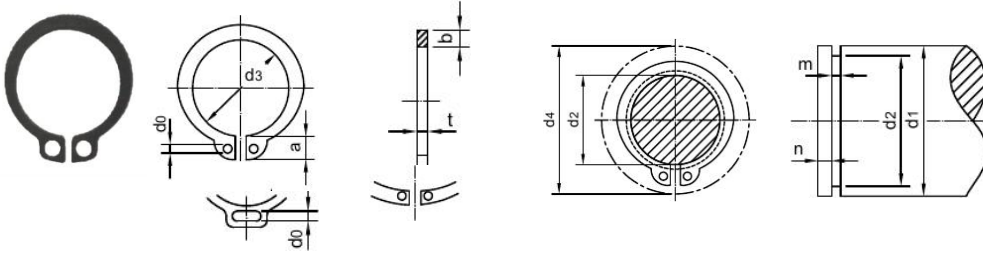
Size-No	Ring dimension							Ref. d4	Groove dimension								
	d3		t		b	a	d0		d2		m		Ref. n				
	Basic	Tol.	Basic	Tol.	Approx.	Approx.	Min.		d1	Basic	Tol.	Basic	Tol.	Min.			
RTW-	* 6	6.7	±0.18	0.4	±0.03	0.7	1.6	0.8	2.5	6	6.25	+0.04	0.5	+0.1	0.5		
	* 7	7.7				0.8	1.7		3	7	7.3						
	* 8	8.8				0.9	1.7		3.5	8	8.4						
	* 9	9.8		0.6	±0.04	1.1	2.2	1.2	4	9	9.4	+0.06	0.7	0.6			
	* 10	10.7		1	±0.05	1.5	2.8		3	10	10.4						
	* 11	11.8				1.5	3		4	11	11.4						
	* 12	13				1.7	3.1	5	12	12.5							
	* 13	14.1				1.7	3.1	6	13	13.6							
	* 14	15.1				1.9	3.6	7	14	14.6							
	* 15	16.2				1.9	3.6	8	15	15.7							
	* 16	17.3		±0.2	1	±0.05	1.9	3.7	1.7	8	16	16.8	+0.11	1.15	1.5		
	* 17	18.3					1.9	3.8		9	17	17.8					
	* 18	19.5	2.4				4	10		18	19						
	19	20.5	1.2				±0.06	2	2.5	4	2	11	19	20	+0.21	1.35	1.5
	20	21.5							2.5	4		12	20	21			
	21	22.5							2.5	4.1		12	21	22			
	22	23.5							2.5	4.1		13	22	23			
	24	25.9							2.5	4.3		15	24	25.2			
	25	26.9							3	4.4		16	25	26.2			
	26	27.9	±0.25				1.5	±0.06	3	4.6	2.5	16	26	27.2	+0.25	1.65	2
	28	30.1							3	4.6		18	28	29.4			
	30	32.1							3	4.7		20	30	31.4			
	32	34.4		3.5	5.2	21			32	33.7							
	34	36.5		3.5	5.2	23			34	35.7							
	35	37.8		3.5	5.2	24			35	37							
	36	38.8	±0.4	1.75	±0.07	3.5	5.2	2.5	25	36	38	+0.3	1.9	2			
	37	39.8				3.5	5.2		26	37	39						
	38	40.8				4	5.3		27	38	40						
	* 39	42				4	5.4		27	39	41.2						
	○ 40	43.5				4	5.7		28	40	42.5						
	○ 42	45.5				4	5.8		30	42	44.5						
	○ 45	48.5	±0.45	2	±0.07	4.5	5.9	2.5	33	45	47.5	+0.3	2.2	2			
	* 46	49.7				5	5.7		33	46	48.5						
	○ 47	50.5				4.5	6.1		34	47	49.5						
	○ 48	51.5				4.5	6.2		35	48	50.5						
	50	54.2				4.5	6.5		37	50	53						
	52	56.2				5.1	6.5		39	52	55						
	55	59.2				5.1	6.5		41	55	58						
	56	60.2				5.1	6.6		42	56	59						
58	62.2	5.1				6.8	44		58	61							
60	64.2	5.5				6.8	46		60	63							
62	66.2	5.5				6.9	48		62	65							
63	67.2	5.5				6.9	49		63	66							

