

# INSTRUCTION MANUAL

Doc. no. MN1012E Rev. A - Jan 2016



## ABSC-18 Blast Machine - 18 ltr.



**Manufactured by:**

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**Technical data**

Capacity	:	18 liters
Max. system pressure	:	12 bar
Min. system pressure	:	5 bar
Max. compressed air temperature	:	50° C
Min. compressed air temperature	:	5° C
Max. ambient temperature	:	50° C
Min. ambient temperature	:	5° C
Dimensions (dia. x height)	:	258 x 781 mm
Weight (bare and empty)	:	40 kgs.

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## 1.0 - INTRODUCTION BLAST MACHINE

This manual covers the set-up, maintenance of the Model ABSC-18 pressure type blast machine. Before using this equipment make sure that the people who operate and maintain this machine, read understand and follow all instructions in this manual. Store this manual on a safe place for future use, maintenance, troubleshooting and to order spares.

### 1.1 - List of models

Part no.	Capacity	Metering Valves		Operation		Other Options	
	18 liter	AP-7 Abrasive Control Valve 1/2"	GVA-12 Abrasive Metering Valve	Manual Operation	RCV-50 Remote Control System	Clearline Moisture Separator 1/2"	Safety Valve Assembly
1019101	•	•		•			
1019102	•	•		•		•	
1019103	•	•			•		
1019104	•	•			•	•	
1019105	•	•			•	•	•
1019106	•		•	•			
1019107	•		•		•		

Other configurations are available upon request.

### 1.2 - Safety instructions

1. Use protective equipment: abrasive-resistant clothing, safety shoes, leather gloves, ear protection, CE-approved air-fed helmet. Air for helmet must be supplied by a breathing air compressor or through a helmet air filter.
2. Check for possible silicosis hazards. Avoid dust.
3. Do not blast with damaged or worn equipment.
4. Point nozzle only at area being cleaned.
5. Use only proper dry and well-screened abrasives specifically intended blasting.
6. Keep unprotected workers out of the blast area.
7. Before blasting:
  - Check fittings and hose for wear.
  - Safety-wire couplings together.
  - Check helmet filters and air supply.
  - Check pop-up valve for alignment.
  - Test remote controls.
  - Make sure blast machine is adequately grounded.
8. Do not weld on blast machine, this voids approval.
9. Do not substitute Airblast parts or modified equipment in any way.



## 2.0 - OPERATION SET-UP

### 2.1 - Set-up

The set-up procedure for manual controlled blasting (without the use of a remote control system) is as follows:

- Make sure that the compressor is located upwind from the blasting area. Start the compressor and bring it up to operating pressure and temperature before beginning the blast cleaning operation.
- Open the bleed-off and choke valves (handles in parallel position with piping).
- Close the air inlet valve at the abrasive valve.
  - Closed valves:
    - sand valve : extreme position of handle to either side of the center of the valve.
    - grit valve : full clockwise position of the handle.
- Connect the compressed air line to the air inlet valve (for optimum blast cleaning performance use ¾" ID air line or larger).
- Connect the blast hose quick connect coupling to the machine quick coupling. Check condition and proper placing of the rubber coupling gaskets.
- Fill the concave head of the machine with abrasive. The abrasive will pass the filling port into the machine.
- Put on all protective clothing.

### 2.2 - Operation:

To blast clean, the machine tender:

- Puts pressure to the air line of the blast machine.
- Closes the bleed-off valve.
- Opens the air inlet valve, when the blasting operator signals that he is ready. This causes sealing of the filling port by the pop-up valve and the blast machine will pressurize. Only air will come out of the nozzle.
- Adjusts the abrasive valve for proper air/abrasive mixture. General rule: use as little abrasive as possible. The abrasive stream coming out of the blast nozzle should hardly discolor the air when seen against whatever light source.
- Closes the air inlet valve and quickly opens the bleed-off valve to stop blasting.

### 2.3 - Shut-down

When shutting down for the day: empty the blast machine of all abrasive by removing the nozzle and putting the blast hose in a suitable waste container. Close the choke valve and put the handle of the abrasive valve in full open position. Then put pressure to the machine by opening the air inlet valve.

The blast machine should be covered if left out at site, in order to prevent moist abrasive to cause trouble when starting up blasting again.



