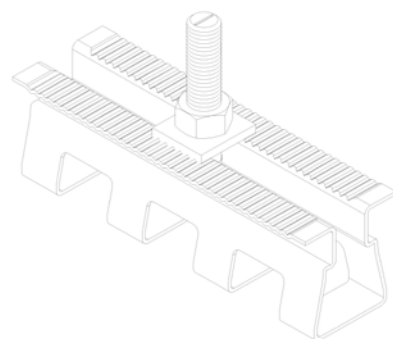


# CONCRETESLOT



## User manual 2018

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**B.S.Italia®**  
Styl-Comp Group

innovazione basata sull'esperienza  
innovation based on experience

**PLEASE READ ALL THE INFORMATION AND INSTRUCTIONS IN THIS MANUAL CAREFULLY BEFORE USING ANY COMPONENT IN THE CONCRETESLOT SYSTEM, COVERED BY INTERNATIONAL PATENT.**

**If you have any queries about the correct use of the components described in this manual, please contact B.S.Italia:**

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www.bsitaliagroup.com • info@bsitalia@styl-comp.it**

**B.S.Italia is ISO 9001 certified and the CONCRETELOT system is designed and built in accordance with:**

### **B.S.Italia Certification**



### **Reference standards:**

- EU162-81 (UNI 7344) Cold-formed steel profiles. Technical conditions of supply. Specifications and tolerances.
- UNI-EN 10025 Hot-rolled non-alloyed steel products for structural use. Technical conditions of supply.
- UNI 10139 (UNI-EU 140) Finished cold-rolled non-alloyed steel products. Band iron and straps for cold-forming. Quality, specifications and tests.
- UNI 5744 (SS-UNI E 14.07.000.0) Protective metal cladding applied hot. Zinc cladding by means of immersion on various iron manufactured elements.
- UNI 3740 Steel nuts and bolts. Technical specifications for galvanised protective cladding.
- UNI EN 10083 Hardened and tempered steel. Technical conditions of supply.
- UNI-ISO 2081 Metal cladding. Electrolytic zinc cladding on iron or steel.
- EN 729 Quality in welded constructions.
- UNI EN 10142 Rolled steel and steel strip with low-carbon content and continuous hot-galvanising for cold forming. Technical conditions of supply.
- UNI EN 10204 Metal products. Types of control documents.
- DIN 17162 Protective metal cladding applied hot during rolling of steel strip.
- UNI EN 1090-2 Execution of steel structures.

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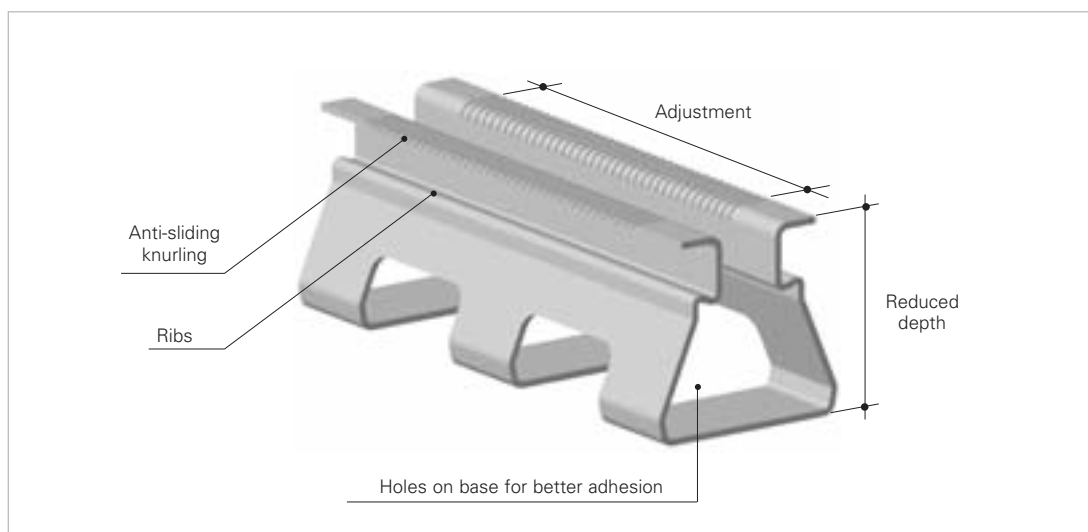
## **C**ODES

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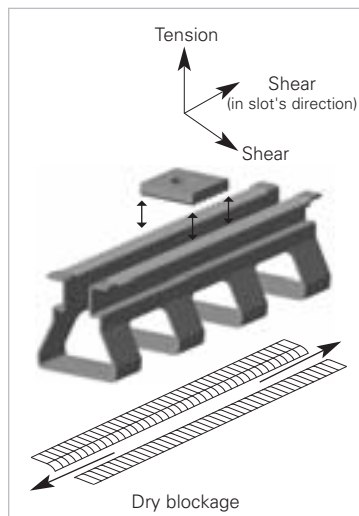
The drawings in this manual are purely indicative.

## INNOVATIVE FEATURES

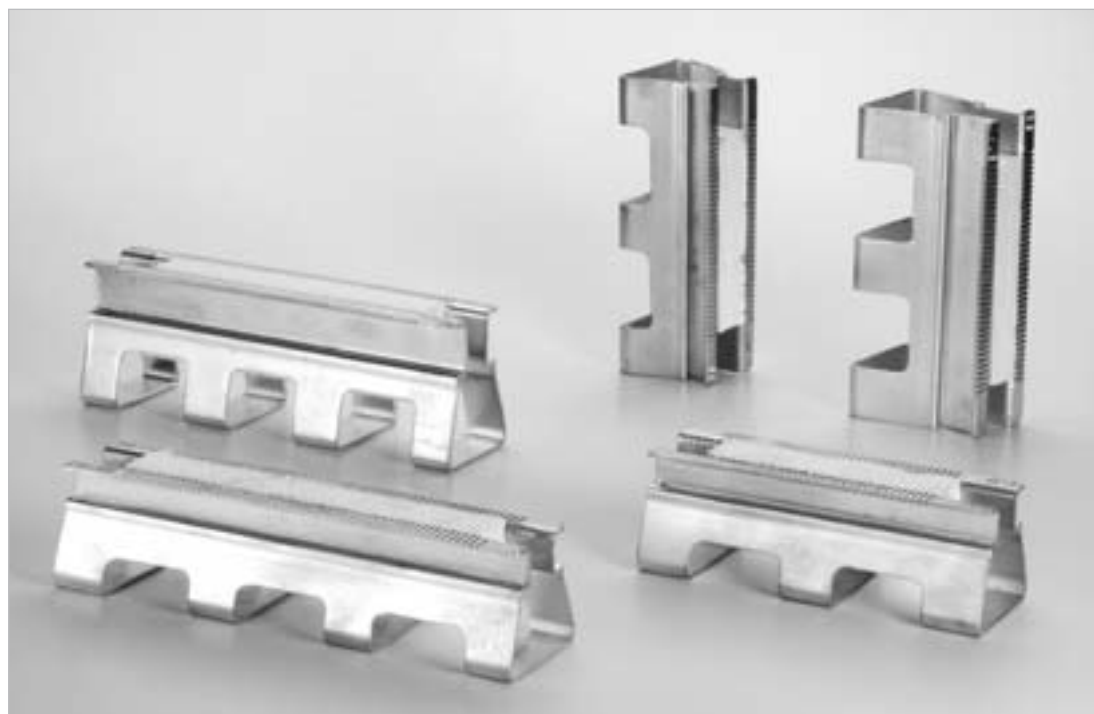
1. Up to 45 kN on ultimate shear and tension capacity, in any position and with any connection type, bolt or strap;
2. stiffening ribs guarantee high performance loads;
3. high adjustment in compact size;



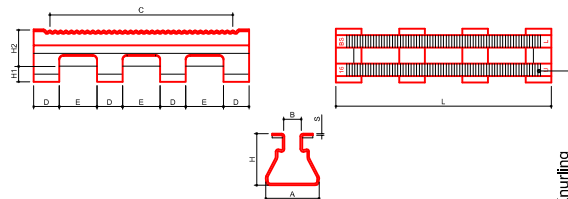

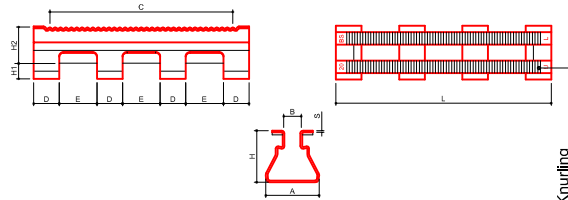

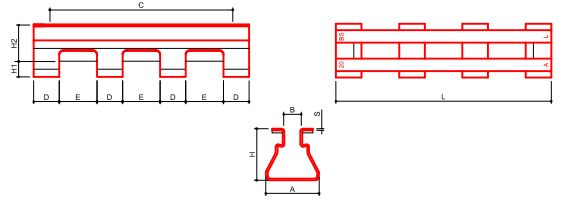

4. anti-seismic, thanks to its anti-sliding knurled surface it doesn't allow displacement's in the ribs direction;
5. hackled shape provides no interference with existing reinforcement and excellent adhesion to concrete;
6. higher load performance without additional reinforcement;
7. fast, rapid connection, cost effective.



