



TONG FOR COILS MOD. 726 SPECIAL DEVICES



Tong for horizontal coil mod. 726, can be composed by many devices that can grant an easier and more safety work.

Hereunder we give you an idea of different applicable devices.

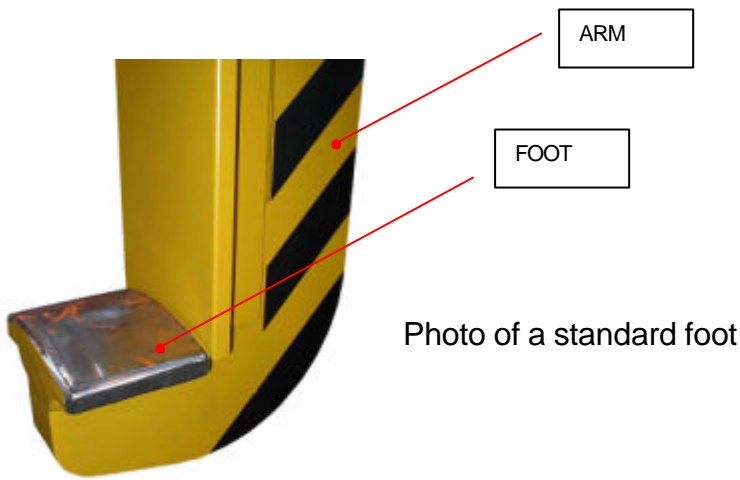
1. LIFTING FEET

The lifting feet can be of 4 different models:

- Standard
- protected
- Thyssen Type
- Tilting

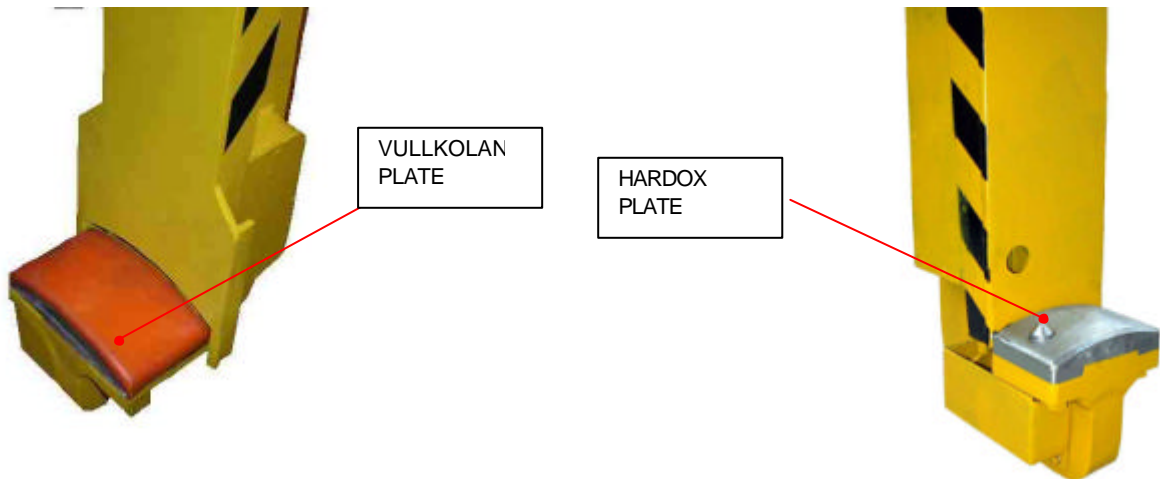
1.1 STANDARD FEET

Standard feet have no special protections, they are directly welded on the lifting arms and made of steel. They are assembled on tongs that are used for the lifting and handling of materials that don't need to protect their surface.



1.2 PROTECTED FEET

If required, the standard feet can be protected by an interchangeable plate in Vulkollan or Hardox, in order to preserve coils surface when in contact with the tong.



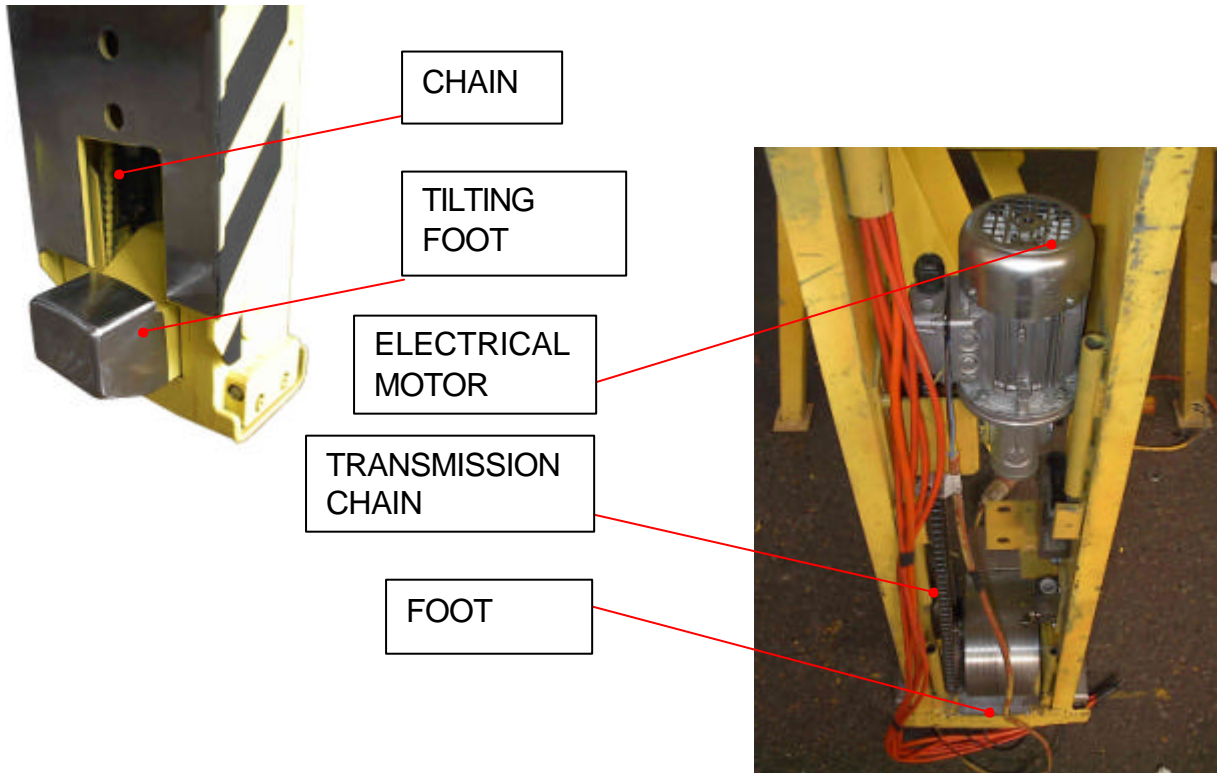
1.3 THYSSEN FEET

Thyssen feet are composed by an interchangeable cover in Hardox + Fe 430. They are assembled on the tong by means of a screw.