ONLY USE ABRASIVE SPECIFICALLY MEANT FOR BLASTING,  
NEVER USE UN-SCREENED OR MOIST ABRASIVES

### **3.0 - MAINTENANCE**

#### **3.1 - Replacement of the Pop-up valve**

Unscrew the bolts (page 8, item 1) and remove the Pop-up valve seat retainer (page 8, item 3) in order to get access to the Pop-up valve. Remove both Pop-up valve and shaft from the blast machine. Put the new Pop-up valve in the shaft guide and then install them inside of the machine. If needed replace gasket for Pop-up valve seat retainer (page 8, item 2). Place the Pop-up valve seat retainer back onto the machine and tighten the bolts.

#### **3.2 - Replacement of the Pop-up O-ring**

Put your fingers between the Pop-up O-ring and the retainer and slowly remove the old O-ring. If necessary, use a screwdriver. Push the new Pop-up O-ring into the Pop-up valve seat retainer.

### **4.0 - TROUBLESHOOTING**

#### **4.1 - Blockages**

If neither abrasives nor air comes out of the blast nozzle, first depressurize the machine and then check if the nozzle is clogged. If only air comes out and no abrasive, fully open the abrasive valve and then quickly open and close the choke valve. If this fails, depressurize the machine, remove the inspection door assembly and check the inside of the machine for foreign objects (paper, etc.).

#### **4.2 - Abrasive surge**

When starting up, surge of abrasive is normal to some extent. However, if the abrasive surge should continue, the flow of abrasive can usually be stabilized by the quick opening and closing of the choke valve. An intermittent abrasive flow is sometimes caused by an excess of moisture in the blasting system. This problem in practice can be solved by installing a moisture/water separator in the air line, closest to the machine as possible.

#### **4.3 - Removal of moist abrasive**

In order to remove moist abrasive from the system, the blast hose has to be disconnected and the rubber gasket in the quick coupling on the machine has to be removed. The next step is to close the choke valve and open the abrasive valve. Force out any moist abrasive by pressurizing the machine.

