USER MANUAL INSTRUCTION

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Applicable for High Pressure Valves VI+VO+VF

Read these instructions carefully before any fitting

Instructions for usage in accordance with **TPED 2010/35/EU**
ADR (Section 1.8.7.3 & 1.8.7.4)

APPROVAL 0409

This product is covered by the terms and conditions of the manufacturer's warranty; the manufacturer has the right to make changes to the current instructions sheet without prior notification.

Main Classes of Risks		**Danger**
	**Explosions**	• **Gas leaks can cause fatal fires or explosions** • **Only trained personnel should work on gas systems** • **Inspect the gas system regularly** • **Replace adapters and Products as recommended** • **Failure to follow these instructions carefully could result in serious health risks**
	**Asphyxiating gases**	
	**Flammable and Explosive gases**	

Unless these instructions have been carefully read beforehand, no one is authorized to use the product. Consequently, it is necessary to make the instructions available to the following subjects:

- Valve fitters, who are required to log in to all the sites where the products have been installed, as detailed below
- Cylinder fitter, who must log in to all the sites described hereunder at every site where the products have been installed
- Operators for maintenance who work on the product, the cylinder, the installation, or any of its components
- Operators responsible for cylinder filling
- Inspectors
- Any other operator working on the product or the cylinder

The manufacturer warrants that the products comply with the above policies. Therefore, the aforementioned subjects must comply with the regulations applicable in the country where the product is used and check the existence of specific regulations regarding its use.

Failure to follow these instructions automatically voids the product warranty provided by the manufacturer and releases the manufacturer from liability for any proven damages.

Do not alter or remove markings on the product.

GENERAL DESCRIPTION AND FUNCTIONAL FEATURES – The manually operated valve is designed for ISO 10297 preventing unauthorized manipulation of the shut-off system when opened. Applicable for high pressure gas of which operating temperatures -20°C to 65°C (minimal storage temperature of gas package is -40°C.) The valve's specific purpose is to make it possible to fill the cylinder and supply high pressure gas. If provided with pressure relief device in the event that the cylinder experiences overpressure, the pressure relief device opens, keeping the cylinder from explosion. Various sizes and couplings of inlet and outlet ports are available according to major international standards.

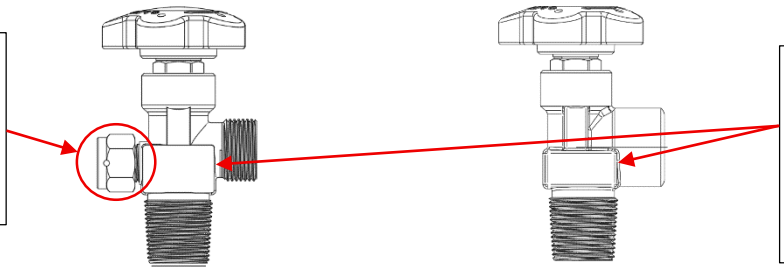
Family reference number	Valve type	Gas	Applicable standard	Working Pressure (bar)	Operating Temperature (˚C)
VI	Cylinder Valve (O-ring gland seal valve)	Compressed gases N_2, He, Ar	EN ISO 10297 :2014+A1:2017	150 (Customer Require)	-20/+65 (-40/+65 Storage temp.)
VI+VO	Cylinder Valve (O-ring gland seal valve)	Compressed gases N_2, He, Ar, O_2	EN ISO 10297 :2014+A1:2017	200	-20/+65 (-40/+65 Storage temp.)
VO	Cylinder Valve (O-ring gland seal valve)	Compressed gases O_2	EN ISO 10297 :2014+A1:2017	300	-20/+65 (-40/+65 Storage temp.)
VF	Cylinder Valve (O-ring gland seal valve)	Compressed gases H_2	EN ISO 10297 :2024	200	-20/+65 (-40/+65 Storage temp.)

Family reference number	Valve type	Gas	Applicable standard	Valve test pressure (bar)	Operating Temperature (˚C)
VI	Cylinder Valve (O-ring gland seal valve)	Liquefied Gas CO_2	EN ISO 10297 :2024	190 250	-20/+65 (-40/+65 Storage temp.)

VALVE WITH ADDITIONAL ACCESSORIES

PRESSURE RELIEF DEVICE - Check to ensure that it does not have any bending, distortion, cracking or damage before using.

