
BAK
Thermoplastic Welding Technology AG

Operating Instructions

HSX001 Hose extruder HS28



Machine type	HS28
Machine No.	
Power supply	3 x 400 V N/PE 50-60Hz
Extruder heating	2700 W
Air heating	3000 W
Extruder actuating system	4000 W
Airflow	300 l/min
Hot-profile heating	1100 W

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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 unit must ONLY be used to perform the tasks described in the operating Instructions.

These operating instructions should always be accessible by the operator.

For after-sales service and orders please contact:

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Safety:

This device conforms to the relevant VDE specifications. Operation of the machine requires 3 x 35A fuse protection + neutral + ground.

The extruder should be protected from damp and humidity.

The operation of this hose extruder is subject to the regulations in force at the place of use. Please ensure the full observance of all local rules with respect to accident prevention and industrial safety.

European Directive 92 / 57 / EEC of 24.6.1992 apply as relevant.

Utilisation:

The design and construction of these hose extruders conform to the latest available technology and relevant safety standards. Note that incorrect operation may result in injury to the user or third parties or in damage to the machine or other property.

This hose extruder may only be used in good technical condition and for the **intended purpose**, as described in the operating instructions.

The manufacturer / supplier will not accept any liability for any failure or damages if you don't follow the instructions.

Any utilisation of the hose extruder for other purposes than those for which it is intended needs permission of the manufacturer / supplier.

Work on electrical parts of the hose extruder may only be performed by an electrical engineer according to electro-technical rules.

Special risks:

The hose extruder should 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 flammable materials!

Safety area:

The hot air stream of the hose extruder should not be directed to temperature-sensitive objects or living things. Ensure that there is a safety distance of 2m in all directions.

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

Operation:

Never use the hose extruder without air supply.

In case of external air supply make sure that the feed line is of appropriated size.

The pressurised air that is supplied **must be free of oil and water**.

Overhead work:

Always wear suitable protective equipment (helmet, safety glasses, etc.) when working overhead.

Safety:

Check for correct nominal voltage, before connecting the hose extruder to the main voltage. Main voltage must be identical to the nominal voltage shown on the type plate of the hose extruder.

According to sec. 55 of VDE 0 100 the hose extruder 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 (approx. 60') – cross-section 5 x 2.5 mm²

Length up to 50 m (approx. 164') – cross-section 5 x 4.0 mm²

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

Stop operating the hose extruder if:

- connecting line or plug has been damaged
- safety installations has been damaged
- foreign objects or liquids have entered the hose extruder
- changes occur in the operating state

Never spray water on the hose extruder (risk of short circuit)

Never use the hose extruder in hazardous or flammable areas.

Start-up

General:

Read the notes on safety in these operating instructions. In addition, the regulations on the prevention of accidents and the national regulations should be considered.

Assembling the hose extruder for use

Our hose extruders are supplied virtually ready to operate. The only additional tasks required are to attach the heating hose and built-in welding head (supplied with unit) and to hook up the supply lines.

1. Start by fitting the heating hose with SW 32 union nut to the extruder flange.
Caution: The heating hose is filled with welding deposits. Do not bend or crease the hose unnecessarily.
2. Connect the welding-head supply lead (via 25-pin plug) to the machine.
3. Connect the heating hose supply lead (via 5-pin plug) to the machine.

Welding shoes

The machine is supplied with two blank welding shoes 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 welding shoes ready for use.

Start-up of the hose extruder without heating hose

Observe the Safety chapter of this manual.

Before operating the unit without a heating hose, first disconnect the heating hose from the welding-head and air hose.

Turn the machine master switch to OFF before connecting the unit to the power supply via the lead supplied (32A CE-type plug).

1. Note that the emergency OFF button is inactive (i.e. ON) when pulled out
2. Turn the master switch to ON.
3. Confirm the pressure display (DH044) by pressing the arrow buttons at the same time.
4. Press the button „Stop“ at the control panel „Drive“ (HS024).
5. Turn on the heating of the extruder cylinder.
6. If the temperature controller flashes green, the machine is ready to operate.

All the controllers have cold start protection. The machine can't be operated before achieving all set temperatures.

Running the unit without a heating hose

1. Fill the container with pellets

Important: The pellets must be clean, dry and free of metal particles or other foreign objects.

2. Reduce the mass output of the extruder to the min.
3. Start the extruder by pressing button „run“ on the control panel. Drive (HS024) and adjust the mass output to the desired setting with the integrated potentiometer.
4. End it with “Stop” on the control panel (HS024)

Start-up of the hose extruder with heating hose

Please observe the section on safety in these operating instructions.

Once you have carried out all the steps described above, turn the machine master switch to OFF and connect to the mains via the power cable supplied (32A CE-type plug).

1. Note that the emergency OFF button is inactive (i.e. ON).
2. When pulled out, turn the master switch to ON.
3. Confirm the pressure display (DH044) through pressing the arrow buttons at the same time.
4. Press the button „Stop“ and adjust the integrated potentiometer on the control panel (HS024) to min.
5. Turn on the heating, extruder (EXTRUDER/HEATER Z1-Z3), hose (HOSE Z4) and nozzle (DIE Z5).
6. If the temperature controller flashes green, the machine is ready to operate. All the controllers have cold start protection. The machine can' be operated before achieving all set temperatures. 15 minutes after achieving the set temperature the machine is ready to operate.
7. Press the button “run” on the control panel drive (HS024).
8. Adjust the potentiometer on the welding head to min.
9. Start the extruder by pressing the button on the handle.
10. Adjust the desired output by turning the potentiometer at the welding head.
11. Release the handle to finish.

