

NÁVOD K OBSLUZE / SVAŘOVACÍ STROJ CZ

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USER MANUAL / WELDING MACHINE EN

BEDIENUNGSANLEITUNG / SCHWEIßGERÄTE DE

INSTRUKCJA OBSŁUGI / URZĄDZENIE SPAWALNICZE PL



FÉNIX 200 PFC

MADE IN EU CE

ENGLISH

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Introduction

Dear Customer, Thank you for your trust and the purchase of our product.



Before starting up, please read all the instructions in this manual carefully to let you know about this device.

It is also necessary to read all the safety regulations in the enclosed document „Safety instructions and maintenance“.

For the most optimal and long lasting usage you have to strictly follow instruction for operation and servicing which are mentioned here. In your interest we recomend you to keep the servicing and possible reparation to put into our service organization because has available equipment and specially trained staff. All our machines and equipment are subject of long lasting development. That is why we reserve the right adjust their production and equipment.

Description

FĒNIX 200 PFC machines are welding inverters for industrial and profesional usage made for welding by MMA (coated electrode) and TIG (welding in protective atmosphere of non-consumable electrode) method with touch start. They are source of welding current with step characteristic. The machines are equipped with strap for easy handling and easy wearing. Welding inverters are constructed with using high-frequency planar transformater with a ferrite core and the latest MOSFET generation of transistors, used in advanced pseudo-re-

Table 1

Technical data		FĒNIX 200 PFC
Input voltage 50/60 Hz	[V]	1x230 (-40 %; +15 %)
Welding current range	[A]	10 - 200
Output voltage	[V]	88
Duty cycle	[A]	200
Duty cycle 60 %	[A]	165
Duty cycle 100 %	[A]	140
Protection char. D	[A]	20
Network current 60 %	[A/kVA]	21,9 / 5
Protection class		IP 23 S
Coupler		35 - 50
Recommended type of torch		KTB 17 V
Dimensions LxWxH	[mm]	425 x 112 x 225
Weight	[kg]	6,2

sonant topology. They are equipped with a number of modern electronic functions such as HOT START for easy arc ignition, SOFT START for slow increase in current when used on generator or undersized protection, ANTI STICK - limiting the possibility of sticking electrodes or ARC-FORCE - additional energy for shortening the arc. The available functions are TIG PULSE, TIG DOWN SLOPE and TIG END CURRENT. Last but not least the machines are equipped with a safety system V.R.D. and turning off while the overvoltage in network. With the exception which were mentioned, all functions are adjustable for a perfect fit to a particular mode of welding conditions and preferences welder.

Machines are specially made for production, maintenance, on assembly or workshops.

Welding machines are in compliance with relevant standards and regulations of European Union and the Czech Republic.

Installation

The installation site for the system must be carefully chosen in order to ensure its satisfactory and safe use. The user is responsible for the installation and use of the system in accordance with the producer's instructions contained in this manual. The manufacturer is not responsible for damages caused by improper use and handling. Machines must be protected from moisture and rain, mechanical damage, drafts and any possible ventilation of neighbor machines, excessive overloading and by rough handling.

Before installing the system the user must take into consideration the potential electromagnetic problems in the work area. In particular, we suggest that you should avoid installing the system close to:

- Signalling, control and telephone cables
- Radio and television transmitters and receivers
- Computers and control and measurement instruments
- Security and protection instruments

Persons fitted with pacemakers, hearing aids and similar equipment must consult their doctor before going near a machine in operation. The equipment's installation environment must comply to the protection level of the frame i.e. IP 23 S. The system is cooled by means of the forced circulation of air, and must therefore be placed in such a way that the air may be easily sucked in and expelled through the apertures made in the frame.

Connection to the electrical supply

Before connecting the welder to the electrical supply, check that the machines plate rating corresponds to the supply voltage and frequency and that the line switch of the welder is in the „0“ position.

Connection to the power supply must be carried out using the four polar cable supplied with the system, of which:

- 2 conducting wires are needed for connecting the machine to the supply
- the fourth, which is YELLOW GREEN in colour is used for making the „EARTH“ connection

Connect a suitable load of normalised plug (2p+e) to the power cable and provide for an electrical socket complete with fuses or an automatic switch. The earth terminal must be connected to the earth conducting wire (YELLOW-GREEN) of the supply.

NOTE: Any extensions to the power cable must be of a suitable diameter, and absolutely not of a smaller diameter than the special cable supplied with the machine.

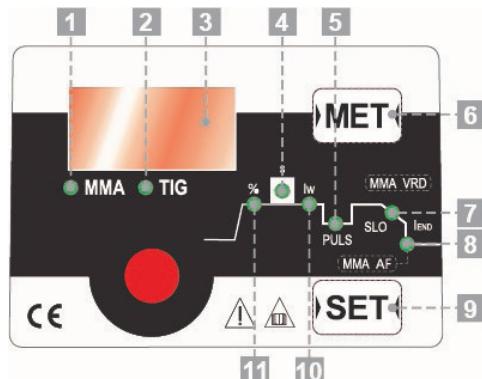
WARNING: While using the machine on higher welding current, the power take off may exceeds 16 A. In this case it is necessary to change the default supply plug for industrial plug with 20 A protection. At the same time this protection must be in accordance with implementation and protection in the distribution of electricity. Other methods of connection are fixed connection to separate circuit (such circuit must be protected by circuit-breaker or fuse max. 25 A), or connection to three-phase network 3x400/230 V TN-C-S (TN-S).

In case of connection to three-phase network, the 5-pin plug 32 A must be used. Phase conductor - black (brown) connect in the plug to one of clamp marked L1, L2 or L3. Null conductor - blue - connect to clamp marked (N), white/green conductor connect to clamp marked (Pe). This way modified supply cable of the machine can be plugged to the three-phase socket outlet, which must be protected by circuit-breaker or fuse max. 25 A.

WARNING: Machine may not be connected to interlinked voltage (i.e. voltage between two phases). In this case the machine may be damaged. Such modifications could be made only by competent person with electro-technical qualification.

