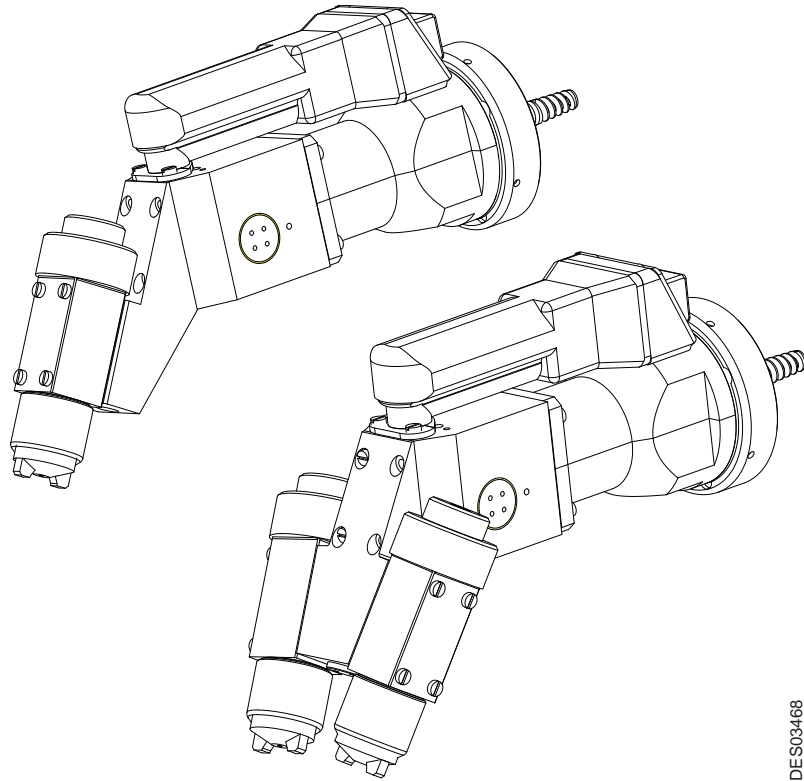




From February 1st, 2017 SAMES Technologies SAS becomes SAMES KREMLIN SAS
A partir du 1/02/17, SAMES Technologies SAS devient SAMES KREMLIN SAS

SAMES  **KREMLIN**



DES03468

User manual

Robotic TRP 501/ TRP 502

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A catalog is available upon request. Among the different training programmes proposed, you will be able to find the training which corresponds the best to your needs and production purposes. These trainings can be organised in your premises or in our training center based in our headquarters in Meylan.

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SAS Sames Technologies operating manuals are written in French and translated into English, German, Spanish, Italian and Portuguese.

The French version is deemed the official text and Sames will not be liable for the translations into other languages.

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1. Health and Safety Instructions

This manual contains links to the following user manuals:

- [see RT Nr 7005](#) for the TRP 500 spray gun.
- [see RT Nr 6254](#) for the UHT 152 EEx e High Voltage Unit.
- [see RT Nr 6021](#) for the Microvalve.
- [see RT Nr 6213](#) for the user manual of the control module GNM 200.

1.1. Configuration of the certified equipment

The whole of these user manuals defines the configuration of the certified equipment.

1.2. Marking on the atomizer

SAMES Meylan France
 CE 0080
 TRP 501/TRP 502
 P/N : *
 ISSeP05ATEX032X**



II 2 G

EEx > 350mJ
 (Serial number)

*Robotic TRP 501 ATEX configurations

Quick disconnect plate - P/N 910012634	Quick disconnect plate - P/N 1522951	Quick disconnect plate - P/N 1516875	Quick disconnect plate - P/N 1522984	Quick disconnect plate - P/N 1516755	Insulating support P/N: 1522952	Insulating support P/N: 1516874	Insulating support P/N: 1522983	Insulating support P/N: 1516753	Manifold block P/N: 1510745	Manifold block P/N: 1515476	Manifold block P/N: 1522982	Manifold block P/N: 1507754	Upper support P/N: 750661	Upper support P/N: 1508676	TRP 500 with diaphragm - P/N 752949	TRP 500 with piston - P/N 910019688	High Voltage Unit P/N: 1511102	TRP 501 1 TRP 500 (* P/N	GNM 200A P/N 1517070
	X				X				X				X		X		X	1524316	X
	X				X				X				X			X	X	910019845	X
		X				X				X			X		X		X	1521595	X
		X				X				X				X	X		X	1518921	X
			X				X				X		X		X		X	1522920	X
				X				X				X		X	X		X	1518920	X
	X				X				X				X	X	X		X	910002320	X
X					X				X				X		X		X	910012651	X

These part numbers are standard equipped with plastic nozzles and caps.

On option, they can be fitted with metal nozzles and caps, but in this case, the atomization exclusion area is different (see page 8).

*Robotic TRP 502 ATEX configurations

Quick disconnect plate - P/N 1522951	Quick disconnect plate - P/N 1516875	Insulating support P/N: 1522952	Insulating support P/N: 1516874	Manifold block P/N: 1510745	Manifold block P/N: 1515476	Upper support P/N: 459351	Upper support P/N: 459352	TRP 500 with diaphragm - P/N 752949	TRP 500 with piston - P/N 910019688	High Voltage Unit P/N: 1511102	TRP 502 2 TRP 500 (*) P/N	GNM 200A P/N 1517070
X		X		X		X		X		X	1516754	X
X		X		X		X			X	X	910019846	X
	X		X		X		X	X		X	910002317	X
X		X		X			X	X		X	910002318	X
	X		X		X	X		X		X	910002319	X

These part numbers are standard equipped with plastic nozzles and caps. On option, they can be fitted with metal nozzles and caps, but in this case, the atomization exclusion area is different (see page 8).

** The sign "X" signifies that respecting the safety distance (between the parts of the sprayer that are under high voltage and the grounded parts) mentioned in this user's manual, ensures a safe use of the equipment.

1.3. Precautions for Use

This document contains information that all operators should be aware of and understand before using the robotic **TRP 501** or **TRP 502**. This information highlights situations that could result in serious damage and indicates the precautions that should be taken to avoid them. The equipment must only be used by personnel trained by SAMES Technologies.

1.4. Warnings



WARNING : Safety may be jeopardized if this equipment is not operated, disassembled and reassembled in compliance with the instructions given in this manual and in any European Standard or national safety regulations in force.



WARNING : Equipment performance is only guaranteed if original spare parts distributed by SAMES Technologies are used.



WARNING :

This equipment has to be used only within areas designed for spraying with respect to EN 50176, EN 50177, EN 50223, or with similar ventilation conditions. The equipment has to be used only within ventilated in order to reduce risks for the health of the operators, fire or explosion. The efficiency of the extraction ventilation system has to be daily checked

Within explosive atmospheres produced by the spraying process, only appropriate explosion-proof electrical equipment has to be used.

Before carrying out any cleaning or general work on atomizers in the spraying area, the high voltage generator must be switched off and the atomizer HV circuit discharged to the ground.

The pressurised coating product or the pressurised air must not be directed towards people or animals.

Appropriate measures have to be taken to avoid, during periods when the equipment is not used and/or when the equipment is broken, the presence of potential energy (liquid or air pressure or electric) inside the equipment.

Using individual protection equipment will limit the risks of contact and/or inhalation of toxic product, gas, vapours, fog or dusts that can be produced while using the equipment. The user has to follow the coating product manufacturer's recommendations.

Electrostatic spraying equipment must be serviced regularly in accordance with the information and instructions given by SAMES Technologies.

Cleaning operations must be carried out either in authorised areas equipped with a mechanical ventilation system, or using cleaning liquids with a flash point at least 5 °C higher than room temperature.

Only metal containers can be used for cleaning liquids and they must have a reliable ground connection.

Inside the booth it is forbidden to use a naked flame, glowing object or a device likely to produce sparks. It is also forbidden to store inflammable products, or vessels that have contained them, close to the booth.

The surrounding area must be kept clear and clean.



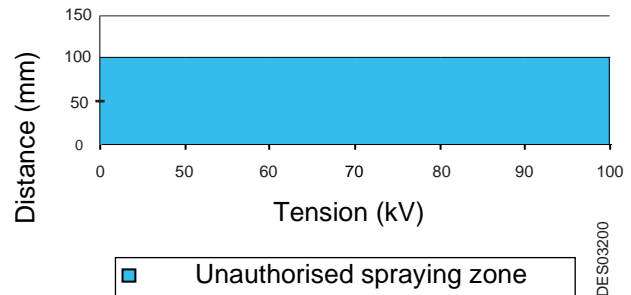
WARNING : The use of very high voltage increases the risk of sparks. **SAMES Technologies** atomizers and high-voltage electrostatic generators are designed to minimize this risk. Although the HV electrode is the only accessible part, a safety distance of X mm (refer to: Board) has to be maintained between the parts of the sprayer that are under high voltage and all the parts that are grounded.

Robotic TRP 501/502 with plastic nozzle and cap and UHT 152 EEx e

Authorised spraying distance

Tension (kV)	Distance (mm)
0	100
50	
60	
70	
80	
90	
100	

"X" safety distance depending on the tension

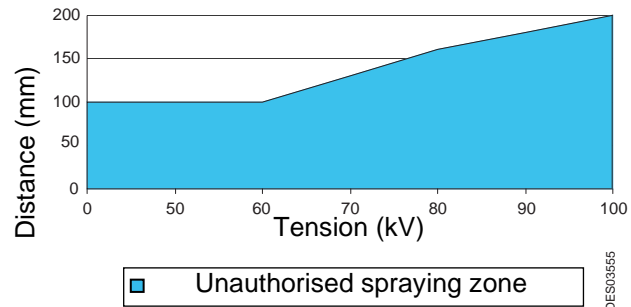


Robotic TRP 501/502 with metal nozzle and cap and UHT 152 EEx e

Authorised spraying distance

Tension (kV)	Distance (mm)
0	100
50	
60	
70	130
80	160
90	180
100	200

"X" safety distance depending on the tension



In addition, a careful check must be made to ensure that any conducting or semi-conducting part closer than 2.5 m to the atomizer is correctly grounded.

If it is not, electrical charges capable of causing sparks could build up on it. Operating personnel must wear anti-static shoes and gloves to avoid this risk.

Grounding is mandatory for all the conductive envelops of the electrical equipments and for all the conductive components within explosive atmospheres by conductive connection with the ground terminal.

Finally, for the same reasons, the spraying area must have an anti-static floor, such as concrete, metal duckboard, etc.

It is essential to provide sufficient ventilation in the spraying booths to avoid the build up of inflammable vapors.

The effectiveness of the overcurrent protection (di/dt) must be checked every day. This check must be carried out in an area with **no explosive atmosphere** by placing a ground device near the electrode of the atomizer when the atomizer is switched on (the operator must be connected to ground): the control module must switch to the fault state.

Additional equipment has to be placed outside the dangerous area and its starting device has to be servo-controlled to the running mode of the booth aspiration fan. The correct working of the servo-control has to be checked once a week.

A warning board has to be placed in full view close to the spraying area.

1.5. Important Recommendations

1.5.1. Paint resistivity

[see RT Nr 7005](#)

1.5.2. Compressed Air Quality

The air must be filtered to a level that will guarantee a long life time and prevent any pollution during painting.

The filter must be installed as close as possible to the facility. The filter cartridges must be changed regularly to ensure that the air is clean.

The inside of hoses supplying air to the atomizer and the ports of the quick-disconnect plate must be clean and free of any traces of paint, solvent or other foreign matter.



WARNING : The guarantee does not cover damage caused by foreign matter such as paint, solvent or other substances entering the air circuits of the TRP 501 / TRP 502.

1.5.3. Product Quality

The paint must be filtered to prevent any damage to the atomizer.

The maximum permissible particle size in the atomizer is 200 µm.

1.5.4. High Voltage

Disable the high voltage if the TRP 501/502 is not operated for a prolonged period (conveyor shutdown, no objects to be painted, slack periods, etc.) to prevent ionization of the air.

1.5.5. O-ring Seals

Use the seals recommended in this manual. For solvent-based products, seals in contact with the product must be chemically inert seals resistant to swelling or chemical attack. The **TRP 501 or 502** is only guaranteed to operate correctly if it is used with seals whose size and material conform to this manual.

1.5.6. Ventilation

Do not begin applying paint with the **TRP 501 or 502** before starting up the ventilation system in the spraying booth. If the ventilation is cut, toxic substances such as organic solvents or ozone may remain in the spraying booth, resulting in a risk of fire, poisoning or irritation.

1.5.7. Residual pressure

Before all maintenance or repair operations, remove paint and solvent from the atomizer, switch off the high voltage power supply and cut the paint, solvent and air supplies, then release residual pressure in each supply system. Residual pressure may lead to component damage and expose personnel to serious injuries. Paint or solvent dispersion may also lead to poisoning or irritation.

1.5.8. Safety devices

During installation of the TRP 501 or 502, it is important to set up safety devices enabling high voltage power, paint, solvent and air supplies to be cut immediately if there is a problem.

- Detection of control system faults.
- Detection of high voltage surges linked with the SAMES high voltage module.
- Detection of air pressure drops.
- Detection of ventilation failure.
- Detection of fire.
- Detection of human presence.

Failure to install safety devices could result in a risk of fire, expose the personnel to serious injury and damage the equipment.

1.5.9. Mechanical Collision

The guarantee does not cover damage resulting from the operating environment (for example collision with the robot).

1.5.10. Ambient Temperature

The sprayer is designed to work normally under room temperature between 0°C and + 40°C.

In order to optimise application quality, it is advised to work under room temperature between + 15°C and + 28°C.

The storage temperature will never exceed +60°C.

1.5.11. Specific maintenance provisions

The access of the booth, near the atomizer in operation, will have to be proscribed and controlled by safety devices ([see § 1.5.8 page 10](#)) which will have to stop the equipment in case of intrusion of people in the area.

Nevertheless, for maintenance operation, these safety devices will have to be arranged in order to allow certain operations and checks (only for persons trained and entitled by Sames Technologies).

1.6. Guarantee

Under the guarantee, which applies only to the buyer, **SAMES Technologies** agrees to repair operating faults resulting from a design fault, materials or manufacture, under the conditions set out below.

The guarantee claim must define, in writing, the exact nature of the fault concerned.

The **SAMES Technologies** guarantee only covers equipment that has been serviced and cleaned according to standard procedures and our own instructions, that has been fitted with parts approved by SAMES or that has not been modified by the customer.

