

# INSTRUCTION MANUAL



## NXT200/250 DC



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# ENGLISH



## WARNING



Arc welding and cutting can be dangerous to the user, people working nearby, and the surroundings if the equipment is handled or used incorrectly. Therefore, the equipment must only be used under the strict observance of all relevant safety instructions. In particular, your attention is drawn to the following:

### Electricity

- The welding equipment must be installed according to safety regulations and by a properly trained and qualified person.
- Avoid all contact with live components in the welding circuit and with electrodes and wires if you have bare hands. Always use dry welding gloves without holes.
- Make sure that you are properly and safely earthed (e.g. use shoes with rubber sole).
- Use a safe and stable working position (e.g. avoid any risk of accidents by falling).
- Make sure that the welding equipment is correctly maintained. In the case of damaged cables or insulation work must be stopped immediately in order to carry out repairs.
- Repairs and maintenance of the equipment must be carried out by a properly trained and qualified person.

### Light and heat emissions

- Protect the eyes as even a short-term exposure can cause lasting damage to the eyes. Use a welding helmet with suitable radiation protection glass.
- Protect the body against the light from the arc as the skin can be damaged by welding radiation. Use protective clothes, covering all parts of the body.
- The place of work should be screened, if possible, and other persons in the area warned against the light from the arc.

### Welding smoke and gases

- The breathing in of the smoke and gases emitted during welding is damaging to health. Make sure that any exhaust systems are working properly and that there is sufficient ventilation.

### Fire hazard

- Radiation and sparks from the arc represent a fire hazard. As a consequence, combustible materials must be removed from the place of welding.
- Working clothing should also be secure against sparks from the arc (e.g. use a fire-resistant material and watch out for folds and open pockets).

### Noise

- The arc generates surface noise according to welding task. In some cases, use of hearing aids is necessary.

Use of the machine for other purposes than it is designed for (e.g. to unfreeze water pipes) is strongly deprecated. If occasion should arise this will be carried out without responsibility on our part.

**Read this instruction manual carefully  
before the equipment is installed and in operation**

## Electromagnetic emissions and the radiation of electromagnetic disturbances

This welding equipment for industrial and professional use is in conformity with the European Standard EN60974-10. The purpose of this standard is to prevent the occurrence of situations where the equipment is disturbed or is itself the source of disturbance in other electrical equipment or appliances. The arc radiates disturbances, and therefore, a trouble-free performance without disturbances or disruption, requires that certain measures are taken when installing and using the welding equipment. **The user must ensure that the operation of the machine does not occasion disturbances of the above mentioned nature.**

The following shall be taken into account in the surrounding area:

1. Supply and signalling cables in the welding area which are connected to other electrical equipment.
2. Radio or television transmitters and receivers.
3. Computers and any electrical control equipment.
4. Critical safety equipment e.g. electrically or electronically controlled guards or protective systems.
5. Users of pacemakers and hearing aids etc.
6. Equipment used for calibration and measurement.
7. The time of day that welding and other activities are to be carried out.
8. The structure and use of buildings.

If the welding equipment is used in a domestic establishment it may be necessary to take special and additional precautions in order to prevent problems of emission (e.g. information of temporary welding work).

Methods of reducing electromagnetic emissions:

1. Avoid using equipment which is able to be disturbed.
2. Use short welding cables.
3. Place the positive and the negative cables close together.
4. Place the welding cables at or close to floor level.
5. Remove signalling cables in the welding area from the supply cables.
6. Protect signalling cables in the welding area, e.g. with selective screening.
7. Use separately-insulated mains supply cables for sensitive electronic equipment.
8. Screening of the entire welding installation may be considered under special circumstances and for special applications.

# INITIAL OPERATION

## Mains connection

The machine should be connected to a mains supply and must be correctly earthed. After the mains plug has been connected to the mains the machine is ready for use. Please note that all cable connections must be made by authorised and qualified staff. Switch on and off the machine by means of the breaker on the rear of the machine.

## Configuration

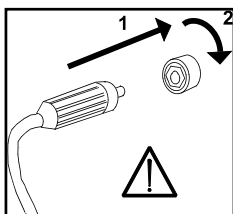
The manufacturer and supplier disclaim all responsibility for any damage caused or related to welding with undersized welding torches and/or welding cables. If in doubt contact your NEXUS distributor for recommended sizes and types.

