

ENGLISH



Customer product
manual P/N 10090

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Low pressure dense phase conveying system

NEA 442

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Dense phase pump NEA 442

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Contact us

VERNE TECHNOLOGY welcomes requests for information, comments, and inquiries about its products. General information about VERNE TECHNOLOGY can be found on the Internet using the following address: <http://www.vernetechnology.it>.

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Safety

Read and follow these safety instructions. Task-and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to all persons operating or servicing equipment.

Qualified Personnel

Equipment owners are responsible for making sure that Vere Technology equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Intended Use

Use of NEA 442 equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Vere Technology equipment will be voided if instructions for installation, operation, and service are not followed.

All phases of equipment installation must comply with all federal, state, and local codes.

Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection device
- Grounding inside and around the booth openings must comply with NFPA requirements for Class 2, Division 1 or 2 Hazardous Locations. Refer to NFPA 33, NFPA 70 (NEC articles 500, 502, and 516), and NFPA 77, latest conditions.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Vere Technology representative for parts information and advice.

Grounding



WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 megohm as measured with an instrument that applies at least 500 volts to the circuit being evaluated.
- Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.
- There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.
- Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.
- Shut off electrostatic power supplies and ground gun electrodes before making adjustments or cleaning powder spray guns.
- Connect all disconnected equipment, ground cables, and wires after servicing equipment.

Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out electrical power. Close pneumatic shutoff valves and relieve pressures
- Identify the reason for the malfunction and correct it before restarting the equipment.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Description

See Figure 1

The NEA 442 (dense phase low pressure powder pump) powder pump transports large amounts of powder from one location to another.

The pump design and the small diameter suction and delivery tubing used with the pump allow it to be purged quickly and thoroughly.

The pump is more efficient than traditional venturi-style pumps in that very little of the air that is used to operate the pump is mixed into the powder stream. Only the air that is used to move the powder out of the pump and into the delivery tubing enters the powder stream.

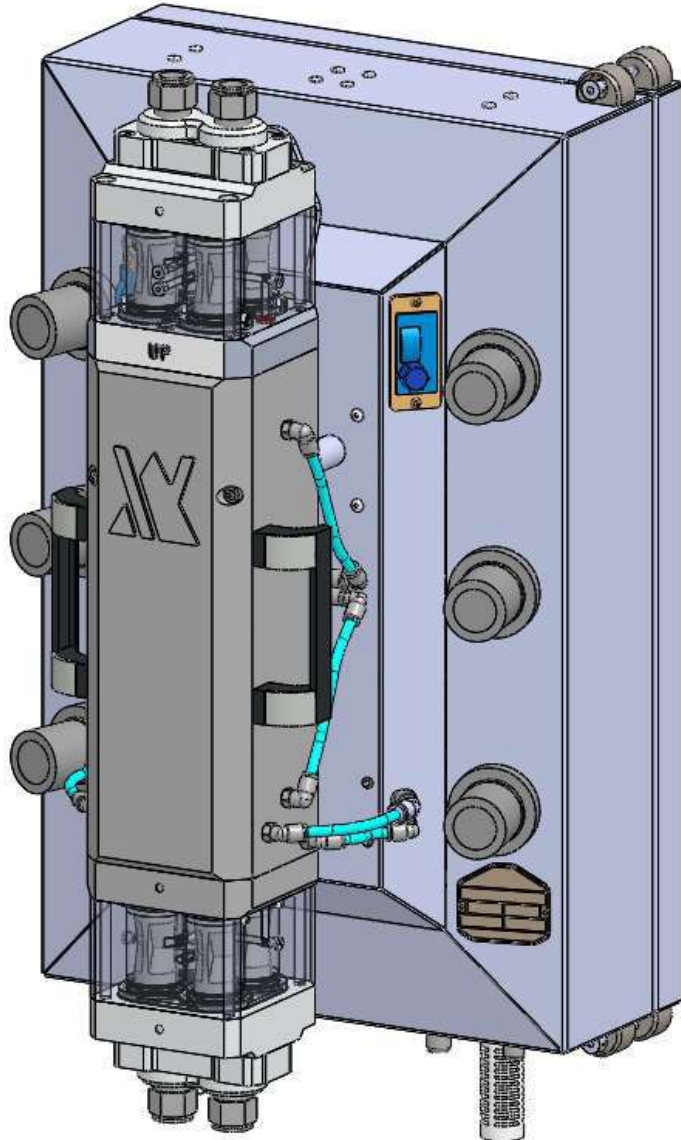


Figure 1
Dense phase pump NEA442 (dual)

Dense phase pump NEA 442

4

High capacity pump components NEA 442

See figure 2.

n° Item	Description	Function
Air control components		
01 - 05	Timer T0.60 (01 left - 05 right)	Check the operating sequences of the following components: valves activation cycle control, valves control fluid tubes and valve control sleeve valves
02	Regulator and pressure gauge (PINCH VALVES)	Adjust the closing pressure of the sleeve valves to 0:24 to 0:27 Mpa (2.4-2.7 bar).
03 - 07	Regulator and pressure gauge (VACUUM) (03 left - 07 right)	Adjust the closing pressure Max 0.48 Mpa (4.8 bar)
04 - 08	Regulator and pressure gauge (TRANSPORT) (04 left - 08 right)	Adjust the transport of the product pressure. Usually set to from 0.08 to 0.12Mpa (0.8-1.2 bar).
6	Regulator and pressure gauge (SUPPLY)	Adjust the closing pressure Max 0.6 Mpa (6 bar)
A	PV 5 : management valve right transport	
B	PV 9 : management valve right muffler	
C	PV10: management valve left muffler	
D	PV 6 : management valve left transport	
E	PV 1 : management valve cycle NEA PUMP	
F	PV 7: management valve right self cleaning	
G	PV 8: management valve left self cleaning	
H	PV 2: management valve pinch valve	
I-M	VACUUM GENERATORS	
L	PV 3: management valve right tubes	
N	PV 4: management valve left tubes	
O-P	Silencers	It allows silent operating an air outlet of the pump.

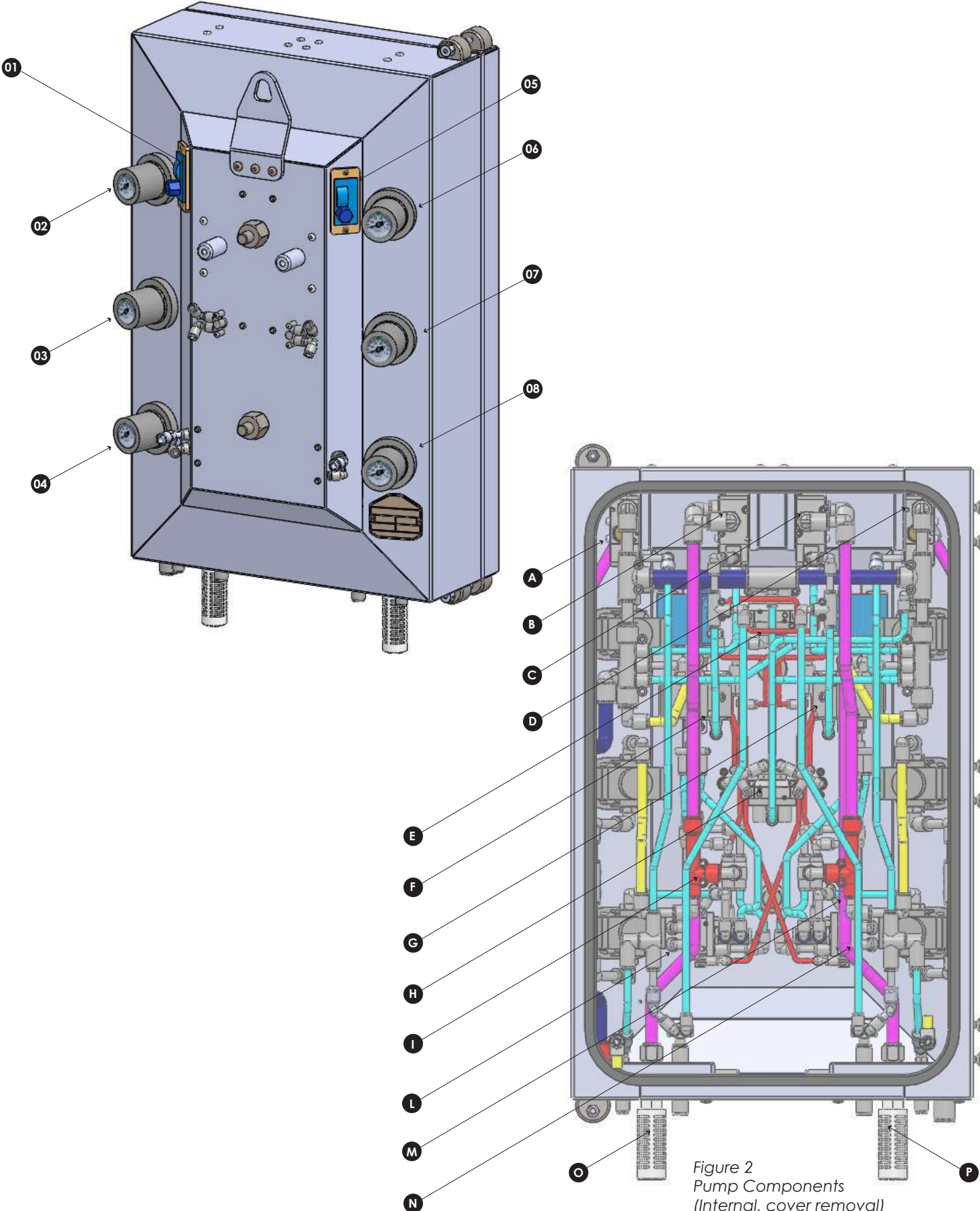


Figure 2
Pump Components
(Internal, cover removal)

Dense phase pump NEA 442

Principle of operation

Pumping

The pump NEA 442 is composed of four tanks that alternate in a continuous cycle 2+2 stroke collection and transport of the powder.

Cleaning



The cleaning process depends on the powder type and for which application type. We recommend cleaning process for 30 seconds minimum

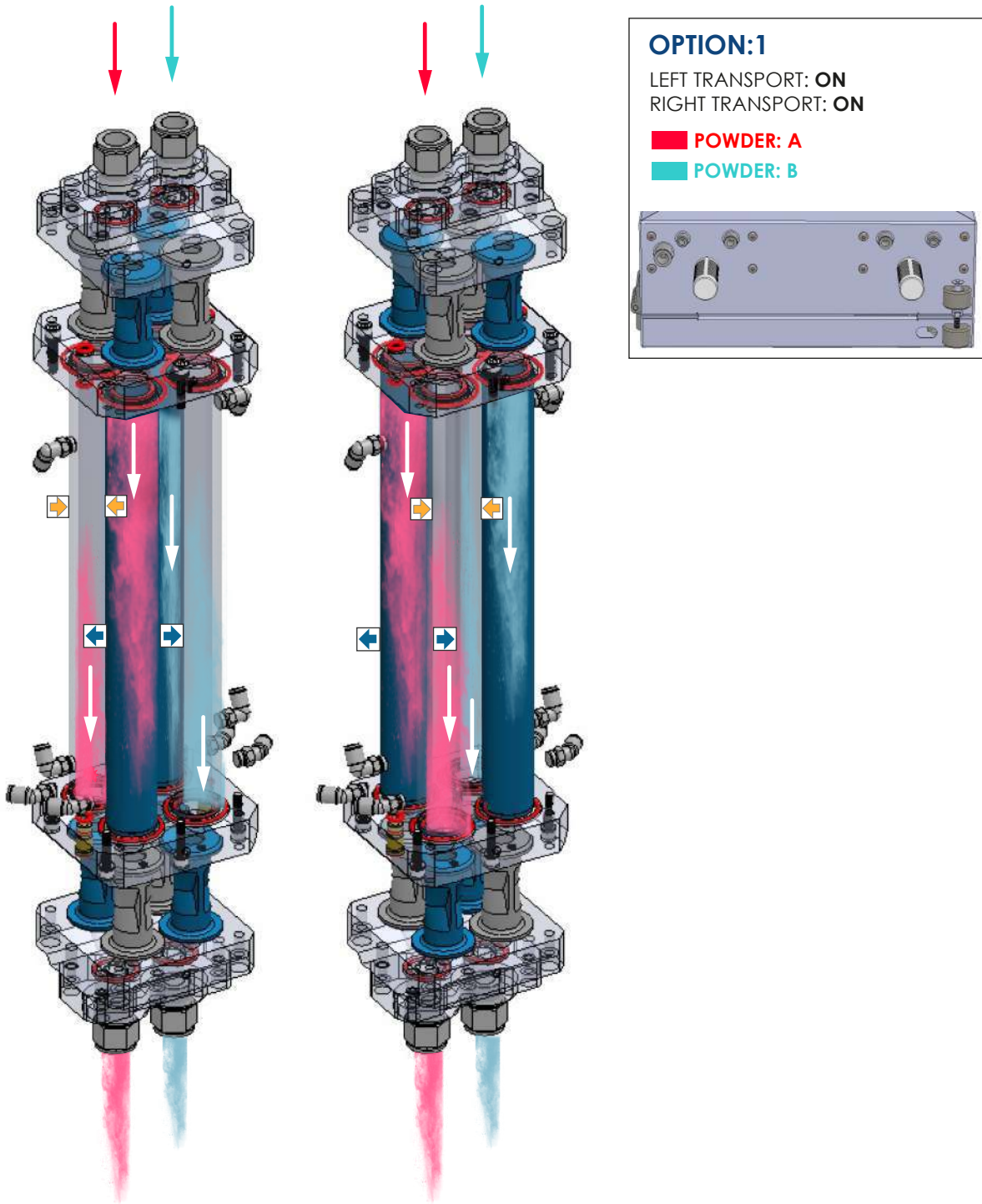


Figure 3
Operating principle - Pumping

← → Vacuum
 → ← Pressure
 OFF
 OPEN
 CLOSED

Dense phase pump NEA 442

Principle of operation

Pumping

The pump NEA 442 is composed of four tanks that alternate in a continuous cycle 2+2 stroke collection and transport of the powder.

Cleaning



The cleaning process depends on the powder type and for which application type. We recommend cleaning process for 30 seconds minimum

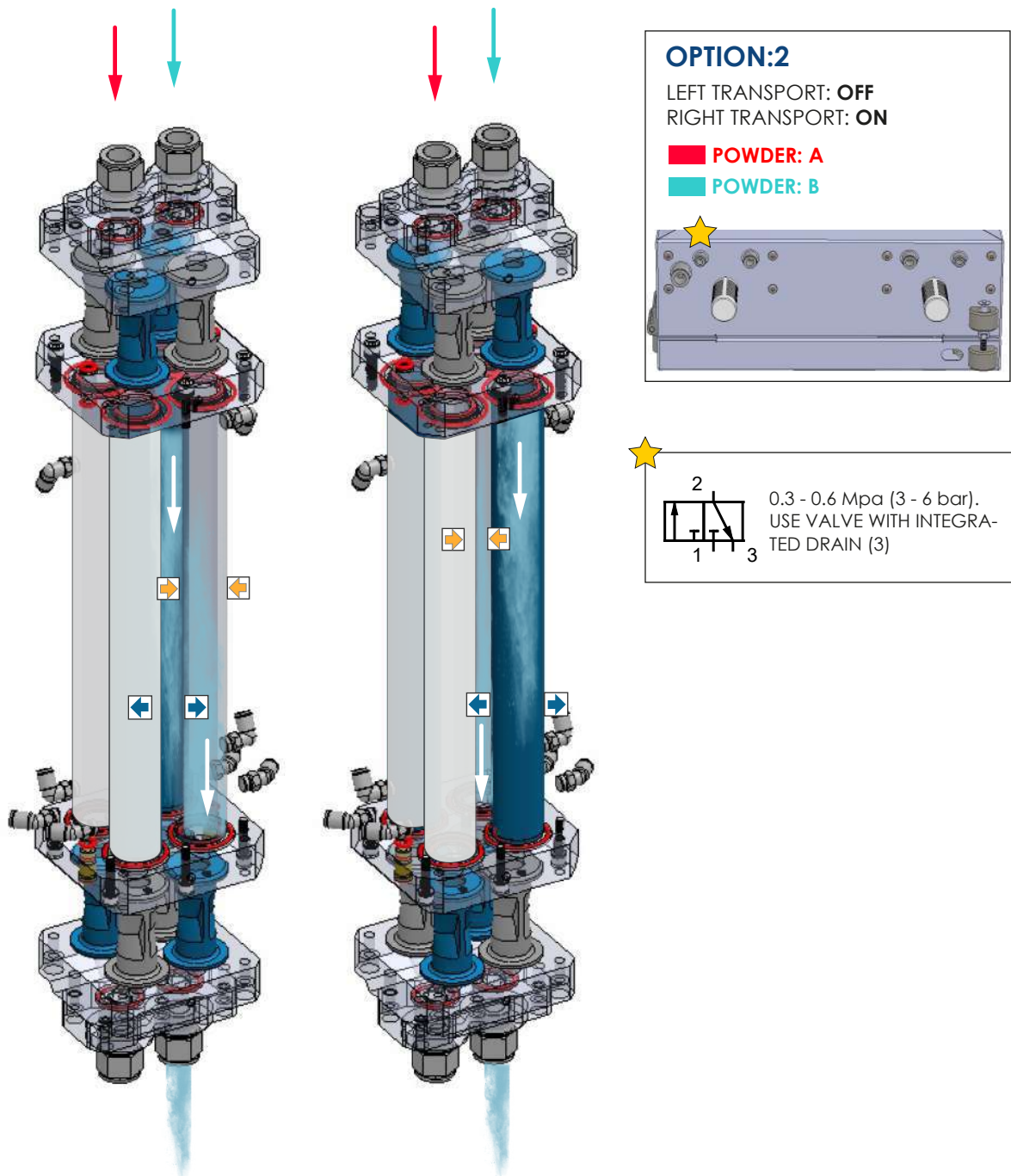


Figure 3_1
 Operating principle - Pumping


 Vacuum
 
 Pressure
  OFF
  OPEN
  CLOSED

Dense phase pump NEA 442

Principle of operation

Pumping

The pump NEA 442 is composed of four tanks that alternate in a continuous cycle 2+2 stroke collection and transport of the powder.

