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# Bedienungsanleitung

# Operating Instructions

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**ExOn2A, DX304**  
**ExOn2A-5, DX312**



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We retain all copyrights of all descriptions, drawings and schedules contained in these operating instructions which may not be reproduced nor be made accessible by third parties or by competitors, neither in whole nor in part, unless we have expressly consented thereto.

Before start-up these operating instructions must be examined carefully because we will not assume any liability for any failures resulting from improper use. No warranty claims will be accepted if the hand-held welding and extruding machine has been modified unless this has been done in consultation with the manufacturer/ supplier.

**The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.**

**Children must be supervised not to play with the appliance.**

**The extruder shall be used for extrusion weld works only !**

**These operating instructions should always be accessible by the operator.**

**For after-sales service and orders please contact:**

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**english**

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## **1. Type**

|                                 |                              |
|---------------------------------|------------------------------|
| Article-no. / Type of machine : | DX304 ExOn2A, DX312 ExOn2A-5 |
| Machine no. :                   | .....                        |
| Required voltage :              | 230 V / 50 – 60 Hz           |
| Heating unit :                  | 2700 W/11,7A                 |
| Processing of :                 | PE, PP                       |

## **2. Safety**

Pursuant to section 55 of VDE 0 100 (Regulations of the Association of German Electrotechnical Engineers), the extruder must be operated using a protective switch or an isolation transformer. Always keep extruder dry!

Operating hand-held welding and extruding machines is subject to applicable national regulations. Observe applicable regulations for the prevention of accidents as well as technical rules for safe and professional operation.

Directive 92/ 57/ EWG dated June 24, 1992, shall be applicable by analogy.

### **Utilisation:**

Hand-held welding and extruding machines are manufactured according to the latest state of the art and in compliance with safety requirements.

Any improper use may result in dangers for the operator or third parties or may adversely affect machines and assets.

Only use hand-held welding and extruding machines if in technically perfect condition and for the purposes for which they are intended while observing the operating instructions.

The manufacturer / supplier will not accept any liability for any failure to comply with the above or for damages resulting there from.

Any utilisation of the hand-held welding and extruding machine for other purposes than those for which it is intended is subject to the consent of the manufacturer / supplier.

Work on electrical parts of the hand-held welding and extruding machines may only be performed by an electrical engineer in compliance with electro-technical rules.

### **Special risks:**

All hand-held welding and extruding machines may only be held and operated using the handles provided for this purpose.

A risk of burning exists on all **uncovered metal parts**. Avoid contact with these parts because they may achieve temperatures of up to 350 °C.

**Caution: Heat can reach combustible materials!**

### **Safety area:**

The hot air stream of the hand-held welding and extruding machine may not be directed to temperature-sensitive objects or living things. Ensure that a safety distance of 2m is observed in all directions.

**Don't concentrate the heat stream long time on the same area.**

**Operation:**

Never use hand-held welding and extruding machines without air supply.  
In case of external air supply ensure that the feed line is of sufficient size.  
The pressurised air that is supplied **must be free of oil and water.**

**Overhead work:**

When working overhead always wear appropriate safety devices (such as helmet, safety glasses etc.).

**Safety:**

Check for correct nominal voltage before connecting the hand-held welding and extruding machine to the mains voltage.

Mains voltage must be identical to the nominal voltage shown on the type plate of the hand-held welding and extruding machine.

Pursuant to sec. 55 of VDE 0 100 the hand-held welding and extruding machine must be operated using a protective switch or an isolation transformer.

**Extension cords:**

When using extension cords the minimum diameter of cables must be observed.

Length up to 18 m: diameter 2.5 mm<sup>2</sup>

Length up to 50 m: diameter 4.0 mm<sup>2</sup>

Extension cords must be approved and marked for their place of utilisation.

**Stop operating the hand-held welding and extruding machine if:**

- connecting line or plug have been damaged
- safety installations have been damaged
- foreign objects or liquids have entered the hand-held welding and extruding machine
- changes occur in the operating state

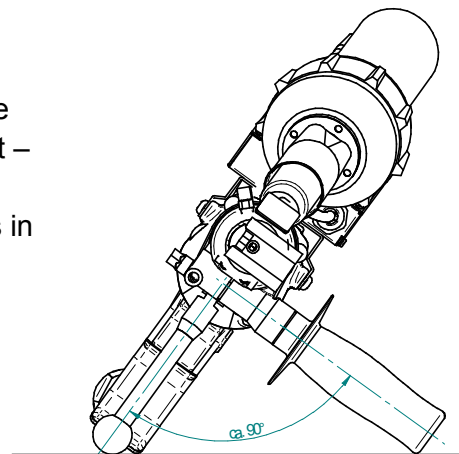
**Never spray water on hand-held welding and extruding machines  
(risk of short circuit)**

**Never use hand-held welding and extruding machines in hazardous or inflammable areas.**

**To park the tool:**

To save the stand, click the machine base out and put the tool on the three points (machine base – handle drive unit – pivoted handle).