1.4 TILTING FEET

In very restricted areas, where the control of the tong could be very difficult, the lifting feet are the best solution. The tilting of the feet is made by the chain-motor system.



1.5 EQUAL ANGLE

Tong can be studied to allow the application of equal angles on the camping arms. These equal angles are used for the handle of pallets.



2. LIFTING ARMS

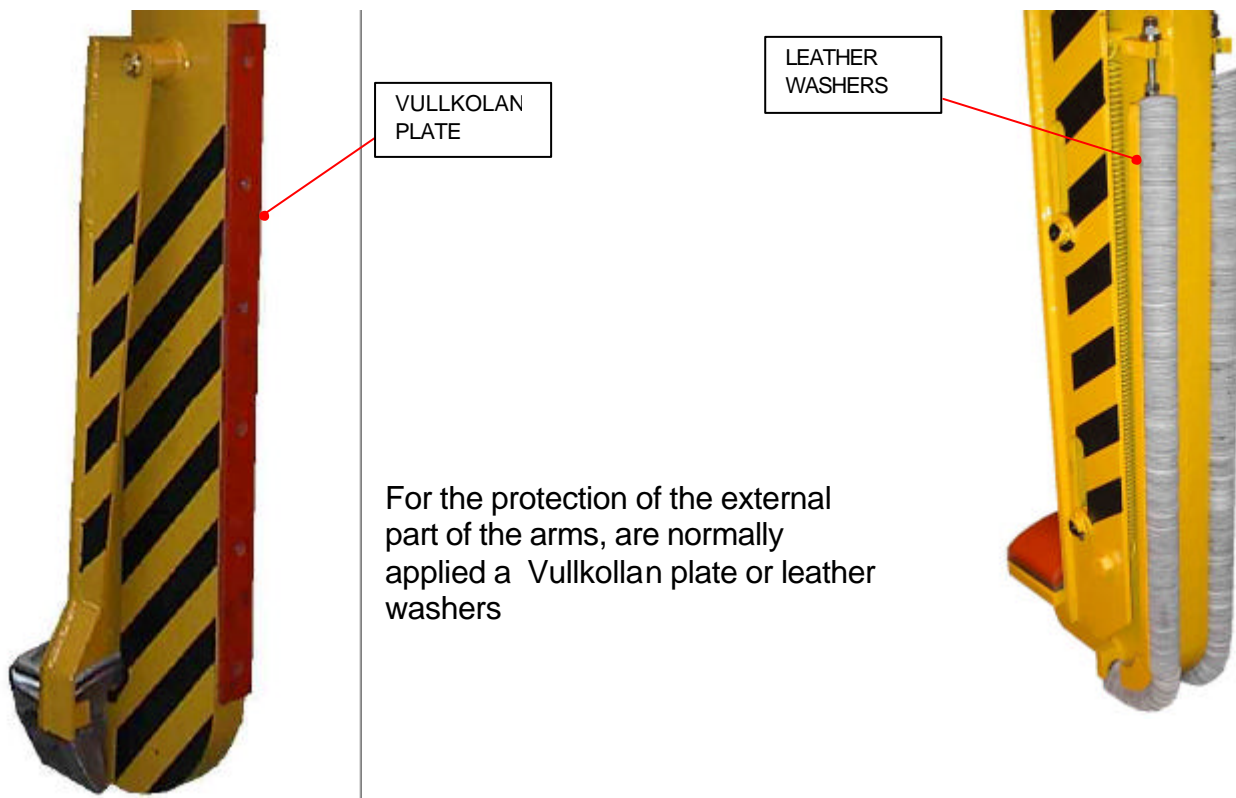
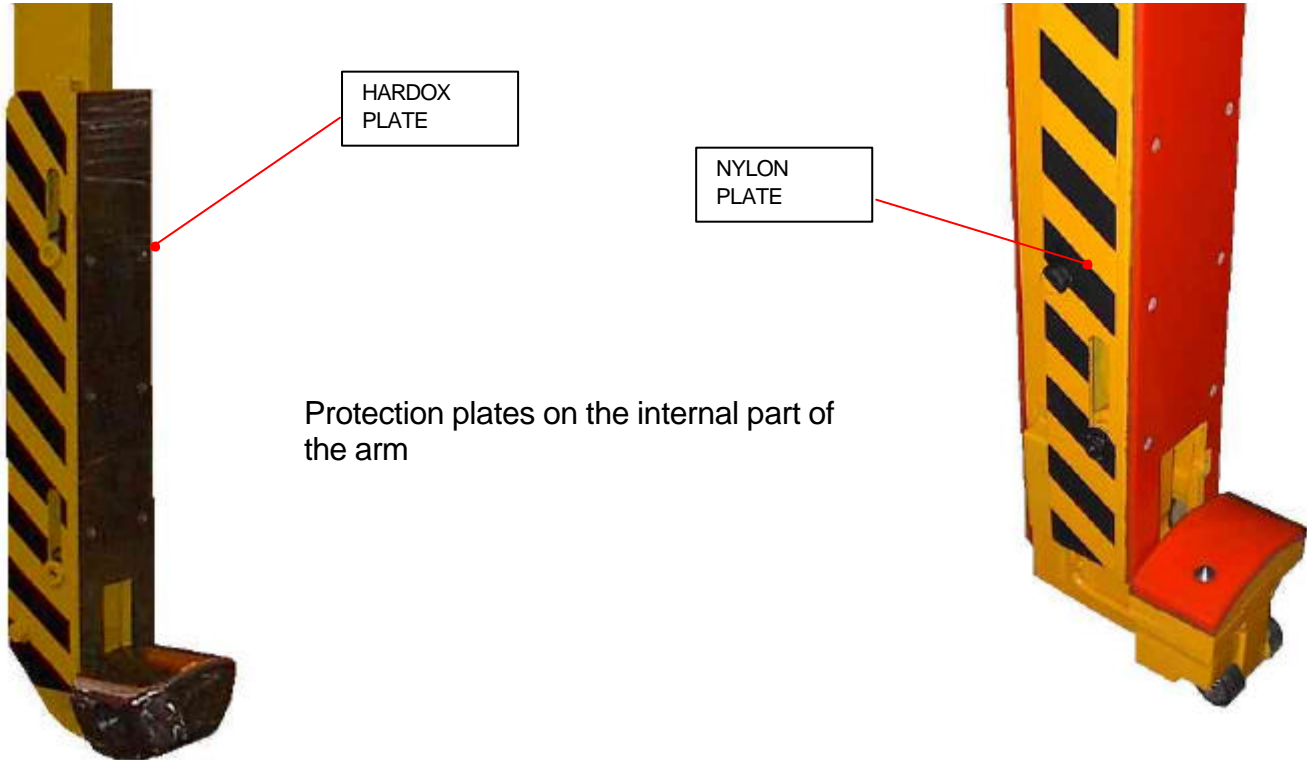
Lifting arms are directly in contact with the coil and/or material to lift. They can be equipped of different devices to protect coils surface during the handling.

