



FINISHING SANDBLASTER IDEA D.O.S.

 USER AND MAINTENANCE MANUAL



1. DESCRIZIONE

The finishing sandblaster **IDEA D.O.S.** is a sandblasting unit designed for finishing operations in the Dental, Jewellery and Goldsmith branch. The main features of the machine are: the ergonomic layout of the working chamber, the high safety of use, and the trouble-free structure of the electrical and mechanical installation. The **IDEA D.O.S.** sandblaster is equipped with useful accessories and ensures a fast, practical and accurate work.

The basic version consists of 2 **MODULO DOS** sandblasting tanks, featuring a pressure discharge system, a new system for the stop of the blasting jet, as well as the D.O.S. (**Dry Oxyde System**) patented system to dry up abrasive media.

The unit can thus operate with **two different abrasive media**, each of one suited for a different application and requiring different pressure levels. Further two sandblasting tanks can be added, **thus enabling the use of four different abrasive media**.

The sandblasting process originates toxic dust which must not be inhaled; for this reason, it is absolutely forbidden to operate the machine if a proper and functioning suction system has not been previously connected to the sandblaster.

DENTALFARM ranges also include **PRO-3** and **PRO-3 Shake** suction units, which can be easily connected to any sandblasting machine. Other electric suction systems, also centralized ones, can be used in combination with IDEA sandblasters. For any further info please contact the Technical Service.

2. TECHNICAL REFERENCE REGULATIONS AND TEST PROCEDURES

The appliance is mass-manufactured by DENTALFARM in compliance with technical and safety rules in force, as provided for by the Machinery Directive 2006/42 EEC and its amendments or integrations.

Careful inspection and full routine testing are carried out singularly on each machine, which is furtherly tested by an automatic test installation assuring compliance with the fixed limits.

WASTE DISPOSAL

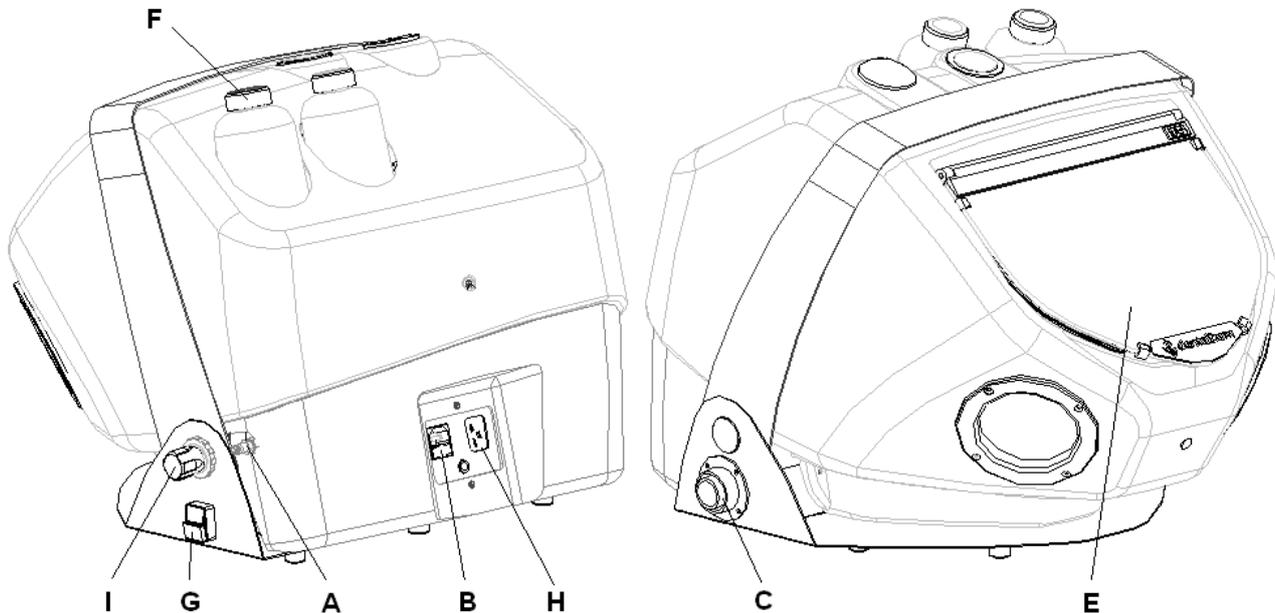
According to International regulations, this unit has been classified as AEE (electric and electronic device, whose correct operation depends on electric currents and electromagnetic fields) and as a consequence, at the end of its lifetime, it can not be treated as normal waste material but it must be disposed separately, complying with Directive 2002/96/EEC.



3. INSTALLATION INSTRUCTIONS



Installation of this machine is quite easy but must be carried out paying utmost attention in order to avoid any mistake which may originate problems, inconveniences and even damages during operation.



1. Place the machine on a proper workbench, which must be stable and strong enough to hold the machine safely. Keep a sufficient distance (10/15 cm) on the right side of the machine for pneumatic connections and for granting access to the switch and the pressure gauge.
2. Put the foot control on the ground in a convenient place.
3. Insert the quick clutch fitting on the male intake (A) located on the right side of the unit and connect the pneumatic feeding pipe (polyethylene or rilsan, with diameter \varnothing 8x6) to the pipe-fitting. It is also possible to use a \varnothing 12x6 elastic feeding pipe, by using the fitting supplied with the unit.
4. Connect the electric feeding cable to the pre-fitted electric socket on the unit (B) and plug into an approved 220v AC - 50Hz network socket with ground connection.
5. Connect the suction unit pipe to the intake (C) located on the left side of the unit. Suction can be started automatically by connecting the motor cable to the corresponding socket (H) (eventually contact us to request the proper IEC socket - code NEA042) – **Caution: max absorption 1000W**
6. **Microblasting tanks (MODULO DOS) are identical in layout, but can feature different components (calibrated dosing system) and external nozzles which vary according to the abrasive mixture they can dispense;** it is therefore necessary to observe the indications written on the identifying labels. Should you need to use an abrasive compound of different grain, it is possible to request the needed components and to replace them.