Cleaning



The cleaning process depends on the powder type and for which application type. We recommend cleaning process for 30 seconds minimum

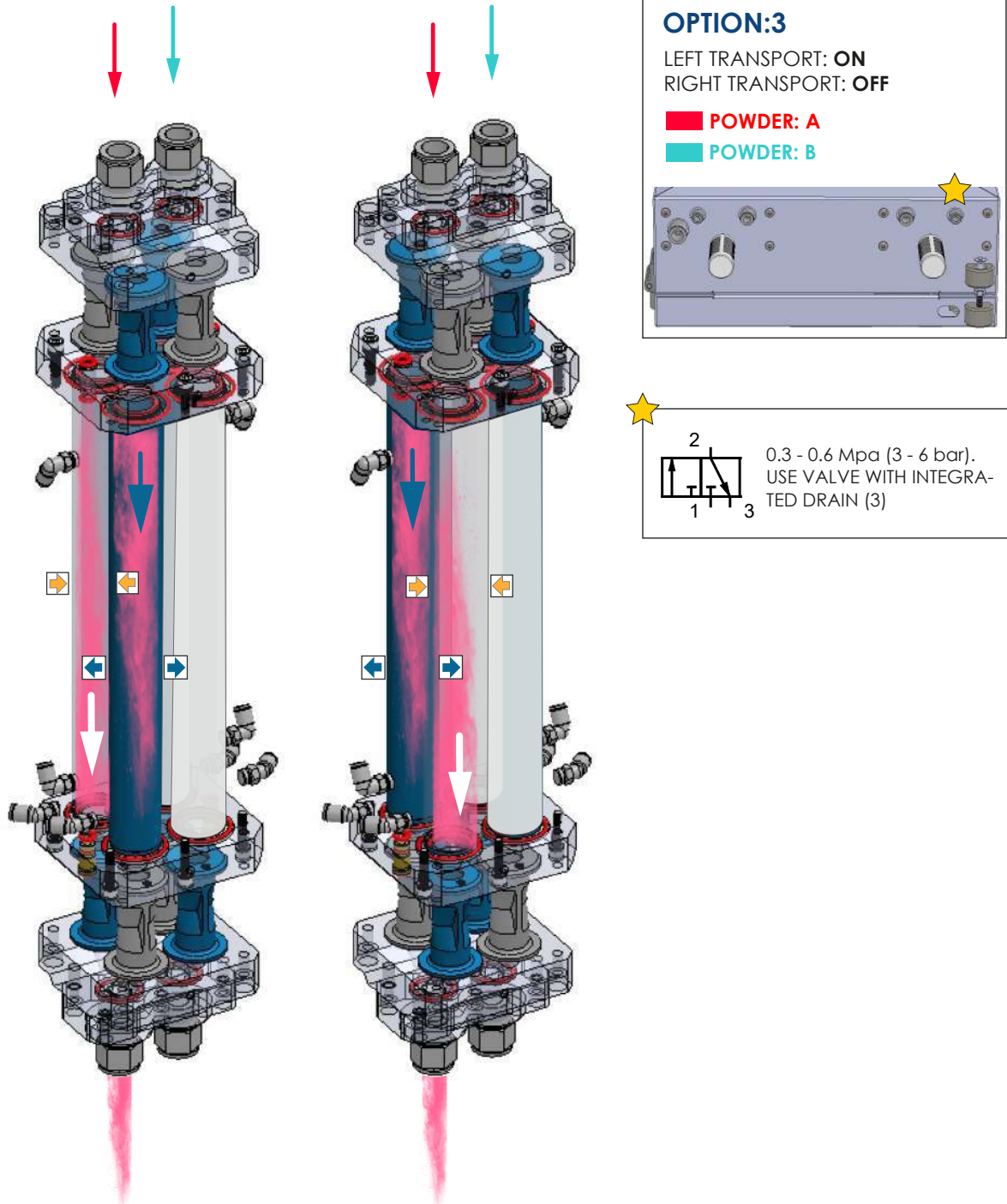


Figure 3_2
 Operating principle - Pumping

← → Vacuum
 → ← Pressure
 OFF
 OPEN
 CLOSED

Principle of operation

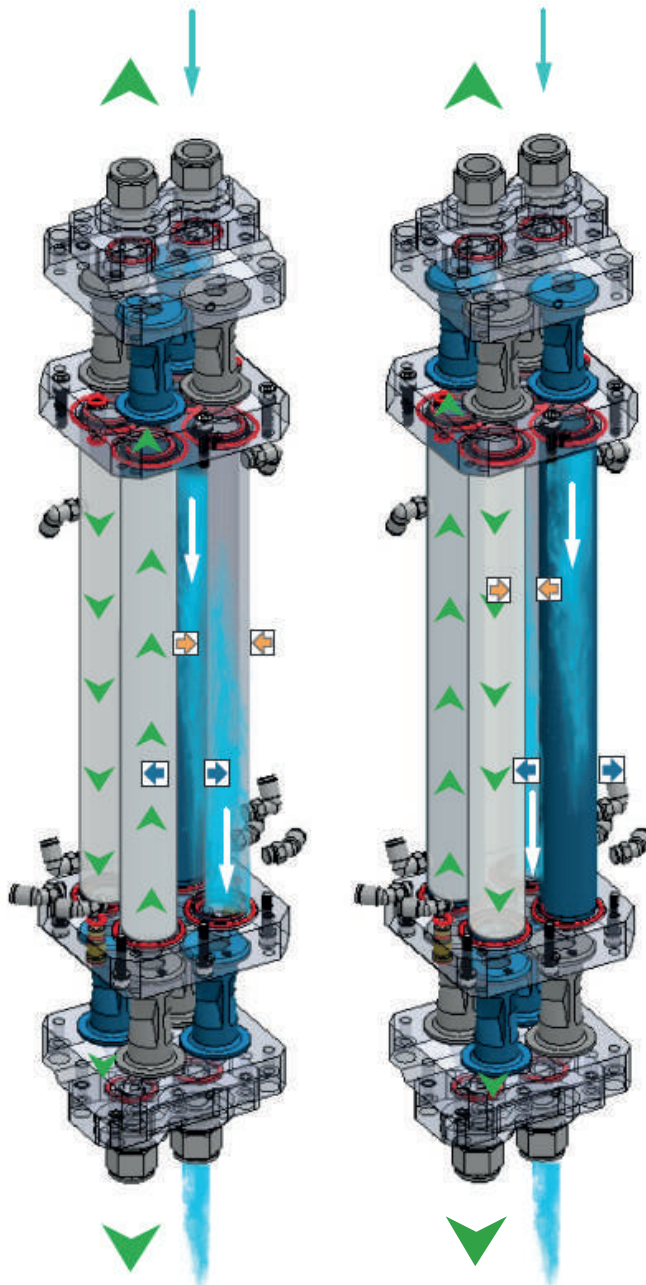
Pumping

The pump NEA 442 is composed of four tanks that alternate in a continuous cycle 2+2 stroke collection and transport of the powder.

Cleaning



The cleaning process depends on the powder type and for which application type. We recommend cleaning process for 30 seconds minimum

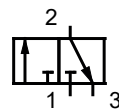
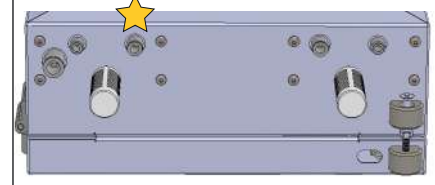


OPTION:4

LEFT SELF CLEANING: **ON**
RIGHT TRANSPORT: **ON**

■ POWDER: A

■ POWDER: B



0.3 - 0.6 Mpa (3 - 6 bar).
USE VALVE WITH INTEGRATED DRAIN (3)

Figure 4
Operating principle - cleaning

◀▶ Vacuum
 ▶◀ Pressure
 ▼ cleaning pressure
 ■ OPEN
 ■ CLOSED

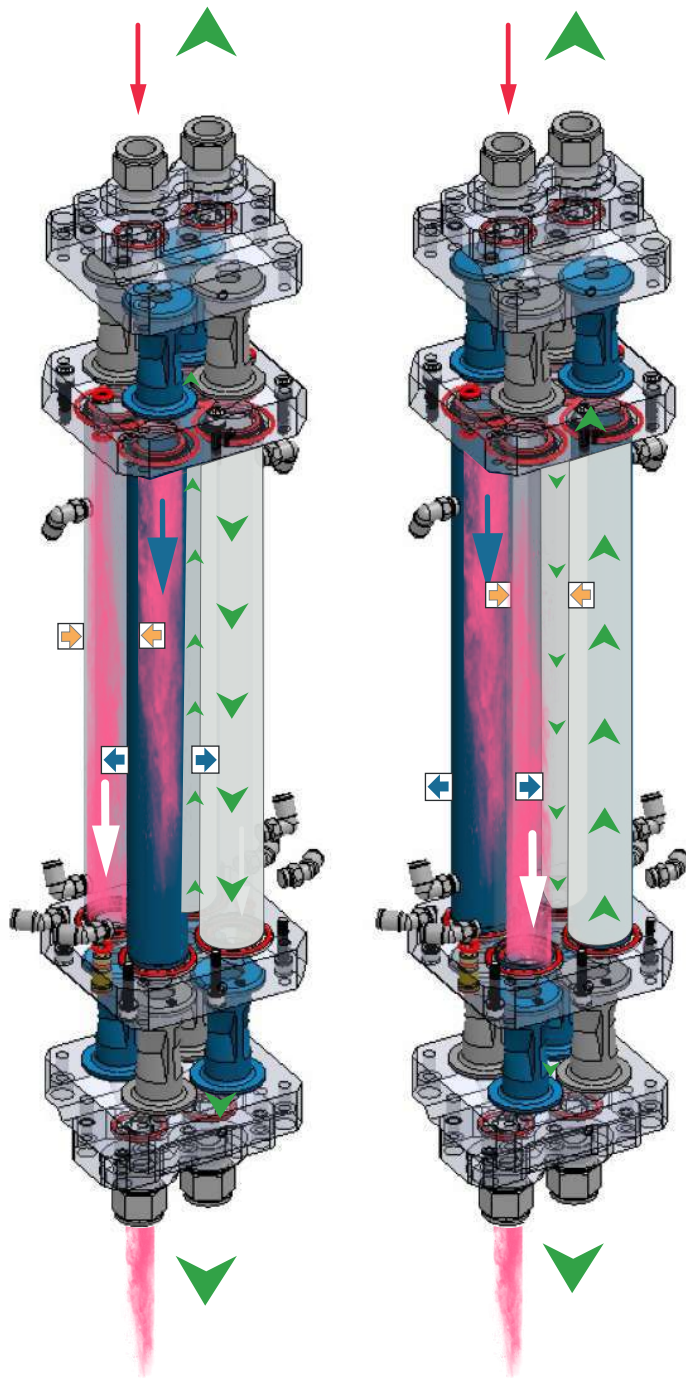
Principle of operation

Pumping

The pump NEA 442 is composed of four tanks that alternate in a continuous cycle 2+2 stroke collection and transport of the powder.



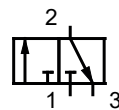
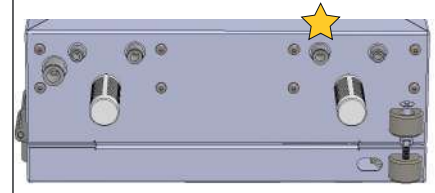
The cleaning process depends on the powder type and for which application type. We recommend cleaning process for 30 seconds minimum



OPTION:5

LEFT TRANSPORT: **ON**
RIGHT SELF CLEANING: **ON**

POWDER: A (Red)
POWDER: B (Teal)



0.3 - 0.6 Mpa (3 - 6 bar).
USE VALVE WITH INTEGRATED DRAIN (3)

Figure 4_1
Operating principle - cleaning

Vacuum
 Pressure
 cleaning pressure
 OPEN
 CLOSED

Principle of operation

Pumping

The pump NEA 442 is composed of four tanks that alternate in a continuous cycle 2+2 stroke collection and transport of the powder.



The cleaning process depends on the powder type and for which application type. We recommend cleaning process for 30 seconds minimum

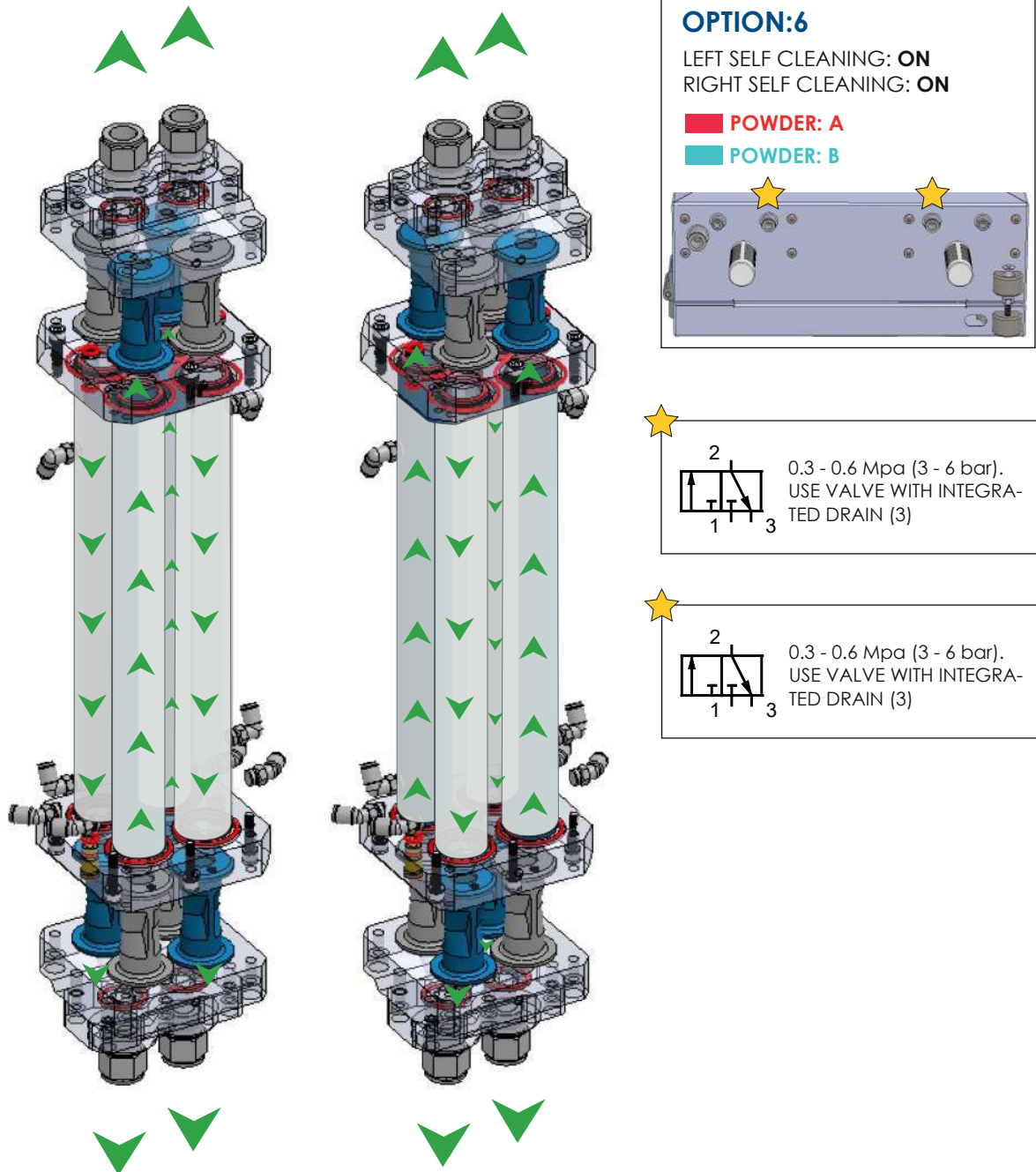


Figure 4_2
 Operating principle - cleaning

Vacuum

 Pressure
 cleaning pressure
 OPEN
 CLOSED

Principle of operation

Pumping

The pump NEA 442 is composed of four tanks that alternate in a continuous cycle 2+2 stroke collection and transport of the powder.



The cleaning process depends on the powder type and for which application type. We recommend cleaning process for 30 seconds minimum

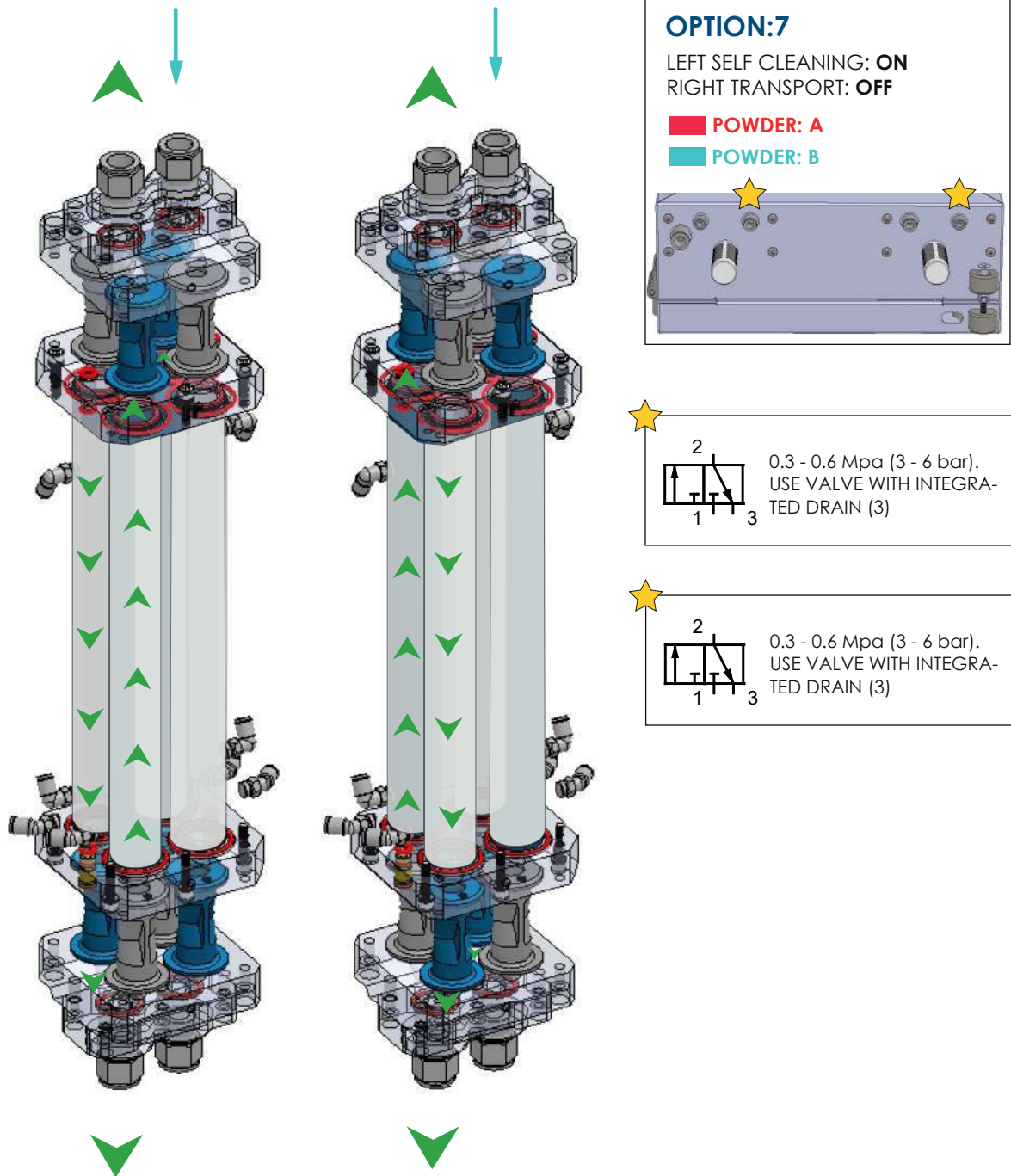


Figure 4_3

Operating principle - cleaning

Vacuum
 Pressure
 cleaning pressure
 OPEN
 CLOSED

Principle of operation

Pumping

The pump NEA 442 is composed of four tanks that alternate in a continuous cycle 2+2 stroke collection and transport of the powder.



