

USER MANUAL

UNDERBRACED PILLAR JIB CRANE

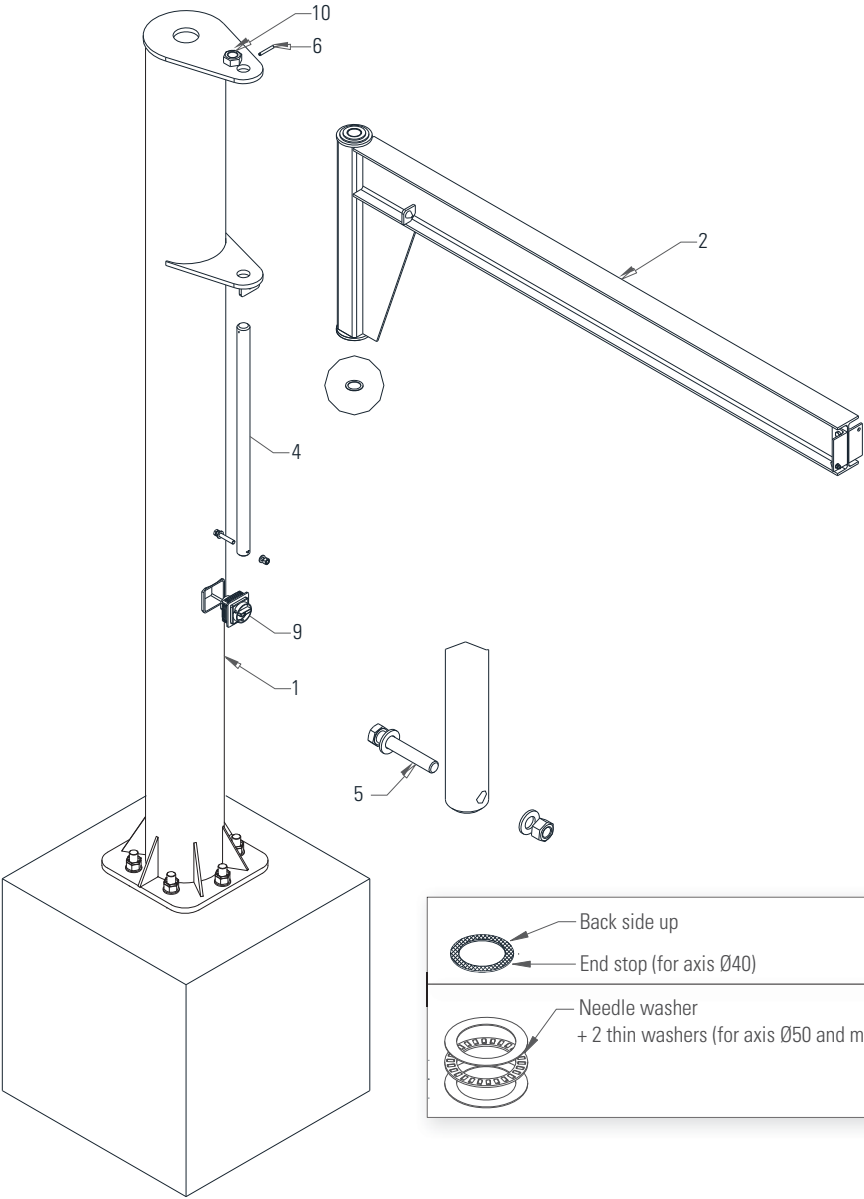


SUMMARY

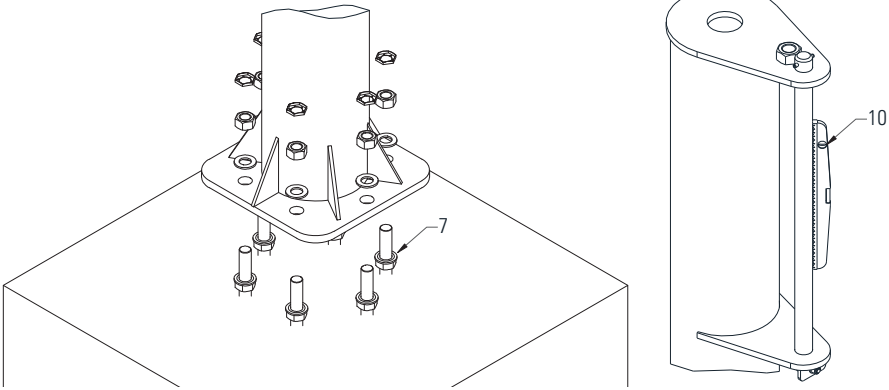
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ASSEMBLY INSTRUCTIONS

PILLAR JIB CRANES UNDERBRACED 270°

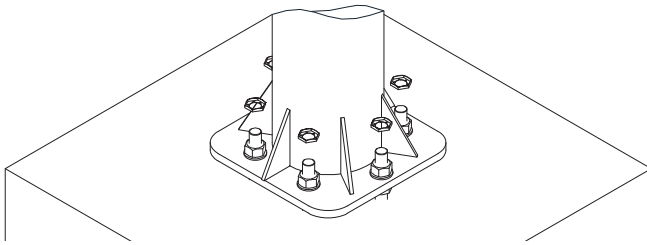


1. Erect the pillar ❶ of the jib crane on the anchor rods laying the bottom of the base plate on a row of nuts M27 ❷ (provided with rod).



Insert washers and nuts M27 on the upper part of the base plate. With a level ❶, check plumb on different positions around the pillar, adjust the vertical with the lower nuts and lock nuts to a torque of 80 daN.m.

Screw the safety nuts provided.



Other fixation system does not engage our responsibility and is not subject to the recommendation of this manual.

2. (See drawing) Place the end stop item ❸ (or 3bis according to the model) on the lower bracket taking care to orient the black side of the end stop in the good side. This black face serving as a support to the rotation arm. Oil or grease.
3. Engage the arm ❷ thanks to an appropriate lifting mean.
4. Oil the axis ❹ insert it, mount the screw ❺. The security pin ❻ will be mounted last.
5. Mount the slowing device (option page 5), the power supply (option page 5), the switch ❾ (option page 5)

MAINTENANCE

No special maintenance is required however following operation has to be done:

- Lubricate regularly rotation end stop,
- Check once a year the correct tightening of fixing screws and generally the tightening of all mounting screws.