Control apparatus

Picture 1



- Position 1 LED diode signal a chosen welding methode - MMA.
- Position 2 LED signal a chosen welding methode - TIG.
- Position 3 Display shows the set value.
- Position 4 LED signalize a set value for keeping function of HOT START (only for MMA methode) – the duration of function HOT START is possible to set in range of 0-2 seconds.
- Position 5 LED signalised setting values welding current pulse frequency (for TIG method) can be set from 0 to 500 Hz.
- Position 6 MET button to select the method of MMA (stick electrode) or TIG.
- Position 7 LED signalised setting values welding current run - for TIG, in MMA method this diode signalizing the security features VRD.
- Position 8 LED signalising of activation ARC FORCE (only for MMA method) or setting the value ending welding current (for TIG).
- Position 9 SET button for selecting of each function (check of the set value or its change)
- Position 10 LED indicating the setting values of welding current (common for MMA and TIG).
- Position 11 LED indicating the setting values of welding current (common for MMA and TIG). LED signalising setting values for HOT START (only for MMA method) - the percentage increasing in the welding current at the beginning of the welding process. Function % HOT START can be adjusted between 0 (function disabled) to increase the maximum starting current of 100 %. (Maximum of 200 A). The function SOFT START can be regulated in the interval from 0 (the function is switched off) to the maximum diminishing of the starting current, i.e. 90 % (the minimal starting current is 10 A).

Picture 2



- Position 1 Main switch. In position „0“ the welding machine is OFF.
- Position 2 Power cord.
- Position 3 Quick minus pole.

- Position 4 Quick plus pole.
- Position 5 Remote connector.
- Position 6 Encoder control.
- Position 7 Digital panel.
- Position 8 A switch for use with a generator. In the „0“ position, the function is active.

Connection of the welding cables

With the machine disconnected from the supply, connect the welding cables, welding torch and earth-cable. The polarity must be chosen according to welding method. For MMA method the polarity determines the producer of electrodes according to their type. The welding cables should be as short as possible, close to each other, and positioned at floor or close to it.

Welding part

The material which should be welded, must always be connected to the ground for reducing of electromagnetic radiation. Special attention must also be given to grounding of the welding material to not increase the risk of injury or damage to other electrical equipment.

Setting of the welding parameters

Start the machine (restart from the MMA method)

After turning the machine is first shown on the display for about 2 seconds status of security functions V.R.D. (ON/OFF). Afterwards, a function for limiting the maximum consumption of current from the power supply is displayed for ca. 2 s.: F4 - F30. During this state, it is possible to regulate the function with the help of an encoder knob. When setting the „F30“ parameter, the device works without limiting the output. After that is displayed for another 2 seconds setting of the function ARC FORCE: AF0 - function is off, AF1 - additional energy for shortening the arc 50 %, AF2 - additional energy for shortening the arc 100 %. During this condition is possible between different settings to choose ARC FORCE rotary encoder. Then is shown the set current welding size and signaling method MMA.

Starting the machine (restart from the TIG method)

After switching on, a function for limiting the maximum consumption of current from the power supply is displayed for ca. 2 s: F4 - F30. During this state, it is possible to regulate the function with the help of an encoder knob. When setting the „F30“ parameter, the device works without limiting the output. After that, the set level of welding current and signalization by the TIG method are displayed.

Setting of the welding method

After turning the machine back to the last selected welding method before shutting down. Press the button MET (pos. 6, pic. 1), you can choose the second method of welding.

Setting of welding parameters for individual methods

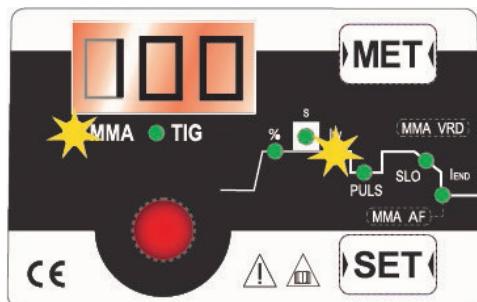
Possibility of adjustment parameters for MMA method:

- welding current 10 - 200 A
- increase the value of starting current HOT START 0 - 100 % welding current, max. 200 A
- reduction the value of starting current SOFT START 0 to -90 % welding current with continuous increase
- starting time of the activity current 0 to 2,0 s

MMA method

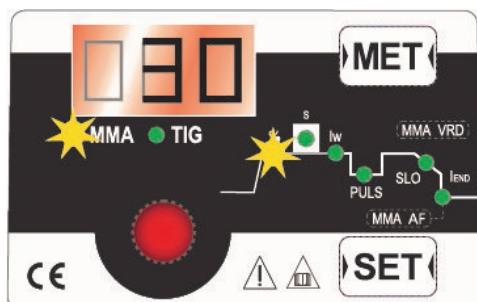
- setting of the welding current

After the setting any parameter after a period of inactivity machine always returns to the default state when „ I_w “ LED lights up and the display shows the size of the welding current. Rotary encoder (pos. 6, pic. 2) can directly set required value of welding current.



Method MMA - setting of value HOT START

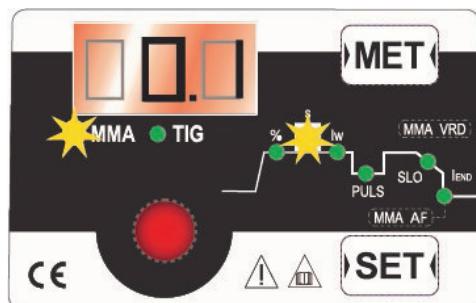
Press button SET (pos. 9, pic. 1) until LED „%“ (pos. 11, pic. 1) is on as in the picture. Set up required value of current increase in % with a potentiometer (pos. 6, pic. 2). If there is value 30 on the display it means increase of start current by 30 %.



MMA method

- setting of the time value of HOT START

Press the SET button (pos. 9, pic. 1), to light up with (pos. 4, pic. 1) as shown on the picture. Rotary encoder (pos. 6, pic. 2) set the required value duration HOT START.



EXAMPLE:

1. When the set welding 100 A (lights LED „ I_w “ pos. 10 pic. 1 and LED „MMA“ pos. 1, pic. 1), display shows 100 (100 A).
2. By pressing the SET button LED „%“ light up (pos. 11, pic. 1). It is possible to set the value of the starting current - HOT START for example about 50 % higher (set on the display by potentiometer 50). Final „starting current“ is 150 A. Function HOT START is possible to turn off by setting on 0 %.
3. Again by pressing the SET button with LED (pos. 4, pic. 1). It is possible to set the value of an encoder activation period starting current - eg 0.2 s.
4. When starting the arc welding ignition by current 150 A for 0,2 s then the current drops to the set value I_w 100 A.

