

IB 7/40 Classic IB 7/40 Advanced Service Manual



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1 Preface

Good service work requires extensive and practice-oriented training as well as well-structured training materials. Hence we offer regular basic and advanced training programmes covering the entire product range for all service engineers. In addition to this, we also prepare service manuals for important appliances - these can be initially used as instruction guides and later on as reference guides. Apart from this, we also regular information about product enhancements and their servicing.

If you should require supplements, have corrections or questions regarding this document, please address these citing the following subject to:
international-service@de.kaercher.com

Subject:	Fall 106358
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The responsible product specialist will take care of your issue.

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2 Safety instructions

2.1 Hazard levels

Danger

Immediate danger that can cause severe injury or even death.

Warning

Possible hazardous situation that could lead to severe injury or even death.

Caution

Possible hazardous situation that could lead to mild injury to persons or damage to property.

2.2 Symbols on the machine



Danger

Risk of injury on account of flying dry ice pellets. Do not direct the jet pistol on persons. Keep third persons away from the place of use and when the machine is being operated (by cordoning off the area).

Do not touch/hold the nozzle or the dry ice jet when the machine is running.



Danger

Risk of suffocation on account of carbon dioxide. The dry ice pellets are made of solidified carbon dioxide. The carbon dioxide content in the air at the place where the machine is used will increase when the machine is running. Ensure adequate ventilation at the

place of use; if possible, use an alarm to warn persons. Symptoms of high levels of carbon dioxide in the air that is breathed in:

- 3...5%: headache, faster breathing.
- 7...10%: headache, nausea and perhaps even unconsciousness.

If any of these symptoms occur, please switch off the machine immediately and get a breath of fresh air; improve the ventilation before starting work again with the machine or use respirators. Follow the safety specifications of the manufacturer of dry ice.



Danger

Risk of injury on account of electro-static discharge; risk of damage to the electronic components. The object being cleaned can get charged electrically during the cleaning process. Provide suitable earthing for the object being cleaned and ensure that the earthing remains intact during the entire cleaning process.



Danger

Risk of cold burns. Dry ice has a temperature of -79 °C. Never touch dry ice or cold parts of the machine without appropriate protection.



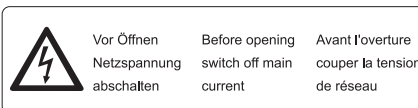
Danger

Risk of injury on account of flying dry ice pellets or dirt particles. Wear close fitting safety goggles. Risk of hearing impairment. Wear ear-protection aids.



Danger

Risk of injury on account of flying dry ice pellets or dirt particles. Wear protective gloves and long-sleeved protective overalls as per EN 511.



Danger

Risk of injury on account of electric shock. Pull the plug out of the socket before opening the control cabinet.

2.3 General notes on safety

⚠ Danger

Risk of injury if the machine is left running in an unattended state. Disconnect the mains plug from the socket before performing any work.

⚠ Danger

Risk of cold burns on account of dry ice or cold parts of the machine. While working on the machine, wear appropriate safety gear for protection against cold or remove dry ice and let the machine heat up.

Never put dry ice in your mouth.

⚠ Warning

Risk of injury on account of the recoil force of the jet pistol. Ensure that you are standing at a safe place and hold the jet pistol properly in your hand before pressing the trigger of the jet pistol.

⚠ Danger

Risk of injury on account of flying objects. Fix light cleaning objects properly to prevent them from being dragged off with the dry ice jet. Prior to working on the unit close the compressed air supply and open the pressure relief valve on the unit.

⚠ Warning

Danger of crushing on account of the dosing equipment. Always remove the machine plug from the socket before removing the protective shield of the dry ice container.

2.4 Specifications and Guidelines

For the operation of this system the following regulations and directives are applicable in the Federal Republic of Germany (available from Carl Heymanns Verlag KG, Luxemburger Straße 449, 50939 Cologne):

- BGV D 26 Spray jet tasks
- Executing instructions for BGV D 26
- BGR 117 Working in closed rooms
- BGR 189 Using safety gear
- BGR 195 Using of safety gloves
- BGI 534 Working in closed rooms
- BGI 836 Gas warner

3 Technical Features

3.1 Basics of working with the dry ice jet

There is one major difference between dry ice cleaning and any other conventional cleaning method: The surfaces of machines and systems are not attacked during the cleaning process.

3.1.1 What is dry ice?

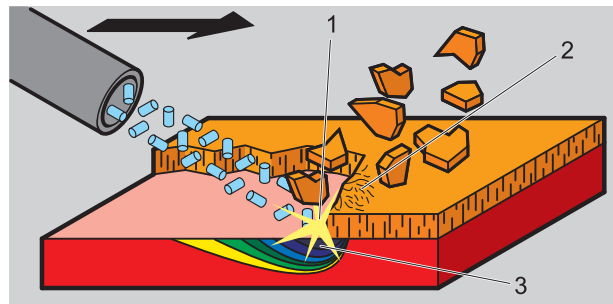
Dry ice is gained from liquid CO₂ by rapid flash. The resulting CO₂ snow of -79°C is pressed in pellets of 0.5-3mm. Dry ice sublimates completely. This means that there is no liquid state of aggregation. It becomes gaseous immediately. Dry ice pellets are available nearly everywhere throughout the world.

3.1.2 How does dry ice blasting work?

Dry ice blasting is basically similar to sand blasting. The jet medium here are dry ice pellets - that sublime immediately when they hit the surface, and return in the atmosphere as CO₂ gas. In the dry ice blaster, the pellets are dosed into a compressed air stream, accelerated to more than 150 m/s, and blasted through a jet hose with gun and nozzle onto the parts to be cleaned.

Dry ice cleaning removes:

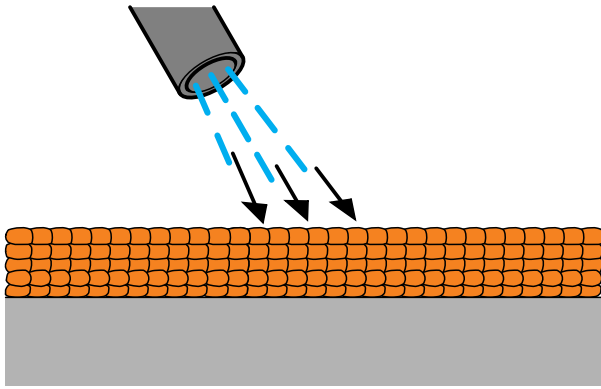
- Paint/varnish
- Oil
- Grease
- Tar
- Bitumen
- Dirt
- Ink
- Resin
- Glue
- Wax
- Bonding agents/parting agents
- Silicone/rubber residues
- Chewing gum
- Graffiti
- and much more



- 1 Impact and sublimation
- 2 Embrittlement
- 3 Local chilling

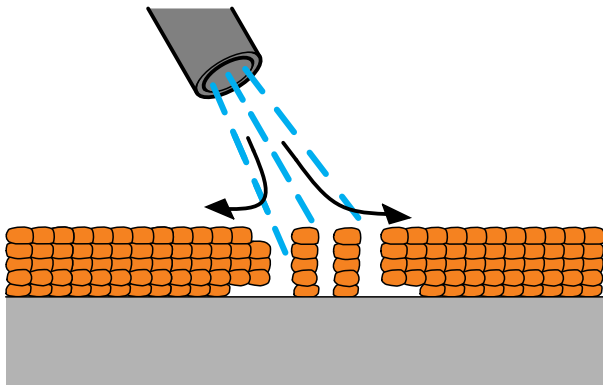
3.1.3 Kinetic cleaning

The dry ice pellets are accelerated to more than 150 m/s, and hit the surface.



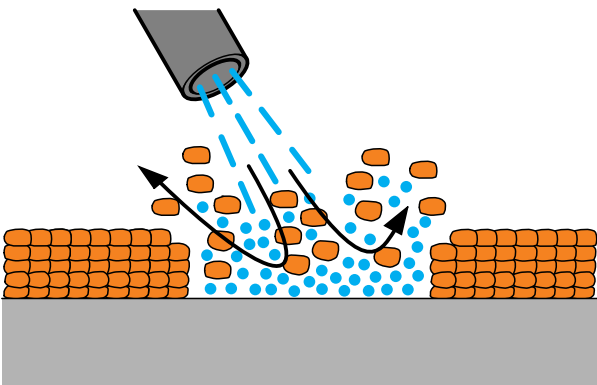
3.1.4 Thermal energy

Embrittlement of the surface by a sudden chilling to -79°C .



3.1.5 Sublimation

The pellets penetrate the cracks produced in the contaminant, sublime (direct transition from the solid state into the gaseous state) there, and increase their volume 700-fold.



3.1.6 Advantages

- No humidity: Brief downtime, no material corrosion.
- No wear & erosion of the material: Long service life of machines / tools.
- No chemicals, no sand, no waste water: Environmentally compatible, cost-efficient, suitable for all areas where water, sand and similar products are not allowed.
- No disassembling of the machines necessary: Brief downtime, cleaning in installed state possible since no cleanser residues exist.

3.1.7 Necessary infrastructure

There are two possibilities of feeding the blaster with dry ice pellets:

- When the required amount of pellets is small, the pellets can be purchased from various manufacturers in a special transport container. This container permits the pellets to be stored for 4...8 days. A loss of approximately 4% per day must be reckoned with.

- When you need large pellet quantities, you can produce them yourself. This requires a tank to store liquid CO_2 , and a pelletizer. Pelletizers can be purchased from Kärcher.

To feed the blaster with compressed air you need a compressor of sufficient capacity. To obtain the maximum jet performance, you need $3.5\text{m}^3/\text{min}$ at 10bars (1.0MPa).

3.1.8 Fields of application

Automotive industry and foundries:

- Chilled casting: Removing parting powder from the mould
- Injection moulding: Mould cleaning, removing rubber and silicone residues, parting agent
- Core boxes: Removing parting powder and bonding agent
- Assembly lines: Removing weld chips, grease and paint residues, contaminants
- Machines: Removing oil, dirt in general
- Motors: Removing oil, dirt in general
- Forges: Carrier of drop-forge moulds

Printshops:

- Web presses
- Developing webs
- Gravure machine auxiliaries
- Gravure cylinders
- Ink troughs
- Printing unit accessories
- Screen flex rollers
- Textile printing machines

Steel, metal, machine factories:

- Cleaning in all production areas
- Maintenance work

Plastic industry:

- Mould cleaning, removing rubber and silicone residues
- Deburring parts
- Tool cleaning

Food and drink industry:

- Conveyor belt and transport systems
- Tank cleaning
- Oven cleaning
- Filling systems
- Machinery / production area

Communities:

- Escalators
- Chewing gum removal
- Graffiti removal

Electric industry:

- Generator cleaning / repair
- Turbine cleaning
- witchgear cabinets

Packing industry:

- Conveyor belt and transport systems

3.1.9 Description of the Appliance

General

- Dry ice jet unit
- Cleaning with dry ice pellets without solvent
- A large variety of applications (see "Fields of application")
- Housing made from stainless steel
- Sack-trolley principle
- Solid rubber tyres
- Jet hose (7 m)

4 Setup and function

4.1 Device

Control panel with:

- Display to show jet pressure, dry ice quantity and statistics (operating hours, consumption, average consumption)
- Indicator lamps for control voltage, emergency stop, compressed air, dosing device, and jet gun
- Buttons to adjust jet pressure and dry ice quantity
- Power switch
- Emergency-stop button
- Keyswitch to lock the settings
- Button to empty the dry ice container
- Buttons to display the statistic values

Safety equipment:

- Emergency stop button on the control panel
- Connection to external emergency stop circuit possible
- Guard over the revolving dosing device
- Shutdown at insufficient air pressure in the supply line
- Jet gun with protection against inadvertent activation
- Interruption of compressed air and blast medium transport in the event of a voltage drop

Jet gun

- Ergonomically shaped handle
- Safety mechanism, protection against inadvertent activation of the jet gun
- Easy and swift nozzle change
- Low weight, even longer cleaning work possible without tiring
- Additional with Advanced variant: Buttons to adjust jet pressure and dry ice quantity, and for switching dry ice dosing on / off

Jet nozzles:

Different jet nozzles are used for different cleaning tasks

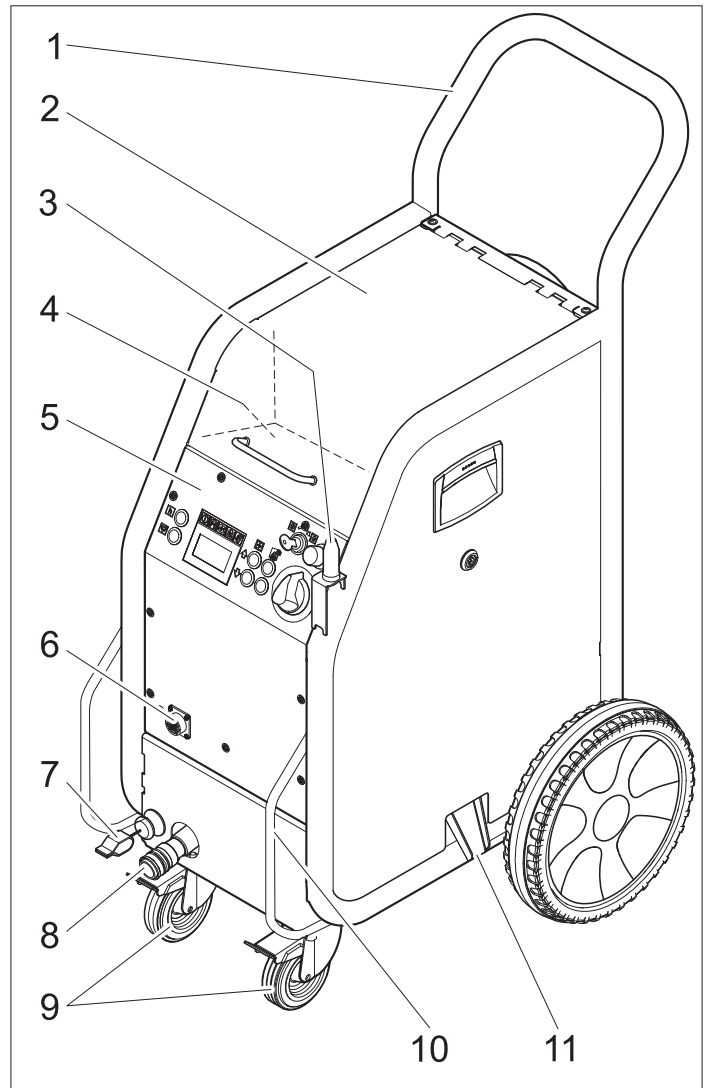
- Flat jet nozzles for large surfaces
- Round jet nozzles (accessory) for aggressive cleaning jet to release clinging contaminants
- Angular nozzles (accessory) to work in confined spaces
- Nozzle extensions (accessory) to work in cavities
- Scrambler (accessory) to crush the dry ice pellets for cleaning highly sensitive surfaces

Specifications:

- Dry ice consumption: 15...50 kg/h
- Dry ice capacity: 18 kg
- Weight Classic / Advanced: 93 kg / 95 kg

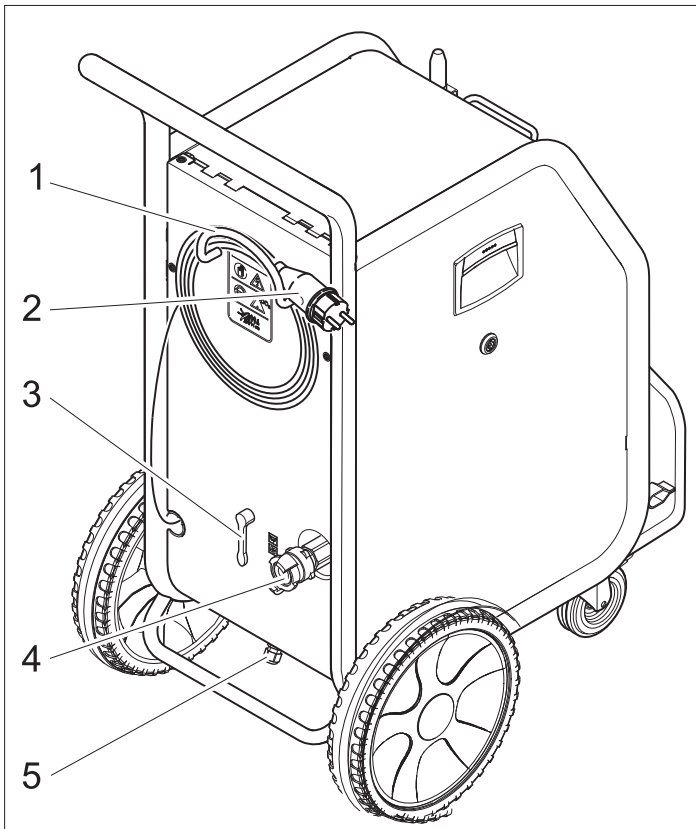
Connections:

- Working pressure: 0.2...1.0 MPa (2...10 bars)
- Volume flow: 0.5...3.5 m³/min
- Voltage: 1~, 220...240 V/50Hz/60Hz
- Electrical power: 0.6 kW

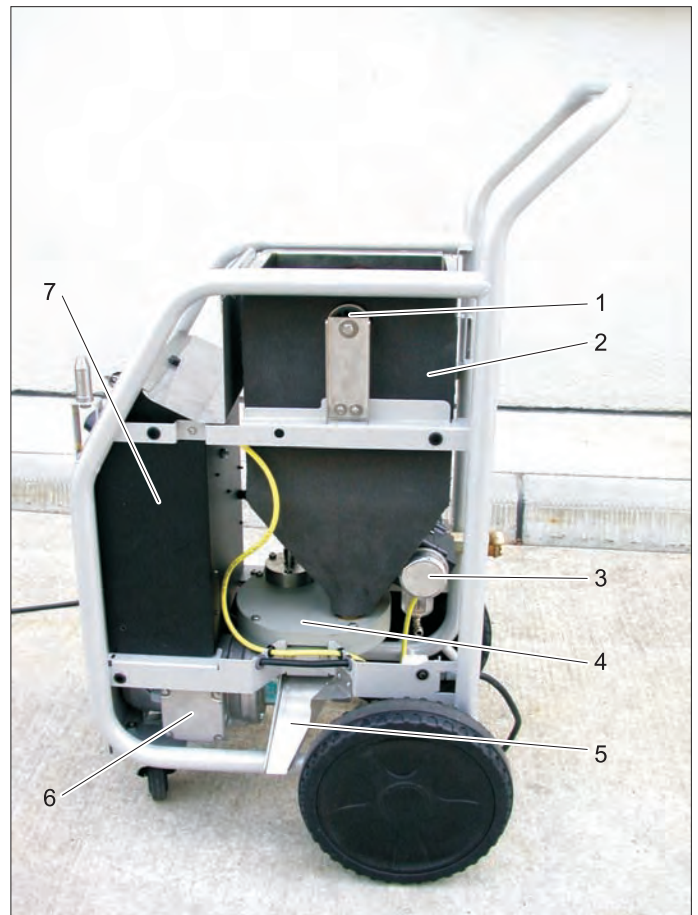


- 1 Push handle
- 2 Cover of the dry ice container
- 3 Holder for jet pistol
- 4 Storage compartment for accessories
- 5 Operating field
- 6 Coupling of the control cable
- 7 Earthing rope with clamp (only IB 7/40 Advanced, option for IB 7/40 Classic)
- 8 Coupling spray agent hose
- 9 Guiding roll with fixed position brake
- 10 Transport handle, bumper at the rear
- 11 Dry ice outlet for emptying the container

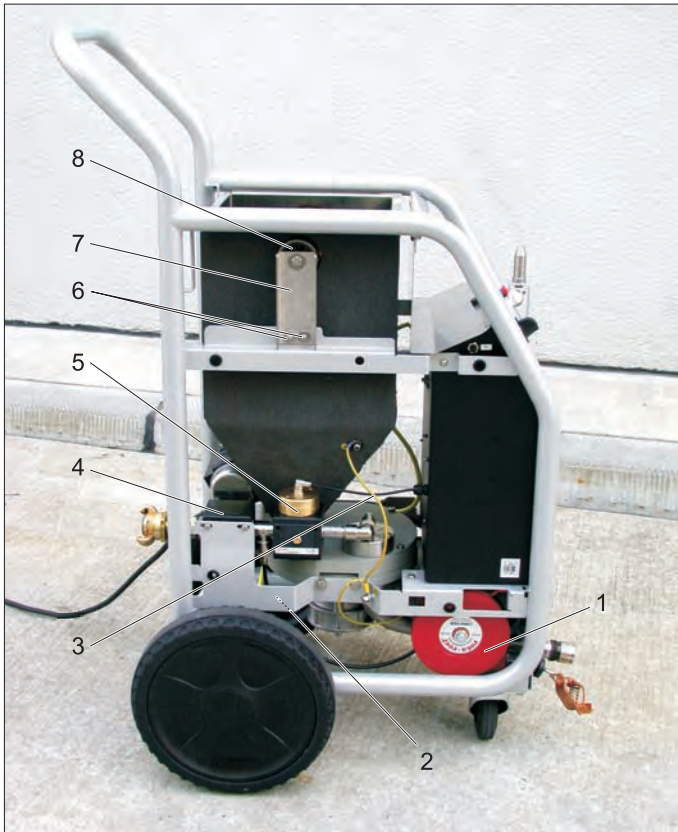
4.2 Device without housing



- 1 Cable clamp
- 2 Mains cable with mains plug
- 3 Pressure relief valve, condensate draining of the water separator
- 4 Compressed air connection
- 5 Condensate drain-out



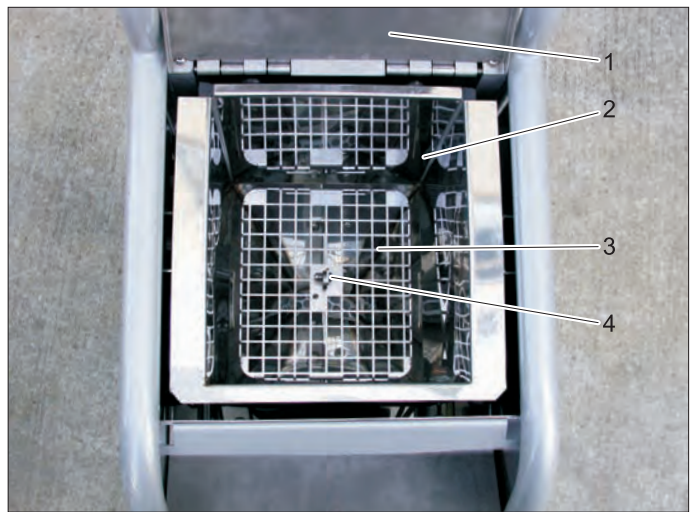
- 1 Dry ice container support
- 2 Dry ice container
- 3 Shaker (M2)
- 4 Dosing unit
- 5 Dry ice outlet (remainder emptying)
- 6 Geared motor, dosing unit drive (M1)
- 7 Control board



- 1 Earthing rope roller (standard with IB 7/40 Advanced, option for IB 7/40 Classic)
- 2 Nameplate
- 3 Earth cable
- 4 Water separator
- 5 Pressure control valve, pneumatically actuated
- 6 Fastening screws for dry ice container support
- 7 Dry ice container support
- 8 Dry ice container support

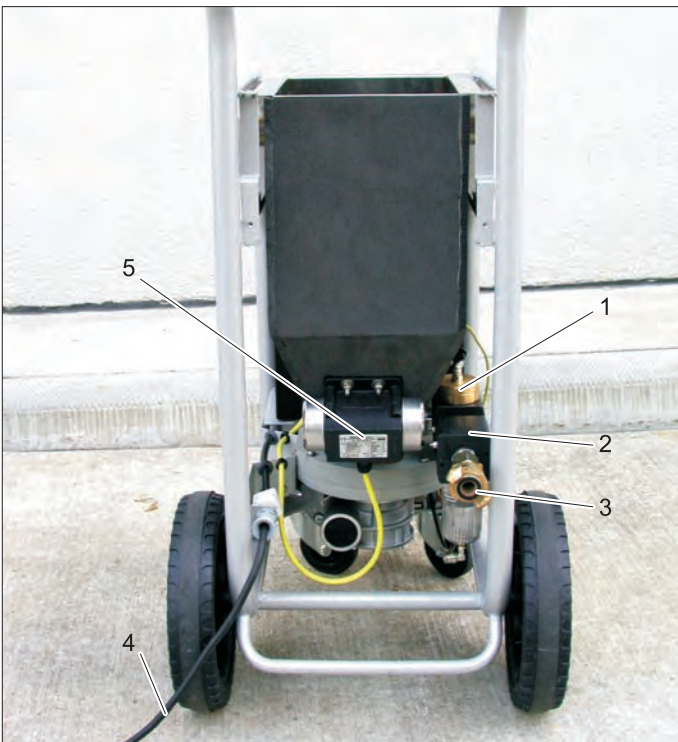


- 1 Pressure release valve
- 2 Hose connection
- 3 Compressed air line from the water separator

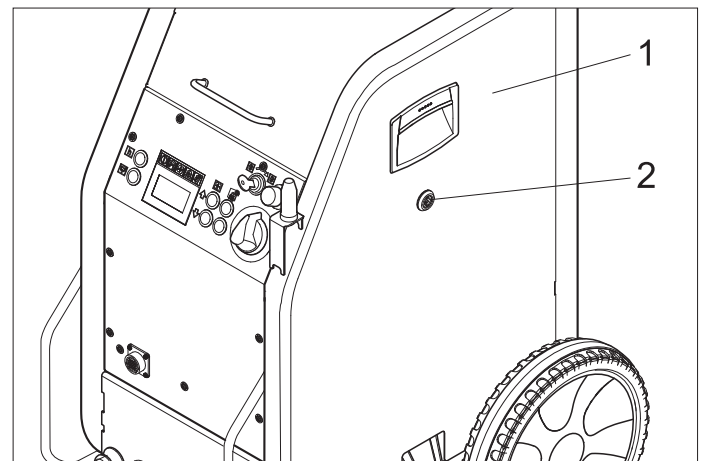


- 1 Cover of the dry ice container
- 2 Dry ice container
- 3 Protective grid
- 4 Fastening screws of protective grid

4.2.1 Remove side panel



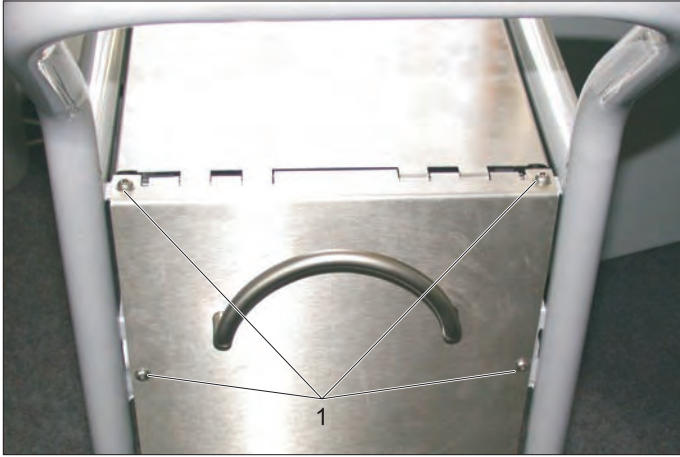
- 1 Pressure control valve, pneumatically actuated
- 2 Water separator
- 3 Compressed air connection
- 4 Mains cable with mains plug
- 5 Shaker (M2)



- 1 Side panels
- 2 Snap closure

- ➔ Turn the snap closure counter-clockwise.
- ➔ Remove side panel.