The cleaning process depends on the powder type and for which application type. We recommend cleaning process for 30 seconds minimum

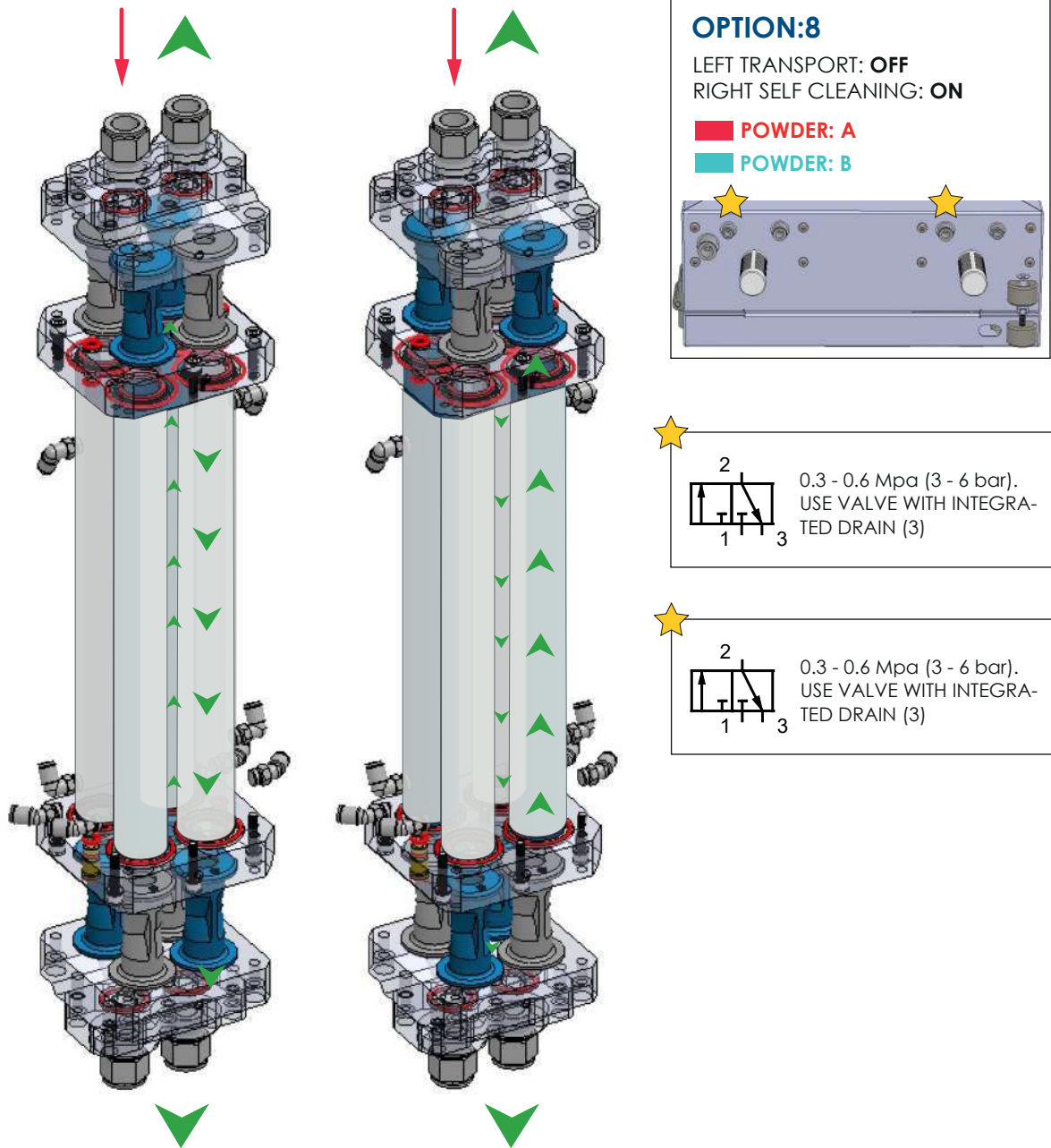


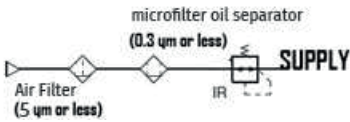
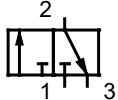
Figure 4_4

Operating principle - cleaning

Vacuum

 Pressure
 cleaning pressure
 OPEN
 CLOSED

Technical data

Flow rate (max)	UP TO: 4 kg/min. (RIGHT) + 4kg/min. (LEFT)
General Supply pressure (min.)	0.6 Mpa (6 bar)
General Supply pressure (max.)	0.8 Mpa (8 bar)
Regulator supply - working pressure	0.6 Mpa (6 bar)
Regulator Pinch valve - working pressure	0.24 - 0.27 Mpa (2,4 - 2,75 bar)
Regulator Vacuum (RIGHT) - working pressure	100% - 0.48 Mpa (4,8 bar) to reduce the flow rate, decrease the pressure
Regulator Vacuum (LEFT) - working pressure	100% - 0.48 Mpa (4,8 bar) to reduce the flow rate, decrease the pressure
Regulator Transport (RIGHT) - working pressure	0.08 - 0.12 Mpa
Regulator Transport (LEFT) - working pressure	0.08 - 0.12 Mpa
Total air consumption	500 l/min
Filtered compressed air with the following properties	
Permissible humidity: 95% non-condensing	
Operating ambient temperature from +15 to +40	
Intake tube (RIGHT + LEFT)	POLYETHYLENE : D. INT. 12 X 16 mm (LONG MAX 6 m) ANTISTATIC : D. INT. 12 mm (LONG MAX 6 m) BEST RESULT OBTAINABLE USING THE SHORTEST POSSIBLE HOSE
Transporte tube (RIGHT + LEFT)	POLYETHYLENE : D. INT. 12 X 16 mm (LONG MAX 30 m) ANTISTATIC : D. INT. 12 mm (LONG MAX 30 m) BEST RESULT OBTAINABLE USING THE SHORTEST POSSIBLE HOSE
Hose management: ON/OFF TRANSPORT (RIGHT + LEFT)	polyurethane external \varnothing 6mm
Hose management: ON/OFF CLEANING (RIGHT + LEFT)	polyurethane external \varnothing 8mm
Pressure hose management: ON/OFF TRANSPORT (R+L) Pressure hose management: ON/OFF CLEANING(R+L)	 0.3 - 0.6 Mpa (3 - 6 bar). USE VALVE WITH INTEGRATED DRAIN (3)
Weight/dimensions	Kg 25.5 - See figure 5

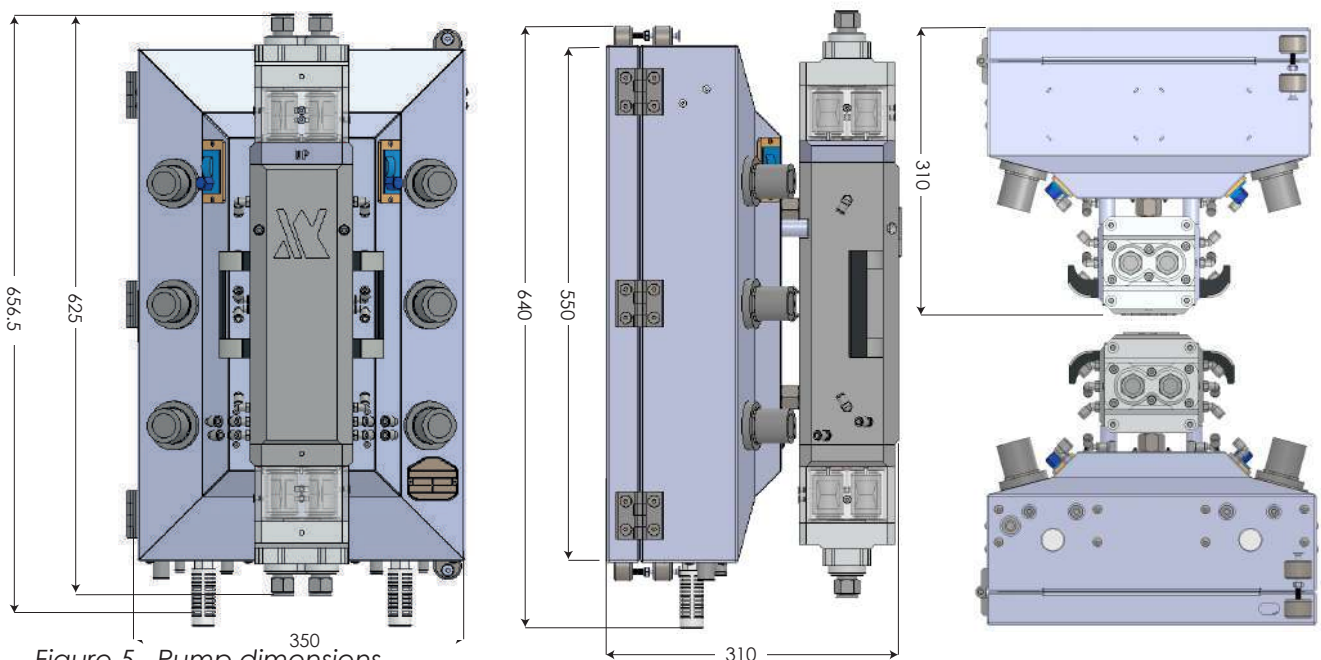


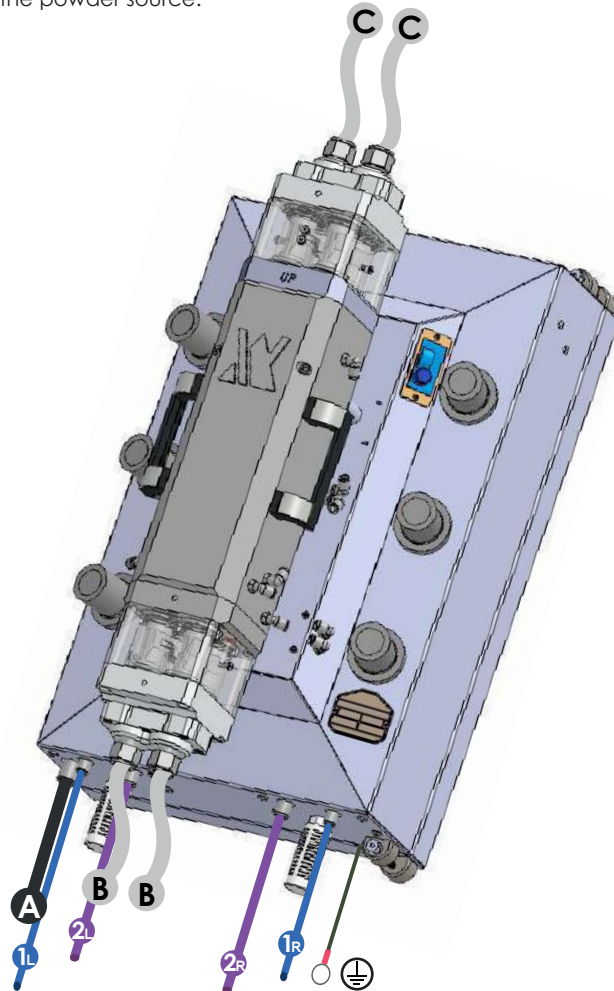
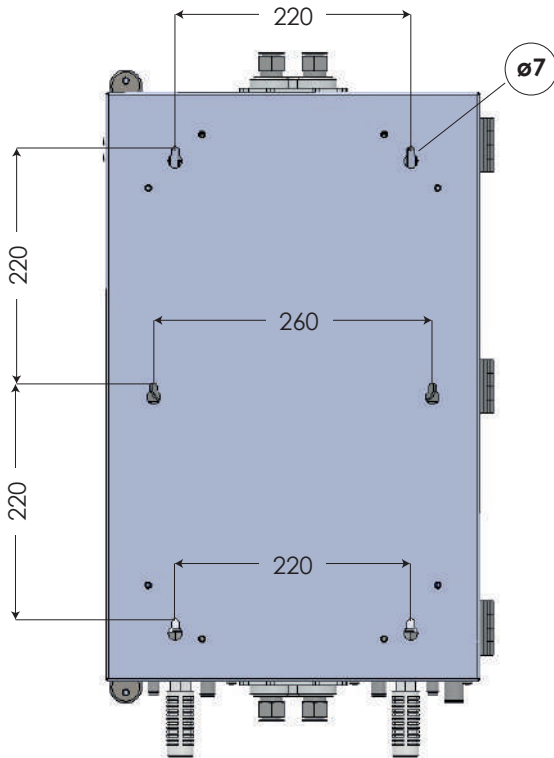
Figure 5 Pump dimensions

Installation



WARNING: The pump must be securely connected to a true earth ground. Failure to ground the pump could result in a fire or explosion.

NOTE: The pump is normally mounted on a panel that includes an operating air regulator, and a manual pushbutton and piloted-operated air valve for manual purging. The panel may also include an auxiliary regulator for fluidizing the powder source.



Panel Mounting Dimensions

Use the supplied M6 screws, washers, and nuts to mount the pump.

NOTE: Included are 6 mounting holes and 1 set of $\varnothing 7$ fasteners. Use the six mounting holes that best match your mounting surface.

Tubing Connections

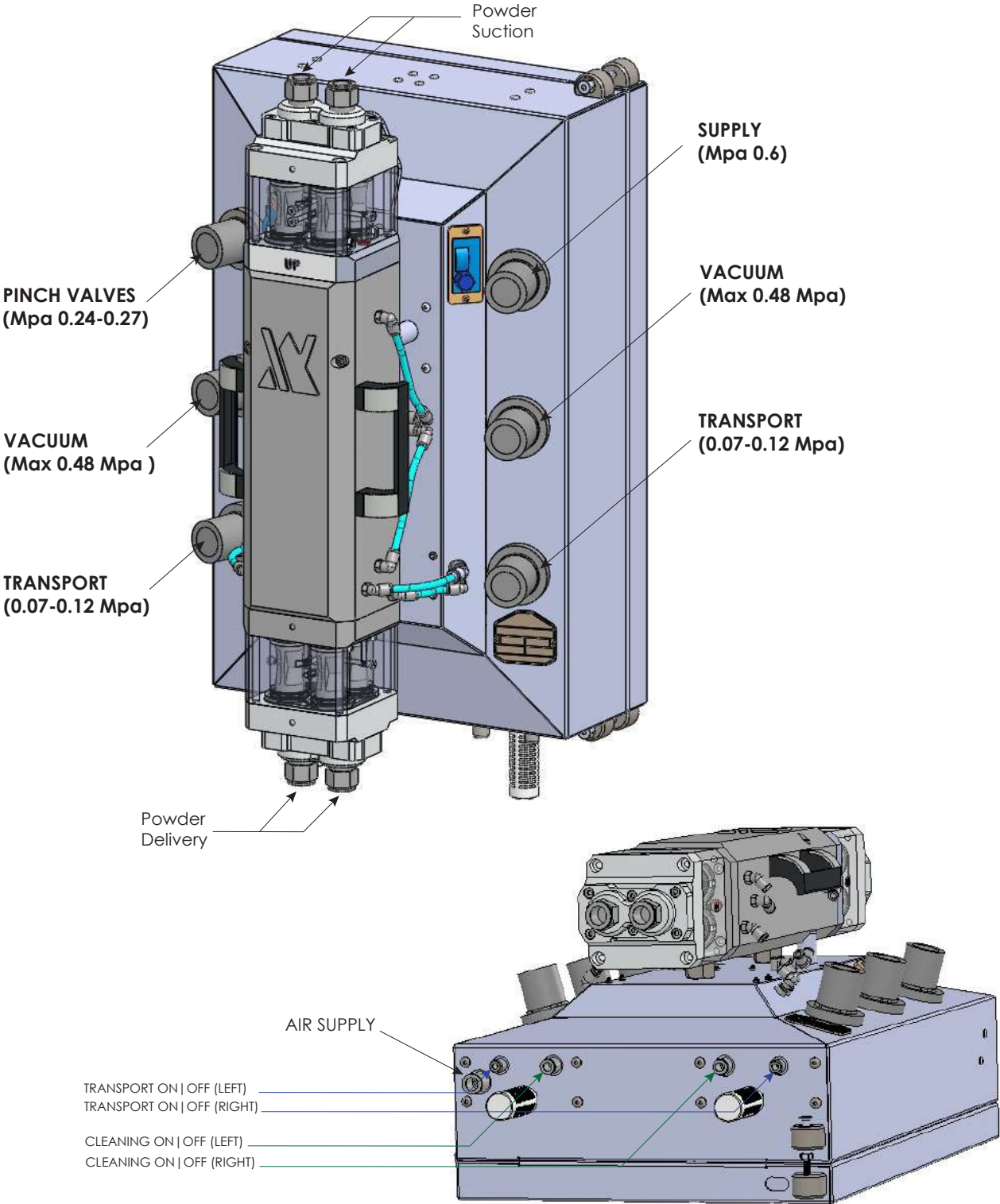
NOTE: For best results, keep the powder suction and delivery tubing as short as possible.

CONNECTION	TYPE	FUNCTION
A	12 mm blue polyurethane tubing	From customer-supplied purge air source 7 bar (0.7 Mpa) max.
B B	POLYETHYLENE : \varnothing INT.12 X 16 mm (LONG MAX 30m) ANTISTATIC : \varnothing INT.12 mm (LONG MAX 30m)	To powder destination
C C	POLYETHYLENE : \varnothing INT.12 X 16 mm (LONG MAX 6m) ANTISTATIC : \varnothing INT.12 mm (LONG MAX 6m)	From powder source
1L 1R	6 mm blue polyurethane tubing	From input air source min. 3 bar (0.3 Mpa).
2L 2R	8 mm blue polyurethane tubing	From input air source min. 3 bar (0.3 Mpa).
	Pump ground wire	To earth ground

Operation

See figure 8.