We remind you of the possibility to install a third and a fourth tank on this machine, but this operation needs a modification of the rear panel (request the correct configuration).

7. To start working: unscrew the upper caps of the tanks (F), verify the conditions of use on the labels and, by means of the funnel, pour the compound into the tank, so that the level does not exceed 2/3 of the total volume; then close the tank.

Strictly observe the following parameters, based on the size of the external blasting nozzle as well as on the size of the internal dosing nozzle.

TREATMENT	DOSING NOZZLE	RECOMMENDED PRODUCT	NOZZLE DIAMETER	PRESSURE
Surface roughness on metals for composites	(large)	AP-060 Orange label (Al₂O₃ 60 - 250μ)	2,0 mm (RMN046)	4/5 BAR
Surface roughness on metals for composites	(medium)	AP-120 Pink label (Al₂O₃120 - 105μ)	1,2 mm (RMN043)	3/4 BAR
Surface roughness on metals for ceramic or resin	(medium)	AP-150 Green label (Al₂O₃150 - 95μ)	0,8 mm (RMN044)	3/4 BAR
Surface roughness on metals for ceramic	(medium)	AP-180 Red label (Al₂O₃180 - 80μ)	0,8 mm (RMN044)	3/4 BAR
Sculpture on ceramic	(small)	AP-270 Yellow label (Al₂O₃270 - 50μ)	0,5 mm (RMN045)	2/3 BAR
Satin-finishing on any type of metal	(medium)	AP-090 MICROBLAST White label	For more precise jet 0,8mm For faster effect 1,2 mm	3/4 BAR 4/5 BAR

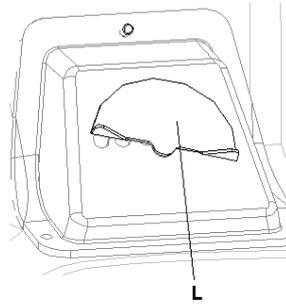
A longer nozzle with Ø 0,8 mm size (RMN044L) is available on request to carry out cleaning operations on ceramic prosthesis without metal support.

 CAUTION:	Very fine abrasives are highly sensitive to moisture and must be stored in a dry place, after the can has been accurately sealed and the antimoisture packet has been duly introduced into the can (if needed, replace them periodically). When filling the abrasive containers, check the condition of the abrasive product; if the moisture rate is too high (bad flowability and presence of clots), it is recommended to wait for at least an hour to allow the heating system to dry up the abrasive media completely. It is also of utmost importance to check the condition of the compressed air which in no way must contain evidence of moisture or of any polluting agents (oil, grease or rust).
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4. INSTRUCTIONS FOR USE

- Press the switch (G) to give light to the blasting chamber and supply power to the operating controls.

 CAUTION:	May we remind that the sandblasting process will start only provided that the suction system is operating – as a consequence, the suction system MUST always be active and efficient BEFORE you start to work.
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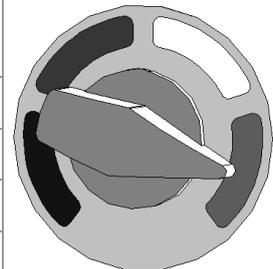


Once the window is closed, verify the efficiency of the suction unit: gloves should be lightly inflated. If needed, at first startup of the unit, modify the air outflow so that the chamber does not remain under vacuum conditions; check the correct outflow by rotating the knob of the adjusting valve (L) located on the internal plastic seat.

Periodically check the filtering elements of the suction unit.

- Lift the window to introduce the pieces to be treated into the working chamber.
- Adjust the working pressure by means of the pressure adjusting device (I) located on the right side of the machine: pull the knob and turn it rightwards (to increase) or leftwards (to decrease). To lock the knob, push the knob back down.
- Turn the selector switch knob to choose the type of blasting procedure you prefer – references marked on the label are herewith specified.

POSITION OF POINTER	SELECTED FUNCTION
GREEN	MICROBLASTING FROM THE GREEN TANK
WHITE	MICROBLASTING FROM THE WHITE TANK
RED	MICROBLASTING FROM THE RED TANK (IF PRESENT)
BLUE	MICROBLASTING FROM THE BLUE TANK (IF PRESENT)



- Press the foot control: air enters the selected tank putting it under pressure, it gets mixed with abrasive micrograins and will then be dispensed by the micrprojector nozzle.
- Once the work is finished, wait a couple of minutes before opening the window and switch the light off so that the suction system can fully clean the chamber from dust.

NOTE	The abrasive used for finishing operations (the one used in MODULO tanks) cannot be re-used and will fall inside the working chamber; it shall be periodically replaced.
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The microprojectors are ideally positioned in the middle of the working chamber to facilitate use with both hands (in the standard configuration, they are curved rightwards; if needed, they can be turned to the opposite side). We recommend to put back them in place on their holders at the end of the work, to avoid them being hit by the blasting jet of the steady projector.

