

HD-X2

Operating Instructions



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This section contains important safety information. Read the manual carefully before installing, using or maintaining the feeder.



WARNING

indicates a possible dangerous situation which could result in serious injury or damage to the unit.



CAUTION

indicates a possible dangerous situation which could result in minor/moderate injury or damage to the unit.

NOTE

used in order to draw attention to important information, which facilitates operation or handling.

ORIGINAL LANGUAGE INSTRUCTION

IRO AB reserve the right to change the contents of the user's guide and technical specifications without prior notification.

**WARNING!**

- The power supply must be switched off at the mains before any work is carried out on the feeder, the transformer or any other electrical components. The feeder and the transformer cabinet must be fully assembled before the power supply is connected.
- The weft feeder ON/OFF-switch does not cut off the main power supply. Turn off the main switch before any work is carried out on the electrical circuit.
- The feeder and transformer contain electrical components that retain an electric current up to three minutes after disconnection
- All work on electrical components must be carried out by a qualified electrician.
- This product is not intended for use in potentially explosive atmospheres or in zones classified according to the european directive 94/9/EC. Please contact IRO AB if products for use in a potentially explosive atmosphere are required.
- Always turn off the main switch or isolate the power supply and disconnect the air supply before connecting or disconnecting the feeder, the control board or any of the circuit boards
- Routine checks for damaged or worn parts must be made before operating this equipment. Any part that is worn or damaged should be properly repaired or replaced by authorized personnel. To avoid risk of injury DO NOT operate this equipment if any component does not appear to be functioning correctly.

**CAUTION!**

- Caution must be taken in the close vicinity of the feeder as it contains moving parts that can cause injuries and, in normal operation, starts without prior warning.
- To comply with C.E. Regulations only replacement parts approved by IRO AB may be used.
- The feeder is an industrial product and therefore not approved to use household environments /in residential areas.

NOTE

- To ensure the selection of the most suitable feeder and associated accessories, it is recommended making weaving tests with the intended yarns.
- Please dispose of obsolete or unwanted equipment responsibly, taking into consideration any local regulations regarding the disposal and / or recycling of materials that are applicable.


 1400 m/min (Stand alone)
 1600 m/min (CAN)


12.3 kg



Min 10° C-Max 40° C



Max 95 %



<70 dB



Max 9 mm



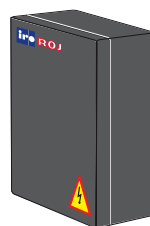
5.5 - 7 bar

Power Supply/ Interface
Heavy Duty Power Supply Stand Alone


200 - 575V 400VA


 Max T 10A
 Fuse


3.3 kg



230-575V 1000VA


 Max T 10A
 Fuse


21 kg



Power via Power Supply/ Interface connected to extension plug.



1.4 kg

NOTE

Subject to technical modifications.



WARNING!

Turn off the main switch before any work is carried out on the electrical circuit.

NOTE

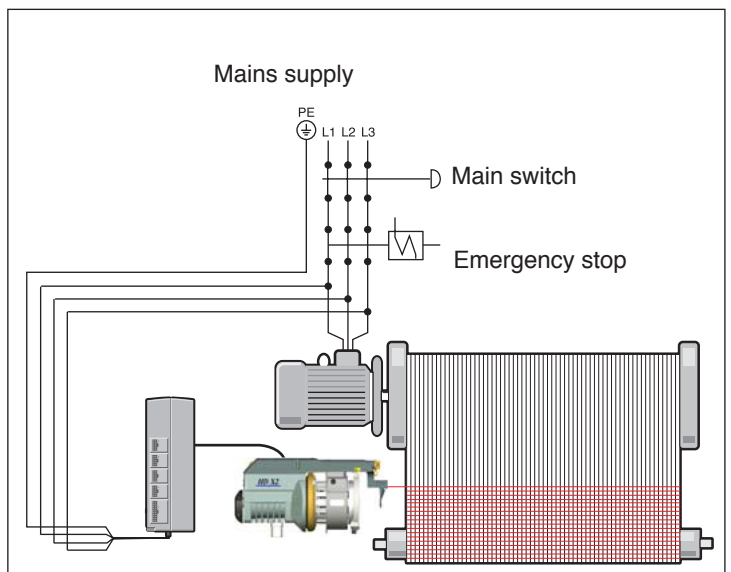
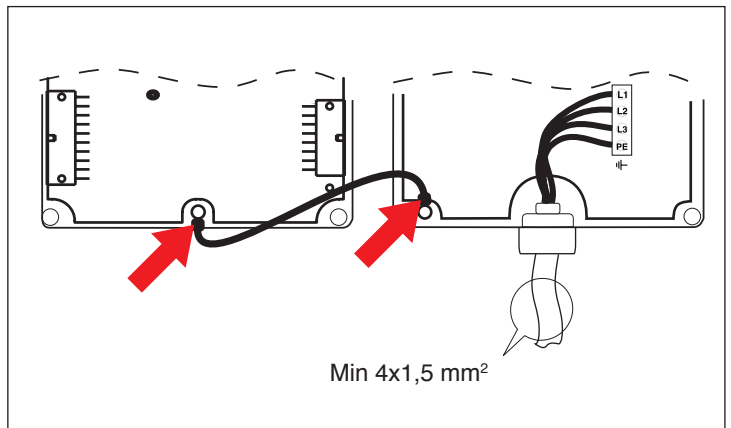
Condensation can form on the weft feeder when it is moved from the cold environment of the warehouse to the warmer environment of the loom room. Make sure that the feeder is dry before switching it on.

Take the Voltage Supply Box out of the packing. Open the cover and connect the three-phase power cord. (4-wires cable). Make sure that the earth connection is properly made. The section of each wire cannot be less than 1,5 mm².



WARNING

Power supply must be connected after the loom main switch and emergency stop.



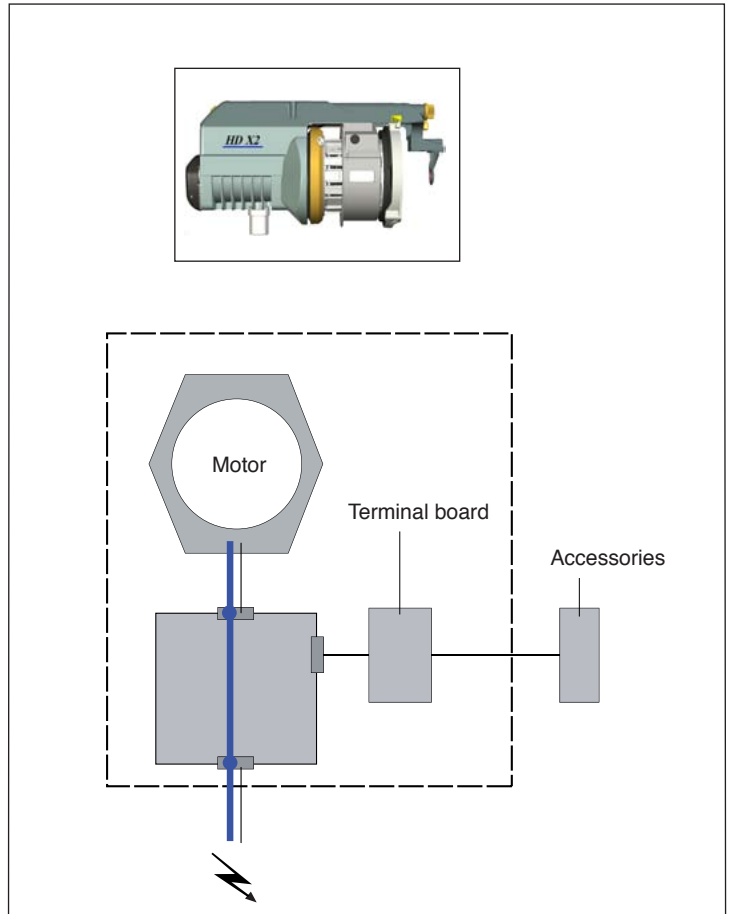
The power supply to the feeder must not be disrupted when the weaving machine stops.

Variations in main voltage.

