

Operating- and Safety Manual


PRESSURE REDUCTION VALVE OVERFLOW VALVE

Containing instructions for  operation according to ATEX 95



ZÜRCHER TECHNIK
Neumattstrasse 6
CH 4450 Sissach

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Designated use

The Reduction- and Overflow Valves as spelled out in this manual to be used for the following scope only:

Pressure reduction of flowing, non sticky and non crystallizing pure gaseous media respectively blow down of the same upon reaching of a preset pressure.

The valves must be used only under the conditions as laid down in this manual and must be operated by authorized personnel only.

Maintenance and service works are limited to the works, as permitted in this manual, only.

The manufacturer can not be held responsible for damages, caused by not observing of the given instructions, unsuitable handling or inadequate use.

Preface

The content of this manual coincides with the rules as stipulated in the standard SN EN 62079:2001 „Preparation of Instructions“

The content of this manual is subject to unannounced modifications which serve the technical affect the safety.



If the valves are intended for operation under ATEX 95, the chapter 9 of this manual apply.






The information as given in this manual corresponds with the latest technical state of the product. They remain our property and shall not be copied or made available to third parties without our written permission.

This manual is addressed to the operator only who acquired the valve.

The following chapters identify the Pressure Reduction- and Overflow valves made by ZÜRCHER TECHNIK AG as “VALVE”.

When reading the manual, you are guided by symbols which draw your attention to hazards and give important hints.

Very important hint	
General hint for your personal safety	
Reference to hazards originating from processes and materials	

1 General

OBLIGATION

Before starting with any type of work at or with the valve, we oblige you, to read this manual carefully until the end. In case of vagueness, please contact us immediately. Do not operate the valve in case of doubts.



Upon operation of the valve you simultaneously confirm, that you have read the manual and understood the safety instructions as spelled out therein.

This manual, together with possible acceptance certificates (e.g. material certificates, design, test and Ex-certificates), and the EEC declaration form the entire documentation of the valve.

Install, adjust and operate the valve only according to the instruction as given in this manual.



1.1 Definition

„ZÜRCHER TECHNIK“ stand for a Swiss Quality Product. It contains all parts and components according to the bill of material and when assembled form a functional unit.

1.2 Make of ZÜRCHER TECHNIK Valve

The valve is made according to the most modern manufacturing process und comprehensively tested during fabrication and as a final product by the ZURICH TECHNIK quality control system. The implemented test methods and procedures comply with the current technical state.

The personnel in charge with the fabrication possess the corresponding qualification and skill. Each valve is individually tested and a protocol is issued. This document remains with the manufacturer.

1.3 Liability and Guarantee

The guarantee ends at the date which is stated in the order confirmation. It is limited to the installation of spares or repair of defects at the manufacturers shop. Further claims such as supply of spare or wear parts are excluded.

ZÜRCHER TECHNIK guarantees the suitability and steadiness of the materials only, if the technological data of the medium are disclosed before making of the valve.

1.4 Safety pattern

After completion of the valve installation, we recommend to execute an overall risk analysis of the entire operating pattern. This is to guarantee that neither the valve is subject to damage nor can cause damage to others. Keep a record of this analysis

1.5 Qualification of personnel

Only educated (trained) personnel are authorized to install and operate the valve.

The personnel must be acquainted with the consequences in case of an error or malfunction of the valve and must be in a position to react properly.

The safety commissioner of the plant operator is responsible for the observation of the safety instructions and that no work is assigned to unauthorized personnel

1.6 General Matrix of Hazards

Attention

The safety instructions and hints as given herewith are valid for all works at and with the valve and will not be repeated in the individual chapters of this manual!



Operation

The valid safety regulations at the operating place must be observed. During operation, no manipulations at the valve are permitted.



Noise emission

At higher flow velocities of the medium, disturbing noises may be generated. If the noise level is above 80 db(A), the operator must install a sound insulation and the personnel must wear ear protection.



Temperature

The surface temperature of the unprotected valve must not exceed 68°C. If higher temperatures are expected or appear, the operator must install an insulation or a protection against accidental contact.

If, due to expansion of the medium, ice may be formed on the valve, the operator must provide a heating or insulation – if such is required.



Disregard of the safety precautions

Take all safety measures to exclude all hazards which can cause harm to personnel and which obstruct the safe operation of the valve.



Pressure

Basically, the valve is designed for an operation under overpressure. Before starting any work at the valve, make sure that the pressure is relieved to atmospheric pressure and that the pressure less state is secured.



Hazardous media

Depending on the operation mode, the valve can be in contact with hazardous media. Before starting any work at the valve, make sure that such media are removed and neutralized, if such is necessary, and the inflow of hazardous media is prevented.



