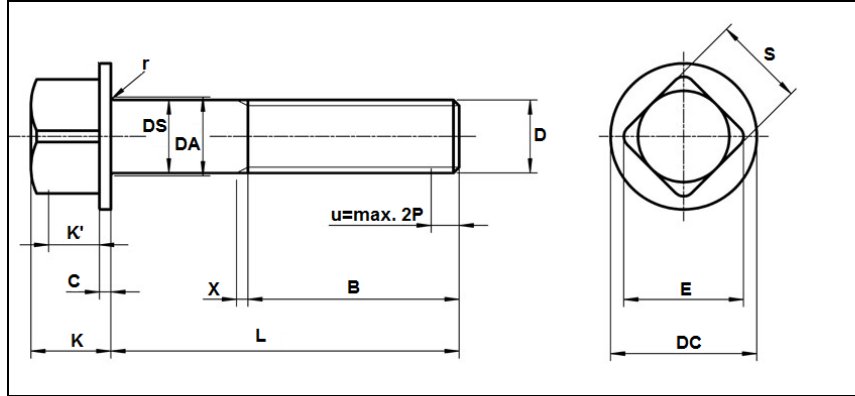


Metric DIN 478 Square Head Bolts with Collar



Thread d		M5	M6	M8	M10	M12	M16	M20	M24
P		0.8	1	1.25	1.5	1.75	2	2.5	3
B	l < 125mm	16.00	18.00	22.00	26.00	30.00	38.00	45.00	54.00
	l > 125mm	-	-	-	32.00	36.00	44.00	52.00	60.00
C	nominal	2.00	2.00	2.00	3.00	3.00	4.00	5.00	6.00
	min.	1.88	1.88	1.88	2.88	2.88	3.85	4.85	5.85
	max.	2.12	2.12	2.12	3.12	3.12	4.15	5.15	6.15
DA	max.	5.70	6.80	9.20	11.20	13.70	17.70	22.40	26.40
DC	nominal=max.	9.50	10.50	13.50	16.50	19.50	25.00	31.00	36.00
	min.	8.92	9.80	12.80	15.80	18.66	24.16	30.00	35.00
DS	nominal=max.	5.00	6.00	8.00	10.00	12.00	16.00	20.00	24.00
	min.	4.82	5.82	7.78	9.78	11.73	15.73	19.67	23.67
E	nominal=max.	6.50	8.00	10.00	13.00	17.00	22.00	28.00	32.00
	min.	5.92	7.42	9.42	12.30	16.30	21.16	27.16	31.00
K	nominal	7.00	8.00	10.00	13.00	15.00	20.00	25.00	28.00
	max.	6.82	7.82	9.82	12.78	14.78	19.74	24.74	27.74
	min.	7.18	8.18	10.18	13.22	15.22	20.26	25.26	28.26
K'	min.	3.40	4.10	5.50	6.90	8.30	11.10	13.80	15.20
r	min.	0.25	0.25	0.40	0.40	0.60	0.60	0.80	0.90
S	nominal=max.	5.00	6.00	8.00	10.00	13.00	17.00	22.00	24.00
	min.	4.82	5.82	7.78	9.78	12.73	16.73	21.67	23.67
X	max.	2.00	2.50	3.20	3.80	4.30	5.00	6.30	7.50

All measurements are in mm

Aspen Fasteners 4807 Rockside Road, Suite 400, Independence, OH 44131 USA
www.aspenfasteners.com | aspensales@aspenfasteners.com | 1-800-479-0056

Weights for metric DIN 478 Square Head Bolts

Thread d			M5	M6	M8	M10	M12	M16	M20	M24
P			0.8	1	1.25	1.5	1.75	2	2.5	3
L			weight kg/1000pcs							
nominal	min.	max.								
10	9.71	10.29	3.19	4.57						
16	15.65	16.35	3.94	5.65	10.8					
20	19.58	20.42	4.6	6.35	12.1	21.9				
25	24.58	25.42	5.37	7.45	13.7	24.4	39.5			
30	29.58	30.42	6.74	8.55	15.7	27.5	43	88		
35	34.5	35.5		9.65	17.7	30.6	47.5	95	172	240
40	39.5	40.5		10.9	19.7	33.7	52	102	182	255
45	44.5	45.5			21.7	36.8	56.5	110	193	270
50	49.5	50.5				39.9	61	118	203	285
55	54.4	55.6				43	65.5	126	215	300
60	59.4	60.6				46.1	70	134	227	315
70	69.4	70.6					79	150	252	350
80	79.4	80.6					88	176	277	385
90	89.3	90.7					97	192	302	420
100	99.3	100.7						208	327	455
110	109.3	110.7						224	352	490
120	119.3	120.7						240	377	525
140	139.2	140.8						272	427	595
160	159.2	160.8							477	665
180	179.2	180.8							527	735