REMINDER

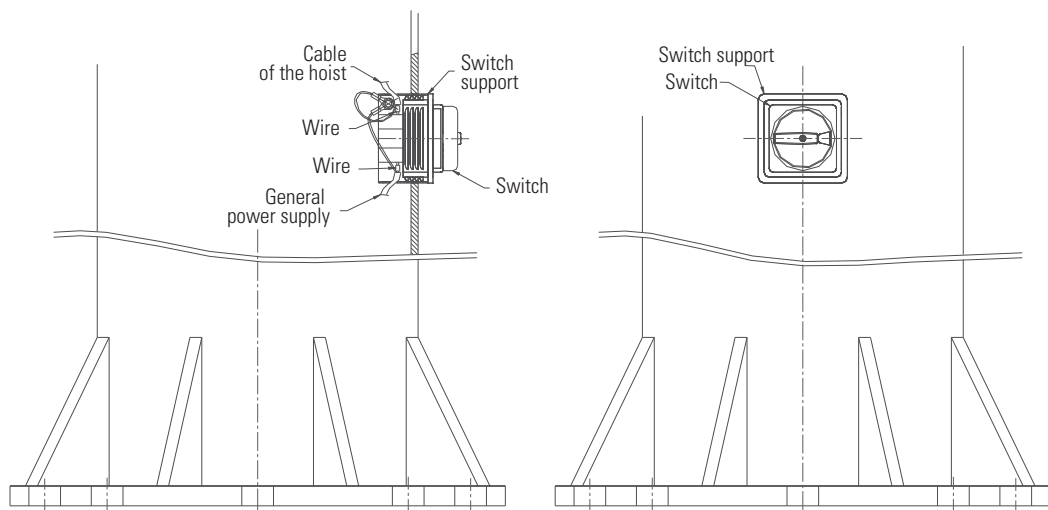
All lifting equipment devices must be validated by an official certificated organism before use.
It is strictly forbidden to use such installation for people transportation usage.

USE

Use accordingly to the safe working load (swf) define by the technical sheet.

ASSEMBLY INSTRUCTIONS

SWITCH



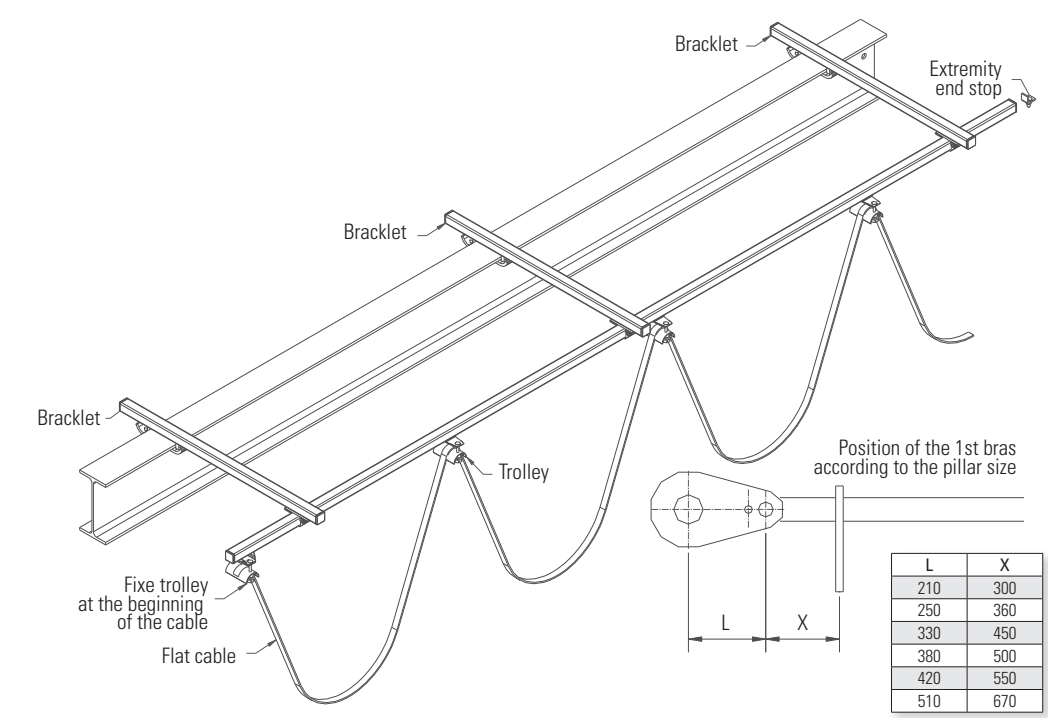
Assembly drawing of the lockable switch

Order of installation of the switch

1. Pull the main power cable.
2. Put the main power cable through the hole of the switch support, then crimp the ends of the wire provided.
3. Connect the 3 phases of the main power on terminals 1, 3 and 5.
4. Crimp the ground on one of the round lugs provided.
5. Pull the cable of the power supply of the hoist.
6. Put the feeding line of the hoist through the hole of the switch support, then crimp the ends of the wire provided.
7. Connect the 3 phases of the main power on terminals 2, 4 and 6.
8. Crimp the ground on the 2nd round lugs provided.
9. Insert the slotted screw in the hole of the switch support, set up the two terminals and the ground together and block with the nut.
10. Place the switch and attach it to its support using the two hex screws and star washers provided.

ASSEMBLY INSTRUCTIONS

FEEDING LINE

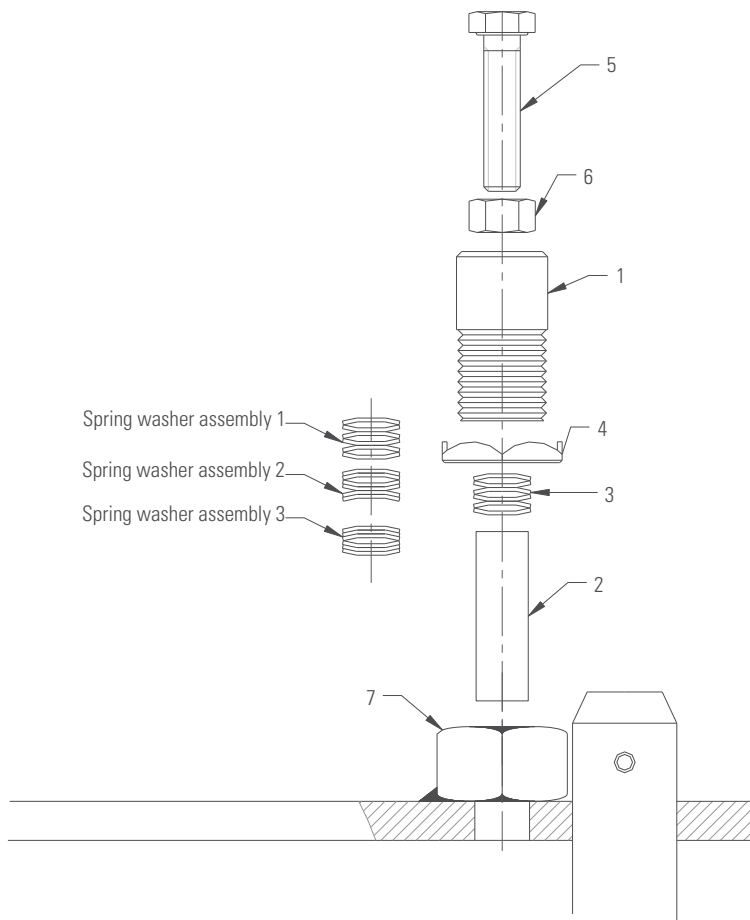


1. Set the 1st bracket according to the position X of the attached drawing.
2. Put the next brackets with a maximum distance of 2m between them.
3. When the brackets are locked, engage the rail of the line in each bracket and fix it.
4. Insert first the fix trolley at the beginning of the line then the mobile trolley and finally the end stop.
5. Put the flat cable through the trolleys distributing them equally along the rail. Let 1m of cable at the end of the rail to plug in the hoist.

