FFRS Basic/Super

Flux handling equipment

Instruction manual

Original instructions

FFRS Basic/Super GB 20200420

1 SAFETY

Full responsibility for safety measures in respect of personnel working on, or in the vicinity of, the system rests upon the user of the ESAB Welding Equipment.

All safety measures must fulfil all regulations and mandatory rules which apply to the type of equipment concerned, in regard to the dangers and the level of hazard involved with the operation of any Welding Plant.

The contents of these recommendations can be looked upon as a supplement to the normal safety rules which apply to the working site.

1. All operations must be
   - carried out in accordance with the instructions
   - handled by specialized personnel

   A wrong operation can result in an abnormal situation and injure the operator and/or damage the equipment.
2. All personnel working with the Welding Plant must be fully aware of:
   - Handling of the equipment
   - Operation of the equipment
   - The location of emergency stop devices
   - All valid safety rules

   To facilitate this, each selector switch, push button or potentiometer is furnished with a printed plate or symbol, which gives clear directions as to its proper use and function.
3. The operator must make sure
   - that no one is inside the work area before or during operation.
   - that no one is inside the danger zone when the carriage and the slides are operated. Mind the area behind the carriage, which you cannot see from the control panel!
4. The work area must be:
   - free of machine parts, tools and other piled-up material that can get in the way of the operator.
   - so arranged that the requirements for unrestricted access to emergency stop devices for the welding carriage are met.
5. Personal safety equipment
   - Always use the proper personal safety equipment, such as:
     Welders' goggles or face-shield, non-flammable clothing, protective gloves
   - Do not wear loose clothing such as belts, bracelets, etc., which may catch on the equipment.
6. Required fire-extinguishers should be available in specially marked areas.
   - Floor areas and machine parts are to be kept free of inflammable materials, such as oily waste, cloths etc.
   - Remember that spatter may cause fires and skin burns.
7. Live parts are normally semi-protected.
   - Control- and connection boxes **must not be opened** while in operation, or if power is connected to the equipment.
   - The above-mentioned boxes can be opened only with a key or a tool.
   - Check that recommended, earthed connectors are properly fitted.
   - **Only authorized personnel may work on electrical equipment.**

8. Maintenance
   - Lubrication and maintenance of the equipment **must not be done during operation**.
   - Manual procedures involving hydraulic and pneumatic components **may be carried out only when the system is decompressed**.
9. **The function of all emergency and safety devices is to be checked monthly, as well as after any work has been carried out on the machine.**
   In the event of any abnormal function or signal, the underlying cause must be found and remedied before the machine can be taken into normal use.

WARNING!

Arc welding and cutting can be injurious to yourself and others. Take precautions when welding and cutting. Ask for your employer's safety practices which should be based on manufacturers' hazard data.

ELECTRIC SHOCK - Can kill

- Install and earth the unit in accordance with applicable standards
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing
- Insulate yourself from earth and the workpiece
- Ensure your working stance is safe

FUMES AND GASES - Can be dangerous to health

- Keep your head out of the fumes
- Use ventilation, extraction at the arc, or both, to take fumes and gases away from your breathing zone and the general area

ARC RAYS - Can injure eyes and burn skin

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing
- Protect bystanders with suitable screens or curtains

FIRE HAZARD

- Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby

NOISE - Excessive noise can damage hearing

- Protect your ears. Use earmuffs or other hearing protection.
- Warn bystanders of the risk

MALFUNCTION - Call for expert assistance in the event of malfunction.

Read and understand the instruction manual before installing or operating.

PROTECT YOURSELF AND OTHERS!

2 TECHNICAL DESCRIPTION

2.1 Introduction

FFRS Basic/Super is a complete flux recirculation system to be used in continuous submerged arc welding.

The flux system is powered by compressed air and can recover surplus flux immediately behind the point of welding and return this to the system, while at the same time replacing consumed flux by transporting flux from a flux tank to the flux hopper.

WARNING!
All personnel working with the equipment must be fully aware of the safety information given in manuals for the equipment and in manuals for included components.

NOTE!
Illustrations and photographs in this documentation are used for illustrational purposes, and may differ slightly from your particular equipment.

2.1.1 Symbols in the manuals

WARNING!
Warning means potential hazards which could result in personal injury or loss of life.

CAUTION!
Caution means hazards which could result in minor personal injury or equipment damage.