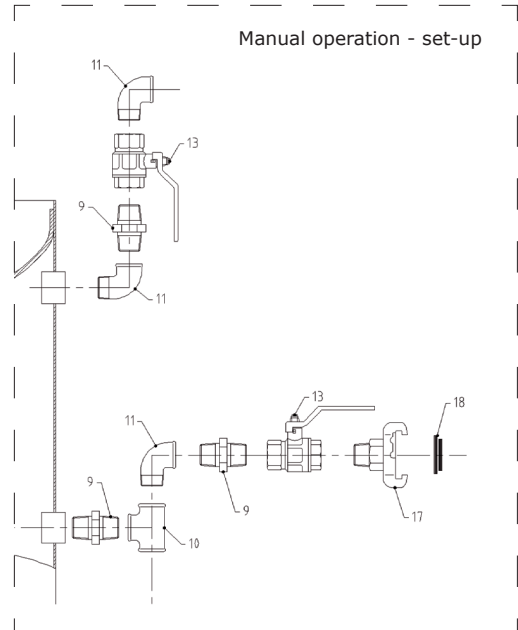
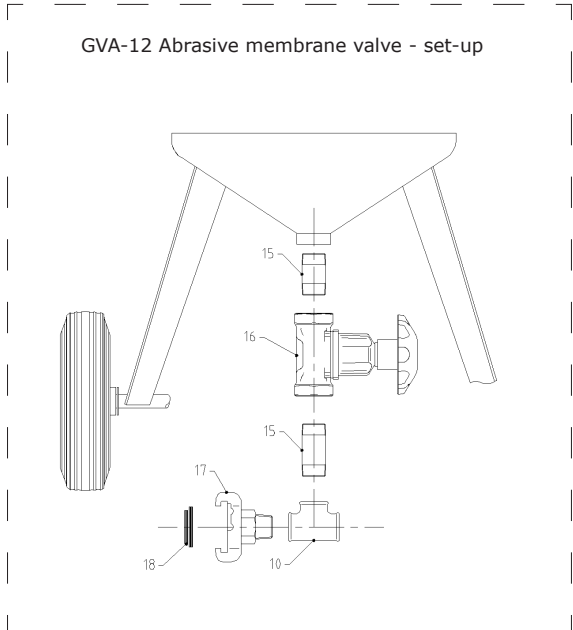
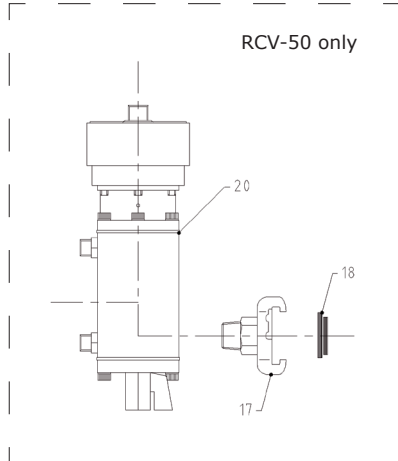
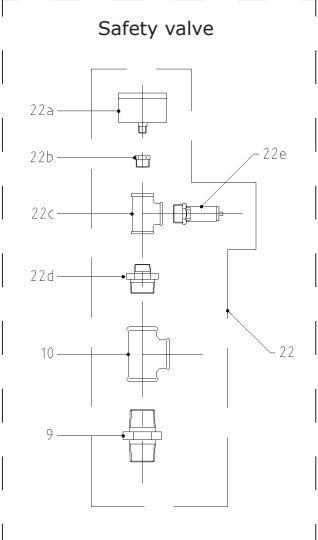
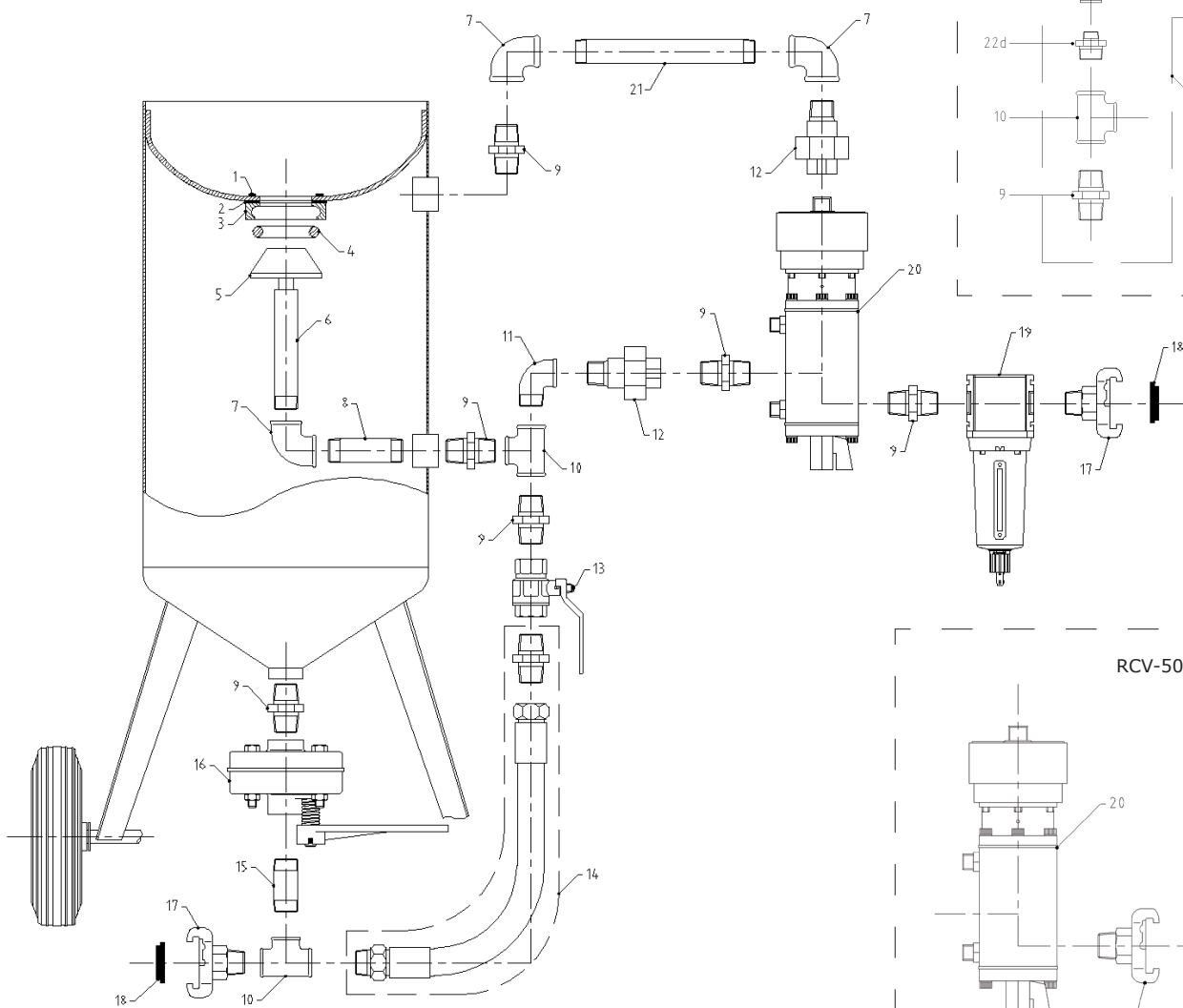
#### **4.4 - Keep these spares on hand to reduce downtime**