More precisely, the guarantee does not cover damage resulting from:

- the customer's negligence or inattentiveness,
- incorrect use,
- failure to follow the procedure
- use of a control system not designed by SAMES Technologies or a SAMES Technologies control system modified by a third party without written permission from an authorized SAMES Technologies technical agent,
- accidents such as: collision with external objects, or similar events,
- flooding, earthquake, fire or similar events,
- inadequately filtered paint and solvent,
- use of seals not complying with SAMES Technologies recommendations,
- pollution of air circuits by fluids or substances other than air.

SAMES Technologies atomizer type **TRP 501 or 502** is covered by a one-year guarantee for use in two 8-hour shifts under normal operating conditions.

The guarantee does not apply to wearing parts such as diaphragms, seals, etc.

The guarantee will take effect from the date of the first startup or of the provisional acceptance report.

Under no circumstances, either in the context of this guarantee or in other contexts, will **SAMES Technologies** be held responsible for physical injury or intangible damage, damage to brand image and loss of production resulting directly from its products.

2. Description

2.1. General

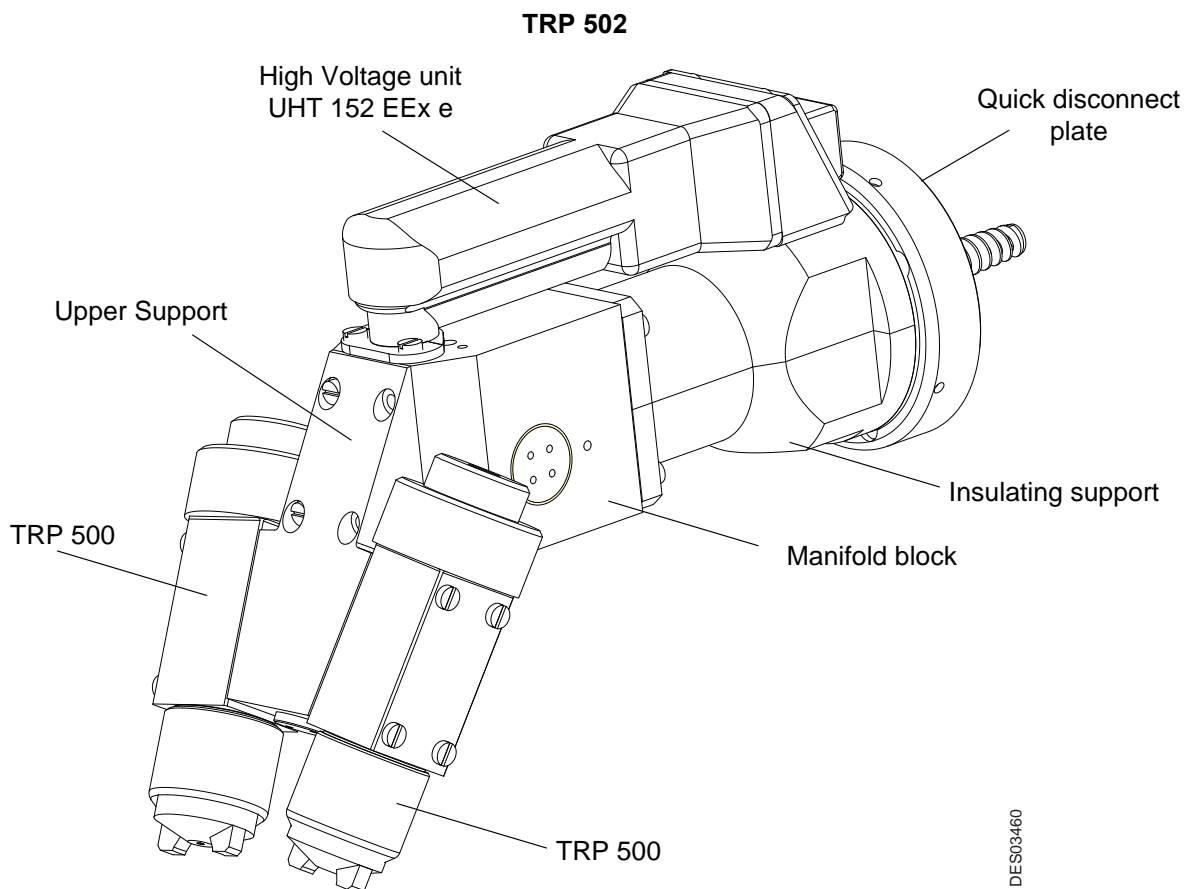
Robotic Air spray guns **TRP 501 or 502** are designed for pneumatic electrostatic and automatic spraying of single-component or multi-component solvent or water-base liquid paints. They are equipped with one atomizing head **TRP500** for the **TRP 501** or two atomizing heads for the **TRP 502**.

Each atomizing head is fitted with an air cap and a fan spray nozzle that accurately adjusts the spraying angle by means of adjusting rings.

Dimensions of the fan spray can be adjusted according to fan-air and atomizing air values.

The two atomizing heads of the **TRP 502**, whose fan sprays converge on the object to be painted forming a single spray, are supplied in parallel and controlled simultaneously. The maximum paint atomizing rate of the assembly is twice that of the **TRP 501**, and it has a greater air consumption.

Main components:



2.2. Function of the different parts

2.2.1. TRP 500, fan spray

[see RT Nr 7005](#)

2.2.2. Upper support

It allows the fixing, the orientation (60 or 90°) and the connexion of each atomizing head (one or two according to the type TRP 501 or 502).

2.2.3. Manifold block

In the case of a TRP 502, it is common to the two atomizing heads.

- The manifolds have ducts for spraying air, trigger air, paint and the high voltage. They have a paint inlet, a paint dump outlet, four air inlets fitted with plastic unions and a high voltage connector. The air inlets are as follows:
 - pilot trigger, **(PT)**,
 - pilot dump, **(PD)**,
 - atomizing air (for the fan spray) or directional air (for the round spray) **(AA)**,
 - fan air (for the fan spray) or vortex air (for the round spray) **(FA)**.
- A paint circuit dump system is built into the manifold. It comprises a needle, a seat, a spring, a diaphragm support, a diaphragm and a cover.

The paint arrives under pressure on the spring side of the dump valve. The diaphragm is placed on the paint dump side. The chamber between the diaphragm and the cover is connected to the pilot dump air. The valve remains closed until the air in its control circuit is pressurized. When the air is pressurized, the valve opens and the paint flows into the dump hose.

The TRP 502 manifold blocks can be equipped with a single dump **(SP)** of the paint circuit (one paint supply) or a dual dump **(DP)** (two paint supplies). In version TRP 502, the air and product supplies are common to the both atomizing heads.

2.2.4. Insulating support

It places the low voltage connection of the high voltage unit UHT 152 EEx e and allows the transit of air and product supplies via the atomizing head(s).

2.2.5. Quick disconnect plate

Equipped with fittings, it allows the passage of the different air and product supplies coming from the robot arm.

2.2.6. High voltage unit UHT 152 EEx e

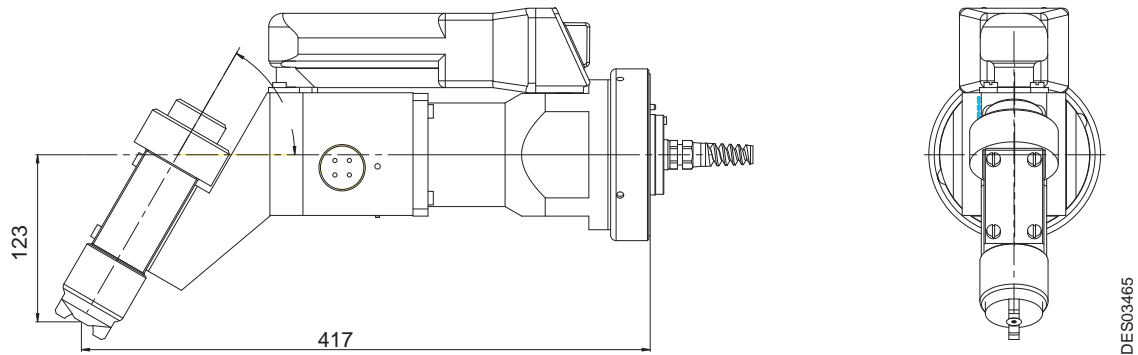
[see RT Nr 6254](#)

Receives a low voltage supply, that it converts into high voltage for charging the atomized paint particles; these are attracted to the surface to be painted, which has a ground connection.

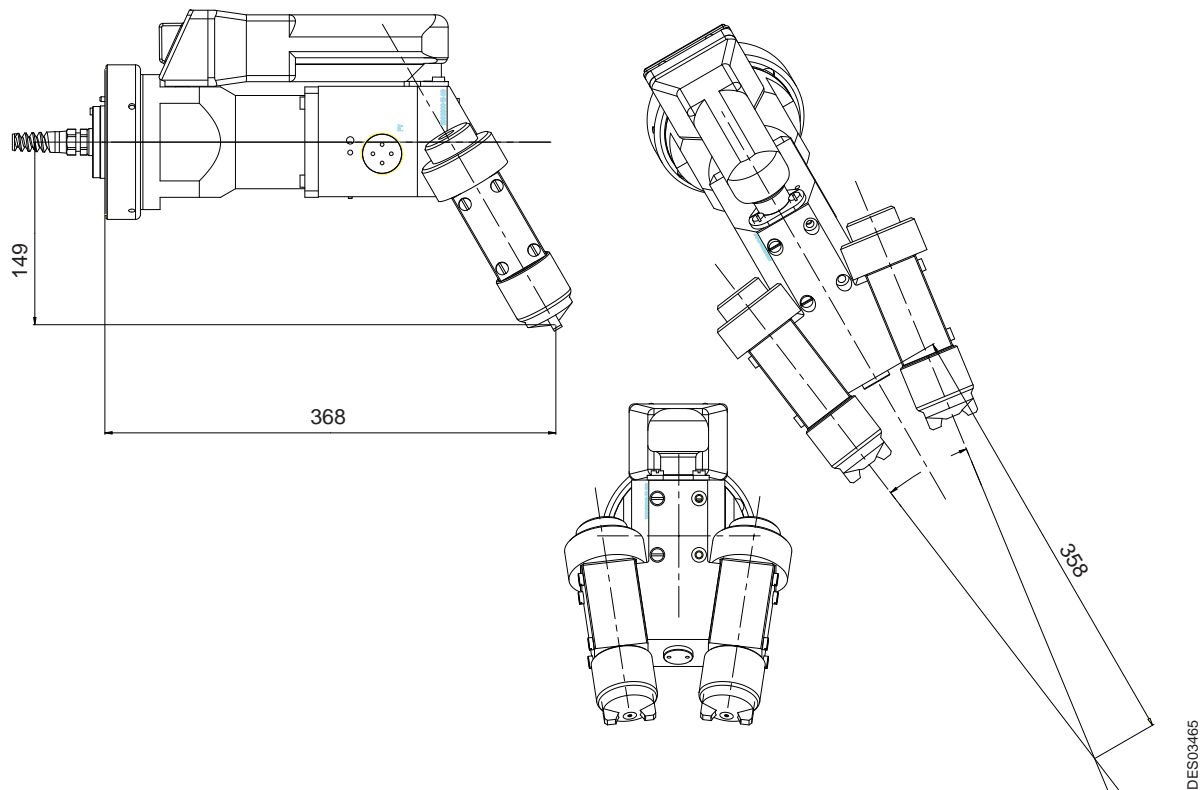
3. Technical Characteristics

3.1. Dimensions

3.1.1. Robotic TRP 501



3.1.2. Robotic TRP 502



3.2. Working characteristics

[see RT Nr 7005](#)

3.3. Operating principle

[see RT Nr 7005](#)

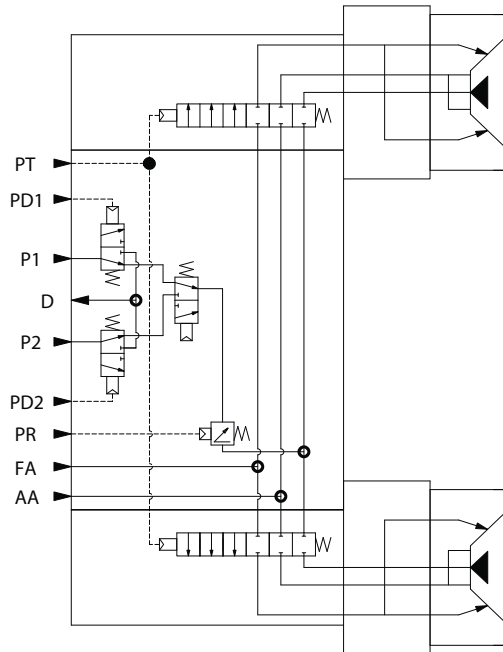
4. Fluid Diagrams

The trigger pilot air is used to start or stop spraying.

The atomizing air provides a fine spray and project the mist well clear of the air cap, avoiding soiling.

The fan air determines the impact spray diameter (wide or narrow).

4.1. TRP 501 or 502 Dual circuit with regulator

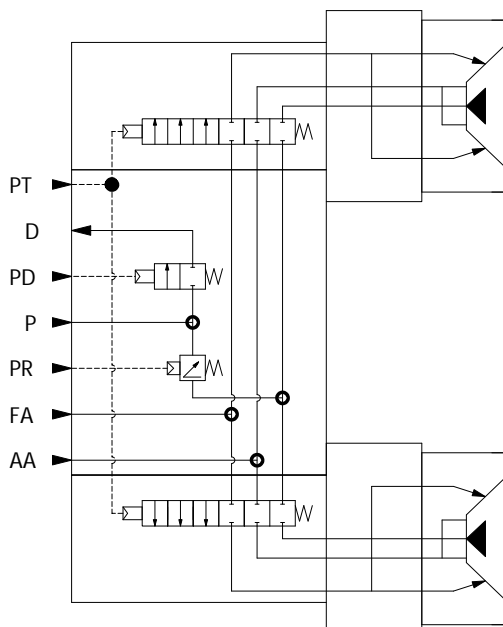


This diagram corresponds to the TRP (Ref.: 1522920).

