

USER MANUAL

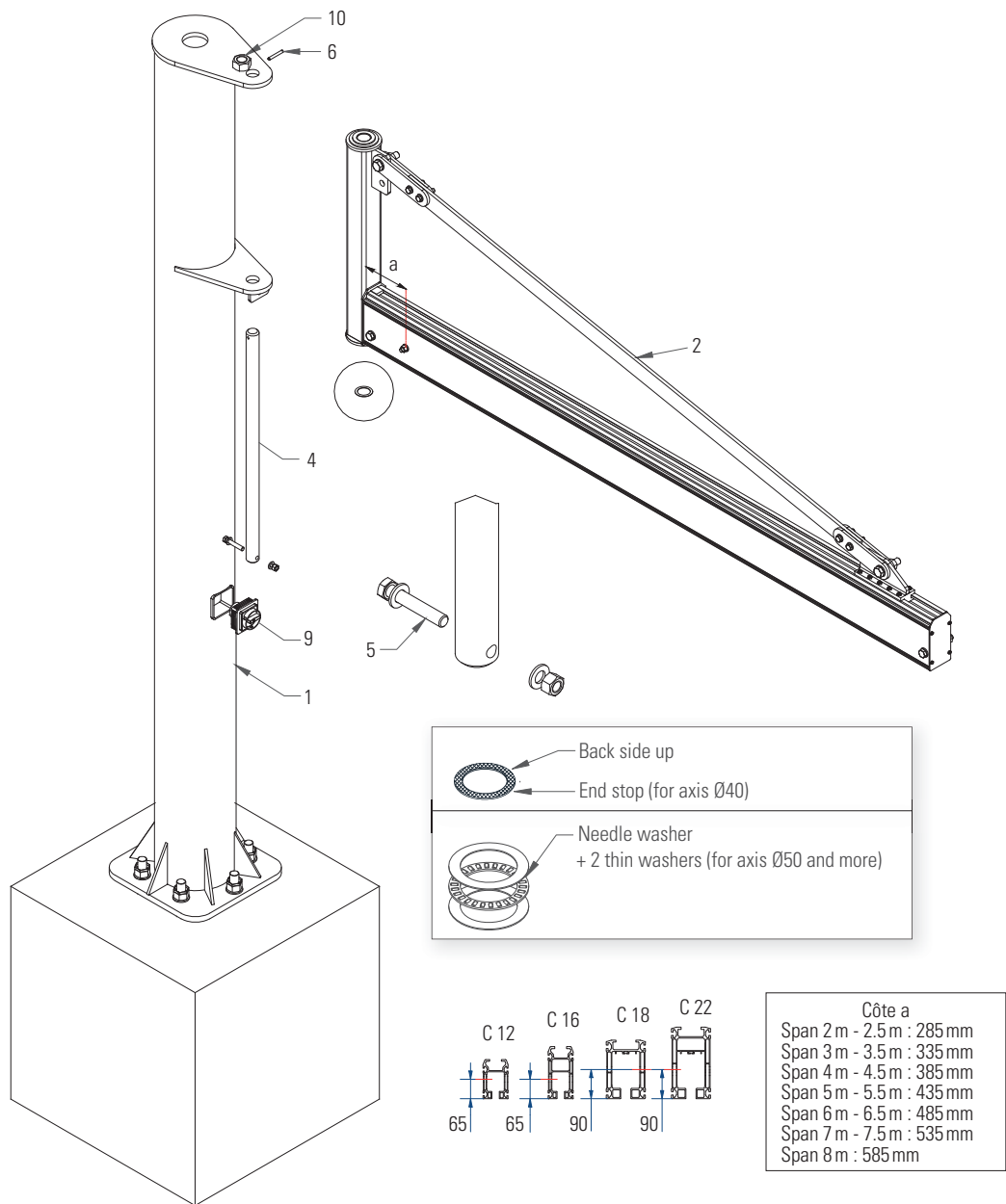
HOLLOW-SECTION, OVERBRACED PILLAR JIB CRANES ALUMINIUM



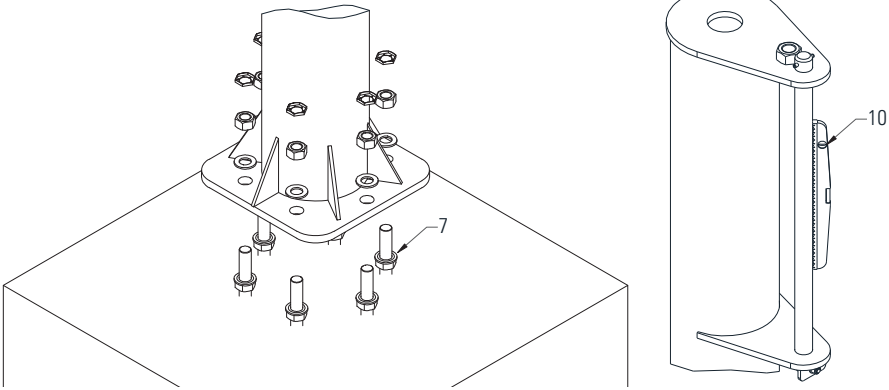
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1. ASSEMBLY INSTRUCTIONS

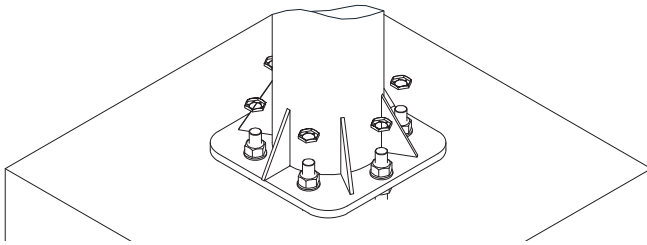


1. Erect the pillar ❶ of the jib crane on the anchor rods laying the bottom of the base plate on a row of nuts M27 ❷ (provided with rod).