Note: The position of the 1st arm is to be adapted according to the layout and the type of stem if necessary.
The support arms and the line rails must be re-cut according to the layout and the type of jib if necessary.

ASSEMBLY INSTRUCTIONS

SLOWING DEVICE



Installation

The slowing device can only be mounted once the arm is set.

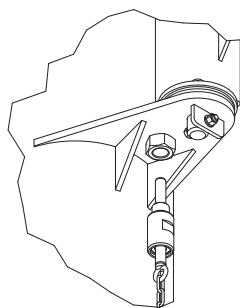
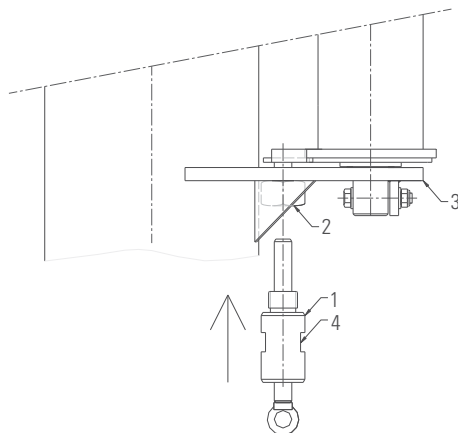
1. Place the rubbing finger in nylon (2) and the spring washers (3) according to the needed break in the body of the slower (1):
 - Assembly 1 : smooth breaking.
 - Assembly 2 : Normal breaking
 - Assembly 3 : hard breaking
2. Screw the body of the slower and his counter nut (4) on the existing nut M33 (7) and lock it.
3. Adjust the pressure thanks to the screw (5) provided to this purpose before locking it with the counter nut (6).

ASSEMBLY INSTRUCTIONS

LOCKING DEVICE

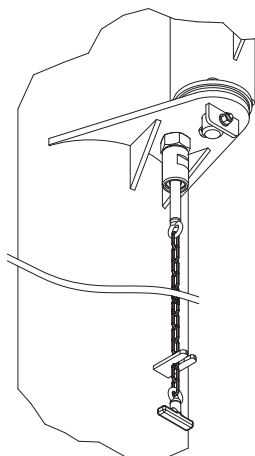
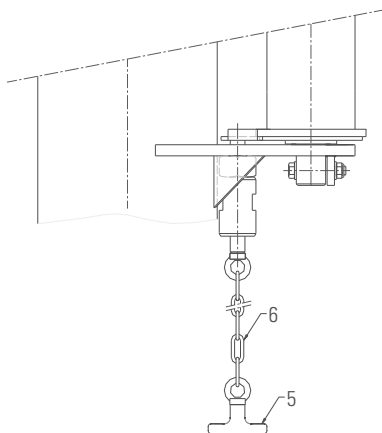
Installation

- Screw the lock body **1** in the nut **2** welded on the bracket (**3**).
- Block there squeezing using an appropriate key on the flats **4**.
- The hand chain and the handle are already mounted on the locking pin.



Utilisation

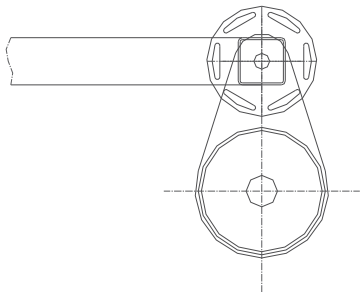
- Pull the handle **5** located at the end of the chain **6** to unlock.
- The locking position device finger is assembled on an internal spring. When the chain is released, the finger automatically comes up. During rotation, the locking will automatically matches in the indexing hole (if needed, adjust by cutting the locking finger extra length).
- If you want the lock does not come automatically, hanging chain in a stretched position on the flat welded at human height on the pillar of the jib crane.



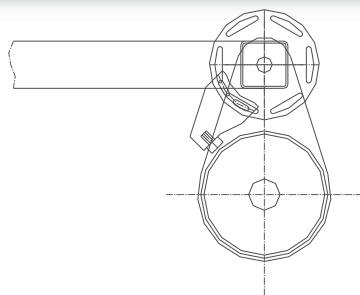
For the wall jib cranes, chain stop to be provided by the customer.

ASSEMBLY INSTRUCTIONS

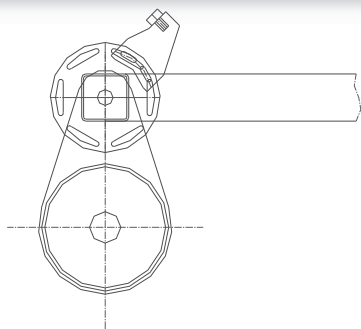
ADJUSTABLE ROTATION STOPS



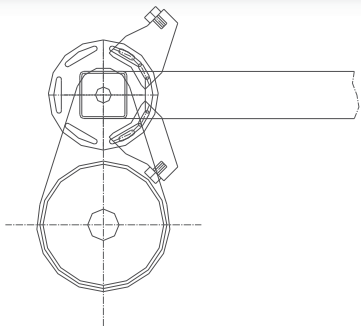
1. Put the arm in the first extrem needed position



2. Assemble the first end stop on the disc with the screw provided.



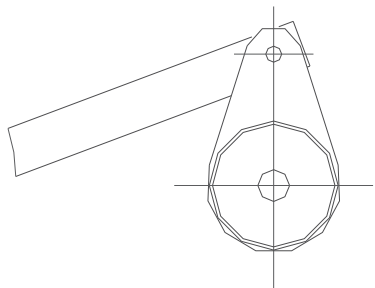
3. Place the arm in the second extrem position.



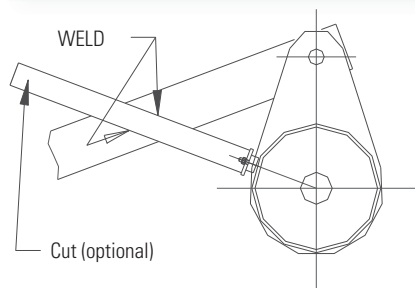
4. Assemble the second end stop on the disc in the step 2.

ASSEMBLY INSTRUCTIONS

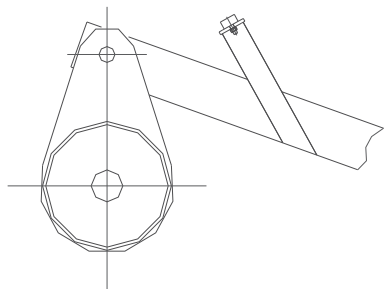
END STOP TO WELD



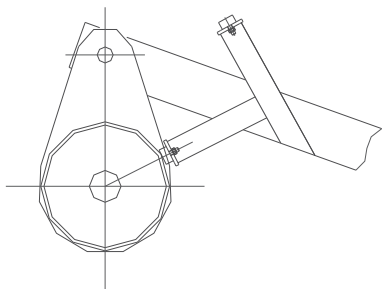
1. Put the arm in the first extrem needed position



2. Weld the first end stop on the upper part of the arm then cut the end of the U.
Important : Align the axis of the end stop and the diametral axis of the pillar.



