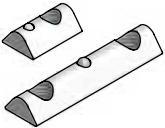
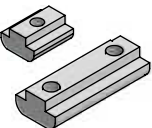
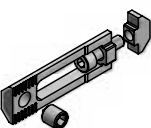
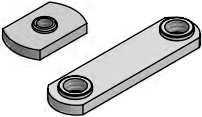
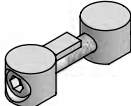
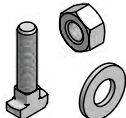
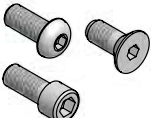
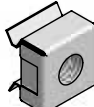
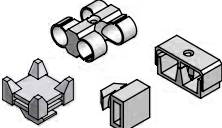
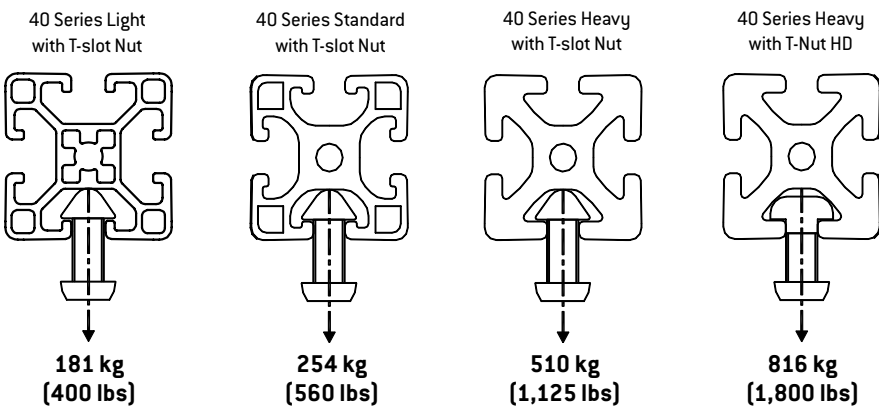


Section 2 - Fasteners

Standard Fasteners	81		Drop-in T-Nuts Double Drop-in-T-Nuts Self-Aligning T-Nuts T-Nut Bars	88 89 89 90	
Flat Plate Fasteners	82		Heavy Duty T-Nuts Heavy Duty T-Nut Bars	90 90	
Milling Connectors	82		Slide-in Economy T-Nuts	91-92	
Universal Fasteners	83		Drop-in Z-Nuts	92	
Butt Fasteners	84		Anodize Breakers	93	
Central Connectors	84		T-Bolts Nuts Washers	93 94 94	
Self-Tapping Connectors	85		Metric Screws Imperial Screws Set Screws	95-96 97-98 99	
Profile-to-Wall Fasteners	85		Clip Nuts	99	
Miter Connectors	86		T-Clips Cable Tie Holders Cable/Hose Holders	100 100 101	

Overview

Safe Load

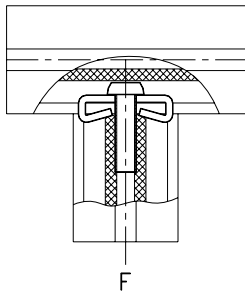


Fasteners

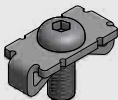
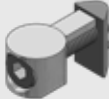
Pull Test

Two pieces of 40x40 Heavy profile were assembled to form a tee with a standard fastener and a button head screw. Force was applied until the tee started to separate. The profile failed before the fastener. The profiles were still held together at the end of the test. There were no catastrophic failures. Extra screw length beyond standard 18mm did not significantly change test results.

Screw	Engaged Length	Force (F)	
		N	Lbf
M8x18	10.8 mm	25,350	5,699
M8x20	12.8 mm	26,761	6,016
M8x25	17.8 mm	26,774	6,019
M8x30	22.8 mm	27,250	6,126



Fastener Quick Reference

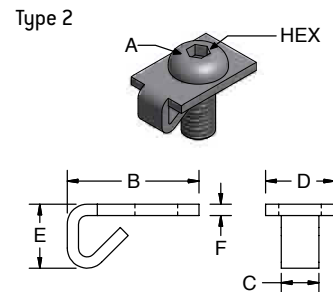
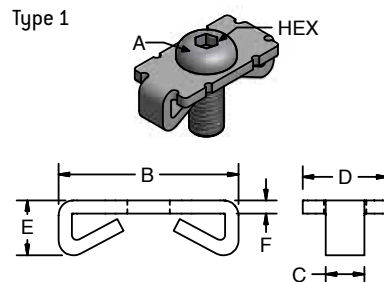
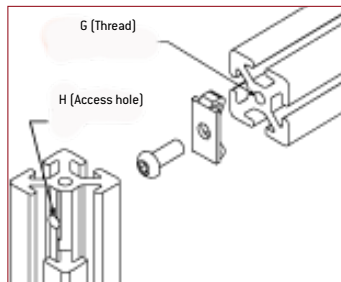
Fastener Type	Hardware	40 Series	30 Series	28 Series	20 Series	1.5" Series	1" Series
Standard Fastener 	M5				20-021		
	M8	20-002 *	20-003 *	20-003 *		20-002 *	
	M8 SS	20-002SS	20-003SS	20-003SS		20-002SS	
	1/4-20						25-022
	5/16-18	25-003				25-003	
	5/16-18 SS	25-003SS				25-003SS	
Standard Fastener Single Tab 	M8	20-144				20-144	
	5/16-18	25-014				25-014	
Universal Fastener 	M5				20-040		
	M6		20-008	20-005			
	M8	20-004 ⁽¹⁾ *				20-004 *	
	1/4-20						25-023
	5/16-18	25-004				25-004	
Flat Plate 	M8x16	20-028				20-028	
	M8x10		20-028Z1	20-028Z1			
	5/16-18	25-028				25-028	
Butt Fastener 	M8x45	20-006 ⁽²⁾	20-012	20-012		20-006	
	1/4-20						25-017
	5/16-18	25-016				25-016	
Milling Connector 	M5	28-004	28-005				
Central Connector 		20-704					
		20-705					
Profile-to-Wall 	M8	20-015				20-015	
	5/16-18	25-015				25-015	
Self-Tapping 	M6	20-019				20-019	
Miter Connector 	Variable	27-022	27-023	27-023		27-024	

(1) Use 20-011 for 40 Series Pneumatic Applications

(2) Use 20-012 for 40 Series Pneumatic Applications

Fastening Sets

Standard



Application

This is the primary fastening method used to join two pieces of profiles together. The fastener couples with the taper in the T-Slots to create an extremely rigid joint. The tabs on the fastener align the profiles and provide anti-rotational support.

Technical Data

Steel, Zinc Plated
Stainless Steel -
Designated by SS at the end of part number

Note: You must use 20-144/25-014 Single Tab Standard Fastener set on closed face profiles and for 11-089

Ordering Information

Profile Series	Type	Dimensions							Torque Nm (ft-lbs)	Weight (g)	Part #*
		A	Hex	B	C	D	E	F			
40	1	M8x18	5	36	7.8	17	11	2.6	34 [25]	25	20-002
	1	M8x18	5	36	7.8	17	11	2.6	34 [25]	21	20-002SS
	1	5/16-18 x 3/4"	3/16"	36	7.8	17	11	2.6	34 [25]	25	25-003
	1	5/16-18 x 3/4"	3/16"	36	7.8	17	11	2.6	34 [25]	25	25-003SS
	2	5/16-18 x 3/4"	3/16"	27	7.6	14	13	2.6	34 [25]	21	25-014
	2	M8x18	5	27	7.8	17	11	2.6	34 [25]	21	20-144
30/28	1	M8x18	5	23.7	7.8	16	8.9	1.9	34 [25]	15	20-003
	1	M8x18	5	23.7	7.8	16	8.9	1.9	34 [25]	14	20-003SS
	2	M8x18	5	21	7.8	14	8.9	1.9	34 [25]	15	20-143
20	1	M5x12	3	16	4.8	10	4.5	1.1	8 [6]	5	20-021
1.5"	1	5/16-18 x 3/4"	3/16"	1.42"	0.307"	0.669"	0.433"	0.102"	34 [25]	25	25-003
	1	5/16-18 x 3/4"	3/16"	1.42"	0.307"	0.669"	0.433"	0.102"	34 [25]	25	25-003SS
	2	5/16-18 x 3/4"	3/16"	1.05"	0.300"	0.550"	0.510"	0.102"	34 [25]	21	25-014
1"	1	1/4-20 x 5/8"	5/32"	0.795	0.250	0.520	0.300	0.060	18 [13]	13	25-022