Running the unit with a heating hose

1. Fill the container with pellets

Important: The pellets must be clean, dry and free of metal particles or other foreign objects.

2. Adjust on the control panel drive (HS024) the integrated potentiometer to min.
3. Press the button „Run“ on the control panel drive(HS024)
4. Start the extruder at the handle of the welding head.

Note: When the unit is in HEAD DEVICE mode, mass output can only be adjusted at the welding head. The potentiometer has to be adjusted on the control panel to min.

5. After about five minutes, the unit is sufficiently purged and can be adjusted – at the welding head – to the desired mass output setting (kg/h).
6. Turn on the heating for the pre-heating (Button D-2232 on the welding head)

Important: NEVER attempt to start or operate the machine without first filling it with enough pellets.

Fault indication

The machine is designed to give a number of different function and fault indications.

Maximum pressure exceeded

In order to protect the heating hose from over pressure, the machine is fitted with a pressure sensor (located between the extruder cylinder and heating hose). Over pressure can be produced by too low mass-temperature or an too high mass output setting.

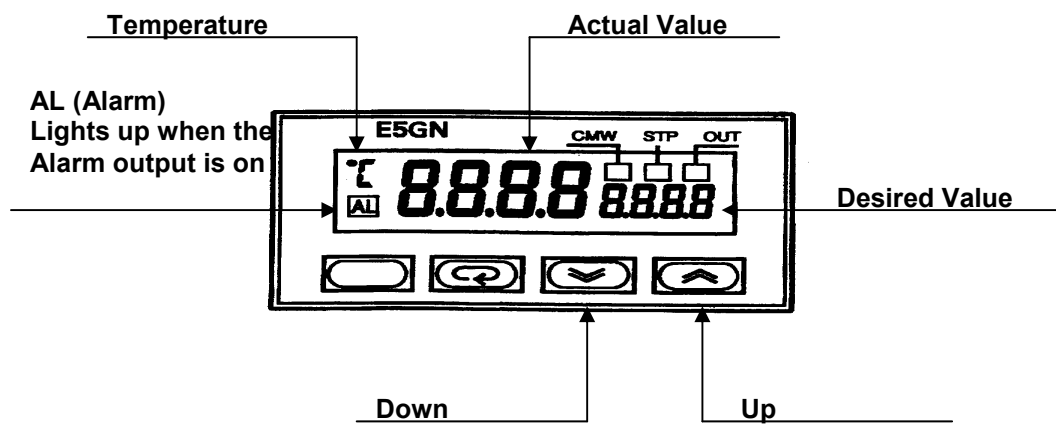
The pressure sensor is adjusted to a maximum setting of 285 bar. If this setting is higher, the main drive system shuts down. Whenever this happens, press the button “Stop” on the control panel drive (HS024) and adjust the potentiometer to min.

After this, press at the same time the arrow buttons “up and down” on the pressure display (DH044) and start the extruder again.

Notification controller front:

Display

Orange	heating up
Green	ready to operate
Red	excess temperature

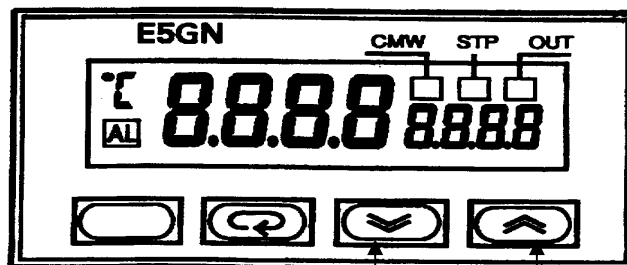
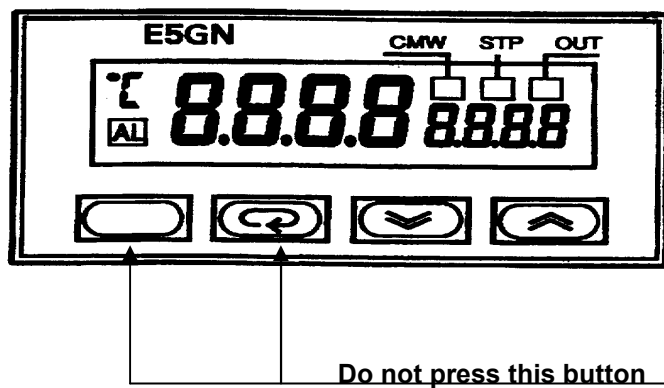


Control unit - adjustment of desired value

Only the desired value can be changed and all controllers are protected electronically against incorrect input.

Change of desired value:

The controller indicates the actual and desired temperature at the same time.
To adjust the desired value please follow these instructions:



Down button

Each press of this button decreases value displayed on the desired Value display
Holding down this button continuously decreases value.

Up button

Each press of this button increases values displayed on the desired Value display. Holding down this button continuously decreases value.

Changing the welding material

The use of a second heating hose is recommended if the welding material is changed (e.g. from PP to PE).

Note: DANGER OF BURN INJURIES. Proceed with great care when working with hot machine parts.