Make sure that the machine base to the pivoted handle is in angle of 90°.



### **3. Start-up**

#### **General:**

Observe the notes on safety contained in these operating instructions. In addition, the regulations on the prevention of accidents and the national regulations shall apply.

#### **Assembling the hand-held welding and extruding machine**

When dispatched, our hand-held welding and extruding machines are almost completely assembled.

What remains to be done is to screw the enclosed handle to the machine.

For machines with external air supply the air supply hose must be connected.

Ensure sufficient supply with air which is free of oil and water (min. 300 l/min).

We recommend our air compressor, item no. DX 011.

#### **Weld shoe**

The machine is supplied with two weld shoes blank which can be machined to suit your requirements.

Note: please observe guideline DVS 2207 part 4.

If you indicate your required form of seam and thickness of plates we will supply two weld shoes machined ready for use.

#### **Start-up of hand-held welding extruder**

**Observe the section concerning safety of these operating instructions.**

Hand-held welding and extruding machines may not be used without air supply.

This would inevitably result in damages of the extruder.

Before connecting the extruder to the mains supply please check that:

- air supply is connected correctly
- the driving machine has not been put to permanent operation
- now switch on air supply
- and put plug into socket.

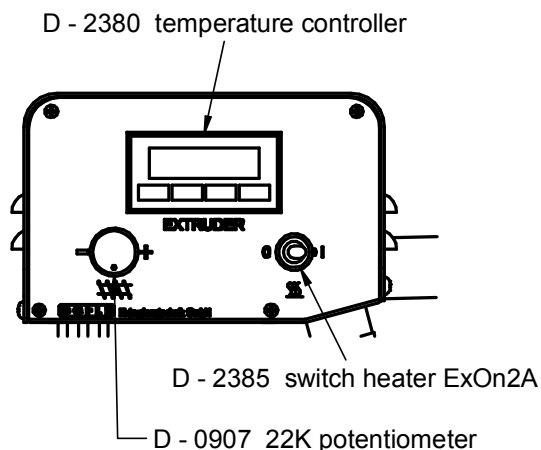
If you give now the power supply plug to a suitable plug socket (230V, 16A), press that On - Off switch on the air heater on position ON.

The machine heats now up.

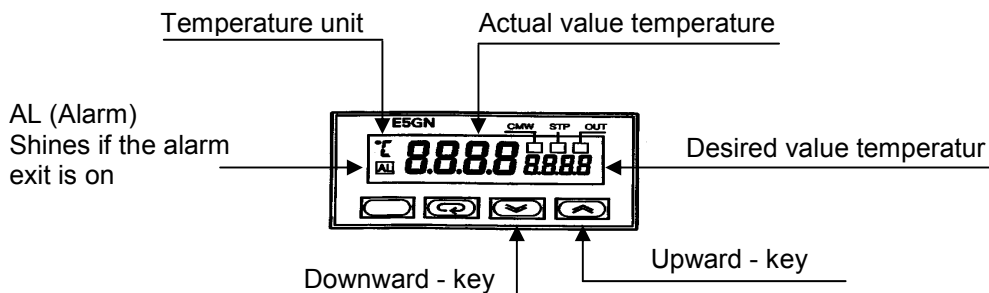
#### **Make sure by each switching on of the machine, that the on-off switch of the drive engine is switched off.**

After a heating-up time of approx. 15 minutes, start the machine using the welding material wished by you and examine the air and welding material temperature with a suitable temperature measurement. By changing the temperature of the air heater consider the reaction response time of the system .

**View – controller front – steering box**



**Display and control elements off he controller front**

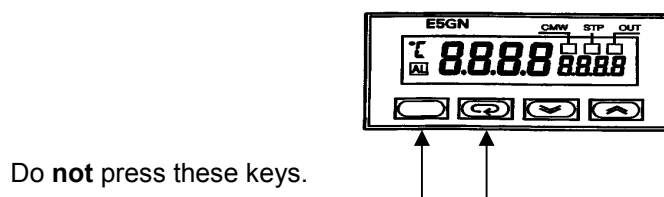


**Controller – desired value setting**

All controllers can be changed only in the desired value and are electrically locked against wrong inputs.

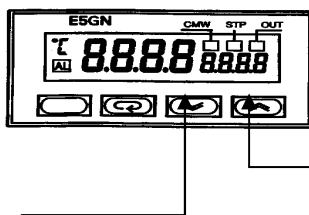
**Change the desired value**

The controller indicates actual and desired value temperature at the same time. To change the desired value temperature proceed as follows:



**Downward - key**

By every press of this key, the value becomes smaller, which is indicated on the desired value display. If this key is kept constantly pressed, then the value is sequentially becomes smaller.