Series	Product Number	Description
40/1.5"	20-002Z1	Steel Standard Plate
	20-002Z1SS	Stainless Steel Plate
	20-144Z1	Single Ear Steel Plate
30/28	20-003Z1	Steel Standard Plate
	20-003Z1SS	Stainless Steel Plate
	20-143Z1	Single Ear Steel Plate
20	20-021Z1	Steel Standard Plate
1"	25-014Z1	Steel Standard Plate

Series	G	G (Thread) Service Charge	H	H (Access Hole) Service Charge
40	M8X16	19-010	7	19-011
30	M8X16	19-010	7	19-011
28	M8X16	19-010	7	19-011
20	M5X10	19-005	5	19-041
1.5"	5/16-18X.75"	19-009	7	19-011
1"	1/4-20X.63"	19-008	6	19-042

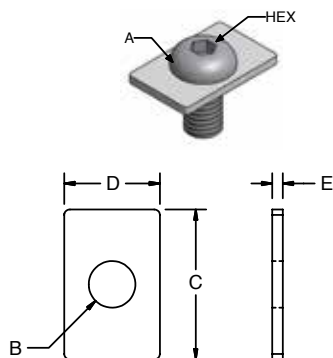
Flat Plate

Application

This fastening set is suitable for connecting two profiles at 90° when a standard fastener cannot be used. It can also be used to connect two profiles where no end hole is available [see detail 2].

Technical Data

Steel, Zinc Plated



20-028
25-028

Ordering Information

Profile Series	A	Hex	B	C	D	E	Torque Nm (ft-lbs)	Weight (g)	Part #
40	M8x18	5	8	27	17.5	2	34 (25)	13	20-028
1.5"	5/16-18x5/8"	3/16"	0.31"	1.06"	0.677"	0.075"	34 (25)	13	25-028

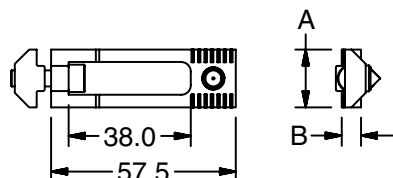
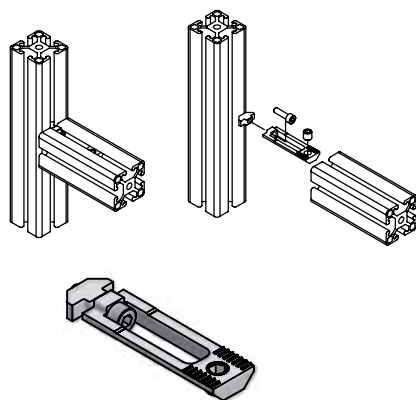
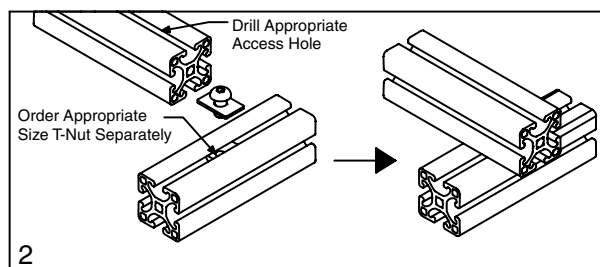
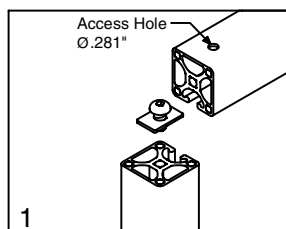
For 28 Series order:

Flat Plate Only

20-028Z1

M8x10 BHCS Screw

24-110-8



28-004
28-005

Milling Connector

Application

For adjustable 90° profile connections. Milling Connectors allow the connection of two profiles without additional machining.

Technical Data

Steel, Zinc Plated

Includes screw and T-nut.

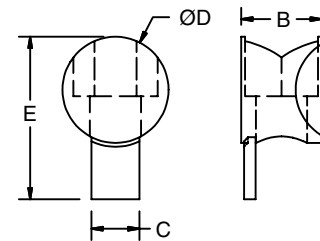
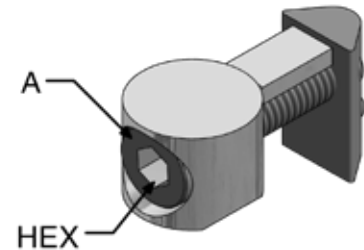
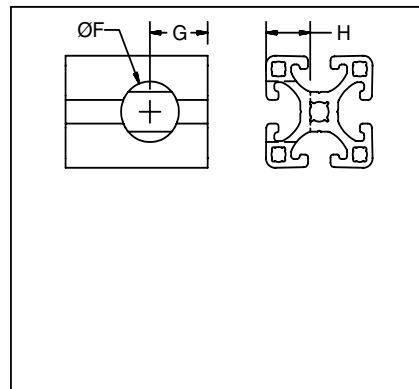
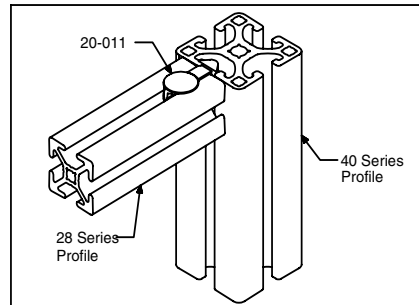
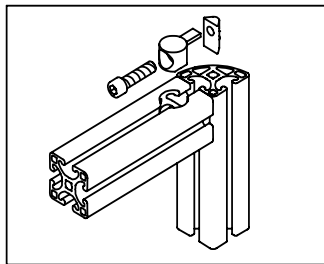
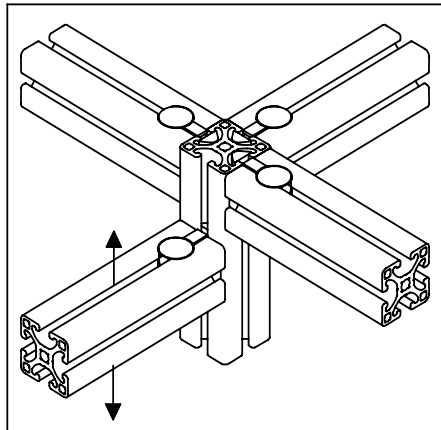
Torque: 8 Nm [6 ft-lbs]

Ordering Information

Profile Series	Hex	A	B	Weight (g)	Part #
40, 1.5"	4	18	6.8	37.3	28-004
30	4	16	6.3	31.7	28-005

Fastening Sets

Universal



Fasteners

Application

For adjustable 90° profile connections. Ideal for retrofits and additions to existing frames.

Fastening set 20-011 is used to connect 28 Series to 40 Series profiles and for pneumatic applications. See page 178.

Series	F	G	H
40	20	20	16
30	20	20	11
28	20	18	11
20	12	10	8.5
1.5"	0.787"	0.830"	0.645"
1"	0.563"	0.406"	0.406"

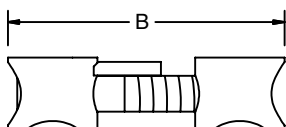
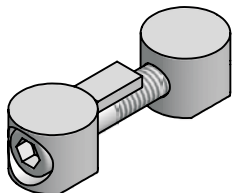
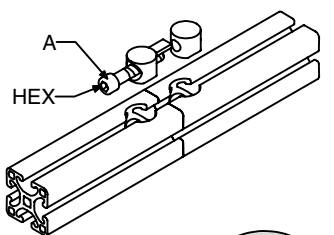
Technical Data

Zinc Cast, Galvanized

Includes screw and T-nut

Ordering Information

Profile Series	A (SHCS)	Hex	B	C	D	E	Torque Nm (ft-lbs)	Wt. (g)	Part #	Service Charge
40	M8x30	6	16	8	20	33.8	34 [25]	41	20-004	19-015
28 to 40	M6x30	5	11	8	20	31.3	15 [11]	36	20-005	19-034
30	M6x27	5	11	8	20	31.3	15 [11]	31	20-008	19-034
28	M6x27	5	11	8	20	31.3	15 [11]	30	20-005	19-034
20	M4x14	3	8.5	5	12	17.2	4 [3]	7	20-040	19-035
1.5"	5/16-18x1 1/4"	1/4"	16	8	20	33.8	34 [25]	41	25-004	19-039
1"	10-32x3/4"	1/8"	10.4	6.3	14.2	19.2	15 [11]	25	25-023	19-036
Universal Zinc Casting 40 (40 Series without T-Nut or Screw)									20-004Z1	—
Universal Zinc Casting 28 (28 Series without T-Nut or Screw)									20-005Z1	—
Universal Zinc Casting 20 (20 Series without T-Nut or Screw)									20-040Z1	—
Universal Zinc Casting 1" (1" Series without T-Nut or Screw)									25-023Z1	—



20-006
20-012

Butt-Fastener

Application

For joining profiles end to end. Fastening dimensions and servicing are the same as corresponding universal fasteners.