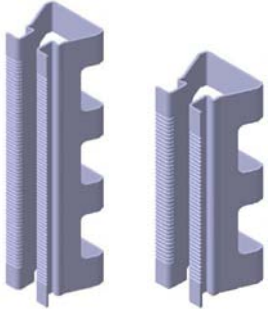
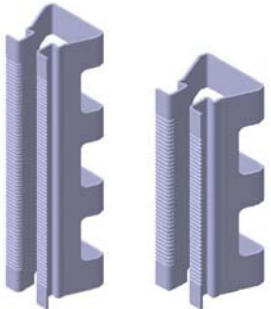
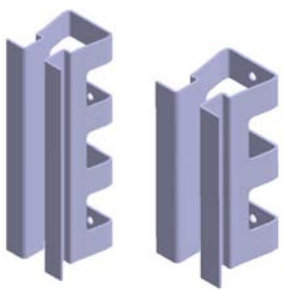
CONCRETESLOT is the ideal insert to counter horizontal and/or vertical forces due to seismic forces. In fact, the knurling of the insert allows for dry connection, offering both coupling tolerances and the opportunity to fix it in the same direction as the slot. Ideal to dry clamp the eventual dislocation of roof tyings (without weldings or supplemental cast).



# TYPES AVAILABLE

		Width		Length	depth	Polystyrene length	Thickness	Measures "Hackle"					
		A	B	L	H H1 H2	C	S	D	E				
		in mm											
SLOT 16 U	L					60	18	240	58,3 17,3 41	200	2	28,5	42
	M					60	18	169,5	58,3 17,3 41	130	2	28,5	42
SLOT 20 US	L					59,5	23	240	77,2 25,7 51,5	200	2,5	28,5	42
	M					59,5	23	169,5	77,2 25,7 51,5	130	2,5	28,5	42
SLOT 20 A	L					59,5	23	240	77,2 25,7 51,5	200	2,5	28,5	42
	M					59,5	23	169,5	77,2 25,7 51,5	130	2,5	28,5	42

# TYPES AVAILABLE

			SHEAR AND TENSILE STRENGTH		SHEAR AND TENSILE STRENGTH IN SLOT DIRECTION*	
			S.L.E.	S.L.U.	S.L.E.	S.L.U.
SLOT 16 U Knurling		L	20 kN	30 kN	20 kN	30 kN
		M	20 kN	30 kN	20 kN	30 kN
SLOT 20 US Knurling		L	30 kN	45 kN	30 kN	45 kN
		M	30 kN	45 kN	30 kN	45 kN
SLOT 20 A Smooth		L	30 kN	45 kN	30 kN	45 kN
		M	30 kN	45 kN	30 kN	45 kN

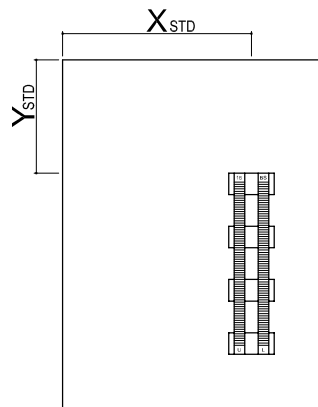
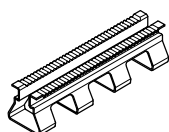
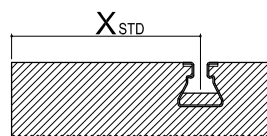
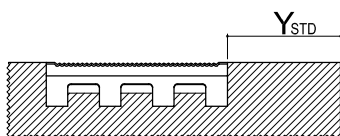
$R_{ck} \geq 40 \text{ N/mm}^2$

\* The SLU strength indicated are are refer to total filling of the slot with grouting of compostated withdrawal.

# MINIMUM DISTANCES FROM EDGES

Concretslot: Standard position

in mm

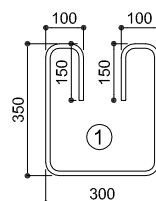
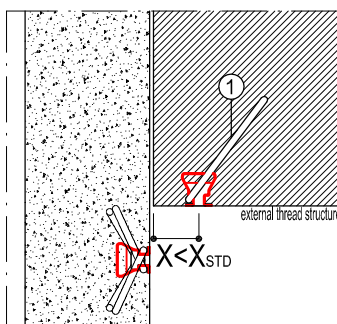
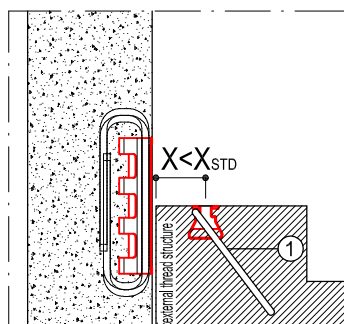


	$X(\text{mm})$	$Y(\text{mm})$
<b>16U - 20US</b>	$\geq 250$	$\geq 150$

When the slotted insert has to be positioned for design inferior sizes of the above mentioned (  $X < 250$  e  $Y < 150$  ), it will need additional reinforcement.