1073000 - AP-5 Pop-up O-ring

SEE SEPARATE INSTRUCTIONS FOR REMOTE CONTROL SYSTEM ON PAGE 15



# 5.0 - DRAWING & PARTS LIST BLAST MACHINE



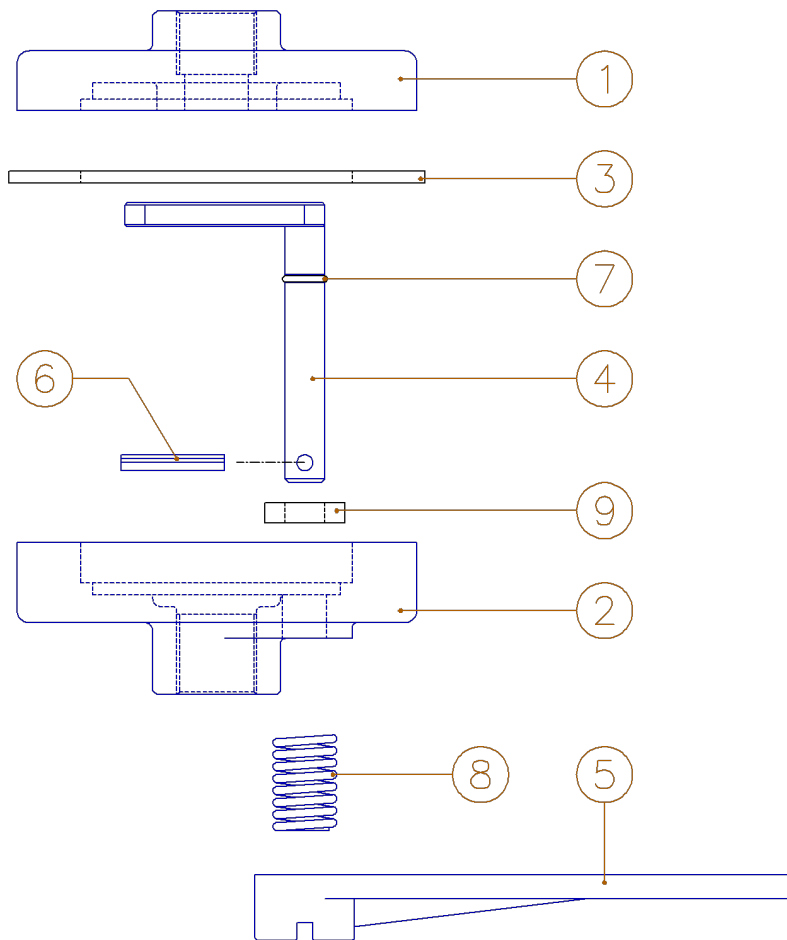


Item	Part no.	Description
1	1072000	Pop-up valve seat retainer bolt
2	1095000	Gasket for pop-up valve seat retainer
3	1074000	Pop-up valve seat retainer
4	1073000	AP-5 Pop-up O-ring
5	1075000	AP-2 Pop-up valve with shaft
6	1077000	Inner pipe, 1/2", M
7	2197300	Elbow no. 90, 1/2", FF
8	1079000	Inner pipe, 1/2", MM
9	2225300	Hex nipple, 1/2", MM
10	2211300	T-piece, 1/2", FFF
11	2199300	Elbow, 1/2", MF
12	2249300	Union, 1/2", MF
13	1090000	AP-1 Air valve, 1/2", FF
14	1089603	Air hose coupling set, 1/2", MM
15	1081000	Pipe, 1/2", MM
16	6026000	AP-7 Abrasive control valve, 1/2", FF
	6070000	GVA-12 Abrasive membrane valve 1/2"
17	2170200	KAG-12 Quick coupling, 1/2", M
18	2164000	CQG-0 Rubber coupling gasket
19	4056001	Clearline, 1/2", FF
20	1122000	RCV-50 Remote control
21	1079000	Pipe, 1/2", FF
22	1210500	Safety valve assembly
22a	4073200	Pressure gauge
22b	4101601	Reduction ring brass, 1/4" x 1/8", FM
22c	2291600	T-piece brass, 1/4", FFF
22d	4101600	Reduction nipple brass, 1/2" x 1/4", MM
22e	1089700	Safety valve, 1/4" - 10 BAR
	1019900	Screen for ABSC-18 (not shown)
	1019905	Cover for ABSC-18 (not shown)

### 5.1 - AP-7 abrasive control valve

Item	Part no.	Description	
1	6027000	Top casting	(1)
2	6028000	Bottom casting	(1)
3	6029000	Valve body gasket	(1)
4	6030000	Metering plate and stem	(1)
5	6031000	Handle	(1)
6	6032000	Spring pin	(1)
7	6033000	O-ring	(1)
8	6034000	Spring	(1)
9	6035000	Washer (nylon)	(1)

All parts required in quantities shown ( )



## 6.0 - INTRODUCTION RCV-50 REMOTE CONTROL SYSTEM

This manual covers the operation and maintenance of the RCV-50 remote control system for single chamber blast machines.

### 6.1 - Product description

The RCV-50 remote control system is designed to operate on all single chamber blast machines with ½" machine piping. The RCV-50 control valve consists of two valves incorporated in one housing. The lower valve switches the main air supply to the machine. The upper valve switches the blow-off connection of the blast machine.

The lower chamber is in direct connection with the compressor through the inlet port and the moisture separator. This implies that the red part of the twin-line control hose is continuously pressurized during operation. The blue part of the twin-line control hose is connected to the upper via the ¼" port (item 13 page 15).