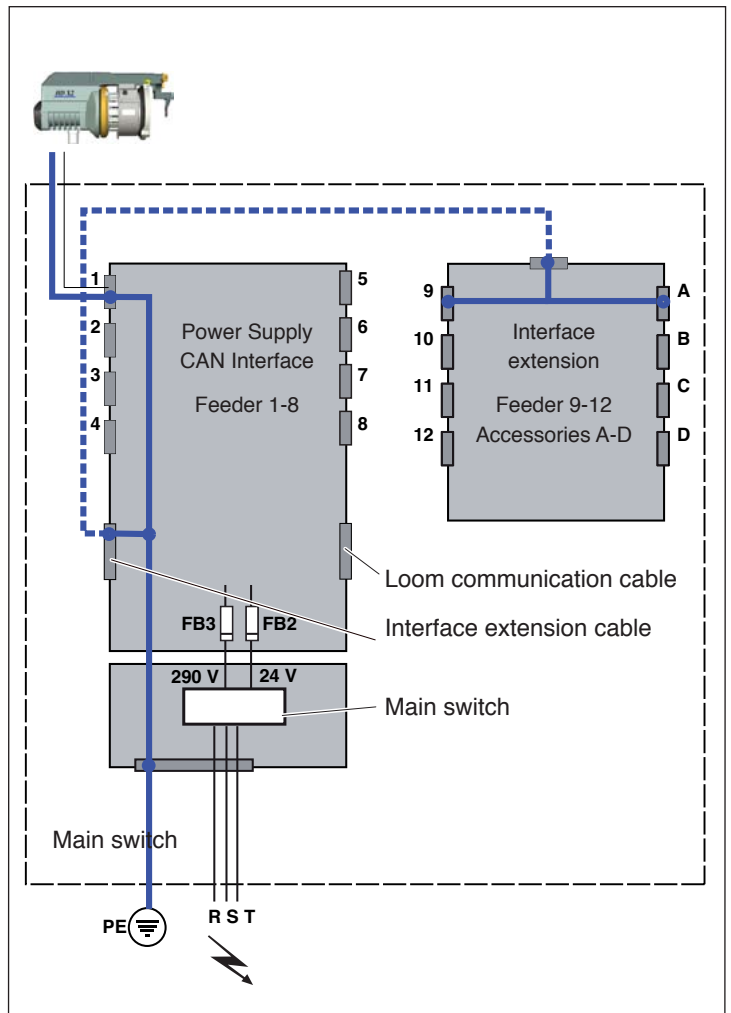
200V - 346V	180V - 380V	50/ 60 Hz
380V - 400V	342V - 440V	50/ 60 Hz
415V - 575V	374V - 632V	50/ 60 Hz

Connect the feeders' cable to the voltage supply box by following the numeric correspondence to the color selector's needles (feeder working with the weft threaded in the needle 1 must be connected to the position 1 of the voltage supply box; etc.). Connect the signal cable coming from the voltage supply box to the loom.

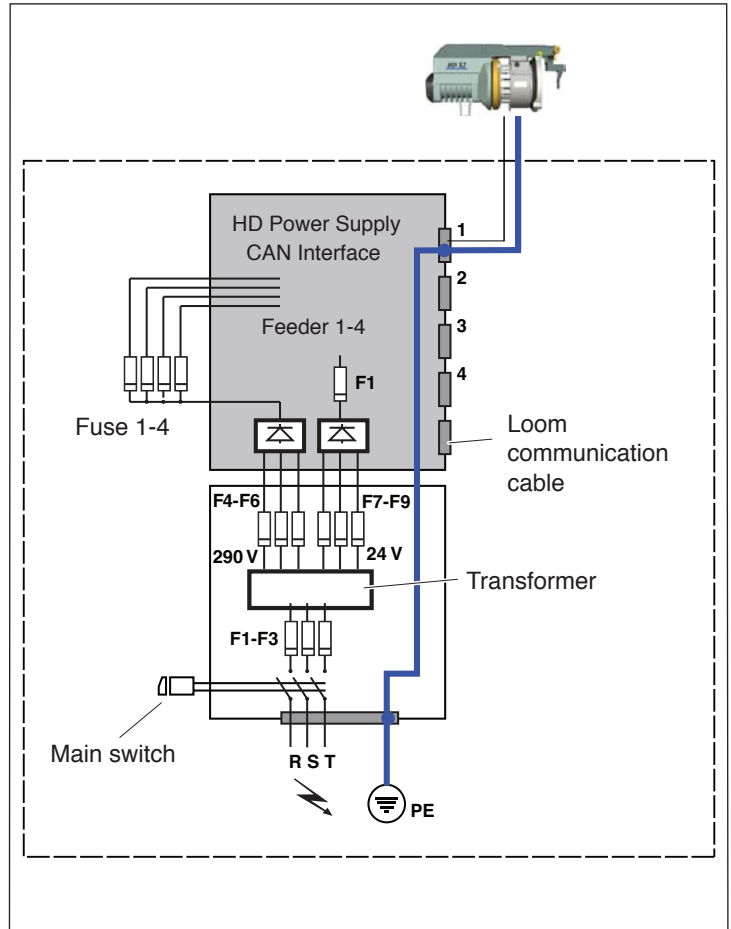
Connect the plug of the 3-phase power cord to the socket available to the loom panel.



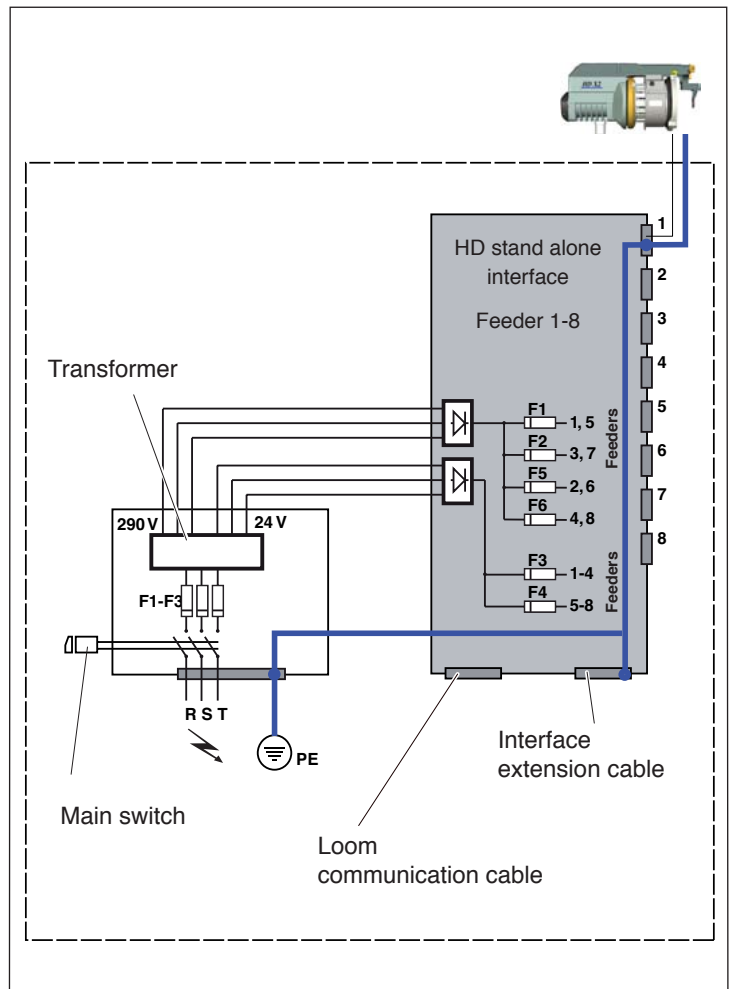
POWER SUPPLY/ CAN INTERFACE



**HD POWER SUPPLY /
CAN INTERFACE**



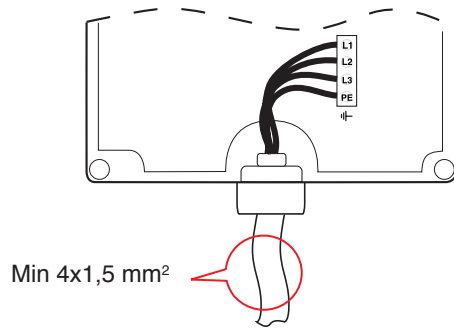
**HD POWER SUPPLY /
STAND ALONE INTERFACE**





