

SR – QUICK EXHAUST VALVE

INSTRUCTION MANUAL 2061




Engineering
GREAT Solutions

| 05/10/2022 | 03 | Added dust certifications table 7 and IECEx label section 4.1 | M.Oberti | N.Zenoni |
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IMI STI S.r.l has taken every care in collecting and verifying the documentation contained in this Instruction Manual. The information herein contained are reserved property of IMI STI S.r.l

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1 GENERAL INFORMATION

1.1 GENERAL WARNING



This Instruction Manual is an integral part of the machine, it should be carefully read before carrying out any operation and it should be kept for future references. The operators shall adopt the safety precautions required by the country where the product is installed.

1.2 GENERALITIES

IMI STI products are conceived, manufactured and controlled according to the Quality Control System in compliance with EN ISO 9001 International Standard.

1.3 MANUFACTURER

According to Machinery Directive 2006/42/EC, the Manufacturer of the described product is IMI STI.

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1.4 TERMS AND CONDITIONS

IMI STI guarantees each single product to be without defects and to be conform to current goods specifications. Unless otherwise stated on the purchased order, the warranty period is one year from the date of installation by the user, or eighteen months from the date of shipment to the first user, whichever occurs first, and considering that:

- the warranty does not cover products which have been subject to improper storage, improper installation, misuse, corrosion, or which have been modified or repaired by unauthorised personnel (it is not advisable that customer or end users modify the device characteristics);
- the warranty does not cover special products or components not covered by warranty in their turn by subcontractors.

1.5 MANUFACTURER'S LIABILITY

IMI STI declines all liability in the event of:

- the use of the product does not comply with local legislation on safety at work;
- disregard or incorrect application of the instructions provided on the product label and/or in the instruction manual;
- incorrect installation and/or use of the product;
- modifications without STI's authorisation and/or work done on the unit by unqualified or unsuitable persons.

1.6 APPLICABLE STANDARDS AND DIRECTIVES

| | |
|-----------------|---|
| 2006/42/EC | Machinery Directive |
| 2014/68/EU | Pressure Equipment Directive (PED) |
| EN ISO 80079-36 | Explosive atmospheres. Non-electrical equipment for explosive atmospheres. Basic method and requirements |
| EN ISO 80079-37 | Explosive atmospheres. Non-electrical equipment for explosive atmospheres. Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k" |
| EN ISO 12100 | Safety of machinery. General principles for design. Risk assessment and risk reduction |
| EN 60079-0 | Explosive atmospheres - Part 0: Equipment - General requirements |
| EN 1127-1 | Explosive atmospheres - Explosion prevention and explosion protection - Part 1 |
| EN ISO 9001 | Quality Management Systems. Requirements |

Table 1

This product is designed in accordance with the applicable International Standards and Directives, but the following regulations must be observed in any case:

- general and safety regulations;
- plant specific regulations and requirements;
- proper use of personal devices, protective devices (glasses, clothing, gloves, etc), tools and transport equipment.

1.7 SYMBOLOGY USED

1.8 SIGNS OF WARING

Be careful where the following symbols are shown. They indicate a potentially hazardous situation and they warn that if the steps are not properly performed, they may cause serious injury, death or long term risks to health of exposed persons.

| | | |
|---|---|--|
|  |  |  |
| General Danger | Crushing hazard | Power supply hazard |

Table 2

1.9 SIGNS OF OBLIGATION

Be careful where the following symbols are shown. They indicate an obligation that must be respected.

| | | | | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| General obligation | Obligation to wear protective clothing. | Obligation to wear protective footwear. | Obligation to wear a helmet. | Obligation to protect your eyes. | Obligation to protect your hearing. |

Table 3

2 DEVICE DESCRIPTION

2.1 GENERAL DESCRIPTION

SR Quick Exhaust Valve is a specific device used in conjunction with solenoid valves or positioners whenever a quick opening and/or closing function is required. It increases the speed of the actuator without hunting as the air to be discharged from the actuator is exhausted to the atmosphere directly from the large derivative unit outlet and not through the positioner. Whenever a very high actuator speed is required, two derivative units can be installed in parallel on the same line..

