



**ED<sup>®</sup> Ermeto Original**

**EOMAT III/A**

**Hydraulic assembly and flaring machine  
with electronic control**

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Hydraulic Assembly and Flaring Machine with Electronic Control

**General**

The EOMAT III/A is an „electronically“ controlled hydraulic drive unit for the assembly of:

**EO-2**

**EO Progressive Ring and Triple-Lok 37° flared tube fittings.**

Compared to manual assembly it greatly reduces assembly time, effort and cost and also guarantees leakfree performance of constant high-quality fitting assemblies.

Common tube materials such as steel, (ST 37.4 BK, ST 52.4 BK) stainless steel (1.4571/ 1.4541/ 316Ti), aluminum, copper and even plastic (EO-2/ DPR only) can be machined. The tool range covers all metric tube sizes from 4 to 42 mm outer diameter.

The required operating pressure depends on the assembly type and the tube dimensions, and it is automatically selected by a microprocessor. A multifunction display provides information about the current operating data.

Frequently used assembly data or special applications can be memorized; 26 memory locations are available for this purpose. These features allow for individual use of the unit. The standard version is for 380 V power supply; other voltage types and frequencies are available at extra charge.

The tools are the same as those of the EOMAT II and III versions and the fixtures for either the preassembly of cutting rings or for flaring tubes may be changed manually without using tools.



Hydraulic Assembly and Flaring Machine with Electronic Control

**Features, Advantages and Benefits:**

- **Universal** - Assembly of EO-2, EO-Progressive Ring and 37° flaring for Triple-Lok can be done with just 1 machine.
- **Efficient** - With a cycle time of some 10 seconds the EOMAT III/A greatly saves assembly time and effort. The investment pays back soon.
- **Industrial production** - sufficient hydraulic oil volume and intelligent energy management allow continuous 24-hour operation without overheating. The drive unit is designed to last millions of assemblies.

- **Menu selection** - Operation is as easy as selecting the intended assembly process (EO-2/ DPR/ 37° Flare) and tube dimension. No pressure charts are necessary.
- **Bite control** - In DPR-mode, the axial movement of the Progressive Ring is controlled with an accuracy of 0.01 mm (0.0004 inch). This assures reliable leakfree fitting performance independent of lubrication or dimensional and hardness tolerances.
- **Error messages** - All process parameter are controlled by the built-in microprocessor. Clear messages for typical failures are shown on the multifunction display.
- **Safe** - Proper Pre-assembly greatly reduces the danger of leaking fittings or even hazardous tube blow out.
- **Strong** - Even 37° flaring of large size stainless steel tube is done within few seconds.
- **Flexible** - All tube dimensions from 4 to 42 mm can be machined. All common tube materials are covered, even plastic tube (EO-2/ DPR only).
- **Marking notch** - All VOMO tools feature a special notch in the bottom surface which is designed to engrave a circular groove into the tube-end at assembly. A missing of this mark indicates that the tube-end has not been properly bottomed at assembly.
- **No tool wear** - When the machine is only used for preassembly of EO-2 fittings, the VOMO tools do not wear. This prevents fitting failures caused by worn-out preassembly tools.
- **Three languages display** - English / German / French can be easily selected for the display.
- **Memory locations** - 26 memory locations are available to store regularly used specific assembly data.
- **Foot switch** - For easy handling of long tubes and time efficient series production a foot switch is available.
- **Machine monitoring** - A warning will be shown on the display when hydraulic oil level is low or oil temperature is high to avoid machine damage.

**Technical Specifications**

**Oil**  
Esso Nuto H 32 or equivalent, capacity 15 l (oil change once per year or every 2000 hours. Oil drain screw on the underside of the unit).