- To start the pump turn on the air supply operation (min 0.6 Mpa (6 bar). Set the regulator SUPPLY at 0.6Mpa (6 bar).
- Set the regulator TRANSPORT
- Set the regulator PINCH VALVES
- Set the regulator VACUUM




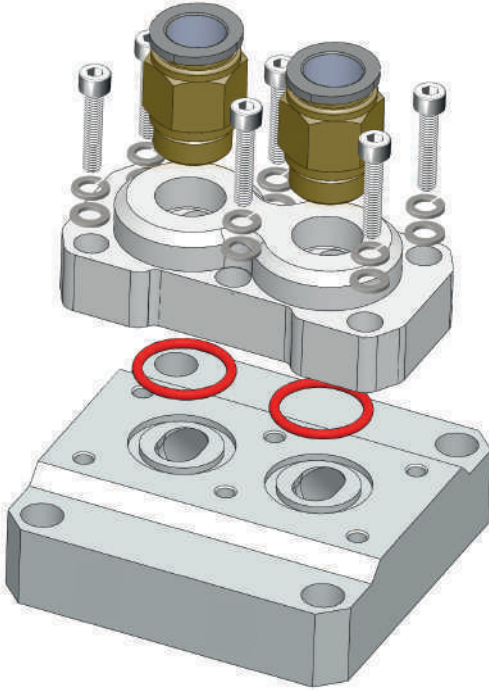

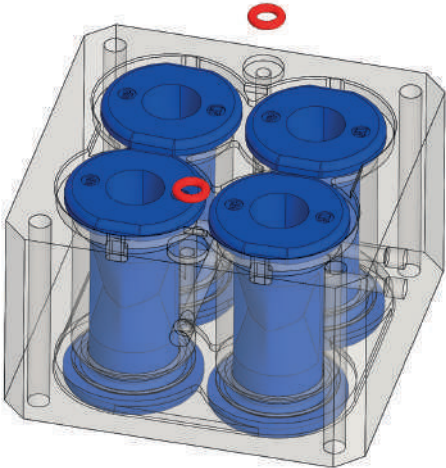
Maintenance

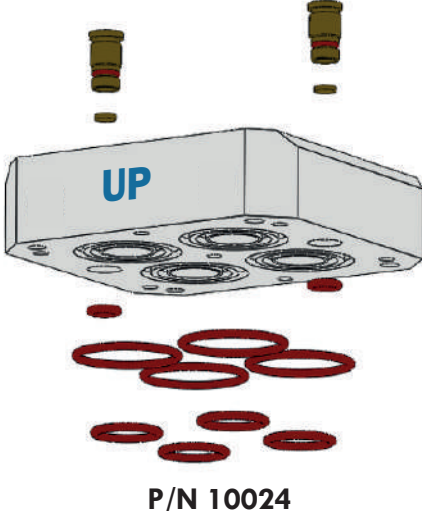
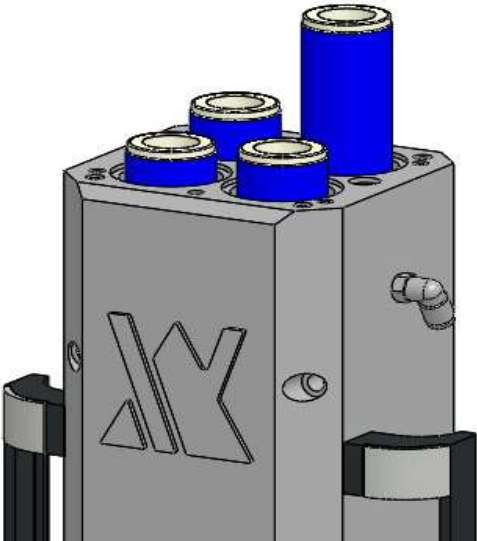
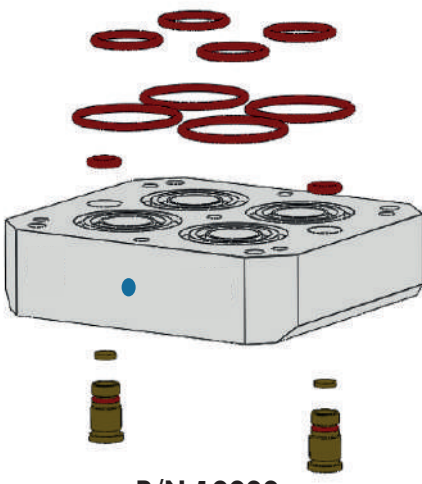
Perform these maintenance procedures to keep your pump operating at peak efficiency.



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

NOTA: You may have to perform these procedures more or less frequently, depending on factors such as operator experience and type of powder used.

Frequency	P/N	Procedure
<p>Every four Months or Each Time You Disassemble the Pump</p> <p> Perform maintenance on both NORD+SOUTH components</p>	 <p>P/N 10037</p>	<p>Remove the INLET-OUTLET BODY from the assembly pump and check if you show signs of wear or sintering. If necessary, clean these components with an apparatus for ultrasonic cleaning.</p>
<p>Daily</p> <p> Perform maintenance on both NORD+SOUTH components</p>	 <p>P/N 10005-XX</p>	<p>Inspect the PINCH VALVES BODY for signs of powder leakage. If you see powder inside the body or stress cracks in the pinch valves, replace the pinch valves.</p>

Frequency	P/N	Procedure
<p>Every four Months or Each Time You Disassemble the Pump</p>	 <p style="text-align: center;">P/N 10024</p>	<p>Remove the body from the assembly INTERMEDIATE (INLET) pump and check if you show signs of wear or sintering. If necessary, clean these components with an apparatus for ultrasonic cleaning.</p>
<p>Every four Months or Each Time You Disassemble the Pump</p>	 <p style="text-align: center;">P/N 10093</p>	<p>Remove the fluidizing tubes and check structural conformity. In case of defects or damage, replace the pipes.</p>
<p>Every four Months or Each Time You Disassemble the Pump</p>	 <p style="text-align: center;">P/N 10033</p>	<p>Remove the body from the assembly INTERMEDIATE (OUTLET) pump and check if you show signs of wear or sintering. If necessary, clean these components with an apparatus for ultrasonic cleaning.</p>

Diagnostics

Problem	Possible cause	Corrective action
1. Reduced powder output from the conveying tube (RIGHT)	<i>Blockage in pipe (RIGHT) to destination Air transport set too high</i>	Check the Transport tube (RIGHT) for blockages. Remove the tube and purge with compressed air.
	<i>Carrier air set too high</i>	Decrease air pressure transport. RIGHT REGULATOR
	<i>Carrier air set too low</i>	Increasing the air pressure transport. RIGHT REGULATOR
	<i>Dust extraction set</i>	Decrease the Vacuum pressure (Max 0.48 Mpa). RIGHT REGULATOR
	<i>Dust extraction set</i>	Increase the Vacuum pressure (Max 0.48 Mpa). RIGHT REGULATOR
	<i>Pinch valve defective or damaged</i>	Replace the pinch valves
	<i>Fluidizing tubes defective or damaged</i>	Replace the fluidizing tubes
	<i>PV3 carrier air valve not working</i>	See Tubing Diagrams. Turn off the pump and disconnect the tubing connected to the pump body. Turn on the pump and check the tubing for alternating positive and negative air pressure. Check regulator/gauge (RIGHT): Reg. Transport + Reg. Vacuum. If no pressure, replace valve of air entering and leaving the valve.
2. Reduced powder output from the conveying tube (LEFT) (pinch valves open and close)	<i>Lock in pipe (LEFT) to destination</i>	Check the Transport Tube (LEFT) for blockages. Remove the tube and purge with compressed air
	<i>Carrier air set too high</i>	Decrease air pressure transport. LEFT REGULATION
	<i>Carrier air set too low</i>	Increasing the air pressure transport. LEFT REGULATION
	<i>Dust extraction set</i>	Decrease the Vacuum pressure (Max 0.48 Mpa). LEFT REGULATOR
	<i>Dust extraction set</i>	Increase the Vacuum pressure (Max 0.48 Mpa). LEFT REGULATOR
	<i>Pinch valve defective or damaged</i>	Replace the pinch valves
	<i>Fluidizing tubes defective or damaged</i>	Replace the fluidizing tubes
	<i>PV4 carrier air valve not working</i>	See Tubing Diagrams. Turn off the pump and disconnect the tubing connected to the pump body. Turn on the pump and check the tubing for alternating positive and negative air pressure. Check regulator/pressure gauge (LEFT): Reg. Transport + Reg. Vacuum. If no pressure, replace valve of the air entering and leaving the valve

Diagnostics

Problem	Possible cause	Corrective action
3. Reduced dust output from the conveying pipes (pinch valves DO NOT open and close)	<i>Pinch valve defective or damaged</i>	Replace the pinch valves
	<i>Transport cycle activation PV1 valve not working</i>	See Pipe Diagrams. If the valve operates, but no positive pressure is felt at outlets 2 4, check the pressure regulator/gauge (Reg. Supply). Switch off the pump and disconnect the valve supply hose. Switch on the pump and check that there is positive pressure at 0.6 Mpa. If there is pressure, replace the valve
	<i>Supply pressure Valve PV1 absent PV1 not working</i>	Refer to the diagrams of the pipes. Turn off the pump and disconnect the tube from the exit (2) of the timer. Turn on the pump and check if exits pressure in alternation. Check for proper operation of the display and the respect of the time PRE-SET. If there is no pressure, replace the timer.
	<i>Supply pressure Valve PV1 absent PV1 not working</i>	See Pipe Diagrams. Turn off the pump and disconnect the valve supply pipe. Turn on the pump and check that there is positive pressure. If there is no pressure, replace the regulator with pressure gauge (Reg. Supply)
	<i>Pinch Valves cycle activation PV2 valve not working</i>	See Pipe Diagrams. If the valve operates, but no positive pressure is felt at outlets 2 4, check the pressure regulator/gauge (Reg. Pinch Valves). Switch off the pump and disconnect the hoses connected to the pump body. Switch on the pump and check if the hoses are alternating of positive pressure. If there is no pressure, replace the valve.
	<i>Supply pressure PV2 valve absent</i>	See Pipe Diagrams. Turn off the pump and disconnect the valve feed pipe. Turn on the pump and check that there is positive pressure. If there is no pressure, replace the regulator with pressure gauge (Reg. Pinch Valves)
	<i>TIMER (RIGHT) Does not respect times</i>	Consult the Pipe Diagrams. Switch off the pump and disconnect the pipe from the outlet (2) of the timer. Switch on the pump and check the alternating pressure, replace the TIMER
	<i>TIMER (LEFT) Does not respect times</i>	Consult the Pipe Diagrams. Switch off the pump and disconnect the pipe from the outlet (2) of the timer. Switch on the pump and check the alternating pressure, replace the TIMER

Diagnostics

Problem	Possible cause	Corrective action
4. RIGHT transport ON OFF not working	<i>Activation pressure too low</i>	Check external pneumatic valve supply pressure. Min 0.3 Mpa
	<i>PV5 valve does not activate (ON)</i>	Replace the valve
	<i>PV5 valve does not stop (OFF)</i>	Replace the valve
5. LEFT transport ON OFF not working	<i>Activation pressure too low</i>	Check external pneumatic valve supply pressure. Min 0.3 Mpa
	<i>PV6 valve does not activate (ON)</i>	Replace the valve
	<i>PV6 valve does not stop (OFF)</i>	Replace the valve
6. RIGHT SELF CLEANING not working	<i>Activation pressure too low</i>	Check external pneumatic valve supply pressure. Min 0.3 Mpa
	<i>PV7 valve does not activate (ON)</i>	Replace the valve
	<i>PV7 valve does not stop (OFF)</i>	Replace the valve
	<i>PV9 valve does not activate (ON)</i>	Replace the valve
	<i>PV9 valve does not stop (OFF)</i>	Replace the valve
7. LEFT SELF CLEANING not working	<i>Activation pressure too low</i>	Check external pneumatic valve supply pressure. Min 0.3 Mpa
	<i>PV8 valve does not activate (ON)</i>	Replace the valve
	<i>PV8 valve does not stop (OFF)</i>	Replace the valve
	<i>PV10 valve does not activate (ON)</i>	Replace the valve
	<i>PV10 valve does not stop (OFF)</i>	Replace the valve
8. Reduced dust entry (loss of suction from dust source)	<i>Blockage in the powder collection tube</i>	Check the hose for blockages. Remove the tube and purge with compressed air
	<i>Vacuum leak from generators</i>	Check if the vacuum generators are contaminated. In case of contamination or wear, replace both vacuum generators. Check the exhaust silencers. If the exhaust silencers are clogged, replace them
	<i>Damaged O rings in the powder path</i>	Check all o-rings in the dust path. Replace damaged or worn o-rings
	<i>Clogged fluidization pipes</i>	Replace the fluidizing tubes
9. Pinch valves failing quickly, with cracks around the flange	<i>The powder tribo loads into the pump</i>	Install kit P/n 10034 black sleeve valves - NON CONDUCTIVE. Check that the device is properly grounded

Repair



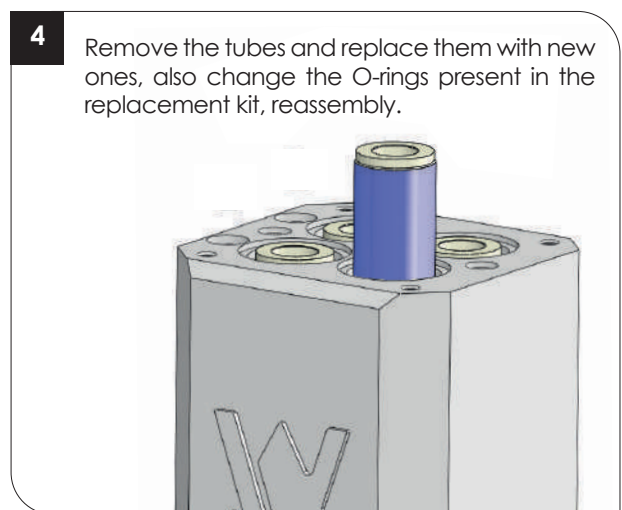
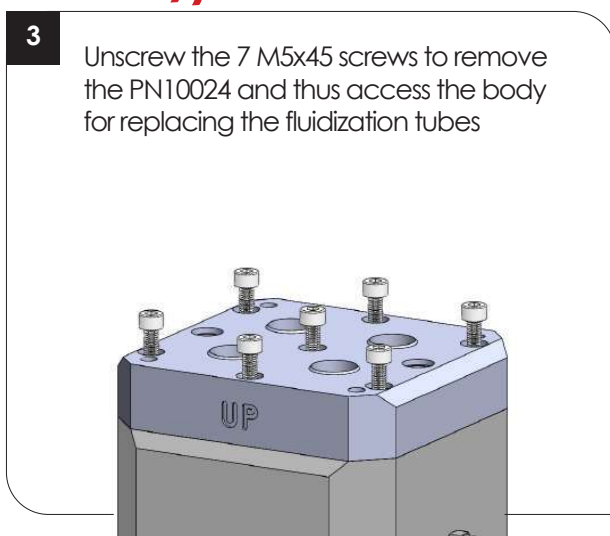
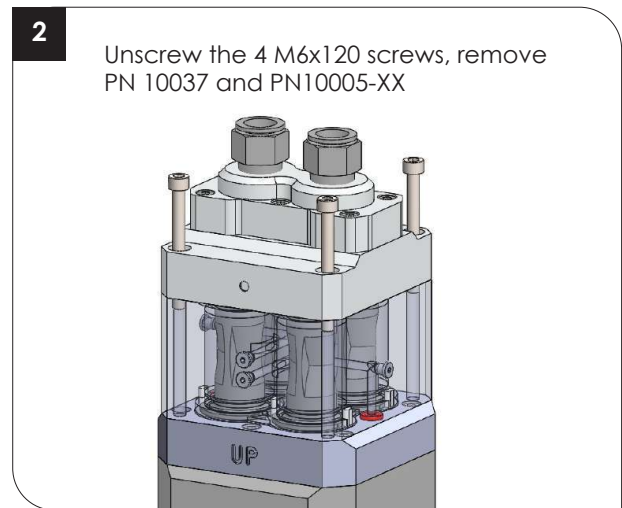
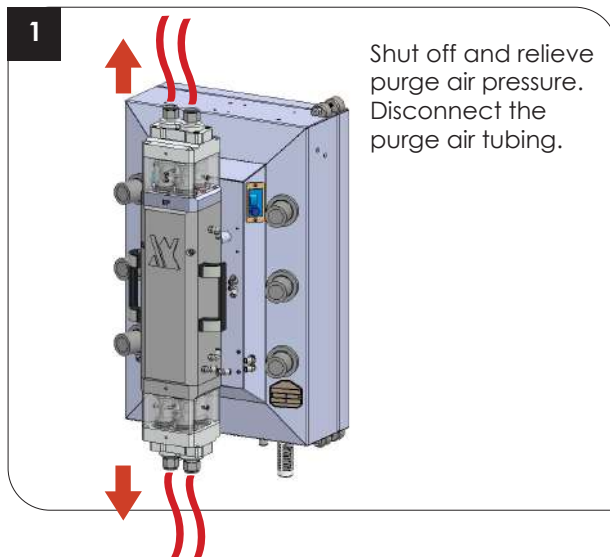
WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.



WARNING: Shut off and relieve system air pressure before performing the following tasks. Failure to relieve air pressure may result in personal injury.

Fluidizing Tube Replacement

NOTE: In the fluidization tube kits I am including four O-rings. Replace O-rings if they are worn. It is not necessary to replace the o-ring every time you replace the fluidizing tubes.



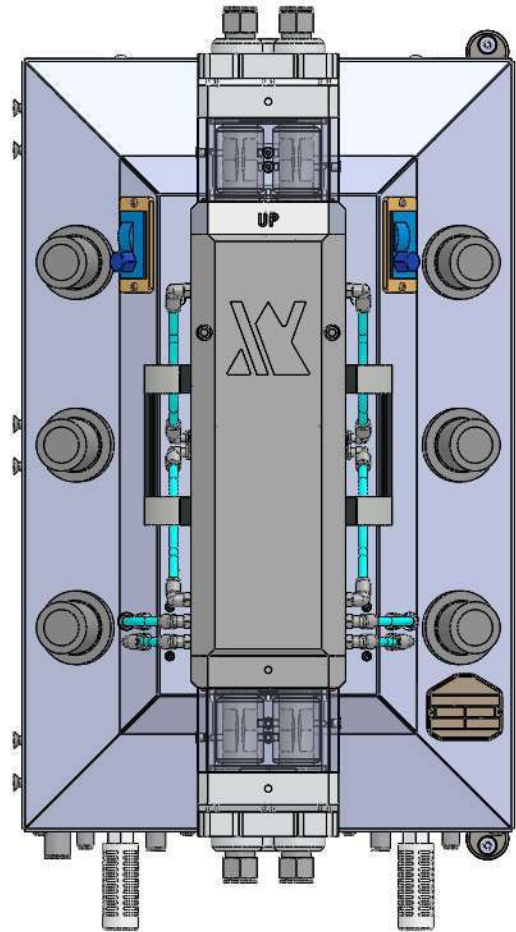
*In the fluidization tube kits, there are included O-rings. Replace O-rings if they are worn.

