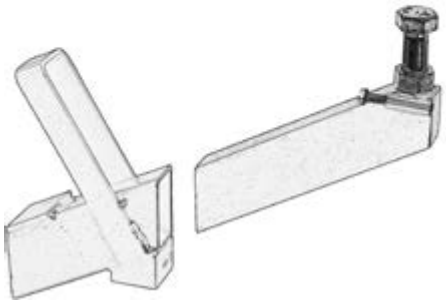
HERCULES SLIM



User manual

2017

 ENG Rev.02-2021

B.S.Italia®
Gruppo Styl-Comp

innovazione basata sull'esperienza
innovation based on experience

PLEASE READ CAREFULLY ALL THE INFORMATION AND INSTRUCTIONS IN THIS MANUAL BEFORE USING ANY COMPONENT IN THE ERCOLA SNELLA 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:

B.S.Italia S.p.A. • 24050 Zanica (BG) Italy • Via Stezzano, 16 • tel +39 035 671746 • fax +39 035 672265 www.bsitaliagroup.com • infobsitalia@styl-comp.it

B.S.Italia S.p.A. is ISO 9001 certified and the ERCOLA SNELLA system is designed and built in accordance with:

B.S. Italia certification

- For the Quality System:
  Company with Quality system certified by IGQ
  in accordance with UNI EN ISO 9001

- For general parts:
  Static calculation, Eurocodes and state-of-the-art

- For materials:
  Brackets S355 UNI EN 10025
  Tube Case S235 UNI EN 10219
  Screw cases S235 UNI EN 10025 and DX51D+Z UNI EN 10327 Screws class 8.8 UNI EN ISO 898

- For surface treatements:
  Electrolytic galvanize ≥ 7 µm UNI EN ISO 2081
  Hot dip galvanize ≥ 50 µm UNI EN ISO 1461
  Hot varnished ≥ 50 µm with epossi-polyester dusts

- For material control:
  Accredia Licensed laboratories

- For marking of the system CE:
  European rul for building constructions 305/11, rul EN 1090-2

CONTENTS

SYSTEM DESCRIPTION

CHOICE OF ERCOLE SNELLA SYSTEM

INTERNAL ERCOLE BRACKETS:

HERCULES BRACKETS TO CORRECT PRODUCTION ERRORS:

Drawings reported in this manual are purely indicative.

ADVANTAGES

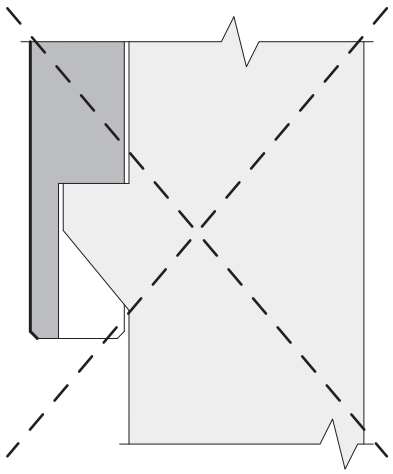
HERCULES "SLIM", is the new supporting system for panels and is extremely:

versatile: it comes in many versions and can be applied to **any load bearing structure**, wheter precasted or casted-in-place, vertical, horizontal or cantilevered, in reinforced concrete or metal, **of any size or thickness**. Moreover, the element you want to support can be adjacent to or set apart from the main structure.

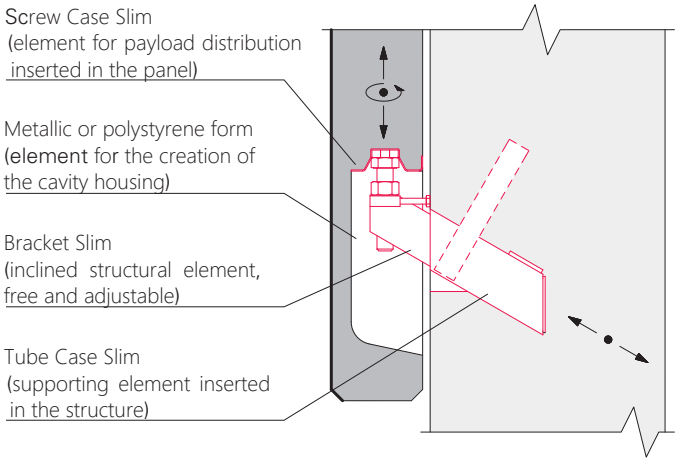
adjustable: it lets you **adjust to the millimetre along all three Cartesian axes** (see page 6);

economic: the low cost of this system can be appreciated at all stages in the production process:

- **design**: the system comes in a wide range of pre-calculated certified variants, ready to be used, and so no design calculations are necessary;
- **production:** no projecting parts makes it easy to move columns and panels;
- **shipping**: no projecting parts means easy transportation of the elements;
- **installation:** the dry assembly of the parts makes for fast insertion in the structure, without the need for welding or bolting, meaning fewer skilled workers are required.



Traditional system



HERCULES "SLIM" System

B.S.Italia® Gruppo Styl-Comp

SALIENT FEATURES

HERCULES "SLIM" System is presented as two principal categories: STANDARD and PLUS.

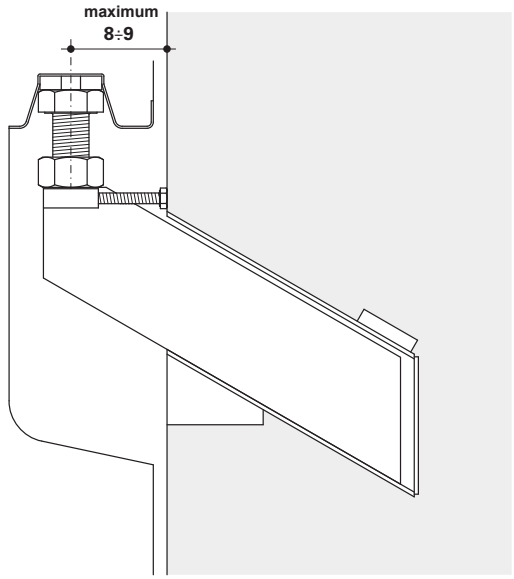
STANDARD SYSTEM offers brackets with maximum protrusion of the structure of 8÷9 cm and payloads of 5 - 7,5 - 10 ton.

PLUS SYSTEM offers brackets with bigger protrusion, around 12 cm, improving the suspension of artifacts with high thickness. The relative payloads are 3,5 - 6,5 - 9 - 12,5 ton.

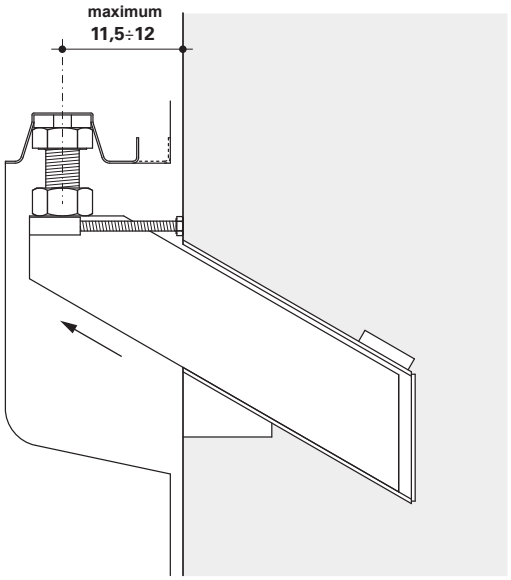
Multiple variants for both categories are available, descripted in a detailed way in the following pages to meet every need.

in cm

STANDARD SYSTEM



PLUS SYSTEM



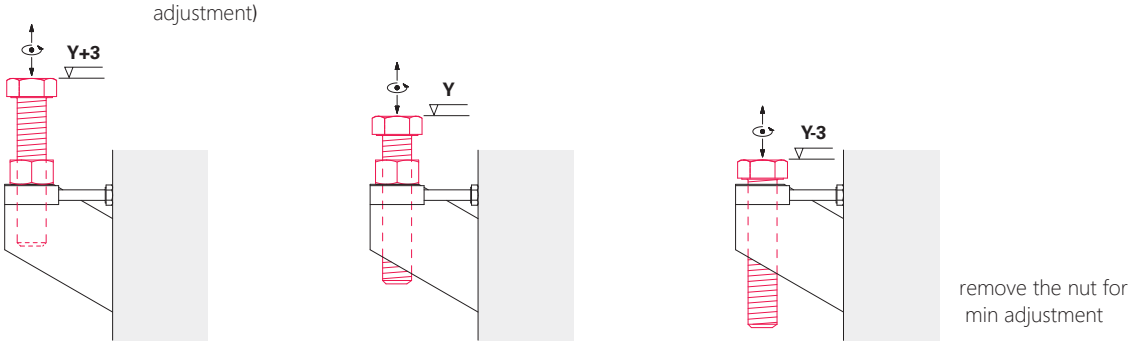
N.B.: The Screw Case in the Plus 12,5 ton System is extended to the inner side of the panel (see hatched part).

SALIENT FEATURES

Millimetre adjustment along all three Cartesian axes
The ERCOLE “SNELLA” system is the only one that lets you get precision erection, thanks to simultaneous adjustments in the height, projection and distance from the façade element.

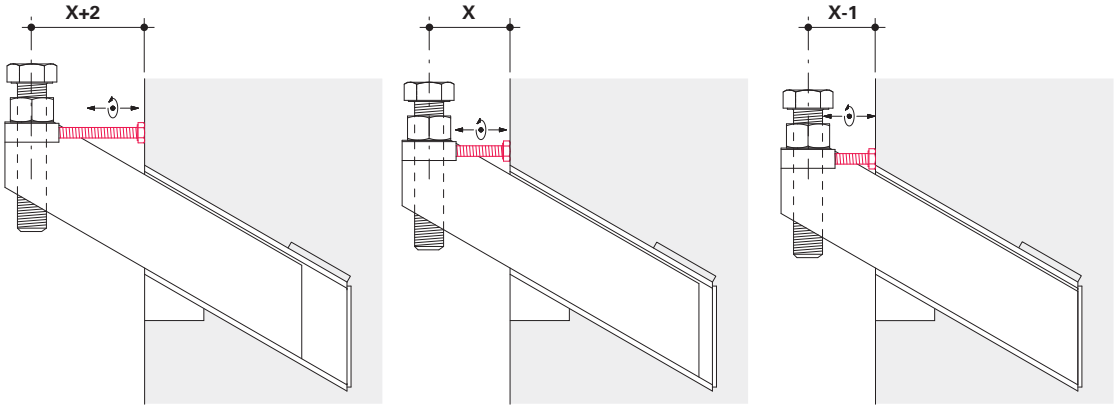
in cm

Height adjustment up/down
(considering the position Y as average between the maximum and minimum adjustment)



remove the nut for min adjustment

Alignment adjustment (in/out)
(not valid for fixed systems)



Position tolerance (left/right)
(considering position O as average between left and right position. Not valid for S.V.O. systems)

N.B.: values reported above can vary in function of the system and the related payload.

SALIENT FEATURES

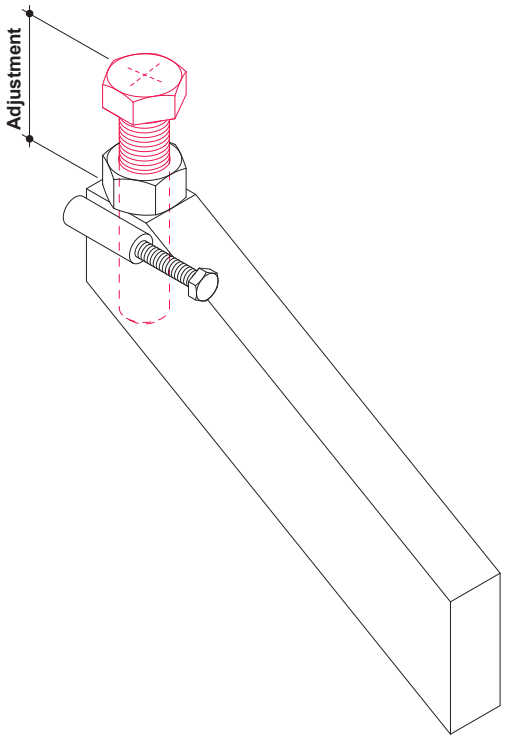
All Hercules Slim systems payloads in this Manual, are to be considered as NOMINAL IN EXCERCISE (S.W.L.)

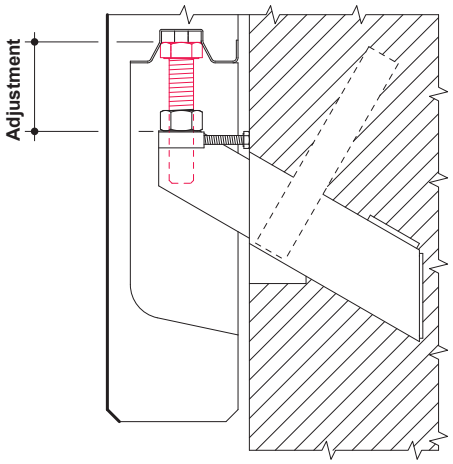
ULTIMATE LIMIT STATE (U.L.S.) payloads are indicated in the table below:

SISTEMA	SAFE WORK LOAD **S.W.L.** (kN)	ULTIMATE LIMIT STATE **U.L.S.** (kN)
Ercole Slim 3,5 ton. PLUS	35	52.5
Ercole Slim 5 ton.	50	75
Ercole Slim 6,5 ton. PLUS	65	97.5
Ercole Slim 7,5 ton.	75	112.5
Ercole Slim 9 ton. PLUS	90	135
Ercole Slim 10 ton.	100	150
Ercole Slim 12,5 ton. PLUS	125	187.5

SALIENT FEATURES

in mm





Caution: max height adjustment of the main screw with the nut right up against the brackt

Standard Bracket	Max.height adjustment of the main screw
M.E. 5 ton Slim	≤ 78
M.E. 7,5 ton Slim	≤ 80
M.E. 10 ton Slim	≤ 80
Plus Bracket	
M.E. 3,5 ton Slim Plus	≤ 78
M.E. 6,5 ton Slim Plus	≤ 80
M.E. 9 ton Slim Plus	≤ 80
M.E. 12,5 ton Slim Plus	≤ 80

N.B.: B.S.Italia cannot be held liable for any damage arising from non observance of the instructions shown above

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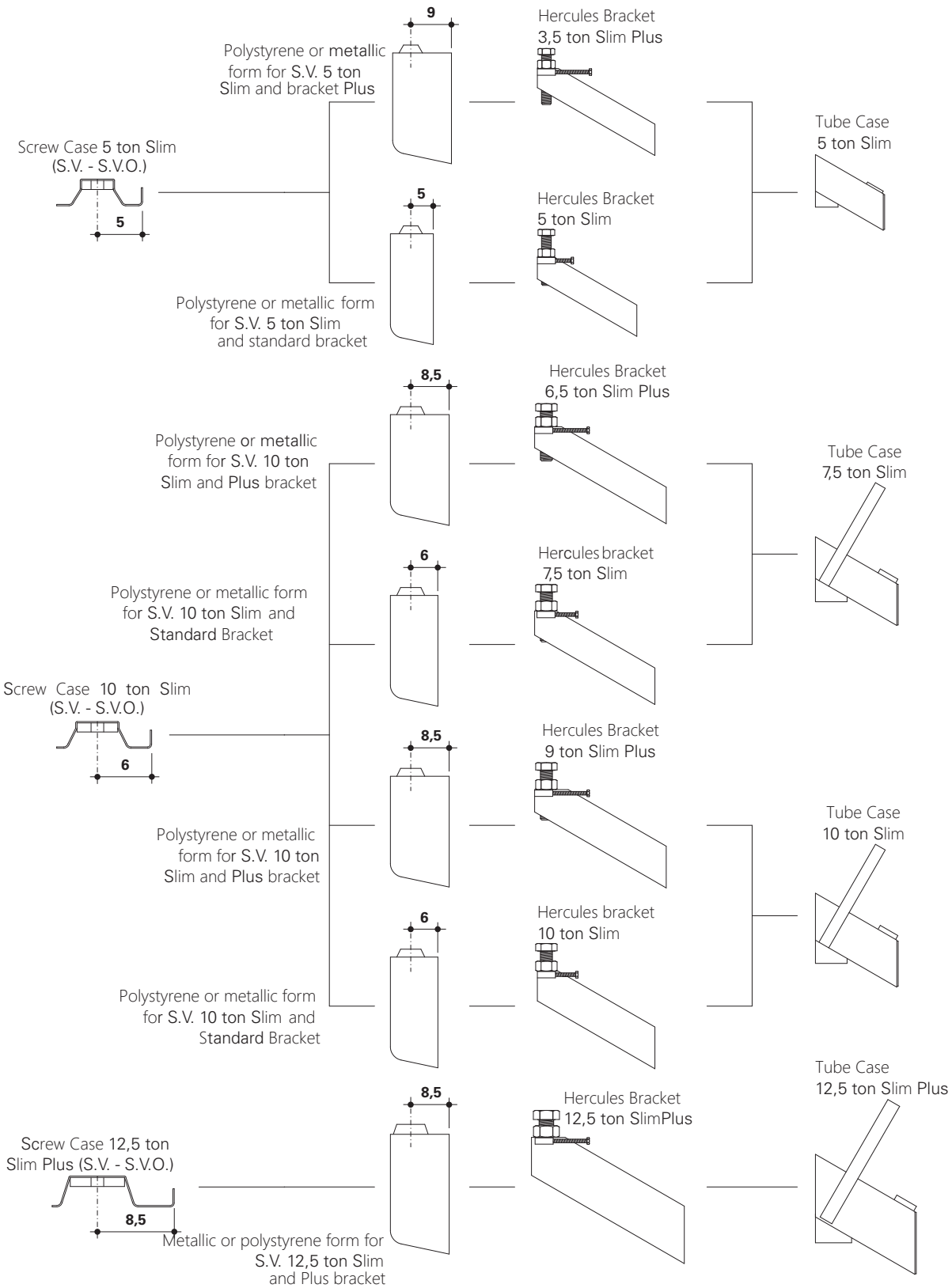
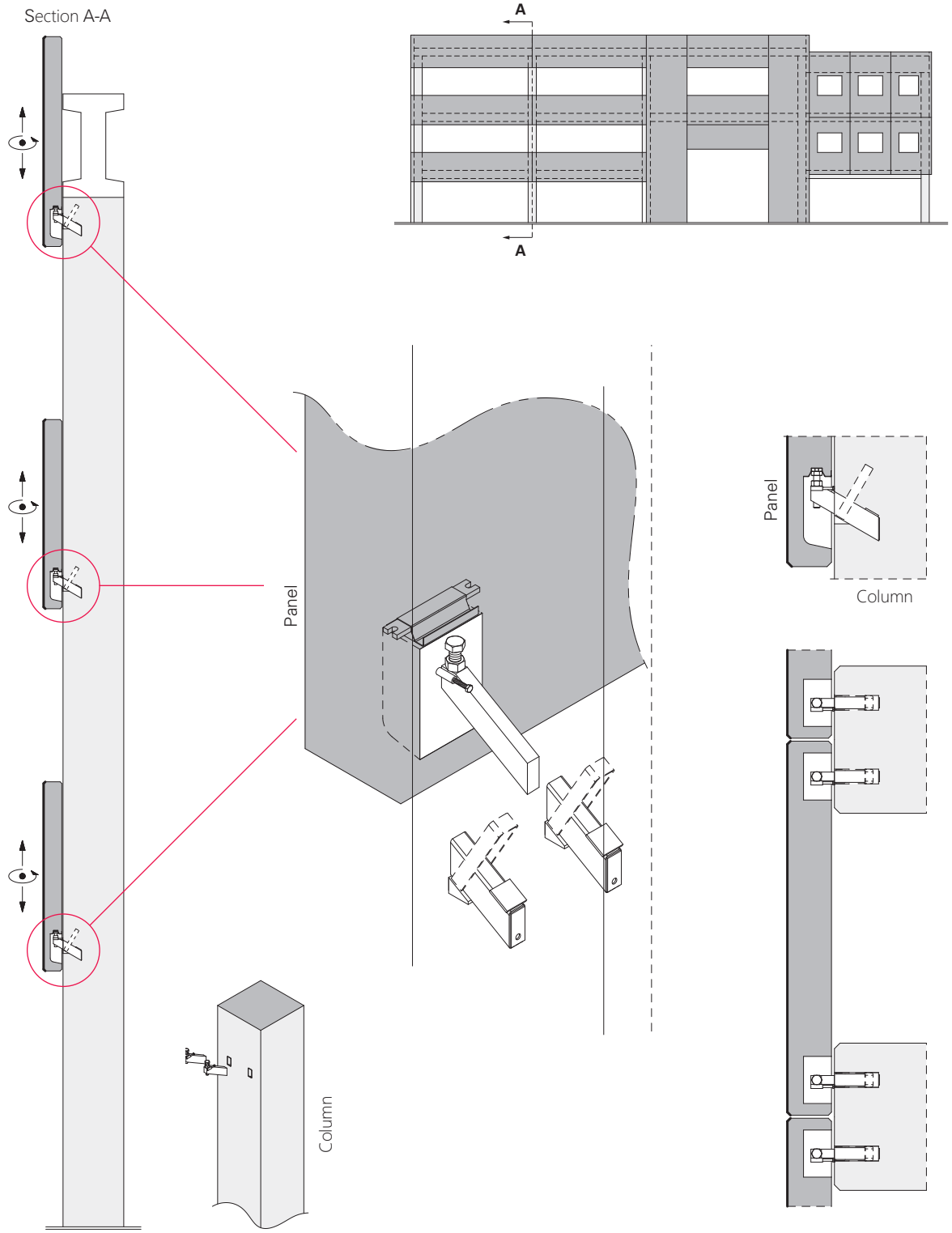
COMPONENTS TONNAGE COUPLING