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.

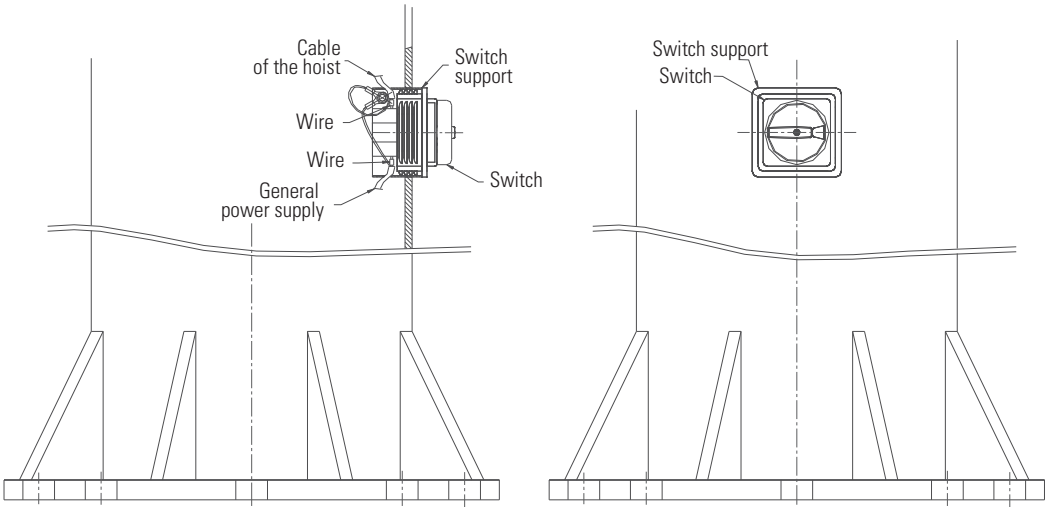
REMINDER

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.

