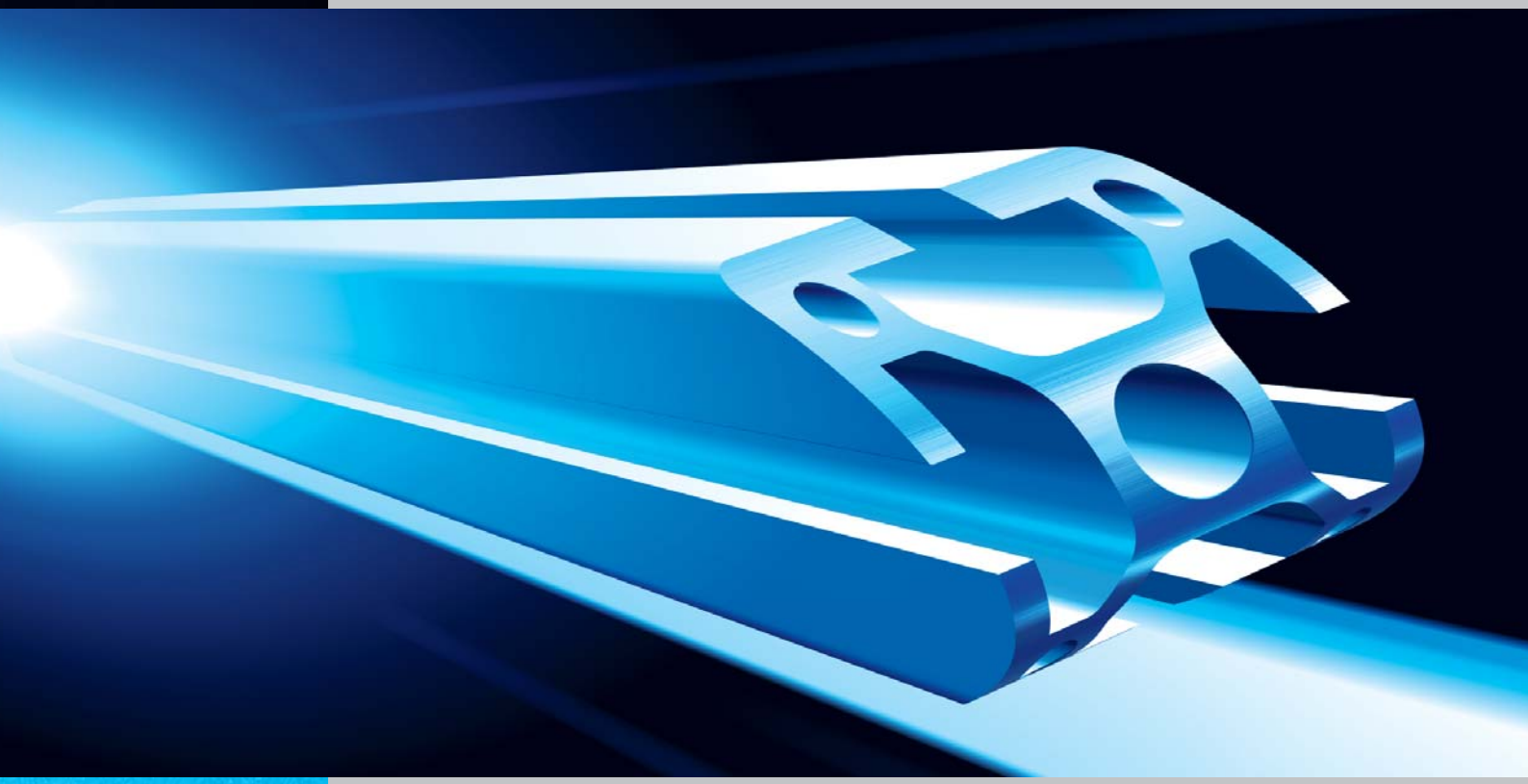
English 1/2007



The Profile System Inch

MayTec®

General

Profile group

1", 1.5"

The profiles of the MayTec Profile System are divided into two **profile group**s (**PG**). They can be determined by the basic measure of each profile.

Slot

H-slot, F-slot, E-slot

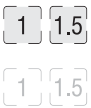
In order to connect the profiles or to mount accessories the profiles have slots. The MayTec Slot System (☞ 2.02) distinguishes between the three slot types H-slot, F-slot and E-slot, whereas E-slot exists as **E3-slot** and **E4-slot** (3 or 4 mm resp. .118 or .157 in. wall thickness).

The profile System Inch uses only F-slot and E3-slot.

Symbols

Many articles (fastening elements, accessories and tools) can only be used especially for individual profile groups or slot types.

In this case these articles are marked with the corresponding symbols.



Profile group

dark symbol: suitable for the corresponding profile group

light symbol: not suitable

Slot type

dark symbol: suitable for the corresponding slot type

light symbol: not suitable

Remark

The symbol for the E-slot is used, if the article is (un)suitable for the two slot types E3 and E4.

Cut

These articles are offered with cut.

R **Stainless steel**

These articles are made of stainless steel.

C **Cleanroom**

These articles are suitable for the use in and around cleanrooms.

⚠ **Attention!**

Important notice

Abbreviations

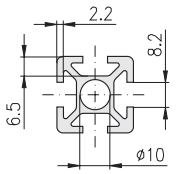
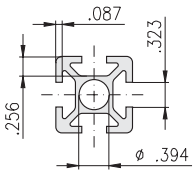
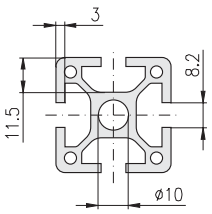
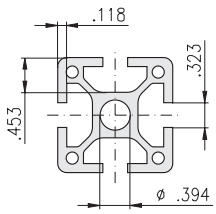
PG	**profile group**	e.g.: PG 1" = profile group 1"
L	**light**	profile characteristic: light type of construction
S	**heavy**	profile characteristic: heavy type of construction
P	**plain**	profile characteristic: no ornamental slots

Special characters

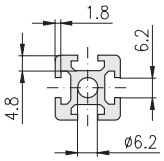
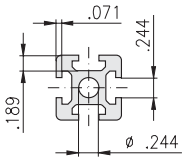
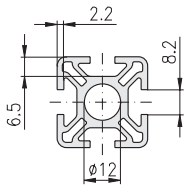
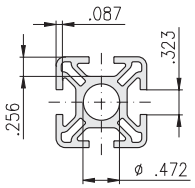
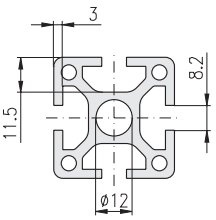
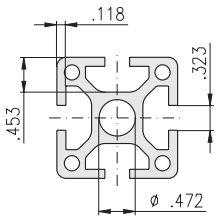
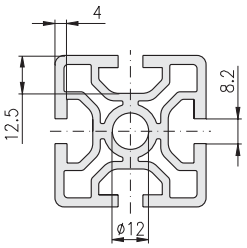
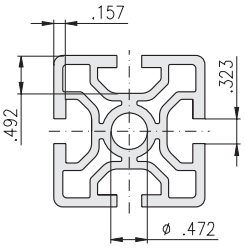
□	**Placeholder**	**Example**	**identifies the articles:**
	Article-No.	2.31.F□.□□□□	2.31.F4.08-32
			2.31.F5.10-32
			2.31.F6.1/4-20

	Example	**Reference**
☞	14	*to catalogue page*
	2.31	*to article number group*
	2.31.F4.08-32	*to single article*
	2.31.F□□□□	*to group of articles*

Inch-System

Cross section of slots	Dimensions mm	Dimensions inch	Core hole-Ø	Slot width	Slot depth	Wall thickness	PG
F-slot			mm				
			10.0	8.2	6.5	2.2	1"
			inch				
			.394	.323	.256	.087	
F E3							
E3-slot			mm				
			10.0	8.2	11.5	3.0	1.5"
			inch				
			.394	.323	.453	.118	
F E3							

Metric-System

Cross section of slots	Dimensions mm	Dimensions inch	Core hole-Ø	Slot width	Slot depth	Wall thickness	PG
H-slot			mm				
			6.2	6.2	4.8	1.8	20
			inch				
			.244	.244	.189	.071	
H F E3 E4							
F-slot			mm				
			12.0	8.2	6.5	2.2	20
							30
			inch				
			.472	.323	.256	.087	
H F E3 E4							
E3-slot			mm				
			12.0	8.2	11.5	3.0	40
			inch				
			.472	.323	.453	.118	
H F E3 E4							
E4-slot			mm				
			12.0	8.2	12.5	4.0	30
							45
							50
							60
			inch				
H F E3 E4			.472	.323	.492	.157	

Profiles

2.1 □ . □□□□□□ . □□□□□	**Key**	
2.1 **□** . □□□□□□ . □□□□□	Core hole-Ø [1]	
2.1 □ . **□□□**□□□ . □□□□□	Profile width	
2.1 □ . □□□**□□□** . □□□□□	Profile height (all, but special profiles)	
2.1 □ . □□□ **R□□** . □□□□□	Number of degrees (round profiles)	
2.1 □ . □□□**□ k t** . □□□□□	Number of edges (special profiles)	
2.1 □ . □□□□□□ . **□**□□□□	Slot quantity [2]	
2.1 □ . □□□□□□ . □**□**□□□	Contour [3]	
2.1 □ . □□□□□□ . □□ **L**	Version light	
2.1 □ . □□□□□□ . □□ **B**	Type B	
2.1 □ . □□□□□□ . □□ **L B**	Version light, Type B	
2.1 □ . □□□□□□ . □□ **P**	Plain	

[1] 1 = 10 mm (.394 in.)
[2] 2-digit off 10 slots
[3] 0 = Round
1 = Soft
2 = Corner
3 = Cubic
4 = Rectangle
5 = Pneumatic
7 = Angle
8 = Oblique
9 = Special

Connectors

- general

2.2 □ . □□□□□	**Key**	
2.2 **□** . □□□□□	Core hole [1]	
2.2 □ . **□**□□□□	Profile width [2]	
2.2 □ . □**□**□□□	Head-variant [3]	
2.2 □ . □□**□**□□	Connection-variant [4]	
2.2 □ . □□□ **V**□	Stainless	
2.2 □ . □□□□ **E**	Ground	
□/□	**Special cases:**	Parallel-connector across and high
□/□		Profile width for cross bushing
□/**□**		Profile width for anchor

[1] 1 = 10 mm (.394 in.)
[2] 10 = 1 in.
20 = 1.5 in.
[3] E = E-head
F = F-head
H = H-head
V = Extension
[4] 0 = Universal/ Neutral
1 = Standard
2 = Standard 90°
5 = Parallel

