

Installation Instructions

MOTOR DRIVEN CABLE REEL WITH MAGNETIC COUPLER

Type BNA36.2CN33.M1131VS / 6TP120 +12.C120

Cable reel Nr 1205942/03 TO 04

INSTALLATION

START-UP

MAINTENANCE

SPARE PARTS

ELECTRICAL DIAGRAM



CONDUCTIX - WAMPFLER

DELACHAUX S.A.
30 avenue Brillat Savarin - BP 39
01300 Belley - France

tel.: +33 (0)4 79 42 50 00
fax: +33 (0)4 79 42 50 05
email: info@conductix.com
internet: www.conductix.com



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MAIN GEARBOXES



- ▶ BNA0
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- ▶ BNA2
- ▶ BNA3
- ▶ BNA4
- ▶ BNA5
- ▶ BNA7

ADDITIONAL GEARBOXES



MAGNETIC COUPLERS

- ▶ Coupler V
- ▶ Coupler W
- ▶ Coupler CN
- ▶ Coupler D

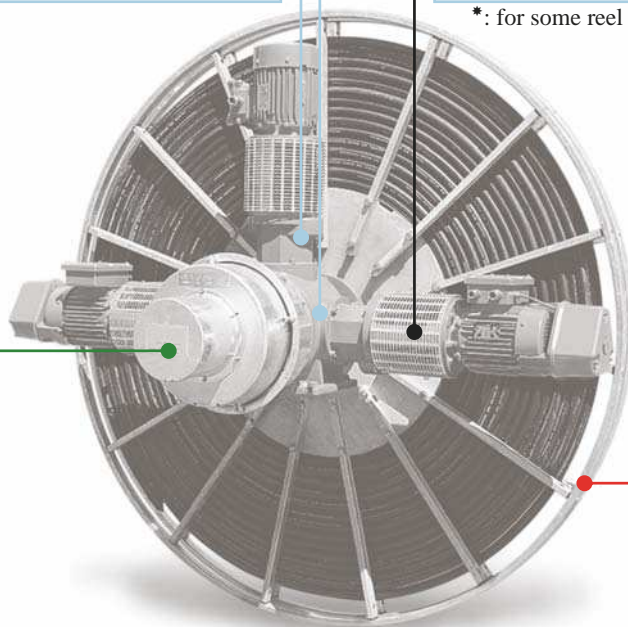


SECONDARY GEARBOXES *

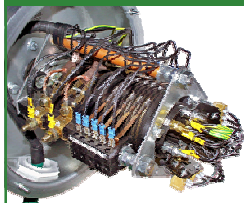
- ▶ BNA1x
- ▶ BNA2x
- ▶ BNA36 - 47 - 59 only
- ▶ BNA38
- ▶ BNA710



*: for some reel configurations only



LOW VOLTAGE SLIP RING



- ▶ C080 - C120 - C180
- ▶ P050
- ▶ P080 - P120 - P180
- ▶ P270

HIGH VOLTAGE SLIP RING



- ▶ H7, H12, H24

SPOOLS

- ▶ Monospiral spools
- ▶ XM spools (multi-monospirals)
- ▶ Trispiral spools
- ▶ Semi-wide spools
- ▶ One-layer spools



A - GENERAL INFORMATION

A.1. Responsibilities

The user is responsible for the installation and use of the equipment supplied according to the regulations described hereafter.

CONDUCTIX-WAMPFLER will not be able to guarantee the equipment if these regulations are not adhered to, except in the case of prior agreement.

All operation of the equipment must be carried out by qualified personnel, in accordance with current norms and regulations.

A.3. Data and modifications

This document provides the information required for the start up, use and maintenance of the reel.

CONDUCTIX-WAMPFLER reserves the right to modify the characteristics of its products at any time in order to include the most recent technological developments. The information contained in this document may, therefore, be modified at any moment without prior notice.

A.3. Safety

A.3.1. General information

During all maintenance and adjustment work and whenever the equipment is being operated with the protective covers open basic safety rules must be respected.

During normal working all the covers must be in place and the safety systems must be operational.

It is equally important to pay attention to parts which may move, for example the cable and the reel.

A.3.2. Slipping

The protective cover must never be opened unless power is off.

A.4. Restrictions of use

A.4.1. Wind

- If the wind speed is ≤ 20 m/s : normal working
- If the wind speed is > 20 m/s and ≤ 28 m/s : half speed working.
- If the wind speed is > 28 m/s and ≤ 35 m/s : stop working. The machine must be stopped with empty spool.
- If the wind speed is > 35 m/s and ≤ 70 m/s : stop working. Lash down the reel and spool. The machine must be stopped with empty spool.
- If the wind speed is > 70 m/s: risk of damage to complete reel installation.



NEVER REMOVE SLIPRING COVER WHEN POWER IS ON.
DANGER OF DEATH.

B - INSTALLATION

B.1. Shipment

CONDUCTIX-WAMPFLER cable reels are shipped on a transport frame for easy handling by fork lift truck.
All accessories and spools delivered in kit form are shipped on a wooden pallet
Spools assembled in two parts are delivered in open-sided crates.

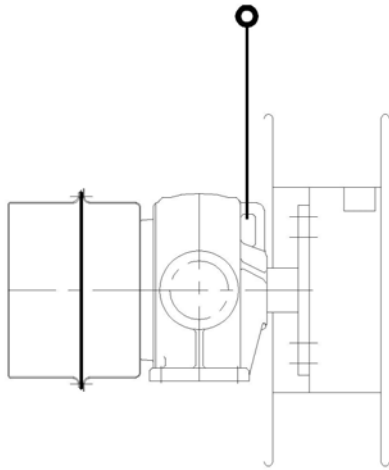
B.2. Erection of the cable reel

B.2.1. Handling

The main gear-box has a special opening to pass a lifting sling through.

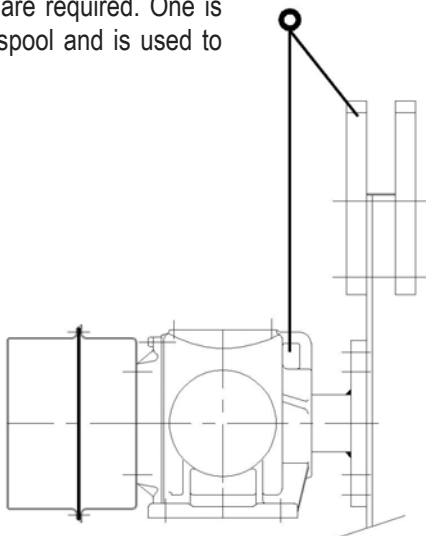
B.2.1.1 - Small cable reel with semi-wide spool :

A single lifting sling is sufficient.

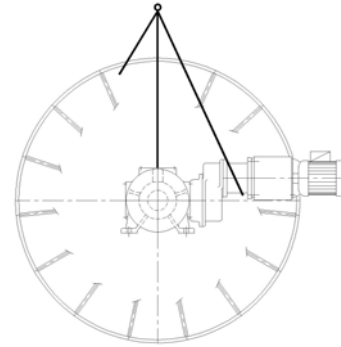


B.2.1.2 - Larger cable reel with monospiral spool :

Two lifting slings are required. One is hooked onto the spool and is used to balance the load.

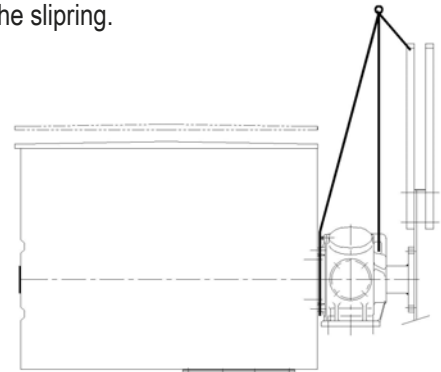


If the cable reel is equipped with only one drive, use an extra sling to counteract the lateral weight, according to the further diagram.



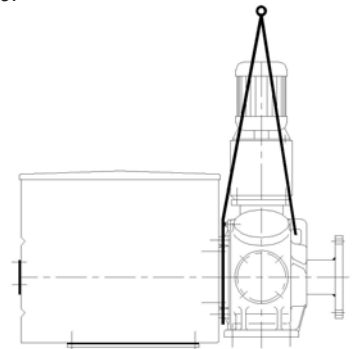
B.2.1.3 - Reel with large slipping.

Balance the load with a sling hooked between the gear box and the slipping.

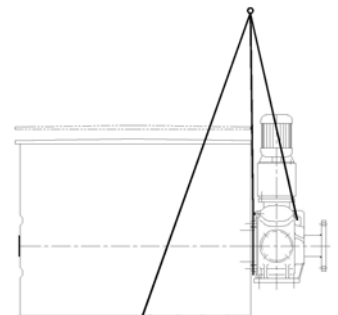


B.2.1.4 - Reel delivered without spool

Two lifting slings are required. One is hooked between the gear box and the slipping. Do not hook the lifting sling on the motors .



If the reel is equipped with a large slipping, use a third sling to balance the load.



Do not use metallic slings or chains which may damage the cable reel paint.

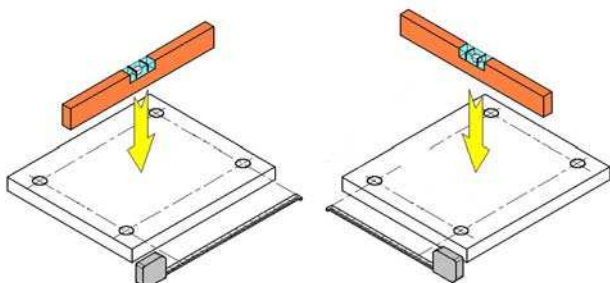


B.2.2. Installation of the reel

B.2.2.1. Checking of the support

Before installing the reel, check:

- the base is flat,
- the base is level in all directions,
- the center distance and the diameter of all fixing holes.



The base must have dimensions which permit it to :

- support the weight of the reel and cable,
- Support the working stresses (speed of movement, vibrations...),
- Support the environmental stresses (wind pressure on fully wound on spool).

B.2.2.2. Installation of the reel

- Use fasteners of at least class 8.8, according to the diameter of the holes in the gear box.

B.2.3. Spools not mounted on the gear box

B.2.3.1. Preparation

See specific instructions :

- Monospiral spool delivered in 2 or 4 parts
- Monospiral spool delivered in kit form
 - with tubular arm
 - with profiled arm
- Monospiral spool delivered in 2 parts with connection box on the gear box.
- ...



For spool with spiral ferrule, check the winding direction of the cable.
(See specific spool mounting instructions)

B.2.3.2. Fitting of the spool onto the reel

It is **ESSENTIAL** to use the **bolts** provided on the hub **with safety nuts**.

Follow precisely the instructions concerning the position and tightening torque as indicated on tick-on label.

- nut on gear box side
- tightening torque for M18 = 23 mdaN
- tightening torque for M20 = 33 mdaN

Tighten crosswise with :

- initial tightening at half the maximum torque
- final tightening at maximum torque.

B.2.3.3. Checks

If no value is specified on the spool assembly instructions manual :

- Maximum out of round on the outside flange = ± 5 mm
- Maximum out of flatness of the outside flange = ± 5 mm
- Distance between 2 flanges = Test spacer +0 to -2 mm

B.3 - Fitting of accessories (Guiding device, Anchoring device, Entry device, Diverting device, Connection box)

When fitting a cable guide, return cable guide or anchoring device, **make sure that these accessories are in the same plane as the spool.**



B.4. Installation of the cable on the spool

B.4.1. Preparation

Check that the diameter of the cable complies with the specifications.

If the difference is larger than ± 2 mm, please contact your Conductix-Wampfler agency.

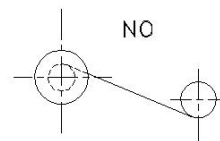
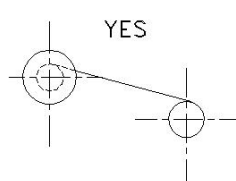


B.4.2. Installing the cable on the spool

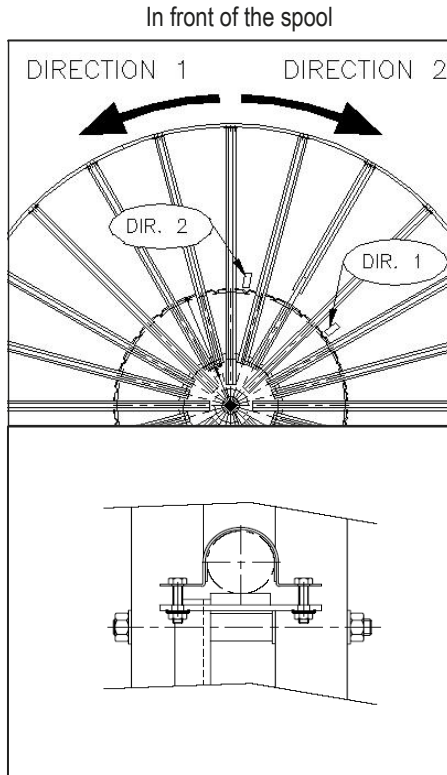
It is essential to comply with the following:

1- Winding direction: It is the direction of the spool when motor(s) turned in the direction indicated by the arrow fixed on the motor(s)

2 - Positioning of the cable drum as per sketch



B.4.3. Fixation of the cable to the moving part



- Bring the end of the cable on the spool **according to the winding direction**.
- Let a sufficient length for the connection to the slipping (See § Connection onto the rings).
- Fix the collar and the cable reel.
- Engage the cable in the cable gland on the moving part.

B.4.4. Winding on of the cable

- Connect the drive motor(s) to wind the reel onto the spool.
- The cable drum must be **unwound manually to avoid any damage on the cable (caused by excessive load or twisting)**.

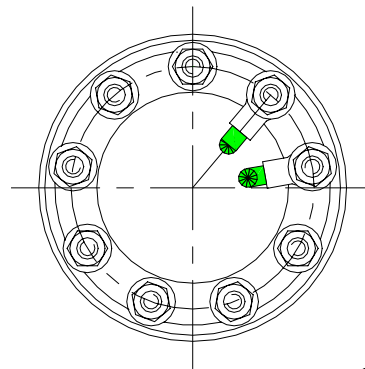
B.5. Connection of the cable to the motor reel

B.5.1. Low Voltage Sliprings

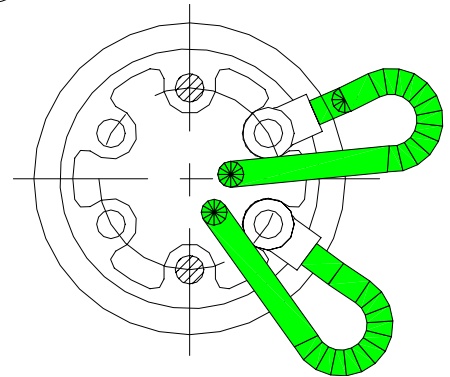
B.5.1.1. On the rings (Moving part - The cable is coming from the spool)

- Push cable through the shaft of the reeling drum.
- Allow a sufficient length of cable coming out of the slipping ($\approx 300\text{mm}$).
- Tighten the cable gland and the tie wrap on the spool.
- Strip the cable back and prepare the ends according to the table « Connections ».
- Connections by
 - * Core lead terminals on C type Sliprings;
 - * Stud fixings on P type Sliprings.
- Position the terminals according to the below sketches.
- Secure the terminals with nut and washer.

P080 / P120 / P180



P050

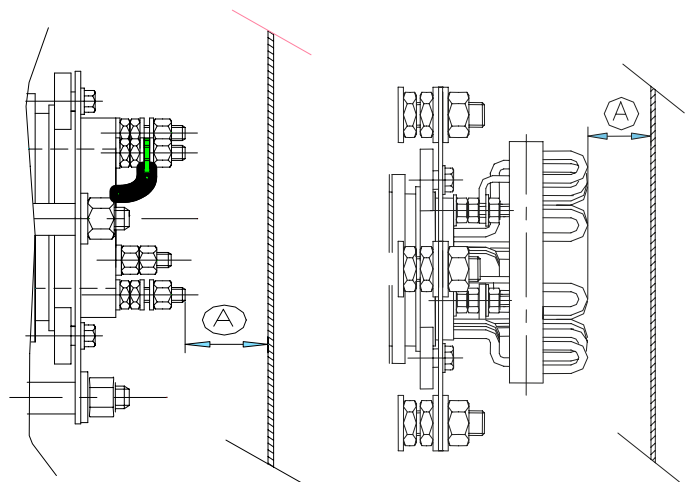


Check that there is a clearance (A) between the loops of cable and the slipping housing (at least 30mm).



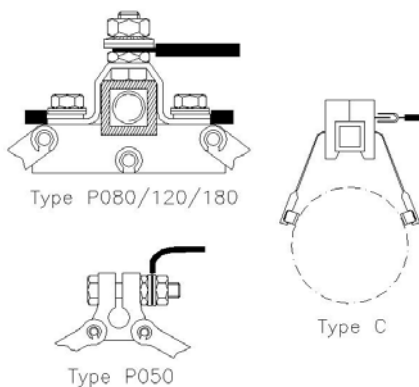
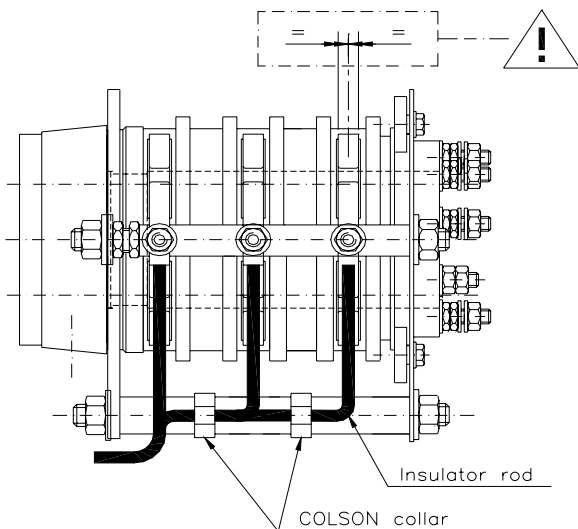
Type P

Type C



B.5.1.2. Onto the brushes (Fixed part - Cable supplied by the customer)

- The slipring housing is fitted with a removable plate for cable glands.
- Push the cable through the cable gland of the slipring housing.
- Let a sufficient cable length for the connections onto the brushes (see attached 'sliprings' technical leaflet).
- Strip back the cable up to the cable gland.
- Attach the cable with a COLSON collar on the insulator rod as per sketch to well organize the cores on the brush holders.



