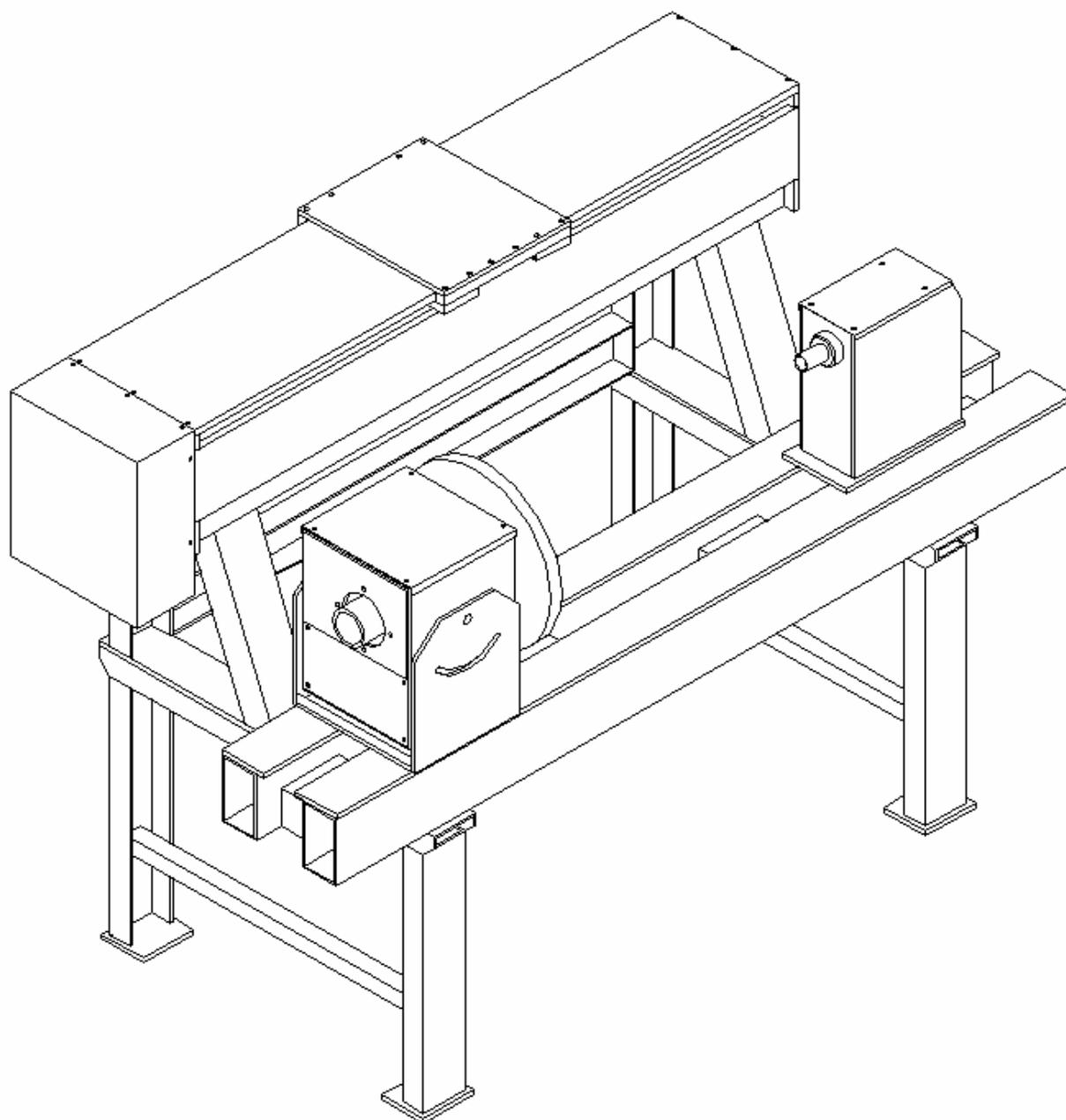


# Operator's manual

## Long-seam automatic machine type 8000



Version D. July 2009

We reserve the right to make changes in this document

**micrONic**  
automation

|  |           |
|--|-----------|
| <b><u>CHAPTER 1: EU DECLARATION OF CONFORMITY</u></b> .....                      | <b>2</b>  |
| <b><u>CHAPTER 2: GENERAL</u></b> .....   | <b>3</b>  |
| <b><u>CHAPTER 3: SAFETY ADVICE AND NOTICES</u></b> .....                         | <b>4</b>  |
| <i>PERSONAL SAFETY</i> .....   | 4         |
| <i>Applications:</i> .....   | 5         |
| <i>Removal of safety devices:</i> .....  | 5         |
| <i>Correct placement of work pieces:</i> .....                                   | 5         |
| <b><u>CHAPTER 4: HOW THE MACHINE WORKS:</u></b> .....                            | <b>6</b>  |
| <i>Sketch of the long-seam automatic machine:</i> .....                          | 6         |
| <i>Starting and stopping the machine:</i> .....                                  | 7         |
| <i>Failure during start-up, operation or shut-down:</i> .....                    | 8         |
| <i>Maintenance:</i> .....  | 9         |
| <i>Basic precautions:</i> .....  | 9         |
| <i>Maintenance checklist:</i> .....  | 11        |
| <i>Storage of this operator’s manual:</i> .....                                  | 12        |
| <b><u>CHAPTER 5: ASSEMBLY AND DISASSEMBLY</u></b> .....                          | <b>13</b> |
| <i>Design and construction of the long-seam automatic welding machine:</i> ..... | 13        |
| <i>Set-up:</i> .....   | 14        |
| <i>Disassembly:</i> .....  | 16        |
| <b><u>CHAPTER 6: TECHNICAL DATA:</u></b> .....                                   | <b>17</b> |
| <i>External connections:</i> .....   | 18        |
| <i>List of replacement parts – long-seam automatic machine</i> .....             | 21        |



## IMPORTANT SAFETY NOTICE

Always read the operator’s manual carefully and thoroughly before operating the machine. When working, always bear in the mind the directions and safety instructions. When installing and operating the machine, read and follow the safety directions stated in the chapter of this operator’s manual entitled **SAFETY ADVICE AND NOTICES**. This operator’s manual must always be available to the persons installing, operating and servicing the machine.