1.1. Switch (option)

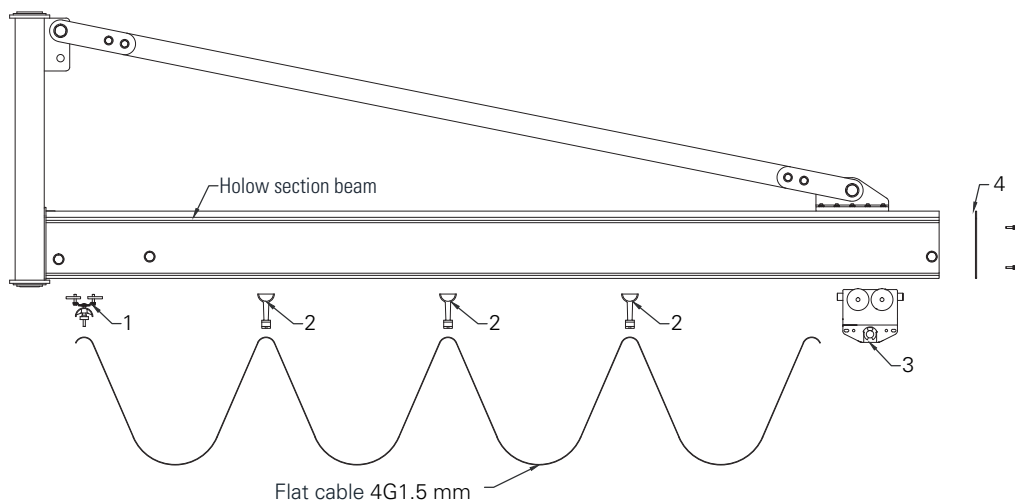


Assembly drawing of the lockable switch

Order of installation of the switch

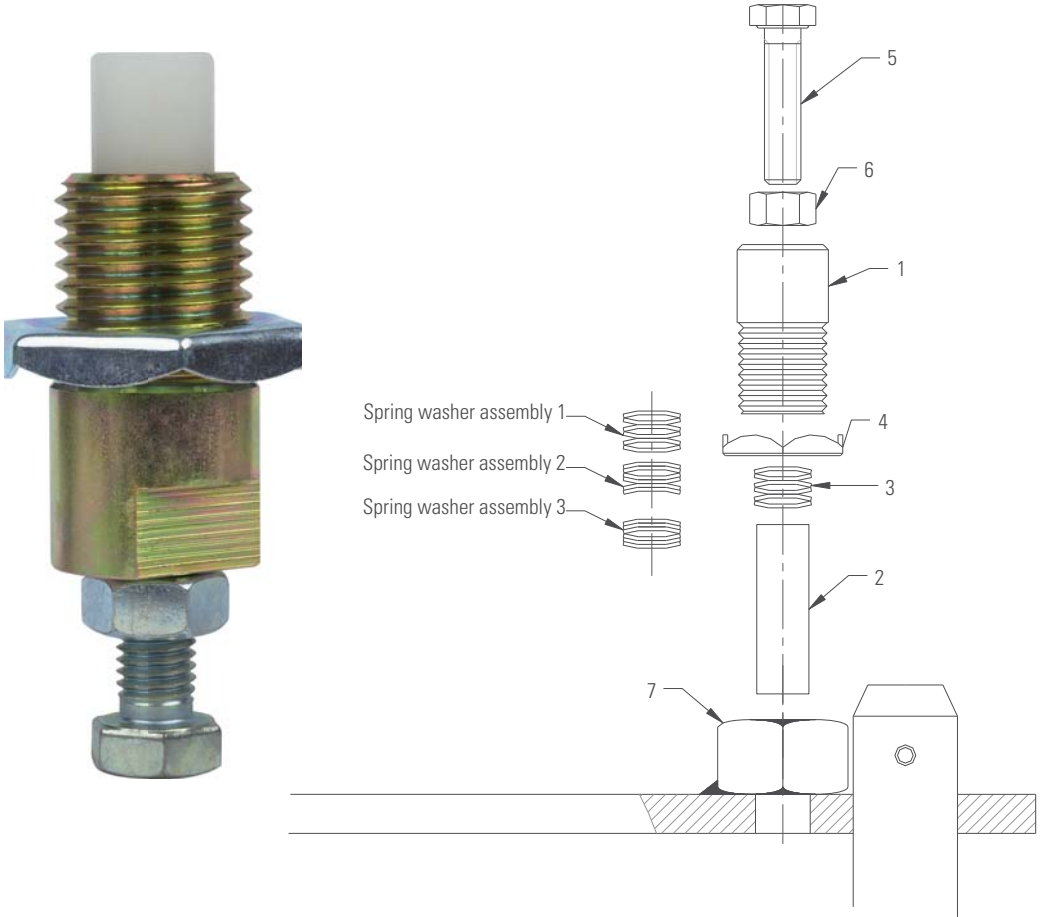
1. Pull the main power cable.
2. Put the main power cable through the hole of the switch support, then crimp the ends of the wire provided.
3. Connect the 3 phases of the main power on terminals 1, 3 and 5.
4. Crimp the ground on one of the round lugs provided.
5. Pull the cable of the power supply of 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.

1.2. Feeding line (option)



1. Insert the fixed trolley **1** into the beam arm until being in contact with the leg. Screw up both nuts so as to immobilize this trolley.
2. Then insert the cable trolleys **2**.
3. Slide the cable into the fixed trolley, and then into the cable trolleys. Leave an interval of 1.10 metres between each cable trolley. Block the cable on each trolley without forgetting to leave a cable length of 1 metre behind the last trolley in order to connect the hoist.
4. Introduce the hoist travel carriage **3** into the hollow section beam and then close the arm extremity with the help of the end plate and bolts **4**.

1.3. Slowing device (option)



Installation

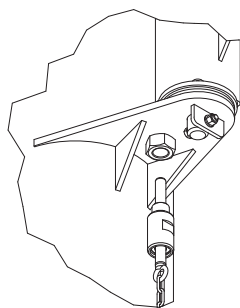
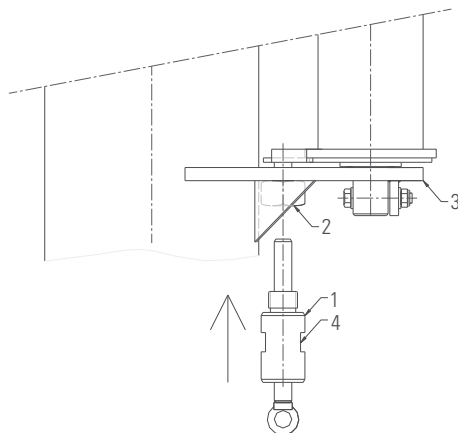
The slowing device can only be mounted once the arm is set.

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**.

1.4. Locking device (option)

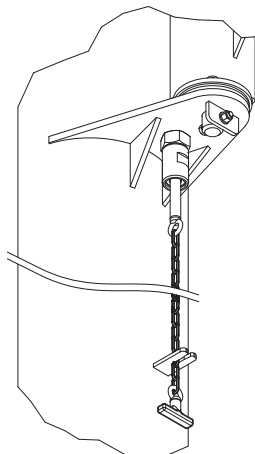
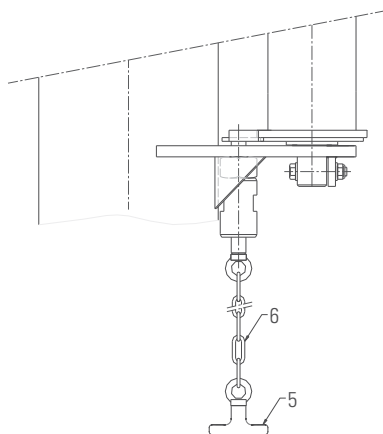
Installation

- 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.



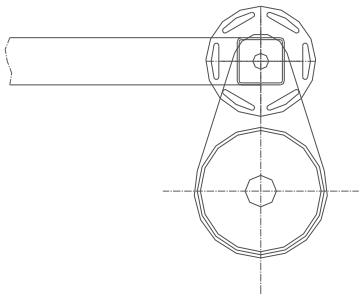
Utilisation

- 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.

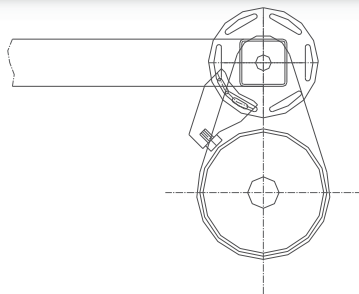


For the wall jib cranes, chain stop to be provided by the customer.