**Upward - key**

By every press of this key, the value increases, which is indicated on the desired value display. If this key is kept constantly pressed, then the value sequentially becomes higher.

### **Change of the welding shoe**

In order to be sure that no more old welding rod is in the hand welding extrusion, heat up the machine on operating temperature, remove the welding shoe and change the nozzle (**note: left hand thread!**).

### **Changing the welding filler**

Heat up the hand-held welding and extruding machine until operating temperature is reached to ensure that no welding filler is present in the machine, remove the weld shoe and exchange the die (caution, left-handed thread) by a new one or by a die used with the material to be applied now.

### **Note: with work on heated machine burn danger.**

When the nozzle is changed drive for approx. 1 min. the new welding rod in the hand welding extrusion.

### **Interruption of the welding**

Do not leave the hand welding extruder unsupervised.  
The air supply must remain maintained

### **Switch off the hand welding extruder**

Bring the potentiometer of the air heater in position 0 and pull after ca.2 minutes the power supply plug.

### **Note: Even after 15 minutes still exists burn danger on bright metal parts.**

No water or other materials for accelerating the cooling procedure must be used. .

### **Maintenance**

Before maintenance work on the equipment, pull power supply plug!  
Maintenance work may be accomplished only by electrical specialists.

### **Consider the security chapter!**

After approximately 500 operation hours the hand welding extruder, including the drive unit must be cleaned, greased and controlled. These work may be implemented only by electrical specialists.

### **Drive**

The carbon brushes conductors of the drive must be examined approx. every 200 operation hours and renewed if necessary.

### **Deep groove ball thrust bearing /barrel extruder**

The deep groove thrust bearing and the barrel extruder should be cleaned approx. every 200 operation hours and again be greased

**Note: Only high temperature grease can be used. Our art. no.: D-0581**

## 4. Error tracing

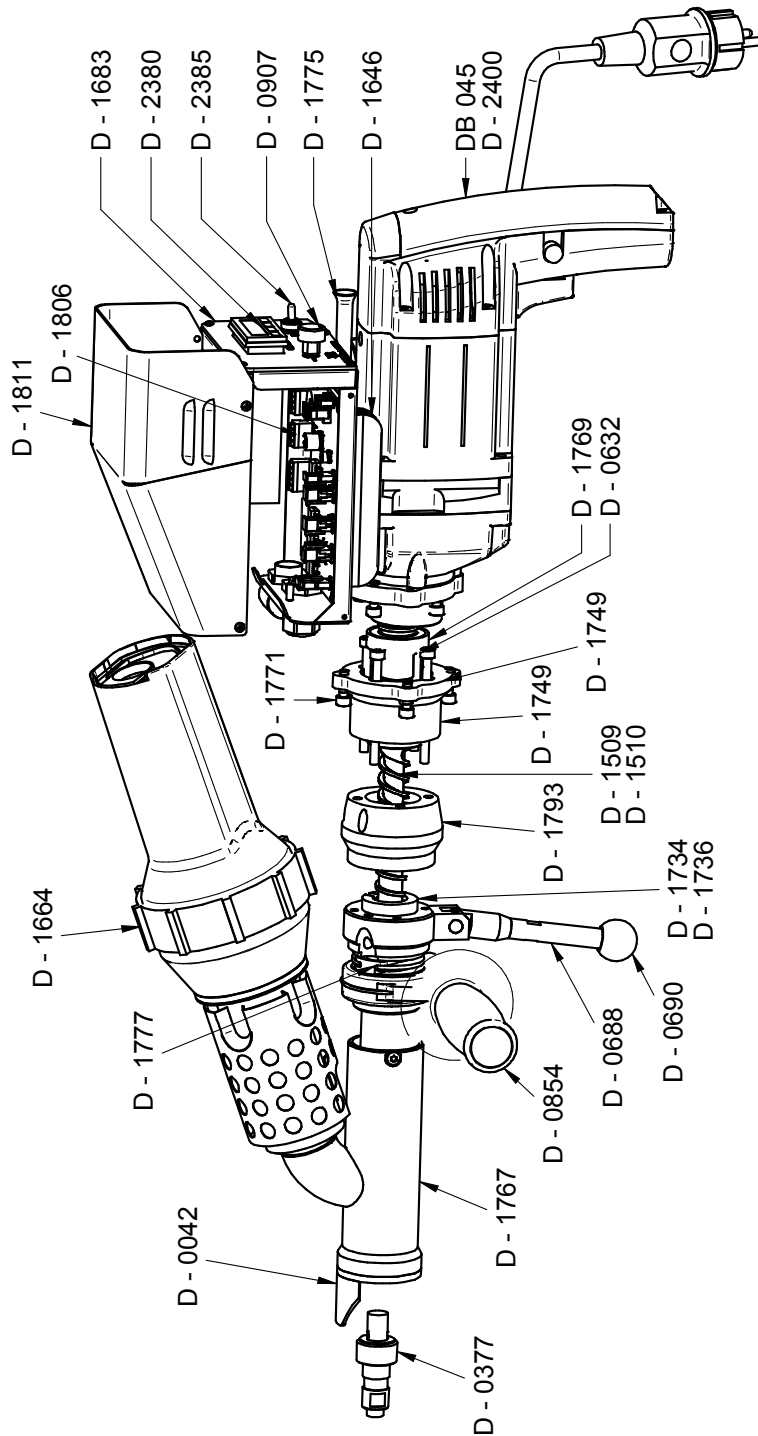
| <b><u>Malfunctioning</u></b>                             | <b><u>Error- No.</u></b>         |
|--|----------------------------------|
| Driving motor does not start                             | 01,02,04,05,06,07,08,09,10,11,12 |
| Driving motor switches off                               | 03,04,05,06,07,08,09,10          |
| Extruder remains cold                                    | 04,05,06,07,08,09,15,17          |
| Hot air remains cold                                     | 05,07,08,09,12                   |
| Hot air temperature is under desired value               | 11,13                            |
| Extrusion temperature is under desired value             | 11                               |
| Extruder does not deliver extruded material from the die | 11                               |
| Display does not light up                                | 01                               |
| Display shows: S . e r r                                 | 15                               |
| Display not constant                                     | 17                               |
| Display shows wrong direction of action                  | 18                               |