MMA method

- setting value of SOFT START

Setting is the same as for HOT START, but turning the encoder to the left (pos. 6, pic. 2) sets the negative value. In this way we set the percentage decrease of starting current compared to the set. If there is on the display value -30 it means that the starting current will be about 30 % lower than the set value. The reduction current can be adjusted by up to 90 %. After touching the electrode current unlike the HOT START current continuously increase the set value I_w for a set time.

MMA method

- setting of the time value for SOFT START

Time setting for this function is the same as for the HOT START.

EXAMPLE:

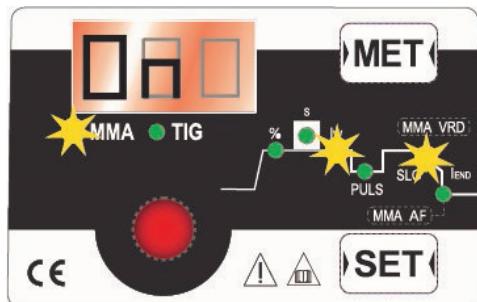
- When the set welding current 100 A (LED „I_w“ pos. 10 in pic. 1 and the LED „MMA“ pos. 1, pic. 1) the display shows 100 (100 A).
- Pressing the SET button the LED „%“ will light up (pos. 11, pic. 1). It is possible to set the value of starting current - SOFT START for example 50 % lower (we set potentiometer on the display - 50). The result „starting current“ will be 50 A. SOFT START function can be disabled by setting to 0 %.
- Again by pressing the SET button with LED (pos. 4, pic. 1). It is possible to set the value of an encoder activation period starting current - eg 1.0 s.
- When you start welding the arc is ignited by 50 A current for 1.0 s will steadily increased to the set value I_w 100 A.

Method MMA - security function V.R.D.

The security system V.R.D. provides a low voltage at the output of the machine - 15 V. This safe value changes immediately after contacting the electrode with the welded material. When the welding process is finished the output voltage will automatically change to 15 V again. When the V.R.D. function is turned off the open circuit voltage is 88 V.

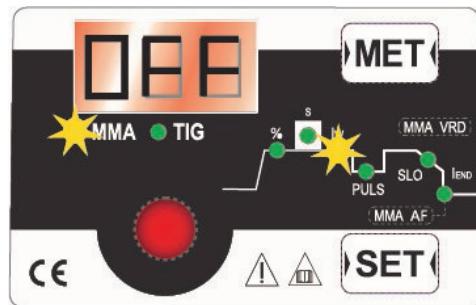
Method MMA - switching on function V.R.D.

Switch off the machine with the main switch. Press and hold button MET (pos. 6, pic. 1) on the front panel and switch on the machine with the main switch. Release button MET just after switching on. LED „MMA V.R.D.“ (pos. 7, pic. 1) is lit up on the panel and sign ON is displayed for about 1-2 s. Function V.R.D. is on (signaled by luminous LED - pos. 7, pic. 1).



Method MMA - switching OFF function V.R.D.

Switch off the machine with the main switch. Press and hold button MET (position 6, picture 1) on the front panel and switch on the machine with the main switch. Release button MET just after switching on. Indicator light „V.R.D.“ is switched off on the front panel and sign OFF is displayed for about 1-2 s. Function V.R.D. is switched OFF.

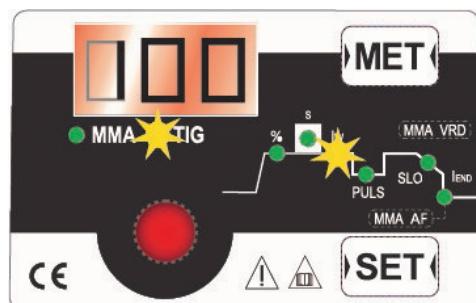


Options for parameters setting for TIG method:

- Welding current 10-200 A.
- The frequency of pulsation welding current 0-500 Hz. Underrate value (basic current) is about 50 % upper welding current. The proportion of upper and lower flow (BALANCE) within the pulsation period is 50 % on 50 %.
- Declaration time of welding current 0-5 s.
- End current 10-200 A.

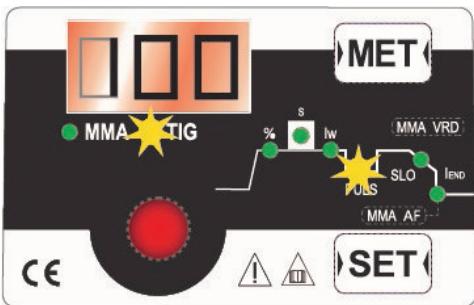
TIG method – setting of the welding current

By rotary encoder (pos. 6, pic. 2) set the desired welding current.



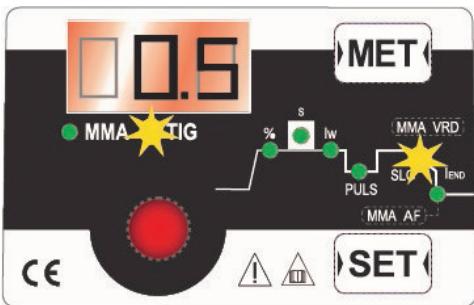
Method TIG - setting of pulse frequency of welding current

Press button SET (position 9, picture 1) until LED „PULSE“ (pos. 5, pic. 1) is on as in the picture. Set up required value of pulse frequency of welding current with a potentiometer. Pulse is switched off with setting-up „0“.



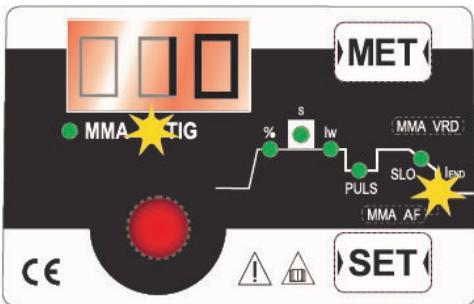
Method TIG - setting of time of welding current run-out

Press button SET (pos. 9, pict. 1) until LED „SLOPE“ (pos. 7, pict. 1) is on as in the picture. Set up required value of time duration of welding current run-out with a potentiometer.



Method TIG - setting of end current value

Press button SET (pos. 9, pict. 1) until I end is on as in the picture. Set up required value of end welding current with a potentiometer.



EXAMPLE:

- When you set welding current on 100 A (LED „Iw“ is on, pos. 10, pic. 1) and LED „TIG“ (pos. 2, pict. 1), display shows 100 (100 A).