2.1 PROTECTION OF THE ARM

Lifting arms can be covered, internally or externally by vullkollan or hardox plates.

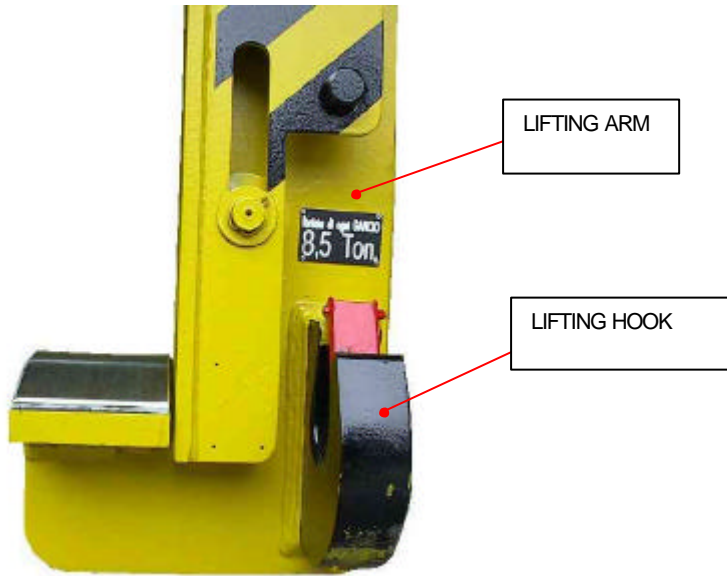
The internal part of the arm is always in contact with the coils, we suggest to protect it in case the material to lift is delicate and/or finished.

The protection on the external part of the arm is suggested to avoid any damages in case of eventual shocks during the movements of the tong.



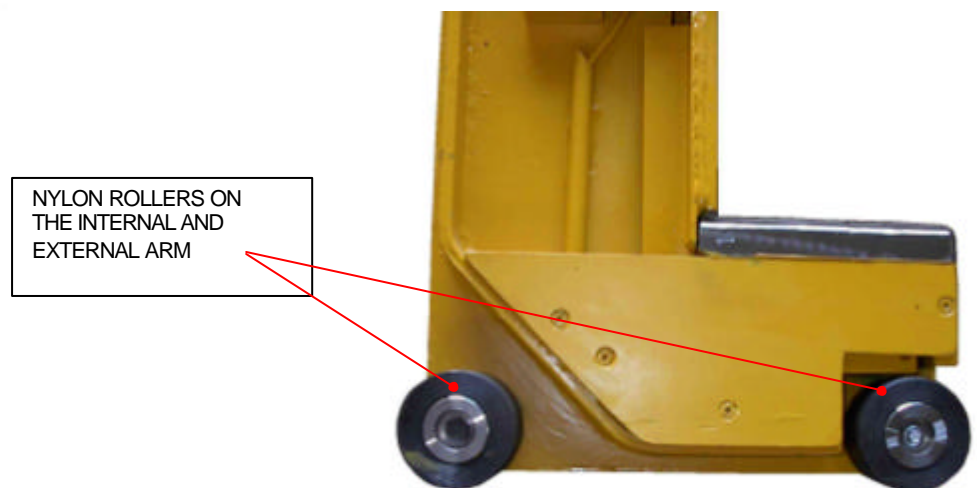
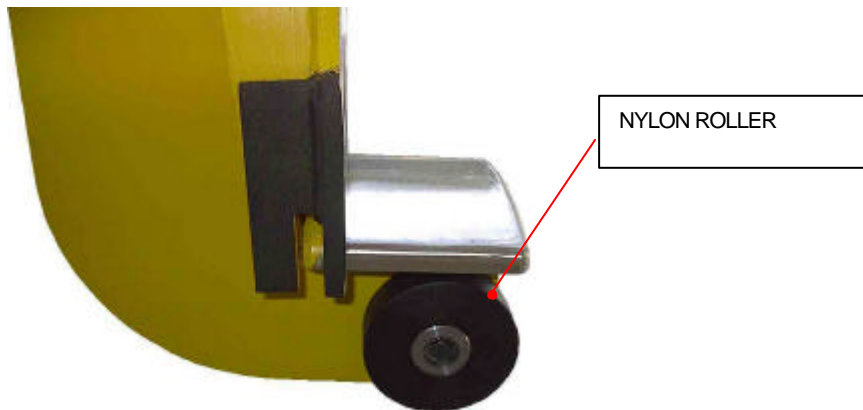
2.2 LIFTING HOOK ON THE CLAMPING ARMS

On the lifting arms can be applied some hooks, useful for the lifting , by means of chains, of wagon or other materials.



