

Customer:

ZAT

Machine Type: **TA1250RN-4M**

Machine N°: **7848-41**

Serial **1860 00**

Construction Year: **2008**

Supply Voltage: **3 x 380 V - 50Hz**

Control Voltage: **24 VDC**

Shipment Date: **2008**

Remarks:

The manufacturer's warranty is only valid if the instructions of this manual are followed.

IMPORTANT

Afin de rendre possible un traitement précis d'une commande de pièces de rechange, les spécifications suivantes sont absolument nécessaires :

1. Type de machine
2. Numéro MC 'numéro de commande'
3. Désignation et N° d'identité
4. Description fonctionnelle de la pièce.

IMPORTANT

In order to enable us to carry exactly out an order for spare parts, the following specifications are absolutely necessary :

1. Model of machine
2. MC-number (N° of order)
3. Designation and identity N°
4. Functional description of the part

WICHTIG

Um eine schnelle und genaue Bearbeitung eines Ersatzteilauftrages zu ermöglichen, sind folgende Angaben erforderlich :

1. Maschinen typ
2. MC-Nummer (Auftrags-Nummer)
3. Benennung und Identität Nummer
4. Funktionsbeschreibung des Teiles

IMPORTANTE

Para facilitarnos un tratamiento exacto de su pedido de repuesto, están absolutamente necesarias las especificaciones siguientes :

1. Tipo de la maquina
2. Número MC (número de pedido)
3. Denominación y número identidad
4. Descripción del funcionamiento de la pieza

IMPORTANTE

Per rendere possibile un trattamento preciso delle vostra ordinazione di pezzi di ricambio, le specifiche seguenti sono assolutamente necessarie :

1. Tipo di macchina
2. Numero MC (numero di ordinazione)
3. Denominazione e numero d'identità
4. Descrizione funzionale del pezzo

SECURITY PROVISIONS

I - GENERAL

This machine is equipped with security systems and designed to be handled by qualified operators.

THE RISK OF EXPLOITATION pertaining among others to :

- use of a quality materials,
- operate the machine outside usual conditions,
- control of the machine by a non-professional, or by an insufficiently informed person,
- The presence of a strange person, being not used to operate the machine,
- Bad maintenance service.

ARE TO USERS' RESPONSIBILITY.

SETIC s.a.s decline all responsibility in case of an accident, due to the above mentioned points.

The user is requested to make acquaintance with the operating instructions.

The user will keep on rules an security signals, placed on, or near the machines.

The user will operate the machine exclusively if the protection systems are fitted an adjusted correctly.

The user will watch and survey the maintenance of the security systems in order repair the occurred faults the soonest possible.

Should the security be compromised, the machine will have to be put-out of the operation, until the fault is corrected.

The user has to install the machine in a way to insure, that neither the operator, nor the neighbors are endangered. The wear of personal security clothes (security shoes, gloves...) is compulsory.

II - ADJUSTMENTS

The machine adjustment is made at a low speed, by a specialized foreman. The stringent general security rules have to be respected during adjustment.

III - MAINTENANCE

The maintenance of the machine is a very important security factor.

The maintenance should be done periodically, by a qualified personnel, who will have to protect himself from all dangers/risks (hydraulic projection, wire prick ...)

The reparation and maintenance of the machine are to be executed exclusively when the machine is **STOPPED**.

Should this be impossible, special security provisions are to be taken to eliminate any danger. Particularly take care of loading/unloading device wedging before any intervention of maintenance operator.

IMPORTANT

A la mise en place de nos machines, vérifier le serrage de tous les écrous et vis pression ainsi que toutes les connexions électriques.

WICHTIG

Beim Aufstellen unserer Maschinen sind alle Muttern, Klemmschrauben und alle elektrischen Anschlüsse auf festen Anzug zu überprüfen.

IMPORTANT

When installing our machines, please check the tightening of all nuts and pressure screws as well as electric connections.

IMPORTANTE

Durante el montaje de nuestras maquinas, verificar el ajuste de cada tuerca y tornillo de presion asi como cada conexion eléctrica.

IMPORTANTE

Durante il montggio delle nostre macchine, controllare il serrggio di ogni dado e vite pressioneed anche ogni collegamento elettrico.