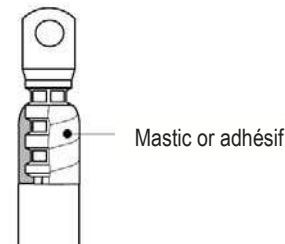
- Connection :
 - with female Faston Terminals 6,6 for C type sliprings.
 - with lug for P type sliprings:
 - ⚠ Place the terminal as indicated on the sketch.
 - ⚠ Tighten while holding the brushes parallel to the isolators.
- Make sure that each brush is in line with its corresponding ring **without any pressure on the isolators.**
- Tighten the cable gland.

B.5.2. High Voltage Sliprings

- Preparation of cable ends:
FOR HIGH VOLTAGE, THE CHOICE OF COMPONENTS AND THE JOB MUST BE ACHIEVED BY CERTIFIED SPECIALISTS.

THESE COMPONENTS MUST BE DESIGNED FOR A HUMID OUTSIDE USE.

The extremity of the cable end, terminal side, must be made watertight with mastic or appropriate adhesif.



The conductors connected to the brushes (fixed part) must be attached lateral on the housing in order that the insulation distances are respected.

The conductors connected to the rings (moving part) and the cable ends must not touch the rings, on which they are not connected.

- Connection to the rings / brush holders :
 - See attached technical leaflet (connections table).
 - The High Voltage Housings are fitted with a REMOVABLE PLATE for the cable glands.

B.5.3. Option / TFO (Fibre Optic Transmitter)

- Inlet and Outlet optical connections **type ST** (Other type on request).
- A removable plate, fitted on the housing, is designed to accommodate the cable gland. Connection with optical connectors.

It is absolutely essential to read the instructions before attempting the optical and mechanical connections.



B.6. Connection of the cable at the feed point

- Avoid using any device which pinches the cable
- For vertical application use an **anchoring device with shock absorber and cable sleeve** for the fixation of the cable to the mobile equipment.

B.7. Electrical connection of the motor(s)

- Connect the motor(s) in accordance with the motors manufacturer's wiring diagram, especially for terminal box.



During winding and unwinding, the drive motor turns always in the same direction (winding direction of the cable)

B.8. Electrical connection of the accessories

Depending on the chosen options:

- * Space heater in the slipping.
- * End limit switch : contact on the end limit switch .
- * Over pull, under pull : switches on the cable guide.
- * Temperature sensor and motor heating : in motor connection box.
- * Brake motor: inside terminal box.

C - COMMISSIONING



This equipment is not designed to be used in Explosive ATmospheres (ATEX) (in accordance with the definition in directive 1999/92/CE dated 16th December 1999).



This equipment is designed for an industrial use. Ensure that the operators are trained in the use of this material.

C.1. Energizing the drive motor(s)

Before the drive motor(s) is energized, make sure that:

- there is no slack cable
- the cable is in the correct position on the spool and guiding device.



When drive motor(s) is energized, make sur that the motor is rotating in the correct direction (winding direction)

C.2. Limit switch adjustment (option)

- Position the machine at the required point.
- Adjust the cam to the tripping position : See attached 'End limit switch' technical leaflet.
- Check that the adjustment is correct (travel through the end limit point several times).

Note: When using an under pull switch, the neutralising contact must be adjusted as close as possible to the middle point.

**AT THE END OF PAYOUT,
WHEN THE SPOOL IS EMPTY,
ONE DEAD TURN OF CABLE MUST ALWAYS REMAIN.**



C.3. Over Pull adjustment onto guiding device (Option)

- See attached technical leaflet.

C.4. Various adjustments

C.4.1. Change of the cable winding direction

- Reverse the direction of the cable on the drum:
 - * Reverse the cable entry (depending on spool type)
 - * Reverse the spiral ferrule (if fitted)
 - * Reverse the cable clamp.
 - * Reverse the free wheels (see data sheet for moto-couplers)
 - * Reverse the rotation direction of the drive motors.
 - * **For TFO option: see specific instructions.**

C.4.2. Cable of different diameter

- Width of monospiral and trisprial spools assembled using nuts and bolts are **adjustable**.

C.4.3. Adjustment of W - CN - D couplers

- See attached technical leaflet.

C.5. Troubles shooting list

- See list hereafter.

PROBLEM	POSSIBLE SOURCE	CORRECTIVE ACTIONS
Cable spool's off (unwinds) although cable reel main power is OFF	Free-wheel failure or break down	Replace free wheel by new.
	Brake failure on brake motor	Clean brake and replace if necessary.
	Motor coupling failure	Replace coupling by new.
	Magnetic coupler failure	Replace magnetic coupler.
	Broken or worn gear in additional gear box	Replace entry gear-set on coupler side if worn or broken. Replace complete additional gearbox if problem occurs inside of it.
	Broken or worn gear in secondary gearbox	Replace secondary gearbox if problem occurs inside of it.
	Broken or worn gear in main gearbox	Replace worn gear only.
	Torque transmission failure between conical gear and spool's shaft (key or thrust collar)	Replace the shaft with the conical gear and the thrust collar/key.
Cable reel does not wind cable fast enough or cable is not wound in the right manner while reel motors are powered ON	Motor(s) spinning direction has not been setup correctly.	Change motor power wiring to the right setting (in order that motor(s) revolve in the right direction according to cable reel setup).
	Motor failure/breakdown	Replace Motor with one that has the exact same characteristics.
	Free wheel has not been setup correctly	Change the free wheel spinning direction according to coupler documentation/manual delivered with cable reel.
	Brake failure on brake motor	Clean brake and replace if necessary.
Cable does not wind up the spool in the right manner	Spool's axle/shaft is not perfectly horizontal or perpendicular to cable lifting path. (spool is not well aligned with cable path/way)	Install / adjust the cable reel on its support in order that the spool is aligned in both directions.
	Friction on cable is excessive	Check and make sure that accessories (guiding device, roller boxes, anchoring...) are setup correctly and aligned with the spool. Check rollers on accessories and replace those that do not revolve freely. Check the gap/distance between the 2 flanges of the spool is setup correctly. Adjust it if possible. If the spool cannot be adjusted please contact your Conductix-Wamplifier Agency.
	Setup parameters are different from the one used to determine the cable reel (speed, acceleration, height)	Check and adjust parameters. If necessary please contact your Conductix-Wamplifier Agency.
	Cable submitted to torsion stresses	Unwind the cable and disconnect it. Remove strains.
	Coupler failure	Replace coupler by new.
	Secondary gearbox failure	Replace secondary gearbox by new.
	Additional gearbox failure	Replace additional gearbox by new.
	Main gearbox failure	Check gears and ball bearings are not worn. Replace those if necessary.
	The main gear box is defective.	Check the good state of the pinions and rollers. Change them if necessary.

PROBLEM	POSSIBLE SOURCE	CORRECTIVE ACTIONS
Guiding device returns wrong information (over pull, under pull, position)	Proximity switch failure or proximity switch wrongly adjusted.	Adjust the switch or replace it if necessary.
Faulty electrical continuity through cable reel system	Cable failure	Check cable integrity and replace it if necessary.
	Connections are not properly tightened	Check and tighten loose connections on slip-ring, connecting box, and control box.
	Slip-ring brushes are worn	Replace with new brushes.
	Rings inside the slip-ring are dirty	Remove dirt by gently polishing the rings with emery cloth.
	Humidity inside the slip-ring housing	Check and make sure the screws of the slip-ring cover are correctly tightened.. Check the gasket between slip ring and cover is not damaged nor worn (replace it if necessary). Check the respirators are not damaged nor worn and replace those if necessary.
	Condensation appears in the slip ring housing.	Check heating resistance is correctly powered and working. Replace it if necessary. Install heating resistance inside the slip ring housing if not originally provided.
	Rings and brushes are not aligned.	Align brushes with rings.
	Slip-ring guiding roller breakdown	Change worn or broken roller(s).
Faulty optical continuity through cable reel system	Cable failure	Check cable integrity and replace it if necessary.
	Optical Fiber transmitter failure	Replace Optical Fiber transmitter.
	Connection problem	Clean connectors and replace those if necessary.
Faulty equipotential protection continuity through cable reel system	Earth washers are missing on the bolts that tighten the spool onto the shaft flange	Place Earth washers.
	Shunt failure between slip ring housing and earth ring	Replace shunt.
	Loosening of the slip ring hub	Tighten the slip ring hub on the gear box shaft.

D - MAINTENANCE

Frequency	
1	Every 2 000 working hours / 6 months
2	Every 2 000 working hours / 1 year
3	Every 8 000 working hours / 2 years
4	Every 10 000 working hours / 3 years
5	Every 15 000 working hours / 5 years

All new cable has some twisting stresses due to the manufacturing process.

After 200 working hours, these stresses must be eliminated in proceeding as follows:

- Place the reel approximately 10 m from the cable anchoring position.
- Switch off power to the reel.
- Disconnect and free the cable from its anchoring position.
- If stresses exist, the cable will eliminate them by turning on itself. If necessary, help the cable to do this.
- Re-assemble and reconnect following the steps in reverse order.

PART	Step	OPERATIONS	Fre- quency	Done	Comments
SPOOL	A	Spool centre bolts.	1		
	B	Rim gap at several points (every 3 arms).	2		Values =
	C	Geometry and visual aspect.	2		
	D	Rim connector bolts.	2		
	E	Cable entry : clamp and cable protection.	2		

Firmly attach the spool to the crane to avoid cable pay-out.

Ensure POWER IS OFF !!!

BRAKE AND MOTOR	A	Open and clean up.	1		
	B	Electrical test.	1		
	C	Evacuate moisture by bleed nipple opening.	1		

MAGNETIC COUPLER	A	Visual aspect.	1		
	B	Free wheel - Anti run back bearing : working and visual aspect.	3		
	C	Coupling ring aspect.	1		
	D	Bolts tightening check.	2		

ADDITIONNAL GEAR BOX and SECONDARY GEAR BOX	A	Visual aspect of pinions (teeth).	2		
	B	Pinions play.	2		
	C	Grease leakage and aspect.	2		
	D	Lubricant replacement.	5		

Frequency	
1	Every 2 000 working hours / 6 months
2	Every 2 000 working hours / 1 year
3	Every 8 000 working hours / 2 years
4	Every 10 000 working hours / 3 years
5	Every 15 000 working hours / 5 years

PART	Step	OPERATIONS	Fre- quency	Done	Comments
MAIN GEAR BOX	A	Gearbox fixings.	2		
	B	Visual aspect (paint).	2		
	C	Sealing and oil leakage.	2		
	D	Grease level and use.	2		
	E	Bearing lubrication (old BNA).	1		
	F	Bearing use (noise ?).	2		
	G	Grease replacement.	5		
	H	Play between conical gears (0,3mm at contact point).	2		
	I	Visual aspect of gears.	2		
	J	Small conical gear bolt (if existing).	2		
SLIPRING	A	Heating resistance.	2		
	B	Alignment of the brush holders. Wear of the brushes.	1		X = mm
	C	Aspect and wear of the rollers.	1		
	D	Tightening of the hubs and screws.	2		
	E	Cleaning of the rings.	1		
	F	Tightening of the connections.	2		
	G	Cleaning of the enclosure.	2		
GUIDING DEVICE	A	Visual aspect(géométry, position, corrosion).	2		
	B	Rotation of the guide rollers.	2		
	C	Wear of the rollers.	2		
	D	Position switch.	2		
OPTIC FIBER TRANSMITTER	A	Visual aspect and connections.	2		
	B	Heating resistance.	2		

NOTES

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INSTRUCTIONS FOR LONG TIME STORAGE (more than 9 months)

The equipment should be stored in accordance with its working position.

The equipment should be stored:

- away from humidity (less than 80%),
- in an enclosed building, protect from the rain and water sprays (temperature from -15°C to +45°C).
- away from frequent significant variations in temperature, to avoid the risk of condensation.
- away from vibrations.
- away from aggressive vapours or fumes.

Before storage:

- Using the grease supplied in the inside of the gear boxes, lubricate the pinions, the shafts and the inside of the housings.
- Apply grease on the outer joints.
- Every 6 months, open the bleed nipples of the motor to evacuate moisture. Put them back in place.

During storage:

- Check regularly the condition of the paint. If necessary, make paint retouching.
- Every 6 months, using the grease supplied in the inside of the gear boxes, lubricate the pinions, the shafts and the inside of the housings.
- As far as possible, turn the spool axis from 4 to 5 turns, to modify the position of the bearings parts.

During the commissioning:

- Bearings:

- * Sealed bearings: Replace them if the storage period is more than 3 years.

- * Bearings, which can be regreased:

Storage period	Operations
Less than 1 year	No operation on the bearings.
From 1 year to 2 years	Regrease the bearing.
From 2 years to 5 years	Dismantle the bearing, clean it and regrease it.
More than 5 years	Change the bearing. Regrease it.

- * Regrease the bearings, which are equipped with lubricators.

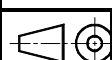
- Grease: Change the grease if the storage period is more than 3 years.
- Check the good conditions of the joints of mechanical and electric parts. Change them if necessary.
- Open the bleed nipples of the motor to evacuate moisture. Put them back in place.

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



LONG TIME STORAGE (more than 9 months)



4 40N181

Folio 1/1

07/10










SLIPRINGS AND TERMINALS MARKING

ALL OUR SLIPRINGS AND TERMINALS ARE MARKED.

The same stamping appears :

- on the brush holder,
- on the connection of the corresponding ring,
- on the terminal.

STAMPING USED

➤ Low Voltage Type P	P1 - P2 - P3... 
➤ Low Voltage Type C.....	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8... 
➤ Low Voltage Type C + Silver plated Rings.....	1A - 2A - .A -10 - 11..... 
➤ Low Voltage Type C + Paladium Rings	1ML - 2ML - .ML -10 - 11..... 
➤ Low Voltage Type C + Gold plated Rings	1D - 2D - .D -10 - 11..... 
➤ High Voltage Type H.....	L1 - L2 - L3... 
➤ C Transmitter	C1 - C2 - C3 - C4... 
➤ M Transmitter.....	M1 - M2 - M3 - M4... 
➤ Explosion proof	1 - 2 - 3 - 4 - 5...  <u>Insulated Earth</u>
➤ Optic Transmitters (TFO)	F1 - F2 - F3 - F4 - F5 -F6

CABLE MARKING

Except otherwise stipulated :

All the CABLES connected to - the rings,
 - the brush-holders,
 - the terminals
are marked at the cable ends

either by

- * a number stamped on the outer sheath,
- * a mark attached to the cables.

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



SLIPRINGS AND TERMINALS MARKING



4 10N107

Folio 1/1

06/09

Slipring Type C
Low Voltage

C8 / C080 / C120 / C180		
RINGS	Type connection	Terminal with Screws (Weidmuller) + End for 2,5 ²
	Maximum cable size	2,5 ² Option 6 ² with 6 ² special end (This option is restricted to 5 rings (4TC8) for C8 sliprings)
BRUSH HOLDER	Type connection	FASTON Type 6,35 (not insulated)
	Maximum cable size	2,5 ² Option 6 ² with FASTON Type 6,35 spécial 6 ²

Slipring Type P
Low Voltage

		P050	P080	P120	P180
RINGS	Type connection	Ring terminal insulated* Ø M5	Ring terminal insulated* Ø M6	Ring terminal insulated* Ø M8	Ring terminal insulated* Ø M10
	Maximum cable size	10 ²	25 ²	50 ²	95 ²
BRUSH HOLDER	Type connection	Ring terminal Ø M4	Ring terminal Ø M8	Ring terminal Ø M8	Ring terminal Ø M12
	Maximum cable size	10 ²	25 ²	50 ²	95 ²

* Rings terminal should be protected by using heat-shrink sleeving or insulated terminal.