Direction of flow

The direction of flow is stamped in the valve body. The valve must not be installed against the indicated flow direction.



1.7 Emergency


There is an emergency case, when a valve break down occurs during its operation, regardless of its origin. Then, a continuation of the operation is not possible and shall not be forced.

For an emergency situation, the plant operator has to provide measures to prevent an uncontrolled situation. (Emergency concept)

1.8 Marking

There are the following markings on the valve:

- If a valve body temperature above 68° is expected and no insulation installed: Warning sign “hot surface“ to be affixed by the plant operator after valve installation.
- Manufacturer’s name plate according the machinery directive with CE marking

- If the valve is foreseen for an installation in explosion hazard area according to ATEX 95, the  symbol is placed next to the CE marking, provided a test certificate of the inspection laboratory is available. See remarks in chapter 9 of this manual.

1.9 EEC conformity of the valve

The valve is designed and manufactured according to the machinery directive 98/37/EEC, edition June 22, 1998

In addition to the EEC directives, the harmonised European standards which have the status of Swiss standards and the Swiss Safety and Accident Prevention Directives have been considered.

As part of the delivery of the valve, an EEC Manufacturer Declaration according to machinery directive 98/37/EEC Annex II B is issued.

2 Installation

2.1 Transport, Inspection, Storage

The valve is supplied as a complete assembled unit. (Eventually pre-adjusted)

Inspect the supply according to the shipping documents and report without delay any deficiencies to the shipping agent, the supervisor and the manufacturer.

The valve ends (flanges) are closed by a plastic cap. Remove the caps shortly before installation. In case you store the valve for a longer period, take provisions that the caps can not fall off.

2.2 Erection, Installation, Positioning, Pipe cleaning

Cleaning hint

Cleaning of the pipe whilst valve is installed causes its destruction.



Before installing the valve, have a piece of pipe (dummy) made of same length of the valve and install it tight at the valve's place.

Then start flushing and cleaning of the pipe system.

Following cleaning, perform pressure test of the system.

Remove the dummy and replace it by the valve. If it is not prove, that the medium is a pure gas, a filter of 25 micron must be installed on the upstream side.

Tighten the valve flanges to the flanges of the piping system and secure them such a way, that no foreign forces, torques, vibrations and stresses are acting on the valve.

Installation hint

The valve must not be used as piping fixed point.

The flanges of the piping must be parallel

Install the valve so that no condensate is collected in the valve's body.



Connect valve and pipe flanges with standard machine nuts and bolts.

If valve is foreseen for outdoor installation, a protective roofing is recommended.

When installing the valve, bear in mind that condensate may be formed which freezes at low temperatures. If such hazard exists, provide corresponding installations (e.g. heat tracing).

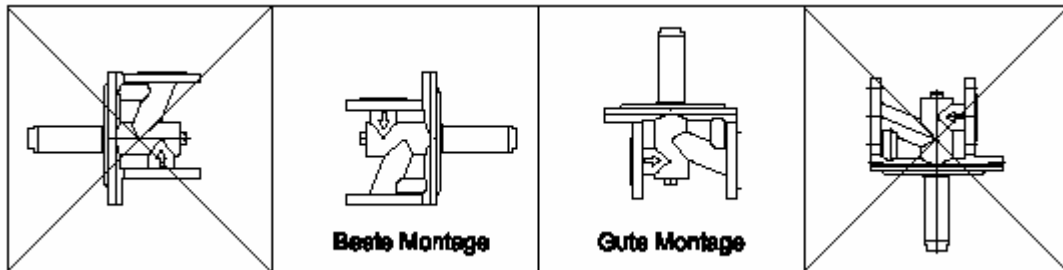
Please note, that the pre-adjustment of lead sealed valves applied to vertical installation. If installed horizontal, the operating pressure raises by 3 mbar approx.

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Pressure Reduction Valves / Overflow Valves

