

EIOFIT

**Instructions for
assembly and use**



**Drilling machine for use
on branch saddles fused**

INSTRUCTIONS FOR ASSEMBLY AND USE

**DRILLING MACHINE FOR USE ON BRANCH SADDLES FUSED ON POLYETHYLENE PIPELINES
FOR PRESSURE AND NON-PRESSURE USE Ø 90 ÷ 1000 mm (3" - 40")**

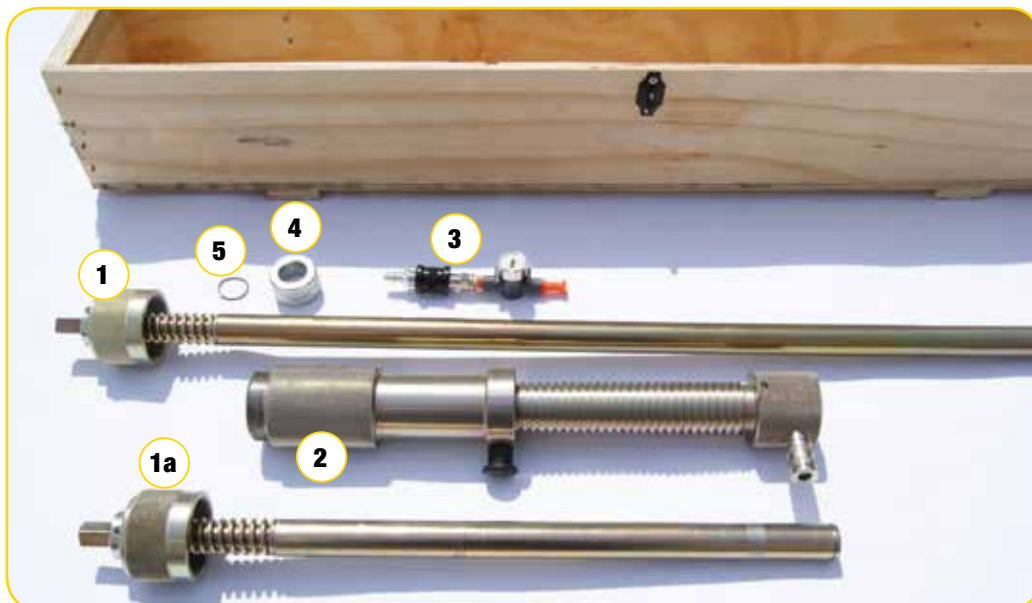


TABLE OF CONTENTS

1	MOUNTING KIT	4
2	DRILLING MACHINE ASSEMBLY	5
3	DRILLING MACHINE SET-UP	6
3.1	PHASES OF ASSEMBLY	6
4	INSTALLATION OF THE SYSTEM FOR DRILLING	10
4.1	DRILLING UNDER PRESSURE	10
4.2	DRILLING NON PRESSURIZED PIPE	12
5	DRILLING.....	13
6	STORING OF THE DRILLING MACHINE	15

INSTRUCTIONS FOR ASSEMBLY AND USE

1 MOUNTING KIT



Drilling machine for PE pipelines - Code 00FP

The package includes:

LEGEND

1. Long shaft for drilling under pressure and non-pressured lines
- 1a. Short shaft for non-pressured drilling
2. Body with threaded shaft, vent valve and safety lock
3. Pressure gauge with valve for measuring and depressurizing
4. Ring nut for holding the cutter
5. Seeger ring



Adapter - Code 00FAxxx
Ø 63 ÷ 160 mm (2" - 6")