2.3 ROLLERS

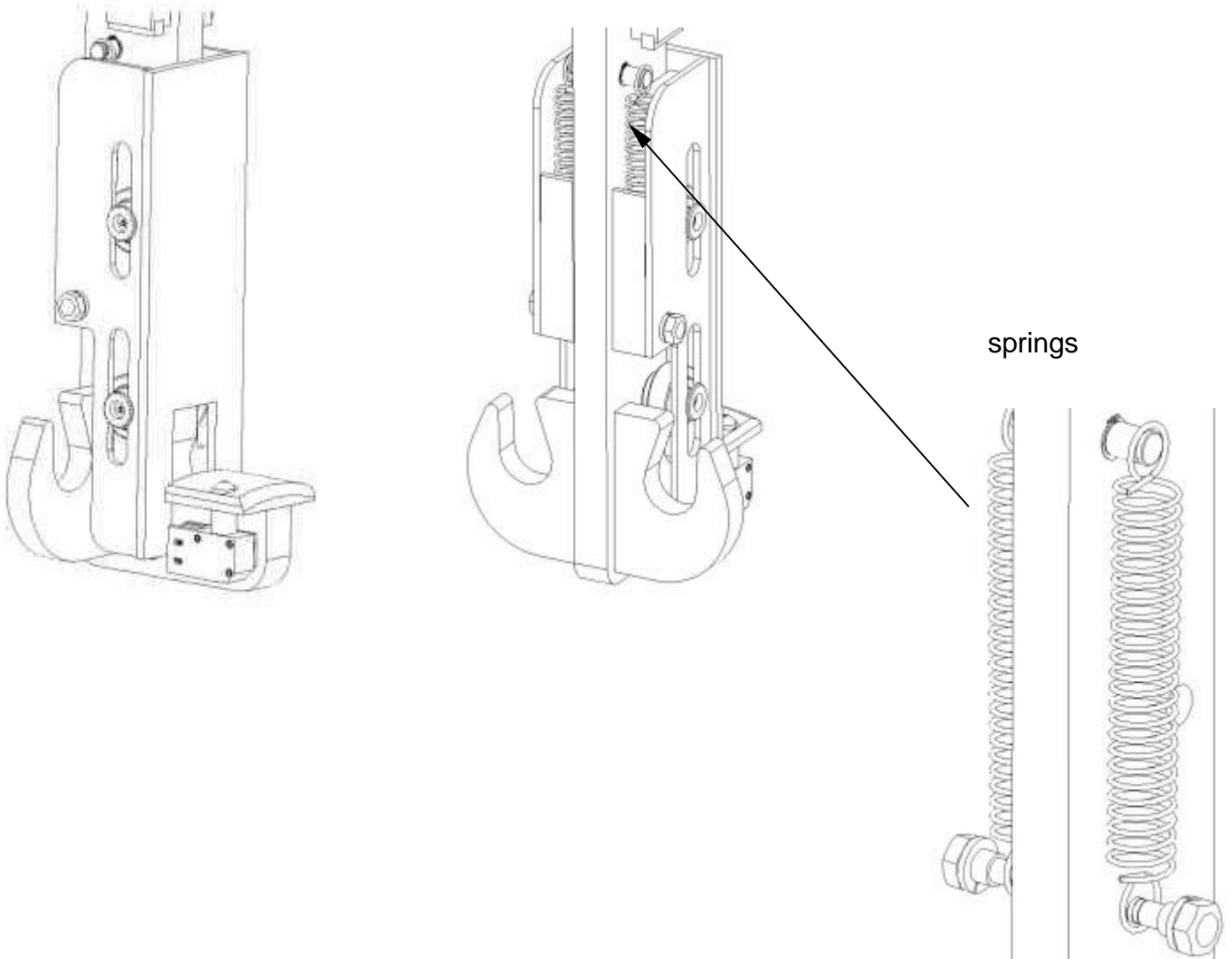
During lifting, when arm are coming in contact with the coil, the steel or nylon rollers slide on coil surface avoiding any damages.



2.4 ANTI-SCHUFFING DEVICE

Each clamping arm can be composed by a sliding plate that allows the clamping and loading of the coil on the feet without any sliding on the vertical sides.

This plate can be covered by a vullkollan or hardox plate to grant a greatest preservation of coil surface.



3. CARRYING STRUCTURE

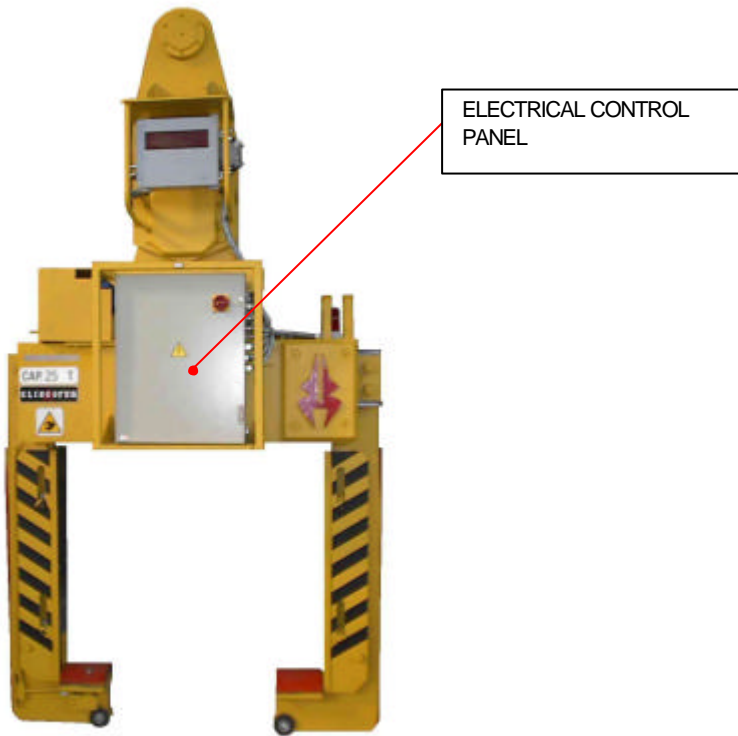
The carrying structure can be of different types and dimensions, in accordance with the product to lift and with customer's necessities.

On the carrying case we can assembled:

- Electrical panel board
- Lifting hooks
- Protection in vullkollan under the case
- We have also special cases with lateral movements or cases for tong with double pinions.

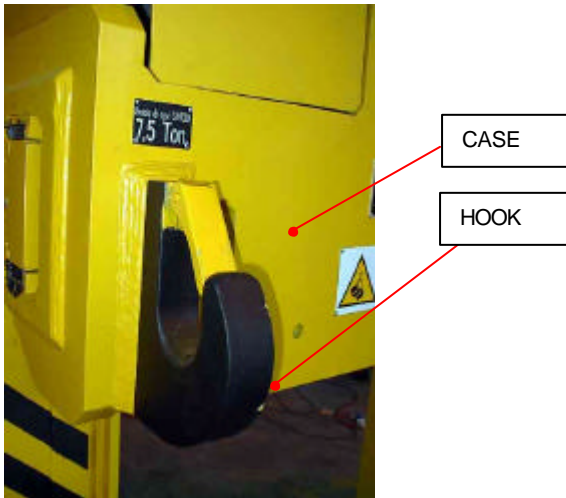
3.1 ELECTRICAL CONTROL PANEL ON BOARD

The control panel board can be assembled directly on the equipment if required. See picture.



