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OWNER'S MANUAL

Wet blast systems

WET BLAST FLEX

&

WET BLAST FLEX COMPACT

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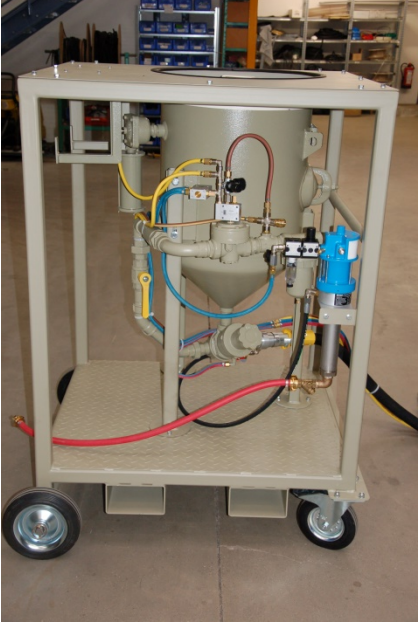
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TABLE OF CONTENTS

1	SCOPE	3
2	APPLICATION AND RESTRICTIONS	4
3	DESCRIPTION OF THE EQUIPMENT	4
3.1	WET BLAST FLEX.....	4
3.2	WET BLAST FLEX COMPACT.....	6
4	FUNCTIONAL PRINCIPLE OF THE ENTIRE SYSTEM	6
4.1	COMPONENTS.....	7
4.1.1	Blast pot.....	7
4.1.2	KB-52-1 wet blast head.....	7
4.1.3	W-92 type booster pump.....	8
4.1.4	Water tank (only Wet Blast Flex).....	9
4.2	PNEUMATIC DIAGRAM.....	9
4.2.1	Wet Blast Flex.....	9
4.2.2	Wet Blast Flex Compact.....	9
4.2.3	Detailed description of the four possible functions.....	10
5	OPERATION	12
5.1	REQUIREMENTS.....	12
5.2	SET-UP FOR INITIAL INSTALLATION AND REINSTALLATION.....	12
5.3	DAILY SET-UP.....	14
5.4	START-UP AND OPERATION.....	15
5.5	SHUTDOWN AFTER FINISHING WORK.....	15
5.6	SHUTDOWN WHEN MOVING EQUIPMENT.....	16
6	MAINTENANCE	16
6.1	GENERAL NOTES.....	16
6.2	DAILY MAINTENANCE CHECK LIST.....	16
6.3	WEEKLY MAINTENANCE CHECK LIST.....	16
6.4	MONTHLY MAINTENANCE CHECK LIST.....	17
7	TROUBLESHOOTING	17
8	REPLACEMENT PART LIST	18

1 Scope

This owner's manual contains information regarding the operation and maintenance of the WET BLAST FLEX and WET BLAST FLEX COMPACT SYSTEMS, consisting of:

	
WET BLAST FLEX / Part no. 27229D	WET BLAST FLEX COMPACT / Part no.. 27261D

a) WET BLAST FLEX consisting of:

As frame-mounted:

1. 140 l pressure blast pot with PT steel media metering/stop valve
2. KB-52-1 wet blast head
3. W-92 booster pump with attached filter regulator
4. 500 l water tank
5. High-pressure water hose and suction hose.

b) WET BLAST FLEX COMPACT consisting of:

As frame-mounted:

1. 100 l pressure blast pot with PT steel media metering/stop valve
2. KB-52-1 wet blast head
3. W-92 booster pump with attached filter regulator

The following owner's manuals should additionally be observed:

1. Owner's manual of single-chamber blast tool for 1 blaster with pneumatic metering valve, pilot pressure regulator, TLR and HMS
2. Owner's manual of PT type blast media metering valve
3. Owner's manual of pilot pressure regulator
4. Owner's manual of RLX III –ACS remote control deadman handle
5. Owner's manual of W-92 booster pump

2 Application and restrictions

The WET BLAST FLEX and WET BLAST FLEX COMPACT systems may be operated only with ferite-free single-use blast media with grit size between 0.7 µm and 1.2 µm.

Max. permissible operating pressure: 12 bar

Min. required operating pressure: 5.5 bar (necessary to open PT type metering valve)

Main dimensions of the entire system:

<i>Length</i>	<i>Width</i>	<i>Height</i>	<i>Weight</i>
<i>Wet Blast Flex</i>			
2000mm (without hoses)	800mm	1500mm (without crane eyes)	ca. 330kg
<i>Wet Blast Flex Compact</i>			
1200mm	980mm	1500mm	ca. 200kg

Table 1: Main dimensions

3 Description of the equipment

3.1 Wet blast flex

The full system (Figure 1a) is composed of the following main components:



Figure 1a: WET BLAST FLEX system

1. 2048 type 140 l blast pot
2. KB-52-1 wet blast head
3. W-92 booster pump
4. Water tank

As a compact unit, it allows four different blast applications that can be controlled via the ACS slide valves on the dual-function RLX remote control deadman handle. Figure 2 shows the remote control deadman handle with both ACS slide valves that are installed for switching on and off of the blast media and water supply, respectively:

The ACS (A) slide valve (with the red hose) is used to open and close the blast media supply.

The ACS (B) slide valve (with the blue hose) is used to open and close the water supply.

The ACS valves are opened in each case by sliding in the direction of arrow and are active when the deadman handle is pressed.