4.2.2 Remove rear panel



1 Screw

- Loosen 4 screws.
- Lift the lid of the dry ice container and swing rear panel outward.



1 Quick-action connection

- Open the quick-action connection and pull off the compressed air hose.
- Unhook the rear panel from the tubular frame.
- Installation: Align the lid (front gap of the lid), tighten the top screws. Check gap.

4.2.3 Removing the dry ice container

- Remove side panels.
- Unscrew the yellow-and-green earth cable from the dry ice container.



1 Fastening screws for dry ice container support

2 Dry ice container support

3 Dry ice container support

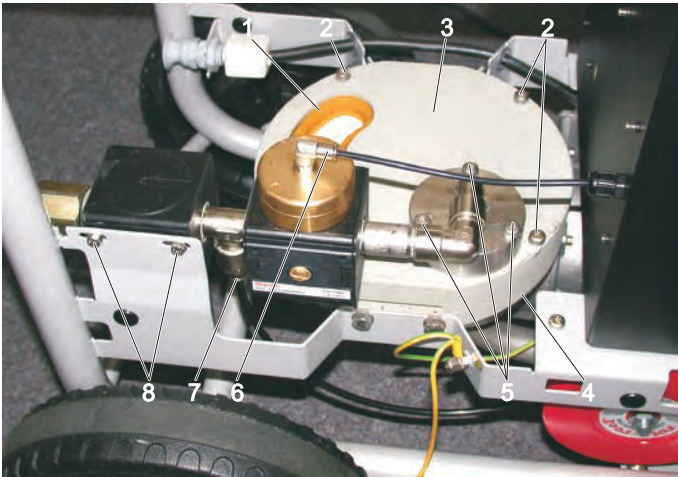
- Unscrew 4 fastening screws for the dry ice container support.
- Pull both supports from the side out of the bearing.
- Pull the dry ice container from the top out of the device.

Note

The shaker can remain connected. The dry ice container may be placed on the device.

4.3 Dosing unit

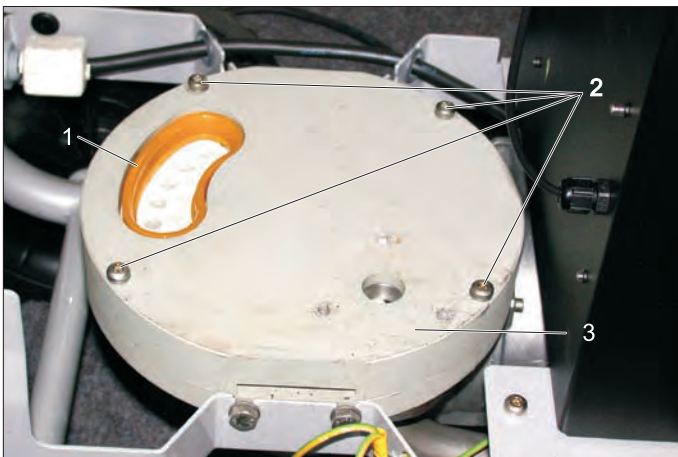
4.3.1 Overview



- 1 Dry ice container seal
- 2 Dosing unit screw
- 3 Dosing flange, top
- 4 Dosing flange, bottom
- 5 Compressed air flange screw
- 6 Quick-action connection of pressure control valve
- 7 Quick-action connection of control air
- 8 Fastening screw of water separator

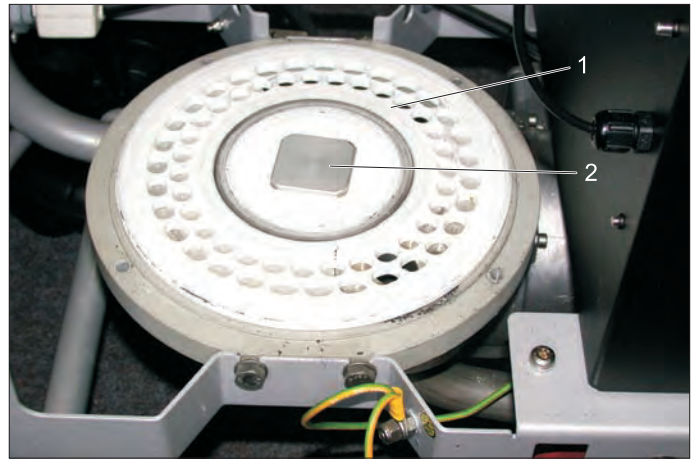
4.3.2 Replacing the dosing disk

- Unpressurize the appliance.
- Disconnect the mains plug from the socket.
- Remove the panels.
- Open the quick-action connection at the pressure control valve and pull off the compressed air hose.
- Open the quick-action connection at the control air connection and pull off the compressed air hose.
- Unscrew 3 fastening screws at the compressed air flange.
- Unscrew 2 fastening screws at the water separator.
- REMOVE the pipe module and put it aside.



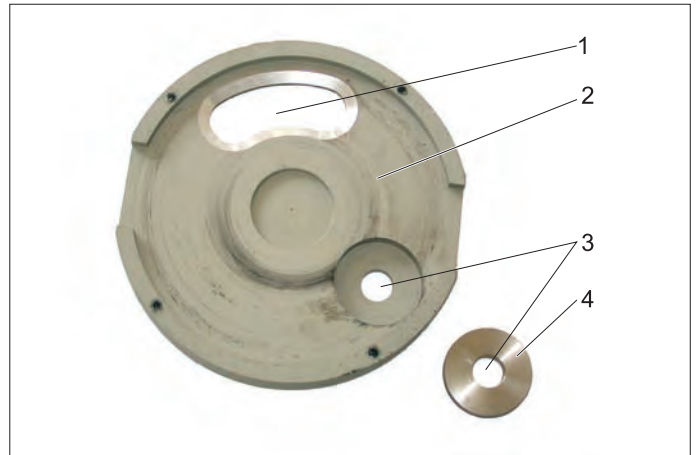
- 1 Dry ice container seal
- 2 Dosing unit screw
- 3 Dosing flange, top

- Remove the seal.
- Unscrew 4 screws of the dosing unit.
- Remove the upper dosing flange.

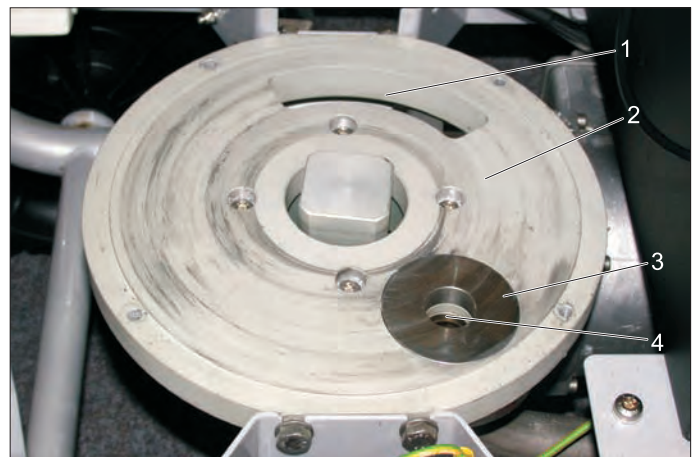


- 1 Dosing disk
- 2 Towing arm

- Remove the dosing disk



- 1 Dry ice pellet inlet opening
- 2 Upper dosing flange, inner side
- 3 Compressed air inlet opening
- 4 Insert with O-ring



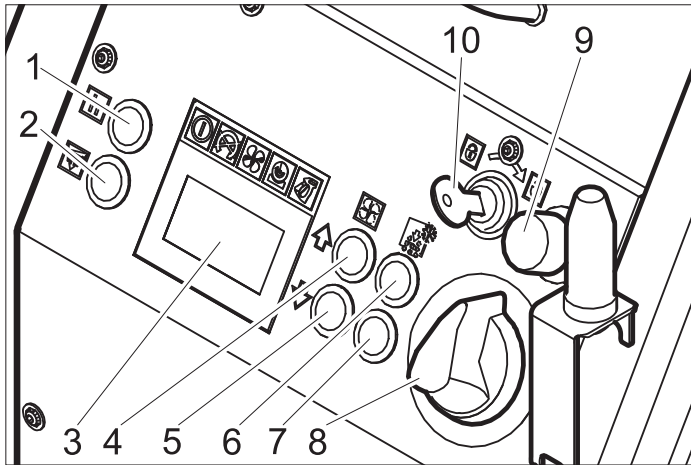
- 1 Dry ice pellet outlet opening for dry ice emptying
- 2 Lower dosing flange, inner side
- 3 Insert with O-ring
- 4 Dry ice jet outlet opening

Note: The inserts are movable in the dosing flanges. They are pressed on the dosing disk by the compressed air. When changing the inserts, you must grease the O-rings before installing them (using PFAE grease 100g 6.288-079.0 or PFAE grease 5g 6.288-088.0, for example.) This grease is also used for the nozzle thread. It is contained in the scope of delivery of the tool kit. Do not use silicon grease.

Clean the dosing flanges with a dry cloth before you install the dosing disk.

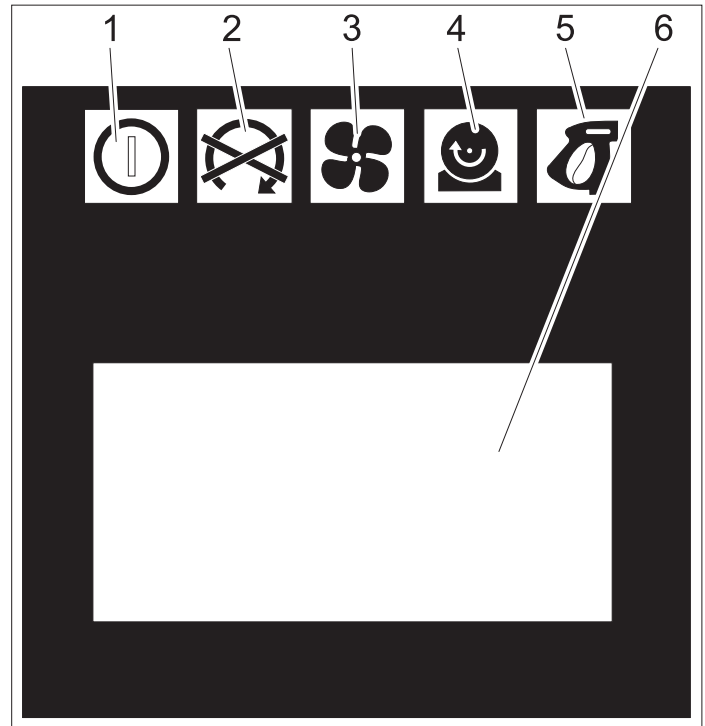
The new dosing disk is installed in reverse sequence.
Tightening torque, dosing flange screws: 14Nm

4.4 Operating field



- 1 Statistics button, reset counter (S8)
- 2 Button "Empty dry ice" (S9)
- 3 Display (A1)
- 4 Button "Increase jet pressure" (S6)
- 5 Button "Decrease jet pressure" (S7)
- 6 Button "Increase dry ice dosing" (S4)
- 7 Button "Decrease dry ice dosing" (S5)
- 8 Appliance switch (S1)
- 9 Emergency-stop button (S2)
- 10 Key switch (S3)