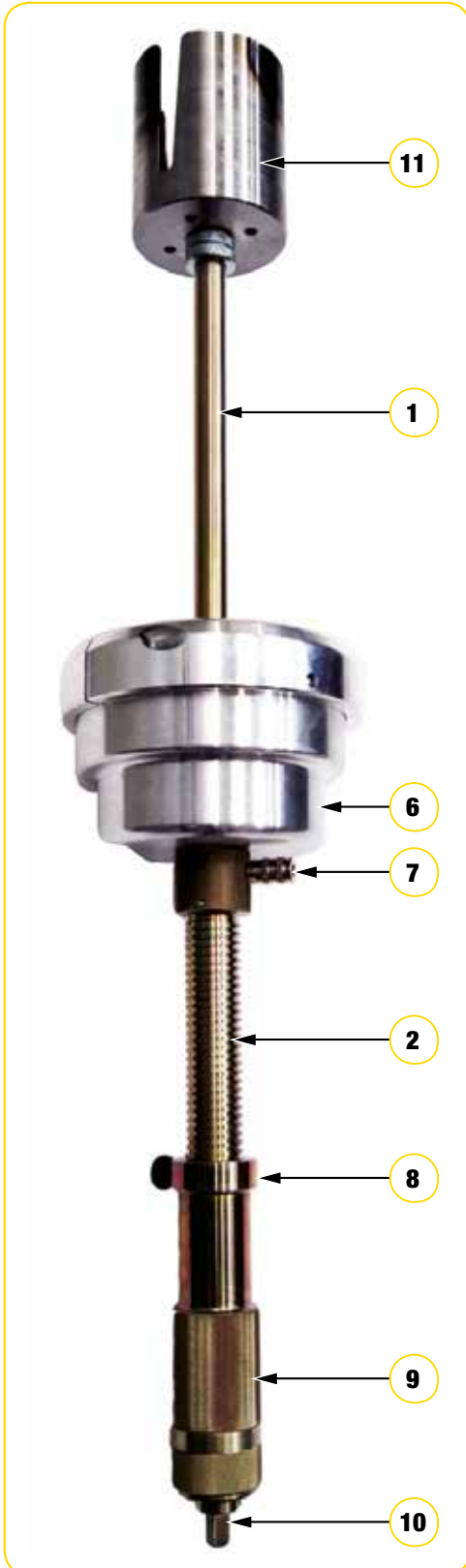
Cutter - Code 00FFxxx
Ø 63 ÷ 160 mm (2" - 6")

The sets of adapters and cutters for each pipe size are available individually or in a complete kit with the drilling machine.

INSTRUCTIONS FOR ASSEMBLY AND USE



2 DRILLING MACHINE ASSEMBLY



LEGEND

- 1. SHAFT
- 2. BODY
- 6. ADAPTER
- 7. VENT VALVE
- 8. SAFETY LOCK
- 9. LOAD CELL FOR AXIAL LOADING
- 10. SQUARE END FOR CUTTER ROTATION
- 11. CUTTER

INSTRUCTIONS FOR ASSEMBLY AND USE

3 DRILLING MACHINE SET-UP

The drilling machine must be assembled in an area clear of dirt, soil, sharp objects. Keep particular care for cleanliness and integrity of the shaft and the threaded part of the body.

The short shaft is only to be used for the drilling of non-pressurized pipelines.

