

ASAB GmbH – Ostrachstr. 3 , 86165 Augsburg

# OPERATING MANUAL

## FIRE FIGHTING DISPENSER

**SEMAT "F" 5000V2**

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### I. GENERAL

The SEMAT "F" 5000V2 is a multi purpose external load hook container, utilizing an electric-pneumatic valve arrangement.

The dual step opening device capable for rapid discharge and spraying of any liquid material, independent from each other, performs an outstanding versatility.

The radial valve arrangement (radial gap) permits a wide discharge pattern thus giving the most effective fire fighting performance.

Aluminum and stainless steel are used to built the SEMAT "F" 5000V2. Therefore the lifetime of this equipment is extremely high.

Maintenance is very less and the operation easy.

Worldwide only the SEMAT – system has the spraying capability!!

**Important remark: Without our permission no changes or attachments by 3<sup>rd</sup> party are allowed. Certificate of Conformity will no longer be valid.**

## II. TECHNICAL DESCRIPTION

Designation	Fire fighting dispenser
Main parts	Single harness suspension control handle with battery pack dispenser
Model	SEMAT "F" 5000V2
Date of issue	2020.01.20
Empty weight	490 kg
Total weight	5490 kg
Diameter	1820 mm
Total height	2280 mm
Pressure supply	Two air pressure bottles, 6 liter, 300 bar
Working pressure	8 bar controlled by a constant pressure regulator with low pressure switch at less than 30 bar

### FLIGHT PARAMETERS

Recommended speed	SEMAT empty	0 – 60 KIAS
	SEMAT filled	0 – 100 KIAS
Descent	maximum 1000 ft. / min	
Sling	up to 15 m length, 5 ton working load, safety factor see certificate of Span Set, Uebach Germany	
Sling manufacturer	SPAN SET, Uebach, Germany	
Remote Control	24 VDC operation, 4 pcs. accucells 18 VDC	
Bottom seal	EDPM seal	

### III. OPERATING INSTRUCTIONS

#### STORAGE

The SEMAT "F" 5000V2 is during the time of storage lifted up and secured by a safety pin (see chapter „Service and Maintenance“).

In order to perform it in working procedure, connect the cable from the battery pack to the control cable on the sling.

Open the valve on the pressure bottle and press the red button on the control handle. The system lifts up.

Remove the safety crossbar.

Release the red button on the control handle. The system closes automatically.

Close the valve on the pressure bottle and depressurize the system by pushing several times the red button.

If the SEMAT "F" 5000V2 is going in storage, perform the opposite sequence.

#### INSTALLATION OF THE REMOTE CONTROL IN THE HELICOPTER

The remote control should be stowed in the side pocket of the cabin door or strapped down on the floor of the helicopter by a safety string.

The control cable is guided and taped on the outside surface of the helicopter leading down to the cargo hook.

The electrical adapter has to be secured with the carabine hook at the nearest place to/or on the cargo hook.

#### PRE FLIGHT OPERATION

Ground personal place the SEMAT "F" 5000V2 in a 2 h clock position approximately 6 m far away of the pilots position.

The sling has to be connected on the cargo hook and the control cable to the secured adapter from the battery pack.

As soon the connection is established, the green/yellow light on the control handle will be flashing.

This indicates, that the electrical connection is properly done.

The operator directs the ground personal to open the valve of the pressure bottle in the dispenser inside of the SEMAT.

The signal light in operating handle turns of as soon as power (air pressure) is applied to the system.

**IMPORTANT!** The operator has to perform a **compulsory** functional test!\_Operating mode must be chosen before flight by turning the manual valve in the corresponding position (see pictures below)!