3. Place the arm in the second extrem position.

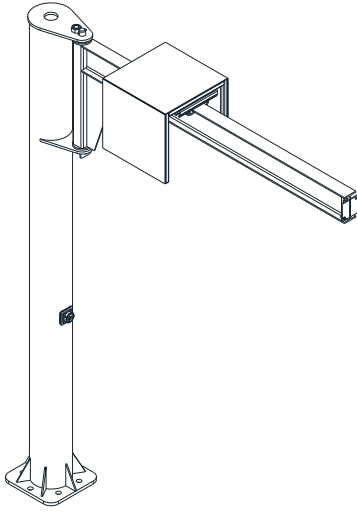


4. Cut the second end stop according to your need the weld it on the upper part of the arm like on step 2.

ASSEMBLY INSTRUCTIONS HOIST COVER

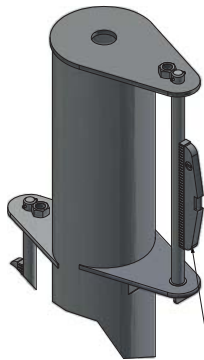
Installation

- Center the cover between the beam, the hoist and the line, before tightening the clamp.
- **Warning ! Do not position the cover too close to the axis, it would affect your slewing range**

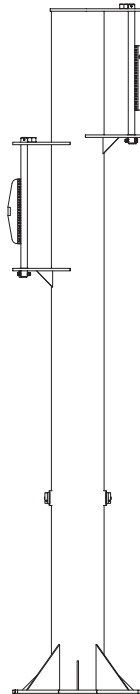


DOUBLE ARMS JIB CRANE

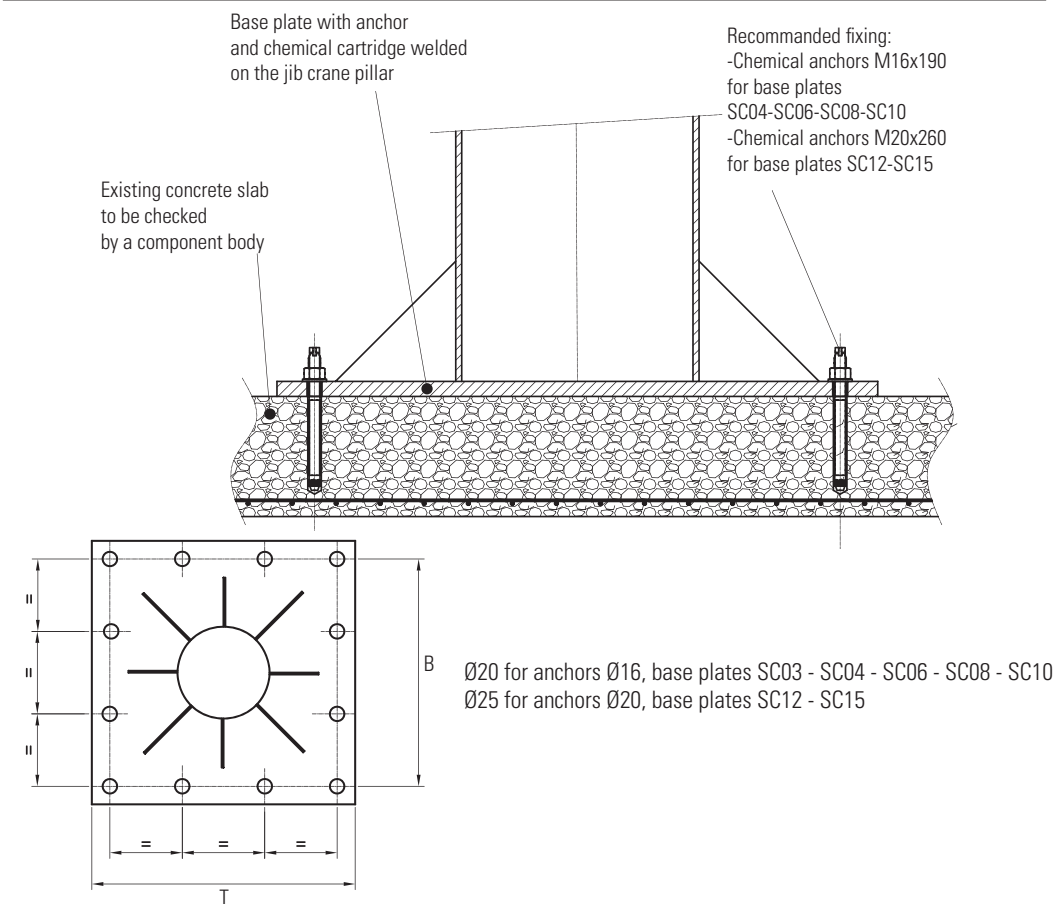
Verticality control of the 2 axes compulsory.



Verticality adjustment of the 2 axes



SPECIFIC PROCEDURE FOR BASE PLATE WITH ANCHORS & CHEMICAL CARTRIDGES



N°	TxT	Number of holes	Ø	BxB	Thick	CR
SC03	300 x 300	4	20	250 x 250	12	250 DaN.m
SC04	400 x 400	8	20	350 x 350	15	1 000 DaN.m
SC06	600 x 600	8	20	500 x 500	15	1 500 DaN.m
SC08	800 x 800	12	20	700 x 700	20	3 800 DaN.m
SC10	1 000 x 1 000	16	20	900 x 900	20	6 000 DaN.m
SC12	1 200 x 1 200	16	25	1 100 x 1 100	20	8 000 DaN.m
SC15	1 500 x 1 500	16	25	1 400 x 1 400	20	12 000 DaN.m

This type of fixation is to be used with the biggest caution, and while the use of a concrete foundation mass is impossible. This solution imposes a concrete slab of sufficient thickness and quality, to be verified in accordance with the bending moments recommended in the general documentation.

In any case, WE RELEASED OUR RESPONSABILITY as to the keeping of this type of fastening.

These base plates are not dismountable from the jib crane table.

CR = Bending moment mentioned in the pillar jib crane table.

We join for information and as example the technical characteristics of HILTI anchors.

This mark/model is neither imposed nor contractual.