The four possible functions are as follows:

- a) Dry blasting – air and blast media
- b) Washing down – air and water
- c) Wet blasting – air, water and blast media
- d) Blowing off – air only

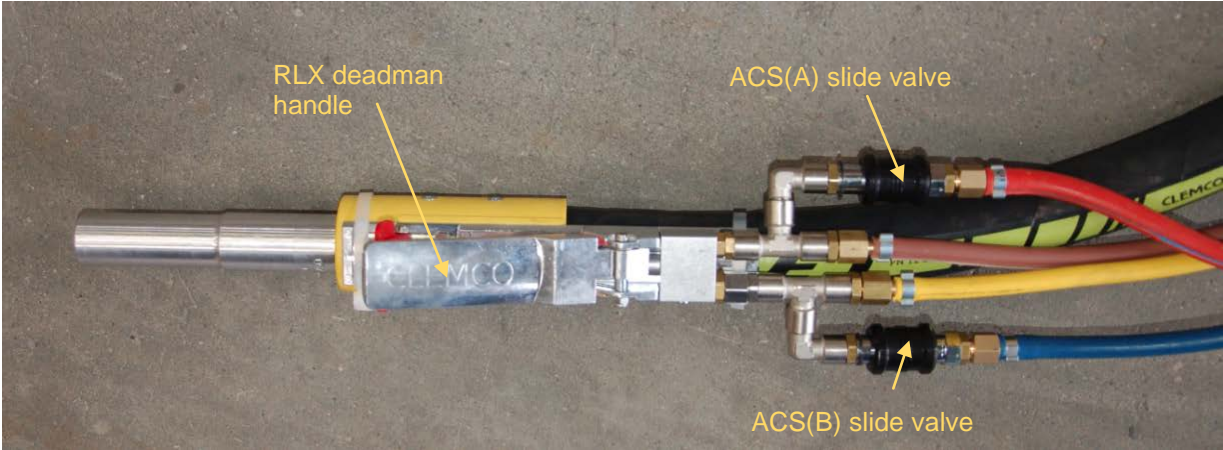


Figure 2: Deadman handle with ACS slide valves

	Process	Actuation
a	Dry blasting (air and blast media)	Press the RLX deadman handle and open the ACS(A) slide valve with the red hose (ACS(B) with blue hose closed)
b	Washing down (air and water)	Press the RLX deadman handle and open the ACS(B) slide valve with the blue hose (ACS(A) with red hose closed)
c	Wet blasting (air, water and blast media)	Press the RLX deadman handle and open both ACS slide valves
d	Blowing off (air only)	Press the RLX deadman handle and close both ACS slide valves

Table 2: Description of functions of the remote control deadman handle

3.2 Wet blast flex compact

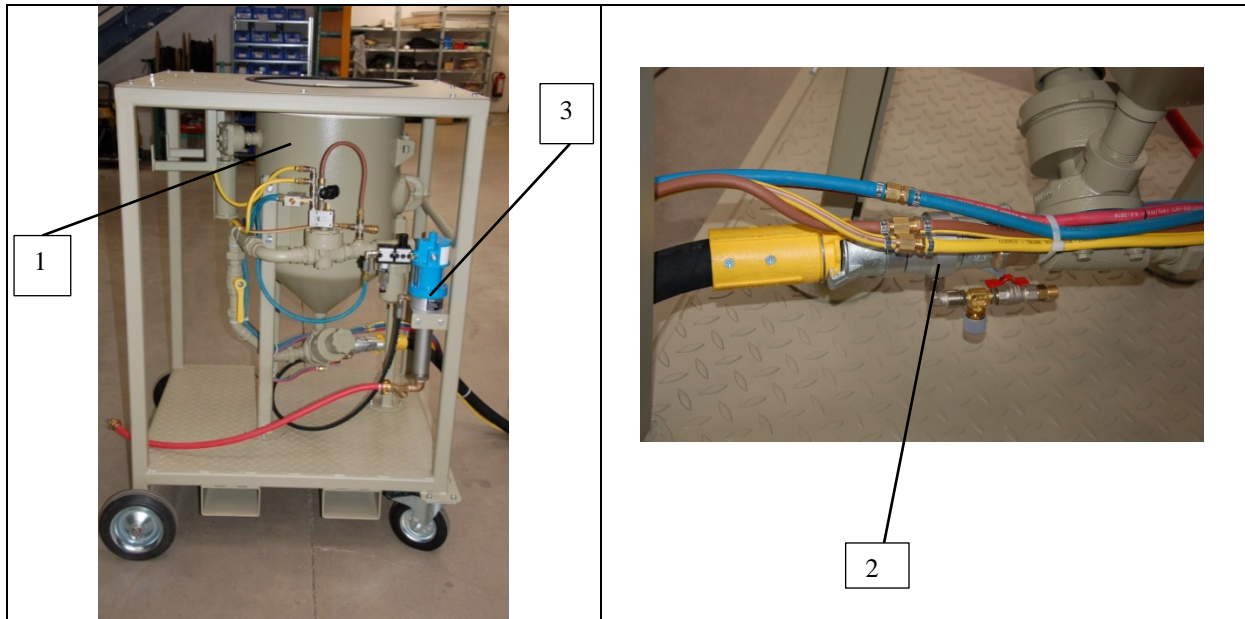


Figure 1b: WET BLAST FLEX COMPACT SYSTEM

- 1) Blast Pot 140l Typ 2048
- 2) Nassstrahlkopf KB-52-1
- 3) Druckerhöhungspumpe W-92