Technical Data

Zinc Cast, Galvanized

Ordering Information

Profile Series	Dimensions			Torque, Nm (ft-lbs)	Weight (g)	Part #	Service Charge
	A	Hex	B				
40	M8x45	6	60	34 (25)	59	20-006	19-015
30 & 28	M6x50 & M6 Nut	5	60	15 (11)	45	20-012	19-034

Central Connector

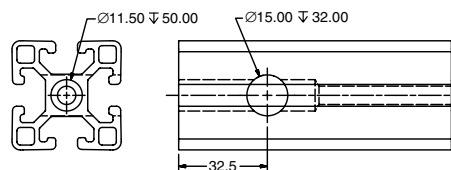
Application

For adjustable 90° profile connections. Central Connectors allow the connection of two profiles.

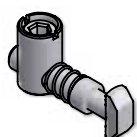
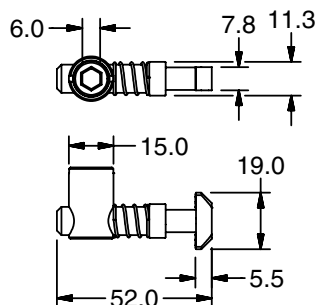
Technical Data

For 40 Series only.

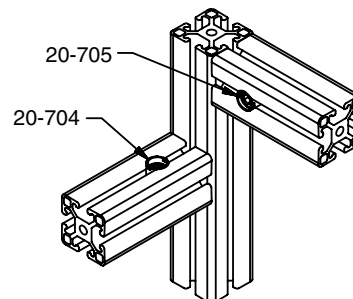
Steel, Zinc Plated



20-704



20-705



Ordering Information

Description	Unit	Weight (g)	Part #	Service Charge
Hammer Perpendicular to Barrel	Each	49	20-704	19-037
Hammer Parallel to Barrel	Each	49	20-705	19-037

Fastening Sets

Self-Tapping Connector

Application

For right angle attachment of 40 and 1.5" Series Profiles. No servicing is required making it ideal for retrofitting existing structures.

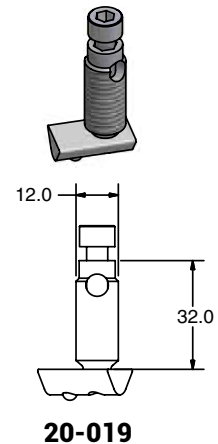
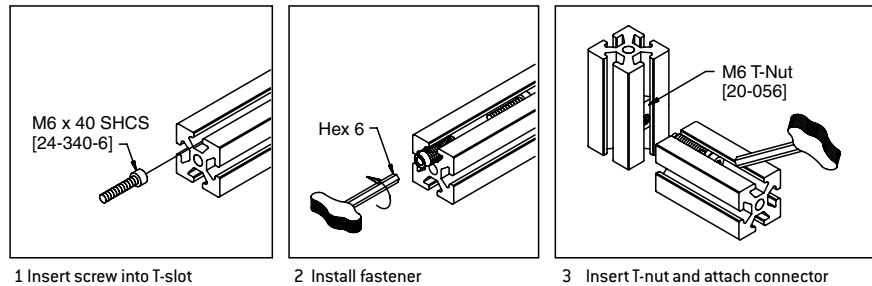
Technical Data

Steel
Torque: 15 Nm [11 ft-lbs]
Threads: Left Handed

Hardware included

Ordering Information

Description	Unit	Weight (g)	Part #
Self Tapping Connector 40/1.5"	Set	34	20-019



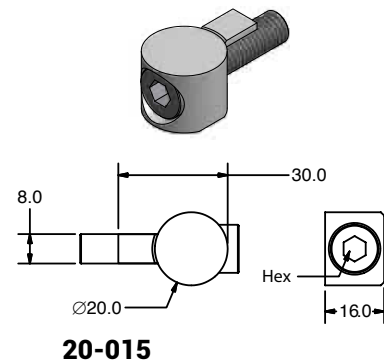
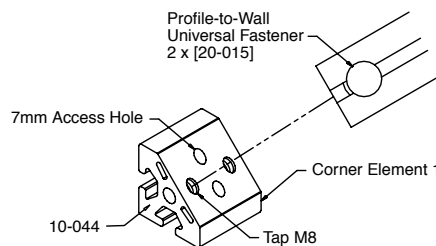
Profile-to-Wall Fastener

Application

Designed for connecting 40 and 1.5" Series profiles to parts without T-Slots such as corner elements.

Technical Data

Steel, Zinc Plated



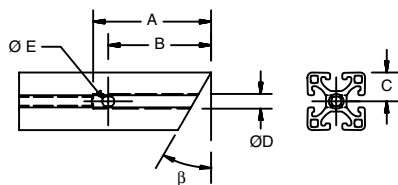
Ordering Information

Profile Series	Dimensions						Torque Nm (ft-lbs)	Weight (g)	Part #	Service Charges
	A	Hex	B	C	D	E				
40	M8x30	6	16	8	20	30	34 [25]	32	20-015	19-015
1.5"	5/16-18x1 1/4"	3/16"	0.630"	0.315"	0.787"	1.18"	34 [25]	32	25-015	19-040

Profile to wall casting without screw or washer

20-015Z1

Miter Connectors



40 Series

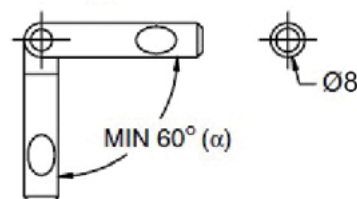
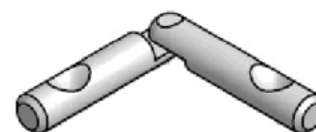
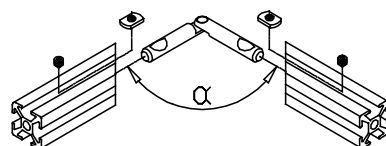
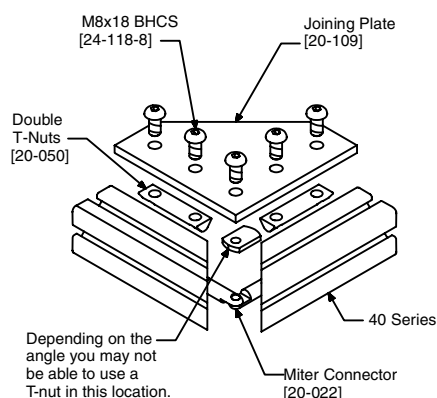
$\beta = 90^\circ - \alpha/2$
 $A = 46.5\text{mm} + C \tan \beta$
 $B = 36.5\text{mm} + C \tan \beta$
 $D = 8\text{mm}$
 $E = 8\text{mm}$

1.5" Series

$\beta = 90^\circ - \alpha/2$
 $A = 1.83" + C \tan \beta$
 $B = 1.44" + C \tan \beta$
 $D = 0.31"$
 $E = 0.31"$

30/28 Series

$\beta = 90^\circ - \alpha/2$
 $A = 46.5\text{mm} + C \tan \beta$
 $B = 36.5\text{mm} + C \tan \beta$
 $D = 8\text{mm}$
 $E = 6\text{mm}$



Application

Variable angle connectors are available for 40, 30, 28, and 1.5" series profiles. Not for use as a structural fastener. Secure with joining plates as necessary.

Technical Data

Connector: Steel, Zinc Plated

Sets include necessary T-nuts and cone point screws.

Loctite® Thread Locker No. 262 is recommended to secure set screws.