ADHESIVE CAPSULE



ADHESIVE CAPSULE HVU2 WITH HAS (-E) OD FOR ANCHORING IN UNCRACKED AND CRACKED CONCRETE

Versions HAS-(E) 5.8 carbon steel version 5.8

INSTALLATION DATA

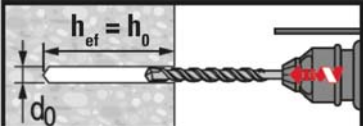
Threaded bar diameter	Diameter hole diameter	Anchoring depth	Thickness of the substrate	Tightening torque max.*	Centre distance mini	Distance to edge mini	Threaded bar length
$d_{nom} = d_f$ (mm)	d_0 (mm)	$h_{ef} = h_g$ (mm)	h_{min} (mm)	T_{max} (N.m)	s_{min} (mm)	c_{min} (mm)	mm
M16	16	18	125	80	75	50	190
M20	20	22	170	150	90	55	260

* : maximum tightening torque to avoid splitting during installation with s_{min} et c_{min}

OPERATING TEMPERATURE RANGE

Temperature range	Temperature of the material support	Max. temperature temperature in the the carrier material	Max. temperature temperature in the the carrier material	Material temperature substrate	Minimum setting time t_{cure}
Temperature range I	-40 °C à +40 °C	+24 °C	+40 °C	-10 °C à -6 °C	5 hours
				-5 °C à -1 °C	3 hours
Temperature range II	-40 °C à +80 °C	+50 °C	+80 °C	0 °C à 4 °C	40 minutes
				5 °C à 9 °C	20 minutes
Temperature range III	-40 °C à +120 °C	+72 °C	+120 °C	10 °C à 19 °C	10 minutes
				20 °C à 40 °C	5 minutes

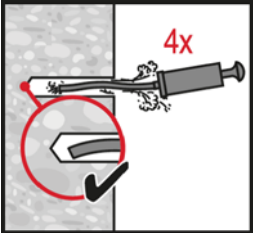
Hammer drilled hole



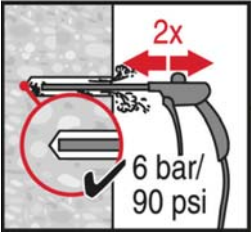
flooded holes (no sea water).

	Diameter hole diameter	Anchoring depth
	d_0 (mm)	$h_{ef} = h_0$ (mm)
M16	18	125
M20	22	170

Manual cleaning for hammer drilled hole

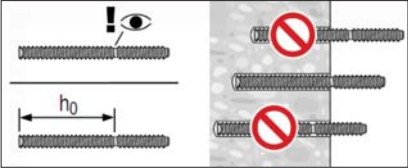


for drill hole diameters $d_0 \leq 18$ mm
and drill hole depths $h_0 \leq 10$ d

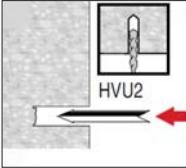


for all drill hole diameters d_0
and all drill hole depths h_0

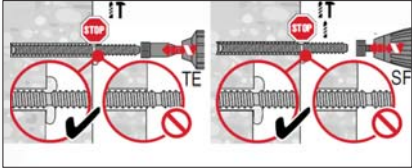
Setting the element



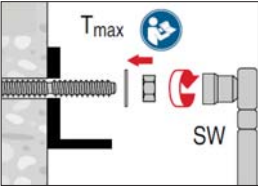
Check setting depth



Insert the foil capsule
with the peak ahead to
the back of the hole



Drive the anchor rod with the plugged tool into the
hole



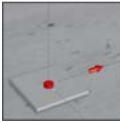
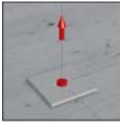
Loading the anchor after required
curing time t_{cure}

	Tightening torque max.*
	T_{max} (N.m)
M16	80
M20	150

PRE-CALCULATED VALUES I STATIC LOADS *

	h_{ef} (mm)	h_{min} (mm)	Traction (kN)			Shear (kN)		
			Ultimate design strength NRd			Ultimate design strength VRd		
			HAS 5.8 (-F)	HAS 8.8 (-F)	HAS-R	HAS 5.8 (-F)	HAS 8.8 (-F)	HAS-R
M16	125	160	45,83	45,83	45,83	32,88	32,88	36,07
M20	170	220	72,69	72,69	72,69	44,88	71,76	50,32

* Full mass insulated anchor, non-reinforced, non-cracked
C20/25 concrete (without influence of edge and centre
distance).



WHAT TO DO AND WHAT NOT TO DO

It is very important to read these instructions carefully to enable you to install, use and maintain your equipment and reduce any risks caused by its incorrect use.

Any use that is not compliant with the following is dangerous and the manufacturer refuses to accept any liability in such cases.

Please comply with the instructions given below.

WHAT TO DO

GENERALLY

- Read and follow the instructions given in the introduction manual carefully, starting from initial commissioning. During repair or maintenance, use only «standard parts».
- Always keep the instructions manual and the user instructions near the equipment, available to the operator and the person in charge of maintenance.

TRANSPORT / STORAGE

- Handle the equipment and its structure either using the devices provided for the purpose or in the original package.
- Store the equipment away from any harsh environmental conditions (dust, damp...). It must be cleaned and protected from corrosion (lubrication...)

INSTALLATION / MAINTENANCE / INTERVENTIONS

- Have trained people who are electrically and mechanically competent deal with installation.
- Require absolute compliance with the safety rules (harnesses, clearance around working areas, cordoning off the area...)
- Ensure that the equipment attaching structure is rigid.
- Neutralize any sources of electric power.
- Keep strictly to the installation instructions mentioned in the equipment instructions manual.
- Connect directly the power supply cable to the power supply terminal of the electrical unit :
 - the cable must be assembled in accordance with the manual, greased and run in by several maneuvers without a load,
 - the line must be assembled in accordance with the manual, oiled and run in by several maneuvers without a load.
- Set out an inspection program and record all the maintenance work carried out on the equipment, and more particularly: hooks, sheave assemblies, chains or cables, brakes and travel end switches.
- Replace any suspicious or worn parts.

AFTER EXTENDED STOPPAGE OR DURING A CHECK :

- Check the operation and adjustment of the safety devices (brake, travel ends, limiters...) in accordance with the instruction manual.
- Regularly check the condition of the chain or cable and of the hooks.
- If a deformation or any wear is observed, replace the parts.
- Keep the cable clean and greased at all times.
- Check that all of the assembly components are tight.
- Check the condition of the lifting cable component wires.
- Check that the chains are not twisted and are free of any damage.
- Check that the steel cables strands supporting the pushbutton box fulfil their functions. The pushbutton box conductor cable is not a handling cable.

It is very important to read these instructions carefully to enable you to install, use and maintain your equipment and reduce any risks caused by its incorrect use.
Any use that is not compliant with the following is dangerous and the manufacturer refuses to accept any liability in such cases.
Please comply with the instructions given below.

WHAT NOT TO DO

TRANSPORT / STORAGE

- Never move or lift the equipment of using the electrical cables.
- Never put the hoist down without using a suitable support to avoid damage to the components on the underside.

INSTALLATION / MAINTENANCE / INTERVENTIONS

- Never modify the equipment without suitable study and the authorization of the manufacturer.
- Never change the values and settings of the safety devices outside the limits provided for in the manual or without the agreement of the manufacturer.
- Never bypass isolating switches, electrical switches, prevention or limiting equipment.