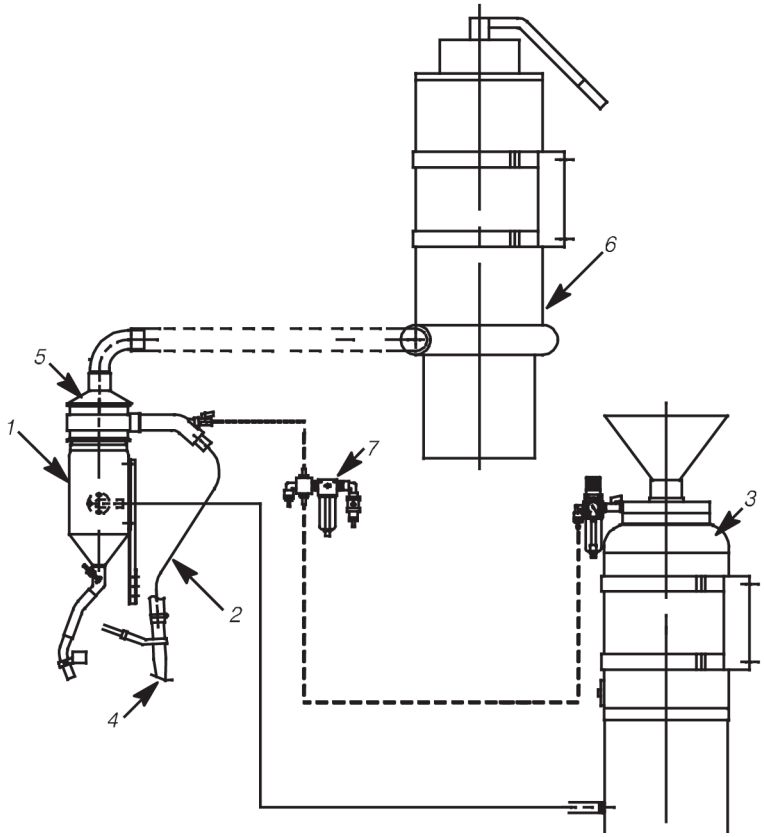
NOTE!
Note means important installation, operation or maintenance information not directly related to safety hazards.

2.1.2 Components with separate manuals

The following components have separate manuals. Read these manuals for component specific information!

- Flux recovery unit: OPC Super
- Flux pressure tank: A6 TPC 75
- Dust filter: PAK 20

2.2 Overview



1. Flux hopper
2. Hose
3. Flux presure tank, TPC 75
4. Suction nozzle
5. Flux recovery unit, OPC Super
6. Dust filter, PAK 20
7. Air pressure central

2.3 Functional description

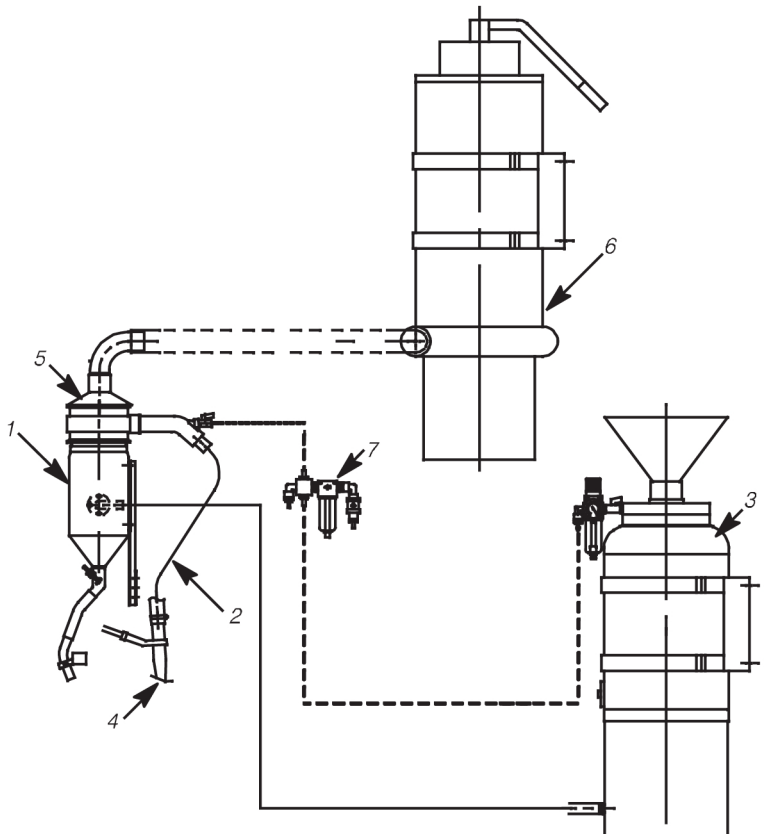
The Flux pressure tank **A6 TPC 75 (3)** is connected to the compressed air supply via a regulator valve set at a pressure of 2 to 4 bar. It can be de-aired over an outlet valve.