-Oblique-hinge

2.2 □ . □□□□□	**Key**
2.2 □ . □□ **K** □□	Oblique-connector, hinge
2.2 □ . □□□**□**□	Connection-variant [1]
2.2 □ . □□□□ **V**	Stainless

[1] 1 = Standard
2 = Standard 90°

-Miter-hinge

2.2 □ . □□□□	**Key**
2.2 □ . □ **G** □□	Miter-connector, hinge
2.2 □ . □□**□**□	Connection-variant [1]
2.2 □ . □□□ **V**	Stainless

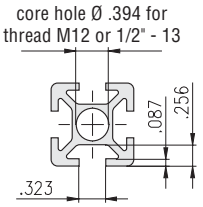
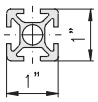
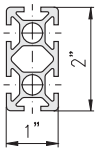
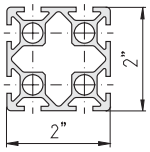
[1] 1 = Standard
2 = Standard 90°

-Screw-type

2.2 □ . □□□□□ / □□	**Key**	
2.2 □ . □ **S** □□□ / □□	Screw-type-connector	
2.2 □ . □□**□**□□ / □□	Type of anchor [1]	
2.2 □ . □□□ **M**□ / □□	Thread	
2.2 □ . □□□□**□** / □□	Thread-Ø	
2.2 □ . □□□□□ / **□□**	Screw special length	
□/□	**Special cases:**	Screw-type connector parallel across and high
□/□		Profile width for cross bushing
□/**□**		Profile width for anchor

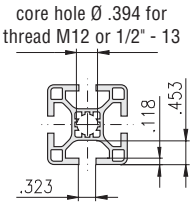
[1] 1 = Standard

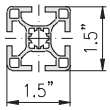
light				
Description				
bar, 19.685 ft.				
packing unit (bars)				
moment of inertia in.^{4} moment of resistance in.^{3} weight per foot lbs.				

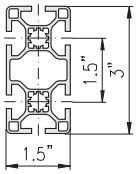
heavy				
	 	 	 	
Description	Profile 1"×1", 4F, P	Profile 1"×2", 6F, P	Profile 2"×2", 8F, P	
bar, 19.685 ft.	2.11.010010.43P.60	2.11.010020.64P.60	2.11.020020.83P.60	
packing unit (bars)	2.11.010010.43P.61 (12)	2.11.010020.64P.61 (6)	2.11.020020.83P.61 (6)	
moment of inertia in.^{4} moment of resistance in.^{3} weight per foot lbs.	I_x = .046 I_y = .046 W_x = .092 W_y = .092 G = .497	I_x = .304 I_y = .086 W_x = .304 W_y = .172 G = .900	I_x = .551 I_y = .551 W_x = .551 W_y = .551 G = 1.438	

machining data ☞ *Profile machining 2.1A*

light

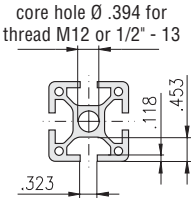


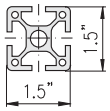


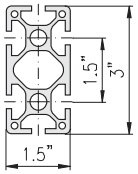


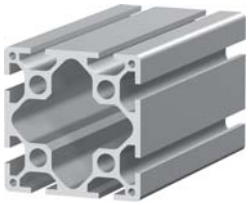
Description	Profile 1.5"×1.5", 4E, LP	Profile 1.5"×3", 6E, LP		
bar, 19.685 ft.	2.11.015015.43LP.60	2.11.015030.64LP.60		
packing unit (bars)	2.11.015015.43LP.61 (8)	2.11.015030.64LP.61 (4)		
moment of inertia in.^{4} moment of resistance in.^{3} weight per foot lbs.	I_x = .180 I_y = .180 W_x = .237 W_y = .237 G = .894	I_x = 1.217 I_y = .340 W_x = .813 W_y = .455 G = 1.557		

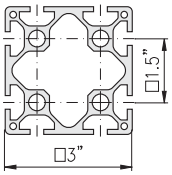
heavy

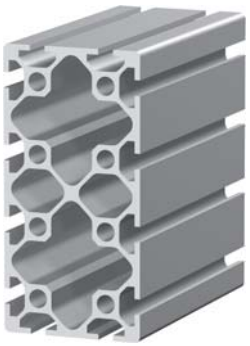


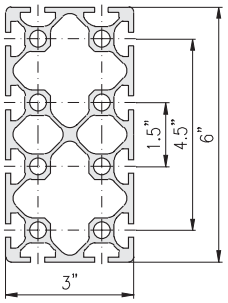








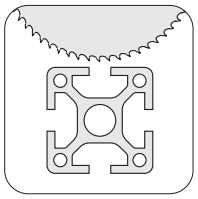




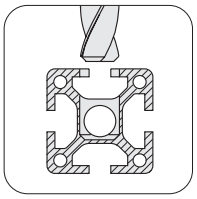
Description	Profile 1.5"×1.5", 4E, P	Profile 1.5"×3", 6E, P	Profile 3"×3", 8E, P	Profile 3"×6", 12E, P
bar, 19.685 ft.	2.11.015015.43P.60	2.11.015030.64P.60	2.11.030030.83P.60	2.11.030060.124P.60
packing unit (bars)	2.11.015015.43P.61 (8)	2.11.015030.64P.61 (4)	2.11.030030.83P.61 (2)	2.11.030060.124P.61 (2)
moment of inertia in.^{4} moment of resistance in.^{3} weight per foot lbs.	I_x = .224 I_y = .224 W_x = .301 W_y = .301 G = 1.121	I_x = 1.525 I_y = .436 W_x = 1.012 W_y = .583 G = 2.050	I_x = 2.810 I_y = 2.810 W_x = 1.870 W_y = 1.870 G = 3.219	I_x =17.752 I_y = 5.293 W_x = 5.917 W_y = 3.528 G = 5.745

machining data ☞ *Profile machining 2.1A*

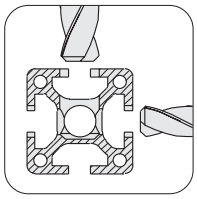
Summary


Saw cut

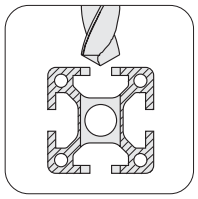
☞ 9


Cross bushing bores for connectors

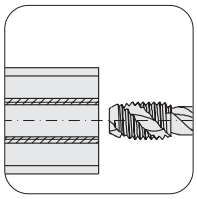
☞ 10


Bores for parallel-connector

☞ 10


Cross bore

☞ 10


Thread

☞ 10

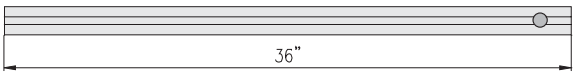
Comments

- Profile machinings are defined by the article-number of the profile.
- For more complex machinings, additional order descriptions are needed.
- Non-standard machinings will be completed as per drawings

Order description

	Profile	machining left	machining right	
Order-No.:	2.11.□□□□□□.□□□□	- □□□□□□	/ □□□□	profile side
		□	/	saw cut
		□	/	cross bushing bores, bores for parallel-connector, cross bore, thread
		□	/	direction
			/ □□□□	length in inch

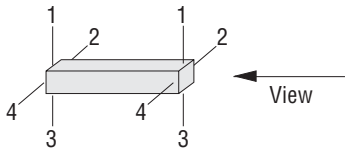
Order example



Description	Article-No.	Article-Description
Profile 1.5"×1.5", 4E-slots Length: 36" right side: 1 connector bore	2.11.015015.43-A00AA4/36"	Profile 1.5"×1.5", 4E-slots □□□□ .... Specifications for special profile machining

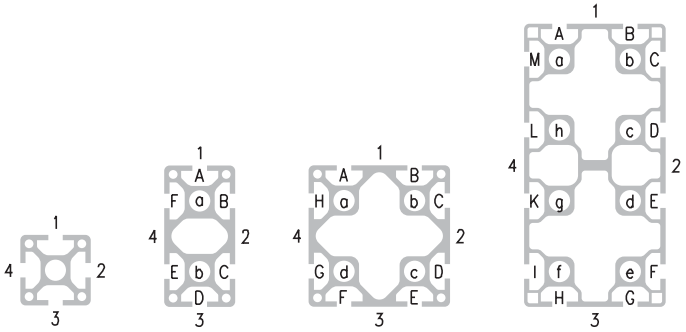
coding examples ☞ *2.1B*

Direction and Position



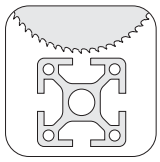
Description

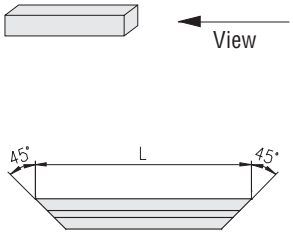
Direction:	1 - 4
Position of slot:	A - M
Position of thread:	a - h



Saw cut

Saw cut tolerance: ±3.937×10^{-3} in.





Disposition of angles

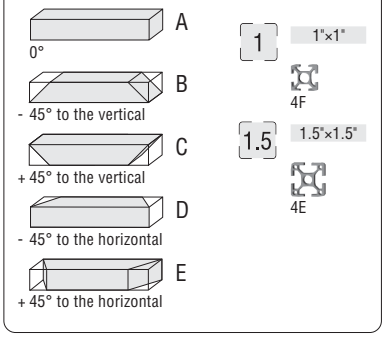
Cut is right view

- For angle cuts specify the absolute length
- Angle cuts without specification = 45°

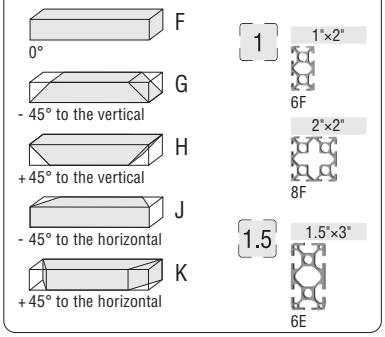
Specification for special angle:

Special angle, left:	□□.□°
Special angle, right:	□□.□°

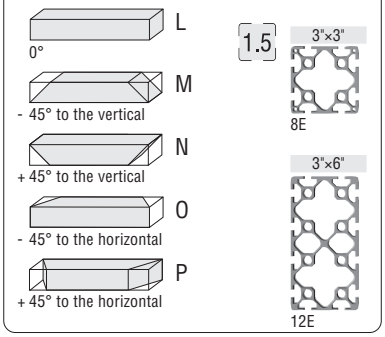
Price group 1



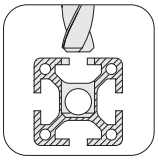
Price group 2

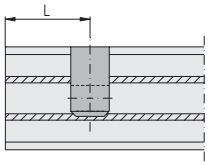


Price group 3

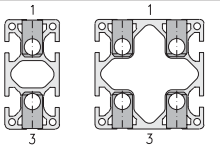
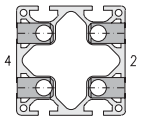


