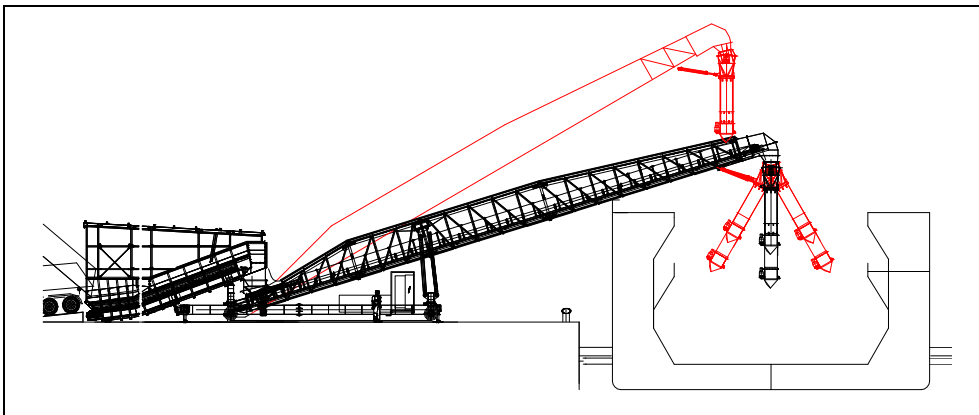




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## Movable shiploader Belt conveyor m 32,25 x 1000 mm INSTRUCTIONS MANUAL


Date: 15/07/2014  
114003IST - Rev. 00

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## 1. MACHINE IDENTIFICATION

### 1.1 IDENTIFICATION

*Denomination :*

Type: TNG1000  
 Year of manufacture: 2014  
 Description: Belt conveyor m 32,25 [kW 18,5]

*Plant Reference :*

Plant: Solid sulphur pastilles  
 Material handled: Fixed  
 Installation:

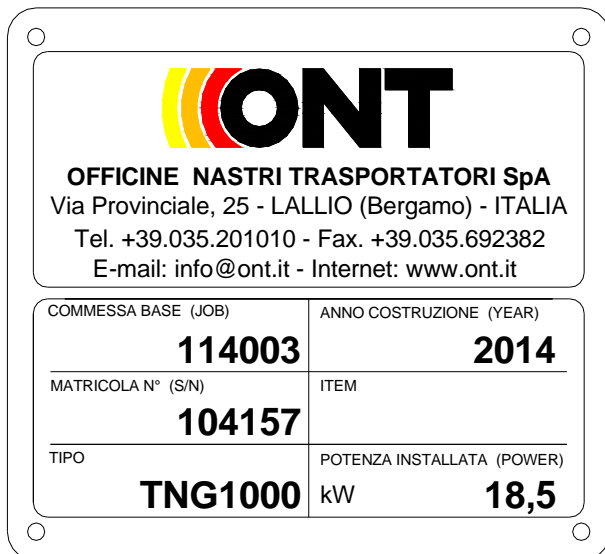
*ONT Reference :*

Machine n.: **104157**  
 ONT Job n.: 114003  
 Assembly drawing n.: 114003001 rev.04

*Purchase Order Reference :*

Client: BEDESCHI S.p.A.  
 Purchase Order n.: OA14001759 of 15.04.2014

### 1.2 MACHINE MARKING LABEL



**ONT**  
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COMMESSA BASE (JOB)	ANNO COSTRUZIONE (YEAR)
<b>114003</b>	<b>2014</b>
MATRICOLA N° (S/N)	ITEM
<b>104157</b>	
TIPO	POTENZA INSTALLATA (POWER)
<b>TNG1000</b>	kW <b>18,5</b>

*Marking labels fixed near drive unit*

### 1.3 TECHNICAL DATA SHEET

<i>Material to be conveyed</i>		
Material		Solid sulphur pastilles
Bulk density	t/m <sup>3</sup>	1,15 (loose) - 1,32 (agitated)
Grain size	mm	4
Angle of repose	°	25
Moisture	%	0,5
Temperature	°C	Ambient

<i>Design data</i>				
Capacity	t/h	300		
Pulleys centre length	m	32,25		
Lift between pulleys	m	max 11		
Working slope	°	+15 ÷ +20		
Belt width	mm	1000		
Belt speed	m/s	1,59		
Installed / Absorbed power	kW	18,5 / 13,9		
Troughing angle	°	30		
<i>Pulleys</i>		<i>A</i>	<i>C</i>	<i>B</i>
Diameter	mm	400 x 1150	Roller PSV/4 Ø159x1158 rubber lined 5mm	400 x 1150
Shaft	mm	90 / 85 / 85		70 / 60 / 50
Lining	mm	rubber type 10S		-
<i>Rollers (*)</i>		<i>UPPER (carrying)</i>	<i>UPPER (loading point)</i>	<i>LOWER</i>
N. of rollers (n. per station)		96 (3)	9 (3)	10 (1)
Ø x L	mm	Ø108Nx388	Ø108NAX388	Ø108x1158
Spacing	mm	1000	300	3000
Couples of guide rollers	n.	3		3
<i>Accessories</i>				
Type / Position of take-up device		N.2 screw take-up devices Drive + Tail heads		
Run of take-up device	mm	400 + 200		
Protections		Upper and lower covers		
Drive / Tail hoods		Yes / Yes		
Loading skirts	m	3,26		
<i>Equipment *</i>				
Drive unit ** (right side)		Hydraulic motor kW 18,5 type SH11C-M-055-OC-SAI-LM2-RV-V-... (by BEDESCHI)		
		Gearbox PH218K/19,77/00 mounting position B3 with brake kit FL635.U/B24/./00		
Belt		Type Chevron belt 1000KSN-15/800 EP400/3 3+2 Flame retardant - Antistatic		
N°1 v-plow cleaner		Type ONT1 (tail head)		
N°4 emergency stop push-buttons		Type XAWF198EX (by BEDESCHI)		
N°2 couples of belt drift switches		Type XCRT215EX (by BEDESCHI)		
N°1 speed switch (right side)		Type XSAV11373EX (by BEDESCHI)		

(\*) The complete list of rechargeable components is indicated in the section "Spare Parts".

(\*\*) For further characteristics, see gear unit plates.

## 2. SAFETY INSTRUCTIONS

---

### **2.1 FOREWORD**

*Personnel responsible of installation, control, maintenance and dismantling of the machine must read integrally and understand the present manual, even if they execute such activities in permanent or occasional way.*

*Employer will have to inform the personnel about accidents risks, about devices predisposed for operator safety, about risks of noise and about general rules for accidents prevention foreseen from international directives and from legislation Country of the machine where is destined.*

*Behavior of personnel responsible of maintenance, cleaning, control etc., will have to respect meticulously laws of the Country where machine is destined for accidents prevention.*

*User is responsible of any wrong operation effected not observing indications described in the present manual and therefore he has to control that own personnel has been informed and understood the content of it.*

*Not authorized tampering or substitution of one or more parts machine, use of equipments, tools, wear materials different from those recommended by ONT SpA, can represent possibility of accidents and ONT SpA doesn't have civilians and penalties responsibility.*

## **2.2 PROTECTIONS**

ONT belt conveyor is equipped with (compare assembly drawing):

- upper covers;
- hoods at drive and tail heads;
- lower covers.

Protections are bolted to the frame so that they can not be removed, only voluntarily and by personnel of the maintenance, educated to effect the operations.

The removal of protections/opening of inspection doors, have to happen only after having switched-off machines and locked the general interrupter.

## **2.3 ENVIRONMENTAL CONDITIONS OF WORK**

### **2.3.1 Clothing of operators**

At work place operators have not to use personal garments or clothings that, according to kind of operations or characteristics of machines, can constitute a danger for personal security.

Clothing of personnel responsible of use or maintenance of machine has to be however conforming to essential safety requisites in force in own Country and to legislations for the use of individual protection devices. When operator is in presence of works, operations or environmental conditions that are dangerous, he has to wear garments and protection tools adapt to his personal security.

List of healthcare protections:

- helmet;
- safety shoes;
- eye protectors (see PS&S requirements)
- hearing protections (see PS&S requirements);
- respiration protections (see PS&S requirements).

