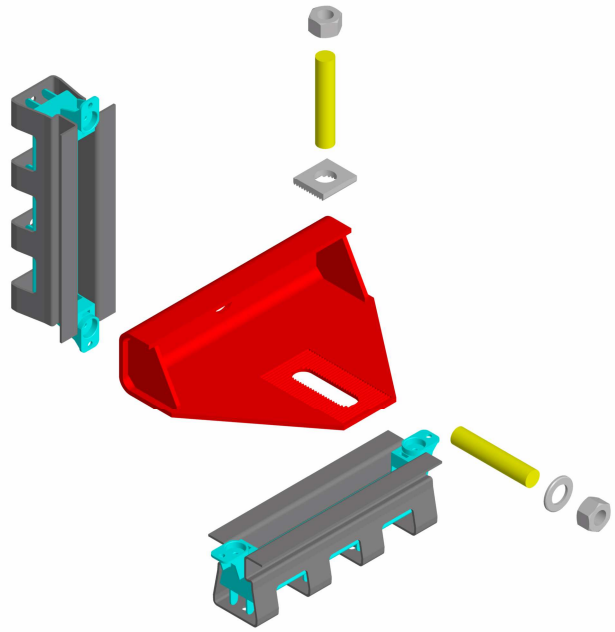
SEISMIC-RESISTANT SYSTEMS



User Manual

2018

BS ITALIA - S.S-R ENG Manual

Rev. 01 / 2018

B.S.Italia S.p.A.
Styl-Comp Group
innovazione basata sull'esperienza
innovation based on experiece

PREMISE

PLEASE READ CAREFULLY THE INFORMATION AND THE PRESCRIPTIONS CONTAINED IN THIS USER MANUAL BEFORE USING ANY COMPONENT OF THE SEISMIC-RESISTANT SYSTEM.

For any doubt about the correct use of the components here described please contact:
B.S.Italia S.p.A. • 24050 Zanica (BG) Italia • Via Stezzano n.16
• tel +39 035 / 671746
• fax +39 035 / 672265
• www.bsitaliagroup.com
• infobsitalia@styl-comp.it

B.S.Italia S.p.A. is a certified company and the SEISMIC-RESISTANT System has been designed and built in accordance with:

• For the Quality System:	Company with Quality System certified by IGQ according to UNI EN ISO 9001	
• For the general parts:	Static calculations, Eurocodes and state of art	
• For the materials:	SEISMIC-RESISTANT System	S355 UNI EN 10025
	Slot	DX51D+Z UNI EN 10327 e/o S355MC UNI EN 10149
	Screws	class 8.8 UNI EN ISO 898
	Washers	S235 UNI EN 10219
• For surface treatments:	Electrolytic galvanizing	≥ 7 µm UNI EN ISO 2081
	Hot galvanizing	≥ 50 µm UNI EN ISO 1461
	Stove enamelling	≥ 50 µm with epoxy-polyestere dust
• For materials control:	Accredia certified laboratories	
• For the CE marking of the system:	European Regulation for construction nr. 305/11, harmonized standard EN1090-2	

SUMMARY

RESISTANCE

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COMPONENTS

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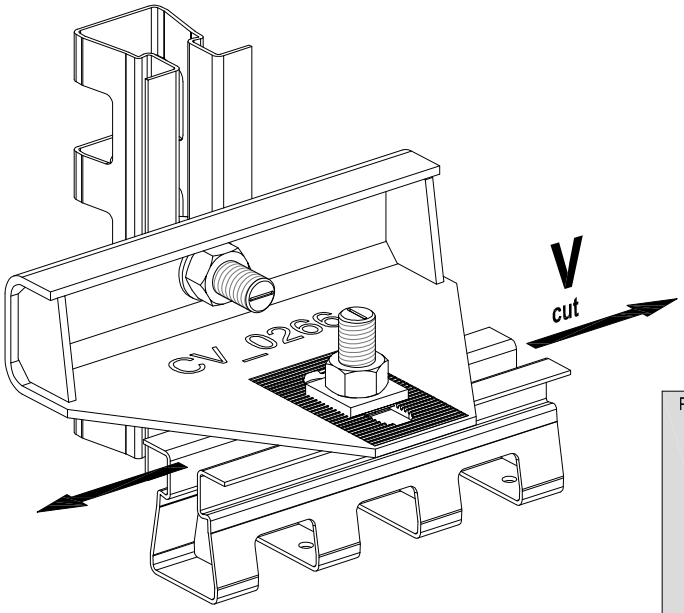
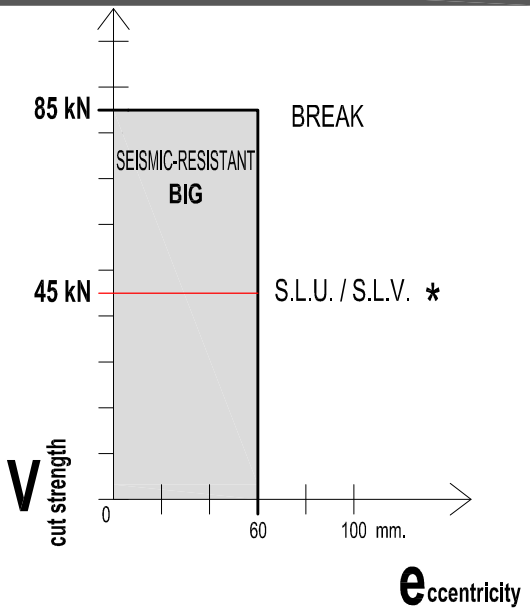
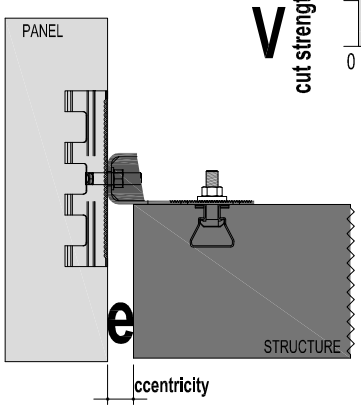
seismic-resistant system BIG