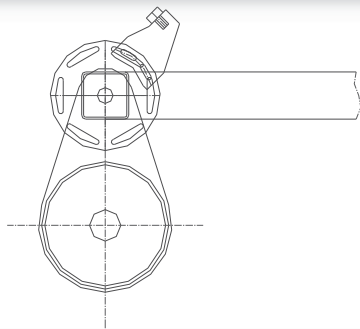
1.5. Adjustable rotation stops (option)



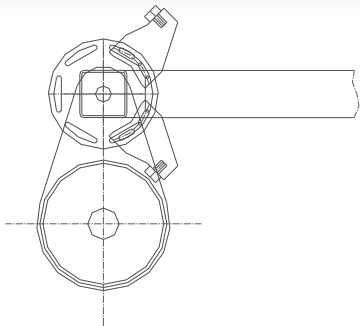
- 1.** Put the arm in the first extrem needed position



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

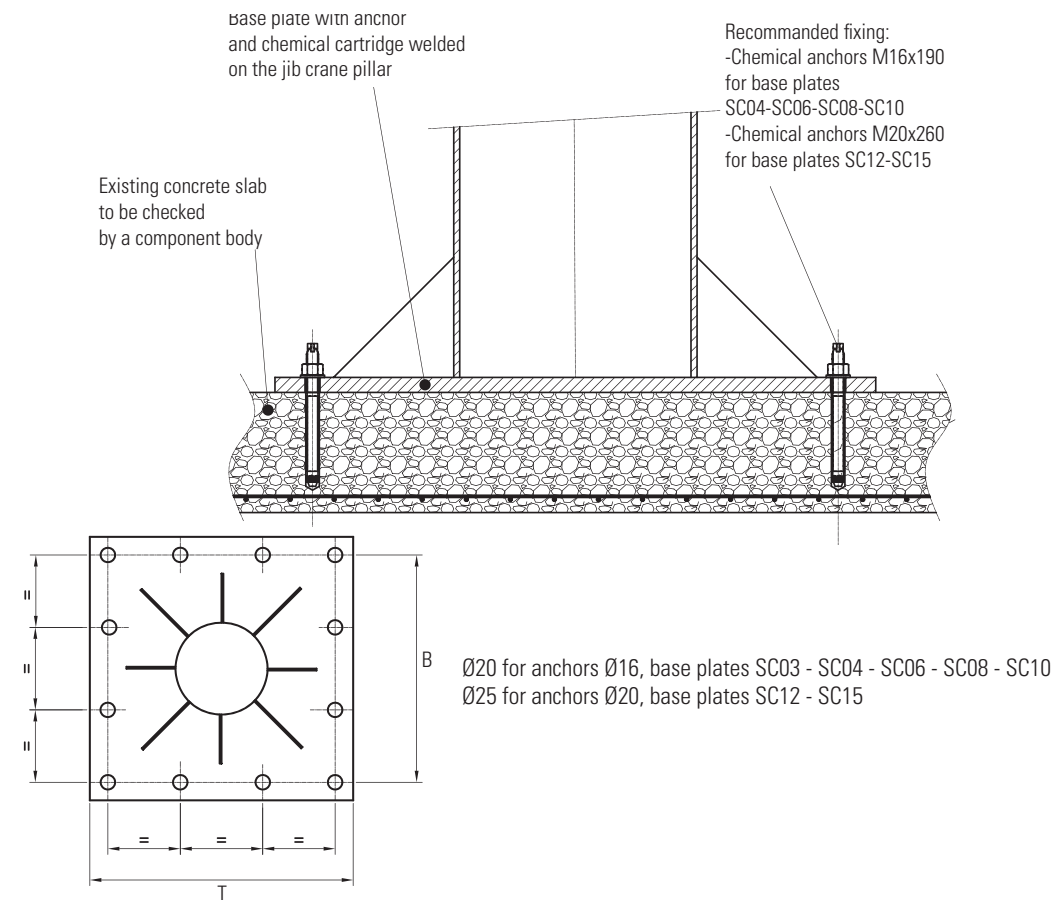


- 3.** Place the arm in the second extrem position.



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

1.6. Specific procedure for base plate with anchors & chemical cartridges (option)



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

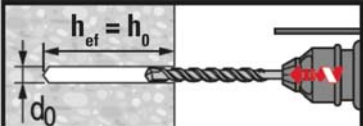
Threaded bar diameter	Diameter hole diameter	Anchoring depth	Thickness of the substrate	Tightening torque max.*	Centre distance mini	Distance to edge mini	Threaded bar length
$d_{nom} = d_i$ (mm)	d_o (mm)	$h_{ef} = h_o$ (mm)	h_{min} (mm)	T_{max} (N.m)	s_{min} (mm)	c_{min} (mm)	mm
M16	16	18	125	80	75	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

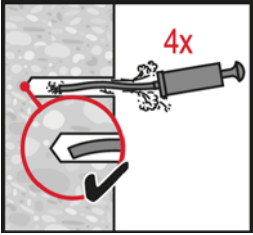
Hammer drilled hole



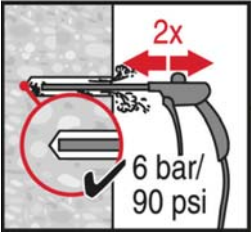
flooded holes (no sea water).