The window is made of anti-scratch polycarbonate material, resisting to the rebounding abrasive grains; nevertheless, we recommend to use proper protection sceens (code 1000535) to preserve it at its best. Use a soft cloth to clean the window from outside and to remove dust from inside.

5. MAINTENANCE

Many of the components of any sandblasting machine are subject to wear: this is caused by the circulation of abrasive media; the instructions for a careful maintenance of the machine as well as the operations to replace the damaged or worn out parts are specified here below.

 <u>CAUTION</u>	<p>Before carrying out any maintenance operation inside the working chamber or technical repair of the connections, remove the feeding cable both from network socket and from the rear of the machine; in such a way, both the electric and pneumatic installation of the unit will be fully disconnected.</p> <p>Should you have any doubts or difficulties, get in touch with our Technical Service to avoid any risks or damages.</p>
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Replacement of the plastic protection screens of the window

Remove the 4 fixing clips, pull out the worn screen, clean accurately the surface with a moistened cloth and place a new protection screen.

Replacement of the polycarbonate window

Although the window is anti-scratch, it can be damaged by an extensive use (or because of improper maintenance). Replacement is very simple: locate the screws which fix it to the upper profile and unscrew them.

Replacement of gloves

The gloves are made of highly resistant rubber, but are subject to the natural ageing of rubber and to the action of sweat (produced by hands). This cause them to dry up. To replace them, unscrew the flange screws and fit a new pair of gloves into the proper seat. (Please consider position of the thumb finger with respect to the fixing holes).

Replacement of MODULO nozzle

Nozzles of the microblasting tanks are also subject to wear and need to be replaced. To do this, unscrew the ring nut and assemble the new nozzle.

Cleaning of the 5my filter

A 5my filter, mounted under the base of the container, prevents fine dust from damaging internal components. Remove the inspection cap every 2-3 months and blow the filter with compressed air to clean it from dust sediment.

Replacement of parts of MODULO tank being subject to wear (pipe, pipe-fittings, microprojector body)

The polyurethan pipe, the blue connection fitting and the microprojector body where abrasive flows will inevitably wear out and need to be replaced regularly. To replace the microprojector body, follow the same instructions specified for the nozzle (firstly, remove the ring nut, then unscrew the body from the handle); to replace pipes or pipe-fittings, turn the unit, unmount the rear panels (first of all the lower one, the darker one, then turn the larger one upwards); remove the fixing nuts which fix the microprojector holder and work under the container. It is also possible to disconnect each MODULO tank for easier operation, simply unscrewing the nuts fixing it to the metallic housing.

Replacement of MODULO tank internal components

Should it be necessary to replace the MODULO tank internal components like joints, air injectors, abrasive outlet pipe, because of wear, or faulty functionality, or to adapt them to other kinds of abrasive, please contact our Technical Service.

Removal of a MODULO tank for repair or maintenance purposes

The new MODULO tanks have been studied to facilitate your task during removal.

- Remove rear panels
- Disconnect electric supply from electric plug
- Unscrew the the metallic ring nut which fixes the feeding pipe and disconnect the pipe
- Unscrew the plastic ring nut which fixes the microprojector and disconnect the microprojector pipe
- Unscrew the two nuts fixing the MODULO tank to the holder, and unclutch the tank.

Procedure for the installation of an additional Modulo tank

Installing an add-on tank is possible, but this requires competent know-how as well as the replacement of the rear carter by means of an appropriate version corresponding to the number of desired tanks.

- Disconnect the feeding pipe and the quick clutch of compressed air
- Unscrew the two screws fixing the lower rear carter and remove this
- Turn the rear carter upwards (push the WAFIS piston fully down)
- Fix the new MODULO tank by means of two nuts (orient it so that the blue plastic fitting is directed towards the middle of the machine)
- Uncap the proper pipe-fitting on the selector switch and connect the air inlet pipe
- Unscrew the two nuts fixing the microprojector holder and remove this
- Operating from inside the chamber, drill the membrane of the rubber joint and lead the free end of the microprojector pipe through it
- Connect the microprojector pipe to the blue fitting under the newly installed tank
- Connect the electric wire of the D.O.S. to a free electric plug.
- Place all rear protections and test the unit.

6. TROUBLESHOOTING

Problem: **THE MACHINE DOES NOT START**

Possible cause	Remedy
Lack of tension	Check: - magnetothermic switch - socket supply switch - fuses of the feeding board
Lack of power distribution in the machine	Check: - socket connection - network fuse Should this malfunction repeat, contact our TECHNICAL SERVICE.

Problem: **NO LIGHTING**

Possible cause	Remedy
Bad electrical connection	Check that the electrical plug is correctly plugged in.
Power switch is damaged	Check connections and operation (some dust could have oxidized contacts so that they seized up). Try to blow with compressed air and replace if needed.
LED circuit or transformer are faulty.	Contact Technical Service for replacement

Problem: **NO AIR IS COMING OUT**

Possible cause	Remedy
Bad pneumatic connection	Check connection to the compressor.
Internal pipes are clogged	Check connections and condition of pipes up to their end (nozzles).
Air filter is clogged	Check and disassemble, if needed, the moisture collection glass and replace the internal filtering element.

Problem: **INTERNAL AIR LEAKAGE**

Possible cause	Remedy
Condensate discharge on the filter.	The condensate discharge is carried out by the lifting of a ball cock. A sufficient level of pressure must be provided for the valve to close.
Internal pipes are disconnected	Check the state of the piping. Polyethylene pipes might not be perfectly calibrated; try to cut out a small portion from the end of the pipe and insert it into the pipe-fitting; if needed, replace the pipe.