## Gas connection

Connect the machine to the gas system by means of a gas regulator with flow control. Fit and secure the gas hose to the gas connection on the rear of the machine

## Important!

In order to avoid damage to plugs and cables, good electric contact is required when connecting the work return cable and welding torch to the machine.



## Connection of welding cables

Connect the welding cables and the return current cable to the front of the machine.

Please note that the plug must be turned 45 degrees after insertion into the socket - otherwise the plug can be damaged due to excessive contact resistance.

Connect always the TIG connection in the minus (-) socket and the return current cable in the plus (+) socket.

The control signals from the TIG torch are transformed to the machine through the circularly 7-pin plug. When the plug has been assembled please secure it by turning the "circulator" clockwise. Connect the gas hose to the quick connection.

**COATED ELECTRODES:** Electrodes are marked with a polarity on the packing. Connect the electrode holder in accordance with this marking to the plus or minus sockets of the machine.

## Connection of remote control

Connect the remote control unit on the 7-pin plug in the front of the machine. (OPTIONAL)

## Usage of the machine

When welding, a heating of various components of the machine takes place and during breaks these components will cool down again. It must be ensured that the flow is not reduced or stopped.

When the machine is set for higher welding currents, there will be a need for periods during which the machine can cool down.

The length of these periods depends on the current setting, and the machine should not be switched off in the meantime. If the periods for cooling down during use of the machine are not sufficiently long, the overheating protection will automatically stop the welding process and the yellow LED in the front panel will come on. The yellow LED switches off when the machine has cooled down sufficiently and is ready for welding.

## MAINTENANCE

Insufficient maintenance may result in reduced operational reliability and could invalidate guarantee.

The NXT welding machines require virtually no maintenance. However, exposure to extremely dusty, damp or corrosive air can be damaging to welding equipment.

### Periodically maintenance

In order to prevent problems arising, the following procedure should be observed at least once a year or as required.

- Disconnect the machine from the mains supply and wait 2 minutes before removing the covers.
- Clean the fan blades and the internal components in the machine with clean, dry, low pressure compressed air.

### Calibration

The machine has been calibrated at the factory. The certificate is valid for one year. If further maintenance, or re-calibration is required, please contact your NEXUS distributor or service department.

### 7 pin Plug connections

The functions of the 7 pin remote plug are as follows:

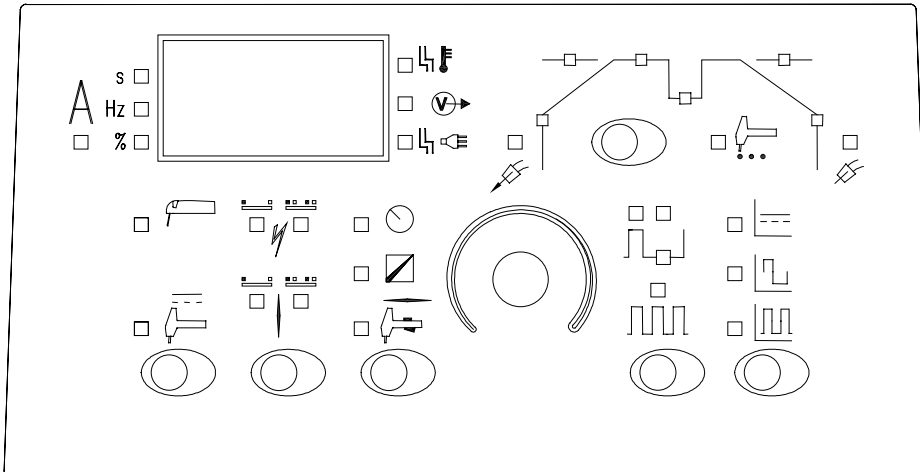
Pin 1	=	red, water cooling
Pin 2	=	black, torch switch
Pin 3	=	not connected
Pin 4	=	brown, water cooling
Pin 5	=	not connected
Pin 6	=	grey, torch switch
Pin 7	=	not connected

## TECHNICAL DATA

NXT200 DC	
Mains voltage	1x230 V
PFC (power factor correction)	Yes
Duty cycle 100 % TIG	150 A 40°C
Duty cycle 100 % MMA	130 A 40°C
Duty cycle 40 % TIG	200 A 40°C
Duty cycle 40 % MMA	170 A 40°C
Open circuit voltage	60 V
Current range TIG	7 – 200 A
Current range MMA	7 – 170 A
Dimensions (LxWxH) mm	205x345x475
Weight	19 kg