Metric DIN 478 square head bolts with collar are externally threaded fasteners with a square shaped head with a washer face. The head configuration of the DIN 478 square head bolts provides a significantly larger surface area and these bolts are used where larger bearing surfaces are required. DIN 478 square head bolts are partially threaded with thread length dependent on the diameter and length of the bolt. Aspen Fasteners offers over 500,000 unique fastener products from stock in inch and metric standard in a variety of materials and finishes. The following sizes of DIN 478 square head bolts are available for immediate shipping from stock: Diameters ranging from M3 to M30 in regular zinc plated steel and stainless steel A2 and stainless steel A4. View parts by clicking on the following link: [Metric DIN 478 Square Head Bolts with Collar](#) or contact our knowledgeable and friendly sales staff for more information and/or an immediate quote.

DIN (Deutsches Institut für Normung - German Institute for Standardization) standards are issued for a variety of components including industrial fasteners as Metric DIN 478 square head bolts. The DIN standards are commonly used in Germany, Europe and globally even though the transition to ISO standards is gradually taking place. DIN standards continue to be used for parts which do not have ISO equivalents or for which there is no need for standardization. The ISO equivalent for DIN 478 square head bolts is ISO 1052.

Aspen Fasteners 4807 Rockside Road, Suite 400, Independence, OH 44131 USA
www.aspenfasteners.com | aspensales@aspenfasteners.com | 1-800-479-0056



*a Division of Nissen Fasteners Florida LLC

1) Mechanical properties of stainless steel for metric DIN 478 square head bolts with collar

Stainless steels can be divided into three groups: austenitic, ferritic and martensitic. Austenitic steel is by far the most common type (>90% of commercial fasteners). The steel groups and strength classes are designated by a four-digit sequence of letters and numbers (eg A2-70) as shown in the following table. DIN EN ISO 3506 governs screws and nuts made from stainless steel.

Steel group	Steel grade	Strength class	Screws, Nuts and Bolts			
			Tensile strength N/mm2	Tensile strength PSI	Dia range	Nut Load N/mm2
Austenitic	A2 and A4	50	500	70,000	<=M39	500
		70	700	100,000	<=M20	700
		80	800	118,000	<=M20	800

The tensile stress is calculated with reference to the tensile stress area (see DIN EN ISO 3506-1979). Nuts to be paired with same grade of stainless steel screws

Aspen Fasteners 4807 Rockside Road, Suite 400, Independence, OH 44131 USA
www.aspenfasteners.com | aspensales@aspenfasteners.com | 1-800-479-0056

Headquarters: Independence OH USA; Montreal QC Canada;
 Distribution Centers: Boston MA; Chicago IL; Cincinnati KY; Dallas TX; Denver CO; Houston TX; Jersey City NJ; Los Angeles CA; Miami FL; San Francisco CA; Seattle WA; Washington VA; Toronto ON; Calgary AB; Vancouver BC; Jiutepec (Temixco); Mexico City; Monterrey



*a Division of Nissen Fasteners Florida LLC

Steel group	Property Strength class	Made From	Characteristics
Austenitic	50	A1, A2	Soft; cold worked, turned and soft pressed fasteners 70,000 PSI 500 N/mm2 <=M39
	70	A2, A4	Cold worked, normal strength, formed fasteners 100,000 PSI 700 N/mm2 <=M20
	80	A2, A4	Extreme cold worked, high strength fasteners 118,000 PSI 800 N/mm2 <=M20

Aspen Fasteners 4807 Rockside Road, Suite 400, Independence, OH 44131 USA
www.aspenfasteners.com | aspensales@aspenfasteners.com | 1-800-479-0056

Headquarters: Independence OH USA; Montreal QC Canada;
 Distribution Centers: Boston MA; Chicago IL; Cincinnati KY; Dallas TX; Denver CO; Houston TX; Jersey City NJ; Los Angeles CA; Miami FL;
 San Francisco CA; Seattle WA; Washington VA; Toronto ON; Calgary AB; Vancouver BC; Jiutepec (Temixco); Mexico City; Monterrey