Cross bushing bore
for connector





number of bores
1 = **A** 5 = **E**
2 = **B** 6 = **F**
3 = **C** 7 = **G**
4 = **D** 8 = **H**
0 = without machining

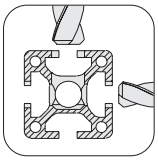
Disposition rule for connectors at opposed profile sides		
Specified Direction	Position of bore	Example
1	Side 1 and Side 3	
2	Side 2 and Side 4	

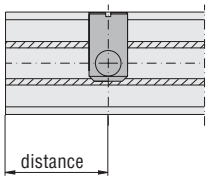
Specification for special position:

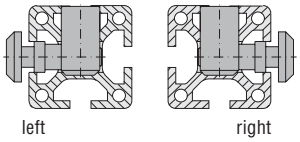
Position for cross bushing bore, left:	□□□...
Position for cross bushing bore, right:	□□□...

initials (☞ *9, „Direction and Position“*)

Bores
for parallel-connector







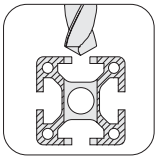
Direction data for anchor

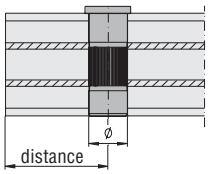
Parallel-connector = **Z**
without machining = 0

Specification for parallel-connector:

text	**distance direction**
Parallel-connector, distance left:	□□.□ in., anchor left / right
Parallel-connector, distance right:	□□.□ in., anchor left / right

Cross bore



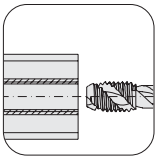


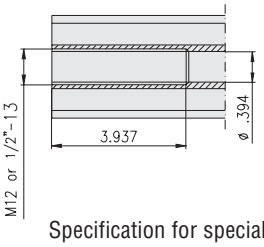
Cross bore = **Q**
without machining = 0

Specification for cross bore:

Cross bore, left:	Ø□□ in., distance □□ in.
Cross bore, right:	Ø□□ in., distance □□ in.

Thread





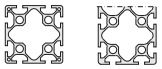
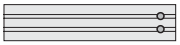
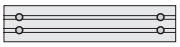
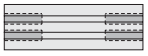
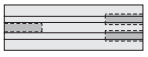
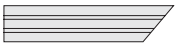
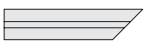
number of threads
1 = **L** 5 = **R**
2 = **M** 6 = **S**
3 = **N** 7 = **T**
4 = **P** 8 = **U**
0 = without machining

Specification for special thread designs:

Depth of thread, left:	□□□... in.
Depth of thread, right:	□□□... in.
Position of thread, left:	□□□...
Position of thread, right:	□□□...

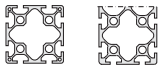
small letters (☞ *9, „Direction and Position“*)

Further machining possibilities as per sketch.

for price group 1	for price group 2		for price group 3
			
 -A00A00	 -F00F00		 -L00L00
 -A00AA4 1V	 -F00FB4 2V	 -F00FB1 2V	 -L00LB4 2V
 -AA4AA4 1V 1V	 -FB4FB4 2V 2V	 -FB1FB1 2V 2V	 -LB4LB4 2V 2V
 -A00AL0 1G	 -F00FL0 1G		 -L00LD2 4V
 -AL0AL0 1G 1G	 -FL0FL0 1G 1G		 -LB4LD2 2V 4V
 -AL0AA4 1G 1V	 -FL0FB4 1G 2V	 -FL0FB1 1G 2V	 -LD2LD2 4V 4V
 -A00AQ1 1Q	 -FM0FB4 2G 2V	 -FM0FB1 2G 2V	 -LP0LD2 4G 4V
 -AA4AQ1 1V 1Q	 -F00FM0 2G		 -L00LP0 4G
 -AQ1AQ1 1Q 1Q	 -FM0FM0 2G 2G		 -LP0LP0 4G 4G
 -AL0AQ1 1G 1Q	 -FL0FM0 1G 2G		 -L00N00
		top view	
 -A00C00	 -F00H00	 -F00K00	-LL0ND2 1G 4V
-A00CA4 1V	-F00HB4 2V	-F00KB1 2V	-LD2ND2 4V 4V
-AA4CA4 1V 1V	-FB4HB4 2V 2V	-FB1KB1 2V 2V	-LD1ND1 4V 4V
-AL0CA4 1G 1V	-FL0HB4 1G 2V	-FL0KB1 1G 2V	-N00N00
-C00C00	-H00H00	-K00K00	-ND2ND2 4V 4V
-CA4CA4 1V 1V	-HB4HB4 2V 2V	-KB1KB1 2V 2V	-ND1ND1 4V 4V

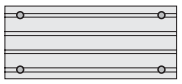
V = connector bore, G = thread, Q = cross bore

for price group 3



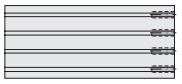

-L00L00

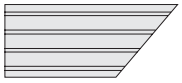

①
4V

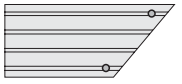

②
4V 4V

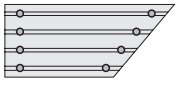

-L00LH2
8V

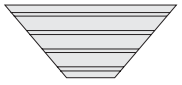

-LH2LH2
8V 8V

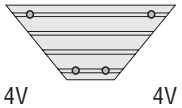

-L00LU0
8G

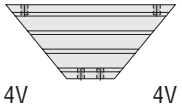

-L00N00


③
4V


-LH2NH2
8V 8V


-N00N00


④
4V 4V


-ND1ND1
4V 4V

Order examples for special design

	Article-No..	Description	
①	2.11.□□□□□□.□□□□ -L00LD2	Profile □□□×□□□.□□ Connector position, right: CFIM	*(additional description)*
②	2.11.□□□□□□.□□□□ -LD2LD2	Profile □□□×□□□.□□ Connector position, left: CFIM Connector position, right: CFIM	*(additional description)*
③	2.11.□□□□□□.□□□□ -L00ND2	Profile □□□×□□□.□□ Connector position, right: CFIM	*(additional description)*
④	2.11.□□□□□□.□□□□ -ND2ND2	Profile □□□×□□□.□□ Connector position, left: CFIM Connector position, right: CFIM	*(additional description)*

V = connector bore, G = thread, Q = cross bore

Extruded profile as per DIN EN 12020-1

(fine)
(Replacement for DIN 17615)

Aluminium alloy Al Mg Si 0.5 F25
Material Nr. 3.3206.72 (low temp. annealed)

Functional length: 19.685 ft.
Delivery length: 19.685 ft. + .394 in.

Mechanical data

(Values given in the direction of the press flow)

Tensile strength Rm:	min.	36,260 lbs./in.^{2}
Elongation 0.2:	min.	29,008 lbs./in.^{2}
Stress point A_5:	min.	10 %
Stress point A_{10}:	min.	8 %
E-Module:	approx.	10,2×10^6 lbs./in.^{2}
Brinell hardness:	approx.	75 HB 2.5/187.5
Co-efficient of elongation:		23.8×10^{-6}/K

Surface as per DIN 17611:
E6/EV1 - dull finish and anodised colours
Coat thickness approx. .3937×10^{-3} in.
Coat hardness 250-350 HV
Special colours upon request.
The surface area - subject to technical procedure - can show optical changes.

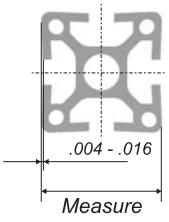
Profile tolerance

(Excerpt from DIN EN 12020-2)

Nominal dimensions:
The dimension deviation depends on the precision with which the tooling is manufactured, the tooling wear and the variation during the extrusion process. For one manufacturing setup the variation within one profile is .3937×10^{-3} in.

Profile tolerance		
Dim. range in inch from	to	Tolerance in inch
-	.394	± .0059
.394	.591	± .0079
.591	1.181	± .0098
1.181	1.772	± .0118
1.772	2.362	± .0157
2.362	3.543	± .0177
3.543	4.724	± .0236
4.724	5.906	± .0315
5.906	7.087	± .0394
7.087	9.449	± .0472
9.449	11.811	± .0591

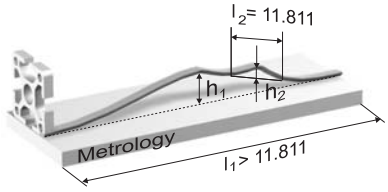
Flatness of profile surfaces



In order to optimize the connection stability, all profile surfaces are designed and manufactured with concave surfaces. This assures that the assembled profiles contact on the outer edges only (line of contact).
When tightening the connectors the slot flanks will be drawn to the mounting profile within the elastic range and will keep the connectors under tension.

Straightness tolerance

of the edge in longitudinal direction

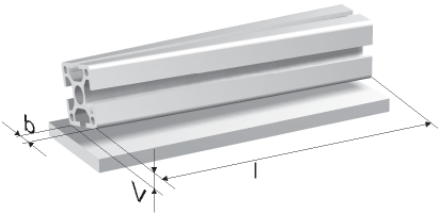


At a certain length l_1 the given tolerance h_1 is not to be exceeded.
For each incremental length of l_2 = 11.811 in. the deviation h_2 is not to exceed .012 in.

Straightness tolerance		
Length l_1 in foot from	to	Tolerance h_1 in inch
-	3.3	.028
3.3	6.6	.051
6.6	9.8	.071
9.8	13.1	.087
13.1	16.4	.102
16.4	19.7	.118

Flatness tolerance

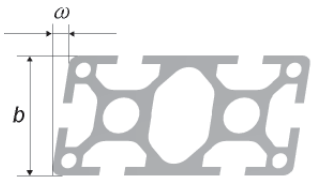
(Twist tolerance)



Width *b* in inch		Flatness tolerance in inch					
Dim. range		at length l in foot					
from	to	to 3.3	3.3 to 6.6	6.6 to 9.8	9.8 to 13.1	13.1 to 16.4	16.4 to 19.7
-	.984	.039	.059	.059	.079	.079	.079
.984	1.969	.039	.047	.059	.071	.079	.079
1.969	2.953	.039	.047	.047	.059	.079	.079
2.953	3.937	.039	.047	.059	.079	.087	.098
3.937	4.921	.039	.059	.071	.087	.098	.118
4.921	5.906	.047	.059	.071	.087	.098	.118
5.906	7.874	.059	.071	.087	.102	.118	.138
7.874	11.811	.071	.098	.118	.138	.157	.177

Parallelism tolerance

(Angular tolerance)



The parallelism tolerance ω (angular tolerance) refers to unequal sides to the shorter side of the angle, i.e. it is measured from the longer side.