NXT250 DC	
Mains voltage	3x400 V
Duty cycle 100 % TIG	150 A 40°C
Duty cycle 100 % MMA	150 A 40°C
Duty cycle 35 % TIG	250 A 40°C
Duty cycle 35 % MMA	250 A 40°C
Open circuit voltage	65 V
Current range TIG	7 – 250 A
Current range MMA	7 – 250 A
Dimensions (LxWxH) mm	205x345x475
Weight	19 kg

# INITIAL INSTRUCTIONS



All "parameters" are set by the use of only one control knob. These parameters include current, pulse time, slope-up time, etc.

This control knob is positioned in the middle of the control panel. The digital display shows the value of the parameter being set. The unit of measurement of the parameter is shown on the left side of the digital display.

Selection of a parameter is by means of the relative keypad in the relevant section. The parameter selected is indicated by a bright indication light. Then turn the control knob to set the new value.

## Storage of parameters

The machine memorises all settings when switched off, thus ensuring that the same machine settings are available when the machine is switched on again.

Independent adjustments in the two welding processes (MMA and TIG) are stored as well, so that switching from one welding process to another does not require a new setting of parameters.




## Setting of the machine

The following describes in detail the operation of the machine.

### **Welding voltage**

The welding voltage indicator is illuminated for reasons of safety and in order to show if there is voltage at the output connectors.

### **Measurement**

   Units of measurement of the selected parameter.

### **Overheating**

The overheating indicator is illuminated if welding is interrupted due to overheating of the machine.

### **Input voltage variations**

The mains error indicator is illuminated if the mains voltage is more than 15% lower or higher than the rated voltage.

### **Welding process**

In this section it is possible to choose the welding processes:

- MMA electrode
- TIG DC

It is not possible to change welding process during welding.

### **Torch switch functions**

It is possible to choose between to different methods of ignition for TIG welding: High-Frequency (HF) and LIFTIG ignition. Moreover, it is possible to adjust the following parameters: slope-up, slope-down and second current level. It is not possible to change setting during welding.

### **HF-ignition:**

In HF-TIG ignition the TIG arc is ignited without contact. A high-frequency (HF) impulse initiates the arc when the torch trigger is activated.

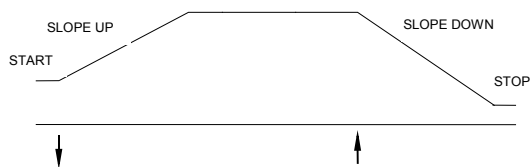
The HF will not arise and the machine will stop if the electrode is in contact with the workpiece. Detach the electrode and start again.

### **LIFTIG-ignition:**

In LIFTIG ignition the TIG arc is ignited after making contact between the workpiece and the tungsten electrode, after which the trigger is activated and the arc is established by lifting the electrode from the workpiece.

### **Two-times:**

The welding process begins by pressing the torch trigger. Welding continues until the trigger is released again which effects the slope-down period.

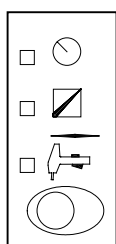
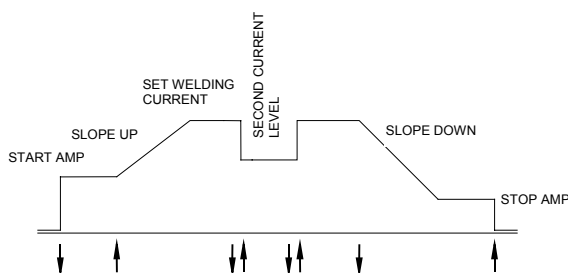


**Four-times:**

The welding process begins by pressing the torch trigger. Releasing the torch trigger during gas pre-flow activates the slope-up period. If the torch trigger is released during the slope-up period welding continues with the adjusted welding current. In order to stop the welding process the trigger must be pressed again for more than 0.5s after which the slope-down period begins. The slope-down period can be stopped by releasing the trigger. Thereafter the post-flow starts.

**Second current level**

This function is active only when in 4-times. During welding it is possible to select this second current level by pressing and releasing very quickly the torch trigger. It is possible to return to the main current level by repeating the operation on the torch trigger. If the torch trigger is pressed for more than 0.5 sec. the slope-down period will start.