PT	Pilot trigger - D: 4/6 or 2,7 /4
PD1	Dump 1 pilot - D: 4/6 or 2,7 /4
P1	Paint 1 supply - D: 4/6
D	Dump - D: 6/8
P2	Paint 2 supply - D: 4/6
PD2	Dump 2 pilot - D: 4/6 or 2,7 /4
PR	Pilot regulator - D: 4/6 or 2,7 /4
FA	Fan air - D: 7/10
AA	Atomizing air - D: 7/10

Note: Hose dimensions are in mm

4.2. TRP 501 or 502 Single circuit with regulator

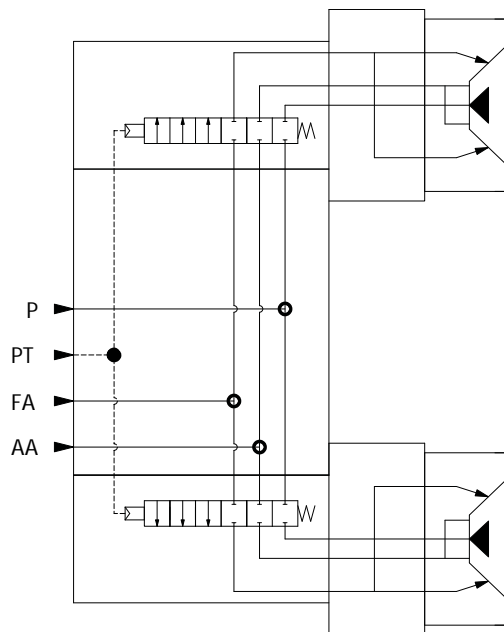


This diagram corresponds to the TRP (Ref.: 1518921, 910002317, 1521595, 910002319).

PT	Pilot trigger - D: 4/6 or 2,7 /4
D	Dump - D: 6/8
PD	Dump pilot - D: 4/6 or 2,7 /4
P	Paint supply - D: 4/6
PR	Pilot regulator - D: 4/6 or 2,7 /4
FA	Fan air - D: 7/10
AA	Atomizing air - D: 7/10

Note: Hose dimensions are in mm.

4.3. TRP 501 or 502 Single circuit, without dump valve without regulator

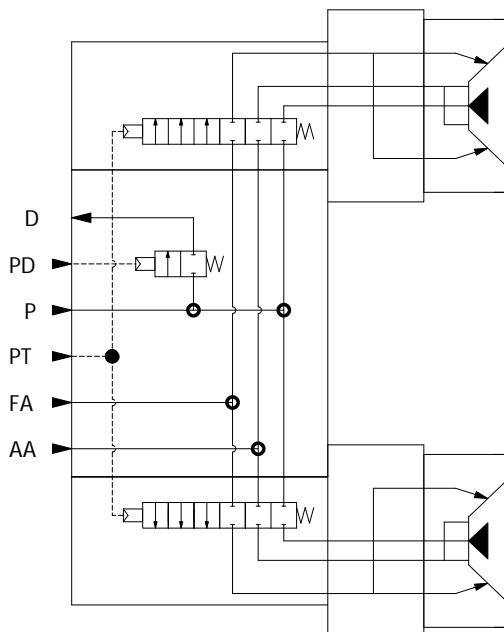


This diagram corresponds to the TRP (Ref.: 1518920).

P	Paint supply - D: 4/6
PT	Pilot trigger - D: 4/6 ou 2,7 /4
FA	Fan air - D: 7/10
AA	Atomizing air - D: 7/10

Note: Hose dimensions are in mm.

4.4. TRP 501 or 502 Single circuit, with dump valve without regulator



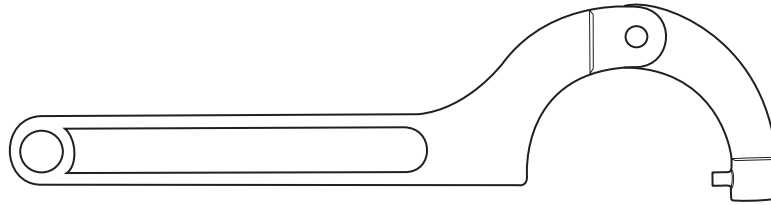
This diagram corresponds to the TRP (Ref.: 910002320, 910002318, 1524316, 1516754).

D	Dump - D: 6/8
PD	Dump pilot - D: 4/6 or 2,7 /4
P	Paint supply - D: 4/6
PT	Pilot trigger - D: 4/6 or 2,7 /4
FA	Fan air - D: 7/10
AA	Atomizing air - D: 7/10

Note: Hose dimensions are in mm.

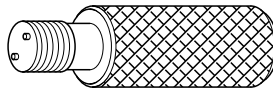
5. Tools

For the TRP 500: [see RT Nr 7005](#).



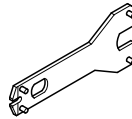
DES02179

Part number	Description	Qty	Sale unit
W6CERG036	Tool, nut tightening	1	1



DES00591

Part number	Description	Qty	Sale unit
1303689	Tool, microvalve removal	1	1



DES00659

Part number	Description	Qty	Sale unit
741015	Tool, regulator nut removal	1	1

6. Installation

6.1. Precautions to be followed before installation of the air spray gun



WARNING :

- The robot wrist and the atomizer must be in position 0°.
- The hoses must remain without constraint, as well in torsion as in length. Without respect of this instruction (0° with \pm one turn), the risk of pulling up or rupture of hoses as well as the deterioration of the fittings becomes important.



WARNING : In the event of hose replacement, envisage a sufficiently long length in order to respect the instruction above.

6.2. Installation of the Air spray gun

- Connect the air and product supply hoses on the quick disconnect plate.
- Fix the quick disconnect on the robot flange and tighten the six screws, install correctly the assy, align the alignment pin on the robot arm.
- Maintain with one hand the atomizer, with the other hand tighten the locking nut then finish tightening with the tool (Ref.: W6CERG036).

6.3. Shutdown and Startup Procedures

[see RT Nr 7005](#)

6.4. Air spray gun replacement procedure

- 1 Run a rinse cycle
- 2 Set the robot to maintenance position.
- 3 Switch off the different air and paint supplies. If necessary, decrease the circuit pressure using the trigger pilot valve, but first switch off all supplies and power supplies (automatic or manual cycles).
- 4 Check that the main air indicator lamp is off.
- 5 Make sure that the atomizing air pressure switch is in the off position.
- 6 With one hand hold the atomizer, and with the other hand, loosen the nut securing the insulating support to the quick disconnect plate.
- 7 Remove the air spray gun.
- 8 Put in place the new air spray gun.



WARNING : Check that the correct restrictor are used. This is necessary because the restrictor must be exactly the same as on the previous installation if the paint application is correct.

- 9 Maintain with one hand the atomizer, with the other tighten the locking nut then finish tightening with the tool (Ref.: W6CERG036).
- 10 Switch on the air supplies.
- 11 Run a functional test (cycles, application simulation)..

7. Assembly / Disassembly

7.1. TRP atomizing head

- Unscrew the four screws securing each atomizing head on the supports 60 or 90°.
- Pull the TRP along the direction of the axis in order to separate it from the support.
- For instructions on removing and reassembling the TRP atomizing heads, the nozzle or the air cap ([see RT Nr 7005](#)).

- For reassembly, proceed in reverse order.



WARNING : At the time of reassembly of the TRP on the upper support, coat the high voltage well with a light film of dielectric grease.

7.2. Upper block

- Remove the TRP head(s).
- Unscrew the four screws in order to separate the upper block from the manifold block.

- For reassembly, proceed in reverse order.



WARNING : At the time of reassembly of the TRP on the upper support, coat the high voltage well with a light film of dielectric grease.

7.3. Manifold block and insulating support

- Remove the TRP head(s).
- Unscrew the four screws in order to separate the upper block from the manifold block.
- Unscrew the upper screws, disconnect the wires located on the back of the HVU. Remove the high voltage.
- Unscrew the four screws M6 x 20 securing the insulating support to the manifold block.
- Disconnect all the hoses.
- Check the conditions of the different components (o-rings, fittings, microvalve and regulator) located on the manifold block and on the insulating support. Replace them if necessary.

- For reassembly, proceed in reverse order



WARNING : At the time of reassembly of the HVU, coat with a light film of dielectric grease, the main insulator located on the manifold block, and also the high voltage well of the high voltage unit.

7.3.1. Regulator

- Using the tool (P/N #741015) unscrew the valve nut (12).
- With a small screwdriver, carefully remove the diaphragm (11) then the diaphragm pusher (10).
- With the same tool (P/N #741015) unscrew the seat (9). Remove the needle (7) and the spring (6).

7.3.2. Microvalve

For the disassembly / reassembly of the microvalve, [see RT Nr 6021](#)

7.3.3. 3 way valve, dual circuit manifold block

- Using the tool (P/N #741015), unscrew the nuts ([see § 10.3.2 page 29](#) item 8 and 21).
- With a small screwdriver, carefully remove the diaphragm then the diaphragm pusher.
- Unscrew the valve guide, remove the needles.
- Check the conditions of the different components, clean them using solvent then dry carefully with compressed air, replace them if necessary.
- For the reassembly, proceed in reverse order ([see § 10.3.2 page 29](#)), attention to the correct position of the diaphragm.

8. Troubleshooting guide

8.1. Problems concerning the TRP 500

[see RT Nr 7005](#)

8.2. Problems concerning the Manifold block

Symptoms	Possible Causes	Remedies
Paint leaks from the regulator trigger air hose.	The regulator nut is not tightened sufficiently and/or the diaphragm is damaged.	Tighten the nut and/or replace the diaphragm.
Paint leaks from the dump valve trigger air hose.	The nut of the dump valve is not tightened sufficiently and/or the diaphragm is damaged.	See above.
Paint leaks from the dump hose when the dump valve is not triggered	a) The seat holder is not tightened sufficiently.	a) Tighten it.
	b) The seat holder and the needle are soiled.	b) Clean them
	c) The seat holder and/or the needle valve are worn.	c) Replace the nozzle or the needle.

9. Cleaning

According to the frequency of use and in all the cases at the end of each cycle.

- Stop the atomizer and switch off the high voltage supply.

Before any operation, please refer to the safety rules ([see § 1.4 page 6](#)).



WARNING : Always wear safety goggles.

Whenever solvent is handled, rubber gloves must be worn.

Work in a well ventilated area whenever solvent is used.



WARNING : It is imperative to pass a rag soaked with water on the atomizer before cleaning it using a rag and an approved cleaning product. Do not use a manual solvent gun.

Under no circumstances must the atomizer or any of its components be sprayed with solvent or water at high or low pressure.



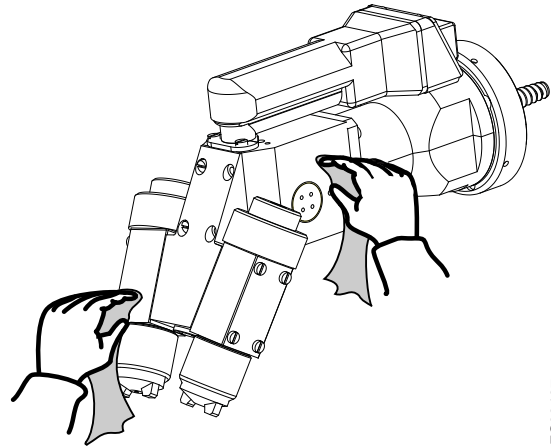
WARNING : SAMES Technologies disadvises the use of protective plastic sheets.

If, despite this warning, plastic sheets are used to protect the atomizer, do not choose "anti-static" sheets as these conduct electricity and will short-circuit the high voltage if they are used to protect insulating parts such as the atomizer body. Sames Technologies advises the use of textile cover or dielectric grease.



WARNING : In all the cases, the protections installed must be insulating to avoid any risk of over-consumption in current. This is why, these protections must be regularly replaced in order to keep an acceptable leakage current by the high voltage generator (of HV defaults will be able to appear if clogging in painting is too important).

- Every eight hours, clean the outside of the air spray gun with a clean cloth dampened with solvent.
- Make sure that the holes of the cap are not blocked.
- Dry carefully with compressed air.



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9.1. Cleaning of the cap

- Remove the cap ([see RT Nr 7005](#)).
- Leave to soak the cap in solvent then clean with a clean close and soft brush.
- Dry carefully with compressed air.



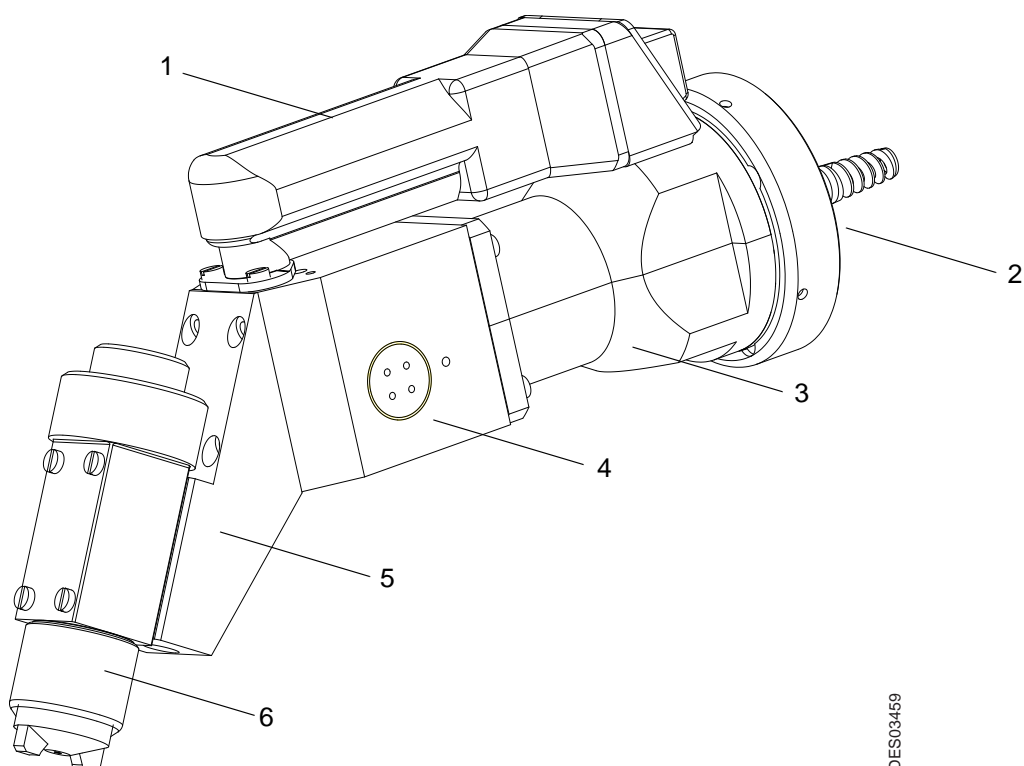
WARNING : The fan air sprays caps must be replaced daily with clean fan air spray caps.