3.2 CARRYING CASE WITH LIFTING HOOKS

We can apply extra hooks on the case for the lifting of other materials by means of chains



3.3 PROTECTION IN VULKOLLAN UNDER THE CASE

This plate is assembled under the case and it is used to avoid any eventual damage of coil surface during loading.

VULLKOLLAN PROTECTION PLATE



3.4 PROTECTION FOR HIGH TEMPERATURE UNDER THE CASE

Tong can be protected against the high temperature with a special protection under the case.



PROTECTION
FOR HIGH
TEMPERATURE

3.5 LATERAL MOVEMENT

This system is used in case it is necessary to reduce tong height. In this situation, the motor for the rods control is not placed on the cases but on the sides.



RODS CONTROL
MOTOR

3.6 DOUBLE PINION TONGS

Tong with double pinion is used to reduce at tong width. In fact, when tong is at minimum closing, rods don't come out through the case.



DOUBLE PINION TONG



SINGLE PINION TONG

4. SUSPENSION TO THE CRANE

The suspension can be of three different typologies:

- Single hook
- Double hook
- Pulleys

SINGLE HOOK



DOUBLE HOOK





PULLEYS

5. SUSPENSION PIN

For suspension pins too, there are three different typologies:

- Fixed pin
- Extractable pin
- Detachable pin



FIXED PIN

REMOVE THE ANTI-EXTRACTION SAFETY DEVICE



REMOVE THE PIN BY THE
LEVER



DIFFERENT EXTRACTABLE PIN

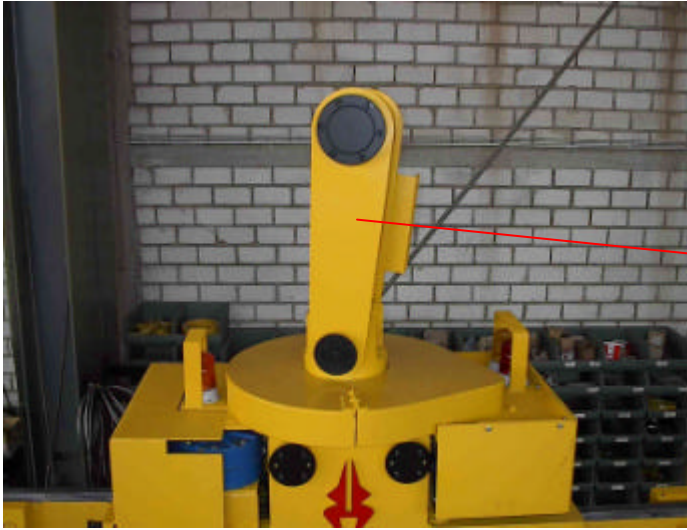


Remove the anti-extraction
safety device

Extract the pin by the handle



DETACHABLE PIN



To remove the suspension pin, remove the locking flange before.

6. SENSORS

On tong mod. 726 , many different electronic devices can be assembled to grant a higher safety or to facilitate the tong control.

- Anti-opening devices
- Coil-edge protectore feeler
- Limit switches for max.and min. opening
- Photo cells to detect coil bore
- Anti- impact Reflex
- Measuring Encoder
- Weighing device
- Load cell
- Rotating head

6.1 ANTI-OPENING DEVICE

On each support of the clamping arm (lifting foot), it is possible the assembling of an anti-opening sensor composed by a limit switch on-off controlled by a feeler pin. (fig. 1).

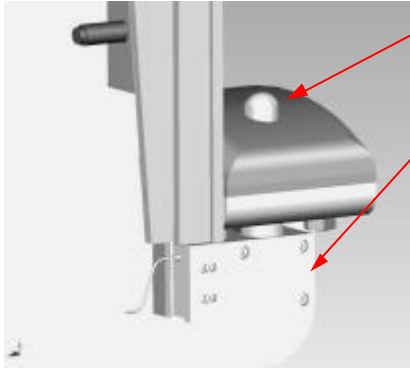
When coil is on the foot, the feeler pin excites the limit switch that automatically avoid the opening of the tong (fig. 2).

To open the clamping arms, operator must unload the coil on earth or on other coils and descent with the tong of about 5 cm by the crane.

Model of feeler pin and of limit switch are different in relation to the temperature of work

- Standard temperature = up to 100°C
- High temperature = up to 600°C
- Very high temperature = over 600°C

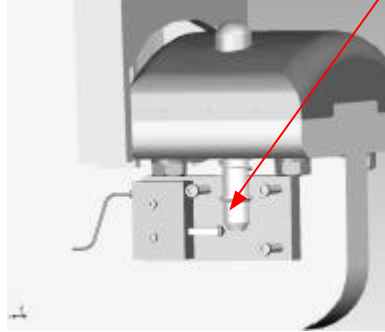
SENSORS FOR STANDARD TEMPERATURE



FEELER PIN

LIMIT SWITCH

When feeler pin comes down, limit switch is excited
In the picture the limit switch is still free.



SENSORS FOR HIGH TEMPERATURE

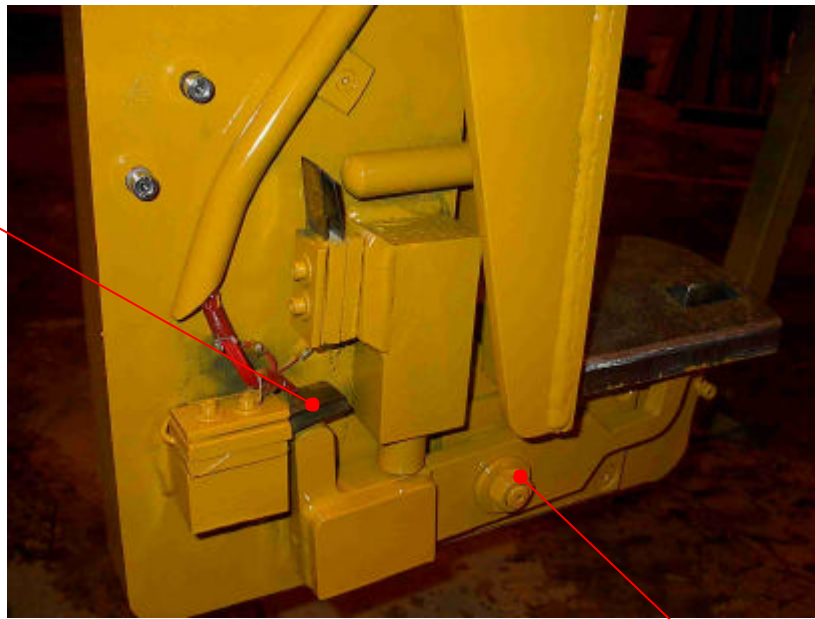


LIMIT SWITCH FOR HIGH TEMPERATURE

FEELER PIN

SENSORS FOR VERY HIGH TEMPERATURE

SEGMENTS
LIMIT SWITCH



FEELER PIN

6.2 COILS-EDGE PROTECTOR FEELER

On each clamping jaws, you can place an oscillating feeler pin to stop arms closing. It is composed by a wearproof plate hinged on a pin that allows a partial rotation.