**Adjustment of welding current**

In this section method of adjustment of welding current can be selected.

Torch adjustment is not possible during MMA welding.



**Internal adjustment**

The knob corrects directly the value shown in the display.



**Foot adjustment**

With this selection the machine will go automatically in two-times. The foot control will allow to start the arc and to adjust the current. The maximum current reachable is the level previously adjusted on the front panel. The actual current is shown on the display.



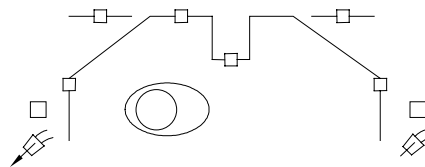
**Torch adjustment**

The regulation of welding current is made by means of the torch potentiometer (optional).

**TIG welding**

The parameters can be adjusted with the knob after they are shown on the display.

Press the relative key to select the parameter. The relevant LED will alight.



**Pre-flow [s]:**

Pre-flow is the period of time for which gas flows after the torch switch is pressed and before the HF arc is established, or until the torch is lifted away from the workpiece in the LIFTIG process. Variable 0-10 sec.



**Start Amp [A%]:**

Immediately after the arc has been established, the machine regulates the welding current to the value stated in the Start Amp parameter. Start Amp is set as a percentage of the required welding current and is variable between 10-200% of the welding. Please note that values bigger than 100% generate a Start Amp bigger than welding current.



**Slope-up [s]:**

Once the arc has been established, the welding process enters a slope-up stage during which the welding current is increased in linear fashion from the value stated in the Start Amp parameter to the required welding current. The duration of this slope-up time is variable 0-25 sec in steps of 0.1 sec.



**Welding current [A]:**

From 7A to 200A or 250A depending on the machine model.



**Second current level**

Adjustable from 10 to 200% of welding current. It is activated in four-times by pressing and releasing quickly the torch trigger. Please note that values bigger than 100% generate a second current bigger than welding current.



**Slope-down [s]:**


When welding has stopped by activating the trigger, the machine enters a slope-down stage. During this stage current is reduced from welding current to Stop Amp over a period of time called the slope-down time and variable 0-25 sec in steps of 0.1 sec.

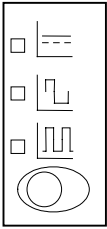


**Stop Amp [A%]:**

The slope-down stage is completed when the current level has fallen to the value stated in the Stop Amp parameter. Stop Amp is stated as a percentage of the required welding current and is variable between 10-90% of the welding current.

**Post-flow [s]:**

 Post-flow is the period of time for which gas flows after the arc is extinguished and is variable 0-20 sec.



**Pulse welding**

In this section it is possible to choose between no pulse, slow pulse and fast pulse.



**No pulse**

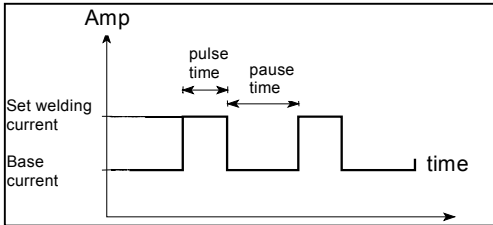
Welding with no pulse has been selected. The pulse parameters cannot be activated.



**Slow pulse:**

It is possible to adjust:

- Pulse time (s)
- Pause time (s)
- Base amp [A%]

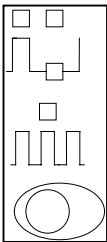


**Fast pulse:**

It is possible to adjust

- Base amp [A%]
- Pulse frequency [Hz]

The pulse time and the pause time will be equal.



**Slow pulse parameters:**

The following parameters can be selected in this section:



**Pulse time:**

Adjustable from 0.1 to 10s in steps of 0.1sec



**Pause time:**

Adjustable from 0.1 to 10s in steps of 0.1sec



**Base amp:**

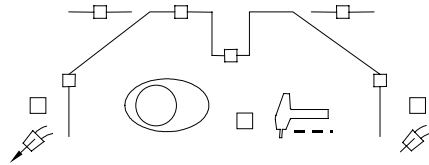
Adjustable from 10 to 90% of the pulse amp

**TIG spot welding**

It is possible to store a spot welding program to allow a quick switch from welding to spot welding. In this mode the following features will be available:

- Arc ignition HF 2-times
- No slope-up/slope-down
- Pre-flow 0.2 sec
- No pulse

The spot welding program is selected by pushing this keypad for 3 sec:



The LED indicated the TIG torch will alight: it is now possible to adjust the spot welding current. To return to welding program push this key again.