● Material= Carbon spring steel. Hardness=HRC44~52. Finish= Black phosphate coating(ACP). Zn plating. Chromate dip

● Material= Stainless spring steel



# Retaining Rings (External) 轴用弹性挡圈



The dimension  $d_4$  is the Maximum diameter of outer Periphery when the retaining Ring is set on the shaft.  
 $d_4$ : CLEARANCE DIAMETER

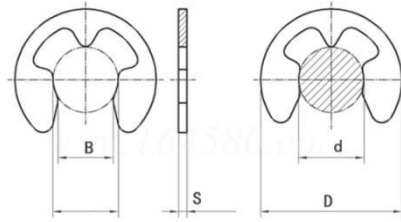
JIS B 2804

Unit: mm

Size-No.	Ring dimension								Ref.	Groove dimension					
	$d_3$		t		b	a	$d_0$	$d_1$		$d_1$	$d_2$		m		Ref. n
	Basic	Tol.	Basic	Tol.	Approx.	Approx.	Min.				Basic	Tol.	Basic	Tol.	
STW- 3	2.7		0.25	$\pm 0.025$	0.5	1.7	0.7	7	<b>3</b>	2.85		0.35			
4	3.7	+0.04	0.4	$\pm 0.03$	0.9	2.2		9	4	3.8	0	0.5		0.3	
5	4.7	-0.15	0.6		1.1	2.4	0.8	10.5	5	4.8	-0.04	0.7			
6	5.6		0.7		1.3	2.8		12	6	5.7		0.8	+0.1	0.5	
7	6.5	+0.06	0.8	$\pm 0.04$	1.4	3		14	7	6.7					
8	7.4	-0.2			1.6	3	1	15	8	7.6	0	0.9		0.6	
9	8.4				1.8	3.2		16	9	8.6	-0.06				
10	9.3	$\pm 0.15$			1.8	3	1.2	17	10	9.6	0-0.09				
11	10.2				2	3.1		18	11	10.5					
12	11.1				2.1	3.2	1.5	19	12	11.5					
13	12				2.1	3.3		20	13	12.4					
14	12.9				2.2	3.4		22	14	13.4					
15	13.8				2.2	3.5		23	15	14.3	0		1.15		
16	14.7	$\pm 0.18$			2.2	3.6	1.7	24	16	15.2	-0.11				
17	15.7				2.2	3.7		25	17	16.2					
18	16.5				2.6	3.8		26	18	17					
19	17.5				2.7	3.8		27	19	18					
20	18.5				2.7	3.9		28	20	19					
21	19.5				2.7	4		30	21	20					
22	20.5				2.7	4.1		31	22	21					
23	21.4				2.9	4.5		32.5	23	22					
24	22.2				3.1	4.2		33	24	22.9					
25	23.2				3.1	4.3	2	34	25	23.9	0				
26	24.2	$\pm 0.2$			3.1	4.4		35	26	24.9	-0.21				
27	25				3.3	4.5		36	27	25.8					
28	25.9				3.1	4.6		38	28	26.6					
29	26.9				3.5	4.7		39	29	27.6					
30	27.9				3.5	4.8		40	30	28.6					
32	29.6				3.5	5		43	32	30.3					
34	31.5				4	5.3		45	34	32.3					
35	32.2				4	5.4		46	35	33					
36	33.2	$\pm 0.25$			4	5.4		47	36	34					
38	35.2				4.5	5.6		50	38	36					
40	37				4.5	5.8		53	40	38					
42	38.5				4.5	6.2		55	42	39.5	0				
45	41.5				4.8	6.3	2.5	58	45	42.5	-0.25		1.9		
47	43.4	$\pm 0.4$			5	6.6		61	47	44.5					
48	44.5				4.8	6.5		62	48	45.5					
50	45.8				5	6.7		64	50	47					
52	47.8				5	6.8		66	52	49					
55	50.8				5	7		70	55	52					
56	51.8	$\pm 0.45$			5	7		71	56	53	0		2.2		
											-0.3				