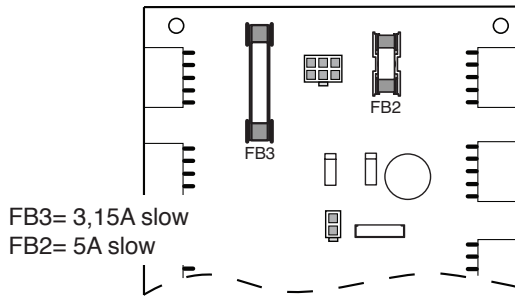
Power Supply/ Interface

Mains connection



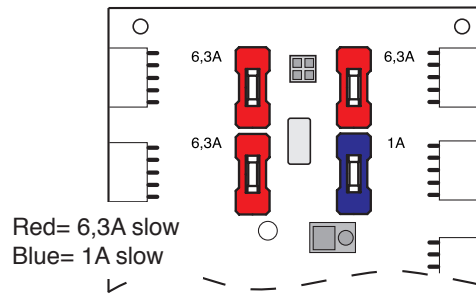
CAN - INTERFACE

Fuses

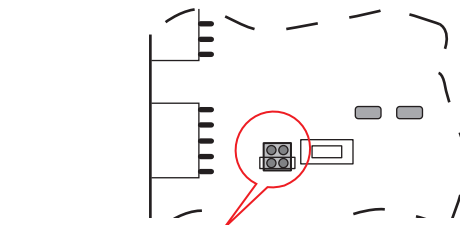


STAND ALONE - INTERFACE

Fuses

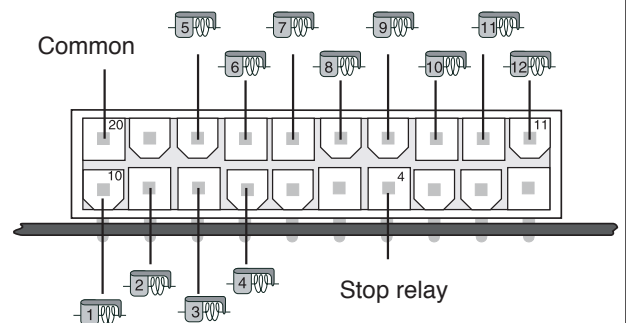


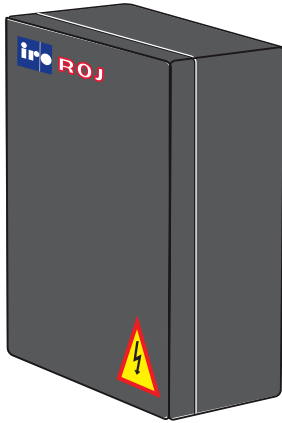
Stop relay jumpers



- Black jumper
- NC - normally closed
- Without stop relay signal

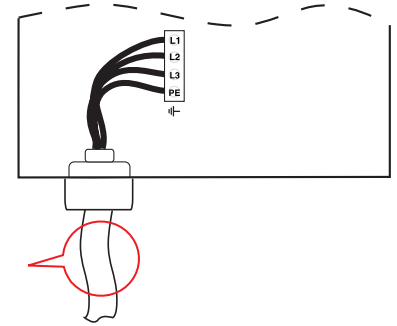
Opto coupler/ stop relay connection





Heavy Duty Power Supply Stand Alone

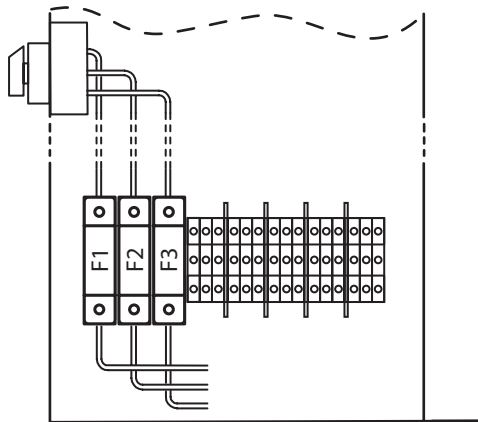
Mains connection



Min 4x1,5 mm²

STAND ALONE - POWER SUPPLY

Fuses

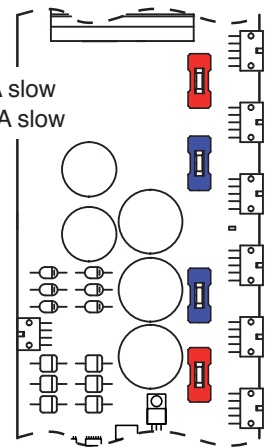


F1 - F3 = 4 A / 500 V

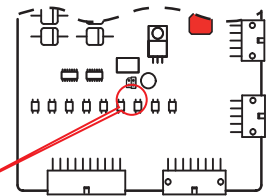
STAND ALONE - INTERFACE

Fuses

Red= 6,3A slow
Blue= 6,3 A slow



Stop relay jumpers



NO - normally open

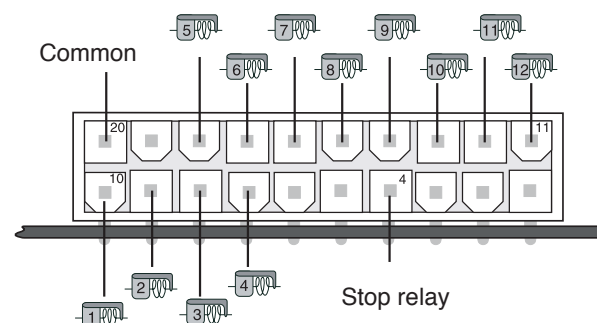


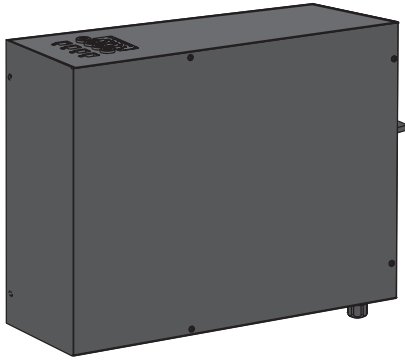
NC - normally closed



Without stop relay signal

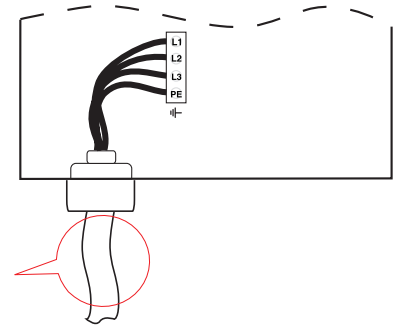
Opto coupler/ stop relay connection





Heavy Duty Power Supply CAN

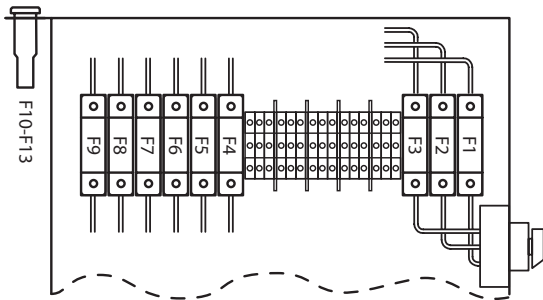
Mains connection



Min 4x1,5 mm²

CAN - POWER SUPPLY

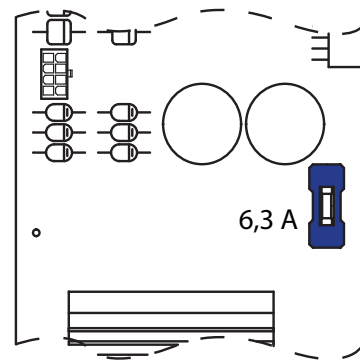
Fuses



F1 - F6 = 10 A / 500 V
 F7 - F9 = 4 A / 500 V
 F10 - F13 = 8 A / 500 V

CAN - INTERFACE

Fuses

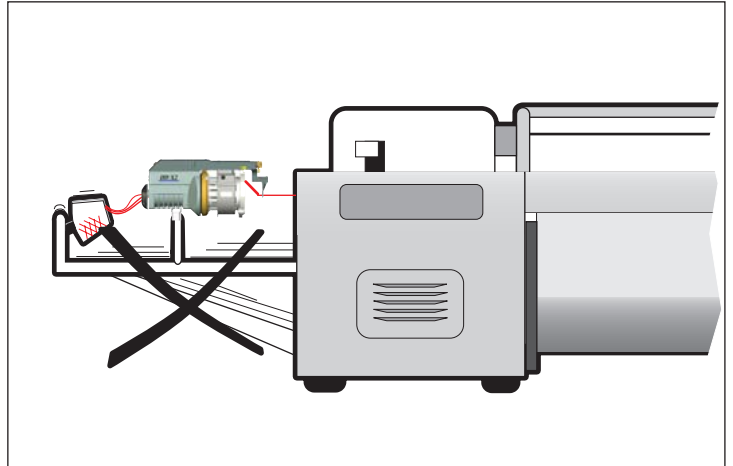


Blue= 6,3A slow



CAUTION

The unit should NOT be mounted directly on the weaving machine.

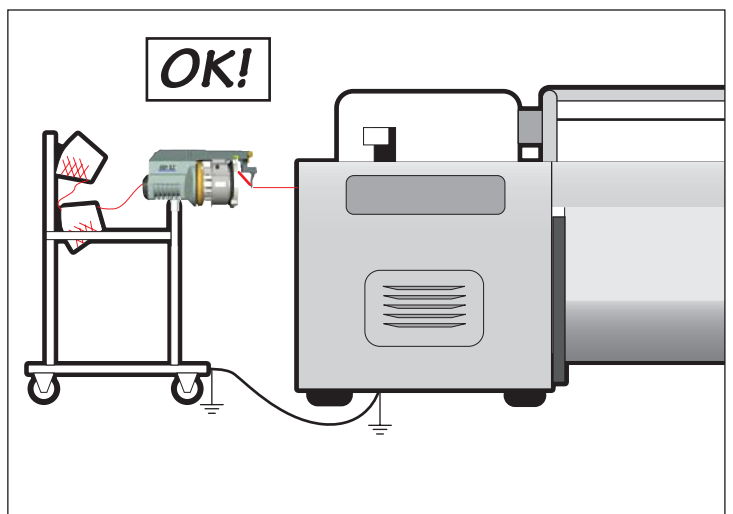


Use a separate floor stand.

NOTE

Feeders' stand and creel must be connected to the earth of the loom.

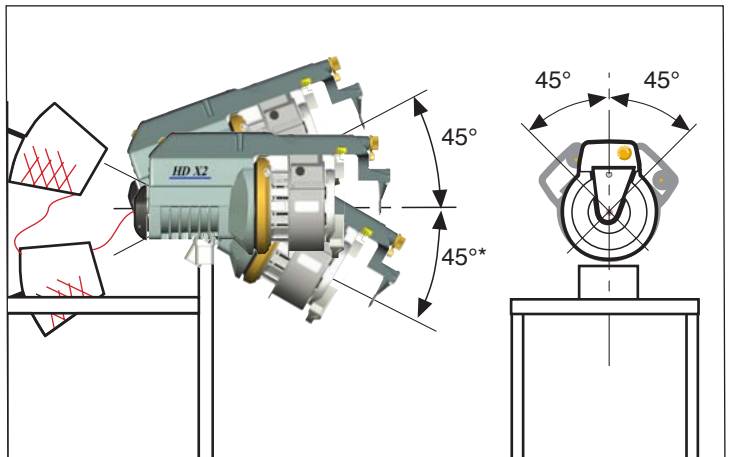
Place the creel behind the feeder's stand avoiding sharp angles to the yarn path from the creel output to the feeders.