CUT

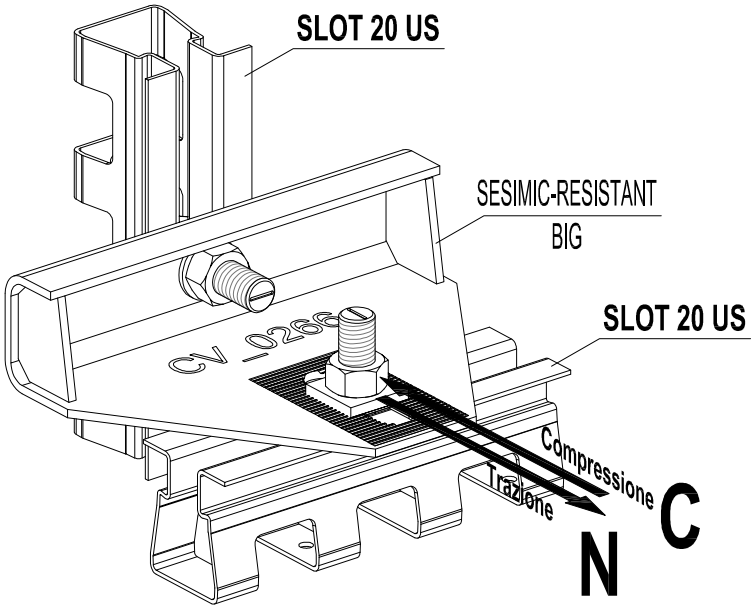






$0 \leqslant e_{ccentricity} \leqslant 60mm$

TRACTION / COMPRESSION

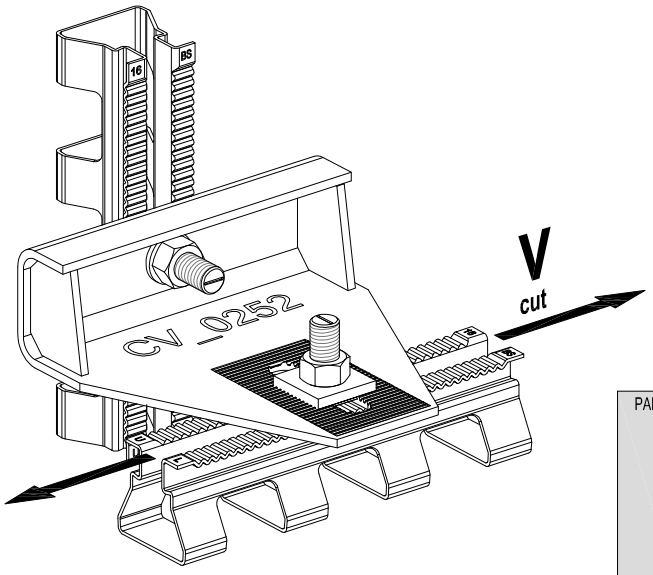


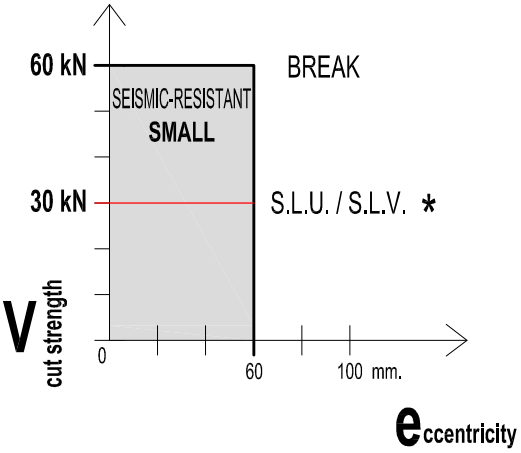
TRACTION LOAD AND COMPRESSION AT BREAK EQUAL TO 75 kN *

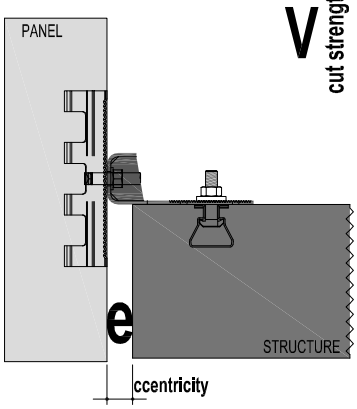
*** THE PROJECT RESISTANCE IS INFLUENCED BY THE RESISTANCE OF THE SLOT PROFILE PROJECT COMBINED WITH THE SEISMIC-RESISTANT SYSTEM**

seismic-resistant system SMALL

CUT

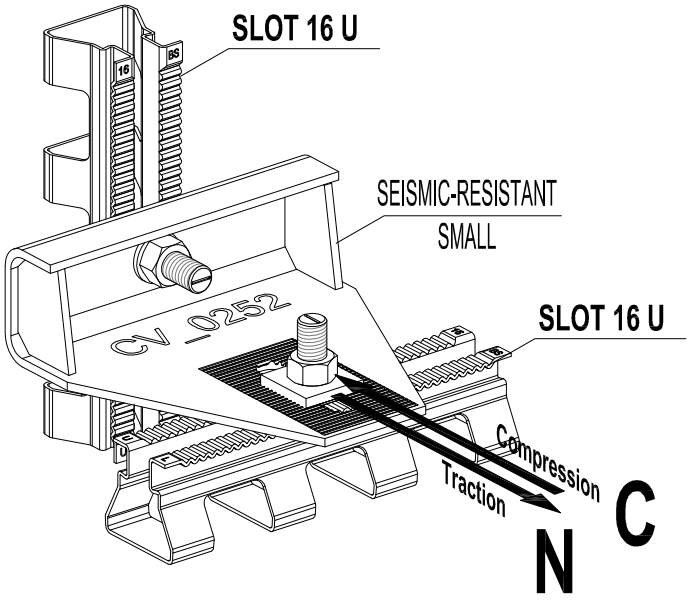






$0 \leqslant e_{ccentricity} \leqslant 60mm$

TRACTION / COMPRESSION

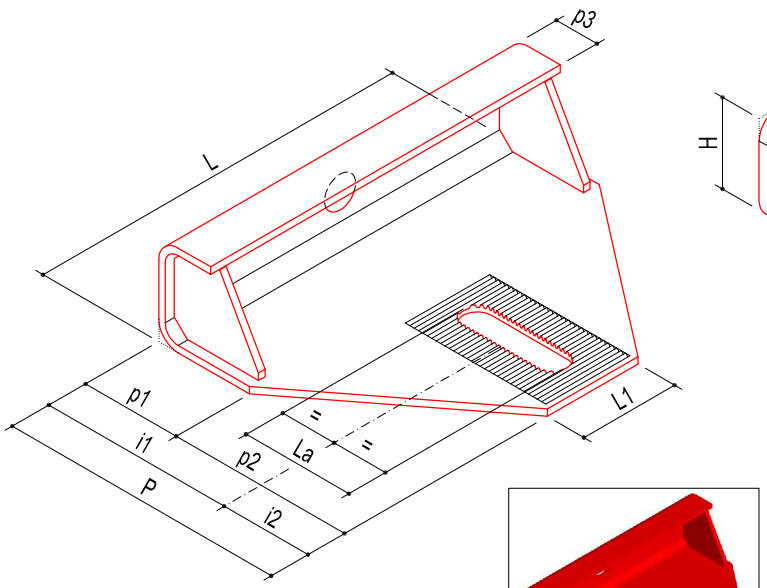


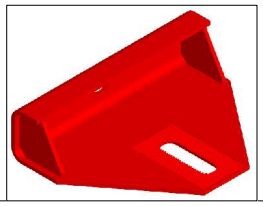
TRACTION LOAD AND COMPRESSION AT BREAK EQUAL TO 58 kN *

*** THE PROJECT RESISTANCE IS INFLUENCED BY THE RESISTANCE OF THE SLOT PROFILE PROJECT COMBINED WITH THE SEISMIC-RESISTANT SYSTEM**

SEISMIC-RESISTANT SYSTEMS: features and positioning

in mm

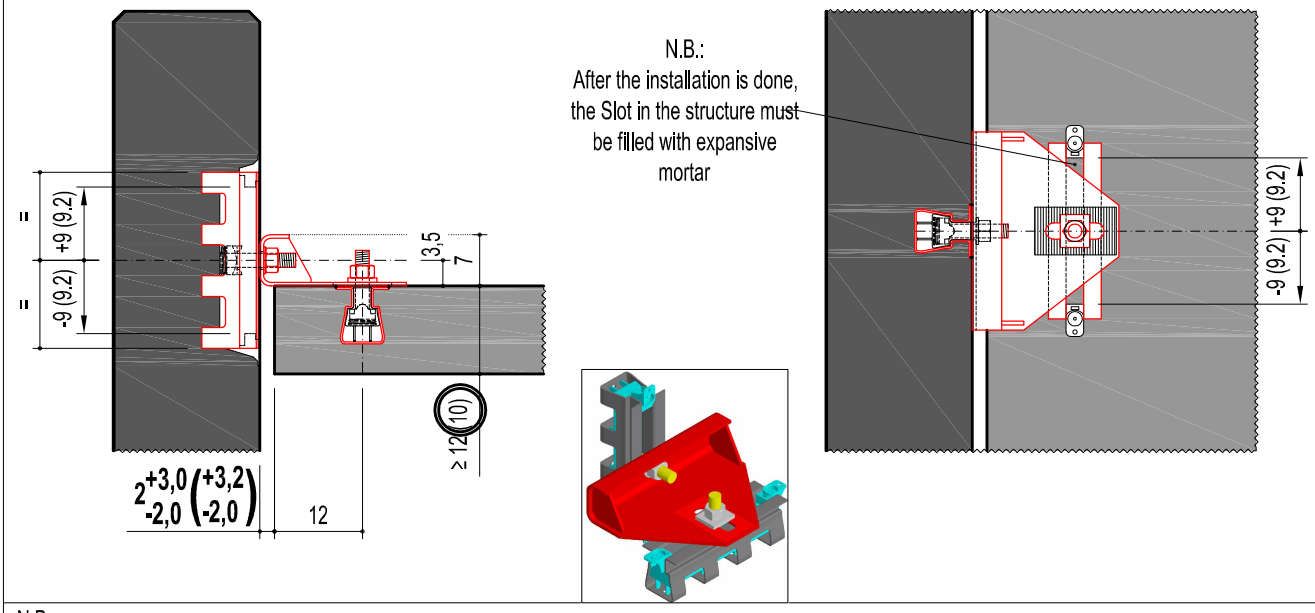




Code	Seismic-resistant System	L	L1	P	p1	p2	p3	i1	i2	H	a	La	F	
CV/0252	16 (for screws and Slot 16)	200	70	200	70	130	40	140	60	70	18	80	Ø 20	
CV/0266	20 (for screws and Slot 20)	270	70	200	70	130	40	140	60	70	22	80	Ø 24	

GENERIC POSITIONING

in cm

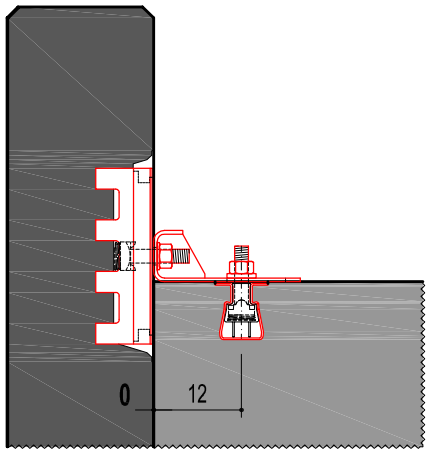


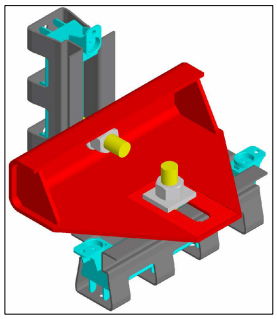
N.B.:
- Rck panel and structure ≥ 40 N/mm^2;
- In brackets, the values for the M16 Seismic-Resistant system;
- The system adjustaments, facilitate installation and allow the thermal and/or hygrometric expansion of the panel with respect to the structure.