	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

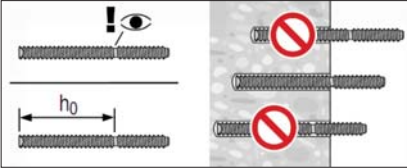


for drill hole diameters $d_0 \leq 18$ mm
and drill hole depths $h_0 \leq 10$ d

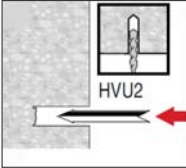


for all drill hole diameters d_0
and all drill hole depths h_0

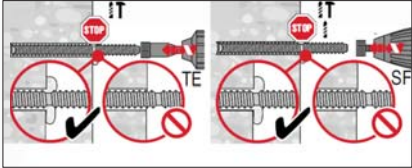
Setting the element



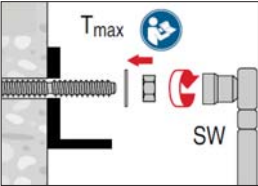
Check setting depth



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



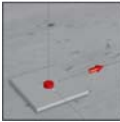
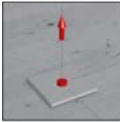
Loading the anchor after required
curing time t_{cure}

	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).



2. 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...)

3. 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:

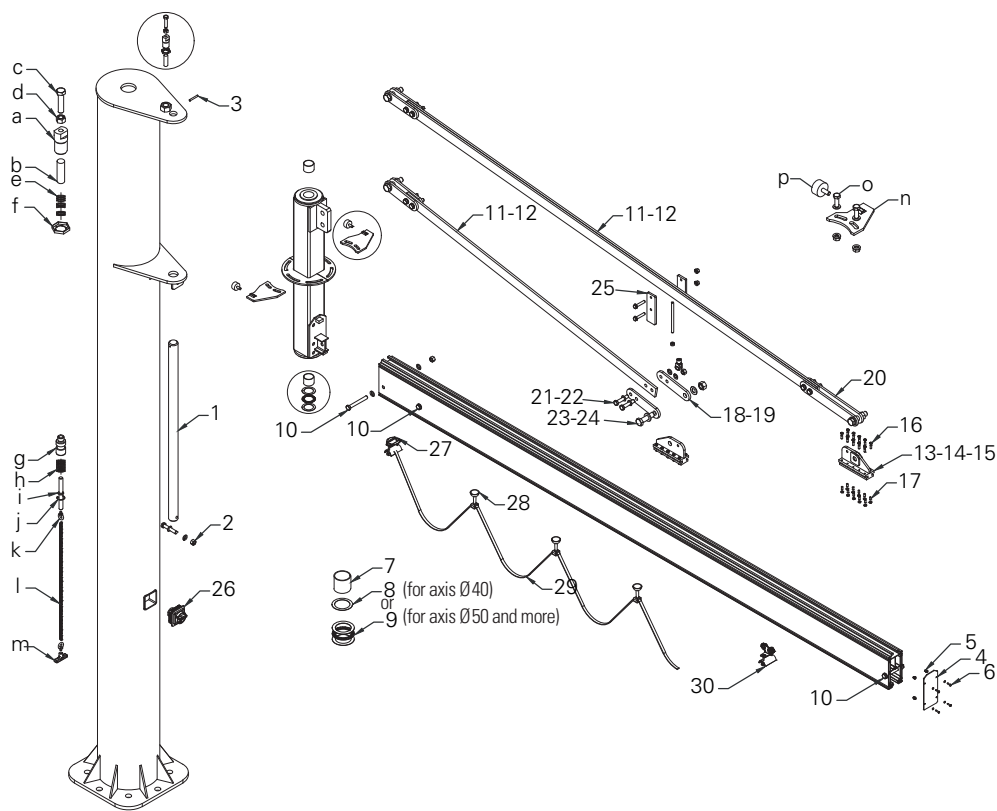
It is reminded that these devices are equipped with **torque limiters** and not **load limiters**.

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.

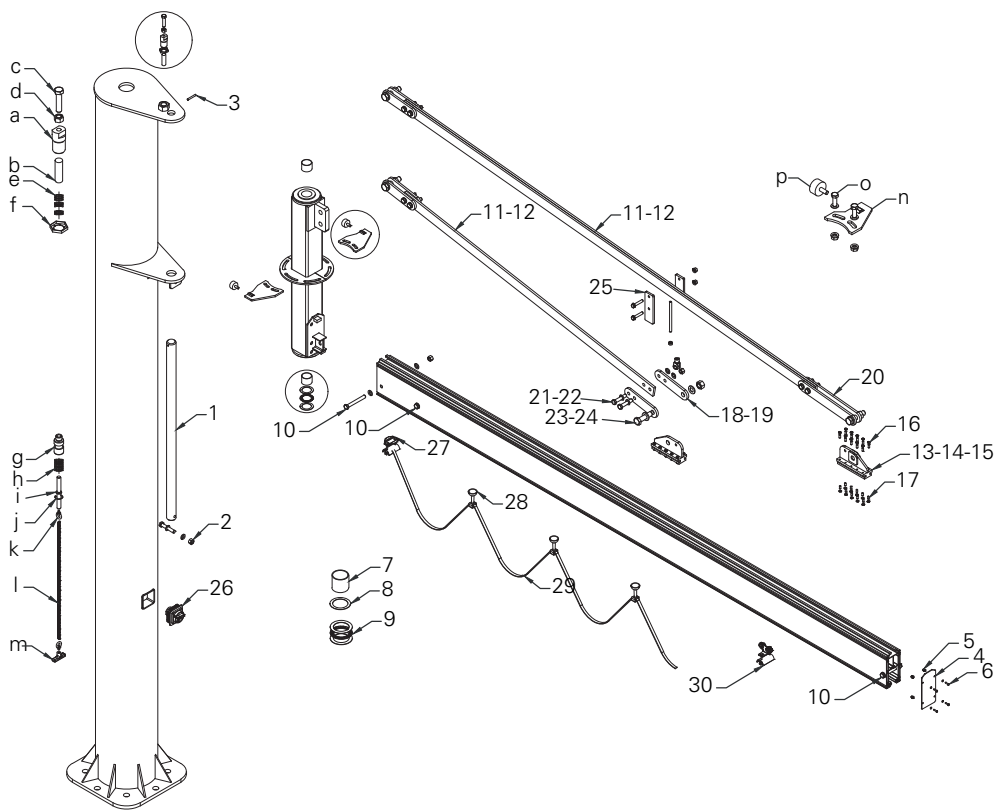
This measure aimed to anticipate wear slip friction system providing torque limit and prevent and to the risk of «*slippage*» of the load.