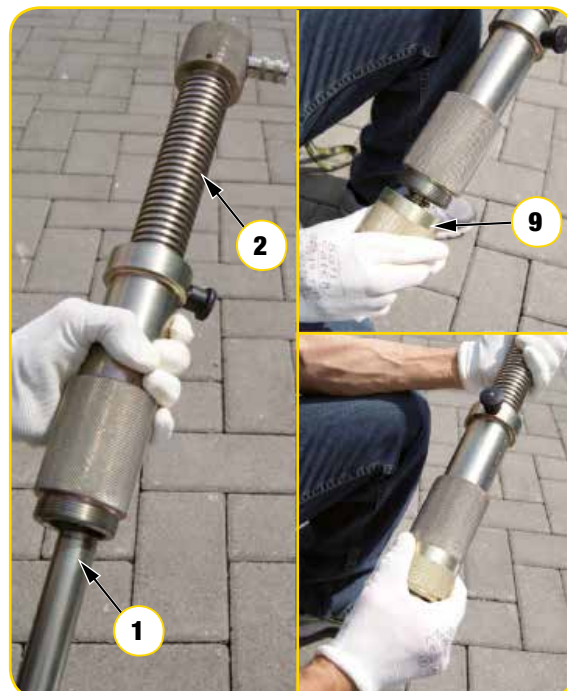
3.1 PHASES OF ASSEMBLY

1. Ensure that the seeger ring (5) is removed from the end of the shaft.



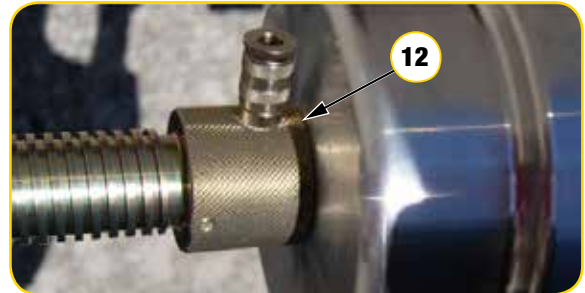
2. Insert the shaft (1) in the body of the drilling machine (2) and screw-in tightly the upper ring nut (9).

NOTE: If the shaft is already fitted into the body, skip directly to point 3.



INSTRUCTIONS FOR ASSEMBLY AND USE

- Put the adapter (6) - code 00FAxxx - on the shaft and screw it in until it bottoms out (12). Make sure the adapter is clean before use.



- Slide the ring nut for holding the cutter (4) on the shaft.



INSTRUCTIONS FOR ASSEMBLY AND USE

5. Set the seeger ring (5) in the groove on the end of the shaft.



6. Insert the hexagonal key (13) of the cutter (11) - code 00FFxx - into the corresponding seat in the end of the shaft (1).



INSTRUCTIONS FOR ASSEMBLY AND USE

7. Screw, by hand, the ring nut for holding (4) the cutter and tighten.
Don't use a wrench.



8. The drilling machine is now ready for use.



INSTRUCTIONS FOR ASSEMBLY AND USE

4 INSTALLATION OF THE SYSTEM FOR DRILLING

4.1 DRILLING UNDER PRESSURE

1. Install the appropriate branching saddle (14) - code ECOLxxx or ECOLTLxxx - on the main pipe. Follow the instructions of the product and wait for the completion of the cooling time before attaching the tool.

2. Weld a PE ball valve (15), of the appropriate diameter, on the outlet of the branching saddle, with an electrofusion coupler.

We recommend that you install a branching saddle with the PE ball valve pre-installed, if available (as in the picture).

Before performing the welding, check that the distance from the end of the spigot (16) of the ball valve and the upper surface (17) of the main pipeline is:

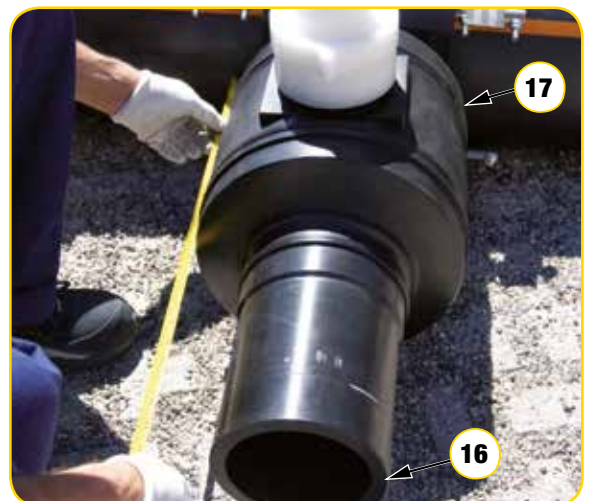
610 to 635 mm (24" to 25") for main pipeline $\varnothing > 160$ mm (6")

640 to 650 mm (25" to 26") for main pipeline $\varnothing \leq 160$ mm (6")

NOTE: Adapt the system by shortening the spigots of the saddle and the valve, or by welding a piece of pipe of the needed length (with an electrofusion coupler) on the end of the spigot of the valve.

Follow the instructions of the product and wait for the completion of the cooling time.

3. Chamfer the end of the spigot/pipe (16), in order not to damage the O-ring of the adapter.
4. OPEN the ball valve (15).