- Material= Carbon spring steel. Hardness=HRC44~52. Finish= Black phosphate coating(ACP). Zn plating. Chromate dip
- Material= Stainless spring steel

## Bowed E-Rings E 型开口挡圈



Material 材质	硬度 Hardness
弹簧钢 Carbon S ring Steels	40-50HRC
不锈钢 Stainless Steels	300-500HV

Finish: Nigrescence black, Ni plating,

Zn plating, Decromet.

表面处理: 磷化黑, 镀镍, 镀锌, 达克罗.

挡圈						沟槽 (推荐)						轴径
公称直径 d		B		S		D	d		m		n	
基本尺寸	极限偏差	基本尺寸	极限偏差	基本尺寸	极限偏差		基本尺寸	极限偏差	基本尺寸	极限偏差		
M1.2	0-0.14	0.9	±0.08	0.3	-0.03	3	1.2	0.06	0.4	0.14	1	>1.2~2
M1.5		1.2		4		1.5	0.5		1.2		>2~2.5	
M2		1.7		5		2					>2.5~3	
M2.5		2.2		6		2.5					>3~3.5	
M3		2.5		7		3	0.7				>3.5~4	
M3.5		3		8		3.5					>4~5	
M4	0-0.18	3.5	±0.125	0.6	0.075	9	4	0.9	1.5		>5~6	
M5		4.5		10		5		>6~7				
M6		5.5		12		6	1.1			>7~9		
M8		7.5		16		8		1.8		>9~10		
M9	0-0.22	8	±0.15	1	0.09	18	9			2	>10~13	
M12		10.5		24		12	1.3	2.5	>13~16			
M15	0-0.27	13	±0.18	1.2	0.11	30	15	1.6		3	>16~20	
				1.5								

## Curved spring washers DIN137A/GB860 鞍形垫圈

公称直径	d	dc	S		H		每 1000 件钢制产品的质量 ≈kg
			公称	公差	min	max	
M1	1.1	2.5	0.2	±0.02	0.35	0.7	0.008
M1.2	1.3	3	0.2		0.35	0.7	0.009
M1.4	1.5	3	0.25		0.4	0.8	0.01
M1.6	1.8	4	0.25		0.45	0.9	0.02
M1.7	1.9	4	0.25		0.45	0.9	0.02
M2	2.2	4.5	0.3	±0.03	0.5	1	0.028
M2.3	2.5	5	0.3		0.5	1	0.035
M2.6	2.8	5.5	0.3		0.55	1.1	0.041
M3	3.2	6	0.4	±0.05	0.65	1.3	0.063
M3.5	3.7	7	0.4		0.7	1.4	0.088
M4	4.3	8	0.5		0.8	1.6	0.14
M5	5.3	10	0.5		0.9	1.8	0.222
M6	6.4	11	0.5		1.1	2.2	0.247
M7	7.4	12	0.5		1.2	2.4	0.265
M8	8.4	15	0.5	1.7	3.4	0.476	

DIN137A/GB860

Material 材质	硬度 Hardness
弹簧钢 Carbon Spring Steels	40-50HRC
不锈钢 Stainless Steels	300-500HV

Finish: Nigrescence black, Ni plating,

Zn plating, Decromet

表面处理: 发黑, 镀镍, 镀锌, 达克罗.

主要材质: C67S. 65Mn 或 SUS304. 316 (A2. A4) 及其它特殊定制材料。

Main Material: C67S. 65Mn or SUS304. 316 (A2. A4) and other special customized material.