Problem: **THE BLASTING JET of the MODULO TANK IS UNSTEADY**

Possible cause	Remedy
Nozzle is clogged or worn out.	Unscrew nozzle fixing nut, clean both the hole and microprojector components (especially the thread) - re-assemble. If necessary, replace the damaged parts.
Microprojector feeding pipe is worn out, bent or clogged	If the pipe is worn out or bent, replace it. If it is clogged, disassemble the nozzle and let air come out.

The abrasive mixture is too rich in aluminium oxide, i.e. loss of sharpness	Abrasive tank is overfilled, discharge it. Pipe bending under the containers may collect abrasive at the end of the work, when the valve releases pressure; it is possible to limit this reaction reducing bending of the pipes at the minimum.
Damp aluminium oxide causing bad flowing.	Wait till the electric resistance of the heating system properly puts the abrasive into the correct temperature to allow evaporation of moisture. If this does not help, empty the tank, possibly disconnect it from the machine and turn it upside down, blow with clean air in order to dry up all the internal pipings, then heat and dry up the abrasive product and fill in again.
Compressed air filled with condensation or oily particles.	Fine abrasive compounds are particularly sensitive to moisture and, as mechanic pickling agents, they hold the polluting agents. Therefore it is important to protect the efficiency of the product installing adequate filtering and drying systems on the air installation.
Grainsize of the aluminium oxide is not compatible with the abrasive metering system inside the container.	Verify compliance with the indications printed on the tank label and with the comparative tables (abrasive grainsize / nozzle diameter / internal dosing system).
The blasting jet is not efficient	Unsufficient pressure. The 5my filter is clogged, unscrew the inspection cap and clean it. The solenoid valve is dirty: get in touch with Technical Service.

Problem: NO ABRASIVE COMING OUT, INTERNAL LEAKAGE.

Possible cause	Remedy
Worn pipe-fittings or punched microprojector pipe.	The components of the circuit located after the tank - in which the abrasive circulates - are subject to wear. It is recommended to prevent any possible break by replacing these components each 6-12 months, according to the workload.

Problem: ABRASIVE TANK IS NOT UNDER PRESSURE

Possible cause	Remedy
Joints are not perfectly airtight	Check whether cap is correctly tightened and container is tight at its base. Disconnect the container from the machine, disassemble and clean it.

Problem: ABRASIVE TANK IS COLD

Possible cause	Remedy
Heating resistance is not working	Check electric connections of the tank. Get in touch with Technical Service for replacement.