INSTRUCTIONS FOR ASSEMBLY AND USE

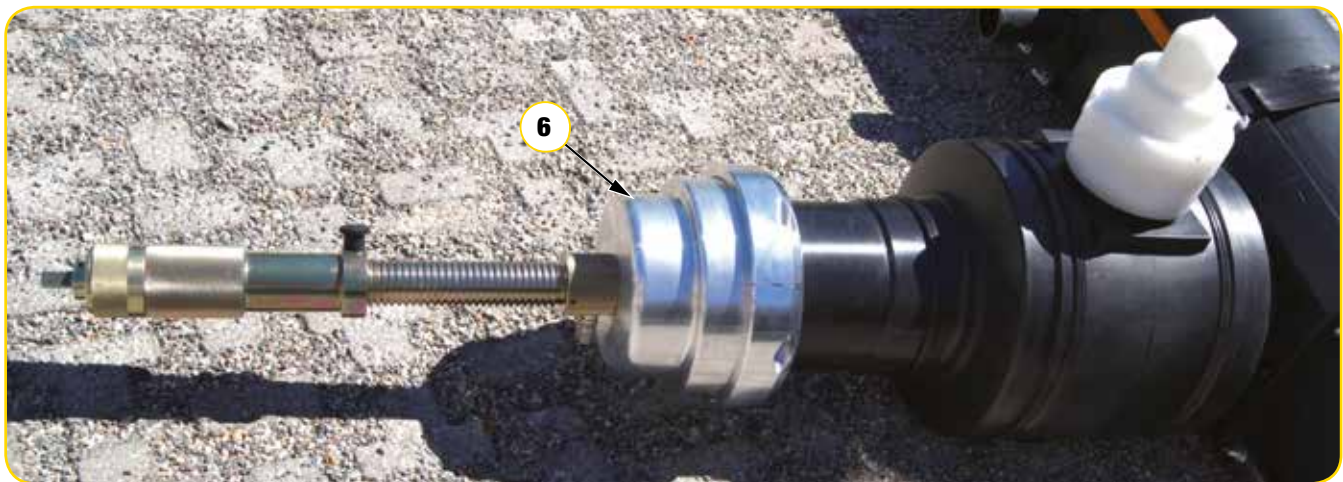
5. Insert the drilling machine into the outlet and place the adapter (6) on the end of the spigot/pipe (16). Make sure the outlet is chamfered and any dirt is removed.

Mark the depth of insertion on the spigot/pipe to verify that the adapter is fully inserted.

Take care not to damage the inner surface of the valve with the cutter during insertion.



6. Install and tighten the clamping system of the adapter (6). The jaws must be as close as possible and the positioning pins of the adapter must be inserted into the opposite seats of the jaws. Do not over tighten the jaws.



INSTRUCTIONS FOR ASSEMBLY AND USE

4.2 DRILLING NON PRESSURIZED PIPE

1. Install the appropriate branching saddle - code ECOLxxx or ECOLTLxxx - on the main pipe: follow the instructions of the product; wait for the completion of the cooling time before attaching the tool.
2. Weld a piece of pipe on the spigot of the branching saddle, by an electrofusion coupler, so that the distance from the top of the branch pipe and the upper surface of the main pipeline is:

610÷635 mm (24"÷25"), for main pipeline $\varnothing > 160$ mm (6")

640÷650 mm (25"÷26") , for main pipeline $\varnothing \leq 160$ mm (6")

Follow the instructions of the product and wait for the completion of the cooling time.

NOTE: When using the **drilling machine with the short shaft:** insert the drilling machine and fit the adapter directly on the spigot of the branching saddle. Chamfer and clean the top side of the spigot and mark the depth of insertion on it making sure that you have inserted the adapter until it reaches a complete stop.

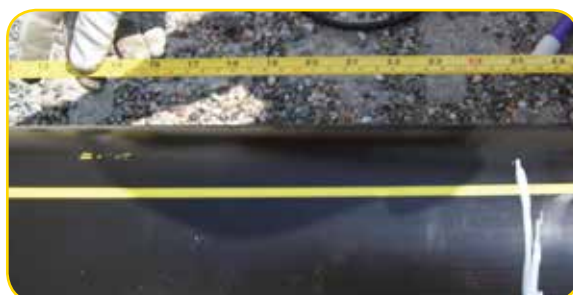
Install and tighten the clamping system of the adapter. The jaws must be as close as possible and the positioning pins of the adapter must be inserted into the opposite seats of the jaws. Do not over tighten the jaws.