| <b><u>Error-No.</u></b> | <b><u>possible cause</u></b>                       | <b><u>Elimination of error</u></b>                         |
|-------------------------|--|--|
| 01                      | No power supply                                    | Provide power supply                                       |
| 02                      | Incorrect mains voltage                            | Have checked by skilled technician                         |
| 03                      | Extension cord becomes hot                         | Check cable diameter<br>Run out cable completely from reel |
| 04                      | Thermoelement for mass defective                   | Exchange thermoelement                                     |
| 05                      | Thermoelement for air defective                    | Exchange thermoelement                                     |
| 06                      | Temperature control unit for mass defective        | Exchange temperature control unit                          |
| 07                      | Temperature control unit for air defective         | Exchange temperature control unit                          |
| 08                      | On/Off switch for heating units in OFF position    | Put switch to ON position                                  |
| 09                      | Defect on cable connections                        | Have checked by skilled technician                         |
| 10                      | Carbon brushes of drive motor worn                 | Replace by new carbon brushes                              |
| 11                      | Pre-heating time too short                         | Heat up extruder   |
| 12                      | External air supply not connected                  | Connect external air supply                                |
| 13                      | Air flow too high when using external air supply   | Reduce to prescribed quantity                              |
| 15                      | Breakage of monitoring thermoelement               | Replace thermoelement                                      |
| 16                      | Unsuccessful attempt to change a blocked parameter | Blockage can only be removed by a skilled technician       |
| 17                      | Thermoelement failure or loose connections         | Check thermoelement<br>Check connections                   |
| 18                      | Sensor incorrectly connected, + and – mistaken     | Check connections  |