9.2. Cleaning of the TRP

[see RT Nr 7005](#)

10. Spare part list

10.1. TRP 501



Item	Part Number	Description	Qty	Sale unit
	1524316	TRP 501, 60° Single circuit without regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1522951	Quick disconnect plate (see § 10.5.1 page 42)	1	1
3	1522952	Insulating support (see § 10.4.3 page 38)	1	1
4	1510745	Manifold block (see § 10.3.3 page 31)	1	1
5	750661	Upper support of TRP (see § 10.6.1.1 page 47)	1	1
6	752949	TRP 500 with diaphragm (see RT Nr 7005)	1	1

Item	Part Number	Description	Qty	Sale unit
	910019845	TRP 501, 60° Single circuit without regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1522951	Quick disconnect plate (see § 10.5.1 page 42)	1	1
3	1522952	Insulating support (see § 10.4.3 page 38)	1	1
4	1510745	Manifold block (see § 10.3.3 page 31)	1	1
5	750661	Upper support of TRP (see § 10.6.1.1 page 47)	1	1
6	910019688	TRP 500 with piston (see RT Nr 7005)	1	1

Item	Part Number	Description	Qty	Sale unit
	1521595	TRP 501, 60° Single circuit with regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1516875	Quick disconnect plate (see § 10.5.3 page 44)	1	1
3	1516874	Insulating support (see § 10.4.4 page 40)	1	1
4	1515476	Manifold block (see § 10.3.4 page 32)	1	1
5	750661	Upper support of TRP (see § 10.6.1.1 page 47)	1	1
6	752949	TRP 500 with diaphragm (see RT Nr 7005)	1	1

Item	Part Number	Description	Qty	Sale unit
	910002320	TRP 501, 90° Single circuit without regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1522951	Quick disconnect plate (see § 10.5.1 page 42)	1	1
3	1522952	Insulating support (see § 10.4.3 page 38)	1	1
4	1510745	Manifold block (see § 10.3.3 page 31)	1	1
5	1508676	Upper Support of TRP (see § 10.6.1.2 page 48)	1	1
6	752949	TRP 500 with diaphragm (see RT Nr 7005)	1	1

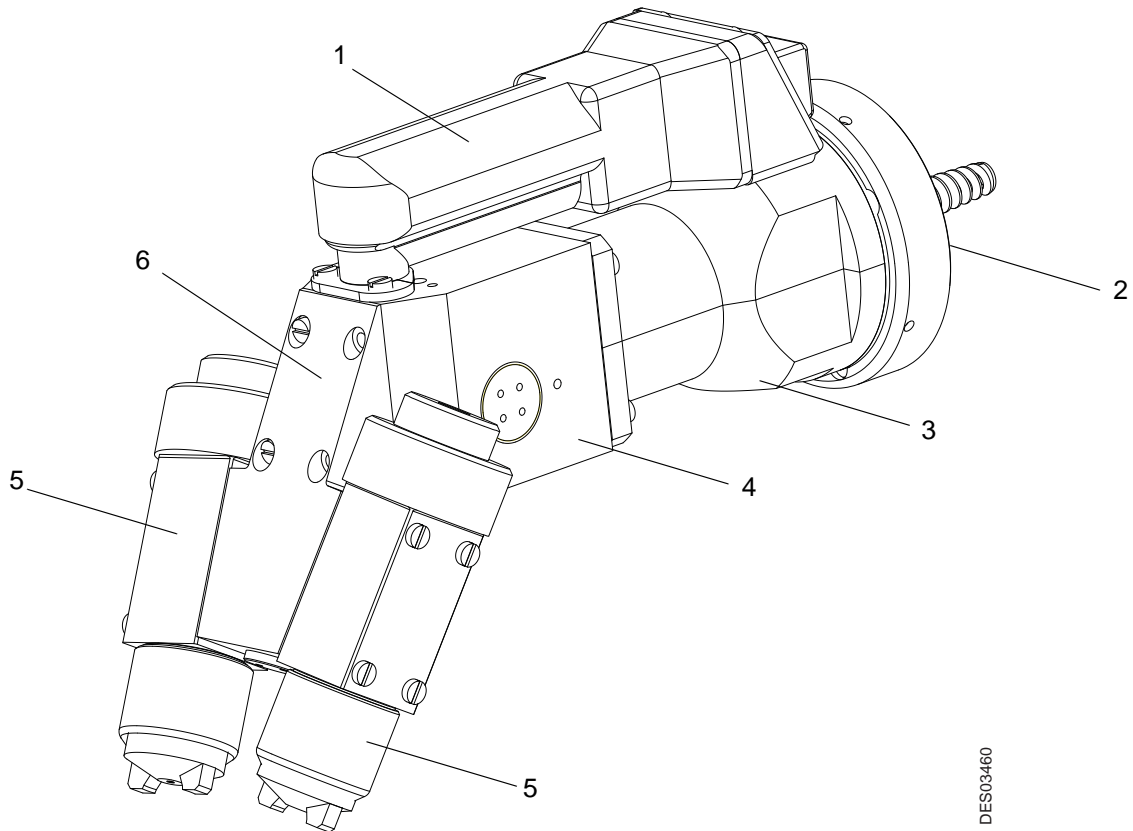
Item	Part Number	Description	Qty	Sale unit
	1518921	TRP 501, 90° Single circuit with regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1516875	Quick disconnect plate (see § 10.5.3 page 44)	1	1
3	1516874	Insulating support (see § 10.4.4 page 40)	1	1
4	1515476	Manifold block (see § 10.3.4 page 32)	1	1
5	1508676	Upper Support of TRP (see § 10.6.1.2 page 48)	1	1
6	752949	TRP 500 with diaphragm (see RT Nr 7005)	1	1

Item	Part Number	Description	Qty	Sale unit
	1522920	TRP 501, 60° Dual circuit with regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1522984	Quick disconnect plate (see § 10.5.5 page 46)	1	1
3	1522983	Insulating support (see § 10.4.2 page 36)	1	1
4	1522982	Manifold block (see § 10.3.2 page 29)	1	1
5	750661	Upper Support of TRP (see § 10.6.1.1 page 47)	1	1
6	752949	TRP 500 with diaphragm (see RT Nr 7005)	1	1

Item	Part Number	Description	Qty	Sale unit
	1518920	TRP 501, 90° Single circuit, without dump valve without regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1516755	Quick disconnect plate (see § 10.5.4 page 45)	1	1
3	1516753	Insulating support (see § 10.4.1 page 34)	1	1
4	1507754	Manifold block (see § 10.3.1 page 28)	1	1
5	1508676	Upper Support of TRP (see § 10.6.1.2 page 48)	1	1
6	752949	TRP 500 with diaphragm (see RT Nr 7005)	1	1

Item	Part Number	Description	Qty	Sale unit
	910012651	TRP 501, 60° Single circuit without regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	910012634	Quick disconnect plate (see § 10.5.2 page 43)	1	1
3	1522952	Insulating support (see § 10.4.3 page 38)	1	1
4	1510745	Manifold block (see § 10.3.3 page 31)	1	1
5	750661	Upper support of TRP (see § 10.6.1.1 page 47)	1	1
6	752949	TRP 500 with diaphragm (see RT Nr 7005)	1	1

10.2. TRP 502



Item	Part Number	Description	Qty	Sale unit
	1516754	TRP 502, 60° Single circuit without regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1522951	Quick disconnect plate (see § 10.5.1 page 42)	1	1
3	1522952	Insulating support (see § 10.4.3 page 38)	1	1
4	1510745	Manifold block (see § 10.3.3 page 31)	1	1
5	752949	TRP 500 with diaphragm (see RT Nr 7005)	2	1
6	459351	Upper support of TRP (see § 10.6.2.1 page 49)	1	1

Item	Part Number	Description	Qty	Sale unit
	910019846	TRP 502, 60° Single circuit without regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1522951	Quick disconnect plate (see § 10.5.1 page 42)	1	1
3	1522952	Insulating support (see § 10.4.3 page 38)	1	1
4	1510745	Manifold block (see § 10.3.3 page 31)	1	1
5	910019688	TRP 500 with piston (see RT Nr 7005)	2	1
6	459351	Upper support of TRP (see § 10.6.2.1 page 49)	1	1

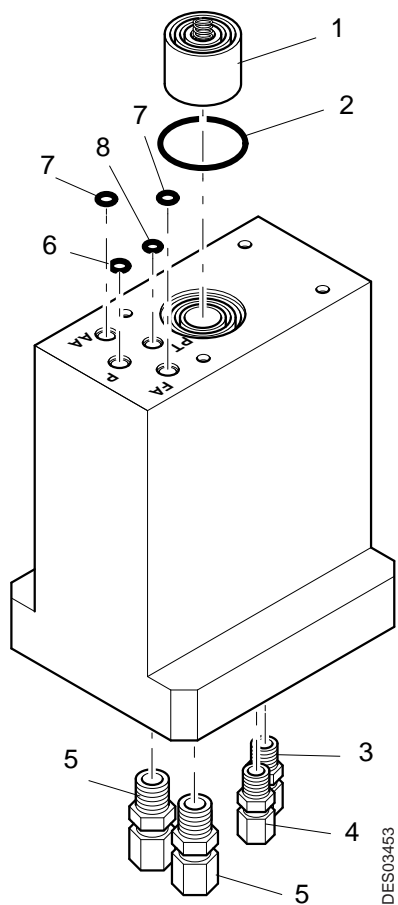
Item	Part Number	Description	Qty	Sale unit
	910002319	TRP 502, 60° Single circuit with regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1516875	Quick disconnect plate (see § 10.5.3 page 44)	1	1
3	1516874	Insulating support (see § 10.4.4 page 40)	1	1
4	1515476	Manifold block (see § 10.3.4 page 32)	1	1
5	752949	TRP 500 with diaphragm (see RT Nr 7005)	2	1
6	459351	Upper support of TRP (see § 10.6.2.1 page 49)	1	1

Item	Part Number	Description	Qty	Sale unit
	910002318	TRP 502, 90° Single circuit without regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1522951	Quick disconnect plate (see § 10.5.1 page 42)	1	1
3	1522952	Insulating support (see § 10.4.3 page 38)	1	1
4	1510745	Manifold block (see § 10.3.3 page 31)	1	1
5	752949	TRP 500 with diaphragm (see RT Nr 7005)	2	1
6	459352	Upper support of TRP (see § 10.6.2.2 page 50)	1	1

Item	Part Number	Description	Qty	Sale unit
	910002317	TRP 502, 90° Single circuit with regulator	1	1
1	1511102	High voltage unit UHT 152EEx e (see RT Nr 6254)	1	1
2	1516875	Quick disconnect plate (see § 10.5.3 page 44)	1	1
3	1516874	Insulating support (see § 10.4.4 page 40)	1	1
4	1515476	Manifold block (see § 10.3.4 page 32)	1	1
5	752949	TRP 500 with diaphragm (see RT Nr 7005)	2	1
6	459352	Upper support of TRP (see § 10.6.2.2 page 50)	1	1

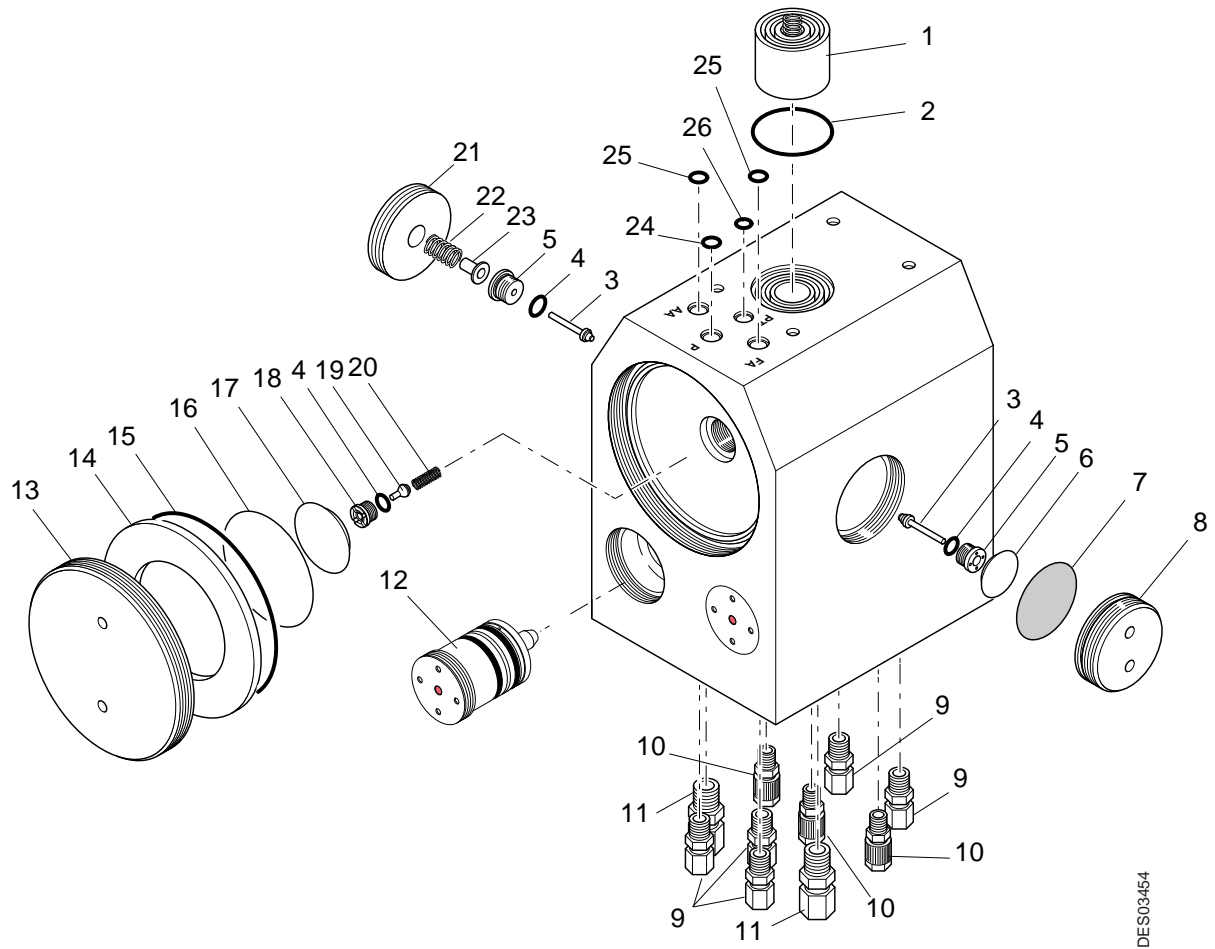
10.3. Manifold blocks

10.3.1. Manifold block, Single circuit without dump valve without regulator



Item	Part number	Description	Qty	Sale Unit	First Emerg-ency	Con-suma-ble
	1507754	Manifold block, SC, SR	1	1	X	
1	448768	Main insulator	1	1	X	
2	J3ETOR046	O-ring - EP 851 (included in item 1)	1	2	X	
3	F6RPUK326	Nylon fitting (on P)	1	1		X
4	745578	Nylon fitting (on PT)	1	1		X
5	F6RPUK334	Nylon fitting (on AA - FA)	2	1		X
6	J3STKL011	O-ring - chemically inert (on P)	1	1		X
7	J2FTCF018	O-ring - viton (on AA and FA)	2	1		X
8	J2FTCF043	O-ring - viton (on PT)	1	1		X