## Chapter 1: EU Declaration of Conformity

|   |
|---|
| <b>Manufacturer</b>                                   |
| Company name: Migatronic Automation A/S               |
| Address: Knøsgaardvej 112<br>DK-9440 Aabybro, Denmark |
| Telephone: (+45) 96 96 27 00                          |
| Internet: www.migatronic-automation.dk                |

hereby declares that

|   |
|---|
| <b>The machine</b>                        |
| Make: Long-seam automatic welding machine |
| Type: 8000                                |

has been manufactured in compliance with the provisions of the COUNCIL DIRECTIVE of 14 June 1989 on mutual approximation of the laws of the member states on machines (89/392/EEC as amended by 91/368/EEC and 93/44/EEC) with special reference to annexe 1 of the Directive on essential health and safety requirements in connection with the design and manufacture of machines (cf. Statutory Order of the Danish Working Environment Authority (Arbejdstilsynet) No. 561 of 24 June 1994).



25/8-2006

Date

Keld Kjeldgaard

Signature

## **Chapter 2: General**

The type 8000 long-seam automatic machine has been designed for the automatic welding of straight seams using either MIG/MAG or TIG/PLASMA welding methods. It comes fitted as standard with 2-way adjustable gun mounting, but can also come supplied with automatic gun lift, as well as automatic stop/start of the root gas.

If power sources are used in connection with the machine, read the operating manual of the power source prior to starting work.

## **Chapter 3: Safety advice and notices**

### **PERSONAL SAFETY**



#### **Light and heat emission**

A welding arc emits radiation which is damaging to the human eye. Even short-term exposure to this radiation can cause permanent damage. Your eyes must be protected against powerful infrared radiation, as well as visible and ultraviolet light by using suitable radiation protection glass fitted in your welding helmet. Your skin may also be damaged by this radiation. Radiation can cause serious burns. Protect your skin by wearing the helmet, full-body working overalls and gloves. Warn other people in the vicinity of the welding area of the danger of radiation and flying sparks. If possible, screen the workplace off from the surrounding environment. Together with flying sparks, heat radiation from the electric arc and the molten pool constitute a fire risk. For this reason, do not perform welding in the vicinity of flammable materials. Do not put the torch down without first extinguishing the flame. Your working clothes must not contain easily flammable materials or have creases or open pockets which may collect sparks. Wear a fireproof apron if appropriate. After completion of the work, switch off at all socket outlets or at the main valve, and depressurize hose couplings.



#### **Welding fumes**

The smoke and fumes generated by the welding process are hazardous to health. Therefore extraction systems must be installed in such a way that the fumes which arise during welding are removed effectively. When fumes from degreasing agents are acted on by ultraviolet radiation from the electric arc, this may produce very toxic phosgene gas. For this reason, all dissolvents, degreasing agents and other potential sources of such fumes must be kept away from the welding area. Avoid inhaling welding fumes and gases. Use benches with extraction or other extraction systems for removal of welding fumes and gases. Use oxygen masks if no such effective extraction system is possible.



#### **Electricity**

Avoid making contact with live components.

The voltages used in connection with welding are not high enough to pose a risk of serious electric shock. However, minor electric shocks may result from damp overalls and the like, and these can frighten the welder, so potentially posing an indirect safety hazard. In particular, HF high-voltage ignition in TIG and PLASMA welding can generate powerful shocks and cause minor burns under the skin. Contact with live welding parts should therefore be avoided as far as possible. Always ensure that cable insulation, as well as insulation on the torch and machine pin and socket connectors, is fully intact. Always wear dry leather gloves, dry overalls and dry footwear. Furthermore, keep cables, torches and the welding machine itself dry at all times. It is important that the machine's connections have been set up according to the applicable regulations (power cables, fuses and safety conductor/earth lead). Do not open the machine to expose the live parts. Service and maintenance requiring access to live parts of the machine must only be undertaken by properly qualified personnel. Never leave a dismantled machine connected to the mains supply.

### ***Applications:***

- TIG welding hoses (live cables) and torches must not be placed on the electronic control box.
- Do not exceed the maximum dimensions for work pieces laid down in the operator's manual.
- The machine/equipment may only be run by operators who have been trained in its use and who have also worked through the operator's manual.

### ***Removal of safety devices:***

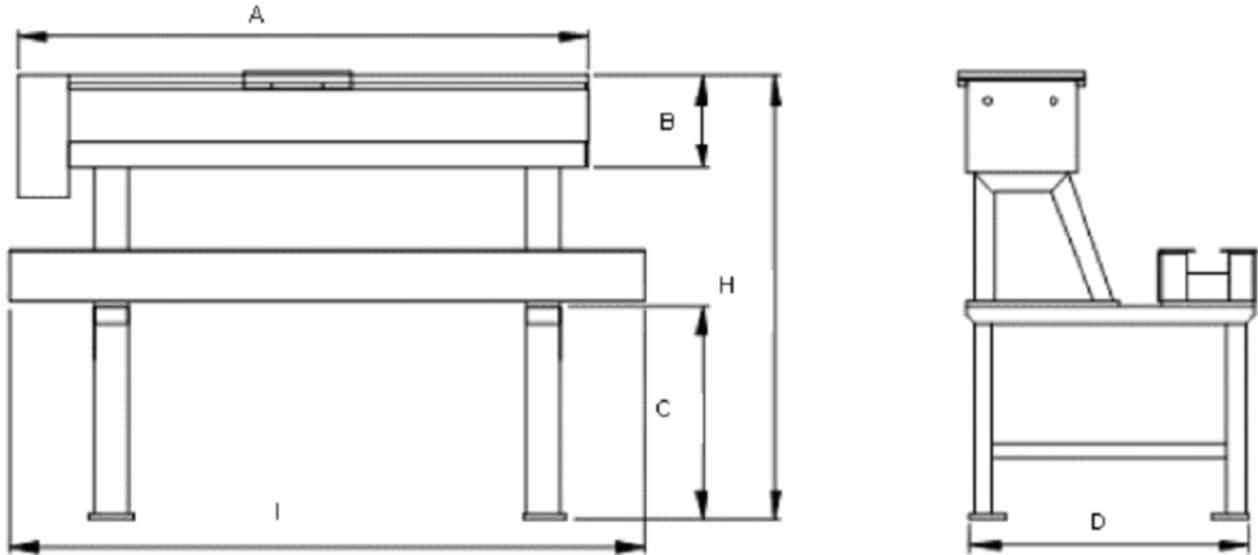
- Safety devices may not be disabled or removed while the machine is in an operating condition.