**For safety reasons SEMAT will open in case of voltage loss, if the operating mode valve it not in „BLOCK“/ “0” position. In case of wire damage or invalid connection during flight SEMAT, will open and can easily be lifted out of the water or placed in park position.**

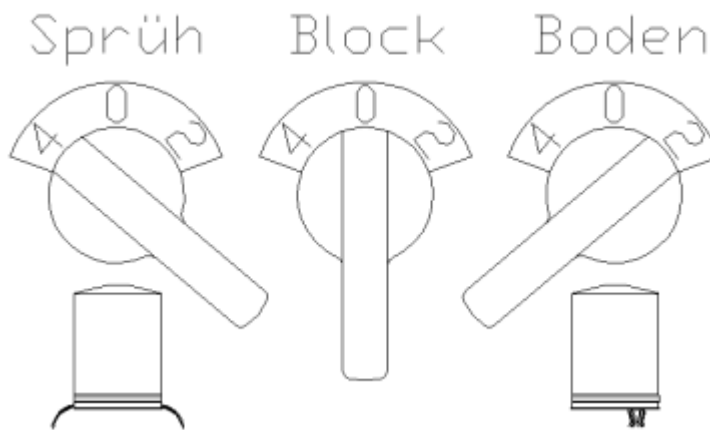
Pressing the upper switch (dump gap) - SEMAT "F" 5000V2 lifts up 160 mm

Releasing the switch - System closes automatically

Pressing the lower switch (spray gap) - SEMAT "F" 5000V2 lifts up 10 mm

Releasing the switch - System closes automatically

## Operating Modes:



### 1. Quick Release Mode (opens appr. 16 cm)

For safety reasons this mode will work, even if the manual valve is placed in „Block“/ „0“ position.

Put operating handle switch in upper/marked position. The casing will lift appr. 16cm over bottom plate. Whole content of water will be released in appr. 4 seconds. Same mode is to be used to fill the SEMAT by dumping into water during flight.

### 2. Spray-Mode (opens appr. 1 cm)

Manual valve must be placed in position „Sprüh“ / „4“.

Put operating handle switch in lower/unmarked position. The casing will lift appr. 1cm over bottom plate. Water content will slowly sprayed in order to apply over a larger

area to keep it wet. This opening mode might also be used to release small amount of water during flight in order to reduce e.g. overload (high and hot conditions).

### 3. Center drain

Manual valve must be placed in position „Boden“ / „2“. Put operating handle switch in lower/ Unmarked position. The bottom valve will open. Water content will be applied in appr. 20 seconds in order to fill external water reservoir or to fight embers (wooden roots), bottlenecks, etc. This opening mode might also be used to release small amount of water during flight in order to reduce e.g. overload (high and hot conditions).



### 4. Blocking Position

Manual valve must be placed in position „Block“ / „0“. Spray mode and center drain will be blocked and the SEMAT will not open in case of voltage loss. This mode is to be used if two SEMATs will be used in change mode: one will be filled by hosepipe during flight operation with the second.

#### Low Pressure Warning (yellow LED in operating handle)

If the pressure will go down to 30 bar, the yellow warning light in operating handle will switch on. From now on it will be possible to operate the SEMAT additional five times. Pressure bottle needs to be refilled or changed.

If the LED remains if pressure is correctly applied to the system, please check if the electrical connectors are fixed well. If this does not help please check the electrical wires for damage and change wire if necessary.

## FLIGHT OPERATIONS:

### **TAKING UP WATER:**

Establish hover flight to the assigned area.

Operator presses the upper/marked switch on the control handle.

The system opens the rapid discharge gap (160 mm).

Helicopter descends until the SEMAT "F" 5000V2 is completely under water level.

Operator releases the switch and the system closes automatically.

Helicopter lifts with permissible power the SEMAT out of the water and flies the mission.

**ADAPTING THE LOAD (SPRAY DISCHARGE):**

In case of hot & high conditions the helicopter is probably not able to carry the full SEMAT "F" 5000V2 out of the water.

The pilot sets the available power of the helicopter.

The operator presses the lower/unmarked switch.