Service charge is 19-038 for 27-022 and 27-024

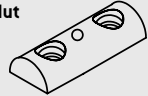
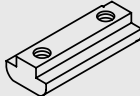
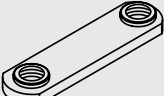
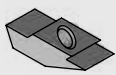
Service charge is 19-040 for 27-023

27-023
27-024

Ordering Information

Series	Description	Unit	Weight (g)	Part #
40	Variable	Set	67	27-022
28,30	Variable	Set	31	27-023
1.5"	Variable	Set	67	27-024

Quick Reference

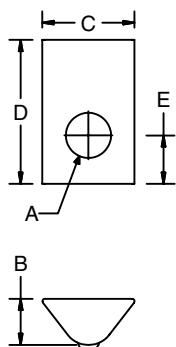
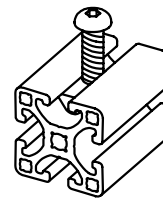
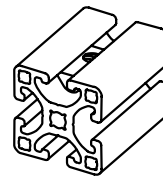
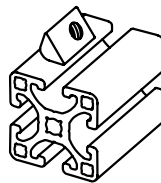
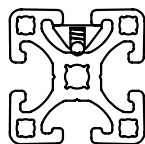
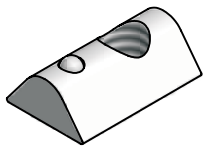
Type	Thread Size	40 Series	30 Series	28 Series	20 Series	1.5" Series	1" Series
Standard T-Nut 	M4	20-051			20-044	20-051	
	M5	20-052	20-052		20-045	20-052	
	M6	20-056 [SS]	20-056 [SS] ⁽⁴⁾	20-055		20-056 [SS]	
	M8	20-058 [SS]	20-058 [SS]	20-057		20-058 [SS]	
	#10-32	25-009	25-009			25-009	25-030
	1/4-20	25-001	25-001	25-055		25-001	25-031
	5/16-18	25-002	25-002	25-057		25-002 ⁽³⁾	
Double Standard T-Nut 	M8	20-049 ⁽¹⁾	20-049 ⁽¹⁾			20-049	
	M8	20-050 ⁽²⁾	20-050 ⁽²⁾			20-050	
	5/16-18	25-041				25-041	
Self Aligning T-Nut 	M5	20-065	20-065 ⁽⁴⁾	20-065 ⁽⁴⁾		20-065	
	M6	20-066	20-066 ⁽⁴⁾	20-066 ⁽⁴⁾		20-066	
	M8	20-068	20-068 ⁽⁴⁾	20-068 ⁽⁴⁾		20-068	
Heavy Duty T-Nut  Ret. Spring 20-0614 ⁽³⁾	M5	20-067				20-067	
	M6	20-060 ⁽³⁾				20-060 ⁽³⁾	
	M8	20-064 ⁽³⁾				20-064 ⁽³⁾	
	1/4-20	25-050				25-050	
	5/16-18	25-051				25-051	
Double Heavy Duty T-Nut 	M8	20-063				20-063	
	1/4-20	25-052				25-052	
	5/16-18	25-053				25-053	
Economy Standard T-Nut 	M5				20-085		
	M6	20-080	20-090 [SS]	20-090 [SS]		20-080	
	M8	20-081	20-091	20-091		20-081	
	#10-32	20-088				20-088	20-088
	1/4-20	20-083	20-093	20-093		20-083	25-034
	5/16-18	20-082	20-092	20-092		20-082	
	#10-24				20-086		
Economy Offset T-Nut 	M6		20-190	20-190			
	M8	20-181					
	#8-32	25-045				25-045	25-045
	1/4-20	20-193	20-193	20-193		20-193	
	5/16-18	20-182				20-182	
Double Economy T-Nut 	1/4-20					25-048	
	5/16-18	25-046 ⁽⁵⁾ 25-047 ⁽⁶⁾				25-046 ⁽⁵⁾ 25-047 ⁽⁶⁾	
Drop-In Z-Nut 	M3	20-033	20-036	20-036		20-033	
	M4	20-034	20-037	20-037		20-034	
	M5	20-035	20-038	20-038		20-035	

(1) 24mm hole centerline spacing
(2) 40 mm hole centerline spacing

(3) 40/1.5" Series only, nut must be installed from profile end
(4) On 30 and 28 Series, nut must be installed from profile end

(5) 7/8" hole spacing
(6) 1" hole spacing

Drop-in T-Nut



Standard T-nuts conveniently roll into profile T-slots at any location. The spring/ball locking feature keeps the T-nut in place in vertical applications.

Application

Standard mounting elements for profiles. The T-Nut can be inserted into profile T-Slots at any location to provide an instant threaded hole for mounting accessories or connectors.

Technical Data

Steel, Clear or Black Zinc Plated
Parts designated with "SS" are stainless steel.
Others may be available in stainless. Contact factory for availability.

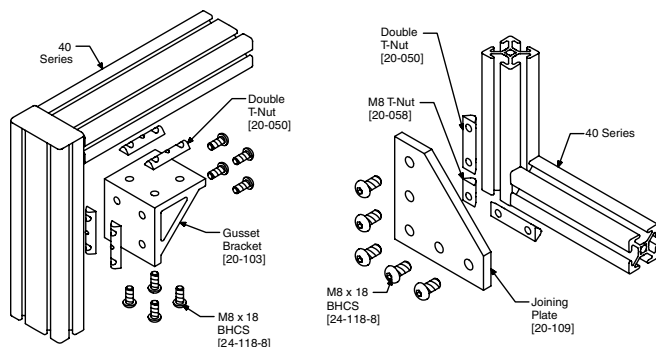
Ordering Information

Profile Series	Dimensions					Weight (g)	Part #
	A	B	C	D	E		
40, 30*, 1.5"	M4	7.3	13.8	23	7.5	11	20-051
	M5	7.3	13.8	23	7.5	11	20-052
	M6	7.3	13.8	23	5.5	11	20-056 *
	M6 SS	7.3	13.8	23	6.5	11	20-056SS
	M8	7.3	13.8	23	7.5	10	20-058 *
	M8 SS	7.3	13.8	23	6.5	11	20-058SS
	1/4-20	7.3	13.8	23	7.5	10	25-001
	5/16-18	7.3	13.8	23	7.5	9	25-002
	#10-32	7.3	13.8	23	7.5	10	25-009
28	M6	6	13.8	23	7	10	20-055
	M8	6	13.8	23	7	10	20-057
	1/4-20	6	12.9	23	7	10	25-055
	5/16-18	6	12.9	23	7	10	25-057
20	M4	4	8	11.5	4	1	20-044
	M5	4	8	11.5	4	1	20-045
1"	#10-32	0.200"	0.400"	0.625"	0.210"	5	25-030
	1/4-20	0.200"	0.400"	0.625"	0.210"	5	25-031

* Fits 30 Series, but may need to be inserted from profile end.

T-Nuts

Double Drop-in T-Nut



Application

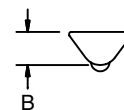
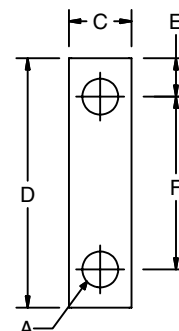
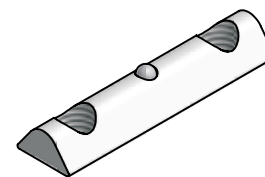
Standard mounting element where fastening hardware requires two T-Nuts.

Technical Data

Metric T-Nuts: Steel, Clear Zinc Plated
Imperial T-Nuts: Steel, Black Zinc Plated or Clear Zinc Plated

Ordering Information

Profile Series	Dimensions						Weight (g)	Part #
	A	B	C	D	E	F		
40, 30, 1.5"	M8	7.3	13.8	38	7	24	15	20-049
	M8	7.3	13.8	55	7.5	40	23	20-050
	5/16-18	0.287"	0.543"	2.165"	0.333"	1.50"	23	25-041



Fasteners

Self Aligning T-Nut

Application

Rolls into the T-Slot of 40 and 1.5" Series profiles at any location and held into position using a spring-loaded ball. The raised area fits into the T-Slot to prevent twisting. Should not be used where the raised area might interfere with other accessories such as tabs on universals, hinges, etc.