### ***Correct placement of work pieces:***

- Prior to starting work with the machine, the operator must ensure that the work piece has been correctly placed and properly secured.

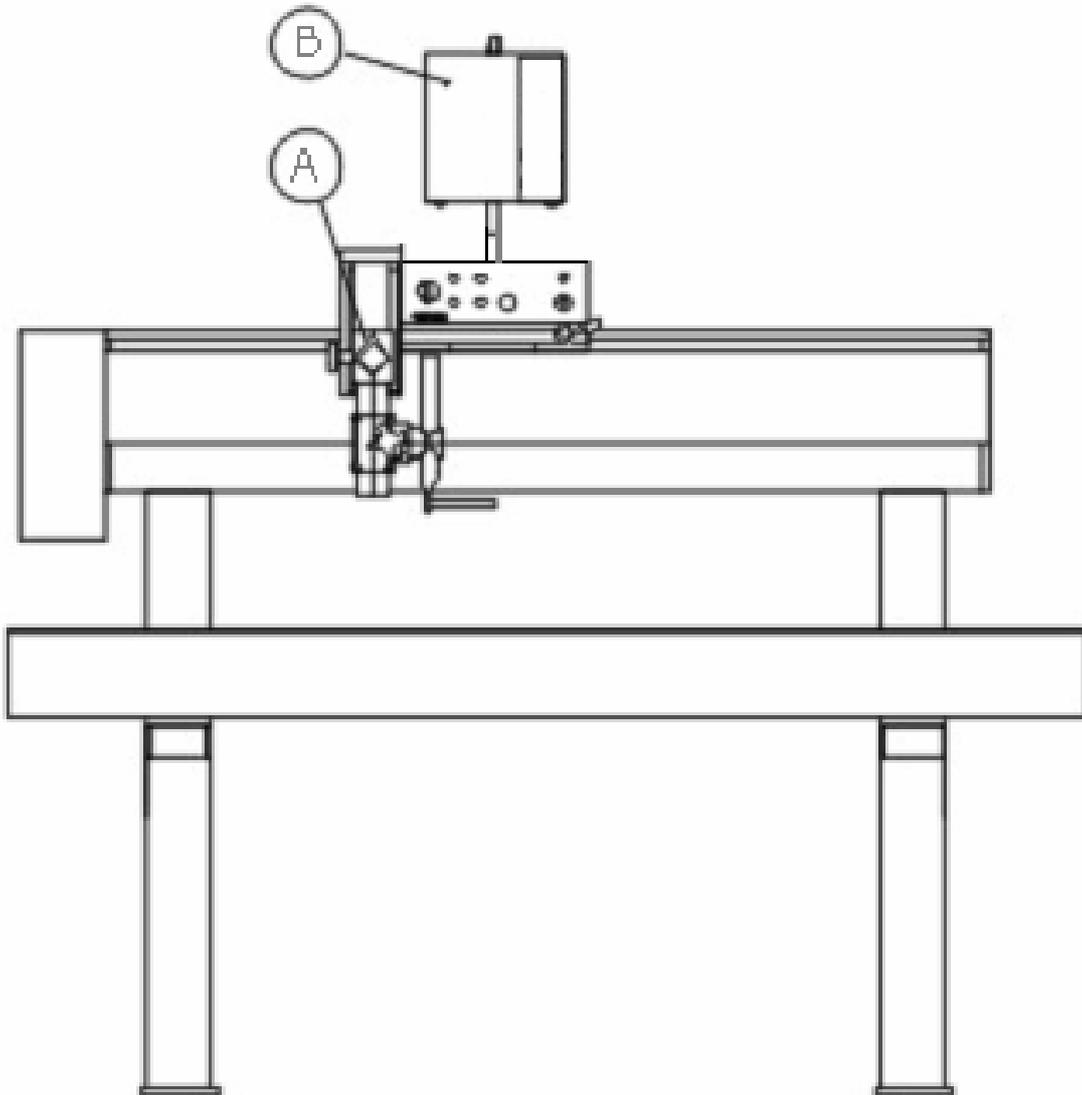
## Chapter 4: How the machine works:

### *Sketch of the long-seam automatic machine:*



| Type:           | 1100 | 1650 | 2000 | 2500 | 3000 | 3500 | 4000 | 5000 |
|-----------------|------|------|------|------|------|------|------|------|
| Dimensions      |      |      |      |      |      |      |      |      |
| mm a            | 1585 | 2160 | 2540 | 3040 | 3560 | 4000 | 4510 | 5010 |
| mm b            | 265  | 265  | 265  | 265  | 265  | 265  | 265  | 265  |
| mm c            | 600  | 600  | 600  | 600  | 600  | 600  | 600  | 600  |
| mm d            | 800  | 800  | 800  | 800  | 800  | 800  | 800  | 800  |
| mm h            | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 |
| mm i            | 1760 | 2260 | 2760 | 3260 | 3760 | 4260 | 4760 | 5260 |
| Wkpce length mm | 1100 | 1650 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 |

**Starting and stopping the machine:**



Use the cross-supports (A) to set the welding gun to the correct position. On how to set the welding speed, pre-welding time, post-welding time etc., refer to the operator's manual for the 4005 control system.

Adjust the inductive sensors on the rails to the desired positions (see "Set-up" in chapter 5).

For welding with cold wire feed, set the wire speed on the type KT4 (B) cold wire feeding unit. Refer to the separate operator's manual for this. Set the switch on type 4005 control systems to manual or automatic return. Activate the start button on type 4005 control systems and perform the welding using the programmed data.

***Failure during start-up, operation or shut-down:***

If monitoring of the electric arc (arc control) and welding have been activated, the automatic machine will not start until the electric arc has been established. While the machine is in this waiting mode, the operator must be aware that it may start once the electric arc is started.

## ***Maintenance:***

Regular maintenance is important.