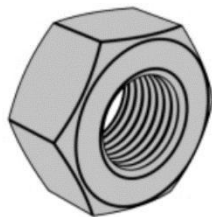
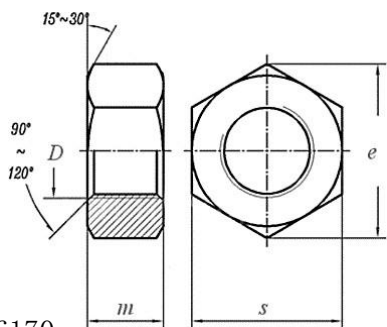
表面处理: 不锈钢硬化抛光本色或弹簧钢磷化黑, 机械镀锌, 镀镍, 达克罗涂层处理。

Surface Treatment: stainless steel curing polished original color or spring steel in black, mechanical galvanizing, nickel plating, Dacromet coating treatment.

由于技术标准会不断更新, 我们不会另行通知!

Technical standard is subject to update without prior notice!

## Hexagon Nuts 六角螺母



Material 材质	硬度 Hardness
碳钢 Carbon S ring Steels	22-50HRC
不锈钢 Stainless Steels	≥210HV

Finish: Oxidation blackening, Ni plating,  
Zn plating, Decromet.

表面处理: 发黑, 镀镍, 镀锌, 达克罗。

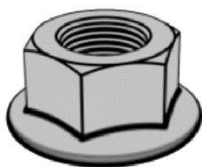
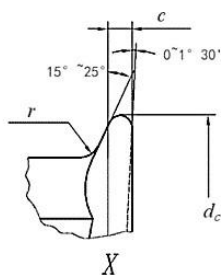
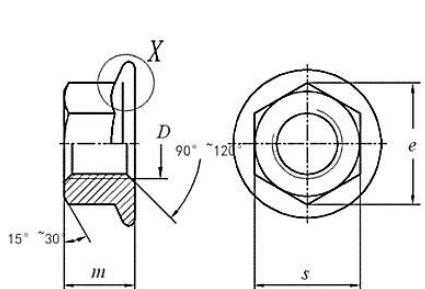
GB6170

Unit: mm

Screw Thread D		M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14
P	GB/T 6170	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	1.75	2
	GB/T 6171	-	-	-	-	-	-	1	1.25	1.5	1.5
m	Max	1.6	2	2.4	3.2	4.7	5.2	6.8	8.4	10.8	12.8
	Min	1.35	1.75	2.15	2.9	4.4	4.9	6.44	8.04	10.37	12.1
s	Max=Nominal Size	4	5	5.5	7	8	10	13	16	18	21
	Min	3.82	4.82	5.32	6.78	7.78	9.78	12.73	15.73	17.73	20.67

Screw Thread D		M16	M18	M20	M22	M24	M27	M30	M33	M36	M42
P	GB/T 6170	2	2.5	2.5	2.5	3	3	3.5	3.5	4	4.5
	GB/T 6171	1.5	1.5	2	1.5	2	2	2	2	3	3
m	Max	14.8	15.8	18	19.4	21.5	23.8	25.6	28.7	31	34
	Min	14.1	15.1	16.9	18.1	20.2	22.5	24.3	27.4	29.4	32.4
s	Max=Nominal Size	24	27	30	34	36	41	46	50	55	65
	Min	23.67	26.16	29.16	33	35	40	45	49	53.8	63.1

## Hexagon Nuts With Flange 法兰螺母



Material 材质	硬度 Hardness
碳钢 Carbon S ring Steels	22-50HRC
不锈钢 Stainless Steels	≥210HV

Finish: Oxidation blackening, Ni plating,  
Zn plating, Decromet.