A spring buffer, placed on the lower part of the clamping lever, maintains the oscillating feeler pin in opening position (fig.1a and 1b)

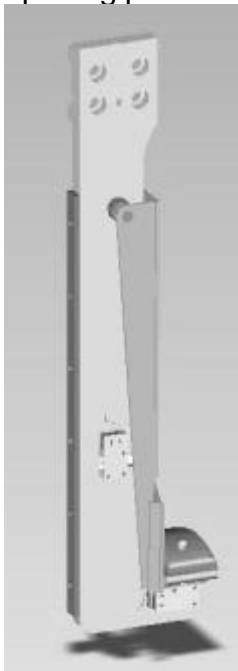


Fig.1a

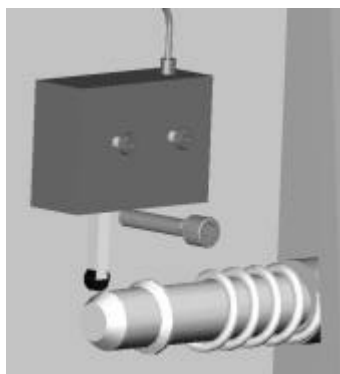


Fig. 1b
(not excited limit switch)

When clamping jaws close (fig.2a e fig.2b), coil surfaces is in contact with the feeler pin generating a light rotation; it excites a limit switch (with anti-bucking function) stopping closing movement . It avoids that tong damages the lifted coil.

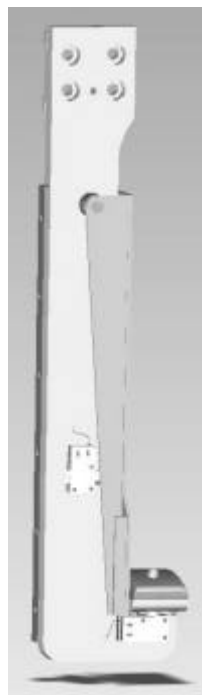


Fig.2a

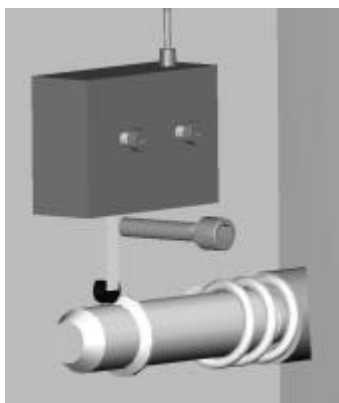
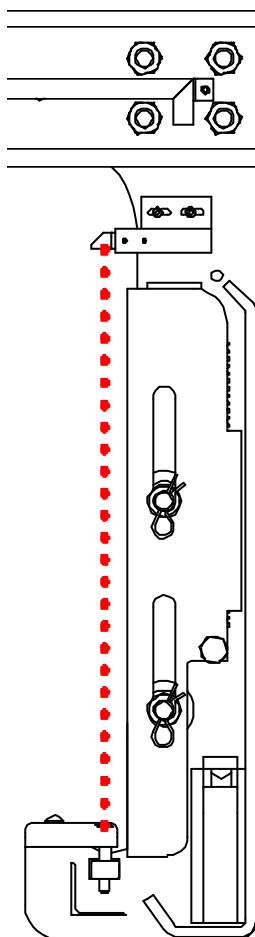


Fig.2b
(excited limit switch)

As per the anti-opening device, these sensors too, are selected in accordance with the temperature of work

6.3 PHOTOELECTRIC DEVICE TO DETECT THE COIL PRESENCE

Each camping arms can be equipped of a couple of photocells (transmitter/receiver) to detect the coil presence. When clamping arms are closing, coils will interrupt the beam between the two photocells and an alarm lamp will switch on to indicate to the operator to stop the movement of the arms.



ATTENTION: Photocells don't automatically stop the closing of the camping arms , but they have the simple function to signal to the operator by means of an alarm lamp that the closing can be interrupted.

6.4 PROSSIMITY SONAR

The closing of the arm is interrupted by prossimity sensors as soon as these detect the presence of the coil without hawing any contact with it.

