

# Grafco

## NAJNOWSZE PRODUKTY



**Grafco** przedstawia nowość na Polskim rynku - kompletne systemy mocowań na elektrodrążarki wgłębne i drutowe. Producentem jest szwajcarska firma **F-tool**, której wszystkie produkty są kompatybilne z EROWA i 3R. W ofercie pełna gama uchwytów do mocowania elektrod miedzianych i grafitowych w bardzo atrakcyjnych i konkurencyjnych cenach.



**Zapraszamy do współpracy!**

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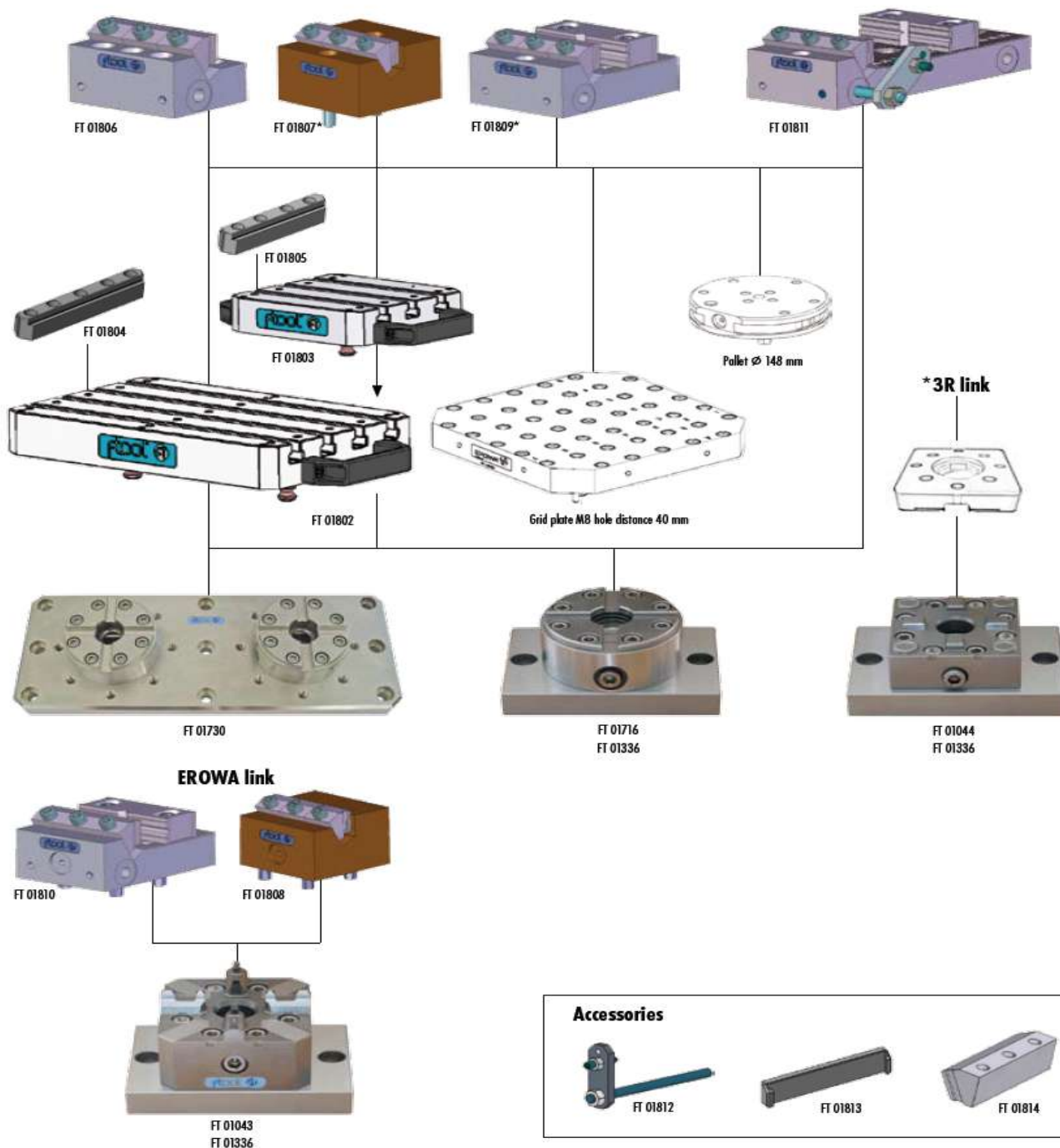
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## F-Tool PIN ZeroPoint centering system