in cm



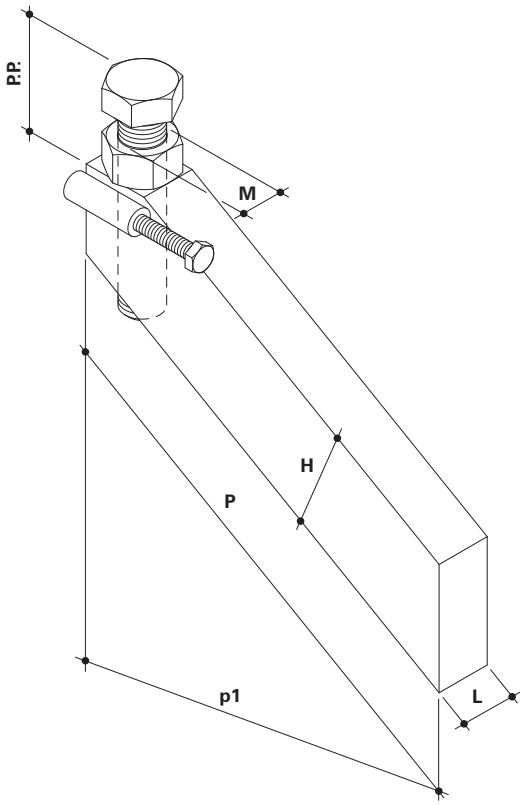
N.B.: Screw Case position, with respect to the inner side of the panel, is imposed by the relative polystyrene or metallic form.

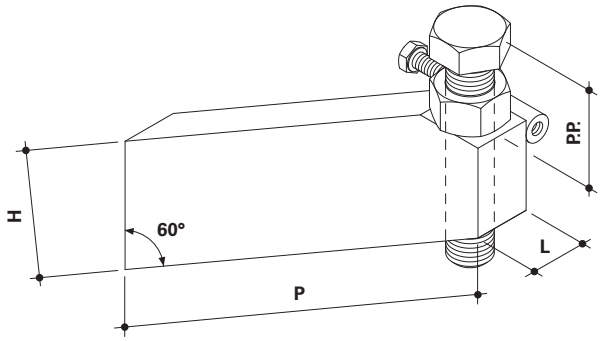
HERCULES BRACKET M.E. "SLIM" APPLICATION



HERCULES SHELF M.E. "SLIM"

in mm





NOTE.: Horizontal adjustment screw can be placed, at B.S.Italia discretion, on both bracket sides.

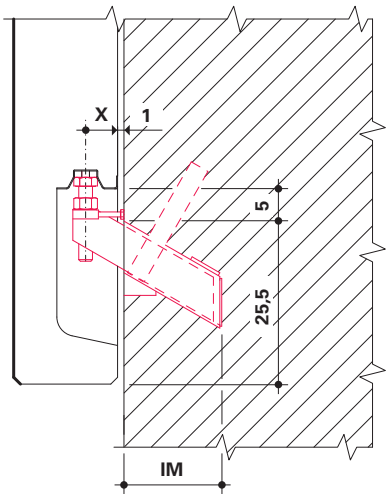
Code	Standard Bracket	H	L	M	P	p1	P.P.
1070-5.0	M.E. 5 ton Slim	60	30	22	254	220	61
1070-7.5	M.E. 7,5 ton Slim	70	40	27	307,2	266	59
1070-10.	M.E. 10 ton Slim	80	40	27	300,2	260	61
	Plus Bracket						
1080-3.5	M.E. 3,5 ton Slim Plus	60	30	22	300,2	260	44
1080-6.5	M.E. 6,5 ton Slim Plus	70	40	27	336	291	51
1080-9.0	M.E. 9 ton Slim Plus	80	40	27	336	291	53
1080-12.5	M.E. 12,5 ton Slim Plus	110	50	33	390,3	338	60

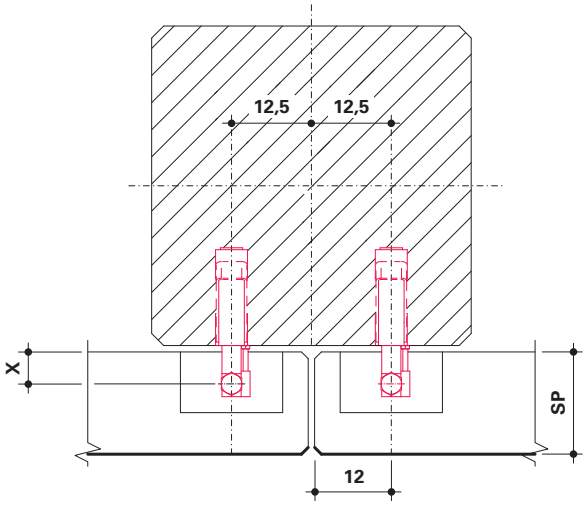
- P = inclined measure
- p1 = horizontal measure
- P.P. =starting position

N.B.: all the brackets are designed to support only vertical payloads so, horizontal actions cannot be applied.

PLACEMENT

in cm



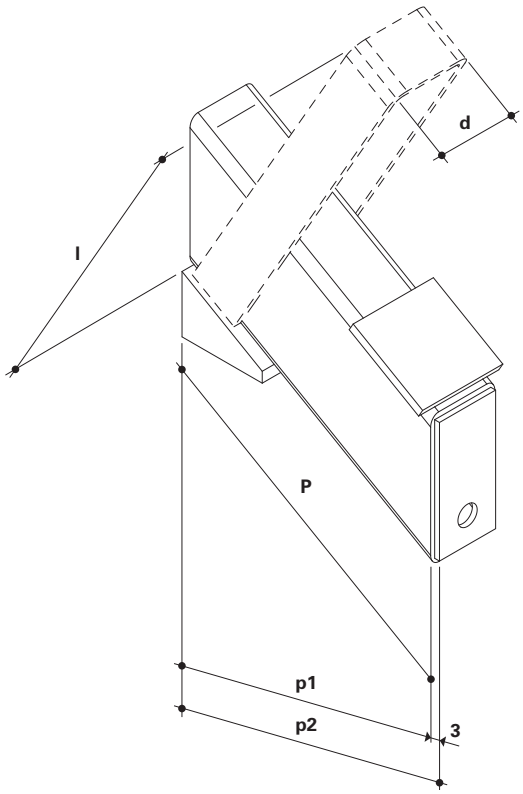


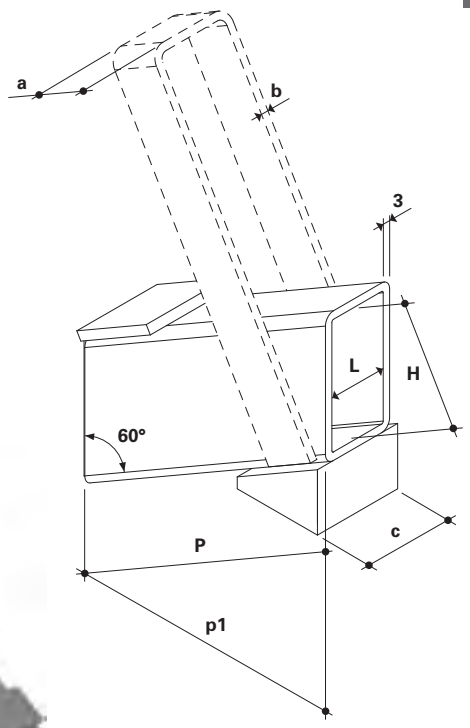
N.B.:
- **"IM" height correspond to the maximum joint of the bracket; (to which must be added 0,3 cm to obtain the maximum depth of the Tube Case);**
- **for the possible bracketing of each component, see the related sheet.**

Standard Bracket	X	IM	SP	
M.E. 5 ton Slim	5	15	≥ 12	
M.E. 7,5 ton Slim	6	18	≥ 13	
M.E. 10 ton Slim	6	18	≥ 13	
Plus Bracket				
M.E. 3,5 ton Slim Plus	9	15	≥ 16	
M.E. 6,5 ton Slim Plus	8,5	18	≥ 16	
M.E. 9 ton Slim Plus	8,5	18	≥ 16	
M.E. 12,5 ton Slim Plus	8,5	22	≥ 16	

TUBE CASE S.T. "SLIM"

in mm





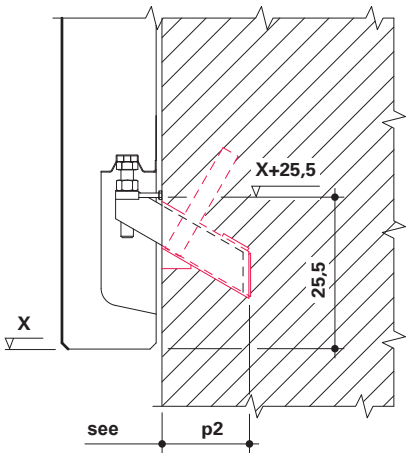
NOTE.: bracket is hatched because the S.T. 5 ton doesn't have it.

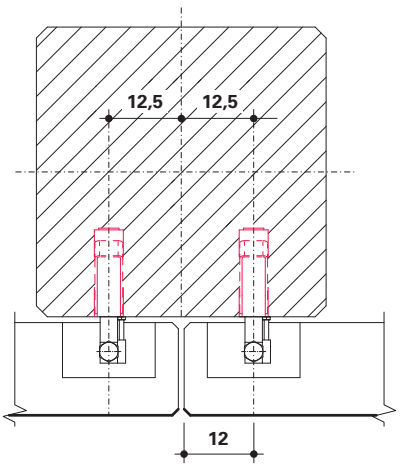
Code	Tube Case Standard	H	L	P	p1	p2	a	b	c	d	l
1071-5.0	S.T. 5 ton Slim	64	34	173,2	150	153	/	/	50	/	/
1071-7.5	S.T. 7,5 ton Slim	74	44	207,8	180	183	25	8	70	66	250
1071-10.	S.T. 10 ton Slim	84	44	207,8	180	183	25	8	70	66	250
	Tube Case Plus										
1081-12.5	S.T. 12,5 ton Slim Plus	114	54	254	220	223	30	10	100	80	300

- P =inclined measure
- p1-p2 = horizontal measures

PLACEMENT

in cm

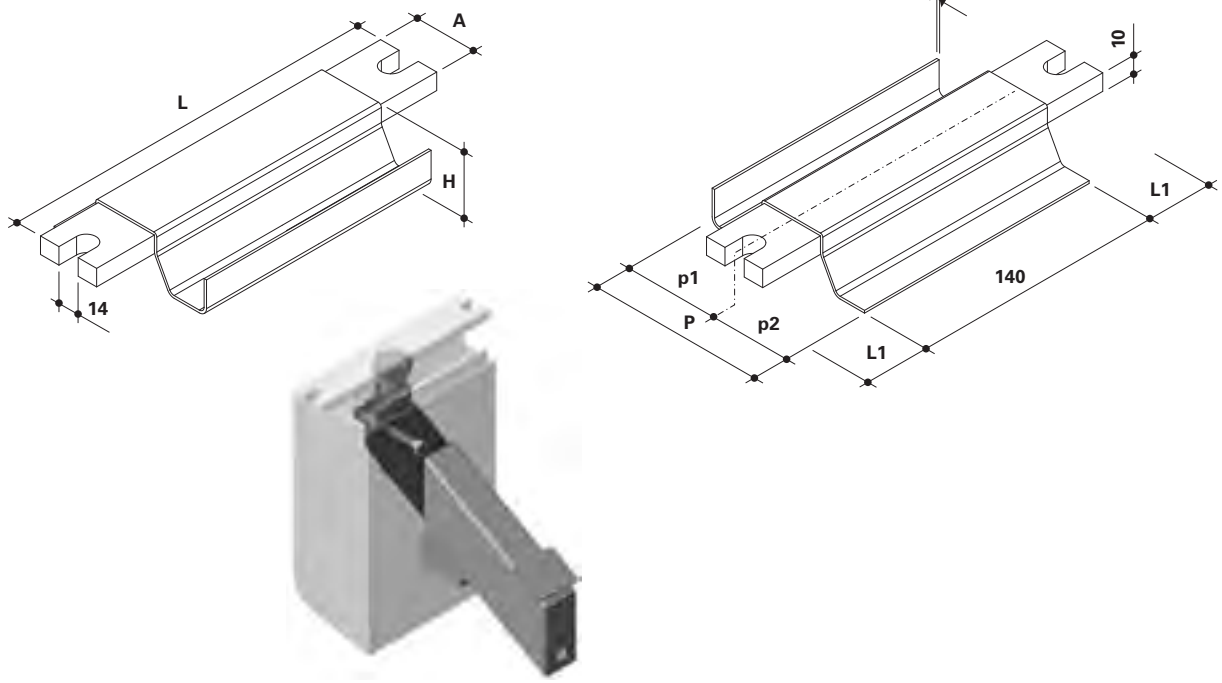




N.B.: concrete structure with Rck ≥ 40 N/mm².

SCREW CASE S.V. "SLIM"

in mm

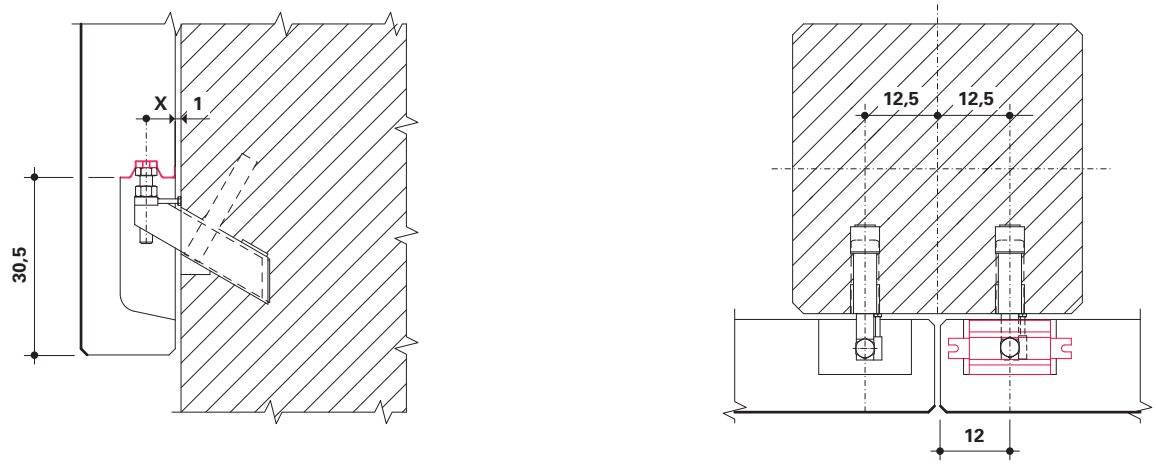


N.B.: for bracketings and tolerances see page 16.

Code	Screw Case Standard	H	L	L1	A	P	p1	p2
1017-5.0F.	S.V. 5 ton Slim	40	212	36	35	95	50	45
1017-10.F.	S.V. 10 ton Slim	40	230	45	45	105	60	45
	Screw Case Plus							
1015-12.5F.	S.V. 12,5 ton Slim Plus	44	230	45	60	135	85	50

PLACEMENT

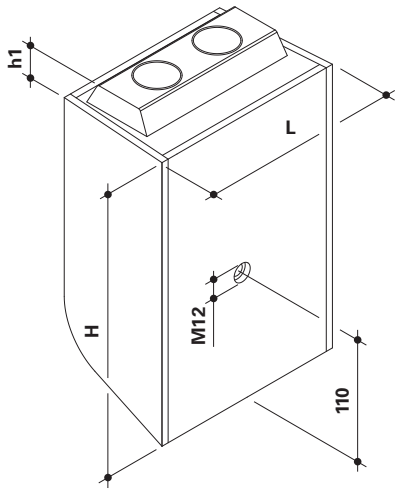
in cm

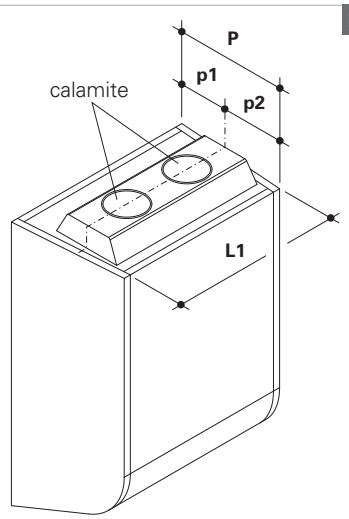


N.B.:
- **concrete panel with Rck ≥ 35 N/mm²;**
- **S.V. position, with respect to the inner side of the panel, is imposed by the related polystyrene or metallic form (see exemplification on page 5);**
- **for "X" height values see page 11.**

METALLIC FORM FOR SCREW CASE S.V. "SLIM"

in mm



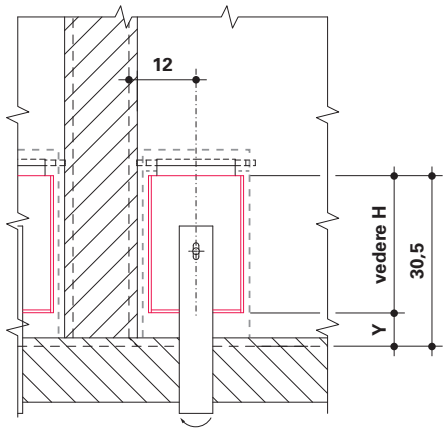


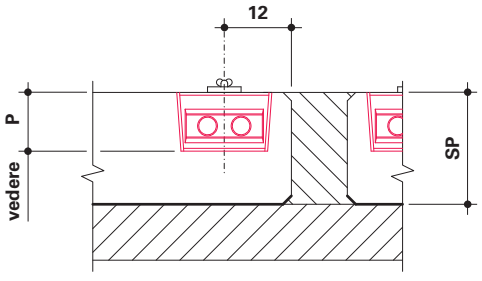
N.B.: for tolerances see page 16.