The four possible functions are the same as with the Wet Blast Flex:

- e) Dry blasting – air and blast media
- f) Washing down – air and water
- g) Wet blasting – air, water and blast media
- h) Blowing off – air only

4 Functional principle of the entire system

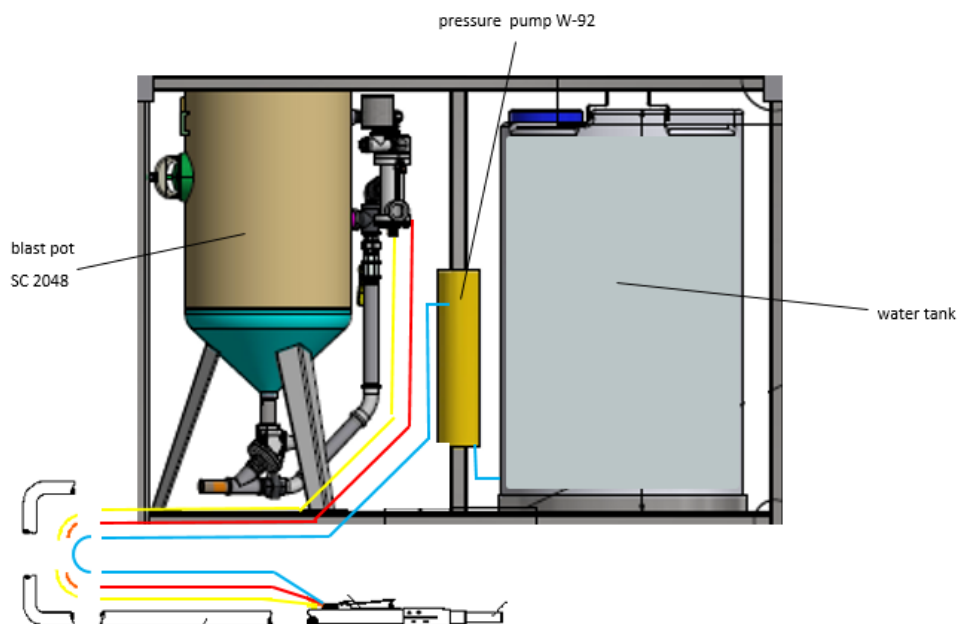


Figure 3: Main components of the WET BLAST FLEX system

The WET BLAST FLEX wet blast system is a pressure blast machine which is connected to a self-priming pump (W-92) and
 -a 500 l water tank (Wet Blast Flex)
 - or is connected directly to the water pipe (Wet Blast Flex Compact).

The pressure blast machine and the W-92 booster pump are supplied with compressed air in parallel. The compressed air is cleaned in the connection filter of the booster pump and then drives the self-priming water pump via an air motor. The primed and pressurised water is pumped to the KB-52 wet blast head via a high-pressure water hose. The water is directly injected into the blast media air flow (blast nozzle) via the wet blast head and is atomised. The water volume can be regulated via the needle valve as well as the nozzle of the KB-52-1. The water binds the dust that would normally be created during blasting. The machine can also be used for dry blasting, washing down or blowing off thanks to the intelligent control.