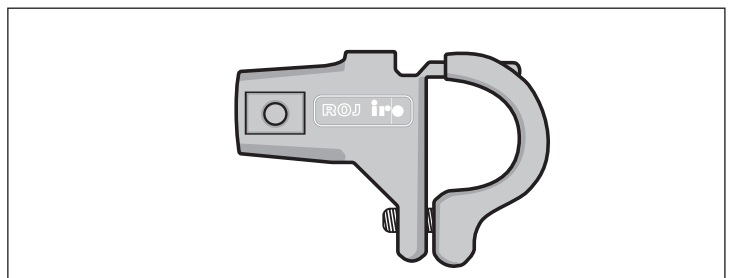
Feeders with Mechanical sensors must be mounted within 45° of the horizontal plane.

*Max 15° with low sensor spring force.

(see page)



Ensure that the mount screws are correctly tightened.



VOLTAGE SUPPLY BOX

The HD X2 feeder is compatible with the standard Line of X2 voltage supply boxes (maximum 4 feeders for each control box).



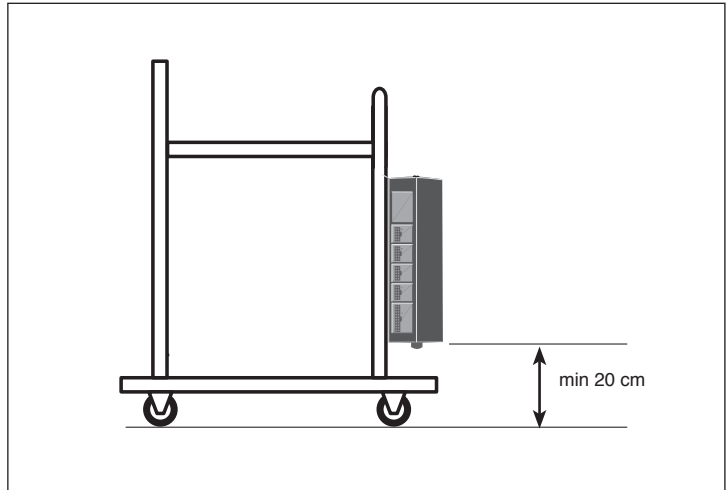
WARNING

For applications with multiple insertions (two or more yarns together at the same time), it is necessary to use an X2 control box suitable for higher power consumption.

Fix the voltage supply box to the stand by means of the proper brackets.

NOTE

Minimum distance from the box to the floor must be 20 cm



JUMPER SETTINGS

The feeder is equipped with jumpers on the motor circuit board that adapt the feeders operation to the characteristics of the weaving process. (Weaving machine settings have priority over jumper settings).

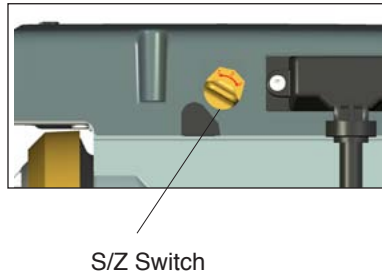
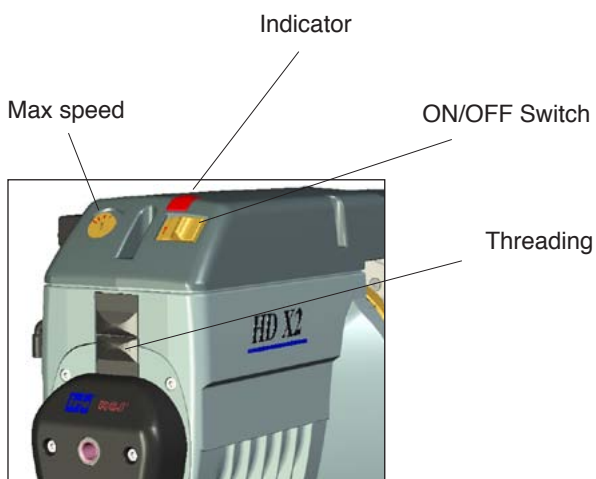
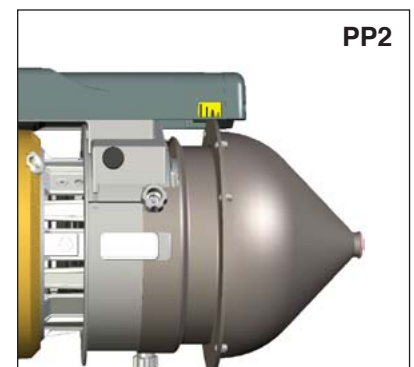
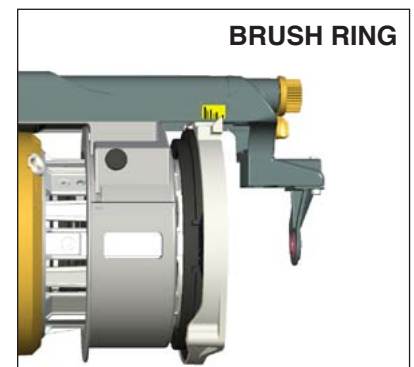
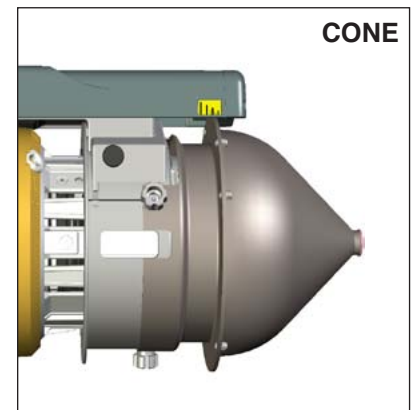
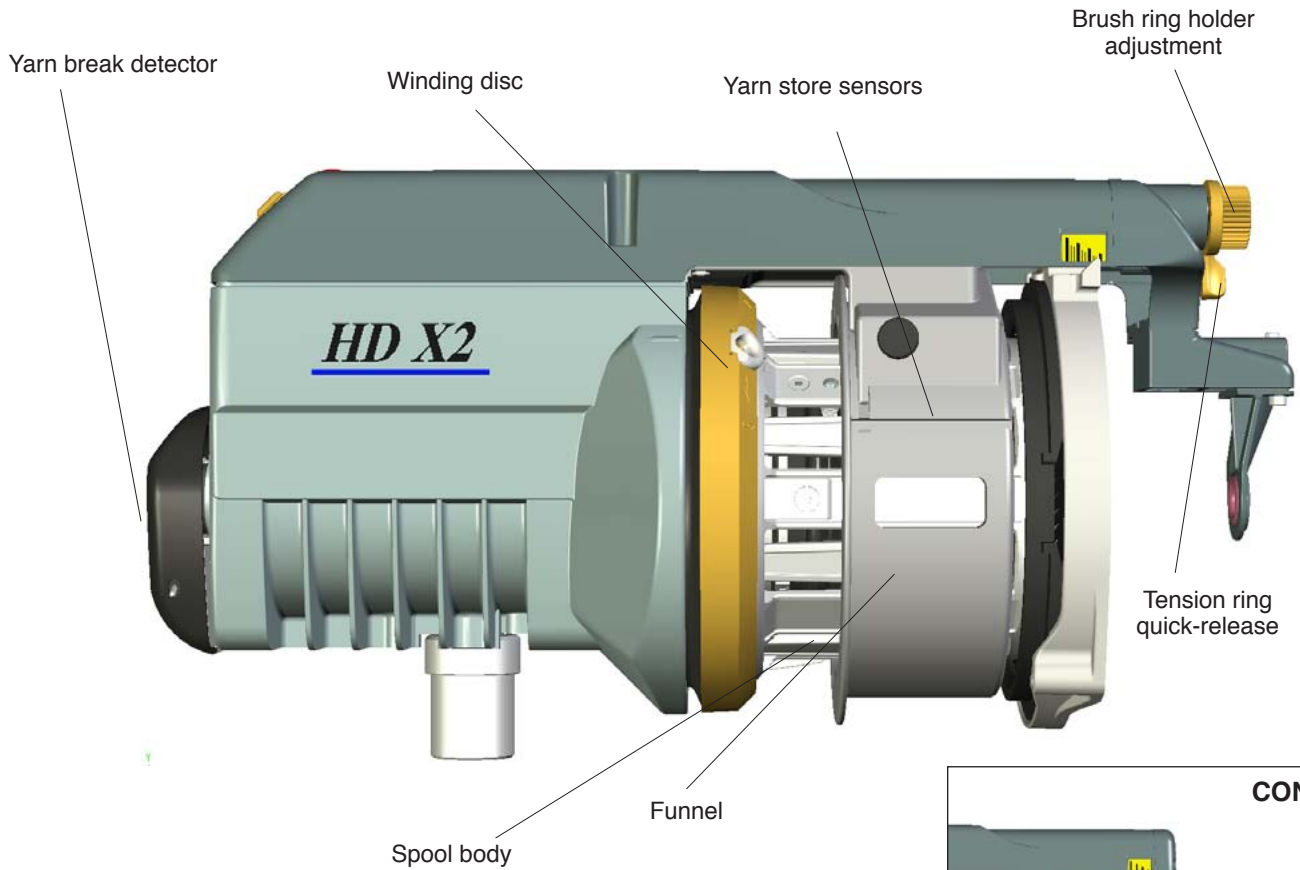
NOTE

Only for installations on CAN looms, if for test reasons it is needed to run the feeder without Pattern in advance and Start/Stop information from the loom, set Jumper J3 to closed (disabled).

NOTE

Whenever the electronic board or the sensors board are replaced, it is necessary to carry out the "Automatic sensor calibration procedure".