Code	Metallic form Standard	H	L	L1	P	p1	p2	h1
1170-5.0V.	for S.V. 5 ton Slim and bracket Standard	245	160	145	95	50	45	28,5
1170-10.V.	for S.V. 10 ton Slim and bracket Standard	245	170	155	105	60	45	28,5
	Metallic form Plus							
1180-5.0V.	per S.V. 5 ton Slim and bracket Plus	245	160	140	130	90	40	28,5
1180-10.V.	per S.V. 10 ton Slim and bracket Plus	245	170	150	130	85	45	28,5
1180-12.5V.	per S.V. 12,5 ton Slim and bracket Plus	265	170	150	130	85	45	32,5

PLACEMENT

in cm



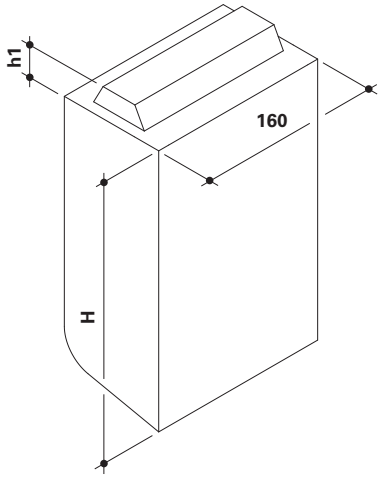


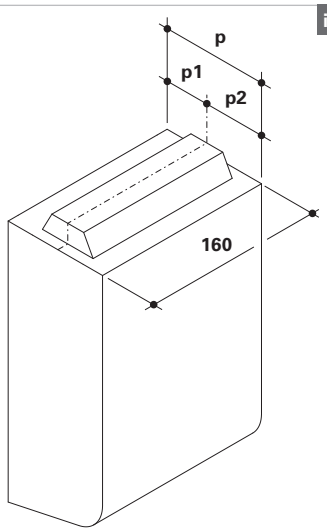
N.B.: for "SP" height values see page 11.

Metallic form Standard	Y
for S.V. 5 ton Slim and bracket Standard	6
for S.V. 10 ton Slim and bracket Standard	6
Metallic form Plus	
for S.V. 5 ton Slim and bracket Plus	6
for S.V. 10 ton Slim and bracket Plus	6
for S.V. 12,5 ton Slim and bracket Plus	4

POLYSTYRENE FORM FOR SCREW CASE S.V. "SLIM"

in mm



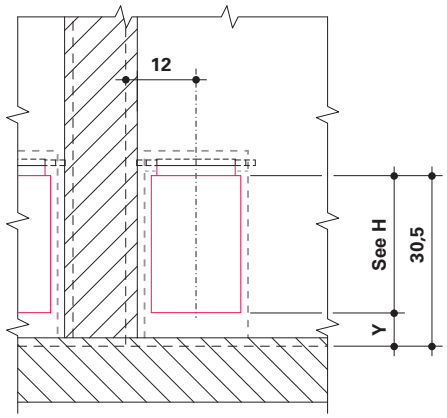


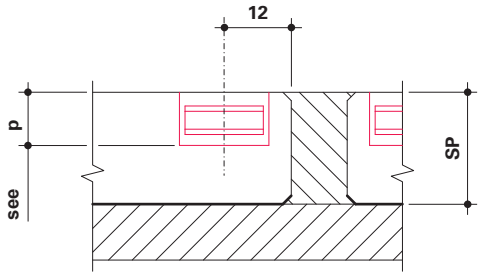
N.B.: for tolerances see page 16.

Code	Polystyrene form Standard	H	P	p1	p2	h1	
1170-5.0P.	for S.V. 5 ton Slim and bracket Standard	245	95	50	45	28	
1170-10.P.	for S.V. 10 ton Slim and bracket Standard	245	105	60	45	28	
	Polystyrene form Plus						
1180-5.0P.	for S.V. 5 ton Slim and bracket Plus	245	130	90	40	28	
1180-10.P.	for S.V. 10 ton Slim and bracket Plus	245	130	85	45	28	
1180-12.5P.	for S.V. 12,5 ton Slim and bracket Plus	265	130	85	45	32	

PLACEMENT

in cm





N.B.: for "SP" height values see page 11.

Polystyrene form Standard	Y
for S.V. 5 ton Slim and bracket Standard	6
per S.V. 10 ton Slim and bracket Standard	6
Polystyrene form Plus	
for S.V. 5 ton Slim and bracket Plus	6
for S.V. 10 ton Slim and bracket Plus	6
for S.V. 12,5 ton Slim and bracket Plus	4

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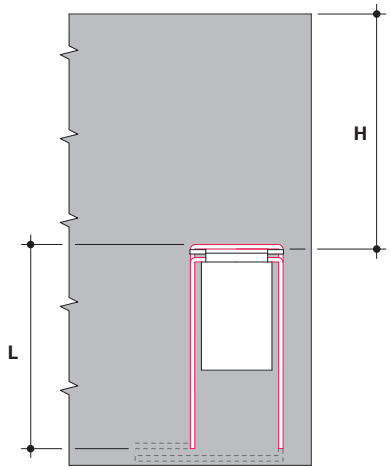
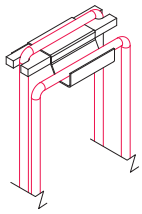
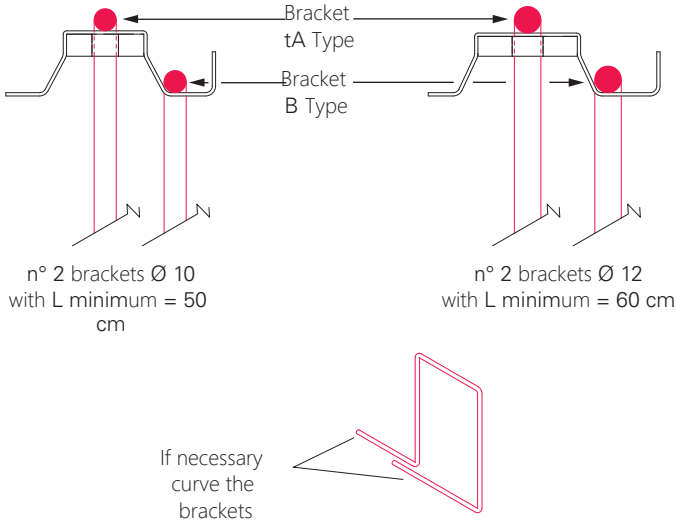
EXPEDIENTS AND BRACKETINGS FOR SCREW CASE "SLIM"

in cm

N.B.: make sure that there is a suitable volume of tull concrete around the support and adequate reinforcement







U bars "A" type: **mandatory** for H < 80 cm; **recommended** for H ≥ 80 cm (in this case the lenght of the U bar can be reduced to 30 cm).

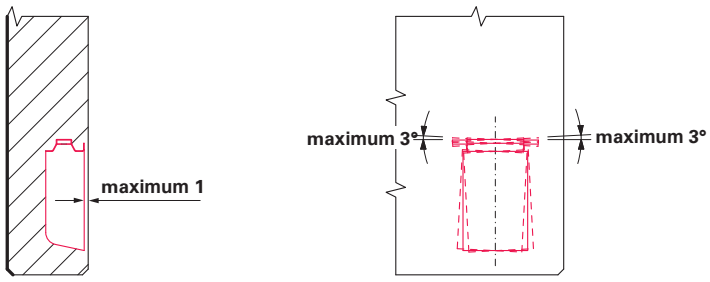
U bars "B" type **it's always mandatory.**

N.B.: the screw support must never be placed at a height of H < 20 cm.

S.V. SCREW SUPPORT INSTALLATION TOLERANCES

The S.V. screw support can be embedded to max 1 cm from the edge of the panel and set at angle of ± 3° (as show in the figure).

in cm



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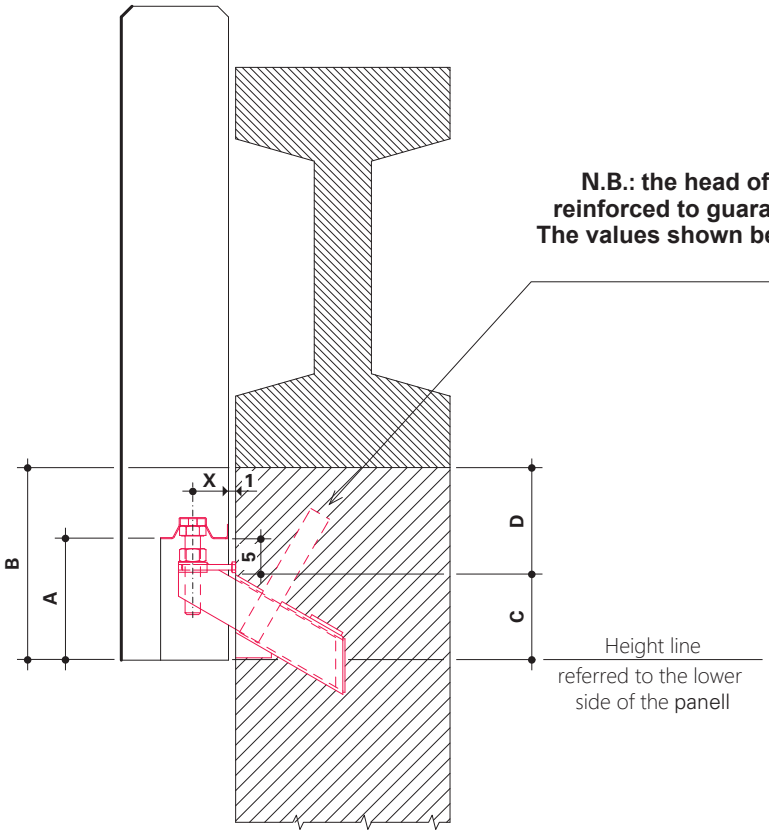
MIN PLACEMENT OF THE HERCULES "SLIM" SYSTEM BETWEEN PANEL AND COLUMN

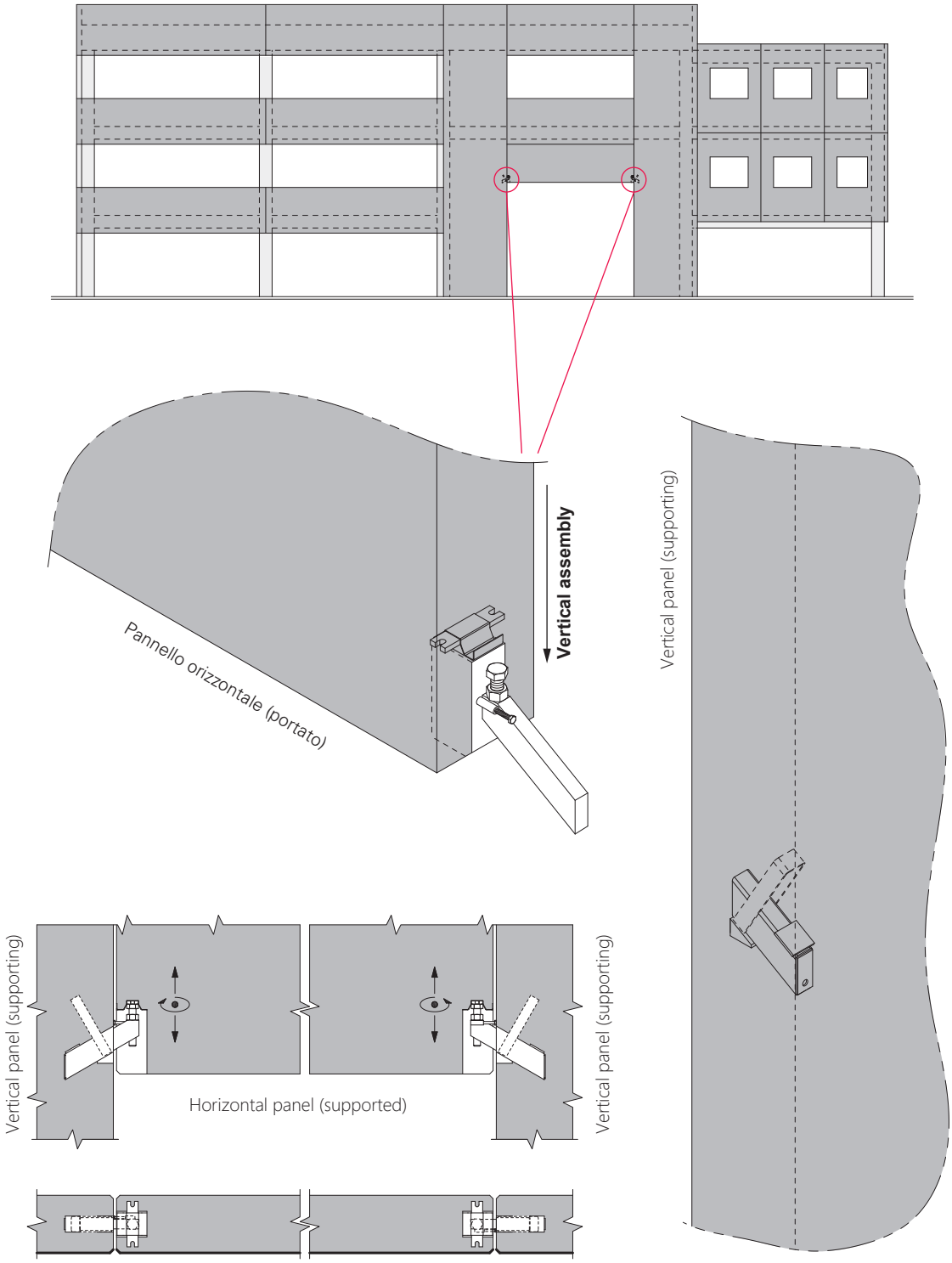
in cm



N.B.: • **Minimum placement heights are comprehensive of the possibles adjustments of the bracket (see pag. 6);**
• **for "X" height values see page 11.**

Standard System	A	B	C	D
5 ton Slim	16	21	11	10
7,5 ton Slim	17,5	32,5	12,5	20
10 ton Slim	18,5	33,5	13,5	20
Plus System				
3,5 ton Slim Plus	17,5	22,5	12,5	10
6,5 ton Slim Plus	18,5	33,5	13,5	20
9 ton Slim Plus	19,5	34,5	14,5	20
12,5 ton Slim Plus	22	37	17	20

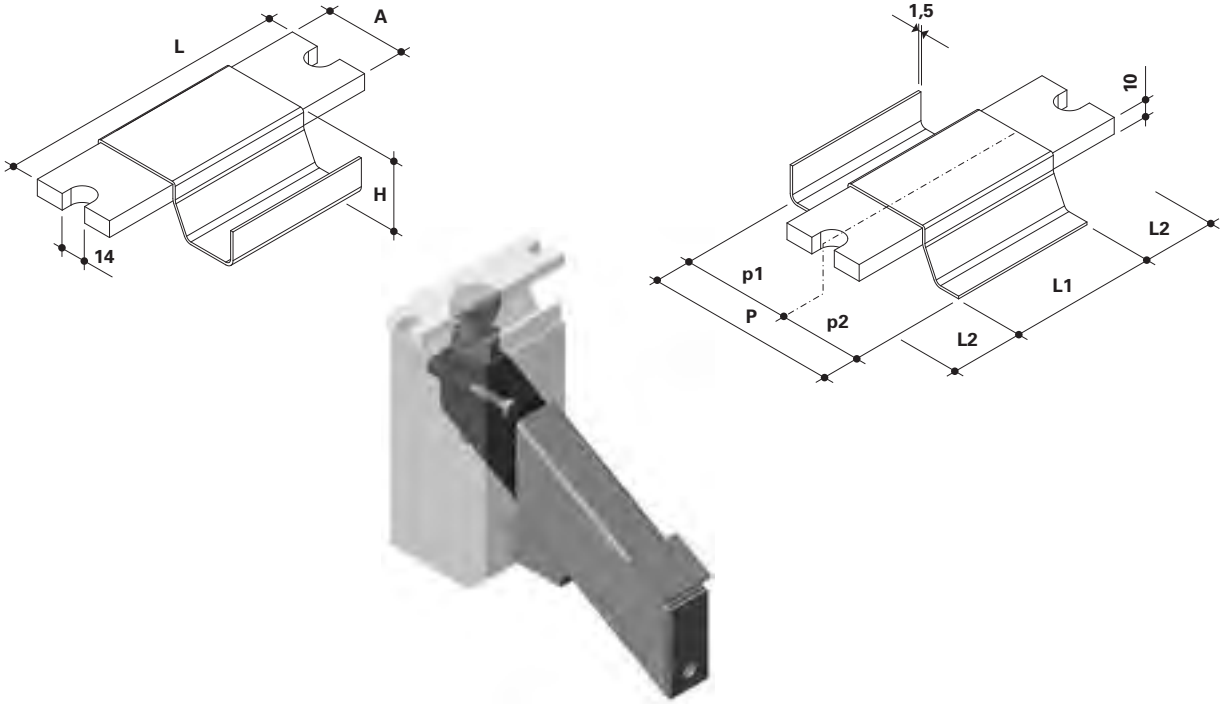
HERCULES BRACKET M.E. "SLIM" FOR S.V.O. APPLICATION (VERTICAL ASSEMBLY OF THE PANEL)



SCREW S.V.O. "SLIM" (vertical assembly of the panel)

Hercules "Slim" bracket suitables for these S.V.O. are the same reported at page 10.

in mm



N.B.: • **for bracketing see page 23;**
• **for tolerances see page 16.**

Code	Screw Case Standard	H	L	L1	L2	A	P	p1	p2
1717-5.0F.	S.V.O. 5 ton Slim Ltot=142	40	142	70	36	35	95	50	45
1717-10.F.	S.V.O. 10 ton Slim Ltot=156	40	156	80	38	45	105	60	45
	Screw Case Plus								
1715-12.5F.	S.V.O. 12,5 ton Slim Plus Ltot=156	44	156	90	33	60	135	85	50

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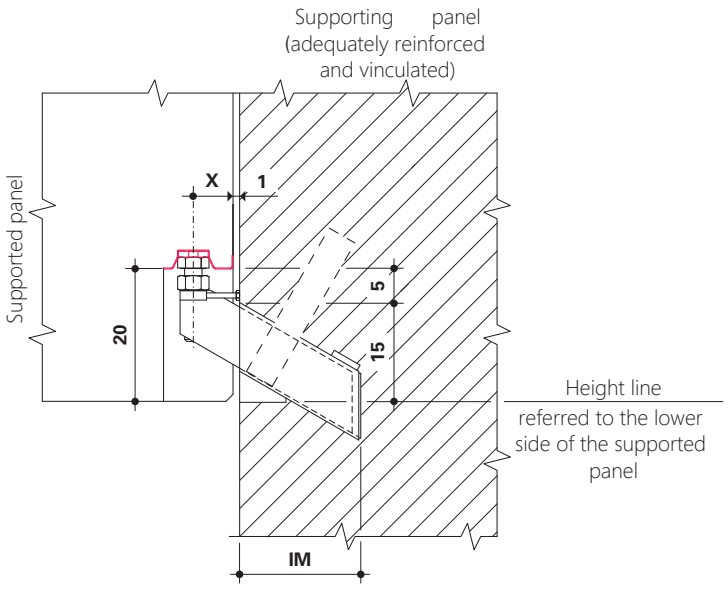
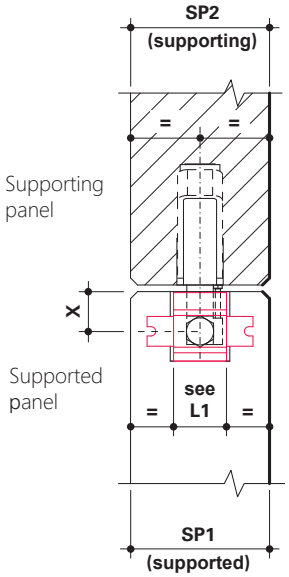
SCREW CASE S.V.O. "SLIM" (vertical assembly of the panel)

PLACEMENT

in cm





N.B.:
- **supported concrete panel with Rck ≥ 35 N/mm² ;**
- **supporting concrete panel with Rck ≥ 40 N/mm² ;**
- **S.V.O. position, with respect to the side of the panel, is imposed by the relative polystyrene or metallic form (see example on page 5);**
- **for "IM" height values see page 11;**
- **for the possible bracketing of each component see the related sheet;**
- **An adequate confinment reinforcement should be disposed in the supporting panel**

Screw Case Standard	Combinable Bracket	X	Standard application with SP1 (portato) = SP2 (portante)	Special application with SP1 (supported) = SP2 (supporting)	
S.V.O. 5 ton Slim Ltot=142	M.E. 3,5 ton Slim Plus	9	≥ **18**	≥ 18	≥
	15 M.E. 5 ton Slim	5			
S.V.O. 10 ton Slim Ltot=156	M.E. 6,5 ton Slim Plus	8,5	≥ **20**	≥ 20	≥ 18
	M.E. 7,5 ton Slim	6			
	M.E. 9 ton Slim Plus	8,5			≥ 20
	M.E. 10 ton Slim	6			
Scatola Vite Plus					
S.V.O. 12,5 ton Slim Plus Ltot=156	M.E. 12,5 ton Slim Plus	8,5	≥ **20**	≥ 20	≥ 20
			The sustain axis coincides with the center line of the panels		

- The distinction between SP1 e SP2 is useful only to make all the system more versatile and so usable in particular situations.