SEISMIC-RESISTANT SYSTEMS: adjustement of the in/out allignment

SYSTEM POSITIONING with MINIMUM EXCURSION

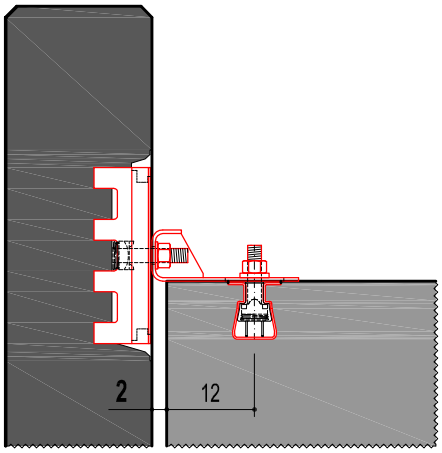
in cm

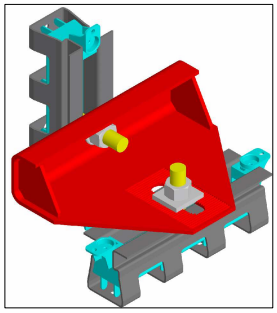




SYSTEM POSITIONING in **STARTING POSITION**

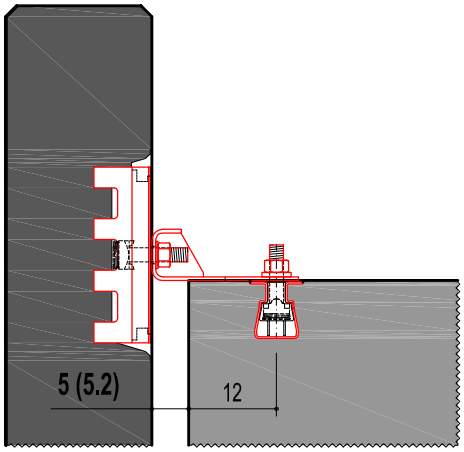
in cm

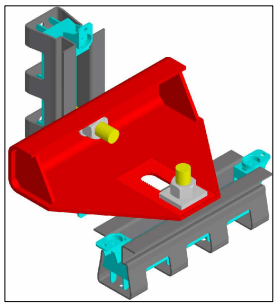




SYSTEM POSITIONING with MAXIMUM EXCURSION

in cm





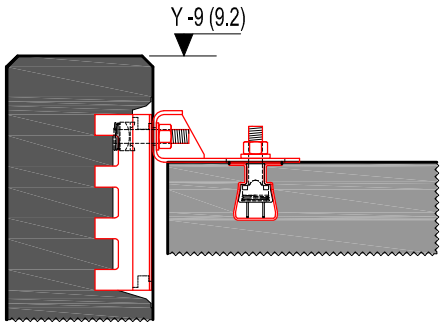
N.B.:

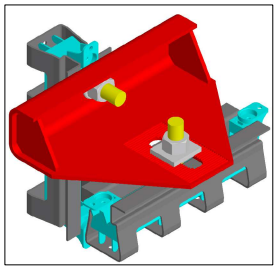
- **The seismic-resistant systems always guarantee the maximum load with any excursion**. In order to guarantee all the excursions, it's important to respect the Slot position in the structure and in the panel: if this positions are not respected, the excursions must be checked again;
- In brackets, values for the M16 Seismic-resistance system.

SEISMIC-RESISTANT SYSTEMS: adjustement of the up/down height

SYSTEM POSITIONING with MINIMUM EXCURSION

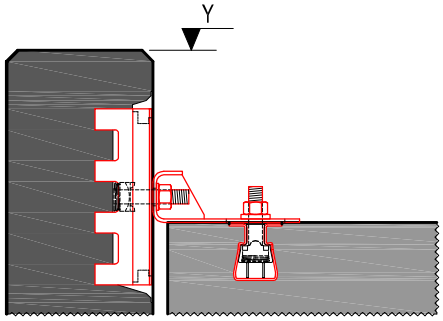
in cm

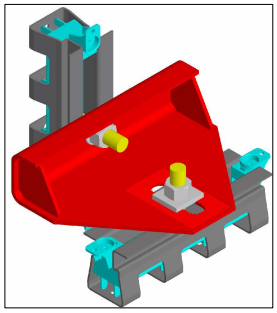




SYSTEM POSITIONING with STARTING POSITION

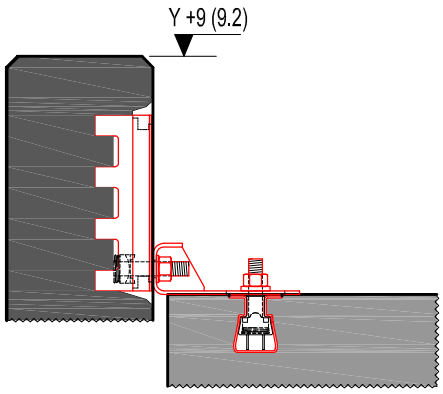
in cm

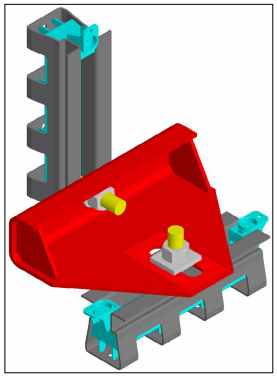




SYSTEM POSITIONING with MAXIMUM **EXCURSION**

in cm





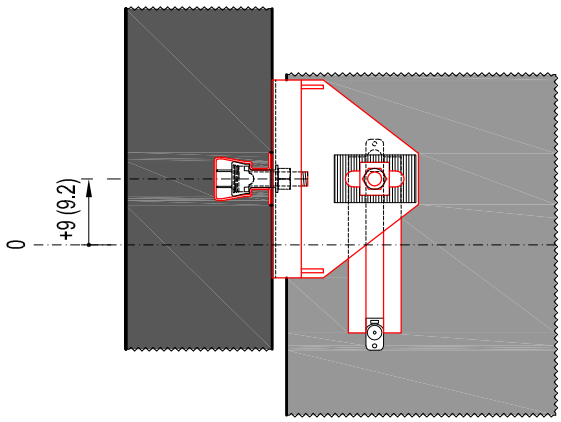
N.B.:

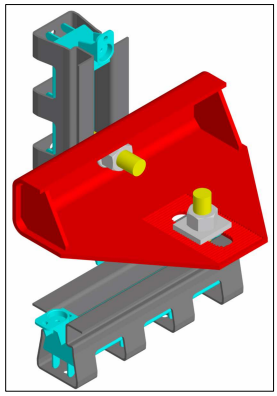
- **The seismic-resistant systems always guarantee the maximum load with any excursion**. In order to guarantee all the excursions, it's important to respect the Slot position in the structure and in the panel: if this positions are not respected, the excursions must be checked again;
- In brackets, values for the M16 Seismic-resistance system.

SEISMIC-RESISTANT SYSTEMS: adjustement of the right/left position

SYSTEM POSITIONING with RIGHT EXCURSION

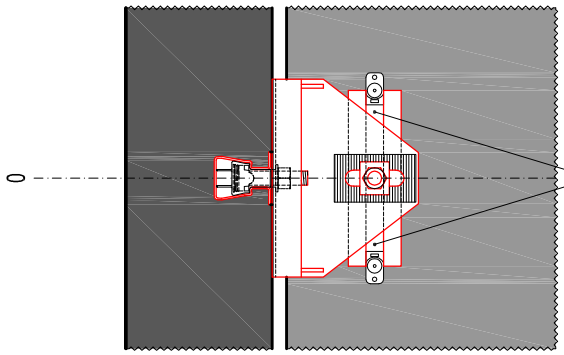
in cm



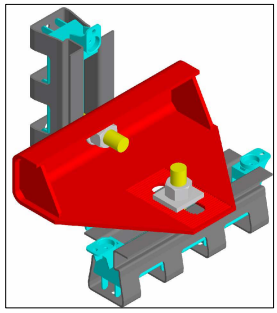


SYSTEM POSITIONING in STARTING POSITION

in cm

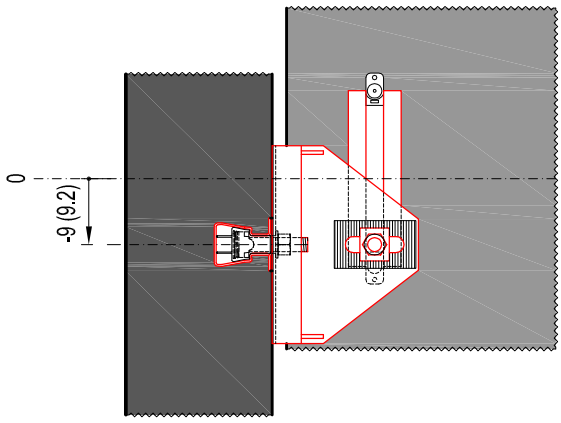


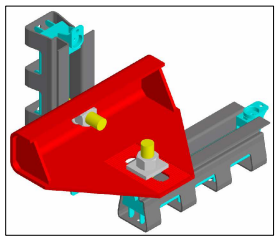
N.B.:
the adjustement of the right/left position, must be done before filling the Slot in the structure with expansive mortar