J3		Pattern in advance- DISABLED
J3		Pattern in advance- ENABLED
J4		Winding disc positioning- DISABLED
J4		Winding disc positioning- ENABLED



NOTE

Normally the switch should be left at position 1 since the feeder automatically calculates the speed according to yarn consumption. However, with very low speeds or wide looms, it could be helpful to reduce the maximum speed in order to avoid unnecessary acceleration

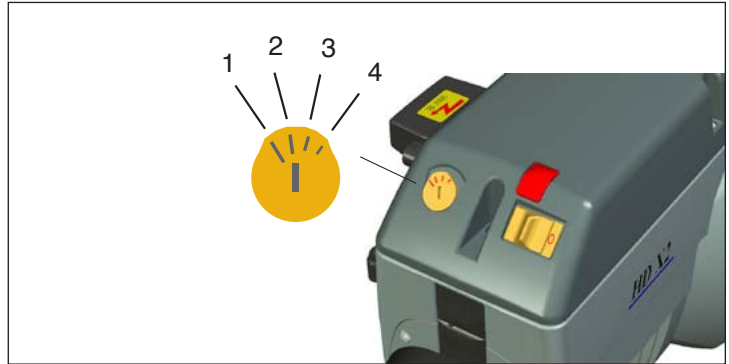
To set the maximum speed rotate the disc to the appropriate position.

MECHANICAL SENSORS, STAND-ALONE

- 1 = 1400 m/min
- 2 = 1200 m/min
- 3 = 800 m/min
- 4 = 500 m/min

MECHANICAL SENSORS, CAN

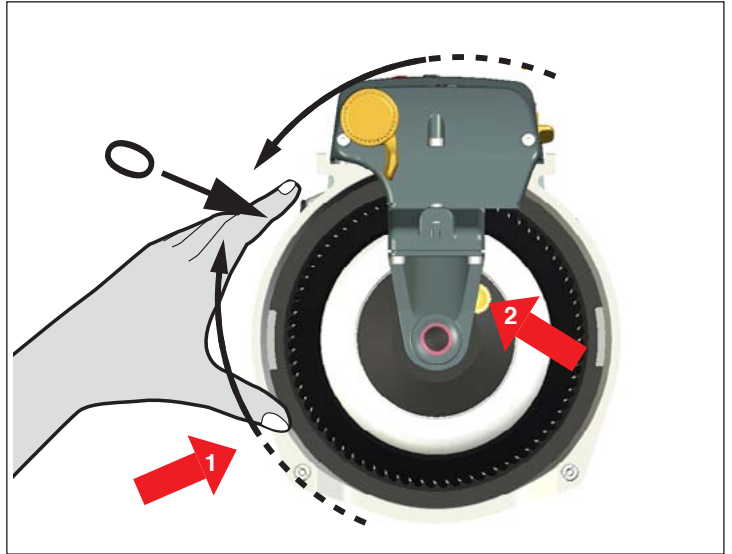
- 1 = 1600 m/min
- 2 = 1200 m/min
- 3 = 800 m/min
- 4 = 500 m/min



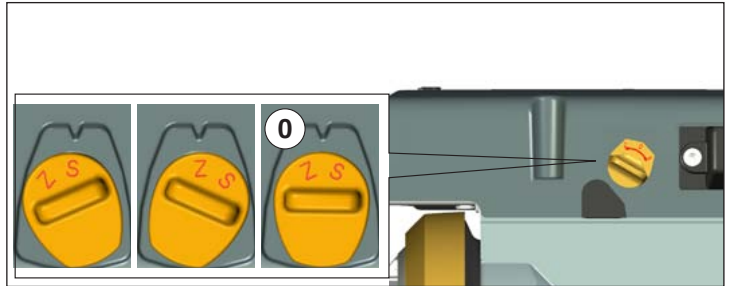
WITH STANDARD BALL BEARING

1. Switch off the feeder.
2. Grip the winding disc (1) and, whilst pressing the orange button on the front of the spool body (2), rotate the disc until the button is felt to locate. Aligning the mark on the winding disc with the line on the motor house gives the zero separation position.

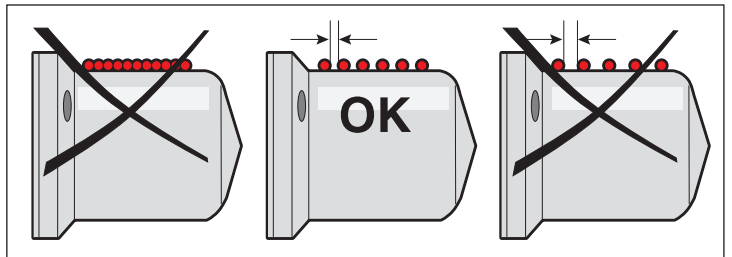
To adjust, press in the button and revolve the winding disc in the appropriate direction.



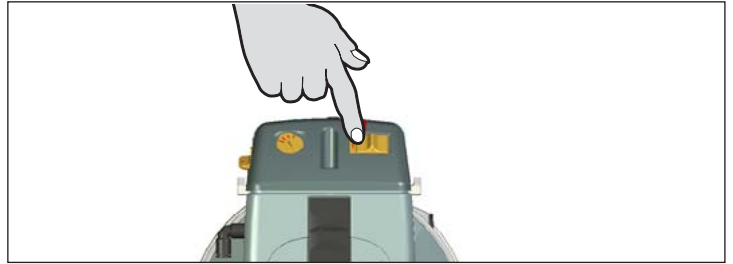
Set the direction of rotation with the switch.
(The feeder is deactivated in the standby position (0))



The separation must be distinct, but not excessive.

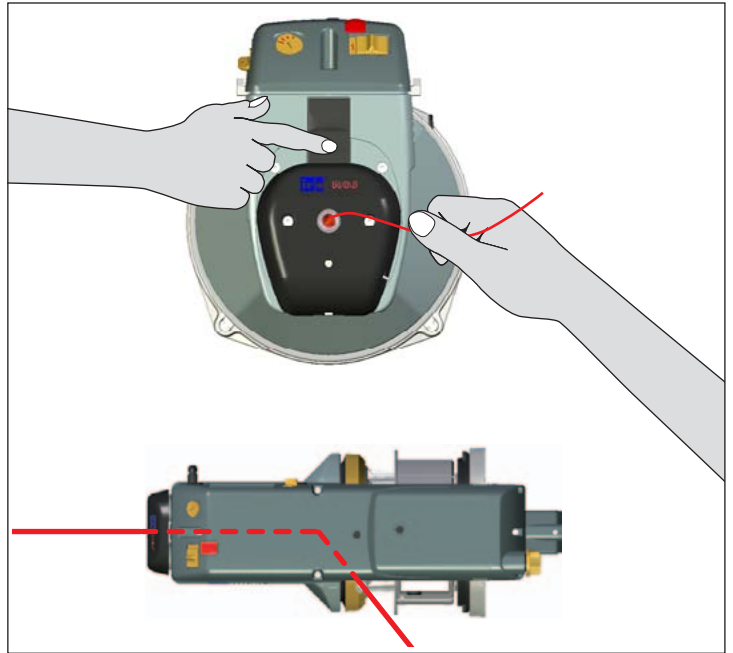


Switch on the feeder.
The winding disc will automatically position itself (empty spool body).



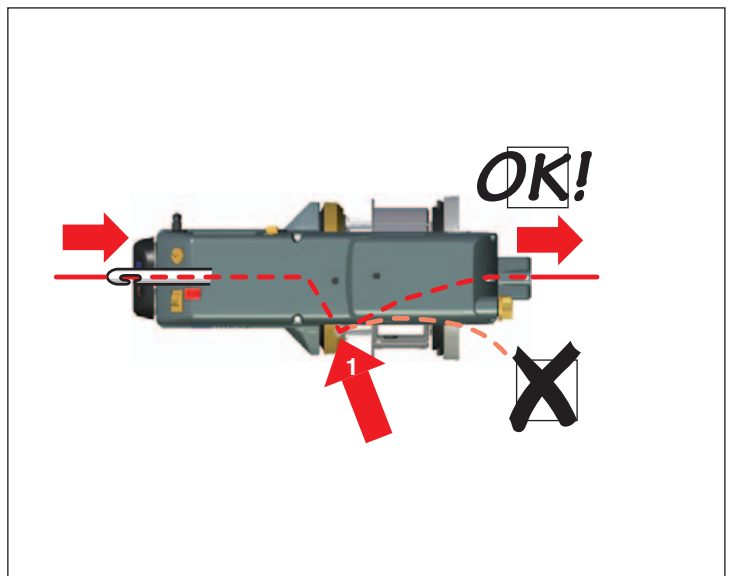
PNEUMATIC THREADING

1. Insert the yarn into the eyelet and press the lower button, whilst lightly holding the yarn.



MANUAL THREADING

1. Align the winding disc eyelet (1).
2. Open the brush holder (see page 20).
3. Thread the needle all the way through the feeder and output eyelet.
4. Pull the yarn through.
5. Restart the feeder.



WARNING

When using a threading needle, care must be taken to avoid damaging the Flex Brake. Ensure that the flex holder is in the forward position before threading.

The mechanical sensors are placed on the fixed part of the spool body.

The sensor (1) controls MAX reserve level, and the sensor (2) controls MIN reserve level.

The force needed to press down the sensors is controlled by a spring, and it is adjustable with screw (3). Turn the screw (3) anti-clockwise to increase the sensor strength, turn it clockwise to reduce it.