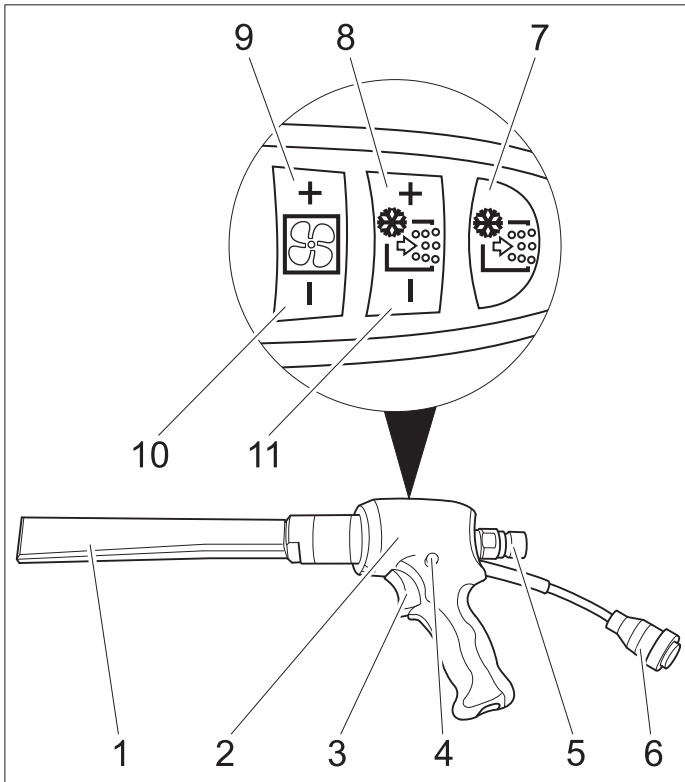
4.4.1 Display



- 1 Indicator lamp - control voltage
green: Control voltage OK
red: Control voltage too low
yellow: Emptying of dry ice container active
- 2 Indicator lamp emergency STOP
red: Emergency stop button activated
green: Emergency stop button not activated
- 3 Indicator lamp - compressed air
green: Pressure OK
orange: selected jet pressure not reached
red: Pressure too low (below 0.15 MPa/1.5 bar)
- 4 Indicator lamp – dosing device
green: Drive OK
red: Error in drive
- 5 Indicator lamp - jet pistol
green: Jet pistol OK
orange: The trigger of the jet pistol was activated during the switch-on process
red: Jet pistol disconnected or control line damaged
- 6 Display field

4.5 Jet equipment

4.5.1 Jet gun

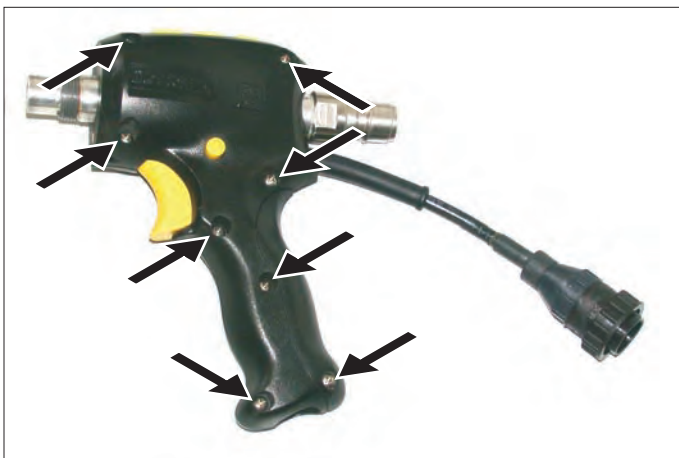


- 1 Nozzle
- 2 Jet pistol
- 3 Triggering lever
- 4 Safety button
- 5 Coupling spray agent hose
- 6 Coupling of the control cable

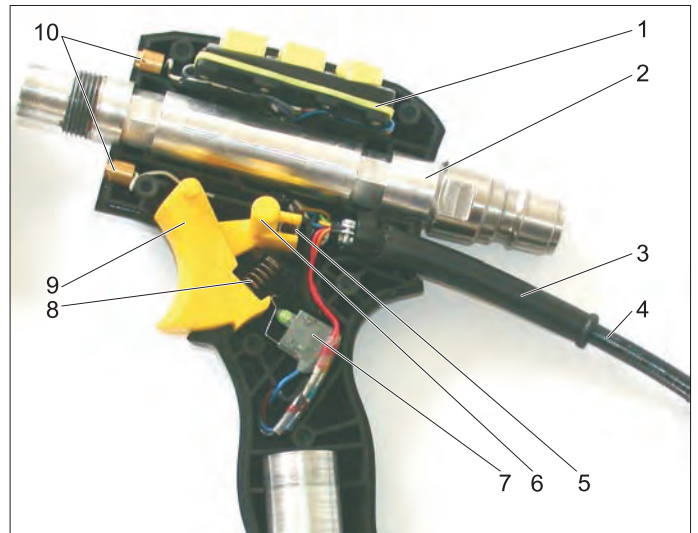
Only with IB 7/40 Advanced:

- 7 Button "Dry ice dosing on/off" (S12)
Illuminates red when dry ice dosing is switched off (V1)
- 8 Button "Increase dry ice dosing" (S13)
- 9 Button "Increase jet pressure" (S15)
- 10 Button "Decrease jet pressure" (S16)
- 11 Button "Decrease dry ice dosing" (S14)

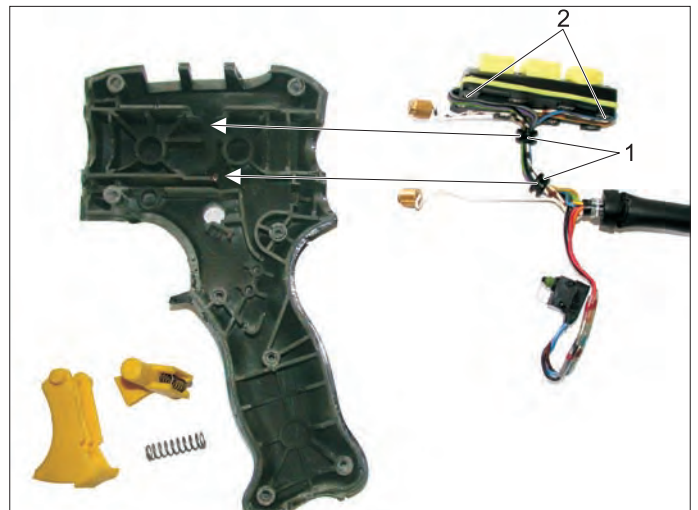
4.5.2 Disassembling the jet gun (IB 7/40 Advanced)



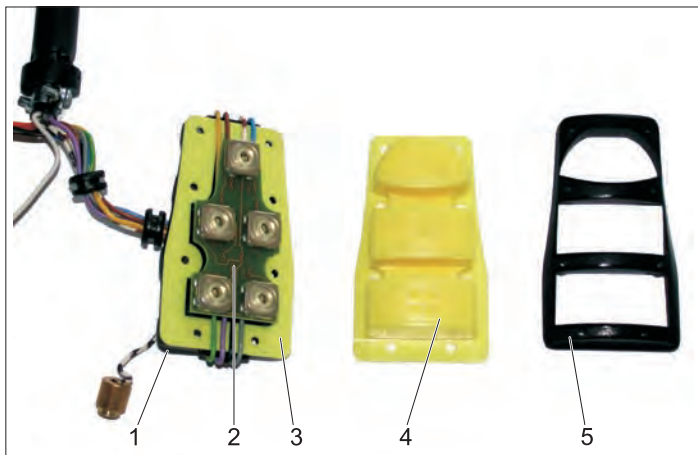
→ Unscrew 8 screws.



- 1 Keypad
- 2 Spray lance
- 3 Kink protection
- 4 Control cable
- 5 Helical spring of safety button
- 6 Safety button
- 7 Micro switch
- 8 Helical spring of the trigger
- 9 Triggering lever
- 10 Contact pin for working light power supply



- 1 Cable sleeve
- 2 Keypad screw (8x)



- 1 Bottom housing part
- 2 Keypad board
- 3 Seal
- 4 Button caps
- 5 Housing top

4.5.3 Spray agent hose



- 1 Safety hose coupling
- 2 Female connector, control cable on the jet gun
- 3 Male connector, control cable on the unit
- 4 Safety hose coupling, connection on the unit

4.6 Nozzles

Note

The choice of the nozzle depends on the material of the object to be cleaned and the contamination.

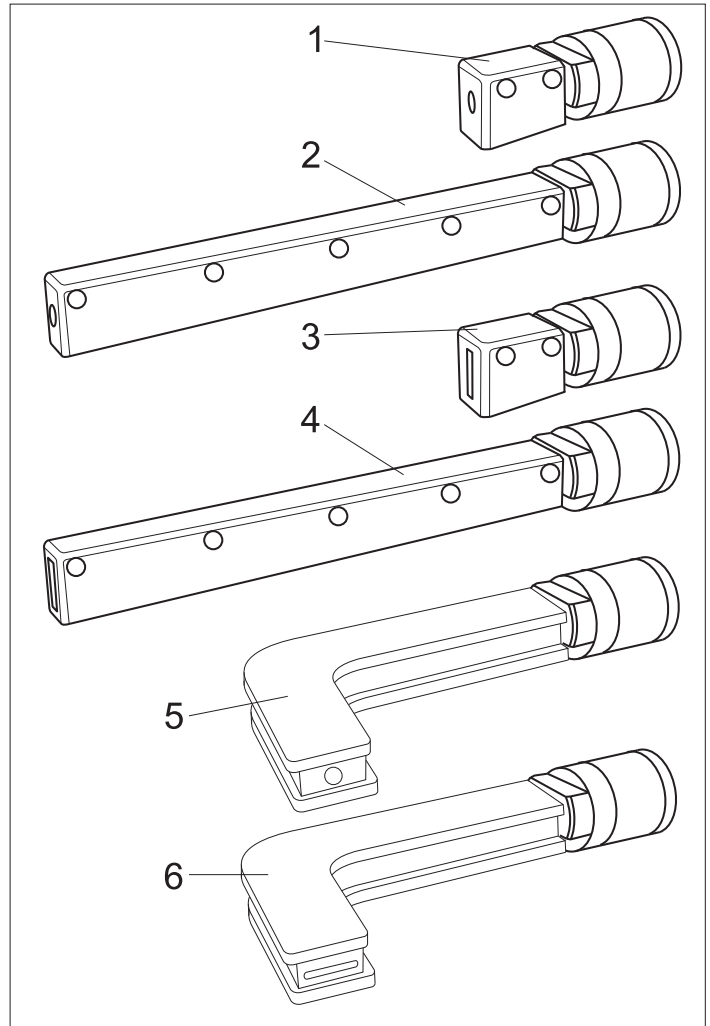
All nozzles can be screwed on top of the threading of the jet pistol without using any tools. The threaded surfaces on the nozzle are to be used to loosen tight nozzles using a spanner.

⚠ Warning

Risk of cold welding Apply some of the enclosed grease (PFAE grease 100g 6.288-079.0 or PFAE grease 5g 6.288-088.0) on the nozzle thread before you install the nozzle. Do not use silicon grease.

4.6.1 Jet nozzles (accessories)

Außer der runden Strahldüse, die mit der Maschine ausgeliefert wird, further flat and round steel nozzles are available as accessories for the machine.



- 1 Round jet nozzle, short
- 2 Round jet nozzle, long
- 3 Flat stream nozzle, short
- 4 Flat stream nozzle, long, included in delivery
- 5 Round stream nozzle, angled, with rubber coat
- 6 Flat stream nozzle, angled, with rubber coat

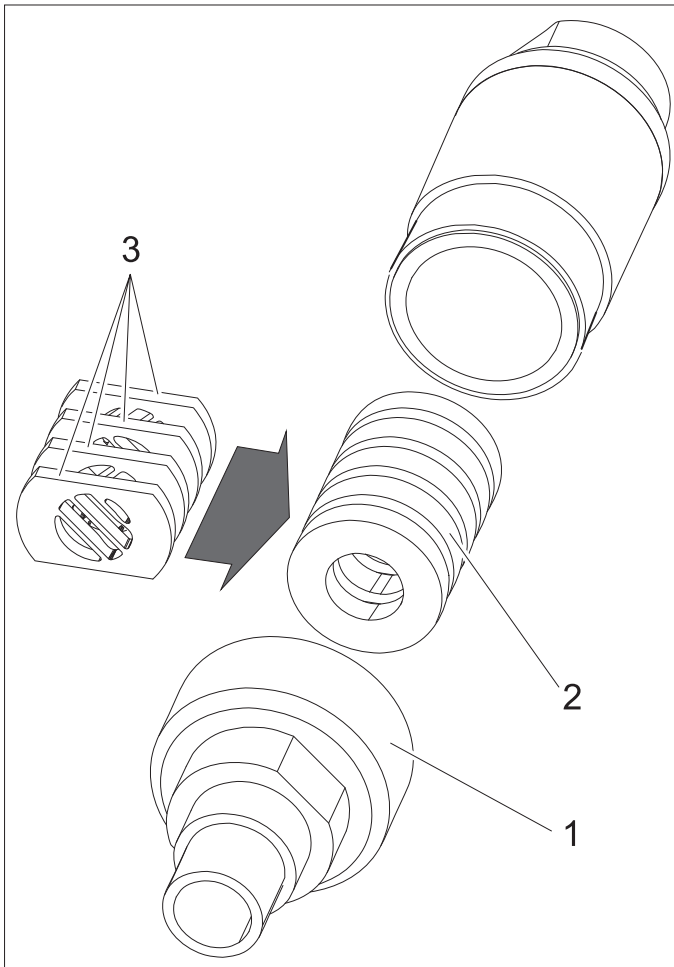
→ Place the nozzle onto the threaded support of the jet pistol and tighten it by hand.

4.6.2 Scrambler (accessory)

The scrambler crushes the dry ice pellets and is mounted between the jet pistol and the nozzle.

The alignment of the 4 holes plates in the scrambler indicates the degree of comminution.