### **2.3.2 Work places**

Work places have never to be occupied, in order to avoid that nothing interferes with movements of operator or can prevent immediate access of him to machine in case of emergency.

Besides it's forbidden the access to work areas to persons that are not directly employed to the functioning of machine, to avoid dangers due to no attention or carelessness during operation.

Persons that are not employed to functioning of machine, but authorized to the access to work areas, are considered "exposed persons" and they must be informed and protected from risks present in the work areas.

We recommend the operator responsible of machine control, to keep always clear the work areas from any extraneous equipment and to prohibit access to not authorized persons, in order to have ideal conditions of security to work on the same.

**COMPARE THE SECTION "WORK AND DRIVE AREAS."**

### **2.3.3 Safety advices**



**WHEN YOU APPROACH TO MACHINE PAY ATTENTION TO AVOID CONTACT WITH MOVING PARTS OF THE SAME.**



**ALL MAINTENANCE AND ADJUSTEMENT OPERATIONS HAVE TO BE EXECUTED WITH MACHINE SWITCHED-OFF AND WITH THE GENERAL INTERRUPTER SWITCHED-OFF AND LOCKED FOR UNINTENTIONAL STARTING.**



**DON'T REMOVE PROTECTION GUARDS DURING THE FUNCTIONING.**



## **2.4 NOISINESS**

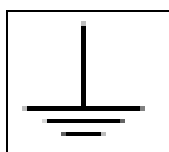
The ONT SpA doesn't have any standardised production, so it can not refer to a standard sample in order to control noise level. The noisiness of machine depends on the movement of its mobile parts, on kind of product in working, but also on the contribution of environment in which it is installed and on the consequential noisiness from the other functioning machines near it.

You have to consider that noise values found in ONT machines, have never exceeded level allowed from laws in force till now; noisiness tests have to be executed at site, during the final testing.

## **2.5 ELECTRICAL CONNECTION**

Electrical connections are at Client care.

Electrical connections must be carried out by qualified personnel (electrician) ONLY.



PLEASE, EXECUTE FRAME ELECTRICAL EARTHING CAREFULLY!

## **2.6 USING**

### **2.6.1 Destination**

The machine has to be installed in the place specified by the Client in the order. Possible changements of installation place and/or transfers to thirds of the property or of machine location will have to be opportunely signalled to ONT SpA.

### **2.6.2 Capacity**

The belt conveyor is built in order to handling materials that have characteristics, such as specific weight and size, that are in conformity with characteristics declared by Client.

Do not overload the machine with these materials and do not use it to carry materials whose nature and size are different; the improper use may cause a breaking of the machine components, a leakage of the handled materials and many risks for safety of personnel.

### **2.6.3 Rubber belt**

The belt is in conformity with the thermal, chemical and physical requirements requested by the kind of material to be handled; do not charge belt with materials whose nature or temperature is different from the order. Material, that isn't in conformity with the design characteristics, should cause risks of infection, of disease and contagion; the rubber belt can be subjected to unforeseen abrasions, laceration, chemical or thermal reactions and damage to handled product too.

Do not charge rubber belt with materials whose nature or temperature is different from the order, if you don't have any written approval by ONT S.p.A.

### **2.6.4 Use in explosive atmosphere / Classification**

The handling machine is foreseen for an use in explosive atmosphere compatibly with the characteristics furnished during contractual phase.

**The use of machine has to foresee the integration of present instructions and safety ATEX instructions** (chapter 10).

### **2.6.5 Illumination**

The place where machine is installed has to be illuminated in order to individualize easily maintenance and control areas during normal operation; for maintenance operations, illumination has to allow execution of operations in safety condition, in particular for parts inside of machine.

Illumination is at Client care; it must respect what prescribed by laws in force.

## **2.7 NOT-ALLOWED AND INCORRECT USE**

The builder cannot be considered person responsible for possible damages or accidents caused by improper, wrong or not authorized uses.

### **2.7.1 Not-allowed use**

- A risk can be caused from the bad use of machine, which can not and doesn't have to transport people or animals.
- The machine must not be used as shortcut for walking
- **It is forbidden for the exposed persons to pass or to stay under machine;** it will be care of Client to affix posters in the areas to the passage.
- Capacity superior to the indicated one or transport of not compatible materials with the structure of machine, is to consider "not-allowed use".
- Operations of adjustment, setting-up, reparation and maintenance must exclusively be executed with the machines switched-off and, where necessary, using modal selector, as indicated at the point 1.2.5 of "Machines Directive".

### **2.7.2 Incorrect use**

Never use the machine if:

- Belt conveyor is not correctly tensioned, aligned and is not periodically inspected, cleaned from residues of the previous cycle and verified its functioning.
- The grease of lubrication for mechanical parts in movement is polluted from dust or from other abrasive substances (in such case it must be restored).
- Inner parts of machine have material accumulated during previous workings or, however, foreign matters.
- Protections have been removed (guards, upper and lower covers, etc.).
- The machine changes its destination of use or ownership, without ONT SpA is informed at the right moment.



#### **SUPPLEMENT FOR USE OF SHI PLOADER BELT CONVEYOR:**

- **Start and stop of conveyor must always take place when the belt is empty.**
- **Take every precaution that can prevent belt overload: even short overloads can cause big damages.**
- **Daily check the presence of material that can build in the tail area of belt conveyor and carefully remove all.**

### 3. INSTALLATION

#### **3.1 SHIPMENT, TRANSPORT AND HOISTING**

During delivery the machine can be completely assembled or, in the case of machine with great dimensions, disassembled in sections/partially assembled as described in the bill of lading and/or in the packing list.

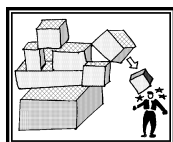
Hoisting equipments have to be in perfect conditions: ONT declines every responsibility for what concerns conditions and capacity of used hoisting equipment. Movement will have to happen slowly, with suitable illumination and with suitable open area for installation.



CHECK ROPES AND LIFTING CHAINS.



DON'T CROSS OR STOP UNDER SCAFFOLDS, PLANKING AND HANGING CARGOS.



STACK CORRECTLY THE LOAD.

The unloading phase must be executed with a suitable lifting chain, or rather with capacity adequate to the weight of machine or pieces to hoist; we recommend that during unloading phase there are at least two qualified operators (truck operators, crane men).

- Lift and handle the machine exclusively by means of the grips provided for the purpose.
- Use lifting systems suitable for the weights, dimensions and the distances to be covered.
- Use shackles and hooks with safety catches for hooking the machine to the lifting handles.
- Do not use clamps, rings, open hooks or other systems, which do not guarantee the same extent of safety as hooks with safety fastenings.

#### **FURTHER RECOMMENDATIONS**

MOVE AWAY BODY AND HANDS WHEN MACHINE OR ITS PARTS ARE LOWERED: THE NOT OBSERVANCE OF THESE INSTRUCTIONS COULD CAUSE SERIOUS LESIONS.



#### **ATTENTION:**

ONT SpA declines every responsibility regarding this phase that has to be executed by personnel specialised on handling of materials for industrial machinery (slingers, truck operators) and dressed with necessary individual protections.

#### **3.2 RECEIPT OF MATERIAL**

After executed the unloading of machine, we recommend executing of the following controls:

- Check that delivered material corresponds to that indicated in the packing list;
- The custody of packs and their content is at Client charge, that will be responsible of their integrity.
- Machine and/or components, waiting for assembling, must have placed in a dry, covered and clean area, away from corrosive agents until the start-up.

#### **3.3 STORAGE**

The belt conveyor should be immediately assembled once at site; anyway, because of some technical exigencies, it could be assembled afterwards.

**Ambient storage temperature should be +5÷20°C (dry and covered place).** In any case for:

Reducer	See manufacturers' storage instructions, particularly for oil lubricated parts in case of storage higher of 3 months.
Rubber belt	
Rollers	



**ATTENTION:**

If at first start-up the lubricating grease is polluted by external agents (dust, abrasive substances, etc), it's obligatory restore it, with instructions described in "Lubrication" chapter.

