PEC-TU Cast-in Channels

PEC-TU Cast-in Channels in concrete elements like columns or beams are an ideal way of fixing, trapezoidal steel sheets, window and door frames as well as other construction elements with the help of self-taping screws. PEC-TU Cast-in Channels enable a safe, fast and very cost effective installation. PEC-TU Cast-in Channels are available in three different channel types i.e. Type-A, Type-B and Type-C with a standard length of 3.000 mm. They are available in hot-dip galvanized with zinc coating ≥ 50 µm according to approval Z-21.4-1886, stainless steel A4 and painted steel can be supplied on demand. PEC-TU Cast-in Channels are supplied with polystyrene filler to avoid that screws hit the concrete.

Advantages

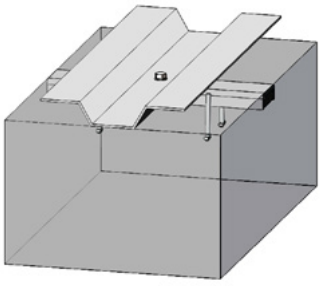
- Easy installation in the existing reinforcement
- Load bearing capacity in all three directions
- Technically sound and slip resistent connection
- Polystyrene filler prevents the contact of the borers and screws with the concrete
- Rational steel sheet screwing
- Smoothly assembly without pre-drilling

Typical applications

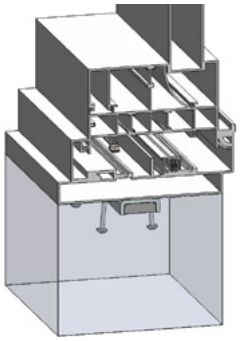
- Fixing trapezoidal sheets
- Fixing door and window frames
- Fixing roof constructions

Connector system

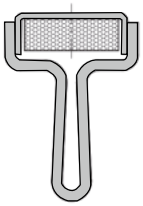
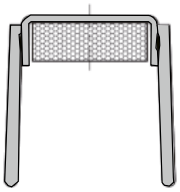
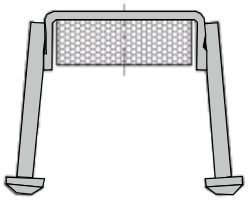
- The self-tapping screws are in the position to transfer the applied load



Fixing trapezoidal steel sheets



Fixing doors and windows

PEC-TU Cast-in Channels				
Profile Dimensions		PEC-TU 60/22/3 Type A	PEC-TU 60/22/3 Type B	PEC-TU 60/22/3 Type C
Deutsches Institut für Bautechnik DIBt Approval Nr. Z 21.4-1886				
Nominal embedment depth	h_{nom} [mm]	100	75	68
Section modulus	$W_{pl,y}$ [cm³]	0,71		
Moment of inertia	I_y [cm⁴]	1,13		
Material		Steel according to DIN EN 10025: S235JR (1.0038)		DIN EN 10263-2 (1.0214)
Connecting screws		Self-tapping		

PEC-TU Cast-in Channels have German National Approval (Z-21.4-1886). Special lengths and materials are available on demand.

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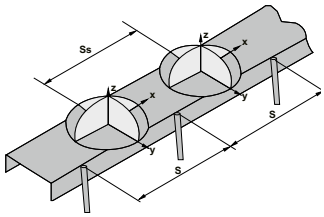
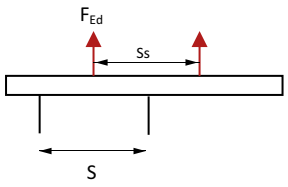
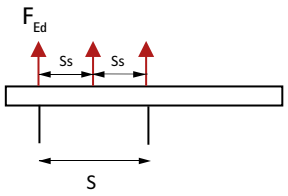
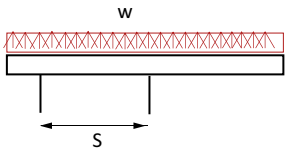
PEC-TU Cast-in Channels







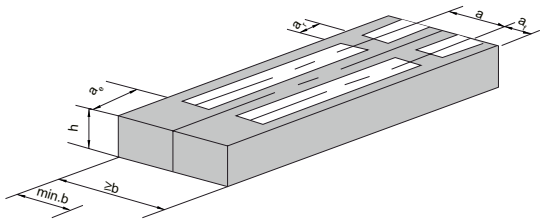


Profile Type PEC-TU	Anchor Spacing [mm]	F_{Ed}[kN]				Uniformly distributed load w [kN/m]
60/22/3	150	$S_S = S$	7	$S_S = S/2$	3,5	46,6
	450		4,6		3,5	15,5