Select the degree of comminution:



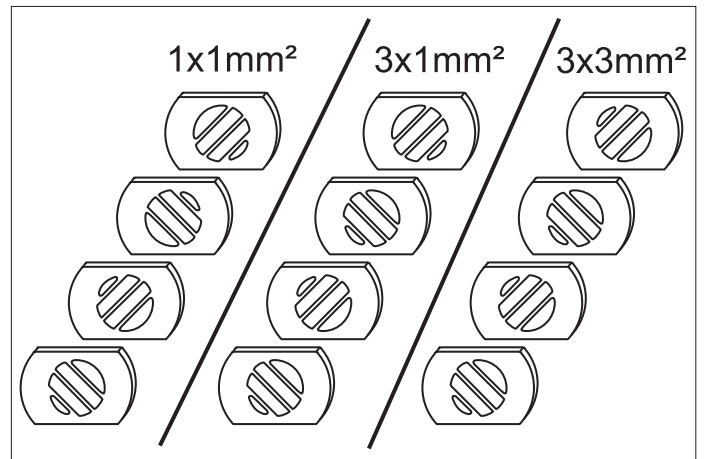
1 Screw connections

2 Magazine

3 Hole plate

➔ Remove the screw connection.

➔ Remove the magazine with hole plates.



➔ Align the hole plates, as shown above, in the magazine (3 possibilities). The above specifications in the illustration refer to the size of the permeation openings.

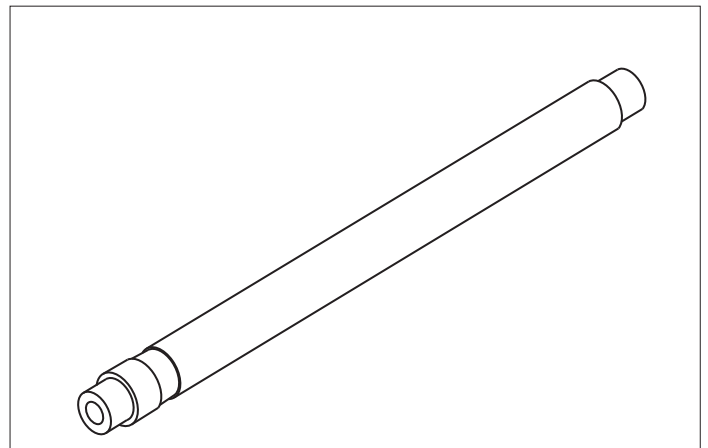
1x1 mm ²	strong comminution
3x1 mm ²	medium comminution
3x3 mm ²	light comminution

➔ Insert the magazine with hole plates into the scrambler.

➔ Unscrew the screw connection and tighten it.

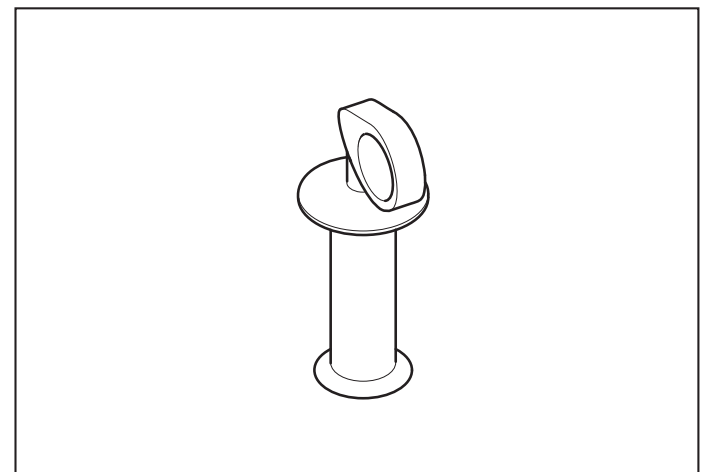
4.6.3 Nozzle extension (accessory)

An extension piece can be inserted between the jet pistol and the nozzle.

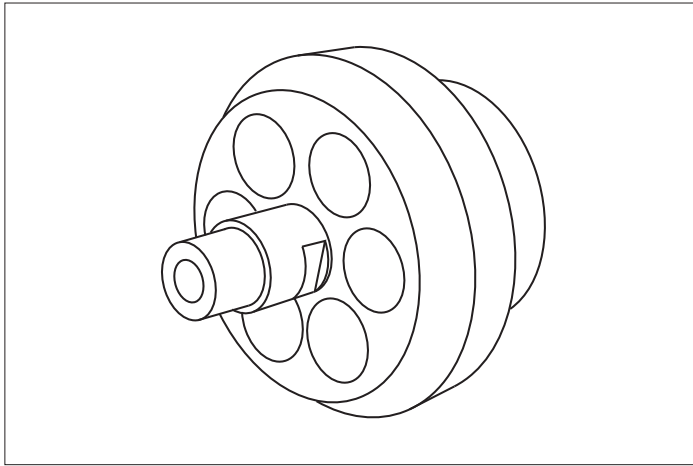


4.6.4 Handle (accessory)

The handle can be fastened on the extension piece.

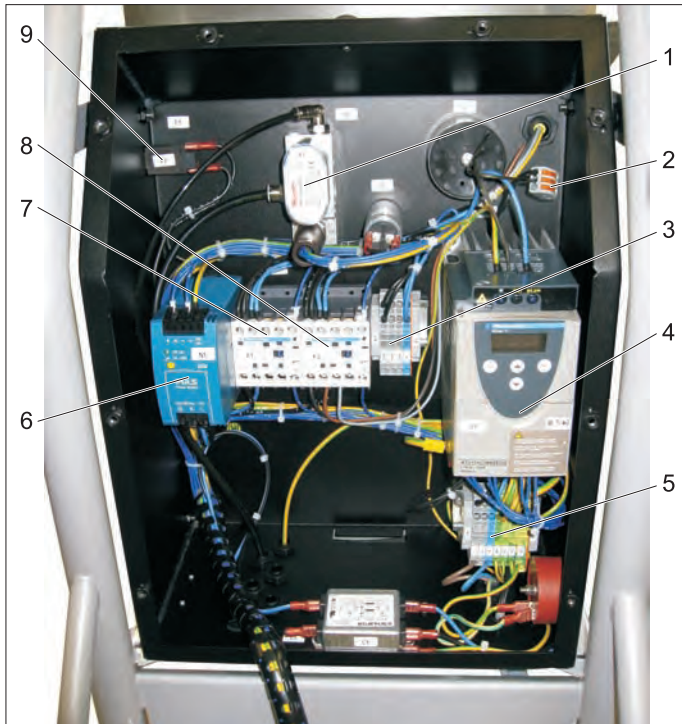


4.6.5 Working light (accessory)

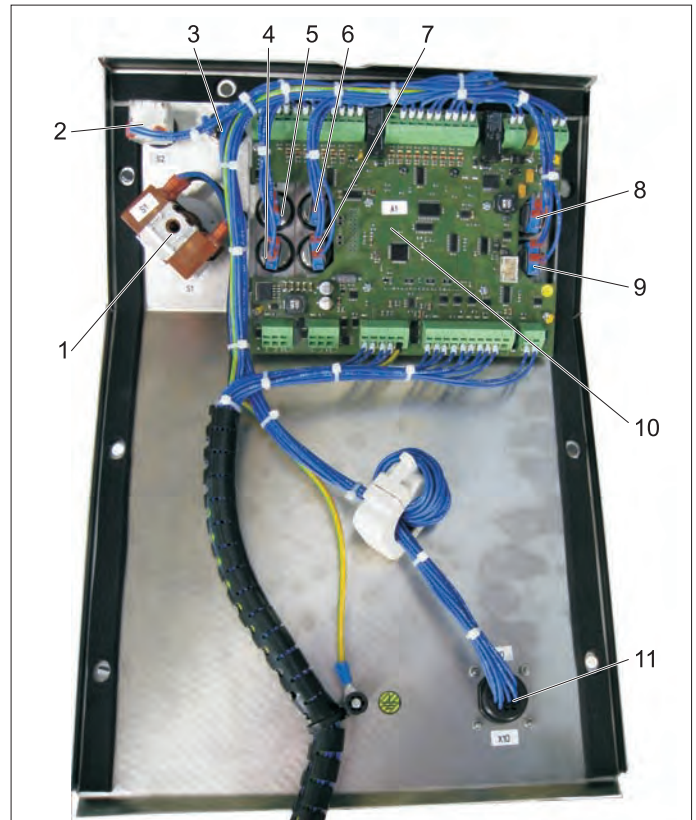


The working light is arranged between jet gun and nozzle. Switching on and switching off is described in the chapter "Operation/Basic Settings" in the Operating Instructions

4.7 Control board

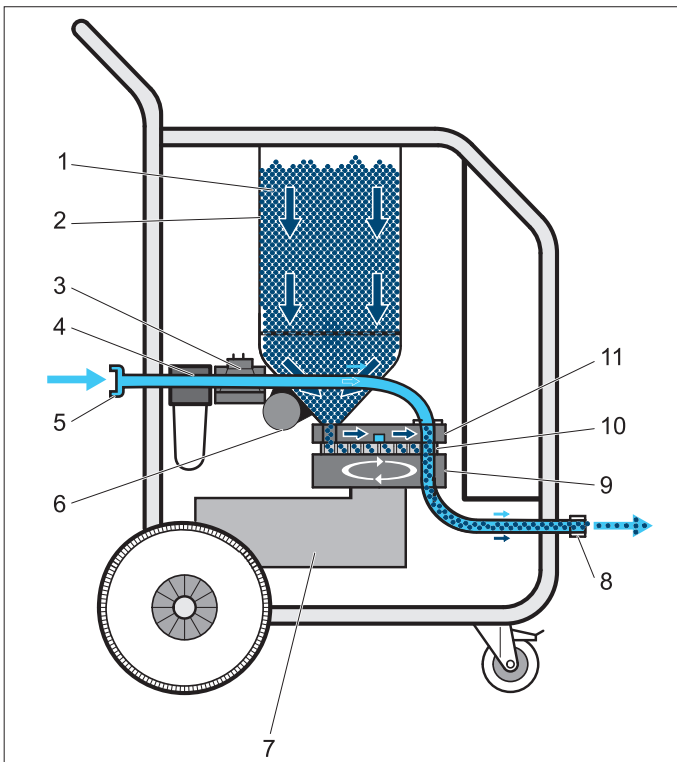


- 1 Pressure control valve (Y1)
- 2 Terminal (X3)
- 3 Terminal strip (X2)
- 4 Frequency converter (U1)
- 5 Terminal strip (X1)
- 6 Power supply (N1)
- 7 Contactor (K1), (frequency converter, dosing motor)
- 8 Contactor (K2), shaker
- 9 Fuse (F1)

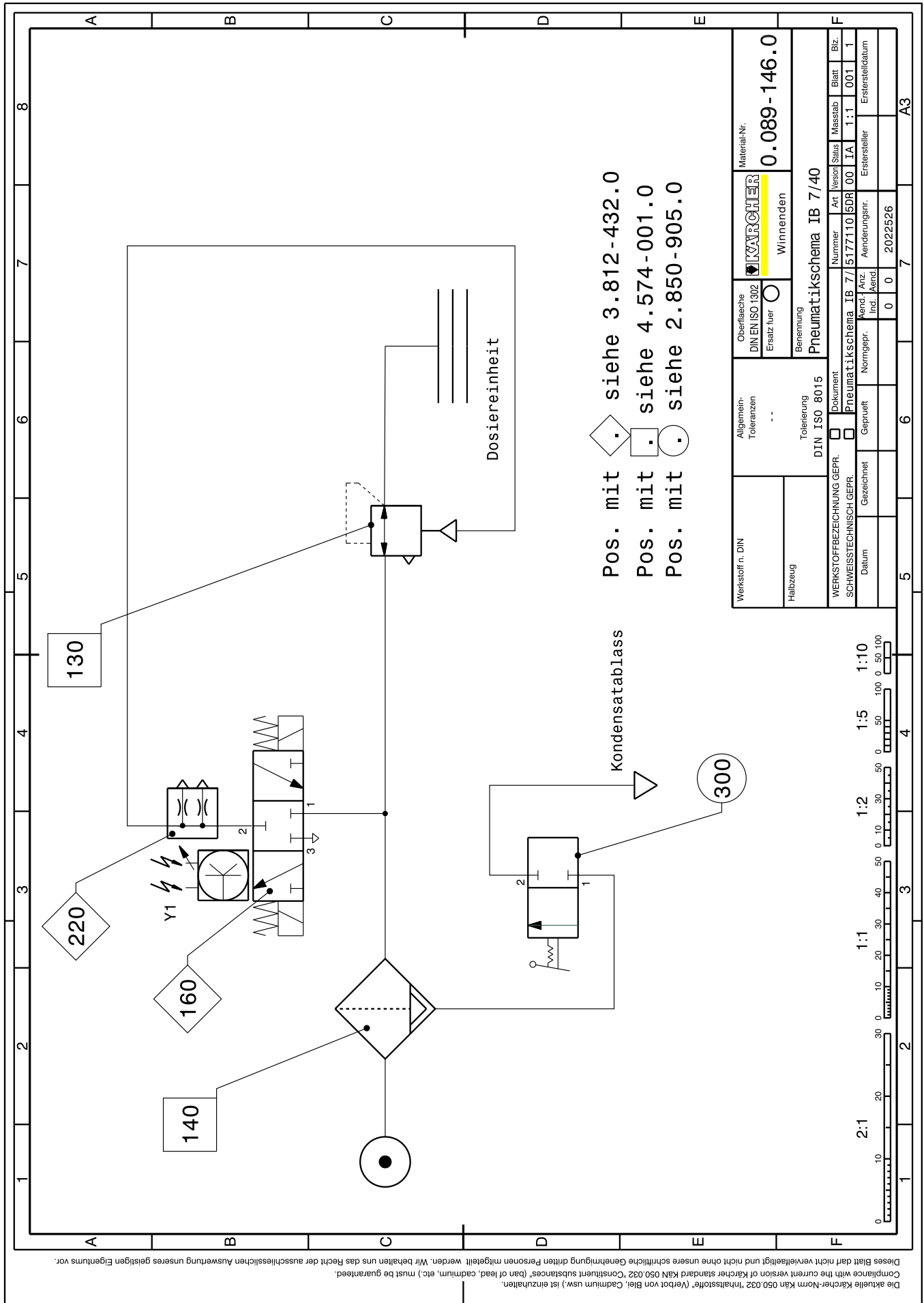


- 1 Appliance switch (S1)
- 2 Emergency-stop button (S2)
- 3 Key switch (S3)
- 4 Button "Decrease dry ice dosing" (S5)
- 5 Button "Increase dry ice dosing" (S4)
- 6 Button "Increase jet pressure" (S6)
- 7 Button "Decrease jet pressure" (S7)
- 8 Statistics button, reset counter (S8)
- 9 Button "Empty dry ice" (S9)
- 10 Controller with display (A1)
- 11 Control cable coupling (X10)