Parallelism tolerance		
Width *b* in inch from	to	max. size tolerance ω in inch
-	1.181	.012
1.181	1.969	.016
1.969	3.150	.020
3.150	3.937	.024
3.937	4.724	.028
4.724	5.512	.031
5.512	6.299	.035
6.299	7.087	.039
7.087	7.874	.047
7.874	9.449	.059

Bending strength

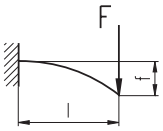
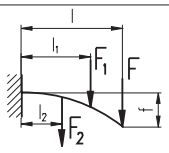
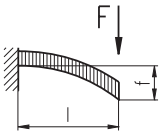
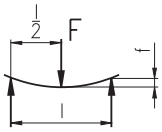
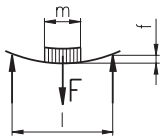
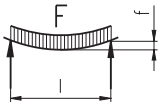
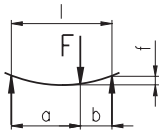
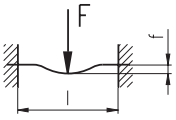
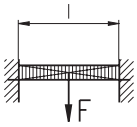
For the computation of deflection use formulas on this page.

For the computation of deflection by the profiles own weight, apply "Type of load" 3, 6 or 9.

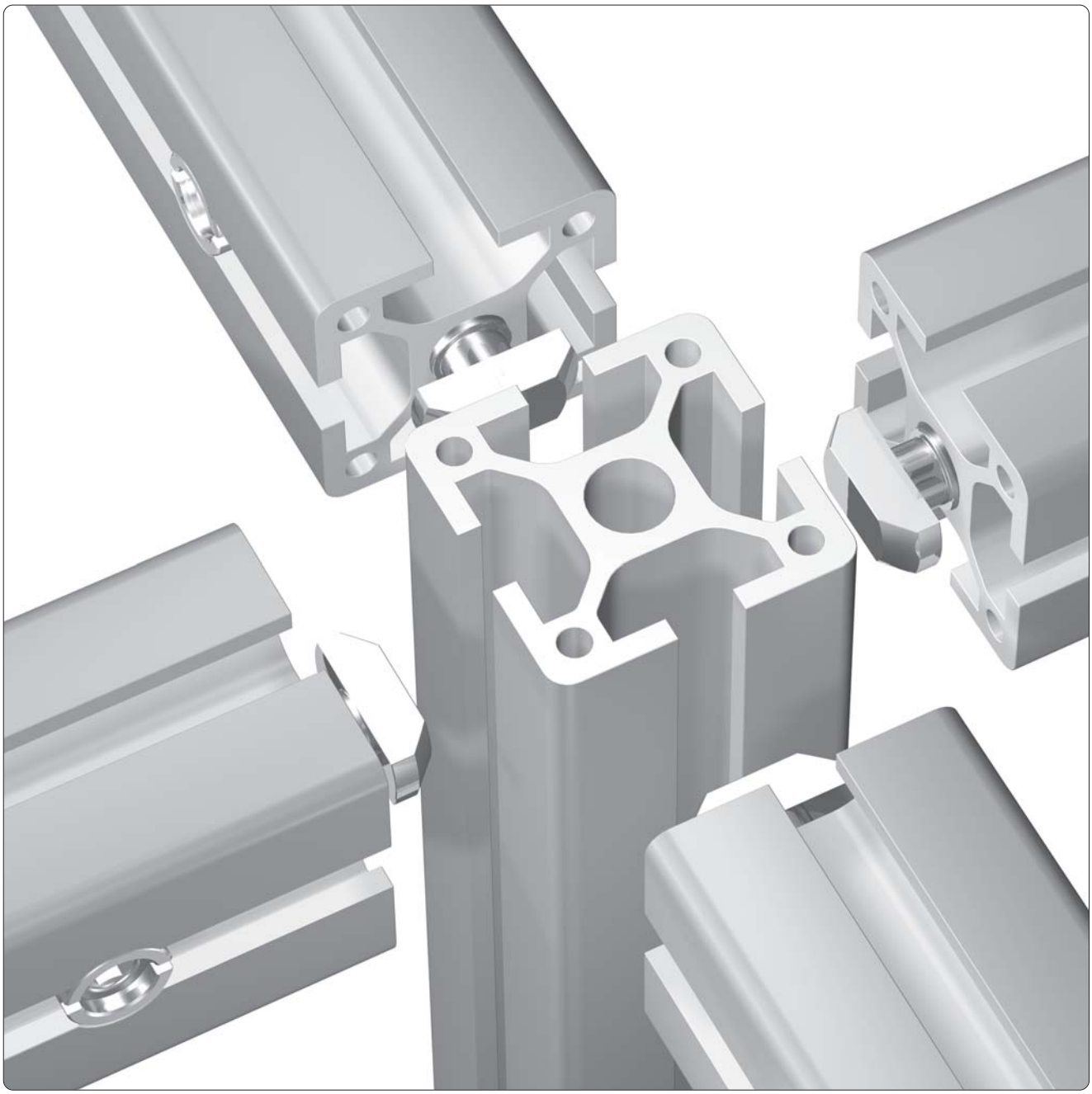
f = Deflection in in.
F = Type of load in lbs.
l = Profile length in in.
J [1] = Moment of inertia in in.^{4}
E = Module of elasticity in lbs./in.^{2}
E_{AL} = 10,2×10^6 lbs./in.^{2}

[1] Comments

The moments of inertia of a certain profile are listed on the respective profile page (☞ *2.11*).

Type of load		
1		$f = \frac{F \cdot l^3}{3E \cdot J}$
2		$f = \frac{F \cdot l^3 + F_1 \cdot l_1^2 \cdot l + F_2 \cdot l_2^2 \cdot l}{3E \cdot J}$
3		$f = \frac{F \cdot l^3}{8E \cdot J}$
4		$f = \frac{F \cdot l^3}{48E \cdot J}$
5		$f = \frac{F \cdot l^3}{\left(48 + \frac{29m}{l}\right) \cdot E \cdot J}$
6		$f = \frac{5F \cdot l^3}{384E \cdot J}$
7		$f = \frac{F \cdot a^2 \cdot b^2}{3E \cdot J \cdot l}$
8		$f = \frac{F \cdot l^3}{192E \cdot J}$ [2]
9		$f = \frac{F \cdot l^3}{384E \cdot J}$

[2] approximate value



Simple

Quick

Economical

Functional

The proven connection system!

The MayTec quick-connection system allows combination of all MayTec profiles in any way imaginable.

It carries same stability out after all four sides.

The connection allows:

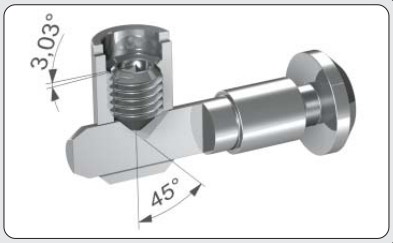
- easy machining
- quick assembly
- innumerable (dis)assemblies

The connection system is:

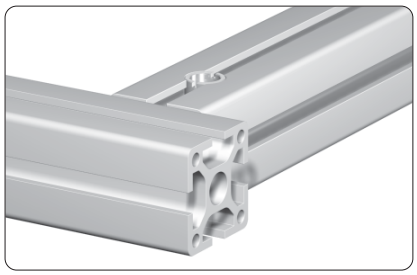
- complete
- stable
- functional

Vibration proof

The different direction angles of lead of thread and clamping cone prevent the loosening of the connection by vibration.



Manufacture a connection



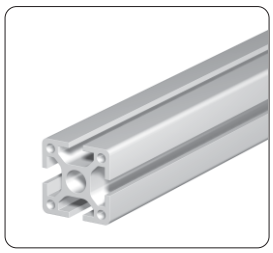
Example
Connection of two profiles 1.5“×1.5“ with one standard connector

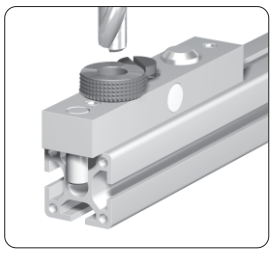
1. Connector selection

☞ *2.2, Connector selection*

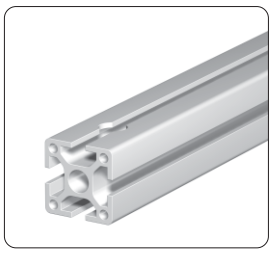
2. Profile machining

☞ *2.1A, Profile machining*
☞ *2.99, Tools*

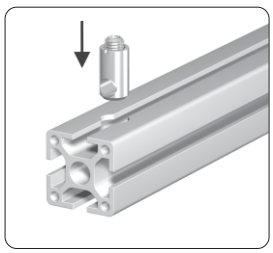




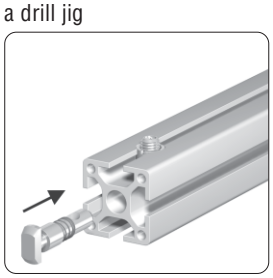
Manufacture the cross bushing bore with the aid of a drill jig



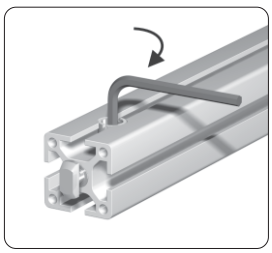
3. Pre-assembly of the connector



Insert the cross bushing

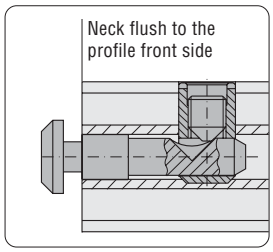


Push in the anchor



Pretension the anchor

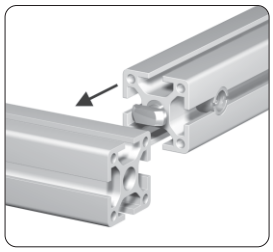
⚠ Mounting position



Comments
For the optimal assembly of the profiles the connector is to be installed in such a way that the neck is flush to the profile front side