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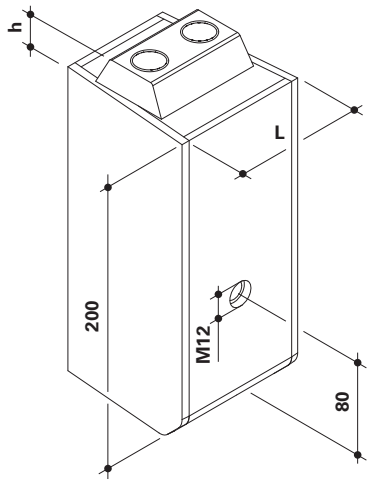
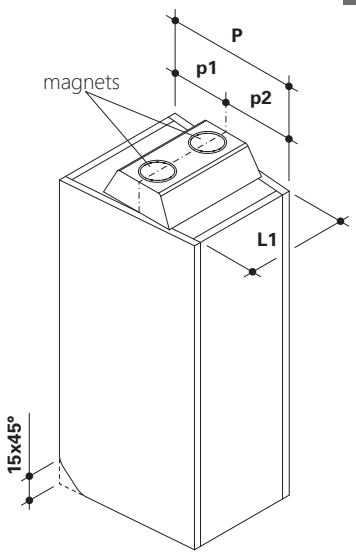
METALLIC FORM FOR SCREW CASE S.V.O. "SLIM" (vertical assembly of the panel)

in mm



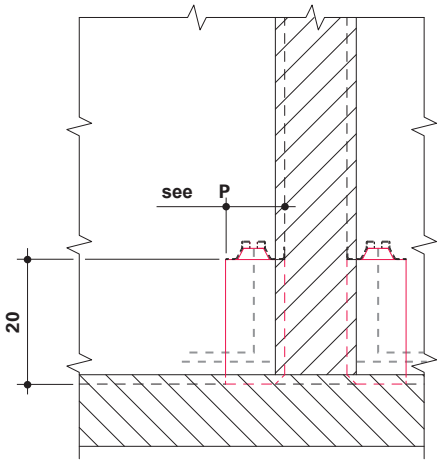


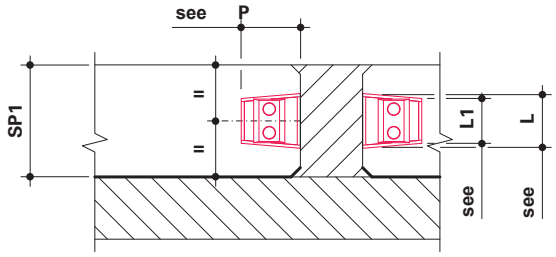
N.B.: for tolerances see page16.

Code	Metallic Form Standard	L	L1	P	p1	p2	h
1174-5.0V.	for S.V.O. 5 ton Slim Ltot=142 and bracket Standard	88	72	95	50	45	28,5
1174-10.V.	for S.V.O. 10 ton Slim Ltot=156 and bracket Standard	98	82	105	60	45	28,5
	Metallic Form Plus						
1184-5.0V.	for S.V.O. 5 ton Slim Ltot=142 and bracket Plus	98	78	130	90	40	28,5
1184-10.V.	for S.V.O. 10 ton Slim Ltot=156 and bracket Plus	108	88	130	85	45	28,5
1184-12.5V.	for S.V.O. 12,5 ton Slim Ltot=156 and bracket Plus	118	98	130	85	45	32,5

PLACEMENT

in cm

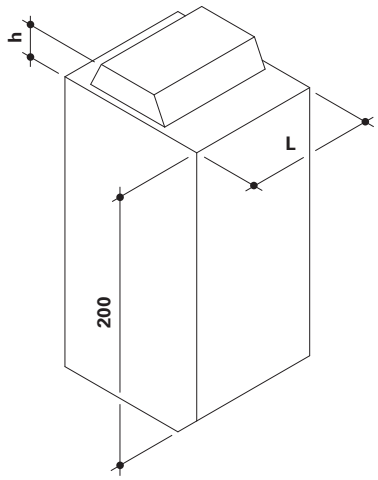


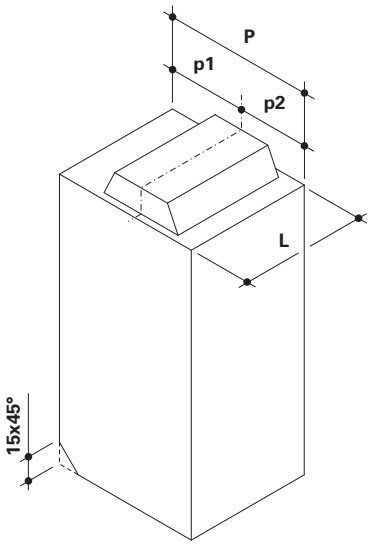


N.B.: for "SP1" height values see page 20.

POLYSTYRENE FORM FOR SCREW CASE S.V.O "SLIM" (vertical assembly of the panel)

in mm



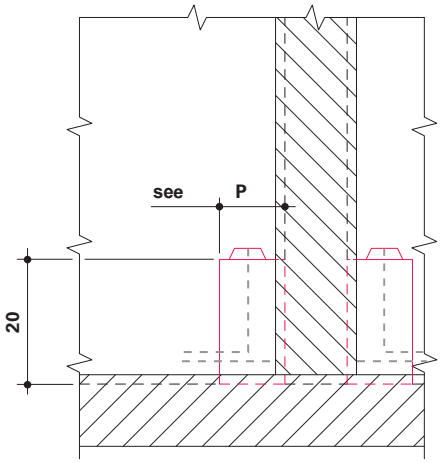


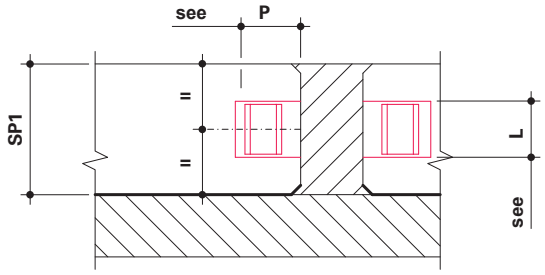
N.B.: for tolerances see page 16.

Code	Polystyrene form Standard	L	P	p1	p2	h
1174-5.0P.	for S.V.O. 5 ton Slim Ltot=142 and bracket Standard	80	95	50	45	28
1174-10.P.	for S.V.O. 10 ton Snella Ltot=156 and bracket Standard	90	105	60	45	28
	Polystyrene form Plus					
1184-5.0P.	for S.V.O. 5 ton Slim Ltot=142 and bracket Plus	80	130	90	40	28
1184-10.P.	for S.V.O. 10 ton Slim Ltot=156 and bracket Plus	90	130	85	45	28
1184-12.5P.	for S.V.O. 12,5 ton Slim Ltot=156 and bracket Plus	100	130	85	45	32

PLACEMENT

in cm



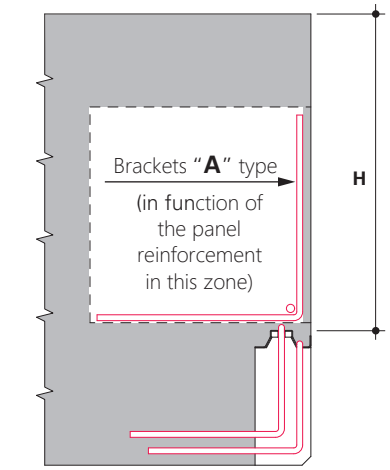


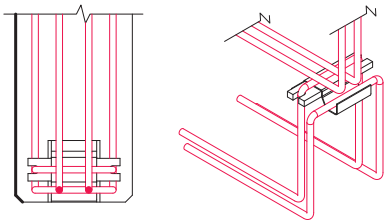
N.B.: "SP1" height values see page 20.

EXPEDIENTS AND BRACKETINGS SCREW CASE S.V.O. "SLIM" (vertical assembly of the panel)

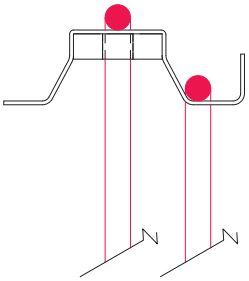
in cm

N.B.: provide an adequate full concrete zone in correspondence of the sustain and the reinforcement



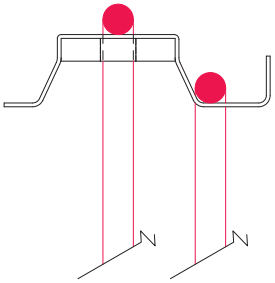


S.V.O. 5 ton Slim



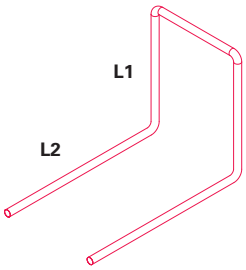
n° 2 brackets Ø 10
with L minimum = 50 cm
(always mandatories)

S.V.O. 10 ton Slim and
S.V.O. 12,5 ton Slim Plus



n° 2 brackets Ø 12
with L minimum = 60 cm
(always mandatories)

L minimum = L1 + L2



If there is insufficient panel reinforcement in the area shown by the broken line, add "A" type U bars as follows:

- with Screw Case S.V.O. 5 ton, n°2 brackets "A" Ø 10 with Development = 70 cm
- with Screw Case S.V.O. 10 and 12,5 ton, n°2 brackets "A" Ø 12 with Development = 80 cm

N.B.: is denied to place the Screw Case S.V.O. to a distance H lower than 20 cm

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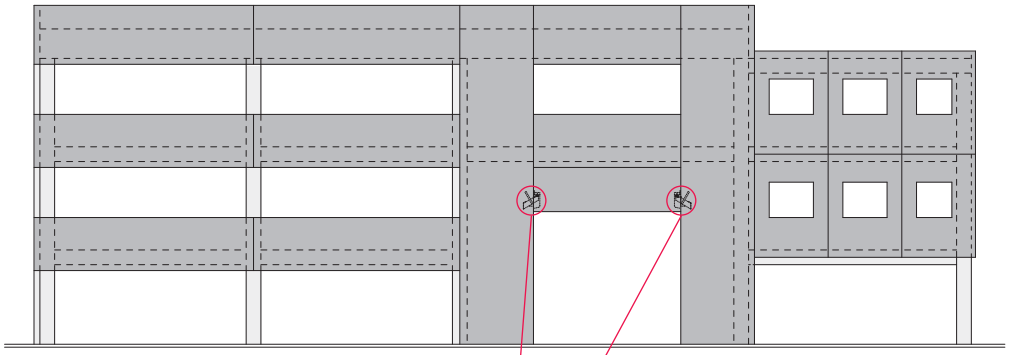
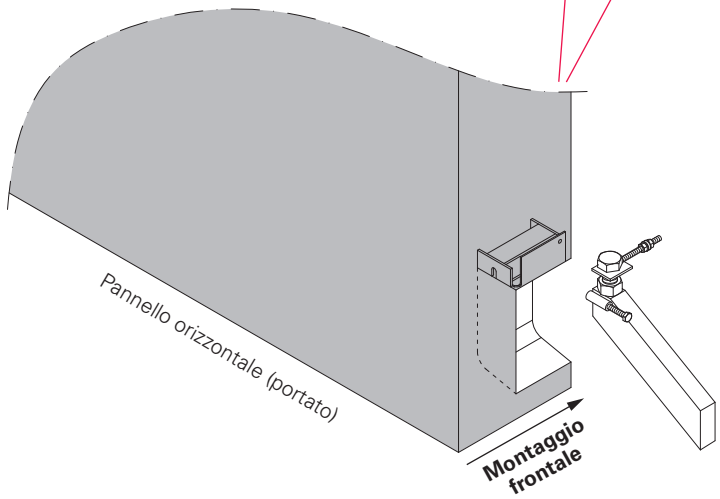
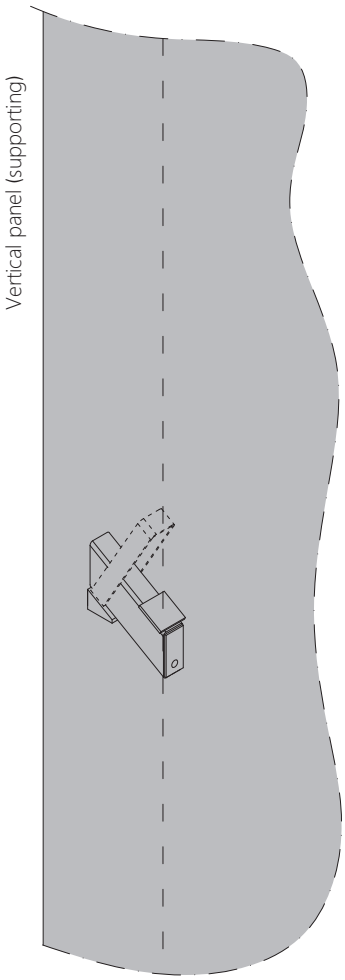
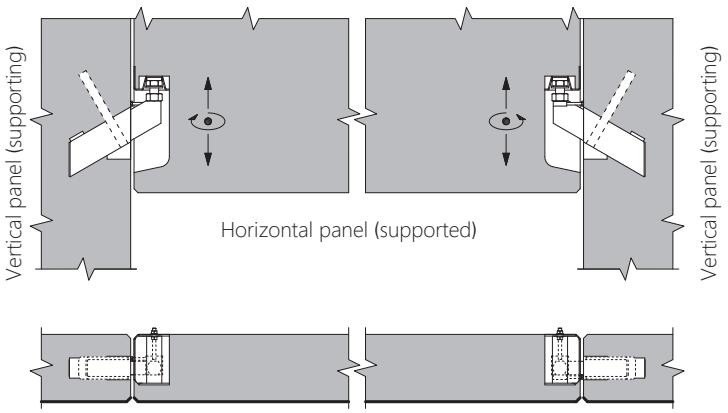
HERCULES BRACKET M.E. "SLIM" APPLICATION FOR S.V.O. (frontal assembly of the panel)









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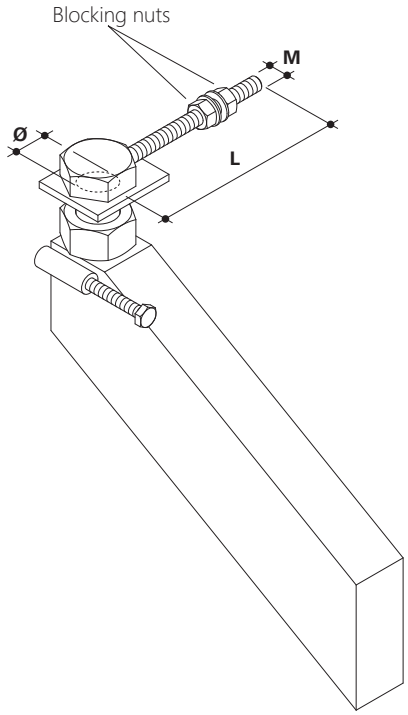
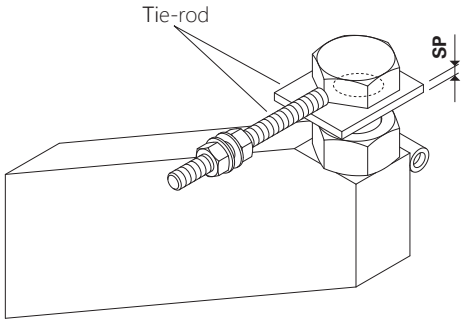
HERCULES BRACKET M.E. "SLIM" FOR S.V.O. (frontal assembly of the panel)

Hercules brackets "Slim" for S.V.O. (with frontal assembly) are the same reported on page 10 with the only add of a tie-rod for blocking them to the Screw Case S.V.O. in the slot dedicated.

in mm



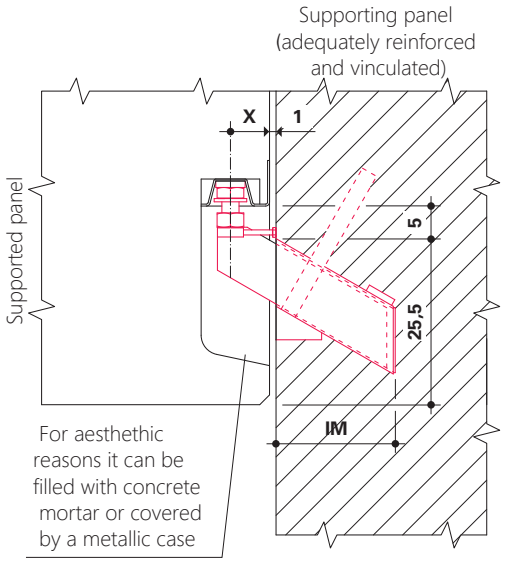


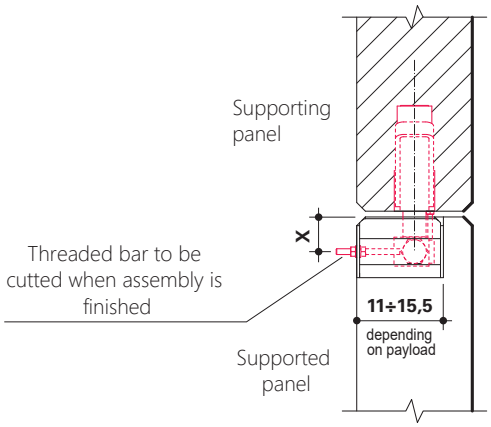
Code	Bracket Standard	L	M	SP	Ø
1770-5.0	M.E. 5 ton Slim for S.V.O. (frontal assembly)	134	8	4	23
1770-7.5	M.E. 7,5 ton Slim for S.V.O. (frontal assembly)	135,5	10	5	28
1770-10.	M.E. 10 ton Slim for S.V.O. (frontal assembly)	135,5	10	5	28
	Bracket Plus				
1780-3.5	M.E. 3,5 ton Slim Plus for S.V.O. (frontal assembly)	134	8	4	23
1780-6.5	M.E. 6,5 ton Slim Plus for S.V.O. (frontal assembly)	135,5	10	5	28
1780-9.0	M.E. 9 ton Slim Plus for S.V.O. (frontal assembly)	135,5	10	5	28
1780-12.5	M.E. 12,5 ton Slim Plus for S.V.O. (frontal assembly)	141	10	5	34

N.B.: all the brackets are designed to support only vertical payloads so, horizontal actions cannot be applied.