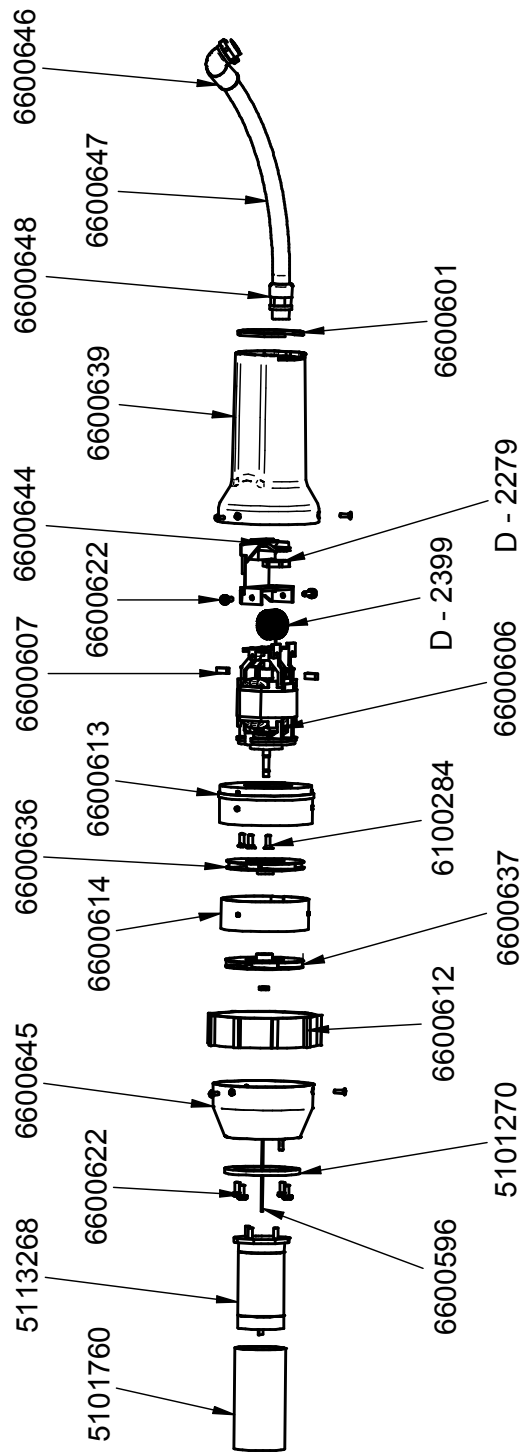
## 5 Drawings, Informations

### DX304 ExOn2A, DX312 ExOn2A-5



| article no | description                           | qty |
|------------|---------------------------------------|-----|
| 6600646    | angled hose screw fitting             | 1   |
| D- 0042    | air die Multi Fix 32mm                | 1   |
| D- 0288    | screw 2,2x6,5                         | 4   |
| D- 0377    | die 1500                              | 1   |
| D- 0632    | screw M5x65                           | 4   |
| D- 0680    | compression spring handle             | 1   |
| D- 0687    | link                                  | 1   |
| D- 0688    | link joint 1502-3002                  | 1   |
| D- 0690    | ball button 1502 - 6002               | 1   |
| D- 0726    | ball                                  | 1   |
| D- 0854    | handle                                | 1   |
| D- 0864    | screw 2,9x6,5 DIN7981                 | 4   |
| D- 0907    | 22K potentiometer                     | 1   |
| D- 1509    | worm type ExØ2                        | 1   |
| D- 1510    | worm type ExØ2- 5mm                   | 1   |
| D- 1532.1  | cylinder inset ExØ2+3                 | 1   |
| D- 1646    | cooling ribs ExØ2- 6                  | 1   |
| D- 1650    | gasket heatsink ExØ2- 6               | 1   |
| D- 1664    | Eron ExØ2- 6                          | 1   |
| D- 1683    | front panel ExØ2A                     | 1   |
| D- 1734    | cylinder ExØ2 4mm                     | 2   |
| D- 1736    | cylinder ExØ2 5mm                     | 2   |
| D- 1748    | flange ExØ2- 4                        | 2   |
| D- 1749    | indentation1 ExØ2- 4                  | 2   |
| D- 1754    | mainboard ExØ2- 6                     | 1   |
| D- 1767    | burner pipe ExØ2A                     | 1   |
| D- 1769    | deep groove ball bearing 61904 2Z ISB | 2   |
| D- 1771    | screw M5x6                            | 8   |
| D- 1772    | screw M4x6 T20 DIN7985                | 2   |
| D- 1775    | holder ExØ2                           | 1   |
| D- 1777    | cable sleeve                          | 1   |
| D- 1778    | axis ExØ2- 6                          | 1   |
| D- 1793    | indentation2 ExØ2A+3A                 | 1   |
| D- 1806    | line filter ExØ2- 3                   | 1   |
| D- 1811    | control box ExØ2+3                    | 1   |
| D- 2050    | screwed cable buckle proofed FG1      | 1   |
| D- 2063    | main cable 8m                         | 1   |
| D- 2134    | widening FG9- FG1                     | 1   |
| D- 2279    | plastic nut M6x15                     | 1   |
| D- 2322    | screwed cable M6x15                   | 1   |
| D- 2380    | temperature controller                | 1   |
| D- 2385    | switch heater ExØ2A                   | 1   |
| D- 2400    | inductor ExØ2                         | 1   |
| DB045      | Drive BSM274, 230V, 800W              | 1   |