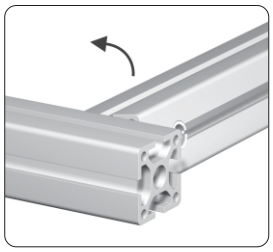
4. Final assembly

①



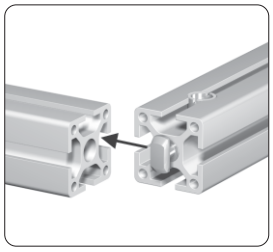
Push in sideways

or

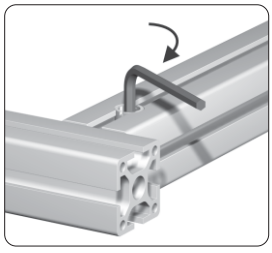


Turn the profile

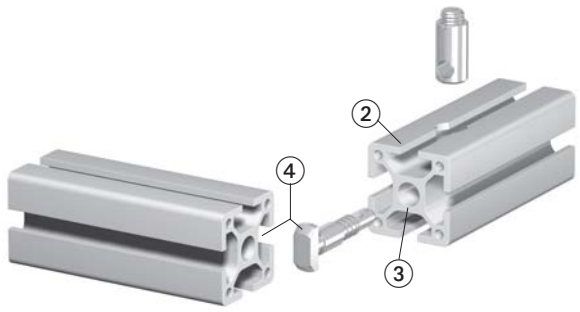
②



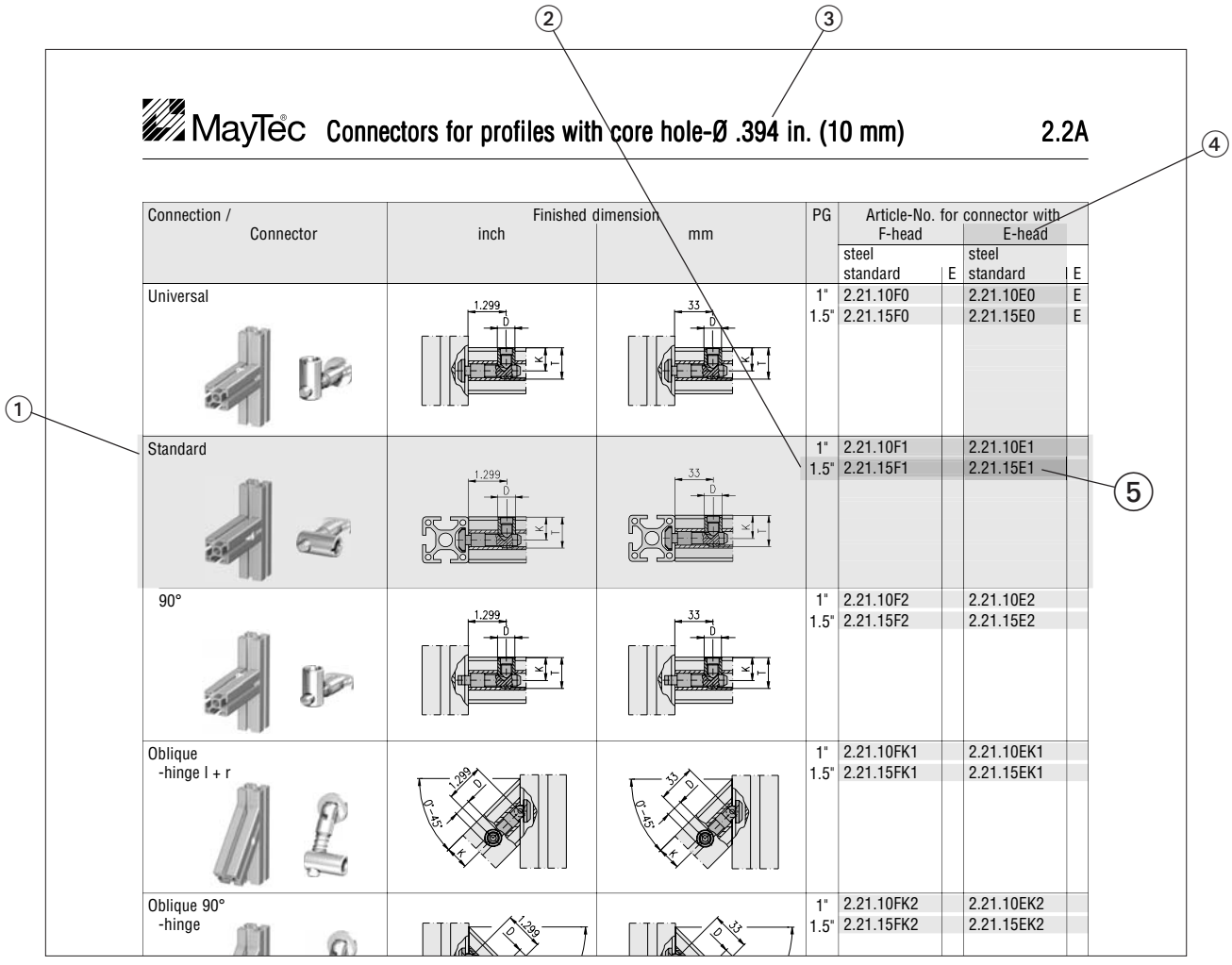
Push in front sided

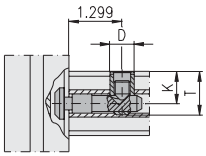
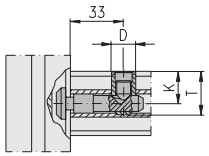
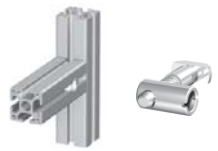
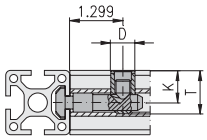
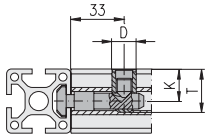
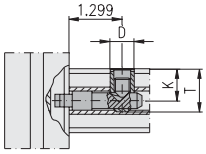
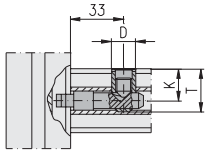
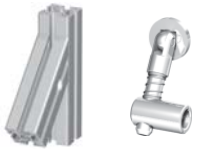
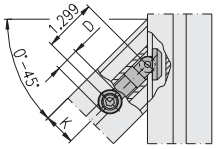
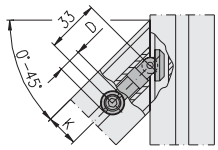
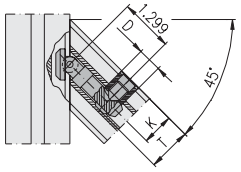
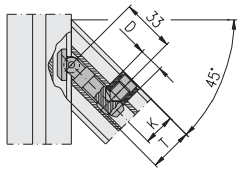
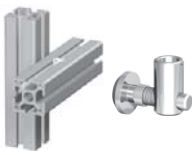
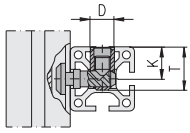
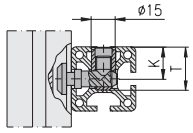


Tighten the setscrew

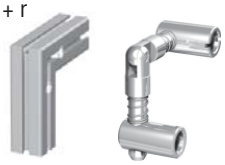
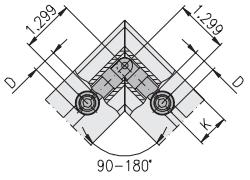
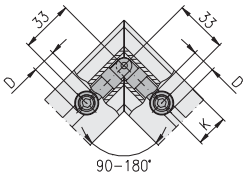
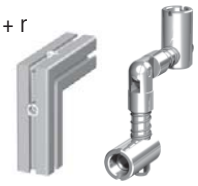
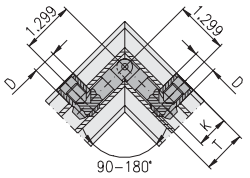
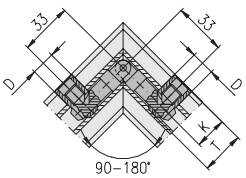
Connector selection		
		
Procedure		Example
① **Connection**	Selection of connector-variant	Standard
② **Profile 1**	Size of the profile in which the connector should be built into	1.5"×1.5"
③ **Core hole**	Determination of the core hole Ø	Ø .394 in.
④ **Profile 2**	Determination of the connector-head according to slot-variant of the profile on which it will be joined	1.5"×1.5" in. / E-slot
⑤ **Connector**	Determination of connector	**2.21.15E1**

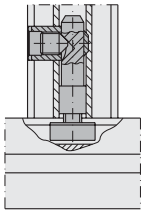
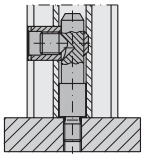
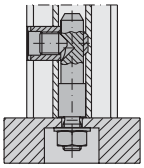
Connector types and materials		
Connector	Article-No.	Technical data
Standard	2.21.10E0	material: steel strength: ≥ 94,355 lbs./in.² surface: galvanised
Standard, ground	2.21.10E0 E	



Connection / Connector	Finished dimension inch	Finished dimension mm	PG	Article-No. for connector with F-head steel standard	F-head E	Article-No. for connector with E-head steel standard	E-head E
Universal 			1"	2.21.10F0		2.21.10E0	E
			1.5"	2.21.15F0		2.21.15E0	E
Standard 			1"	2.21.10F1		2.21.10E1	
			1.5"	2.21.15F1		2.21.15E1	
90° 			1"	2.21.10F2		2.21.10E2	
			1.5"	2.21.15F2		2.21.15E2	
Oblique -hinge l + r 			1"	2.21.10FK1		2.21.10EK1	
			1.5"	2.21.15FK1		2.21.15EK1	
Oblique 90° -hinge 			1"	2.21.10FK2		2.21.10EK2	
			1.5"	2.21.15FK2		2.21.15EK2	
Parallel -square 			1"	2.21.10F5		2.21.10E5	
			1.5"	2.21.15F5		2.21.15E5	

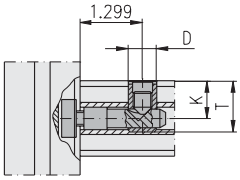
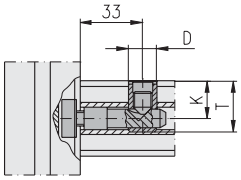
E = ground-connector, dimensions K, T ☞ *drill dimensions for connector cross bushings 2.2B*

Connection / Connector	Finished dimension inch	Finished dimension mm	PG	Article-No. for connector steel standard	Article-No. for connector E
Miter -hinge l + r 			1"	2.21.10G1	
			1.5"	2.21.15G1	
Miter 90° -hinge l + r 			1"	2.21.10G2	
			1.5"	2.21.15G2	

Connection variants with screw-type connectors		
		
Profile with profile	Profile to plate with thread	Profile to plate with through-hole