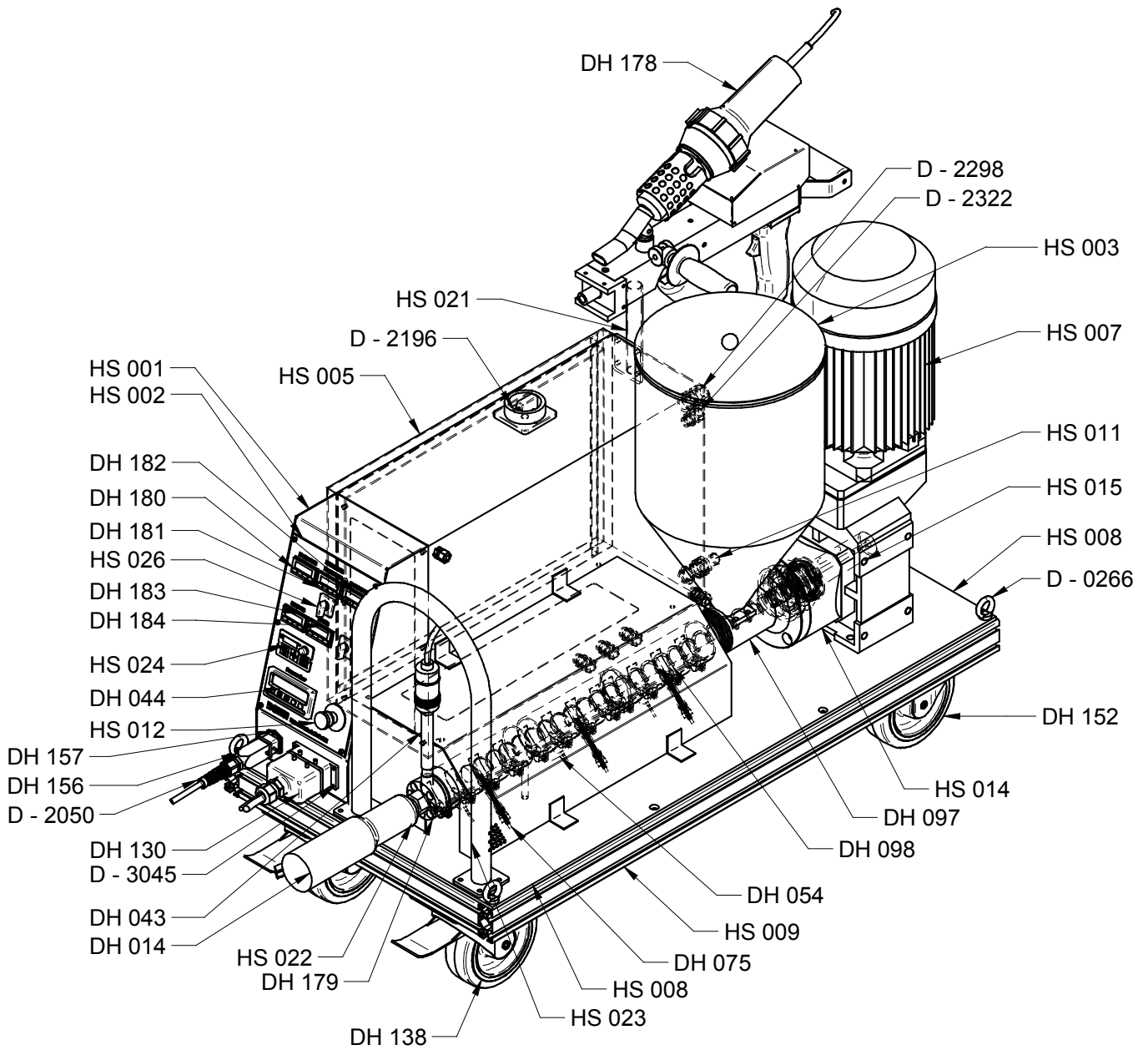
Shutting down the hose extruder

Stop the machine at the master switch – handle, place the welding head on the built in support provided for the purpose. Shut down the hot air at the welding head (blue button) and – after waiting 1-2 minutes – turn the machine master switch to OFF.

Note: The bare-metal parts can still be hot enough to cause burns 15 minutes after shutdown.