PLACEMENT

in cm

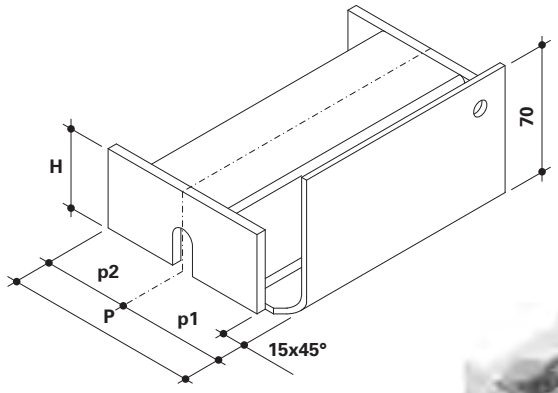


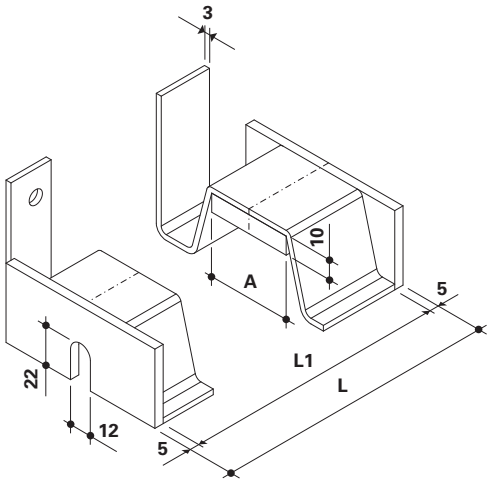


N.B.:
- **supported concrete panel with Rck ≥ 35 N/mm²;**
- **supporting concrete panel with Rck ≥ 40 N/mm²;**
- **for "X" and "IM" height values see page 11;**
- **for the possible bracketing of each component see the related sheet.**

SCREW CASE S.V.O. "SLIM" (frontal assembly of the panel)

in mm





N.B.: • **for bracketing see page 31;**
• **for tolerances see page 16.**

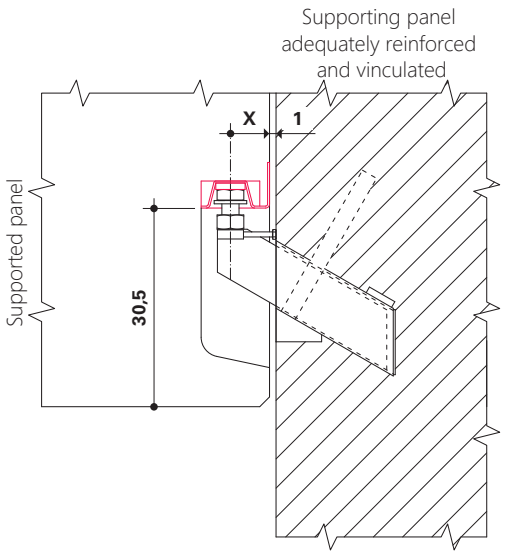
Code	Screw Case Standard	H	L	L1	A	P	p1	p2
1727-5.0_.	S.V.O. 5 ton SlimLtot=120	41,5	120	110	35	95	50	45
1719-5.0_.	S.V.O. 5 ton Slim Ltot=150	41,5	150	140	35	95	50	45
1719-10._.	S.V.O. 10 ton Slim Ltot=150	41,5	150	140	45	105	60	45
	Screw Case Plus							
1719-12.5_.	S.V.O. 12,5 ton Slim Plus Ltot=155	45,5	155	145	60	135	85	50

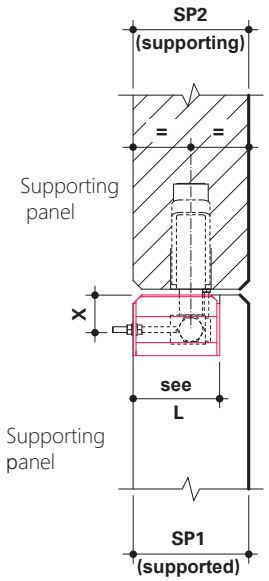
N.B.: Low stretch "_" in the code indicates that the component can be supplied rough, varnished or hot dip galvanized (after evaluation) upon request.

SCREW CASE S.V.O. "SLIM" (frontal assembly of the panel)

PLACEMENT

in cm





N.B.:
- **supported concrete panel with Rck ≥ 35 N/mm²;**
- **supporting concrete panel with Rck ≥ 40 N/mm²;**
- **the position of the S.V.O. with respect to the panel side is imposed by the relative polystyrene (see example on page 5);**
- **An adequate reinforcement confinment must be predisposed in the supporting panel (to be evalueted by the customer).**

Screw Case Standard	Combinable bracket	X	Standard application with SP1 (supported) = SP2 (supporting)	Special application with SP1 (supported) ≠ SP2 (supporting)
S.V.O. 5 ton Slim Ltot=120	M.E. 3,5 ton Slim Plus for S.V.O.	9	**15**	To evaluate case by case
	M.E. 5 ton Slim for S.V.O.	5		
S.V.O. 5 ton Slim Ltot=150	M.E. 3,5 ton Slim Plus for S.V.O.	9	**18 / 20**	
	M.E. 5 ton Slim for S.V.O.	5		
S.V.O. 10 ton Slim Ltot=150	M.E. 6,5 ton Slim Plus for S.V.O.	8,5	**18**	
	M.E. 7,5 ton Slim for S.V.O.	6		
	M.E. 9 ton Slim Plus for S.V.O.	8,5	**20**	
	M.E. 10 ton Slim for S.V.O.	6		
Screw Case Plus				
S.V.O. 12,5 ton Snella Plus Ltot=155	M.E. 12,5 ton Slim plus for S.V.O.	8,5	**20**	
			Sustain axis coincides with the center line of the panels	

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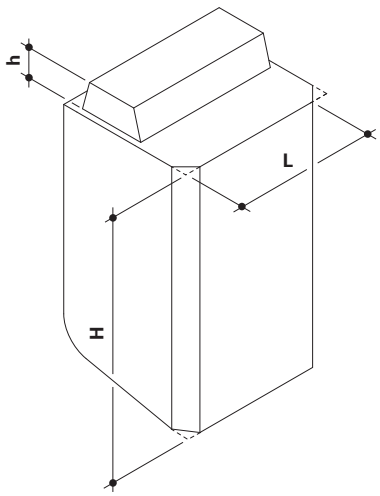
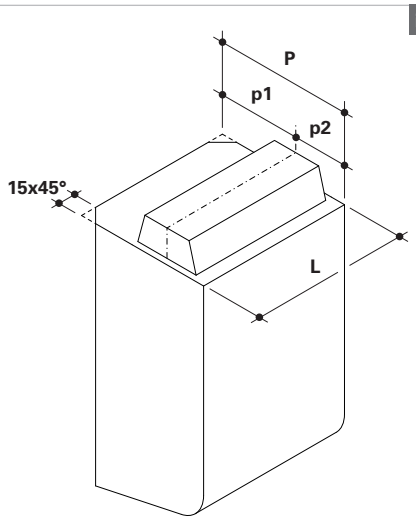
POLYSTYRENE FORM FOR SCREW CASE S.V.O. "SLIM" (frontal assembly of the panel)

in mm





N.B.: for tolerances see page 16.

Code	Polystyrene form Standard	H	L	P	p1	p2	h
1177-5.0P.	for S.V.O. 5 ton Slim Ltot=120 and bracket Standard	245	120	95	50	45	28
1176-5.0P.	for S.V.O. 5 ton Slim Ltot=150 and bracket Standard	245	150	95	50	45	28
1176-10.P.	for S.V.O. 10 ton Slim Ltot=150 and bracket Standard	245	150	105	60	45	28
	Polystyrene form Plus						
1187-5.0P.	per S.V.O. 5 ton Slim Ltot=120 and bracket Plus	245	120	130	90	40	28
1185-5.0P.	per S.V.O. 5 ton Slim Ltot=150 and bracket Plus	245	150	130	90	40	28
1185-10.P.	per S.V.O. 10 ton Slim Ltot=150 and bracket Plus	245	150	130	85	45	28
1185-12.5P.	per S.V.O. 12,5 ton Slim Ltot=155 and bracket Plus	265	155	130	85	45	32

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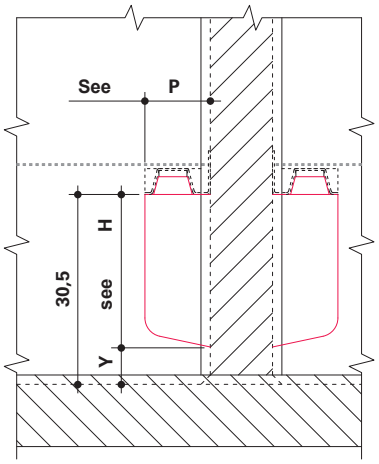
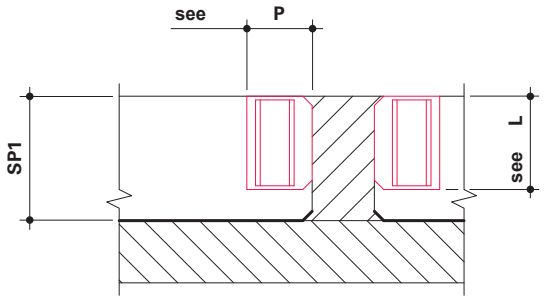
POLYSTYRENE FORM FOR SCREW CASE S.V.O. "SLIM" (frontal assembly of the panel)

PLACEMENT

in cm





N.B.: for "SP1" height values see page 28.

Polystyrene form Standard	Y
for S.V.O. 5 ton Slim Ltot=120 mm and bracket Standard	6
for S.V.O. 5 ton Slim Ltot=150 mm and bracket Standard	6
for S.V.O. 10 ton Slim Ltot=150 mm and bracket Standard	6
Polystyrene form Plus	
for S.V.O. 5 ton Slim Ltot=120 mm and bracket Plus	6
for S.V.O. 5 ton Slim Ltot=150 mm and bracket Plus	6
for S.V.O. 10 ton Slim Ltot=150 mm and bracket Plus	6
for S.V.O. 12,5 ton Slim Ltot=155 mm and bracket Plus	4

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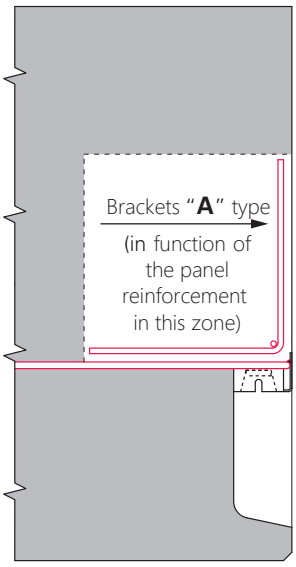
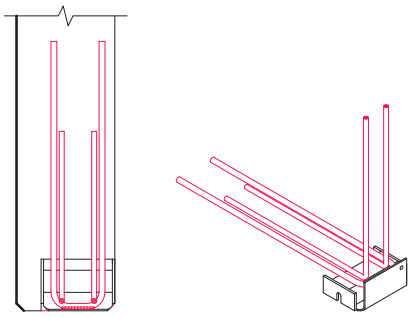
EXPEDIENTS AND BRACKETINGS S.V.O. "SLIM" (frontal assembly of the panel)

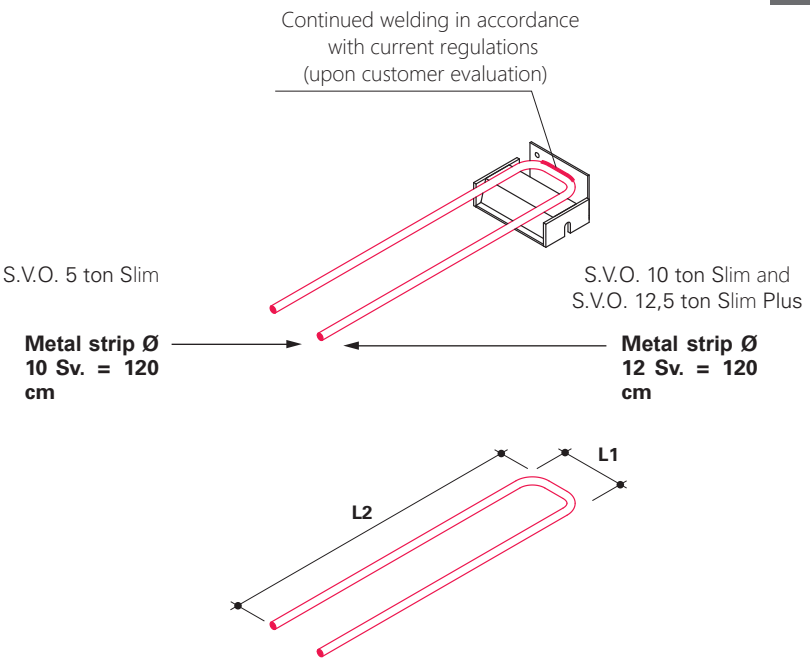
in cm

N.B.: provide an adequate full concrete zone in correspondence of the sustain and aedquate reinforcement





in cm



Screw Case Standard	L1	L2
S.V.O. 5 ton Slim Ltot=120 mm	8	56
S.V.O. 5 ton Slim Ltot=150 mm	11	54,5
S.V.O. 10 ton Slim Ltot=150 mm	11	54,5
Screw Case Plus		
S.V.O. 12,5 ton Slim Plus Ltot=155 mm	11,5	54,2

If the panel has not an adequate reinforcemente in the hatched zone integrating in the following way:

- with Screw Case S.V.O. 5 ton, n°2 brackets "A" Ø 10 with Development = 70 cm
- with Screw Case S.V.O. 10 and 12,5 ton, n°2 brackets "A" Ø 12 with Development = 80 cm

N.B.: is denied to position Screw Case S.V.O. to a distance H lower than 20 cm.

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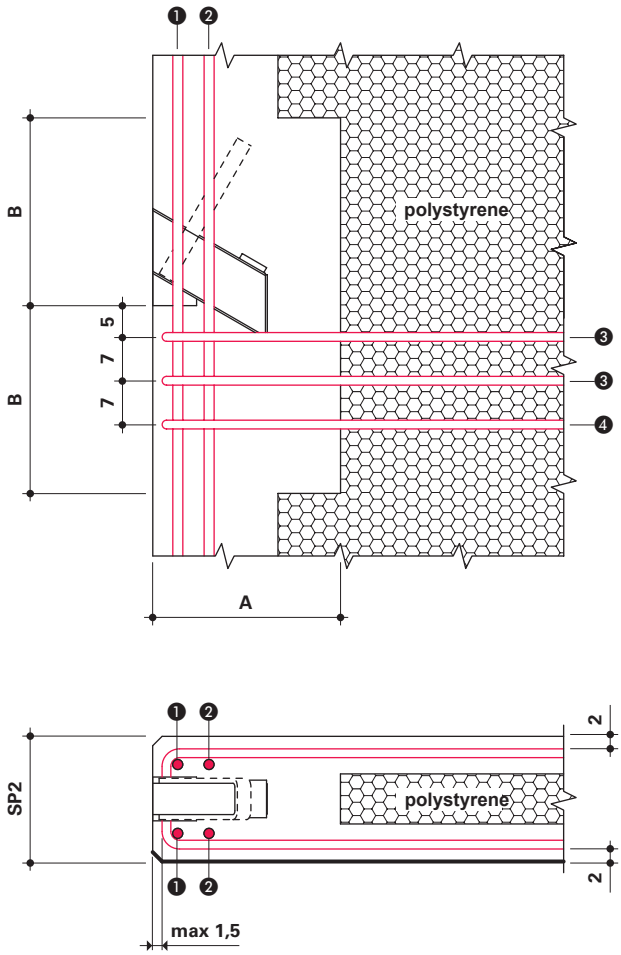
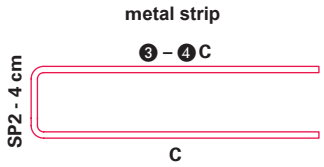
EXPEDIENTS AND BRACKETINGS TUBE CASE FOR S.V.O. "SLIM"

If the use of Tube Case Slim (case for S.V.O.) becomes necessary in panels with Rck = 35 N/mm^2 (rather than 40 N/mm^2) one of the followings solutions can be adopted:
• declassing of the entire system payload (as indicated in the table);
• insertion of the frettage (as indicated in the drawing and in the table).
If the panel already has a reinforcement in the joist,the irons indicated in the drawing below are to be considered complementaries.

in cm



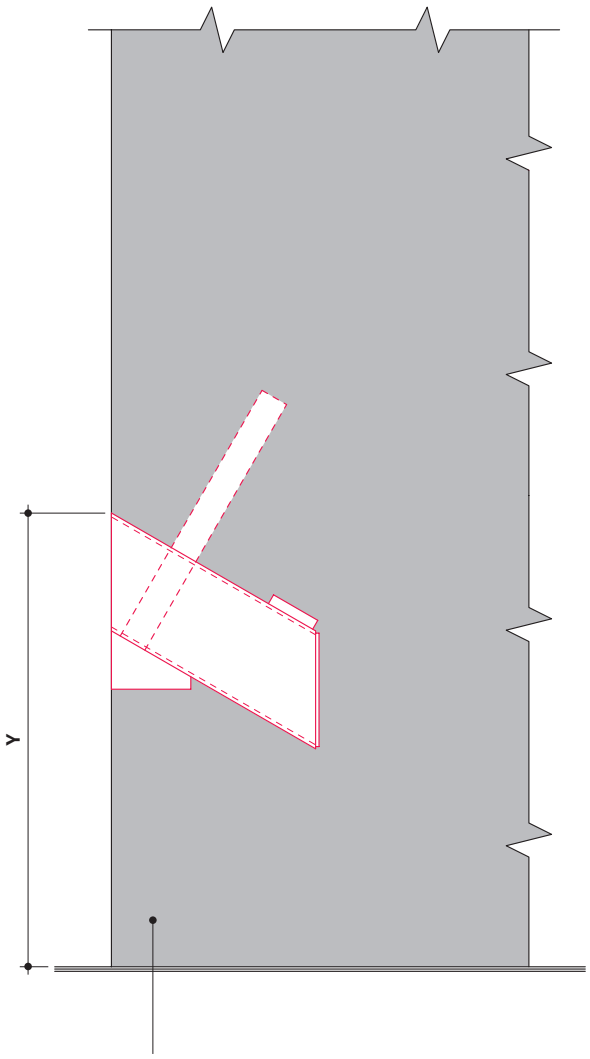


Tube Case	Reference bracket	Solution with declassing of the system	Solution with frettage						
			A	B	C	❶	❷	❸	❹
S.T. 5 ton Slim	M.E. 3,5 ton Slim Plus M.E. 5 ton Slim	3,1 ton 4,4 ton	≥ 25	≥ 30	≥ 75	n°2 bars Ø12 L=120	/	n°2 metal strips Ø12	/
S.T. 7,5 ton Slim	M.E. 6,5 ton Slim Plus M.E. 7,5 ton Slim	5,7 ton 6,6 ton	≥ 30	≥ 30	≥ 90	n°2 bars Ø16 L=160	n°2 bars Ø16 L=160	n°2 metal s. Ø14	n°1 met.str. Ø14
S.T. 10 ton Slim	M.E. 9 ton Slim Plus M.E. 10 ton Slim	7,9 ton 8,8 ton							
S.T. 12,5 ton Slim Plus	M.E. 12,5 ton Slim Plus	11 ton	≥ 35	≥ 40	≥ 90	n°2 bars Ø16 L=160	n°2 bars Ø16 L=160	n°2 met. st. Ø14	n°1 metal s. Ø14

N.B.: for "SP2" height values see page 20 and 28.