## Concretslot with confinement in structures

in mm

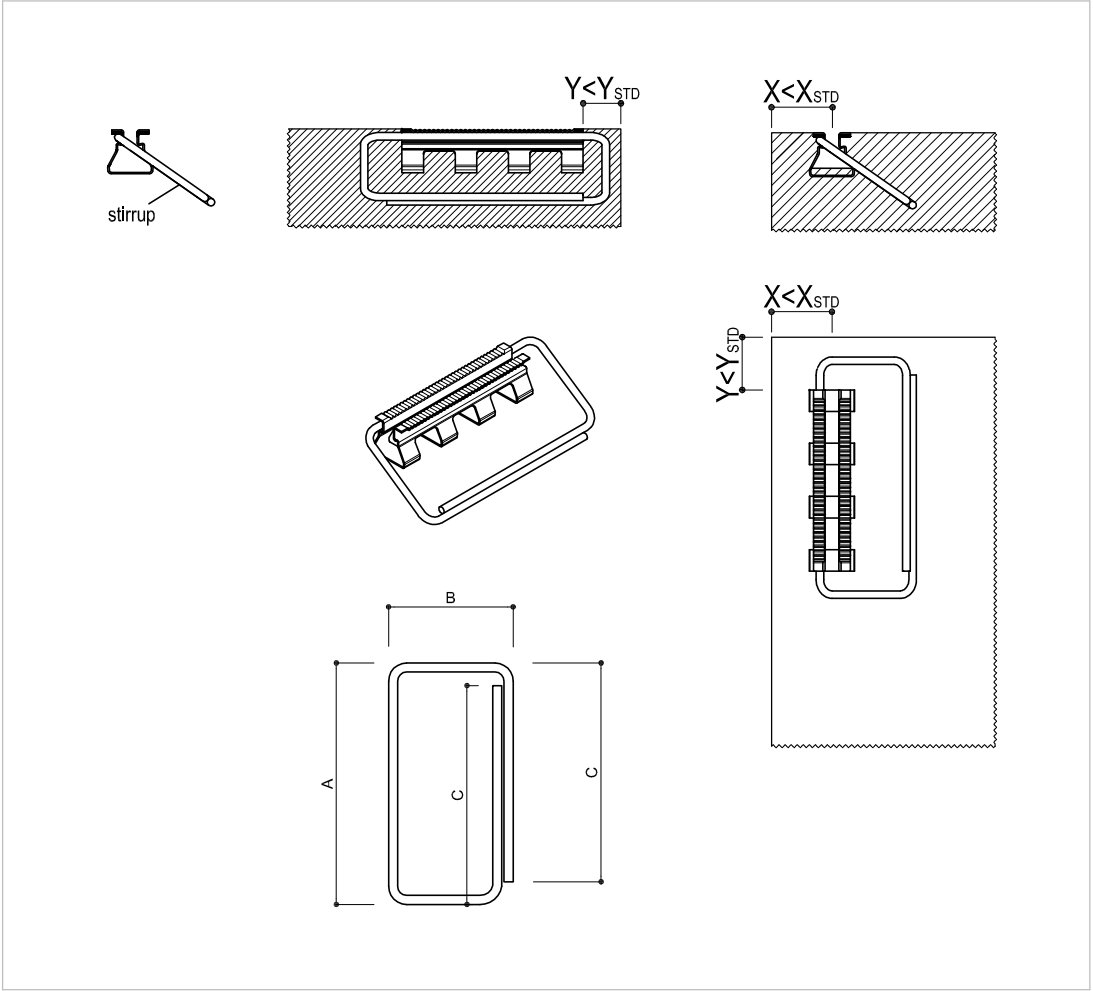


- ① with Slot 16 U Stirrup  $\varnothing 10$ ;  
with Slot 20 US Stirrup  $\varnothing 12$



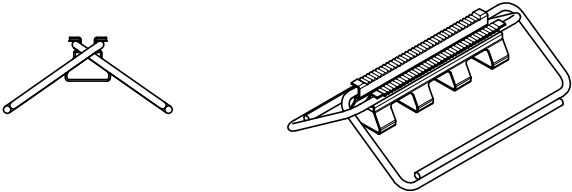
# MINIMUM DISTANCES FROM EDGES

Concretslot with confinement in panels

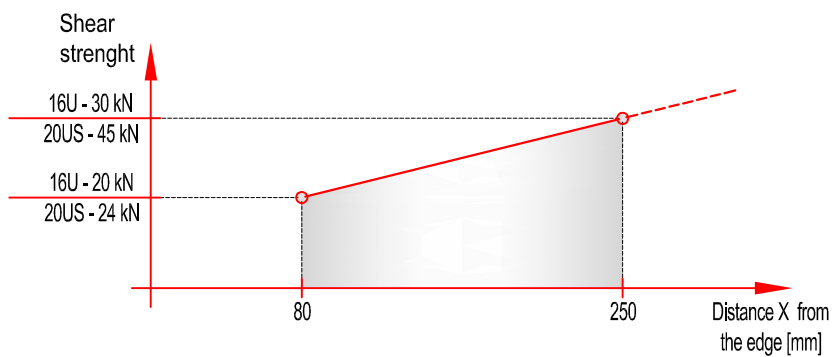
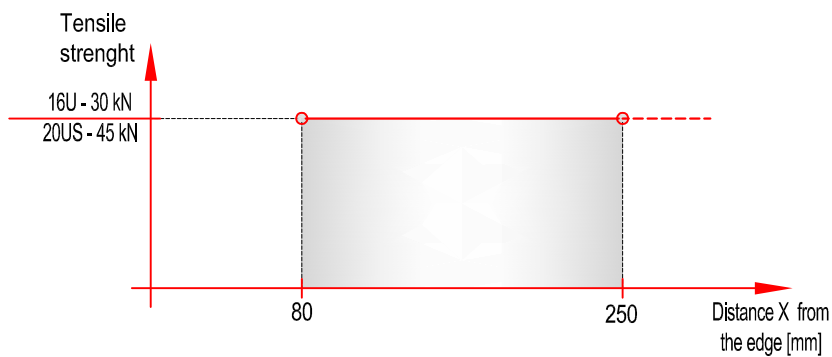


		Stirrup	A	B	C	X	Y <small>In mm</small>
16U	M	1 Ø10 L=1100	250	150	220	≥ 80	≥ 70
	L	1 Ø10 L=1200	320	150	290	≥ 80	≥ 70
20US	M	1 Ø12 L=1100	250	150	220	≥ 80	≥ 70
	L	1 Ø12 L=1200	320	150	290	≥ 80	≥ 70

Where necessary (for example for panels with a width of less than 500 mm and Concretslot positioned at the center line) insert double stirrups.



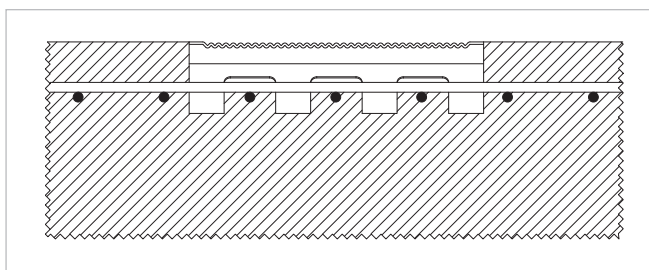
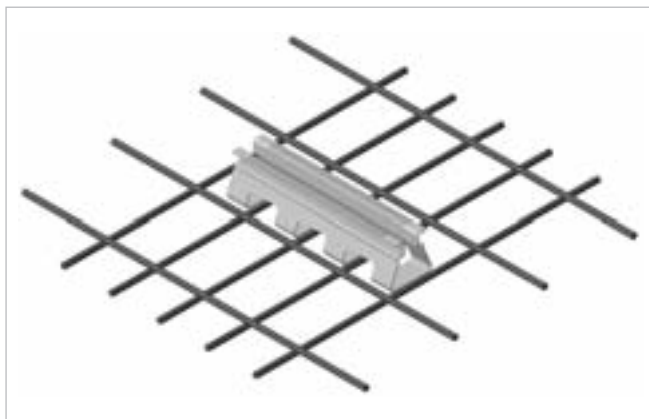
# DIAGRAMS OF STRENGTH IN REFERENCE TO THE DISTANCE FROM THE EDGS



# HACKLED CONFIGURATION

The lower part of the concreteslot has a hackled conformation so to allow it's positioning without interfering with the existing reinforcement of the concrete element.

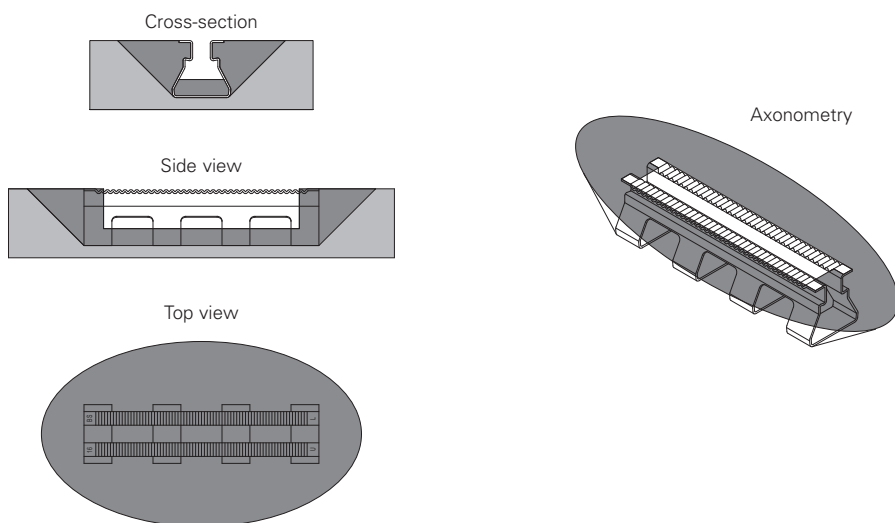
Because of this trait the concrete is allowed to penetrate in the concreteslot (hence the name), improving the adhesion to the concrete element.