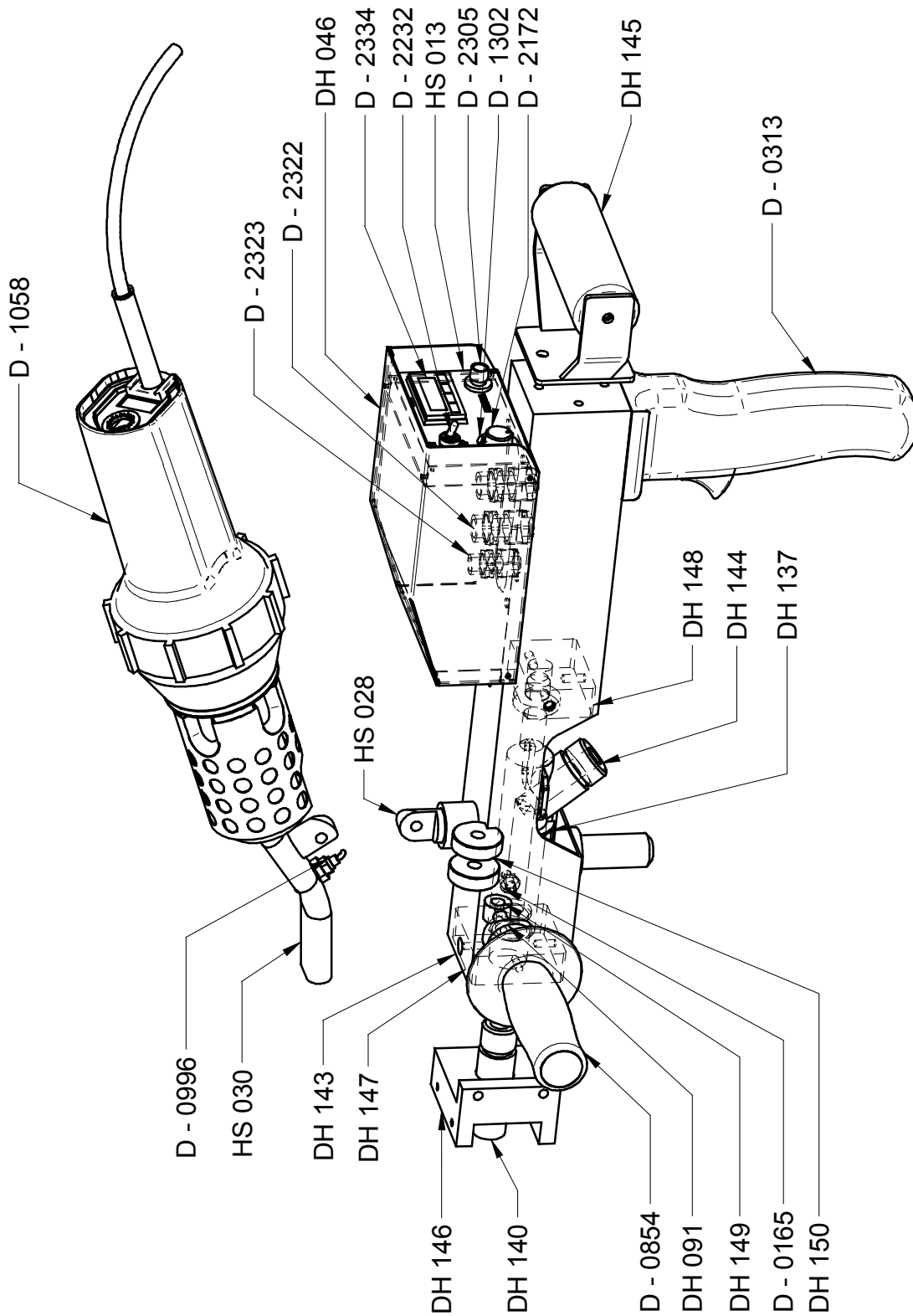
Important: DO NOT use water or similar artificial means to speed up the cooling process.

HSX001 Hose extruder HS28



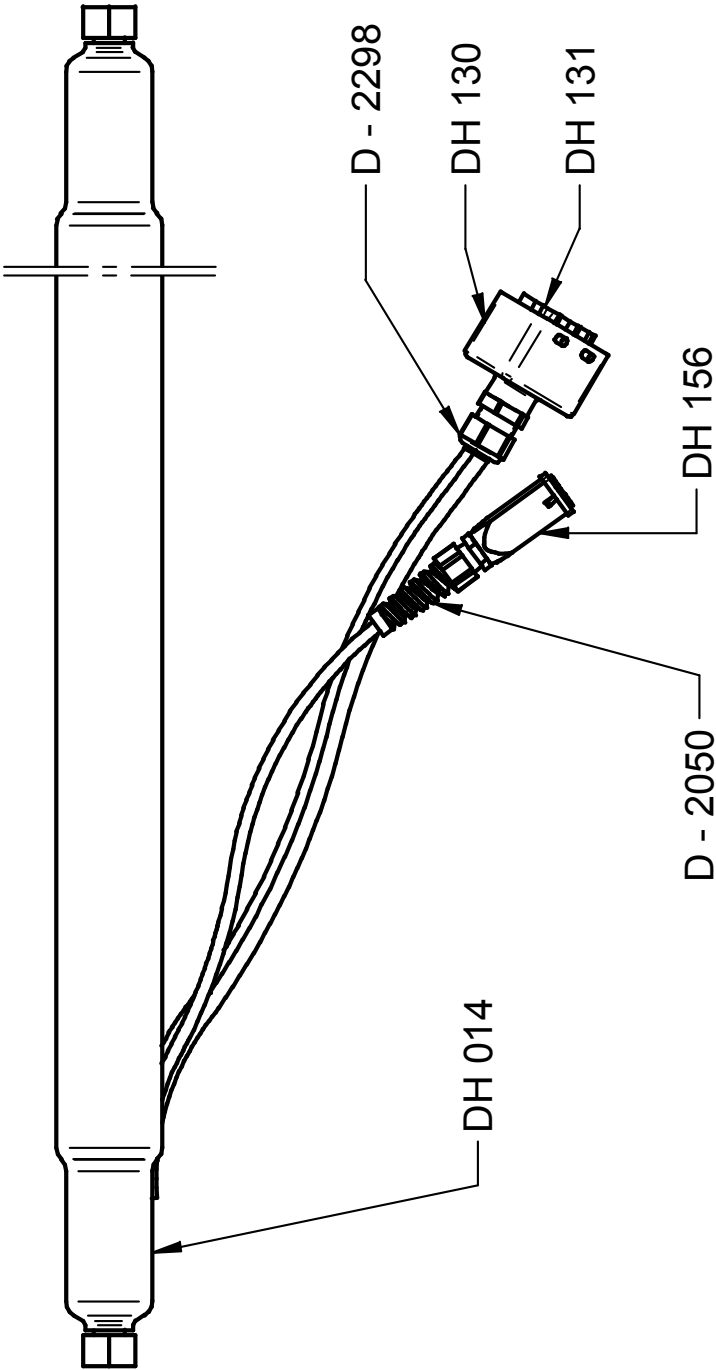
Article no.	Description	Quantity
D-0266	Ring screw	4
D-2050	Cable connection with bend protection	1
D-2196	Main switch	1
D-2298	Cable connection M25x1.5	2
D-2322	Cable connection M16x1.5	6
D-2323	Cable connection M12x1.5	1
D-3045	Extension housing	1
DH014	Heating hose	1
DH043	Pressure sensor	1
DH044	Pressure display	1
DH054	Strip heater HS28	3
DH075	Thermocouple	3
DH097	Cylinder HD28+HS28	1
DH098	Worm HD28+HS28	1
DH130	Housing	1
DH131	Pin application	1
DH138	Steering roller	2
DH152	Bracket roller	2
DH156	Plug heating hose	1
DH157	Extension housing 5 pol.	1
DH178	Welding head without hose	1
DH179	Flange	1
DH180	Controller zone 1 HS28	1
DH181	Controller zone 2 HS28	1
DH182	Controller zone 3 HS28	1
DH183	Controller zone 4 HS28	1
DH184	Controller strip heater nozzle HS28	1
HS001	Controlling desk HS28	1
HS002	Front plate HS28	1
HS003	Hopper HS28 complete	1
HS005	Control cabinet HW28	1
HS007	Gear motor	1
HS008	Mounting plate HS28	1
HS009	Frame HS28	1
HS011	Metal cable connection M20	1
HS012	Emergency stop HS28	1
HS014	Housing pressure gear	1
HS015	Drive shaft	1
HS021	Support handle	1
HS022	Protecting sheet	1
HS023	Clamp HS28	1
HS024	Control unit frequency convertor	1
HS026	Cam switch	2