5 Functional diagram



- 1 Dry ice pellets
- 2 Dry ice container
- 3 Pressure regulation valve
- 4 Water separator
- 5 Compressed air connection
- 6 Shaker
- 7 Dosing motor
- 8 Coupling spray agent hose
- 9 Dosing flange, bottom
- 10 Dosing disk
- 11 Dosing flange, top



Werkstoff n. DIN	Oberfläche DIN EN ISO 1302	Material-Nr. KÄRCHER	Material-Nr. 0.089-146.0		
Halbzeug	Ersatz fuer <input type="checkbox"/>	Winnenden			
	Tolerierung DIN ISO 8015	Benennung Pneumatikschemata IB 7/40			
WERKSTOFFZEICHNUNG GEPR. <input type="checkbox"/>	Dokument	Nummer	Art	Version	Status
SCHWEISSTECHNISCH GEPR. <input type="checkbox"/>	Pneumatikschemata IB 7/40	15177110	IBDR	00	IA
Datum	Gezeichnet	Geprüft	Normgepr.	Änderungsgr.	Ersteller
			0	0	2022526

Die aktuelle Kächer-Norm Kän 050.032 "Inhaltsstoffe" (Verbot von Blei, Cadmium usw.) ist einzuhalten.
 Compliance with the current version of Kächer standard Kän 050.032 "Constituent substances" (ban of lead, cadmium, etc.) must be guaranteed.
 Dieses Blatt darf nicht veröffentlicht und nicht ohne unsere schriftliche Genehmigung dritten Personen mitgeteilt werden. Wir behalten uns das Recht der ausschliesslichen Auswertung unseres geistigen Eigentums vor.

7 Troubleshooting

⚠ Danger

Risk of accident while working on the appliance. Before you start working on the unit, close the compressed air supply, open the pressure relief valve, empty the dry ice container, disconnect the unit from the power supply and from the compressed air supply..

Never put dry ice in your mouth.

⚠ Danger

Risk of cold burns on account of dry ice or cold parts of the machine. While working on the machine, wear appropriate safety gear for protection against cold or remove dry ice and let the machine heat up.

7.1 Faults with display

Display	Indicator lamp (KL)	Possible cause	Remedy	By whom
E001	KL control voltage glows red	Control voltage too low	Turn off the appliance, wait briefly, turn on the appliance once again. Have the socket checked. If this error recurs, please contact the Kärcher customer service department	Operator
E002	KL emergency stop glows red	Emergency-stop button has been pressed.	Release emergency-stop button by turning.	Operator
E003	KL compressed air glows red	Pressure of the compressed air supply too low	Increase the pressure. Turn off the appliance, wait briefly, turn on the appliance once again.	Operator
E004	KL dosing glows red	Interference in the dosing	Turn off the appliance, wait briefly, turn on the appliance once again. If this error recurs, please contact the Kärcher customer service department	Operator
E005	KL jet pistol glows red	Connection between the device and the jet pistol is faulty.	Check for correct connection of the couplings in the control line. Check control cable for damages.	Operator
E006	KL jet pistol glows red	Short in jet pistol or control cable	Replace the jet pistol or the jet hose with a control cable.	Operator
E007	KL compressed air glows red	Fault in the compressed air regulator valve	Call Customer Service.	Operator
E008	KL jet pistol glows orange	The trigger of the jet pistol was activated during the switch-on process or the releasing of the emergency stop key.	Release the trigger of the jet pistol.	Operator

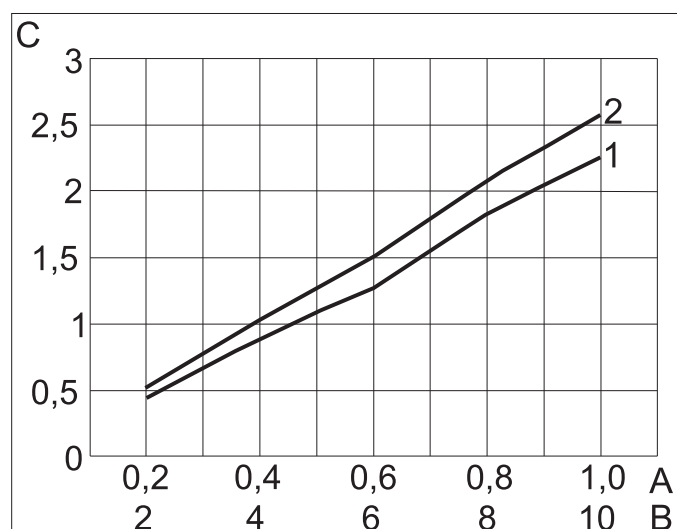
7.2 Faults without display on the console

Fault	Possible cause	Remedy	By whom
No compressed air jet despite the trigger being drawn	Compressed air supply has too little pressure	Check pressure level.	Operator
	Jet pressure is set too low	Set the jet pressure to a higher level.	Operator
	Power supply has been interrupted	Check power supply. Indicator lamp "Device on" must glow green.	Operator
	Emergency-stop button has been pressed.	Release emergency-stop button by turning. Indicator lamp "Device on" must glow green.	Operator
	Control cable not connected properly	Check connection between control cable and the jet pistol and between the control cable and the device.	Operator
	Control cable is defective	Replace spray agent hose.	Operator
Compressed air jet is too weak	Jet pressure is set too low	Set the jet pressure to a higher level.	Operator
	Compressed air supply has too little pressure or the compressor output is low.	Check pressure and output.	Operator
	The filter insert in the water separator is plugged.	Replace the filter inlay in the water separator.	Operator
	Spray agent hose or jet pistol is blocked	Let the spray agent hose and jet pistol come to room temperature and remove the blocking. Increase working pressure and / or reduce the dry ice dosing.	Operator
No dry ice pellets in the compressed air jet	Dry ice dosing switched off (IB 7/40 Advanced only), button "Dry ice dosing on/off" on the jet gun lights glows red, display shows "Ice off".	Press the dry ice dosing key on the jet pistol.	Operator
	Dry ice container is empty	Refill the dry ice container	Operator
	Dry ice has melted	Empty the dry ice container and refill it with fresh dry ice pellets.	Operator
	Vibrator on the dry ice container is not working	Call Customer Service.	Operator
	Drive motor of the dosing equipment is overloaded	Let the dosing thaw	Operator
	Compressed air is exiting into the dry ice container	Clean the pressure balance channel in the dosing equipment.	Customer Service
	Dosing disc in the dosing unit is defective	Replace the dosing disc.	Customer Service

8 Technical specifications

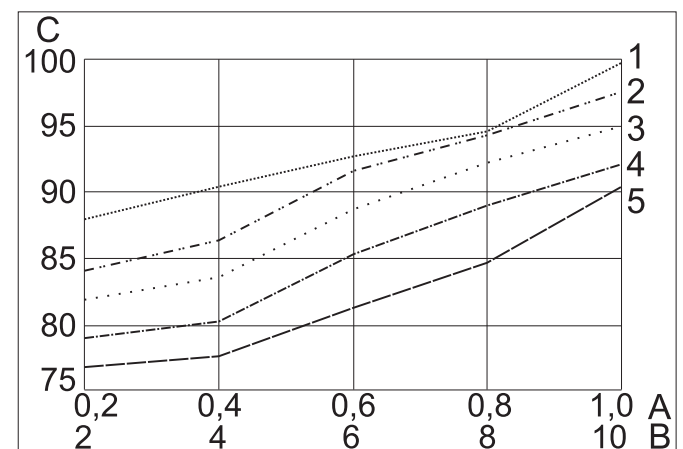
Electrical connection		
Voltage	V	220...240
Current type		1~
Frequency	Hz	50
Connected load	kW	0,6
FI safety switch	delta I in A	0,03
Compressed air		
Nominal width of hose	Inch	1/2
Pressure supply (max.)	MPa (bar)	1,0 (10)
Pressure supply (min.)	MPa (bar)	0,2 (2)
Compressed air consumption	m ³ /min	0,5...3,5
Quality of compressed air	min. Class 3, ISO 8573-1	
Performance data		
Jet pressure (max.)	MPa (bar)	1,0 (10)
Diameter of dry ice pellets (max.)	mm	3
Dry ice consumption	kg/h	15...50
Dimensions		
Contents of dry ice container	kg	18
Width	mm	510
Depth	mm	768
Height	mm	1096
Weight of IB 7/40 Classic, empty	kg	69
Weight of IB 7/40 Advanced, empty	kg	71
Weight of IB 7/40 Classic, ready to operate	kg	93
Weight of IB 7/40 Advanced, ready to operate	kg	95
Weight of the jet equipment (spray agent hose, spray gun, tool case)	kg	6,75
Recoil force of hand spray gun (max.)	N	30
Torque of jet pistol (max.), only with angled nozzle	N	8
Machine vibrations		
Jet pistol	m/s ²	1,2
Hose for spraying agent	m/s ²	1,2

8.1 Compressed air demand



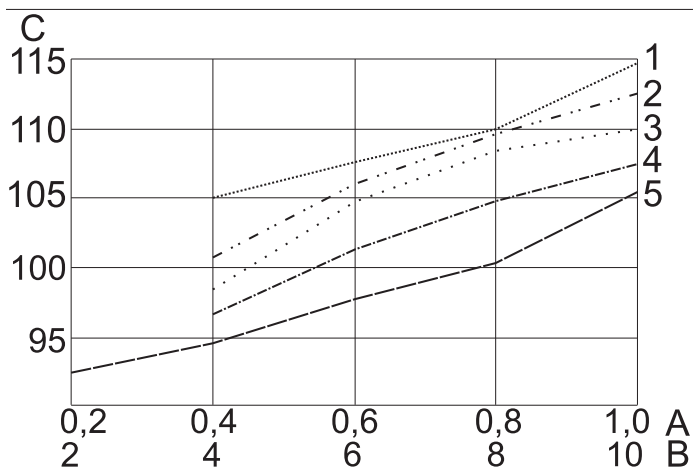
- A Pressure in MPa
 B Pressure in bar
 C Volume stream in m³/min
 1 straight nozzles
 2 angled nozzles

8.2 Sound level



- A Pressure in MPa
 B Pressure in bar
 C Noise level in dB(A)
 1 Round jet nozzle, short
 2 Flat stream nozzle, short
 3 Flat jet nozzle, angled
 4 Round jet nozzle, long
 5 Flat stream nozzle, long, included in delivery

8.3 Sound power level



A Pressure in MPa

B Pressure in bar

C Noise level in dB(A)

1 Round jet nozzle, short

2 Flat stream nozzle, short

3 Flat jet nozzle, angled

4 Round jet nozzle, long

5 Flat stream nozzle, long, included in delivery

8.4 Special tools

Torque wrench	6.815-090.0
Claw coupling adapter to standard quick coupling	4.422-063.0