SYSTEM POSITIONING with **LEFT EXCURSION**

in cm

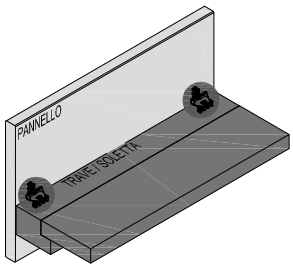
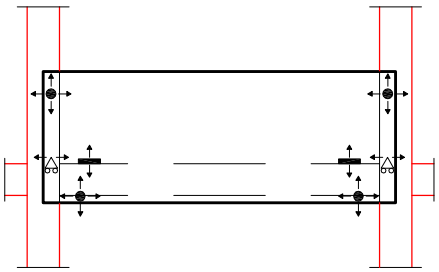
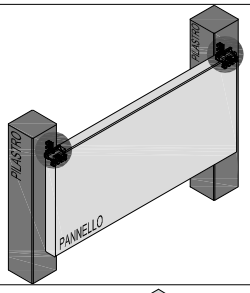
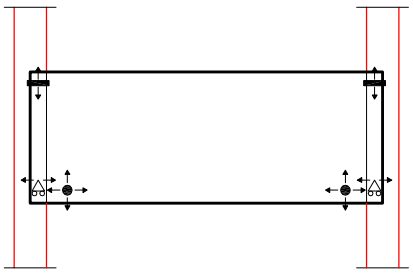
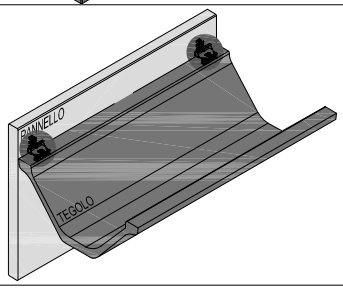
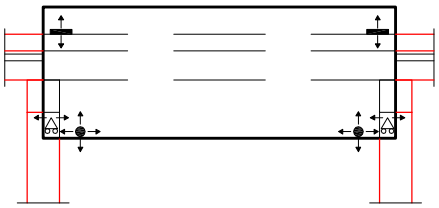
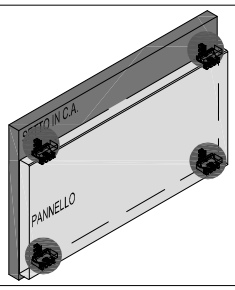
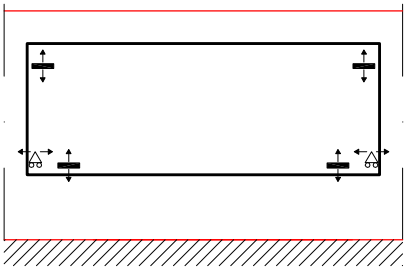
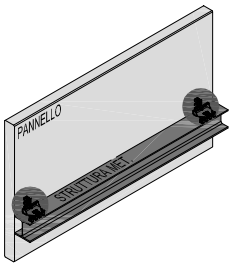
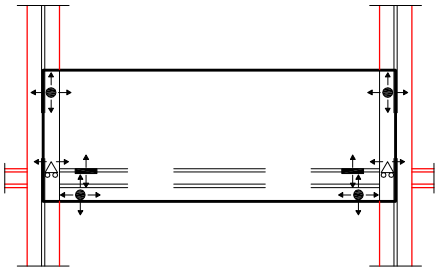
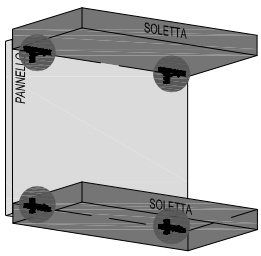
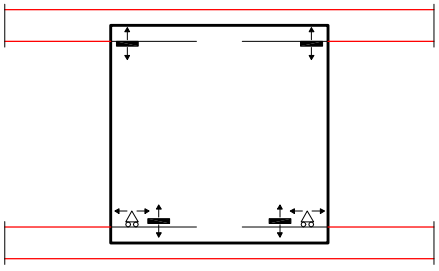




N.B.:

- **The seismic-resistant systems always guarantee the maximum load with any excursion**. In order to guarantee all the excursions, it's important to respect the Slot position in the structure and in the panel: if this positions are not respected, the excursions must be checked again;
- In brackets, values for the M16 Seismic-resistance system.

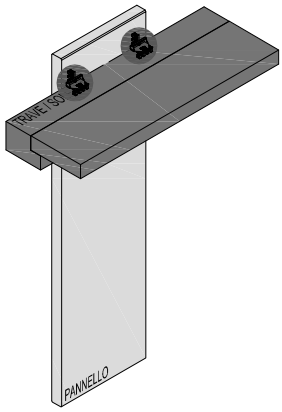
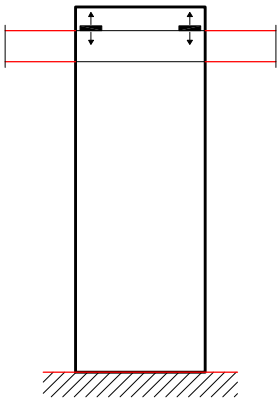
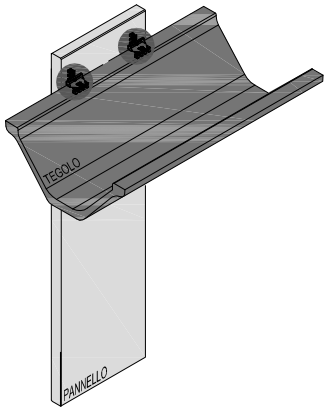
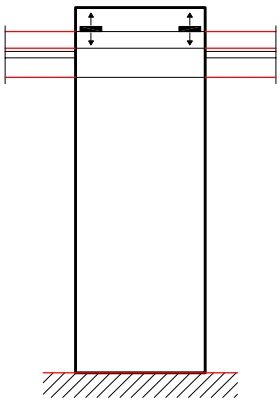
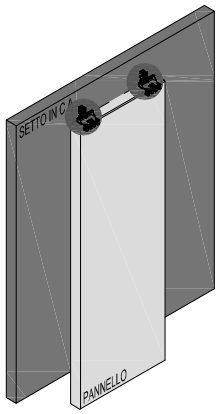
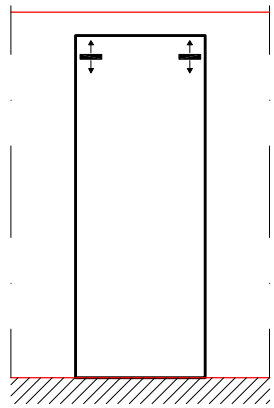
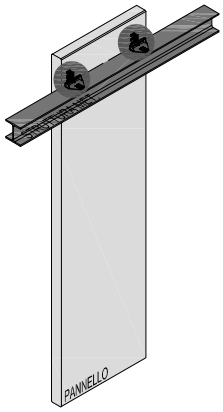
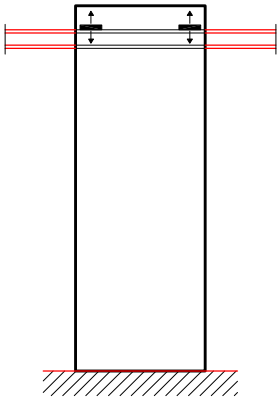
TYPICAL APPLICATIONS FOR HORIZONTAL PANELS

PANEL - BEAM / SLAB		
PANNELLO - PILASTRO		
PANNELLO- TILE		
PANNELLO - SETTO IN C.A.		
PANEL - METALLIC STRUCTURE		
PANEL - INTER FLOOR SLAB		

LEGEND:

- BRACKET
- TRACTION - COMPRESSION CONNECTION
- CUT CONNECTION
- HORIZONTAL FREEDOM OF SLIDING
- VERTICAL FREEDOM OF SLIDING