1- TECHNICAL DESCRIPTION

Rotating Machines

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TA 1250RN - 4 M (page 1/7)

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TECHNICAL DESCRIPTION

HIGH SPEED DOUBLE TWIST STRANDING AND LAYING-UP MACHINE

TYPE TA 1250 RN – 4M

STRANDING :

- Wire range : dia. 0.6 to 3.15 mm (22 - 8 AWG).
- Wire material : Cu, Al and Almelec (Aldrey).
- Compacted cross sections : 2 - 54 mm² (AWG 14-1/0).
- Max. stranded cross section: 19 wires, 107 mm² (AWG 4/0).

LAYING-UP :

- 2 to 5 insulated conductors.
- Cross section range 2 to 25 mm² (AWG 14 - 3).
- Max. assembled cross section : 100 mm² (AWG 3/0) (4 x 25 mm²).
- Max. dia. laid-up product : 25 mm (1").

GENERAL INFORMATION :

Machine direction: seen by the operator the cable runs from the right to the left or from the left to the right.

Take-up bobbins :

- max. dia. : 1250 mm (49") DIN 46395
- min. dia. : 1000 mm (40")
- overall width : 950 mm (37") max.
- Max. full bobbin weight : 4000 daN.

Pneumatics : 6 bars required.

Electrics : 380 V, 3 phases, 50 Hz
(others on request).

Main drive : 81 kW DC motor with
thyristor speed variator.

Capstan drive : 65 kW DC motor with thyristor
speed variator.

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Option: 65 kW DC motor for section limited to 70 mm².

Bobbin drive : 16 kW DC motor with thyristor speed variator.

Traverse drive : 1.1 kW AC gear motor with frequency variator.

PRODUCTION CAPACITY :

Maximum machine speed: 2200 TPM

The production speed depends on the products to be made :

- 2000 twist/min. for a light flyer for bare wires up to 25 mm² (AWG 3)
- 1600 twist/min. for a standard flyer for laying-up insulated conductors.

Max. linear speed :

- 250 m/min. for laying-up of insulated conductors
- 300 m/min. for bare wire stranding.

Standard lay range : 40 to 499 mm (1.5" - 20").
Set on control desk.

TECHNICAL DETAILS :

Take-up :

The bobbin is pintle mounted and has its axis parallel to the machine axis. The cradle carries the drive groups for capstan, traverse and take-up bobbin.

Rotating part :

The rotating part is timing belt driven at both ends from a transmission shaft.

Both bow supports are made of heat treated aluminium alloy.

The bows are made of carbon fiber. One is fitted on the inside with a steel lining and tungsten carbide wire guides. The second one is counterbalanced with weights.

Product path :

Before the bow, the product is guided by a 400 mm diameter pulley. After the bow, by a metal 500 mm (20") return pulley.

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Capstan :

The product is hauled off by a 500 mm (20") dia. double wheel capstan. Each wheel has 5 grooves and both are driven by a DC motor with forced ventilation through a standard reducer.

A tacho-generator mounted at the capstan verifies that its speed is proportional to the bow speed, i.e. ensures a constant lay.

Strand break detection in the cradle :

At capstan entry a detector stops the machine automatically in case of a broken strand after the stranding or compacting die.

Bobbin drive :

The bobbin is driven by a DC motor with adjustable torque.

A tacho-generator is driven by one of these gears and transmits a reference to the traverse drive motor.

Winding tension :

Adjustable from the control desk, and digital display. of the preselected tension.

Traverse :

The unit has its own drive by a frequency controlled gear motor. This motor drives the traverse carriage mounted on ball bearing mounted rollers through a threaded screw. The change over of traverse direction is made on the touch screen panel.

Traverse pitch is set on the touch screen panel.
Pitch range : 2 - 25 mm (1/4" - 1").

Stranding direction :

The selection of a right or left hand lay is made through the machine PLC.

Length counter :

An impulse transmitter, mounted on the capstan gear box, gives signals to the computer which displays the product length on the desk.

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Main motor :

DC motor with forced ventilation, fed in fresh air took out of the soundproof cabinet.
This motor drives the rotating part at both ends through a transmission shaft and timing belts.