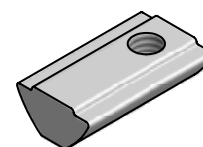
Technical Data

Steel, Zinc Plated
Fits 30 and 28 Series profiles but must be inserted from profile end.

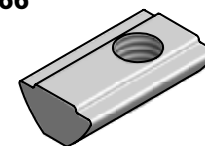
Ordering Information

Profile Series	Dimensions					Weight (g)	Part #
	A	B	C	D	E		
40, 30* 28* & 1.5"	M5	7.3	13.5	22	6.4	10	20-065
	M6	7.3	13.5	22	6.4	10	20-066
	M8	7.3	13.5	22	6.4	10	20-068

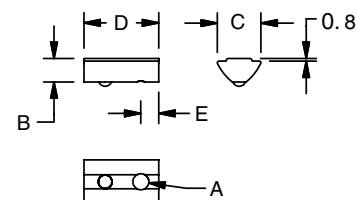
*Fits 30 and 28 Series profiles but must be inserted from profile end.



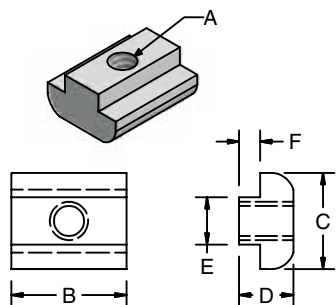
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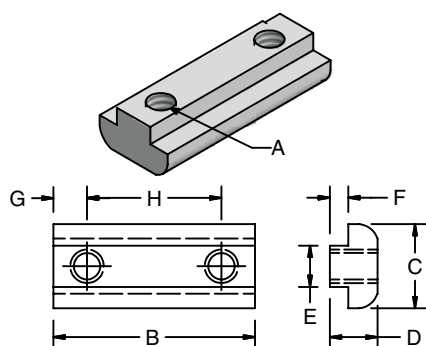
20-068



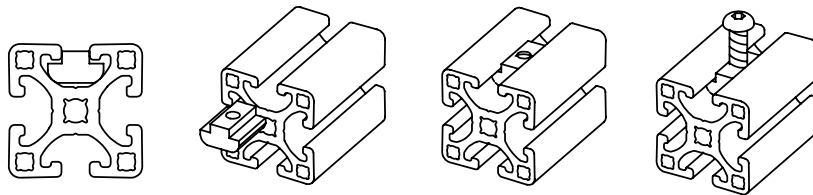
Heavy Duty T-Nut



Single



Double



Heavy duty T-nuts must be inserted from the ends and slid to the desired location.

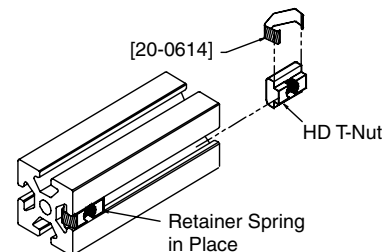
Application

Heavy Duty T-Nut for 40 and 1.5" Series profiles.

Technical Data

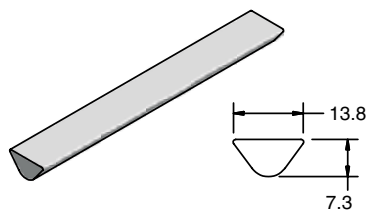
Steel, Zinc Plated

Ordering Information

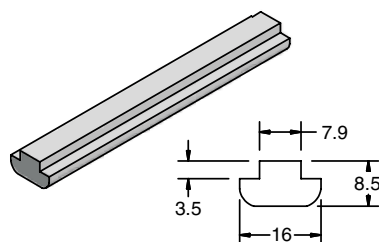


Profile Series	Style	Dimensions								Wt. (g)	Part #
		A	B	C	D	E	F	G	H		
40, 1.5"	Single	M5	22	16	8.8	7.9	3.5	—	—	13	20-067
		M6	20	16	8.8	7.9	3.5	—	—	13	20-060
		M8	20	16	8.8	7.9	3.5	—	—	13	20-064
		1/4-20	0.75"	0.63"	0.35"	0.31"	0.14"	—	—	14	25-050
		5/16-18	0.75"	0.63"	0.35"	0.31"	0.14"	—	—	13	25-051
	Retainer Spring for HD Single T-Slot Nuts										20-0614
	Double	M8	38	16	8.8	7.9	3.5	6	24	25	20-063
		1/4-20	1.50"	0.63"	0.35"	0.31"	0.14"	0.25"	1.00"	28	25-052
		5/16-18	2.00"	0.63"	0.35"	0.31"	0.14"	0.25"	1.50"	32	25-053

T-Nut Bars



20-059



20-062
20-062L

Application

Bar stock for custom length T-Nuts. Can be cut to length and tapped. **Sold by each length.**

Technical Data

Steel

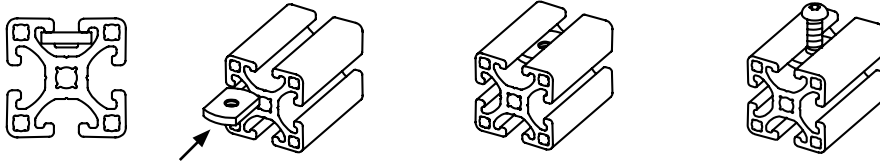
Max. tap hole: M8 (5/16")

Ordering Information

Profile Series	Description	Unit	Weight (g)	Part #	Max Length (mm)
40, 30 and 1.5"	T-Slot Bar Heavy Duty	Each	420	20-062	500
	T-Slot Bar Heavy Duty	Each	1260	20-062L	1500
	T-Slot Bar Standard	Each	260	20-059	500

T-Nuts

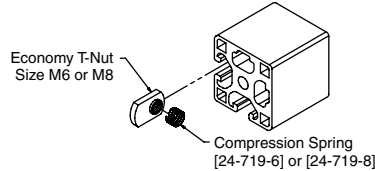
Economy Slide-In T-Nut



Economy T-Nuts must be inserted from the ends of the profiles and slid to the desired location. A compression spring can be added to help keep the T-nut in location.

Application

Economical solution for fastening hardware or components to T-Slots. Economy T-Nuts slide into profile from the end to provide threaded hole for fastening. Available in standard or offset versions.



Technical Data

Metric T-Nuts: Steel, Clear Zinc Plated
Imperial T-Nuts: Steel, Black Zinc Plated or Clear Zinc Plated

Parts designated with "SS" are stainless steel.

Ordering Information

Profile Series		Dimensions					Weight (g)	Part #
		A	B	C	D	E		
Standard	40, 1.5"	M6	25	16	3.6	—	10	20-080
		M8	25	16	3.6	—	10	20-081
		#10-32	22.5	11	2.4	—	5	20-088
		1/4-20	25	16	3.6	—	10	20-083 *
		5/16-18	25	16	3.6	—	10	20-082
	30, 28	M6	20.5	13	3.2	—	5	20-090
		M6	20.5	13	3.2	—	5	20-090SS
		M8	20.5	13	3.2	—	5	20-091
		1/4-20	20.5	13	3.2	—	5	20-093
		5/16-18	20.5	13	3.2	—	5	20-092
	20	M5	16	9.6	2.4	—	5	20-085
	1"	#10-32	0.885"	0.440"	0.09"	—	5	20-088
		1/4-20	1.00"	0.440"	0.09"	—	5	25-034
Offset	40, 1.5"	M8	25	16	3.6	7.1	10	20-181
		#8-32	16	11	2.4	4.8	5	25-045
		1/4-20	20.5	13	3.2	6.4	5	20-193
		5/16-18	25	16	3.6	7.1	10	20-182
	30, 28	M6	20.5	13	3.2	6.4	5	20-190
		1/4-20	20.5	13	3.2	6.4	5	20-193
	1"	#8-32	0.885"	0.440"	0.09"	0.19"	5	25-045