The system lifts up 10 mm (spray gap).

The SEMAT releases the load through the radial spray gap.

As soon the SEMAT "F" 5000V2 is airborne, the operator releases the switch and the system closes automatically.

The load is adapted to the momentarily lifting capacity of the helicopter.

The mission can be continued.

**RELEASING THE WATER (RAPID DISCHARGE):**

When the helicopter arrives the fire area and is directed to dump the load, the operator presses the upper/marked switch.

The system opens immediately the dump gap and releases the complete load in 3-4 seconds.

Through the fact of the radial outlet of the system in connection with the forward flight, the water will be distributed on the ground in a width of approximately 50 m and a length of approximately 250 m, depending on the forward speed and height of discharge.



## REMOTE CONTROL AND ACCU-PACK:



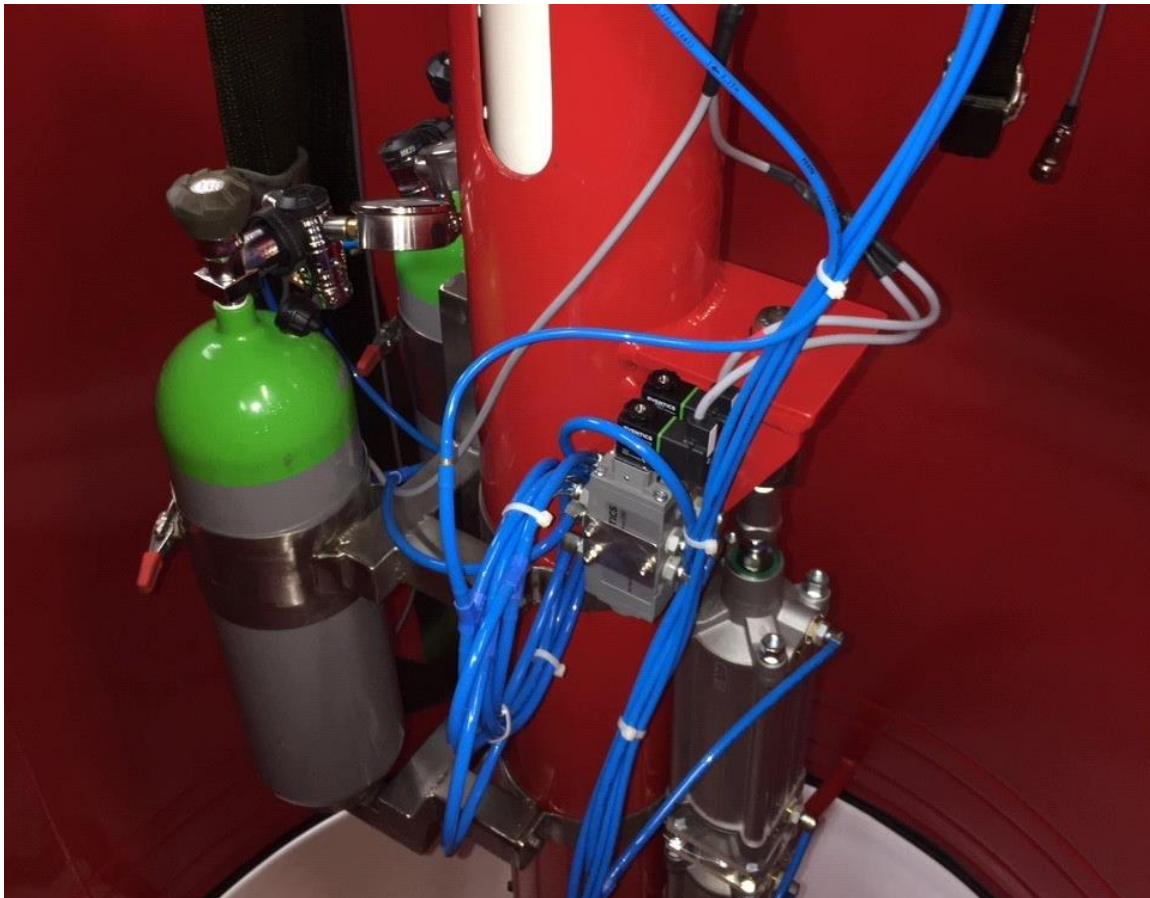
### **Important:**

**This remote control is not compatible with elder versions. For safety reasons the connectors are installed in opposite order.**