Brake :

A pneumatic brake ensures a highly efficient braking.
Compressed air network : 6 bars.

Loading/unloading system :

By a hydraulically actuated platform showel (no foundation required).

The use of the system is pre-checked by a detector checking the bow position.

The "low" and "high" positions are being controlled by electric limit switches.

In "high" position, the unlocking of the bobbin carrying shaft is done hydraulically.

In "low" position, the bobbin will be at factory floor level.

All controls of this system have been grouped on an auxiliary desk, placed inside the machine protection.

Frame :

All above machine elements are mounted on a common an rugged fabricated frame, bolted to the factory floor.

No foundation are needed.

Soundproof protection :

Assuring a max. 85 dB(A) noise level.

Service side : a sliding door gives access to the machine for loading/unloading operations. Another door at the back is particularly appreciated by maintenance staff and machine visitors.

All above doors are supplied with a security lock preventing opening before a complete standstill of the machine.

The enclosure is also provided with 2 service doors on wire entry side and 2 service doors on main motor side.

It is installed directly at factory floor level,

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A high flow ventilation takes care of the cooling inside the enclosure.

The machine is illuminated by halogen lamp.

Stranding plate and die holder :

The distribution plate with tungsten carbide wire guides and the die holder will be adapted to customer's requirements. (Outside dimensions of assembling dies must be specified with the order).

Electrical equipment :

Soundproof cabinet equipment

- blower for the cooling of machine
- interlocking switch on each door
- electrical interlocking on front and back doors
- halogen lighting
- 3 mushroom emergency stops located around the cabinet.

Auxiliary electric cabinet

Mounted on rubber dampers inside the cradle and including :

- relays
- lamps "under voltage"
- lamps for detecting defects.

Ventilated electric cabinet

Including :

- main switch
- thyristor rectifiers for main motor, capstan motor,
- bobbin drive and traverse
- control circuit transformer
- low voltage transformer
- ALLEN-BRADLEY PLC which controls the running of the whole machine, mounted in rack.
- power circuitry : . safety contactors hour counter relays, switches, fuses necessary to the good running of the machine.

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Control desk

Controlling and displaying all the functions of the machine on the Colour Touch Screen Panel showing and allowing to adjust:

- the twisting speed and the linear speed
- the length of the product
- the traversing lay length
- the cabling and stranding lay length (digital from 40 to 499)
- the rolling tension

When the machine stops :

- the reason of the stop

As option :

- ampmeter : for main motor
- ampmeter : for capstan motor

Control of the loading/unloading platform

- From a separate operator's desk.

Optional features :

- Printer

Allows the printing on a label of all the information on the product made such as product specification, order number, date, hour, lay length, operator's name and number, machine number, produced length, defects.

- Pneumatic opening and closing of soundproof cabinet

- Compacting head

This assembly can be easily mounted and taken away. It consists of a die holder or a compacting unit by rollers located before the capstan with close circuit water cooling and circulation pump. Roller holder is placed on a handling arm.

- Alarm computer maintenance system:

Additional software in the PLC allows the programming of the maintenance for each part of the machine. The time between each lubrication can be separately programmed.

A pilot lamp will light up on the PLC display when maintenance operation should be made.

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- Stand lubrication system

A motor driven lubrication unit, to be placed just before the stranding die, can be supplied at supplementary cost.

- Pintle adaptors

For a second bobbin size.

COLOUR

- | | |
|----------------------|------------------|
| - Machine | : grey RAL 7030 |
| - Electrical cabinet | : grey RAL 7035. |

2.1- EC CONFORMITY DECLARATION

**DECLARATION DE CONFORMITE
CONFORMITY DECLARATION**

Nous,
We, the undersigned,



SETIC SAS
126, rue de Matel
F - 42300 Roanne
FRANCE

Tel : 33/4 77 23 25 55
Fax : 33/4 77 71 10 85

Déclarons sous notre seule responsabilité que le produit :
hereby declare under our own responsibility that the following product :

***Tordonneuse ou assembleuse à double torsion à haute performance type
TA1250RN-4M***

***High speed double twist stranding and laying-up machine ,
type TA 1250RN-4M***

Serial No. 1860 00 - Machine No. 7848-41

auquel se réfère cette déclaration, est conforme avec les directives et normes
suivantes :