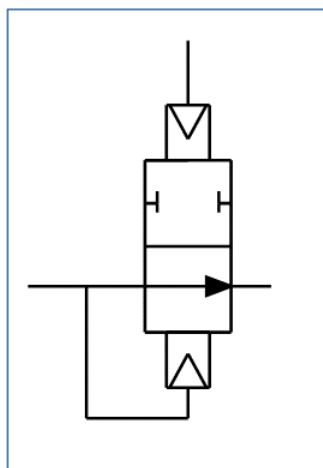


Figure 1

2.2 MODEL SELECTION

| | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|---|---|
| SR | - | S | - | M | - | P | - | T | - | C | - | O |
|----|---|---|---|---|---|---|---|---|---|---|---|---|

| S - SIZE | |
|----------|------|
| 04 | 1/4" |
| | |

| M - MATERIAL | |
|--------------|---|
| S0 | Stainless Steel SS316 |
| S1 | Stainless Steel SS316 (Copper Free Execution) |
| A0 | Aluminum |
| A1 | Aluminum (Copper Free Execution) |
| | |

| P - PAINTING | |
|--------------|----------------------------------|
| 00 | Not Painted |
| 01 | Standard Painting Cycle (CVA.01) |
| 99 | Customized Painting |
| | |

| T - TEMPERATURE RANGE | |
|-----------------------|----------------|
| H | -20°C / +85°C |
| S | -20°C / +70°C |
| L | -40°C / +70°C |
| E | -55°C / +70°C |
| U | -60°C / +100°C |
| | |

| C - CONNECTIONS | |
|-----------------|---|
| 22222 | Supply1 / Supply2 / Actuator1 / Actuator2 / Exhaust |
| | |

| O - OPTIONS | |
|-------------|--|
| | |

Table 4

Below is the legend regarding the model selection relating to the "C - CONNECTIONS" section

| Legend NPT/GAS | | Legend HOLES | |
|----------------|-------|--------------|-------------|
| 1 | 1/8 | A | 0mm |
| 2 | 1/4 | B | 0mm-5mm |
| 3 | 3/8 | C | 12mm-17mm |
| 4 | 1/2 | E | 21mm-25mm |
| 5 | 3/4 | G | 26mm-31mm |
| 6 | 1 | M | 33mm-34mm |
| 7 | 1 1/4 | P | Plug-in |
| 8 | 1 1/2 | T | 40mm-45mm |
| 9 | 2 | V | 46mm |
| | | W | 54mm-56mm |
| | | X | 56,1mm-62mm |
| | | Y | 69mm-100mm |
| | | Z | 160mm-270mm |

Table 5



Not all product configurations are available.
For a better product selection, please contact imisti.sales@imi-critical.com or sti.support@imi-critical.com
For existing model see par. 6

3 TECHNICAL DATA

| | |
|----------------------------------|--|
| SIZE | 1/4" |
| BODY MATERIAL | Stainless steel 316 Alluminium |
| EXTERNAL PAINTING | Not painted Standard cycle painting (CVA.01) OPTION CUSTOMIZED PAINTING |
| EXTERNAL SURFACE TREATMENT | Anodized |
| GASKET MATERIAL | Nbr Viton Fluorosilicone |
| WORKING PRESSURE p min [Bar] | 3 |
| WORKING PRESSURE p max [Bar] | 7 |
| DESIGN PRESSURE p des [Bar] | 12 |
| WORKING TEMPERATURE T min [°C] | -20 |
| WORKING TEMPERATURE T max [°C] | +85 |
| EXTENDED TEMPERATURE T min [°C] | -60 |
| EXTENDED TEMPERATURE T max [°C] | +100 |
| STORAGE TEMPERATURE T min [°C] | -40 |
| STORAGE TEMPERATURE T max [°C] | +95 |
| SUPPLY 1 PNEUMATIC CONNECTIONS | 1/4" |
| SUPPLY 2 PNEUMATIC CONNECTIONS | 1/4" |
| ACTUATOR 1 PNEUMATIC CONNECTIONS | 1/4" |
| ACTUATOR 2 PNEUMATIC CONNECTIONS | 1/4" |
| EXHAUST PNEUMATIC CONNECTIONS | 1/4" |
| GREASE | - |
| THREAD LOCKER | - |
| ADHESIVE | - |
| FLUID | Air |
| CV IN MAX | - |
| CV OUT MAX | 1,6 |
| CV BYPASS MAX | - |
| INTERNATIONAL PROTECTION (IP) | - |
| LIFETIME | 30 years |

Table 6

- Tubing with diameter equal to 8mm or 3/8" are recommended as pilot tubing;
- Tubing with diameter greater than the product thread connection size are recommended as supply and exhaust tubing;

4 CERTIFICATION

| | CERTIFICATION | TYPE OF CERTIFICATION | CERTIFICATE NUMBER |
|---|---------------|---|-----------------------|
| 1 | ATEX | Ex h IIB/IIC T6T5/T4 Ex h IIIC T85°C/T100°C/T135°C Db | INERIS-CERN 037358/22 |
| 2 | IECEX | Ex h IIB/IIC T6/T5/T4 Ex h IIIC T85°C/T100°C/T135°C Db | INE 19.0026 |
| 3 | UKEX | Ex h IIB/IIC T6T5/T4 Ex h IIIC T85°C/T100°C/T135°C Db | G104964813 |

Table 7

4.1 LABEL

A label is attached on the product when the device is sold alone. When the product is mounted on a machinery (like an actuator) or it is sold as spare part, the label is not attached. It is forbidden to modify the information and the marks without previous written authorization by IMI STI.