**Working pressure:**  
Electronically adjusted from 12 to 200 bar.

**Dimensions:**  
Width 690 mm, height 530 mm, depth 320 mm.

**Hydraulic pump:**  
1.1 kW - 5.4 l/min.

**Feed speed:**  
19 mm/sec, working stroke 8.7 mm/sec, return speed 13.3 mm/sec.

**Electrical connection:**  
380 V/3 Phase /50 Hz /2.8 A (standard). Other specifications on request.

**Power cable:**  
5 m - CEE 16 A, with phase inverter.

**Weight:** 100 kg.

**Technical Specifications of the Electronic Control**

**Display:**  
LCD display, 2 Lines with 24 characters each. Character height 5.5 mm.

**„MENU“ buttons:**  
Three buttons for entering the menu. The button functions appear in the lower line of the LCD display.

**„FS“ socket:**  
For connecting the foot operating switch, plug connection: DIN 41524, 3-pole.

**Ambient conditions:**  
Ambient temperature: 0...+50°C.  
Storage temperature: - 25...+60°C.

**General:**  
Lithium battery for data memory. Service life min. 5 years.

**Initial Operation**

**Phase polarity**  
Switch on the unit. Correct phase-polarity is checked by a trial run without tool and without fixtures. Press and hold down the start button (lit up). If the start button is not lit up, keep pressing the green menu button until the start button lights up. When phase-polarity is correct, the piston moves forward to the stop and then returns. The display shows the command „RELEASE START BUTTON“. When phase-polarity is incorrect, the piston does not move. In this case, switch off the unit and switch over the phase inverter in the plug, using a screwdriver.

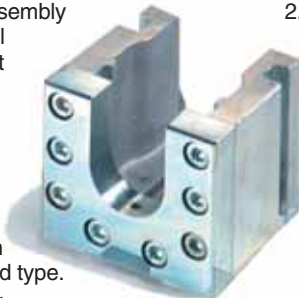


Machine Operation

Assembly of EO-2 Functional Nuts

See EO-2 instructions for fitting assembly

1. Pressure is automatically adjusted by the menu selection button (see paragraph „operating the multifunction display“).
2. Insert the preassembly fixture in the tool mounting weight approx. 5.5 kg).
3. Select the assembly cone (MOK) and backing plate (GHP) in accordance with the tube size and type.
4. Place and lock the assembly cone in the tool holder. Place the backing plate in the slot in the fixture.
5. Slide the EO-2 functional nut onto the tube, which has been cut off square and deburred.
6. Place the tube with the EO-2 functional nut in the preassembly fixture between backing plate and assembly cone.
7. Press the tube against the stop in the assembly cone. Hold the tube in this position. Press and hold the start button (or right-hand foot switch) until the display gives the command „RELEASE START BUTTON“. The preassembly process is complete.
8. Take the assembled tube connection out of the location plate. Loosen nut and check that the gap between the sealing ring and retaining ring is closed.



Preassembly of Progressive Rings

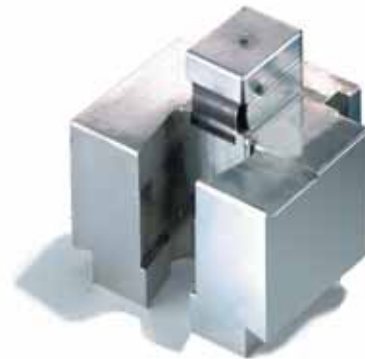
See DPR instructions for fitting assembly

1. Pressure is automatically adjusted by the menu selection button (see paragraph „operating the multifunction display“).
2. Insert the preassembly fixture in the tool mounting (weight approx. 5.5 kg).
3. Select the assembly cone (MOK) and backing plate (GHP) in accordance with the tube size and type. Check the assembly cone using a cone gauge.
4. Place the assembly cone in the tool holder. Place the backing plate in the slot in the fixture.
5. Oil the progressive ring or cutting ring, nut and assembly cone.
6. Slide the nut and progressive ring or cutting ring onto the tube, which has been cut off square and deburred.
7. Place the tube with nut and progressive ring or cutting ring in the preassembly fixture between backing plate and assembly cone.
8. Press the tube against the stop in the assembly cone. Hold the tube in this position. Press and hold the start button (or right-hand foot switch) until the display gives the command „RELEASE START BUTTON“. The preassembly process is completed.
9. Take the preassembled tube out of the backing plate. The progressive ring or cutting ring has cut into the tube leaving a visible raised collar (check!).