*to which this declaration refers to, does comply with the following directives and
standards :*

- Directive Machines 98/37/CE
- *Machines directives 98/37/CE*

Fait à Roanne, le 14 avril, 2008
April 14, 2008

M. Leflond
Directeur
Manager



2.2- SOUND LEVEL

**Emission sonore de la machine inférieure à 85dB(A)
à vitesse maximum.**

**Machine noise level less than 85dB(A) at maximum
speed.**

**Maschinen lärm Emission niedriger als 85dB(A)
bis zur maximalen Drehzahl.**

- Mesures effectuées à 1m du sol et 1m des capotages
- Sonomètre de classe 1
- Suivant Norme ISO/DIS 11201
- Noise measured at 1 meter high from ground level and 1 meter away from soundproof cabinet
- Class 1 soundmeter
- According to ISO/DIS 11201 standards
- Messungen gemacht bei 1 m Abstand von Boden und Gehäuse
- Prüfgerät Klasse 1
- Laut ISO/DIS 11201 Normen

2.3- MARKING REMINDER

TA 1250RN-4M

VITESSE MAXIMUM DE ROTATION 2200 TPM
MAXIMUM ROTATION SPEED 2200 TPM
MAXIMALE DREHZAHL 2200 TPM



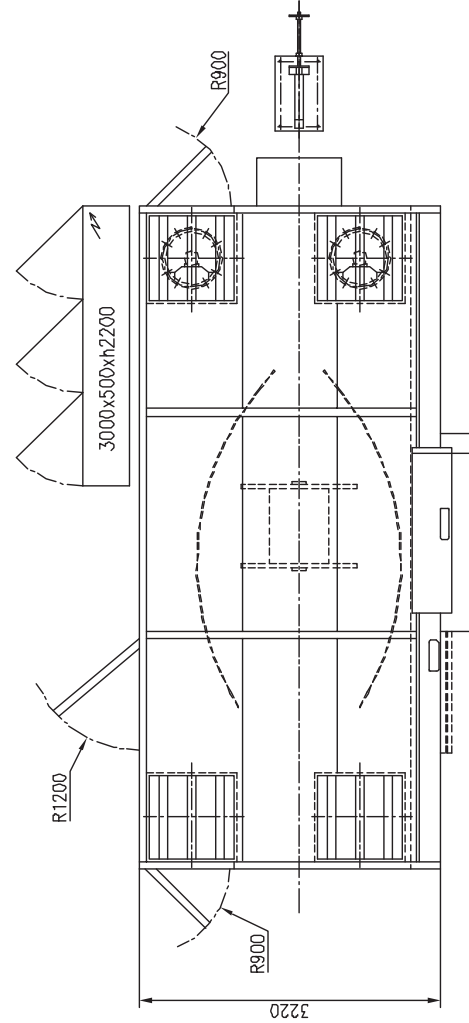
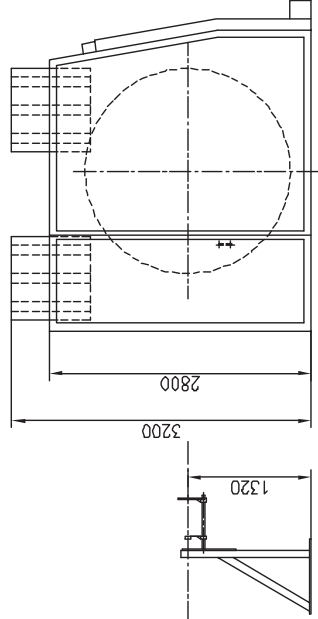
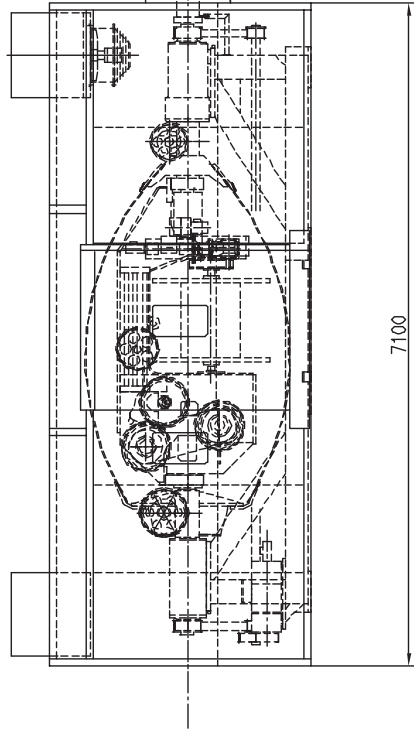
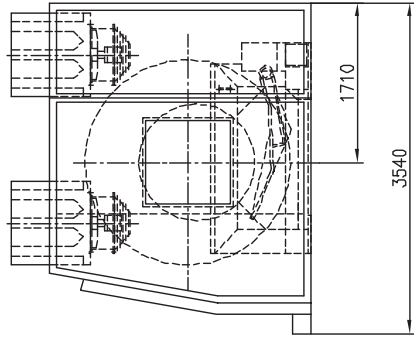
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N° : **7848-41**