Labels containing the ATEX marking according to Directive 2014/34/EU Annex II paragraph 1, comma 1.0.5 and CE marking according to Directive 2014/34/EU Annex VIII paragraph 4, comma 4.1 and IECEx marking according to EN ISO 80079-36 Section 11:

1. Label ATEX/IECEX IIC: IMI STI drawing FD83746_01
2. Label ATEX/IECEX IIB: IMI STI drawing FD83746_02

Label containing the specific marking of explosion protection according to SI 2016 No. 1107 and UKCA marking according to The Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019:

3. Label UKEX IIC: IMI STI drawing FD83746_03
4. Label UKEX IIB: IMI STI drawing FD83746_04

5 USER PROCEDURES



Not performing the following procedures will invalidate the product warranty

5.1 TRANSPORT



Always wear protective clothing, gloves, and eyewear to prevent personal injury. The lifting and handling shall be made by qualified staff and in compliance with the laws and valid provisions.

5.2 RECEPTION

Check if the model corresponds with the one reported on the purchase order and if no defects are visible on the product. Product related documents are furnished with documents accompanying the machinery where the product is mounted on. If the product is sold alone, contact IMI STI or download the documentation from IMI STI web site.

5.3 STORAGE

To maintain the product in perfect condition, proper attention must be observed to preserve the product during the storage period. Remember to:

- place the product on a wood surface pallet or on metallic support, avoiding direct contact with the ground;
- protect the product with appropriate covering;
- make sure that plastic plugs are present on the pneumatic connections. If stored outdoor, replace plastic plugs with metal plugs that guarantee perfect tightness;
- keep the product protected from weather conditions.

5.4 INSTALLATION



Always wear protective clothing, gloves, and eyewear to prevent personal injury. Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

5.5 CHECKS TO BE PERFORMED BEFORE INSTALLATION

To allow a correct installation of the product, verify that the product outer surface is free from dust and dirt; if not, clean it and remove anything that might prevent a correct installation. Then, check if the coupling dimensions meet the specified ones and prepare all the necessary tools for the assembly and setting of the unit.

5.6 DIMENSIONAL DRAWING

For dimensional drawing, section and spare parts, see [chapter 6.0](#)

5.7 PNEUMATIC CONNECTIONS



Check that the supply pressure are lower than the product design pressure. Use appropriate pipes and fittings (type, rating, material and dimensions). The connection shall be made by qualified staff.

To guarantee the best performances, follow the

- properly deburr the ends of rigid pipes;
- properly clean the interior of pipes sending through them plenty of the supply fluid used in the system;
- mould and fasten the connection pipes in order to avoid overstress on the connection parts and to avoid loosening of the threaded connections;
- use the recommended quantity of pipe sealant, only on male threads (no-hardening sealant is strongly recommended);
- make the connections according to the machinery (i.e. actuator) pneumatic diagram;
- check that no leakage occurs from pneumatic connections. If necessary, tighten the fittings;
- collect tubing as indicated in the technical data table.

5.8 EARTHING CONNECTIONS

The earthing connection is guaranteed through the product fixing screws on the machinery and/or through the pneumatic fittings. If, for any reason, no earthing connection is guaranteed, ensure it by connect the product (or the machinery where the product is mounted) to earth.

5.9 DISASSEMBLING



Before starting any disassembly operations, it is mandatory to disconnect the pneumatic power and exhaust the product (no fluid under pressure inside the product, fittings, tubing).

The staff must be qualified for the required operation.

6 OPERATION AND USE



It is severely forbidden to use the product for purpose or application other than those for which it was designed and here above specified.

The product contains fluid under pressure: be careful when using it.

6.1 OPERATION DESCRIPTION

In the following paragraphs you will find information regarding the dimensional drawings, , part list and the list with all the models currently available for each type of accessory with the relative spare parts.