Universal, simple, conclusive



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## F-Tool PIN ZeroPoint centering system

From the electrode holder to the ZeroPoint centering system – a system with a great clamping potential

### A simple solution for clamping and positioning

The F-Tool ZeroPoint centering system provides:

- accurate and extensive clamping possibilities
- economic and extendable solutions

The F-Tool PIN ZeroPoint centering system is suitable for multi-functional clamping tasks.

**NEW!**

PIN center chuck



PIN system applications



F-Tool pull-down vises



PIN ZeroPoint centering system

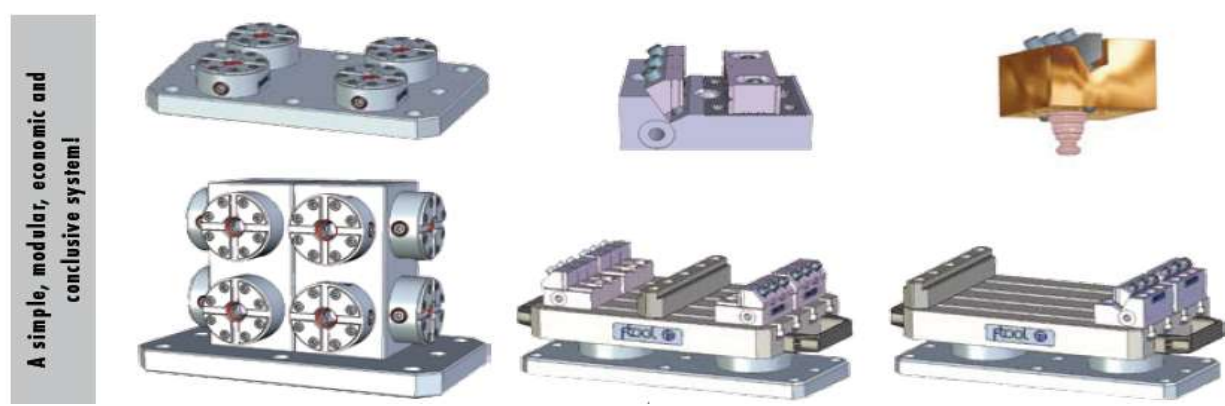
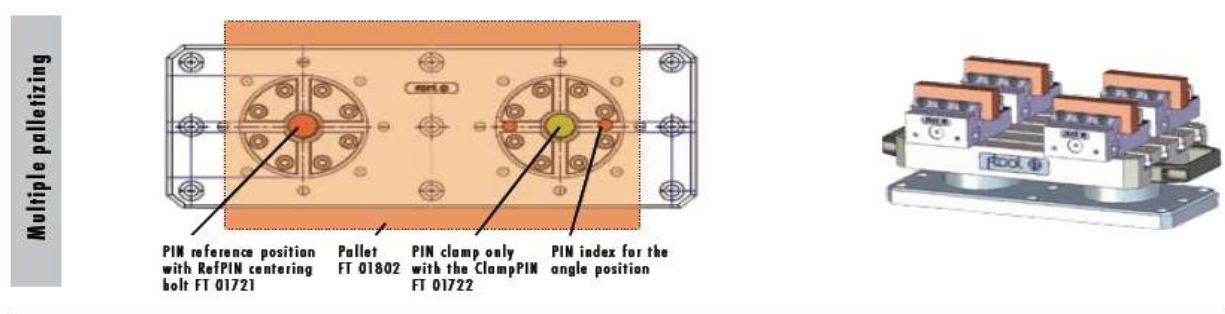
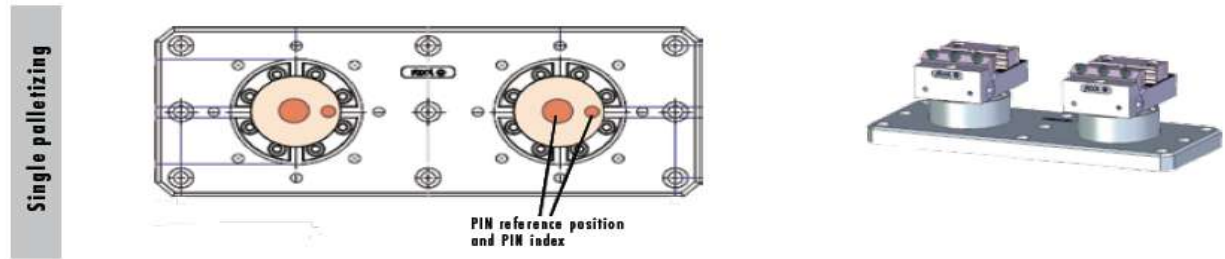
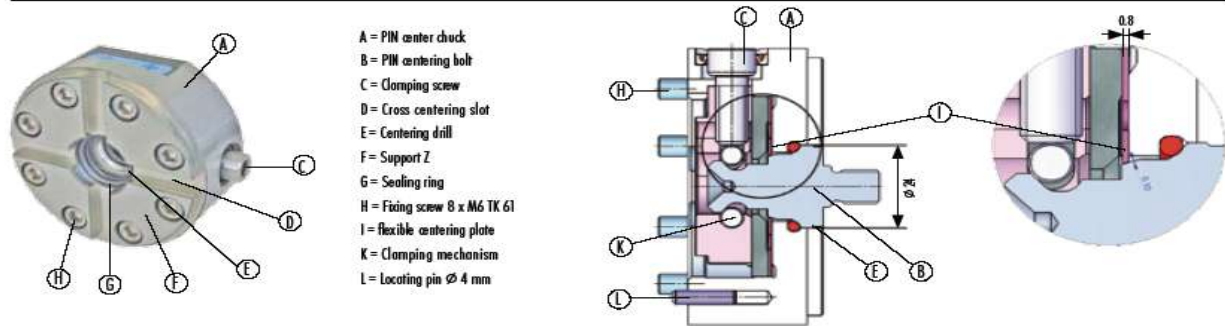