AUTOMATIC CALIBRATION OF THE SENSORS

NOTE

Before starting the automatic sensors calibration, check the following:

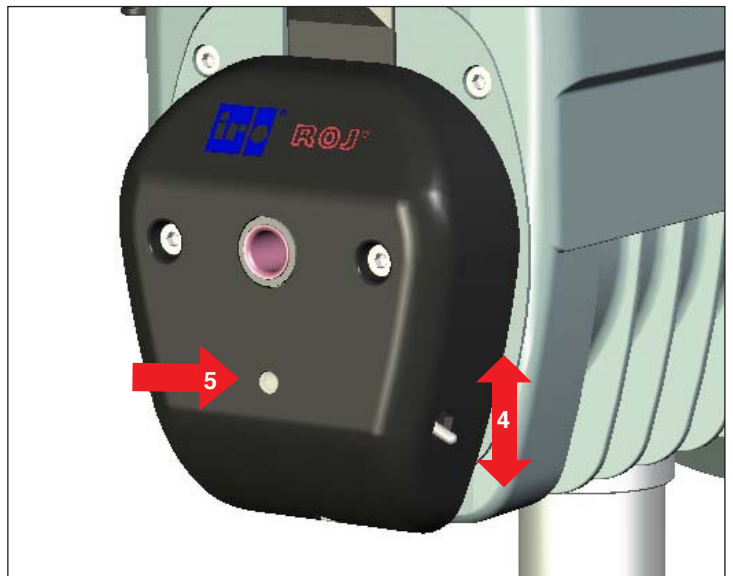
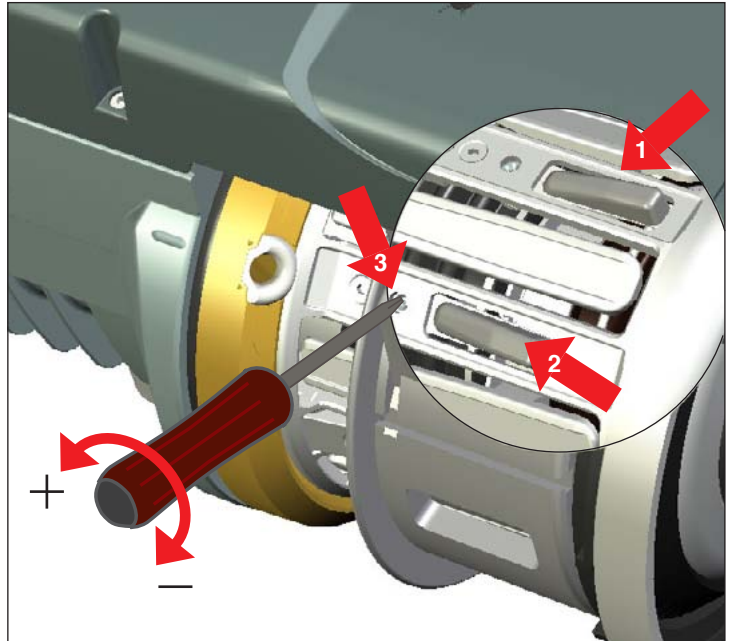
- Remove all yarn from the feeder
- The spool body must be in correct position.
- The sensors must be free to correctly move up and down.
- The sensors ring must be correctly fixed.

1. Switch OFF the feeder.
2. Disable the TFE7 by moving the switch (4) upwards. The LED of TFE7 must be steady-ON in red color. (5)
3. Switch ON the feeder and let it turn without weft for at least 50 revolutions, until the winding disk stops. (feeder red light steady ON).
4. Switch OFF the feeder, and enable the TFE7 by moving the switch down
5. Thread the yarn through the feeder (see page 15)
6. Switch ON the feeder and load a new weft reserve.

LED (5)

When disabled, the LED (5) is steady RED ON.

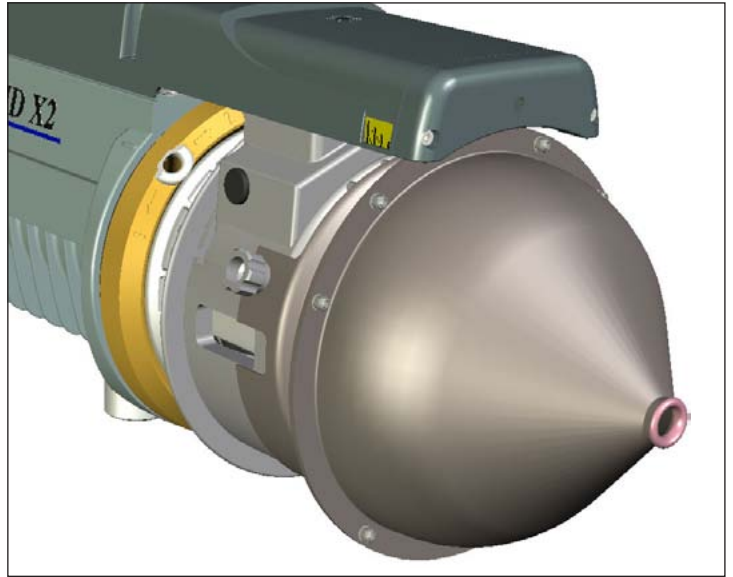
When enabled, the LED (4) is GREEN only when the yarn is creating signal, other way it is OFF.



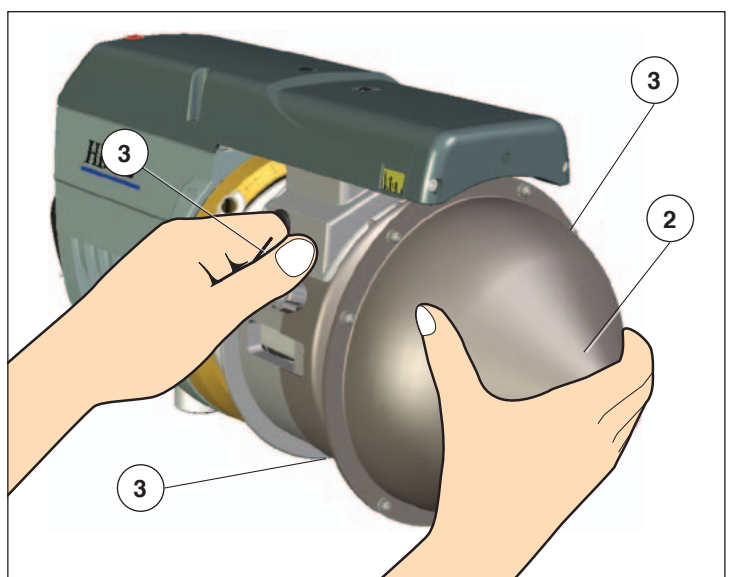
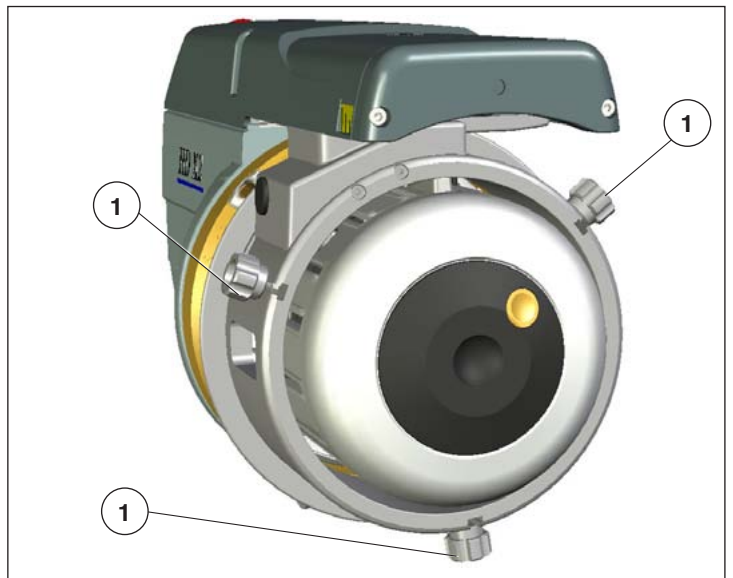
Suitable for heavy yarns which create large balloons. Suggested for polypropylene flat tape on projectile looms.

NOTE

There is no braking function on the yarn when the funnel is installed since it is used only to control the balloon effect during the yarn taking-off.