4. SPARE PARTS



Jib crane

N°	Designation	Standard	Option
1	Slewing axis	X	
2	Bolt stop for the axis	X	
3	Cotter	X	
4	Extrem end stop	X	
5	Insert	X	
6	Bolts for the end stop	X	
7	Ring	X	
8	End stop	X	
9	Needle end stop + washers	X	
10	Rail screws	X	
11	Drilled tie rod Ø12	X	
12	Tie rod with holes Ø16	X	
13	Bored slide Ø12	X	
14	Slide with holes Ø16	X	
15	Drilled slide Ø16 with bosses	X	
16	Upper slide screws	X	
17	Lower slide screws	X	
18	Short link, thickness 10 mm	X	
19	Short link, thickness 12 mm	X	
20	Long connecting rod, 12 mm thick	X	
21	Tie rod fastener M12	X	
22	Tie rod fastener M16	X	
23	Tie rod bolts M20	X	
24	M24 tie rod bolts	X	
25	Tie rod clamping set	X	



Lockable switch (option)	N°	Designation	Standard	Option
	26	Lockable switch		

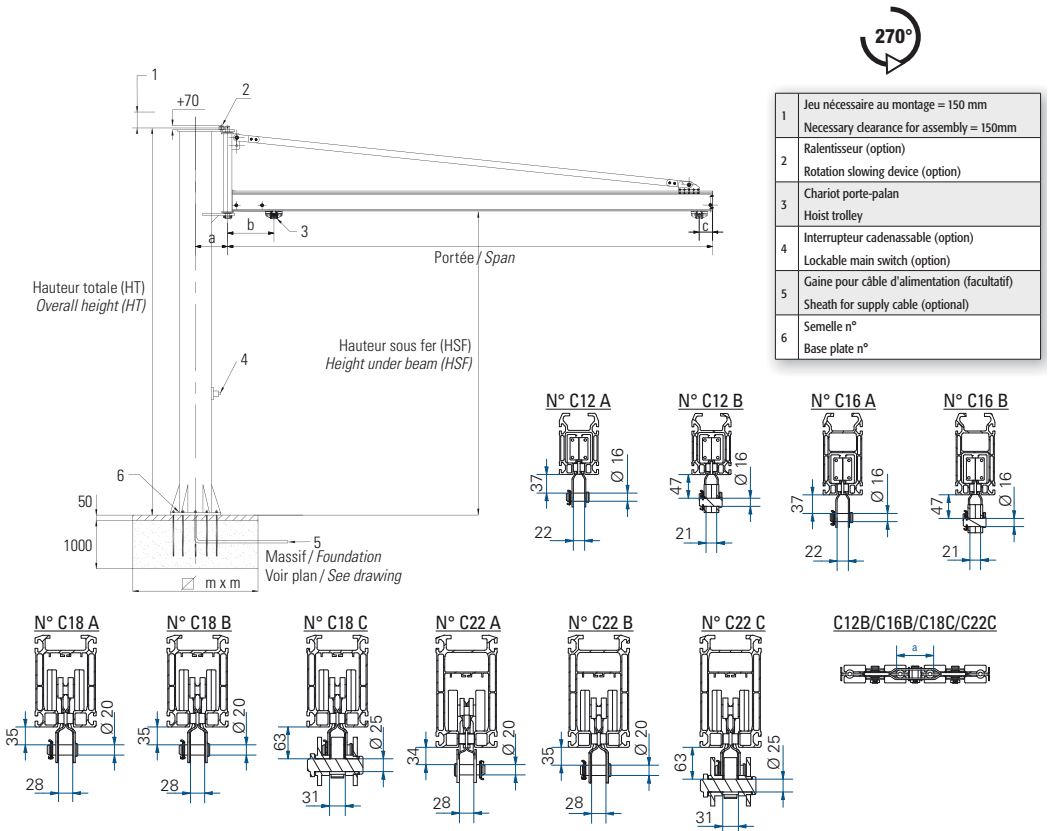
Feeding line (option)	N°	Designation	Standard	Option
	27	Fixed cable trolley	X	
	28	Cable holder skid	X	
	29	Cable	X	
	30	Roller trolley		X

Slowing Device (option)	N°	Designation	Standard	Option
	a	Body of the break	X	
	b	Rubbing finger	X	
	c	Adjustment screw	X	
	d	Conter bolt	X	
	e	Springer washer	X	
	f	Bolt	X	

Locking Device (option)	N°	Designation	Standard	Option
	g	Hub		X
	h	Spring		X
	i	Axis		X
	j	Fixed cable trolley		X
	k	Screw ring		X
	l	Chain		X
	m	Poignée		X