This ensures:

- \* A long service life for the machine
- \* Safety
- \* Operational reliability

Many of the maintenance tasks are simple for the operator to perform himself and require just a little mechanical skill and a few tools. These tasks are described below. However, note that some maintenance tasks require special tools and expertise. Such tasks should be given to qualified Migatronic employees. Even if you are an experienced DIY-mechanic, we recommend that you hand over repairs and maintenance to Migatronic Automation A/S.

## ***Basic precautions:***



- Disconnect all mains power before working on electrical installations or components.
- Make sure you keep the work area clean and tidy.
- Disconnect the power and air supply to the machine when it is not in use or is left unattended.

## **DAILY CHECKS BEFORE START-UP**

Inspect the control system:

- A. Check that all power and fuse lamps light up.
- B. Ensure that the plug is properly inserted in the rear.
- C. Perform a cycle without doing any welding.

Check mains leads, earth cables, air and gas hoses

- A. Check for external damage.
- B. Check for loose connections, elements or leaks.

**Welding control:**

Weld a work piece and compare to the one you retained from the same time the day before. If everything is OK, retain the piece you just welded for start-up on the following day.

**WEEKLY CHECK-UP**

Clean all important surfaces using compressed air and lubricate sparingly with machine oil. Sign the maintenance checklist.

**MONTHLY CHECK-UP**

In addition to the weekly inspection, check all nuts and Unbrako screws – especially on ball bearings, gun mounting and roll guides.

Release carbon in the carbon holder (if any is fitted) and clean with compressed air, checking the carbon length.

Check gear motors for leakage in gear gaskets and check wires. Check for play in main bearings.

Clean the power sources internally (remember to remove the mains lead!). Sign the maintenance checklist.

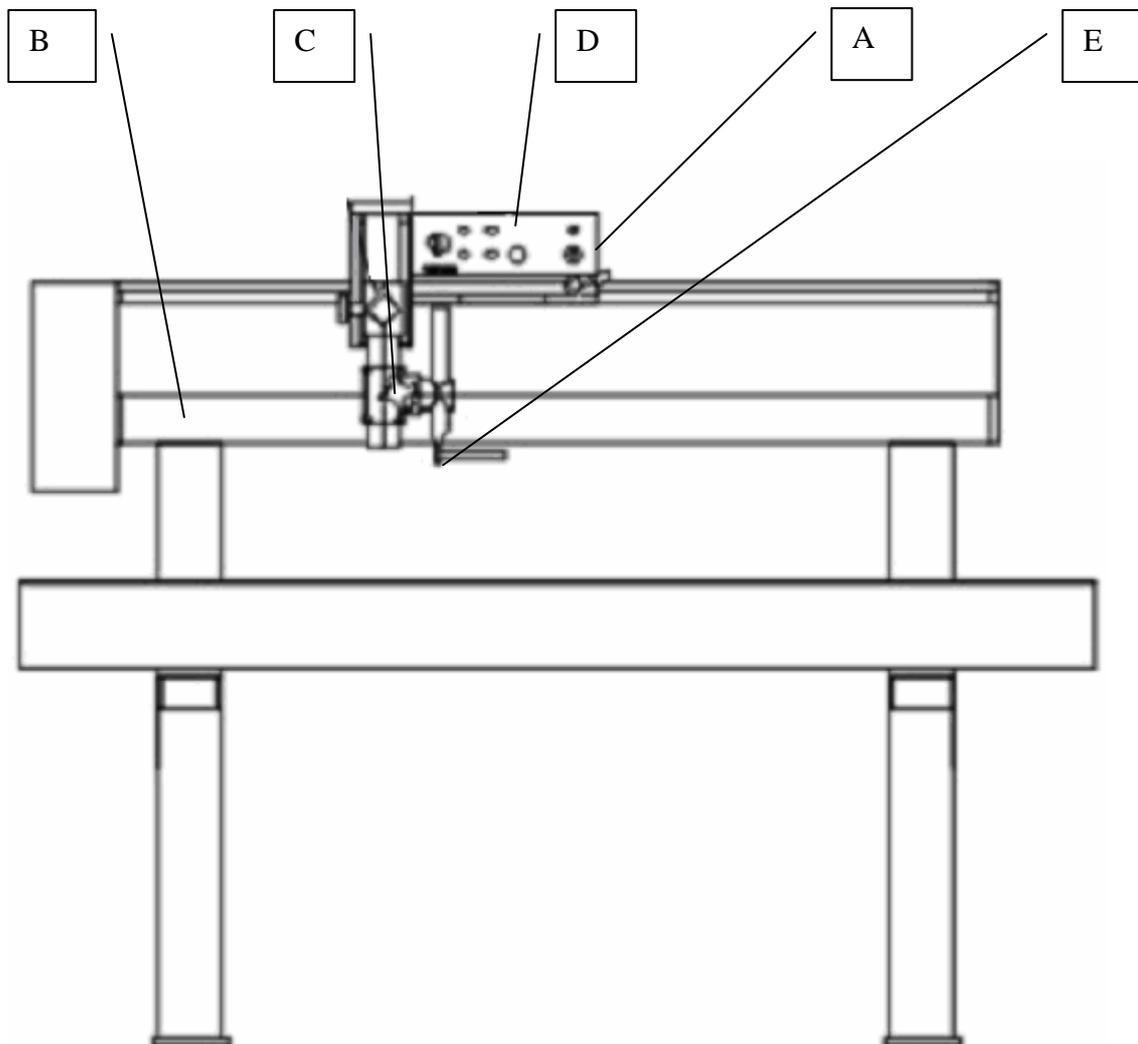


***Storage of this operator's manual:***

Keep this operator's manual in a place accessible at all times to operators, maintenance personnel and repairmen.