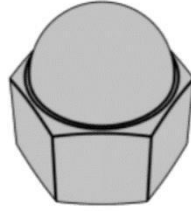
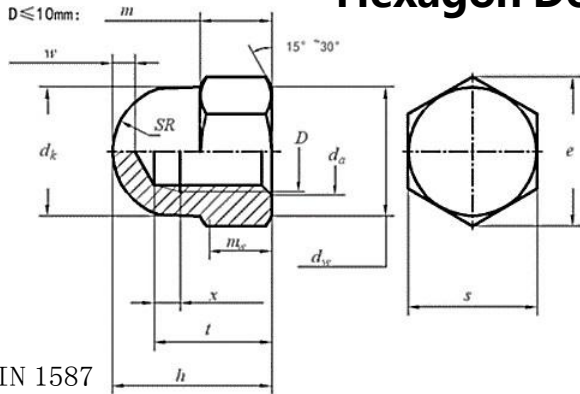
表面处理: 发黑, 镀镍, 镀锌, 达克罗。

DIN6923

Unit: mm

Screw Thread D		M3	M4	M5	M6	M8	M10	M12	M14	M16	M20
P	Coarse thread	0.5	0.7	0.8	1	1.25	1.5	1.75	2	2	2.5
	Fine thread	-	-	-	-	1	1.25	1.5	1.5	1.5	1.5
m	Max	3.55	4.3	5	6	8	10	12	14	16	20
	Min	3.25	4.1	4.7	5.7	7.6	9.6	11.6	13.3	15.3	18.9
s	Max	5.5	7	8	10	13	15	18	21	24	30
	Min	5.3	6.78	7.78	9.78	12.73	14.73	17.73	20.67	23.67	29.67
dc	Max	8	10	12	14.2	18	22	26	30	34.5	42.8
e	Min	6.05	7.66	8.79	11.05	14.38	16.64	20.03	23.36	26.75	32.95

## Hexagon Domed Cap Nuts 盖型螺母



Material 材质	硬度 Hardness
碳钢 Carbon S ring Steels	22-50HRC
不锈钢 Stainless Steels	≥210HV

Finish: Oxidation blackening, Ni plating, Zn plating, Decromet.

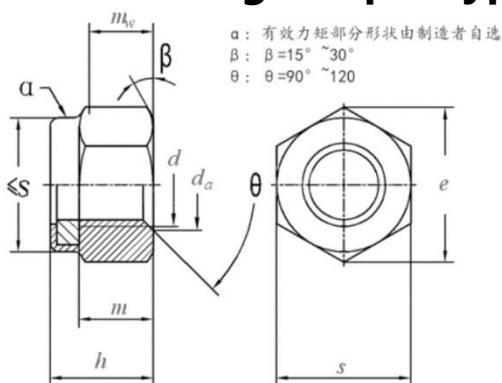
表面处理: 发黑, 镀镍, 镀锌, 达克罗。

DIN 1587

Unit: mm

Screw Thread D		M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
P	First series	0.7	0.8	1	1.25	1.5	1.75	2	2	2.5	2.5	2.5	3
	Second series	-	-	-	1	1	1.5	1.5	1.5	1.5	2	1.5	2
	Third series	-	-	-	-	1.25	1.25	-	-	2	1.5	2	-
dk	Max	6.5	7.5	9.5	12.5	15	17	20	23	26	28	33	34
x	First series	1.4	1.6	2	2.5	3	6.4	7.3	7.3	9.3	9.3	9.3	10.7
	Second series	-	-	-	2	2	5.6	5.6	5.6	5.6	7.3	5.6	7.3
	Third series	-	-	-	-	2.5	4.9	-	-	7.3	5.6	7.3	-
h	Max=Nominal Size	8	10	12	15	18	22	25	28	32	34	39	42
	Min	7.64	9.64	11.57	14.57	17.57	21.48	24.48	27.48	31	33	38	41
m	Max	3.2	4	5	6.5	8	10	11	13	15	16	18	19
	Min	2.9	3.7	4.7	6.14	7.64	9.64	10.3	12.3	14.3	14.9	16.9	17.7
SR	≈	3.25	3.75	4.75	6.25	7.5	8.5	10	11.5	13	14	16.5	17
s	Nominal Size	7	8	10	13	16	18	21	24	27	30	34	36
	Min	6.78	7.78	9.78	12.73	15.73	17.73	20.67	23.67	26.16	29.16	33	35
t	Max	5.74	7.79	8.29	11.35	13.35	16.35	18.35	21.42	25.42	26.42	29.42	31.5
	Min	5.26	7.21	7.71	10.65	12.65	15.65	17.65	20.58	24.58	25.58	28.58	30.5
w	Min	2	2	2	2	2	3	4	4	5	5	5	6