ONT declines any responsibilities for damages caused for not observance of these prescriptions, that will cause an immediate and total decadence of any guarantees.

### **3.4 PRESCRIPTIONS FOR FIXING AND ANCHORAGE**

Instructions, possible indications or procedures of anchorage/fixing of the machine are suitable on erection drawing.

**NOTE:** Since installation of machine is executed by the final user, ONT SpA submits to user the responsibility regarding anchorage of it; the necessity to execute such operation has to be valued according to the safety of personnel exposed, with respect to the typology of transported materials, to conformation and dimensions of machine.

### **3.5 DISMANTLING**

In case of dismantling of machine, it must be observed dispositions in force in user Country.



**IMPORTANT:**

Dismantling of machine must be executed by electric and mechanic specialised personnel. Before beginning the operations, create around machine a sufficiently ample and clear space, because operators should work without further risks created from surrounding environment.

Proceed as follows:

- Disconnect machines from electric power supply.
- Detach power and control cables.
- Disassemble local control panel and all electric cables.
- Remove protection guards.
- Remove miscellaneous.
- Remove complete skirts and chutes.
- Detach motor and brake from hydraulic plant.
- Disassemble drive unit.
- Remove rubber belt and rollers.
- Disassemble pulleys.
- Remove framework.
- Separate different materials (i.e. metal, plastic and rubber, etc.), and send them to the diversified collection.



**ATTENTION:**

Oil for lubrication has to be collected and digested / eliminated according to what prescribed by norms in force.

### **3.6 INSTALLATION**

For the erection at work:

- Phase A : Assemblage and erection of conveyor frame;
- Phase B : Installation of rubber belt (delivered closed ring);
- Phase C : Installation of machine;
- Phase D : Completion of machine;

#### **ASSEMBLAGE AND ERECTION OF CONVEYOR FRAME**

The machine is supplied with separate parts and forwarded in packages; the elements are marked on the erection and marking drawings and they are listed in the packing list. For dimensions some components are sent partially assembled; these components are:

- Drive head
- Tail head

Proceed as follows:

- 1- Using some provisional supports assemble conveyor frames except of upper and lower covers.
- 2- Install drive and tail heads supplied preassembled.
- 3- Complete conveyor frame according to erection drawing.

*TIGHTENING TORQUE OF SCREWS MUST TO BE CONFORMING TO PRACTICAL LAWS IN FORCE FOR THE DIFFERENT TYPOLOGIES AND MEASURES INDICATED ON ASSEMBLY/ERECTION DRAWINGS.*



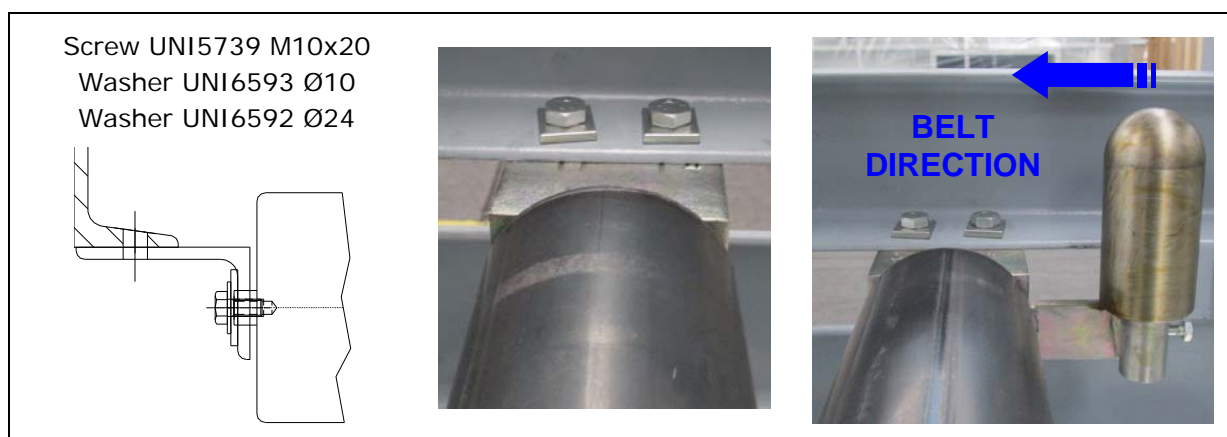
#### **ATTENTION:**

**For structural parts use bolts marked "SB" (structural bolts) for the different types and sizes indicated on the drawings.**

During installation, the controls regarding dimensions must be executed by qualified personnel in order to assure that the tolerances correlated to single requisite are respected; compare ONT instructions "Alignment and checks at erection " annexed.

#### **Installation of lower rollers**

Proceed to installation of lower rollers and relative brackets; pay particular attention to erection drawings for **positions** and **type**.



- a- Assemble couple of roller brackets loosening them on fixing screws.
- b- Apply roller paying attention to check that shaft prominence escapes from roller brackets, using bolts listed in erection drawing.
- c- Shut screw, paying attention that is at the center of slots.

#### **INSTALLATION OF RUBBER BELT (DELIVERED CLOSED RING)**

Stretch the belt along the conveyor frame, belt will support on lower rollers previously assembled.



Proceed as follows (DRIVE HEAD):

- 4- Remove hood from drive head.
- 5- Remove drive pulley from head and insert it into the belt ring.
- 6- Reposition drive pulley.

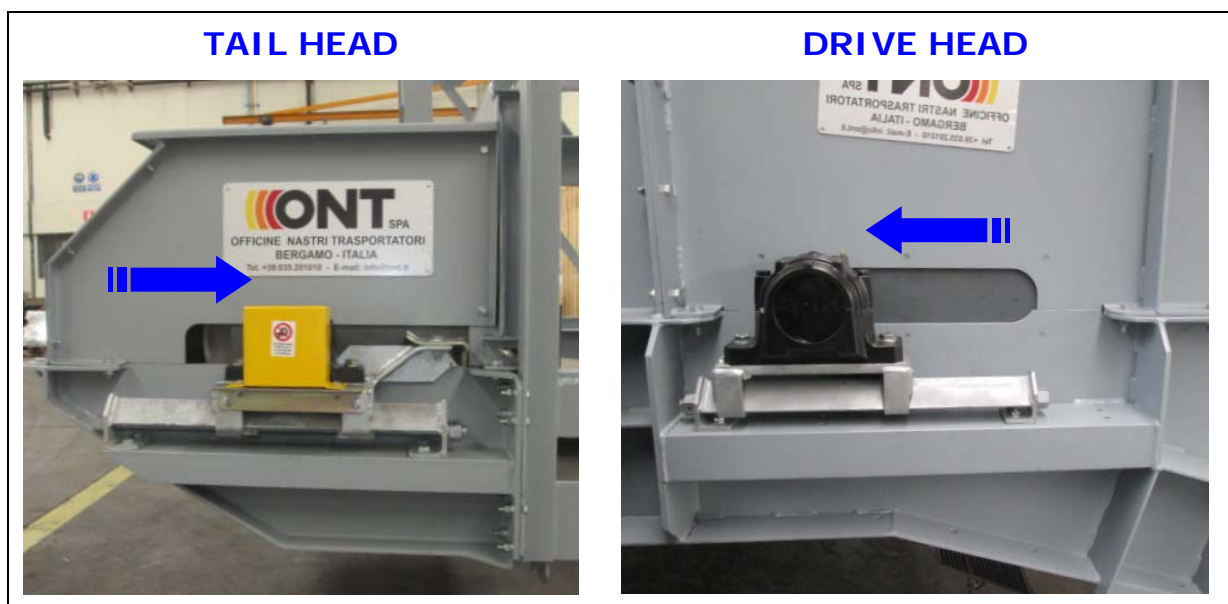
Proceed as follows (TAIL HEAD):

- 7- Remove hood from tail head.
- 8- Remove the group of v-plow cleaner and of pulley scraper, and insert them into the belt ring.
- 9- Remove tail pulley from head and insert it into the belt ring.
- 10- Reposition tail pulley.
- 11- Reinstall v-plow cleaner and pulley scraper.