## Concrete cone against pulling-out

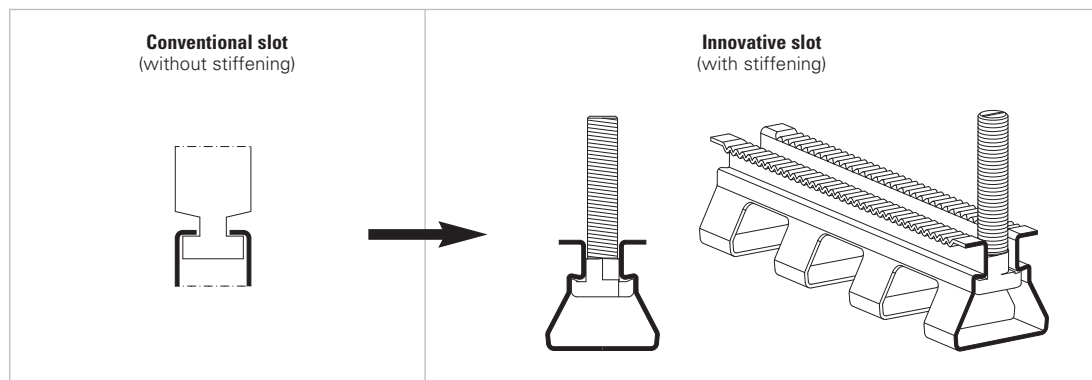
The shape of the insert creates a concrete cone: 360° cover around the insert.

The initial breaking point of the concrete cone is below the typical level of the concrete element reinforcement



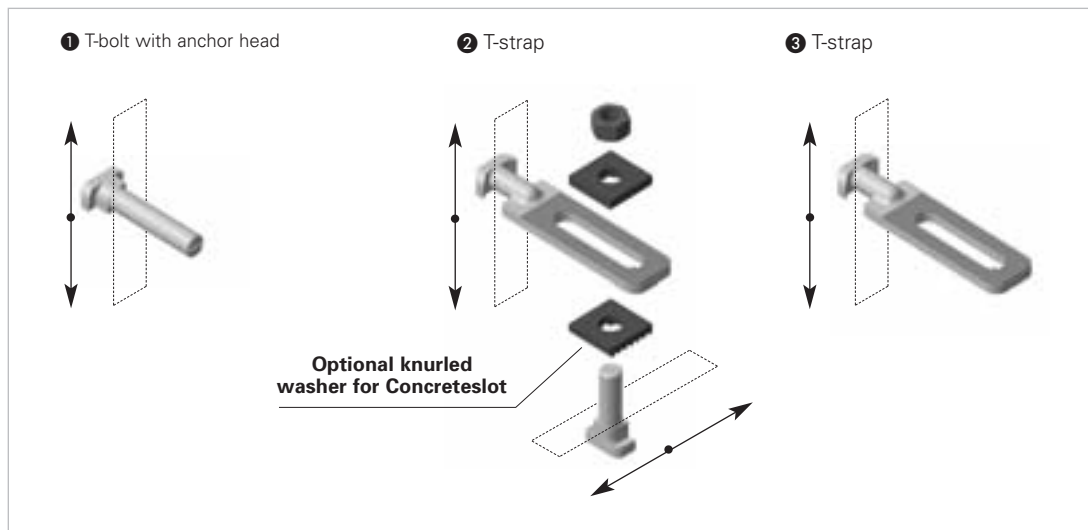
## STIFFENING RIBS

The structure of the slot guarantees max safety, adjustability and load strength.



# 1 CONNECTION - 3 OPTIONS

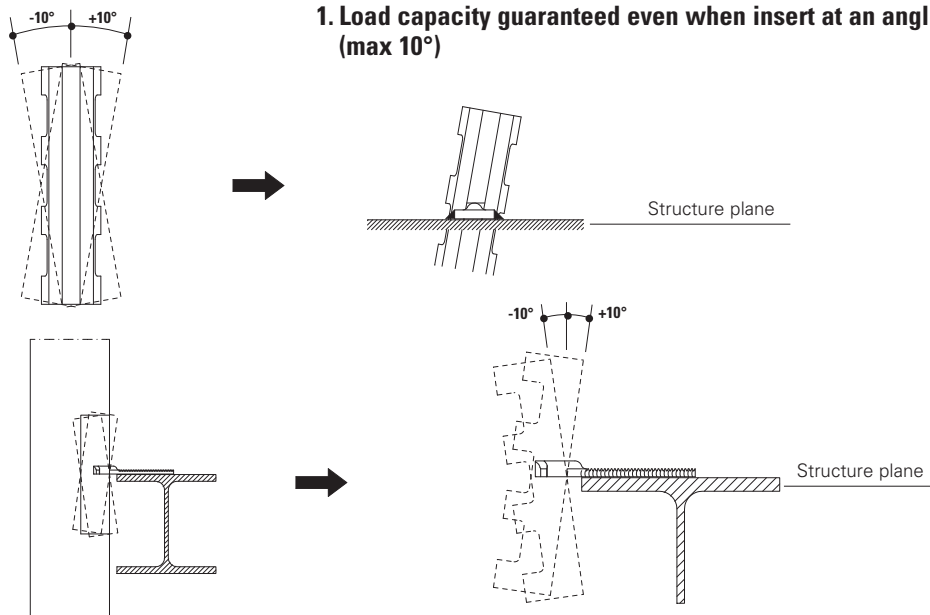
Dimensions in mm



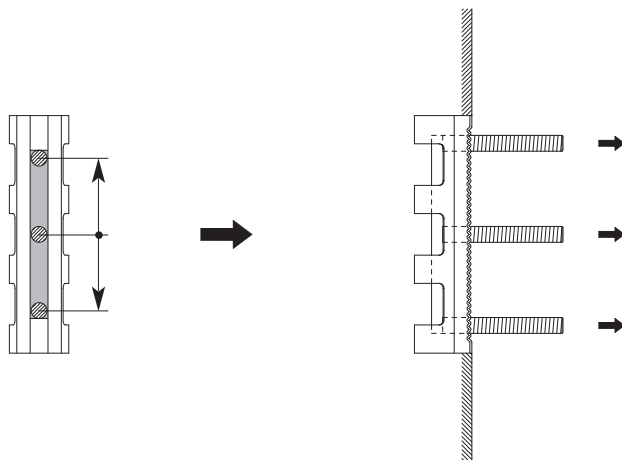
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The declared load capacity values are guaranteed for any connection position of the insert, with the min parameters shown in the previous pages. This allows for greater adjustability during erection.

## 1. Load capacity guaranteed even when insert at an angle (max 10°)

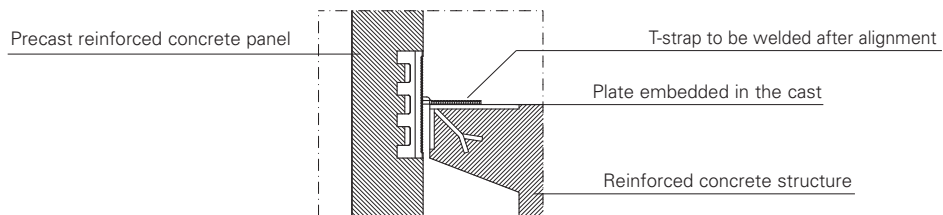


## 2. Constant load capacity even when connected at the end

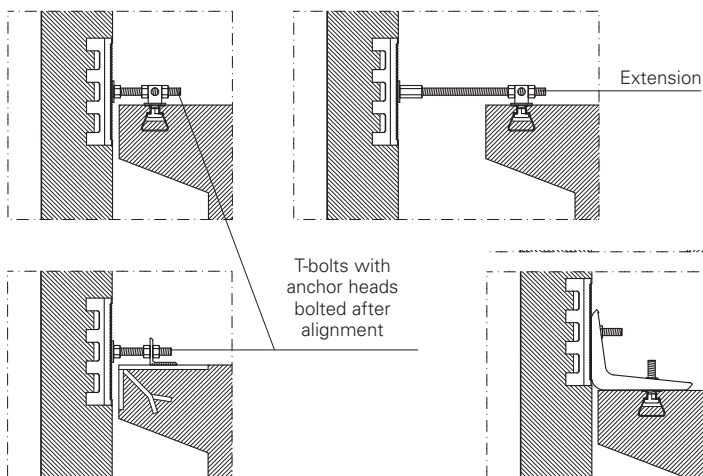
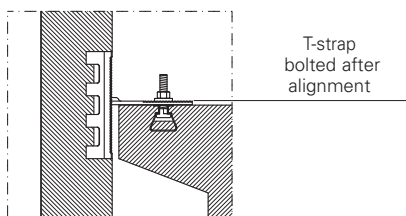