Flaring Tubes

See Triple-Lok instructions for fitting assembly

1. Pressure is automatically adjusted by the menu selection button (see paragraph „operating the multifunction display“).
2. Insert the tube flaring fixture in the tool mounting (weight approx. 19.5 kg).



3. Oil the flaring pin.
4. Insert the flaring die set corresponding to the tube size.
5. Push the nut and support sleeve onto the tube.
6. Push the tube through the flaring die hole to the stop plate. To prevent misalignment, longer tubes are to be supported during the flaring process.
7. Press the start button (or right-hand foot switch) and hold until the display reads „RELEASE START BUTTON“. The flaring procedure is completed.
8. Lift the tube with the flaring die upwards out of the fixture.
9. To release the tube, place the flaring die set in the opening provided in the fixture and tilt the tube to one side.

Important!

Do not drive the flaring pin into the flaring die without a tube in position. The roughened surface of the flaring die must be absolutely free of oil and grease to prevent the tube from slipping

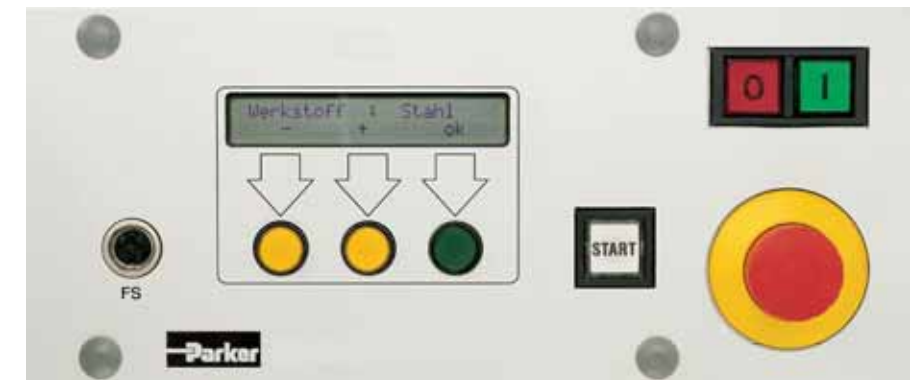
**Caution: do not reach into the working area of the flaring fixture while it is operating!**

Important!

Only proceed with preassembly when a tube with nut and cutting ring has been placed in the fixture (failure to observe this can result in damage to the tools). Longer tubes are to be suitably supported during preassembly. The assembly cones are to be regularly checked for correct dimensions using the cone gauge and should be replaced when necessary.

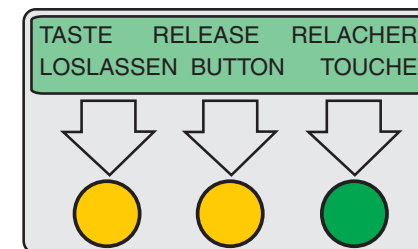
**Caution: do not reach into the working area of the preassembly fixture while it is operating!**

Operating the Multifunction Display

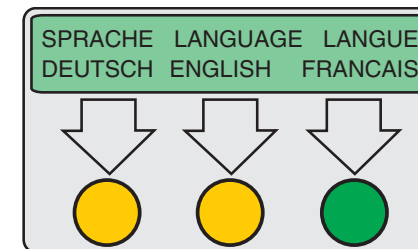


Choice of Language (German / English / French)

1. To change the language, switch off the unit.
2. Switch the unit on again, holding down the green menu button.
3. The following image appears on the display after a few seconds:



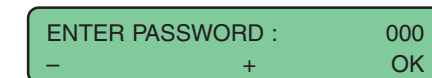
4. After releasing the green menu button, the languages are indicated:



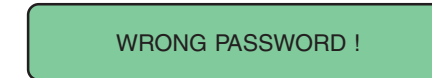
5. For German, press the left-hand yellow button; for English, press the right-hand yellow button; for French press the green button. All further information appears in the selected language, even after the unit has been switched off.