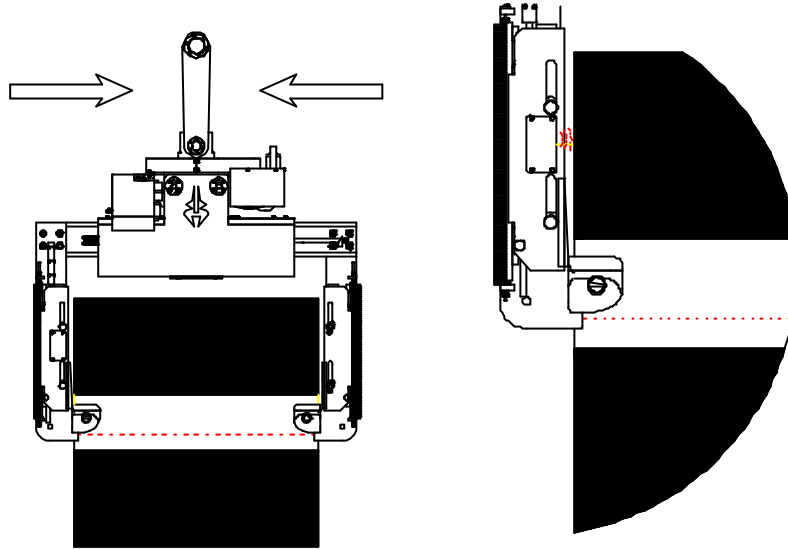


FIG. 3a

FIG. 3b

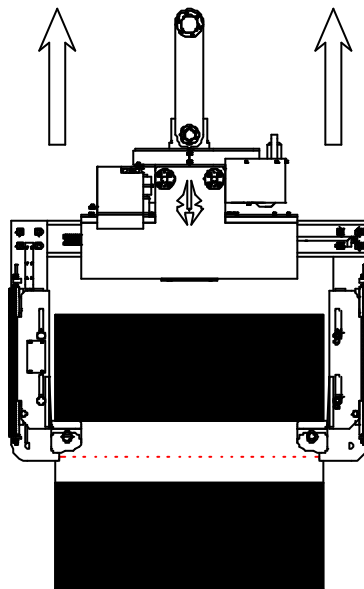


FIG. 4

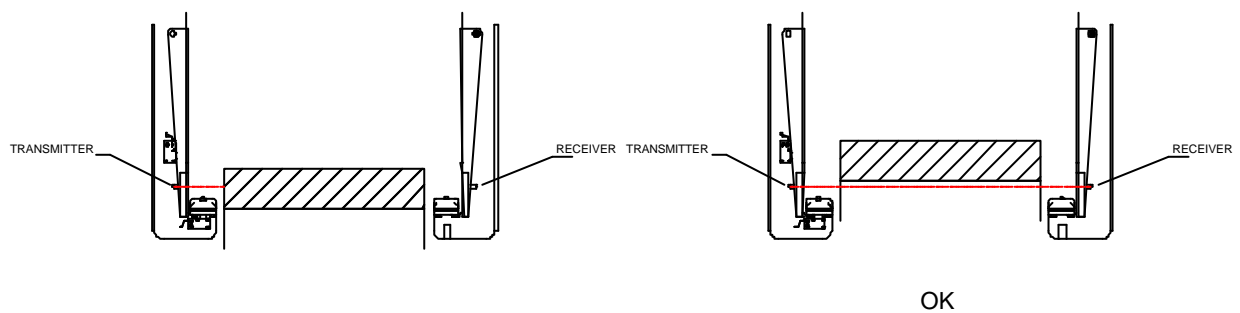
6.3 MAX. AND MIN. OPENING LIMIT SWITCHES

These limit switches are placed on the carrying structure and stop the electrical motor when clamping jaws are opened or completely closed.



MAX. AND MIN. OPENING LIMIT SWITCHES

6.4 PHOTO ELECTRIC CELLS TO DETECT COIL BORE

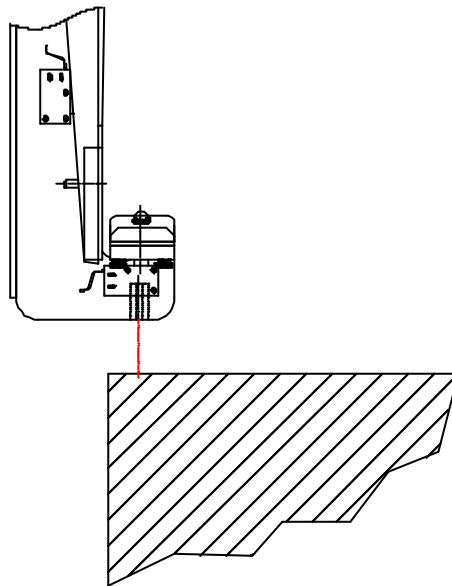


When the beam transmitted by the emitter is interrupted by the coil and therefore doesn't arrive to the receiver, the photo electric cell doesn't allow the closing of the tong. Only when tong feet reach the coil bore and the beam arrives to the receiver, tong can be closed.

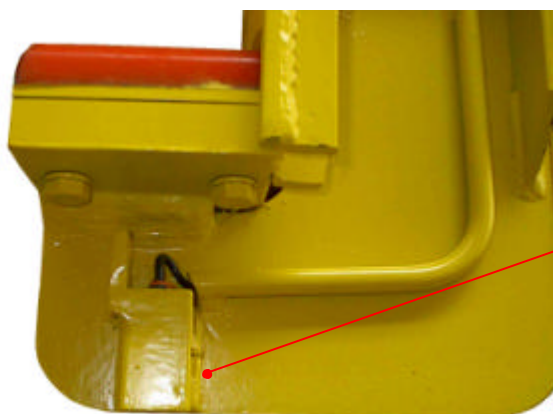
LIMIT SWITCH TO DETECT COIL BORE



6.5 ANTI-IMPACT REFLEX



The scope of “Reflex” photo cells is to stop crane descent if tong is not enough opened, avoiding the eventual impact with the coil or the product to lift.



ANTI-IMPACT PHOTO CELL

6.6 MEASURING ENCODER

The encoder allows to operator to determinate the quote of opening and/or closing of the tong by the number of pinion turns.



ENCODER

6.7 WEIGHING DEVICE

The weighing device allows to see the real weight of the coil and can be connected to an eventual printer.



DISPLAY

WEIGHING DEVICE

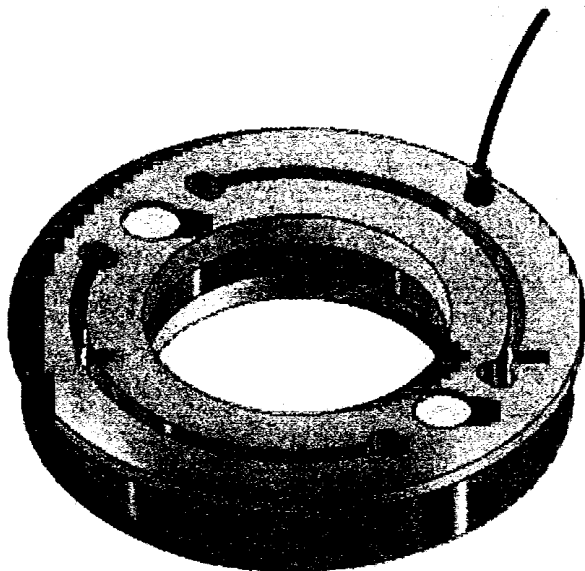
The system is composed by:

- N° 1 Weighing device(not fiscal or for commercial/administrative purpose) with radio transmitter on board (without receiver and without printer), composed by:
- n° 1 digital Indicator type M871
supply: 110 Vs \pm 10%, 50/60 Hz
placed in an aluminium box IP5, complete of cable holdfast, mm 315X264X120 (type VC20)

Or it is possible to choose the following different model:

- n° 1 Same weighing device with radio transmitter on board but inclusive of:
- n° 1 radio quartzes receiver, with relative converter of interface, for the acquisition of the weight transmitted by the tong
supply: 110/230 Vca
- n° 1 Radio modem 868 MHz, 7 Canals, OUT RS232//RS485
- n° 1 Radio modem USB 868 MHz, 7 canals

and with manual of use and maintenance, USB cable L= 2 mt



CELLE A FLANGIA FLANGE LOAD CELLS

Studiate per la realizzazione di sistemi di pesatura su gru e carri ponte, le celle di carico mod. SFX sono adatte per sostenere e pesare alberi di sollevamento con diametri e portate diverse.