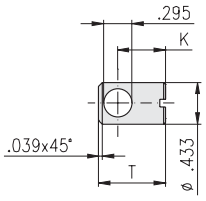
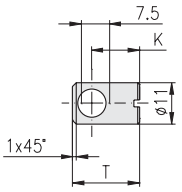
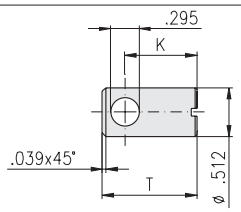
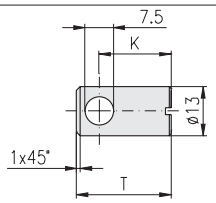
Mounting instruction for screw-type connectors

1. Screw anchor in until it stops against the shoulder
2. Unscrew anchor until it lines-up with the cross bushing position (max. one turn)
3. Set up profile with cross bushing

Connection / Connector	Finished dimension inch	Finished dimension mm	PG	thread	Article-No. for connector steel standard	Article-No. for connector E
Screw-type front sided 			1"	5/16-18	2.21.10SM8.5/1618	
			1.5"	5/16-18	2.21.15SM8.5/1618	

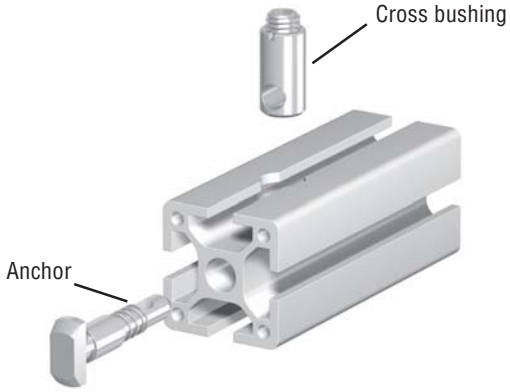
E = ground-connector, dimensions K, T ☞ *drill dimensions for connector cross bushings 2.2B*

Drill dimensions for connector cross bushings

Slot type	Cross bushing dimension inch	Cross bushing dimension mm	PG **K**	Core hole distance **T**	Boring depth, Cross bushing length	Article-No. steel
F-slot			1"	1/2 in. (12.7 mm)	.697 in. (17.7 mm)	2.21.B10
E-slot			1.5"	3/4 in. (19.05 mm)	.984 in. (25 mm)	2.21.B15

tools ☞ *2.99*

Connector components



As an alternative to the complete connector it is also possible to order the component parts.
Because of the extensive combination possibilities, storage of the complete connectors will be reduced by over 80%.

Single parts

Anchor

Base with spring

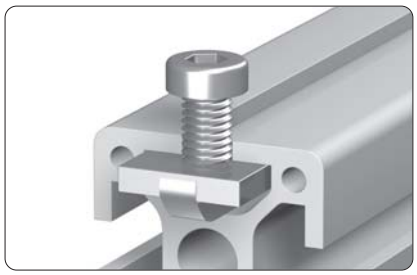
Cross bushing

Base with setscrew

Connector for core hole Ø.394 in. (10 mm)			Connectors, complete				Single parts			
			PG 1“		PG 1.5“		Anchor		Piece	
			steel standard	E	steel standard	E	steel standard	E		
		Universal	2.21.10F0 2.21.10E0	 E	2.21.15F0 2.21.15E0	 E	2.21.A1F0 2.21.A1E0	 E	1 1	1 1
		Standard	2.21.10F1 2.21.10E1		2.21.15F1 2.21.15E1		2.21.A1F1 2.21.A1E1		1 1	1 1
		90°	2.21.10F2 2.21.10E2		2.21.15F2 2.21.15E2		2.21.A1F2 2.21.A1E2		1 1	1 1
		Oblique -hinge l + r	2.21.10FK1 2.21.10EK1		2.21.15FK1 2.21.15EK1		2.21.A1FK1 2.21.A1EK1		1 1	1 1
		90° -hinge	2.21.10FK2 2.21.10EK2		2.21.15FK2 2.21.15EK2		2.21.A1FK2 2.21.A1EK2		1 1	1 1
		Parallel -square	2.21.10F5 2.21.10E5				2.21.A10F5 2.21.A10E5		1 1	1 1
					2.21.15F5 2.21.15E5		2.21.A15F5 2.21.A15E5		1 1	1 1
		Miter -hinge l + r	2.21.10G1		2.21.15G1		2.21.A1G1		1	2
		90° -hinge l + r	2.21.10G2		2.21.15G2		2.21.A1G2		1	2
		Screw-type -front sided	2.21.10SM8.5/1618		2.21.15SM8.5/1618		2.21.A1SM8.5/1618		1	1
		Cross bushing, steel	2.21.B10		2.21.B15		*Cross bushing, steel*			

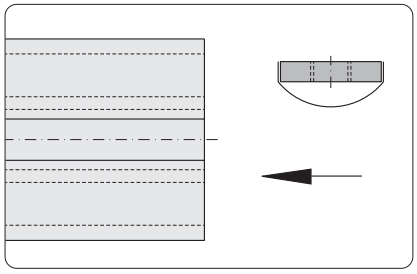
E = ground-connector

Threaded plates



Fixed into position with leaf spring

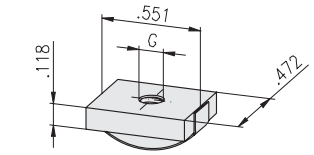
Application
Fastening element for screw-type connections



Assembly
Insert from end

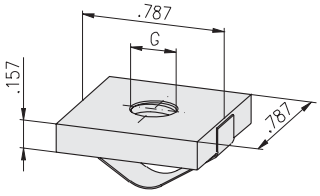
Technical data

material:	steel
surface:	galvanised
max. moment of torque:	$M_{A, max}$



F E

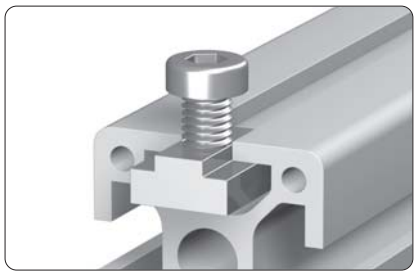
Description	G	$M_{A, max}$	Weight	Article-No.
Threaded plate F	8-32	2.213 lbs.×ft.	.0082 lbs.	2.31.F4.08-32
Threaded plate F	10-32	3.688 lbs.×ft.	.0079 lbs.	2.31.F5.10-32
Threaded plate F	1/4-20	5.163 lbs.×ft.	.0073 lbs.	2.31.F6.1/4-20



F E

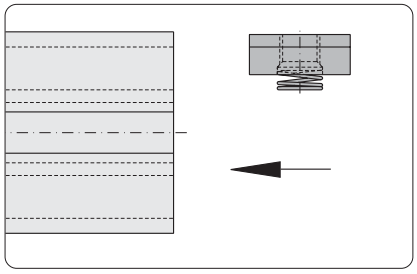
Description	G	$M_{A, max}$	Weight	Article-No.
Threaded plate E	8-32	2.213 lbs.×ft.	.0260 lbs.	2.31.E4.08-32
Threaded plate E	10-32	3.688 lbs.×ft.	.0256 lbs.	2.31.E5.10-32
Threaded plate E	1/4-20	7.376 lbs.×ft.	.0249 lbs.	2.31.E6.1/4-20
Threaded plate E	5/16-18	11.063 lbs.×ft.	.0243 lbs.	2.31.E8.5/16-18

T-Nuts



Fixing with compressing spring

Application
Fastening element for screw-type connections

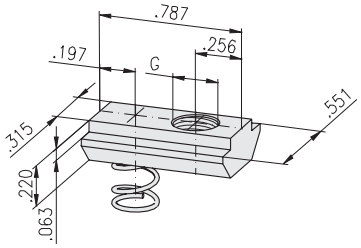


Insert from end

Assembly
Insert from end

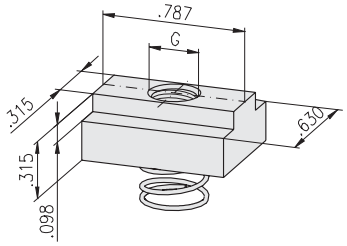
Technical data

material:	steel
surface:	galvanised
max. moment of torque:	$M_{A, max}$



F E

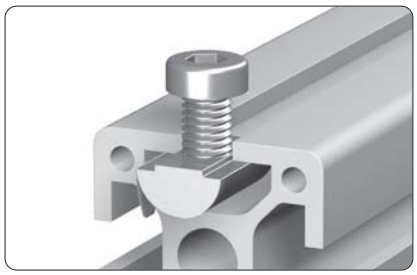
Description	G	$M_{A, max}$	Weight	Article-No.
T-Nut F	1/4-20	7.376 lbs.×ft.	.0154 lbs.	2.32.F6.1/4-20
T-Nut F	5/16-18	19.177 lbs.×ft.	.0146 lbs.	2.32.F8.5/16-18



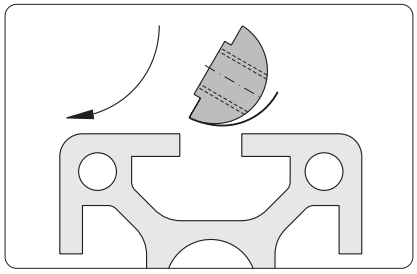
F E

Description	G	$M_{A, max}$	Weight	Article-No.
T-Nut E	1/4-20	7.376 lbs.×ft.	.0331 lbs.	2.32.E6.1/4-20
T-Nut E	5/16-18	19.177 lbs.×ft.	.0309 lbs.	2.32.E8.5/16-18

T-Nuts
for subsequent insertion



Fixing with leaf spring

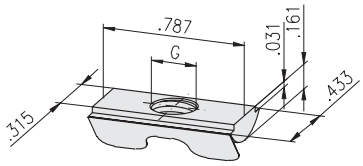


Insert front-sided and rotate

Application
Fastening element for screw-type connections

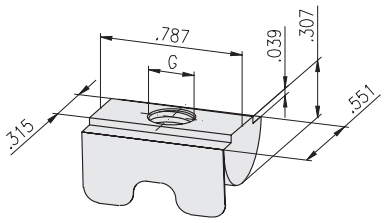
Technical data

material:	steel
surface:	galvanised
max. moment of torque:	$M_{A, max}$



F E

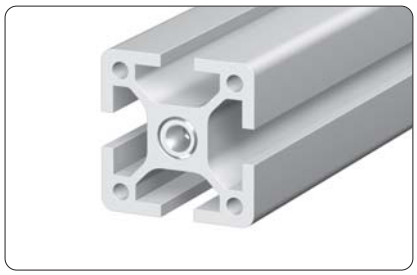
Description	G	$M_{A, max}$	Weight	Article-No.
T-Nut for subs. insertion F	8-32	2.213 lbs.×ft.	.0108 lbs.	2.324.F4.08-32
T-Nut for subs. insertion F	10-32	3.688 lbs.×ft.	.0101 lbs.	2.324.F5.10-32
T-Nut for subs. insertion F	1/4-20	7.376 lbs.×ft.	.0095 lbs.	2.324.F6.1/4-20
T-Nut for subs. insertion F	5/16-18	7.376 lbs.×ft.	.0082 lbs.	2.324.F8.5/16-18



F E

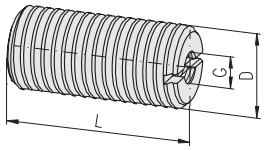
Description	G	$M_{A, max}$	Weight	Article-No.
T-Nut for subs. insertion E	8-32	2.213 lbs.×ft.	.0220 lbs.	2.324.E4.08-32
T-Nut for subs. insertion E	10-32	3.688 lbs.×ft.	.0220 lbs.	2.324.E5.10-32
T-Nut for subs. insertion E	1/4-20	7.376 lbs.×ft.	.0220 lbs.	2.324.E6.1/4-20
T-Nut for subs. insertion E	5/16-18	19.177 lbs.×ft.	.0198 lbs.	2.324.E8.5/16-18

Threaded inserts



Application
For mounting on front end and fastening of any profile with core hole Ø.394 in.