MINIMUM PLACEMENT OF THE TUBE CASE FOR S.V.O. "SLIM" IN THE SUPPORTING PANEL

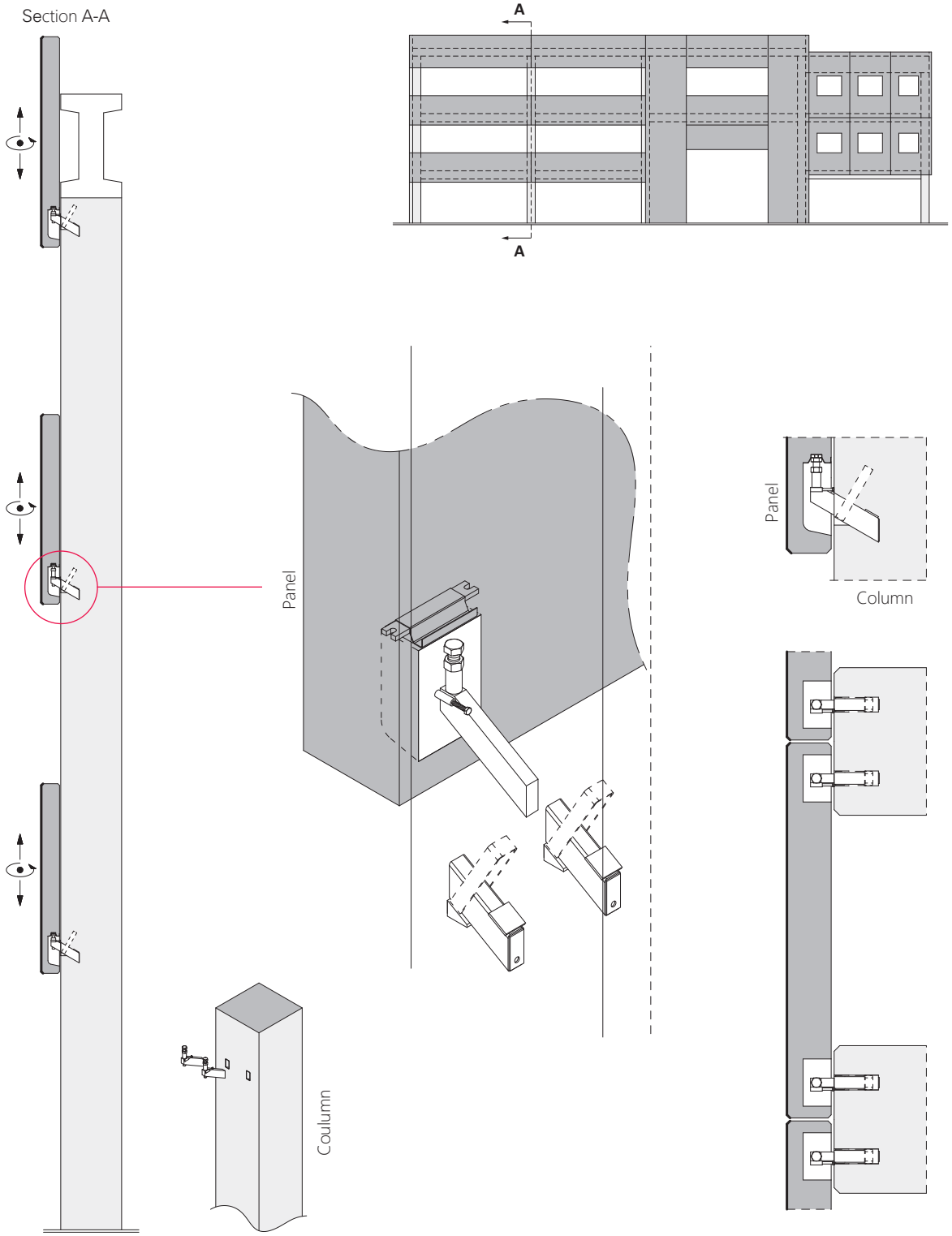
in cm



N.B.: provide an adequate bracketing under the Tube Case

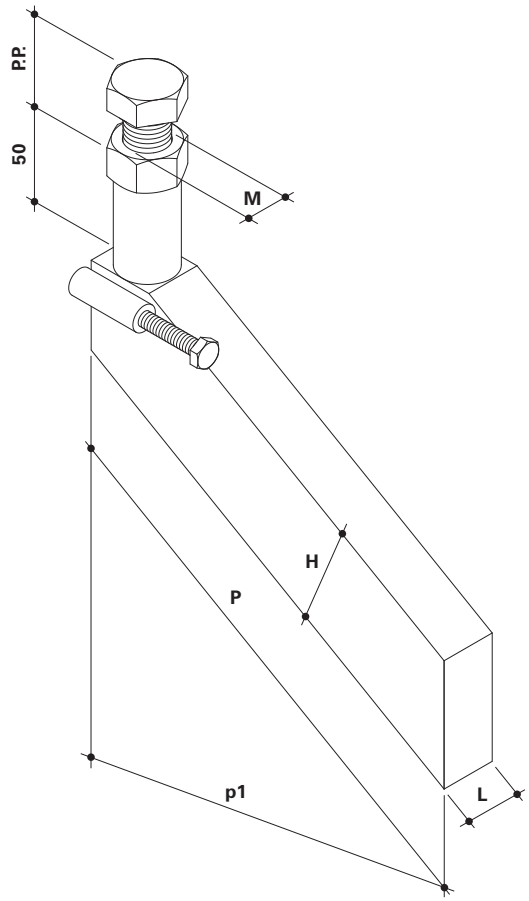
Tube Case Standard	Y
S.T. 5 ton Slim	≥ 35
S.T. 7,5 ton Slimj	≥ 40
S.T. 10 ton Slim	≥ 40
Tube Case Plus	
S.T. 12,5 ton Slim Plus	≥ 45

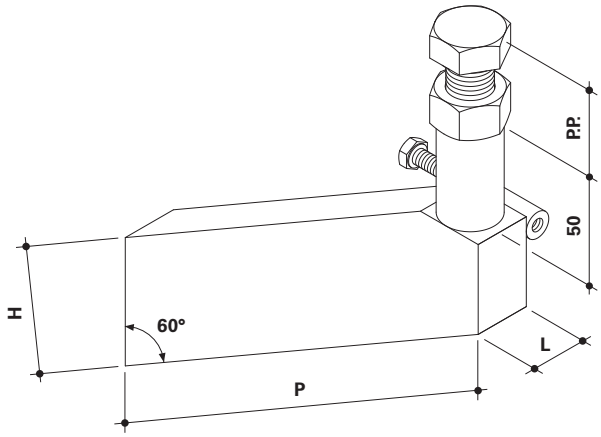
HERCULES BRACKET M.E. APPLICATION "SLIM" RAISED



HERCULES BRACKET M.E. "SLIM" RAISED

in mm





Rise height

NOTE.: the horizontal adjustment screw can be placed, at total B.S.Italia discretion, on both brackets sides.

Code	Bracket Standard	H	L	M	P	p1	P.P.
1470-5.0	M.E. 5 ton Slim Raised	60	30	22	254	220	61
1470-7.5	M.E. 7,5 ton Slim Raised	70	40	27	307,2	266	59
1470-10.	M.E. 10 ton Slim Raised	80	40	27	307,2	266	61
	Bracket Plus						
1480-3.5	M.E. 3,5 ton Slim Plus Raised	60	30	22	300,2	260	44
1480-6.5	M.E. 6,5 ton Slim Plus Raised	70	40	27	336	291	51
1480-9.0	M.E. 9 ton Slim Plus Raised	80	40	27	336	291	53
1480-12.5	M.E. 12,5 ton Slim Plus Raised	110	50	33	390,3	338	60

- P = inclined measure
- p1 = horizontal measure
- P.P. =starting position

N.B.: all the brackets are designed to support only vertical payloads so, horizontal actions cannot be applied.

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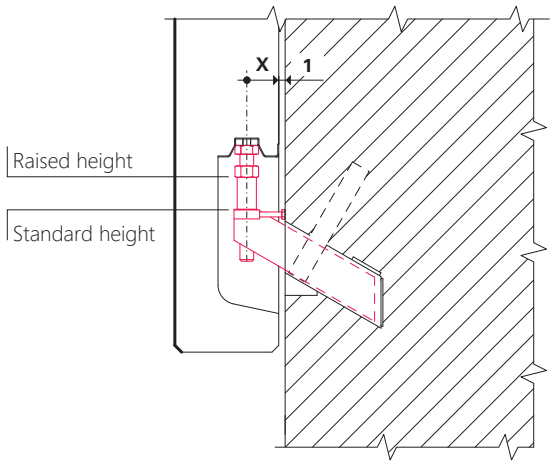
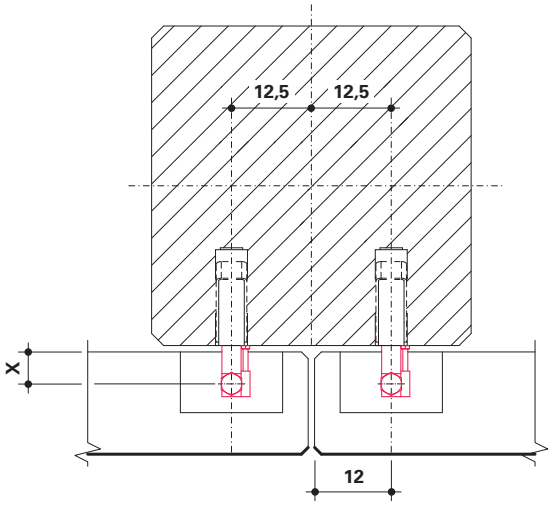
PLACEMENT

in cm

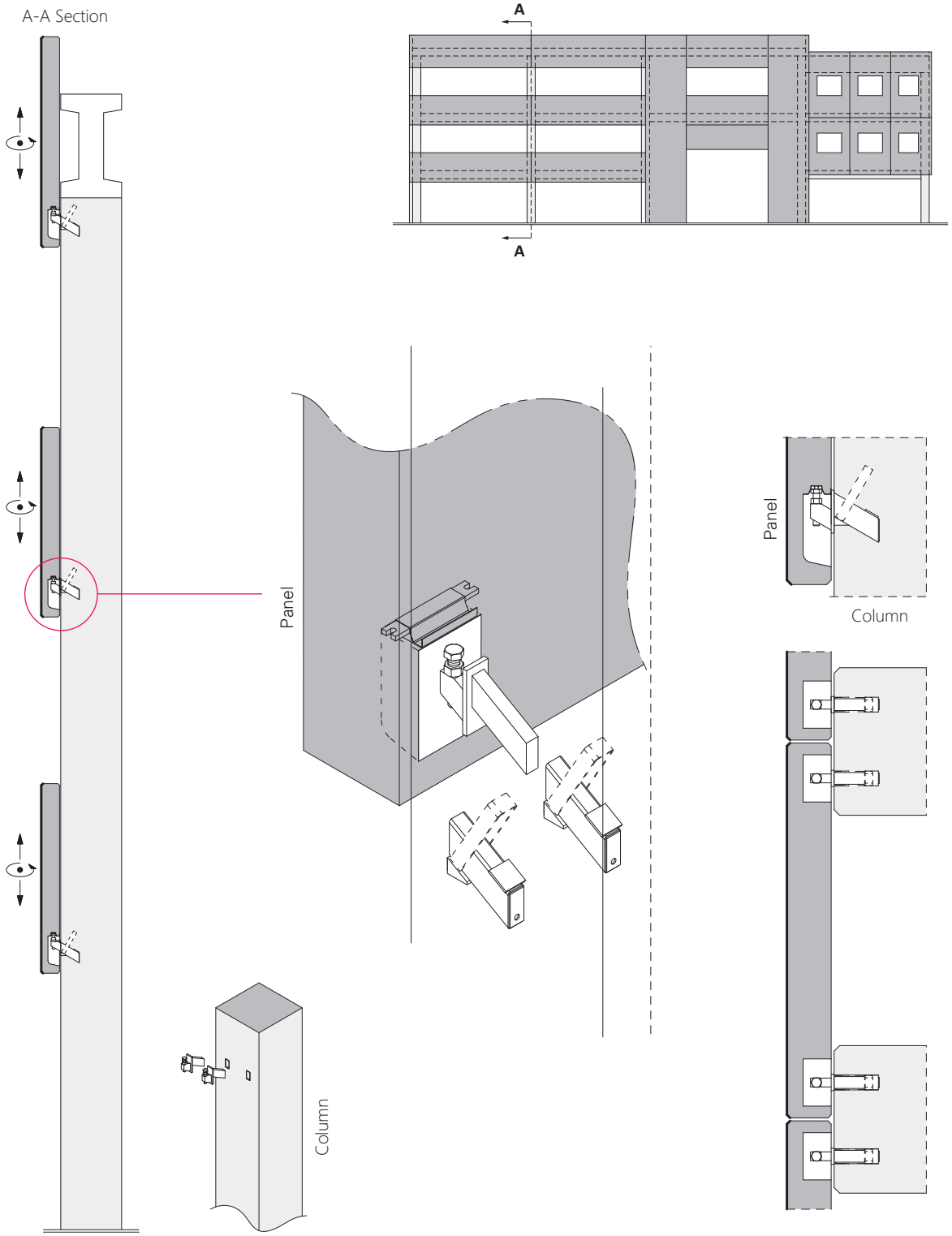




N.B.: • **for “X” height values see page 11;**
• **for the possibile bracketing of each component and the related sheets.**

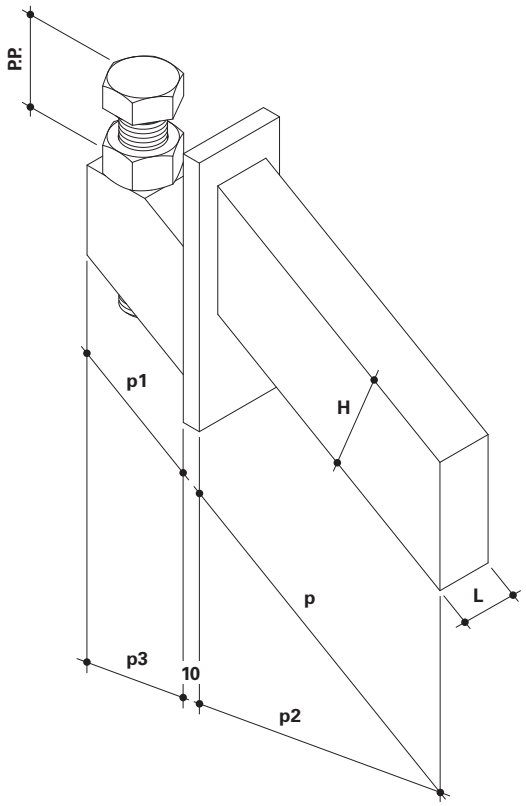
B.S.Italia® Gruppo Styl-Comp

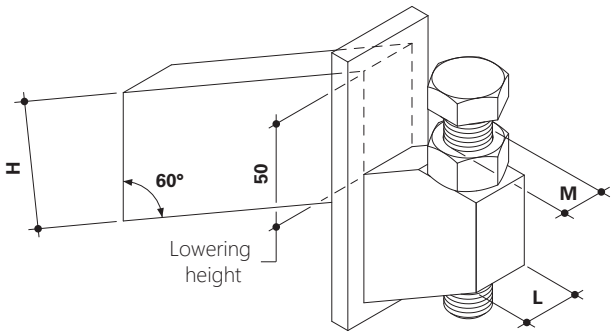
M.E. Slim lowered application



BRACKET M.E. SLIM LOWERED

in mm





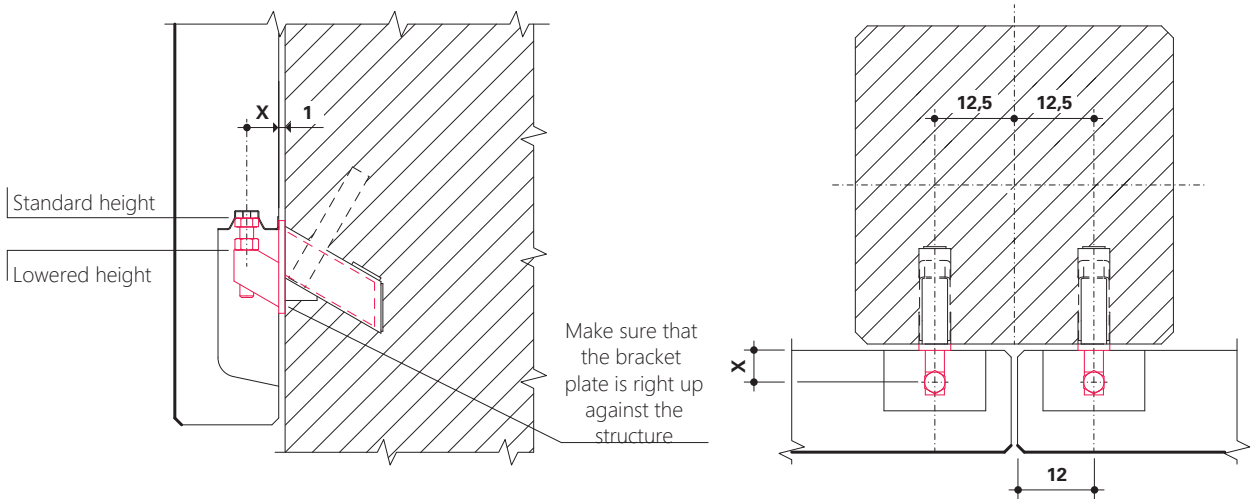
Code	Standard Bracket	H	L	M	p	p1	p2	p3	P.P.
1870-5.0	M.E. 5 ton Slim Lowered	60	30	22	161,7	80,8	140	70	61
1870-7.5	M.E. 7,5 ton Slim Lowered	70	40	27	196,3	99,3	170	86	59
1870-10.	M.E. 10 ton Slim Lowered	80	40	27	196,3	92,4	170	80	61
	Plus Bracket								
1880-3.5	M.E. 3,5 ton Slim Plus Lowered	60	30	22	161,7	127	140	110	44
1880-6.5	M.E. 6,5 ton Slim Plus Lowered	70	40	27	196,3	128,2	170	111	51
1880-9.0	M.E. 9 ton Slim Plus Lowered	80	40	27	196,3	128,2	170	111	53
1880-12.5	M.E. 12,5 ton Slim Plus Lowered	110	50	33	242,5	136,3	210	118	60

- p - p1 = inclined measures
- p2 - p3 = Horizontal measures
- P.P. =starting position

N.B.: All the brackets are designed to support only vertical payloads so, horizontal actions cannot be applied.