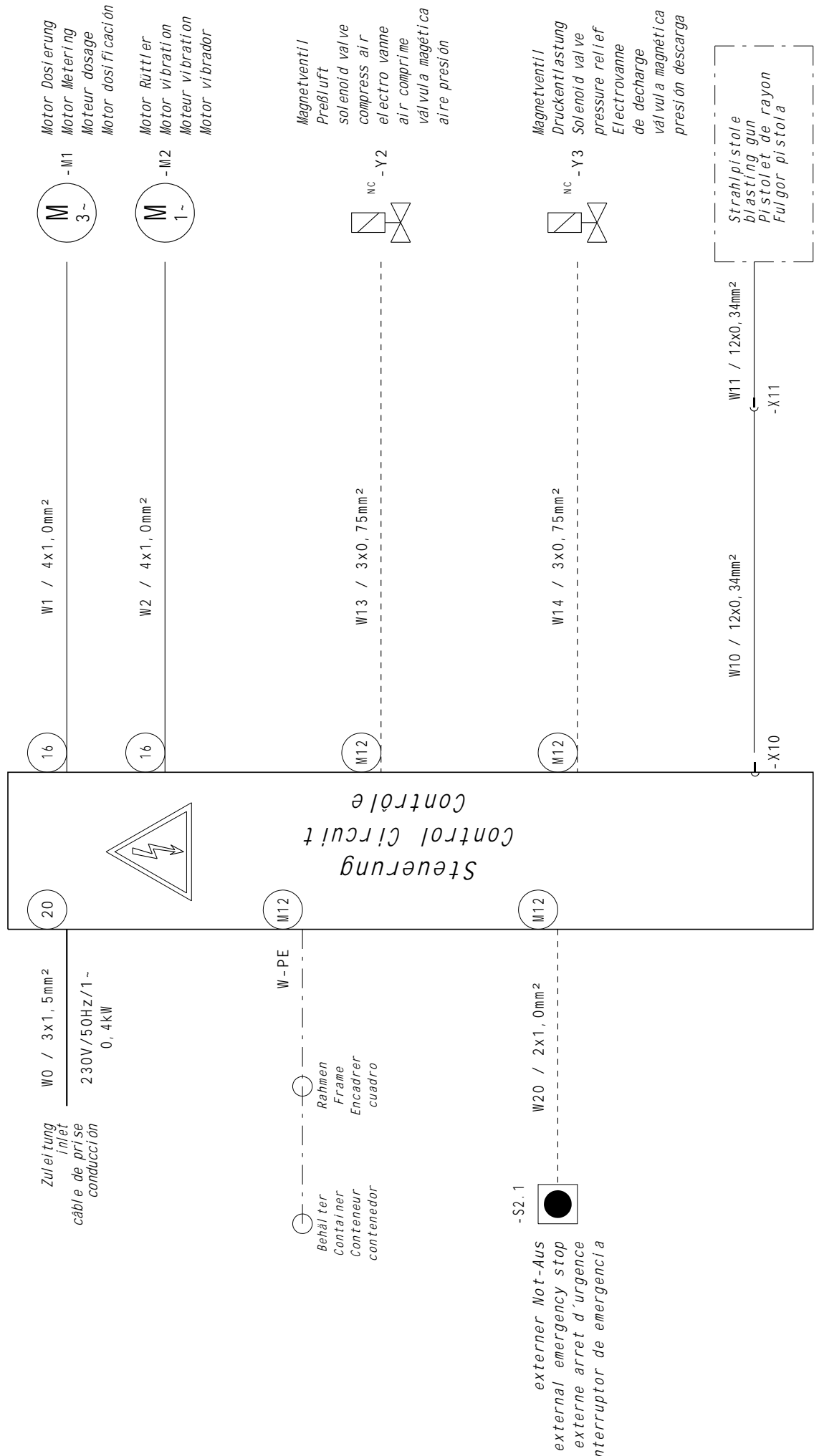
8.5 Tightening torques

Dosing flange, top	14 Nm
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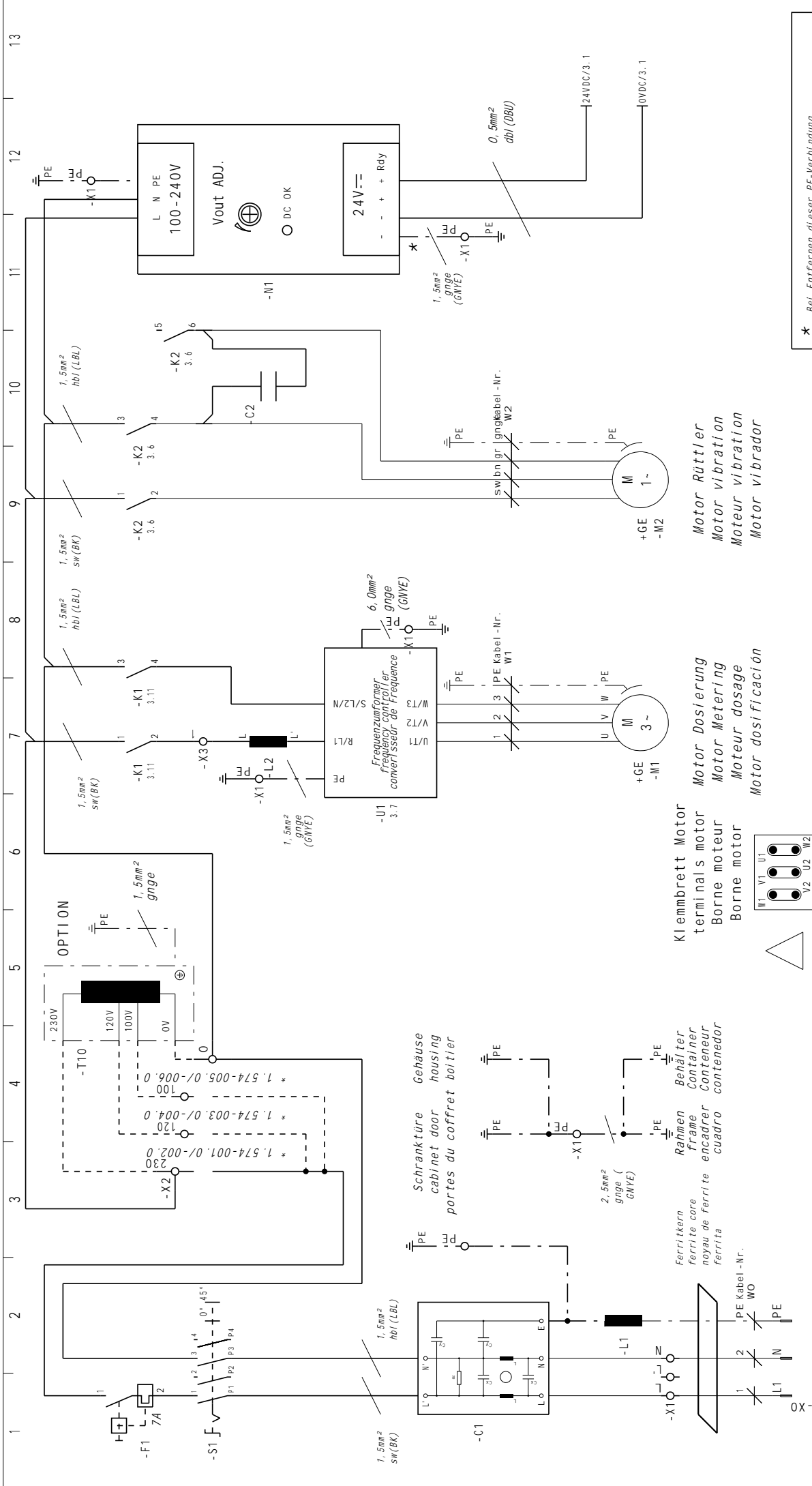
9 Circuit diagram

See next pages.

Note: Please use the circuit diagram that is valid for the actual version of the unit.



Datum date	GEPR. draft	NORM stand.	A-IND. ch.-ind.	ANZ. no.	AND./FR. change/rel. changer/rel.	ERS.F. exch. of repl.	Dok.-Nr. doc-no.	Dok.-Vers. doc-vers.	ANLAGE = TE plant	ORT + HS location	BENENNUNG identification	Kabel schema cable scheme	ZEICHNUNGS-NR. drawing-no.
17.06.08	FIR	TMD-W	a	1	2021679	05.05.08	5155553	01	AUFTRAG 3.812-432.0		ANLAG.-BEZ. 1 B7/40		0.089-071.0
File: 0.089-071.1												BLATT page	11
												BLATTZ. page tot.	11



***** Bei Entfernen dieser PE-Verbindung wird Isolationsüberwachung erforderlich
 If this connection will be removed, an Isolation control is necessary
 En cas de suppression de ce raccord de terre nécessaire d'un contrôle d'isolation
 Si esta conexión es quitada, un control del aislamiento es necesario

Vorsicherung:
 max. 16AT
prefuse:
Fusible:

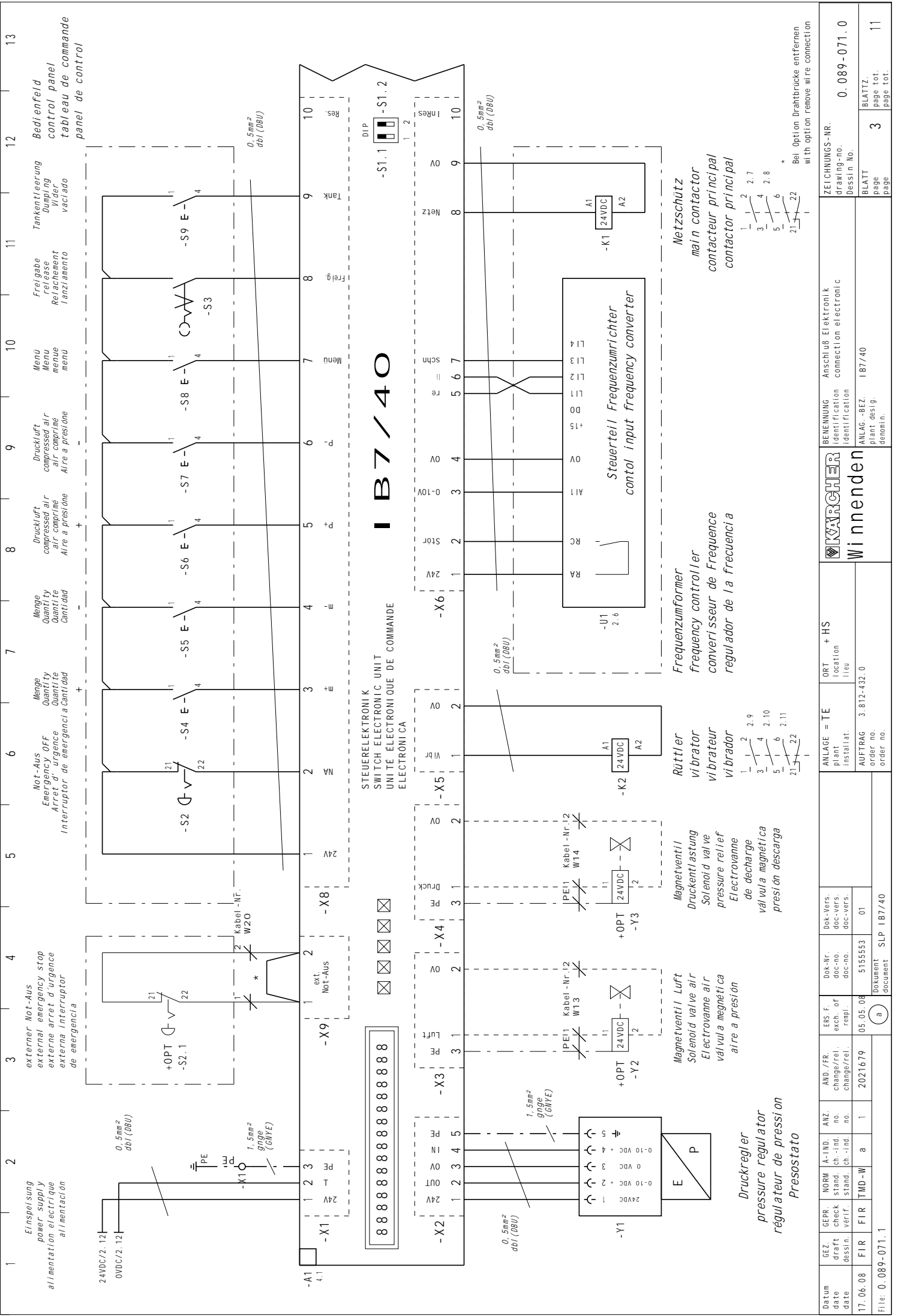
Anschlussswert
 rating
 puissance connectée
 valor distribución

0, 6kW

Einspeisung
 power supply
 alimentación eléctrica

220-240V/1- /50-60HZ
 120V/1- /50-60HZ
 100V/1- /50-60HZ

Datum date	GEZ draft	AND./FR. change/rel.	ERS. F. exch. of repl.	Dok.-Nr. doc-no.	Dok.-Vers. doc-vers.	ORT location	BEKENNUNG identification	RECHENUNG main circuit	ZEI CHUNGS-NR. drawing-no.
	FIR	TMD-W	05.05.08	5155553	01	AUFTRAG order no.	ANLAG.-BEZ. plant desig.	IDENTIFIKATION identification	DESIGN-NR. drawing no.
17.06.08	FIR	TMD-W	05.05.08	5155553	01	3.812-432.0	ANLAG.-BEZ. plant desig.	IDENTIFIKATION identification	DESIGN-NR. drawing no.
File: 0.089-071.1							1 B7/40	1 B7/40	0.089-071.0
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									BLATTZ. page tot.
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I B 7 / 40

STEUERELEKTRONIK
SWITCH ELECTRONIC UNIT
UNITÉ ÉLECTRONIQUE DE COMMANDE

Druckregler
pressure regulator
régulateur de pression
Presostatato

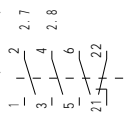
Magnetventil Luft
Solenoid valve air
Electrovanne air
válvula magnética
aire a presión

Magnetventil
Druckentlastung
Solenoid valve
pressure relief
decharge
válvula magnética
presión descarga