### 6.2 - The blasting (on) action

Activating the deadman handle causes a closed circuit in the twin-line control hose. The pressurized chamber causes the upper and lower valve to move away from each other.

In this position the supply air passes the lower valve to flow to the blast machine and nozzle. The upper valve closes the blow-off connection through the diaphragm.

### 6.3 - The shut-down (off) action

When the deadman handle is released, the red pressurized hose is connected to the atmosphere through a restriction in the connection to the deadman handle. At the same time the blue hose is unrestrictedly connected to the atmosphere via the deadman handle. In this situation the upper valve is forced down by the blow-off pressure so that the pressure inside the blast machine can escape through port into the bleed-off manifold chamber and then via the silencer to the atmosphere.



**IMPORTANT:** Always check before and after each day of operation possible water contents inside the valve by opening the drain petcock. If too much water is present, check water separator. The safety petcock shuts down the blasting operation when opened. This valve should be open during break-time.

### 6.4 - System reliability

In this system all moving and vital parts are separated from the air coming out of the blast machine during blow-off. The diaphragm prevents any damage to the valves parts if grit particles should occur in the blow-off airflow. Valve maintenance is easy to perform and does not require special tools.

## 7.0 - INSTALLATION PROCEDURES

### 7.1 - System installation

In your blast system all parts are included to set-up your remote controlled single chamber blasting operation. Apart from this literature it also includes the blast machine operations manual.



**WARNING:** Do not turn on the nipples too tight, especially to the control valve. This might damage some components and cause leakage.

To complete the installation, follow the instructions below:

- a. Make sure that the connections are air tight.
- b. Make sure that the colored or letter marked connections on the control valve and deadman handle are properly connected. Cross-linkage result in a not operational system.
- c. Tie the deadman handle properly down to the blast hose just behind the nozzle holder.
- d. It is recommended to tie the twin-line control hose to the blast hose at approx. every 1.5 mtrs.
- e. Connect the blast hose to the machine and nozzle.
- f. Connect the helmet air filter to the air supply from the machine piping and to the blast helmet.