TYPICAL APPLICATIONS FOR VERTICAL PANELS

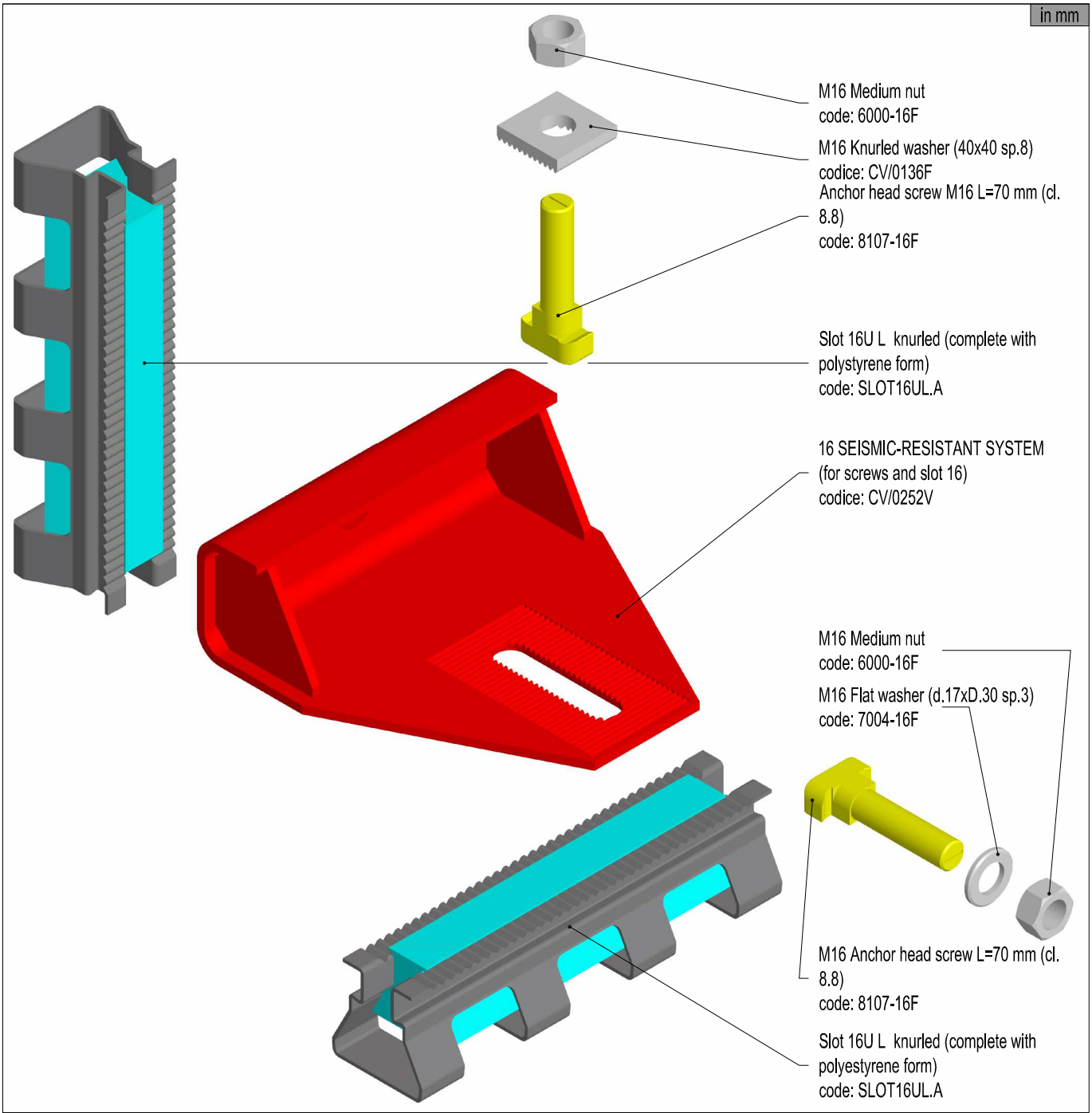
PANNELLO - TRAVE / SOLETTA		
PANEL - TILE		
PANEL - SEPTUM IN R.C.		
PANEL - METALLIC STRUCTURE		

LEGEND:

- BRACKET
- TRACTION - COMPRESSION CONNECTION
- CUT CONNECTION
- HORIZONTAL FREEDOM OF SLIDING
- VERTICAL FREEDOM OF SLIDING

16 SEISMIC-RESISTANT SYSTEM: components

in mm



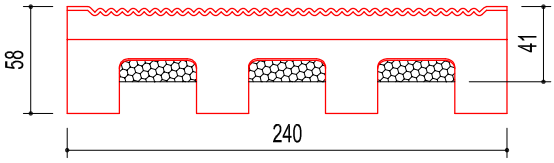
N.B.:

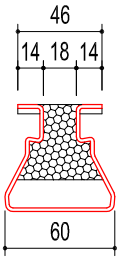
- M16 nuts tightening couple:
  - **for Slot 16U L drowned into the structure = 110 Nm;**
  - **for Slot 16U L drowned into the panel = 60 Nm;**
- Finishing: F = hot galvanized, V = painting (all the requests for other finishings, must be subject to evaluation).

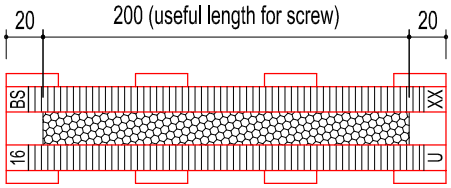
16 SEISMIC-RESISTANT: Slot 16U L component knurled with stirruping related

code: SLOT16UL.A

in mm



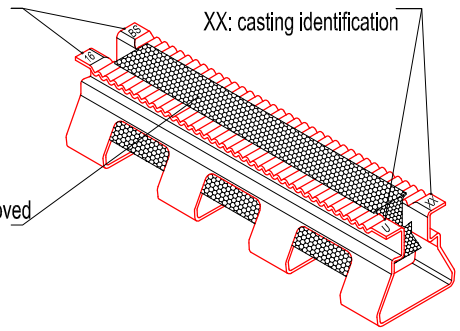




16: product typology
BS: manufacturer

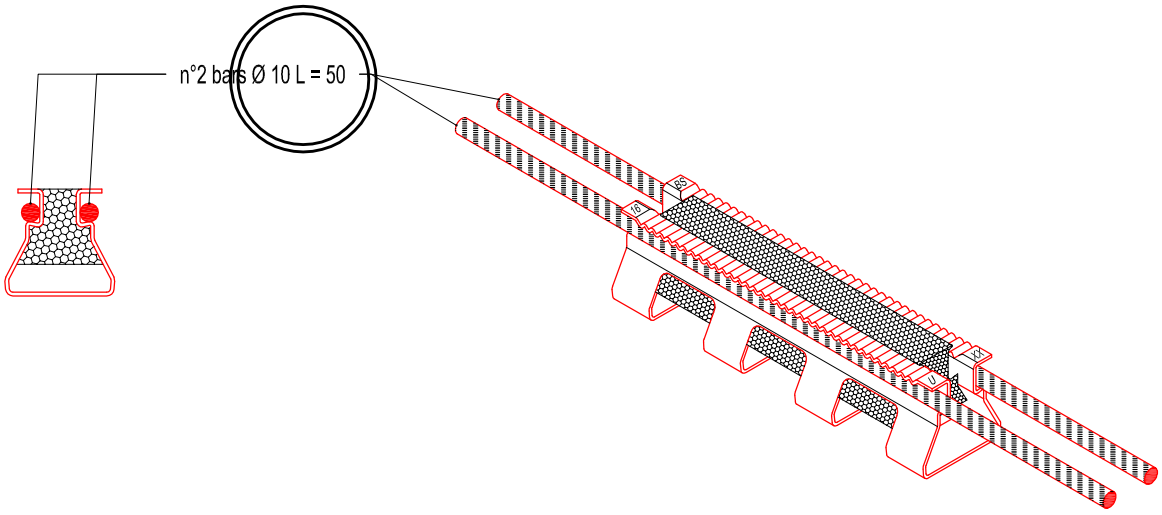
U: universal
XX: casting identification

Polystyrene to be removed before installation



SLOT 16U L KNURLED STIRRUPING

in cm



N.B.:
- Stirruping with bars with improving adhesion in B450;
- For the tightening of the knurled Slot 16U L, use the conventional methods.
  It's forbidden the tightening through welding points because it could ruin the polystyrene.