## REINFORCED CONCRETE STRUCTURES

### WELDED

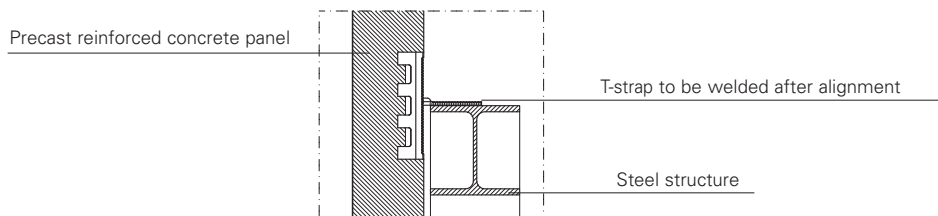


### BOLTED

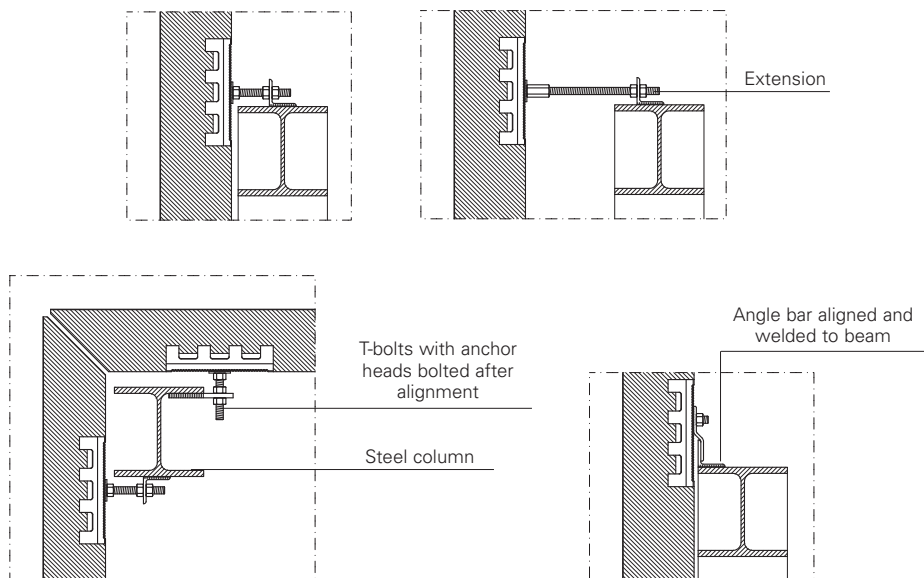


## STEEL STRUCTURES

### WELDED

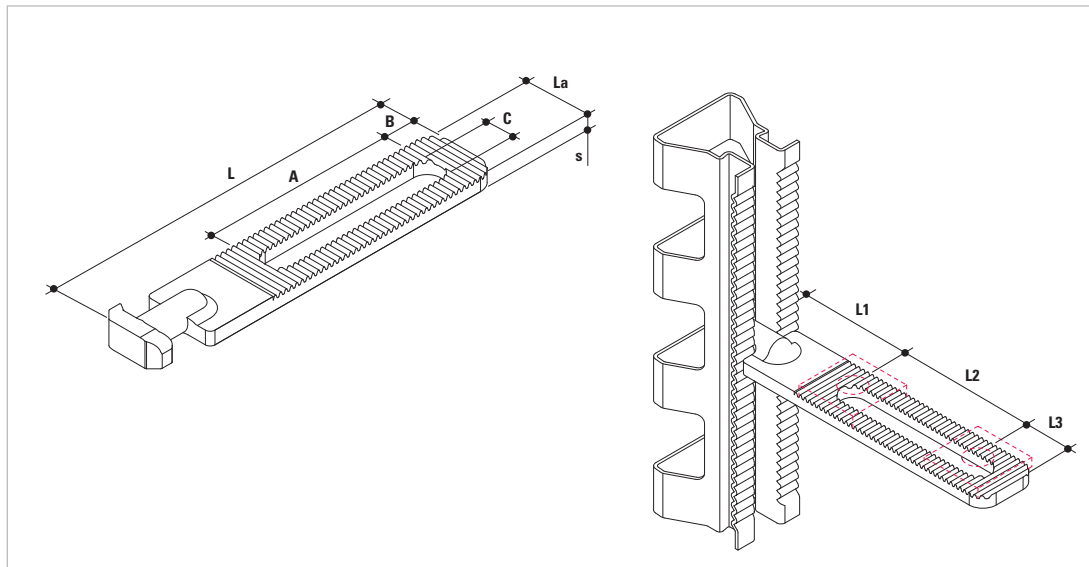


### BOLTED





The T-straps, in relation to the load capacity, always guarantee higher loads than the matching Slot's.



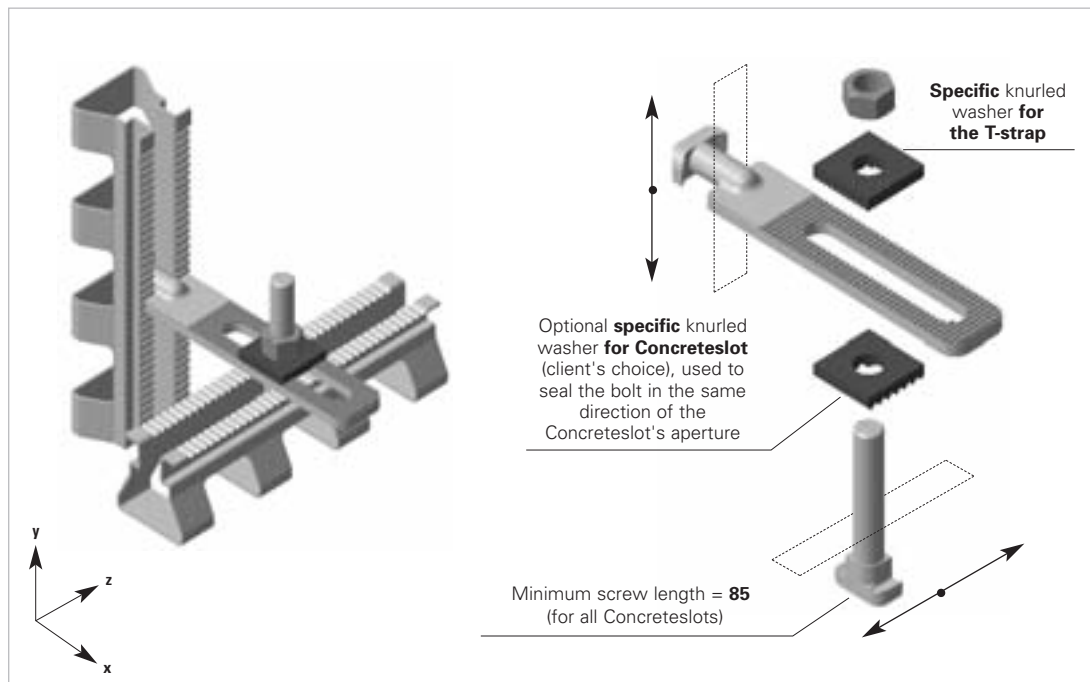
	Code	T-strap	L	La	L1	L2	L3	A	B	C	s
<b>16U</b>	CV/0184F.	L = 110	111,5	40	39,6	20	20	45	11	17	8
	CV/0185F.	L = 160	161,5	40	43,1	63	23,5	80	15	17	8
	CV/0186F.	L = 210	211,5	40	63,1	93	23,5	110	15	17	8
	CV/0187.F	L = 310	311,5	40	123,1	93	23,5	110	15	17	8
<b>20US</b>	CV/0192F	L = 210	210	50	54,5	89	25,5	110	15	21	12
	CV/0193F	L = 380	380	50	224,5	89	25,5	110	15	21	12

L1 = concrete manufact inside edge/bolt axis distance at min adjustment

L2 = movement allowed with knurled washer

L3 = bolt axis distance at max adjustment-T-strap end

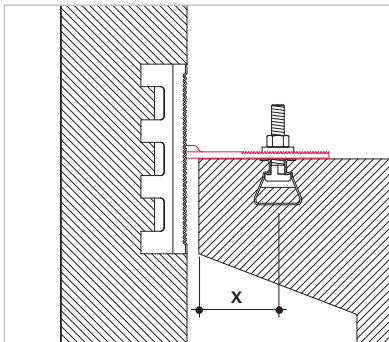
## ASSEMBLING EXAMPLE



## Utilization example

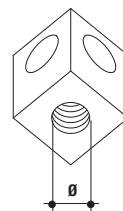
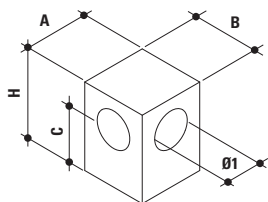