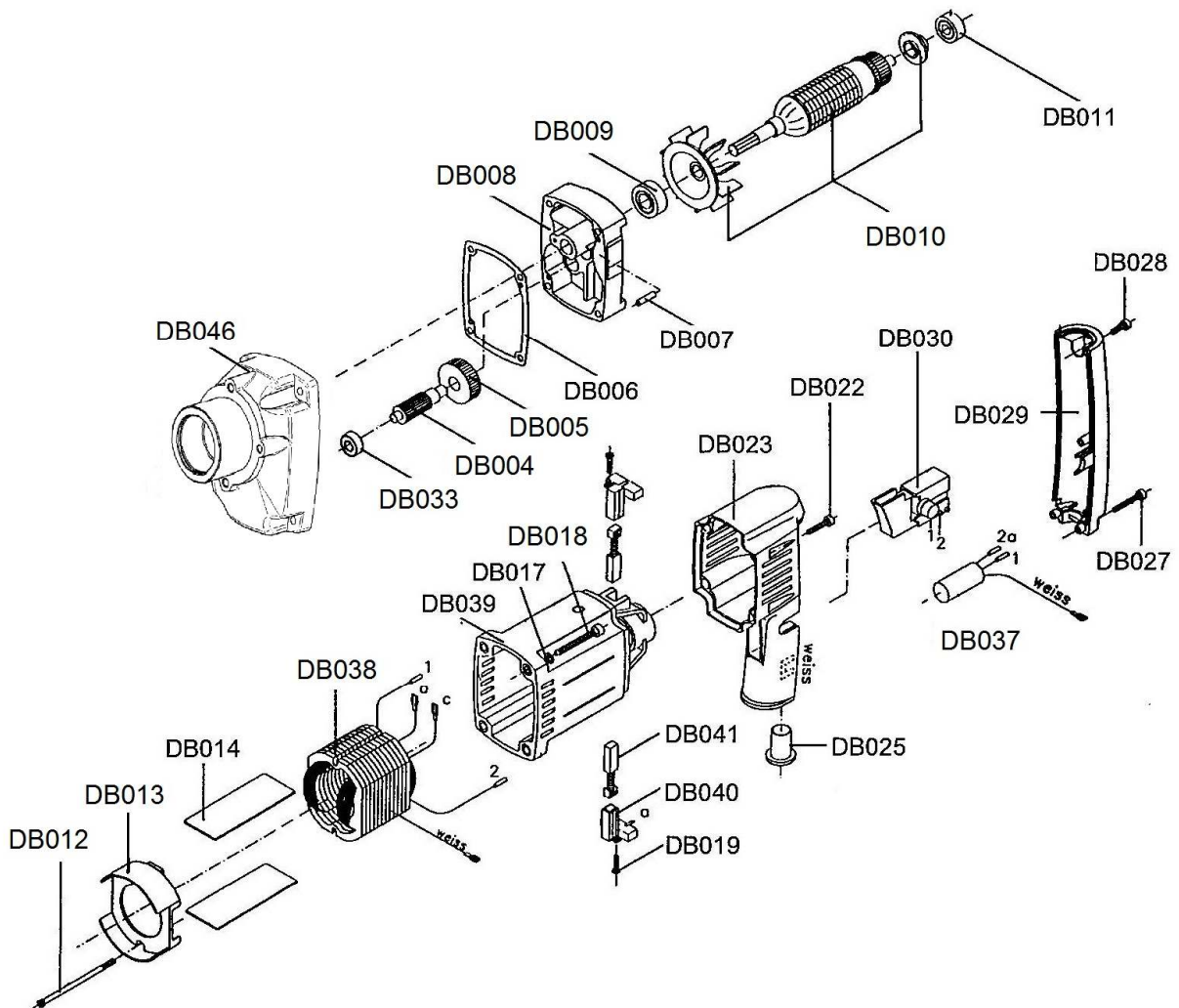
### Eron ExOn2-6, Art-No: D - 1664



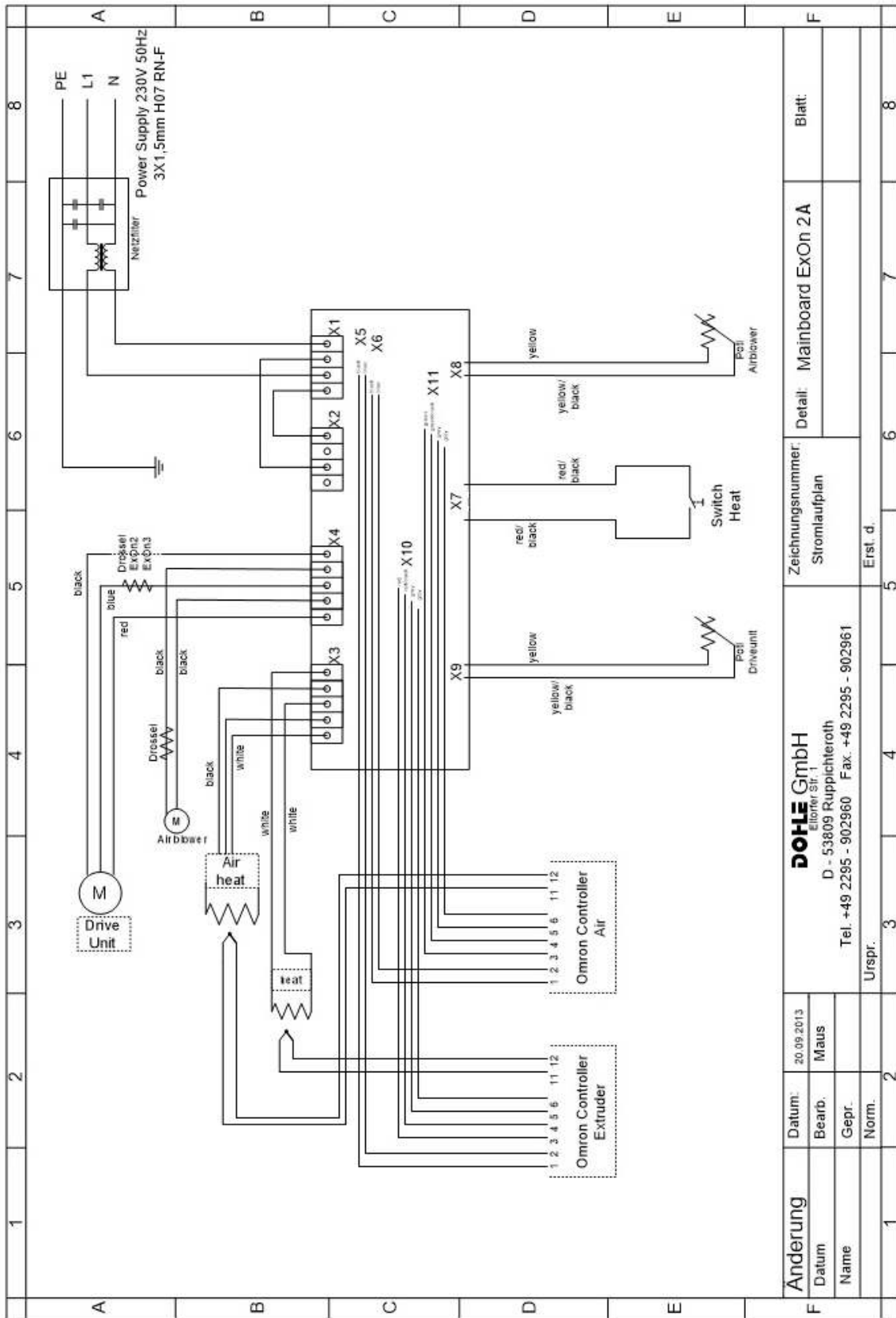
| article-no | description                               | qty |
|------------|---|-----|
| 5101270    | gasket 70x48x4                            | 1   |
| 5101760    | mica tube 47,6x95                         | 1   |
| 5113268    | heating element 230V/2200W                | 1   |
| 6100284    | countersunk screw M4x12 TX                | 3   |
| 6100287    | hexagon nut M5                            | 1   |
| 6113695    | temperatur limit switch 135°C             | 1   |
| 6600596    | thermoelement                             | 1   |
| 6600601    | air filter                                | 1   |
| 6600606    | motor 230V SL                             | 1   |
| 6600607    | carbon brush                              | 2   |
| 6600612    | rubber ring                               | 1   |
| 6600613    | turbine housing lower part                | 1   |
| 6600614    | stripper                                  | 1   |
| 6600616    | countersunk screw M3x10 TX                | 4   |
| 6600622    | fillister head screw M4x10 TX             | 6   |
| 6600636    | turbine                                   | 1   |
| 6600637    | turbine                                   | 1   |
| 6600639    | handle                                    | 1   |
| 6600644    | connecting piece for cable sleeve         | 1   |
| 6600645    | turbine housing upper part with hole 1/4" | 1   |
| 6600646    | angled hose screw fitting                 | 1   |
| 6600647    | cable sleeve 290mm                        | 1   |
| 6600648    | hose screw fitting straight               | 1   |
| D - 2279   | plastic nut M16x1,5                       | 2   |
| D - 2399   | inductor Eron                             | 1   |