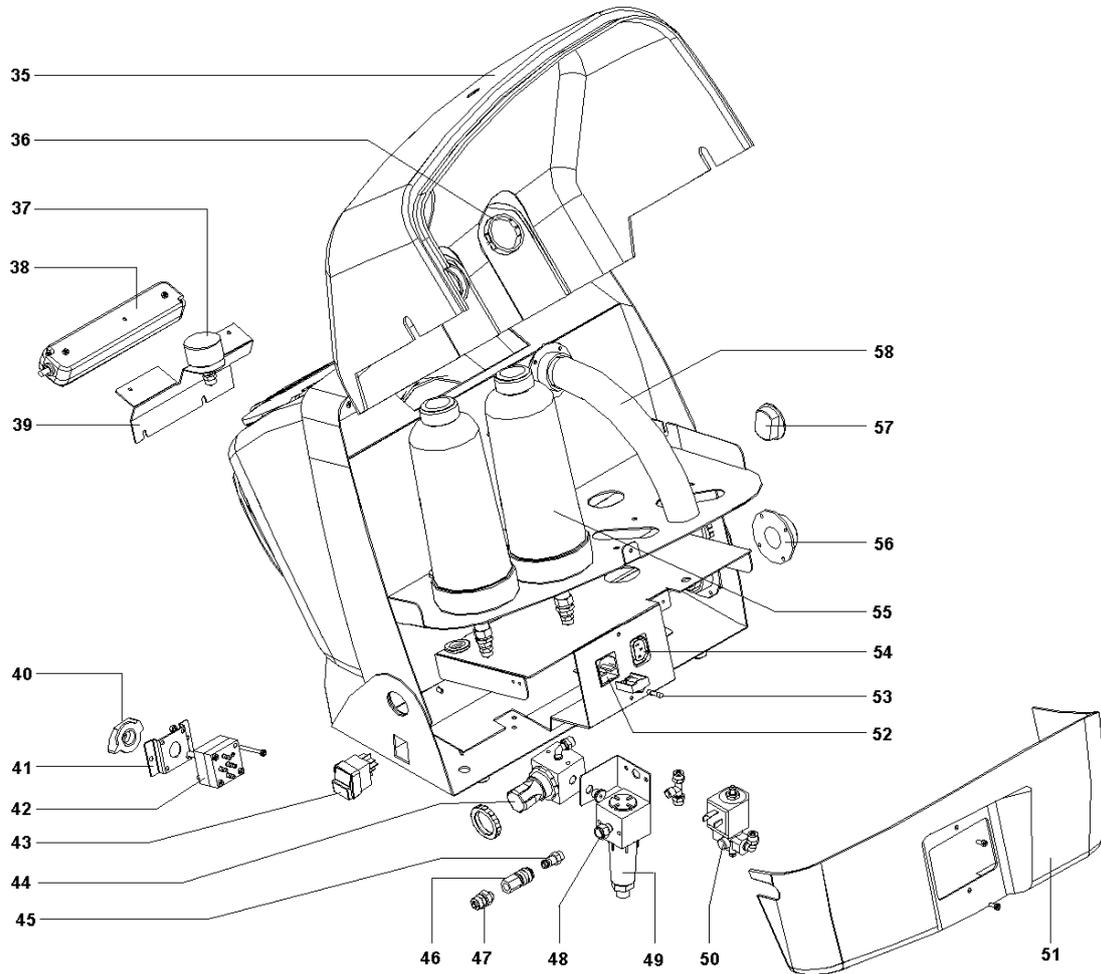
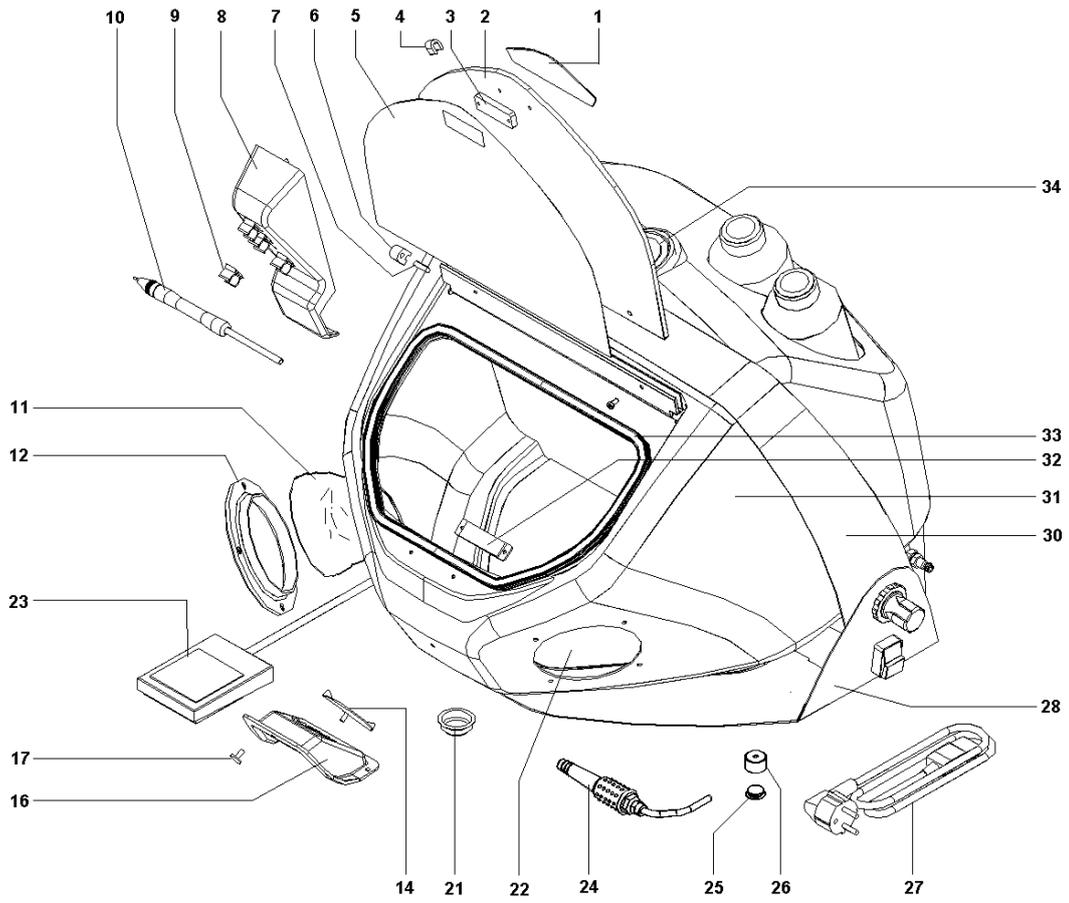
7. TECHNICAL DETAILS

Height	460 mm
Width	450 mm
Depth	400 mm at base – 500 mm overall
Net and Gross weight	16,0 kg – 20,0 kg
Voltage	230 V - 50 Hz (different tensions available on demand)
Absorption	100 W - 1,0 A
Lighting	42 LED circuit with electronic transformer
Dust filtering system	Pre-fitted for connection to PRO-3 and PRO-3 SHAKE extractors; fully compatible with traditional extractors

Microblasting pressure	min 1,5 BAR - max 6,0 BAR
Air consumption (Ø0,8mm)	15 l/min. at 2 BAR
Air consumption (Ø2,0mm)	120 l/min. at 4 BAR
Standard nozzles	1 x Ø 0,8 mm + 1 x Ø 1,2 mm in tungsten carbide
Abrasive grainsize min - max	mesh 270 (50µ) – mesh 60 (250µ)