Description

Compression Spring for Economy T-Slot Nuts M6

Weight

4 g

Part

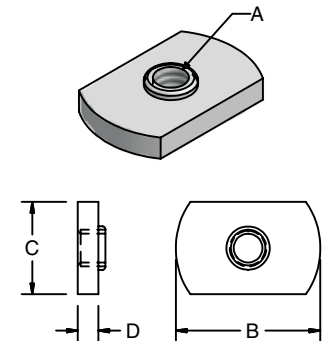
24-719-6*

Compression Spring for Economy T-Slot Nuts M8

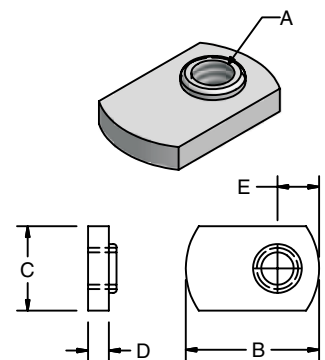
4 g

24-719-8* *

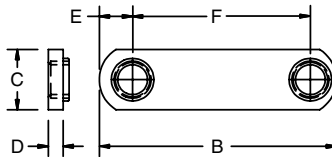
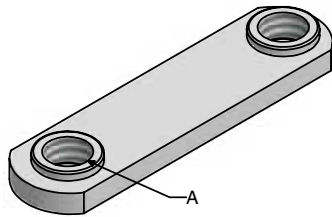
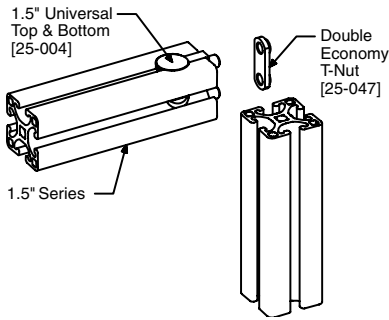
*Minimum order quantity = 100 pieces



Standard



Offset



25-046
25-047
25-048

Double Economy Slide-In T-Nut

Application

Double Economy T-Nuts are an economical solution for fastening accessories, double universal fasteners and the primary T-Nut to a cross connection.

Technical Data

Steel, Black Zinc Plated

Ordering Information

Profile Series	Dimensions						Weight (g)	Part #
	A	B	C	D	E	F		
40, 1.5"	5/16-18	2.00"	0.51"	0.12"	0.22"	1.50"	20	25-046
		1.38"	0.51"	0.12"	0.25"	0.88"	13	25-047
	1/4-20	1.50"	0.51"	0.12"	0.25"	1.00"	15	25-048

Drop-In Z-Nut

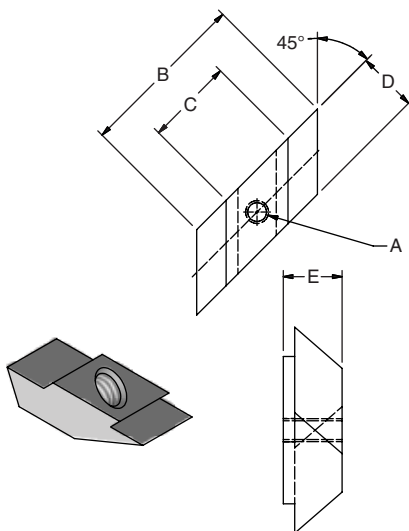
Application

Universal mounting element that wedges into the profile when tightened. Can be inserted into the T-Slot at any position.

Technical Data

Zinc Cast, Galvanized

Ordering Information



Profile Series	Dimensions					Weight (g)	Part #
	A	B	C	D	E		
40/1.5"	M3	22	11	8	7.7	5	20-033
	M4	22	11	8	7.7	5	20-034
	M5	22	11	8	7.7	5	20-035
30, 28	M3	22	11	8	6	5	20-036
	M4	22	11	8	6	5	20-037
	M5	22	11	8	6	5	20-038

Miscellaneous Hardware

Anodize Breaker

Application

Penetrates anodizing and provides ground continuity between 40, 30 and 1.5" Series profiles.

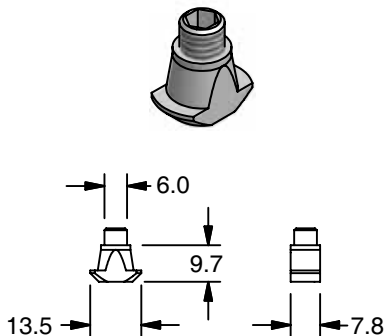
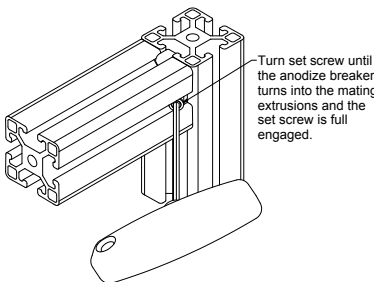
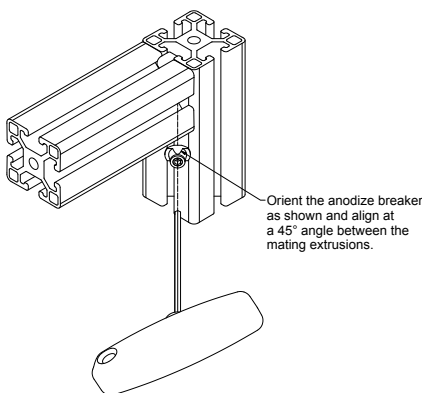
Technical Data

Steel, Galvanized

Dog point M6x12 set screw included.

Ordering Information

Description	Unit	Weight (g)	Part #
Anodize Breaker	Each	10	20-070



20-070

Fasteners

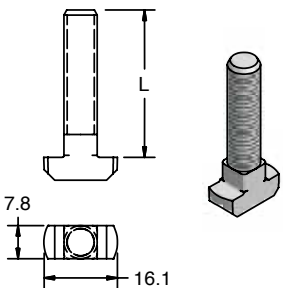
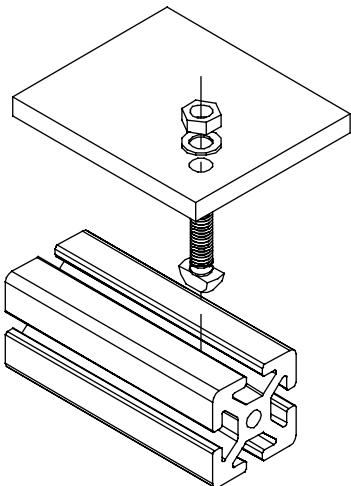
T-Bolt

Application

Threaded stud with T-Slot head for insertion into T-Slot of 40 and 1.5" Series profiles. These will only fit in the standard profile.

Technical Data

Steel, Zinc Plated



24-420-8
24-425-8
24-430-8
24-440-8

Ordering Information

Description (Thread x L)	Unit	Weight (g)	Part #
T-Bolt 40, M8x20	Each	1	24-420-8
T-Bolt 40, M8x25	Each	1	24-425-8
T-Bolt 40, M8x30	Each	2	24-430-8
T-Bolt 40, M8x40	Each	2	24-440-8

Nuts

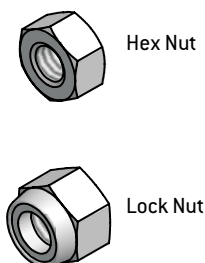
Application

All profiles.

Technical Data

Steel, Zinc Plated

Ordering Information



Description	Unit	Weight (g)	Part #
M3 Hex Nut	Each	0.3	24-706-3
M4 Hex Nut	Each	0.5	24-706-4
M5 Hex Nut	Each	1	24-706-5
M6 Hex Nut	Each	2.5	24-706-6
M8 Hex Nut	Each	5	24-706-8
M10 Hex Nut	Each	11.6	24-706-10
M12 Hex Nut	Each	17.3	24-706-12
M14 Hex Nut	Each	25	24-706-14
M16 Hex Nut	Each	33	24-706-16
M6 Lock Nut	Each	3	24-716-6
M8 Lock Nut	Each	5	24-716-8
1/4-20 Hex Nut	Each	4.5	25-706-4
5/16-18 Hex Nut	Each	4.5	25-706-5
5/16-18 Lock Nut	Each	4.5	25-716-5

Washers

Application

All profiles.