4.1 Components

4.1.1 Blast pot

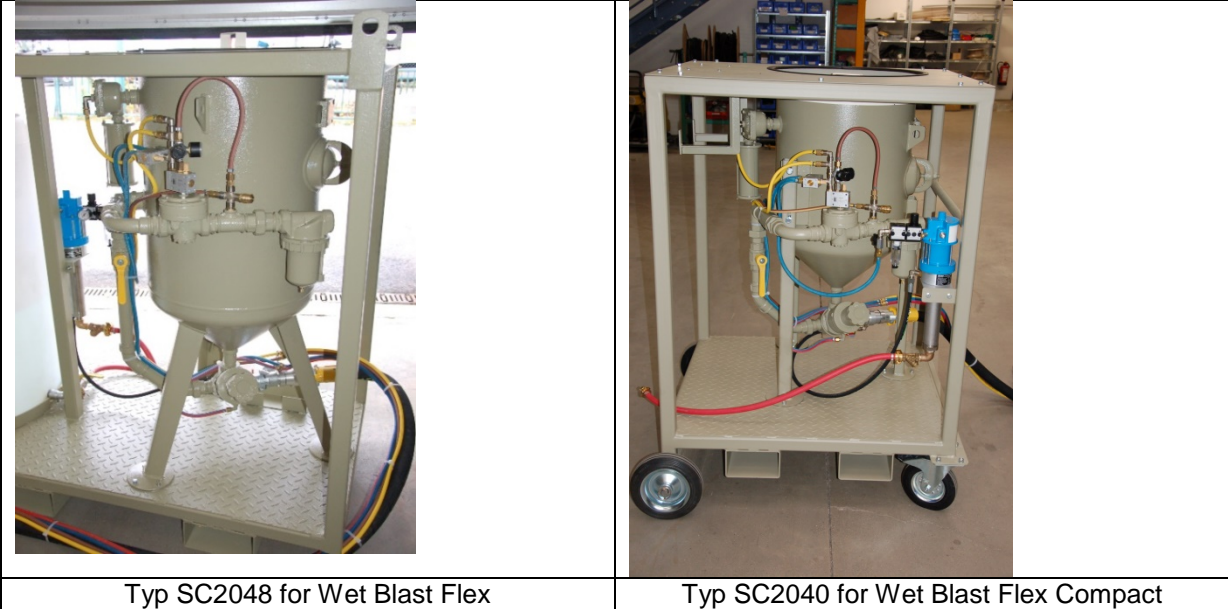
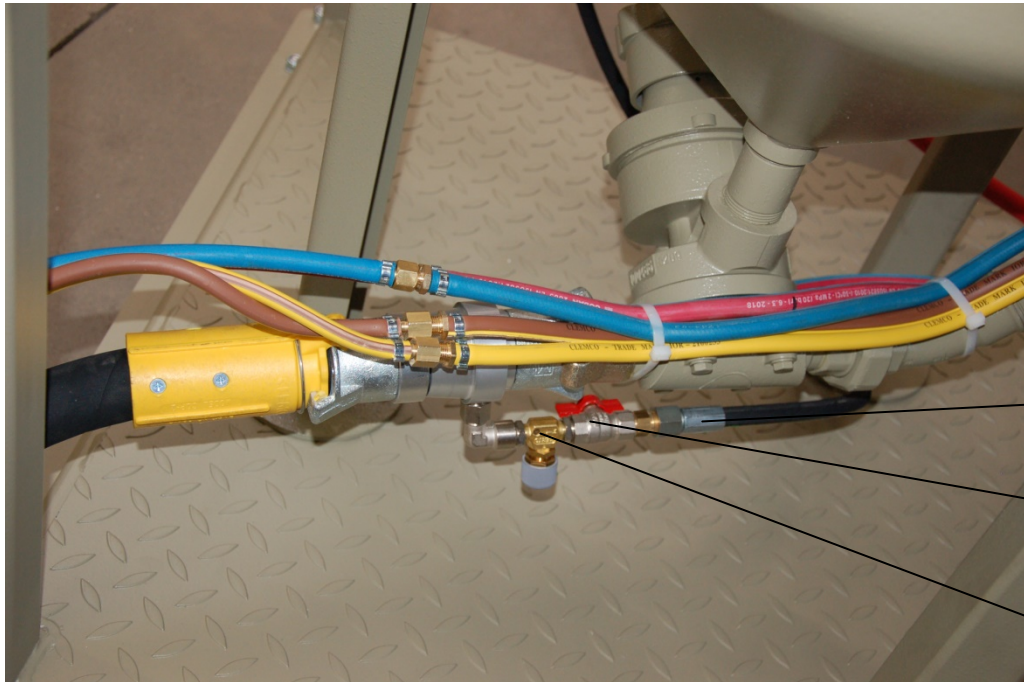


Figure 4: Blast pot

Please follow the separate owner’s manual regarding this.

4.1.2 KB-52-1 wet blast head

The water is injected from the water tank through the high-pressure hose (Item 3) into the blast media air flow (blast nozzle) directly via the wet blast head and is atomised. The water volume can be regulated via the needle valve (Item 1) as well as the nozzles of the KB-52-1. The water can be shut off completely with the stop-cock (Item 2).



Item
3

Item
2

Item
1

Figure 5: KB-52-1 wet blast head

4.1.3 W-92 type booster pump

The W-92 booster pump is self-priming and is supplied directly from the water tank. The sieve (Item 1) holds back dirt from the water tank and supply line.

For further details regarding the booster pump please consult the separate user manual.



Item
1

Figure 6: W-92 type booster pump

4.1.4 Water tank (only Wet Blast Flex)

The water tank installed in the WET BLAST FLEX is made from UV-stabilised polyethylene. It has a capacity of 500 litres and a 3/4" connection. It includes a scale for reading off the water level.