IN USE

- Never transport a load without keeping the personnel at a distance. Never have the book, loaded or empty, move above the personnel.
- Never let anybody unqualified use the equipment.
- Never lift a load exceeding the maximum operating load indicated on the equipment. Shock or accidental catching of the load being handled with the environment can generate overloads.
- Never remove the tab from the hook.
- Never block, adjust or remove switches or end of travel devices to go higher or lower than permitted by them.
- Never use the equipment to pull away, un-jam or pull sideways.
- Never use the equipment to transport people.
- Never touch any moving parts.
- Never use equipment that is in poor condition (wear, deformation...)
- Never use defective spare parts or whose origin is not fully known.
- Never swing the load intentionally.
- Do not cause abrupt movement on the equipment.
- Never use the mechanical stops as a means of repetitive stoppage.
- Never use the lifting chain or cable as a sling.
- Never sling anything from the nose of the hook (risk of damage to hook and falling of load)
- Never use the hook when cantilevered.
- Never twist the loading chains. (turn-around of the sheave...).
- Never use the electric cables to move the equipment around.
- Never leave a load hanging.
- Never use the equipment as a ground reference for welding.
- Never use the equipment for any purpose or in any place for which it was designed.
- Never use the safety devices as a means of measuring the carried weight.
- Never use the controls pointlessly (avoid keying on them). This can cause overheating or even the deterioration of the equipment.
- Never pull a load cross-wise or bring the equipment vertically above the load before lifting it.
- Never use the equipment with an electric power supply that is different from the one recommended (under or over voltage, absence of a phase...)

TEST UNDER LOAD OF THE JIB CRANES AND OF THE GANTRY CRANES

To ensure the good performance of the equipment, and in the absence of specific legislation, the following is recommended by the manufacturer in terms of dynamic and static load tests on standard devices.

Any other regulation, whether related to specific conditions of a country or a particular use should be specifications duly approved by the manufacturer.

DYNAMIC TESTS

For the dynamic tests will be added an overload of 10% at rated load, whether electric or manual lifting.

The tests are therefore performed on all movements (lifting, travelling, translation, rotation etc ...) It will not be necessary to lift the load to its maximum height but it is possible to do it and no time is imposed.

One move of each movement is necessary and sufficient.

Interpretation of dynamic tests :

During these tests the hoist + trolley must remain stable. Ensure no visible distortion too important.

Measure the height under beam or over beam empty before applying the load (Load at the end of the arm if it is a jib crane or at the center if it is a gantry crane) and remeasure under dynamic load.

Do the ratio to recalculate the measured deflection under dynamic load by dividing by 1.1 in order to interpret **Deflection under nominal load**, this deflection is directly proportional to the load.

Only the deflection under nominal load is interpretable to the exclusion of any other!

For pillar jib cranes, deflection observed (**interpreted under nominal load**) must not exceed $1/100^{\text{th}}$ of the span and $1/200^{\text{th}}$ of the sum Height + Span.

For wall jib cranes, deflection should not exceed $1/200^{\text{th}}$ of the span (it will not take into account the possible deformation of the post which is supposedly of sufficient size and have been calculated by the user).

For gantry cranes, deflection should not exceed $1/500^{\text{th}}$ of the span.

If the dynamic tests give satisfaction, there will be static tests.

To ensure the good performance of the equipment, and in the absence of specific legislation, the following is recommended by the manufacturer in terms of dynamic and static load tests on standard devices.

Any other regulation, whether related to specific conditions of a country or a particular use should be specifications duly approved by the manufacturer.

STATIC TESTS

Static testing has for single purpose to ensure the strength of the assembly and verify the absence of permanent deformation or residual.

No deflection measurement shall be interpreted during these tests if it is only to verify the absence of permanent deformation

Requirements during the static tests :

For static tests, it will be an overload applied **in more than 25% of the rated load**, whether it be a manual or electric lifting.

These tests will be performed only on the lifting arms of the bracket in the center position (end of the load arm in the case of jib crane and to the center of a gantry).

It is forbidden to lift the load increased by 25% with the device but additional weights are added to the dynamic load. In the case of a wall jib, the static test will be done in the sense that less strains the the building structure.

The duration of this test shall not exceed 30 min.

Interpretation of static tests:

If after static tests, no permanent or residual deformation is found, the device can be operated.

As defined in the European Machinery Directive, any calculation notes will not be issued unless requested to ordering and duly accepted by manufacturer, as well as the detailed plans, schedules etc. which are the subject of the information folder and as such are confidential documents.

Concerning electric chain hoists:

It is reminded that these devices are equipped with **torque limiters** and not **load limiters**.

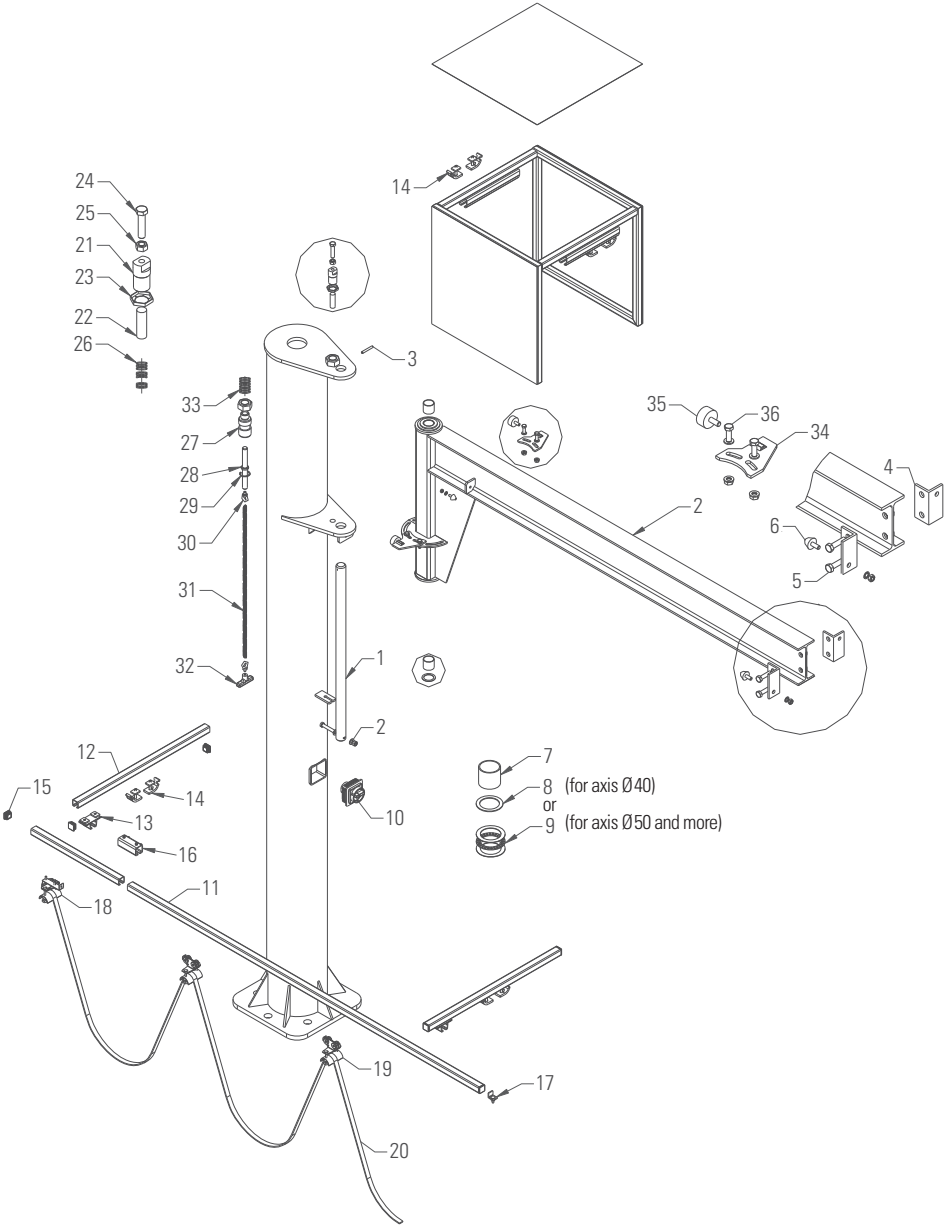
Also for security reasons, their setting far exceeds the trigger threshold 110% of the rated load.