## Prevailing Torque Type Hexagon Nuts 尼龙锁紧垫圈



Material 材质	硬度 Hardness
碳钢 Carbon S ring Steels	22-50HRC
不锈钢 Stainless Steels	≥210HV

Finish: Oxidation blackening, Ni plating, Zn plating, Decromet.

表面处理: 发黑, 镀镍, 镀锌, 达克罗。

DIN 985

Unit: mm

Screw Thread D		M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24	M30
P	GB/T 889.1	0.5	0.7	0.8	1	1.25	1.5	1.75	2	2	2.5	3	3.5
	GB/T 889.2	-	-	-	-	1	1.25	1.5	1.5	1.5	1.5	2	2
		-	-	-	-	-	1	1.25	-	-	-	-	-
h	Max	4.5	6	6.8	8	9.5	11.9	14.9	17	19.1	22.8	27.1	32.6
	Min	4.02	5.52	6.22	7.42	8.92	11.2	14.2	15.9	17.8	20.7	25	30.1
m	Min	2.15	2.9	4.4	4.9	6.44	8.04	10.37	12.1	14.1	16.9	20.2	24.3
s	Max	5.5	7	8	10	13	16	18	21	24	30	36	46
	Min	5.32	6.78	7.78	9.78	12.73	15.73	17.73	20.67	23.67	29.16	35	45

# HRC 洛氏与 HV 维氏硬度值对照表

HRC and HV hardness value table

布氏硬度 HB	洛氏硬度 HRC	维氏硬度 HV
	68.0	940
	67.5	920
	67.0	900
767	66.4	880
757	65.9	860
745	65.3	840
733	64.7	920
722	64.0	900
710	63.3	780
698	62.5	760
684	61.8	740
682	61.7	737
670	61.0	720
656	60.1	700
653	60.0	697
647	59.7	690
638	59.2	680
630	58.8	670
627	58.7	667
620	58.3	660
601	57.3	640
578	56.0	615
	55.6	607
555	54.7	591
	54.0	579
534	53.5	569
	52.5	553
514	52.1	547
	51.6	539
	51.1	530
495	51.0	528
	50.3	516
477	49.6	508
	48.8	495
461	48.5	491
	47.2	474
444	47.1	472
429	45.7	455

布氏硬度 HB	洛氏硬度 HRC	维氏硬度 HV
415	44.5	440
401	43.1	425
388	41.8	410
375	40.4	396
363	39.1	383
352	37.9	372
341	36.6	360
331	35.5	350
321	34.3	339
311	33.1	328
302	32.1	319
293	30.9	309
285	29.9	301
277	28.8	292
269	27.6	284
262	26.6	276
255	25.4	269
248	24.2	261
241	22.8	253
235	21.7	247
229	20.5	241
223		234
217		228
212		222
207		218
201		212
197		207
192		202
187		296
183		192
179		188
174		183
170		178
167		175
163		171
156		163
149		156
143		150