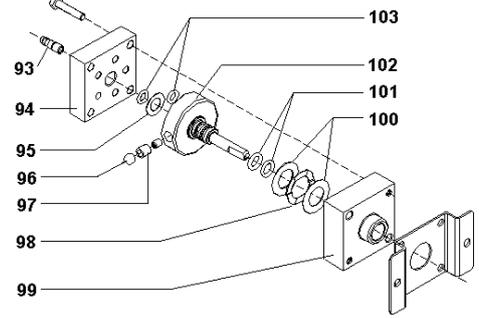
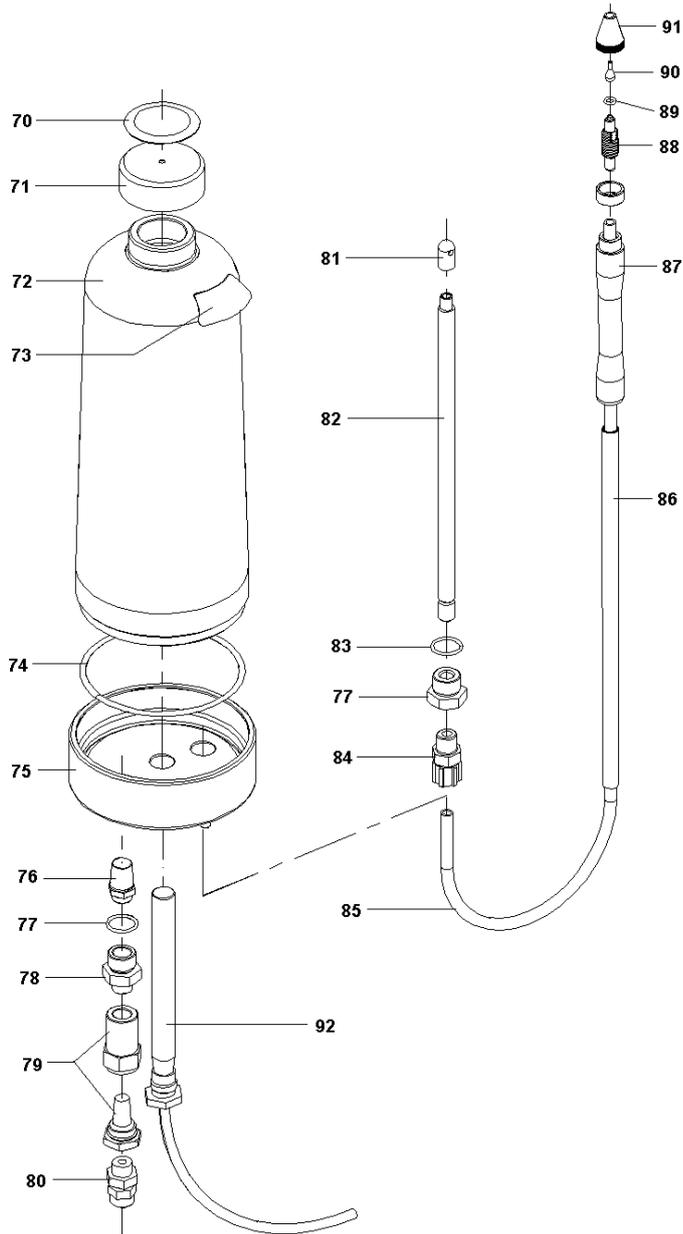
8. EXPLODED DRAWING AND SPARE PART LIST IDEA D.O.S. table 1

#	code	description
1	1076037	IDEA LOGO LABEL ON WINDOW
2	1076015	POLYCARBONATE WINDOW IDEA
3	1076032	PLATE ON WINDOW IDEA
4	RCB042	PROTECTION SCREEN 4 PCS FIXING CLIPS
5	1000535	PACKAGE OF 6 PROTECTION SCREENS IDEA/IDEA PRO
6	1076022	PAWL FOR HINGE IDEA
7	NVT052	CYLINDRIC PIN 5x20
8	1076014	PIPE PROTECTION SLEEVE IDEA
9	NEA123	CLIP FOR COMPONENTS
10	1000605..	COMPLETE MICROPROJECTOR (specify colour and nozzle)
11	RMA103	PAIR OF LATEX GLOVES
12	1039017	GLOVE FLANGE
14	1072033	COVER ON SUCTION HOLE
16	1076007	AIR INTAKE CARTER IDEA
17	1076019	FRONT FIXING SCREW IDEA
21	NVP030	PLASTIC RING D. 31
22	1077004	ABRASIVE FILTERING GRID IDEA
23	NEC050	ELECTRICAL FOOT CONTROL
24	NPS001	AIR BLOWER
25	NVG057	HEMISPHERICAL BUMPER D.18
26	1076039	ADJUSTABLE FOOT
27	NEV013	ELECTRIC CABLE WITH 3x1 PIN/PLUG
28	1077001	COMPLETE HOUSING IDEA
30	1076005	SIDE COVER IDEA
31	1077010	WORKING CHAMBER IDEA
32	NEC046	RECTANGULAR MAGNETIC UNIT 50x16x2,5
33	5406019	WINDOW JOINT
34	NEA124	FAIRLEAD D.=50
35	1076013	HIGH REAR COVER IDEA
36	NEA125	FERRULE WITH HEAD D.=46
37	NPS040	MANOMETER 0-6 1/8
38	1000534	COMPLETE LED LIGHTING UNIT
39	1076002	MANOMETER AND LIGHTING UNIT SUPPORT IDEA
40	NVT141	GRADUATED KNOB
41	1073016	SUPPORT FOR 5-WAY SELECTOR SWITCH
42	1000531	COMPLETE 5-WAY SELECTOR SWITCH
43	NEC018	PROTECTED BIPOLAR SWITCH
44	NPS031	PRESSURE REDUCER 1/8
45	NPR304	MALE QUICK CLUTCH 1/8
46	NPR303	FEMALE QUICK CLUTCH 1/8
47	NPR119	STRAIGHT MALE PIPE-FITTING 8x6 1/8
48	NPR206	REDUCTION FITTING M/F 1/8 1/8
49	NPS012	AIR FILTER 1/8
50	NES030	3-WAY SOLENOID VALVE-220v
51	1077012	SMALL REAR COVER IDEA PRO
52	NEA046	SOCKET + DOUBLE FUSE HOLDER
53	NEA071	RAPID FUSE 5x20 6,3 A
54	NEA047	FEMALE SOCKET
55	100072U	COMPLETE TANK
56	1201007	FILTER FIXING FLANGE
57	1076024	FIXING PIN IDEA
58	NEV060	OREGON PIPE D.=30