It is quite acceptable that the torque limiters can be «*calibrated*» to 125 or even 130% of rated load.

This measure aimed to anticipate wear slip friction system providing torque limit and prevent and to the risk of «*slippage*» of the load.

SPARE PARTS

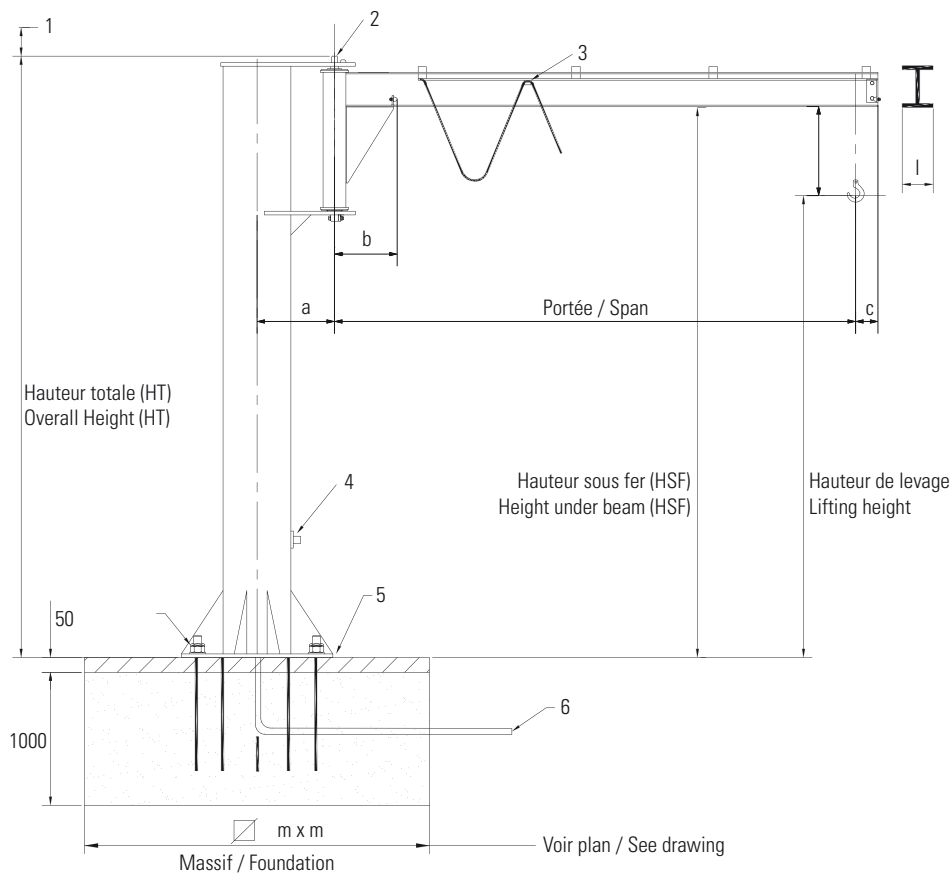
UNDERBRACED PILLAR JIB CRANE



	N°	Description	Standard	Option
Jib crane	1	Slewing axis	X	
	2	Bolt stop for the axis	X	
	3	Cotter	X	
	4	Extrem end stop	X	
	5	Bolts for the end stop	X	
	6	Rubber bump + bolts	X	
	7	Ring	X	
	8	End stop	X	
	9	Needle end stop + washers	X	
	10	Lockable switch		X
Feeding line (option)	11	Power supply rail		X
	12	Bracket		X
	13	Suspension claw		X
	14	Clamp		X
	15	Plastic cap		X
	16	Junction plate		X
	17	Power supply and stop		X
	18	Fixed cable trolley		X
	19	Mobile cable trolley		X
	20	Cable		X
Slowing Device (option)	21	Body of the break		X
	22	Rubbing finger		X
	23	Bolt		X
	24	Adjustment screw		X
	25	Counter bolt		X
	26	Spring washer		X
Locking Device (option)	27	Hub		X
	28	Shaft		X
	29	Elastic ring		X
	30	Ring screw		X
	31	Chain		X
	32	Handle		X
	33	Spring		X
Adjustable unstop	34	Adjustable unstop bracket		X
	35	Rubber bump		X
	36	Screw for adjustable unstop		X

SPECIFICATIONS

PILLAR JIB CRANES UNDERBRACED



1	Jeu nécessaire au montage = 150 mm Necessary clearance for assembly = 150 mm
2	Ralentisseur (option) HT + 70 mm Rotation slowing device (option)
3	Ligne d'alimentation (option) Feeding line (option)
4	Interrupteur cadenassable (option) Lockable main switch (option)
5	Semelle n° Base plate n°
6	Gaine pour câble d'alimentation (facultatif) Sheath for supply cable (optional)