**During storage accu-packs must be removed because internal voltage regulator will discharge system otherwise!**

The remote control can be equipped either with 14.4V or 18V “of the shelf” BOSCH accu. Only use corresponding charging device!

Please check loading level of accu-pack by pressing the test switch on each accu and checking the power indicator. With full loading of two accus as shown in the picture, the system can be operated approximately 600 – 800 flights. The other two accus are parallel redundancy. It is possible to operate with only two accus installed, but not recommended. In case of internal damage or wire damage during flight, system will no longer work. Redundancy must be tested regularly by removing accu packs on one side and try operation. Then remove one accu of opposite side and try again. We recommend such test before each operation

**AIR PRESSURE BOTTLES (photo similar):****CHANGING OF THE AIR PRESSURE BOTTLES:**

The pressure bottles allow at least 150 operational cycles.

When during the operation the pressure of the system comes below 30 bar, the LED light on the control handle will be flashing.

From this time on the SEMAT "F" 5000V2 will operate with the remaining pressure for 3 additional cycles.

After this indication, both bottles must be replaced / refilled.

When the dispenser is on the ground, the valve of the bottles has to be closed.

The air pressure coupling on the constant regulator must be disconnected.

By opening with one hand the catch of the bottle holder, the bottles can be pulled out very easy.

Disconnect the regulator from the empty bottles and screw the regulator on the refilled spare bottles.

Install the bottles into the holding device and connect the air pressure hose coupling to the pressure regulator.

Verify by carefully opening of the valve, that the system will be pressurized without an air leak.

The SEMAT "F" 5000V2 is ready for another 150 cycle trip.

**CONTROL CABLE:****CHANGING THE CONTROL CABLE:**

Use a ladder in order to come inside of the SEMAT "F" 5000V2.

The spare cable and a screwdriver is passed by an assistant to the mechanic.

With the screwdriver unscrew the both adapters, mounted at the magnetic valves on the top bottom of the dispenser.

Unscrew the third connection of the control cable established to the low-pressure indicator switch.

Pull thoroughly the cable through the rubber-covered whole in the top bottom and pass it to the assistant.

The new control cable has to be slaved through the rubber-covered hole in the top bottom.

The electric cable adapters have to be screwed on the magnetic pressure valves.

**IMPORTANT!**

One of the two adapters is marked with a red tape label.