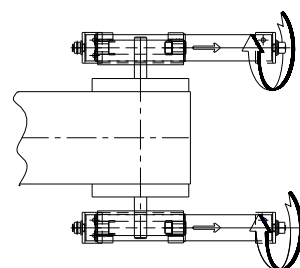


**ATTENTION:**

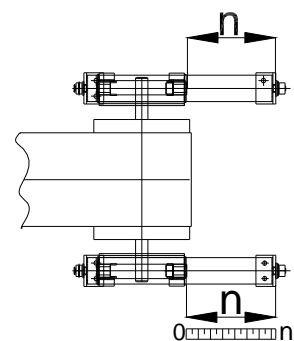
**In this phase we recommend to place drive and tail pulleys in advanced position; this operation makes easy the installation of upper rollers idlers.**



The couple of nut to turn is situated to the extremity of the head, on the two sides of machine.  
Turn in clockwise and in alternate way (for about 5mm for each side) on external nuts of take-up frames.



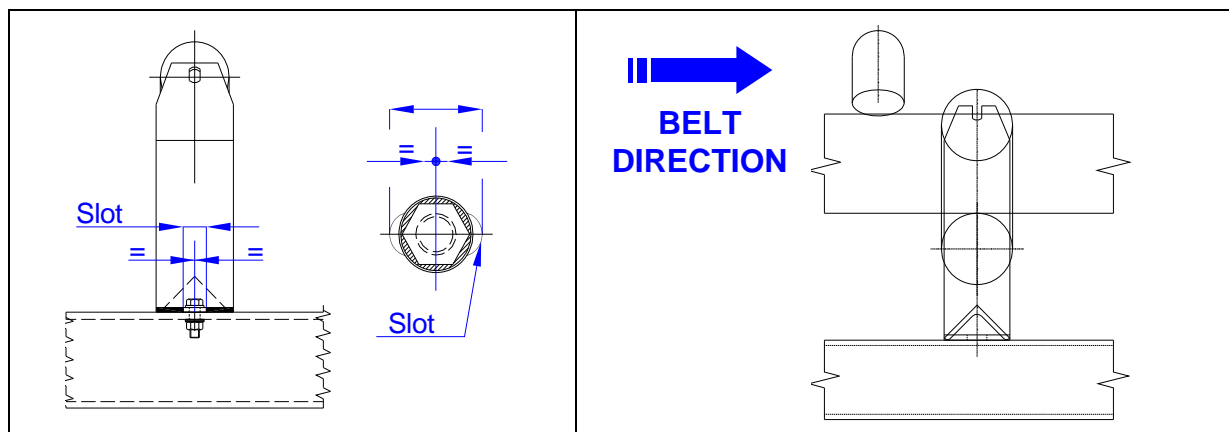
Check and be sure that distance between the pulley shaft and a fixed point of the frame is the same on both sides of the conveyor.



**EXECUTE THE FIRST BELT TENSION WITH TAIL TAKE-UP DEVICE!  
ONLY WHEN RUN OF TAIL TENSIONING DEVICE IS FINISHED, USE THE TAKE-UP  
DEVICE OF DRIVE HEAD.**

### Installation of upper rollers

Proceed to installation of upper rollers idlers **lifting rubber belt helping with a wood traverse**; pay particular attention to erection drawings for **positions** and **type**.



- a- Align the idlers with axle perpendicular to the frame and to the direction of belt running.
- b- During erection of idlers we recommend the respect of central position of slot before locking of screws.
- c- Apply roller (impact or carrying).

### INSTALLATION OF MACHINE

- 12- Lift machine with inclination indicated on the erection drawing.
- 13- Install and securely bolt the belt conveyor into position according to assembly drawing.

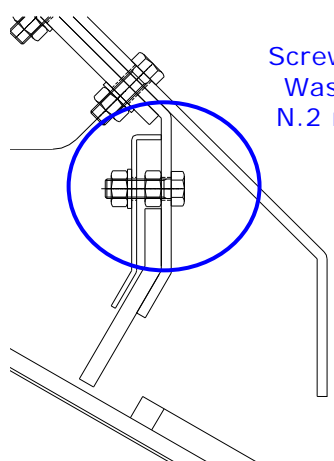
*ANCHORS AND THE INSTRUCTIONS OF ANCHORAGE ARE INDICATED ON ASSEMBLY OR ON ERECTION AND MARKING DRAWINGS.*

IN THE CASE OF ERECTION ON METALLIC STRUCTURES, PROCEEDS WITH LOCKING OF BOLTS OR WELDING OF SUPPORT AFTER ALIGNMENT AND VERIFICATION OF FRAME INSTALLATION.

### COMPLETION OF MACHINE

Assemble components on machine, according to erection drawing:

14- Complete rubber skirts; we recommend in this phase to loosen the fixing screws of rubber skirts in order to facilitate the following adjustment operations after belt centering and alignment.



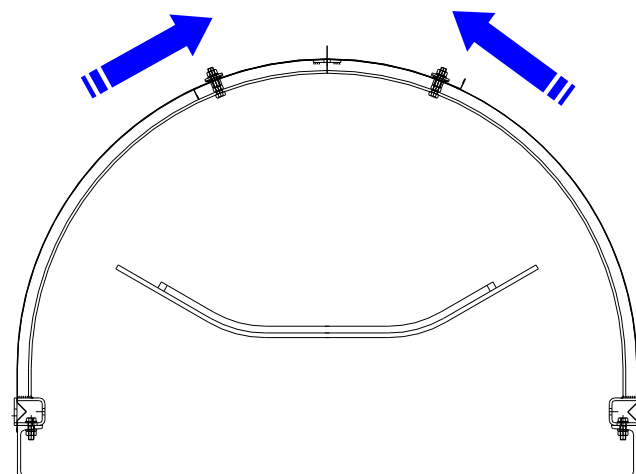
Screw M12x40 UNI5739  
Washer Ø12 UNI6592  
N.2 nuts M12 UNI5588

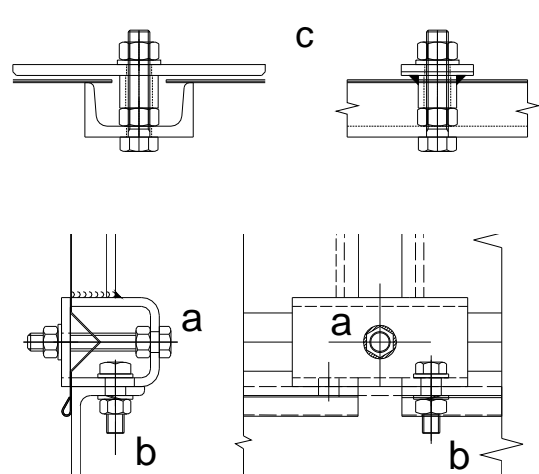
15- Electrical equipments.

16- Lower covers.

17- Upper covers.

**SLIDING UPPER COVERS**





<p style="color: blue; text-align: center;"><b>a- LOWER FIXING</b></p> <p>N.1 screw UNI5739 M12x90 N.2 nuts UNI5588 M12 N.1 washer UNI6592 Ø12</p>	<p style="color: blue; text-align: center;"><b>b- FIXING OF SUPPORT</b></p> <p>N.1 screw UNI5739 M12x40 N.1 washer UNI6592 Ø12 N.1 plate UNI6598 Ø12 N.1 nut UNI5588 M12</p>	<p style="color: blue; text-align: center;"><b>c- UPPER FIXING</b></p> <p>N.1 screw UNI5739 M12x60 N.1 washer UNI6592 Ø12 N.2 nuts UNI5588 M12</p>
--	--	--

18- Drive and tail hoods.

19- Complete installation with all the accessories: charge and discharge chutes, covers and rubber sealings, protection guards and all the equipments for the good functioning of machine.