FUNNEL FITTING

1. Slightly screw the three nuts (1) with the screws.
2. Slide the fixing screws into the guides of the Sensor-holder ring.
3. Push the funnel completely against the Sensor-holder ring. (2)
4. Position the screws in the proper slots, then fix them with the nuts. (3)



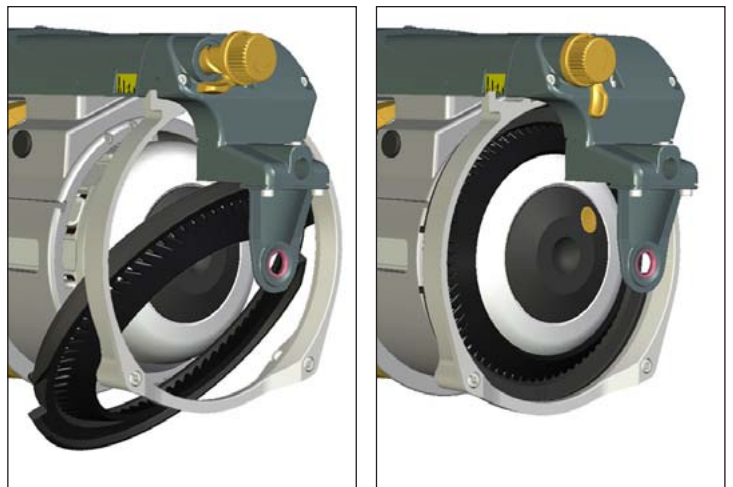
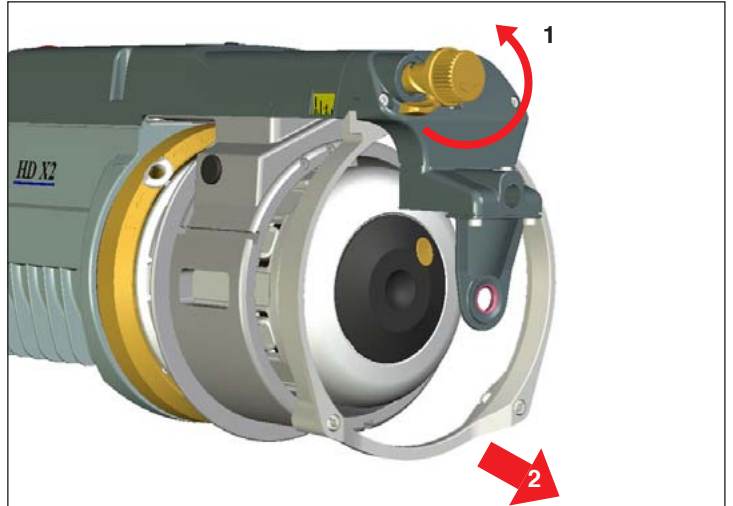
This brake is particularly suitable for rapier looms which require a constant braking tension during the weft insertion. It is also suggested with jute and monofilament. It is not recommended when flat yarns are woven.

NOTE

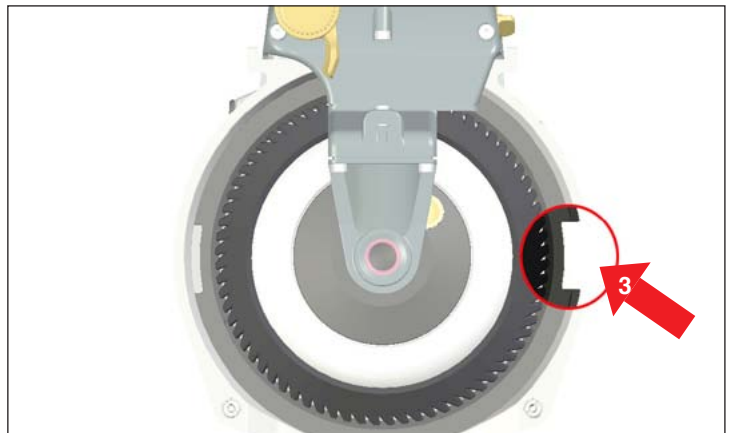
Each brake is suitable for both yarn twist (S or Z).

BRUSH/FLEX BRAKE MOUNTING

Rotating the slide shift lever (1) will detach the Brush / Flex holder from the spool body. (2)



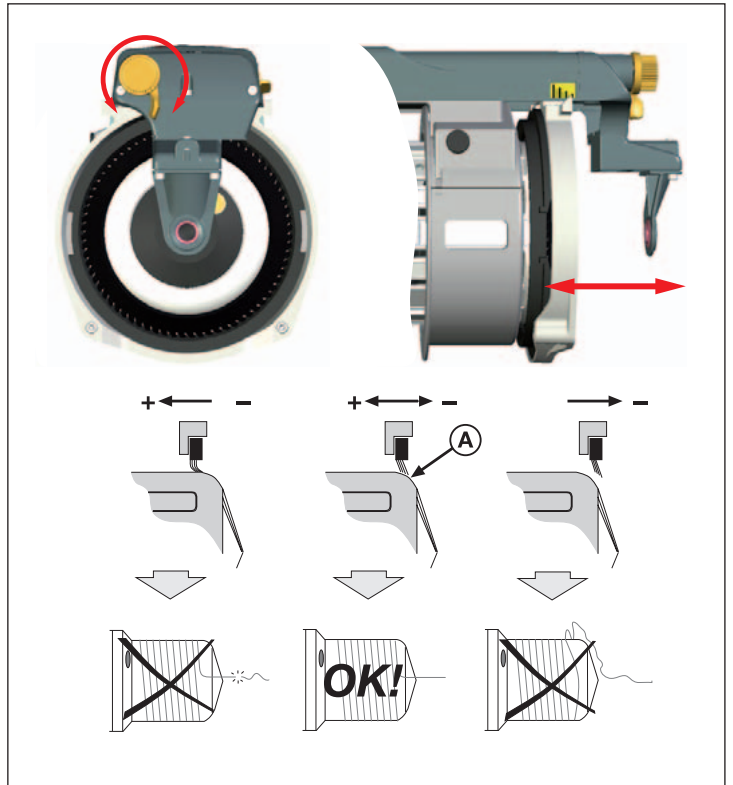
Ensure that the Brush/Flex (3) is correctly positioned.



Balloon control adjustment.

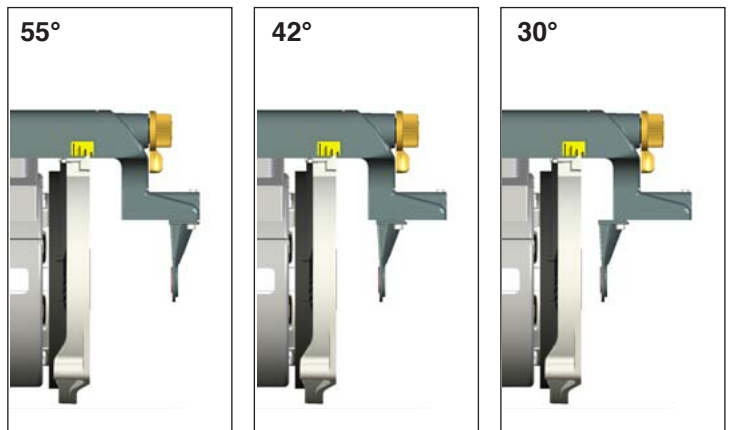
NOTE

Excessive brush tension will cause abnormal wear.



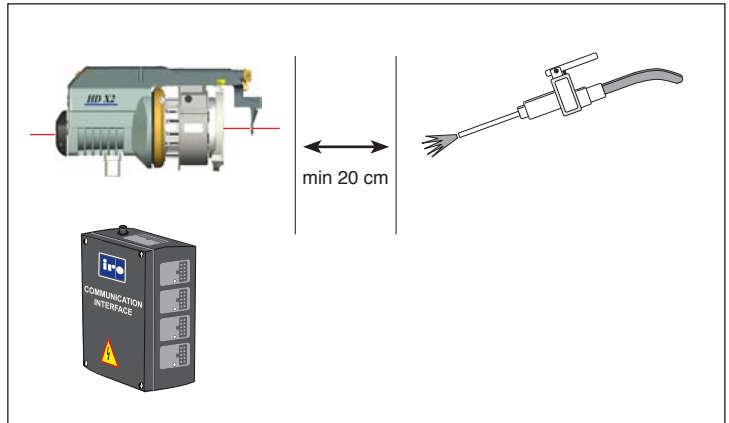
NOSE POSITION

Mounting position of the nose: 30°, 42° or 55°
(55° = standard position)



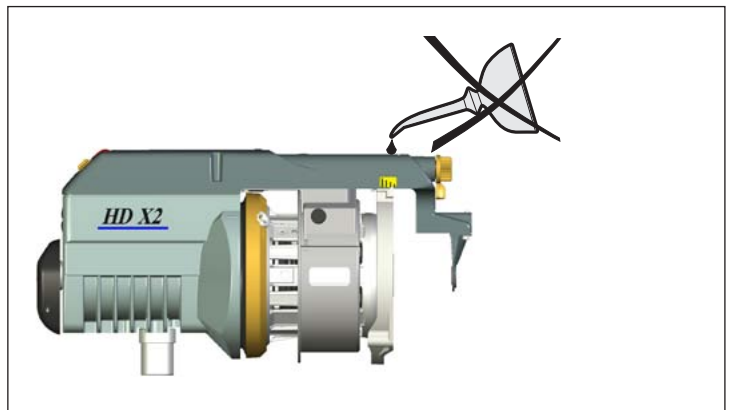
CLEANING

It is recommended to carry out a periodical cleaning of any lint or dust accumulation on the feeder or the control box.



LUBRICATION

The unit requires no extra lubrication.