## Positioning



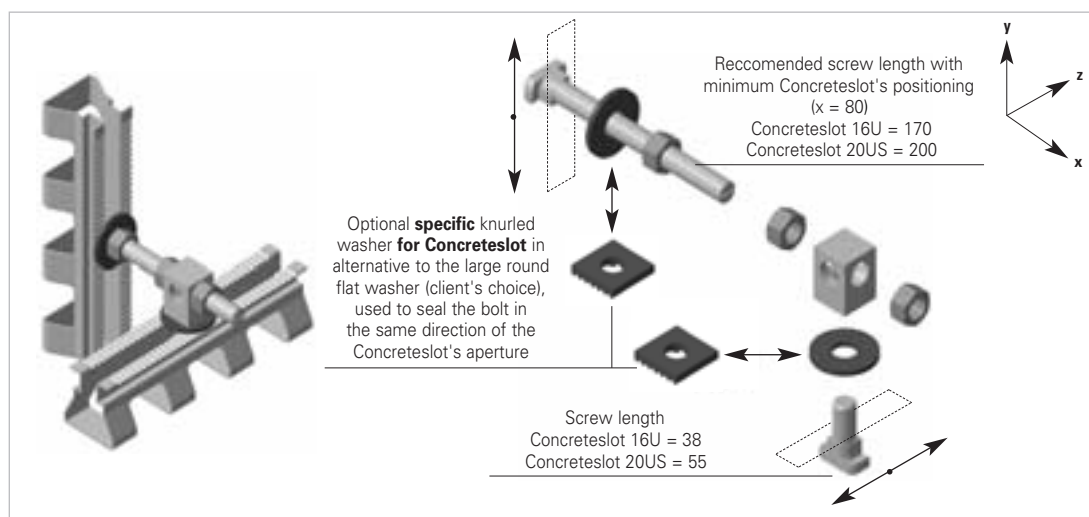
**Note: bolt tightening torque**  
bolts M16 = 120 Nm  
bolts M20 = 230 Nm

X: see page 8 - 9  
(after having verified  
compatibleness with the  
adjustment T-strap's length)



	Code	Vice system	A	B	C	H	Ø	Ø1
<b>16U</b>	4000-0.3F	M16	30	30	26	40	M16	17
<b>20US</b>	4000-20.F	M20	40	40	33	50	M20	21

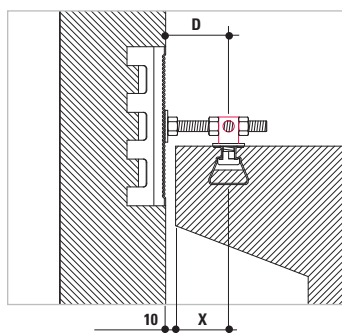
## ASSEMBLING EXAMPLE



## Utilization example



## Positioning



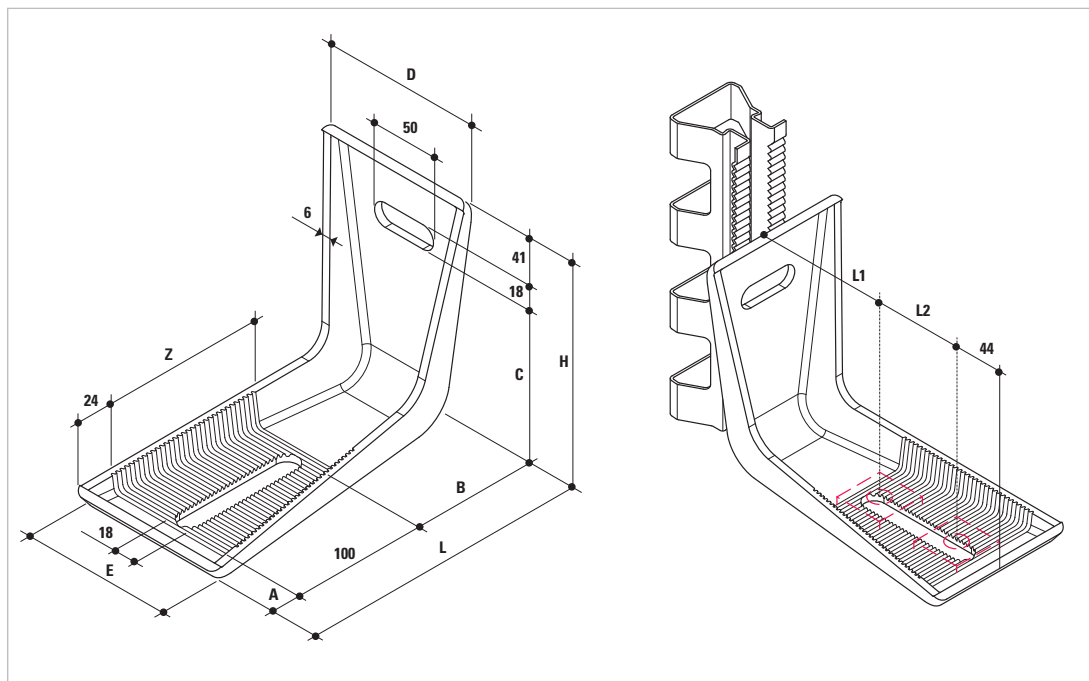
**Note:** bolt tightening torque  
bolts M16 = 120 Nm  
bolts M20 = 230 Nm

X: see page 8 - 9

**Note:** the screw only counters tensile stress if  $D > 300$  mm.  
Therefore you must guarantee the contact between the panel and the structure.

# FOUR-RIBBED BRACKET

Dimensions in mm



	Code	Four-ribbed bracket	H	L	L1	L2	A
<b>16U</b>	4505-00.F	120 x 180	120	179	95	40	24
	4511-00.F	180 x 230	180	226	111	71	29,5

B	C	D	E	Z
55	61	101	109	80
96,5	121	120	120	111

L1 = concrete manufact inside edge/bolt axis distance at min adjustment

L2 = movement allowed with knurled washer

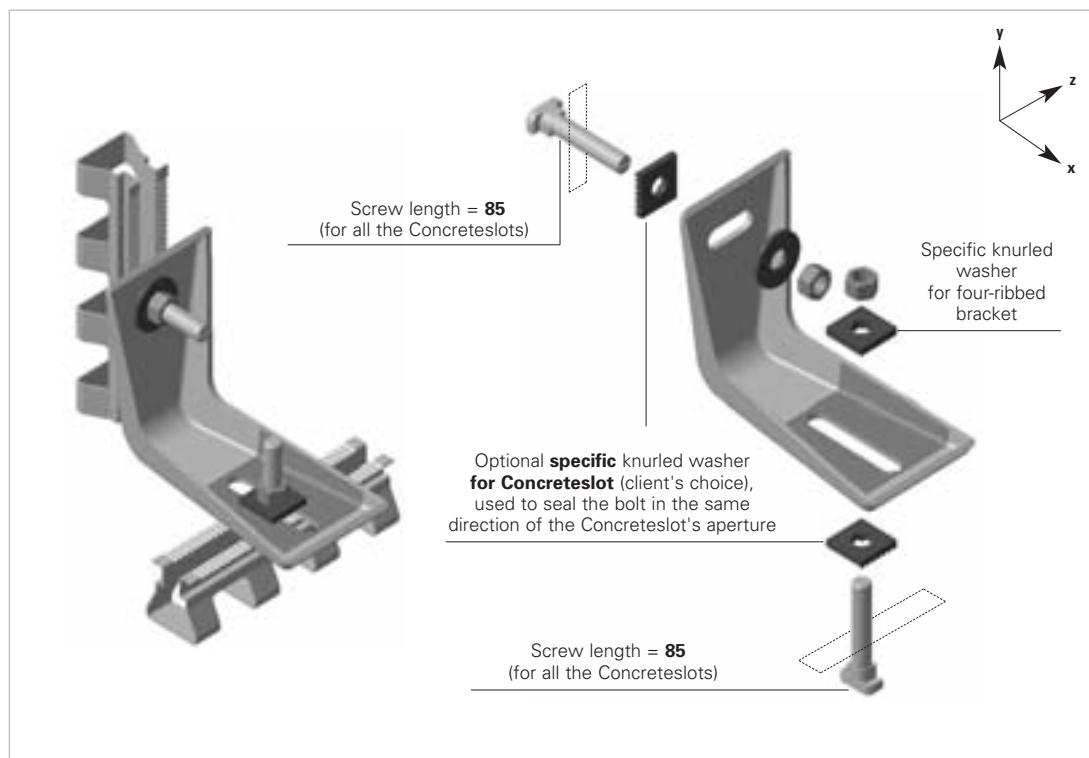
L3 = bolt axis distance at max four-ribbed bracket end