Type : **TA1250RN-4M**

Année de fabrication : **2008**

3.1- GENERAL LAY-OUT



N°	7373	/2
TA1250RN-4M DG		
STANDARD		

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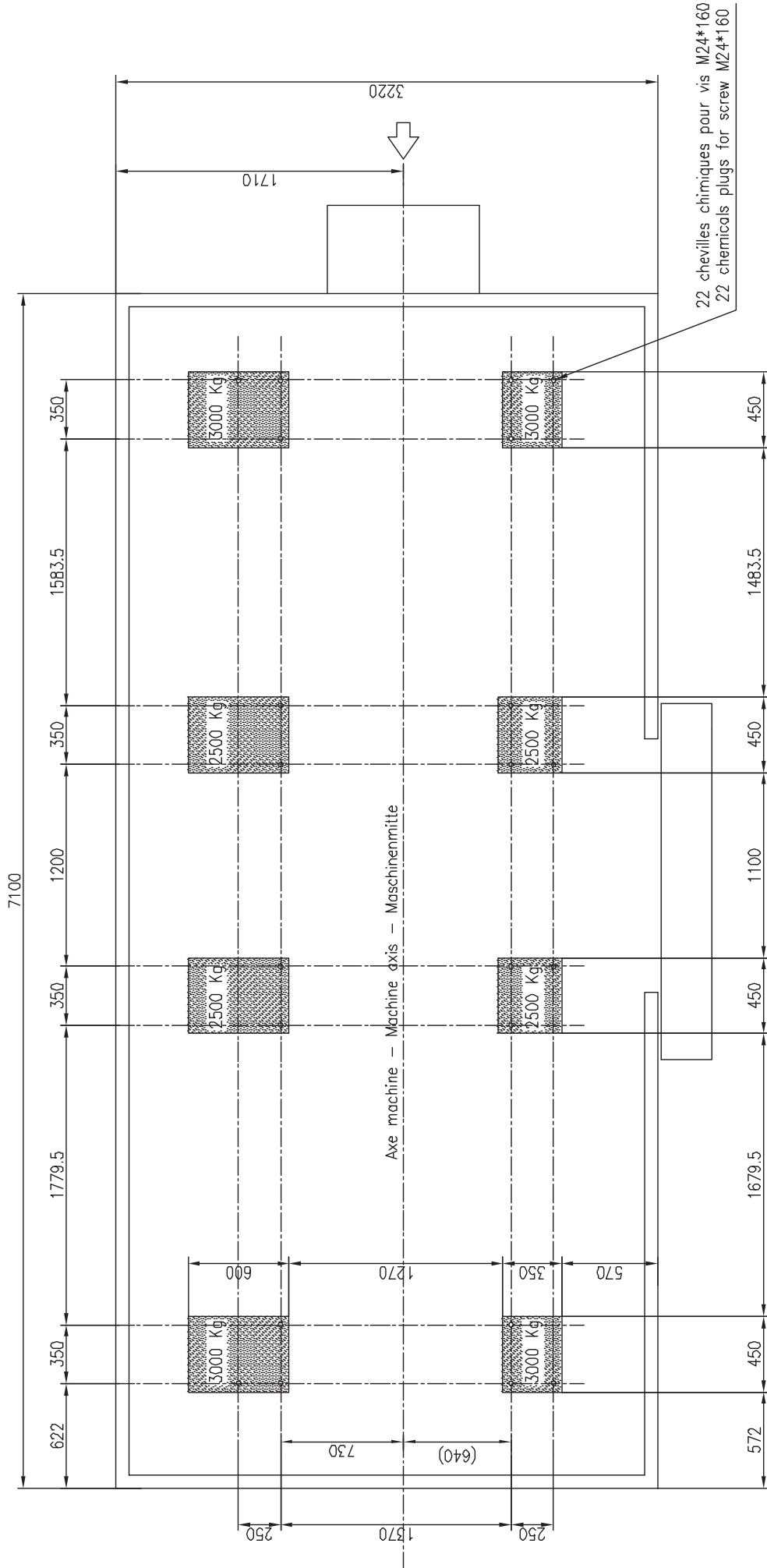
3.2- FIXING LAY-OUT