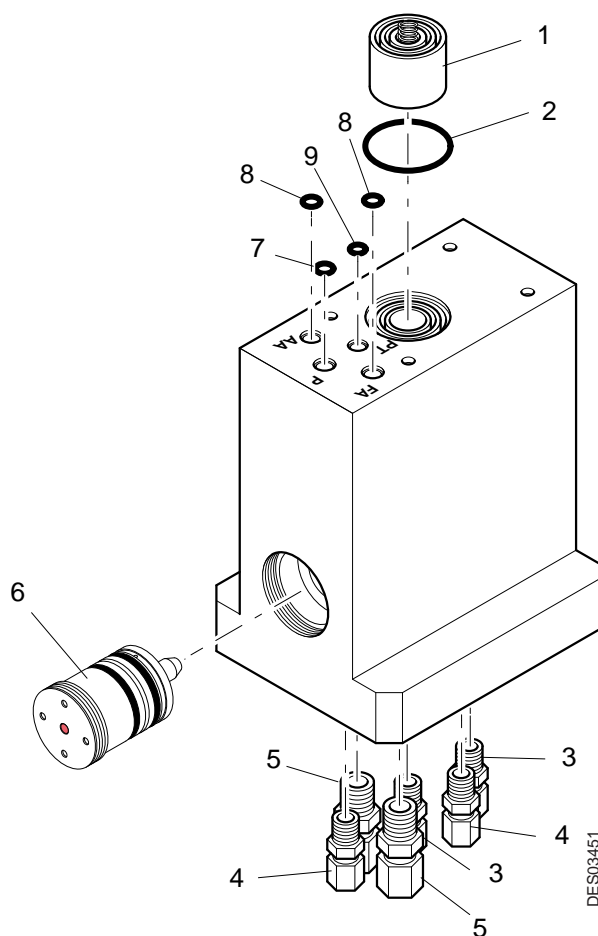
10.3.2. Manifold block, Dual circuit with dump valve with regulator



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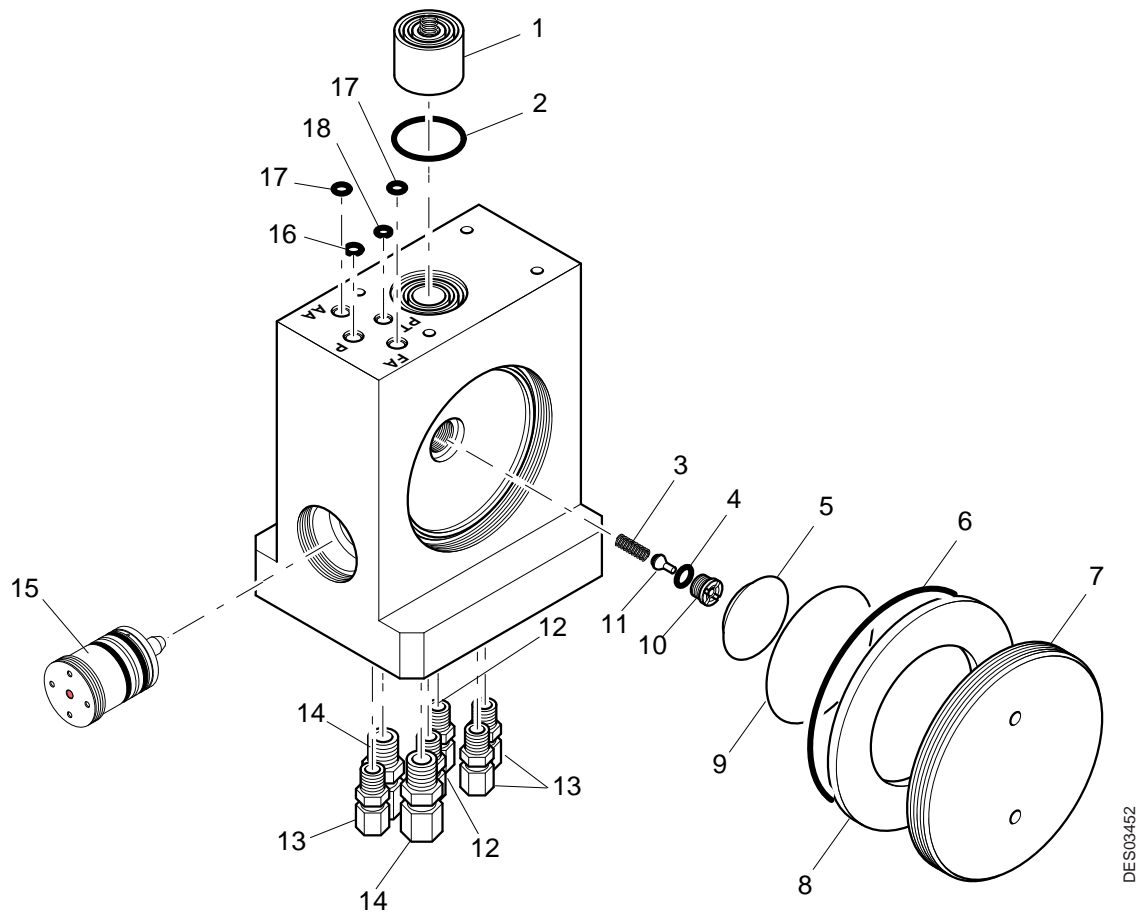
Item	Part number	Description	Qty	Sale Unit	First Emer-gency	Con-suma-ble
	1522982	Manifold block, DC, AR	1	1	X	
1	448768	Main insulator	1	1	X	
2	J3ETOR046	O-ring - EP 851 (included in item 1)	1	2	X	
3	755551	Needle	2	1	X	
4	J3TTCN007	O-ring - PTFE	3	1		X
5	742632	Valve guide	2	1	X	
6	449546	Diaphragm pusher D:18	1	1	X	1
7	449549	Diaphragm	1	1	X	1
8	449548	Dump nut	1	1	-	-
9	745578	Nylon fitting (on PT- PV PD1 - PD2 - PR)	5	1		X
10	F6RPUK326	Nylon fitting (on D - P1 - P2)	3	1		X
11	F6RPUK334	Nylon fitting (on AA - FA)	2	1		X
12	1506729	Microvalve, 2 ways, orange indicator - chemically inert o-ring (see RT Nr 6021)	2	1		X
13	741286	Regulator nut	1	1	-	-
14	741037	Air pilot disk	1	1	X	
15	J3ETOR097	O-ring - EP 851	1	1		X
16	449550	Diaphragm D: 55	1	1	X	
17	449545	Diaphragm pusher D: 32	1	1	X	
18	742761	Seat	1	1	X	
19	740511	Needle	1	1	X	
20	742759	Spring	1	1	X	
21	741962	Nut of 3 way valve	1	1	-	-
22	742631	Spring	1	1	X	
23	741463	Pusher	1	1	X	
24	J3STKL011	O-ring - chemically inert (on P)	1	1		X
25	J2FTCF018	O-ring - viton (on AA and FA)	2	1		X
26	J2FTCF008	O-ring - viton (on PT)	1	1		X

10.3.3. Manifold block, Single circuit without regulator



Item	Part number	Description	Qty	Sale Unit	First Emergency	Consumable
	1510745	Manifold block, SC, SR	1	1	X	
1	448768	Main insulator	1	1	X	
2	J3ETOR046	O-ring - EP 851 (included in item 1)	1	2	X	
3	F6RPUK326	Nylon fitting (on D - P)	2	1		X
4	745578	Nylon fitting (on PD - PR)	2	1		X
5	F6RPUK334	Nylon fitting (on AA - FA)	2	1		X
6	1507375	Microvalve, 2 ways, orange indicator - chemically inert o-ring (see RT Nr 6021)	1	1		X
7	J3STKL011	O-ring - chemically inert (on P)	1	1		X
8	J2FTCF018	O-ring - viton (on AA and FA)	2	1		X
9	J2FTCF043	O-ring - viton (on PT)	1	1		X

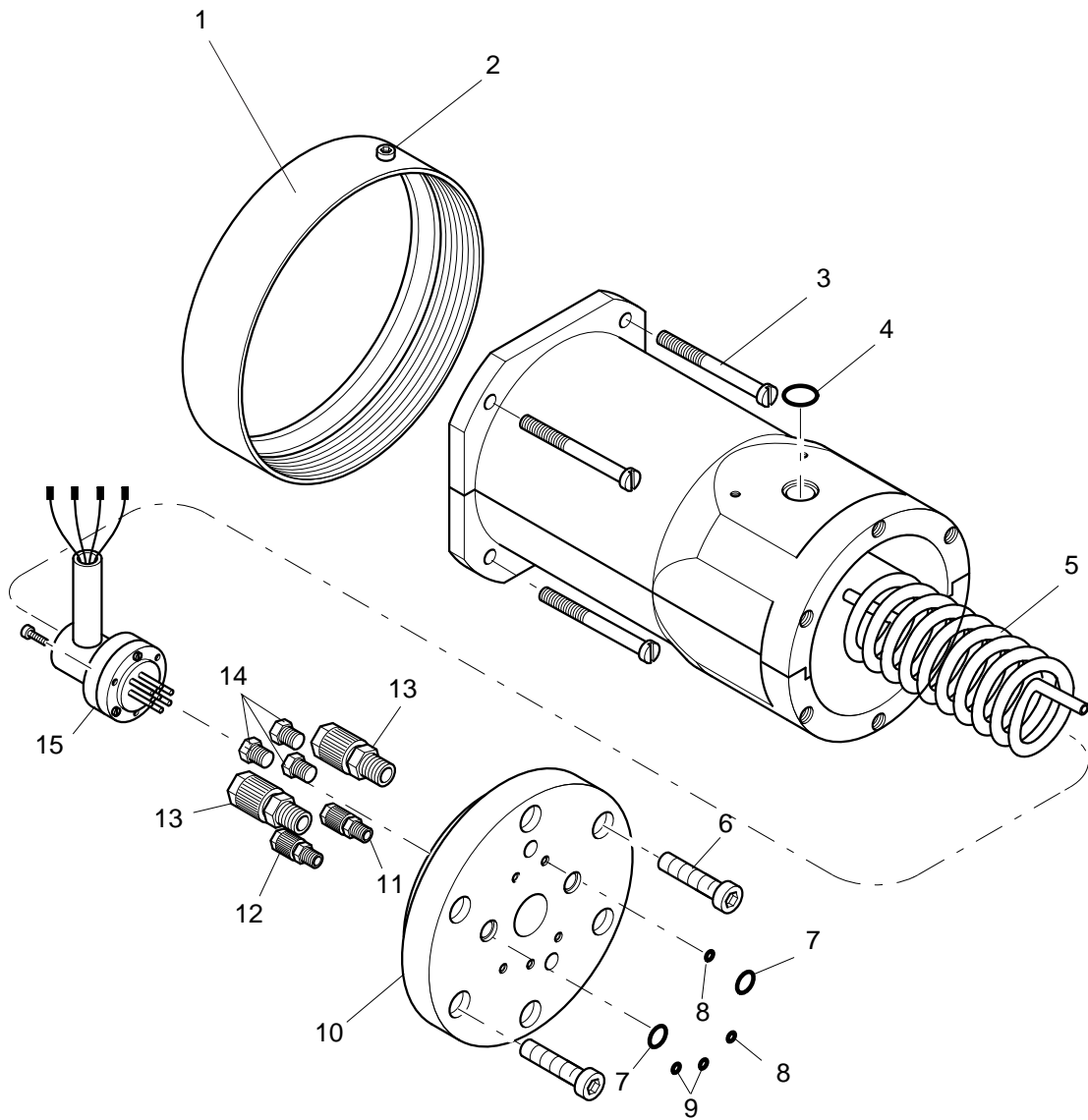
10.3.4. Manifold block, Single circuit with regulator



Item	Part number	Description	Qty	Sale Unit	First Emergency	Consumable
	1515476	Manifold block, SC, SR	1	1	X	
1	448768	Main insulator	1	1	X	
2	J3ETOR046	O-ring - EP 851 (included in item 1)	1	2	X	
3	742759	Spring	1	1	X	
4	J3TTCN007	O-ring - PTFE	2	1		X
5	449545	Diaphragm pusher D: 32	1	1	X	
6	J3ETOR097	O-ring - EP 851	1	1		X
7	741286	Regulator nut	1	1	-	-
8	741037	Air pilot disk	1	1	X	
9	449550	Diaphragm D: 55	1	1	X	
10	742761	Seat	1	1	X	
11	740511	Needle	1	1	X	
12	F6RPUK326	Nylon fitting (on D - P)	2	1		X
13	745578	Nylon fitting (on PD - PT - PR)	3	1		X
14	F6RPUK334	Nylon fitting (on AA - FA)	2	1		X
15	1507375	Microvalve, 2 ways, orange indicator - chemically inert o-ring (see RT Nr 6021)	1	1		X
16	J3STKL011	O-ring - chemically inert (on P)	1	1		X
17	J2FTCF018	O-ring - viton (on AA and FA)	2	1		X
18	J2FTCF043	O-ring - viton (on PT)	1	1		X