**MMA electrode welding**

Hot Start and Arc Force are fixed functions and not adjustable.

**Reset**

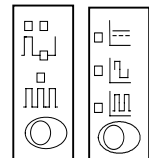
It is possible to recall all factory standard parameters. In this case the program of the machine will be TIG DC, 2-times, HF with the following parameters:

- MMA current 80A
- TIG Current 80A
- TIG Spot Current 80A
- Pre-flow 0.2 sec
- Post-flow 3.0 sec
- No slope-up/slope-down
- Start amp 40%
- Stop amp 20%
- Second Current level 50%
- Base amp 50%
- Fast pulse frequency 100Hz
- Pause time = Pulse time = 0.1 sec

The Reset procedure is as follows:

Switch off the machine and wait until display is extinguished.

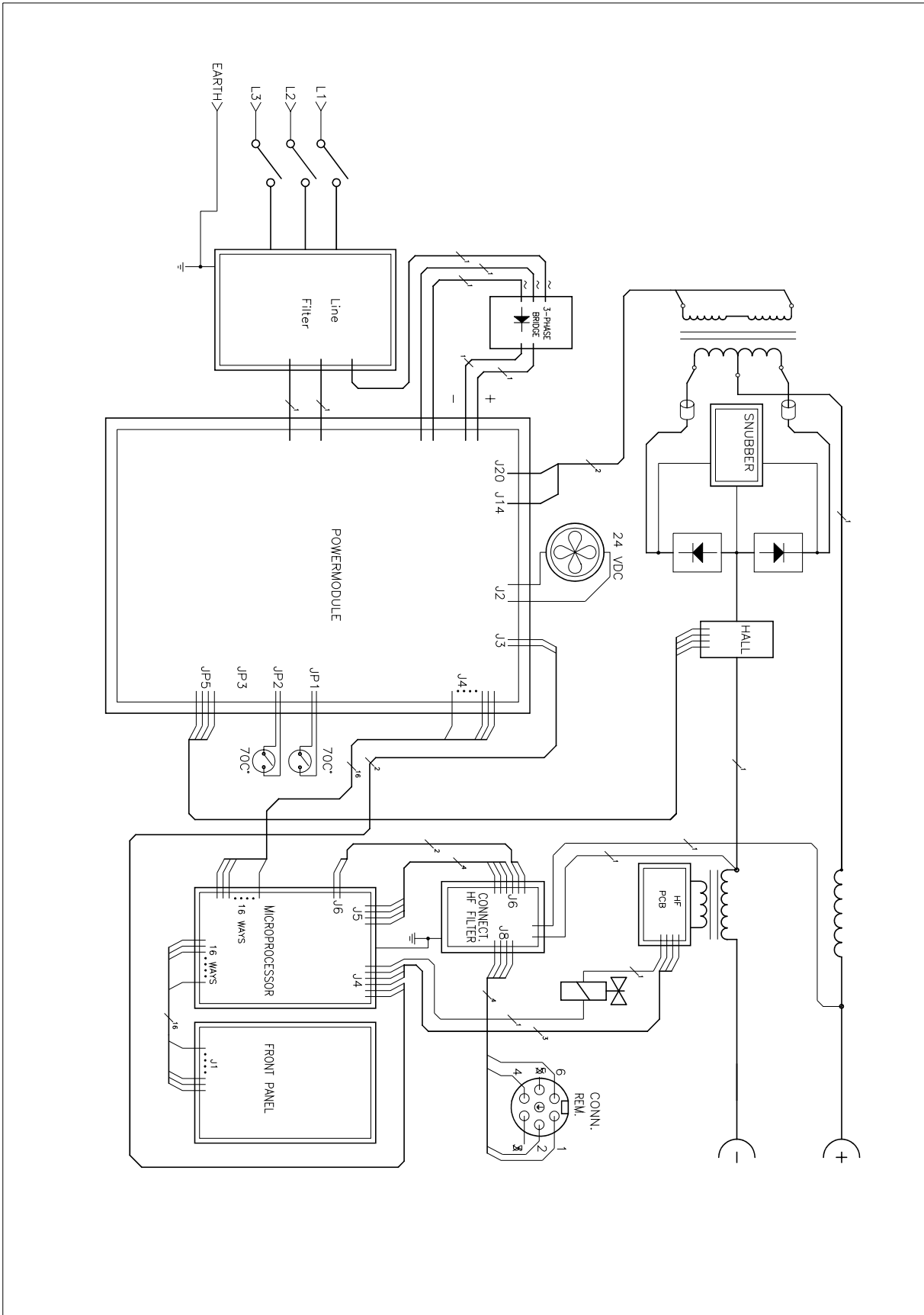
Press the following keypads simultaneously:



Switch on the machine and keep the above keys pressed until the display shows "80". Then release the keys.



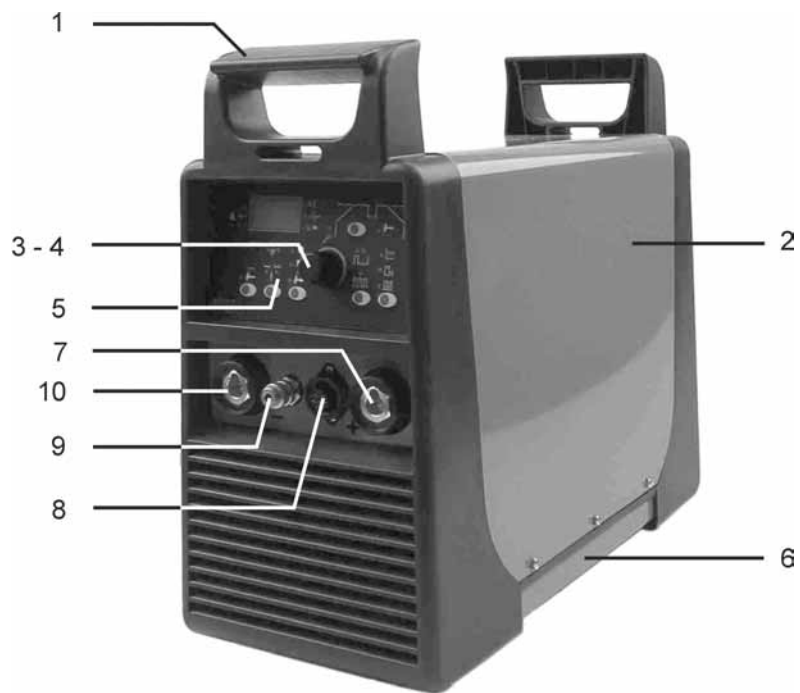
# NXT250 DC



# **SPARE PARTS LIST**

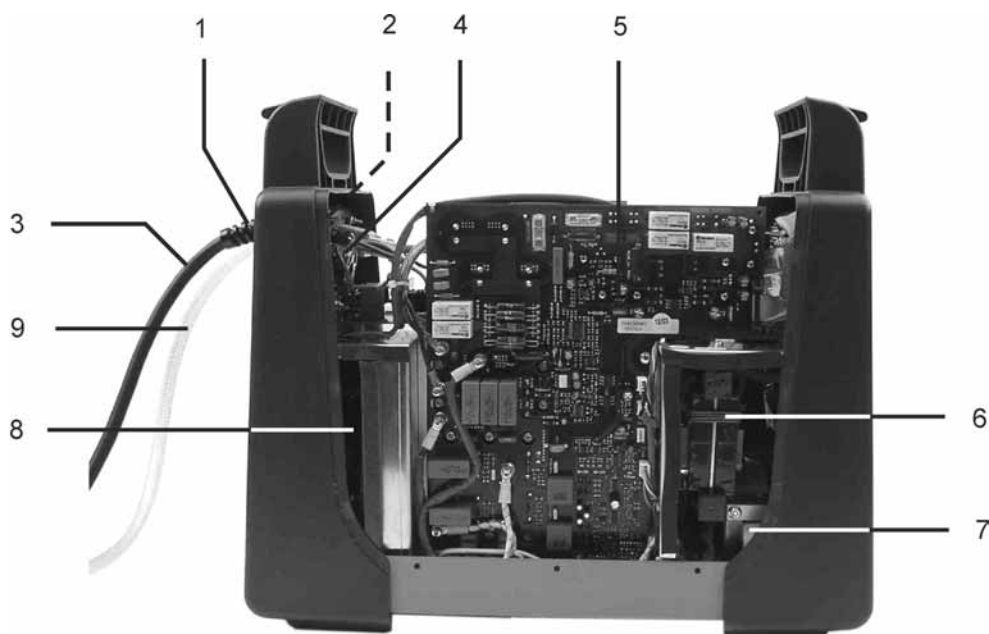
## **NXT200/250 DC**

## NXT200/250 DC



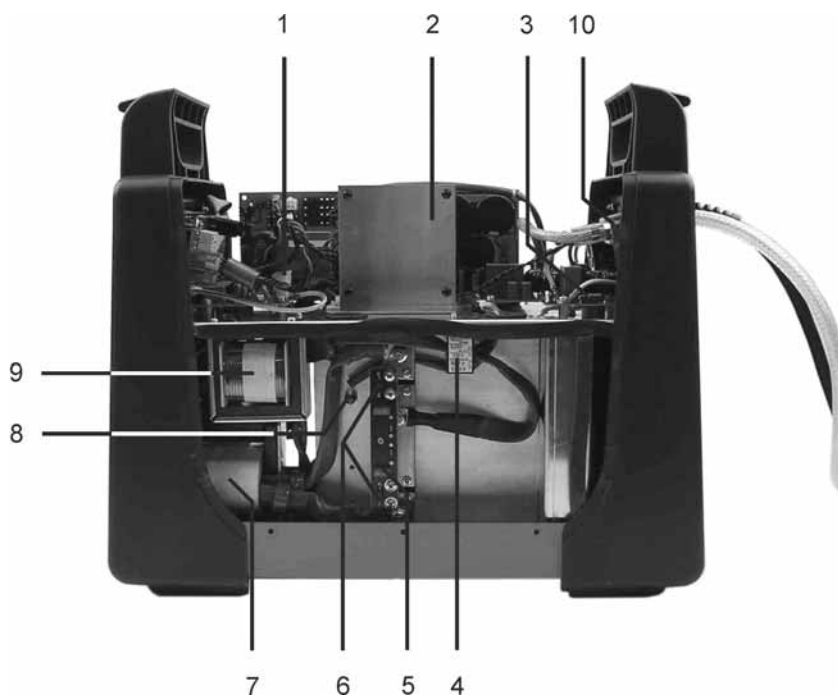
Pos.	No.	Description of goods
1	45050303	End cover
2	61113340	Chassis cover
3	18509026	Button
4	18509023	Cover for button
5	76117009	Control box NXT200
5	76117011	Control box NXT250
6	45050302	Edging
7	18110002	Dinse coupling socket
8	74471219	Wire harness with 7-pole plug
9	43120015	Quick clutch with valve $\varnothing$ 6mm
10	18110008	TIG-connection

## NXT200/250 DC



Pos.	No.	Description of goods
1	18480023	Mains input cable entry grommet
2	18480024	Nut M13.5 for cable entry grommet
3	74233055	Mains supply cable 3x2.5mm <sup>2</sup> , NXT200