Figure 7a-Water tank



Figure 7b-Water connection at the tank

Figure 7a & 7b: Water tank and water connection

4.2 Pneumatic diagram

4.2.1 Wet Blast Flex

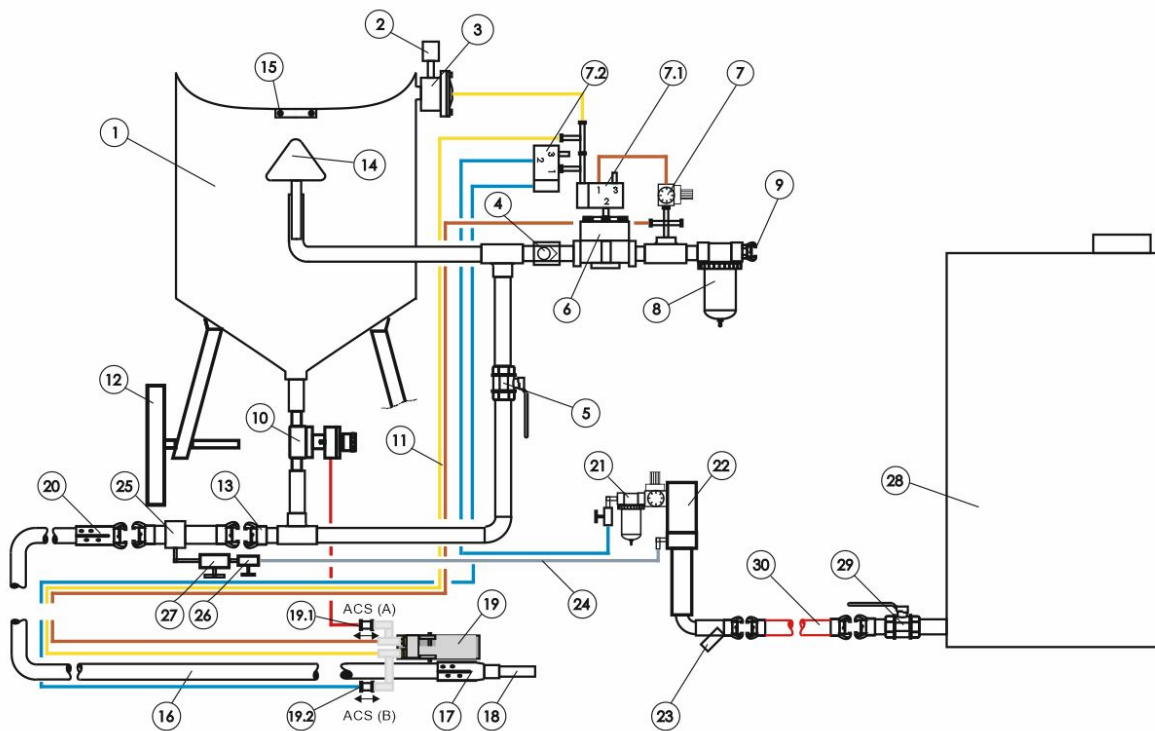


Figure 8: WET BLAST FLEX pneumatic diagram

The compressed air is supplied to the system through the water separator (Item 8).

4.2.2 Wet Blast Flex Compact

The same pneumatic plan as for the Wet Blast Flex can be applied only items 28, 29 and 30 are omitted, as the water supply is flexible, directly via a tap.

4.2.3 Detailed description of the four possible functions

a) Function 1 – Dry blasting (air & blast media)

ACS(A) slide valve (Item 19.1) on the deadman handle at the red hose (slide in the direction of the arrow!) opened

ACS(B) slide valve (Item 19.2) at the blue hose closed.

If the deadman handle (Item 19) is pressed, the compressed air flows into the blast pot through the pilot pressure regulator (Item 6).

At the same time:

- the closing plug (Item 14) closes the filler opening with O-ring (Item 15).
- the TLR outlet valve (Item 11) closes
- the blasting process begins.

The desired blast pressure is set with the pressure regulator (Item 7) via the pilot pressure regulator (Item 6).

If the deadman handle is released:

- the TLR outlet valve (Item 3) opens
- the pot is ventilated.

The blast media metering valve (Item 10) regulates the blast media supply in the air flow. It is opened and closed pneumatically through the ACS(A) (Item 19.1) slide valve. When ACS(A) (Item 19.1) is closed, only air and no blast media flows through the blast media hose.

When ACS(A) (Item 19.1) is opened, then the blast media flows through the blast-hose, under pressure, to the blast nozzle (Item 18). As soon as the blaster releases the deadman handle (Item 19), the blasting process is interrupted and the blast pot is ventilated. The TLR outlet valve (Item 3) opens. The bang is attenuated via the silencer (Item 2).

b) Function 2 – Washing down (air & water)

If no blast media but only water is needed in the application, the following steps are necessary:

-ACS(A) slide valve (Item 19.1) at the red hose closed

-ACS(B) slide valve (Item 19.2) at the blue hose (slide in the direction of the arrow!) opened.

The compressed air is supplied to the system through the water separator (Item 8).

If the deadman handle (Item 19) is pressed, the compressed air flows into the pot through the pilot pressure regulator (Item 6).

As a result:

- the closing plug (Item 14) closes the filler opening with O-ring (Item 15).
- the TLR outlet valve (Item 3) closes.
- air flows through the 3/2-way valve (Item 7.2) to the deadman handle (Item 19) and via the filter unit (Item 21) to the pump (Item 22).

This is self-priming and is supplied directly from the water tank (Item 28). The sieve (Item 23) holds back possible dirt.

The water supply can be regulated with the ball valve (Item 29) located on the water tank and interrupted for repair purposes.

The wet blast head (Item 25) is supplied with water via the high-pressure hose (Item 24). The water is injected directly into the blast media air flow (blast nozzle Item 18) via the wet blast head and is atomised. The water volume is regulated by the needle valve (Item 27) as well as the nozzle (integrated in the wet blast head –Item 25). Additionally the water supply can be completely interrupted via the stop-cock (Item 26).

If the deadman handle is released:

- the TLR outlet valve (Item 3) opens
- the pot is ventilated.
- the water supply is interrupted.

c) Function 3 – Wet blasting (air, water & blast media)

If blast media and water are needed in the application, the following steps are necessary:

- ACS(A) slide valve (Item 19.1) at the red hose (slide in the direction of the arrow!) opened
- ACS(B) slide valve (Item 19.2) at the blue hose (slide in the direction of the arrow!) opened.

As a result of the pressed deadman handle, both blast media and water flows into the air stream. The water binds the dust that would normally be created during blasting.

If the deadman handle is released:

- the TLR outlet valve (Item 3) opens
- the pot is ventilated
- the water and blast media supply is interrupted

d) Function 4 – Blowing off (air)

If only air is needed in the application for blowing off the parts, the following steps are necessary:

- ACS(A) slide valve (Item 19.1) at the red hose closed
- ACS(B) slide valve (Item 19.2) at the blue hose closed.

As a result of the pressed deadman handle, neither water nor blast media can flow in the circulation and therefore the workpiece can be only blown off and cleaned, respectively.