DH178 Welding head



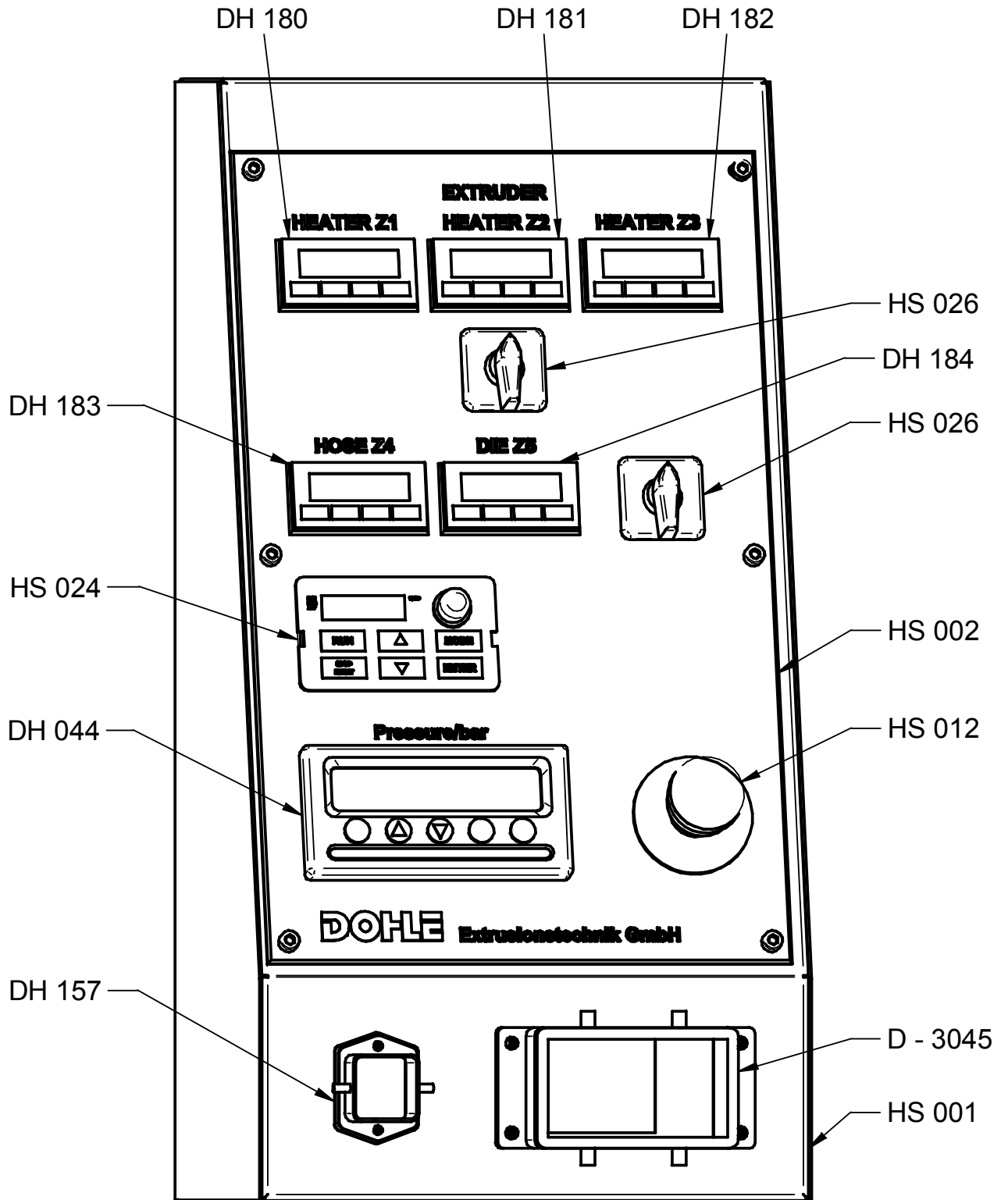
Article no.	Description	Quantity
D-0165	Thermocouple mass	1
D-0313	Handle AM11	1
D-0854	Handle	1
D-0996	Thermocouple air	1
D-1058	Eron SSR	1
D-1302	Scala potentiometer	1
D-2172	Potentiometer 220K	1
D-2232	Switch 1-pole 1502	1
D-2305	Security hold	1
D-2322	Cable connection M16x1.5	2
D-2323	Cable connection M12x1.5	1
D-2334	Controller air SSR	1
DH046	Controller housing	1
DH091	Pressure disc handle	1
DH137	Strip heater nozzle DH28+HS28	1
DH140	Nozzle DH28+HS28	1
DH143	Welding head DH28+HS28	1
DH145	Handle HD25	1
DH146	Bracket welding shoe	1
DH147	Thermal bearing 1	1
DH148	Thermal bearing head	1
DH149	Bolt handle	1
DH150	Disk handle	2
HS013	Front plate welding heat HS28	1
HS028	Pivot pin	1
HS030	Heater tube	1