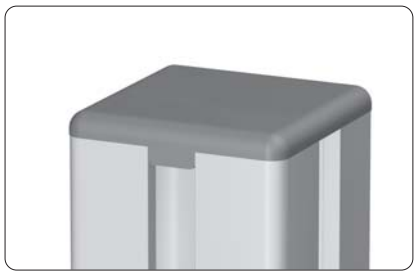
Technical data
material: steel
surface: galvanised



F E

Description	D/G	L	Weight	Article-No.
Threaded insert	1/2"-13 / 1/4"-20	.591	.0161 lbs.	2.35.11214
Threaded insert	1/2"-13 / 5/16"-18	.591	.0121 lbs.	2.35.112516

Cover caps

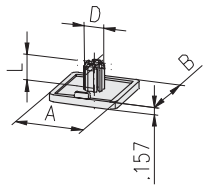


Application
Cover caps prevent dirt from entering and avoid lacerations.

Technical data
material: PA-GF
temperature range: -20°C to +85°C

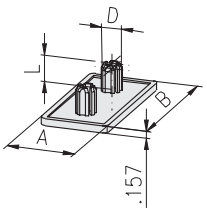
Comments
Before mounting debur core hole

Square



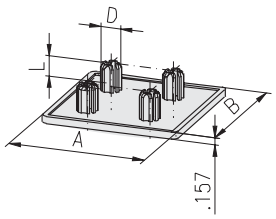
Description	A×B	D	L	Colour	Weight	Article-No.
Cover cap	1"×1"	Ø.433	.551	grey	.013 lbs.	2.42.1010010.1
Cover cap	1"×1"	Ø.433	.551	black	.013 lbs.	2.42.1010010.2
Cover cap	1.5"×1.5"	Ø.433	.551	grey	.022 lbs.	2.42.2015015.1
Cover cap	1.5"×1.5"	Ø.433	.551	black	.022 lbs.	2.42.2015015.1

Rectangle



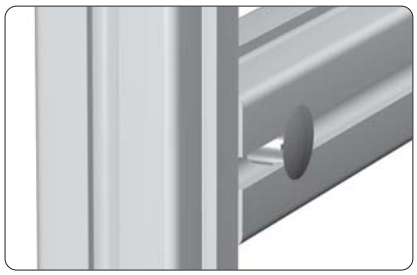
Description	A×B	D	L	Colour	Weight	Article-No.
Cover cap	1.5"×3"	Ø.433	.551	grey	.040 lbs.	2.42.2015030.1
Cover cap	1.5"×3"	Ø.433	.551	black	.040 lbs.	2.42.2015030.2

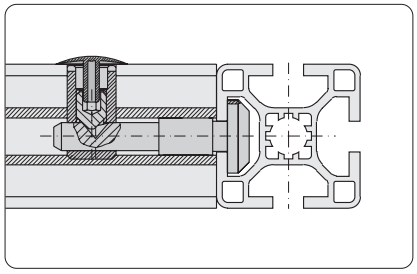
Square



Description	A×B	D	L	Colour	Weight	Article-No.
Cover cap	2"×2"	Ø.433	.551	grey	.026 lbs.	2.42.1020020.1
Cover cap	2"×2"	Ø.433	.551	black	.026 lbs.	2.42.1020020.2
Cover cap	3"×3"	Ø.433	.551	grey	.075 lbs.	2.42.2030030.1
Cover cap	3"×3"	Ø.433	.551	black	.075 lbs.	2.42.2030030.2

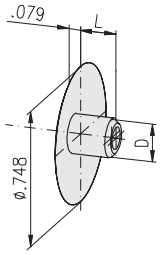
Cover plugs domed





Application
The cover plug allows the closing of the connector cross bushing bore

Technical data
material: PE

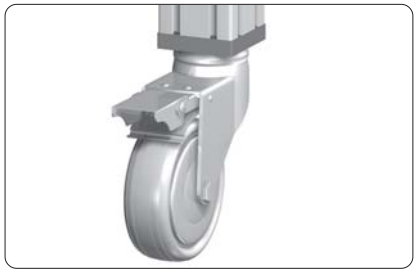


Description	Colour	D	L	Weight	Article-No.
Cover plug 1" domed	grey	Ø.169	.177	.002 lbs.	2.42.5110.1
Cover plug 1" domed	black	Ø.169	.177	.002 lbs.	2.42.5110.2
Cover plug 1.5" domed	grey	Ø.169	.433	.002 lbs.	2.42.5115.1
Cover plug 1.5" domed	black	Ø.169	.433	.002 lbs.	2.42.5115.2

Base plates

Fastening of levelling feet

Application
Base and transporting plate for profiles without centric core hole



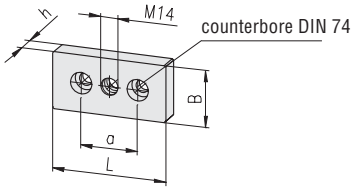
Fastening of castors

Fastening of eye-bolts

Technical data
material: aluminium
strength: F22
surface: black powder-coated

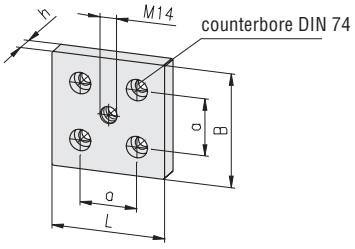
Accessories
(☞ ***Catalogue, 'The Profile System'***)
- threaded insert
- cap-screw DIN 912

Comments
Counterbore DIN 74 for cap-screw DIN 912



1 1.5

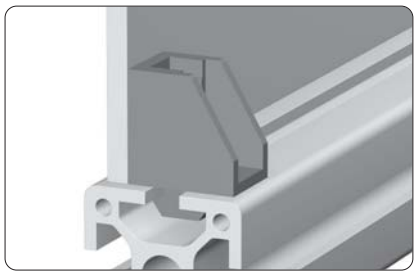
Description	B×L		DIN 74	h	a	Weight	Article-No.
Base plate	1.5"×3"	M14	- Km8	.591	1.5	.048 lbs.	2.47.2015030



1 1.5

Description	B×L		DIN 74	h	a	Weight	Article-No.
Base plate	2"×2"	M14	- Km6	.591	1.0	.044 lbs.	2.47.2020020
Base plate	3"×3"	M14	- Km8	.591	1.5	.106 lbs.	2.47.2030030

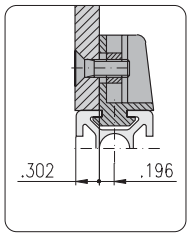
Mounting blocks
for subsequent insertion



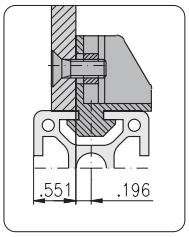
Application
For the mounting of panels with subsequent insertion
Variable mounting position of panels with distancing plate

Technical data

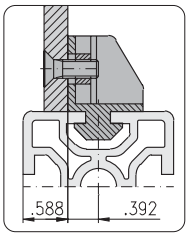
material:	PA-GF
colour:	black
square nut:	steel , galvanised
max. static load:	250 N, rectangular to slot



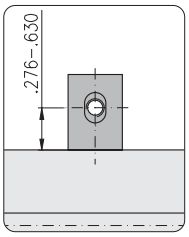
F-slot



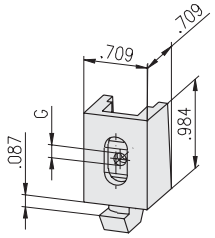
E3-slot



E4-slot

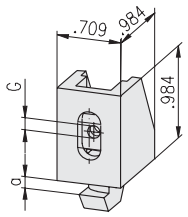


Tolerance equalisation: .354 in.



F E

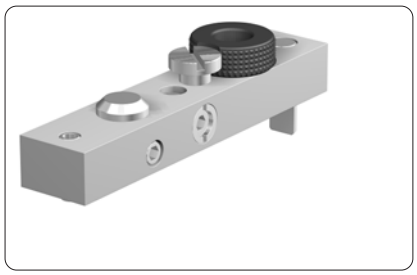
Description	G	Weight	Article-No.
Mounting block F	1/4“-20	.022 lbs.	2.64.2F2M6.1/4-20



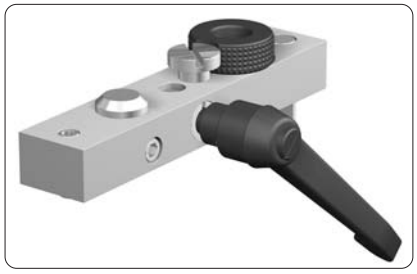
F E

Description	G	a	Weight	Article-No.
Mounting block E3	1/4“-20	.118	.022 lbs.	2.64.2E3M6.1/4-20
Mounting block E4	1/4“-20	.157	.022 lbs.	2.64.2E4M6.1/4-20

Drill jigs
for profiles with F- and E-slots



Drill jig with setscrew



Drill jig with clamping lever

Application

Tools for precise machining of connection bore

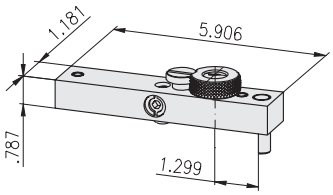
- for drilling machine: - drill jig
  - drill
- for milling machine: - milling cutter
- the drill jig is located and fastened in the profile slot
- suitable for any profile angle cut