### 7.2 - Field installation

Follow the instruction provided below to convert your manual blast machine to a remote controlled blast system:

- a. Remove the entire blow-off assembly from the blast machine.
- b. Remove the main air supply to the machine from the inlet elbow.
- c. Follow the instruction in paragraph 2.1.



**IMPORTANT:** Always use a moisture separator in combination with the remote control system to protect the control valve from excessive wear. It also optimizes the blasting operation.

## 8.0 - BLASTING OPERATIONS

### 8.1 - Start-up

Make sure to have full understanding of the blast machine manual before operating the remote control system.

- a. Check all connections from the compressor up to the nozzle and see to it that they are properly fixed (a loose-coming compressor air hose can cause serious damage).
- b. Make sure that the blast machine is filled with abrasive.
- c. Make sure to have taken the proper safety precautions for yourself and your environment:
  - proper clothing
  - clean air supply to the helmet
- d. Always check whether the lever of the deadman handle is in safe position with the lock upright.
- e. Close both petcocks on the control valve.
- g. Check for leakage. Air should escape from the hole underneath the lever of the deadman handle only and nowhere else. The system is now ready to be pressurized.

### 8.2 - Blasting operation

- a. Flip over the safety guard of the deadman handle and activate the lever (start blasting).
- b. To stop blasting, release the lever (the safety guard automatically flips back).



**IMPORTANT:** Always open the safety petcock on the control valve (opposite blue twin-line connection) during break time.



**WARNING:** The lever of the deadman handle must never be fixed in blast position. This can result in serious injury.

## 9.0 - MAINTENANCE

### 9.1 - Valve disassembly (see drawing page 15)

- a. Disconnect the control valve from the blast machine.
- b. Remove the nipple on the top of the control valve (pos. 15).
- c. Take off the bleed-off manifold with the silencer assembly. The silencer can be disassembled according to the breakdown drawing.  
Be careful with the silencer cartridge support adjustment during re-assembly.
- d. Remove the screws (pos. 16) to take away the top cover (pos. 4), the blow-off diaphragm (pos. 9), the bleed-off cylinder housing (pos. 2) and the bottom plate (pos. 8). Be careful with the packings (pos. 12).
- e. To remove bleed-off cylinder and piston (pos. 6 and 7), hold the piston sturdily with a proper tool (be careful not to damage the aluminum) and unscrew the screw (pos.16). O-rings and seals can now be inspected.
- f. To remove the inlet valve and piston for inspection (pos. 5 and 7), hold the inlet valve by means of a steel pin of 5 mm through the machine connection side of the control valve. This pin fits into the hole in the center of the inlet valve. Release the screws (pos. 16) and take away the piston and inlet valve.

### 9.2 - Valve assembly

Re-assemble the control valve by reversing the steps of 9.1.



**WARNING:**  
NEVER RE-ASSEMBLE WORN PARTS.  
THEY CAN DAMAGE THE CONTROL VALVE UNNECESSARILY

It is recommended to change the (\*)-marked parts in the parts list in time to prevent excessive wear and damage to the control valve.

### 9.3 - Maintenance program

DAILY:

1. Check the control valve for water contents. If water is present, check the condition of the water separator.
2. Check the rubber insert of the deadman handle on its proper condition. If it looks bad or damaged, replace it.
3. Check all hoses and fittings on condition and proper fixation.

MONTHLY (OR AFTER EACH CYCLE OF 160 WORKING HOURS):

1. Check the condition of the silencer and its piping.
2. Check all air connections for leaks.
3. Disassemble the control valve by following the steps of 9.1 and check all moving parts. If they look worn, replace to prevent unnecessary damage. Assemble the valve and grease the moving parts with general purpose lubrication oil.

## 10.0 - TROUBLE SHOOTING

The following checklist can be used to trace a problem in case the remote control system does not function properly:

1. Review instructions in this manual.
2. Inspect all air hoses and connections for air-leaks.
3. Be sure that the safety and drain petcocks are closed.
4. Check the deadman handle for air-leaks:
  - in released position air should only be escaping from the body hole.
  - in the pressed position no air at all may escape from the handle.