Slipring Type P
Low Voltage

		P270/1 - /2 - /4	P400/1 - /2 - /4
RINGS	Type connection	Ring Terminal Ø M12 P270/1 & /2 ⇒ 2 screws P270/4 ⇒ 4 screws	Ring Terminal Ø M12 P400/1 & /2 ⇒ 2 screws P400/4 ⇒ 4 screws
	Maximum cable size	300 ²	300 ²
BRUSH HOLDER	Type connection	Ring terminal Ø M12 P270/1 ⇒ 1 screw P270/2 ⇒ 2 screws P270/4 ⇒ 4 screws	Ring terminal Ø M12 P400/1 ⇒ 1 screw P400/2 ⇒ 2 screws P400/4 ⇒ 4 screws
	Maximum cable size	300 ²	300 ²

Slipring Type H
High Voltage

		H7	H12	H24
RINGS	Type connection	Ring terminal Ø M12	Ring terminal Ø M12	Ring terminal Ø M12
	Maximum cable size	120 ²	240 ²	240 ²
BRUSH HOLDER	Type connection	Ring terminal Ø M12	Ring terminal Ø M12	Ring terminal Ø M12
	Maximum cable size	120 ²	240 ²	240 ²

Fiber Optic
Transmitter (TFO)

Standard : Connector : ST
On request : FC

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



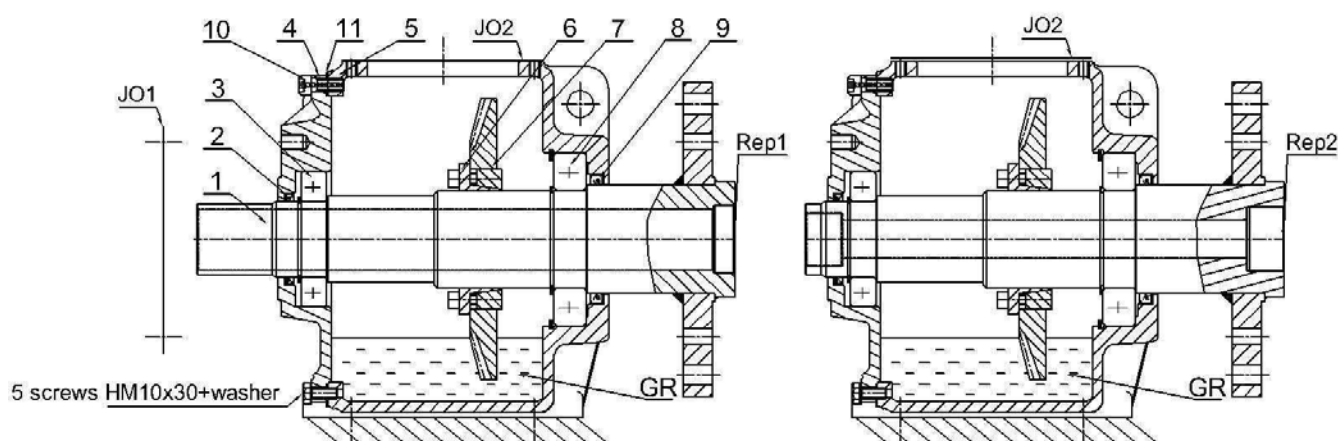
CONNECTIONS TABLE



4 10N108

Folio 1/1

03/10



NUTS and BOLTS are assembled using LOCTITE thread-locking product 243

MAINTENANCE

- **Original equipment is supplied greased for 15 000 operating hours or 5 years.**
- **Every 2 000 hours or every year, check the state of the gears by opening a closing plate.**

LUBRICATION

With grease.

CHANGE OF GREASE

- * Free one aperture, by removing a cover or a drive-unit rep. A.
- * Remove the grease, using a syringe or a rag.

CHANGE OF THE GEAR-WHEEL

- * Remove the spool, slipring, drive-units and secondary gearboxes.
- * Take off the closing flange item 4, unscrew the bolts CHC on the thrust collar item 6.
- * Reintroduce 3 bolts into the FRONT tapped holes and screw them in to release the thrust collar item 3.
- * Extract the gear-wheel item 7 and the thrust collar item 6.
- * Fit the new gear-wheel on the thrust collar, then the assembly on shaft item 1.
- * Refit 1 or 2 drive-units with bevel gear for adjustment reference.
- * Adjust position of gear-wheel (0.3 to 0.4 mm of play between the teeth of the gear wheel and the bevel gear).
- * Lock the thrust collar in position by GRADUALLY TIGHTENING the bolts CROSSWISE with a final torque of 7mdaN.
- * Finish refitting the other components.
- * Use a new joint between the parts item 4 and item 5.
- * Place the respiration screw item 10 on the upper part of the gear box.

PRECAUTIONS WHEN RE ASSEMBLING

- * Once closing flange item 4 is in place, check GAP between teeth (0.3 à 0.4 mm)
- * Be careful not to turn over the lip on the joint item 2
- * Replace the joints.

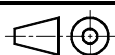
SPARE PARTS (Please indicate cable reel reference number when ordering spare parts)

Rep2	450N062/2 (hose reel)	Replacement kit BNA3 (grease, joints, gear box, technical leaflet)
Rep1	450N062/1 (cable reel)	Replacement kit BNA3 (grease, joints, gear box, technical leaflet)
GR	According to 410N026	Grease-Qty : 2.5 kg
JO2	4J10033	Additional gear box / Main gear box joint
JO1	4J10037	Slipring cover joint
11	4J10030	Closing flange joint
9		Seal oil ring C 100-120-12
8	FT 129695	Bearing 6218 - 2RS
7	4R70003	Wheel 65 teeth - Module 4
6	FT 127526/2	Thrust collar
3	FT 129695	Bearing 6214 - 2RS
2		Seal oil ring C 70-85-8
Item	Reference	Description

TECHNICAL INFORMATION LEAFLET



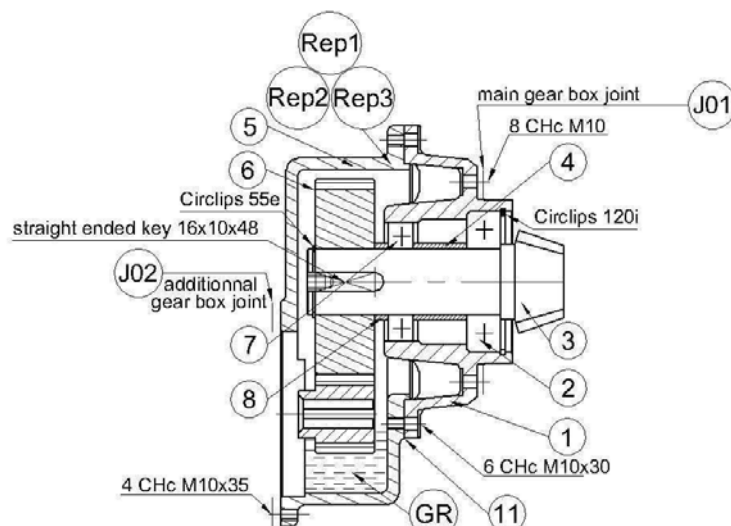
MAIN GEAR BOX TYPE BNA3



4 40N168

Folio 1/1

01/10



NUTS and BOLTS are assembled using LOCTITE thread-locking product 243

MAINTENANCE

ORIGINAL EQUIPMENT IS SUPPLIED GREASED FOR 15 000 OPERATING HOURS OR 5 YEARS

LUBRICATION

With grease.

SECONDARY GEAR BOX ACCESS

- * Remove the motor-coupler unit + the additional gearbox, fixed with 4 bolts CHC M10 x 35.
- * Remove the half-housing item 5, fixed by 6 bolts CHC M 10 x 30.

CHANGE OF GREASE (Replacement kit with grease, joints, screws and bolts must be at your disposal)

- * When the secondary gear box is open, remove the old grease.
- * Clean the inside with a brush and grease solvent.
- * Refit the half-housing item 5, using the new joint item 11 between the two flanges.
- * Refill the half-housing item 5 with new grease.
- * Re-assemble the motor-coupler unit and gearbox, using the new joints.

REPLACEMENT OF INPUT GEAR SET ITEM 6 AND SHAFT ITEM 3

(Replacement kit with grease, joints, screws and bolts must be at your disposal)

- * Access to the interior of secondary gearbox is as described above.
- * Remove the half-housing item 1 fixed with 8 bolts CHC M10 x 25 whose heads are accessible on its base.
- * Remove the circlip 55 E to change pinion item 6.
- * Remove the circlip 120 I if it is necessary to change shaft pinion item 3, by pushing from left to right on the drawing.
- * Carry out the operation in reverse sequence for re-assembly.
- * Replace the joints.

SPARE PARTS (Please indicate the cable reel reference number when ordering spare parts)

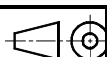
Rep3	450N020/3	Replacement kit (grease, joints, screws and bolts, gear box R9 , technical leaflet)
Rep2	450N020/2	Replacement kit (grease, joints, screws and bolts, gear box R7 , technical leaflet)
Rep1	450N020/1	Replacement kit (grease, joints, screws and bolts, gear box R6 , technical leaflet)
J02	4J10033	Additional gear box joint
J01	4J10033	Main gear box joint
GR	According to 410N026	Grease - Quantity : - Vertical position: 1,6Kg - Other positions: 1Kg
11	4J10032	Secondary gear box joint
6	4P28017	Input gear set for secondary gear box type 6/7/9
3	4P28028	Shaft pinion for type 9 secondary gearbox
3	4P28029	Shaft pinion for type 7 secondary gearbox
3	4P28016	Shaft pinion for type 6 secondary gearbox
Item	Reference	Description

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



SECONDARY GEAR BOX R6-R7-R9

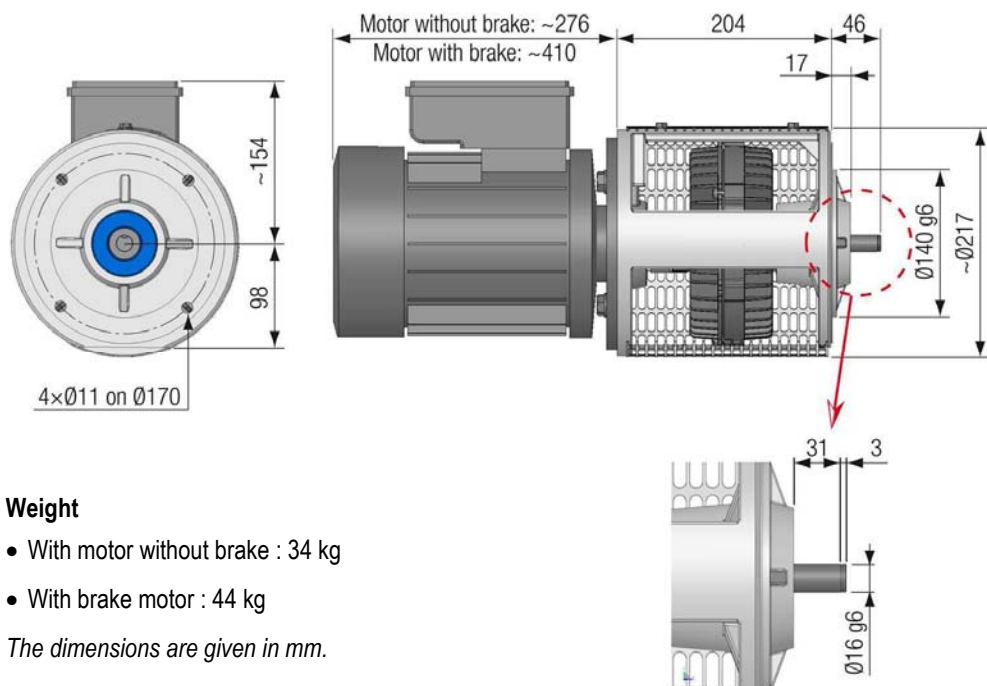


4 10N024

Folio 1/1

03/12

Overall dimensions and weight

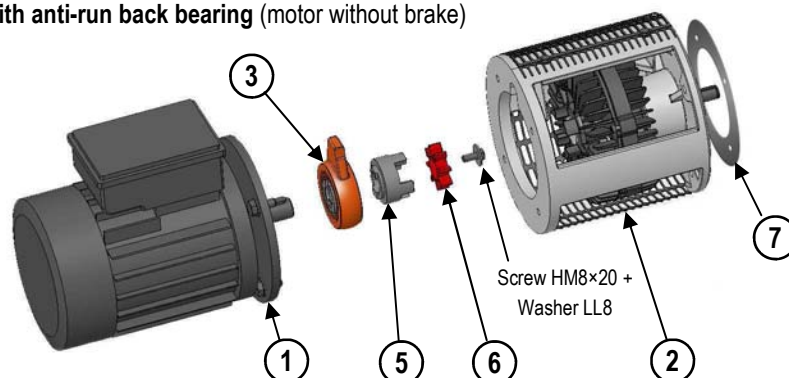


Weight

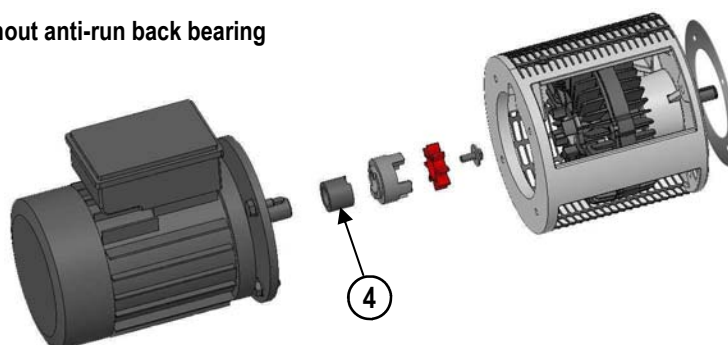
- With motor without brake : 34 kg
- With brake motor : 44 kg

The dimensions are given in mm.

Mounting Mounting with anti-run back bearing (motor without brake)



Mounting without anti-run back bearing



7	1	Joint Ø189 x Ø 141 x 0,8
6	1	Elastic coupling ring
5	1	Coupling hub
4	1	Spacer (if mounting without anti-run back bearing)
3	1	Anti-run back bearing
2	1	Coupler Cn
1	1	Motor 1,5 kW
Item	Qty	Description

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



Cn Moto coupler

Moto coupleur type Cn

4 40N133

1/3

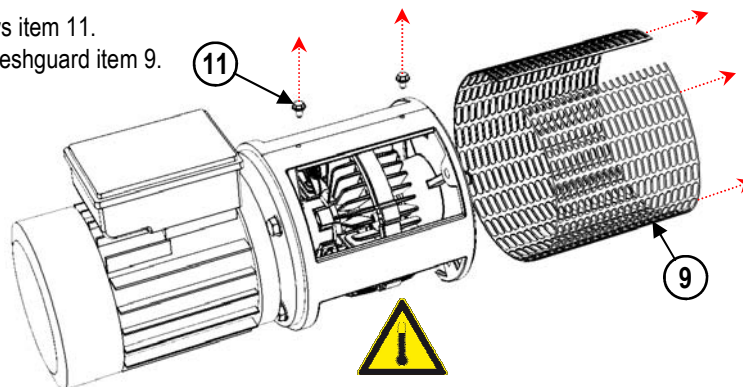
03/12



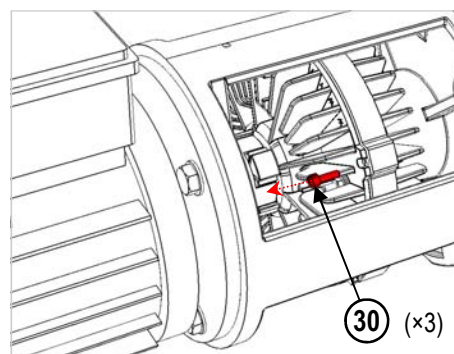
Note: Bolts and nuts are assembled using LOCTITE 243 thread-locking product.

The coupler is adjusted in our factory, according to the installation parameters given by the customer. If one of these parameters changes or if a lack or an excessive torque is noticed (under-pull or over-pull on the cable), it is necessary to re-adjust the coupler.

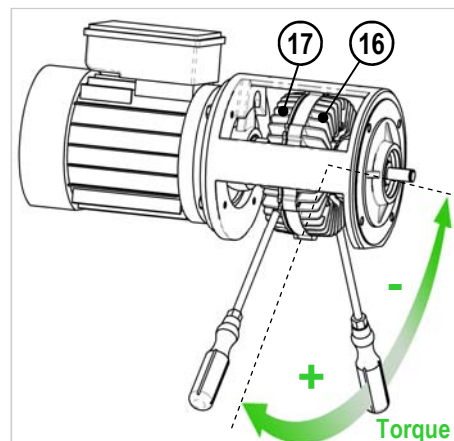
1. Withdraw the 2 screws item 11.
Remove the safety meshguard item 9.



2. Withdraw the 3 locking screws item 30.



3. Hold in position the flange item 17 using a screwdriver placed between the blades.
Screw (+ torque) or unscrew (- torque) the flange item 16 using an other screwdriver placed between the blades.
⇒ 1/6^e of turn ~ 0,05 m.daN



Remark

If you don't know the original adjustment parameters:

Screw the flange item 16 up to the mechanical stop.

This position corresponds to **Co = 0,60 m.daN**

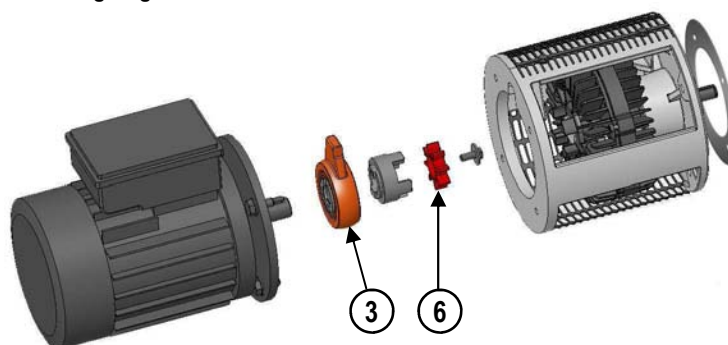
Unscrew by pitch of 1/6^e of turn (~0,05 m.daN)

up to obtain the good adjustment.