5 Operation


5.1 Requirements

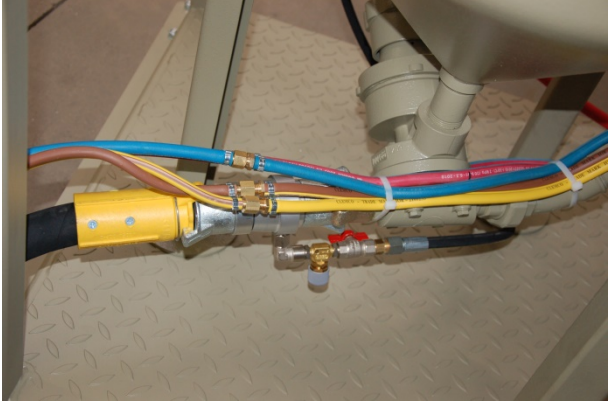

The following technical data and maximum values of the WET BLAST FLEX must be observed during operation:


Maximum air inlet pressure for the sand blast pot = 12 bar
Theoretical ratio (water pressure to air pressure) = 4 : 1
Water pump flow per double stroke = 75 cm³
Maximum water volume pumped = 15 l / min
Air consumption of the W-92 booster pump at 8 bar = 0.15 m³ / min

Table 3: Technical data

5.2 Set-up for initial installation and reinstallation

<p>(1) Shutting down the wet blast system</p>	<ul style="list-style-type: none"> - Level surface - Near the compressed air system
<p>(2) Install pressure blast pot</p>	<p>Follow the owner's manual of the pressure blast pot!</p> <ul style="list-style-type: none"> - Connect compressed air supply - Fill with blast media - Adjust all relevant parameters (pressure, blast media flow, etc.)
	

<p>(3) <i>Wet blast head (KB-52) already installed</i></p>	<ul style="list-style-type: none"> - Connect blast-hose with nozzle and holder to wet blast head. - Connect remote control hoses to the machine as well (blue / red for water supply, yellow / brown for air supply) - Open the metering valve and the ball valve (stopcock) 
<p>(4) <i>Install W-92 booster pump</i></p>	<p>Follow the owner's manual of the booster pump!</p> <ul style="list-style-type: none"> - Compressed air (set compressed air regulator to max. 1-4 bar) - Open the ball valve (stopcock) for air supply 
<p>(5) <i>Install water tank (only Wet Blast Flex)</i></p>	<ul style="list-style-type: none"> - Unscrew safety lock - Open tank cover - Add water (max. 500 l) - Close tank cover and screw safety lock back on again

	
<p>(6) <i>Remove air from the system</i></p>	<ul style="list-style-type: none"> - Supply compressed air to the W-92 booster pump (open ball valve) - Set pump pressure regulator to around 3 bar - Open the ball valve on the wet blast head - Leave the W-92 booster pump running until only water comes out of the nozzle (no air left in the system)
<p>(7) <i>Put on the protective equipment</i></p>	<ul style="list-style-type: none"> - Protective suit - Air-fed helmet with correct connection to the breathing air supply (breathing air filter) and adjustment of the air volume with an air control valve attached to the belt - Leather gloves and safety shoes

5.3 Daily set-up

Not necessary if an initial installation or reinstallation has already been performed in accordance with chapter 5.2.

<p>(1) <i>Pressure blast pot</i></p>	<p><i>Follow the owner's manual of the pressure blast pot!</i></p> <ul style="list-style-type: none"> - Connect compressed air supply - Fill with blast media if applicable - check all relevant parameters (pressure, blast media flow, etc.)
<p>(2) <i>Water tank</i> (only <i>Wet Blast Flex</i>)</p>	<ul style="list-style-type: none"> - Ready for use (top up water if necessary)
<p>(3) <i>Remove air from the system</i></p>	<p><i>Follow the owner's manual of the pressure blast pot!</i></p> <ul style="list-style-type: none"> - Supply compressed air to the W-92 booster pump (open ball valve) - Set pump pressure regulator to around 3 bar.

	<ul style="list-style-type: none"> – Open the ball valve on the wet blast head. – Leave the W-92 booster pump running until only water comes out of the nozzle (no air left in the system)
<i>(4) Put on the protective equipment</i>	<ul style="list-style-type: none"> – Protective suit – Air-fed helmet with correct connection to the breathing air supply (breathing air filter) and adjustment of the air volume with an air control valve attached to the belt. – Leather gloves and safety shoes

5.4 Start-up and operation

<i>(1) Wet blasting</i>	<ul style="list-style-type: none"> – Start the blasting process with air only (press the deadman handle) – Open the water supply and regulate with the needle valve until a full water mist comes out of the nozzle, increase the air pressure with the regulator, if necessary. – Adjust the blast media supply (open the metering valve using the slide valve on the deadman handle) and the blast media/water quantities.
<i>(2) Wash down the blasted parts</i>	<ul style="list-style-type: none"> – Close the blast media metering valve using the slide valve on the deadman handle (ACS(A) – Item 19.1)
<i>(3) Dry the blasted parts</i>	<ul style="list-style-type: none"> – Close the water supply as well using the slide valve on the deadman handle (ACS(B) – Item 19.2)
<i>(4) Dry blasting</i>	<ul style="list-style-type: none"> – Start the blasting process with air only (press the deadman handle). – Blast media supply (open the metering valve using the slide valve on the deadman handle)