Pump Disassembly

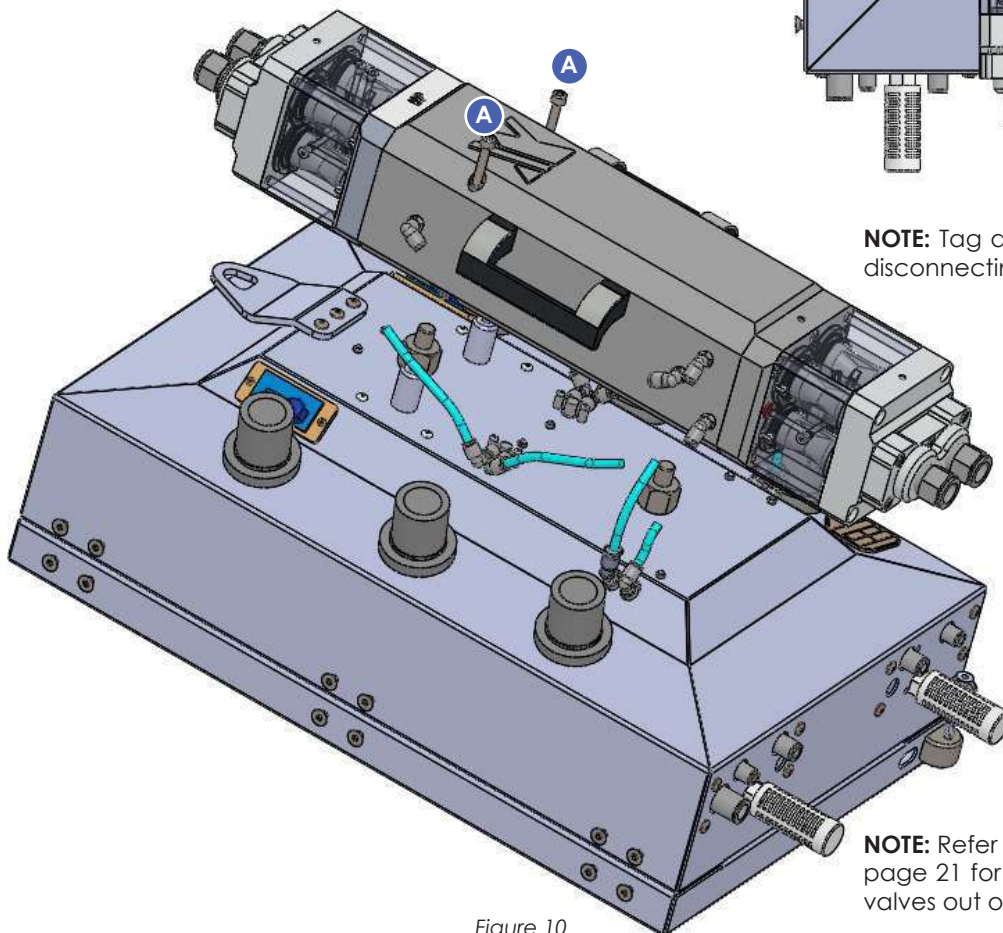


WARNING: Shut off and relieve system air pressure before performing the following tasks. Failure to relieve air pressure may result in personal injury.

1. See figure 9. Disconnect the purge air lines from the top of the pump.
2. Disconnect the inlet and outlet powder tubing from the bottom of the pump.
3. Remove the two screws (A) from the pump.
4. See figure 9. Disconnect one end of each of the air tubes indicated.
5. See figure 10. Remove the tubes securing the pump assembly to the base.
6. See Figure 11. Starting with the fluidizing tubes, disassemble the pump as shown.



NOTE: Tag all air and powder tubing before disconnecting from the pump.



NOTE: Refer to Pinch Valve Replacement on page 21 for instructions on pulling the pinch valves out of the pinch valve body.

Figure 10

Dense phase pump NEA 442

24

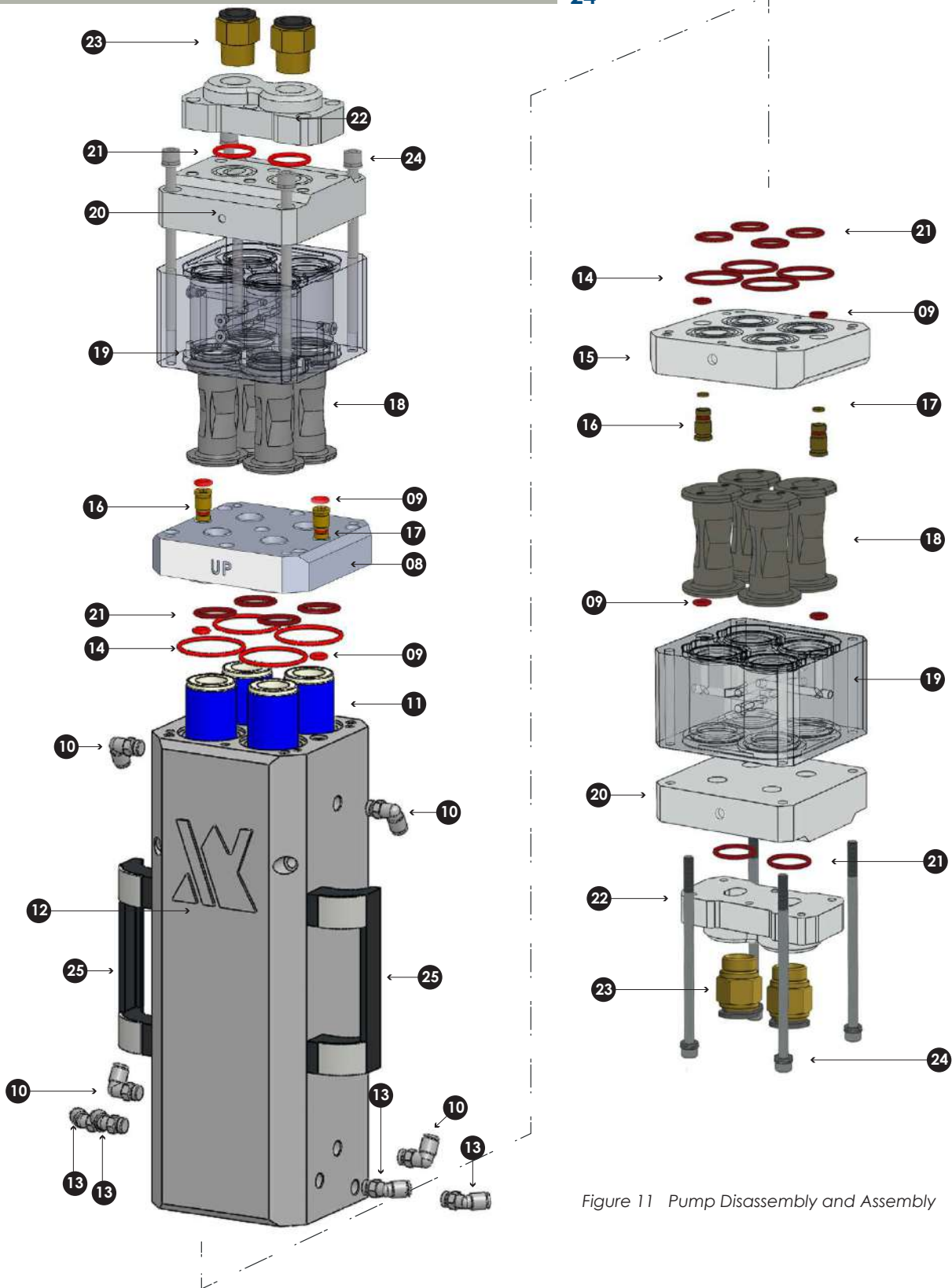


Figure 11 Pump Disassembly and Assembly

8. INTERMEDIATE BODY - INLET

9. O-Ring Silicone 3024

10. Elbow 90° G1/8"-6

11. Fluidizing Tubes

12. Fluidizing Tubes Body

13. Elbow 45° G1/8"-6

14. O-Ring Silicone 3131

15. INTERMEDIATE BODY - OUTLET

16. Compass Filter Brass

17. Filter Brass

18. Pinch Valves

19. Pinch Valves Body

20.-22. Inlet -outlet Body

21. O-Ring Silicone 130

23. FITTINGS G1/2"-16 SPECIAL

24. Screw assembly 120mm M6 INOX

25. Handle ELESA

Pump Assembly



CAUTION: Follow the assembly order and specifications shown. Pump damage may occur if you do not carefully follow the assembly instructions.

1

WARNING: Tighten the stop connections to prevent air leakage and product.

nr°6 M5x25
nr°6 grover ø5
nr°6 washer ø5

4

WARNING: Insert before ALL O-RING then tighten the screws 7 M5 on the central aluminum body

nr°7 M5x35
nr°7 grover ø5
nr°7 washer ø5

2

See Replacing the PINCH VALVE on page 21 for specific instructions.

5

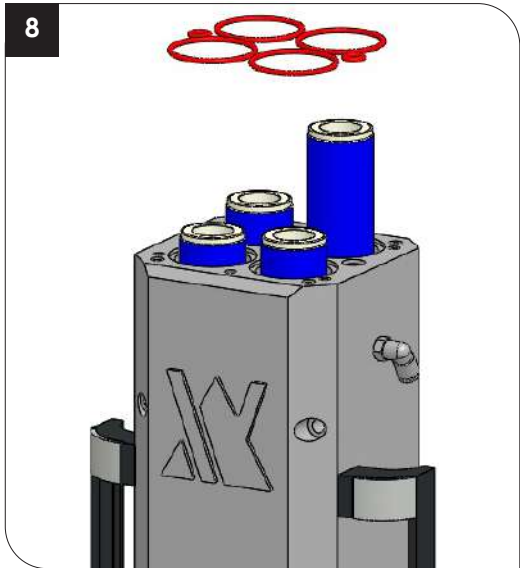
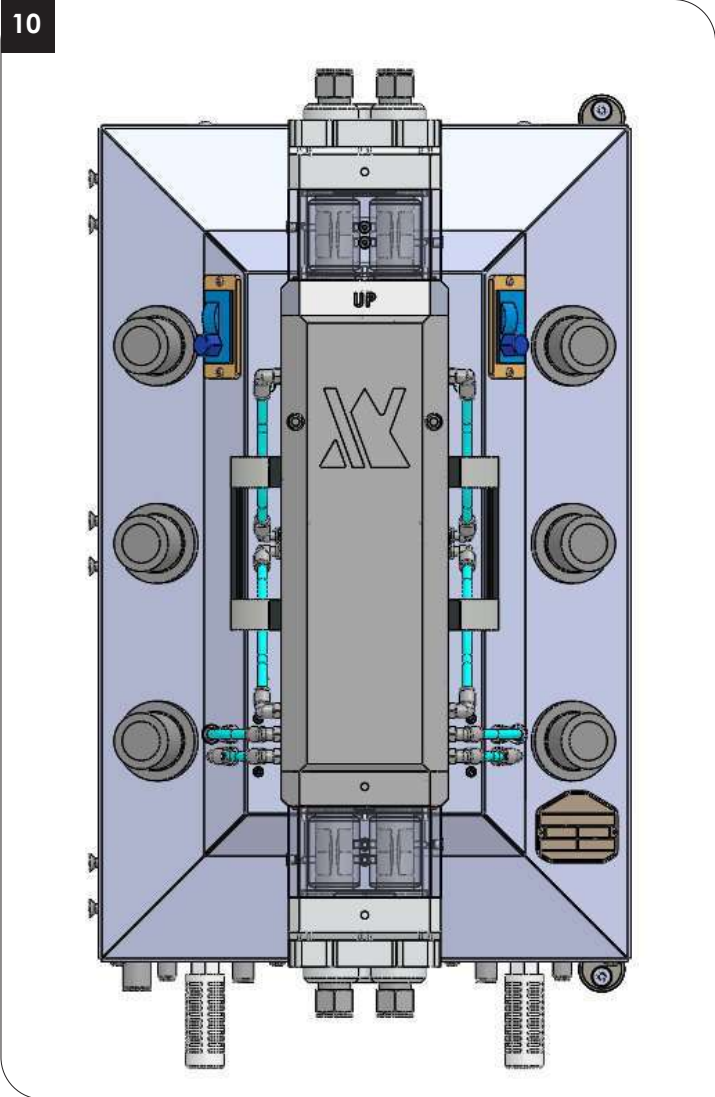
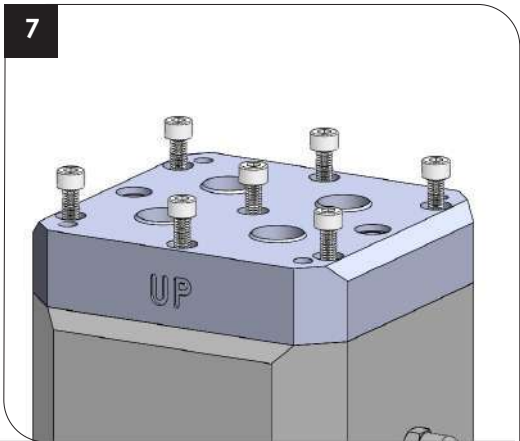
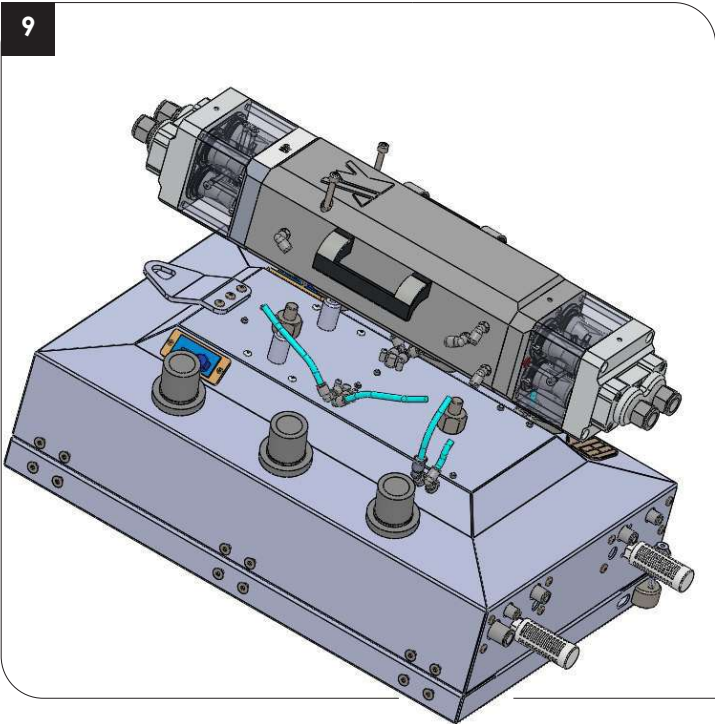
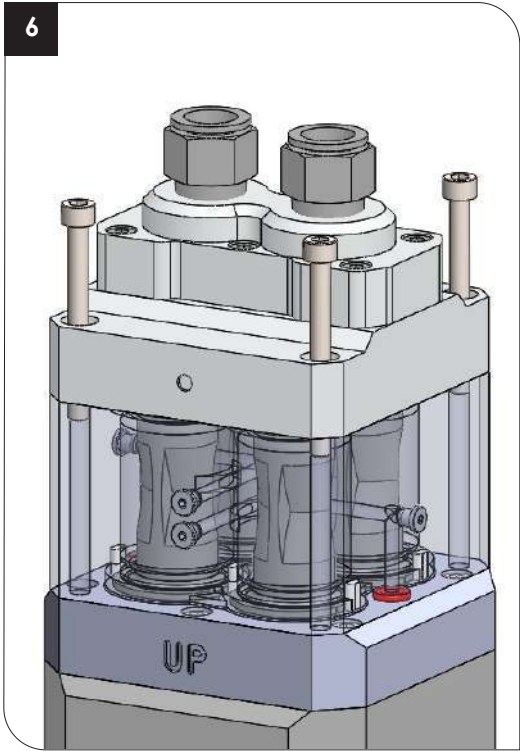
TOP: caps must BE IN FRONT

WARNING: Be careful when mounting pinch bodies!

BOTTOM: caps must BE BEHIND

3

Tighten screws two turns at a time to 7-10 in. lb using an alternating pattern.



Substitution of the PINCH VALVES



WARNING: Wear eye protection while performing this procedure. The pinch valves will quickly snap back to their normal shape when you pull them out of the pinch valve body.

NOTE: In the upper flanges of the sleeve valves is modeled after the word UP

NOTE: Replace the filter discs (included in the pinch valves kit) when replacing the valves

Pinch Valve Removal



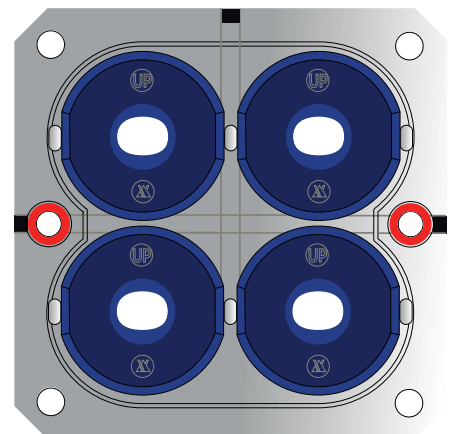
Place the pinch valve body in a padded vise with the bottom end facing you. Grasp and pull the bottom end of the pinch valve with one hand.



Use your other hand to pinch the flange on the opposite end of the pinch valve.

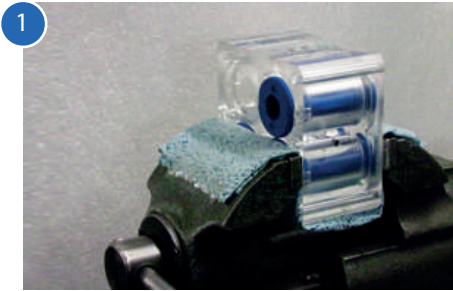


Pull the pinch valve firmly until it comes out of the pinch valve body.



Installing the pinch valves

NOTE: All pinch valves intended for repeated contact with food must be cleaned thoroughly prior to their first use.



1 Turn the body of the pinch valves so as to have in front of the upper side.



2 After putting the valve in the tool insertion, flatten the flange on the end of the valve UP.



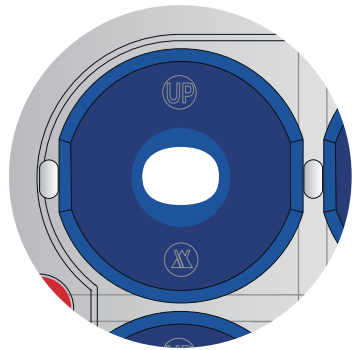
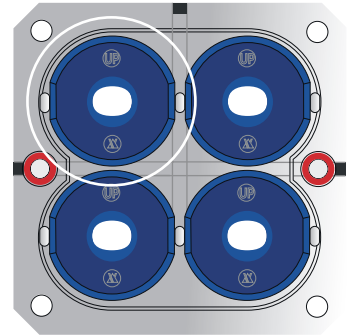
3 Insert the end of the valve in the tool HIGHER for the insertion of the pinch valves. Compress the UP end of the flange and introduce the small end into the flattened flange, inside the pinch valves.