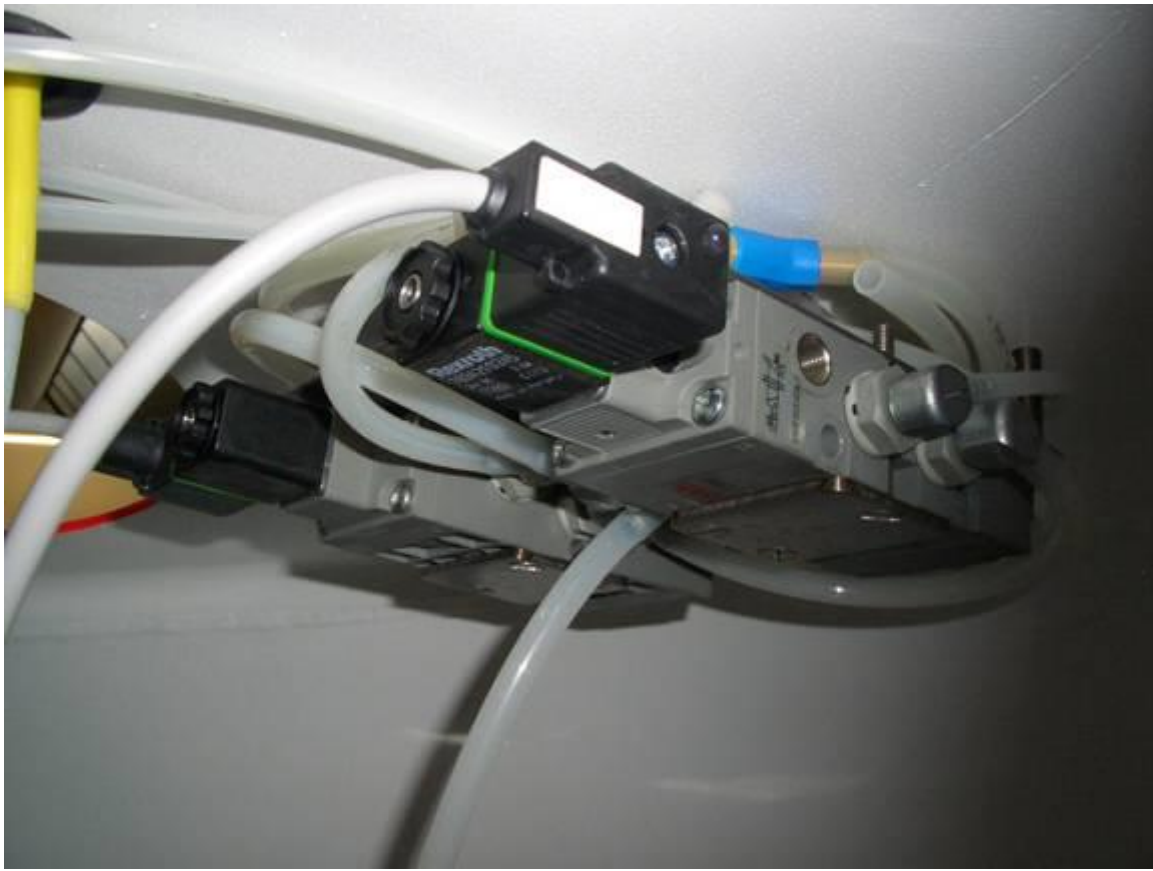
This adapter has to be mounted on the right valve, looking from the top situation at the dispenser.

Then connect the low-pressure indicator cable to the remaining third adapter.

Also very important is the fact, that we need a loop of the cable between the top bottom and the sling. This is necessary in order to have enough cable length in spare, when the sling turns around the main lifting point. Tape every meter the control cable to the sling and consider, that the sling extends during loading approximately 1 m.

After the installation a functional test has to be performed to proof the correct installation of the control cable. Especially the spray – and dump function in connection with the designed red – and black button has to be checked.

If the system lifts up 10 mm by pressing the red button and the black button causes the system to lift up 160 mm, the adapters on the magnetic valves have not been installed correctly. In this case reverse the both adapters and repeat the functional test.



## CHANGING THE SLING:

Use a ladder in order to come inside of the SEMAT "F" 5000V2.

The main carrying bolt is secured on both sides with two screws mounted through a safety disk on each side.

The screws on each side are secured by safety wires.

Cut safety wire on one side and pull it out of the screws.

Unscrew the both screws on this particular side.

### **ATTENTION!**

**When the last screw is taken out, take care, that the safety disk comes out together with the screw at the same time.**

Use a wooden or plastic bolt to press the main bolt out of the static tube. In case, that it is not possible by hand, take a plastic hammer and knock thoroughly on the wood until the bolt comes off from its position. Then store the bolt.

Exchange the main sling and the storage lifting sling as required.