10.4. Insulating supports

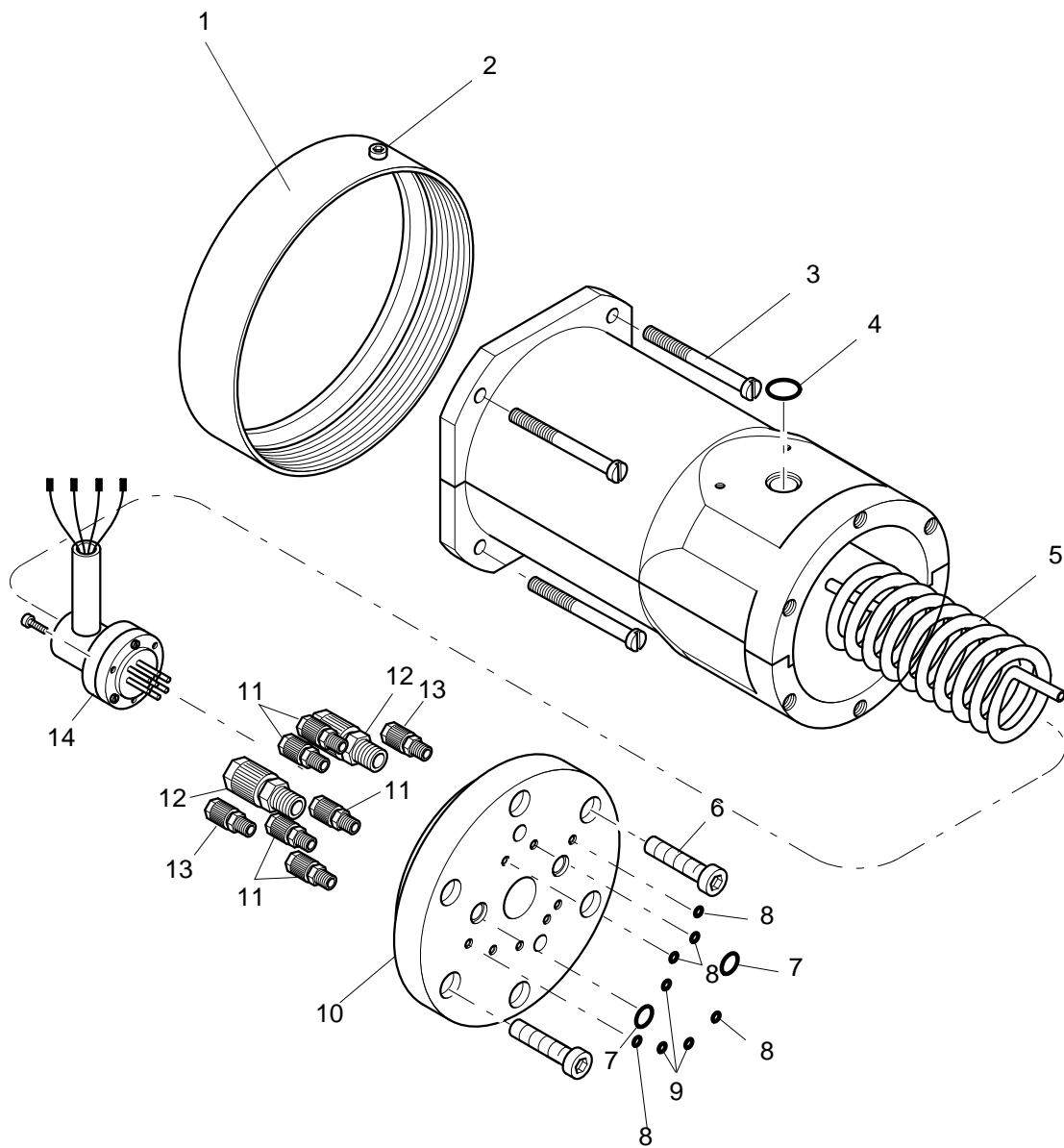
10.4.1. Insulating support, Single circuit without dump valve without regulator



DES03457

Item	Part number	Description	Qty	Sale Unit	First Emer-gency	Con-suma-ble
	1516753	Insulating support, SC, SR without dump valve	1	1	-	-
1	1407512	Securing nut	1	1	-	-
2	X3AVSY116	Screw CHc M4 x 6 zinc plated	1	1	-	-
3	X9SVCB226	Screw C M6 x 20 glass filled nylon	4	1	X	
4	J2CTCN015	O-ring - HP1S	1	1		X
5	436528	Paint tube	2	1		X
6	X4FVSY184	Screw CHc M5 x 16 stainless steel	6	1	-	-
7	J2FTCF018	O-ring - viton	2	1		X
8	J2FTCF043	O-ring - viton	2	1		X
9	J3STKL008	O-ring - chemically inert	2	1		X
10	415282	Lower flange	1	1	-	-
11	F6RPUK326	Nylon fitting (on P)	1	1		X
12	745578	Nylon fitting (on PT)	1	1		X
13	F6RPUK334	Nylon fitting (on AA - FA)	2	1		X
14	F6RPBA002	Nylon plug (on D - PD - PR)	3	1	-	-
15	1519792	Male socket, 7 contacts	1	1	X	
	U1GLBT177	Blue polyurethane hose, outer Dia: 4 mm (used with fitting Item: 12)	0,45 m	m		X
	U1GLBT133	Blue polyurethane hose, outer Dia: 10 mm (used with fitting Item:13)	0,45 m	m		X

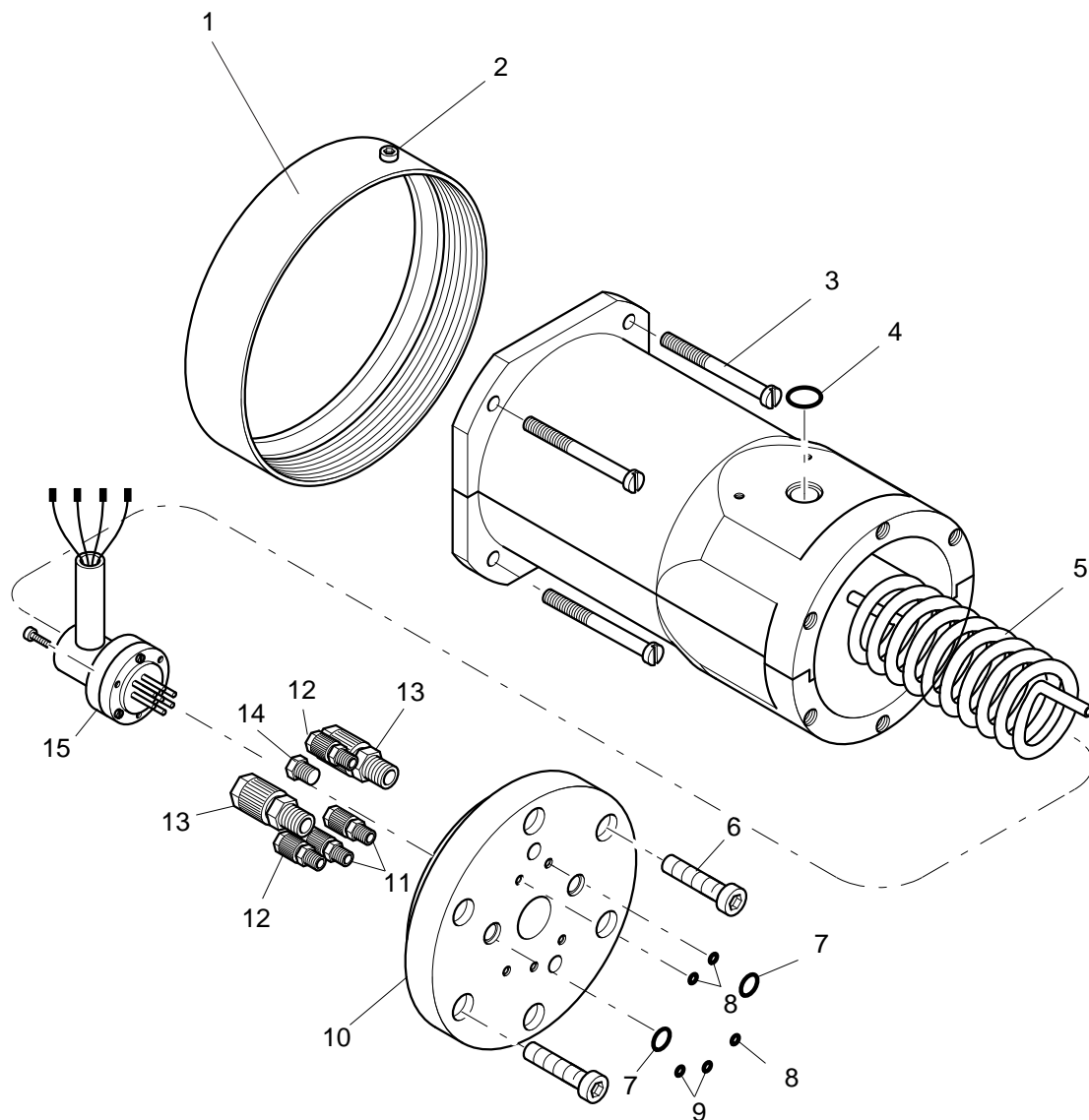
10.4.2. Insulating Support, Dual circuit with regulator



DES03456

Item	Part number	Description	Qty	Sale Unit	First Emer-gency	Con-suma-ble
	1522983	Insulating support, DC, AR	1	1	-	-
1	1407512	Securing nut	1	1	-	-
2	X3AVSY116	Screw CHc M4 x 6 zinc plated	1	1	-	-
3	X9SVCB226	Screw C M6 x 20 glass filled nylon	4	1	X	
4	J2CTCN015	O-ring - HP1S	1	1		X
5	436528	Paint tube	3	1		X
6	X4FVSY184	Screw CHc M5 x 16 stainless steel	6	1	-	-
7	J2FTCF018	O-ring - viton	2	1		X
8	J2FTCF043	O-ring - viton	5	1		X
9	J3STKL008	O-ring - chemically inert	3	1		X
10	415281	Lower flange	1	1	-	-
11	745578	Nylon fitting (on PT - PV - PD1 - PD2 - PR)	5	1		X
12	F6RPUK334	Nylon fitting (on AA - FA)	2	1		X
13	F6RPUQ252	Nylon fitting (on P1 - P2 - D)	3	1		X
14	1519792	Male socket, 7 contacts	1	1	X	
	U1GLBT177	Blue polyurethane hose, outer Dia: 4 mm (used with fitting Item: 11)	0,45 m	m		X
	U1GLBT133	Blue polyurethane hose, outer Dia: 10 mm (used with fitting Item:12)	0,45 m	m		X

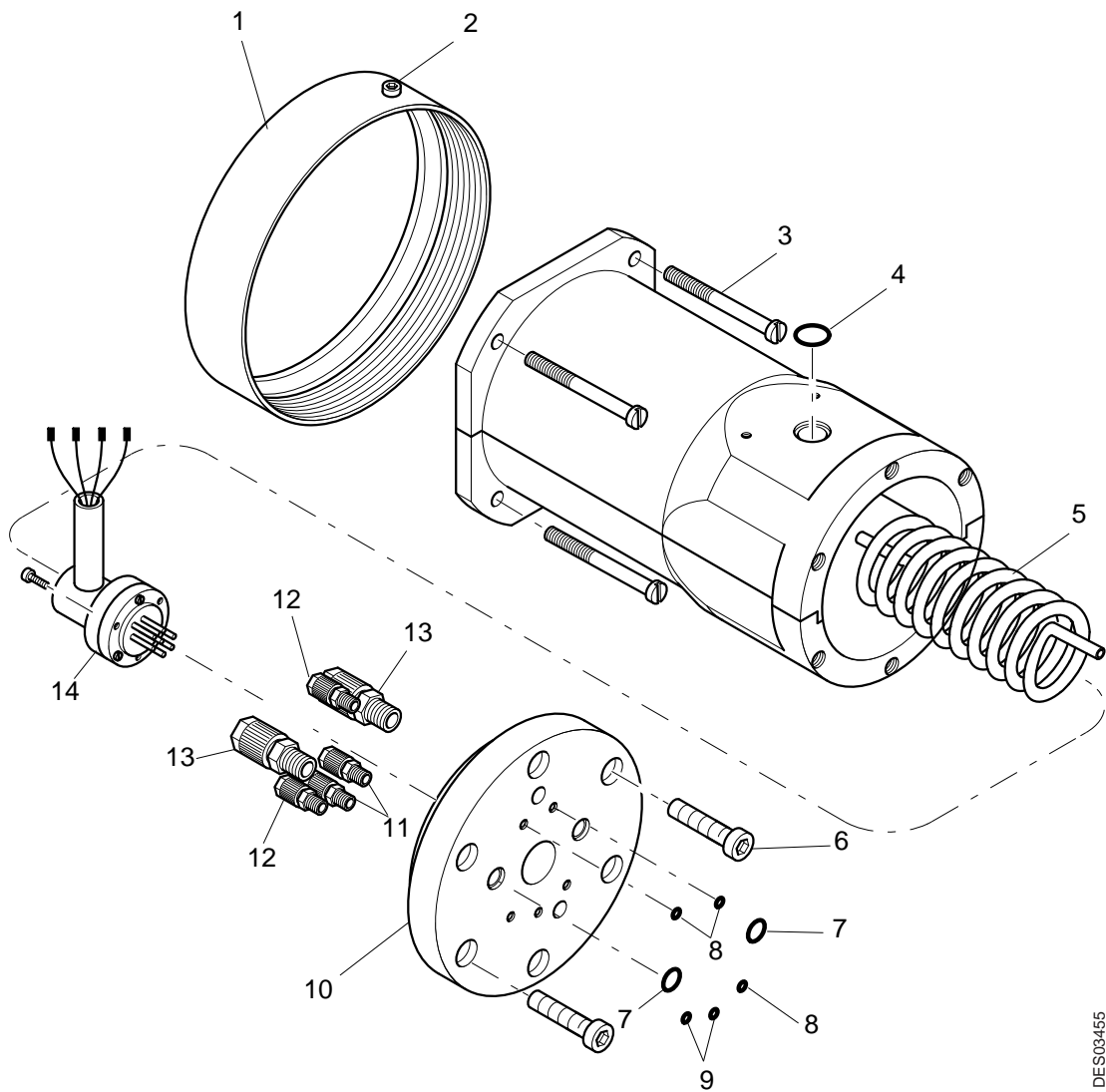
10.4.3. Insulating support, Single circuit with dump without regulator