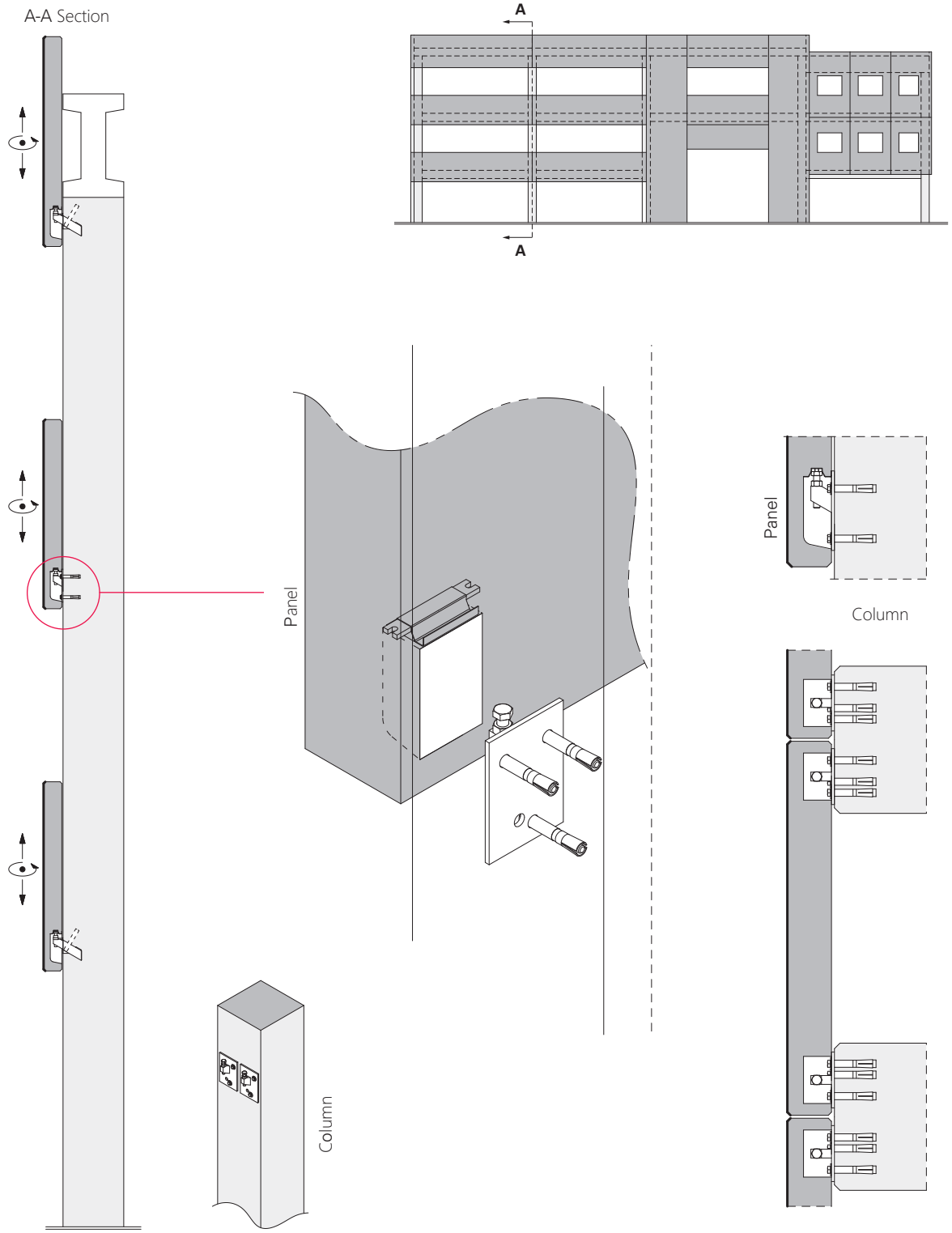
PLACEMENT

in cm



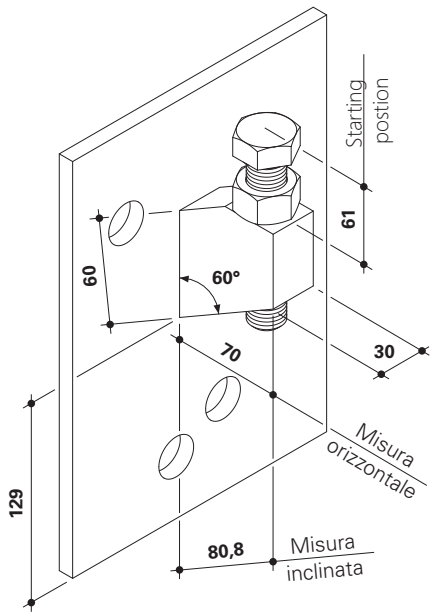
N.B.: • **for "X" height values see page 11;**
• **for the possible bracketing of each component see the related sheet.**

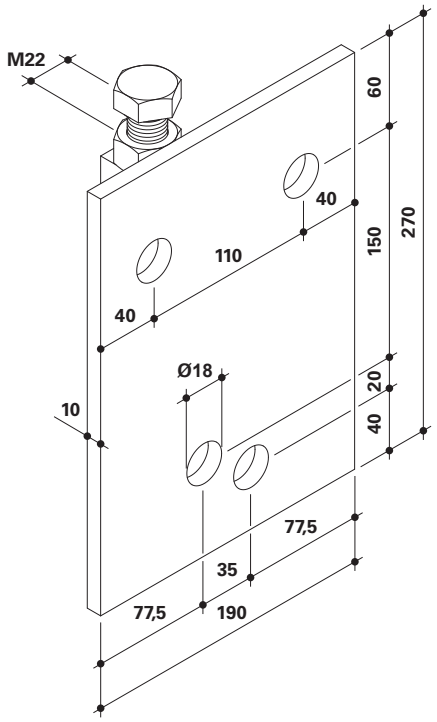
M.E. SLIM WELDED APPLICATION



BRACKET M.E. SLIM WELDED 5 TON

in mm



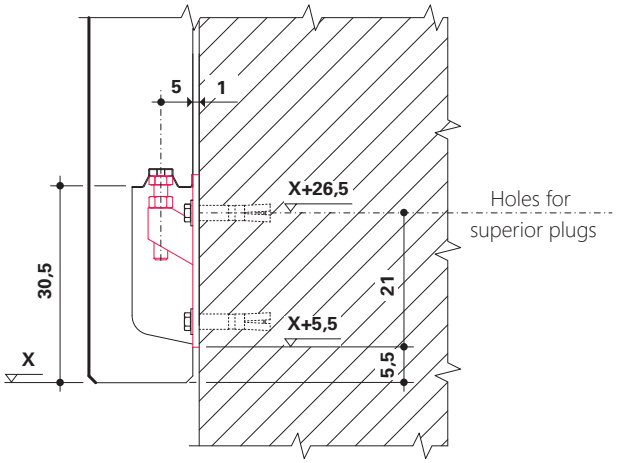


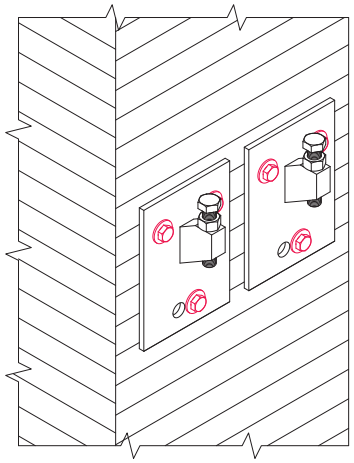
Codice	Mensola Standard	
1060-5.0	M.E. 5 ton Slim Welded	

N.B.: The bracket is designed to support only vertical payloads, so horizontal actions cannot be applied.

PLACEMENT

in cm

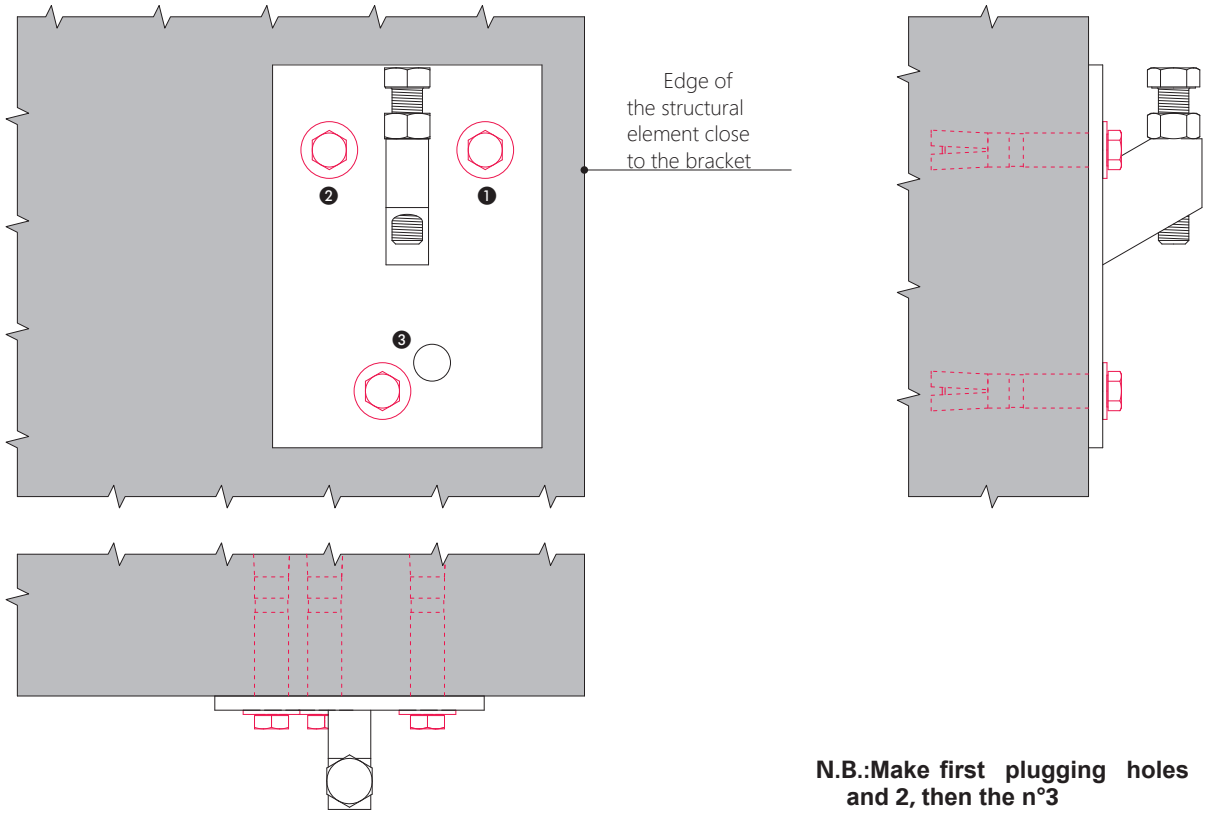




N.B.:
- **concrete structure with Rck ≥ 40 N/mm²;**
- **verify on the structure the placement heights before proceeding with plugging;**
- **for the possible bracketing of each component see the related sheet.**

PLUGGING SEQUENCE

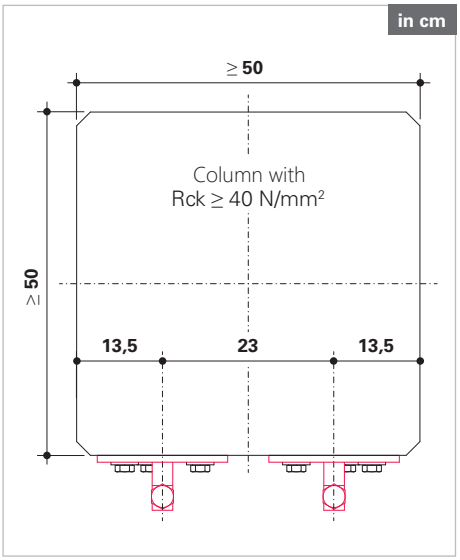
in cm



N.B.:Make first plugging holes n°1 and 2, then the n°3

PLACEMENT AND MINIMUM REQUIREMENTS

in cm



Plugging indications:

- Concrete Rck ≥ 40 N/mm²
- **n°3 plugs Hilti HST-3 M16x115**
- Hole diameter in the concrete = 16 mm to clean carefully
- minimum distance from the edge = 15 cm
  the minimum distance from the edge can be reduced in case of confined concrete (reduction to be evaluated by the user)
- concrete minimum thickness = 25 cm
- use dynamometric key
- bolt tightening torque = 110 Nm

N.B.: everything about plugging is to be considered purely indicative and it hasn't any value as calculation design

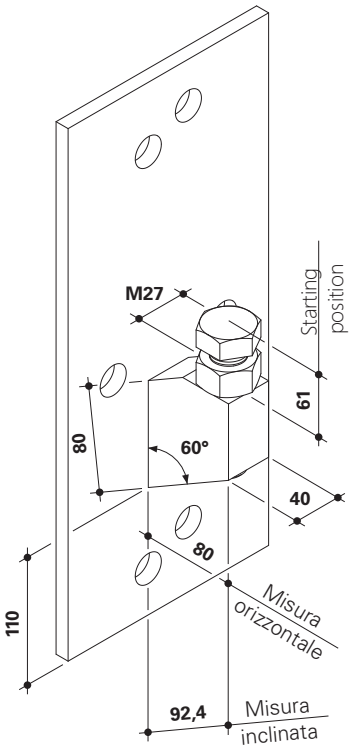
Possible bolting indications (su struttura metallica):

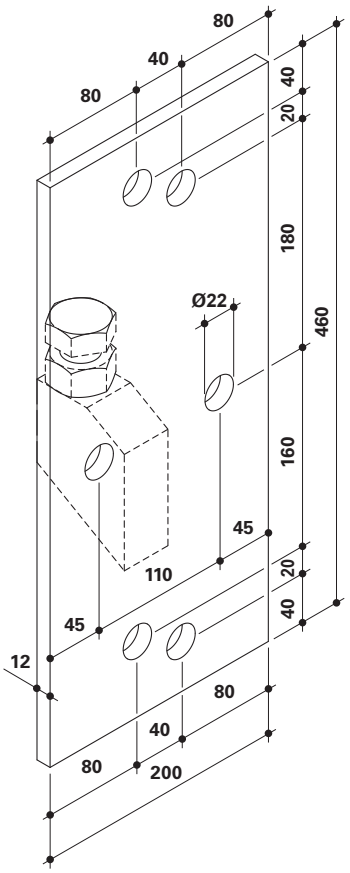
- **n°3 bolts M16 class 8.8**
- use dynamometric key
- bolt tightening torque = 220 Nm

N.B.: B.S.Italia does not take any responsability for bolts and plugs installation.

BRACKET M.E. SLIM WELDED 10 TON

in mm



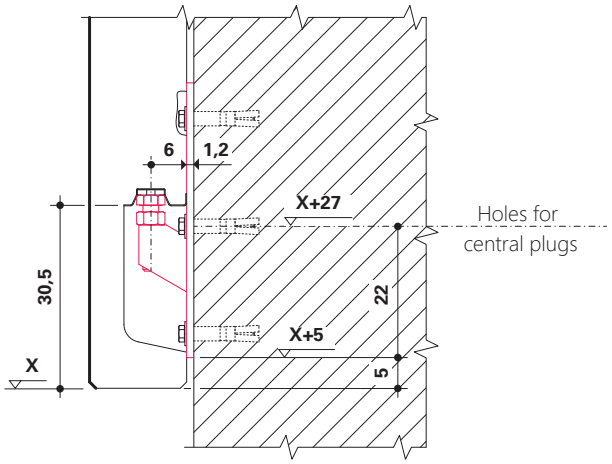


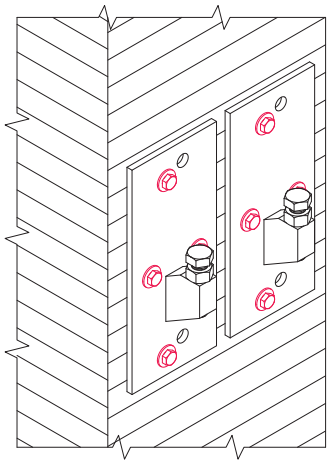
Code	Standard Bracket	
1060-10.	M.E. 10 ton Slim Welded	

N.B.: bracket is designed to support only vertical payloads so, horizontal payloads cannot be applied.

PLACEMENT

in cm

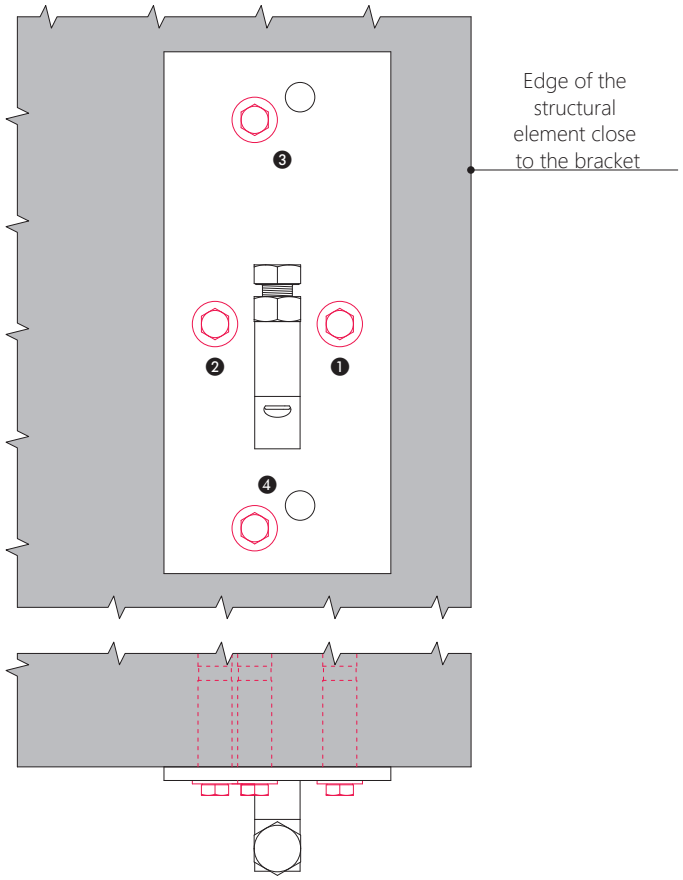


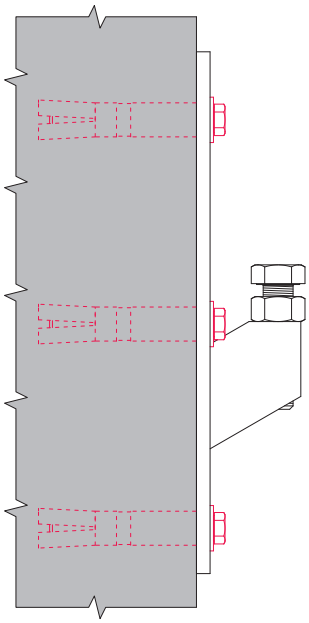


N.B.:
- **concrete structure with Rck ≥ 40 N/mm²;**
- **check on the structure placement heights before proceeding with plugging;**
- **for the possible bracketing of each component see the related sheet.**

PLUGGING SEQUENCE

in cm

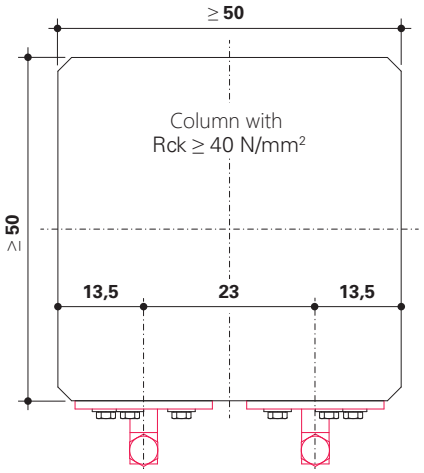




N.B.: Make first holes for plugging n°1 and 2, then holes n°3 and 4

PLACEMENT AND MINIMUM REQUIREMENTS

in cm



Plugging indications:

- concrete Rck ≥ 40 N/mm²
- **n°4 plugs Hilti HST-3 M20x170**
- Hole diameter in the concrete = 20 mm to clean carefully
- minimum distance from the edge = 15 cm
  minimum distance from the edge can be reduced in case of confined concrete (reduction to be evaluated by the user)
- concrete minimum thickness = 25 cm
- use dynamometric key
- bolt tightening torque = 120 Nm

N.B.: everything about plugging is to be considered purely indicative and has not any value as calculation design

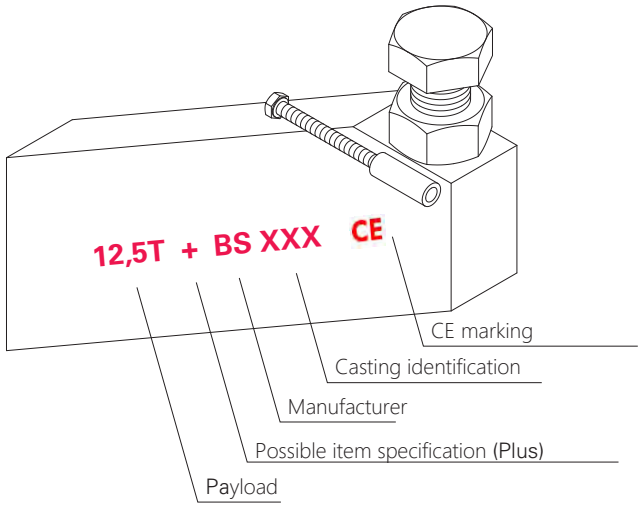
Possible bolting indications (on metallic structure):