Pressure relief device
Do not attempt to modify or disassemble the pressure relief device. It must remain in its original condition as supplied by the manufacturer.



When tightening the valve, apply the wrench only to the designated Wrench flats area. Avoid contact with the *outlet connection* and *pressure relief device,* as this may cause damage to the valve components and impair its proper operation.

Valves with safety relief

Valves without safety relief

Do not use flames near the valve installation location.
Do not utilize the valve for other applications.

Assembly of the valve

Noted: *All oxygen valves are cleaned, handled, packed, and delivered in accordance with ISO 15001*

1. General Requirement

- Comply with all cleanliness and safety standards defined in this manual to ensure correct and safe valve installation.

2. Pre-Installation Inspection

Before fitting the valve, carry out the following checks and follow *INSTRUCTIONS FOR THE SPECIFIC GASES* below:

- Cylinder interior: Visually inspect for contaminants such as water, insects, dust, or dirt.
- Valve condition: Confirm that the valve has been stored in a clean, dry environment and protected from impacts and the elements.
- Deformed or damaged valves must not be used.
- Tools: Ensure that all wrenches and assembly tools are clean.
- Gaskets (for cylindrical threads only): Verify that gaskets are present, clean, and undamaged.

3. Compatibility Verification

Before fitting the valve to the cylinder, confirm the following by referring to the markings on the valve and its packaging:

- The valve and cylinder are designed for the same gas type.
- The valve stem thread matches the cylinder neck thread.
- Both threads are clean and free from damage.
- If a rupture disc is fitted, the cylinder filling pressure is lower than the value indicated on the disc.

Warning*: If any of these conditions are not met, do not proceed with installation.*
For oxygen valves, cleanliness is critical. Once the packaging has been opened, the customer is responsible for keeping the valves clean during storage, use, and after use to prevent contamination that may affect proper operation.

4. Assembly

Use only proper valve tools to prevent damage during installation. Apply torque exclusively to the valving square located above the cylinder connection. Do not apply torque to any other surface or section of the valve.

Recommended Assembly Torque

Following is the torque requirement for fitting the valves onto the cylinders.

⚠ IT IS IMPORTANT TO CAREFULLY READ ALL NOTES PROVIDED

Tapered threads	**Seamless steel cylinder and composite cylinders with steel boss**		**Welded steel cylinders**		**Aluminium alloy cylinders and composite cylinders with aluminium alloy boss**			
Taper Valve stem size	MIN Torque [N · m]	MAX Torque [N · m]	MIN Torque [N · m]	MAX Torque [N · m]	MIN Torque [N · m]	MAX Torque [N · m]	MIN Torque [N · m]	MAX Torque [N · m]
17E	120	150	90	130	75	95	75	140
25E	200	300	110	250	95	110	95	180

Parallel threads	**Seamless steel cylinder and composite cylinders with steel boss**		**Parallel threads**	**Aluminium alloy cylinders and composite cylinders with aluminium alloy boss**	
Parallel Valve stem size	MIN Torque [N · m]	MAX Torque [N · m]	Parallel Valve stem size	MIN Torque [N · m]	MAX Torque [N · m]
M18	100	130	M18[a]	85	100
M25	100	130	M25[a]	95	130
M30	100	130	M30[a]	95	130

a) Value specified by EN ISO 13341

b) If not specified, it is the installer's responsibility to apply the minimum torque to ensure a seal and prevent possible disassembly of the valve.

INSTRUCTIONS FOR THE SPECIFIC GASES

Gas	Hazard	Toxicity	Safety Instruction
Oxygen (O_2)	Intensifies fire. Oil, grease, or organics may ignite violently.	High concentration or pressure → oxygen toxicity.	• Keep valves/tools/hands oil- and grease-free • Use O_2-compatible materials only • Open valve slowly
Hydrogen (H_2)	Highly flammable. Forms explosive mixtures with air.	Simple asphyxiant — displaces oxygen.	• Away from flames, sparks, static, heat • Well-ventilated area only • Leak-test with approved detector — never flame
Carbon Dioxide (CO_2)	Asphyxiation in confined spaces. Cold discharge → frostbite.	Headache → dizziness → confusion → unconsciousness, convulsions, death.	• Well-ventilated area only • Do not inhale; avoid cold gas/liquid contact • Keep outlet/relief unblocked • Never heat the cylinder
Inert Gases (e.g. Nitrogen (N_2), Argon (Ar), Helium (He))	Non-flammable — but silently displaces oxygen.	Non-toxic, yet causes sudden suffocation without warning.	• Well-ventilated area only • No confined spaces without O_2 monitor • Verify gas, pressure, thread, fitting before use