2. When you press button SET, LED „PULSE“ is lit up (pos. 5, pic. 1). It is possible to set the value of pulse frequency of welding currant within range 0 (pulse is switched off) up to value 500 Hz. Function PULSE can be switched off, if you set frequency on „0“. If you press button SET again, LED „DOWN SLOPE“ is lit up (pos. 7, pic. 1). It is possible to set value of run-out time of welding current - for example 1 s (you can set it with a potentiometer on display 1). Time of run-out of starting current is 1 s.

- If you press button SET again, LED „END“ is lit up (pos. 8, pic. 1). It is possible to set value of end welding current - for example 10 A (it can be set with a potentiometer on display 10). Time of end welding current is 10 A.

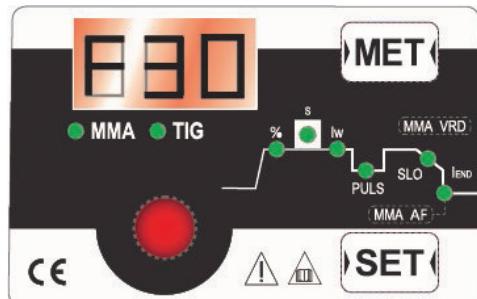
Overheating of the machine

°C signs on the display signalize overheating of the machine. Signalization is two stage signalization. In the first phase the title is, the machine is working properly, but if the working process will not be interrupted, the machine will be blocked (°C lights for all the time) until the inside part will cool down.

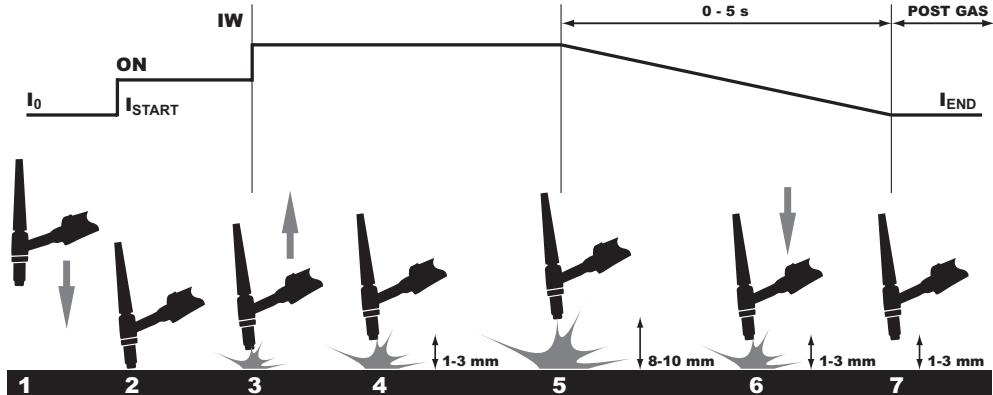
Function limiting the consumed current from the supply

This function allows for limiting the device's maximum possible consumption of current from the supply. This function serves to ensure the smooth operation of the device when using weaker power lines with weaker circuit breakers. The function can be set using a knob encoder during the starting of the device in the MMA and TIG (F4 - F30) modes. Activating this function results in limiting the output of the device. When setting the „F30“ parameter, the device works without any limiting of the output. E.g. when using the device with a circuit breaker of 10 A, we set the value to F10 using the encoder, resulting in the device adjusting its output characteristics, which prevents the switching off of the circuit breaker.

Changing the setting of this function can be done even during the device's operation in such a way that we push the SET button for a period of longer than 2 sec. (position 9, pict. 1).



Picture 3 - welding process at TIG LA



ARC FORCE

This feature increases the energy supplied to the shortening of the arc in MMA method which accelerates melting electrodes and thus prevents its sticking. The function is activated when the arc voltage drops below approximately 15 V.

The function can be changed by rotating the encoder in three steps when starting the machine is in MMA mode (AFO, AF1 and AF2). When setting AFO the function is off and there is no increase in current. When AF1 the additional energy is 50 % and at setting AF2 is 100 %. To change the settings for this function can be performed even when the machine is running, in a way that for more than 2 s. hold the SET button (pos. 9, pic. 1). Switching function is signaled by LED „MMA AF“.

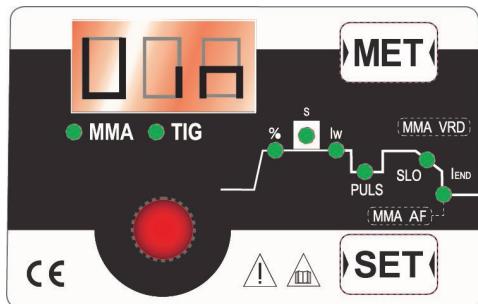
ANTI STICK

Signalization - - - the display indicates the function of impressing by ANTI STICK. The function is activated, after all when it comes to the action and contact between the electrode and material material (feature does not prevent sticking). By touching is reduced current below 10 A and thus allow easy peel off the electrode. ANTI STICK function can be deactivated eg. for drying of electrodes and this for more than 4 s hold the SET button (pos. 9, pic. 1), and then set the switch rotary encoder: AS 0 function is disabled, AS 1 function is active.

Function of undervoltage (Uin)

The machine is equipped with an undervoltage recognizing of el. network. Upon the occurrence of deep undervoltage during the operation is drawing attention by blinking Uin. After remission of the causes removes the message using the main switch (pos. 1, pic. 2).

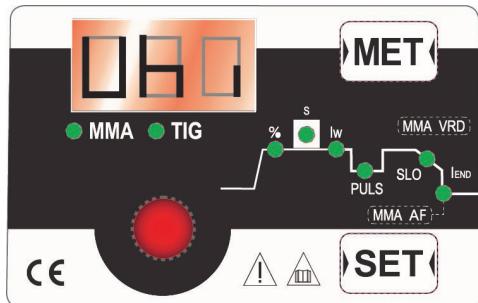
WARNING: If the machine is powered by a lower voltage than 230 V, proportionally there is a decrease performance of the machine.



Function of overvoltage function (Uhi)

The machine is equipped with a overvoltage in recognizing el. network. At higher than the allowable voltage the machine will be blocked for increasing the resistance of switching elements and user will be given words UHI. After remission of the causes removes the message by using the main switch (pos. 1, pic. 2).

WARNING: Function is not taken as a over voltage protection. If the high voltage in el. network can cause the damage of the machine.