Technical data

Base body:
- material: aluminium
- surface: neutral anodised

Drill bush:
- material: steel
- surface: hardened and polished

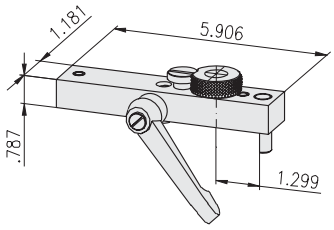
Drill jig
with setscrew



F E

Description	Weight	Article-No.
Drill jig FE with setscrew	.827 lbs.	2.99.01111
Single parts	**Weight**	**Article-No.**
Base body	.414 lbs.	1.99.01112-01
Drill bush for cross bushing, Ø.441	.231 lbs.	2.99.01112-02
Drill bush for cross bushing, Ø.520	.231 lbs.	2.99.01112-03
Safety screw for drill bush, M8×5.5	.024 lbs.	1.99.01112-04
Stop pin	.042 lbs.	1.99.01112-05
Setscrew for stop pin	.004 lbs.	1.99.01112-06
Connector, parallel-high	.066 lbs.	1.21.31/2F5
Anchor	.044 lbs.	1.21.A2E5
Accessories		
Drill bush for parallel-anchor, Ø.398	.198 lbs.	2.99.01112-12

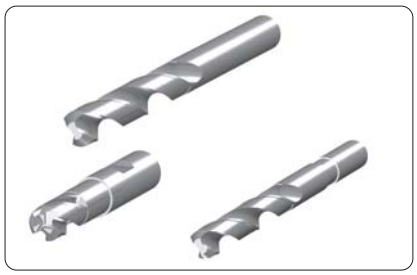
Drill jig
with clamping lever



F E

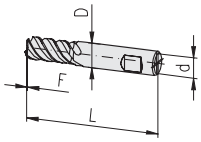
Description	Weight	Article-No.
Drill jig FE with clamping lever	.966 lbs.	2.99.01112
Single parts	**Weight**	**Article-No.**
Base body	.414 lbs.	1.99.01112-01
Drill bush for cross bushing, Ø.441	.231 lbs.	2.99.01112-02
Drill bush for cross bushing, Ø.520	.231 lbs.	2.99.01112-03
Safety screw for drill bush, M8×5.5	.024 lbs.	1.99.01112-04
Stop pin	.042 lbs.	1.99.01112-05
Setscrew for stop pin	.004 lbs.	1.99.01112-06
Connector, parallel-high	.066 lbs.	1.21.31/2F5
Anchor	.044 lbs.	1.21.A2E5
Clamping lever 80, for connector, M10×20	.139 lbs.	1.29.801020
Accessories		
Drill bush for parallel-anchor, Ø.398	.198 lbs.	2.99.01112-12

Tools
for profiles with F- and E-slots



Drill, Milling cutter

Milling cutter
for • parallel-anchor
• cross bushing

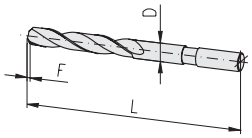


F E

Technical data
material: HSS
4 cutting edges
cutting geometry for aluminium machining
off-centre cutting edges

Description	D	L	F	d	Weight	Article-No.
Milling cutter f. par.-anchor	Ø.398	3.150	.079×45°	.472	.130 lbs.	2.99.0211045
Milling cutter f. cross bush.	Ø.441	3.543	.039×45°	.630	.256 lbs.	2.99.0211145
Milling cutter f. cross bush.	Ø.520	3.543	.039×45°	.630	.256 lbs.	2.99.0211345

Drill
for parallel-anchor

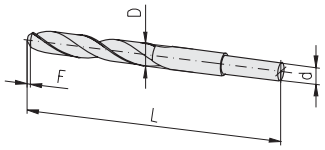


F E

Technical data
material: HSS
2 cutting edges
cutting geometry for aluminium machining
off-centre cutting edges

Description	D	L	F	Weight	Article-No.
Drill for parallel-anchor	Ø.398	5.906	.079×45°	.205 lbs.	2.99.0311045

Drills
for cross bushing

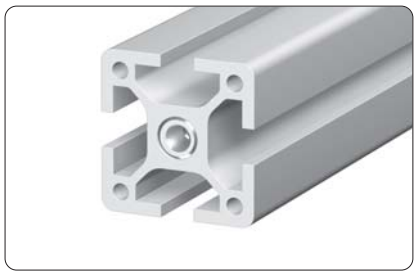


F E

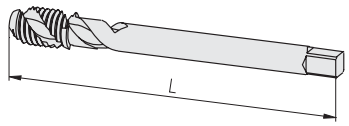
Technical data
material: HSS
2 cutting edges
cutting geometry for aluminium machining
off-centre cutting edges

Description	D	L	F	d	Weight	Article-No.
Drill for cross bushing	Ø.441	5.591	.039×45°	.472	.201 lbs.	2.99.0321145
Drill for cross bushing	Ø.520	5.945	.039×45°	.472	.205 lbs.	2.99.0321345

Screw taps
for aluminium machining



Application
Mounting threads in profile centre core holes



F E

Technical data
material: HSS/E
machine threading tap:
- right hand cutting, 20° left spiral fluted
- enlarged chip flute
- 2-pitch thread start
- tolerance class: 6H

Description	G	L	Weight	Article-No.
Screw tap	M12	4.331	.231 lbs.	2.99.0412110
Screw tap	1/2"-13	4.331	.245 lbs.	2.99.14102013

Metric and English Conversion Table

Linear Measure					
1 km	=	0.6214 mi	1 mi	=	1.61 km
1 m	=	0.0006214 mi	1 mi	=	1,610 m
1 m	=	3.28 ft	1 ft	=	0.305 m
1 cm	=	0.3937 in	1 in	=	2.54 cm
1 mm	=	0.03937 in	1 in	=	25.4 mm

Square Measure					
1 km^2	=	0.3861 mi^2	1 mi^2	=	2.59 km^2
1 m^2	=	10.76 ft^2	1 ft^2	=	0.093 m^2
1 cm^2	=	0.155 in^2	1 in^2	=	0.65 cm^2
1 mm^2	=	0.00155 in^2	1 in^2	=	845.2 mm^2

Weight Measure					
1 kg	=	2.2 lbs	1 lb	=	0.455 kg
1 kg	=	35.274 ozs	1 oz	=	0.028 kg

Force Measure					
1 Newton (N)	=	0.225 lbs	1 lb	=	4.448 N
1 daN	=	2.2 lbs	1 lb	=	0.455 daN
1 kg Force	=	9.8 Newton (N)	1 N	=	0.102 kg Force
1 Kilopound	=	9.5 Newton (N)	1 N	=	0.105 Kilopound
1 Pound/Inch	=	175.127 Newton/Meter	1 N/m	=	0.0057 Pound/Inch
1 Pound/Foot	=	14.59 Newton/Meter	1 N/m	=	0.0685 Pound/Foot

Pressure Measure					
1 Bar	=	14.5 P.S.I.	1 P.S.I.	=	0.690 Bar
1 kg/m^2	=	9.8 $Newton/Meter^2$	1 N/m^2	=	0.102 kg/m^2
1 kg/m^2	=	9.8 Pascal (Pa)	1 Pa	=	0.102 kg/m^2
1 Kilonewton/Meter	=	0.145 P.S.I.	1 P.S.I.	=	6.897 KN/m^2

Other					
1 in^3	=	16.3871 cm^3	1 cm^3	=	0.0610 in^3
1 in^4	=	41.623 cm^4	1 cm^4	=	0.024 in^4
1 lb/ft	=	1.4882 kg/m	1 kg/m	=	0.67195 lb/ft
1 Nm	=	8.858 inch-pounds	1 inch-pound	=	0.113 Nm

Metric / U.S. Customary Unit Equivalents

Linear				
miles	× 1.6093	= kilometers (km)	× 0.6214	= miles
yards	× 0.9144	= meters (m)	× 1.0936	= yards
feet	× 0.3048	= meters (m)	× 3.281	= feet
inches	× 2.54	= centimeters (cm)	× 0.3937	= inches
inches	× 25.4	= millimeters (mm)	× 0.03937	= inches

Area				
$miles^2$	× 2.59	= $kilometers^2$ (km^2)	× 0.3861	= $miles^2$
$yards^2$	× 0.8361	= $meters^2$ (m^2)	× 1.196	= $yards^2$
$inches^2$	× 6.452	= $centimeters^2$ (cm^2)	× 0.155	= $inches^2$
$acres^2$	× 0.4047	= $hectares^2$ ($10^4 m^2$) or (ha)	× 2.471	= $acres^2$
$feet^2$	× 0.0929	= $meters^2$ (m^2)	× 10.764	= $feet^2$

Mass				
ounces (av)	× 28.35	= grams (g)	× 0.03527	= ounces (av)
pounds (av)	× 0.4536	= kilograms (kg)	× 2.2046	= pounds (av)
tons (2000 lb)	× 907.18	= kilograms (kg)	× 0.001102	= tons (2000 lb)
tons (2000 lb)	× 0.90718	= metric tons (t)	× 1.1023	= tons (2000 lb)

Force				
ounces - f	× 0.278	= newtons (N)	× 3.597	= ounces - f
pounds - f	× 4.448	= newtons (N)	× 0.2248	= pounds - f
kilograms - f	× 9.807	= newtons (N)	× 0.10197	= kilograms - f

Thread	**mm**			**inch**		
	Outside dia	Core dia		Outside dia	Core dia	
metric		Bolt	Nut		Bolt	Nut
M4	4	3.141	3.242	0.15748	0.12362	0.12756
M5	5	4.019	4.134	0.19685	0.15827	0.16260
M6	6	4.773	4.917	0.23622	0.18779	0.19370
M8	8	6.466	6.647	0.31496	0.25472	0.26181
M10	10	8.160	8.376	0.39370	0.32126	0.32992
M12	12	9.853	10.106	0.47244	0.38779	0.39803
M14	14	11.546	11.835	0.55118	0.45827	0.46614
M16	16	13.546	13.835	0.62992	0.53346	0.54488

Thread	**inch**			**mm**		
	Outside dia	Core dia		Outside dia	Core dia	
UNF, NF / UNC, NC		Bolt	Nut		Bolt	Nut
8 - 32	0.16402	0.12571	0.13020	4.166	3.193	3.307
10 - 32	0.19000	0.15169	0.15618	4.826	3.853	3.967
1/4" - 20	0.25000	0.18870	0.19591	6.350	4.793	4.967
5/16" - 18	0.31252	0.24429	0.25240	7.938	6.205	6.411
3/8" - 16	0.37500	0.29831	0.30728	9.525	7.577	7.805
1/2" - 13	0.50000	0.40551	0.41669	12.700	10.300	10.584
9/16" - 12	0.56252	0.46031	0.47228	14.288	11.692	11.996
5/8" - 11	0.62500	0.51350	0.52661	15.875	13.043	13.376

Imprint

Subject to technical modification.

La chiave ...

del successo

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