6.2 PRODUCT TYPE 79

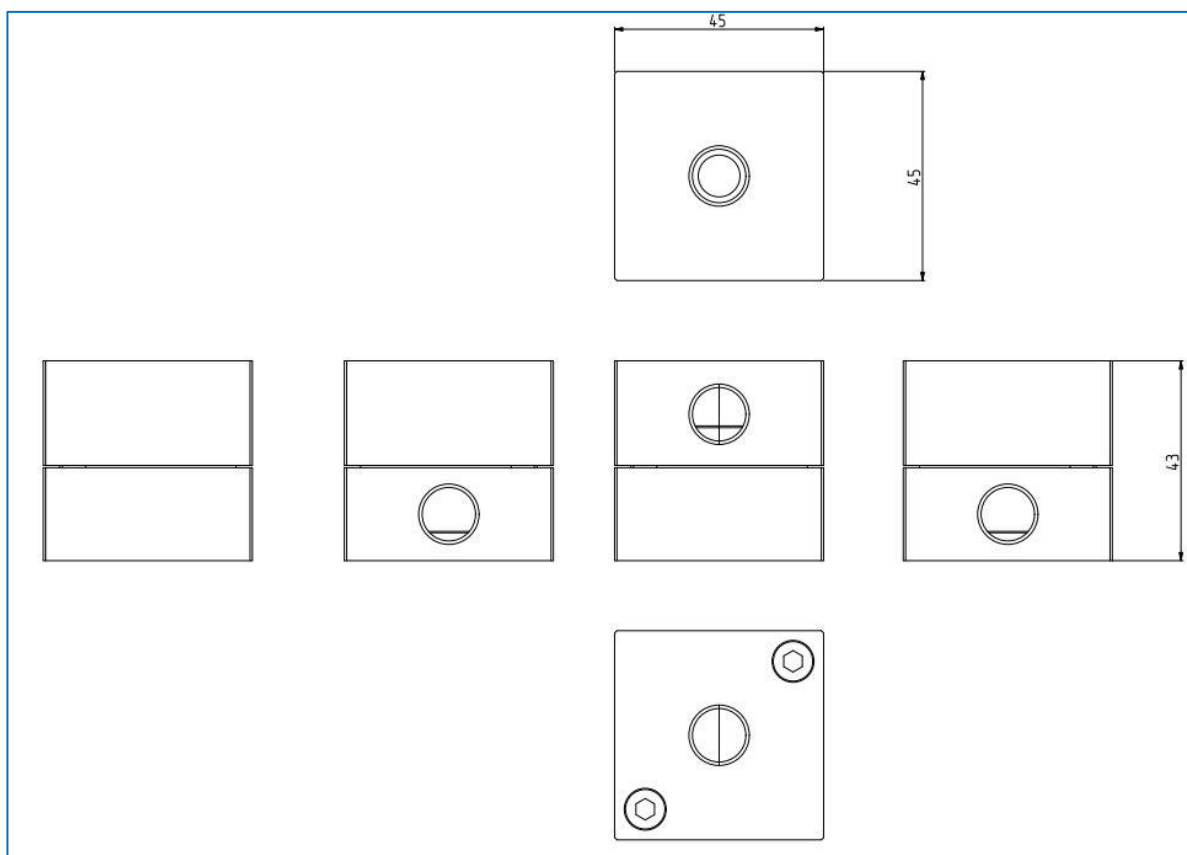


Figure 2 – Dimensional drawing

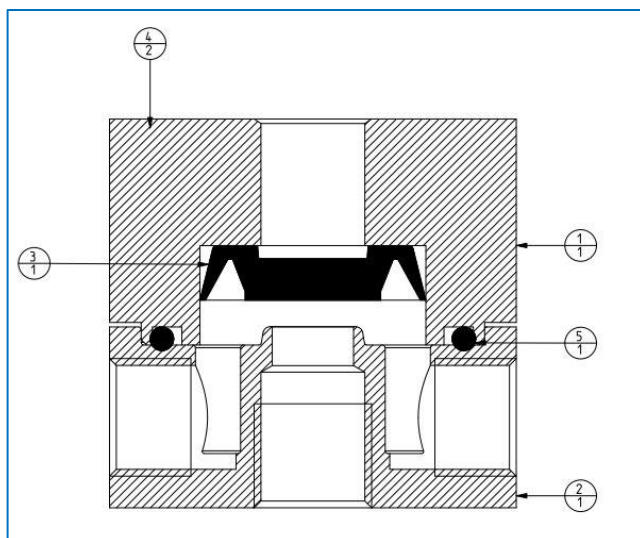


Figure 3 - Section

| PART LIST | | |
|-----------|------|-------------|
| Pos | Q.ty | Description |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

