

# PRECISION SHOULDER BOLTS / SHOULDER BOLTS - BUSHING TYPE -

- L DIMENSION DESIGNATION TYPE -

# SHOULDER BOLTS

Ⓜ Non JIS material definition is listed on P.1351 - 1352

**MSBL**

De9	A	B	C	E	F	M×P	T
6.5	10	4	2.5	5	9	5×0.8	7
8	-0.025 -0.061	13	5	3	6	9	6×1.0
10		16	6	4	8	12	8×1.25
13	-0.032	18	8	5	10	16	10×1.5
16	-0.075	24	10	7	14	18	12×1.75
20	-0.040	27	14	9	18	24	16×2.0
25	-0.092	33	17	11	19	30	20×2.5

SCM435  
30~35HRC (Strength rank 10.9)  
S Black Oxide (Only the head)

Part Number Type	1mm increments D	U/Price 1~19	Slide Unit Price 20~49
MSBL	6.5	10~70	
	8	10~90	
	10	10~120	
	13	10~130	Quotation
	16	15~150	
	20	15~150	
	25	30~160	

Order **MSBL10 - L53** Example **ex** Right page

Days to Ship **Quotation**

Price **Quotation**

No knurling on the head.

**CSR**

De9	d1	d2	d3	M×P	h	T	l	
10	-0.025 -0.061	10	15	6.3	M 6×1.0	6	5	10
13	-0.032	13	18	8.4	M 8×1.25	8	5	15
16	-0.075	16	24	10.6	M10×1.5	10	8	22
20	-0.040	18	28	12.6	M12×1.75	12	10	20
25	-0.092	24	36	16.8	M16×2.0	16	13	27
32	-0.050 -0.112	30	45	20.8	M20×2.5	20	16	34

SCM435 Strength rank 12.9  
S45C 38~43HRC  
S Black Oxide (Fe3O4)

L	LC
L ≤ 100	L ± 0.03
L ≥ 110	L ± 0.05

Part Number Type	D	L	U/Price 1~19
CSR	10	10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100	
	13	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100 110 120	
	16	20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100 110 120 130 140 150 160 170 180	
	20	30 35 40 45 50 55 60 65 70 75 80 85 90 100 110 120 130 140 150 160 170 180	
	25	40 45 50 55 60 65 70 75 80 85 90 100 110 120 130 140 150 160 170 180 200	
	32	60 70 80 90 100 110 120 130 140 150 160 170 180 200	

Order **CSR20 - L60** Alterations **CSR20 - LC57.0**

Days to Ship **Quotation**

Price **Quotation**

Alteration	Code	Spec.	1Code	
LC	LC	Retainer's dimension L alteration (= 2) LCmin. ≤ LC < Lmax. L ± 0.03 0.1mm increments Set the bolt according to measurements l by the following table.	Quotation	
		D		10 13 16 20 25 32
		LCmin.		10.1 10.0 10.0 25.0 30.0 55.0
		l	10~ 14.9 15~ 24.9 22~ 29.9 20~ 29.9 27~ 36.9 34~ 43.9	

**MSB**

SCM435  
33~38HRC (Strength rank 10.9)  
S Black Oxide (Only the head)

※MSB  
3 max for D12 · 13  
3.5 max for D16 · 20  
※2.5max

De9	A	B	C	E	F	M×P	T
4	6.5			3	5	M 2.5×0.45	4.5
4.5	7	2.5	1.6	3.5	6	M 3 ×0.5	5
5	8				7	M 4 ×0.7	5.5
5.5	9	3	2.2	4	8	M 5 ×0.8	6
6			2		9	M 6 ×1.0	6.5
6.5	10	4	2.5	5	10	M 8 ×1.25	7
8	-0.025 -0.061	13	5	3	6	M 6 ×1.0	8.7
10		16	6	4	8	M 8 ×1.25	10.8
12		17	6	4	8	M 8 ×1.25	12.8
13	-0.032	18	8	5	10	M10 ×1.5	14
16	-0.075	24	10	7	14	M12 ×1.75	17
20	-0.040 -0.092	27	14	9	18	M16 ×2.0	21

Part Number Type	D	L	U/Price 1~19
MSB	4	15 20 25 30 35 40	
	4.5	15 20 25 30 35 40 45	
	5	15 20 25 30 35 40 45 50	
	5.5	15 20 25 30 35 40 45 50	
	6	15 20 25 30 35 40 45 50 55	
	6.5	15 20 25 30 35 40 45 50 55 60 65 70 75 80	
	8	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120	
	10	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120	
	12	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100	
	13	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120 130	
	16	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120 130 140 150	
	20	40 50 60 70 80 90 100 110 120 130 140 150	

Order **MSB10 - L50** Alterations **MSB10 - LC50.1 - FC10.5**

Days to Ship **Quotation**

Price **Quotation**

Example Application for drawing back the slide core (used together with a spring)

Alterations	Code	Spec.	1Code
LC	LC	Changes the length (L) LC tolerance ±0.05 L min. ≤ LC ≤ L max. 0.1mm increments Dimension F remains unchanged. Use FC alteration to change it.	Quotation
		Changes the thread part length M ≤ FC ≤ M × 3 0.5mm increments 3 ≤ FC ≤ 7.5 only when D=4 Available only when LC is used.	

Spacers for MSB Shoulder Bolts (MSRB) P.1195

- For spring specifications P.1225
- For slide core stop block specifications P.659
- For angular pin specifications P.609
- For slide core specifications P.639

Boils  
Screws  
Washers

Quotation

Quotation

Quotation

Quotation