Cable-hose assembly



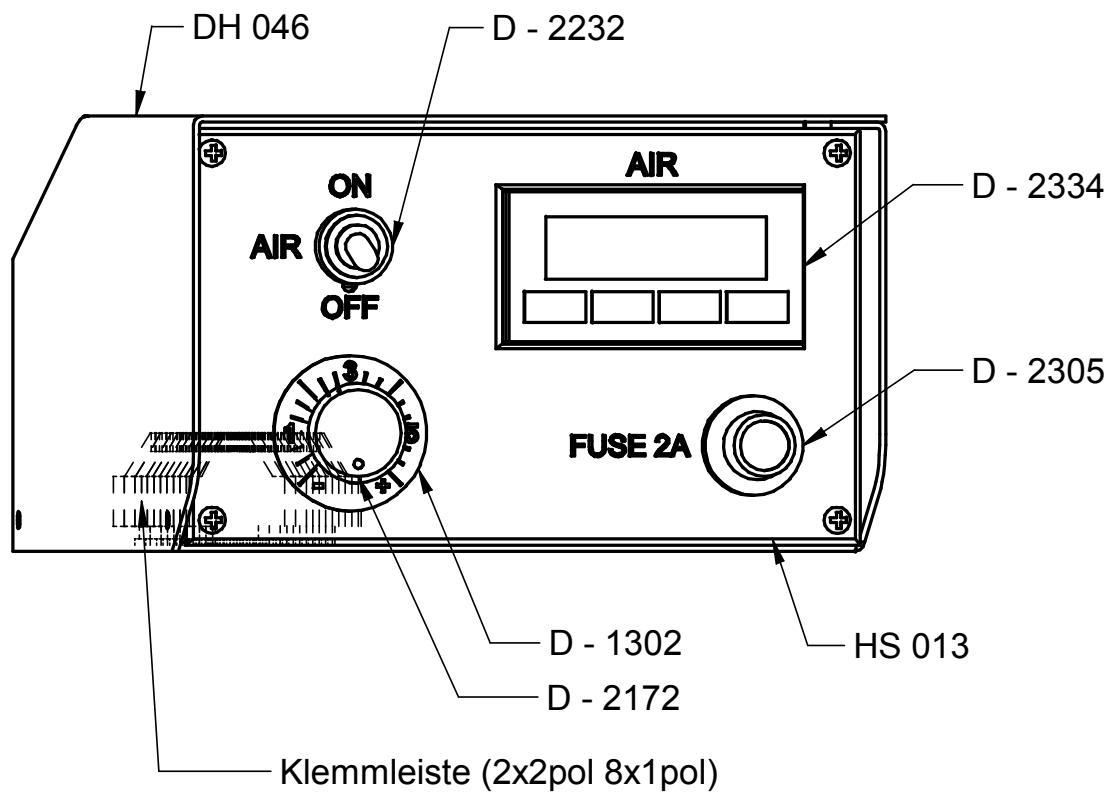
Article no.	Description	Quantity
D-2050	Cable connection with bend protection	1
D-2298	Cable connection M25x1.5	1
DH014	Heating hose	1
DH130	Housing	1
DH131	Pin application	1
DH156	Plug heating hose	1