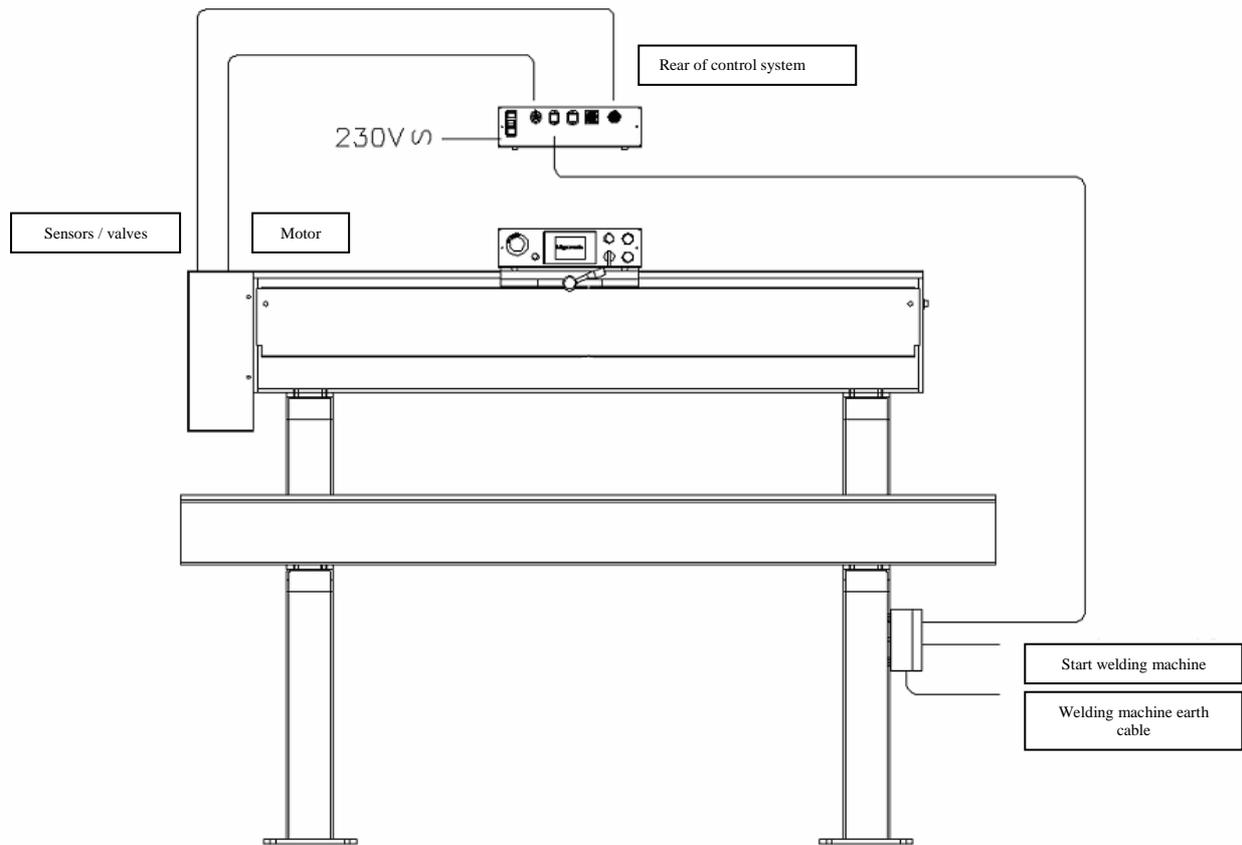
## Chapter 5: Assembly and disassembly

### *Design and construction of the long-seam automatic welding machine:*



The machine is constructed to include carriage (A) which runs on rails on smooth-running roll guides, which are fitted on a robust RHS (B). The propulsion is provided by means of an electronically-controlled gear motor, which pulls the carriage via a toothed belt. Carriage engagement on the toothed belt can be released using a simple grip (C) for rapid relocation of the carriage. A welding gun and control system (D) are mounted on the carriage and the same is ready for the mounting of MIG/MAG or TIG wire feed. The machine is supplied as standard with a 2-way adjustable gun mounting (E).

# Set-up:

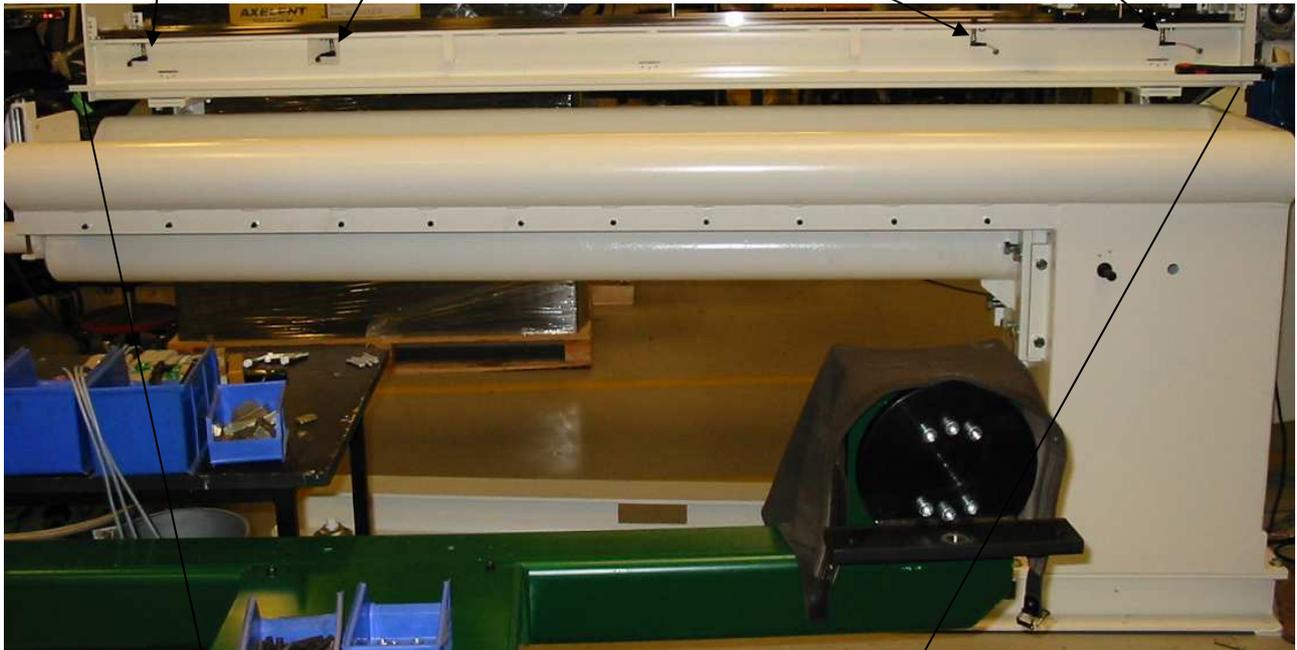


To move/adjust the inductive sensors, turn the hand-clips (A) a quarter turn. This allows you to then flip the shielding down.