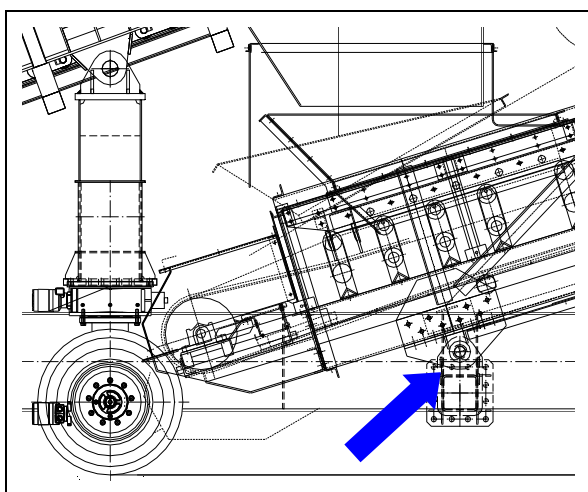
*Proceed to an accurate control of belt run to avoid that extraneous objects or utensils are in contact with the belt accidentally.*



### **3.7 CONTROLS TO MAKE AFTER INSTALLATION**

At the end of erection, execute the following checks with belt conveyor switched-off and with protections, comparing always with assembly/erection drawings:

- Check alignment of frame sections.
- Check the correct erection of conveyor frame.
- Check conveyor anchorage.
- Check that all bolts are tightened.
- Check protections efficacy; in particular control that protections are fixed correctly to the frame and they have not deformations or other irregularities due to handling or erection mistakes.
- Check the correct installation of drive unit; compare installation instructions of reducer annexed.
- Check rollers installation.
- Check lubrication: see lubrication section.



The bushings are provided with the correct quantity of grease and are ready to be used; at the end of assembling and, **in any case, before first start-up**, regreasing the bushings with lithium grease.

- Check that the voltage and line frequency corresponds to what indicated on label of the electric equipment installed.
- Check the correct positioning of electric equipment, comparing with erection/assembly drawing and manufacturer's instructions annexed.
- Check machine earthing according to laws in force.
- Check that all electrical connections have been properly made.
- Check that hydraulic connections have been properly made.
- Check the rotation direction of the motor and make sure that it corresponds to what require from electric plant.
- Check rubber belt tension and alignment; see "adjustment" chapter.
- Check that rubber skirts are not in contact with the belt; **maintain a distance of 3÷5 mms between belt and rubber skirts.**
- Check that rubber blade of v-plow cleaner is not in contact with the belt; **maintain a distance of ~3 mm between belt and rubber blade.**
- Check installation of guide rollers in accordance with running direction of belt.
- Check that no parts, tools or foreign matters are accidentally inside the machine.

## 4. ADJUSTMENT

**Repair, maintenance and adjustment operations must be exclusively executed with machines switched-off and, where necessary, using the modal selector switch, as indicated in Machinery Directive.**

### **4.1 BELT TENSION**

**It's extremely important, prior to proceeding to first start-up, check belt tension!**

#### **4.1.1 Belt tension verification**

Visual and acoustics inspections have to be performed with rubber belt in motion, while any direct intervention will be done with the machine disconnected from the mains supply!

This operation has to be executed with machines switched-off.  
When the rubber belt is new, we suggest to check it weekly, not less than 4 times.



Remove protections for three meters around and observe belt between a lower roller and the other one: if the tension is not correct, you will see an anomalous concave profile; therefore it is necessary to restore tension of belt.

#### **4.1.2 Restoring belt tension**



**EXECUTE THE FIRST BELT TENSION WITH TAIL TAKE-UP DEVICE!  
ONLY WHEN RUN OF TAIL TENSIONING DEVICE IS FINISHED, USE THE TAKE-UP  
DEVICE OF DRIVE HEAD.**

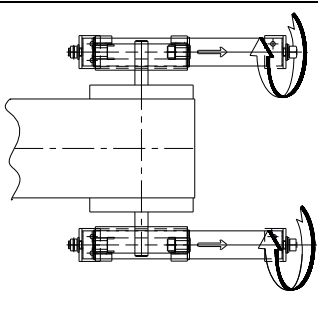
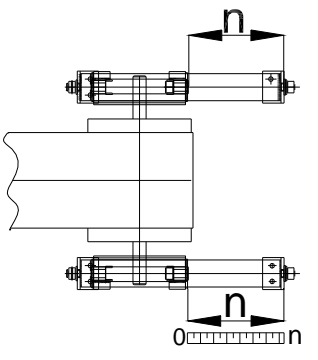


**TAIL HEAD**



**DRIVE HEAD**




The operations don't have operational difficulty, but they require diligence in executing; it's necessary that a person (maintenance operator) has a meter and a spanner; the couple of nut to turn is situated to the extremity of drive/tail head, on the two sides of machine.

<p>Turn in clockwise and in alternate way (for about 5mm for each side) on external nuts of take-up frames. When rubber belt is loosened, the necessary strength will not be high; after belt starts being tensioned, torsion resistance will rise.</p>	
<p>Control the distance of pulley shaft in comparison with a fixed point, and make sure that this distance is equal on the two sides of machine.</p>	
<p><b>When belt will seem tensioned there will be always a light concave profile; remember to avoid to extend belt too much!</b></p>	
<p>Reassemble protections previously removed and restart conveyor unload for about 30 minutes.</p>	
<p>Stop the machine.</p>	
<p>If belt is correctly tensioned, continue as follows in the underlying paragraph; in contrary case execute again the operations of belt tension. <b>When run of both tensioning device is finished, shorten belt.</b></p>	
<p>Prepare the machine to its normal working cycle, only after having verified alignment of rubber belt; advise the personnel about tensioning / re-tensioning operation.</p>	

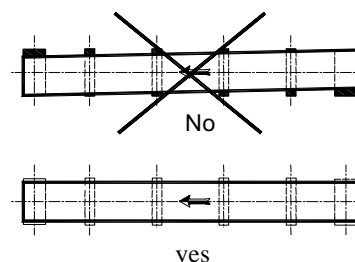
## **4.2 BELT CENTERING**

It's extremely important, prior to proceeding to start-up, check belt alignment!

### **4.2.1 Belt alignment verification**

<p>WE RECOMMEND YOU NOT TO UTILISE TENSION DEVICE OR PILLOW BLOCKS ADJUSTMENT SCREWS OF PULLEYS FOR BELT ALIGNMENT <b>WORK ONLY ON ROLLERS SUPPORTS!</b></p>	
<p>Remove tail hood / protections. Restart the conveyor unload for about 30 minutes.</p>	
<p>We recommend you to adopt the necessary procedures for the safety/security of machine when you make visual check of belt centering, while belt is running! <b>Don't come near it and don't work on it if belt is running.</b></p>	

During this phase observe belt run, especially in areas near the pulleys.

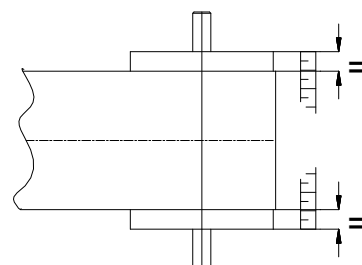


STOP THE CONVEYOR.



Control that belt is not misaligned: axe of rubber belt has to be in the centre respect to the pulley axe and must not move to one side of it!

Check that distance between pulley edge and belt one is the same on both sides; if so, belt is aligned and ready to start-up. Prepare conveyor to normal work and inform staff that operations are finished; reinstall protection guards eventually removed before.



**ATTENTION:**

**For conveyors with pulleys center length > 15m is necessary also to check the belt alignment along belt frame.**

If distance between pulley edge and belt one is not the same, proceed as follows.

**4.2.2 Belt alignment with rollers**

Belt alignment must be executed belt conveyor switched-off and by skilled staff. Remove upper covers and/or protection panels.