Entering a Password

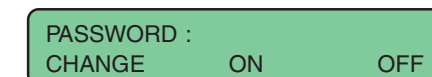
1. To change the password, switch off the unit.
2. Switch the unit on again, holding down the left-hand yellow menu button.
3. The following image appears on the display after a few seconds:



4. Using a yellow button (+ or -), enter the 1st number (flashes). Acknowledge with the green button. Enter the 2nd and the 3rd number in the same way. The following image appears on the display:



- 5a. This image disappears after a few seconds and the image of paragraph 3 appears.
- 5b. or the following image appears on the display:



- With the left-hand yellow button „CHANGE“, a new password can be entered with the same procedure as under paragraph 4. With the right-hand yellow button „ON“ the password protection will be switched on. Whenever one of the three menu buttons will be pressed (i.e. the assembly parameters are to be modified), the password must be entered. With the green button „OFF“ the password protection will be switched off. All assembly parameters can be altered now without entering the password.
6. The password is preset as „000“ in the factory.
  7. If a wrong password has been entered try again. This menu item can only be exited by switching off the unit.

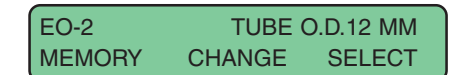
Menu Selection for Standard Range for Steel and Stainless Steel

All settings are permanently programmed. Only assembly type, material and tube dimensions must be entered.

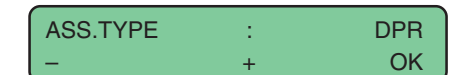
Example:

Preassembly with progressive ring, steel material, tube dimension 16 x 2 mm

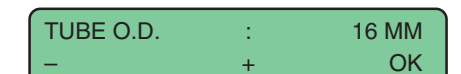
1. The display shows the data of the last setting (random example):



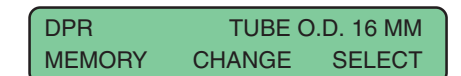
2. Press the green „SELECT“ button. The start button is now not operating.



3. Using a yellow button (+ or -), select the assembly type until „DPR“ appears. Acknowledge with the green „OK“ button:



4. Using a yellow button (+ or -), select the tube outside diameter. Acknowledge with the green „OK“ button. All required data have now been entered and the display shows the following:



5. The start button is now ready (lights up). The assembly procedure can now begin as described from paragraph 2 of the sections „Assembly of EO-2 functional nuts“, „Preassembly of progressive rings“ or „Flaring tubes“.

Operating the Multifunction Display

Programming Memory Locations for Special Applications

For special applications, individual assembly pressures and retention times can be entered and memorized. These are normally not available and can only be determined by trial assemblies. If necessary, please consult our technical service team. 26 memory locations are available, identified by the letters A to Z.

**Example:**  
Enter and memorize: preassembly of progressive ring, tube o.d. 16 mm.

1. Select assembly type and tube o.d. as in the standard range:

DPR TUBE O.D. 16 MM  
MEMORY CHANGE SELECT

2. Press the right-hand yellow „CHANGE“ button. The start button is now not operating.

ASS. PRESSURE: 36 BAR  
- + OK

3. The assembly pressure for a special tube (19 - 200 bar) can now be individual entered using a yellow button (+ or -). Acknowledge with the green „OK“ button.

RETENTION TIME: 1.0 SEC  
- + OK

4. Using a yellow button (+ or -), adjust the retention time (0 to 9 sec). One second is normally sufficient. Acknowledge with the green „OK“ button. The display now always shows the memory location „A“.

A : 35 BAR 0.5 SEC  
- + OK

5. Using a yellow button (+ or -), another memory location (A - Z) can be selected. In our example, memory location „A“ is to be overwritten. Acknowledge with the green „OK“ button. The display now indicates the selected memory location, the assembly pressure and the retention time:

A : 45 BAR 1.0 SEC  
MEMORY CHANGE SELECT

6. The memorizing procedure is completed. The start button is now ready (lights up). The memorized assembly procedure can now begin as described from paragraph 2 in the section „Assembly of EO-2 functional nuts“, „Preassembly of progressive rings“ or „Flaring tubes“.