Ajustable rotation stop (option)	N°	Designation	Standard	Option
	n	Support butée réglable		X
	o	Butée caoutchouc		X
	p	Visserie butée réglable		X

5. SPECIFICATIONS



CMU	Permis	Handicap max (t)	Handicap Total (t)	a	b	c	Châssis	Servelle standard	Motoc	Servelle à double	Poids total	Poids br.	Poids net	Poids max. 100 km/h	Poids max. 120 km/h	Handicap max (t)	Capacité de mouvement
Max. capacity	Spec	Overall max (t)	Overall max (t)	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	kg	kg	mm	mm
kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	kg	kg	mm	mm
63 (15)	2	2.5	3.3	210	420	120	C12A	4	0.8	SC04	165	124	41	3	-	4	207
	2.5	2.5	3.3	210	420	120	C12A	4	0.8	SC04	174	124	50	3	-	4	262
	3	2.5	3.3	210	480	120	C12A	4	0.85	SC04	176	124	52	3	-	4	318
	3.5	2.5	3.3	210	480	120	C12A	4	0.7	SC04	184	124	60	3	-	4	379
	4	2.5	3.3	210	530	120	C12A	4	0.75	SC04	187	124	63	3	-	4	441
	4.5	2.5	3.3	210	530	120	C12A	4	0.8	SC04	196	124	72	3	-	4	506
	5	2.5	3.3	210	580	120	C12A	4	0.8	SC04	198	124	74	3	-	4	572
	5.5	2.5	3.3	210	580	120	C12A	4	0.85	SC04	201	124	77	3	-	4	641
	6	2.5	3.3	210	630	120	C12A	4	0.9	SC04	209	124	85	3	-	4	713
	6.5	2.5	3.3	210	630	120	C12A	4	0.9	SC04	212	124	88	3	-	4	786
	7	2.5	3.3	250	680	120	C12A	4	0.95	SC04	261	165	96	4	-	4	869
	7.5	2.5	3.3	250	680	120	C12A	4	1	SC04	264	165	98	4	-	4	947
80 (15)	8	2.5	3.3	290	730	120	C12A	4	1	SC06	267	165	102	4	23	4	1026
	7	2.5	3.3	210	430	120	C12A	4	0.8	SC04	165	124	41	3	-	4	248
	2.5	2.5	3.3	210	430	120	C12A	4	0.8	SC04	174	124	50	3	-	4	313
	3	2.5	3.3	210	480	120	C12A	4	0.7	SC04	176	124	52	3	-	4	380
	3.5	2.5	3.3	210	480	120	C12A	4	0.75	SC04	184	124	60	3	-	4	448
	4	2.5	3.3	210	530	120	C12A	4	0.8	SC04	187	124	63	3	-	4	516
	4.5	2.5	3.3	210	530	120	C12A	4	0.85	SC04	196	124	72	3	-	4	586
	5	2.5	3.3	210	580	120	C12A	4	0.85	SC04	198	124	74	3	-	4	652
	5.5	2.5	3.3	210	580	120	C12A	4	0.9	SC04	201	124	77	3	-	4	721
	6	2.5	3.3	250	630	120	C12A	4	0.9	SC04	209	124	85	3	-	4	791
	6.5	2.5	3.3	250	630	120	C12A	4	1	SC04	212	124	88	3	-	4	864
	7	2.5	3.3	290	680	120	C12A	4	1.05	SC04	260	165	96	4	23	4	952
125 (50)	7.5	2.5	3.3	290	680	120	C12A	4	1.1	SC06	290	165	125	4	23	4	1038
	8	2.5	3.3	290	730	120	C12A	4	1.15	SC06	292	165	127	4	23	4	1187
	2	2.5	3.3	210	430	120	C12A	4	0.8	SC04	165	124	41	3	-	4	207
	2.5	2.5	3.3	210	430	120	C12A	4	0.85	SC04	174	124	50	3	-	4	268
	3	2.5	3.3	210	480	120	C12A	4	0.7	SC04	176	124	52	3	-	4	348
	3.5	2.5	3.3	210	480	120	C12A	4	0.75	SC04	184	124	60	3	-	4	402
	4	2.5	3.3	210	530	120	C12A	4	1.2	SC04	187	124	63	3	-	4	477
	4.5	2.5	3.3	210	530	120	C12A	4	1.2	SC06	237	165	72	4	23	4	534
	5	2.5	3.3	250	580	120	C12A	4	1.3	SC06	239	165	74	4	23	4	614
	5.5	2.5	3.3	250	580	120	C12A	4	1.4	SC06	242	165	77	4	23	4	694
	6	2.5	3.3	290	630	120	C12A	4	1.4	SC06	267	165	102	4	23	4	771
	6.5	2.5	3.3	290	630	120	C12A	4	1.5	SC06	270	165	105	4	23	4	851
150 (50)	7	2.5	3.3	290	680	120	C12A	4	1.5	SC06	291	165	126	4	23	4	967
	7.5	2.5	3.3	330	730	120	C12A	5	1.8	SC08	418	262	136	6	77	4	1367
	8	2.5	3.3	330	730	120	C12A	5	1.7	SC08	421	262	139	6	77	4	1467
	2	2.5	3.3	210	430	120	C12A	4	0.9	SC04	165	124	41	3	-	4	215