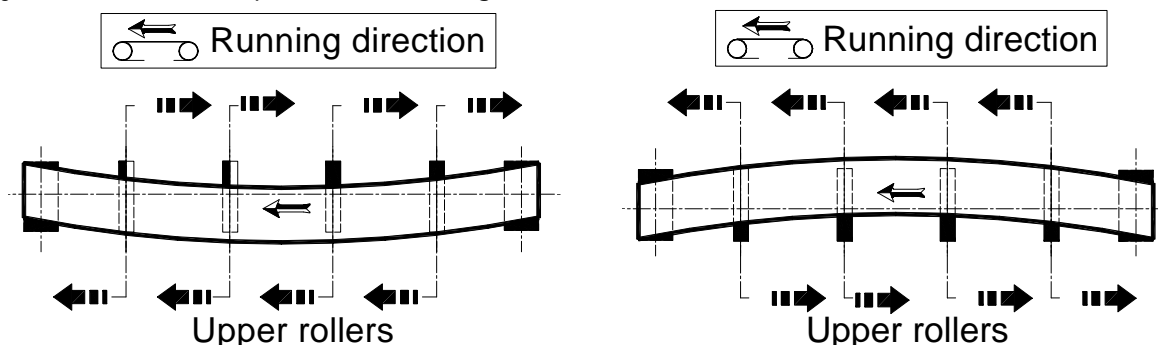


2 persons have to work contemporaneously: one on the right side of belt and the other one on the left; every one has a hammer and two spanners; these operations generally don't cause operating troubles, but need particular care during their execution.

CAUSE OF BELT MISALIGNMENT: Alignment of upper rollers is not correct

Belt is not alignment at going phase → **Alignment through upper rollers**

Adjustments have to be done as shown in the sketches beside, moving idler frames as indicated by arrows direction, up to obtain belt alignment.

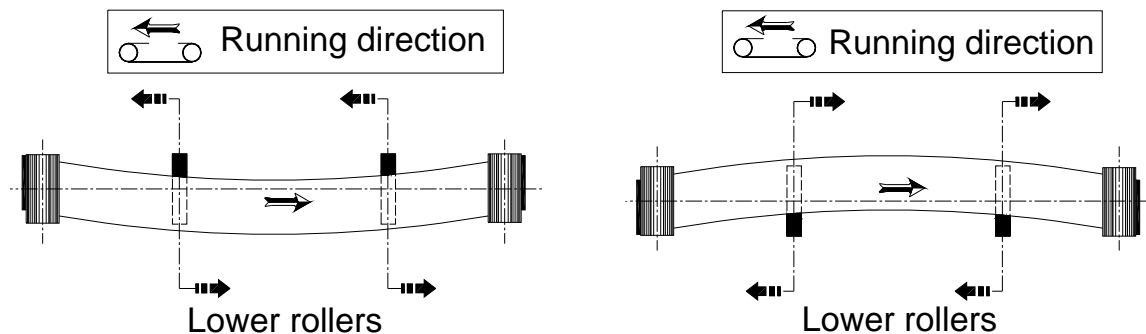


After this operation, reassemble protections previously removed and put belt into service again and wait that it makes at least 3 complete turns to control efficacy of this adjustment.

CAUSE OF BELT MISALIGNMENT: Alignment of lower rollers is not correct

Belt is not alignment at return phase → . **Alignment through lower rollers**

Adjustments have to be done as shown in the sketches beside, moving supports of lower rollers as indicated by arrows direction, up to obtain belt alignment.



After this operation, reassemble protections previously removed, put belt into service again and wait that it makes at least 3 complete turns to control efficacy of this adjustment.

**Idlers and lower rollers adjustment have to be execute with the slots in the idlers and in the supports.**

### **4.3 OTHER ADJUSTMENTS**

#### **4.3.1 Pulley scraper and ONT vee-plow cleaner type 1**

See ONT instructions annexed.

#### **4.3.2 Loading rubber skirts**

- 1- Remove protections.
- 2- Loosen the rubber skirts fixing screws.
- 3- With a screwdriver press on rubber skirt, work in the special holes of skirts; **maintain a distance of 3÷5 mms between belt and the rubber skirts.**
- 4- At the end of adjustment, tighten the screws.
- 5- Reassemble protections previously removed.

## 5. FIRST START-UP AND FUNCTIONING INSTRUCTIONS

---

### **5.1 WORK AND DRIVE AREAS**

**The belt conveyors works automatically** and are not foreseen fixed postings of work during normal functioning. If it is necessary to intervene for adjustment or maintenance, the responsible of machine functioning has only switched-off the machine and makes intervene specialised personnel, responsible of maintenance.

The operator has to be qualified on his management after having taken vision or had been educated about use of machine; **we remember and recommend to operator not to approach hands to the parts in movement.**

### **5.2 WORK PHASES**

Operations for machine start-up and stop are consequent of operations for shiploader start-up. Instructions for user and for responsible of maintenance are at producer of control panel care.

### **5.3 FIRST START-UP**

#### **5.3.1 Unloading start-up**

START UP THE MACHINE EMPTY (inspections are tightly limited to visual and acoustics observations).

- Check that machine running is regular, without frictions and anomalous noises.
- Check the correct rotation of pulleys, rollers and other moving parts.
- Check that there aren't any anomalous vibrations, overheating, wrong functioning or oil losses in drive unit.
- Check the correct functioning of electric instruments installed
- Let belt turn for some hours and observe its run, especially near drive and tail pulleys.

Stop the machine.

- Remove drive and tail hoods and check the correct rubber belt position (axe of rubber belt have to be in the centre respect to the pulleys axe); eventually proceed to alignment.
- Check belt tensioning, in case of insufficient tension, is possible to notice an anomalous concave profile of the belt, eventually proceed to tension of it.
- Control that rubber blade of vee-plow cleaner is not in contact with belt; **maintain a distance of ~3 mms between belt and rubber blade.**
- Control that skirts are not in contact with belt; **maintain a distance of 3÷5 mms between belt and the rubber skirts.**

Assemble again hoods and protections eventually removed.

#### **5.3.2 Loading start-up**

- Control the regularity of material flow and control that load is in the centre on belt.
- Check the correct functioning of multidisk brake.
- Check that there aren't any anomalous vibrations, overheating, wrong functioning or oil losses in drive unit.
- Control power absorption: execute misure of motor absorption at start-up and at speed r.p.m., making a first comparison with label data.
- Check the correct functioning of electric instruments installed according to manufacturers' instructions annexed.

Stop the machine.

- Remove protections and execute an accurate inspection along belt run to relieve possible anomalies during handling; eventually proceed with necessary adjustments.
- Check again that vee-plow cleaner works correctly; make sure on pulleys and rollers have not accumulates materials (the lower rollers are particularly subject to material accumulation), this can cause a defective running of the belt and can also so cause damages to the edge of them.

Assemble again hoods and protection guards eventually removed.



**SUPPLEMENT FOR USE OF SHI PLOADER BELT CONVEYOR:**

- Start and stop of conveyor must always take place when the belt is empty.
- Take every precaution that can prevent belt overload: even short overloads can cause big damages.
- Daily check the presence of material that can build in the tail area of belt conveyor and carefully remove all.

**5.4 ANOMALOUS SITUATIONS, EMERGENCIES, ALARMS**

For functioning conditions (maximum superficial temperature and class of temperature) of motor, reducer and electric equipments installed, compare manufacturers instructions annexed and data of plate.

**EMERGENCY STOP OF MACHINE**

Push emergency stop push-button.

To start it again machine, make sure that emergency switch is resetted, so press push button in the switch board, with authorization of machines responsible. For further information, see instructions manual of emergency switch and compare instructions manual of electroinstrumental plant.

**LOCKING / BREAKAGE OF RUBBER BELT**

In case of locking/breakage of the belt, proximity sensor for rotation monitoring, that is positioned on tail shaft, intervenes and stops the drive unit because it doesn't signals rotation of it.

**INSUFFICIENT BELT TENSION / SLIPPING**

In case of a reduction of belt speed > 10%, proximity sensor for rotation monitoring, that is positioned on snub pulley shaft, intervenes and stops the drive unit.

Tail pulley
78 x 1 imp/min

**Max. admissible reduction of speed = -10%**

**MISALIGNMENT OF RUBBER BELT**

In the case of a displacement of the actuator of 10° a misalignment warning is created. The shut-off of the conveyor is carried out with the second switching point (18°) of the lever.

Alarm	Stop
10°	18°

## 6. MAINTENANCE

**Reparation, maintenance and adjustment operations must be exclusively executed with machines switched-off and, where necessary, using the modal selector switch, as indicated in Machinery Directive.**

Executed maintenance works, before starting-up of machine, control that:

- Pieces eventually replaced and/or utensils used for maintenance intervention are removed from machine.
- Fixed protections, if removed, have been correctly replaced and fixed.
- Mobile protections, if opened, have been correctly closed.
- All emergency switches are efficient.