Welding by TIG method

Welding process at TIG LA (pic. 3)

- Starting the gas with a valve on the welding torch.
- Approaching the tungsten electrode to the welded material.
 - Light touch of tungsten electrode of welded material (no need to cut).
 - Removal of tungsten electrode and arcing of welding arc with LA - very low wear tungsten electrodes by touch.
 - Welding process.
 - Finishing the welding process and activating the DOWN SLOPE (crater filling) is performed by removing tungsten electrodes to about 8 - 10 mm from the welded material.
 - Re-approach - welding current decreases after the set time to the end value set current (e.g. 10 A) - filling the crater.
 - End of the welding process. The digital control automatically switches off the welding process.
- Switch off the gas with a valve on the welding torch.

Welding inverters allow TIG welding with touch-triggering. The TIG method is very effective for welding stainless steel. Switch the machine to TIG mode.

Connecting the welding torch and the cable:

Connect the welding torch to the minus pole and the ground wire to the plus pole - direct polarity.

Selection and preparation of tungsten electrodes:

Table 2 shows the welding current and diameter values for tungsten electrodes with 2% thorium - red electrode markings.

Table 2

Diameter of the Electrode (mm)	Welding current (A)
1.0	15 - 75
1.6	60 - 150
2.4	130 - 240

Prepare the tungsten electrode according to the values in table 3 and pic. 4.

Pic. 4



Table 3

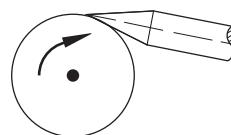
α (°)	Welding current (A)
30	0 - 30
60 - 90	30 - 120
90 - 120	120 - 250

Grinding of tungsten electrodes:

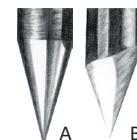
By proper choice of the tungsten electrode and its preparation will affect the properties of the welding arc, weld geometry and electrode life. The electrode must be gently grinded in the longitudinal direction as shown in pic. 5.

Pic. 6 shows the effect of grinding the electrode on its service life.

Pic. 5



Pic. 6



Picture 6A - Fine and even grinding of the electrode in the longitudinal direction - Lifetime up to 17 hours

Picture 6B - Coarse and uneven grinding in the transverse direction - Lifetime 5 hours

Parameters to compare the influence of the electrode grinding method are given using:

HF ignition el. arc, electrodes Ø 3.2 mm, welding current 150 A and welded material - pipe.

Protective gas:

For TIG welding, it is necessary to use argon with a purity of 99.99 %. Determine the amount of flow according to table 4.

Table 4

Welding current (A)	Diameter of electrode (mm)	Welding nozzle n (°)	Ø (mm)	Flow of gas (l/min)
6 - 70	1.0	4/5	6/8.0	5 - 6
60 - 140	1.6	4/5/6	6.5/8.0/9.5	6 - 7
120 - 240	2.4	6/7	9.5/11.0	7 - 8

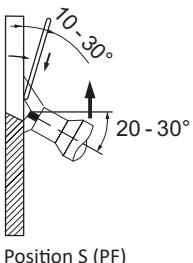
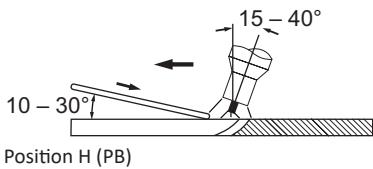
Holding the welding torch during welding:



Position W (PA)



Position H (PB)



Preparation of basic material:

Table 5 lists the material preparation values.

Dimensions are determined according to pic. 7.

Pic. 7

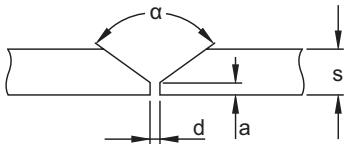


Table 5

s (mm)	a (mm)	d (mm)	α (°)
0 - 3	0	0	0
3	0	0.5 (max)	0
4 - 6	1 - 1.5	1 - 2	60

Basic rules during welding by TIG method:

1. Purity - grease, oil and other impurities must be removed from the weld during welding. It is also necessary to mind purity of additional material and clean gloves of the welder during welding.
2. Leading additional material - oxidation must be prevented. To do so, flashing end of additional material must be always under the protection of gas flowing from the hose.
3. Type and diameter of tungsten electrodes - it is necessary to choose them according to the values of the current, polarity, type of basic material and composition of protective gas.

4. Sharpening of tungsten electrodes - sharpening the tip of the electrode should be done in transverse/horizontal direction. The finer the roughness of the surface of the tip is, the calmer the burning of the el. arc is as well as the greater durability of the electrode is.

5. The amount of protective gas - it has to be adjusted according to the type of welding or according to the size of gas hose. After finishing the welding gas must flow sufficiently long to protect material and tungsten electrode against oxidation.

Typical TIG welding errors and their impact on weld quality

The welding current is too -

Low: unstable welding arc

High: Tungsten electrode tip breaks lead to turbulent arcing.

Further, mistakes may be caused by poor welding torch guidance and poor addition of additive material.

Basic rules for welding by MMA

Switch the machine to MMA mode - coated electrode. Table 6 lists the general values for the choice of the electrode, depending on its diameter and the thickness of the base material. These data are not absolute and are informative only. For exact selection, follow the instructions provided by the manufacturer of the electrodes. The current used depends on the position of the welding and the joint type and increases according to the thickness and dimensions of the part.

Table 6

Strength of welded material (mm)	Diameter of the Electrode
1,5 - 3	2
3 - 5	2.5
5 - 12	3.25
> 12	4

Table 7: Setting the welding current for the given electrode diameter

Diameter of the Electrode	Welding Current (A)
1.6	30 - 60
2	40 - 75
2.5	60 - 110
3.25	95 - 140
4	140 - 190
5	190 - 240
6	220 - 330

The approximate indication of the average current used for welding with ordinary steel electrodes is given by the following formula:

$$I = 50 \times (\varnothing_e - 1)$$

where: I = the intensity of the welding current

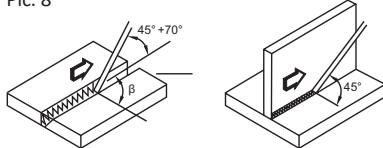
\varnothing_e = the diameter of the electrode

Example for an electrode with a diameter of 4 mm:

$$I = 50 \times (4 - 1) = 50 \times 3 = 150 \text{ A}$$

Correct electrode holding during welding

Pic. 8



Preparation of basic material:

Table 8 lists the material preparation values. Specify the dimensions as shown in pic. 9.