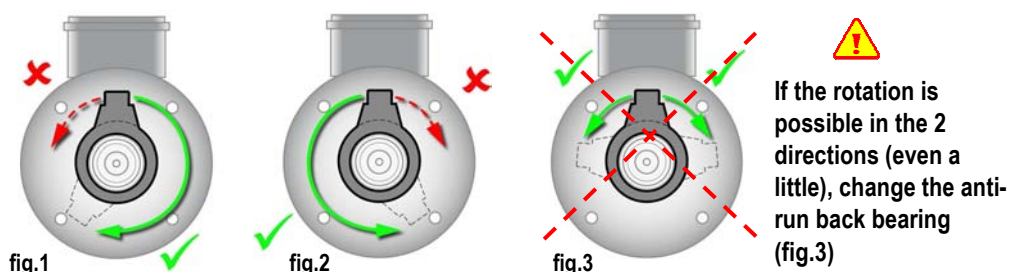
Re-adjust if necessary.

4. Remove the screwdrivers.
Clean the screws and make the operations 2 and 1 (in this order) for re-assembling.
The screws must be coat with LOCTITE 243 thread-locking product.

Maintenance Frequency according to general instructions manual.



- Check the coupling ring item 6.
If the coupling ring shows signs of use or cracking or if there is a clearance regarding the coupling hub item 5, change the coupling ring.
- Check the good condition of the anti-run back bearing item 3 :
Remove the motor to access to the anti-run back bearing.
The rotation must be possible in only one direction. (fig.1 or fig.2)



Spare parts • Please indicate the cable reel number.

- MOTORCOUPLING type Cn

Motorcoupling with brake	47C0026/2
Motorcoupling without brake, with anti-run back bearing	47C0026/1
Motorcoupling without brake, without anti-run back bearing	47C0026/3
Description	Reference

- COUPLER type Cn | Spare parts kit including:
 - screws and bolts for mounting of the motor
 - screws, bolts and joint for mounting on the gear box
 - elastic coupling ring
 - circlips and pinion drive key.

•	Coupler type Cn without motor, without anti-run back bearing.	450N066/1
1 st emergency	Description	Reference

- OTHERS

	Joint Ø189 x Ø141 x 0,8	4J10033
	Coupling hub	4 23336 11
	Spacer (without anti-run back bearing)	1543081
	Motor 1,5 kW	4T02005
•	Elastic coupling ring	121082
•	Anti-run back bearing	4 01112 40
1 st emergency	Description	Reference

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



DELACHAUX GROUP

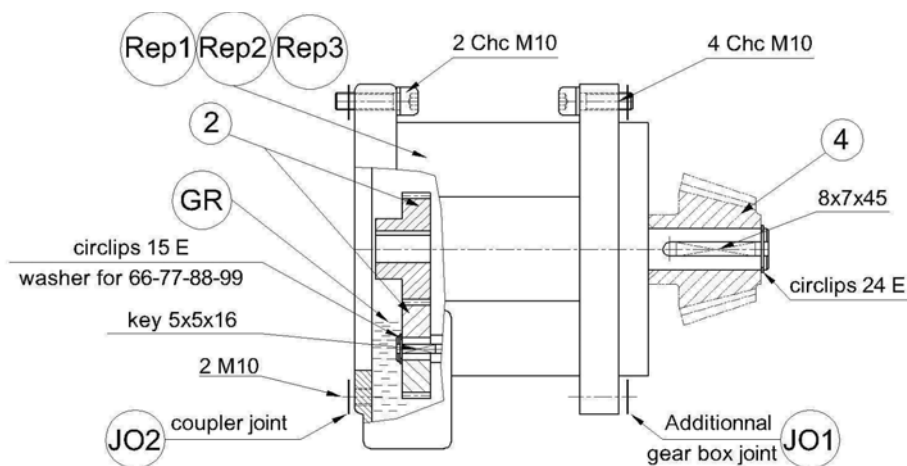
Cn Moto coupler

Moto coupleur type Cn

4 40N133

3/3

03/12



Nuts and bolts are assembled using LOCTITE 243 thread-locking product.

MAINTENANCE

ORIGINAL EQUIPMENT IS SUPPLIED GREASED FOR 15 000 OPERATING HOURS OR 5 YEARS.

LUBRICATION

With grease.

SECONDARY GEARBOX ACCESS

- * Assembly with coupler C:
 - Remove the perforated plate around the coupler,
 - Remove the motor-coupler unit, fixed with 2 bolts CHC M 10 + 2 nuts HM 10 in the inside.
- * BNA38 case:
 - Remove the motor-coupler unit + secondary gearbox R8.

CHANGE OF GREASE (Replacement kit with grease, seals, screws and bolts must be at your disposal)

- * Remove the lubricating grease.
- * Clean the inside with a brush and grease solvent.
- * Refill the gearbox with new grease.
- * Re-assemble, using a new seal between the two flanges.

REPLACEMENT OF INPUT GEAR SET ITEM 2 (Except for type 55) (Replacement kit with grease, seals, screws and bolts must be at your disposal)

- * Access to the interior of the additional gear unit is as described above.
- * Remove the snap ring item 15 E.
- * Remove the pinion item 2.
- * Carry out the operation in reverse for re-assembly.
- * Replace the seals.

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



ADDITIONAL GEARBOX 11-22-33-44-55-66-77-88-99



410N028

Folio 1/2

02/12

SPARE PARTS (*Please indicate the cable reel reference number when ordering spare parts*)

Rep3	450N011/3	Replacement kit (grease, seals, screws and bolts, additional gearbox type 66/77/88/99, technical leaflet)
Rep2	450N011/2	Replacement kit (grease, seals, screws and bolts, additional gearbox type 55, technical leaflet)
Rep1	450N011/1	Replacement kit (grease, seals, screws and bolts, additional gearbox type 11/22/33/44, technical leaflet)
JO2	4J10033	Coupler seal
JO1	4J10033	Additional gearbox / entry BNA seal
GR	According to 410N026	Grease-Qty: 200g
4	4P28064	Bevel gear for BNA700
4	1541822	Bevel gear for BNA70
4	2631769	Bevel gear for BNA50
4	2631753	Bevel gear for BNA40
4	2631752	Bevel gear for BNA30
4	1541809	Bevel gear for A3X
2	123265/44	Input gear set for additional gearbox type 44 / 99
2	123265/33	Input gear set for additional gearbox type 33 / 88
2	123265/22	Input gear set for additional gearbox type 22 / 77
2	123265/11	Input gear set for additional gearbox type 11 / 66
Item	Reference	Description

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



ADDITIONAL GEARBOX 11-22-33-44-55-66-77-88-99



410N028

Folio 2/2

02/12

LUBRIFICATION DES ENGRENAGES SOUS CARTER ETANCHE A LA GRAISSE PAR BARBOTAGE

D'origine, le matériel est lubrifié avec de la graisse "...." (Référence suivant repère).

➤ Rep. 1 : CONDAT 31028 Redugraisse suivant fiche technique **4 4 20F311**

Matériels concernés : - **P1 - BNA0 - BNA1 - BNA2 - BNA3 - BNA4 - BNA5 - BNA7-A3X - NCR - XO73 - XO74 - XO75 - XO77**
- **Réducteurs additionnels R1-R2-R3-R4-R5-R6-R7-R8-R9-R10**
- **Cellules additionnelles 11-22-33-44-55-66-77-88-99**

➤ Rep. 2 : CONDAT type REDUSYNTH suivant fiche technique **4 4 20F322**

Matériels concernés : - **Tous réducteurs et cellules en option basse et haute température**

Nota : Ne pas mélanger les graisses.



Utiliser impérativement une graisse de même nature que celle d'origine.



LUBRIFICATION OF GEARBOXES IN SEALED HOUSING BY GREASE SOAKING

Original equipment is supplied greased with "...." (reference according to Item)

➤ Item 1 : CONDAT 31028 Redugraisse according to technical leaflet **4 4 20F311**

Concerned materials : - **P1 - BNA0 - BNA1 - BNA2 - BNA3 - BNA4 - BNA5 - BNA7-A3X - NCR - XO73 - XO74 - XO75 - XO77**
- **Secondary gear box R1-R2-R3-R4-R5-R6-R7-R8-R9-R10**
- **Additionnal gear box 11-22-33-44-55-66-77-88-99**

➤ Item 2 : CONDAT type REDUSYNTH according to technical leaflet **4 4 20F322**

Concerned materials : - **All gear box with option low or high temperature**

Note : Do not mix greases



The sort of grease used must be identical to the original grease.

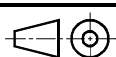
NOTICE TECHNIQUE

TECHNICAL LEAFLET



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GEAR BOX LUBRICATION
LUBRIFICATION DU REDUCTEUR



410N026

Folio 1/1

10/09

Lubrification des engrenages sous carter étanche par barbotage
Lubrification of gear boxes in sealed housing by grease soaking

Température d'utilisation : -15°C $+60^{\circ}\text{C}$

Working temperature : -15°C $+60^{\circ}\text{C}$

* Fournisseur : CONDAT

Graisse 31028 REDUGRAISSE (-25°C $+150^{\circ}\text{C}$)

- couleur : noire
- base : huile minérale
- épaississant : lithium
- viscosité de base à 40°C : $330\text{ mm}^2/\text{s}$
- pénétration travaillée 60 coups (ISO 2137) : 385–400 (0.1mm)

* *Supplier* : CONDAT

grease 31028 REDUGRAISSE (-25°C $+150^{\circ}\text{C}$)

- *color* : *black*
- *base* : *semi fluide mineral*
- *thickener* : *lihium*
- *viscosity of the base oil at 40°C* : *$330\text{ mm}^2/\text{s}$*
- *Worked penetrability 60 strokes* : *385–400 (0.1mm)*

B	7/03/2009	Température d'utilisation ==> $+60^{\circ}\text{C}$	L. Brunet
A	15/04/08	Emission N°1 – Issue N°1	Ivy Teissier
Rev	Date	Modifications – Revisions	Nom–Name
Validé à l'indice le 17/03/2009 par Fonteneau et Chauland			Format A4v



DESIGNATION GREASE
GRAISSE

FICHE TECHNIQUE
TECHNICAL INSTRUCTIONS

Folio
1/1

420F311

B



Pour les opérations suivantes :

- RACCORDEMENTS
- CONTRÔLE - REGLAGE DES GALETS
- RECHANGE DES GALETS
- REGLAGE DES PORTE BALAIS
- ENTRETIEN
- PIECES DE RECHANGE

Se reporter aux notices associées
et

n° 4 40N022 (Collecteur type P - Rep.1)
n° 4 40N004 (Collecteur type C - Rep.2).



For the following operations :

- CONNECTIONS
- CHECK AND AJUSTMENT OF ROLLERS
- REPLACEMENT OF ROLLERS
- BRUSH HOLDERS ADJUSTMENT
- MAINTENANCE
- SPARE PARTS

*Please see the technical leaflets
and*

*n° 4 40N022 (Slipring type P - Item 1)
n° 4 40N004 (Slipring type C - Item 2).*

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET

DELACHAUX
CONDUCTIX®

COLLECTEUR P + C
SLIP RING ASSEMBLY P + C

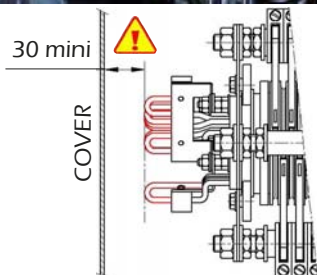
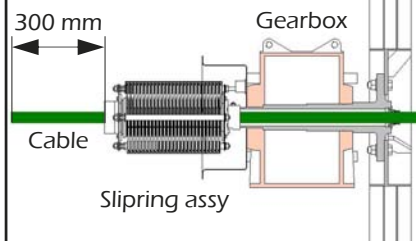


4 40N026

1/1

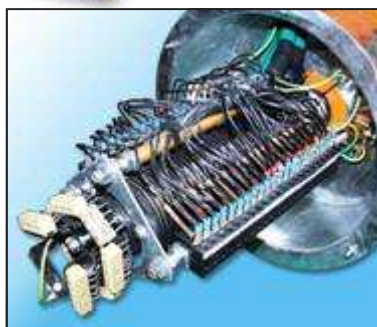
01/08

RINGS



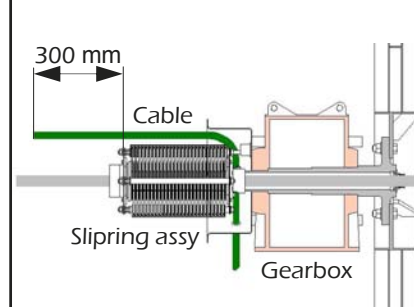
Core	2.5 mm ² maxi
Connection	Terminal block WEIDMULLER + cap 2.5 mm ²
Option	6 mm ² with special cap 6 mm ²

CONNECTIONS



RING TYPE	MARKING
Standard	1 - 2 - 3 - 4 - 5 - 6 - ... -
Silvered	1A - 2A - 3A - 4A - ... -
ML	1ML - 2ML - 3ML - ... -
Gold	1D - 2D - 3D - 4D - ... -

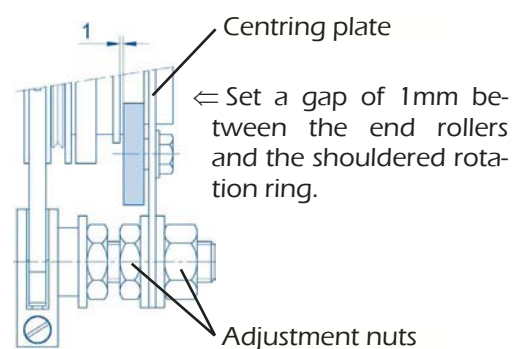
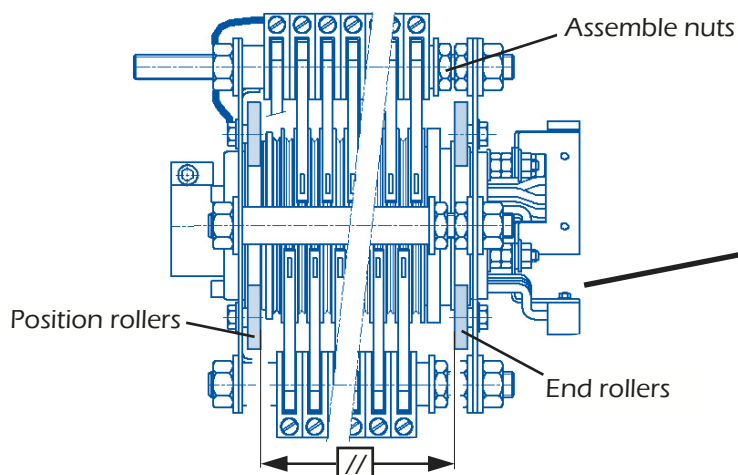
BRUSH HOLDERS



Core	2.5 mm ² maxi
Connection	FASTON terminal type 6.35 not insulated
Option	FASTON type 6.35 6 mm ² special

CHECK & ADJUSTMENT OF ROLLERS

- Rollers are located either in a groove or against a shouldered ring.
- Rollers must not be pressed against the rolling track.** Ensure that each roller can be easily turned with fingers.
- Parallelism between the position rollers and end rollers should be observed without connection with the plate position.



REPLACEMENT OF ROLLERS

- Loosen the centring plate to fit one or more rollers.

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



COLLECTEUR C(R)080 / C(R)120 / C(R)180
SLIP RING ASSEMBLY C(R)080 / C(R)120 / C(R)180



4 40N004

1/2

12/09



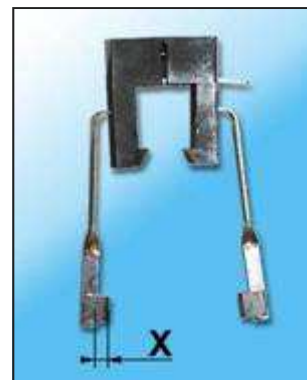
**BEFORE REMOVING THE SLIP RING COVER,
ENSURE THAT POWER IS SWITCHED OFF.**

BRUSH HOLDER ADJUSTMENT

- Position exactly the first brush holder of each row.
- Align each brush holder in accordance with the pitch between rings.

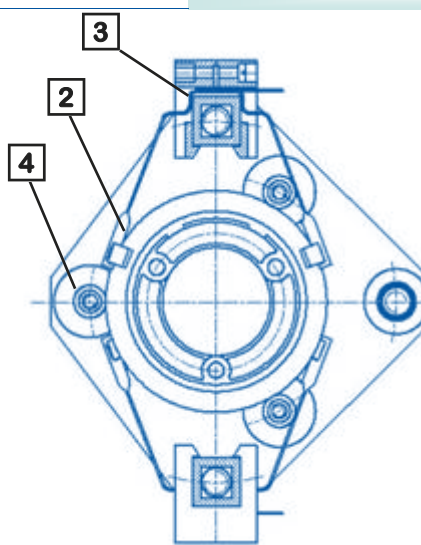
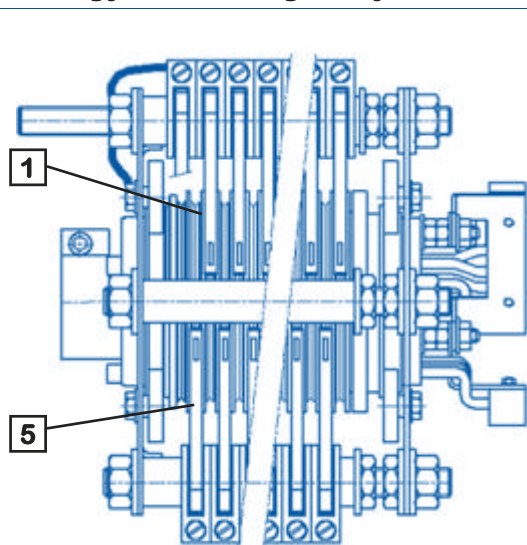
MAINTENANCE

- Remove the slip ring housing (round housing) or its lateral or top cover (square housing).
- Check the connections.
- Check that the screws and threaded rods of the slipring are well tightened.
- Check that the hub slipring is well tightened on the driving shaft.
- Clean up the insulator rings.
- Remove the dust from the assembly.
- Check:
 - => Wear of each brush holder (replacement if $X = 2,5 \text{ mm}$),
 - => Alignment of the brush holders with their corresponding ring,
 - => Contact pressure of the brush holders onto the rings.
- Install the cover with its seal.
- Change the joint if it is showing signs of wear.