Retrieving Memory Locations:

e.g. Memory location „A“.

1. The display shows the data of the last setting (random example):

DPR TUBE O.D. 10 MM  
MEMORY CHANGE SELECT

2. Press left-hand yellow „MEMORY“ button. The start button is now not operating. The display now always shows memory location „A“:

A : 45 BAR 1.0 SEC  
- + OK

3. With a yellow button (+ or -), select the required memory location and acknowledge with the green „OK“ button:

A : 45 BAR 1.0 SEC  
MEMORY CHANGE SELECT

4. The start button is now ready (lights up). The assembly procedure can now begin as described from paragraph 2 in the sections „Assembly of EO-2 functional nuts“, „Preassembly of progressive rings“ or „Flaring tubes“.

Display during Operation (Example):

LL TUBE O.D. 10 MM  
30°C 6 BAR ABORT

or

A : 45 BAR 1.0 SEC  
30°C 6 BAR ABORT

Oil temperature and pressure are shown for control. The current assembly procedure can be interrupted at any time with the green „ABORT“ button or with the left-hand foot operating switch.

Display Alarms:

TOO LITTLE ASS. TRAVEL  
INCOMPETE ! CONTINUE

Check the assembly. For example, if preassembly action was carried out without tool or without progressive ring and nut. Press green „CONTINUE“ button.

TOO HIGH PRESSURE  
OVERTIGHTENED ! CONTINUE

This image only appears in case of displacement-controlled assembly types LL and DPR. For example, if an already assembled tube has been inserted. Press green „CONTINUE“ button.

FLARE TUBE O.D. 16 MM  
WRONG FIXTURE !

The inserted fixture does not fit to the selected assembly type. The check of the fixture is valid only for assemblies of the EO standard range. Insert the correct fixture. The „during operation“ display will be shown. The start button is now ready (lights up).