Warning!  
Disconnect all mains power before flipping the shielding down.

Working sensor – left      Working sensor – right  
End stop sensor – left      End stop sensor – right



A

A

The illustration above shows the rails without shielding. After final adjustment, flip the shielding into place again.



Warning!  
Do not leave the long-seam automatic machine in a dismantled condition.

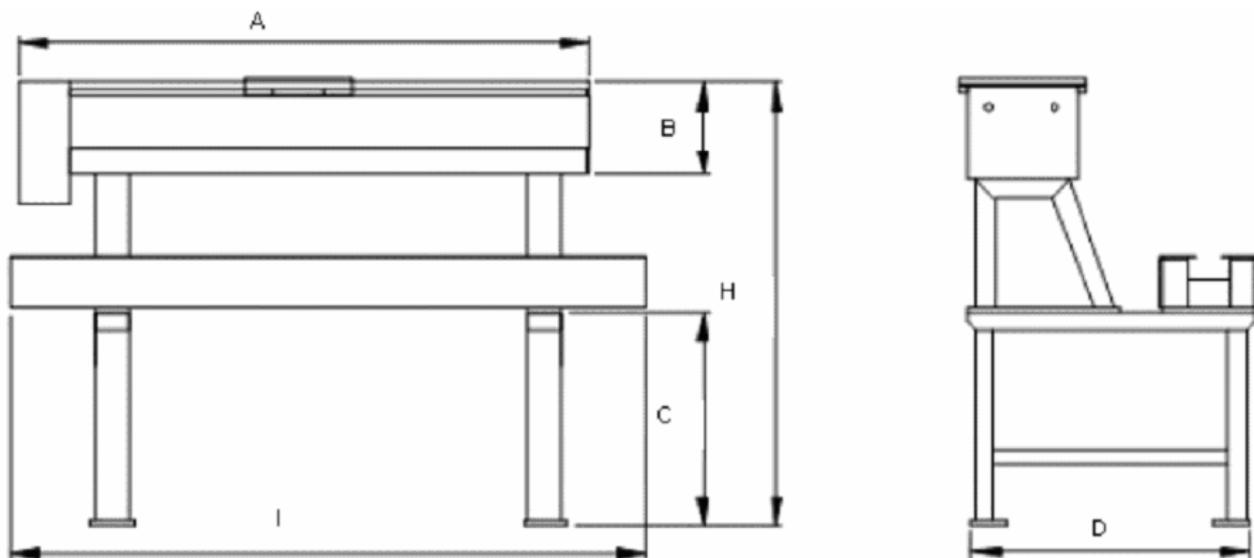
## ***Disassembly:***

The old machine contains reusable parts.

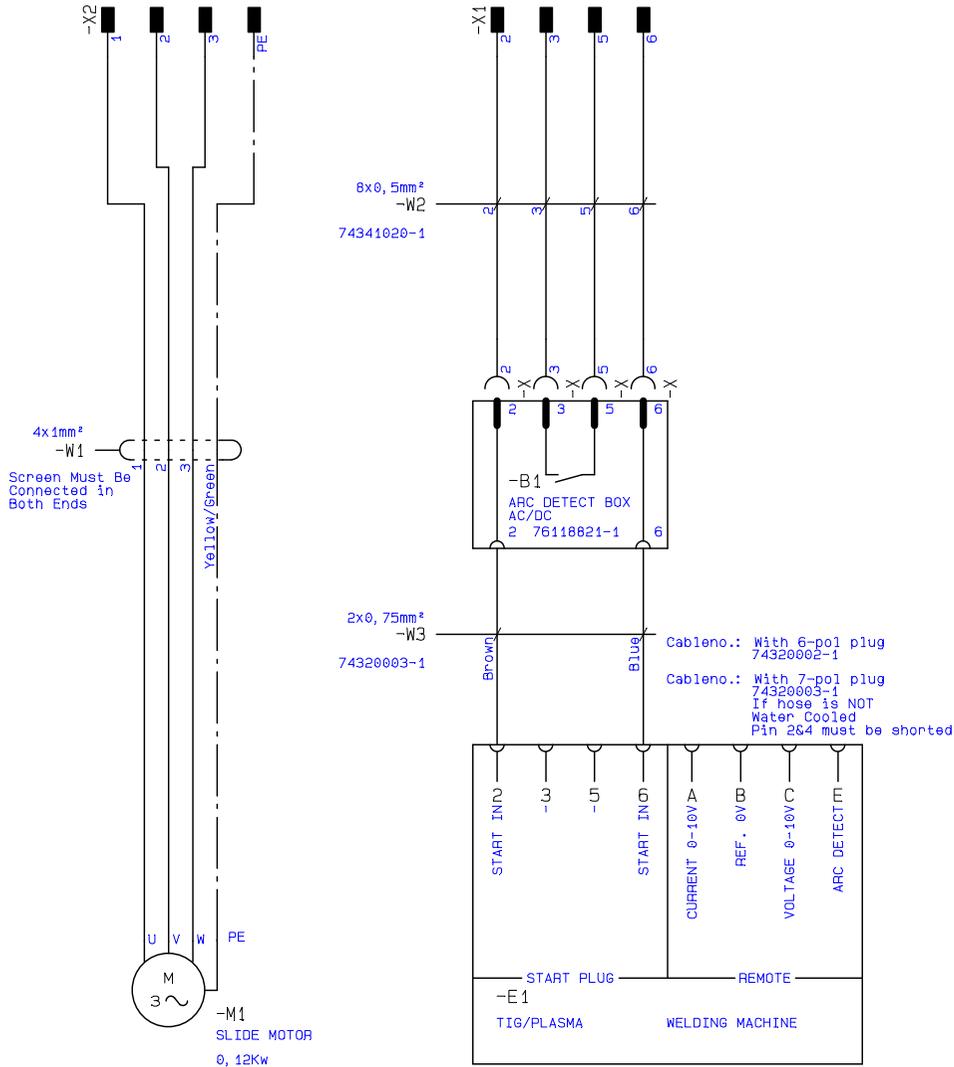
For this reason, do not send your automatic machine to the nearest tip; instead, contact your local council or an auto or scrap dealer about the possibility of reusing parts.