Verification: $\sqrt{F_{Ed,x}^{\ 2} + F_{Ed,y}^{\ 2} + F_{Ed,z}^{\ 2}} \leq F_{Rd}$

Minimum concrete dimensions and maximum load resistance

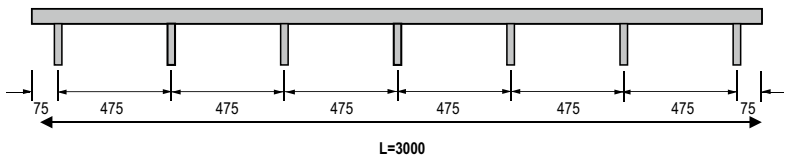
PEC-TU 60/22/3	F_{Rd} [kN]	a[1)] [cm]	a_r[2)] [cm]	a_e[3)] [cm]	a_f[4)] [cm]	h[5)] [cm]	b[6)] [cm]
Type-A	7	20	10	2	2	10 + C_{nom}	20
Type-B	7	20	10	2	2	7,5 + C_{nom}	20
Type-C	7	20	10	2	2	7,5 + C_{nom}	24



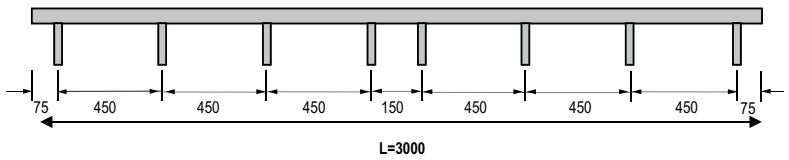
1) If the adjacent channels are placed in a way that the anchors of adjacent channels are offset by at least 150 mm, the axial spacing a may be reduced to 80 mm.
2) If the TU Channel capacity is not fully utilized, the edge spacing a_r in case of only tension force can be reduced with this factor: $a_{r,1} = a_r \times F_{Ed}/F_{Rd} \geq 50$ mm. The edge distance must not be reduced if shear force $F_{Ed,y}$ is present.
3) If the TU Channel capacity is fully utilized, the last anchor must be at least 100 mm from the component edge.
4) If the TU Channel capacity is fully utilized, the "last anchors" of adjacent channel must be at least 150 mm apart.
5) Required concrete cover according to DIN 1045-1:2008-08 or DIN EN 1992-1-1:2011-01 with DIN EN 1992-1-1/NA:2011-01.
6) Minimum component thickness for only one channel arrangement.

Anchor Spacing

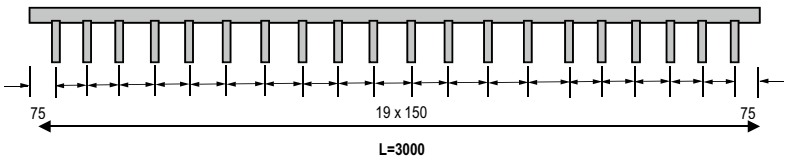
PEC-TU Cast-in Channels are supplied in 3 m stock lengths with the different anchor spacing.