Table 8 – Part list

| EXISTING PRODUCTS AND SPARE PARTS | | | |
|-----------------------------------|-------------|--------|----------|
| MODEL | PART NUMBER | SPARE | POSITION |
| SR-04-S1-00-S-22222 | 79252 | 79252 | ALL |
| | | 181090 | 3-5 |

Table 9 – Existing product and spare parts



**The previous models are those currently available.
For further models refer to the model selection in par. 2.2 , contact imisti.sales@imi-critical.com or sti.support@imi-critical.com.**

6.3 INTENDED USE

IMI STI will not be liable for any possible damage or physical injury resulting from use in other than the designated applications or by lack of care during installation, operation, adjustment or maintenance. Such risks lie entirely with the user.

Considering that IMI STI has no direct control over applications, operation or maintenance conditions, it is the operator's responsibility to comply with all applicable safety rules: it is the sole responsibility of the operator to ensure that the local health and safety regulations are adhered to.

Depending on the specific working conditions, additional precautions may be requested.

Please inform IMI STI if you face unsafe situations not described in this Instruction Manual.

6.4 REASONABLY FORSEEABLE MISUSE

A short list of reasonably foreseeable misuse:

- installation in ambient with not planned conditions (i.e. climatic conditions different from the specified conditions);
- incorrect fluid under pressure inside the product;
- supply pressure out of required range.

6.5 OPERATING LIMITS

The product label and/or this manual indicate the main operating conditions of this product.

6.6 RESIDUAL RISKS

A short list of possible risks:

- risk due to movements of loads during mounting phase;
- crushing during assemblage servicing;
- extreme high or low surface temperature, as consequence of ambient temperature, has to be considered a risk of person injury in case of contact;
- hazardous fluid emission (i.e. when natural gas is used as fluid under pressure).

7 INSTRUCTION FOR THE OPERATOR

During the start-up of the product, proceed as follows:

- check that the pressure and quality of the air supply (filtering degree, dehydration) are as prescribed;
- check that there are not leaks in the pneumatic connections. If necessary, tighten the fittings;
- set the product according the schematic diagram.

8 MAINTENANCE

8.1 PERIODIC INSPECTIONS



Take care that a build-up of dust or dirt on the product can inhibit cooling and contribute to increase surface temperature. The user should plan and provide for a periodic cleaning / maintenance program that will maintain the external surface of the accessory free from excessive layer of dust.
Operation and maintenance shall be carried out by skilled staff.

Product disassembling and reassembling shall be carried out only by IMI STI authorized operators.

8.2 SPECIAL MAINTENANCE

The product does not need special maintenance considering standard applications. If special maintenance is required, send back the device to IMI STI.

Product disassembling and reassembling shall be carried out only by IMI STI authorized operators.



For the available part lists of each accessory refer to 6.2 and subsequent paragraphs or contact imisti.sales@imi-critical.com or sti.support@imi-critical.com.

8.3 REPAIRS

Repairs shall be carried out by authorized operators. When needed, send back the device to IMI STI for any repairing.

Product disassembling and reassembling shall be carried out only by IMI STI authorized operators.



For the available part lists of each accessory refer to 6.2 and subsequent paragraphs or contact imisti.sales@imi-critical.com or sti.support@imi-critical.com.

9 TROUBLESHOOTING

| Event | Possible cause | Remedy |
|--------------------------------|--|----------------------------------|
| Do not work properly | Lack of pneumatic supply | Check supply line |
| | Low supply pressure | Adjust supply pressure |
| | Uncorrected by-pass stem adjustment | See Instruction for the operator |
| | Defective internal component (shutter, piston, ecc.) | Call IMI STI S.r.l. |
| Leakages on pneumatic circuits | Deterioration and/or damage to gasket and/or loosed fittings | Call IMI STI S.r.l. |
| | Damage to fittings | Call IMI STI S.r.l. |

Table 10

10 DECOMMISSIONING

| Subject | Hazardous | Recyclable | Disposal |
|----------------------------|-----------|------------|--|
| Metals | No | Yes | Use licensed recyclers |
| Plastics | No | Yes | Use specialist recyclers |
| Rubber (seals and O-rings) | Yes | No | May require special treatment before disposal, use specialist waste disposal companies |
| Oil and grease | Yes | Yes | May require special treatment before disposal, use specialist waste disposal companies |

Table 11



Before starting any disassembly operations, it is mandatory to disconnect the pneumatic power and exhaust the product (no fluid under pressure inside the product, fittings, tubing).

The staff must be qualified for the required operation.



The product decommissioning shall be made by specialized operators
Check local authority regulation before disposal

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