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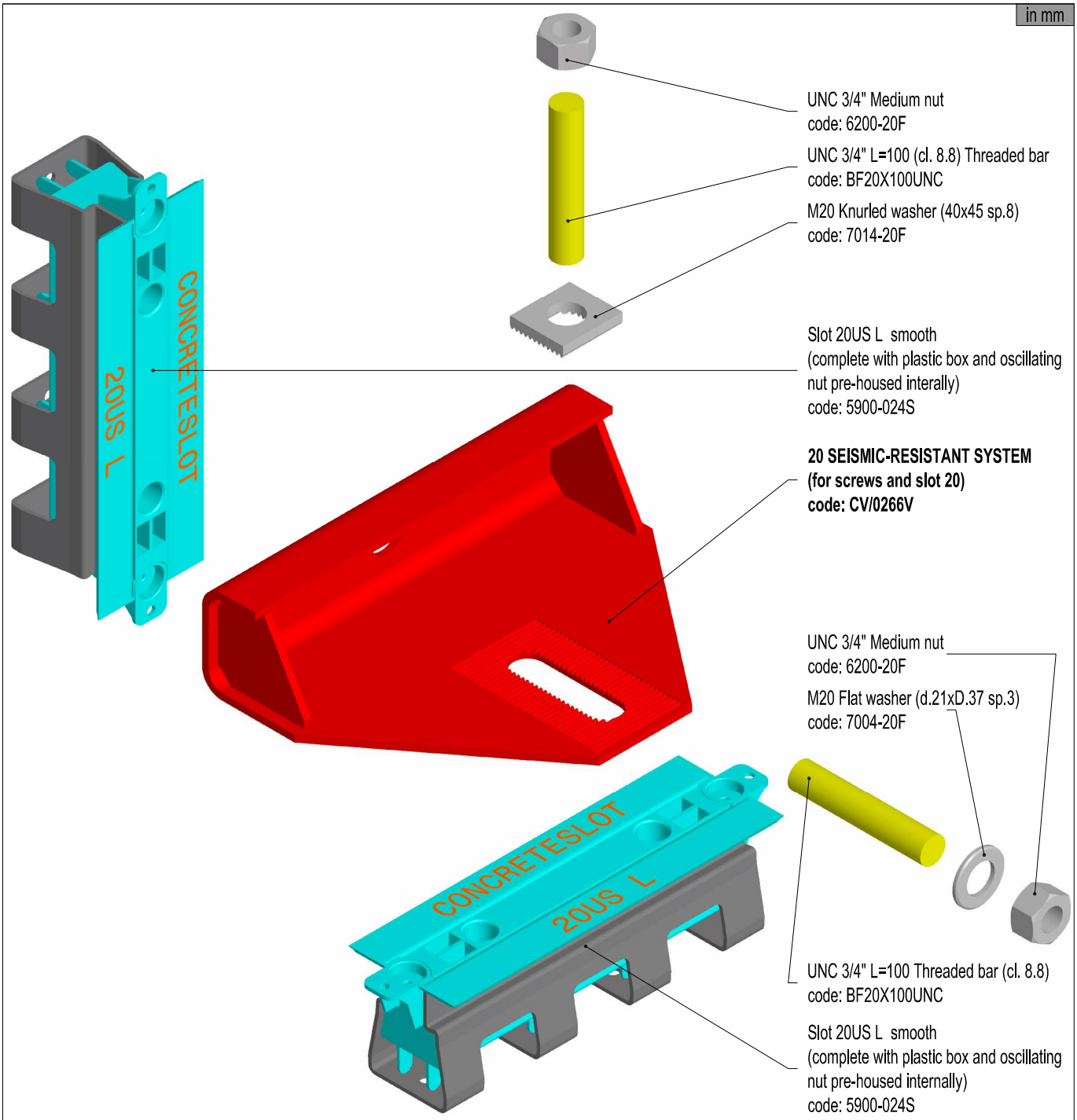
20 SEISMIC-RESISTANT SYSTEM: components

in mm



UNC 3/4" Medium nut
code: 6200-20F

UNC 3/4" L=100 (cl. 8.8) Threaded bar
code: BF20X100UNC

M20 Knurled washer (40x45 sp.8)
code: 7014-20F

Slot 20US L smooth
(complete with plastic box and oscillating nut pre-housed interally)
code: 5900-024S

20 SEISMIC-RESISTANT SYSTEM
(for screws and slot 20)
code: CV/0266V

UNC 3/4" Medium nut
code: 6200-20F

M20 Flat washer (d.21xD.37 sp.3)
code: 7004-20F

UNC 3/4" L=100 Threaded bar (cl. 8.8)
code: BF20X100UNC

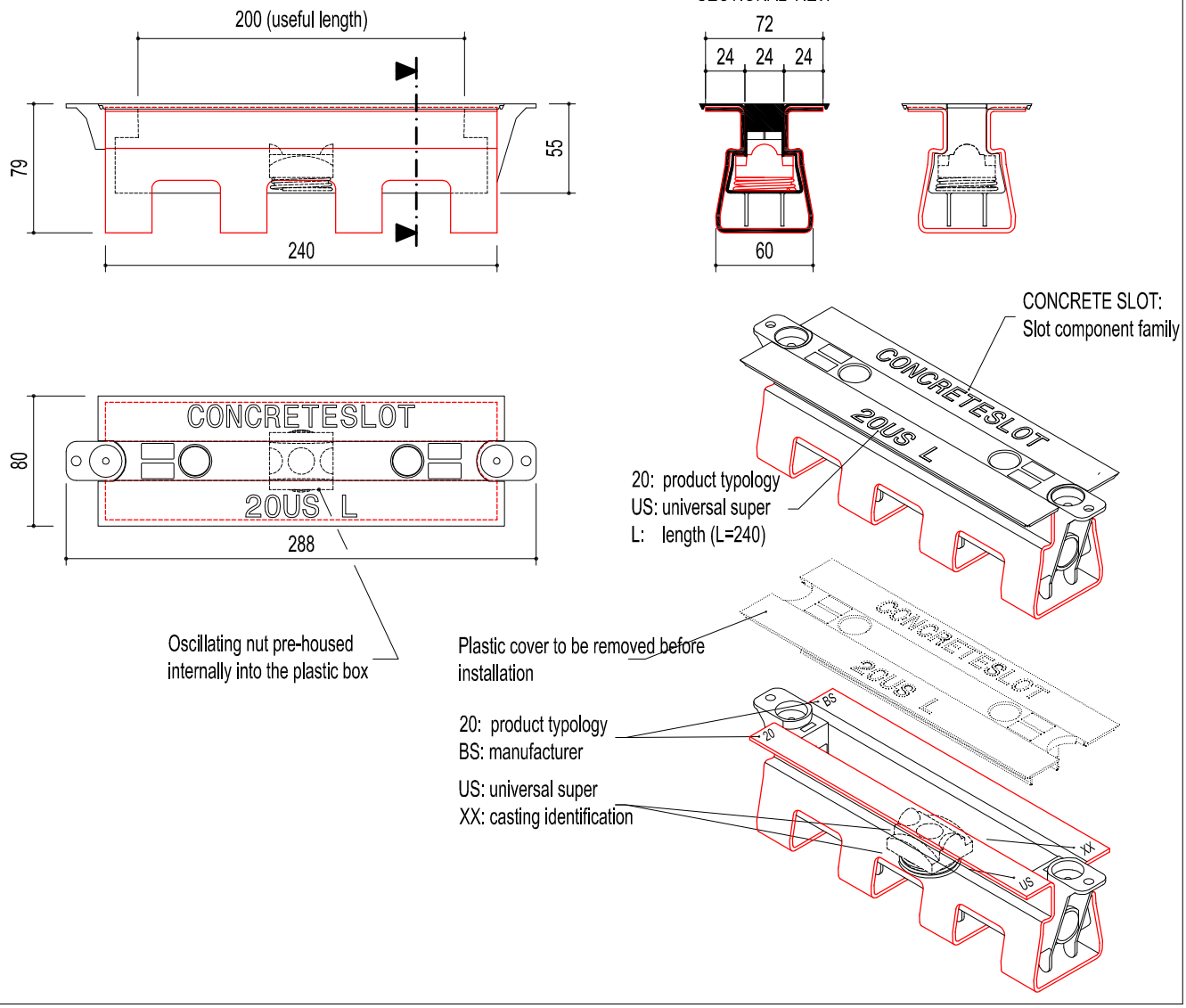
Slot 20US L smooth
(complete with plastic box and oscillating nut pre-housed internally)
code: 5900-024S

N.B.:
- UNC 3/4" nuts tightening couple:
  - **for Slot 20US L drowned into the structure = 240 Nm;**
  - **for Slot 20US L drowned into the panel = 110 Nm;**
- Finishings: F = Cold galvazined, V = Painting (all the requests for other finishings, must be subject to evaluation).