- **n°3 bolts M20 class 8.8 (in position 1 - 2 - 3)**
- use dynamometric key
- bolts tightening torque = 430 Nm

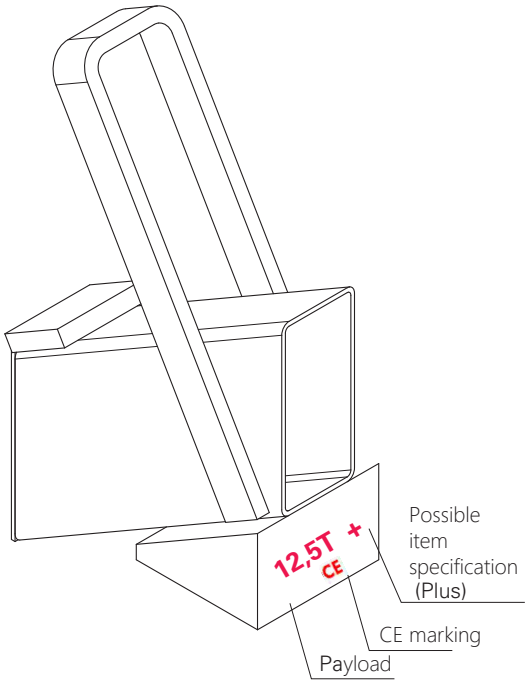
N.B.: B.S.Italia does not take any responsability for the installation of plugs or bolts

MARKINGS

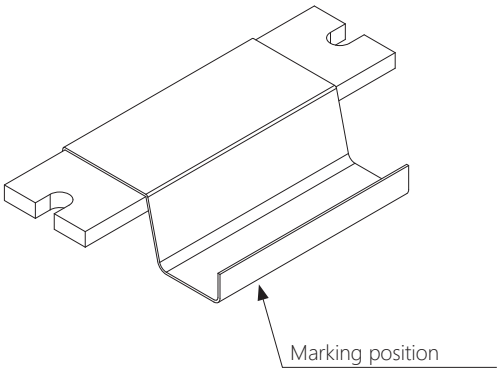
HERCULES "SLIM" BRACKET

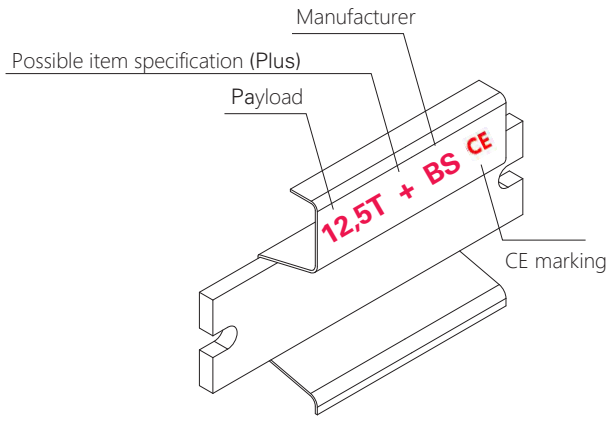


"SLIM" TUBE CASE



"SLIM" SCREW CASE





For any doubt about the correct use of the components described in this manual , please contact :

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tel +39 035 671746 • fax +39 035 672265www.bsitaliagroup.com •
infobsitalia@styl-comp.it

WELDINGS OR MODIFICATIONS

Weldings or modifications of all the components of ERCOLE SNELLA system that can provoke a decrease of the payload, a variation technical features of the materials orcause dangerous work conditions (except if expressly authorized) are not allowed. B.S.Italia does not take responsabily for any damage of any kind in case of product or single component modifications.

SOSTITUZIONE O INTERSCAMBIO DEI COMPONENTI

The products that B.S.Italia manufactures and supply are designed as an indivisible system for the sustain precasted/ precompressed concrete elements. So spare parts produced by others are not authorized.

MODIFICHE PROGETTUALI

B.S.Italia reserves the right to design changes about the components and/or the accessories and/or the payloads at any time, without prior notice obbligation.

CALCULATION

For inserts and armors design is necessary to follow strictly the indications of this manual.
It is responsability of the concrete artifacts designer, to choose the correct component of the ERCOLE SNELLA system, related to the application in question and to the actions involved.
For each design,according to legal obbligations (in compliance with which we return totally),a safety officer must be appointed, made and followed a detailed plan for the installation.This manual must be always at complete disposal where the system is used and delivered to the production, storage and construction site officers.

COMPONENTS CODES

Description	Code
Hercules Bracket M.E. Slim	
5 ton	**1070-5.0_**
7,5 ton	**1070-7.5_**
10 ton	**1070-10._**
Hercules Bracket M.E. Slim Plus	
3,5 ton	**1080-3.5_**
6,5 ton	**1080-6.5_**
9 ton	**1080-9.0_**
12,5 ton	**1080-12.5_**

5 ton

7,5÷12,5 ton

Tube Case Slim	
5 ton	**1071-5.0_**
7,5 ton	**1071-7.5_**
10 ton	**1071-10._**
Tube Case Slim Plus	
12,5 ton	**1081-12.5_**

Screw Case S.V. Slim	
5 ton	**1017-5.0F.**
10 ton	**1017-10.F.**
Screw Case S.V. Slim Plus	
12,5 ton	**1015-12.5F.**

Metallic form for S.V. Slim and Standard Bracket	
5 ton	**1170-5.0V.**
10 ton	**1170-10.V.**
Metallic form for S.V. Slim and Plus Bracket	
5 ton	**1180-5.0V.**
10 ton	**1180-10.V.**
12,5 ton	**1180-12.5V.**

Polystyrene form for S.V. Slim and Standard Bracket	
5 ton	**1170-5.0P.**
10 ton	**1170-10.P.**
Polystyrene form for S.V. Slim and Plus Bracket	
5 ton	**1180-5.0P.**
10 ton	**1180-10.P.**
12,5 ton	**1180-12.5P.**

B.S.Italia® Gruppo Styl-Comp

COMPONENTS CODES

Description	Code
Screw Case S.V.O Slim for Standard Bracket (vertical assembly)	
5 ton Ltot=142 mm	**1717-5.0F.**
10 ton Ltot=156 mm	**1717-10.F.**
Screw Case S.V.O Slim for Plus Bracket (vertical assembly)	
12,5 ton Ltot=156 mm	**1715-12.5F.**

Metallic form for S.V.O Slim and Standard Bracket (vertical assembly)	
5 ton (S.V.O. Ltot=142 mm)	**1174-5.0V.**
10 ton (S.V.O. Ltot=156 mm)	**1174-10.V.**
Metallic form for S.V.O Slim and Plus Bracket (vertical assembly)	
5 ton (S.V.O. Ltot=142 mm)	**1184-5.0V.**
10 ton (S.V.O. Ltot=156 mm)	**1184-10.V.**
12,5 ton (S.V.O. Ltot=156 mm)	**1184-12.5V.**

Polystyrene form for S.V.O Slim and Standard Bracket (vertical assembly)	
5 ton (S.V.O. Ltot=142 mm)	**1174-5.0P.**
10 ton (S.V.O. Ltot=156 mm)	**1174-10.P.**
Polystyrene form for S.V.O Slim and Plus Bracket (vertical assembly)	
5 ton (S.V.O. Ltot=142 mm)	**1184-5.0P.**
10 ton (S.V.O. Ltot=156 mm)	**1184-10.P.**
12,5 ton (S.V.O. Ltot=156 mm)	**1184-12.5P.**

COMPONENTS CODES

Description	Code
Hercules Bracket M.E. Slim for S.V.O (frontal assembly)	
5 ton	**1770-5.0_**
7,5 ton	**1770-7.5_**
10 ton	**1770-10._**
Hercules Bracket Slim Plus for SVO (frontal assembly)	
3,5 ton	**1780-3.5_**
6,5 ton	**1780-6.5_**
9 ton	**1780-9.0_**
12,5 ton	**1780-12.5_**

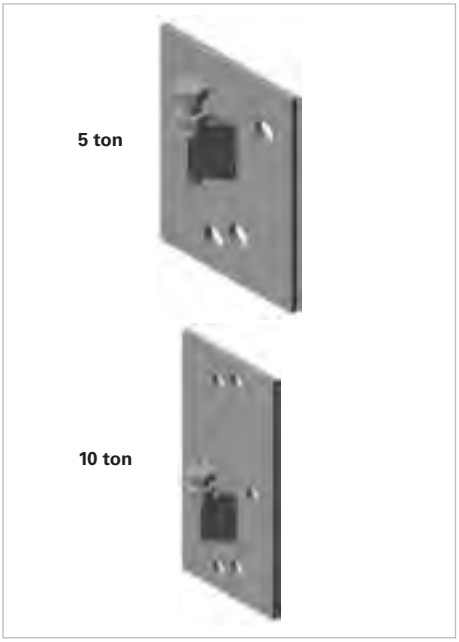
Screw Case S.V.O Slim for Standard Bracket (frontal assembly)	
5 ton Ltot=120 mm	**1727-5.0_.**
5 ton Ltot=150 mm	**1719-5.0_.**
10 ton Ltot=150 mm	**1719-10._.**
Screw Case S.V.O Slim for Plus Bracket (frontal assembly)	
12,5 ton Ltot=155 mm	**1719-12.5_.**

Polystyrene form for S.V.O Slim and Standard Bracket (frontal assembly)	
5 ton (S.V.O. Ltot=120 mm)	**1177-5.0P.**
5 ton (S.V.O. Ltot=150 mm)	**1176-5.0P.**
10 ton (S.V.O. Ltot=150 mm)	**1176-10.P.**
Polystyrene form for S.V.O Slim and Bracket Plus (frontal assembly)	
5 ton (S.V.O. Ltot=120 mm)	**1187-5.0P.**
5 ton (S.V.O. Ltot=150 mm)	**1185-5.0P.**
10 ton (S.V.O. Ltot=150 mm)	**1185-10.P.**
12,5 ton (S.V.O. Ltot=155 mm)	**1185-12.5P.**

COMPONENTS CODES

Description	Code
Hercules Bracket M.E. Slim Raised	
5 ton	**1470-5.0_**
7,5 ton	**1470-7.5_**
10 ton	**1470-10._**
Hercules Bracket M.E. Snella Plus Raised	
3,5 ton	**1480-3.5_**
6,5 ton	**1480-6.5_**
9 ton	**1480-9.0_**
12,5 ton	**1480-12.5_**

Hercules Bracket M.E. Slim Lowered	
5 ton	**1870-5.0_**
7,5 ton	**1870-7.5_**
10 ton	**1870-10._**
Hercules Bracket M.E. Slim Plus Lowered	
3,5 ton	**1880-3.5_**
6,5 ton	**1880-6.5_**
9 ton	**1880-9.0_**
12,5 ton	**1880-12.5_**



Hercules Bracket M.E. Slim Welded	
5 ton	**1060-5.0_**
10 ton	**1060-10._**

N.B.: M.E. Slim Welded of types not listed here can be supplied upon request (after evaluation)

N = rough • F = cold dip galvanized • C = hot dip galvanized • V = varnished

N.B.: The lower line "_" in the code means that the component can be supplied rough, varnished or hot dip galvanized upon request (after evaluation).

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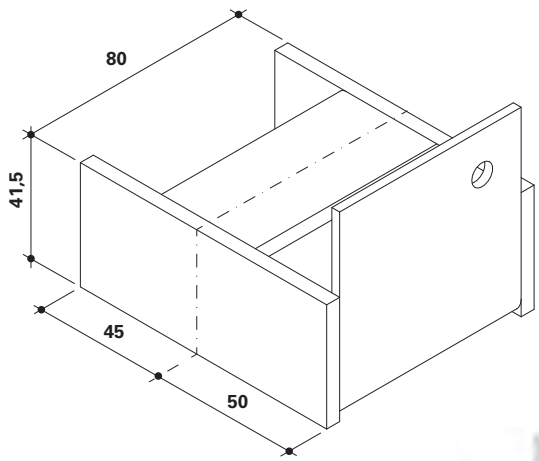
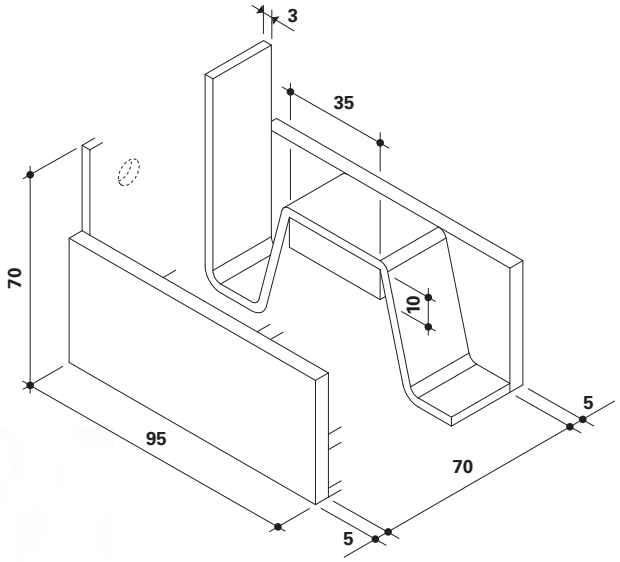
SCREW CASE S.V.O. "SLIM" (vertical assembly of the panel th. 15 cm)

Hercules “SLIM” brackets suitable for this S.V.O. are the 5 ton and the 3,5 ton Plus reported on page 10.

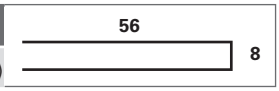
in mm





N.B.: for the tolerance of installation see page 16.

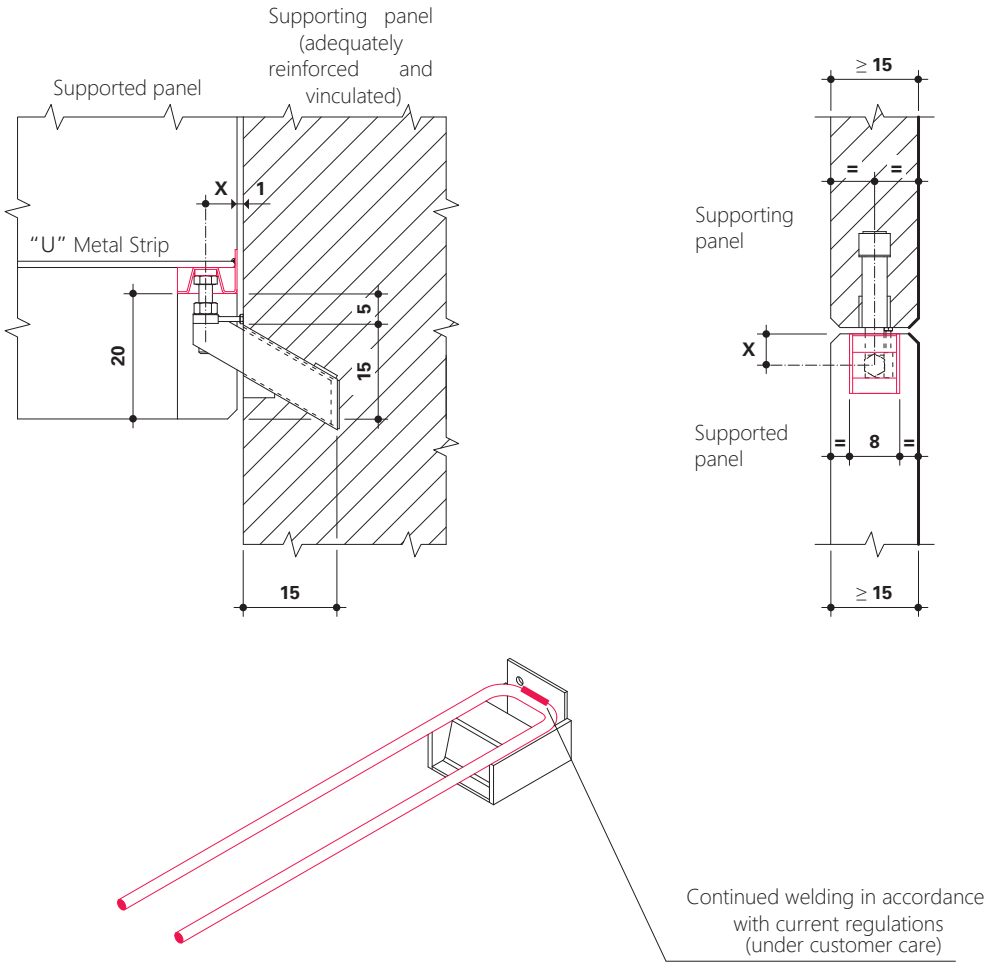
Code	Standard Screw Case
1716-5.0_.	S.V.O 5 ton Snella Ltot= 80

Bracketing S.V.O.	
N°1“U”Metal Strip Ø10 S.V. 120 cm (to be welded)	

SCREW CASE S.V.O. "SLIM" (vertical assembly of the panel th. 15 cm)

PLACEMENT

in cm

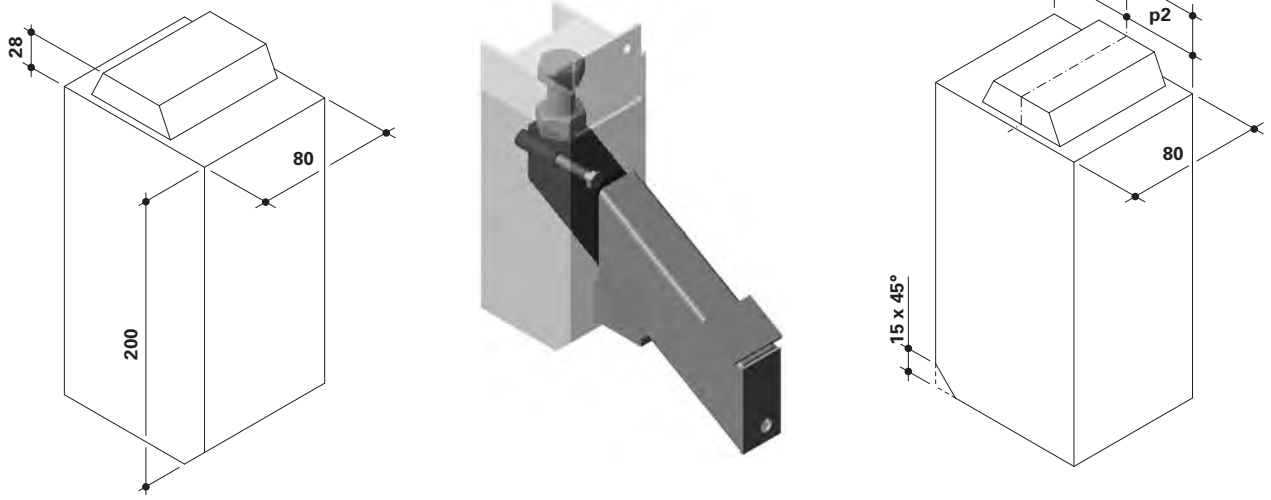


Standard Bracket	X
M.E. 5 ton Slim	5
Plus Bracket	
M.E. 3,5 ton Slim Plus	9

N.B.:
- **Supported concrete panel with Rck ≥ 35 N/mm² ;**
- **Supporting concrete panel with Rck ≥ 40 N/mm² ;**
- **S.V.O. position, with respect to the panel side, is imposed is imposed by the relative polystyrene form;**
- **What is not specified in these attachements refers to the relative Hercules "Slim" Manual.**

POLYSTYRENE FORM FOR SCREW CASE S.V.O. (vertical assembly of the panel th. 15 cm)

in mm



N.B.: for tolerances of the installation see page 16.

Code	Standard Polystyrene form	P	p1	p2	
1173-5.0P.	for S.V.O. 5 ton Slim L= 80 and Standard Bracket	95	50	45	
	Plus Polystyrene form				
1183-5.0P.	for S.V.O. 5 ton Slim L= 80 and Plus Bracket	130	90	40	

PLACEMENT

in cm