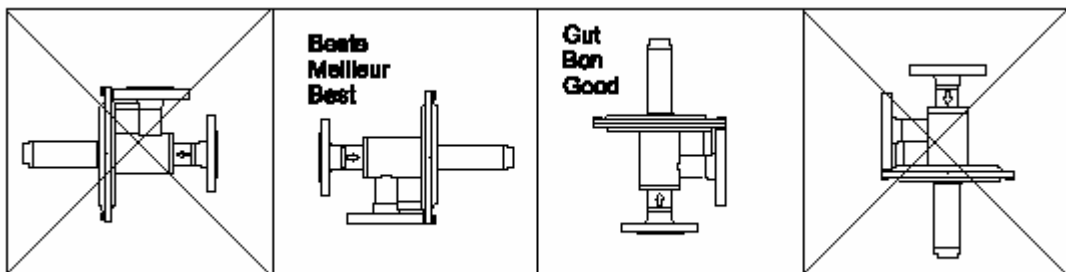
Install the valve as shown hereafter

Installation Pressure Reduction Valve, In-Line Type



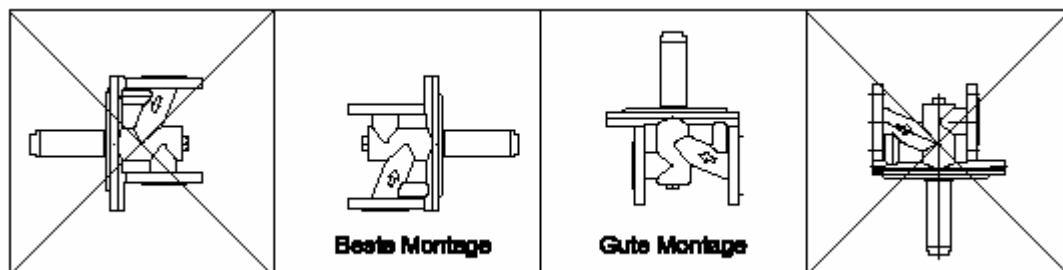
Best installation Good installation

Installation Pressure Reduction Valve, Angular Type



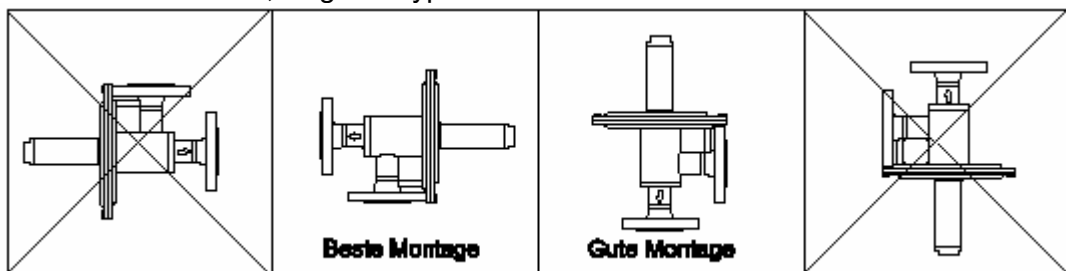
Best installation Good installation

Installation Overflow Valve, In-Line Type



Best installation Good installation

Installation Overflow Valve, Angular Type



Best installation Good installation

2.3 Piping:

Always use pipes with identical or larger diameter and pressure class than the valve size.

2.4 Last inspection before start-up

- Compare the layout data with the data on the name plate of the valve. The data as they appear on the name plate are those, which are measured during the functional test.
- Recheck again the corrosion resistance. The valve must be operated with the permitted medium only. The materials used for its construction suit these media.
- Make sure that cleaning and pressure test of the pipe system is completed.
- Inspect the flange connections for correctness and make sure, that the valve is not used as pipe fix point.
- Inspect whether the flow direction corresponds with the engraved flow direction arrow on the valve body
- Inspect the installation of the upstream filter.

3 Operation

3.1 Limitation on start-up

We decree, that the start-up of the valve is forbidden, until all related and connected installations and equipment is properly installed and inspected and that the safety commissioner has given approval for operation.



3.2 General operating conditions

It is the duty of the plant operator to guarantee, that the instructions of the manual are observed.



Before final start-up, the valve must be set at its operating point.

3.3 Adjusting of the pressure reduction valve

The information refer to a vertical installation

In-Line Type:

First of all adjust a small flow. Open the feed line slowly.

At DN 15 = 0,5 Nm³/h, at DN 25 = 1,0 Nm³/h, at DN 50 = 2,0 Nm³/h

To adjust the pressure, turn the upper adjustment screw with a hexagonal key.

Turn clockwise = lowering the outlet pressure

Counter-clockwise = raising the outlet pressure

The adjustment can be secured by lead sealing of the adjustment screw.

This also applies for adjusting of a regulator with a differential connection.

When used as under-pressure reduction valve:

Turn clockwise = raising the outlet pressure

Counter-clockwise = lowering the outlet pressure

Angular Typ:

First of all adjust a small flow, approx. 1,0 m³/h. Open the feed line slowly.

To adjust the pressure, turn the upper adjustment screw with a hexagonal key.

Turn clockwise = lowering the outlet pressure

Counter-clockwise = raising the outlet pressure

The adjustment can be secured by lead sealing of the adjustment screw.
This also applies for adjusting of a regulator with a differential connection.