Technical Data

Steel, Zinc Plated

Ordering Information



Description	Unit	Weight (g)	Part #
M4 Flat Washer	Each	0.1	24-700-4
M5 Flat Washer	Each	0.3	24-700-5
M6 Flat Washer	Each	0.4	24-700-6
M8 Flat Washer	Each	1	24-700-8
M6 Lock Washer	Each	6	24-707-6
M8 Lock Washer	Each	9	24-707-8
M10 Lock Washer	Each	11	24-707-10
M8 Rib Spring Washer	Each	6	24-718-8
M8 Safety Spring Washer	Each	6	24-709-8
M8 Spring Washer	Each	3	24-708-8
M10 Spring Washer	Each	6	24-708-10
0' size M8/Flat Washer	Each	6	24-701-8
5/8" OD M6 Flat Washer	Each	2	24-711-6
#10-32 Flat Washer	Each	2.8	25-700-2
1/4" Flat Washer	Each	2.8	25-700-4
5/16" Flat Washer	Each	2.8	25-700-5
5/16" Lock Washer	Each	2.8	25-707-5

Screws

Metric Screws

Metric

24 - 1 xx - 5

Screw Type	Code
Button Head	1
Flat Head	2
Socket Head	3

Thread Type	Code
M3x0.5	3
M4x0.7	4
M5x0.8	5
M6x1.0	6
M8x1.25	8
M10x1.5	10

Length

For stock lengths, see next page

Ordering Information

The stock part numbers are on the chart on the next page.

Note: Only screw items listed by part number on the following page are considered standard and are in stock. Non-stock items are special order with minimum quantity requirements.

Technical Data

Finish may vary. Stainless Steel is available on selected screws.

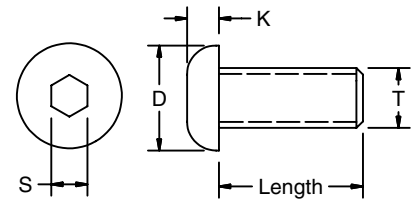
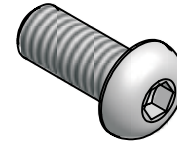
Order Quantities:

Order quantities are per screw. Contact customer service for box quantity and high volume orders.

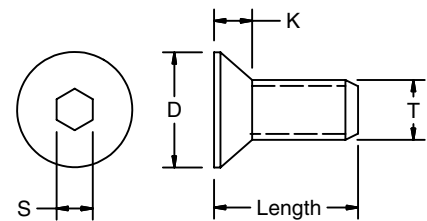
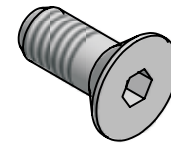
Metric Screw Dimensions (mm)

Thread	Button Head			Flat Head			Socket Head		
T	D*	K*	S	D*	K	S	D*	K*	S
M3	5.7	1.65	2	6	1.7	2	5.5	3	2.5
M4	7.6	2.2	2.5	8	2.3	2.5	7	4	3
M5	9.5	2.75	3	10	2.8	3	8.5	5	4
M6	10.5	3.3	4	12	3.3	4	10	6	5
M8	14	4.4	5	16	4.4	5	13	8	6
M10	17.5	5.5	6	20	5.5	6	16	10	8

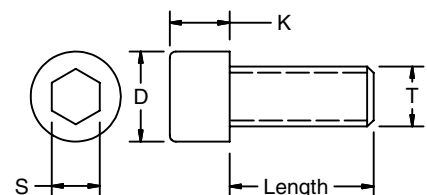
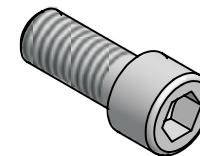
*MAX size listed.



BUTTON HEAD



FLAT HEAD



SOCKET HEAD

Metric Screw Quick Reference

	Length	M3x.05	M4x0.7	M5x0.8	M6x1.0	M8x1.25	M10x1.5
Button Head Screws	8			24-108-5	24-108-6		
	10	24-110-3	24-110-4	24-110-5 *	24-110-6 *	24-110-8 *	
	12			24-112-5 *	24-112-6 *	24-112-8 *	
	14			24-114-5	24-114-6	24-114-8	
	16			24-116-5	24-116-6 *	24-116-8 *	
	18					24-118-8 *	
	20			24-120-5 *	24-120-6 *	24-120-8 *	24-120-10
	25			24-125-5	24-125-6 *	24-125-8 *	24-125-10
	28					24-128-8	
	30			24-130-5	24-130-6 *	24-130-8	24-130-10
	35			24-135-5	24-135-6	24-135-8	
	40				24-140-6	24-140-8 *	24-140-10
	45			24-145-5		24-145-8	
	50					24-150-8	
	60				24-160-6	24-160-8	
	80					24-180-8	
Flat Head Screws	8		24-208-4		24-208-6		
	10	24-210-3		24-210-5	24-210-6 *	24-210-8	
	12		24-212-4	24-212-5	24-212-6 *	24-212-8 *	
	14		24-214-4SS		24-214-6	24-214-8	
	16	24-216-3	24-216-4	24-216-5	24-216-6 *	24-216-8 *	
	18				24-218-6	24-218-8	
	20		24-220-4		24-220-6 *	24-220-8 *	
	25		24-225-4	24-225-5	24-225-6 *	24-225-8	
	30				24-230-6	24-230-8	
	35				24-235-6		
	45					24-245-8	
Socket Head Screws	8		24-308-4				
	10		24-310-4		24-310-6	24-310-8	
	12	24-312-3	24-312-4	24-312-5	24-312-6	24-312-8	
	14		24-314-4		24-314-6		
	16		24-316-4		24-316-6	24-316-8 *	
	18				24-318-6		
	20		24-320-4	24-320-5	24-320-6 *	24-320-8 *	
	25				24-325-6 *	24-325-8 *	
	27				24-327-6		
	30				24-330-6	24-330-8	
	33				24-333-6		
	35				24-335-6	24-335-8	
	40				24-340-6	24-340-8	
	45				24-345-6	24-345-8	
	50				24-350-6	24-350-8	
	80				24-380-6	24-380-8	
	100					24-3100-8	
	120				24-3120-6		

* These items are available in Stainless Steel. Add "SS" to the end of the Part #. These are only stock.

Screws

Imperial Screws

Imperial

25

-

1

xx

-

5

Screw Type	Code
Button Head	1
Flat Head	2
Socket Head	3

Length
For stock lengths, see next page

Thread Type	Code
#8-32	1
#10-32	2
1/4-20	4
5/16-18	5
3/8-16	6
1/2-13	8

Ordering Information

Ordering Information

The stock part numbers are on the next page.

Note: Only screw items listed by part number on the following page are considered standard and are in stock. Non-stock items are special order with minimum quantity requirements.

Technical Data

Finish may vary. Stainless Steel is available on selected screws.

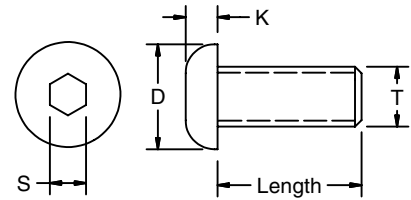
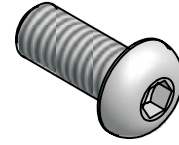
Order Quantities:

Order quantities are per screw. Contact customer service for box quantity and high volume orders.

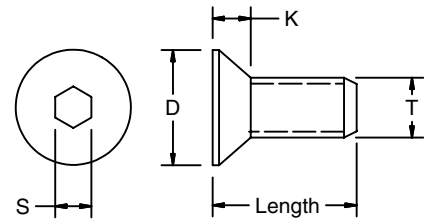
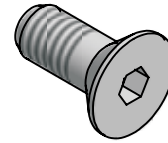
Imperial Screw Dimensions (in)

Thread	Button Head			Flat Head			Socket Head		
T	D*	K*	S	D*	K	S	D*	K*	S
#8-32	0.312	0.087	3/32	0.311	0.112	3/32	0.270	0.164	9/64
#10-32	0.361	0.101	1/8	0.359	0.127	1/8	0.312	0.190	5/32
1/4-20	0.437	0.132	5/32	0.480	0.161	5/32	0.375	0.250	3/16
5/16-18	0.547	0.166	3/16	0.600	0.198	3/16	0.469	0.312	1/4
3/8-16	0.656	0.199	7/32	0.720	0.234	7/32	0.562	0.375	5/16
1/2-13	0.875	0.265	5/16	0.872	0.251	5/16	0.750	0.500	3/8

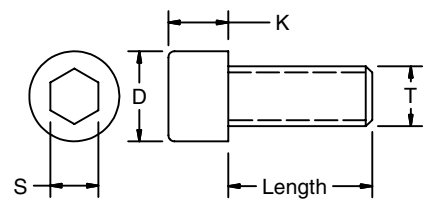
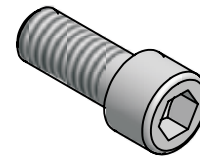
*MAX size listed.