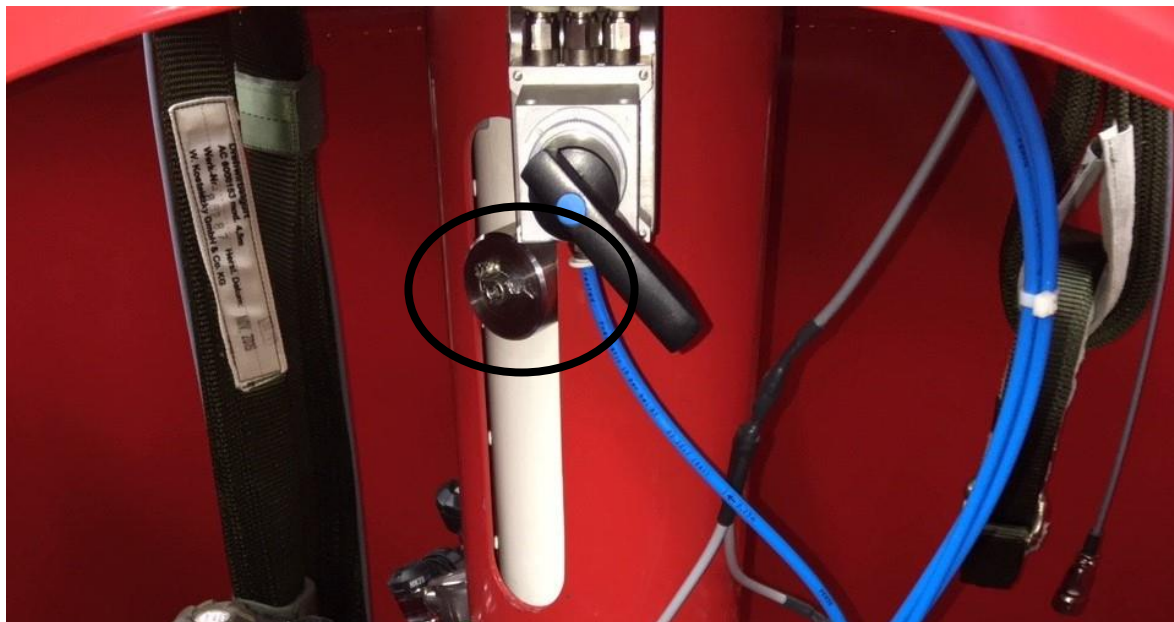
Then bring the main carrying bolt back in its origin position.

Install first one screw with the safety disk, then the second screw and tight both screws to the designed value.

Then secure both screws with a new safety wire and seal it.

Perform thoroughly a functional test and check very carefully, if the both tubes are sliding without touching the remounted sealed main carrying bolt.

Make sure, by leaving the dispenser, that no particles like safety wires etc. are left in the SEMAT "F" 5000V2. They could damage the sealing!



## IV. SERVICE AND MAINTENANCE

After every mission the SEMAT "F" 5000V2 should be brought in the storage position in order to dry complete (see photos below).

The system has to be rinsed with sweat water very thoroughly –especially if salt water has been applied.

The single harness rope suspension should be cleaned, if necessary, and brought in a position, where it can dry completely.

The sealing has to be checked, if there is any damage, dirt has to be removed, grease the sealing with technical vaseline.