Pic. 9

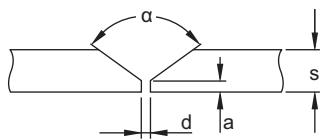


Table 8

s (mm)	a (mm)	d (mm)	α (°)
0 - 3	0	0	0
3 - 6	0	s/2 (max)	0
3 - 12	0 - 1.5	0 - 2	60

Warning about possible problems and their remedy

The extension cord and welding cables are considered the most common cause of the problem. If you have any problems, follow these steps:

- Check the value of the supplied mains voltage.
- Make sure that the power cord is fully connected to the power outlet and the main power switch.
- Make sure the fuses or the circuit breakers are OK.

If you are using the extension cable, check its length, cross-section and connection.

Make sure the following parts are not defective:

- Main switch of the grid
- Power socket and main power switch

NOTE: Despite your required technical skills necessary to repair the generator, we recommend contacting trained personnel and our Technical Service Department in case of damage.

ROUTINE MAINTENANCE AND INSPECTION

Check according to EN 60974-4. Always before Use the machine to check the condition of the welding and supply lines cable. Do not use damaged cables.

Perform a visual check:

- welding cables
- power grid
- welding circuit
- covers
- control and indicator elements
- general status

Použité grafické symboly / Key to the graphic symbols / Verwendete grafische Symbole

Wykorzystane ikony

1	0 1	2	3	4	5	6
7		8	V	A	V.R.D.	SLOPE
13	HOT START %	14	PULSE		!	
19		20		21		22
23						

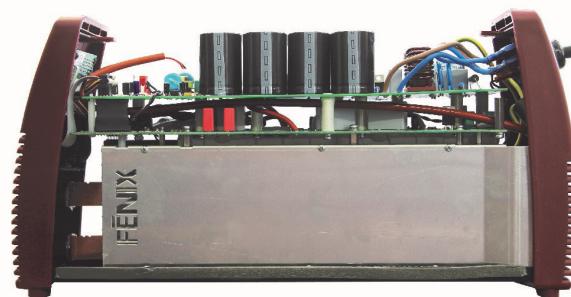
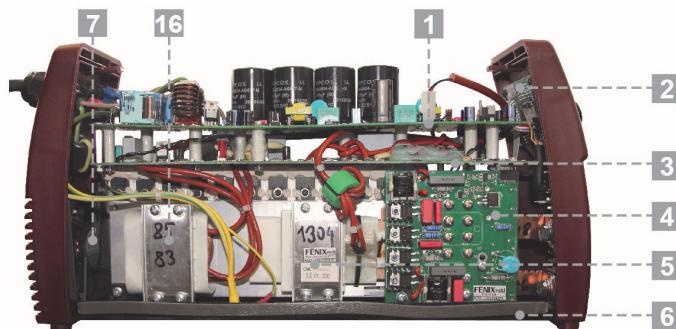
	Popis / CZ	Opis / SK	Description / ENG	Beschreibung / DE	Opis / PL
1	Hlavní vypínač	Hlavný vypínač	Mine switch	Hauptschalter	Główny włącznik
2	Uzemnění	Uzemnenie	Grounding	Erdung	Uziemienie
3	Kontrolka tepelné ochrany	Kontrolka tepelnej ochrany	Yellow signal light for overheat cut off	Signallampe Wärmeschutz	Kontrolka ochrony termicznej
4	Výstraha riziku úrazu elektrickým proudem	Výstraha pre riziko úrazu el. prúdom	Warning risk of electric shock	Warnung Risikounfall durch el. Strom	Ostrzeżenie przed ryzykiem porażeniem prądem elektrycz.
5	Mínus pól na svorce	Minus pól na svorke	Negative pole snap-in connector	Minuspol auf der Klemme	Biegum ujemny na zacisku
6	Plus pól na svorce	Plus pól na svorke	Positive pole snap-in connector	Pluspol auf der Klemme	Biegum dodatni na zacisku
7	Ochrana zemněním	Ochrana uzemnením	Grounding protection	Erdungsschutz	Ochrona przez uziemnienie
8	Svařovací napětí	Zváracie napäťe	Volts	Schweißspannung	Napięcie spawania
9	Svařovací proud	Zvárací prúd	Amperes	Schweißstrom	Prąd spawania
10	V.R.D. bezpečnostní systém MMA	V.R.D. bezpečnostný systém MMA	V.R.D. safety system MMA	V.R.D. Sicherheitssystem MMA	V.R.D. system bezpieczeństwa MMA
11	Doběh proudu	Dobeh prúdu	Current run-out	Stromauslauf	Opadanie natężenia prądu
12	Koncový proud	Koncový prúd	End current	Schlussstrom	Prąd końcowy
13	HOT START - procentuální navýšení proudu při funkci HOT START	HOT-START – percentuálne navýšenie prúdu pri funkcií HOT-START	HOT START - percentage increase of current with function HOT START	HOT START - Prozentuelle Stromerhöhung bei der Funktion HOT START	HOT START - procentowy wzrost natężenia prądu podczas zastosowania funkcji HOT START
14	Frekvence přepínání horního a dolního proudu	Frekvencia prepínania horného a dolného prúdu	Frequency of switching upper and lower current	Frequenz der Umschaltung des oberen und unteren Strom	Częstotliwość przełączania prądu górnego i dolnego
15	Likvidace použitého zařízení	Likvidácia použitého zariadenia	Disposal of used machinery	Entsorgung der benutzten Einrichtung	Likwidacja urządzenia wykorzystanego
16	Pozor nebezpečí	Pozor nebezpečenstvo	Caution danger	Vorsicht Gefahr	Uwaga niebezpieczeństwo
17	Seznamte se s návodem k obsluze	Oboznámte sa s návodom na obsluhu	Read service instructions	Lernen Sie die Bedienanweisungen kennen	Zaznajom się z instrukcją obsługi
18	Zplodiny a plyny při svařování	Splodiny a plyny pri zváraní	Safety regarding welding fumes and gas	Produkte und Gase beim Schweißen	Spaliny i gazy podczas spawania
19	Ochrana před zářením, popáleninami a hlukem	Ochrana pred žiareniom, popáleninami a hlukom	Protection from radiation, burns and noise	Schutz vor Strahlung, Brandwunden und Lärm	Ochrona przed promieniowaniem, popaleniami i hałasem
20	Zabránení požáru a exploze	Zabránenie požiaru a explózii	Avoidance of flames and explosions	Brandverhütung und Explosionsverhütung	Zapobieganie powstawaniu pożarów i wybuchów
21	Nebezpečí spojené s elektromagnet. polem	Nebezpečenstvo spojené s elektromagnetickým polom	Risks due electromagnetic fields	Die mit elmag. Strahlung verbundene Gefahr	Ryzyko połączone z polem elektromagnetycznym
22	Suroviny a odpad	Suroviny a odpad	Materials and disposal	Rohstoffe und Abfälle	Surowce i odpady
23	Manipulace a uskladnění stlačených plynů	Manipulácia a uskladnenie stlačených plynov	Manipulation and Storage with compressed gas	Manipulation und Lagerung mit Druckgas	Manipulacja i składowanie gazów sprężonych