Flux from the pressure tank **(3)** is driven by compressed air to the flux hopper **(1)** which is fitted on the welding machine.

The valves of the flux hopper **(1)** are manually operated but can be out-fitted for pneumatic operation.

Surplus flux is sucked up by way of nozzle **(4)** via hose **(2)** to the flux recovery unit **OPC Super (5)** and carried back to the flux hopper **(1)**.

Slag and dust are separated out. Dust is collected in a container **(6)** with a dust filter and slag is collected in a wire basket beneath the flux recovery unit **(5)**.



2.4 Technical data

FFRS Basic/ Super	
Max work pressure	0.6 MPa
Normal work pressure	0.4, 0.5, 0.6 MPa
Air flow capacity (Basic)	175, 225, 250 l/min
Air flow capacity (Super)225, 270, 300 l/min	225, 270, 300 l/min
Max. suction height (Basic)	0.8 m
Max. suction height (Super)	1.0, 1.2, 1.4 m
A-weighted noise pressure (idle-running)	78 dB (A)
A-weighted noise pressure when welding	74 dB (A)

3 INSTALLATION

For mounting, lifting and installation of flux pressure tank **A6 TPC 75**, see instruction manual 443 408.

For mounting of flux container, see *"DIMENSION DRAWING"*, page 12

Flux system

The **FFRS** flux system is intended for use with different types of mechanized and automated ESAB welding systems such as rail-mounted welding machines and column and boom arrangements.

All components included in the system must be securely fastened to the foundation or to other parts of the machine.

Flux hopper

The flux hopper with mountings are intended for mounting on ESAB's A2 and A6 automatic welding machines.

Suction height

In case the system is to be used for a suction height and hoses longer than the standard length supplied, please consult ESAB first to ensure satisfactory operation of the flux equipment.

Compressed-air

The compressed-air supply must be clean and dry and have a maximum working pressure of 0.6 MPa (dew point -30 °C).

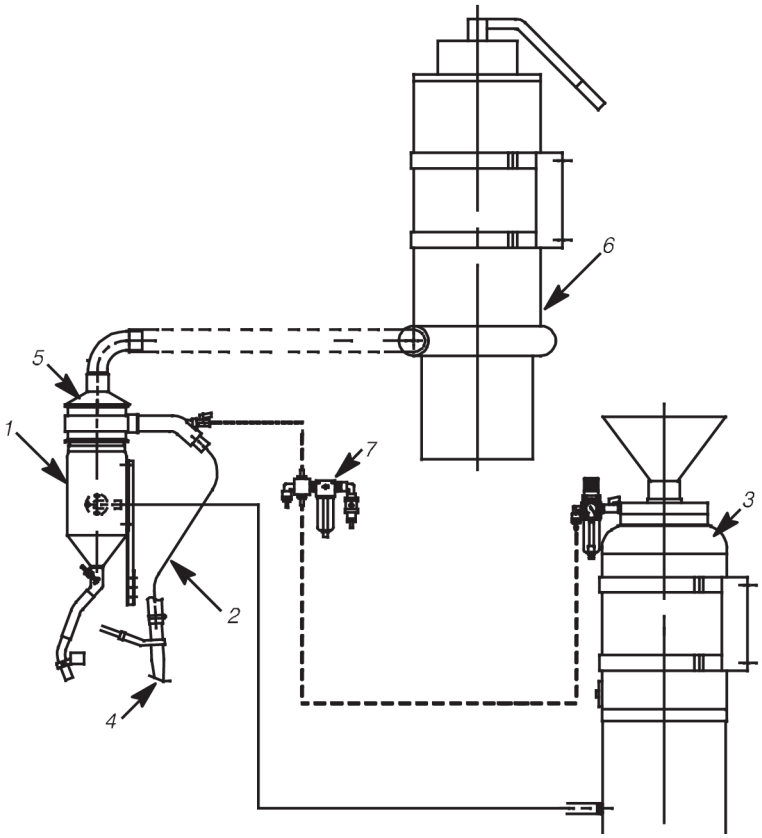
IMPORTANT! Make sure all compressed air connections are securely fitted.

4 OPERATION

4.1 Before welding

1. Check that the flux is of the correct grade and that there is a sufficient amount in the flux hopper **(1)** and in the flux pressure tank **(3)**.
   - **NOTE!**
     The flux must be dry.