20 SEISMIC-RESISTANT SYSTEM: Slot 20US L smooth Component with stirruping related

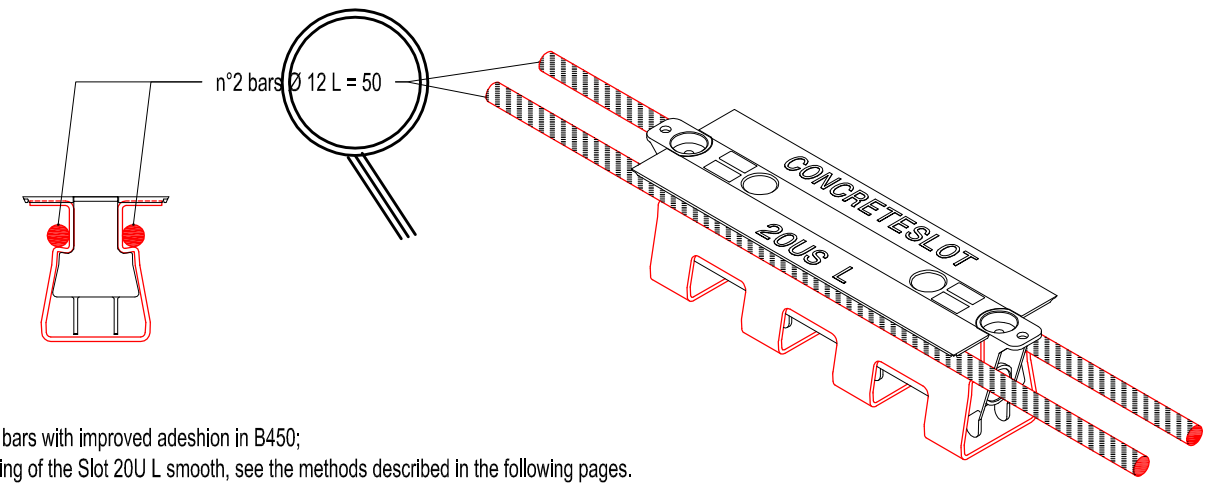
code: 5900-024S

in mm



SLOT 20US L SMOOTH STIRRUPING

in cm



N.B.:
- Stirruping with bars with improved adeshion in B450;
- For the tightening of the Slot 20U L smooth, see the methods described in the following pages. The tightening through welding points is forbidden because it could ruin the plastic box.

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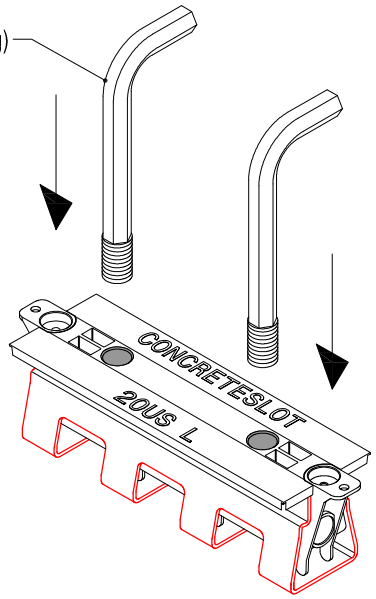
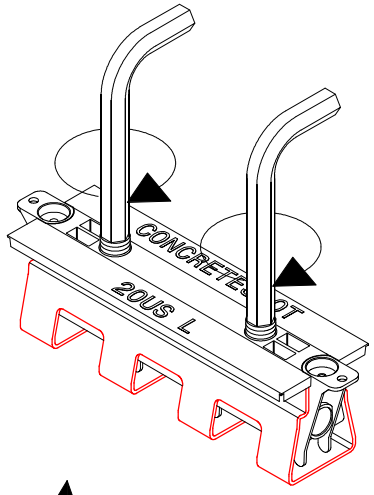
20 SEISMIC-RESISTANT SYSTEM: Slot 20US L smooth Opening

Special key
(with UNC 3/4" threading)
code: CH/1



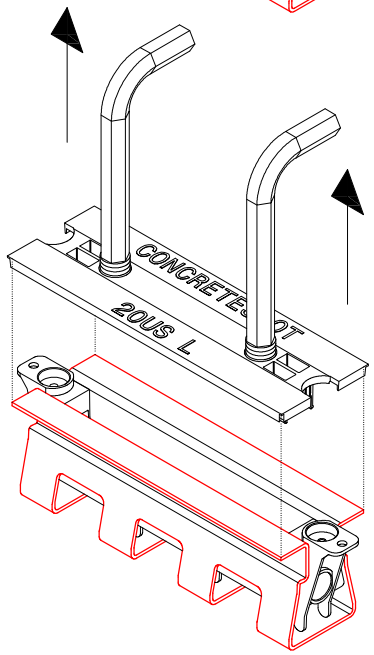
1

INSERT THE SPECIAL KEYS
IN THE APPROPRIATE HOLES OF THE
SLOT PLASTIC COVER



2

SCREW BOTH KEYS UNTIL REACHING THE
BOTTOM OF THE HOLES

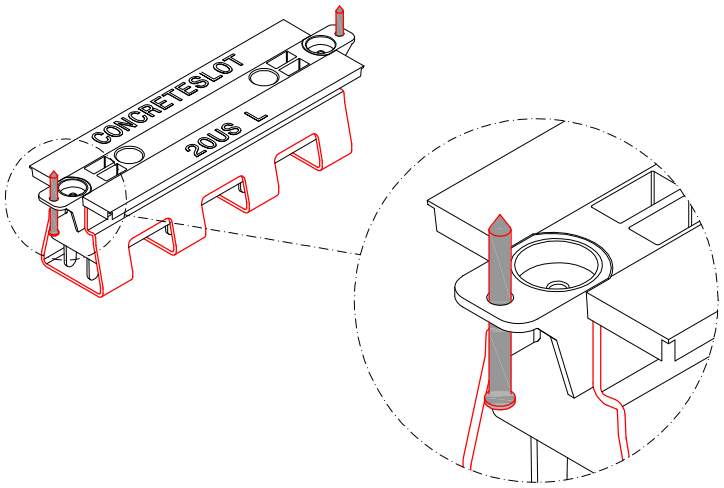


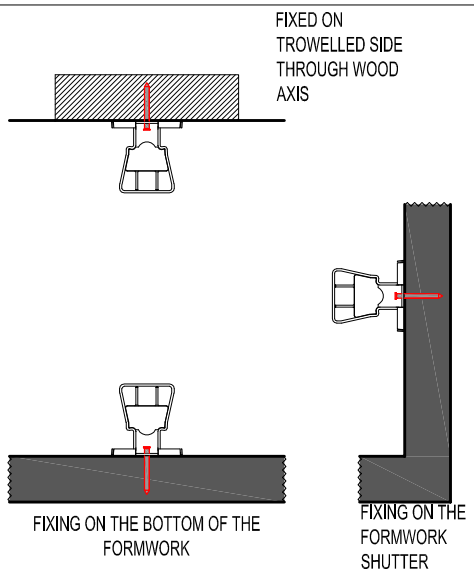
3

PULL AT THE SAME TIME THE KEYS UPWARDS
UNTIL THE COMPLETE DETACHMENT OF THE
PLASTIC COVER

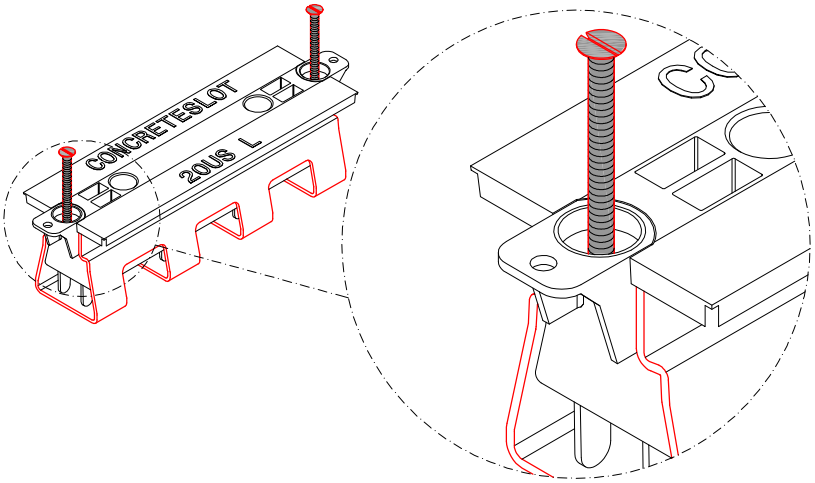
20 SEISMIC-RESISTANT SYSTEM: Formwork fixing method of the Slot 20US L smooth