2) Chemical composition of stainless steel metric DIN 478 square head bolts with collar

Grade	USA Grade	Material designation	Material no.	C %	Si ≤ %	Mn ≤ %	Cr ≤ %	Mo ≤ %	Ni ≤ %
A 2	304	X 5Cr Ni 1810	1.4301	≤ 0.07	1	1	17.5 to 19.5	-	8 to 10.5
		X 2 Cr Ni 1811	1.4306	≤ 0.03	1	2	18 to 20	-	10 to 12
		X 8 Cr Ni 19/10	1.4303	≤ 0.07	1	2	17 to 19	-	11 to 13
A 4	316	X 5 Cr Ni Mo 1712	1.4401	≤ 0.07	1	2	16.5 to 18.5	2 to 2.5	10 to 13
		X 2 Cr Ni Mo 1712	1.4404	≤ 0.03	1	2	16.5 to 18.5	2 to 2.5	10 to 13



*a Division of Nissen Fasteners Florida LLC

3) Chemical composition of steel metric DIN 478 square head bolts with collar

PROPERTY CLASS	MATERIAL AND TREATMENT	CHEMICAL COMPOSITION LIMITS %				TEMPERING TEMP °C MIN.
		C		P	S	
		min.	max.	max.	max.	
4.6, 4.8, 5.8, 6.8	Low or medium carbon steel	-	0.55	0.05	0.06	-
8.8	Medium carbon steel quenched, tempered	0.25	0.55	0.04	0.05	425
9.8	Medium carbon steel quenched, tempered	0.25	0.55	0.04	0.05	425
10.9	Medium carbon steel additives e.g. boron, Mn, Cr or Alloy steel - quenched, tempered	0.2	0.55	0.04	0.05	425
12.9	Alloy steel - quenched, tempered	0.2	0.5	0.035	0.035	380

Aspen Fasteners 4807 Rockside Road, Suite 400, Independence, OH 44131 USA
www.aspenfasteners.com | aspensales@aspenfasteners.com | 1-800-479-0056

Headquarters: Independence OH USA; Montreal QC Canada;
 Distribution Centers: Boston MA; Chicago IL; Cincinnati KY; Dallas TX; Denver CO; Houston TX; Jersey City NJ; Los Angeles CA; Miami FL; San Francisco CA; Seattle WA; Washington VA; Toronto ON; Calgary AB; Vancouver BC; Jiutepec (Temixco); Mexico City; Monterrey



*a Division of Nissen Fasteners Florida LLC

4) Mechanical properties of steel for metric DIN 478 square head bolts with collar

MECHANICAL PROPERTY		PROPERTY CLASS								
		4.8	5.6	5.8	6.8	8.8		9.8	10.9	12.9
						≤ M16	> M16			
Tensile Strength (Rm, N/mm ²)	nom.	400	500		600	800		900	1000	1200
	min.	420	500	520	600	800	830	900	1040	1220
Vickers Hardness	min.	130	155	160	190	250	255	290	320	385
	max	250				320	336	360	380	435
Brinell Hardness	min.	124	147	152	181	319	242	266	295	353
	max.	238				385	319	342	363	412
Rockwell Hardness	min. HR	71	79	82	89	-				
	HRC	-	-	-	-	20	23	28	32	39
	HR	95			99	-				
	max. HRC	-	-	-	-	32	34	37	39	44
Yield Stress Rel. N/mm ²	nom.	320	300	400	480	-				
	min.	340	300	420	480	-				
Stress at permanent set limit N/mm ²	nom.	-				640		720	900	1080
	min.	-				640	660	720	940	1100

Aspen Fasteners 4807 Rockside Road, Suite 400, Independence, OH 44131 USA
www.aspenfasteners.com | aspensales@aspenfasteners.com | 1-800-479-0056

Headquarters: Independence OH USA; Montreal QC Canada;
 Distribution Centers: Boston MA; Chicago IL; Cincinnati KY; Dallas TX; Denver CO; Houston TX; Jersey City NJ; Los Angeles CA; Miami FL;
 San Francisco CA; Seattle WA; Washington VA; Toronto ON; Calgary AB; Vancouver BC; Jiutepec (Temixco); Mexico City; Monterrey