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## F-Tool PIN ZeroPoint centering system

F-Tool has created a simple, economical solution to a whole range of clamping problems, for clamping work pieces quickly, powerfully and precisely in a defined position. One side is milled and fitted with two drilling screws. One drill composes the center in combination with the centering bolt. The other composes of the angle position together with the Index screw. Now the piece is accessible on 5 sides and can be clamped in the center chuck and worked on with 4 x 90° reference accuracy. The Z-reference forms the work piece support surface.



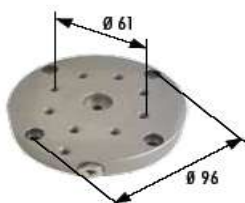
## F-Tool PIN holder system



### F-Tool PIN center chuck

The PIN center chuck is a compact reference system and is able for the collet of electrodes and work pieces. It's also the base of the F-Tool PIN ZeroPoint centering system. The centering, respective the positioning happens in two steps. The first step is the pre-centering with the PIN centering bolt. The precise centering is done, if the cone of the spigot is intervening on the flexible centering plate, and the piece is drawn to the clamping area. With the intervention of the PIN index 8 mm into the cross slot, the angle coat is defined.

Article no.	Article	Quantity	Weight	Code
FT 01716	FTool PIN center chuck corrosion-resistant / hardened	1 piece	1.48 kg	P
FT 01717	FTool PIN center chuck with nonius graduation	1 piece	1.54 kg	P



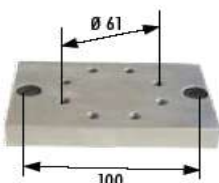
### EDM adapter plate

Parallel ground, corrosion-resistant adapter plate for EDM quills. With flushing connection and M6 thread for power cable.

Dimension: Ø 110 x 18 mm  
 Hole pattern for chuck: 8 x M6 TK Ø 61 x 45°  
 Hole pattern for quill: 4 x 6.5 TK Ø 96 x 90°

Article no.	Article	Quantity	Weight	Code
FT 01236	EDM adapter plate Ø 110 mm ER/3R/PIN chuck	1 piece	1.32 kg	A
FT 01829	EDM adapter plate Ø 110 mm without hole pattern Ø 96 mm	1 piece	1.32 kg	A

→ Delivered with screws and flushing seal

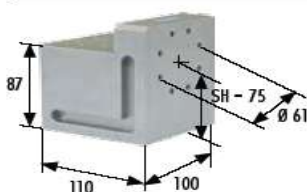


### Adapter plate

Parallel ground, corrosion-resistant adapter plate, suited for machine tool tables.