DES03456

Item	Part number	Description	Qty	Sale Unit	First Emer-gency	Con-suma-ble
	1522952	Insulating support, SC, SR	1	1	-	-
1	1407512	Securing nut	1	1	-	-
2	X3AVSY116	Screw CHc M4 x 6 zinc plated	1	1	-	-
3	X9SVCB226	Screw C M6 x 20 glass filled nylon	4	1	X	
4	J2CTCN015	O-ring - HP1S	1	1		X
5	436528	Paint tube	2	1		X
6	X4FVSY184	Screw CHc M5 x 16 stainless steel	6	1	-	-
7	J2FTCF018	O-ring - viton	2	1		X
8	J2FTCF043	O-ring - viton	3	1		X
9	J3STKL008	O-ring - chemically inert	2	1		X
10	415282	Lower flange	1	1	-	-
11	F6RPUK326	Nylon fitting (on D - P)	2	1		X
12	745578	Nylon fitting (on PT - PD)	2	1		X
13	F6RPUK334	Nylon fitting (on AA - FA)	2	1		X
14	F6RPBA002	Nylon plug (on PR)	1	1	-	-
15	1519792	Male socket, 7 contacts	1	1	X	
	U1GLBT177	Blue polyurethane hose, outer Dia: 4 mm (used with fitting Item: 12)	0,45 m	m		X
	U1GLBT133	Blue polyurethane hose, outer Dia: 10 mm (used with fitting Item:13)	0,45 m	m		X

10.4.4. Insulating support, Single circuit with dump with regulator

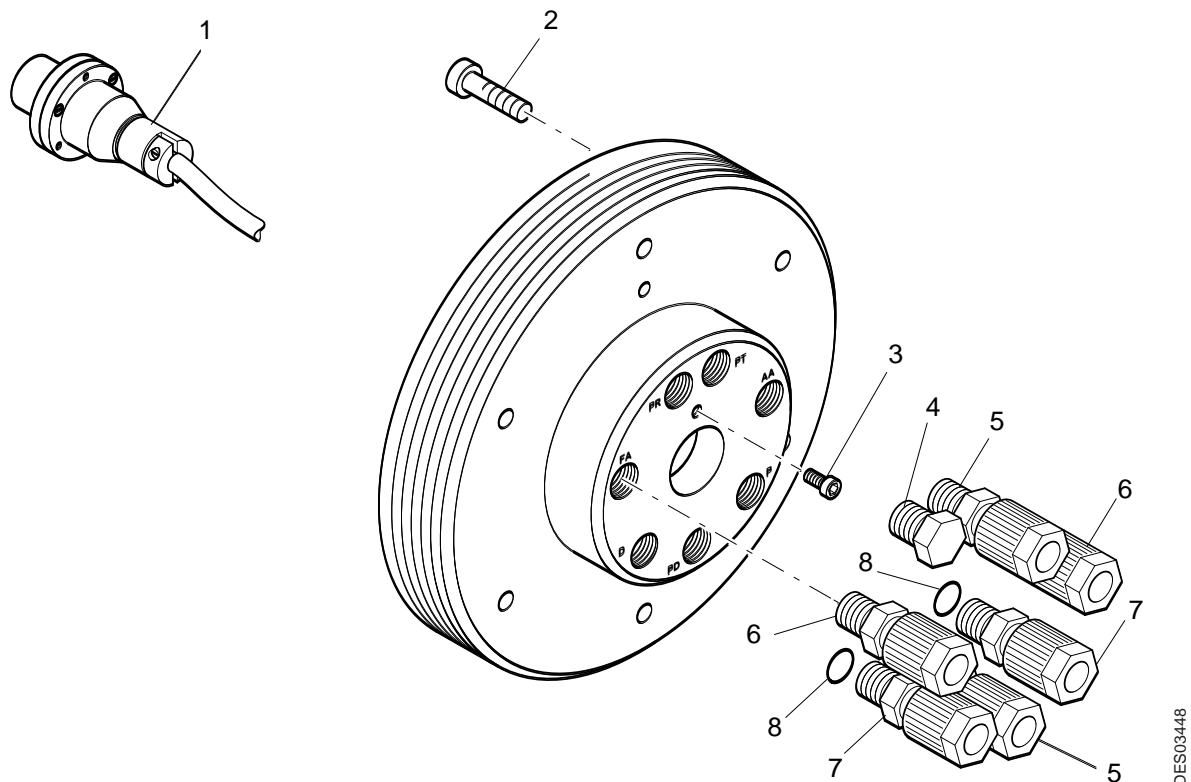


DES03455

Item	Part number	Description	Qty	Sale Unit	First Emer-gency	Con-suma-ble
	1516874	Insulating support, SC, AR	1	1	-	-
1	1407512	Securing nut	1	1	-	-
2	X3AVSY116	Screw CHc M4 x 6 zinc plated	1	1	-	-
3	X9SVCB226	Screw C M6 x 20 glass filled nylon	4	1	X	
4	J2CTCN015	O-ring - HP1S	1	1		X
5	436528	Paint tube	2	1		X
6	X4FVSY184	Screw CHc M5 x 16 stainless steel	6	1	-	-
7	J2FTCF018	O-ring - viton	2	1		X
8	J2FTCF043	O-ring - viton	3	1		X
9	J3STKL008	O-ring - chemically inert	2	1		X
10	415282	Lower flange	1	1	-	-
11	F6RPUK326	Nylon fitting (on D - P)	2	1		X
12	745578	Nylon fitting (on PT - PR)	3	1		X
13	F6RPUK334	Nylon fitting (on AA - FA)	2	1		X
14	1519792	Male socket, 7 contacts	1	1	X	
	U1GLBT177	Blue polyurethane hose, outer Dia: 4 mm (used with fitting Item: 12)	0,45 m	m		X
	U1GLBT133	Blue polyurethane hose, outer Dia: 10 mm (used with fitting Item:13)	0,45 m	1m		X

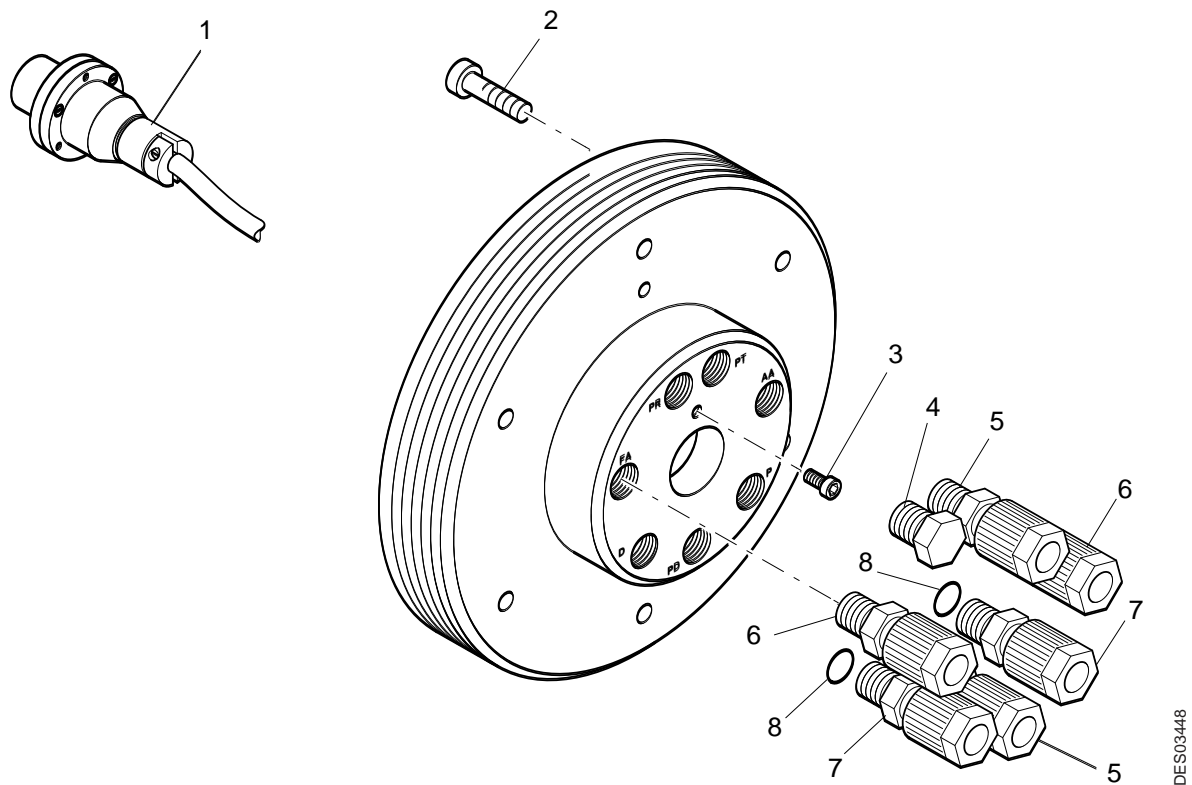
10.5. Quick disconnect plates

10.5.1. Quick disconnect plate - Single circuit with dump valve with regulator



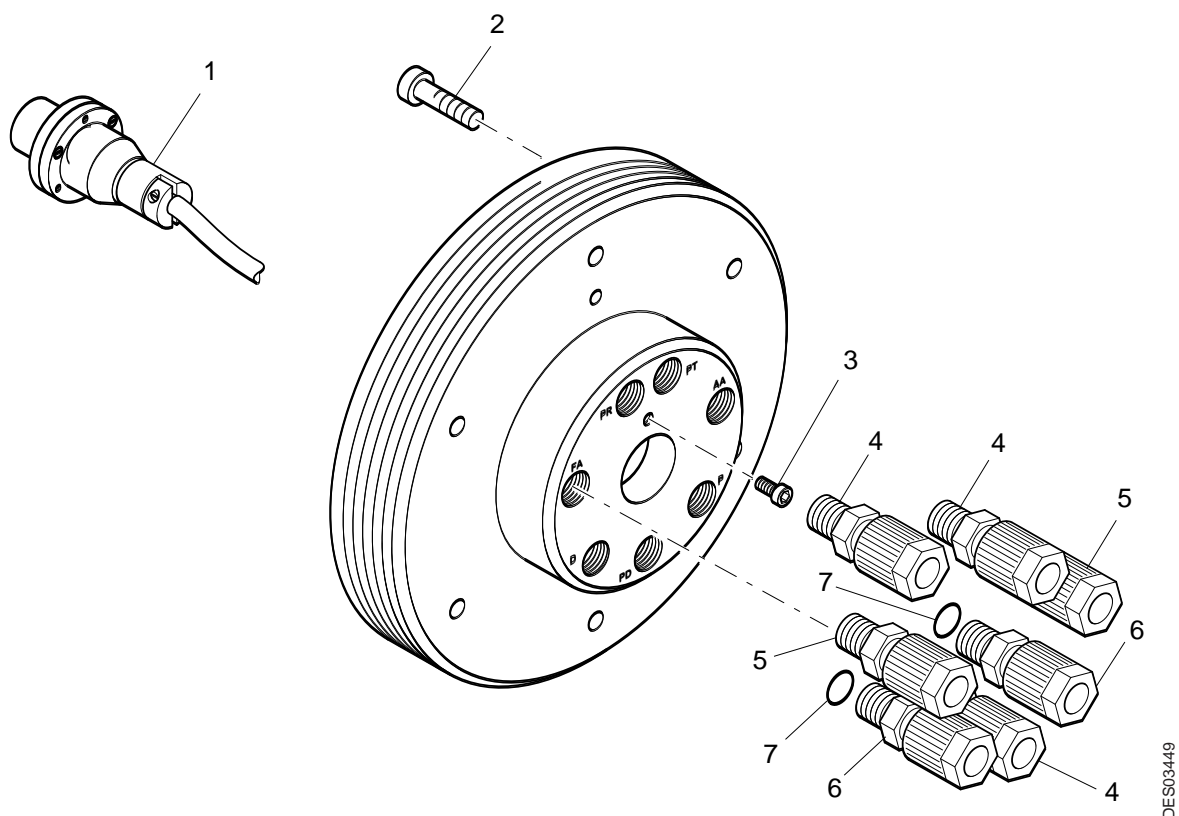
Item	Part number	Description	Qty	Sale Unit	First Emergency	Consumable
	1522951	Quick disconnect plate, SC, SR	1	1	X	
1	1515604	Female socket, 7 contacts	1	1	X	
2	X4FVSY184	Screw CHc M 5 x 16 stainless steel	6	1	-	-
3	X4FVSY117	Screw CHc M 4 x 8 stainless steel	1	1	-	-
4	F6RPBA002	Nylon plug	1	1	-	-
5	F6RPUQ062	Male union	2	1		X
6	F6RPUK330	Nylon fitting	2	1		X
7	F6RPUK328	Nylon fitting	2	1		X
8	J3TTCN009	O-ring - PTFE	2	5		X