RECOMMENDED SPARE PARTS - Specify serial number of the cable reel.

DESCRIPTION	C(R)080	C(R)120	C(R)180
Standard ring replacement kit (Please indicate the slipring type)	210N013	210N014	210N015
Silvered ring replacement kit (Please indicate the slipring type)	210N016	210N017	210N018
ML ring replacement kit (Please indicate the slipring type)	210N019	210N020	210N021
Roller replacement kit (Please indicate the slipring type)	250N003	250N003 (C120) 250N004 (CR120)	250N004
Slip ring assembly w/o hub (Specify number of rings for each type and the slipring type (C or CR))	222C004	232C005	242C006
Housing / Main gear box contacts Joint (Only for square housing)	BNA40-50 : 4J10039		
Housing / Main gear box joint	P1 : 4J10049 BNA0 : 4J10050 BNA10-20 : 4J10038 BNA30 : 4J10037 BNA40-50 : 4J10038 A3X : 4J10037 - 4J10048		
Cable gland plate joint	Indicate the cable reel number		
Housing joint or housing cover joint	Indicate the cable reel number		



Each replacement kit includes:

- 3 Phase rings as per **1**
- 3 Sub/assembly including :
 - brush holders **2**
 - clamps + screws **3**
- 3 insulator rings as per **5**

Roller replacement kit **4** includes :
 Number of rollers according to the
 type of slip ring assembly + screws
 + technical leaflet 440N004.

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



COLLECTEUR C(R)080 / C(R)120 / C(R)180
 SLIP RING ASSEMBLY C(R)080 / C(R)120 / C(R)180

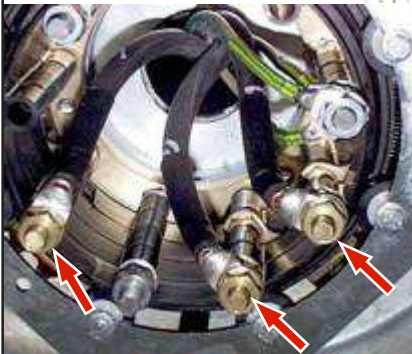
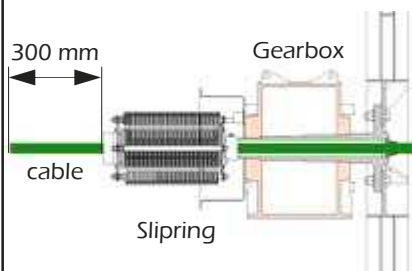


4 40N004

2/2

12/09

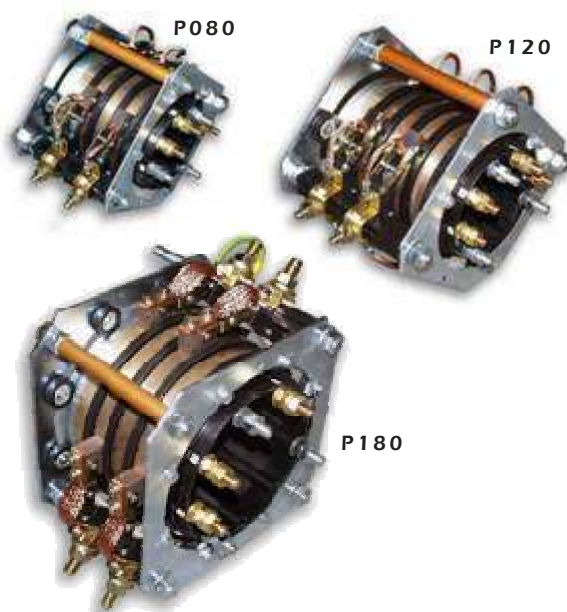
RINGS



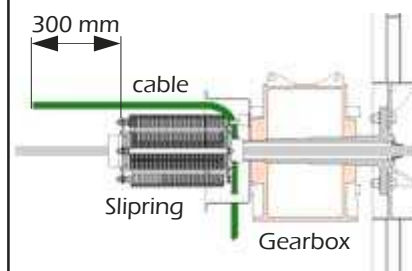
Core	P080 : 25 mm ² max P120 : 50 mm ² max P180 : 95 mm ² max
Connection (Hold up the counternut during the tightening)	Insulated ring terminal * P080 : ØM6 - Tightening torque: 7Nm P120 : ØM8 - Tightening torque: 9Nm P180 : ØM10 - Tightening torque: 10Nm

* : Insulated terminal or protected by heat-shrink sleeving.

CONNECTIONS



BRUSH HOLDERS



Core	P080 : 25 mm ² max P120 : 50 mm ² max P180 : 95 mm ² max
Connection (Hold up the counternut during the tightening)	Insulated ring terminal * P080 : ØM8 - Tightening torque: 9Nm P120 : ØM8 - Tightening torque: 9Nm P180 : ØM12 - Tightening torque: 30Nm

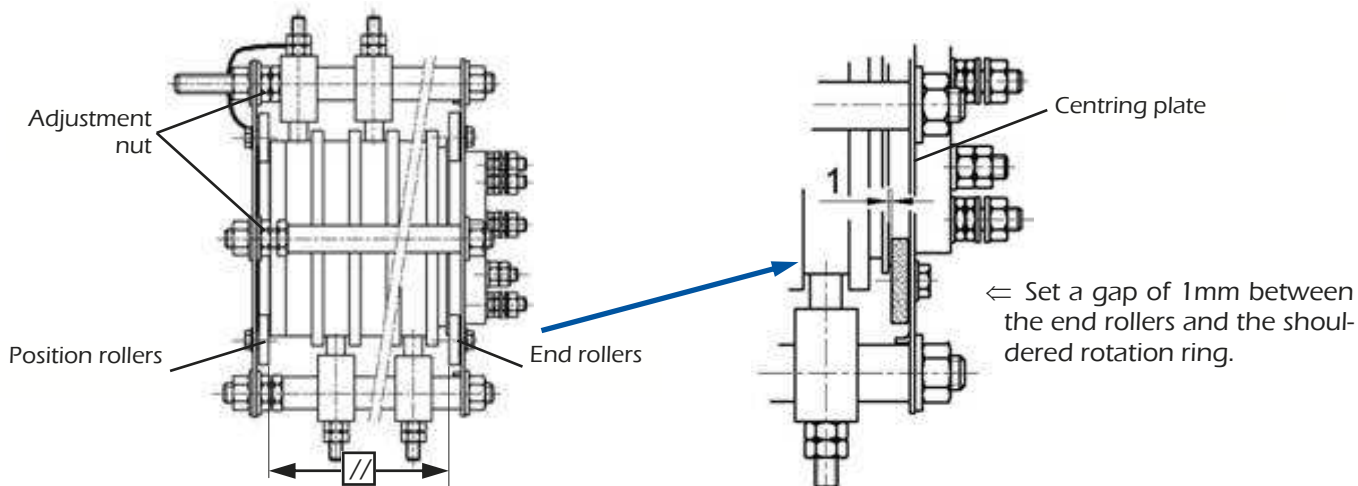
RINGS

MARKING

Standard	P1 - P2 - P3 - ... -	⊕
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CHECK & ADJUSTMENT OF ROLLERS

- Rollers are located either in a groove or against a shouldered ring.
- Rollers must not be pressed against the rolling track.** Ensure that each roller can be easily turned with fingers.
- Parallelism between the position rollers and end rollers should be observed without connection with the plate position.



REPLACEMENT OF ROLLERS

- Loosen the centring plate to fit one or more rollers.

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



COLLECTEUR P080 / P120 / P180
SLIP RING ASSEMBLY P080 / P120 / P180



4 40N022

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04/09

230C004

BRUSH HOLDER ADJUSTMENT

- Centre each brush on its ring.

MAINTENANCE

- Remove the slip ring cover.
- Check the connections.
- Check that the screws and threaded rods of the slipring are well tightened.
- Check that the hub slipring is well tightened on the driving shaft.
- If the rings are marked, slightly pitted or with large carbon deposit, polish with emeri cloth 320 grade.
- Clean the insulators.
- Remove the dust from the assembly.
- Check:
 - => the brushes wear (replacement if $X \leq 7\text{mm}$),
 - => the quality of the contact of the brushes on the ring,
 - => the position of the brushes on the ring.
- Install the cover with its seal.
- Change the joint if it is showing signs of wear.

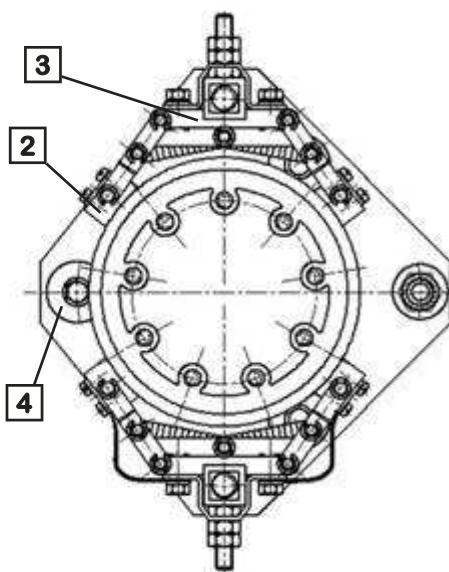
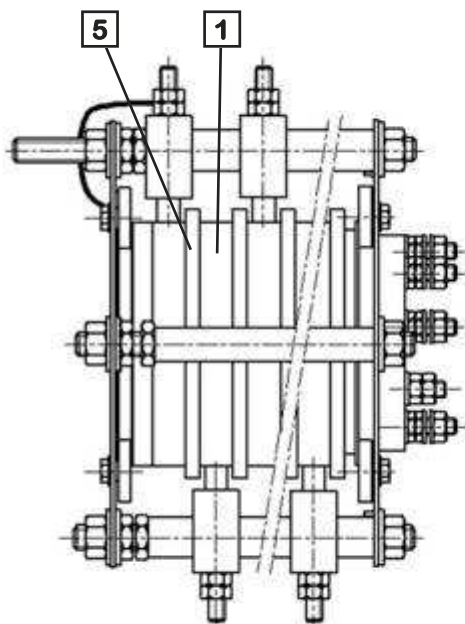
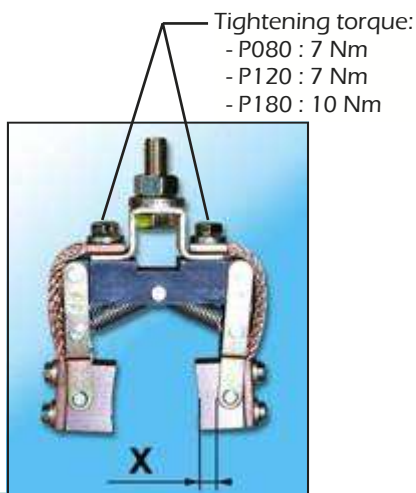
RECOMMENDED SPARE PARTS

Specify serial number of the cable reel.

DESCRIPTION	P080	P120	P180
Ring replacement kit (Please indicate the slipring type)	210N010	210N011	210N012
Roller replacement kit (Please indicate the slipring type)	250N003	250N003	250N004
Slip ring assembly without hub (Specify number of rings)	220C004	230C004	240C004
Housing / Main gear box contacts Joint (Only for square housing)	BNA40-50 : 4J10039		
Housing / Main gear box Joint	P1 : 4J10049 BNA0 : 4J10050 BNA10-20 : 4J10038 BNA30 : 4J10037 BNA40-50 : 4J10038 A3X : 4J10038		
Cable gland plate joint	Indicate the cable reel number		
Housing joint or housing cover joint	Indicate the cable reel number		



**BEFORE REMOVING THE SLIP RING COVER,
ENSURE THAT
POWER IS SWITCHED OFF**



Each Ring replacement kit includes :

- 1 Phase ring as per **1**
- 1 brush holder as per **2**
- 2 insulator ring as per **5**

Roller replacement kit **4** :

Number of rollers according to the type of slip ring assembly + screws + Technical leaflet 4 40N022.

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



COLLECTEUR P080 / P120 / P180
SLIP RING ASSEMBLY P080 / P120 / P180



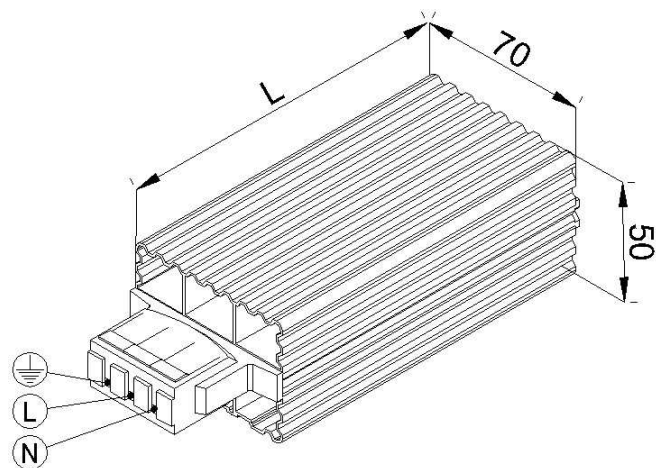
4 40N022

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04/09

230C004

DESCRIPTION - CONNECTION



HEATING POWER (W)	L (mm)	RATED STARTING CURRENT (A)	RATED SUPPLY VOLTAGE		CONNECTION TYPE
			STANDARD	OPTION	
45	65	1,0	110/250V AC/DC 50-60 Hz	270/420V AC/DC 50-60 Hz	3 pushing terminal block 0,5 to 2,5 mm²
100	140	2,4			
150	220	4,8			

MAINTENANCE

No maintenance.

SPARE PARTS

Please mention the equipment number

DESCRIPTION	SUPPLY VOLTAGE	
	STANDARD	OPTION
Heating resistor 45 W	4 20F161 / 1	4 20F161 / 2
Heating resistor ante 100 W	4 20F151 / 1	4 20F151 / 2
Heating resistor 150 W	4 20F162 / 1	4 20F162 / 2

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



RESISTANCE CHAUFFANTE 45W - 100W - 150W
HEATING RESISTOR 45W - 100W - 150W

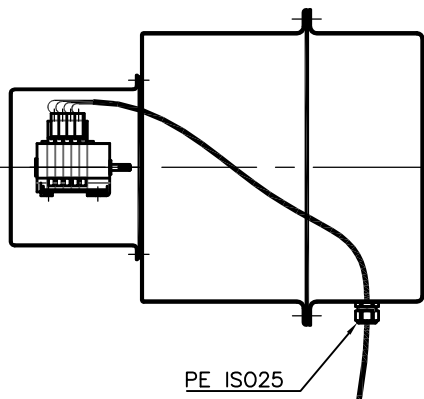


4 40N005

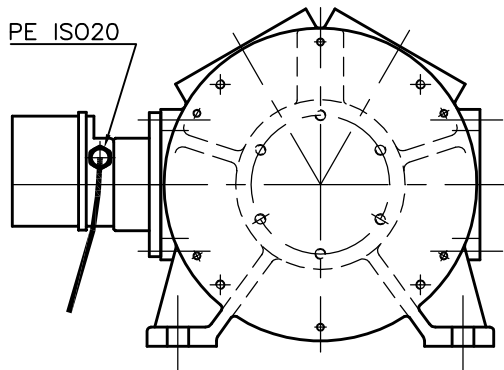
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04/09

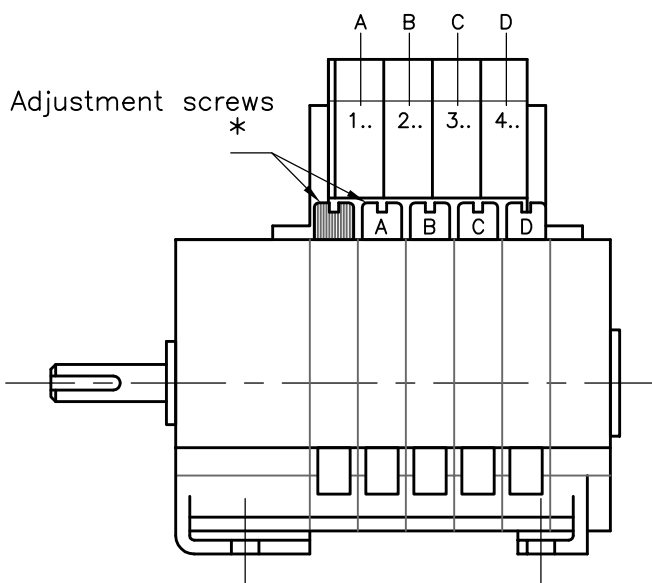
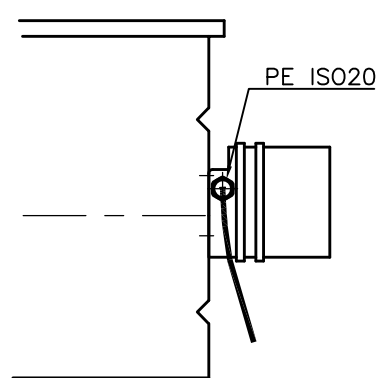
Standard / LV Slip ring assembly