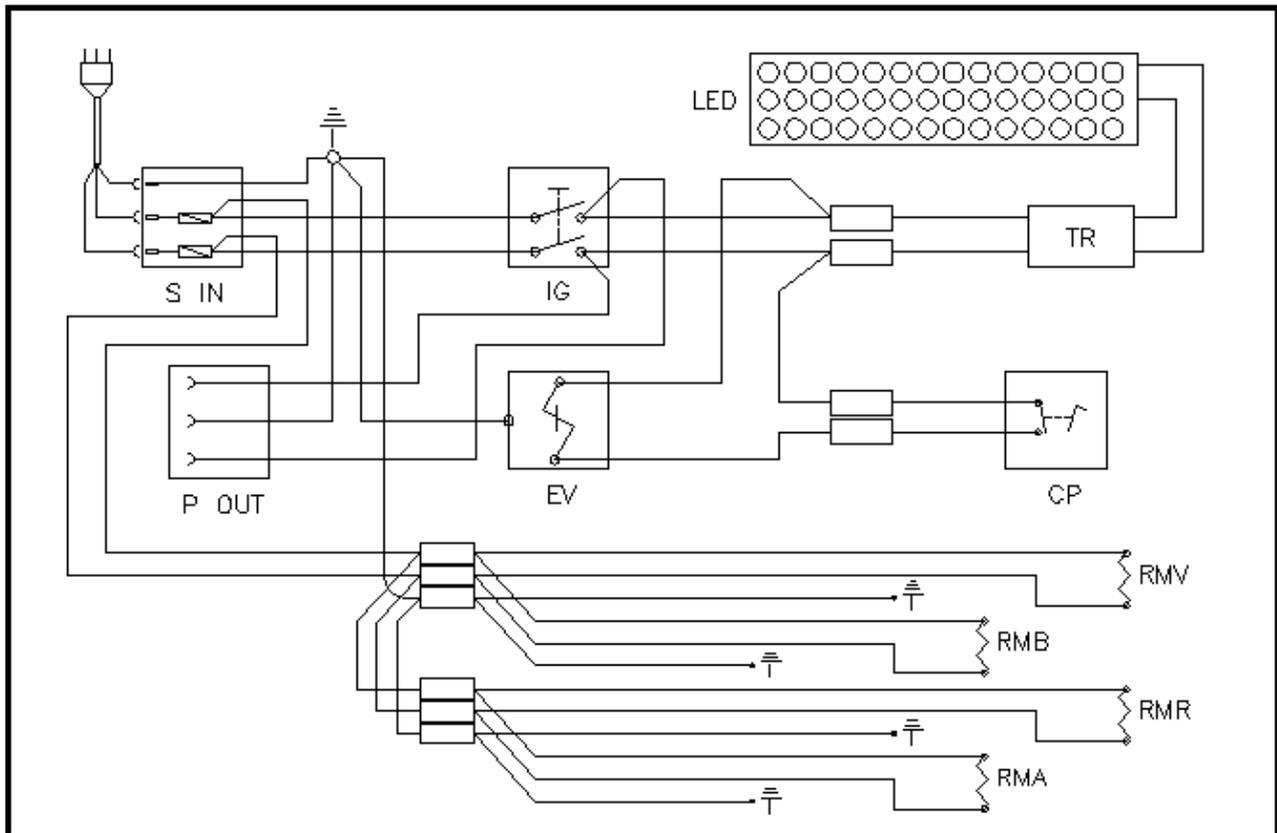


EXPLODED DRAWING AND SPARE PART LIST IDEA D.O.S. table 2

#	code	description
70	1076033..	RESIN LABEL FOR TANK (specify colour)
71	NVT165	G1 FEMALE CAP
72	1072003	COMPLETE ABRASIVE TANK
73	1076100	MODULO IDENTIFYING LABEL IDEA
74	NPOR3300	OR JOINT 3300
75	1072001P	NYLON/GLASS TANK BASE
76	NPV020	SINTERED AIR INJECTOR
77	NPOR2043	OR JOINT 2043
78	1072004A	FITING FOR AIR BLOWER AND FILTER
79	NPV025	LINE FILTER
80	NPR111	STRAIGHT MALE PIPE-FITTING 6x4 1/8
81	1072007	TERMINAL CAP ON ABRAISVE PIPE
82	1072006	ABRASIVE OUTLET PIPE (specify grainsize in use)
83	1072005	ABRASIVE PIPE PIPE-FITTING
84	NPR111P	STRAIGHT MALE PLASTIC PIPE-FITTING 6x4 1/8
85	NPV042	EXTRAFLEX POLYURETHANE PIPE 6x4
86	NEV030	SHEATH D.= 6
87	1067005	MICROPROJECTOR HANDLE (specify colour)
88	1067006	MICROPROJECTOR BODY
89	NPOR2012	OR JOINT 2012
90	RMN043	TUNGSTEN CARBIDE NOZZLE D.=1.2mm
	RMN044	TUNGSTEN CARBIDE NOZZLE D.=0,8mm
	RMN045	TUNGSTEN CARBIDE NOZZLE D.=0,5mm
	RMN046	TUNGSTEN CARBIDE NOZZLE D.=2,0mm
	RMN047	TUNGSTEN CARBIDE NOZZLE D.=1,5mm
91	1067007	NOZZLE LOCKING RING NUT
92	NES013	SELF-ADJUSTING RESISTANCE 220V PTC
93	1049019	HOSE CONNECTOR
94	1073014	5-WAY SELECTOR CAP
95	NVT047	PS RING 8/14/0.2
96	NVT020	STEEL BALL 1/4
97	1027076	SPRING ON SELECTOR BALL
98	NVT049	COMPENSATION RING LMKAS22
99	1073012	5-WAY SELECTOR BODY
100	NVT034	PS RING 15/22/0.2
101	NPOR2025	OR JOINT 2025
102	1073013	5-WAY SELECTOR DISTRIBUTOR
103	NPOR2018	OR JOINT 2018