If it was necessary to replace worn parts, it is obligatory to exclusively use original spare parts; the use of not original spare parts can compromise safety of the machine.

### **6.1 ORDINARY AND PROGRAMMED MAINTENANCE**

The operator responsible of machine has not to remove protections during the functioning; if machine works not correctly, he has to let intervene the responsible of maintenance who will operate as prescribed.

**DAILY INTERVENTION, BY THE OPERATOR:**

- general visual check;
- functional check;

**WEEKLY CHECKS, BY SPECIALISED PERSONNEL:**

- visual control of every mechanism and of its state of wear;
- check of lubrication leakage;

**MONTHLY CHECKS, BY SPECIALISED PERSONNEL:**

- clean the machine (if necessary);
- check of greasing/lubrication;
- check belt alignment and tension;
- check of electric feed line efficiency and integrity;

We recommend you to issue and fill-in a register in which you will annotate all the operations of maintenance executed, and describe interventions and possible observations.

In the register clearly indicate name of responsible of maintenance as well as the date of the relevant operation.

DATE	OPERATION	RESULT	SIGNATURE	NOTE
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....



#### **SUPPLEMENT FOR USE OF SHIPLoader BELT CONVEYOR:**

- **Start and stop of conveyor must always take place when the belt is empty.**
- **Take every precaution that can prevent belt overload: even short overloads can cause big damages.**
- **Daily check the presence of material that can build in the tail area of belt conveyor and carefully remove all.**



### **6.1.1 Rubber belt**

The rubber belt must be monthly checked in order to evaluate its wearing condition and carry out right time repairs; compare manufacturers' instructions annexed.

### **6.1.2 Reducer**

See manufacturer's instructions annexed.

### **6.1.3 Rollers**

See manufacturer's instructions annexed.

### **6.1.4 Bearings**

**Monthly** control state of gaskets; in case of cuts, cracks or hardenings, it is advisable a prompt substitution of the support since dust or dirt can be entered and have damaged bearings.

## **6.2 EXTRAORDINARY MAINTENANCE**

Interventions of extraordinary maintenance are based on necessity to substitute rubber belt or interventions on mechanical groups of drive and tail heads.

Since these operations are particularly complicated, Client has to contact Technical Assistance department of ONT SpA.



#### **ATTENTION:**

Compare instructions of the builders of components enclosed, for the extraordinary maintenance of them, independently from the number of working hours.

## **6.3 LUBRICATION INSTRUCTIONS**

### **6.3.1 Reducer**

See lubrication table and manufacturer's instructions annexed.

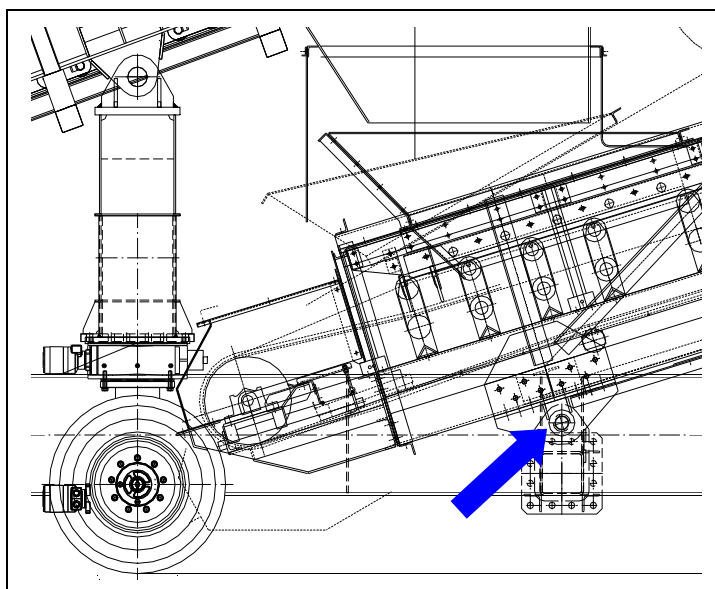
**THE EXACT OIL QUANTITY TO INTRODUCE INTO REDUCER IS DEFINED FROM THE LEVEL. THE QUANTITIES OF LUBRICANT HERE INDICATED, ARE TO INTEND INDICATIVE TO THE PURPOSE OF SUPPLYING.**

### **6.3.2 Bearings**

The bearings are provided with the correct quantity of grease and are ready to be used. At the end of assembling and, in any case, before installation of automatic lubricator, control all the bearings, providing if necessary to the reintegration of the first filling of grease in the case of not utilisation for more than three months.

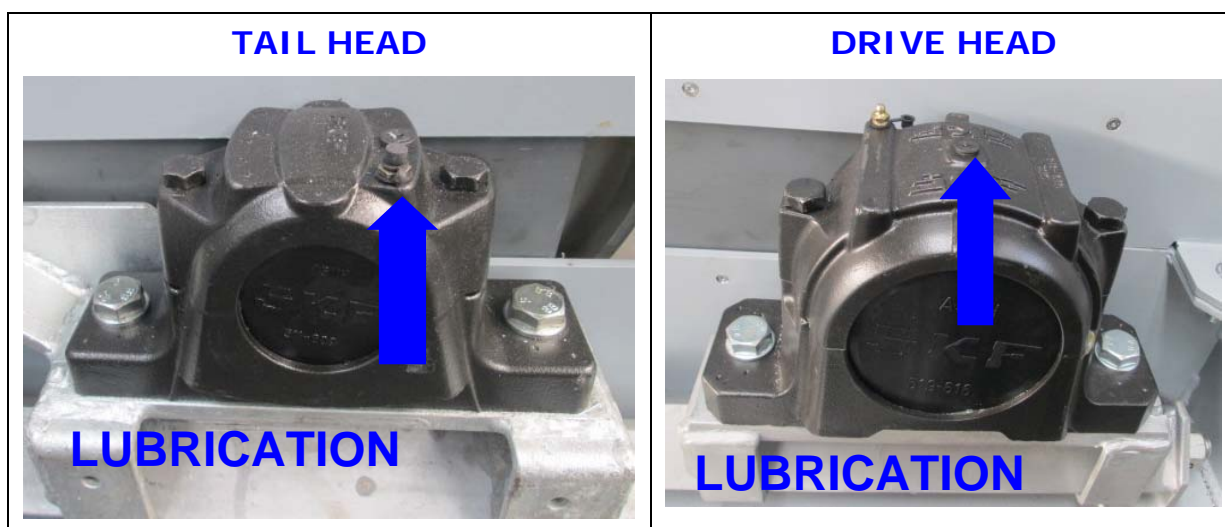
### **6.3.3 Bushings**

The bushings are provided with the correct quantity of grease and are ready to be used; at the end of assembling and, **in any case, before first start-up**, regreasing the bushings with lithium grease.



## **6.4 LUBRICATION TABLE**

Pos	Component	n.	Lubricant
1	Hydraulic motor kW 18,5	1	<i>by BEDESCHI</i>
2	Reducer PH218K Mounting position B3	1	<b>Fill to specified level with the correct quantity of oil for the mounting position ISO VG 150-200 → 7,5 liters</b> <i>See manufacturer's instructions annexed</i>
3	Brake FL635.U	1	Connect to hydraulic plant <b>Oil working pressure 18÷20bar</b>
4	Drive pulley Pillow blocks SNL519 Bearings 22219EK	2	Initially lubricated <b>Install automatic lubricator LAGD 125-WA2</b> <i>See manufacturer's instructions annexed</i>
5	Tail pulley Pillow blocks SNL511 Bearings 2211K	2	



## 6.5 LUBRICATION INTERVALS

### 6.5.1 Reducer

See lubrication table and manufacturer's instructions annexed.

### 6.5.2 Bearings

See automatic lubricator instructions annexed.

### 6.5.3 Bushings

Regrease every 2 months through suitable grease cup (1/8").