Dimension: 120 x 82 x 18 mm  
 Hole pattern collet chuck: 8 x M6 TK Ø 61 x 45°  
 Collet machine tool table: with brackets or 2 x M8 distance 100 mm

Article no.	Article	Quantity	Weight	Code
FT 01336	Adapter plate 120 x 82 mm ER/3R/PIN chuck	1 piece	1.40 kg	A



### Square block

Accurate ground square block, corrosion-resistant, for the assembling of one or two ER chuck 80P (FT 01043), 3R chuck 80 (FT 01044) or PIN center chuck (FT 01716) in vertical or horizontal position.

For the application with brackets on diverse tooling machines.

Spindle height at horizontal installation of the chuck: 75 mm

Article no.	Article	Quantity	Weight	Code
FT 01483	Square block ER/3R/PIN chuck	1 piece	8.20 kg	A



### F-Tool PIN center chuck IF EROWA

With the PIN center chuck EROWA the electrodes and work pieces can be inserted into the EROWA ITS system.

Article no.	Article	Quantity	Weight	Code
FT 01728	FTool PIN center chuck IF EROWA	1 piece	1.78 kg	P

→ Delivered with chucking spigot F/A EDM automatic with flushing

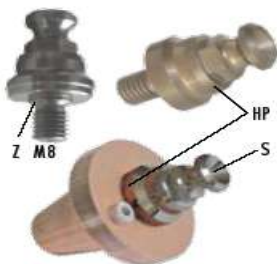


### F-Tool PIN center chuck IF 3R

With the PIN center chuck 3R the electrodes and work pieces can be inserted into the 3R system.

Article no.	Article	Quantity	Weight	Code
FT 01729	FTool PIN center chuck IF 3R	1 piece	1.60 kg	P

→ Delivered without chucking spigot



### F-Tool PIN centering bolt

According to the application, the suitable centering bolts may be inserted.

HP - PIN centering bolt high precision / ground

Z - with centering bundle

S - flushing hole

Article no.	Article	Quantity	Weight	Code
FT 01719	FTool RefPIN HP-Z with flushing S (ground)	1 piece	0.07 kg	P
FT 01720	FTool RefPIN-Z with flushing S	Set of 10 pieces	0.58 kg	P
FT 01721	FTool RefPIN-Z without flushing S	Set of 10 pieces	0.60 kg	P
FT 01722	FTool RefPIN without bundle Z	Set of 10 pieces	0.60 kg	P
FT 01723	FTool ClampPIN (without bundle Z and without centering)	Set of 10 pieces	0.53 kg	P

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## F-Tool PIN holder system



### F-Tool PIN index 8 mm M5

The orientation coat can be defined with the PIN index.

Article no.	Article	Quantity	Weight	Code
FT 01724	Ftool PIN index Ø 8/3.5 mm M5 A2 (for electrodes)	Set of 10 pieces	0.01 kg	P



### F-Tool PIN clamping holder

The PIN clamping holder is a basic holder made in aluminium for the collet of electrodes and work pieces.

Article no.	Article	Quantity	Weight	Code
FT 01725	Ftool PIN clamping holder 26 mm	1 piece	0.62 kg	P

Others sizes on request.

→ Delivered incl. assembled PIN index, without centering bolt



### F-Tool PIN electrode spanner

The PIN electrode spanner made in aluminium is very good qualified for an economic collet of electrode blanks and the conditioning in the PIN system.

Article no.	Article	Quantity	Weight	Code
FT 01726	Ftool PIN electrode spanner Ø 16 mm	Set of 10 pieces	1.80 kg	P

Others diameters on request.

→ Delivered incl. assembled PIN index, without centering bolt



### F-Tool copper blank

The copper blank is assembled with a PIN index and prepared for the centering bolt.

Article no.	Article	Quantity	Weight	Code
FT 01234	Ftool copper blank Ø 50 x L – 45 mm prepared for PIN adapter	Set of 10 pieces	7.66 kg	E

Others sizes on request.