# 英美制与公制尺寸对照表

Anglo-American and metric sizes

公制、英制换算表								公美制对照表	
寸之分数	寸之小数	俗稱	公厘	寸之分数 2	寸之小数 3	俗稱 4	公厘 5	美制	公称直径 (MM)
1/64	0.015625	--	0.3969	33/64	0.515625	--	13.0969	0#	1.52
1/32	0.031250	2 厘半	0.7937	17/32	0.531250	4 分 2 厘半	13.4937	1#	1.85
3/64	0.046875	--	1.1906	35/64	0.546875	--	13.8906	2#	2.18
1/16	0.062500	5 厘	1.5875	9/16	0.562500	4 分半	14.2875	3#	2.51
5/64	0.078125	--	1.9844	37/64	0.578125	--	14.6844	4#	2.84
3/32	0.093750	7 厘半	2.3812	19/32	0.593750	4 分 7 厘半	15.0812	5# (1/8")	3.18
7/64	0.109375	--	2.7781	39/64	0.609375	--	15.4781	6#	3.51
1/8	0.125000	1 分	3.1750	5/8	0.625000	5 分	15.8750	8#	4.17
9/64	0.140625	--	3.5719	41/64	0.640625	--	16.2719	10# (3/16")	4.83
5/32	0.156250	1 分 2 厘半	3.9687	21/32	0.656250	5 分 2 厘半	16.6687	12# (7/32")	5.49
11/64	0.171875	--	4.3656	43/64	0.671875	--	17.0656	1/4"	6.35
3/16	0.187500	1 分半	4.7625	11/16	0.687500	5 分半	17.4625	5/6"	7.94
13/64	0.203125	--	5.1594	45/64	0.703125	--	17.8594	3/8"	9.53
7/32	0.219750	1 分 7 厘半	5.5562	23/32	0.718750	5 分 7 厘半	18.2562	7/16"	11.11
15/64	0.234375	--	5.9531	47/64	0.734375	--	18.6531	1/2"	12.7
1/4	0.250000	2 分	6.3500	3/4	0.750000	6 分	19.0500	9/16"	14.29
17/64	0.265625	--	6.7469	49/64	0.765625	--	19.4469	5/8"	15.88
9/32	0.281250	2 分 2 厘半	7.1437	25/32	0.781250	6 分 2 厘半	19.8437	11/16"	17.46
19/64	0.296875	--	7.5406	51/64	0.766875	--	20.2406	3/4"	19.05
5/16	0.312500	2 分半	7.9375	13/16	0.812500	6 分半	20.6375	13/16"	20.64
21/64	0.328125	--	8.3344	53/64	0.828125	--	21.0344	7/8"	22.23
11/32	0.343750	2 分 7 厘半	8.7312	27/32	0.843750	6 分 7 厘半	21.4312	15/16"	23.81
23/64	0.359375	--	9.1284	55/64	0.859375	--	21.8281	1"	25.4
3/8	0.375000	3 分	9.5250	7/8	0.875000	7 分	22.2250	1-1/8"	28.58
25/64	0.390625	--	9.9219	57/64	0.890625	--	22.6219	1-1/4"	31.75
13/32	0.406250	3 分 2 厘半	10.3187	29/32	0.906250	57 分 2 厘半	23.0187	1-3/8"	34.93
27/64	0.421875	--	10.7156	59/64	0.921875	--	23.4156	1-1/2"	38.1
7/16	0.437500	3 分半	11.1125	15/16	0.937500	7 分半	23.8125		
29/64	0.453125	--	11.5094	61/64	0.953125	--	24.2094		
15/32	0.468785	3 分 7 厘半	11.9062	31/32	0.968765	7 分 7 厘半	25.6062		
31/64	0.484375	--	12.3031	63/64	0.984375	--	25.0031		
1/2	0.500000	4 分	12.7000	1	1.000000	8 分	25.4000		

寸	1	2	3	4	5	6	7	8	9
公厘	25.4	50.8	76.2	101.6	127.0	152.4	177.8	203.2	228.6

# 螺丝制造工艺流程图

Screw manufacturing process flow chart