Disconnect all external connections (electrical, air etc.) before disassembly.

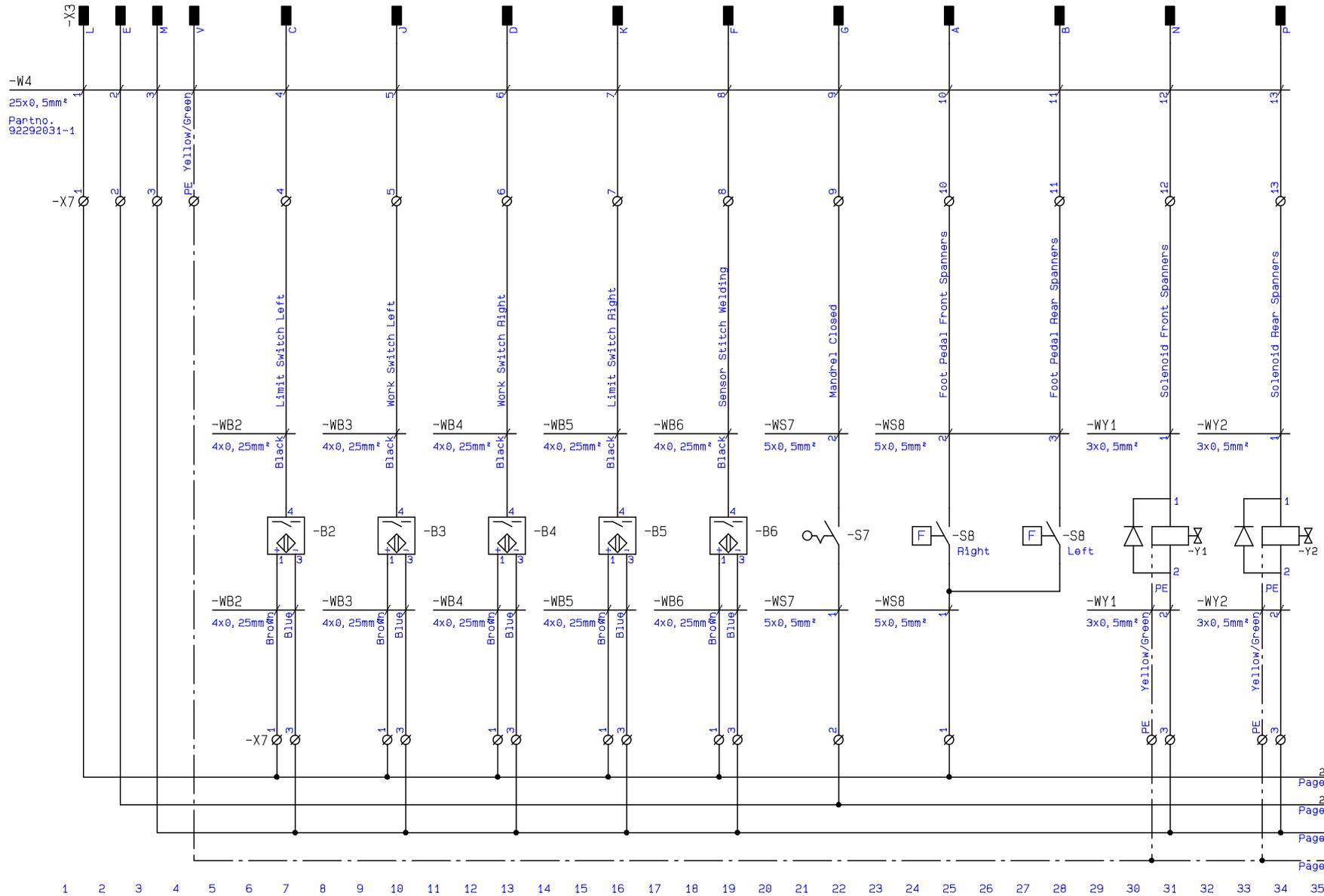
## Chapter 6: Technical data:



| Type:              | 1100 | 1650 | 2000 | 2500 | 3000 | 3500 | 4000 | 5000 |
|--------------------|------|------|------|------|------|------|------|------|
| Dimensions         |      |      |      |      |      |      |      |      |
| mm a               | 1585 | 2160 | 2540 | 3040 | 3560 | 4000 | 4510 | 5010 |
| mm b               | 265  | 265  | 265  | 265  | 265  | 265  | 265  | 265  |
| mm c               | 600  | 600  | 600  | 600  | 600  | 600  | 600  | 600  |
| mm d               | 800  | 800  | 800  | 800  | 800  | 800  | 800  | 800  |
| mm h               | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 | 1240 |
| mm i               | 1760 | 2260 | 2760 | 3260 | 3760 | 4260 | 4760 | 5260 |
| Wkpce<br>length mm | 1100 | 1650 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 |