→ Delivered incl. assembled PIN index, without centering bolt



### F-Tool PIN pallet aluminium

The PIN pallet aluminium is an economic, universal pallet, applicable for the collet of electrodes and work pieces.

Article no.	Article	Quantity	Weight	Code
FT 01727	Ftool PIN pallet alu Ø 80 mm	1 piece	0.34 kg	P

→ Delivered incl. assembled PIN index, without centering bolt



### Interface plate

Interface plate 146 x 56 mm with hole pattern for accommodating:

Vise 80VLS0 (FT 01320) & magnetic table 140 x 50 x 44 mm (FT 01326)

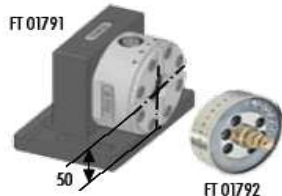
The rear side is compatible with RefPIN set (FT 01815) / adapter plate ER und 3R with hole grid 40 mm

Article no.	Article	Quantity	Weight	Code
FT 01817	Ftool interface plate 146 x 56 mm for FT 01326 and FT 01321	1 piece		P

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## F-Tool turn and index table

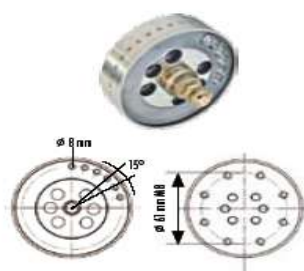


### F-Tool WEDM square block-index-table

The F-Tool center chuck with spring-steel centering, 90° raster-indexation or stageless indexation with graduation. Able for the direct application on the drilling machine, on the WEDM-machine table with hole pattern 50 mm or to clamp with the F-Tool basic rulers (arbour height 50 mm). Delivered with a universal index adapter plate 80 with graduation (FT 01792) to adapt the ER chuck 80P (FT 01043), 3R chuck 80 (FT 01044), collet chuck holder (FT 01580/FT 01581), electrodes or working pieces.

Dimension: 120 x 79 x 92 mm / Spindle height 50 mm

Article no.	Article	Quantity	Weight	Code
FT 01791	FTool WEDM square block-index-table 80, corrosion-resistant	1 piece	2.50 kg	W



### F-Tool universal index adapter plate

Universal adapter plate 80 with nonius-display to adapt the ER chuck 80P (FT 01043), 3R chuck 80 (FT 01044), collet chuck holder (FT 01580/FT 01581), electrodes or working pieces.

Hole pattern: 8 x M8 reference circle 61 for ER chuck 80P & 3R chuck 80

For 6 x M6 circle diameter 40 mm (to adapt collet chuck holder, front spanner FT 01572 or electrodes respective working pieces)

Article no.	Article	Quantity	Weight	Code
FT 01792	FTool universal index adapter plate 80 with graduation, corrosion-resistant	1 piece	0.90 kg	W
FT 01430	FTool PIN index Ø 8/7 mm M5, corrosion-resistant	1 piece	0.01 kg	W
FT 01745	FTool PIN index Ø 8/7 mm M5, corrosion-resistant, hardened & ground	1 piece	0.01 kg	P

→ Delivered with RefPIN HP Z (FT 01719) and PIN index (FT 01430)



### F-Tool collet chuck holder

Collet chuck holder with clamping nut for collet chucks ETS 32.

The collet chuck holder is corrosion-resistant and under careful care he could be also inserted in the water.

Article no.	Article	Quantity	Weight	Code
FT 01793	Collet chuck holder ETS32 incl. index adapter plate 80	1 piece	1.40 kg	W
FT 01581	FTool collet chuck holder ETS32 without adapter plate (corrosion-resist.)	1 piece	0.45 kg	A



### F-Tool front spanner

For the direct collet of miscellaneous work pieces. As option to the swivel table IF 90° (FT 01356), to the 3D swivel with front spanner (FT 01693) and to the WEDM square block-index-table 80 (FT 01791).