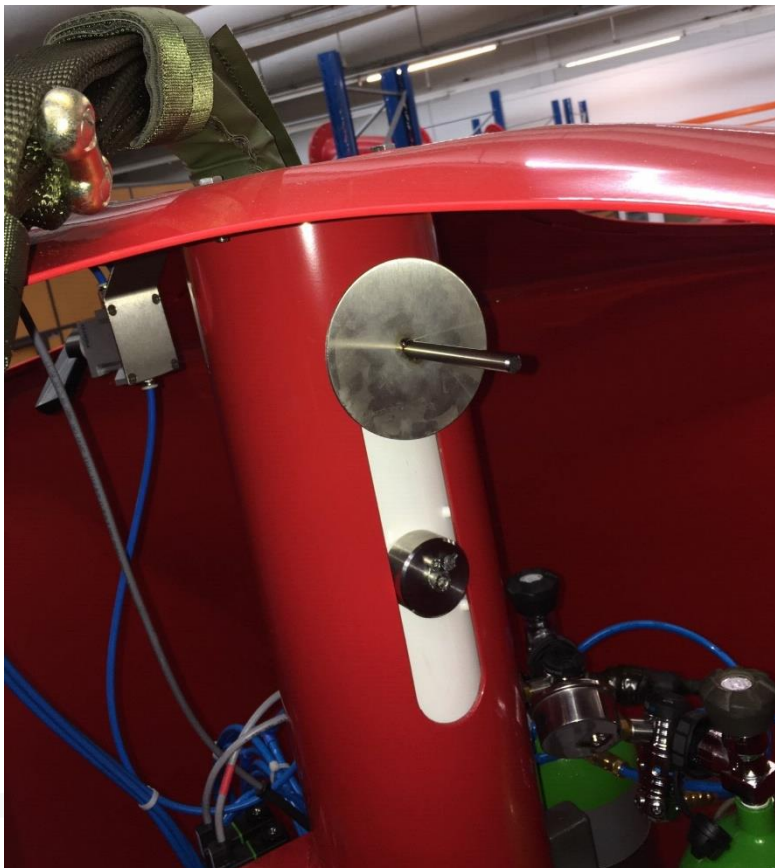
The air cylinder is lubricated for lifetime and needs therefore no maintenance.

The slide bearings on the static tube have to be checked after any particles in the sliding area and if necessary to be cleaned.

The air hoses should be checked periodically for leakage.

The main bolt in the static tube and the mounted secure wires should be checked of completeness periodically.

The batteries of the battery pack are recommended to be replaced every year.



- Open in dump mode
- place safety pin
- close SEMAT main seal will remain released from load
- close pressure valve and release pressure for storage

## **EG- Certificate of Conformity**

(according to 89/392/EWG)

We,

ASAB GmbH  
Apparate- und Behälterbau  
Ostrachstraße 3  
D-86165 Augsburg

Declare herewith that our SEMAT "F" 5000V2

Year of production: 2020  
Serial N°: 0001-0002

Has been build in accordance with the EG-regulations for safety and healthy 2006/42/EG, although it is not defined as a "machine" according to this regulation.

Augsburg, 2020.01.20

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Signature

## **V. SPARE PARTS SEMAT“F“ 5000V2**

Our SEMAT is a very robust system, which need no regular exchange of parts because of wear in normal use. Nevertheless, parts might be damaged during operation and following spare parts can be delivered:

- 1 pcs. **SEMAT“F“ 5000V2** structural parts
- 1 pcs. **Bottle Holder** stainless steel
- 2 pcs. **Air Pressure Bottle** 2 x 6 liter / 300bar
- 2 pcs. **Pressure Reducer** 300bar => 8bar
- 1 psc. **Compact Pneumatic Cylinder main**
- 1 psc. **Pneumatic Cylinder floor train**
- 2 pcs. **Magnetic Valve**
- 1 pcs. **Manual Valve**
- 1 pcs. **Control Cable**
- 1 pcs. **Main Seal EDPM**
- 1 pcs. **Sling** Kostelletzki or similar
- 1 pcs. **Main Carrying Bolt**
- 1 pcs. **Remote Control** without accu-pack
- 1 pcs. **Safety Pin** for storage
- 1 pcs. **Operating Manual SEMAT “F“ 5000V2**

**Other parts can be either delivered by us or purchased „of the shelf“.**



ASAB GmbH, Augsburg  
 SEMAT 5000 Außenmaße  
 Nutzvolumen 5000 ltr  
 Leergewicht ca. 480kg