     If possible, avoid using agglomerated flux outdoors or in humid environment.



2. Check that all hoses are undamaged and properly connected.
3. Adjust the air pressure to the required pressure at the filter regulator on the flux pressure tank **(3)**, so that flux can be transferred to the flux hopper **(1)**.
   - The pressure tank must not be allowed to run out of flux as the remaining flux in the hose will be blasted into the flux hopper **(1)** and create excessive dust.
   - A level monitor is recommended for continuous operation.
4. Connect an air drying unit (**A6 CRE 30/ A6 CRE 60**), ahead of the pressure tank if the air in the room has a high humidity.
   - Remember that the air humidity will vary with the season.

     NOTE!
     Humid air will lead to damp flux which will produce porosity in the weld.
5. Bleed the flux pressure tank **(3)** using the valve provided before filling with flux.
   - Do not fill any higher than 100 mm below the lid of the tank.
6. Flux can be transferred to the flux hopper by:
   - lifting the flux recovery **(5)** from the flux hopper **(1)** or
   - starting the flux recovery **(5)** and sucking up the flux
7. Adjust the height of the flux nozzle above the weld to give the correct amount of flux.
   - The flux cover should be thick enough to prevent arc penetration.

4.2 When welding is finished

1. Turn of the air supply to the flux pressure tank **(3)**.
2. Bleed the flux pressure tank.

5 MAINTENANCE

5.1 General

- Check daily that all hoses are undamaged and that all connections are secure. Leaking connections or hoses will impair suction and cause fouling of the air and the equipment.
- Clean up any spilled flux regularly to prevent airborne dust.
- Replace the filter bag in the dust filter container when it is half full of dust. In continuous operation around once a week.
- Flux pressure tank **A6 TPC 75**, see instruction manual 0443 408 xxx.
- Flux suction unit **OPC Super**, see separate instruction manual.

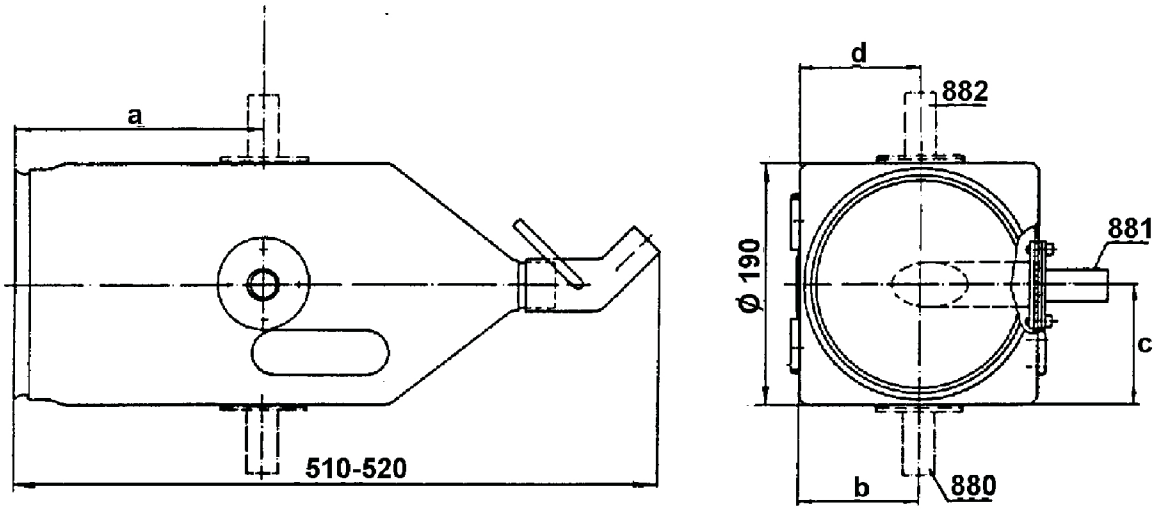
5.2 Ordering of spare parts list

Spare parts are ordered through your nearest ESAB representative, see back cover. When ordering spare parts, please state machine type and number as well as designation and spare part number as shown in the spare parts list. This will simplify dispatch and ensure you get the right part.

6 DIMENSION DRAWING

Flux hopper	10 l
Weight	3,5 kg

	a	b	c	d
880	200	95	-	-
881	200	-	95	-
882	200	-	-	95



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For contact information visit esab.com

ESAB AB, Lindholmsallén 9, Box 8004, 402 77 Gothenburg, Sweden, Phone +46 (0) 31 50 90 00

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