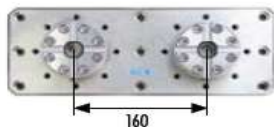
Article no.	Article	Quantity	Weight	Code
FT 01572	FTool front spanner 140 x 30 x 35 mm complete with brackets	1 piece	1.46 kg	W

→ Delivered with miscellaneous screws, keys, insert plates, distance pieces and brackets

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## F-Tool ZeroPoint centering system



### F-Tool PIN ZeroPoint centering system

PIN ZeroPoint centering system with two manual PIN center chucks – MB160.

The PIN ZeroPoint centering system is qualified for the single and multiple palletization. The precision of the system is <0.01 mm. Corrosion-resistant.

The chucks can be assembled individually or bridged with a pallet.

Article no.	Article	Quantity	Weight	Code
FT 01730	FTool PIN ZeroPoint centering system MB160	1 piece	8.54 kg	P



### F-Tool PIN centering bolt set

For the pallets, we advise that you use the following centering bolt sets:

PIN set for single palletization

PIN twinset for the multiple palletization (1 centering bolt for the centering and 1 for clamping, plus 2 PIN index 8/7 mm M5 for the adjustment).

Article no.	Article	Quantity	Weight	Code
FT 01815	FTool RefPIN set	1 set	0.07 kg	P
FT 01816	FTool RefPIN twinset	1 set	0.16 kg	P
FT 01721	FTool RefPIN-Z without flushing	Set of 10 pieces	0.60 kg	P
FT 01722	FTool RefPIN without bundle	Set of 10 pieces	0.60 kg	P
FT 01723	FTool ClampPIN (without bundle and without centering)	Set of 10 pieces	0.53 kg	P
FT 01430	FTool PIN index Ø 8/7 mm M5, corrosion-resistant	1 piece	0.01 kg	W
FT 01745	FTool PIN index Ø 8/7 mm M5, corrosion-resistant, hardened & ground	1 piece	0.01 kg	P



### F-Tool PIN T-slot pallet

PIN T-slot pallet in aluminium incl. handles. Interesting combinations can be created by combining with the F-Tool stopper beam FT 01804, clamping block FT 01806 and the range of F-Tool MultiClamps.

Article no.	Article	Quantity	Weight	Code
FT 01802	PIN T-slot pallet B160/280 x 180 x 37.5 mm	1 piece	4.50 kg	P

→ Delivered complete with RefPIN and PIN index



### F-Tool PIN T-slot pallet

PIN T-slot pallet in aluminium incl. handles. Interesting combinations can be created by combining with the F-Tool stopper beam FT 01805, clamping block FT 01806 and the range of F-Tool MultiClamps.

Article no.	Article	Quantity	Weight	Code
FT 01803	PIN T-slot pallet 150 x 150 x 37.5 mm	1 piece	2.42 kg	P

→ Delivered complete with RefPIN and PIN index



### F-Tool stopper beam

Stopper beam for T-slot pallet FT 01802 respective FT 01803 in combination with the clamping block FT 01806.

Article no.	Article	Quantity	Weight	Code
FT 01804	Stopper beam B180 H25 mm for pallet FT 01802, corrosion-resistant	1 piece	1.20 kg	P
FT 01805	Stopper beam B150 H25 mm for pallet FT 01803, corrosion-resistant	1 piece	1.00 kg	P

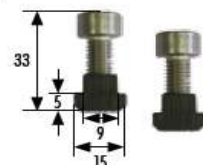


### F-Tool clamping block

The F-Tool clamping socket consists of a pull-down clamping element with support, which can be flexibly inserted into the T-slot pallet together with opposing support stops. The QPQ-coated clamping elements are corrosion-resistant and can be inserted into coolant substances containing water. The clamping range of the flexible jaws is 3 mm. 1 clamping jaw B27 can be inserted in place of the 3 clamping jaws B24 mm.

Article no.	Article	Quantity	Weight	Code
FT 01806	PIN clamping block 58 x 72 mm complete, corrosion-resistant	1 piece	1.06 kg	P

→ Delivered incl. screws and T-slides



### F-Tool PIN T-slot screw set

PIN T-slot screw set for PIN T-slot pallet.