## Spare Parts Drive Unit

### DB045



| <b>Art.Nr.</b> | <b>Qty</b> | <b>Description</b>                      |
|----------------|------------|---|
| DB046          | 1          | Gear BSM 274                            |
| DB004          | 1          | Idler 8Z                                |
| DB005          | 1          | Gearwheel 21 Z                          |
| DB006          | 1          | Flat Gasket                             |
| DB007          | 2          | Cylinder Pin 4m6, 6x16 DIN7             |
| DB008          | 1          | Engine Flap KPL                         |
| DB009          | 1          | Ball Bearing 6000 C3 2 RS               |
| DB010          | 1          | Armature Winding BSM 270                |
| DB011          | 1          | Ball Bearing 608-2Z                     |
| DB012          | 2          | Raised Head Screw 3,9 x 70 DIN 7981 G   |
| DB013          | 1          | Air Plate                               |
| DB014          | 2          | Insulating Plate                        |
| DB017          | 4          | Spring Washer M5 DIN 7980 Satz 4 Stck.  |
| DB018          | 1          | Cheese Heat Screw M5 x 45 DIN 912       |
| DB019          | 2          | Cheese Heat Screw 2,9 x 9,5 DIN 7971    |
| DB022          | 1          | Raised Head Screw 3,9 x 19 DIN 7981 G   |
| DB023          | 1          | Handle BSM 270 green                    |
| DB025          | 1          | Stopper                                 |
| DB027          | 1          | Raised Head Screw 3,9 x 25 DIN 7981 G   |
| DB028          | 1          | Raised Head Screw 3,9 x 13 DIN 7981 G   |
| DB029          | 1          | Handgrip Black                          |
| DB030          | 1          | Switch ON-OFF                           |
| DB033          | 1          | Ball Bearing 626-2Z                     |
| DB034          | 1          | Shaft BSM 270 – 280                     |
| DB036          | 1          | Drive Unit BSM 270, 230 V, 800 W, green |
| DB037          | 1          | Capacitor 2007 BSM 270                  |
| DB038          | 1          | Field 230 V                             |
| DB039          | 1          | Motor Case Green                        |
| DB040          | 2          | Carbon Holder BSM 270                   |
| DB041          | 2          | Carbon Brush BSM 270                    |

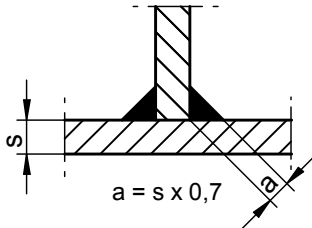


|          |   |        |            |   |   |   |                                 |
|----------|---|--------|------------|---|---|---|---------------------------------|
| 1        | 2 | 3      | 4          | 5 | 6   | 7 | 8                               |
| Änderung |   | Datum: | 20.09.2013 |   | DOHLE GmbH                                    |   | Blatt:                          |
| Datum    |   | Bearb. | Maus       |   | D - 53809 Ruppichteroth                       |   | Detail: Mainboard ExOn 2A       |
| Name     |   | Gepr.  |            |   | Tel. +49 2295 - 902960 Fax. +49 2295 - 902961 |   | Zeichnungsnummer: Stromlaufplan |
|          |   | Norm.  |            |   | Urspr.  |   | Erst. d.                        |
| 1        | 2 | 3      | 4          | 5 | 6   | 7 | 8                               |

## Welding Shoes

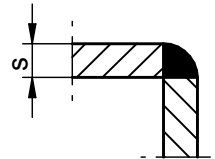
**s = thickness of material**

### fillet weld



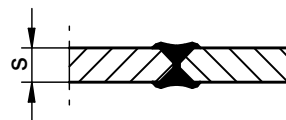
| thickness of material | order - no. |
|-----------------------|-------------|
| 5-8                   | D-0174      |
| 10-12                 | D-0175      |
| 15                    | D-0177      |
| 20                    | D-0178      |
| 25                    | D-0179      |
| 30                    | D-0180      |
| 35                    | D-0181      |
| 40                    | D-0182      |

### corner weld



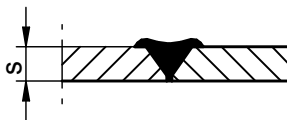
| thickness of material | order - no. |
|-----------------------|-------------|
| 5-8                   | D-0195      |
| 10-12                 | D-0196      |
| 15                    | D-0197      |

### X - weld



| thickness of material | order - no. |
|-----------------------|-------------|
| 10                    | D-0198      |
| 15                    | D-0199      |
| 20                    | D-0200      |
| 25                    | D-0201      |
| 30                    | D-0202      |
| 35                    | D-0203      |
| 40                    | D-0204      |

### V-seam

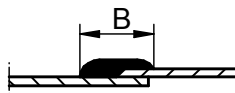


| thickness of material | order - no. |
|-----------------------|-------------|
| 5-8                   | D-0183      |
| 10                    | D-0184      |
| 12                    | D-0185      |
| 15                    | D-0186      |
| 20                    | D-0187      |
| 25                    | D-0188      |
| 30                    | D-0189      |
| 35                    | D-0190      |
| 40                    | D-0191      |

### welding shoe, round

|     | order - no. |
|-----|-------------|
| Ø15 | D-0600      |
| Ø20 | D-0366      |
| Ø25 | D-0337      |

### overlap weld



| width of weld B | order - no. |
|-----------------|-------------|
| 25              | D-0192      |
| 30              | D-0193      |
| 35              | D-0194      |
| 40              | D-0599      |

### welding shoe - unshaped

| size         | order - no. |
|--------------|-------------|
| 30 x 30 x 45 | D-0223      |
| 30 x 40 x 50 | D-0224      |
| 30 x 45 x 45 | D-0225      |
| 50 x 60 x 80 | D-0247      |
| 50 x 70 x 80 | D-0248      |
| Ø35          | D-0598      |

please require for shoes for special application