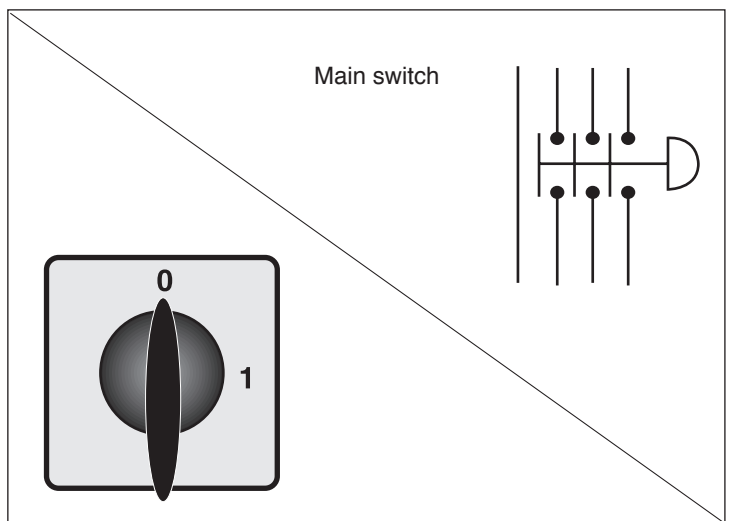


CONNECTIONS



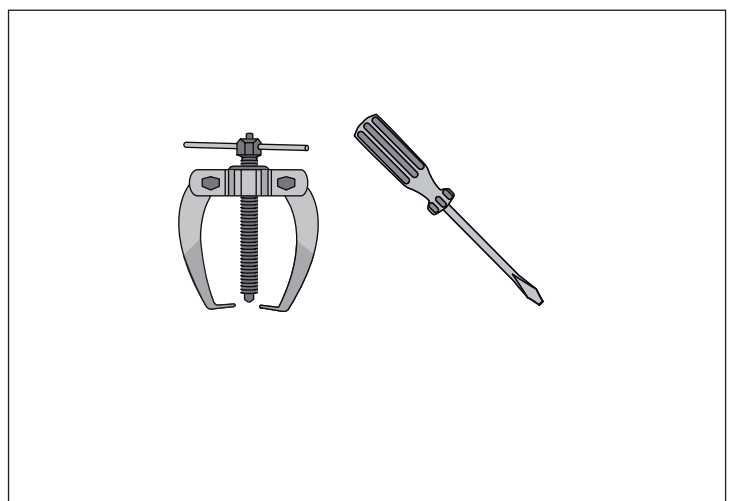
WARNING

Always turn off the main switch or isolate the power supply and disconnect the air supply before connecting or disconnecting the feeder, the control board or any of the circuit boards.



IRO/ ROJ TOOL KIT

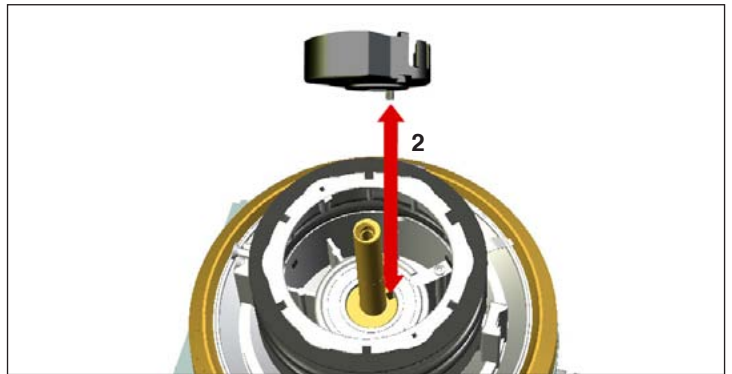
It is recommended to use IRO tool kit, with specialised tools, to ensure easy and correct disassembly/ assembly of IRO feeders during maintenance work. Please contact your local IRO service station for further information.



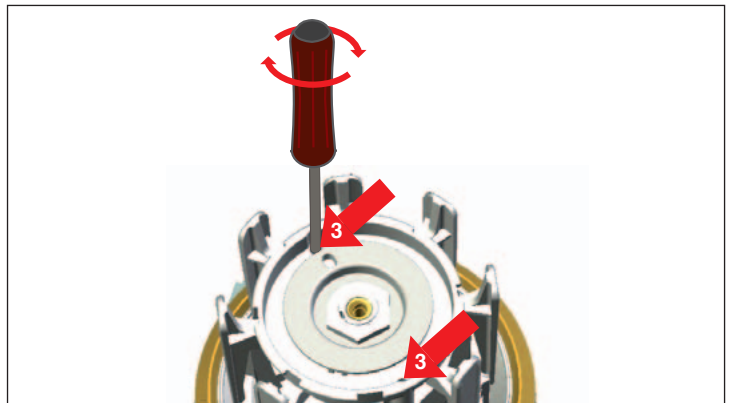
After disassembling, it is necessary to install the spool-body part by part to avoid damaging the parts. Secure the bellow properly with plastic straps (1).



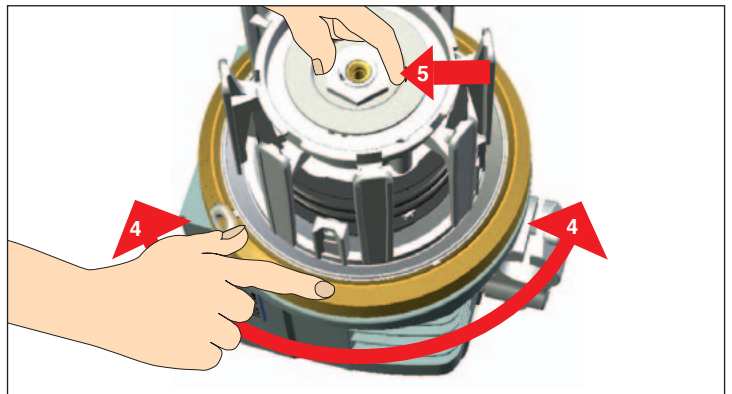
Be sure that the carrier pin fits into the keygroove in the motor shaft (2).



Insert the two screws for the rubber belly (3) and be sure they are properly tightened with the correct key. (Torx T10)



Turn the winding disc (4) when holding the centre nut (5) to get the balance weight in position. When correct, the disc can easily be moved 180° only.

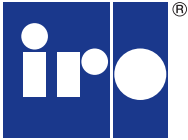


Install the centre screw, outer rubber belly, spoolbody and cover. Set the yarn separation in a suitable position to be sure it is correctly assembled.



Fault	Check in the following order
Feeder will not start	1 - 2 - 3 - 5 - 6 - 7 - 8 - 24 - 25 - 26
Feeder will not stop	9 - 5 - 24 - 25
Low or empty yarn store	17 - 3 - 5 - 8 - 24 - 25 - 27 - 26
Input yarn breaks frequently	22 - 10 - 18
Output yarn breaks frequently	11 - 20 - 12 - 19 - 23
Fuses blow repeatedly	25 - 28
Feeder warning light flashes slowly	30
Feeder warning light flashes rapidly	3 - 8 - 25 - 26 - 27
Feeder warning light continuously on	29

No	Possible causes	Remedies	See page
1.	Incorrect S/Z switch position	Set the S/Z switch in appropriate position	14
2.	Incorrect spoolbody position	Ensure the sensor unit is positioned upwards	16
3.	Winding disc jammed	Free and clean the winding disc	20
5.	Sensor arms jammed	Free the arms and clean the sensing unit	20
6.	Faulty cable connections	Check and rectify	4-9
7.	Fuses blown	Replace the relevant fuse	6-9
8.	Mains supply / primary voltage fault	Check the mains supply and connections	4-9
9.	Insufficient input tension	Increase the input tension	-
10.	Excessive input tension	Reduce the input tension	-
11.	Insufficient balloon control	Increase the balloon control	19
12.	Excessive output tension	Reduce the output tension	19
17.	Insufficient max speed setting	Increase the max speed setting	13
18.	Excessive max speed setting	Reduce the max speed setting	13
19.	Insufficient yarn store	See "low or empty yarn store" under "fault"	-
20.	Damaged balloon control	Repair/replace all defective parts	19
22.	Misalignment between the bobbin and the feeder	Realign the bobbin/feeder	-
23.	Misalignment between the feeder and the machine	Realign the feeder/machine	-
24.	Defect sensor board	Replace the sensor board	12
25.	Defective motor circuit board	Replace the relevant circuit board	5
26.	Defective fuse panel	Replace the relevant fuse panel	6-9
27.	Defective control box interface	Replace the relevant interface	6-9
28.	Defective feeder connection cable	Replace the relevant connection cable	-
29.	Yarn break	Rethread the feeder	15
30.	Sensor out of calibration	Execute automatic sensor calibration	16



IRO AB
 Box 54
 SE-523 22 Ulricehamn

EC DECLARATION OF CONFORMITY
 EG-KONFORMITÄTSEKLRÄRUNG
 DECLARATION CE DE CONFORMITE
 DICHIARAZIONE CE DI CONFORMITA'
 DECLARACIÓN DE CONFORMIDAD CE
 DECLARAÇÃO CE DE CONFORMIDADE CE

Guarantee that machine type:
 Versichert dass der Maschinentyp:.....
 Garantie pour machine type: **HD-X2**
 Garantische che il tipo di macchina:.....
 Garantia que é o tipo de máquina:
 Garantiza de que os tipos de máquinas:.....

Is manufactured in conformity with the provisions of the following EC directives and applicable amendments:

Ist gemäss der folgenden für Maschinen geltenden EG-Richtlinien hergestellt worden (damit auch alle zusätzliche Änderungen)

Est fabriqué en conformité aux dispositions des directives CE suivantes (y compris tous les amendements):

E' costruito in conformità a quanto previsto dalle seguenti direttive UE e successive modifiche:

Està fabricado conforme con las disposiciones de las debajo mencionadas directivas CE (y sucesivas modificaciones):

Està fabricado em conformidade como estabelecido nas seguintes directivas CE (incluido alterações):

Safety of machinery	98/ 37/ EEC	EN ISO 111 11-1
Low voltage equipment	2006/ 95/ EC	EN ISO 111 11-1
Electromagnetic compatibility	2004/ 108/ EC	EN ISO 111 11-1