Masse Max de la bobine: 5000 Kg
Bobbin weight: 5000 kg

Masse du carter: 3500 Kg
Cabin weight: 3500 kg

Masse de la machine: 15000 Kg
Machine weight: 15000 kg

Position des patins antivibratiles
Position of anti-vibration rubber pads



22 chevilles chimiques pour vis M24*160
22 chemicals plugs for screw M24*160



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FIXATION
FIXING

N° 7400 / 1
TA1250RN-4M DG

3.3- INSTALLATION MANUAL

3.3 - INSTALLATION MANUAL

3.3.1 - Mechanical installation of the machine

3.3.2 - Electrical connection

3.3.3 - Connection of optional accessories :

- mechanical
- electrical
- option

3.3.4 - Pneumatic connection

3.3.5 - Hydraulic connection

3.3 - INSTALLATION MANUAL

3.3.1 - Mechanical installation of the machine

- 3.3.1.1 - See outline drawing with accessories (brakers, pay-offs, return-pulleys). Specific to customer.
- 3.3.1.2 - Fixing points.
- 3.3.1.3 - Space requirement for machine and guard.
- 3.3.1.4 - Mechanical fixing to the floor.

The diameters of the stud bolts and their positions are indicated on foundation drawing.

- a - Position the machine and the stud bolts.. Put rubber pads under the frame near the tightening points so as to adjust the level and to ensure effective fixing without any risk of propagation of vibrations.
- b - Check the tension of the motor's belt and adjust it if necessary using the guide ways.

3.5.1.5 - Installation of the guard

- a - According to foundation drawing, comply with the dimensions between the frame and the guard by making the centreline of the machine match the centreline of the guard (wire entry hole) and complying with the longitudinal position.
- b - The guard must rest over the whole of its bottom surface on a foam seal (supplied by SETIC), so as to ensure good sound insulation.
- c - Fixing: provide bolts to be positioned on assembly opposite the four holes for the fixing brackets located in the 4 corners inside the guard.
- d - Packing: provide packing pieces, so as to ensure that all the doors work properly.

3.3.2 - Electrical connection

3.3.2.1 - Position of the cabinet according to the customer's layout.

3.3.2.2 - The sheaths supplied with the machine enable the unit to be connected easily, each wire bearing an identification number to be connected to the same number on the terminal board.

See wiring diagram .

Connecting terminal board drawing

Each wire is to be connected to the terminal bearing the same number.

3.3.2.3 - Mains: according to customer

Is to be connected to the main switch's input terminals. Provide a cable of sufficient dimensions for the power to be transmitted, with an earth wire. Comply with the phase order R.S.T.

3.3.3 - Connection of optional accessories

3.3.3.1 - Electrical connection: according to the supplier's manual.

3.3.3.2 - Electrical connection : according to the supplier's manual and make the interconnections with the machine's cabinet according to the wiring diagram.

3.3.4 - Pneumatic connection

Compressed air at a minimum pressure of 6 to 7 bars needs to be provided on the electropneumatic plate.

Connect it using a 10/8 inlet pipe to be connected according to pneumatic diagram (section 5.2).

3.3.5 - Hydraulic connection

The only connection is supplied with the platform. Simply connect the two pipes on the pump, complying with the marks.

There is no other connection to be provided with the outside of the machine.