VALVE GUARDING

- Valve guarding / protection must be always used during handling, transportation or storage of the gas package. Valve caps or other kinds of valve protection must strictly comply with ISO 11117.
- If the cylinder with the valve is not in use (no pressure device connected), the outlet thread must be always fitted with a cap or plug.

WARNING: Unprotected valves are susceptible to mechanical damage potentially resulting in uncontrolled and violent gas discharge

FILLING

- The product is supplied in various versions of connection standards. Check the connection standard in information on the valve packaging or on body of the cylinder valve, ensure your filling hardware is fully compatible with the valve and its connection geometry. In case of doubts contact valve manufacturer.
- Use adequate connection torques, do not over torque filling adaptors, when in doubts consult with valve manufacturer.
- Respect maximum working pressure of valve, never overfill gas package.
- If the valves are equipped with Residual Pressure Device (RPD), only proprietary filling adapters specified by valve manufacturer shall be used.
- The ON / OFF handwheel / spindle key must be fully open during the entire filling. **Note:** Open anticlockwise, close clockwise.
- Do not apply excessive force when closing the valve; the torque should not go beyond the values outlined in ISO 10297 (i.e. 7 Nm for Ø 65mm handwheel). Be cautious of this guideline when using pneumatic tools.
- Avoid contamination of valves during the filling process including pre and post filling storage and transportation. Pay special attention to hydrocarbon contamination, keep the environment, tooling and other equipment clean i.e. fully in line with a minimum of ISO 15001 requirements.

WARNING: Non-compatible filling hardware, improper filling procedure or excessive filling pressures may lead to dangerous valve damage

WARNING: Valve contamination may result in valve malfunction including spontaneous ignition, fire and explosion.
WARNING: Do not use leak detection or cleaning fluids containing ammonia or other substances, that can cause stress corrosion cracking in brass materials

GENERAL HANDLING

- Avoid mechanical damages of valves, minimize vibrations and mechanical impacts.
- Inspect the condition of valves during the lifetime, immediately sort and dispose all valves showing traces of extensive wear, deformation or damage.
- Avoid contamination of valves during storage and transportation. Pay special attention to hydrocarbon contamination, keep the environment, tooling and other equipment oxygen-clean i.e. fully in line with a minimum of ISO 15001 requirements.
- Choose appropriate storage conditions and transportation protection, minimize exposure to natural elements and bad weather
- Respect the range of working / storage temperatures, avoid overheating (e.g. by intense sunshine) or valve blockage by freezing in winter conditions.
- Always open valve fully but slowly and gradually, rapid opening may lead to dangerous adiabatic compression downstream followed by ignitions and fire.
- Use valves either in fully open or fully closed, avoid gas discharge through crack-open valve seat
- Never use valve as grip point or crane fix point during lifting and manipulation with cylinder
- Always transport, handle, store or manipulate with gas package and valve mechanical protection on. Do not remove protection caps before pressure cylinder is steady and safely fixed to installation area.
- Avoid and prevent any alterations and modifications of valves, do not use valves out of intended applications.
- Avoid unauthorized use or handling of valves through whole service cycle of valve.

WARNING: Not respecting of any of rules mentioned above may lead to irreversible damage– a damaged valve poses a significant risk to the life and health of its owner, operators, and users.

MAINTENANCE

- Do not contaminate the valve, pay specific attention to prevent contamination of gas-wetted sections of valve = valve outlets. In cases where cleaning is a must, avoid transfer of impurities from outer surfaces to inner gas-wetted faces of valve. Refrain from use of aggressive chemical cleaning agents, particularly ammonia-based substances. Consult compatibility with valve manufacturer when in doubts.
- Repairing can be only performed by a SCG certified personnel who possessed all necessary certificates in compliance with national standards for mounting and fixing of dedicated gas devices. Details of repair routine, essential equipment, safe environment and suitable spare parts for valve repair are a part of SCG Manual.