When used as under-pressure reduction valve:
Turn clockwise = raising the outlet pressure
Counter-clockwise = lowering the outlet pressure

3.4 Adjusting of the overflow valve

The information refer to a vertical installation

Angular and In-Line Type:

First of all adjust a small flow, approx. 1,0 m³/h. Open the feed line slowly.
To adjust the pressure, turn the upper adjustment screw with a hexagonal key.
Turn clockwise = lowering the outlet presser
Counter-clockwise = raising the outlet pressure
The adjustment can be secured by lead sealing of the adjustment screw.
This also applies for adjusting of a regulator with a differential connection.

When used as under-pressure overflow valve:
Turn clockwise = raising the outlet pressure
Counter-clockwise = lowering the outlet pressure

3.5 First Start-up

- Inspect the valve for damages, for correct installation and set-ups and if a heat tracing is installed, make sure that it is in operation at least during 15 minutes.
- Check whether the downstream pipe is open.
- Open slowly the feed and observe the valve. If no faults are observed, **the valve is considered as put in operation.**

3.6 Shut-down and conservation

An internal operating procedure regulates the work to be done for taking out the valve from duty and the preparation work for a new re-installation.

Out of duty / Storage of the valve for a later use

Close flanges with a cover and store away from humidity. Make sure that name plate will not be damaged during storage time.

3.7 Re-installation

After a longer period of standstill or storage, we recommend to contact the service department of the manufacturer or to send to him the valve for inspection.

4 Service / Maintenance / Valve cleaning

The valve does not need servicing. Maintenance is recommended after a longer period of standstill before re-installation. Maintenance works or repairs are not permitted by the manufacturer because of functional reasons. Send the valve to the service department of the manufacturer or to his authorized agent.

The plant operator can demand a repair instruction.

If operator performs repair works by himself, although original spare parts are used, all guarantees will expire.



The outside of the valve can be cleaned with water using a household cleaning agent. High pressure water and steam must no be used. When using solvents for outside cleaning, the name plate and its fixing can be damaged.

If the name plate of the valve is not legible any longer, the valve must be removed from duty.

5 Customer service

CUSTOMER SERVICE	ZÜRCHER TECHNIK AG Neumattstrasse 6 CH 4450 Sissach / Switzerland
	Tel.: +41 61 975 10 10
	Fax.: +41 61 975 10 50
	e-mail linfo@zuercher.ch

6 Operating procedures and logbook

It is recommended, that the plant operator prepares operating procedures and attach them to this manual. Such procedures facilitate repetitions, reduce the risk of erroneous operations and are a handy tool for training, also for new personnel.

If the valve must be qualified, operating procedures are a requirement.

For your own safety and as your contribution to self-responsibility, it is recommended to keep a logbook, covering the entire process where the valve is installed. Therein all events shall be recorded.

In a case of liability or damage claim, this document will become an important source of information.

7 Disposal

Before disposing parts off, remove residuals and clean the part. Metal parts can be brought to metal collection places, other components belong to special waste.

Pay attention to professional disposal or assign a disposal company.

8 Disturbances, operating problems, error identification and rectification

Upon arise of a disturbance, we recommend to inspect the following. If inspection does not result in an action, please contact the customer service.

- Are feed and discharge lines open?
- Is flowing media available?
- Are the flange connections tight?
- Has the medium changed against the initial setting?
- Is the filter on the feed side blocked?
- May there be a gas leakage of the membrane gasket (soap bubble test)?
- Can the pressure regulating screw be turned a full turn (360°) and back?

9 Valve in design according to ATEX 95

9.1 General information about explosion proof designs

The explosion proof valves as described in this manual comply with the European directive 94/9/EEC Annex II and the relevant harmonized standards EN 1127-1 and EN 13463 Part 1, 5 and 6

An assessment regarding ignition hazard according EN 13463-1 chapter 5.2 was executed. The measures for a safe operation - as detected by this assessment - are portrayed and described in this chapter. Their consideration for the defined use of the valve is binding.

9.2 Defined use according to regulations

The explosion proof valves are for exclusive use for the process conditions as stipulated by the manufacturer.

The following is to be considered:

- physical and chemical properties of the medium
- max. temperature of the flowing medium
- max. pressure of the flowing medium
- ambient temperature -20...+ 40 °C
- installation of the valve in Ex-Zone 1 or 2

9.3 Identification of the registered valve types

The explosion proof valves bear an additional identification on the manufacturers name plate



II G 2G bc (*as an example*)

The number of the conformity confirmation must also appear on the nameplate, provided a certification was executed.

9.4 Mounting

See Chapter 2.2

9.5 Start-up

See Chapter 3

9.6 Maintenance

See chapter 4