Strenght four-ribbed bracket				
Type	Code	Dimensions	S.L.E.	S.L.U.
Small	4505-00.F	120x180	16 kN	24 kN
Big	4511-00.F	180x230	18 kN	28kN

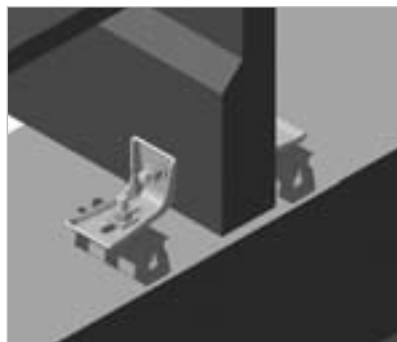
# FOUR-RIBBED BRACKET

Dimensions in mm

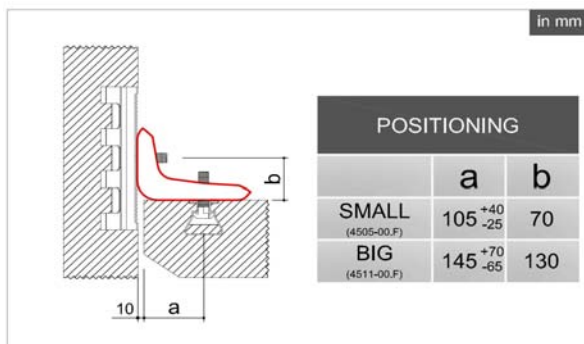
## ASSEMBLING EXAMPLE

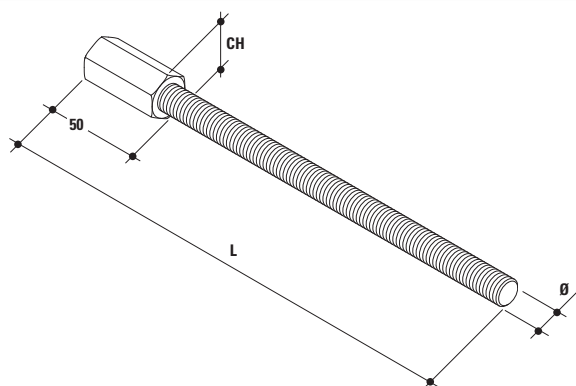


## Utilization example



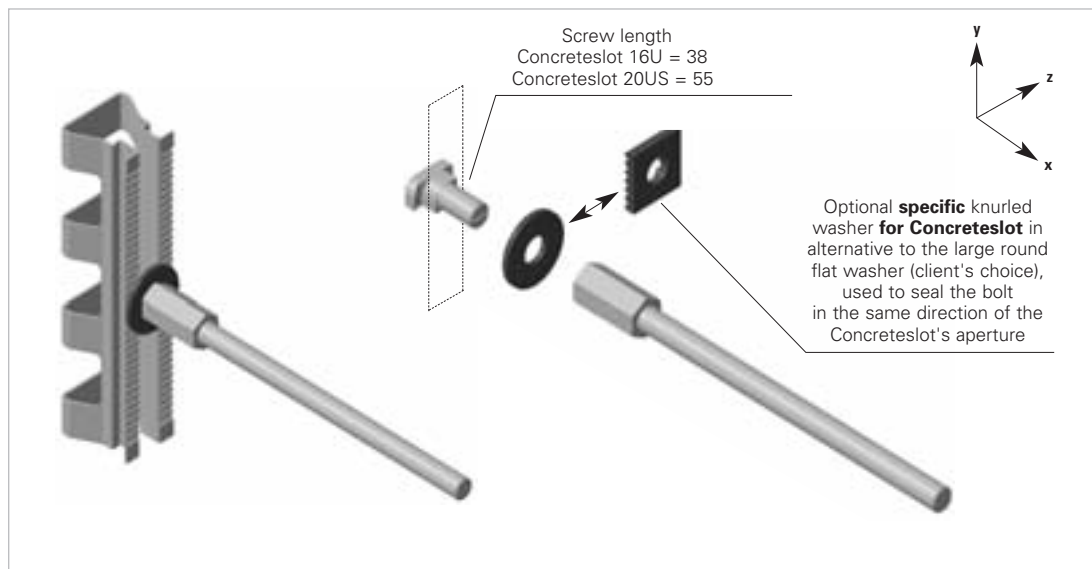
## Positioning



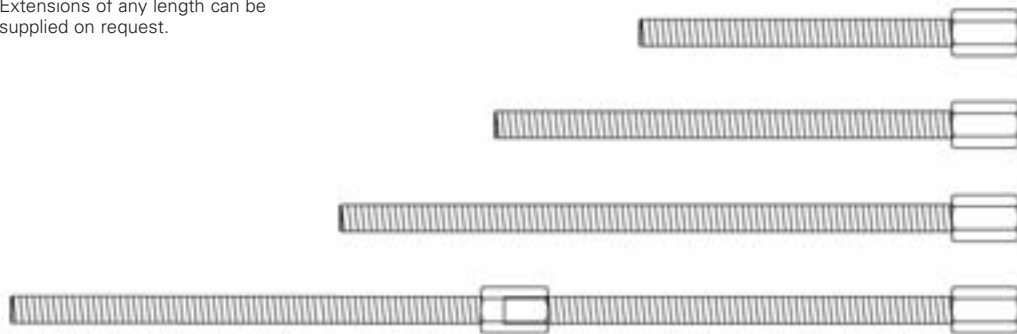


	Code	Extension	Ø	L	CH
<b>16U</b>	8248-16F	M16	M16	500	24
<b>20US</b>	8248-20F	M20	M20	508	300

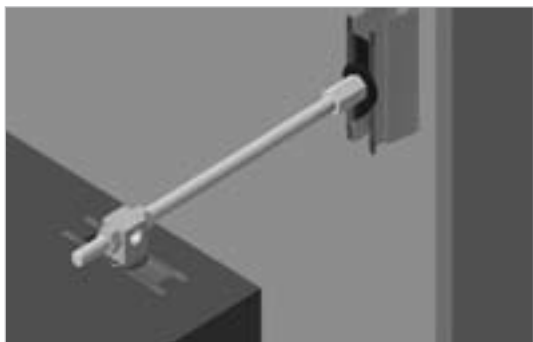
## ASSEMBLING EXAMPLE



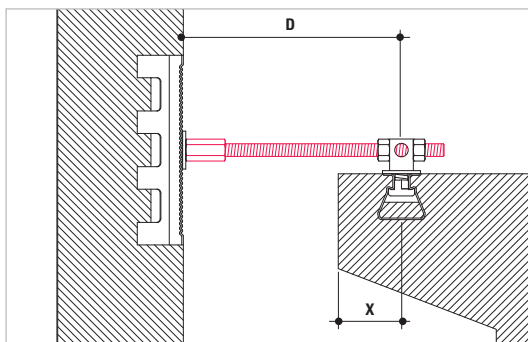
Extensions of any length can be supplied on request.