5.5 Shutdown after finishing work

<i>(1) Blast the blast-hose until empty and dry it</i>	<ul style="list-style-type: none"> – Close the blast media metering valve (close metering valve using the slide valve ACS(A) (Item 19.1) on the deadman handle) – Blast with air and water for around 10 seconds – Close the water supply (deactivate the water pump using the slide valve on the deadman handle) – Blast with air until no more water mist comes out of the nozzle.
<i>(2) Close the air supply</i>	<ul style="list-style-type: none"> – Close the air supply at the water pump and blast pot – Close the air supply at the compressor

5.6 Shutdown when moving equipment

(1) Blast the blast-hose until empty and dry it	<ul style="list-style-type: none"> - Close the blast media metering valve (close the metering valve using the slide valve on the deadman handle) - Blast with air and water for around 10 seconds - Close the water supply (deactivate the water pump using the slide valve on the deadman handle) - Blast with air until no more water mist comes out of the nozzle. - Close the ball valve on the water tank (Item 29) - Close the air supply at the pump and pot - Close the air supply at the compressor
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6 Maintenance

6.1 General notes

Before any maintenance work is started, all connections must be closed and the system must be depressurised (see 5.5 and 5.6)!

The blast tools are exposed to wear during operation. To ensure safety and a high efficiency, these must be maintained regularly according to the following lists. However, the **W-92 booster pump** of the WET BLAST FLEX and WET BLAST FLEX COMPAC are **maintenance-free**.

6.2 Daily maintenance check list

(1) Pressure blast pot	Follow the owner's manual of the pressure blast pot!
(2) KB-52-1 wet blast head	Check for external and internal wear and leaking water ⇒ Nozzle ⇒ O-ring
(3) Air filter of booster pump	Clean if dirty (sight glass), make sure equipment is fully depressurised beforehand (see 5.5 and 5.6)

6.3 Weekly maintenance check list

Follow the owner's manual of the pressure blast pot!

Check for dirt on the air filter of the W-92 booster pump (sight glass) and clean if necessary. Depressurise equipment fully beforehand (5.5 and 5.6). Drain water from the filter (slightly open drain during operation).

-Clean the sieve of the booster pump.

6.4 Monthly maintenance check list

Follow the owner's manual of the pressure blast pot!

Check all hose couplings and hoses for wear or breakage and replace them if necessary. Depressurise equipment fully beforehand (5.5 and 5.6).

-Check water tank for leaks.

7 Troubleshooting

When performing any maintenance and repair work, always ensure that the full system including the blast pot is depressurised!

For errors of the blast pot, please refer to the separate owner's manual.

This section only refers to possible errors with the wet blast system

Symptom	Possible cause	Remedy
(1) <i>W-92 booster pump is not running.</i>	Ball valve closed on wet blast machine and/or on compressor.	Open.
	Compressed air regulator on booster pump set to 0 bar.	Change regulator setting. (maximum around 1 – 4 bar)
(2) <i>W-92 booster pump is running but no water is coming out of the nozzle.</i>	Water tap and/or ball valve on wet blast head closed.	Open.
	Water tank empty (when using a suction hose-regarding Wet Blast Flex). No water supply via water pipe (Wet Blast Flex Compact)	Refill water tank or check the connection to the water pipe
	Dirt trap on W-92 booster pump blocked.	Open and clean.
	Needle valve closed or blocked (limescale deposits).	Open / remove and clean.