	2.5	2.5	3.3	210	430	120	C12A	4	1	SC04	174	124	50	3	-	4	283
	3	2.5	3.3	210	480	120	C12A	4	1.1	SC04	176	124	52	3	-	4	374
	3.5	2.5	3.3	210	480	120	C12A	4	1.2	SC04	184	124	60	3	-	4	467
	4	2.5	3.3	250	530	120	C12A	4	1.2	SC06	239	165	72	4	23	4	503
	4.5	2.5	3.3	250	530	120	C12A	4	1.3	SC06	237	165	74	4	23	4	591
	5	2.5	3.3	290	580	120	C12A	4	1.4	SC06	239	165	76	4	23	4	681
	5.5	2.5	3.3	290	580	120	C12A	4	1.4	SC06	242	165	77	4	23	4	774
	6	2.5	3.3	330	630	120	C12A	4	1.5	SC06	276	165	111	4	96	4	1648
250 (50)	6.5	2.5	3.3	330	630	120	C12A	5	1.6	SC08	409	262	118	6	77	4	1824
	7	2.5	3.3	330	680	120	C12A	5	1.7	SC08	414	262	122	6	77	4	1979
	7.5	2.5	3.3	330	700	120	C12A	5	1.75	SC08	497	262	215	6	77	4	3155
	8	2.5	3.6	380	750	120	C12A	6	1.8	SC08	561	346	228	6	96	4	3620
	2	2.5	3.3	290	430	120	C12A	4	1.1	SC04	266	165	41	4	-	4	816
	2.5	2.5	3.3	290	430	120	C12A	4	1.2	SC06	215	165	52	4	23	4	1198
	3	2.5	3.3	290	480	120	C12A	4	1.25	SC06	217	165	52	4	23	4	1282
	3.5	2.5	3.3	290	480	120	C12A	4	1.3	SC08	225	165	60	4	96	4	1867
	4	2.5	3.3	330	530	120	C12A	5	1.4	SC08	251	262	89	6	77	4	2055
	4.5	2.5	3.3	330	530	120	C12A	5	1.5	SC08	260	262	92	6	77	4	2269
	5	2.5	3.3	330	580	120	C12A	5	1.55	SC08	364	262	82	6	77	4	2335
	5.5	2.5	3.3	330	580	120	C12A	5	1.6	SC08	372	262	85	6	77	4	2514
	6	2.5	3.3	330	630	120	C12A	5	1.7	SC08	382	262	114	6	77	4	2816
320 (50)	6.5	2.5	3.6	380	650	120	C12A	5	1.8	SC08	509	301	208	6	77	4	3227
	7	2.5	3.6	380	700	120	C12A	5	1.9	SC08	515	301	214	6	77	4	3469
	7.5	2.5	3.6	380	700	120	C12A	5	1.95	SC10	565	346	219	7	122	4	3804
	8	2.5	3.6	380	750	120	C12A	6	1.9	SC10	574	346	228	7	122	4	4086
	2	2.5	3.3	290	480	120	C12A	4	1.2	SC06	231	165	66	4	23	4	1383
	2.5	2.5	3.3	290	480	120	C12A	4	1.3	SC08	242	165	77	4	96	4	1718
	3	2.5	3.3	330	500	120	C12A	5	1.4	SC08	364	262	82	6	77	4	2112
	3.5	2.5	3.3	330	500	120	C12A	5	1.5	SC08	375	262	83	6	77	4	2305
	4	2.5	3.3	330	550	120	C12A	5	1.6	SC08	380	262	86	6	77	4	2606
	4.5	2.5	3.3	330	550	120	C12A	5	1.7	SC08	409	262	126	6	77	4	3159
	5	2.5	3.6	380	600	120	C12A	5	1.9	SC10	506	346	183	7	122	4	3916
500 (50)	6.5	2.5	3.6	380	650	120	C12A	5	1.9	SC10	511	346	186	7	122	4	4264
	7	2.5	3.6	380	700	120	C12A	6	2	SC12	607	382	212	8	166	4	4925
	7.5	2.5	3.6	420	700	120	C12A	6	2.05	SC10	607	386	214	8	126	4	5062
	7.5	2.5	3.6	420	700	120	C12A	6	2.1	SC10	607	386	218	8	126	4	5443
	8	2.5	3.6	420	700	120	C12A	6	2.2	SC12	622	386	222	8	126	4	5829
	2	2.5	3.3	290	480	120	C12A	4	1.4	SC08	239	165	73	4	96	4	1815
	2.5	2.5	3.3	290	480	120	C12A	4	1.5	SC08	246	165	76	4	96	4	1995
	3	2.5	3.3	330	500	120	C12A	5	1.7	SC08	380	262	111	6	77	4	2198
	3.5	2.5	3.3	330	500	120	C12A	5	1.8	SC08	390	262	113	6	77	4	2389
	4	2.5	3.6	380	550	120	C12A	5	1.9	SC10	485	301	162	7	148	4	3147
	5	2.5	3.6	380	600	120	C12A	5	1.9	SC10	490	346	167	7	122	4	3505
	5.5	2.5	3.6	380	600	120	C12A	5	2.0	SC12	505	382	173	7	122	4	3891
630 (100)	6.5	2.5	3.6	420	650	120	C12A	5	2.1	SC12	511	386	186	7	122	4	4264
	7	2.5	3.6	420	650	120	C12A	6	2.15	SC12	562	386	191	8	122	4	4650
	7.5	2.5	3.6	420	650	120	C12A	6	2.2	SC12	576	386	198	8	122	4	5037
	85	2.5	4.1	650	650	120	C22A										