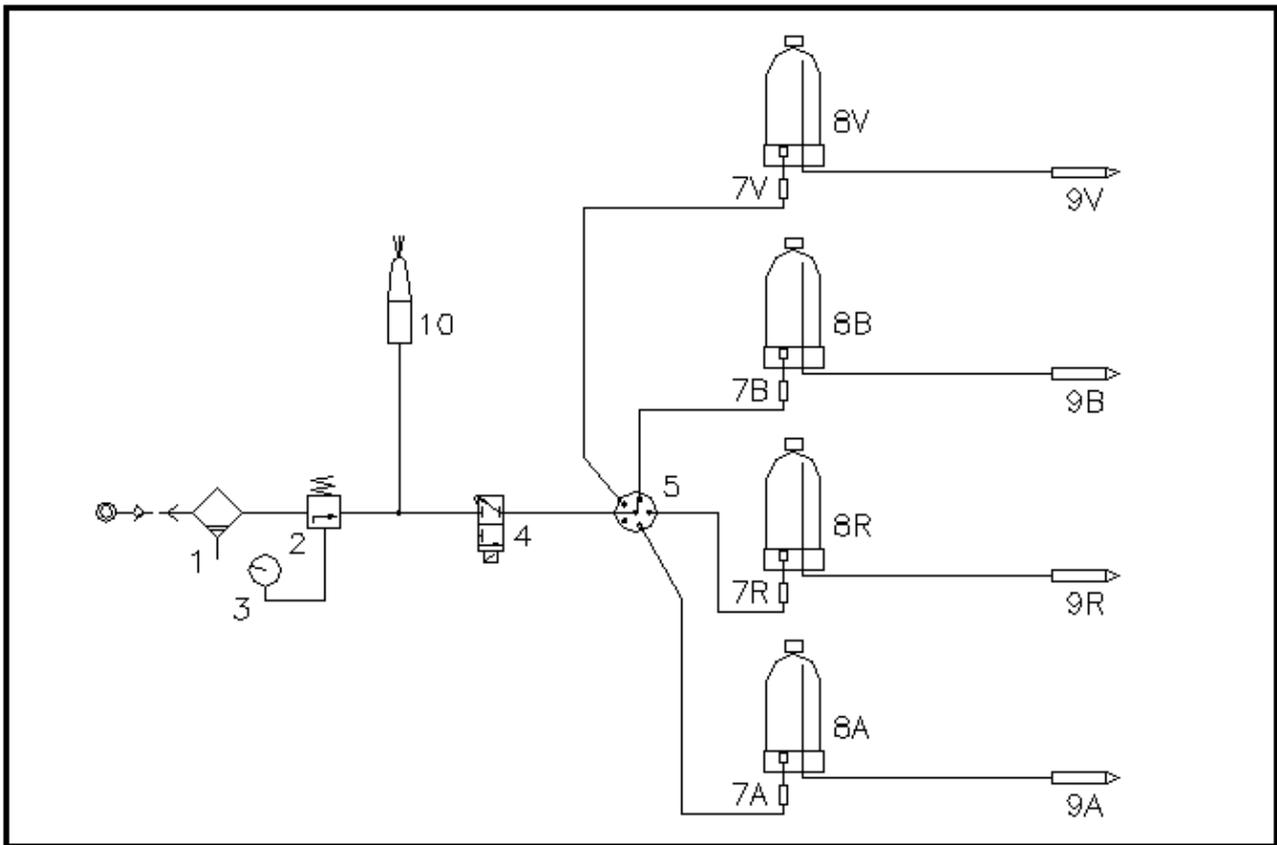


9. WIRING DIAGRAM



NO.	DESCRIPTION
S IN	PLUG AND FUSEHOLDER UNIT
IG	MAIN SWITCH
TR	ELECTRONIC BALLAST
LED	LED CIRCUIT
EV	3-WAY-SOLENOID VALVE – MANUAL BLASTING
CP	ELECTRIC FOOT CONTROL
P OUT	FLUSH-MOUNTED SOCKET for DUST EXTRACTOR
RM	HEATING ELEMENT for D.O.S. SYSTEM

10. PNEUMATIC CIRCUIT



NO.	DESCRIPTION
1	AIR FILTER
2	PRESSURE REDUCER
3	PRESSURE GAUGE
4	3-WAY-SOLENOID VALVE – MANUAL BLASTING
5	SELECTOR SWITCH
7	5 MY FILTER
8	MICROBLASTING TANK
9	MICROPROJECTOR
10	AIR BLOWER

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