10.5.2. Quick disconnect plate - Single circuit with dump valve with regulator



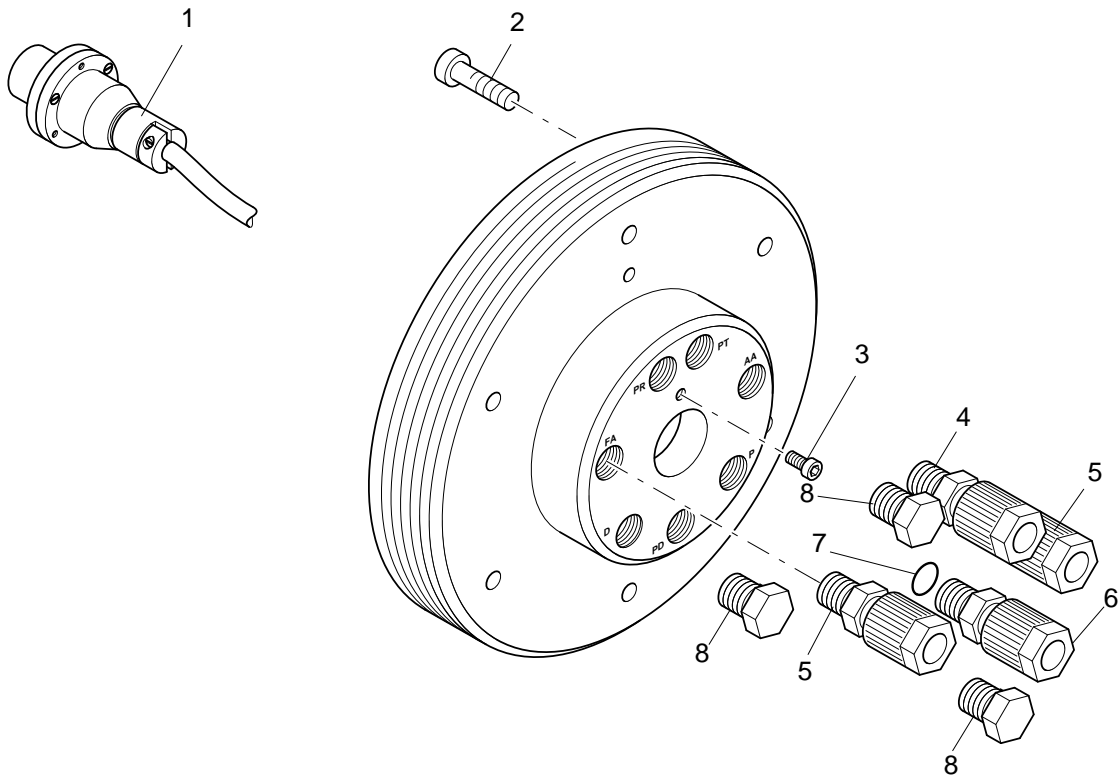
Item	Part number	Description	Qty	Sale Unit	First Emerg-ency	Con-suma-ble
	910012634	Quick disconnect plate, SC, SR	1	1	X	
1	1515604	Female socket, 7 contacts	1	1	X	
2	X4FVSY184	Screw CHc M 5 x 16 stainless steel	6	1	-	-
3	X4FVSY117	Screw CHc M 4 x 8 stainless steel	1	1	-	-
4	F6RPBA002	Nylon plug	1	1	-	-
5	F6RLUF275	Male union	2	1		X
6	F6RLUF171	Metal fitting	2	1		X
7	130001112	Metal fitting	2	1		X
8	J3TTCN009	O-ring - PTFE	2	5		X

10.5.3. Quick disconnect plate - Single circuit with dump valve with regulator



Item	Part number	Description	Qty	Sale Unit	First Emergency	Consumable
	1516875	Quick disconnect plate, SC, AR	1	1	X	
1	1515604	Female socket, 7 contacts	1	1	X	
2	X4FVSY184	Screw CHc M 5 x 16 inox	6	1	-	-
3	X4FVSY117	Screw CHc M 4 x 8 inox	1	1	-	-
4	F6RPUQ062	Male Union	3	1		X
5	F6RPUK330	Nylon fitting	2	1		X
6	F6RPUK328	Nylon fitting	2	1		X
7	J3TTCN009	O-ring - PTFE	2	5		X

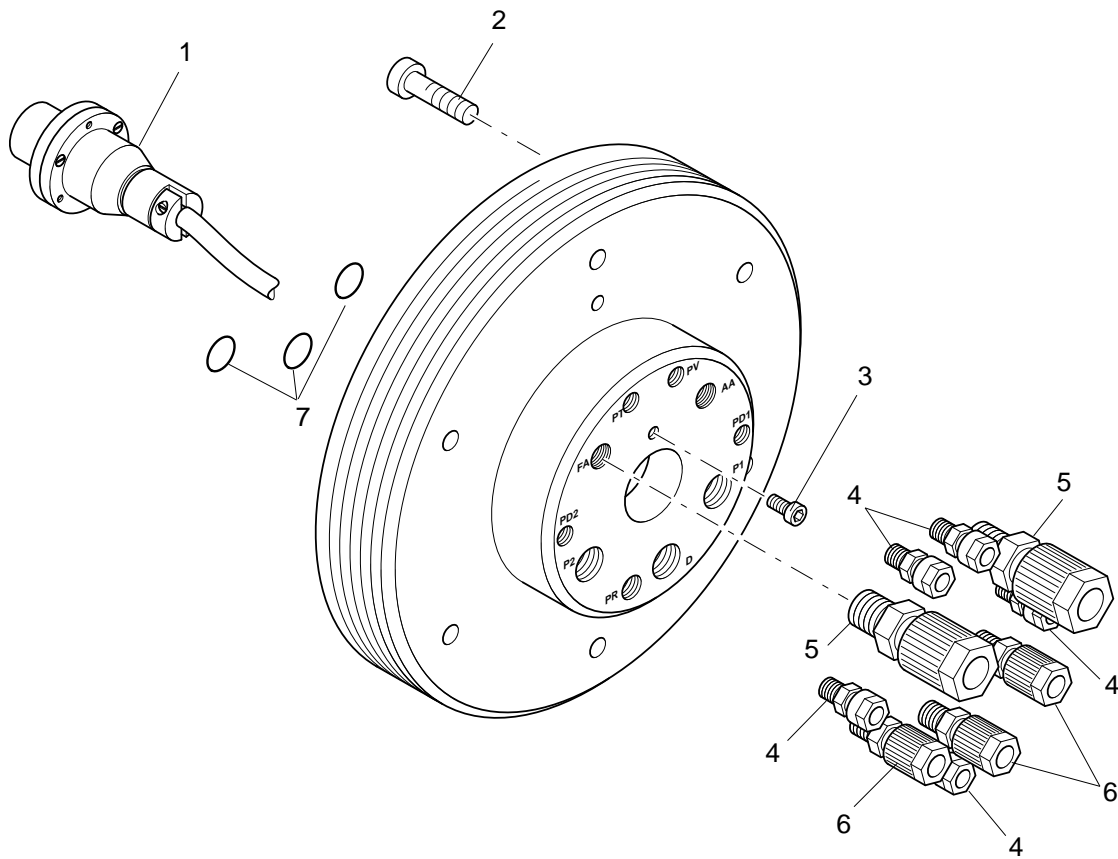
10.5.4. Quick disconnect plate - Single circuit with dump valve without regulator



DES03447

Item	Part number	Description	Qty	Sale Unit	First Emergy	Consumable
	1516755	Quick disconnect plate, SC, SV,SR	1	1	X	
1	1515604	Female socket, 7 contacts	1	1	X	
2	X4FVSY184	Screw CHc M 5 x 16 stainless steel	6	1	-	-
3	X4FVSY117	Screw CHc M 4 x 8 stainless steel	1	1	-	-
4	F6RPUQ062	Male union	1	1		X
5	F6RPUK330	Nylon fitting	2	1		X
6	F6RPUK328	Nylon fitting	1	1		X
7	J3TTCN009	O-ring - PTFE	1	5		X
8	F6RPBA002	Nylon plug	3	1	-	-

10.5.5. Quick disconnect plate - Dual circuit with dump valve with regulator



DES03450

Item	Part number	Description	Qty	Sale Unit	First Emergency	Consumable
	1522984	Quick disconnect plate, DC, AR	1	1	X	
1	1515604	Female socket, 7 contacts	1	1	X	
2	X4FVSY184	Screw CHc M 5 x 16 stainless steel	6	1	-	-
3	X4FVSY117	Screw CHc M 4 x 8 stainless steel	1	1	-	-
4	F6RAUR083	Fitting	5	1		X
5	F6RPUK330	Nylon fitting	2	1		X
6	F6RPUK328	Nylon fitting	3	1		X
7	J3TTCN009	O-ring - PTFE	3	5		X

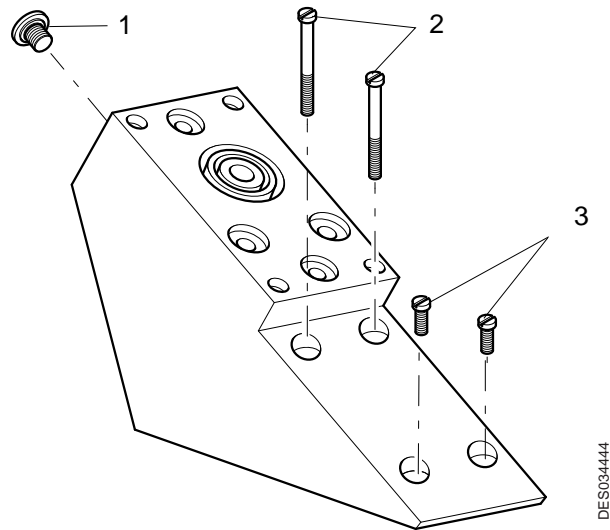
Location of the fittings:

Item	Marking
4	on PR, PT, PV, PD1, PD2
5	on FA, AA
6	on P1, P2, D

10.6. Supports of TRP

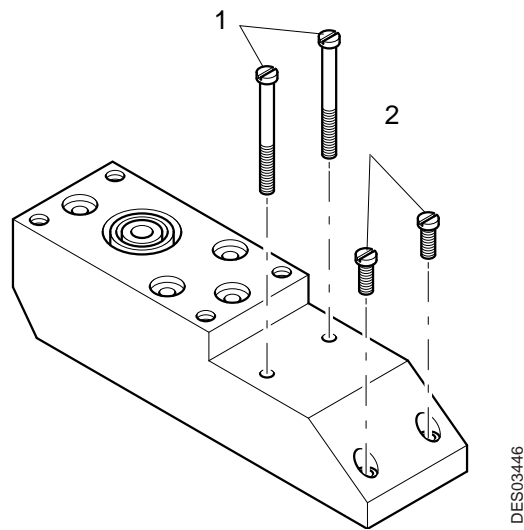
10.6.1. Upper supports of TRP 501

10.6.1.1. Upper support TRP 501, 60°



Item	Part number	Description	Qty	Sale Unit	First Emergency	Consumable
	750661	Upper support, TRP 501 60°	1	1	-	-
1	743394	High voltage plug	1	1	-	-
2	X9SVCB230	Screw C M 6 x 40 glass filled nylon	2	1	X	
3	X9SVCB223	Screw C M 6 x 16 glass filled nylon	2	1	X	

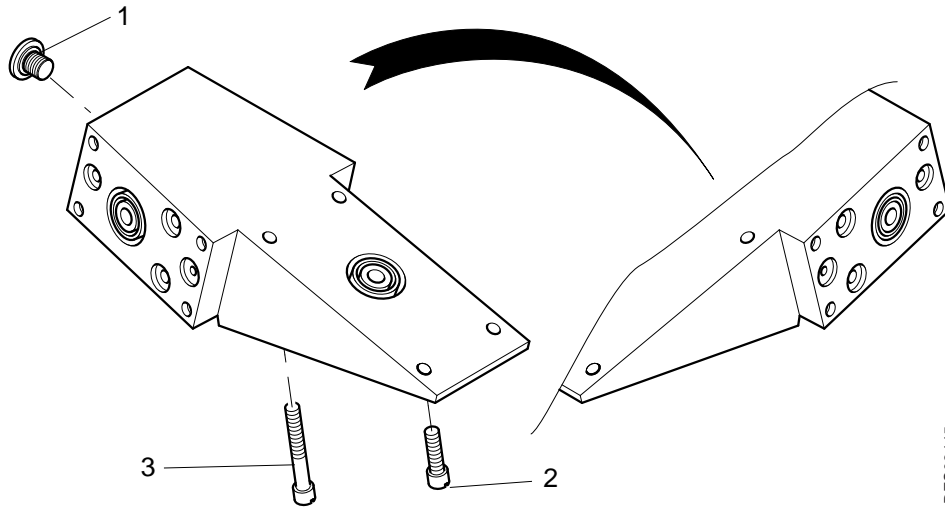
10.6.1.2. Upper support TRP 501, 90°



Item	Part number	Description	Qty	Sale Unit	First Emerg- ency	Con- suma- ble
	1508676	Upper support, TRP 501 90°	1	1	-	-
1	X9NVCB230	Screw C M 6 x 40 nylon	2	1	-	-
2	X9NVCB223	Screw C M 6 x 16 nylon	2	1	-	-

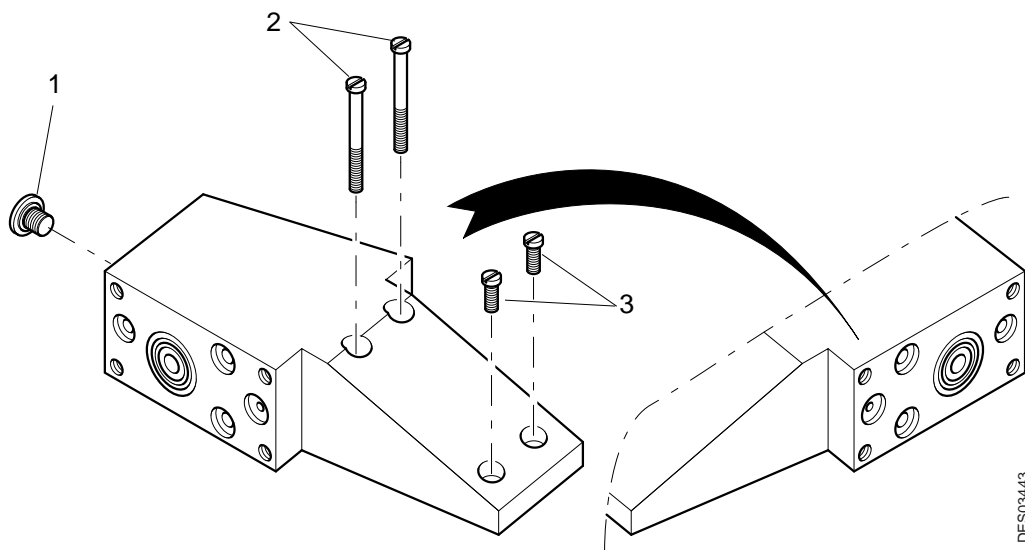
10.6.2. Upper supports of TRP 502

10.6.2.1. Upper support TRP 502, 60°



Item	Part number	Description	Qty	Sale Unit	First Emergency	Consumable
	459351	Upper support, TRP 502 60°	1	1	-	-
1	743394	High voltage plug	1	1	-	-
2	X9SVCB223	Screw C M 6 x 16 glass filled nylon	2	1	X	
3	X9SVCB230	Screw C M 6 x 40 glass filled nylon	2	1	X	

10.6.2.2. Upper support TRP 502, 90°



Item	Part number	Description	Qty	Sale Unit	First Emer-gency	Con-suma-ble
	459352	Upper support,TRP 502, 90°	1	1	-	-
1	743394	High Voltage plug	1	1	-	-
2	X9SVCB230	Screw C M 6 x 40 glass filled nylon	2	1	X	
3	X9SVCB223	Screw C M 6 x 40 glass filled nylon	2	1	X	