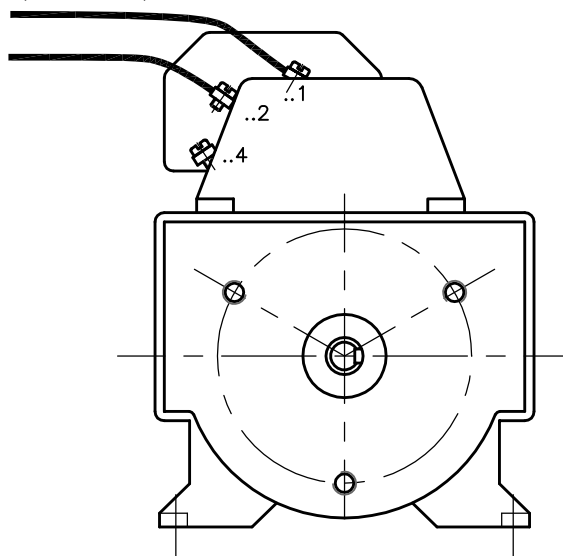
Standard / Gearbox input



Standard / HV Slip ring assembly



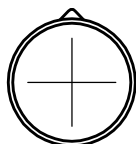
$0,75 < s < 1,5 \text{ mm}^2$



*		Adjustment screw for all the cams	contact A: 11-12 contact B: 21-22 contact C: 31-32	 (11,21,...)
		Adjustment screw for each cam		

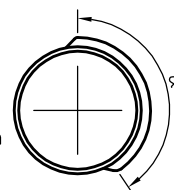
Cam: Standard

$\alpha = 15^\circ$



Option
various cam angles

$\alpha = \text{according to the application}$



Snap action contact: 250V-6A /AC 80V-2A /DC

No maintenance

Spare parts: (according to the cable reel serial number)

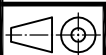
1 complete end limit switch

NOTICE TECHNIQUE

TECHNICAL LEAFLET

DELACHAUX
DIVISION CONDUCTIQUE

END LIMIT SWITCH "STROMAG"

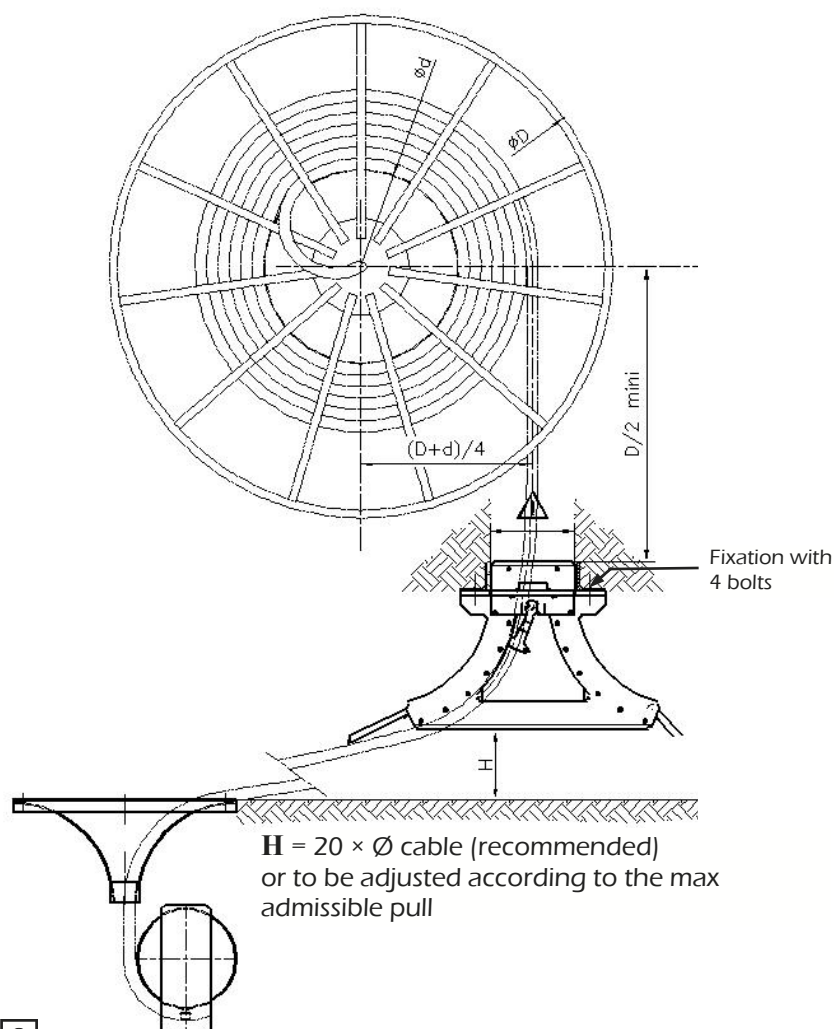
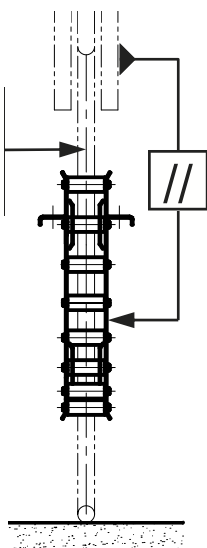


4 4 10N100

10/07

FITTING

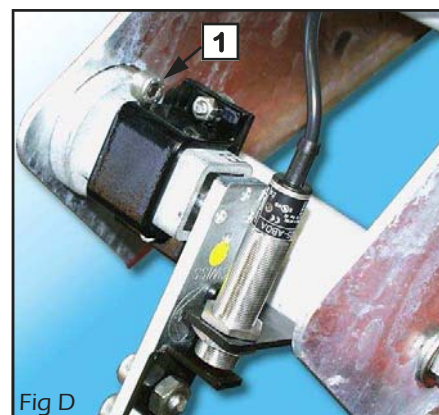
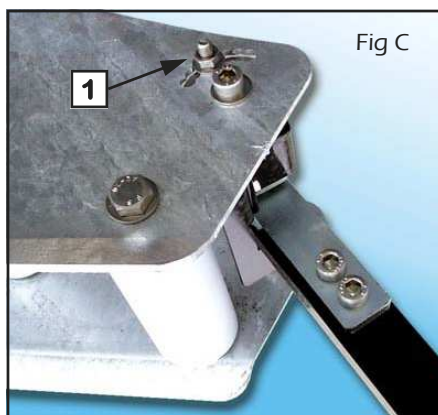
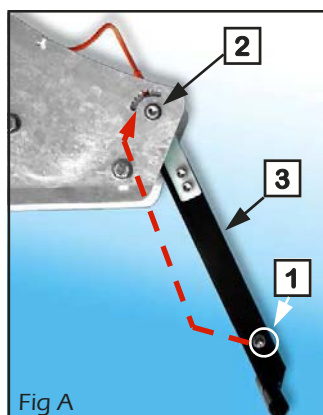
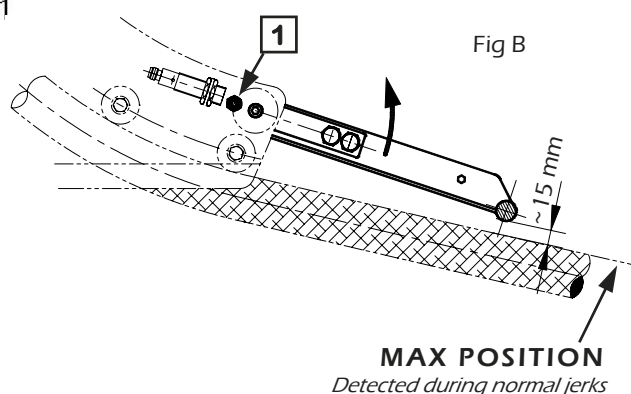
The spool and the guiding devices axis must be aligned: $\pm 5 \text{ mm}$



OVER-PULL ARM ADJUSTMENT

If the arm is not fitted, place it with the screw item **2**

- Unscrew the screw item **2**
- Remove the bolt item **1** according to the figure A.
- Position the arm item **3** according to the figure B.
- Place the bolt item **1** in the suitable opening (figures C&D)
- Tight the screw item **2** and block the bolt item **1**
- Screw the proximity switch connector (in case of connecting box).

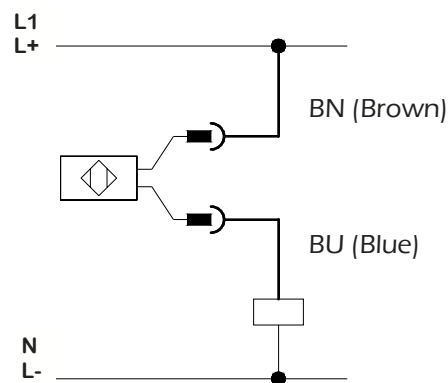


NOTICE D'INFORMATION TECHNIQUE

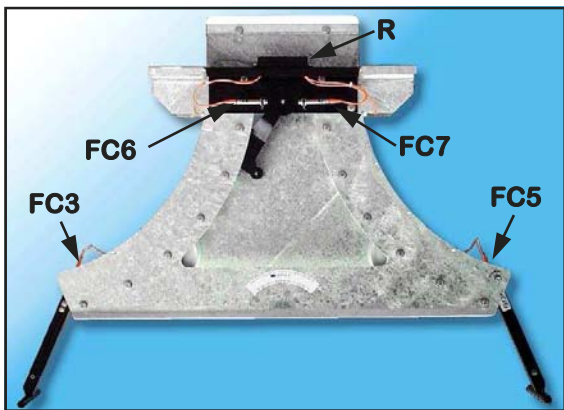
TECHNICAL INFORMATION LEAFLET

CONNECTION UNDER-PULL / OVER-PULL / POSITION ON TERMINAL BOX

- Proximity switch 20/250V-AC/DC with a 2 wires cable.

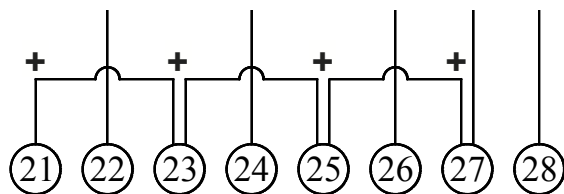


- The proximity switches are connected in our factory in the connecting box **R**.



Customer connection:

- Cable with 8 active cores or 5 cores.



ITEM	+		DETECTION
FC3	21	22	LEFT OVER-PULL
FC5	23	24	RIGHT OVER-PULL
FC6	25	26	UNDER-PULL
FC7	27	28	POSITION

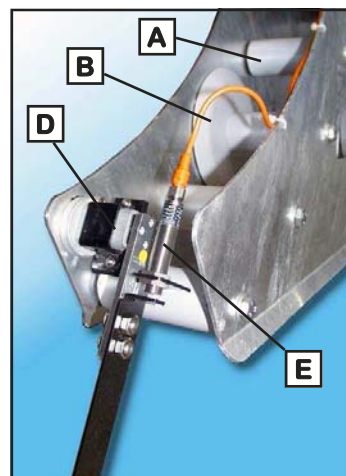
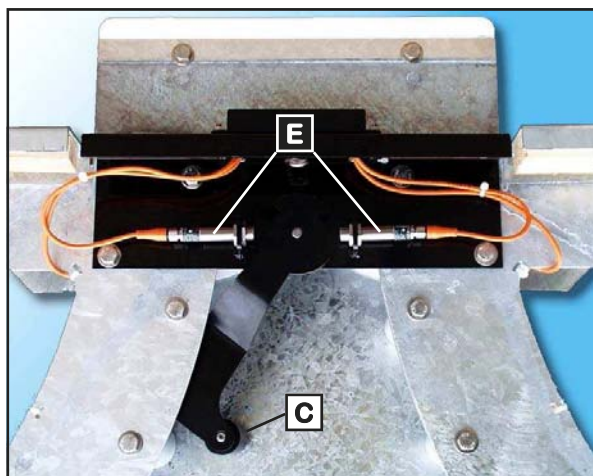
MAINTENANCE

- Check the free rotation of guide rollers.

If options:

- Check the free rotation of under-pull arm rollers.
- Check the over-pull arms(position and pull).
- Check the good working of the proximity switches.

RECOMMENDED SPARE PARTS



Guiding devices R350 - R500

ITEM	DESCRIPTION	REFERENCE
A	Guide roller Ø38	4 R75063
B	Guide roller Ø38 (with flanges)	4 5R0039
C	Roller (under-pull)	4 R75064
D	Elastic hub (over-pull)	4 20F082

Guiding devices R750 - R1000 - R1300

ITEM	DESCRIPTION	REFERENCE
A	Guide roller Ø55	4 R75062
B	Guide roller Ø55 (with flanges)	4 R75059
C	Roller (under-pull)	4 R75066
D	Elastic hub (over-pull)	4 20F083

ITEM	DESCRIPTION	REFERENCE
E	Proximity switch (option)	4 20F124

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



LYRES DE GUIDAGE LS - LD - LDD
GUIDING DEVICES LS - LD - LDD



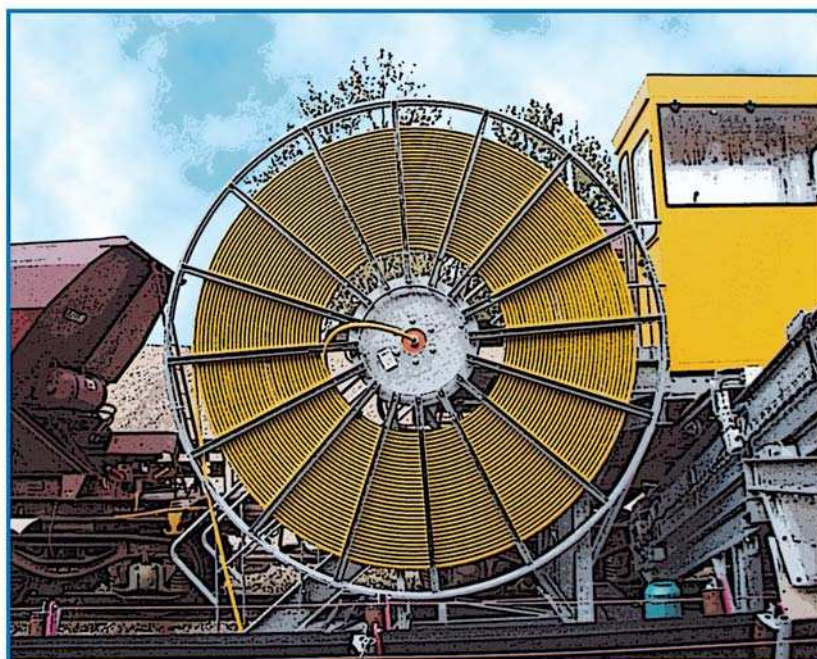
4 40N033

3/3

09/09

Notice de Montage & Installation
Bobine Monospire en 3 parties - M1026 à M1131 - Bras Pliés

Assembly & Installation Instructions
3-Parted Monospiral Spool - M1026 up to M1131 - Folded Spokes



CONDUCTIX-WAMPLER
DELACHAUX S.A.
30 avenue Brillat Savarin - BP 39
01300 Belley - France

tel.: +33 (0)4 79 42 50 00
fax: +33 (0)4 79 42 50 05

internet: www.conductix.com



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- A.2. Sens d'enroulement
- A.3. Types de construction
- A.4. Liste des pièces
- A.5. Outillage & personnel requis
- A.6. Contenu kits de visserie

A - INTRODUCTION

- A.1. Cable diameter check*
- A.2. Wind up direction*
- A.3. Types of assembly*
- A.4. Part list*
- A.5. Tools & crew required*
- A.6. Screw kit contents*

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B - MONTAGE

- B.1. Disque central sur le réducteur
- B.2. Demi bobines
- B.3. Réglage & blocage
- B.4. Montage du câble
- B.5. Collier de câble

B - ASSEMBLY

- B.1. Central disc onto the gearbox*
- B.2. Spool halves*
- B.3. Adjustment & tightening*
- B.4. Cable installation*
- B.5. Cable clamp*

5-8

C - CONTRÔLE FINAL

C - FINAL INSPECTION

8

A. INTRODUCTION - INTRODUCTION

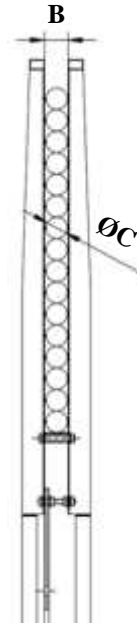
A.1. CONTRÔLE DU DIAMETRE DE CÂBLE - CABLE DIAMETER CHECK

Vérifier que le diamètre réel du câble respecte les conditions suivantes:

- Si $\varnothing C \leq 40 \text{ mm}$: $0,85 \times B \leq \varnothing C \leq 0,95 \times B$
- Si $\varnothing C > 40 \text{ mm}$: $B - 6 \text{ mm} \leq \varnothing C \leq B - 2 \text{ mm}$

Outside diameter of cable must be in accordance with the following:

- *If $\varnothing C \leq 40 \text{ mm}$: $0.85 \times B \leq \varnothing C \leq 0.95 \times B$*
- *If $\varnothing C > 40 \text{ mm}$: $B - 6 \text{ mm} \leq \varnothing C \leq B - 2 \text{ mm}$*