4 While it compresses the UP end of the flange, pull the tool itself.

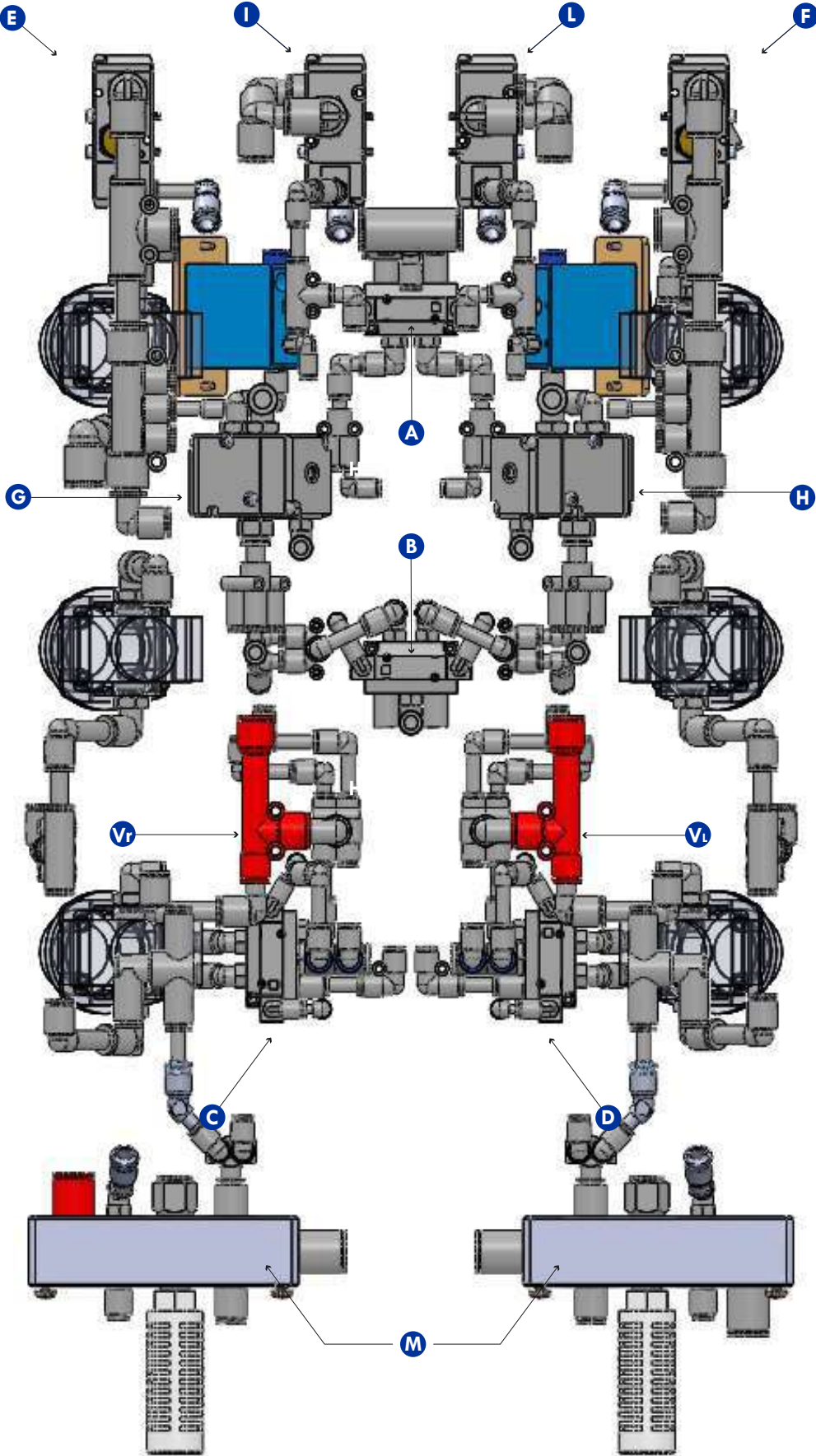


5 Pull the insertion tool through the valve body, until the end of the valve UP and the insertion tool out of the upper side of the body of the pinch valves.

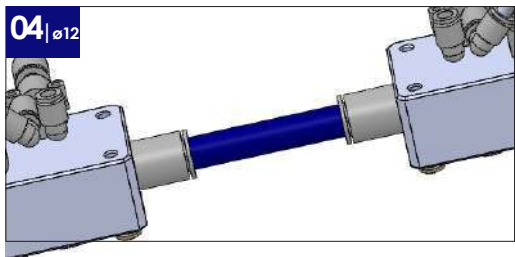
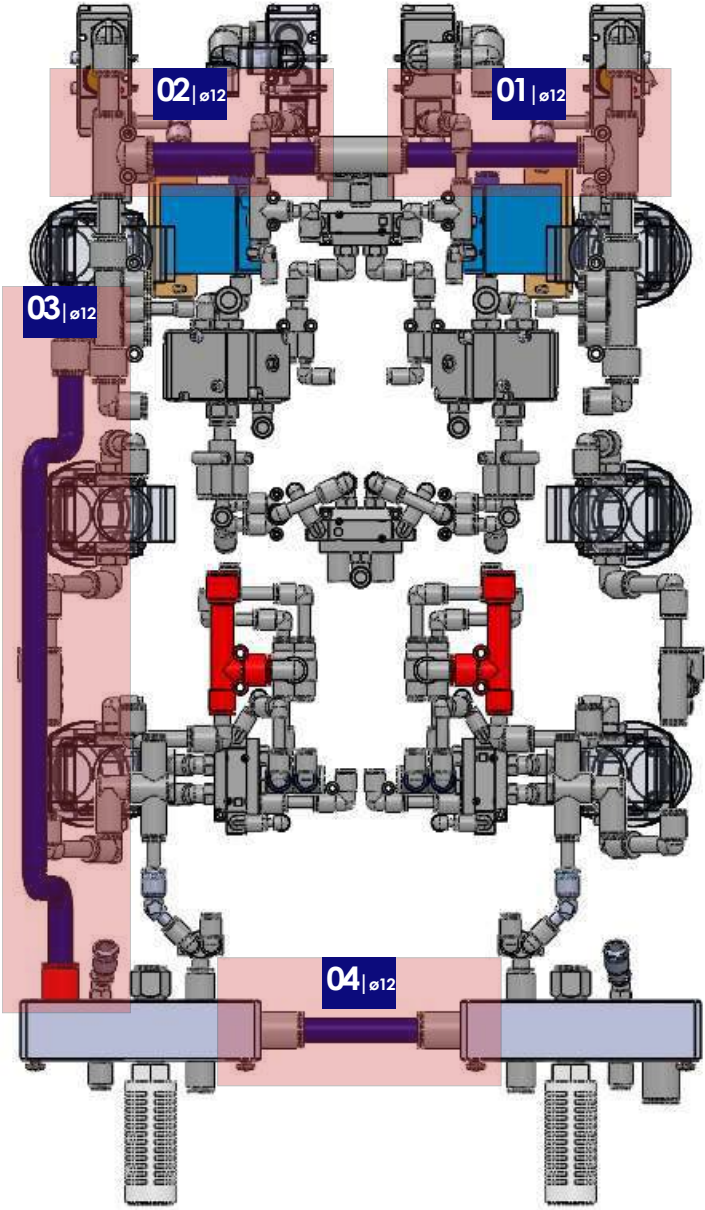
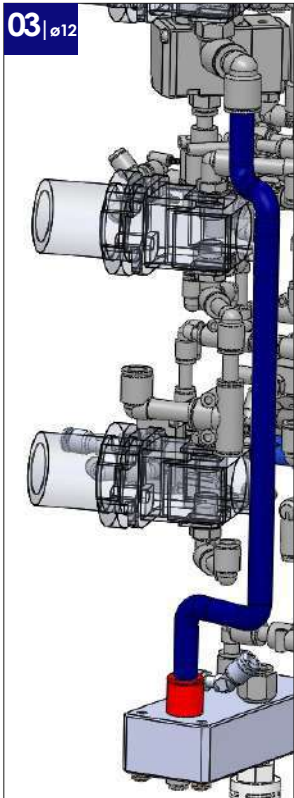
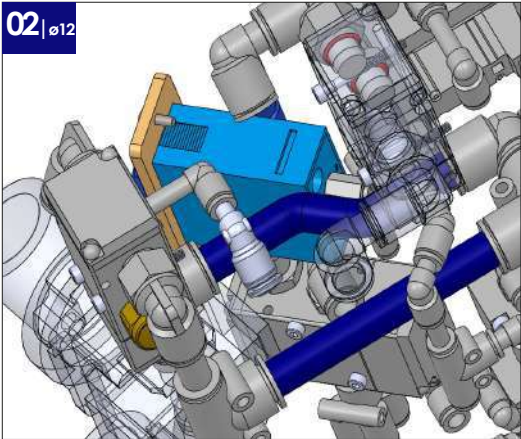
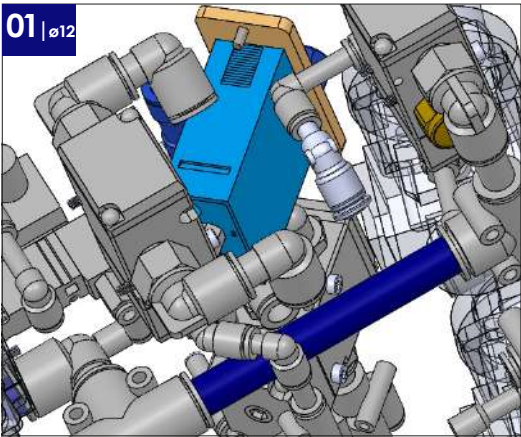


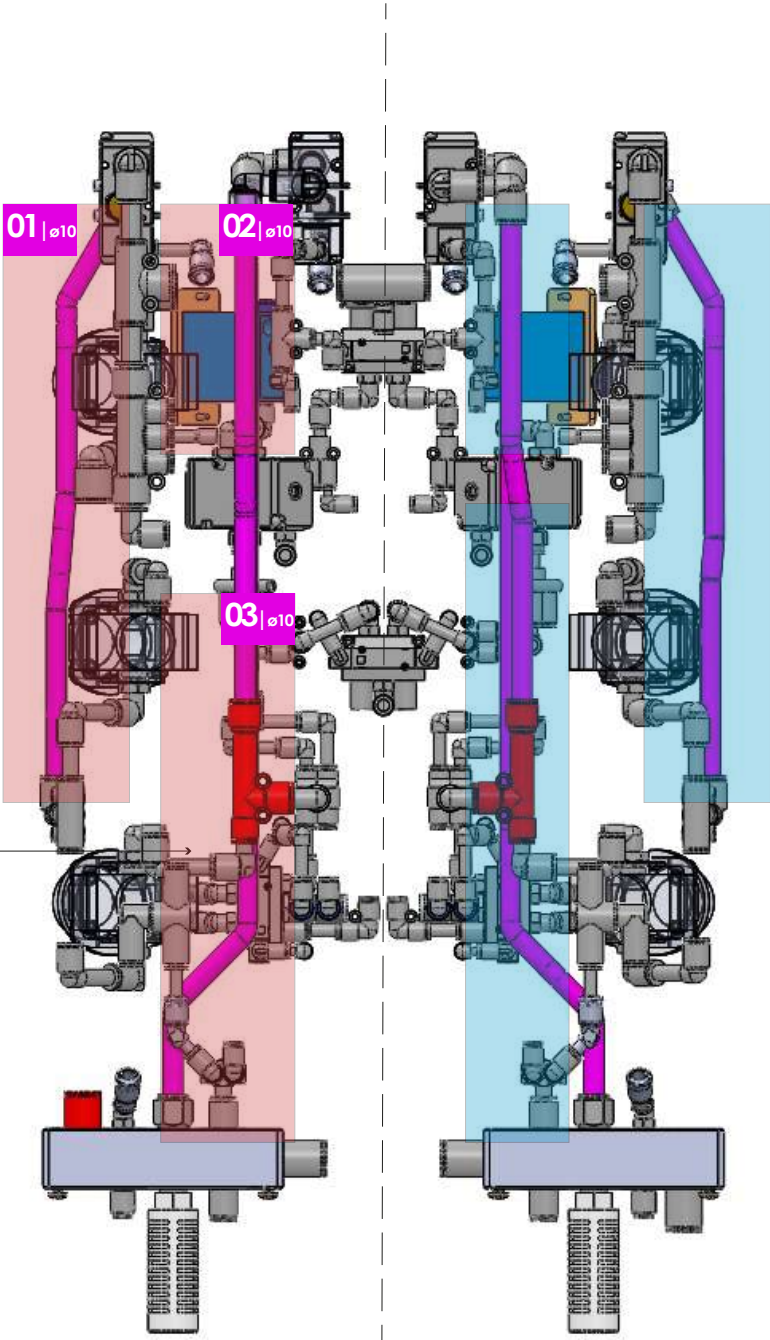
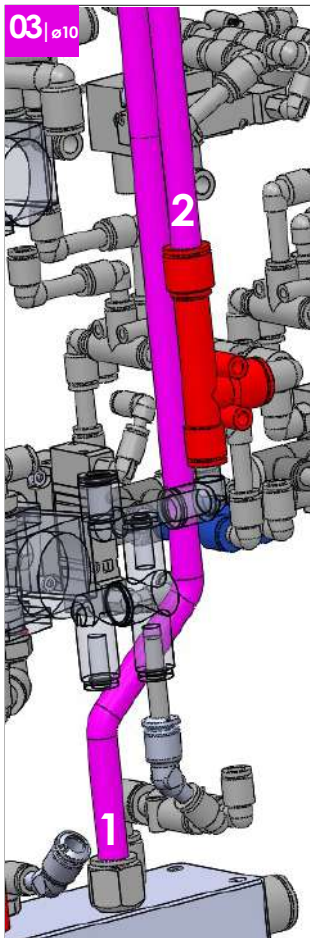
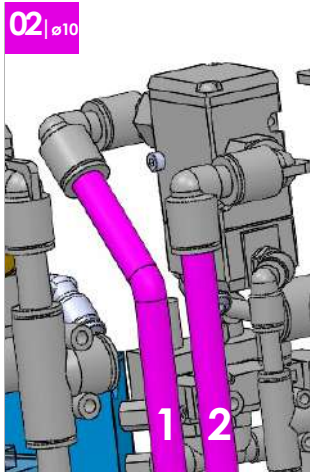
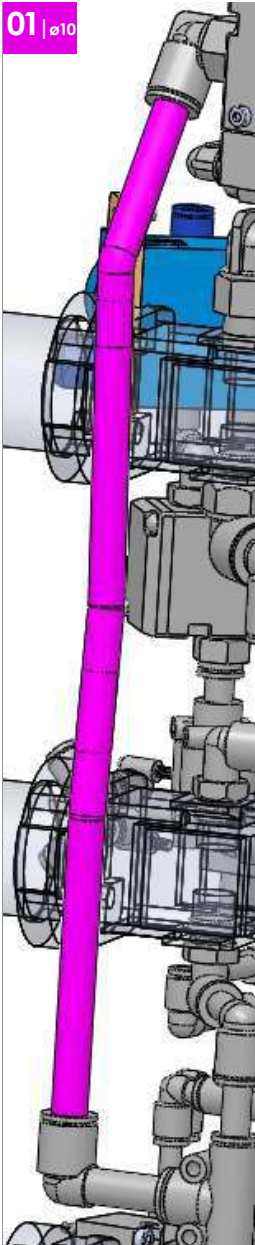
! NOTES: Observe the straight side of the valve as in the figure or the pinch valves NOT RUN '.

BEHIND VIEW OF PUMP BODY

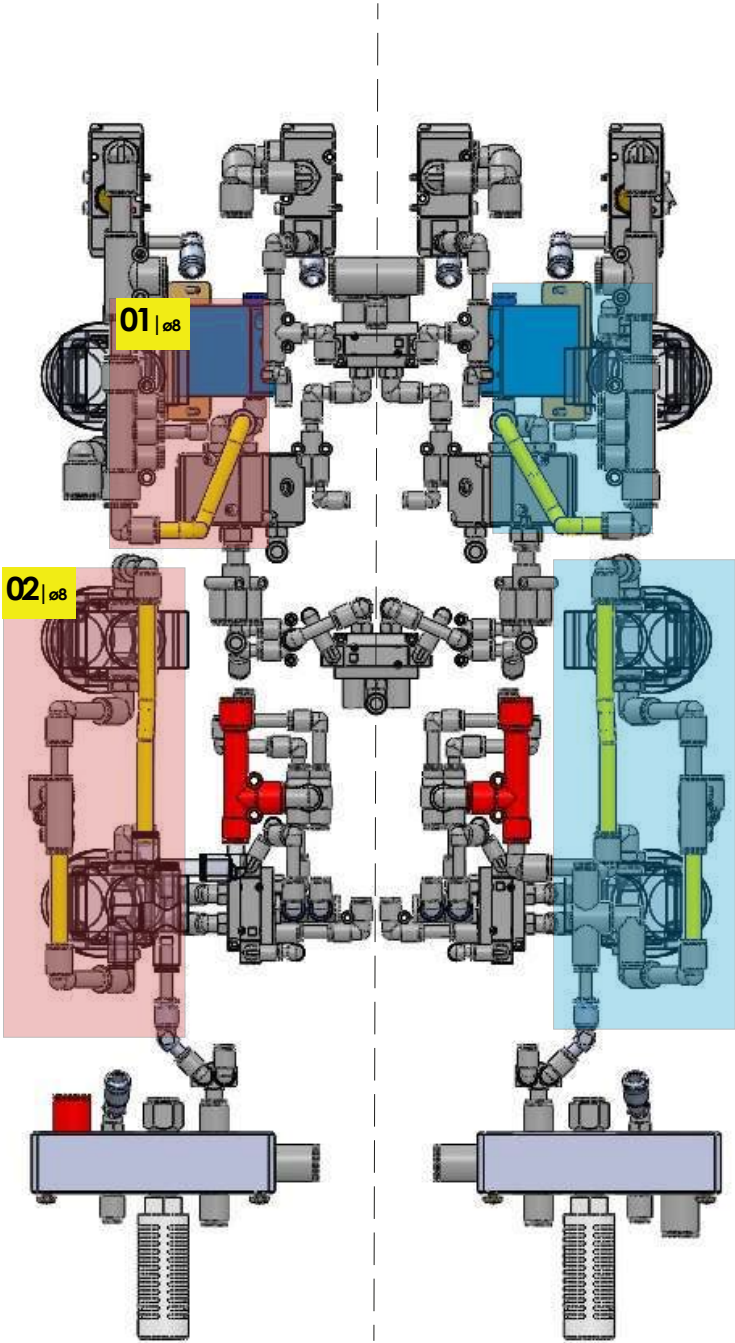
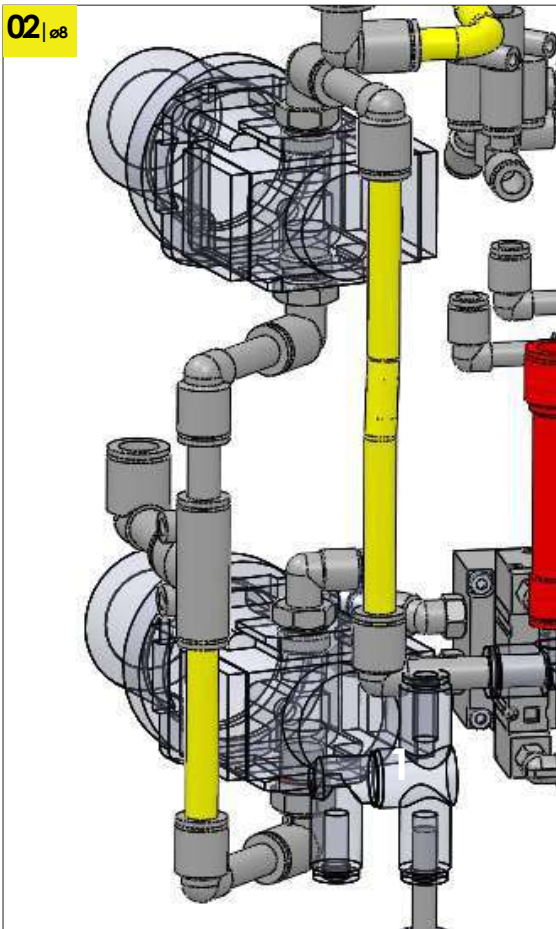
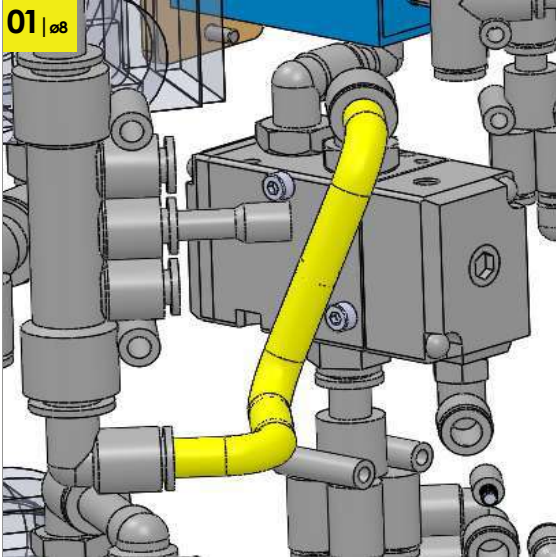