PROBLEM	CAUSE	REMEDY
No air escapes from the body hole in the deadman handle.	Twin-hose clogged and/or squeezed.	Remove the twin-line and check for blockage.
The system will not start.	Safety petcock still open. Insufficient air supply to the blast all parts should move machine	Close safety petcock disassemble control valve, all parts should move freely
After starting, the system will not stop.	Clogged deadman handle channels. Hose connections switched. Defect control valve.	Remove handle and clean it.  Check connections and modify if switched.  Disassemble valve and check proper operation.

### 10.1 - Keep these spares on hand to reduce downtime

1122203 - RCV-50 Repair kit

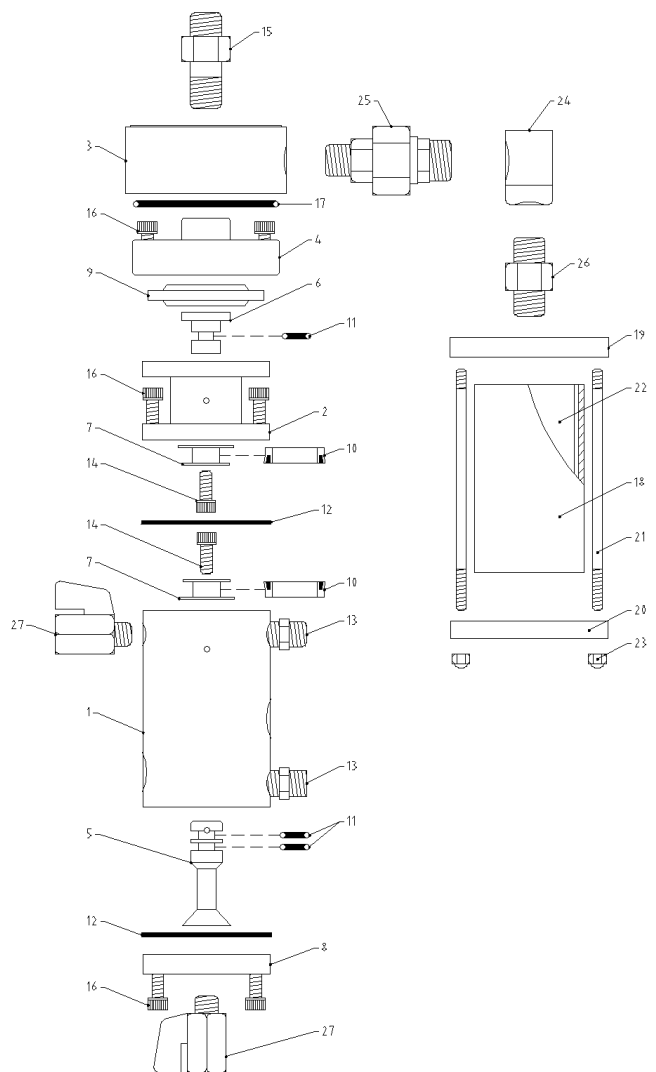
1203600 - Rubber insert for DMH-125

## 11.0 - DRAWING & PARTS LIST RCV-50 REMOTE CONTROL SYSTEM

### 11.1 - RCV-50 Remote control valve

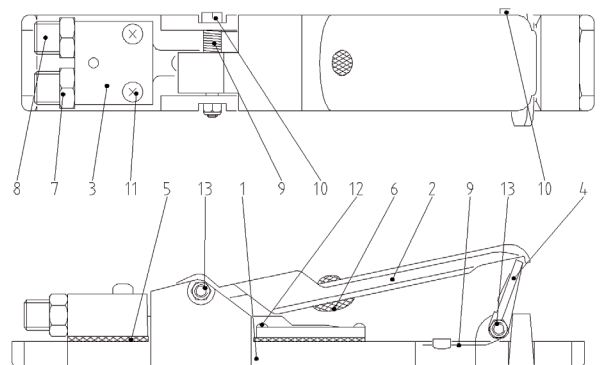
Item	Part no.	Description	Qty
01	1122010	Valve housing	1
02	1122020	Bleed-off cylinder	1
03	1122030	Bleed-off manifold	1
04	1122040	Top cover	1
05	1122050	Inlet valve	1
06	1122060	Bleed-off cylinder	1
07	1122070	Piston	2
08	1122080	Bottom plate	1
09	1122090	Diaphragm	* 1
10	1122100	Piston seal	* 2
11	1122110	O-ring	* 3
12	1122120	Packing	* 2
13	1178000	Brass hex nipple 1/4"	1
14	1122130	Piston screw M6 x 15	1
15	1122140	Nipple 1/2" BSP (M) x 3/8" BSP (M)	2
16	1122150	Cap screw M6 x 20	2
17	1122160	O-ring	* 1
18	1122170	Silencer housing	12
19	1122180	Silencer top plate	1
20	1122190	Silencer bottom plate	1
21	1122200	Silencer housing pin 5x215	1
22	1122210	Silencer cartridge	3
23	1122220	Lock nut	1
24	1122230	Union elbow	1
25	1122240	Union	1
26	1122250	Nipple 3/8" BSP (M) x 3/8" BSP (M)	1
27	1152000	Plug 1/4" (not shown)	1
28	1152000	Ball valve 1/4"	1