View control panel control desk



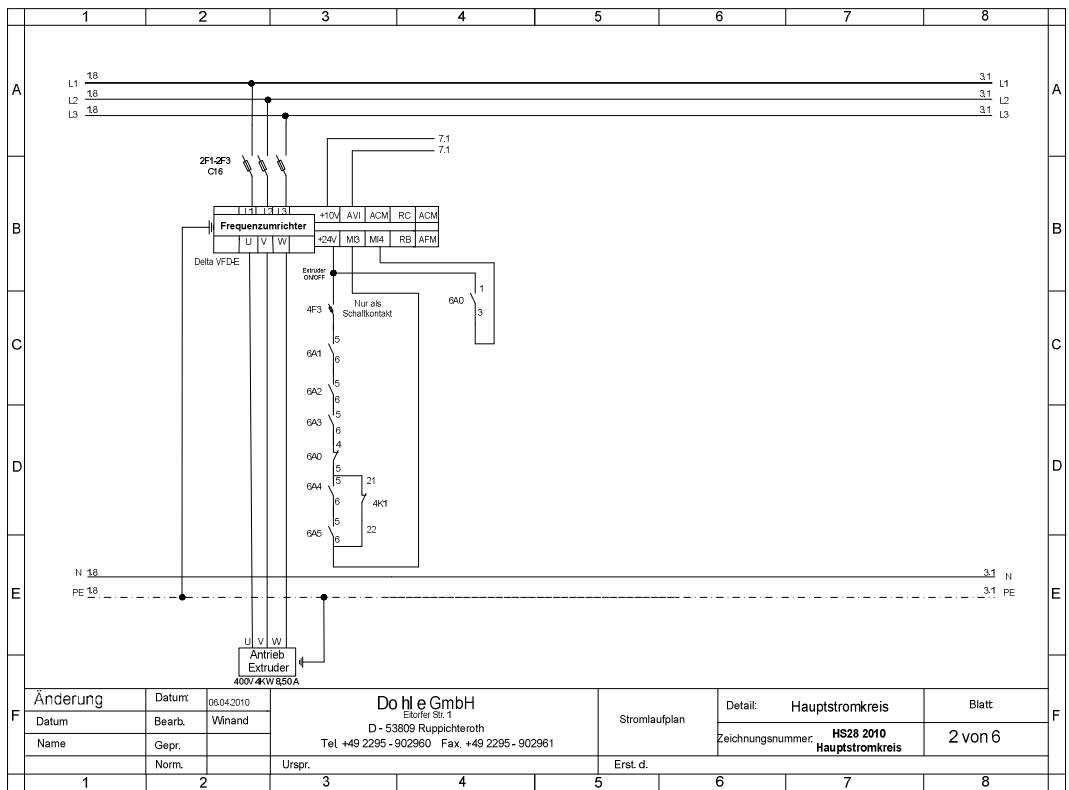
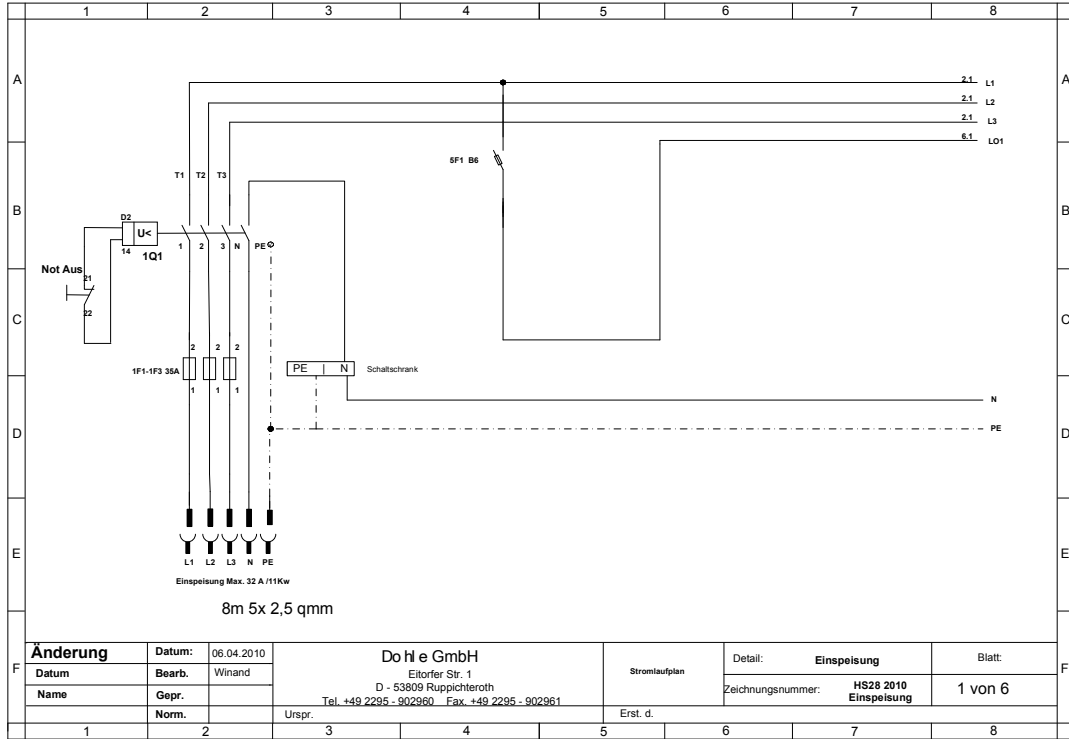
Article no.	Description	Quantity
D-3045	Extension housing	1
DH044	Pressure display	1
DH157	Extension housing 5 pol.	1
DH180	Controller zone 1 HS28	1
DH181	Controller zone 2 HS28	1
DH182	Controller zone 3 HS28	1
DH183	Controller zone 4 HS28	1
DH184	Controller strip heater nozzle HS28	1
HS001	Controlling desk HS28	1
HS002	Front plate HS28	1
HS012	Emergency stop HS28	1
HS024	Control unit frequency convertor	1
HS026	Cam switch	1