ITEM	
A	PV1
B	PV2
C	PV3
D	PV4
E	PV5
F	PV6
G	PV7
H	PV8
I	PV9
L	PV10
M	Manifold NEA 442
Vr	Vacuum right
Vl	Vacuum left



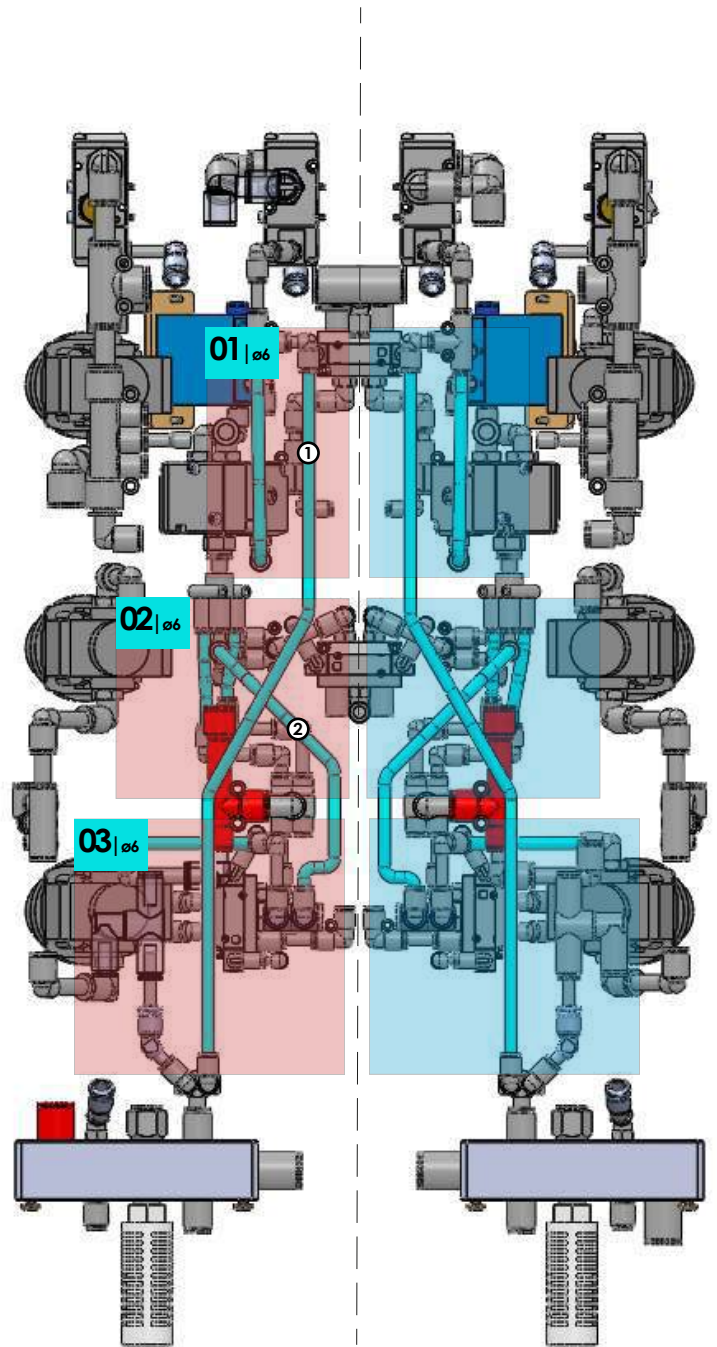
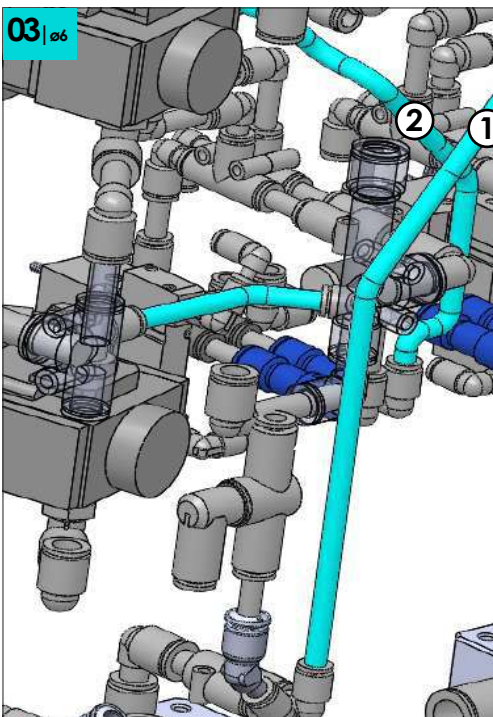
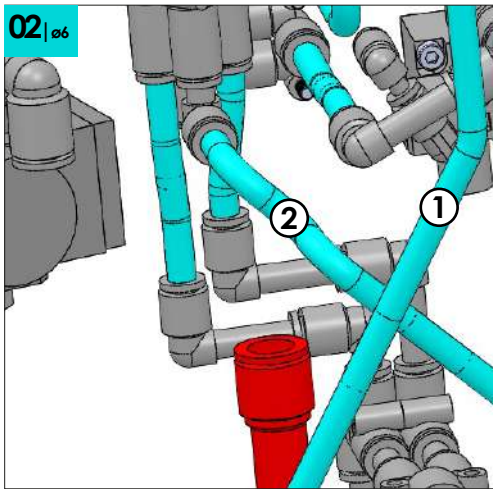
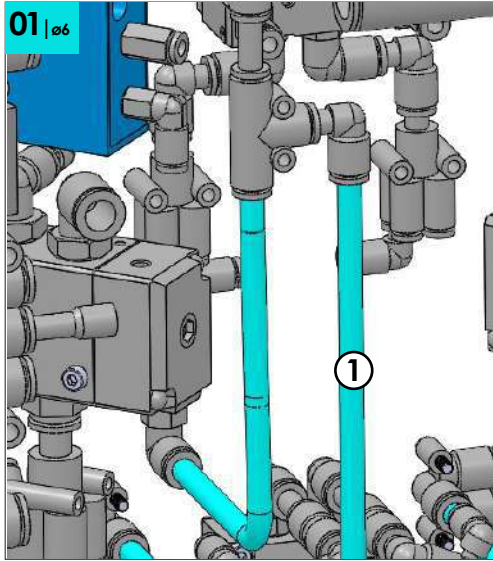


the assembly on the right in the figure must be done in a mirror image for the left



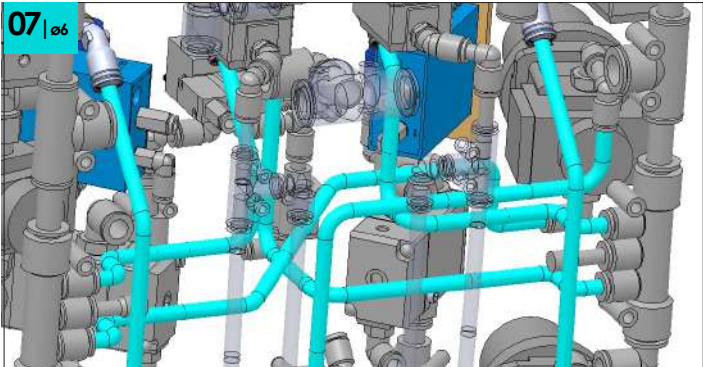
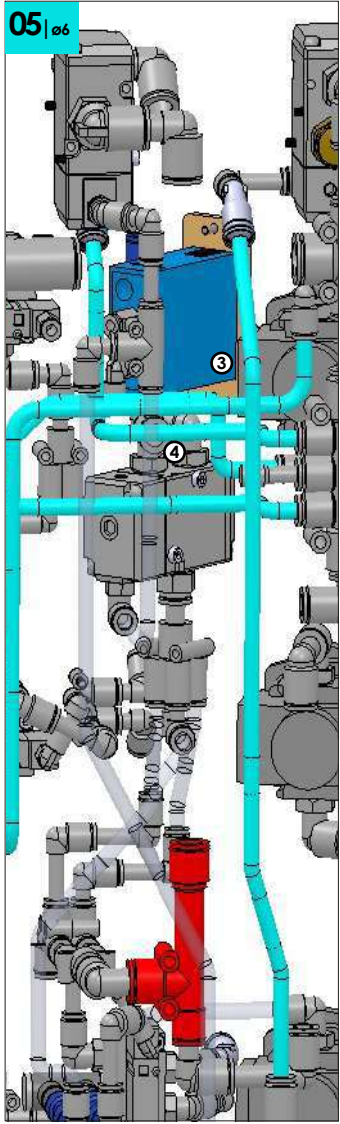
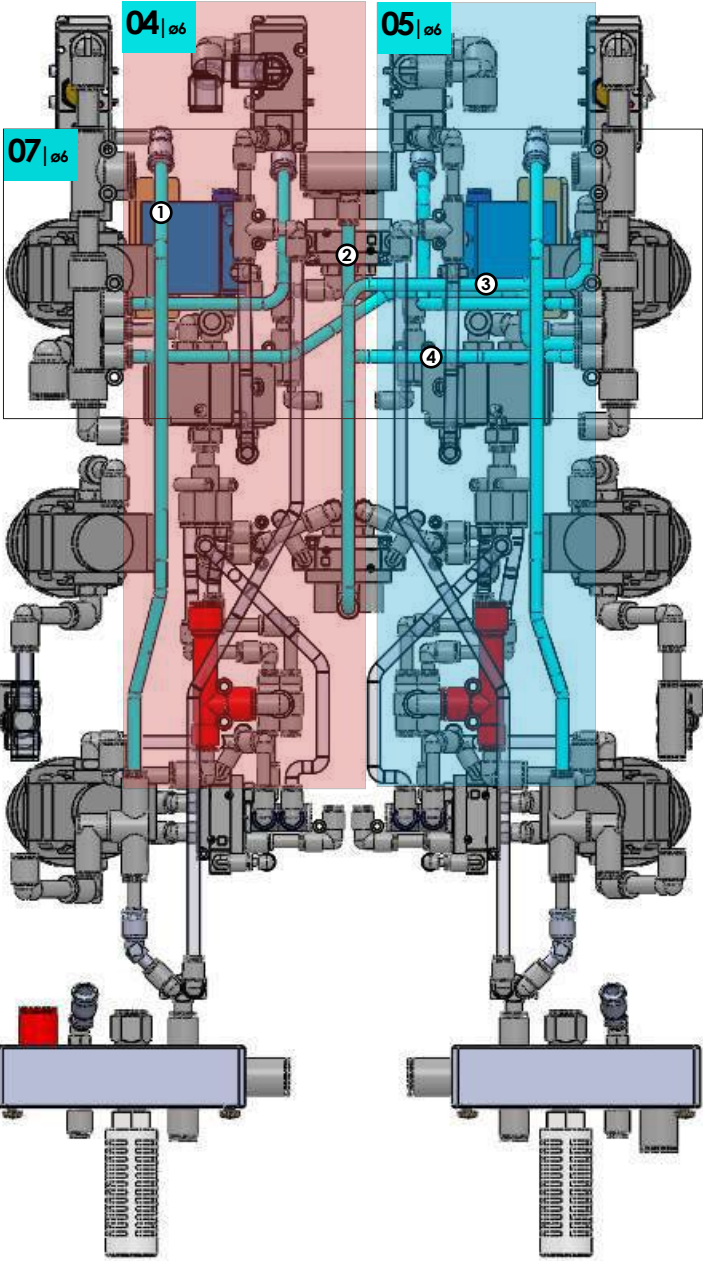
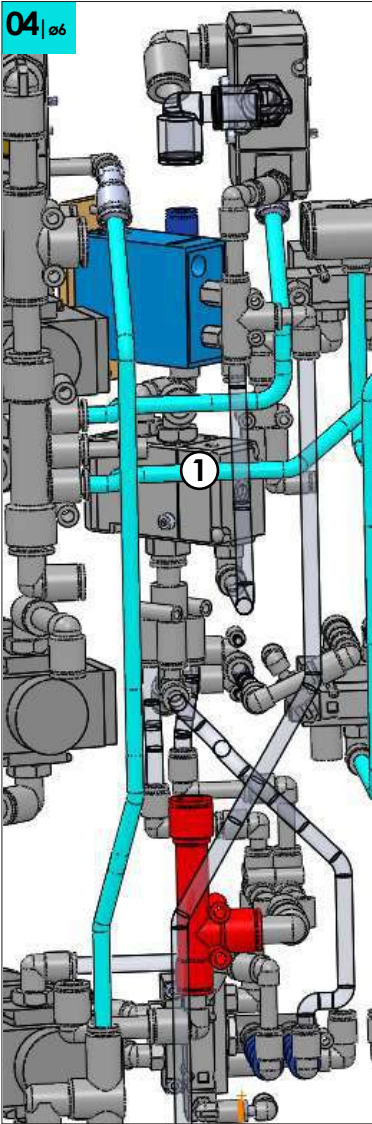
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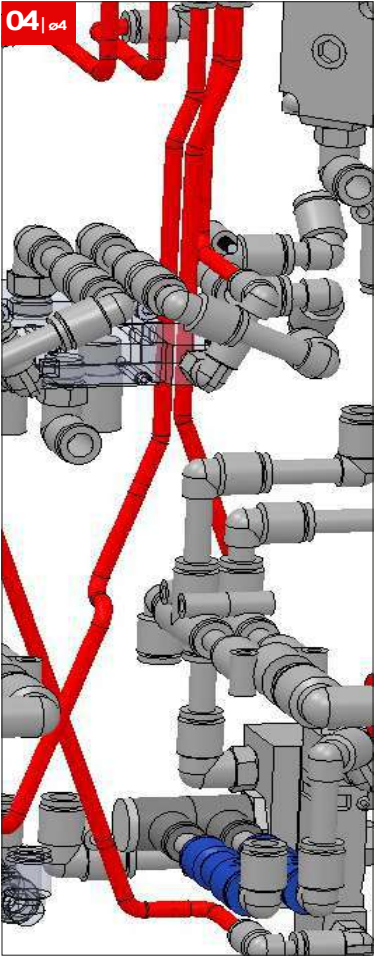
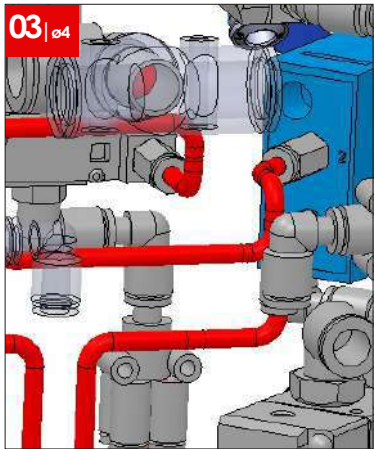
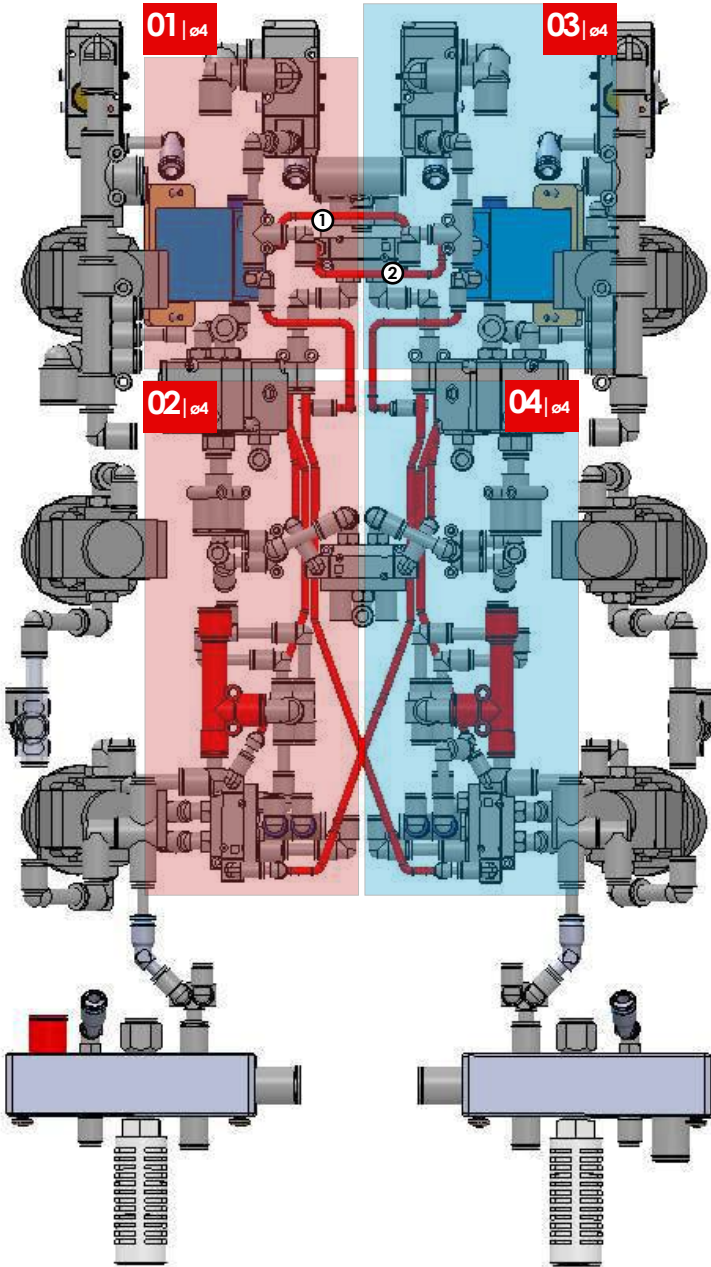
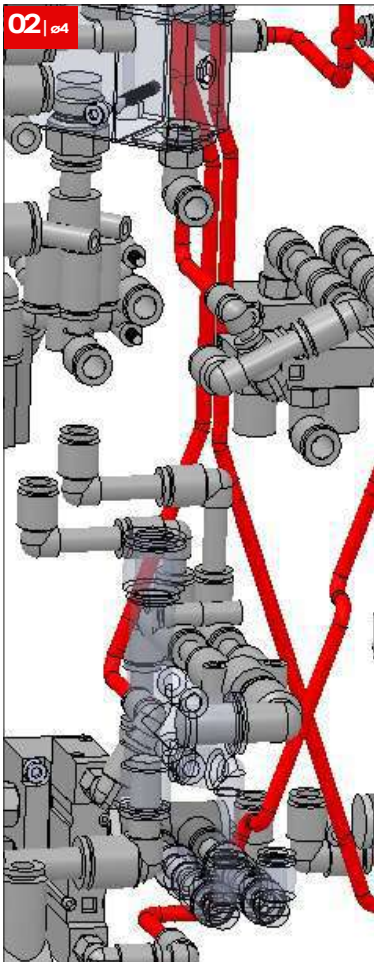
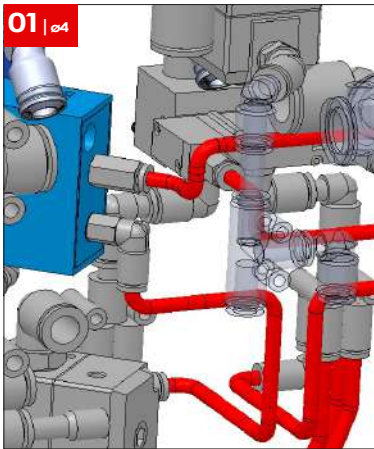
BEHIND VIEW OF PUMP BODY