If only external parts are replaced, approval from the manufacturer must be obtained and only original spare parts may be used together with the relevant instructions prepared by the manufacturer.

If further repair work is carried out on the valve which is not in accordance with this instruction, the warranty rights for the valve will become invalid and the manufacturer will not be held liable in the event of a breakdown or accident.

If the valve is exposed to flame or water, the valve must be replaced and discarded.

Based on the type tests required by ADR and the international standard EN ISO 10297 Gas Cylinders — Cylinder Valves — Specification and Type Testing (as applicable), the manufacturer guarantees that, under the conditions of use specified in this document, the expected service life of the valves are 15 years. For the valves that have been dismantled from one cylinder and reassembled in another are not recommended for use, the manufacturer liability will expire after 15 years if the directions and fulfillments outlined in this agreement are not followed.

TRACEABILITY – Each valve is identified to ensure traceability of materials in accordance with the provisions of European Directives, this traceability refers to which valve or manufacturing lot it belongs to. The elements marked on the valve and also included in the declaration of conformity, as illustrated:

- ✓ Valve identification – commercial reference;
- ✓ Manufacturer's name or initials;
- ✓ Date of valve manufacturing;
- ✓ CE 0409 marking as per European Directive.

Other markings may be placed on the valve or valves according to contractual specifications and/or requirements, but they do not contribute to major material traceability.

In the case of any new components are replaced on the valve as those described above, the manufacturer does not guarantee their traceability.

The purchasers of the valve are responsible with manufacturer for ensuring the downstream traceability of the valve, even if the valve is resold to other parties, so that the manufacturer will always aware of product's existence.

SERVICE LIFE

If the owner and/or user of the valve has followed all instructions and warnings contained in this user manual with the conditions, frequency of use, environment and operating conditions are optimal and in accordance with applicable regulations/standards /legislation, the maximum service life of a valve is 10 years from the date of the Declaration of Conformity issued by the manufacturer (or from the date marked on the valve if a Declaration of Conformity is not available).

In some cases, by specifically written declaration by the manufacturer when special circumstances exist, the service life may extend up to 15 years from the date of the Declaration of Conformity issued by the manufacturer. If the valve is designed and manufactured in accordance with the particular standard, directive or regulation, the requirements of legalizations will formally apply. At the end of its service life, the valve must be removed and disposed of in accordance with the "**MANAGEMENT OF REPLACED VALVES**" section.

Even if the service life has not yet been reached, it is strongly recommended to replace the valve during routine tank and/or cylinder overhauls if any part of the valve shows signs of major or minor damage.

Periodic inspections are performed at time intervals specified by any applicable federal, state, and/or municipal ordinances or other regulations and are the responsibility of the owner, operator, installer, and/or maintenance workers. They must be performed by qualified and authorized personnel. The manufacturer is not responsible for any personal injury, property damage, or other loss related to the valve by failure to follow the warnings and instructions and will void any warranty applicable to the product.

After expiration of the period of 10 years specified in Article 11 of Directive 85/374/EEC (also applicable also to clients not belonging to the European Community), the manufacturer shall have no liability for any direct or indirect damage to individuals and/or products. It is further noted that a valve and/or its seals may have sustained damage—even if no damage is visually apparent—if it has been exposed to salt water, hurricanes, storms, or other extreme weather conditions, or if it has been wholly or partially submerged in, or exposed to, debris such as mud, foliage, or seawater. Under such circumstances, the valve must be immediately removed from service, destroyed, and replaced.

MANAGEMENT OF REPLACED VALVES

A valve must be destroyed in a way that renders it permanently unusable whenever it is replaced, whether due to malfunction, irreparable damage, or the end of its service life. For instance, the input thread connection needs to be damaged. It is then necessary to dispose of the valve in accordance with any applicable federal, state, local, or other legislation. The owner of the valve must be aware and consider that proper separate waste collection, for a subsequent recycling, treatment, and proper disposal of the valve, contributes to environmental protection and prevents adverse health effects, in addition to promoting the reuse and/or recycling of the materials it is made of.

Any relevant federal, state, and/or municipal statutes or other restrictions that specify the owner's exposure to fines and penalties will apply if valves and/or their packaging are disposed of improperly or unlawfully.