CMU	Portée	Hauteur sous fer HSF (1)		Hauteur totale (Ht)		Overall Height (Ht)		a		b		c		l		Semelle standard		Mauzif		Semelle à cheville (2)		Poids total		Poids lit		Poids bras		Poids pour 10 cm de HSF supp		Poids supp. semelle à cheville		HSF maxi		Couple de Renversement	
		Hauter sous fer HSF (1)		Hauter totale (Ht)		Overall Height (Ht)		a		b		c		l		Standard Base plate		Foundation		Spiltable base plate (2)		Total weight		Pillar weight		Arm weight		Additional weight for HSF + 10 cm		Additional weight Spiltable base plate		HSF maxi		Maximum moment	
		kg	m	m	m	m	mm	mm	mm	mm	mm	mm	mm	mm	mm	m ²	m	m ²	m	m ²	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	m	m	Dal.m		
125 (50)	2	3	3,26	210	335	150	91	4	0,9	SC04	179	122	57	3	-8	8,5	517				179	122	57	3	-8	8,5	517								
	2,5	3	3,26	210	335	150	91	4	0,95	SC04	188	122	66	3	-8	6,5	646				188	122	66	3	-8	6,5	646								
	3	3	3,26	210	335	150	91	4	1	SC04	197	122	75	3	-8	5	781				197	122	75	3	-8	5	781								
	3,5	3	3,26	210	335	150	91	4	1,05	SC04	207	122	85	3	-8	4	920				207	122	85	3	-8	4	920								
	4	3	3,26	250	335	150	91	4	1,1	SC06	257	163	94	4	23	7,5	1074				257	163	94	4	23	7,5	1074								
	4,5	3	3,28	250	365	150	100	4	1,2	SC06	292	164	128	4	23	7	1261				292	164	128	4	23	7	1261								
	5	3	3,28	250	365	150	100	4	1,25	SC06	303	164	139	4	23	6	1423				303	164	139	4	23	6	1423								
	5,5	3	3,32	330	365	150	120	5	1,3	SC08	465	268	197	6	77	11	1746				465	268	197	6	77	11	1746								
	6	3	3,32	330	365	150	120	5	1,35	SC08	480	268	212	6	77	11	1944				480	268	212	6	77	11	1944								
	6,5	3	3,32	330	365	150	120	5	1,4	SC08	495	268	227	6	77	11	2150				495	268	227	6	77	11	2150								
	7	3	3,32	330	365	150	120	5	1,45	SC08	511	268	243	6	77	11	2364				511	268	243	6	77	11	2364								
	7,5	3	3,32	330	365	150	120	5	1,5	SC08	526	268	258	6	77	11	2585				526	268	258	6	77	11	2585								
	8	3	3,32	330	365	150	120	5	1,55	SC08	541	268	273	6	77	9,5	2814				541	268	273	6	77	9,5	2814								
	8,5	3	3,32	330	365	150	120	5	1,6	SC08	557	268	289	6	77	5,5	3051				557	268	289	6	77	5,5	3051								
	9	3	3,38	380	430	150	150	6	1,7	SC08	777	334	443	7	49	11	3798				777	334	443	7	49	11	3798								
	9,5	3	3,38	380	430	150	150	6	1,75	SC10	798	334	464	7	122	11	4105				798	334	464	7	122	11	4105								
	10	3	3,38	380	430	150	150	6	1,8	SC10	819	334	485	7	122	11	4422				819	334	485	7	122	11	4422								
250 (50)	10,5	3	3,38	380	430	150	150	6	1,8	SC10	840	334	506	7	122	11	4750				840	334	506	7	122	11	4750								
	11	3	3,38	380	430	150	150	6	1,85	SC10	861	334	527	7	122	7,5	5088				861	334	527	7	122	7,5	5088								
	11,5	3	3,38	420	430	150	150	6	1,9	SC10	922	374	548	8	126	11	5455				922	374	548	8	126	11	5455								
	12	3	3,44	420	630	150	170	7	2,05	SC12	1240	428	812	8	204	11	6925				1240	428	812	8	204	11	6925								
	2	3	3,26	210	335	150	91	4	1	SC04	179	122	57	3	-8	4,5	760				179	122	57	3	-8	4,5	760								
	2,5	3	3,26	210	335	150	91	4	1,1	SC04	188	122	66	3	-8	4	944				188	122	66	3	-8	4	944								
	3	3	3,26	250	335	150	91	4	1,15	SC06	238	163	75	4	23	6	1148				238	163	75	4	23	6	1148								
	3,5	3	3,26	250	335	150	91	4	1,2	SC06	248	163	85	4	23	4,5	1342				248	163	85	4	23	4,5	1342								
	4	3	3,26	250	335	150	91	4	1,25	SC08	323	229	94	6	96	5	1541				323	229	94	6	96	5	1541								
	4,5	3	3,32	330	365	150	120	5	1,35	SC08	434	268	166	6	77	11	1903				434	268	166	6	77	11	1903								
	5	3	3,32	330	365	150	120	5	1,4	SC08	449	268	181	6	77	11	2141				449	268	181	6	77	11	2141								
	5,5	3	3,32	330	365	150	120	5	1,45	SC08	465	268	197	6	77	9,5	2387				465	268	197	6	77	9,5	2387								
	6	3	3,32	330	365	150	120	5	1,5	SC08	480	268	212	6	77	8	2640				480	268	212	6	77	8	2640								
	6,5	3	3,32	330	365	150	120	5	1,55	SC08	534	307	227	7	74	8,5	2922				534	307	227	7	74	8,5	2922								
	7	3	3,38	380	430	150	150	6	1,65	SC08	678	319	359	7	74	11	3489				678	319	359	7	74	11	3489								
	7,5	3	3,38	380	430	150	150	6	1,7	SC10	714	334	380	7	122	10	3808				714	334	380	7	122	10	3808								
500 (50)	8	3	3,38	380	430	150	150	6	1,75	SC10	735	334	401	7	122	9,5	4138				735	334	401	7	122	9,5	4138								
	8,5	3	3,38	420	430	150	150	6	1,8	SC10	796	374	422	8	126	11	4499				796	374	422	8	126	11	4499								
	9	3	3,44	420	630	150	170	6	1,9	SC10	1036	396	640	8	126	11	5482				1036	396	640	8	126	11	5482								
	9,5	3	3,44	420	630	150	170	6	1,95	SC10	1065	396	669	8	126	11	5915				1065	396	669	8	126	11	5915								
	10	3	3,44	420	630	150	170	6	2	SC12	1093	396	697	8	226	11	6361				1093	396	697	8	226	11	6361								
	10,5	3	3,44	510	630	150	170	7	2,1	SC12	1154	428	726	8	204	10,5	6823				1154	428	726	8	204	10,5	6823								
	11	3	3,44	510	630	150	170	7	2,1	SC12	1350	595	755	13	200	11	7355				1350	595	755	13	200	11	7355								
	11,5	3	3,44	510	630	150	170	7	2,15	SC12	1378	595	783	13	200	11	7846				1378	595	783	13	200	11	7846								
	12	3	3,44	510	630	150	170	7	2,2	SC15	1407	595	812	13	401	11	8352				1407	595	812	13	401	11	8352								
	2	3	3,26	250	335	150	91	4	1,2	SC06	220	163	57	4	23	4,5	1392				220	163	57	4	23	4,5	1392								
	2,5	3	3,26	250	335	150	91	4	1,3	SC08	229	163	66	4	96	4	1715				229	163	66	4	96	4	1715								
	3	3	3,32	330	365	150	120	5	1,4	SC08	388	268	120	6	77	10,5	2151				388	268	120	6	77	10,5	2151								
	3,5	3	3,32	330	365	150	120	5	1,5	SC08	403	268	135	6	77	8	2504				403	268	135	6	77	8	2504								
	4	3	3,32	330	365	150	120	5	1,55	SC08	419	268	151	6	77	6	2864				419	268	151	6	77	6	2864								
	4,5	3	3,32	330	365	150	120	5	1,6	SC08	434	268	166	6	77	4,5	3232				434	268	166	6	77	4,5	3232								
	5	3	3,38	380	430	150	150	6	1,7	SC08	608	334	274	7	49	7,5	3796				608	334	274	7	49	7,5	3796								
5,5	3	3,38	380	430	150	150	6	1,75	SC10	629	334	295	7	122	6,5	4210				629	334	295	7	122	6,5	4210									
6	3	3,38	380	430	150	150	6	1,8	SC10	650	334	316	7</																						