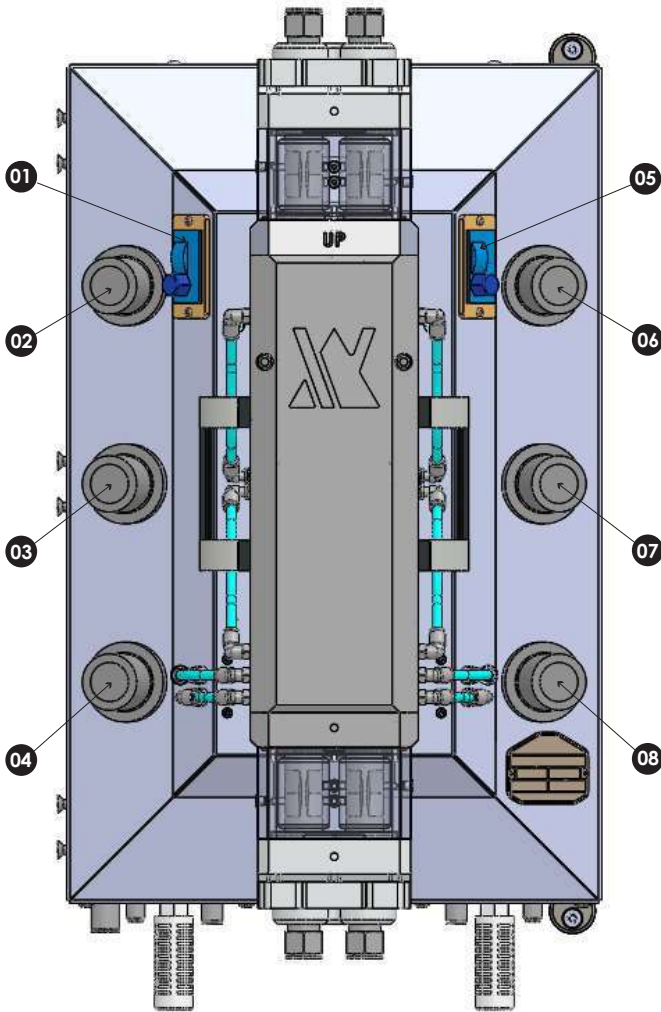


the assembly on the left in the figure must be done in a mirror image for the right

BEHIND VIEW OF PUMP BODY

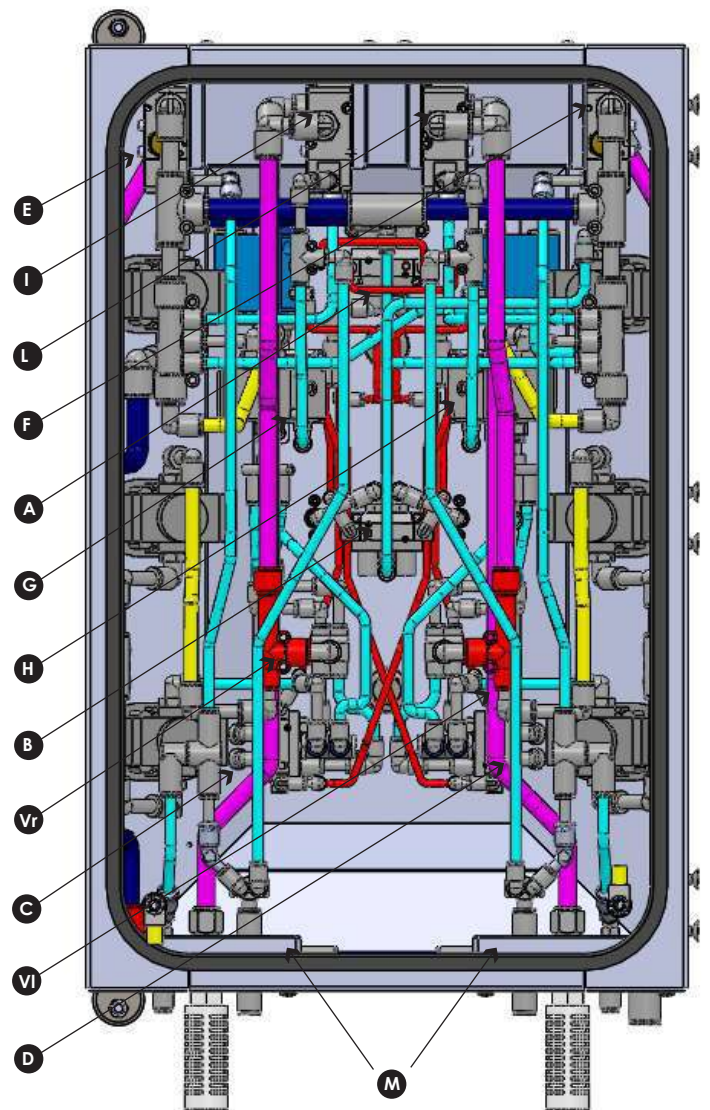




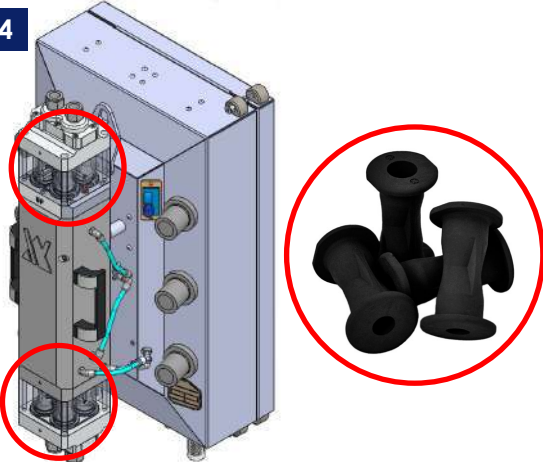
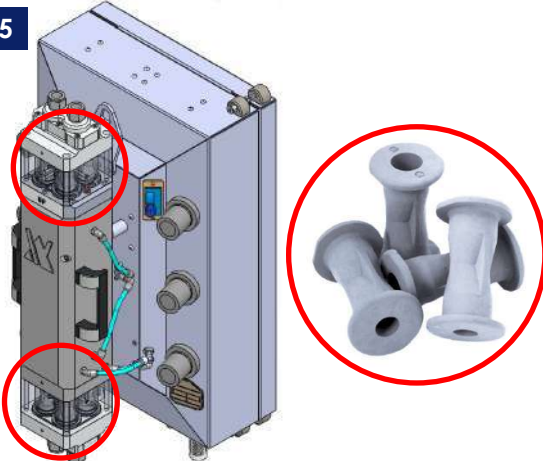
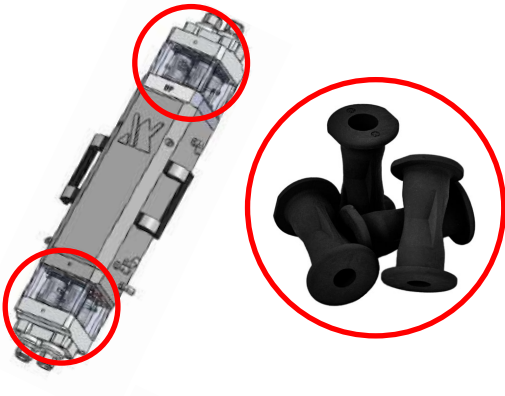
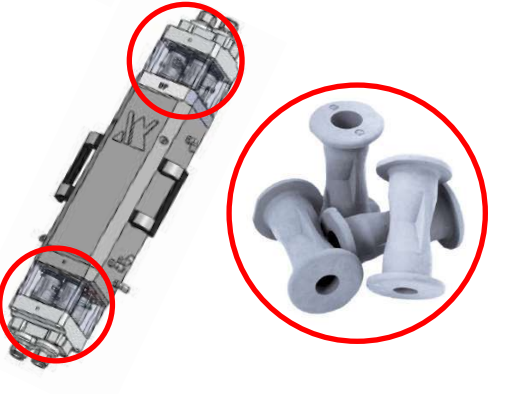


ACRONYM	Part Number (PN)	
01	Timer T0.60	10098
02	Regulator PINCH VALVES 1/4" 1Mpa_6 6	10026
03	Regulator VACUUM (L) 1/4" 1Mpa_8 8	10100
04	Regulator TRANSPORT (L) 1/4" 0,2 Mpa_8 6	10102
05	Timer T0.60	10098
06	Regulator SUPPLY 1/4" 1Mpa_12 12	10101
07	Regulator VACUUM (R) 1/4" 1Mpa_8 8	10100
08	Regulator TRANSPORT (R) 1/4" 0,2 Mpa_8 6	10102

ACRONYM	Part Number (PN)	
A	PV1	10103
B	PV2	10104
C	PV3	10107
D	PV4	10108
E	PV5	10109
F	PV6	10109
G	PV7	10110
H	PV8	10110
I	PV9	10111
L	PV10	10111
M	Manifold NEA 442	10031-440
Vr	Vacuum right	10023
Vl	Vacuum left	10023



Dense phase pump NEA 442

ITEM P/N:	Pcs	Description
<p data-bbox="165 271 327 331">10090-34</p> 	1	<p data-bbox="954 302 1388 369">NEA 442 DUAL (ASSEMBLED) - SELF CLEANING- WITH P/N 10034</p>
<p data-bbox="165 757 327 817">10090-35</p> 	1	<p data-bbox="954 788 1396 855">NEA 442 DUAL (ASSEMBLED) - SELF CLEANING - WITH P/N 10035</p>
<p data-bbox="165 1243 327 1303">10081-34</p> 	1	<p data-bbox="960 1274 1412 1341">PUMP BODY ASSEMBLED -NEA 442- WITH P/N 10034</p>
<p data-bbox="165 1657 327 1718">10081-35</p> 	1	<p data-bbox="960 1688 1412 1756">PUMP BODY ASSEMBLED -NEA 442- WITH P/N 10035</p>

Dense phase pump NEA 442

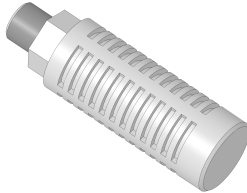
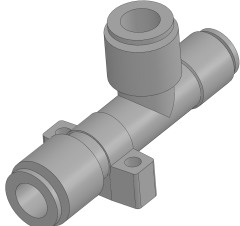
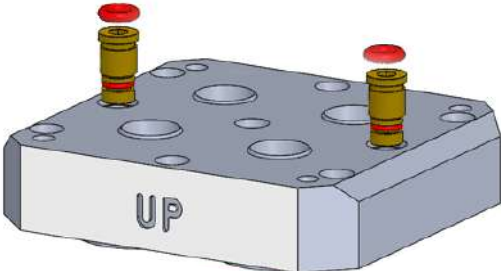


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ITEM P/N:	Pcs	Description
<p>10003 </p> 	2	BRASS FITTINGS G1/2"-16 SPECIAL
<p>10004 </p> 	1	INLET-OUTLET BODY - NEA 430
<p>10005 </p> 	1	PINCH VALVES HOUSING BODY - NEA 430 INCLUDED: 2 pcs O-Ring 3024
<p>10005-34 </p> 	1	PINCH VALVES HOUSING BODY - NEA 430 - WITH PN 10034 INCLUDED: 2 pcs O-Ring Silicone 3024 2 pcs Filter 2 pcs O-Ring 6x1.5
<p>10005-35 </p> 	1	PINCH VALVES HOUSING BODY - NEA 430 - WITH PN 10035 INCLUDED: 2 pcs O-Ring Silicone 3024 2 pcs Filter 2 pcs O-Ring 6x1.5

Inside of NEA pump, there are installed No 2 PN_____.

Dense phase pump NEA 442

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ITEM P/N:	Pcs	Description
<p>10021</p> 	2	MUFFLER - NEA 430
<p>10023</p> 	2	VACUUM GENERATOR- NEA 430
<p>10024</p> 	1	<p>INTERMEDIATE BODY - INLET NEA 440</p> <p>INCLUDED: 2 pcs O-Ring 3024 4 pcs O-Ring 130 4 pcs O-Ring 3131 2 pcs Compass Filter Brass P/N 10007 2 pcs O-Ring 6x1.5</p>
<p>10026</p> 	1	<p>REGULATOR 1/4" - 1Mpa_6 6</p> <p>INCLUDED: All Fittings</p>
<p>10033</p> 	1	<p>INTERMEDIATE BODY - OUTLET NEA 440</p> <p>INCLUDED: 2 pcs O-Ring 3024 4 pcs O-Ring 130 4 pcs O-Ring 3131 2 pcs Compass Filter Brass P/N 10007</p>

Dense phase pump NEA 442

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ITEM P/N:	Pcs	Description
<p data-bbox="162 271 327 331">10034</p> 	4	<p data-bbox="954 286 1324 353">PINCH VALVES BLACK NO CONDUCTION - NEA 430</p> <p data-bbox="954 409 1228 566">INCLUDED: 2 pcs O-Ring Silicone 3024 2 pcs Filter brass Sinterized 1 pcs Sheath's mounting 2 pcs O-Ring 6x1.5</p>
<p data-bbox="162 689 327 750">10035</p> 	4	<p data-bbox="954 705 1348 772">PINCH VALVES GREY - FOOD & PHARMA USE - NEA 430</p> <p data-bbox="954 828 1228 985">INCLUDED: 2 pcs O-Ring Silicone 3024 2 pcs Filter brass Sinterized 1 pcs Sheath's mounting 2 pcs O-Ring 6x1.5</p>
<p data-bbox="162 1126 327 1187">10037</p> 	1	<p data-bbox="954 1153 1372 1220">INLET-OUTLET BODY - NEA 430 WITH PN 10003</p>
<p data-bbox="162 1720 327 1780">10040</p> 	2	<p data-bbox="954 1736 1316 1780">BRASS ADAPTER d.int.12mm</p>

Inside of NEA pump, there are installed No 2 PN_____.

Dense phase pump NEA 442




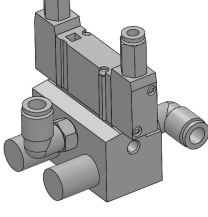
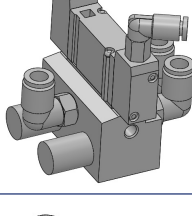
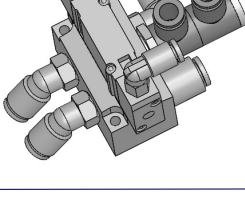
41

ITEM P/N:	Pcs	Description
10044 	2	INOX FITTINGS G1/2"-16 SPECIAL
10007 	2	COMPASS FILTER BRASS - NEA 430 INCLUDED: 2 pcs in sinterized brass for COMPASS 2 pcs O-Ring
10092 	1	FLUIDIZING TUBES HOUSING BODY NEA 440 INCLUDED: 8 pcs O-Ring Silicone 3131 4 pcs O-Ring Silicone 3024 ALL fittings 2x handle ELESA 265251-C3
	2	HANDLE ELESA 265251-C3
10093 	4	FLUIDIZING TUBES - NEA 440 INCLUDED: ALL O-Rings
10098 	1	TIMER T 0.60 SEC INCLUDED: 2 pcs Fittings
10099 	1	GASKET KIT/O-RINGS PUMP BODY NEA 442 INCLUDED: ALL O-Rings

Inside of NEA pump, there are installed No 2 PN_____.

Dense phase pump NEA 442

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ITEM P/N:		Pcs	Description
10100		1	REGULATOR 1/4" - 1 Mpa_8 8 INCLUDED: All Fittings
10101		1	REGULATOR SUPPLY 1/4"- 1 Mpa_12 12 INCLUDED: All Fittings
10102		1	REGULATOR 1/4" - 0,2 Mpa_8 6 INCLUDED: All Fittings
10103		1	PV1 - CYCLE VALVE - NEA 440 INCLUDED: All Fittings
10104		1	PV2- PINCH VALVES - NEA 440 INCLUDED: All Fittings
10107		1	PV3- RIGHT TUBES VALVE - NEA 440 INCLUDED: All Fittings

Inside of NEA pump, there are installed No 2 PN_____.

Dense phase pump NEA 442

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ITEM P/N:	Pcs	Description
10108	1	PV4- LEFT TUBES VALVE NEA 440 INCLUDED: All Fittings
10109	1	PV5 PV6 - TRANSPORT VALVE NEA 440 INCLUDED: All Fittings
10110	1	PV7 PV8 - TRANSPORT VALVE NEA 440 INCLUDED: All Fittings
10111	1	PV9 PV10 - TRANSPORT VALVE NEA 440 INCLUDED: All Fittings
10031-440	1	MANIFOLD - NEA 440 INCLUDED: All Fittings
	3	CLOSING ZIPPER ELESA 425611-1-3

Inside of NEA pump, there are installed No 2 PN_____.

Dense phase pump NEA 442

DECLARATION OF CONFORMITY

Model: Dust pump NEA 442, Dense phase transfer pump
(High-density powder, low-density air)

Applicable directives:

94/9 / EC (ATEX equipment for use in potentially explosive atmospheres)
98/37 / EEC (Machinery)

Standards used for Compliance:

EN13463-1 EN1127-1
EN12100-1 EN13463-5

Principles:

This product was manufactured in accordance with good engineering practice.
The specified product complies with the directives and standards described above.

Mark flammable atmosphere: Ex II 3 D c T6

Note: The year of equipment manufacture appear in the serial number. "PL20-03"
it means the product was manufactured in 2020, "03" at the end indicate the production lot of the year.

Date: October 21, 2022

Verne Technology S.r.l.
CEO
Carlo Perillo