## 6.6 LUBRICANT TABLES

### 6.6.1 Oil

See manufacturers' instructions annexed and lubrication tables.

### 6.6.2 Grease

Temp °C	Std.	Dropping point °C	Type of lubrication	Agip	FINA	Mobil®	ARAL
120	K 2 K K 3 K	170-200	Anti-Friction and Plain bearing grease	AGIP GR MU 2 AGIP GR MU 3	FINA MARSON L 2° FINA MARSON L 3°	MOBILUX 2 MOBILUX 3	ARAL ARALUB HL 2 ARAL ARALUB HL 3
150	K 2 R	> 200	High Melting point grease	AGIP GR NF	FINA MARSON AX 2° FINA BENTEX 3°	MOBILTEMP SHC 100 MOBILTEMP 78	ARAL ARALUB HTR 2
	BBV		Adhesion lubrication	AGIP FIN 332/F	FINA CABLINE 1060	MOBILTAC D MOBILTAC 81	ARAL SINIT FZL 3

Temp °C	Std.	Dropping point °C	Type of lubrication	BP	Chevron	elf	Esso
120	K 2 K K 3 K	170-200	Anti-Friction and Plain bearing grease	BP ENERGREA-SE LS 2 BP ENERGREA-SE LS 3	DURA-LITH GREASE 2 POLYUREA EP GREASE 2	ELF MULTI 2 ELF EPEXA 2 ELF ROLEXA 2	BEACON 2 BEACON 3
150	K 2 R	> 200	High Melting point grease	BP ENERGREA-SE HTB 2	INDUSTRIAL GREASE MEDIUM POLYUREA EP GREASE 2	ELF STATERMA MO2	NORVA 275
	BBV		Adhesion lubrication	BP ENERGOL WRL BP ENERGOL GR 3000-2	PINION GREASE 250 TCB PINION GREASE MS	ELF CARDREXA DC 1 ELF POCLAIN GEAR MS 2	SURETT FLUID

**NOTE:** After every lubrication, remove grease and oil residues carefully, in order to avoid stain and damages to rubber belt.

## 7. POSSIBLE DEFECTS AND ACTIONS

In the table that follows are indicated the conditions of not operation, reasonably foreseeable, related to single operational functions of machine.

For every kind of trouble, the possible causes and relative interventions that the operator has to effect for restoring the operational function, are here indicated.

### **BEFORE INTERVENING, MAKE SURE THAT MACHINE IS IN SAFETY!**

PROBLEM	POSSIBLE CAUSE	SOLUTION
Motor starts but then stops	1) Obstruction 2) Capacity too high 3) Motor is burned  4) Defective oil pressure 5) Defective gear reducer  6) Discharge opening is obstructed	1) Clean inside machine 2) Control capacity 3) Find out possible cause and then substitute 4) Check hydraulic connection 5) Find out possible cause and then substitute 6) Clear discharge opening
Brake does not apply	1) Wrong adjustment 2) Jamming	1) Adjust brake 2) Check hydraulic connection
Motor starts but machine doesn't transport material	1) Rubber belt is broken 2) Wrong discharge of material	1) Prearrange for repairing 2) Clear possible blocks
Safety device of machine not functioning	1) Defective or broken electric device	1) Control correct connection or control setting or substitute
Incorrect feed	1) Insufficient belt tension	1) Restore the correct belt tension and eventually shorten it
Belt isn't centering	1) Rollers disalignement 2) Embedded foreign object	1) Belt alignment 2) Remove the cause, repair and eventually adjustment
Rubber belt is dirty	1) Vee-plow cleaner is not adjusted correctly	1) Adjust as prescribed
Faulty rollers	1) Vee-plow cleaner is not adjusted correctly	1) Adjust as prescribed

## 8. SPARE PARTS

The following pages describe spare parts for the machine supplied by ONT. In your spare parts request, please refer always to the Machine No. (or item).

**Machine n. 104157**


Specify position and description indicated in the spare parts list.

**Example:**

<i>Machine n.</i>	<i>Position</i>	<i>Description</i>
104157	02d	Pillow block

104157 - 02d - Pillow block

*Typical marking label (fixed near drive unit)*



**OFFICINE NASTRI TRASPORTATORI SpA**  
Via Provinciale, 25 - LALLIO (Bergamo) - ITALIA  
Tel. +39.035.201010 - Fax. +39.035.692382  
E-mail: info@ont.it - Internet: www.ont.it

<small>COMMESSA BASE (JOB)</small> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">114003</div>	<small>ANNO COSTRUZIONE (YEAR)</small> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">2014</div>
<small>MATRICOLA N° (S/N)</small> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">104157</div>	<small>ITEM</small> 
<small>TIPO</small> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">TNG1000</div>	<small>POTENZA INSTALLATA (POWER)</small> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">kW 18,5</div>

For your spare parts request:

O.N.T.

OFFICINE NASTRI TRASPORTATORI S.p.A.  
Via Provinciale, 25 - 24040 LALLIO - BG -

To the attention of SALES OFFICE

## 8.1 SPARE PARTS LIST

PULLEYS CENTRE LENGTH x BELT WIDTH

Belt conveyor m 32,25 x 1000 mm

Pos.	DESCRIPTION		CODE	Q. ty	
01	GEARBOX		Type PH218K/19,77/00 mounting position B3 with brake kit FL635.U/B24/./00	RIBRPH218K	1
02	DRIVE PULLEY	[A]	<b>a</b> DRUM Ø400x1150 Rubber lined S type thk 10mm	6MA400D10.85 + RT400X1150S10	1
			<b>b</b> SHAFT Ø90x1745	114003011	1
			<b>c</b> CLAMP UNIT Ø85x125	CAL085X125	2
			<b>d</b> PILLOW BLOCK Ø85	SUPSNL519	2
			<b>e</b> BEARING	CS22219CCK	2
03	SNUB ROLLER	[C]	PSV/4 Ø159NR x 1158 rubber lined thk 5mm with threaded shaft M16x25	RU159NR1158F4	1
04	TAIL PULLEY	[B]	<b>a</b> DRUM Ø400x1150	6MA400D10.60	1
			<b>b</b> SHAFT Ø70x1440	6AL10.60A.C	1
			<b>c</b> CLAMP UNIT Ø60x90	CAL060X090	2
			<b>d</b> PILLOW BLOCK Ø50	SUPSNL511	2
			<b>e</b> BEARING	CS02211K	2
05	TAKE-UP DEVICE		<b>a</b> DOUBLE SCREW type 1 (tail head)	6SLTE1.50.400	1
			<b>b</b> DOUBLE SCREW type 2 (drive head)	6SLTE2.85.400	1
06	UPPER ROLLERS		<b>a</b> Type PSV/1 Ø108N x 388	RU108N388.1	96
			<b>b</b> Type PSV/1 Ø108NA x 388 (impact)	RU108NA388.1	9
07	LOWER ROLLERS		Type PSV/1 Ø133N x 1158 with threaded shaft M10x18	RU108N1158.F1	10
08	GUIDE ROLLERS		ONT Ø80x120	6RUGU80N	12
09	RUBBER BELT		Type Chevron belt 1000KSN-15/800 EP400/3 3+2 Flame retardant - Antistatic Delivered CLOSED ring length 65,8m	NAS104157	1
10	VEE-PLOW CLEANER		ONT type 1	6VO1.1000	1
11	RUBBER SKIRTS		<b>a</b> SIDE SKIRTS dim. 120x10x3260 (T45)	BAVT45.120.10	2
			<b>b</b> REAR CROSS SKIRTS dim. 772x10x212 (T60)	BAVT60.10	1
			<b>c</b> VEE-PLOW CLEANER type 1 dim. 60x12x1480 (T60)	BAVT60.12	1

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## 9. MANUFACTURERS' INSTRUCTIONS

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*LISTED CATALOGUES ARE SUPPLIED AS TECHNICAL DOCUMENTATION OF MAINTENANCE*

Information and technical data are to be furnished by the manufacturer of component, that can revise or modify them if it's necessary; these catalogues are valid at supply date of machine. Eventual modifications or substitutions of components/parts/products without previous notice by the Client, raise the company ONT SpA from any responsibility.