BUTTON HEAD



FLAT HEAD



SOCKET HEAD

Imperial Screw Quick Reference

Type	Length	#8-32	#10-32	1/4-20	5/16-18	3/8-16
Button Head Screws	3/8"	25-106-1	25-106-2	25-106-4	25-106-5	
	1/2"		25-108-2	25-108-4	25-108-5	
	5/8"		25-110-2	25-110-4	25-110-5	
	3/4"		25-112-2	25-112-4	25-112-5*	
	7/8"			25-114-4	25-114-5	
	1"				25-116-5	
	1 1/8"				25-118-5	
	1 1/4"				25-120-5	25-120-6
	1 1/2"				25-124-5	
	1 3/4"				25-128-5	
Flat Head Screws	1/2"		25-208-2	25-208-4		
	5/8"			25-210-4	25-210-5	
	3/4"			25-212-4	25-212-5	
Socket Head Screws	1/2"	25-308-1			25-308-5	
	5/8"			25-310-4	25-310-5	
	3/4"			25-312-4	25-312-5	
	7/8"			25-314-4	25-314-5	
	1"			25-316-4	25-316-5	
	1 1/4"			25-320-4	25-320-5	
	1 3/4"				25-328-5	
	2"				25-332-5	

* These Items are available in Stainless Steel.
Add "SS" to the end of the part # for stainless steel.

Set Screws, Nuts

Set Screws (Hexagon Socket)

Ordering Information

Type	Description	Unit	Part #
Cone Point	M5 x 6	Each	24-506-5C
	M6 x 8	Each	24-508-6C
	M6 x 10	Each	24-510-6C
	M6 x 12	Each	24-512-6C
	M8 x 10	Each	24-510-8C
	M8 x 16	Each	24-516-8C
	1/4-20 x 3/8"	Each	25-506-4C
	5/16-18 x 5/8"	Each	25-510-5C
Dog Point	M6 x 12	Each	24-512-6D
Flat Point	M5 x 16	Each	24-516-5F
	M6 x 6	Each	24-506-6F
	M6 x 12	Each	24-512-6F
	M6 x 16	Each	24-516-6F
	M10 x 25	Each	24-525-10F
Cup Point	M8 x 8	Each	24-508-8U
	1/4-20 x 5/8"	Each	25-510-4U

Technical Data

Steel, Black Oxide



24-5xx-xC



24-5xx-xD



24-5xx-xF



24-508-8U

Fasteners

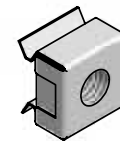
Clip Nuts

Application

Square nut with clip attachment for 19" Rack Angle. Nut snaps into square holes for attaching panels and accessories.

Technical Data

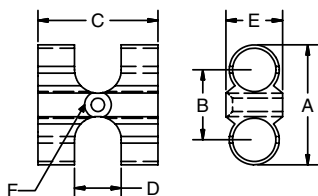
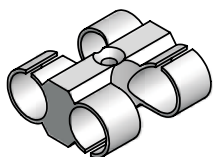
Steel, Zinc Plated



Ordering Information

Description	Unit	Weight (g)	Part #	
Clip Nut M5	Each	4.5	20-075	20-075
Clip Nut M6	Each	4.5	20-076	20-076
Clip Nut #10-32	Each	4.5	25-075	25-075
Clip Nut 1/4-20	Each	4.5	25-076	25-076

T-Clips



Application

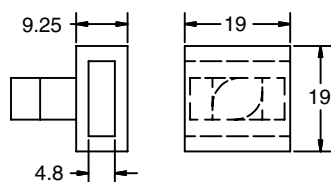
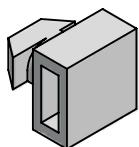
Mounting element with two separate channels for fast, easy securing and routing of open wiring or tubing.

Technical Data

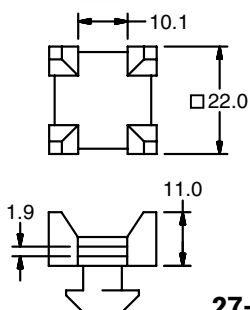
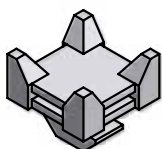
Glass-Filled Nylon, Black
Includes screw and T-nut for 40 and 1.5 Series mounting.

Ordering Information

Range	Dimensions						Weight (g)	Part #
	A	B	C	D	E	F		
6-8	20	12	20	8	9	3	6	22-206
8-10	25	15	24	10	12	4	9	22-208
10-13	31	18	28	12	12	4	11	22-210
13-16	35	21	36	14	17	4	12	22-212
16-19	44	25	43	17	20	5	18	22-215



22-202
22-201



27-202
27-203

Cable Tie Holder

Application

Mounting element provides point for cable tie mounting. Suitable for use on 40, 30, 28, 1.5" and 1" Series profiles.

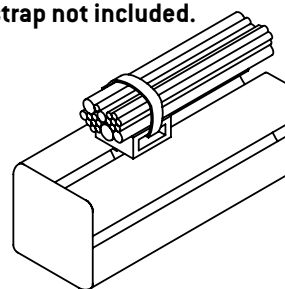
Technical Data

Glass-Filled Nylon, Black
Insert into T-slot and twist 90°

Ordering Information

Description	Unit	Weight (g)	Part #
Cable Tie Holder, 40/1.5"	Each	4	22-202 *
Cable Tie Holder, 28/30	Each	4	22-201
Cross Cable Tie Holder, 40/1.5"	Each	4	27-202 *
Cross Cable Tie Holder, 1"	Each	4	27-203

Tie strap not included.



Wiring/Cable Accessories

Cable/Hose Holder

Application

Mounting element with two separate channels for routing open wiring or tubing along the profile surface

Technical Data

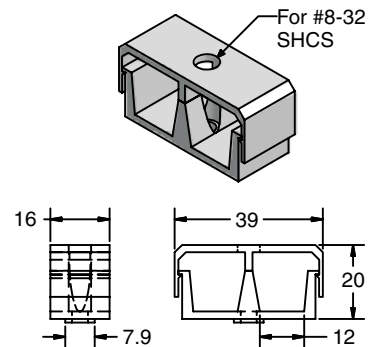
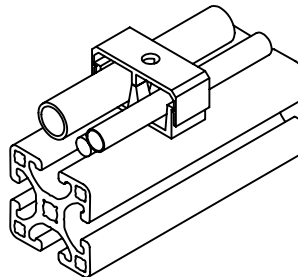
Polypropylene, Black
Mounting screw and T-Nut included
12 mm maximum cable/hose diameter

Ordering Information

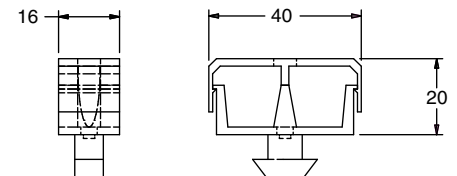
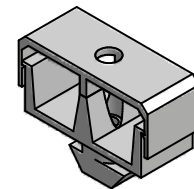
Description

Cable/Hose Holder, 40 Series
Cable/Hose Holder, 1.5" Series
Cable/Hose Holder (Qtr. Turn Style)

Unit	Weight (g)	Part #
Set	8	22-200
Set	8	22-230
Set	9	22-203



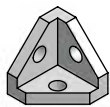
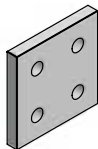
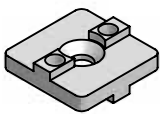
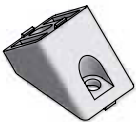
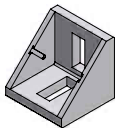
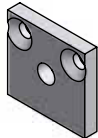
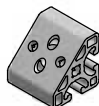
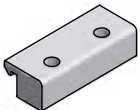
22-200
22-230



22-203

Fasteners

Section 3 - Brackets, Gussets & Plates

Corner Brackets	103		Joining Plates	107-108	
Corner Connectors	104		Angle Brackets	109-110	
Cross Connector	105		Machined Gussets	111	
Angle Connector	105		Cast Gussets	112	
Mounting Plate	106		Corner Elements	113	
Clamp Block	106		Machined Corner Elements	114	