Rüttler
vi brator
vi brateur
vi brador

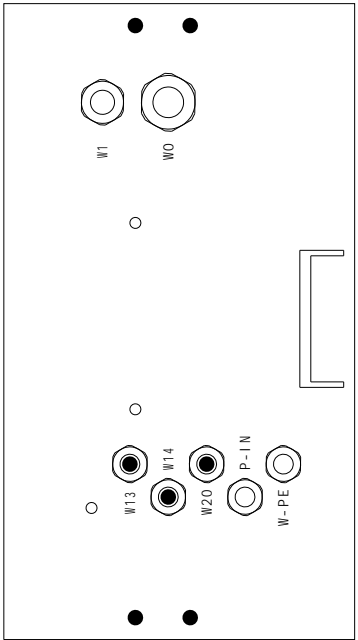
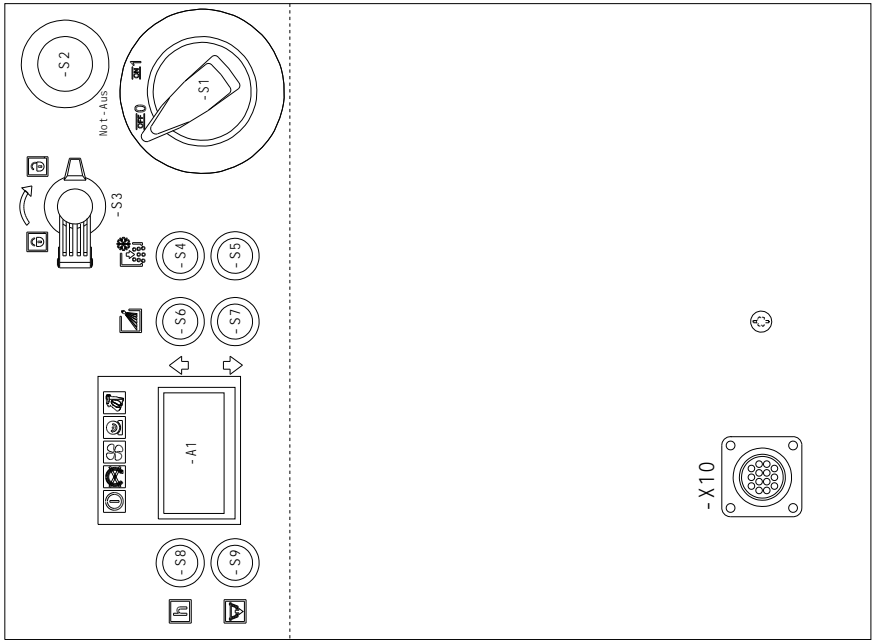
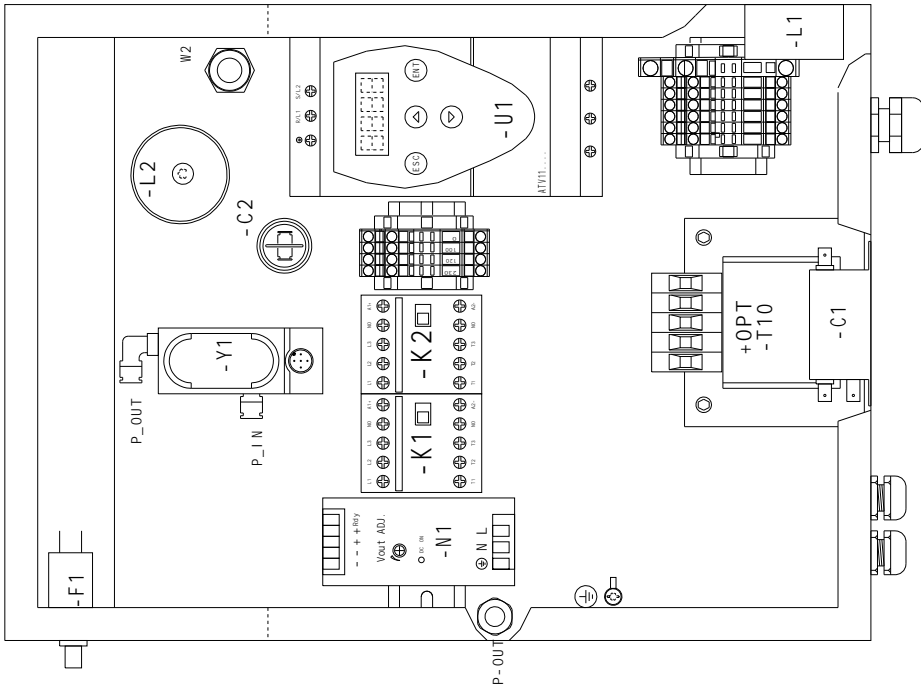
Frequenzumformer
frequency controller
convertisseur de Frequence
regulador de la Frecuencia

Netzschütz
main contactor
contacteur principal



GEZ drafft dessin	FIR	AND./FR changer/reel. changer/reel.	ERS. F. exch. of repl.	Dok.-Nr. doc.-no.	Dok.-Vers. doc.-vers.	ANLAGE = TE plant location lieu	ORP location lieu	BEKENNUNG identification identification	ZEI CHUNGS-NR. drawing no. dessin No.	
17.06.08	FIR	2021679	05.05.08	5155553	01	AUFTRAG order no.	1 B 7 / 40	ANLAG.-BEZ. plant desig. denomin.	0.089-071.0	
File: 0.089-071.1							Dokument document		SLP I B 7 / 40	
							+ HS		BLATT page	
							3		11	

Bei Option Drahtbrücke entfernen
with option remove wire connection



Datum date	GEZ draft	NORM stand.	A-IND. ch.-ind.	ANZ. no.	AND./FR. change/rel.	ERS. F. exch. of	Dok.-Nr. doc-no.	Dok.-Vers. doc-vers.	ANLAGE = TE plant		OPT. + HS location		 Winnenden	BEKENNUNG identification	Aufbau Montageplatte layout mounting plate	ZEICHNUNGS-NR. drawing-no.
	FIR dessein.	FIR verif.	TMD-W	a	1	2021679	05.05.08	5155553	01	AUFTRAG order no.	3.812-432.0	1 B7/40		ANLAG.-BEZ. plant desig.	1 B7/40	5
17.06.08	FIR	FIR	TMD-W	a	1	2021679	05.05.08	5155553	01	AUFTRAG order no.	3.812-432.0	1 B7/40	ANLAG.-BEZ. plant desig.	1 B7/40	5	0.089-071.0
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STEUERELEKTRONIK
 SWITCH ELECTRONIC UNIT
 UNITÉ ÉLECTRONIQUE DE COMMANDE
 ELECTRONICA

Einstellung Frequenzumformer
 Adjustement frequency controller
 Ajuste changeur de fréquence
 Regulador de la frecuencia

MAIN

Einstellung adjustment	
ACC	3,0
DEC	0,1
LSP	15
HSP	65
lth	2,1
drc	
Fun	
SUP	

Menü drc

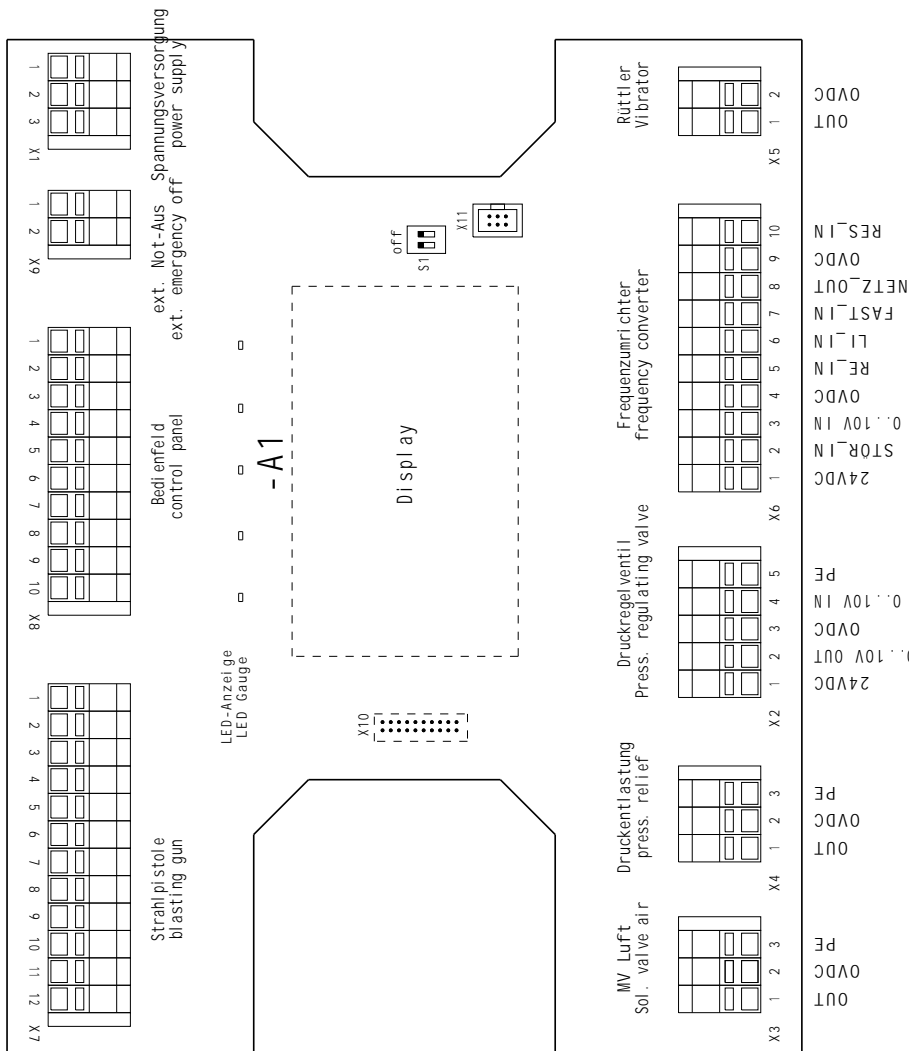
Menü Fun

Einstellung adjustment	
UnS	230
StA	20
FLG	20
UFR	50
nCr	2,1
CLI	3,5
nSL	7,9
COS	0,66

Menü SUP

Einstellung adjustment	
LCr	2x
tCt	LEL
PS2	LIA LI3
HSP	LIA LI3
LOC	120
tOL	2
rSF	n0
brA	n0
StP	n0
AdC	Yes
tDC	0,5
SdC	2,5
IPL	n0

- LED OUT
- LED +
- LED -
- P+ IN
- M- IN
- M+ IN
- LUF T IN
- STRÄHL IN
- START
- 24VDC
- RES IN
- DUMP IN
- FREIG IN
- MENU IN
- P- IN
- P+ IN
- M- IN
- M+ IN
- NA
- 24VDC
- EXT NA
- EXT NA
- SUP PE
- SUP 0VDC
- SUP 24VDC



Datum date	17.06.08	GEPR. drafft. dessin.	NORM stand.	A-IND. ch. stand.	ANZ. ch. no.	ERS. F. repli.	Dok.-Nr. doc-no.	Dok.-Vers. doc-vers.	ANLAGE = TE plant installat.	ORT location lieu	REIN LIN	FAST LIN	NETZ OUT	OADC	RES LIN	RES LIN	STOR LIN	0.10V IN	0.10V IN	PE	24VDC	OUT	OUT	OUT	0VDC
FIR	2021679	FIR	TMD-w	a	1	05.05.08	51555533	01	AUFTRAG 3.812-432.0	1 B7/40	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN	RES LIN
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BENENNUNG identification											ZELCHUNGS-NR. drawing-no.														
ANLAG.-BEZ. plant desig.											Blatt. page														
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von **3** **von** **4** **von** **5** **von** **6** **von** **7** **von** **8** **von** **9** **von** **10** **von** **11** **von** **12** **von** **13**

von **3** **von** **4** **von** **5** **von** **6** **von** **7** **von** **8** **von** **9** **von** **10** **von** **11** **von** **12** **von** **13**

von **3** **von** **4** **von** **5** **von** **6** **von** **7** **von** **8** **von** **9** **von** **10** **von** **11** **von** **12** **von** **13**

von **3** **von** **4** **von** **5** **von** **6** **von** **7** **von** **8** **von** **9** **von** **10** **von** **11** **von** **12** **von** **13**

von **3** **von** **4** **von** **5** **von** **6** **von** **7** **von** **8** **von** **9** **von** **10** **von** **11** **von** **12** **von** **13**

Datum	GEZ	GFPR	NORM	A-IND.	ANZ.	ERS. F.	Dok-Nr.	Dok-Vers.	ANLAGE	TE	GE	BENENNUNG	ZEI
date	dessin	check	stand.	ch. ind.	no.	exch. of	doc-no.	doc-vers.	plant	+ GE	location	identification	drawing-no.
date	FIR	FIR	TMD-W	a	1	repl.	doc-no.	doc-vers.	AUFTRAG	3.812-432.0	lieu	identification	BeSSLin No.
17.06.08	FIR	FIR	TMD-W	a	1	05.05.08	5155553	01	AUFTRAG	3.812-432.0	3.812-432.0	ANLAG.-BEZ.	0.089-071.0
							Document	SLP 1B7/40				ANLAG.-BEZ.	0.089-071.0
												ANLAG.-BEZ.	0.089-071.0
												ANLAG.-BEZ.	0.089-071.0
												ANLAG.-BEZ.	0.089-071.0
												ANLAG.-BEZ.	0.089-071.0
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												ANLAG.-BEZ.	0.089-071.0

Kabel	W	S	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
wire	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
cross section	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Special-PCV12 0,34	SW	bn	rt	or	ge	gn	bl	vid	gr	ws	WS/\$w	WS/\$bn													

Bemerkung

comment

note