## Utilization example



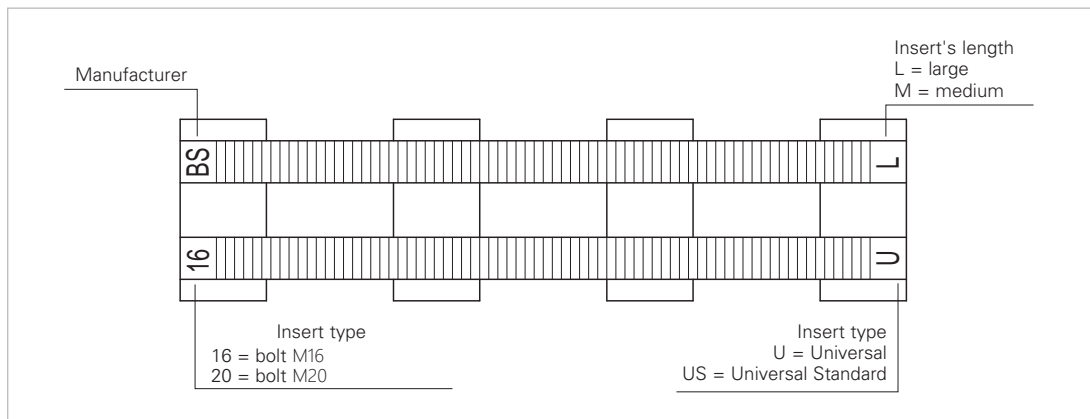
## Positioning



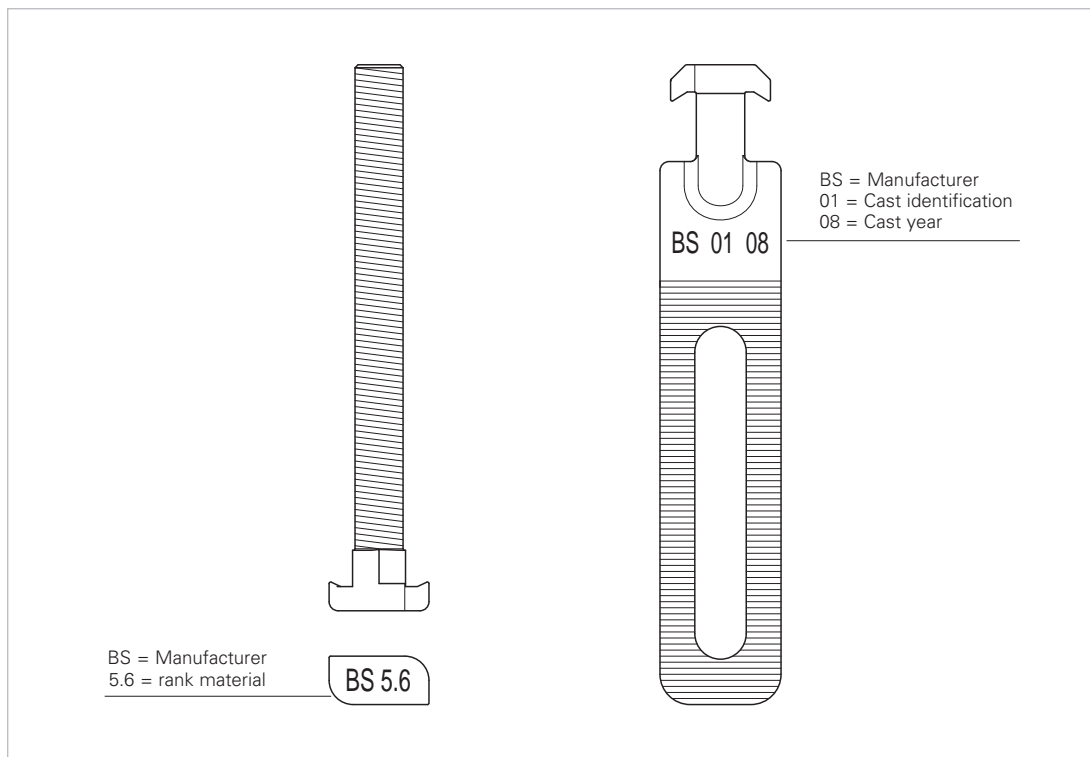
**Note: the extension only counters tensile stress if  $D > 300$  mm.  
Therefore you must guarantee the contact between  
the concrete manifold and the structure.**

**Note: bolt tightening torque**  
bolts M16 = 120 Nm  
bolts M20 = 230 Nm  
X: see page 8-9

## CONCRETESLOT



## CONNECTIONS





Please contact B.S.Italia at the address below if in doubt about the correct use of any of the components described in this manual:

**B.S.Italia • 24050 Zanica (BG) • Via Stezzano, 16**  
**tel +39 035 671 746 • fax +39 035 672 265**  
**[www.styl-comp.it](http://www.styl-comp.it) • [infobsitalia@styl-comp.it](mailto:infobsitalia@styl-comp.it)**

## **WELDING OR MODIFYING**

The welding or modifying of any components in the CONCRETESLOT system is not permitted where this may cause a reduction in load capacity, changes to the technical characteristics of the materials or lead to unsafe working conditions.

Except the T-straps which are weldable to the structure. The welding will have to be accomplished at the state of art and according to the rules in force.

B.S.Italia cannot be held liable for any damage or injury as the result of modifications to its products or individual components.

## **REPLACING OR EXCHANGING COMPONENTS**

The products that B.S.Italia manufactures and supplies are designed as part of an inseparable system for the windbracing of precast/prestressed concrete elements. Non original spare-parts are therefore not allowed.

## **CHANGES IN DESIGN**

B.S.Italia reserves the right to alter the design of the components and/or accessories and/or to the load capacities at any time, without prior notice.

Follow the instructions in this manual carefully when designing the inserts and reinforcement. The designer of the concrete elements is, in any case, legally responsible for the correct choice of component in CONCRETESLOT system, to reflect the application and the stresses in question. In accordance with local regulations, an individual must be appointed for each product to be responsible for the safety of the workplace. A detailed assembly plan must be issued and followed. This manual must always be present and available on site and handed to the relevant managers: production, storage and site.



Description	Code
<b>Concretslot</b>	
16U Medium (L = 170) sendzimir galvanized	SLOT 16U M
20US Medium (L = 170) sendzimir galvanized	SLOT 20US M

<b>Polystyrene</b>	
L = 130 for Concretslot 16U M	CV/0157.
L = 130 for Concretslot 20US M	CV/0147.

<b>Concretslot</b>	
16U Large (L = 240) sendzimir galvanized	SLOT 16 U L
20US Large (L = 240) sendzimir galvanized	SLOT 20US L

<b>Polystyrene</b>	
L = 200 for Concretslot 16U L	CV/0141.
L = 200 for Concretslot 20US L	CV/0149.

<b>Knurled Washer specific for concretslot (to be positioned on the slot)</b>	
for Concretslot 16U (40x40x8)	7214-16F
for Concretslot 20US (40x45x8)	7214-20F



Description	Code
<b>T-strap</b>	
L = 110 for Concreteslot 16U	CV/0184F.
L = 160 for Concreteslot 16U	CV/0185F.
L = 210 for Concreteslot 16U	CV/0186F.
L = 310 for Concreteslot 16U	CV/0187F.
L = 210 for Concreteslot 20US	CV/0192F
L = 380 for Concreteslot 20US	CV/0193F

<b>Knurled Washer specific for t-strap</b>	
for Concreteslot 16U (40x40x8)	CV/0136F
for Concreteslot 20US (40x50x8)	CV/0196F

<b>T-bolt for Concreteslots 16U (UNC Ø 5/8" - 11)</b>	
L = 38	8204-16F
L = 85	8210-16F
L = 110	8215-16F
L = 125	8218-16F
L = 150	8220-16F
L = 170	8219-16F
L = 200	8225-16F
L = 250	8230-16F

<b>T-bolt for Concreteslots 20US (UNC Ø 3/4" - 10)</b>	
L = 55	8206-20F
L = 85	8210-20F
L = 110	8215-20F
L = 125	8218-20F
L = 150	8220-20F
L = 200	8225-20F



Description	Code
<b>Medium nut</b>	
for Concreteslot 16U (M16)	6200-16F
for Concreteslot 20US (M20)	6200-20F



<b>Large round flat washer</b>	
for Concreteslot 16U (d 17 x D 48x4)	7000-16F
for Concreteslot 20US (d 22 x D 60x4)	7000-20F



<b>Extension</b>	
L = 500 for Concreteslot 16U (M16)	8248-16F
L = 508 for Concreteslot 20US (M20)	8248-20F



<b>Vice block</b>	
for Concreteslot 16U (M16)	CV/0028AF
for Concreteslot 20US (M20)	CV/0103AF



<b>Four-ribbed bracket</b>	
120 x 180 for Concreteslot 16U	4505-00.F
180 x 230 for Concreteslot 16U	4511-00.F



<b>Knurled Washer specific for Four-ribbed bracket</b>	
for Concreteslot 16U (40x40x8)	7014-16F

**F = Galvanized**



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