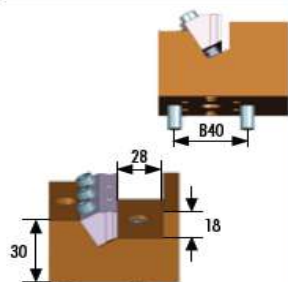
Article no.	Article	Quantity	Weight	Code
FT 01818	FTool PIN T-slot screw set, corrosion-resistant	Set of 2 pieces	0.06 kg	P

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## F-Tool precision and pull-down clamping system

The F-Tool pull-down vises are specifically manufactured for modern and economic production. This flexible concept offers a great number of clamping and application options. These vises are of a particular use in the flexible, multiple collection of pallets in automation processes. And automation will become even more attractive due to the reasonable prices of these F-Tool clamping devices.

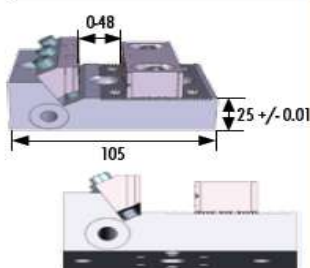


### F-Tool PIN BrassClamp

The F-Tool PIN BrassClamp is a brass retainer with hardened, corrosion-resistant pull-down jaws. If necessary, the stop surface on the holder can be milled to approx. 28 mm. The BrassClamp is supplied as standard with 3 clamping jaws with a clamping range of 0-3 mm. The BrassClamp is suited for use as an electrode (in particular graphite) retainer. However, it can also be used as precision parts clamp, because the brass jaw can be enlarged precisely.

B40 – prepared for PIN system, 3R adapter plate, T-slides and grid plate 40 mm/M8. Delivered with screws  
ITS 50 – equipped with ITS centering plates 50 / EWIS preparation. Delivered with ITS chucking spigot F/A

Article no.	Article	Quantity	Weight	Code
FT 01807	FTool PIN BrassClamp 72 x 72 mm B40	1 piece	1.85 kg	P
FT 01808	FTool PIN BrassClamp 72 x 72mm ITS50	1 piece	2.00 kg	P



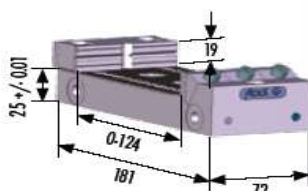
### F-Tool MultiClamp 105

The F-Tool MultiClamp is a precision pull-down clamp with adjustable, hardened pull-down and stop jaws. It is manufactured from hardened, corrosion-resistant steel. The stop jaw can be adjusted in the tooth grid every 2 mm. The support surface has a tolerance of +/- 0.01 mm. Suited as multiple-spanner on T-slot pallet, ITS/UPC pallets, square block etc.

The clamping range total is 48 mm  
The clamping range of the flexible jaws is 3 mm H 25 mm

B40 – prepared for PIN system, 3R adapter plate, T-slides and grid plate 40 mm/M8. Delivered with screws  
ITS 50 – equipped with ITS centering plates 50 / EWIS preparation. Delivered with ITS chucking spigot F/A

Article no.	Article	Quantity	Weight	Code
FT 01809	FTool PIN MultiClamp 105 x 72 mm B40, corrosion-resistant	1 piece	1.85 kg	P
FT 01810	FTool PIN MultiClamp 105 x 72 mm ITS50, corrosion-resistant	1 piece	1.95 kg	P



### F-Tool MultiClamp 181

The F-Tool MultiClamp is a precision pull-down clamp with adjustable, hardened pull-down and stop jaws. It is manufactured from hardened, corrosion-resistant steel.

Hole grid 40 mm. Suited as T-slot pallet, grid plate, on ITS square block or pallet 148 mm.

The clamping range total is 124 mm  
The clamping range of the flexible jaws is 3 mm

Article no.	Article	Quantity	Weight	Code
FT 01811	FTool PIN MultiClamp 181 x 72 mm B40, corrosion-resistant	1 piece	2.86 kg	P



### F-Tool clamping jaw 72 mm

It is possible to use the F-Tool clamping jaw 72 mm in place of the 3 pull-down clamping elements.

Article no.	Article	Quantity	Weight	Code
FT 01814	FTool clamping jaw 72 mm, corrosion-resistant	1 piece		P



### F-Tool fixed stop

A stop element for the F-Tool MultiClamps and the F-Tool clamping block.