3	74233060	Mains supply cable 4x1.5mm <sup>2</sup> , NXT250
4	17250072	Switch 2-pole, NXT200
4	17250073	Switch 3-pole, NXT250
5	71617001	Power PCB, NXT200
	12125043	Module PFC, NXT200
	12125044	Module inverter, NXT200
5	71617012	PCB, NXT250
	12125035	1200V IGBT full-bridge, NXT250
6	16160127	Transformer HF
7	16160129	Choke, NXT200
8	17300043	Fan, NXT200
8	17300045	Fan, NXT250
9	74120010	Gas hose, 2.7m

## NXT200/250 DC



Pos.	No.	Description of goods
1	71617006	Filter PCB HF
2	71617011	HF PCB NXT 200
2	71617002	HF PCB NXT 250
3	71617008	Mains filter PCB, NXT200
3	71617013	Mains filter PCB, NXT250
4	16170017	Current sensor
5	71617009	Snubber PCB
6	12220206	Diode isotop, 400V 2x100A
7	16160131	Transformer, NXT200
7	16160134	Transformer, NXT250
8	74471217	Wire harness, thermal fuse
9	16160128	Coil, NXT200
10	17230015	Solenoid valve
	12260008	Rectifier bridge, NXT250
	16160129	Choke, NXT250