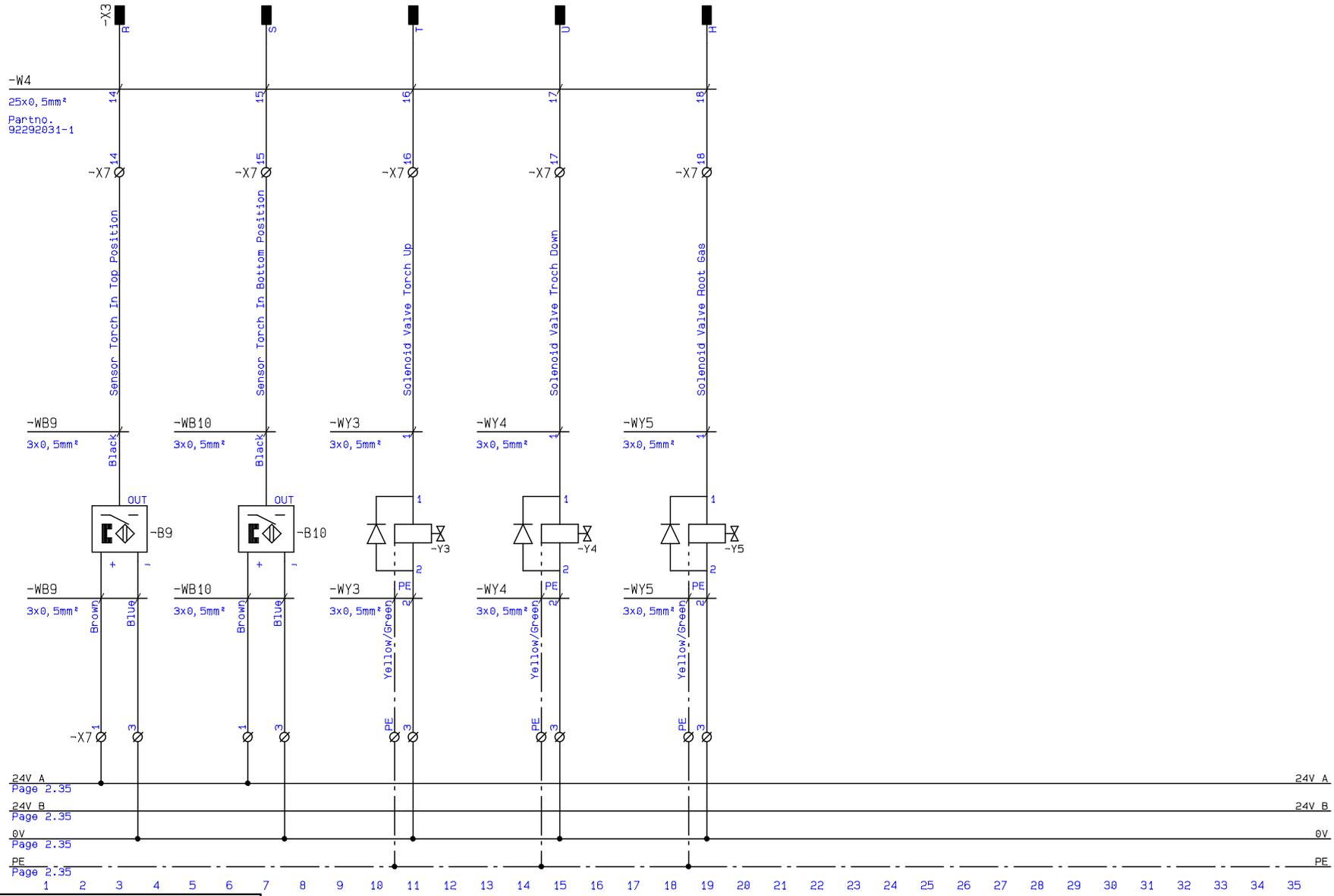
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35



61

24V A  
Page 3.1  
24V B  
Page 3.1  
0V  
Page 3.1  
PE  
Page 3.1



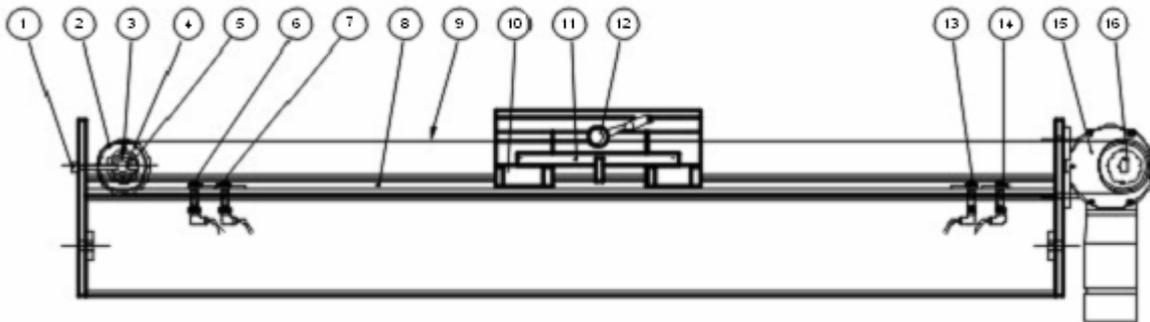


24V A Page 2.35 24V A  
 24V B Page 2.35 24V B  
 0V Page 2.35 0V  
 PE Page 2.35 PE



Please note that some part in this diagramme are mounted as options, and are not standard.

## List of replacement parts – long-seam automatic machine



| Pos. no. | Description  | Article number   |
|----------|--|--|
| 1        | Unbrako screw M8x80  | 40310880-1   |
| 2        | Toothed belt pulley  | 47419422-1   |
| 3        | Seeger-A-ring  | 42510020-1   |
| 4        | Shaft for toothed belt pulley.   | 25403005-1   |
| 5        | Ball bearing   | 44166204-1   |
| 6        | End stop sensor – left   | 17100809-1   |
| 7        | Working sensor – left  | 17100809-1   |
| 8        | Guide rail   | 45032049-1   |
| 9        | Toothed belt type 1100<br>Toothed belt type 1650<br>Toothed belt type 2000<br>Toothed belt type 2500<br>Toothed belt type 3000<br>Toothed belt type 3500<br>Toothed belt type 4000<br>Toothed belt type 4500 | 47041250-1<br>47041700-1<br>47042000-1<br>47042400-1<br>47042800-1<br>47043150-1<br>47043550-1<br>47043950-1 |
| 10       | Carriage   | 45032040-1   |
| 11       | Key fitting for sensor   | 27111002-1   |
| 12       | Contact lever  | 45080032-1   |
| 13       | Working sensor – right   | 17100809-1   |
| 14       | End stop sensor – right  | 17100809-1   |
| 15       | The engine and gearbox, depending on speed<br>Motor 0.25 kW / 1350 rpm<br>Gear i = 240<br>Motor 0.12 kW / 660 rpm<br>Gear i = 300 (TIG / Plasma)<br>Gear i = 114 (MIG / MAG)                                 | 17290070-1<br>17290071-1<br>17290073-1<br>17290072-1<br>17290074-1   |
| 16       | Taper lock bushing   | 46341526-1   |

**miGATRONiC**  
**automation**

Knøsgårdvej 112 - DK-9440 Aabybro  
Tel. +45 9696 2700 - Fax +45 9696 2701  
[www.migatronic-automation.dk](http://www.migatronic-automation.dk)  
[info@migatronic-automation.dk](mailto:info@migatronic-automation.dk)