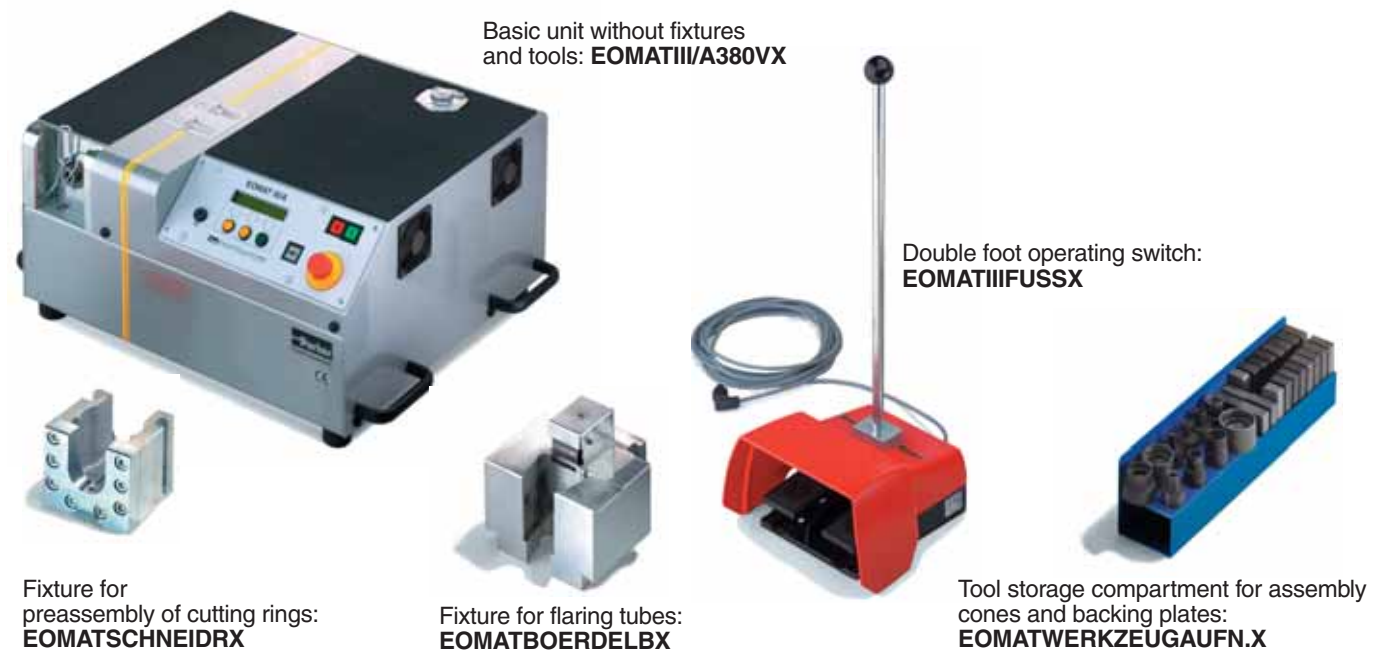
INSUFFICIENT OIL LEVEL

Switch off the unit. Check for leaks. Refill with oil.

OIL TEMPERATURE TOO HIGH

Switch off the unit and leave to cool.

Order Codes for EOMAT III/A and Accessories



Fixture for preassembly of cutting rings: EOMATSCHNEIDRX

Fixture for flaring tubes: EOMATBOERDELBX

Double foot operating switch: EOMATIIIFUSSX

Tool storage compartment for assembly cones and backing plates: EOMATWERKZEUGAUFN.X

Series	Tube o.d.	Tools for EO-2 assembly and progressive ring preassembly			Flaring die sets Part no.
		Assembly cone	Backing plates	Cone gauges	
LL	4	MOK04LL	GHP04	KONU04+05LL	
	6	MOK06LL	GHP06	KONU06+08LL	
	8	MOK08LL	GHP08	KONU08+10LL	
	10	MOK10LL	GHP10	KONU10+12LL	
	12	MOK12LL	GHP12	KONU12+14LL	
L	6	MOK06L	GHP06	KONU06+08L/S	M157406
	8	MOK08L	GHP08	KONU08+10L/S	M157408
	10	MOK10L	GHP10	KONU10+12L/S	M157410
	12	MOK12L	GHP12	KONU12+14L/S	M157412
	15	MOK15L	GHP15	KONU15+18L	M157415
	18	MOK18L	GHP18	KONU18+22L	M157418
	22	MOK22L	GHP22	KONU22+28L	M157422
	28	MOK28L	GHP28	KONU28+35L	M157428
	35	MOK35L	GHP35*	KONU35+42L	M157435
	42	MOK42L	GHP42*	KONU42+50L	M157442
S	6	MOK06S	GHP06	KONU06+08L/S	M157406
	8	MOK08S	GHP08	KONU08+10L/S	M157408
	10	MOK10S	GHP10	KONU10+12L/S	M157410
	12	MOK12S	GHP12	KONU12+14L/S	M157412
	14	MOK14S	GHP14	KONU14+16S	M157414
	16	MOK16S	GHP16	KONU16+18S	M157416
	20	MOK20S	GHP20	KONU20+25S	M157420
	25	MOK25S	GHP25	KONU25+30S	M157425
	30	MOK30S	GHP30	KONU30+38S	M157430
	38	MOK38S	GHP38	KONU38+46S	M157438

Backing plates, cone gauges and flaring die sets of series L and S for tube outer diameter 6, 8, 10 and 12 are the same.

\*Note: For the assembly of EO-2 functional nuts FM 35 and 42-L the two-part backing plates GHP 35 and 42 are to be used.

For your safety:

Under certain circumstances, tube fittings can be subjected to extreme loadings such as vibration and uncontrolled pressure peaks. Only by using genuine Ermeto Original components and following the EO assembly instructions can you be assured of the reliability and safety of the products and their conformity to the applicable standards. Failure to follow this rule can adversely affect functional safety and reliability and result in loss of your guarantee rights.