Výrobní štítek / Výrobný štítok / Production label / Produktionsschild
Tabliczka znamionowa

4	FÉNIX KUH TREIBER	Kühtreiber, s.r.o., Stařečka 997 674 01 Třebíč, Czech Republic			5
3	Type: FÉNIX 200 PFC	S/N:			6
					7
			EN 60974-1, -10		
1			10 A / 20,4 V – 200 A / 28,0 V		
		X	40%	60%	100%
2		S	I ₂	200 A	165 A
			U ₂	28,0 V	26,6 V
				25,6 V	
8		S	I ₂	200 A	165 A
			U ₂	18,0 V	16,6 V
				15,6 V	
9		S	I ₂	200 A	165 A
			U ₂	18,0 V	16,6 V
				15,6 V	
1		U₁ = 230 V	I _{1max}	24,9 A	I _{1eff} = 17,0 A
		IP 23 S			

Popis / CZ		Opis / SK		Description / ENG		Beschreibung / DE		Opis / PL	
1	Napájecí napětí	Napájacie napäťie		Supply voltage		Speisespannung		Napięcie zasilania	
2	Svařovací metoda	Zváracia metóda		Welding method		Schweißmethode		Metoda spawania	
3	Svařovací stroj	Zvárací stroj		Description of the machine		Schweißmaschine		Spawarka	
4	Typ stroje	Typ stroja		Name of the machine		Maschinentyp		Typ urządzenia	
5	Jméno a adresa výrobce	Názov a adresa výrobcu		Name and address of manufacturer		Name und Anschrift		Nazwa i adres producenta	
6	Výrobní číslo	Výrobné číslo		Serial number		Seriennummer		Nr produkcyjny	
7	Normy	Normy		Standards		Referenznormen		Normy	
8	Proud při zatížení	Průd pri zaťažení		Nominal welding current		Ampere Aussetzungsverhältnis		Nateżenie prądu podczas obciążenia	
9	Napětí při zatížení	Napätie pri zaťažení		Nominal load voltage		Volt Aussetzungsverhältnis		Napięcie podczas obciążenia	

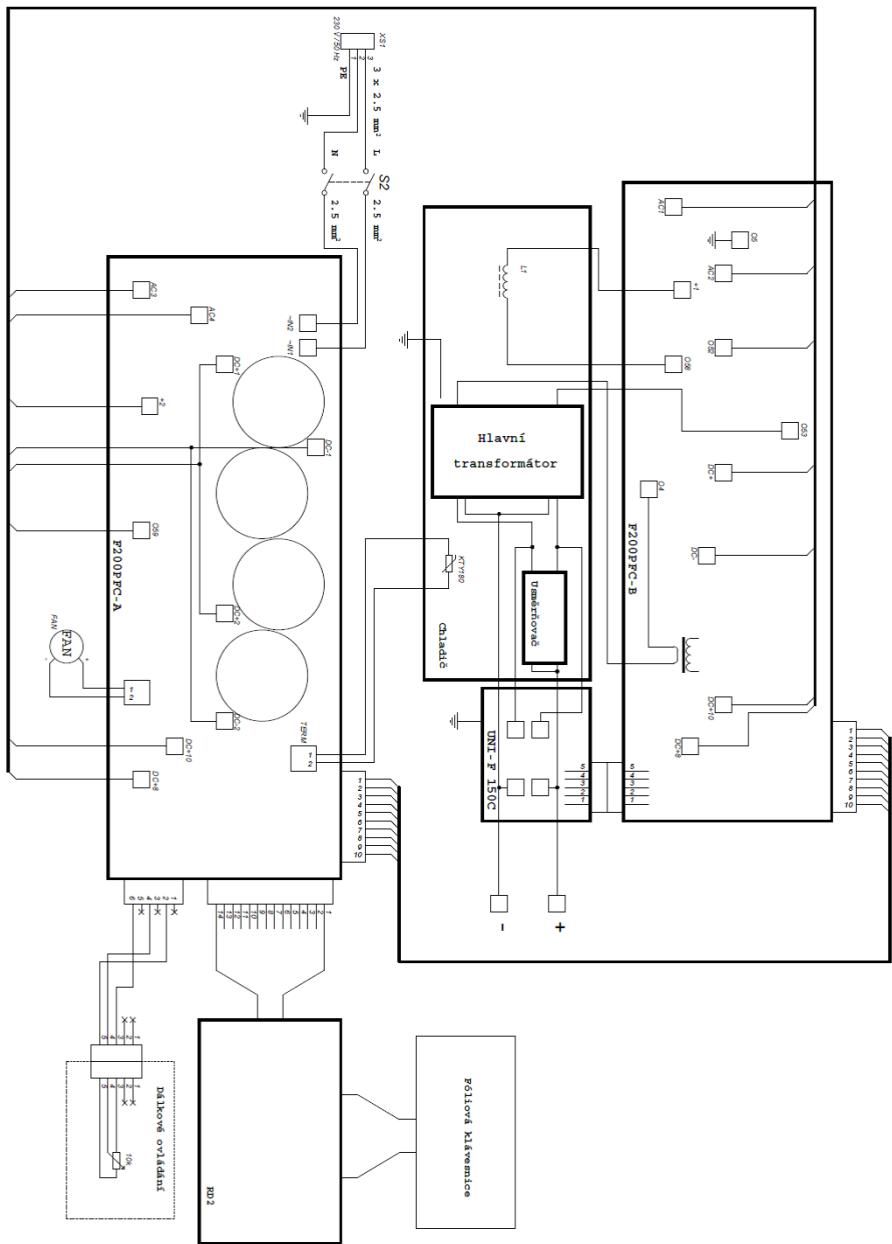
**Seznam náhradních dílů strojů / Zoznam náhradných dielov strojov
List of spare parts / Ersatzteilliste / Lista części zamiennych urządzenia**