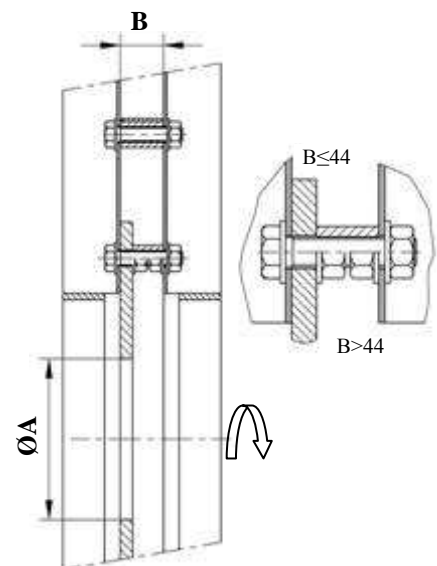


A.2. SENS D'ENROULEMENT - WIND UP DIRECTION

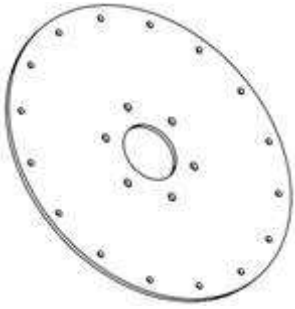
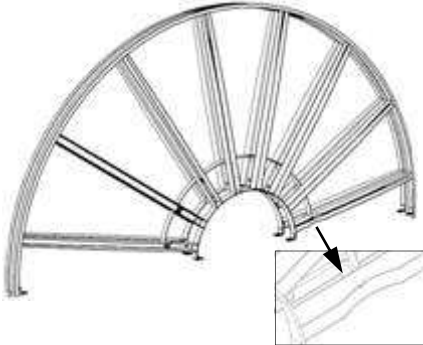





A.3. TYPES DE CONSTRUCTION - TYPES OF ASSEMBLY




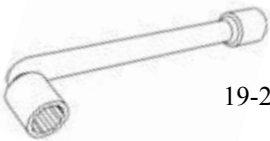


BOBINE SPOOL	TYPE TYPE	NOMBRE DE BRAS NUMBER OF SPOKES	ØA (mm)	Poids Weight
M 1026 M 1____	I	16	Ø150	188 kg / 415 lbs ...
M 1____ M 1131	II	16	Ø150	... ▼ 226 kg / 498 lbs







A.4. LISTE DES PIECES - PART LIST

1 DISQUE CENTRAL CENTRAL DISC ×1 	2 DEMI-BOBINE SPOOL HALF ×1 	3 DEMI-BOBINE SPOOL HALF ×1 
4 COLLIER DE CABLE CABLE CLAMP ×1 	5 KIT DE BASE VISSERIE BASIC SCREW KIT ×1 6 KIT SUPP. VISSERIE ADDITIONAL SCREW KIT ×1	7 CALE DE REGLAGE BLOCK GAUGE ×1 

A.5. OUTILLAGE & PERSONNEL REQUIS - TOOL & CREW REQUIREMENT

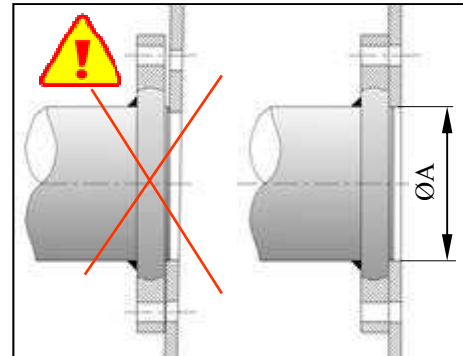
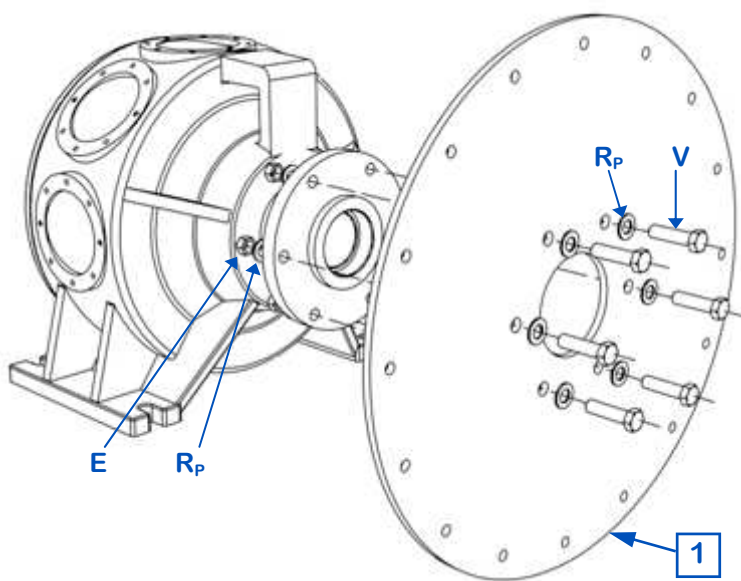
 S/P : 19-22-24-27-30	 69 N.m min 339 N.m max 51 lb.ft min 250 lb.ft max	 S/P
 S/P : 19-22-24-27-30	 S/P : 19-22-24-27-30	 ×2

A.6. CONTENU KITS DE VISSERIE - SCREW KIT CONTENTS

5 KIT DE BASE VISSERIE BASIC SCREW KIT ‘X’ = B+40mm											
											
Item	Desc.	Qty	Item	Desc.	Qty	Item	Desc.	Qty	Item	Desc.	Qty
V1	HM12 - 35	8	E1	HM12	8	R_p1	Mu 12	8	R_f1	CS 12	8
V2	HM14 - ‘X’	16	E2	HM14	16	R_p2	Mu 14	16	R_f2	CS 14	16
6 KIT SUPPLEMENTAIRE ADDITIONAL KIT						Inclus / Including:					
si B ≤ 44 mm If B ≤ 44mm			si B > 44 mm If B > 44mm			- 1 Collier de câble / 1 Cable clamp 4					
Desc.	Qty		Item	Desc.	Qty	- 1 Cale de réglage / 1 Block gauge 7					
Entretoise / Spacer	16		E2	HM 14	32						
			R_f2	CS 14	32						

B. MONTAGE - ASSEMBLY

B1. DISQUE CENTRAL SUR LE REDUCTEUR - CENTRAL DISC ONTO THE GEARBOX



V		HM18-70* HM18-80*	× 6
E		ESL M18	× 6
Rp		Mu 18	× 12

*: suivant le type de réducteur.

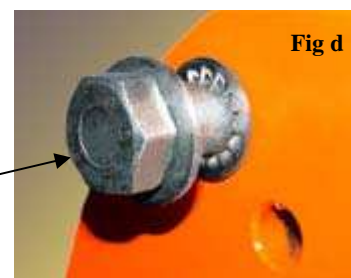
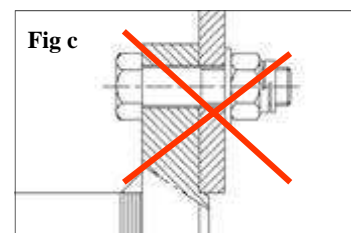
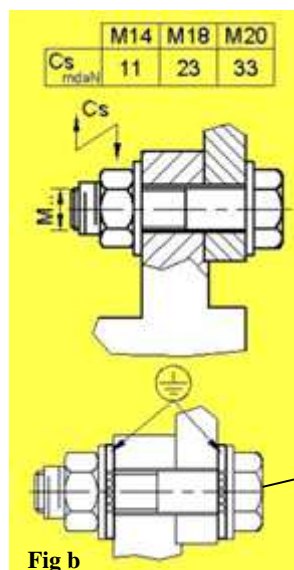
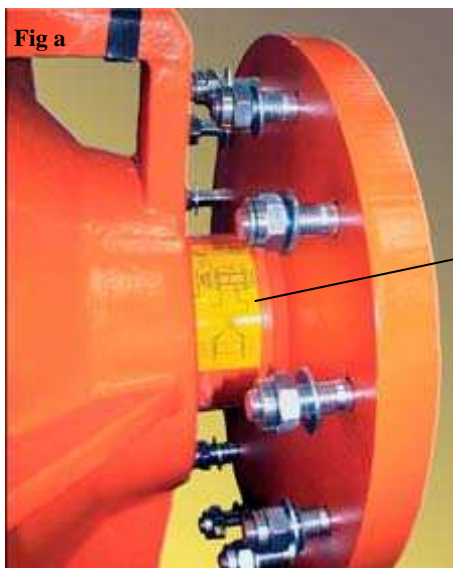
*: in accordance with the gearbox type.

IMPORTANT

- Utiliser **uniquement** la visserie livrée sur le disque de l'arbre du réducteur (Fig a).
- Les écrous de sécurité doivent être installés du côté réducteur (Fig c).
- Respecter le couple de serrage préconisé Cs indiqué sur l'étiquette collée sur l'arbre du réducteur (Fig b) et le montage des rondelles de mise à la Terre (Fig d).
- Effectuer un serrage initial croisé à 1/2 Cs, puis un serrage final à Cs.

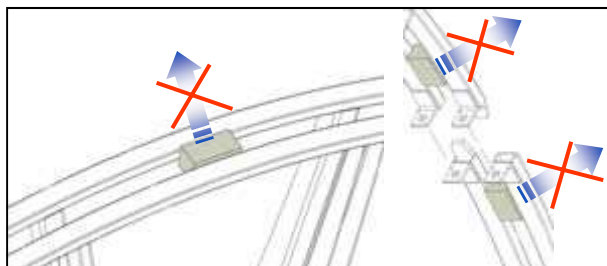
IMPORTANT

- Use screws and nuts delivered onto the disc of the gearbox shaft **only** (Fig a).
- Safety nuts should be installed at the gearbox side (Fig C).
- Recommended torque value Cs indicated on the self-stick on the gearbox shaft (Fig b) and the mounting of the Earth connection washers (Fig d) should be observed.
- At first carry out a crosswise tightening up to 1/2 Cs. Then fully tighten the safety nuts up to Cs.



B2. DEMI-BOBINES - SPOOL HALVES

Ne pas bloquer la visserie à ce moment.
Screws should not be fully tightened now.



LEVAGE DES DEMI-BOBINES
HANDLING OF THE SPOOL HALVES

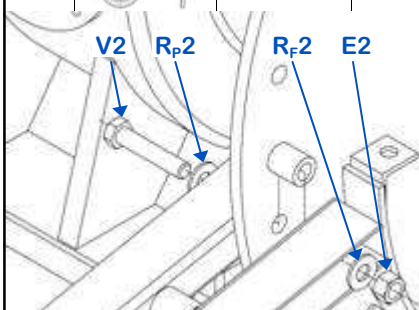
NE PAS RETIRER - DO NOT REMOVE

ETAPE 1 - STEP 1

B ≤ 44

('X' = B+40)

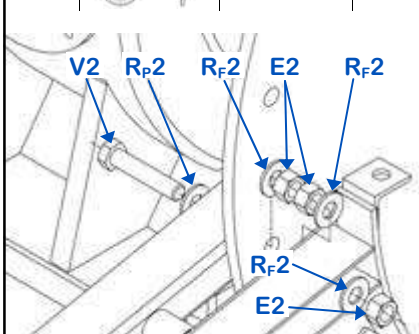
V2		HM14 - 'X'	×16
E2		H M14	×16
R _P 2		Mu 14	×16
R _F 2		CS 14	×16



B > 44

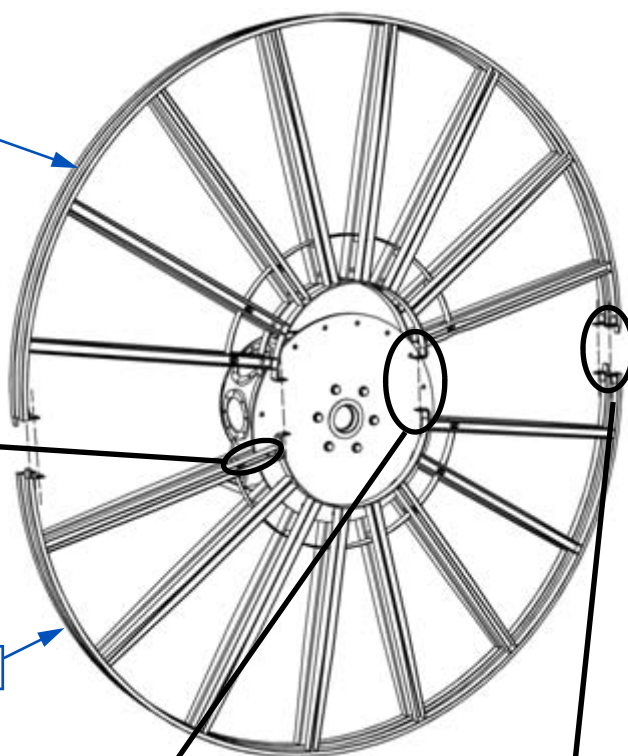
('X' = B+40)

V2		HM14 - 'X'	×16
E2		HM14	×48
R _P 2		Mu 14	×16
R _F 2		CS 14	×48



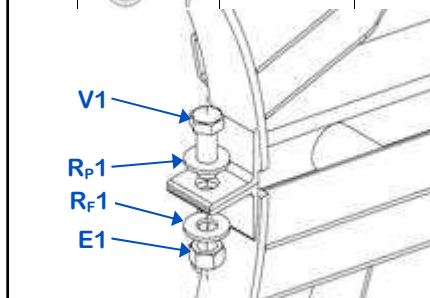
2

3



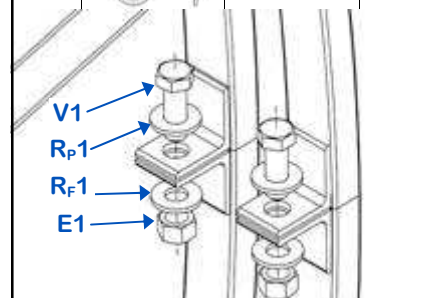
ETAPE 2 - STEP 2

V1		HM12 - 35	× 4
E1		HM12	× 4
R _P 1		Mu 12	× 4
R _F 1		CS 12	x 4



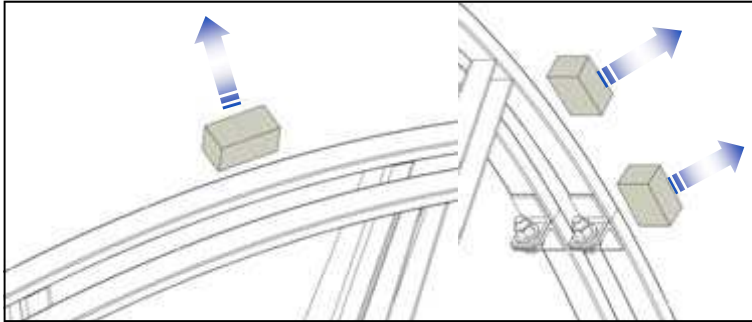
ETAPE 3 - STEP 3

V1		HM12 - 35	× 4
E1		HM12	× 4
R _P 1		Mu 12	× 4
R _F 1		CS 12	x 4



B3. REGLAGE & BLOCAGE - ADJUSTMENT & TIGHTENING

- Retirer les cales maintenant les viroles extérieures.
- Remove the blocks between the outside rims.



- Les bobines avec entre flasque B ≤ 44 mm **ne sont pas réglables**.
- The spools with a rim gap B ≤ 44 mm **are not adjustable**.

- Les bobines avec entre flasque B > 44 mm sont réglables:
⇒ Bloquer dans cet ordre les écrous repérés **Ex1** puis **Ex2**.
⇒ Insérer la cale de réglage **7** entre chaque paire de bras et ajuster les écrous **Ex3** sur toute la circonférence de la bobine.

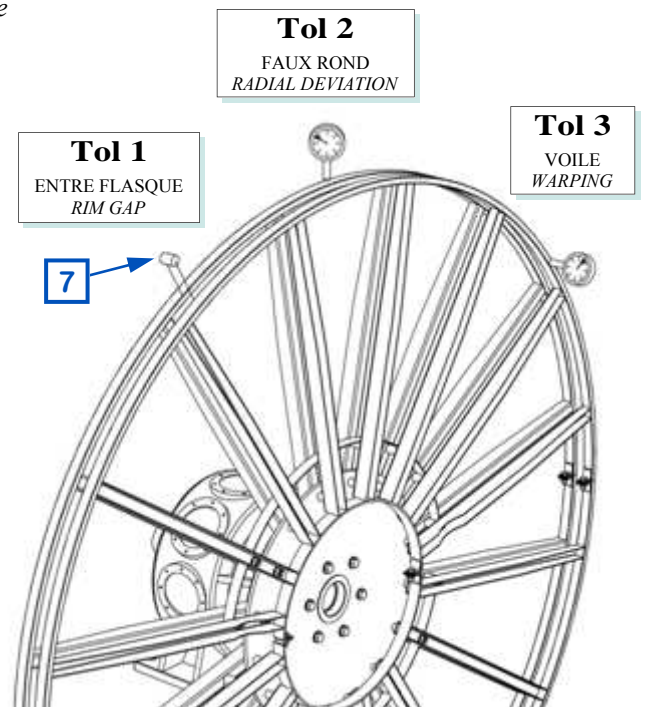
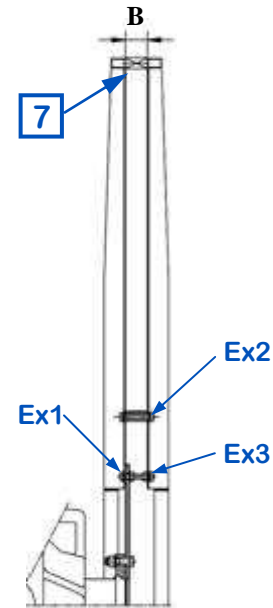
- The spools with a rim gap B > 44 mm can be adjusted:
⇒ Fully tighten the nuts **Ex1** first and then **Ex2**.
⇒ Insert the block gauge **7** between each pair of spokes and use the nuts **Ex3** to adjust the rim gap all around the spool.

- Tourner la bobine avec précaution et vérifier les tolérances ci-dessous.
- Carefully turn the spool and check the tolerances below.

BOBINE SPOOL	TYPE TYPE	Tol 1	Tol 2	Tol 3
M 1026 M 1_	I	± 1 mm	7 mm	14 mm
M 1_	II	± 1 mm	9 mm	16 mm
M 1131				

- Corriger si nécessaire.
- Adjust if necessary.