All \*-marked items are included in RCV-50 Repair kit (art.nr. 1122203) in the quantities shown.



### 11.2 - DMH-125 deadman handle

Item	Part no.	Description	Qty
01	1203100	Handle body	1
02	1203200	Lever	1
03	1203300	Pneumatic manifold	1
04	1203400	Lever safety lock	1
05	1203500	Gasket	1
06	1203600	Rubber insert	1
07	1203700	Reduction nipple 1/4" x 1/8" (restricted)	1
08	1203800	Reduction nipple 1/4" x 1/8"	1
09	1203900	Spring	2
10	1204000	Screw 5x40	2
11	1204100	Screw 4x25	2
12	1204200	Screw 4x10	4
13	1204300	Lock nut	2



## 12.0 - AIR REQUIREMENT

<b>Minimum Air Volume Table</b>					
<b>Air Volume Requirements at 100 PSI for a Complete Blast System</b>					
<b>Nozzle</b>	<b>Size of orifice</b>	<b>Volume of air</b>	<b>Plus helmet</b>	<b>Plus 50% (reserve)</b>	<b>Minimum air required</b>
<b>No. 4</b>	1/4"	81	20	50	151 cfm
	6.5 mm	2.3	0.5	1.4	4.2 m <sup>3</sup> /min.
<b>No. 5</b>	5/16"	137	20	79	236 cfm
	8.0 mm	3.9	0.5	2.2	6.6 m <sup>3</sup> /min.
<b>No. 6</b>	3/8"	196	20	108	324 cfm
	9.5 mm	5.5	0.5	3.0	9.0 m <sup>3</sup> /min.
<b>No. 7</b>	7/16"	254	20	137	411 cfm
	11.0 mm	7.2	0.5	3.9	11.6 m <sup>3</sup> /min.
<b>No. 8</b>	1/2"	338	20	179	537 cfm
	12.5 mm	9.6	0.5	5.0	16.1 m <sup>3</sup> /min.





## WARRANTY

Airblast warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Airblast distributor to the original purchaser for use. As purchaser's sole remedy for breach of this warranty, Airblast will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven defective.

This warranty applies only when the equipment is installed, operated and maintained in accordance with Airblast's written recommendations.

This warranty does not cover, and Airblast shall not be liable for, any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Airblast component parts. Nor shall Airblast be liable for malfunction, damage or wear caused by the incompatibility with Airblast equipment of structures, accessories, equipment or materials not supplied by Airblast, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Airblast.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Airblast distributor for verification of the claim. If the claimed defect is verified, Airblast will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor and transportation.

## DISCLAIMERS AND LIMITATIONS

The terms of this warranty constitute purchaser's sole and exclusive remedy and are in lieu of any other warranties (express or implied), including warranty of merchantability or warranty of fitness for a particular purpose, and of any non-contractual liabilities, including product liabilities, based on negligence or strict liability. Every form of liability for direct, special or consequential damages or loss is expressly excluded and denied. In no case shall Airblast's liability exceed the amount of the purchase price. Any action for breach of warranty must be brought within two (2) years of the date of sale.

## EQUIPMENT NOT COVERED BY AIRBLAST WARRANTY

Airblast makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose, with respect to accessories, equipment, materials, or components sold but not manufactured by Airblast. These items sold, but not manufactured by Airblast (such as electric motor, switches, hose, etc.) are subject to the warranty, if any, of their manufacturer. Airblast will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

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or call this number: 0031 (0)72 5718 002

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