Article no.	Article	Quantity	Weight	Code
FT 01812	FTool fixed stop complete	1 piece	0.15 kg	P



### F-Tool PIN parallel set 16 mm

The PIN parallel set 16 mm can be used with the F-Tool MultiClamp 105 und 181 mm. The supports are ground to 16.0 +/- 0.01 mm in parallel.

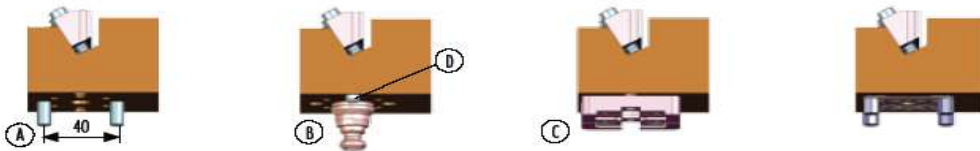
Article no.	Article	Quantity	Weight	Code
FT 01813	FTool PIN parallel set 16 mm	Set of 2 pieces	0.09 kg	P

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## F-Tool precision pull-down clamping system

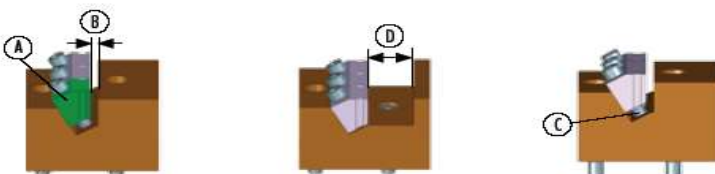
with multifunctional applications



The PIN BrassClamp FT 01807 and the PIN MultiClamp FT 01809 are prepared for the following clamping possibilities:

- A. Hole grid for socket head bolt M8 distance 40 mm for T-slot pallet and grid plate
- B. PIN system with PIN index
- C. 3R adapter plate
- D. The PIN index drill holes can also be used to disconnect 2 x  $\varnothing$  8 H7 / 60 mm

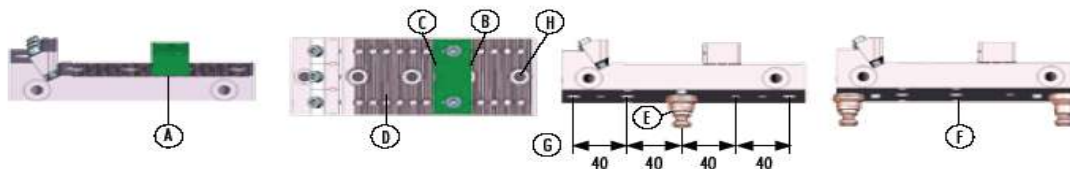
The PIN BrassClamp FT 01808 and the PIN MultiClamp FT 01810 are equipped with ITS 50 centering plates.



All PIN BrassClamps and PIN MultiClamps are equipped with three pull-down clamping elements (A) as standard, each of which can be used individually. The pull-down elements are lifted with compression springs (C). The clamping travel (B) is 3 mm. The BrassClamp can be individually extended to a clamping range of 28 mm (D). If required, it can be adjusted to the shape of a specific work piece.



The F-Tool PIN MultiClamp has been designed for multiple applications. All relevant dimensions relate to the mounting-side (B) and the front-side (A) of the MultiClamp. This enables the combined assembly of multiple MultiClamps in reference position and also means that recurring pieces can be clamped in a defined grid. The production tolerance of the relevant dimensions is  $\pm 0.01$  mm. As an option, the MultiClamps can be equipped with the fixed stop FT 01812 (C) or the PIN parallel set 16 mm FT 01813 (D) (example MultiClamp 105).



The stop jaw (A) can be used on both sides, the smooth, polished side (B) or following rotation through 180°, the horizontally and vertically polished prism-side (C).

The relocation matrix (D) measures 2 mm.

E. Mounting example PIN MultiClamp 181 with a RefPIN set FT 01816

F. Mounting example PIN MultiClamp 181 with a RefPIN twinset FT 01816

G. The hole grid at the MultiClamp 105 and 181 is 40 mm.

H. The mounting holes are prepared from above for socket head bolts M8 x 25 mm and from below with threaded hole for M10.



The F-Tool PIN clamping concept offers you a multiplicity of possibilities. The PIN ZeroPoint centering system has been developed without compromise for price-oriented, modern production.

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