3. Chamfer the end of the pipe, in order not to damage the o-ring of the adapter.
4. Insert the drilling machine and attach the adapter to the end of the pipe, chamfered and clear of dirt.

Mark the depth of insertion on the pipe to verify that the adapter is fully inserted.

Take care not to damage the inner surface of the valve with the cutter during insertion.

Install and tighten the clamp system of the adapter: the jaws must be as close as possible and the positioning pins of the adapter must be inserted into the opposite seats of the jaws.



INSTRUCTIONS FOR ASSEMBLY AND USE

5 DRILLING

1. Remove the safety lock of the upper limit by pulling the plunger (8) and at the same time turning clockwise the load cell (9) for axial loading.



2. Drive-down the cutter by turning clockwise (screw) the load cell (9) with one hand, until the torque rises (the cutter comes in contact with the pipe) and there is a gap between the load cell and the bush for cutter rotation.



3. With the other hand, insert the ratchet wrench on the hexagonal key (18) of the bush and turn clockwise (screw), until the torque decreases and the gap is gone.



NOTE: Do not turn counter-clockwise (unscrew) the cutter with the ratchet wrench.

4. Repeat point 2 and successively point 3: the mutual action of descent of the cutter (screw the load cell) and rotation of the cutter by the ratchet wrench, allows the operator to regulate the suitable stress for cutting with the lowest amount of time and energy.



5. Repeat points 2 and 3 until the pipe is completely cut (the torque decreases and there is no longer any axial load).

NOTE: For main pipeline $\varnothing > 160$ mm (6") it's recommended to complete the operation to the lower stopper (lock screw of the load cell).



INSTRUCTIONS FOR ASSEMBLY AND USE

6. Back the cutter into the up position by turning counter-clockwise (unscrew) **the load cell (9)**, to the upper stopper **(8)** (you hear the 'click' of the plunger of the safety lock).

If excessive effort is required for unscrewing the load cell in the lower position, rotate the cutter clockwise by the ratchet wrench.

Do not completely back out counter-clockwise (unscrew) the cutter with the ratchet wrench.



7. Insert the pressure gauge **(3)** in the vent valve **(7)** and check the pressure in the chamber.

IN THE CASE OF DRILLING NON PRESSURIZED PIPE, SKIP DIRECTLY TO POINT 10.



8. Unscrew the upper load cell of the body **(19)** and back out the shaft **(1)** to the upper limit.

Keep clear of the back end of the drilling machine.



INSTRUCTIONS FOR ASSEMBLY AND USE

9. CLOSE the ball valve and discharge the pressure in the chamber through the vent valve (20).



10. Remove the clamping system of the adapter (6) and extract the drilling machine.
The cutter will hold inside the cut piece of pipe and the shavings. (21).



11. Complete the installation of the branching line in accordance with normal company procedures.



6 STORING OF THE DRILLING MACHINE

1. Re-insert the shaft and screw-in tightly the upper load cell.
2. Check that the safety lock of the upper limit is inserted (otherwise, turn the load cell until you hear the 'click' of the plunger).
3. Clean the shaft and the threaded body from dirt and soil, then lubricate.
4. Remove the cut piece of pipe and all the shavings from the cutter.

NOTE: Store the drilling machine in an area clear from dirt, soil, sharp objects; keep particular care for cleanness and integrity of the shaft and the threaded part of the body.



Registered Office and Headquarters

via Stefano Ferrario 8
21052 Busto Arsizio (VA) Italy
Ph. +39 0331-344211
Fax +39 0331-351860
info@nupinet.com
www.nupiindustriaitaliane.com

Production, Operations and Administration Centre

via dell'Artigianato 13
40023 Castel Guelfo (BO) Italy
Ph. +39 0542-624911
Fax +39 0542-670851
info@nupinet.com
www.nupiindustriaitaliane.com

Production Facility

via Colombarotto 58
40026 Imola (BO) Italy
Ph. +39 0542-624911
Fax +39 0542-670851
info@nupinet.com
www.nupiindustriaitaliane.com



U.S.A. Subsidiary

Nupi Americas, Inc.
1511 Superior Way,
Houston - TX 77039 - U.S.A.
tél. ++1 281 590 4471
fax ++1 281 590 5268
info@nupiamericas.com
www.nupiamericas.com