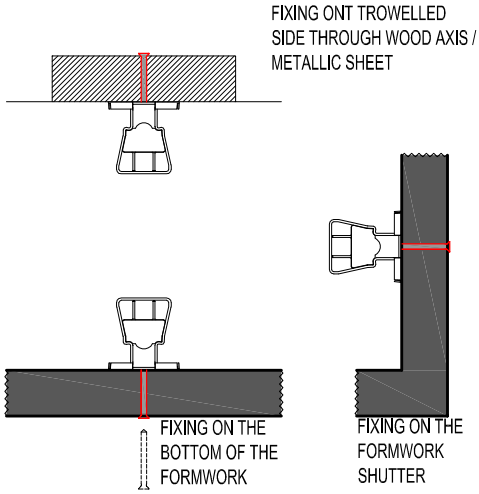
SLOT FIXING THROUGH NAILS FOR **WOOD**



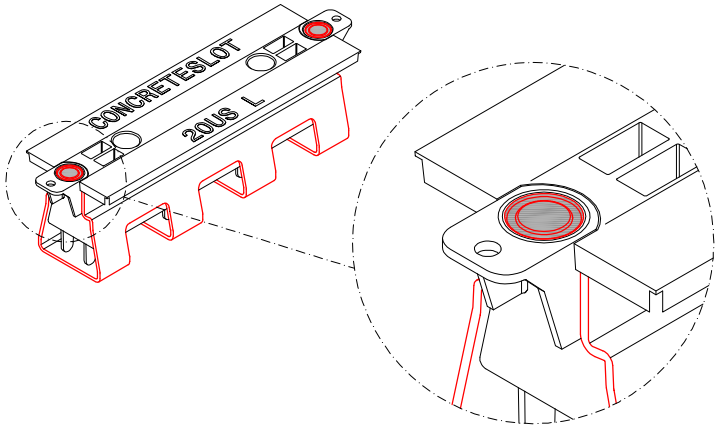


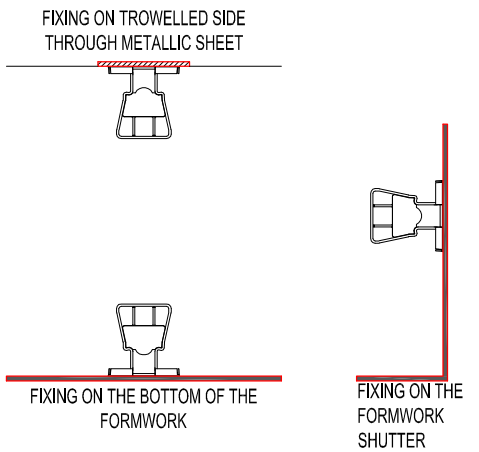
SLOT FIXING THROUGH **SELF-TAPPING SCREWS**





SLOT FIXING THROUGH **MAGNETS** (not included into the Slot)





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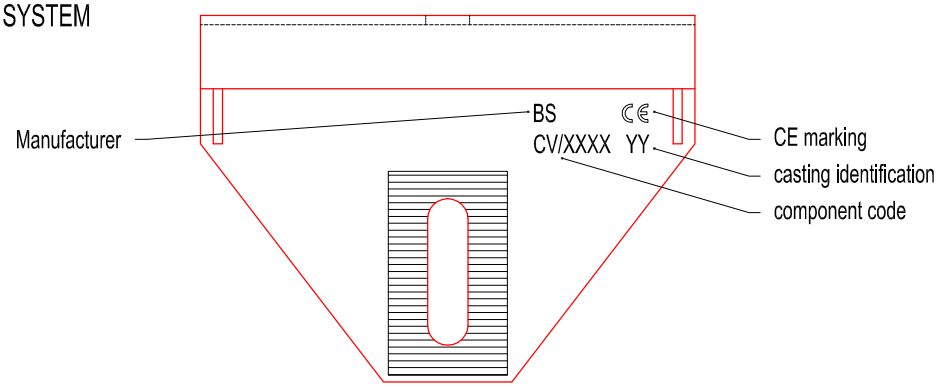
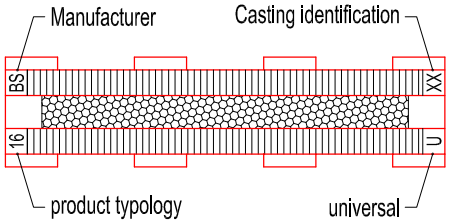
MARKING OF THE COMPONENTS

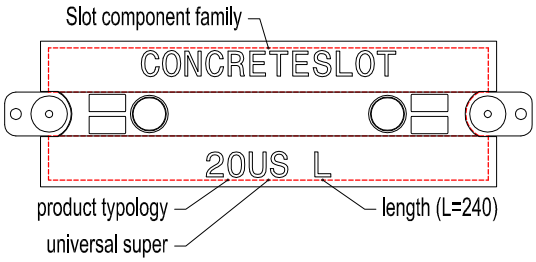
SEISMIC-RESISTANT SYSTEM



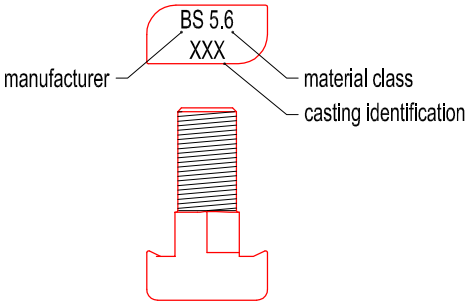
SLOT 16U L knurled



SLOT 20US L smooth



M16 Anchor Head Screw



N.B.: • Markings, for production needs, could be positioned differently from the above representation.

WARNINGS

WELDINGS OR MODIFICATIONS

Weldings or modifications of all components of the SEISMIC-RESISTANT system that could cause a decrease of the payload, a change of the materials technical features or induce into dangerous conditions are not allowed (except where expressly authorized).

B.S.Italia S.p.A. assumes no responsability for damages of any kind in case of modifications made to their products or to individual components.

SUBSTITUTIONS OR COMPONENTS INTERCHANGE

Products made and supplied by B.S.Italia S.p.A. are designed as an inseparable system for the precasted/prefabricated concrete element fixing.

So substitutions made by other parts are not authorized.

DESIGN MODIFICATIONS

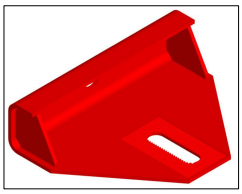
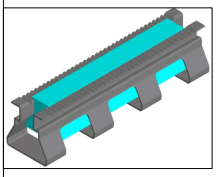
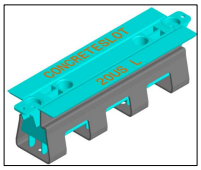
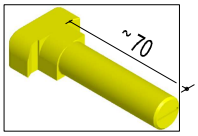
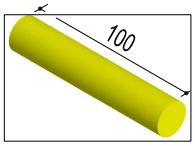
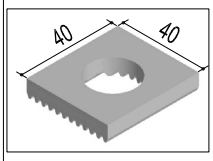
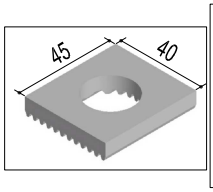
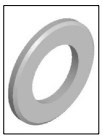
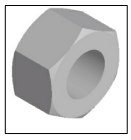
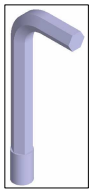
B.S.Italia S.p.A. reserves the right to make design changes concerning the components and/or the accessories and/or the payloads in any moment, without the obbligation to notice.

CALCULATION

For the inserts and scaffold design is necessary to follow strictly the indications of this manual. However it's up to the designer responsibility, to choice the correct component of the SEISMIC- RESISTANT system, related to the application in question and the actions at stake.

For each project, according to legal obbligations (to whose total respect we return), a Security officer must be appointed, drafted and followed a detailed plan of installation. This manual must always be available at the place of employment of the system and delivered to the responsible persons in production, storage and on site.

CODES OF THE COMPONENTS

PRODUCT 16	PRODUCT 20	DESCRIPTION (measures in mm)	CODE
		**16 SEISMIC-RESISTANT SYSTEM (for screws and Slot 16)**	CV/0252V
		20 SEISMIC-RESISTANT SYSTEM (for screws and Slot 20)	CV/0266V
		Slot 16U L knurled (complete with polystyrene form)	SLOT16UL.A
		Slot 20US L smooth (complete with plastic box and oscillating nut pre-housed internally)	5900-024S
		M16 L=70 mm Anchor head screw (class 8.8)	8107-16F
		UNC 3/4" L=100 Threaded bar (class 8.8)	BF20X100UNC
		M16 Knurled washer (40x40 thickness 8 with hole d.18)	CV/0136F
		M20 Knurled washer (40x45 thickness 8 with hole d.22)	7014-20F
		M16 Flat washer (d.17 x D.30 thickness 3)	7004-16F
		M20 Flat washer (d.21 x D.37 thickness 3)	7004-20F
		M16 Medium nut (class 8.8)	6000-16F
		UNC 3/4" Medium nut (class 8.8)	6200-20F
		Special key with "L" shape (with UNC 3/4" threading)	CH/1

• Finishings: F = Cold galvanizing, V = painting
(Requests for other types of finishings, must be subject to evaluation).