Type 1

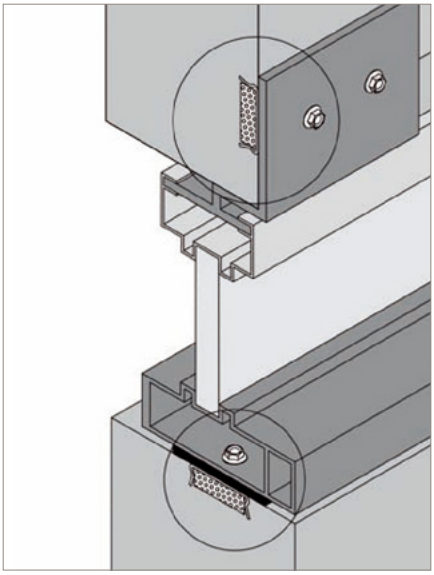


Type 2



Type 3

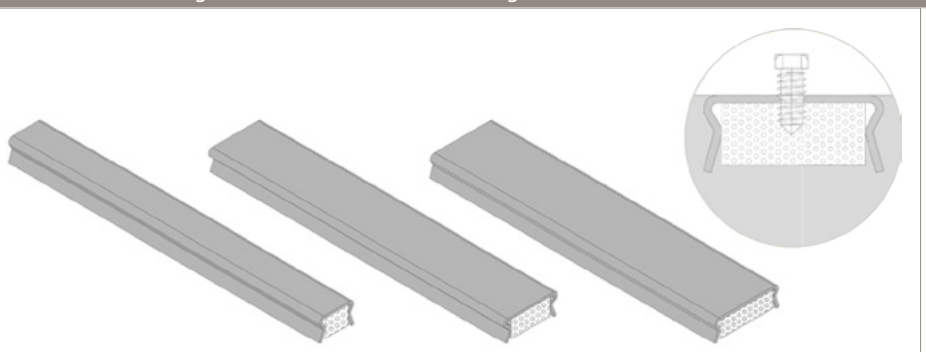
PEC-TU Self-anchoring Cast-in Channels

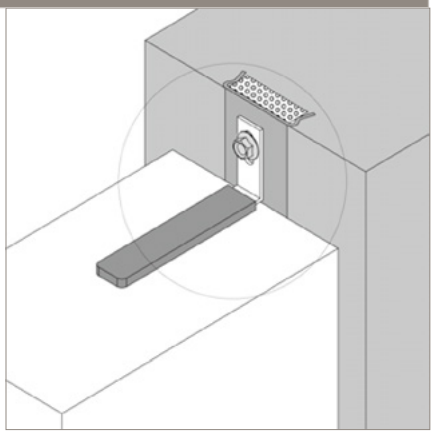


PEC-TU Self-anchoring Cast-in Channels in beams or columns are ideal for attaching trapezoidal steel sheet, window and door frames as well as other construction elements. PEC-TU Self-anchoring Cast-in Channels make the work safe, fast and very cost effective. The Channels are available in three different dimensions with a standard length of 6.000 mm. They are galvanized and with a complete stuck filler to avoid that screws strike the concrete. Special lengths and material are available on demand.

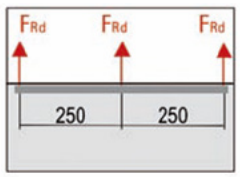
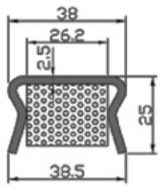
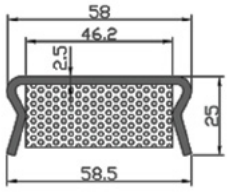
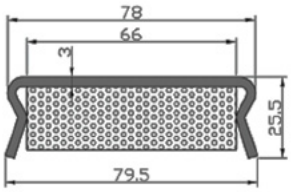
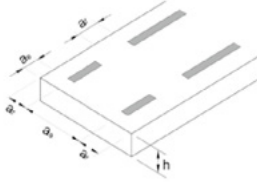
The main advantage of Self-anchoring Cast-in Channels is that they work without anchors. The formed shape of the channel can provide sufficient anchoring into the concrete. Thus the requirements on the concrete are strict and the installation is more convenient, at the same time it can provide considerably satisfying load capacity.

PEC-TU Self-anchoring Cast-in Channels - Profile range



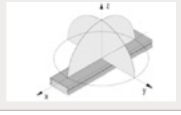


PEC-TU Self-anchoring Cast-in Channels

PEC-TU Self-anchoring Cast-in Channels			40/25/2,5	60/25/2,5	80/25/3,0
	Max. Design loads carrying F_{Rd} and minimum edge distances				
	Design load		1,8 kN / 250 mm	3,0 kN / 250 mm	3,0 kN / 250 mm
	Minimum a	a_a	140	160	180
		a_r	70	80	90
		a_e	20	20	20
		a_f	20	20	20
		h [1]	25,0 + c	25,0 + c	25,5 + c

Concrete ≤ C20/25

$F_{Rd} = \sqrt{N_{Ed}^2 + V_{xEd}^2 + V_{yEd}} \leq$ Design Load



1) Determined by the geometry of the channel and the required concrete covering (c)
2) C : Concrete covering thickness

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