View Control panel Welding head



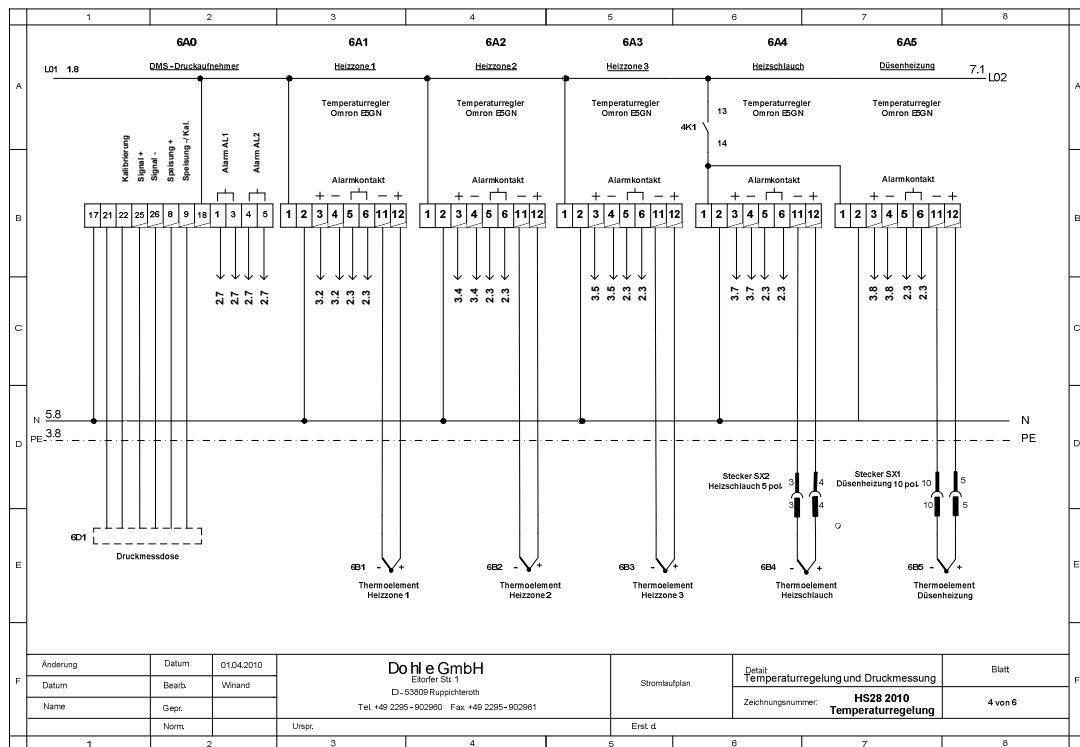
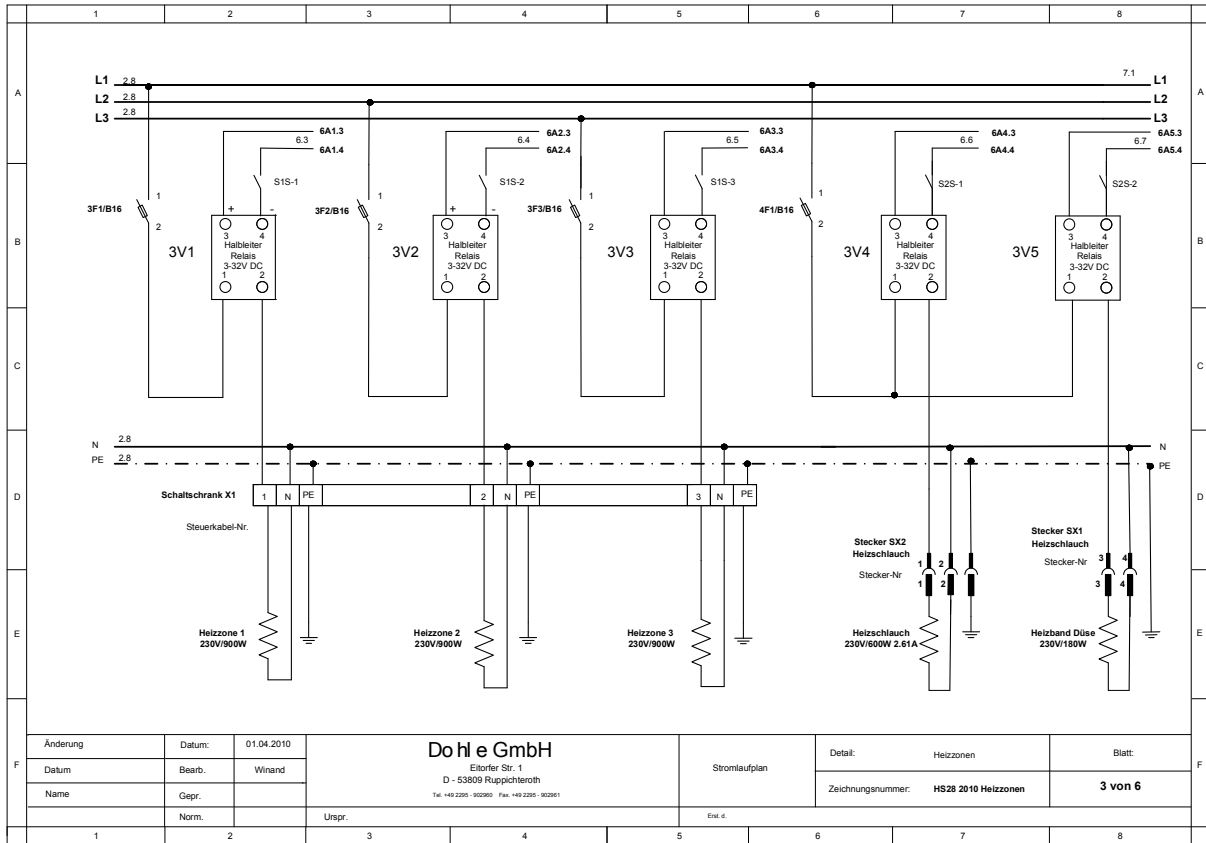
Article no.	Description	Quantity
	Clamp terminal (2x2pol, 8x1pol)	1
D-1302	Scala potentiometer micro	1
D-2172	Potentiometer 220K	1
D-2232	Switch 1-pole 1502	1
D-2305	Security holder	1
D-2334	Controller air SSR	1
DH046	Controller housing	1
HS013	Front plate welding head HS28	1

Bedienungsanleitung
DOHLE HeiSchlauchextruder HS28



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