- Finalement bloquer les écrous **Ex3** en respectant les couples de serrage recommandés.
- At last fully tighten the nuts **Ex3** up to the correct recommended torque.



COUPLES DE SERRAGE TIGHTENING TORQUE VALUES		
	M12	69 N.m 50.9 lbs.ft
	M14	111 N.m 81.9 lbs.ft
	M16	173 N.m 127.6 lbs.ft

B4. MONTAGE DU CÂBLE - CABLE INSTALLATION

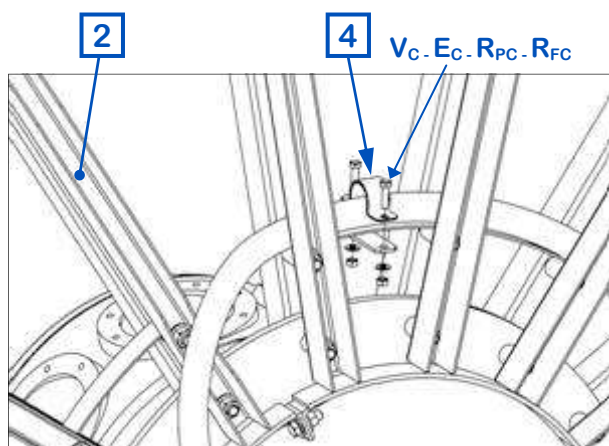
Vérifier qu'aucune bavure ou angle vif sur les bras et les viroles extérieures ne puisse endommager le câble.
Consulter la Notice d'Installation et de Mise en Route de l'enrouleur avant de:

- ⇒ Mettre en place le câble sur la bobine.
- ⇒ Raccorder le câble sur l'enrouleur.

*Check that the spokes and the outside rims are free from any sharp edges or burrs which could damage the cable.
Consult the Instruction Manual of the cable reel before:*

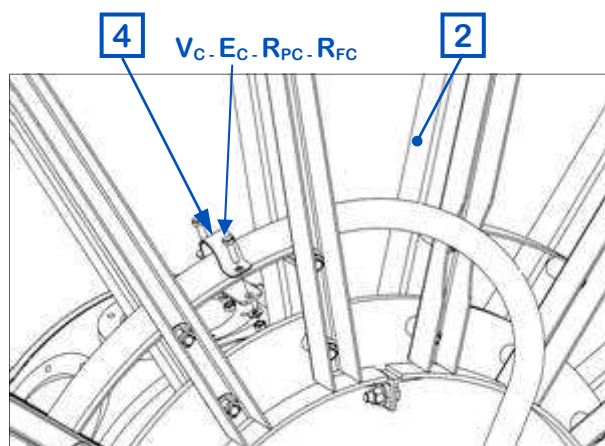
- ⇒ *The cable is fitted onto the spool.*
- ⇒ *The cable is connected to the motorized cable reel.*

B5. COLLIER DE CÂBLE - CABLE CLAMP



SENS D'ENROULEMENT 1
WIND-UP DIRECTION 1

Ø CÂBLE ≤ 60 mm			
V _C		HM8 - 30	×2
E _C		H M8	×2
R _{PC}		Mu 8	×2
R _{FC}		CS 8	×2



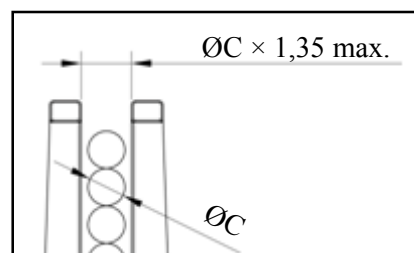
SENS D'ENROULEMENT 2
WIND-UP DIRECTION 2

Ø CÂBLE > Ø60 mm			
V _C		HM12 - 35	×2
E _C		H M12	×2
R _{PC}		Mu 12	×2
R _{FC}		CS 12	×2

C. CONTRÔLE FINAL - FINAL INSPECTION

Après un cycle enroulement - déroulement complet du câble, vérifier que l'entre flasque B de la bobine en bout de bras est inférieur à $\text{ØC} \times 1,35$.
Corriger si nécessaire en réduisant l'entre flasque en bout de bras.

*Wholly unwind and wind-up the cable. Then check that the rim gap of the spool is not greater than $\text{ØC} \times 1.35$ at the end of the spokes.
Reduce the rim gap at the end of the spokes where necessary.*

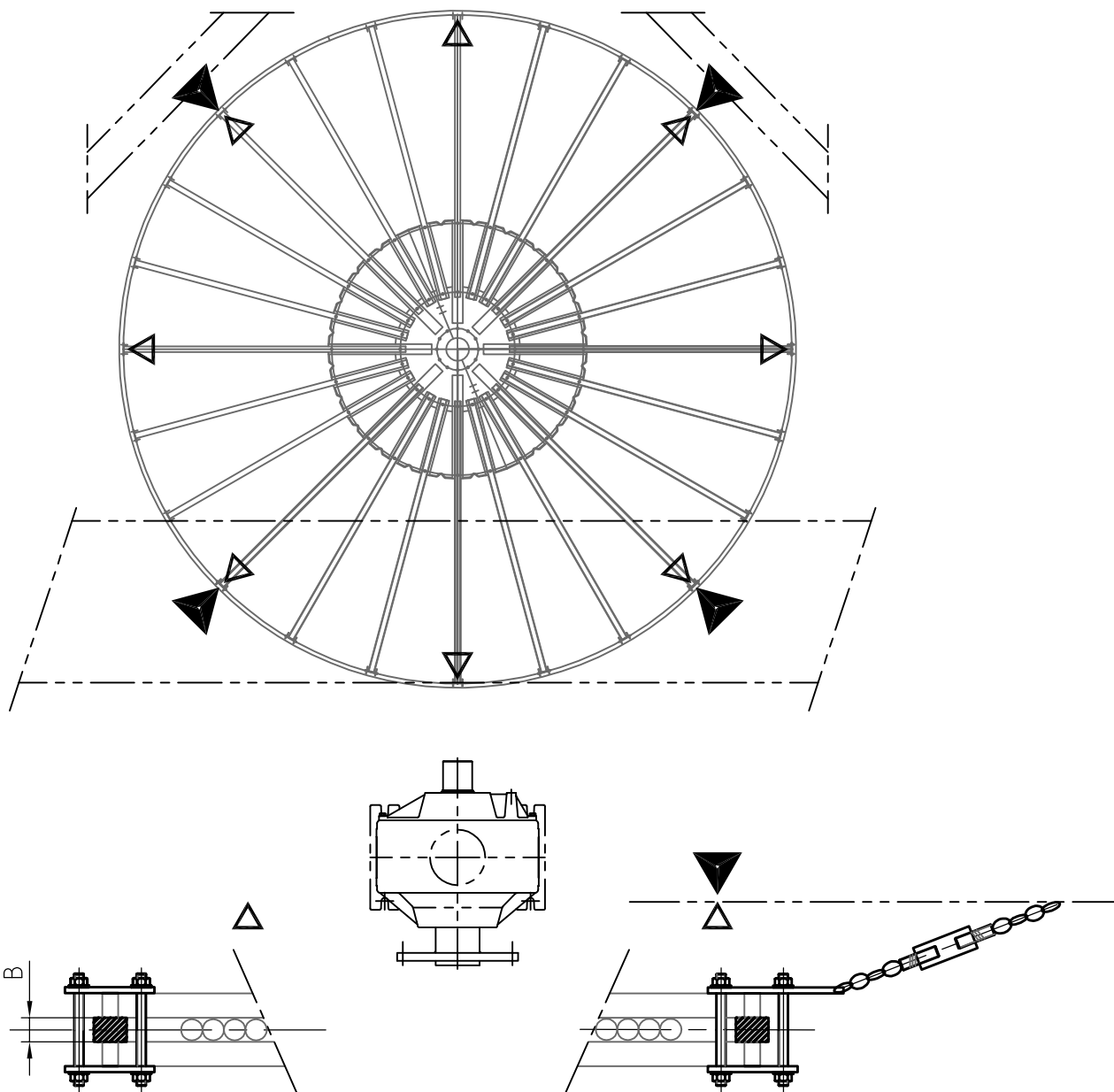


Recommandations particulières:

- pour transport en mer
- pour mise en sécurité (protection contre ouragan...)

Special instructions:

- for sea freight
- for safety measures (protection against hurricane)



- △ - relier les 2 viroles extérieures de la bobine avec cale (ép.=B) tout les 3 bras
- Fasten the 2 spoolferules with spacer (=B) every 3 arms
- ▼ - ancrer la bobine à la grue en 4 points équidistants.
- Fasten the spool to the crane in 4 equidistant points

NOTICE D'INFORMATION TECHNIQUE

TECHNICAL INFORMATION LEAFLET



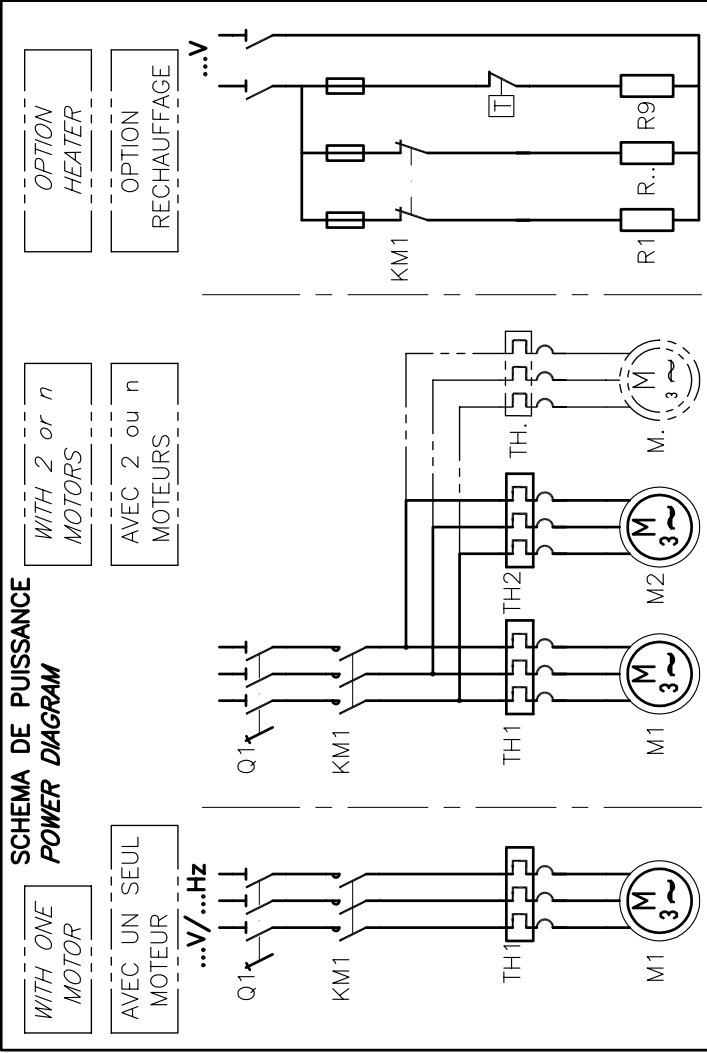
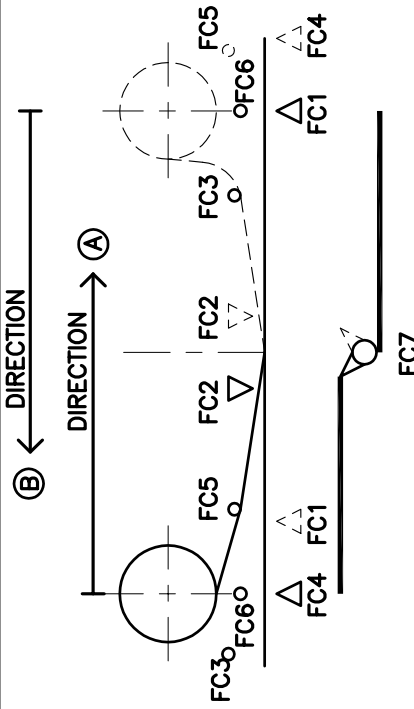
Cable reel spool fastening to crane

Amarrage bobine enrouleur sur grue



410N141

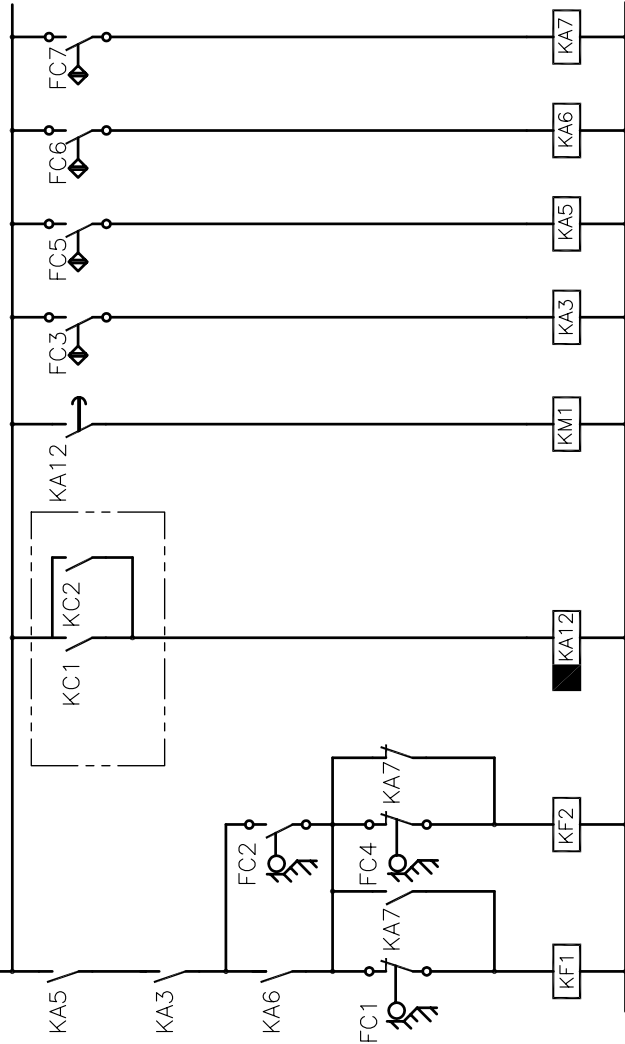
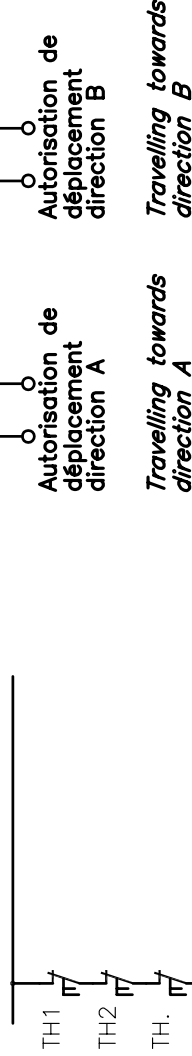
Folio 1/1 06/09



Fourniture Delachaux/Delachaux scope of supply

- M1, M...** Moteurs enrouleur / Cable reel motors ...kW-.....tr/mn
- FC1, FC4** Contacts de fin de course/ End limit switch contact
- FC7** Contact de position/Position contact
- FC3, FC5** Contact de sur traction/ Over pull contact
- FC2** Contact de neutralisation/ By pass of slack contact over the middle point
- FC6** Contact de sous traction/ Under pull contact
- R1, R...** Résistance réchauffage moteur/ Motor heater
- R9** Résistance de réchauffage collecteur/ Slipping space heater

Schema de principe pour asservissement de l'enrouleur
Cable reel principle control diagram
Enrouleur.../ Cable reel ...



FC3-5-6 Contacts ouverts en cas de défaut
Contacts open in case of fault

- KC1** Contact de déplacement machine direction A
Contact travelling of the machine towards A
- KC2** Contact de déplacement machine direction B
Contact travelling of the machine towards B

SCHEMA ELECTRIQUE | FOLIO 1/1 | ELECTRICAL DIAGRAM

DELACHAUX
DIVISION CONDUCTIVE

RETRIEVE WITH CENTER FEED AND ALL OPTIONS
RAMASSE CABLE POINT MILIEU TOUTES OPTIONS

3410N007/01

06/02

The undersigned manufacturer :

**CONDUCTIX WAMPFLER
DELACHAUX S.A.
30, Avenue Brillat Savarin
01300 BELLEY - France**

declares that the equipment described below:

Description: **MOTOR DRIVEN CABLE REEL**

Reference or Type: **BNA36.1CN33.M1131VS / 6TP120 +12.C120**

Identification: **1205942/03 TO 04**

designed in accordance with :

- * Machinery Directive 2006/42/CE of 17th May 2006,
- * Low Voltage Directive 2006/95/CE of 12th December 2006,
- * EMC Directive 2004/108/CE of 15th December 2004,

is a machine part and **cannot function independently.**

Moreover, **it is forbidden to put it into service,**

as long as the machine in which it is destined to be incorporated or,

as long as the whole of the interdependent machines to which it must be fitted,

has not been declared conform to the measures of Machinery Directive 2006/42/CE,

or to the national measures of transposition of this directive in the country where it is being used.

If the equipment is delivered incomplete further to the specific request of the customer, the latter is responsible for any adaptations he might make on this non-standard material. The responsibility of the manufacturer is restricted to the supplied parts.

The technical file of this equipment, which is established according to annexe VII, Part B of the Machinery Directive 2006/42/CE, is available in our premises and could be supplied on justified request of the National Authorities.

Belley, on 10 October 2012

Name and position: **B. FONTENEAU**

Product industrialization and design manager