Designed to realize weighing system on crane and bridge-crane, the load cells mod. SFX are suitable to support and to weigh lifting shafts with several diameters and capacities.

Portate/Rated Capacities	2,5t ÷ 40t
Materiale/Construction	Inox 17-4 PH
Protezione/Protection EN 60529	IP 67
Precisione/Accuracy	$\leq 0,1\%$ E _{max}

Caratteristiche Tecniche – Technical Data

Capacità nominale (E _{max})	Rated capacities (E _{max})	2,5 ÷ 40	t
Massimo carico ammissibile	Maximum safe load	150	%E _{max}
Carico di rottura	Destructive load	≥ 500	%E _{max}
Uscita nominale (C _n)	Rated output (C _n)	1,5 \pm 0,1%	mV/V
Alimentazione nominale	Nominal excitation range	5 ÷ 15	Vcc Vdc
Errore combinato	Combined error	$\leq \pm 0,1$	%C _n
Tolleranza zero segnale	Tolerance on zero output signal	± 1	%C _n
Resistenza di ingresso	Input resistance	700 \pm 10	Ω
Resistenza di uscita	Output resistance	700 \pm 2	Ω
Effetto della temperatura sullo zero	Temperature effect on zero balance	$< \pm 0,003$	%C _n /°C
Effetto della temperatura sull'uscita	Temperature effect on rated output	$< \pm 0,002$	%C _n /°C
Campo di temperatura compensato	Compensated temperature range	-10 ÷ +40	°C
Campo massimo di lavoro	Operating temperature range	-20 ÷ +70	°C
Lunghezza cavo	Cable lenght	5	m

6.8 LOAD CELLS

The load cells stop the lifting movement if the product to lift is heavier than the foreseen maximum weight.

6.9 ROTATING HEAD

Our ROTATION is equipped with a motorization unit consisting of a motor/reduction unit with worm gearbox. The worm gearbox is anti-reversing. Inside the reduction unit an adjustable slipping clutch is incorporated. It is very easy to adjust the clutch.

Thanks to the clutch, the ROTATION motor can turn even when the rotation is locked or stopped, without causing any damages to the reduction unit or to the other parts of the rotation

It consists of :

- shaft with toothed pinion in hardened steel 36CrNiMo4 mounted on bearings
- crown wheel (special steel T1)
- bearing type SKF 29 252
- bronze bushings

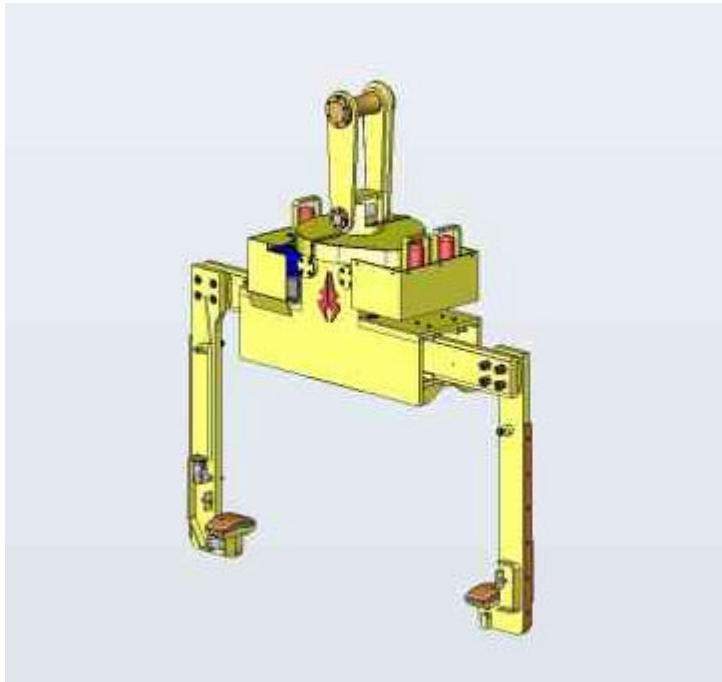
N° 1 Motorized rotation head 360° with slip ring or < 359° without slip ring

Motor Power

Kw 1,1

Rotation speedy

1,5 tours/minute

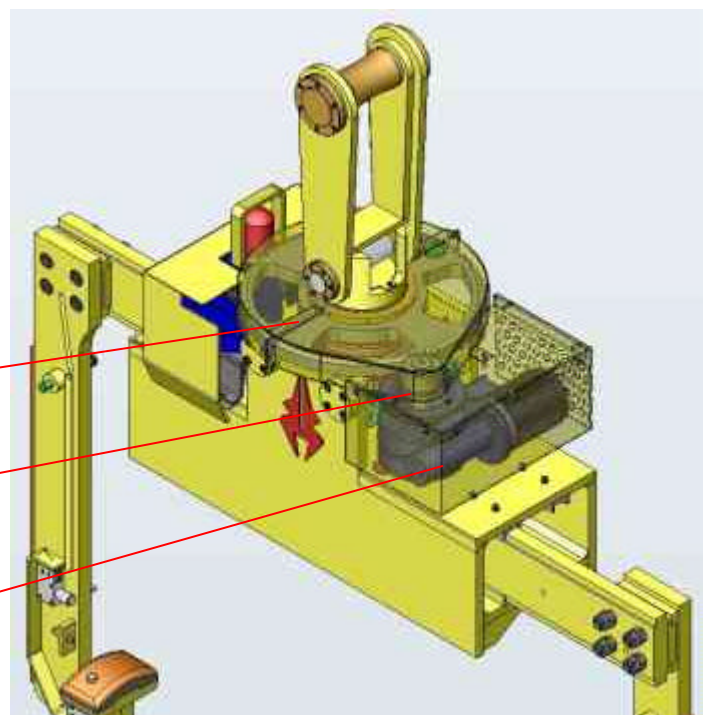


TONG FOR COILS MOD. 726

GEAR WHEEL

PINION

ELECTRICAL MOTOR





MAGNETIC LIMIT SWITCH

6.10 ALARM LAMPS

On the tong can be placed an alarm lamp for each different devices.