Poz. pos.	Seznam náhradních dílů / CZ	Zoznam náhradných dielov / SK	List of spareparts / ENG	FĒNIX 200 PFC
1	Plošný spoj F200 PFC A	Plošný spoj F200 PFC A	PCB F200 PFC A	11827
2	Plošný spoj F200 PFC řídící	Plošný spoj F200 PFC riadiaci	PCB F200 PFC driving	11720
3	Plošný spoj F200 PFC B	Plošný spoj F200 PFC B	PCB F200 PFC0 B	11828
4	Plošný spoj F200 PFC UNI	Plošný spoj F200 PFC UNI	PCB F200 PFC UNI	11737
5	Transformátor hlavní	Transformátor hlavný	Main Transformer	11859
6	Dno	Dno	Base	11832
7	Ventilátor	Ventiátor	Fan	42073
8	Vypínač hlavní	Vypínač hlavný	Main switch	30452
9	Čelo zadní	Čelo zadné	Rear panel	11854
10	Kabel přívodní 3x2,5	Kábel prívodný 3x2,5	Mains cable 3x 2,5	31064
11	Rychlospojka komplet 25mm ²	Rýchlospojka komplet 25mm ²	Quick connection core 25mm ²	30421
12	Konektor dálkového ovládání	Konektor diaľkového ovládania	Connector of remote control	11766
13	Knoflík přístrojový	Gombík prístrojový	Instrument knob	30860
14	Samolepka čelní klávesnice	Samolepka čelnej klávesnice	Front panel sticker	33212
15	Samolepka výkonnostní	Samolepka výkonnostná	Base sticker	33372
16	Tlumivka	Tlmivka	Inductor	11860

Poz. pos.	Beschreibung / DE	Lista części zamiennych / PL	FĒNIX 200 PFC
1	Flacheverbindung F200 PFC A	Obwód drukowany F200 PFC A	11827
2	Flacheverbindung F200 PFC řídící	Obwód drukowany F200 PFC sterujący	11720
3	Flacheverbindung F200 PFC B	Obwód drukowany F200 PFC B	11828
4	Flacheverbindung F200 PFC UNI	Obwód drukowany F200 PFC UNI	11737
5	Haupttransformator	Główny transformator	11859
6	Boden	Dno	11832
7	Lüfter	Wentylator	42073
8	Hauptschalter	Główny włącznik	30452
9	Hintere Stirn	Czoto tylne	11854
10	Zuführungskabel 3x2,5	Przewód zasilania 3x2,5	31064
11	Schnellkupplung komplett 25mm ²	Złącze szybkozłączne kompletnie 25mm ²	30421
12	Stecker der Fernbedienung	Wejście sterowania zdalnego	11766
13	Gerätknopf	Gąłka przyrządowa	30860
14	Vordere Selbstklebefolie	Naklejka klawiatury przedniej	33212
15	Etikette leitende	Tabliczka znamionowa	33372
	Schutzspule	Dławik	11860

**Elektrotechnické schéma / Elektrotechnická schéma
Electrical diagram / Schema / Schemat elektrotechniczny**



Agrokomplex - Výstavníctvo Nitra, štátny podnik
Zväz strojárskeho priemyslu SR

udeľujú ocenenie

ČESTNÉ UZNANIE



MEDZINÁRODNÝ STROJÁRSKY VEĽTRH 2012

exponátu: **Svařovací invertor FENIX**

výrobcom: **KÜHTREIBER, s. r. o., Třebíč,
Česká republika**

vystavovateľovi: **KÜHTREIBER, s. r. o., Třebíč,
Česká republika**

.....
predseda
hodnotiteľskej komisie

.....
riadič
Agrokomplex – Výstavníctvo Nitra, štátny podnik

NITRA 22. 5. 2012

Poznámky / Poznámky / Note / Bemerkungen / Uwagi

Poznámky / Poznámky / Note / Bemerkungen / Uwagi

Osvědčení o jakosti a kompletnosti výrobku
Osvedčenie o akosti a kompletnosti výrobku / Testing certificate
Qualitätszertifikat des Produktes / Deklaracja Jakości i Kompletności

Název a typ výrobku Názov a typ výrobku / Type Bennennung und Typ Nazwa i rodzaj produktu	FĒNIX 200 PFC
Výrobní číslo stroje Výrobné číslo Serial number Herstellungsnummer der Maschine Numer produkcyjny maszyny	
Výrobce Výrobca Producer Produzent Producent	
Razítko OTK Pečiatka OTK Stamp of Technical Control Department Stempel der technische Kontrollabteilung Pieczętka Kontroli Jakości	
Datum výroby Dátum výroby Date of production Datum der Produktion Data produkcji	
Kontroloval Kontroloval Inspected by Geprüft von Sprawdził	

Záruční list / Záručný list / Warranty certificate / Garantieschein / Karta Gwarancyjna	
Datum prodeje Dátum predaja Date of sale Verkaufsdatum Data sprzedaży	
Razítko a podpis prodejce Pečiatka a podpis predajca Stamp and signature of seller Stempel und Unterschrift des Verkäufers Pieczętka i podpis sprzedawcy	

Záznam o provedeném servisním záku**Repair note / Eintrag über durchgeführten Serviceeingriff****Zapis o wykonaniu interwencji serwisowej**

Datum převzetí servisem Dátum prevzatia servisom Date of take-over Datum Übernahme durch Servisabteilung Data odbioru przez serwis	Datum provedení opravy Dátum prevzatia z opravy Date of repair Datum Durchführung der Reparatur Data wykonania naprawy	Číslo reklam. protokolu Číslo reklam. protokolu Number of repair form Nummer des Reklamationsprotokoll Numer protokołu reklamacji	Podpis pracovníka Podpis pracovníka Signature of serviceman Signature of serviceman Unterschrift von Mitarbeiter Podpis pracownika

Výrobce si vyhrazuje právo na změnu.
Výrobca si vyhradzuje právo na zmenu.
The producer reserves the right to modification.
Hersteller behaltet uns vor Recht für Änderung.
Producent zastrzega sobie prawo do zmian.