Table 4: Causes and troubleshooting

8 Replacement part list

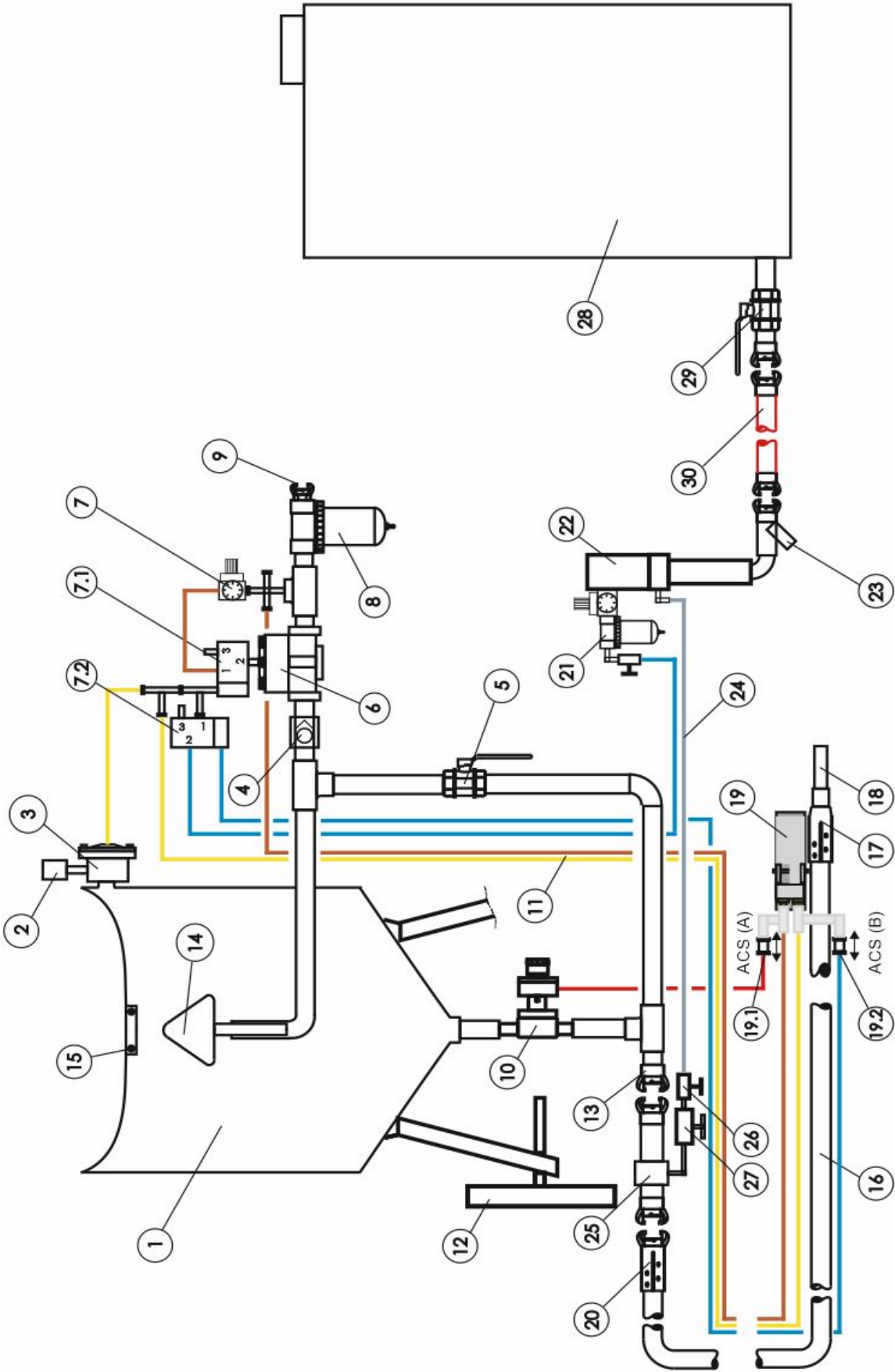


Figure 9: WET BLAST FLEX replacement part list

Item	Stock no.	Description
1	27230D	SC-2048 PT (for Wet Blast Flex)
	27260D	SC-2040 PT (for Wet Blast Flex compact)
	90562D	COVER FOR BLAST RECIPIENT 2040, 2048
	90095A	PROFILE SEAL SIMPLE
2	90743D	SILENCER FOR RMS-2000
3	03371I	OUTLET VALVE TLR 1"
4	99633D	CHECK VALVE 1 1/4" WITH SEMI-CIRCLE
5	02397D	BALL VALVE 1 1/4" WITH HANDLE
6	10711Z	PILOT PRESSURE REGULATOR 1 1/2
7	100061	PRESSURE REGULATOR 1/4 WITH MANOMETER
7.1	99406D	3/2-WAY VALVE
7.2	99406D	3/2-WAY VALVE
8	90545D	WATER SEPARATOR 1 1/2" HMS
9	24232D	CFT MALLEABLE CAST IRON COUPLING 1 1/2"
10	90378D	PT VALVE 1 1/4" / TC (blast media metering/stop valve)
11	90082D	REMOTE CONTROL HOSE 5 MM
-	90079D	REMOTE CONTROL HOSE 6 MM
12		Not used
13	91012D	CFT-50 MALLEABLE CAST IRON COUPLING WITH COARSE THREAD
14	02321D	CONE P-2 WITH SHAFT
15	99157D	O-RING P-5 WITH SQUARE LIP
16	04260D	BLAST-HOSE 32 X 8 (20 m)
17	04127D	NHP-2 NOZZLE HOLDER 32 X 8
18	92001D	CTSD-X-6/50 TUNGSTEN CARBIDE NOZZLE 9.5 MM
19	99171D	RLX-III-ACS DUAL-FUNCTION DEADMAN HANDLE
19.1	99172D	ACS MANUAL SLIDE VALVE
19.2	99172D	ACS MANUAL SLIDE VALVE
20	08413D	CQP-2 COUPLING 32 X 8
21	99375D	FILTER 1/4" FOR W-92 (COMPRESSED AIR-STOP-COCK (ACCESSORY) – COMPRESSED AIR CONNECTION)
22	99839D	W 92 WET BLAST PUMP
23	99574D	DIRT TRAP 1/2" FOR W-92
24	27233D	HIGH-PRESSURE HOSE 3/8, 1.2 M WIS
25	90369D	KB-52-1 WET BLAST HEAD
-	00854D	SEAL KB 52
26	99917D	3/8" BALL VALVE 50 BAR
-	90371D	STEEL RING FOR KB-52-1
-	90631D	O-RING FOR HARD METAL RING KB-52

-	100036	WATER NOZZLE KB-52-1 WITH BORE HOLE (1 pc./hard metal ring)
-	90372D	WATER NOZZLE KB-52-1 WITHOUT BORE HOLE (2 pcs./hard metal ring)
27	100485	NEEDLE VALVE FOR KB-52
-	94349D	NOZZLE SEAL KB-52
	27264D	HOSEPACKAGE
Only for Wet Blast Flex		
28	27232D	WATER RECIPIENT 500I WIS
29	02396D	BALL VALVE 1" WITH HANDLE
30	94328A	WATER SUCTION HOSE FOR KBA, PER METRE
Only for Wet Blast Flex Compact		
	99767D	Wheel for HS-P 250
	99766D	Wheel for HS 200-P STEERABLE

Table 5: WET BLAST FLEX and WET BLAST FLEX COMPACT replacement parts