



USER INSTRUCTIONS

Valtek Torex TX Control and shut-off valves

Butterfly Valves

VLEEIM4143-02 09.10

*Installation
Operation
Maintenance*



Experience In Motion

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SAFETY

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SAFETY

- Assess all the risks to eliminate the risk of personal injury and material damage. Read these instructions thoroughly!
- Always use the necessary protective equipment and comply with applicable safety directives when working with hazardous or hot/cold medium.
- Never operate a valve without first ensuring that there is no risk of crush injuries. The risk is highest with automatic valves.
- Take necessary safety precautions to prevent unintentional manoeuvre - i.e to atmosphere.
- Never dismantle a valve or part of a valve without ensuring that the line is free of pressure and any content.
- Always check that the valve type and material is suitable for its intended use. This applies especially to highly oxidising and corrosive medium. Observe also the risk of erosion and explosion as well as decaying medium. If in doubt, always request a written recommendation from NAF AB.

1. General

The instructions and list of spare parts in the succeeding apply to Torex butterfly valves in accordance with catalogue sheet VLEETB4143.



The product codes of Torex TX are specified in VLxxTB4143¹⁾:

¹⁾ xx = Language, i.e EE = English

2. Lifting

All lifting must be carried out on the valve itself and not on the actuator.

3. Receiving inspection

All valves leaving our works are inspected and tested in accordance with the relevant requirements or in accordance with the special provisions specified by the purchaser.

Valves equipped with actuators are subjected to functional testing and are adjusted in such a manner that every unit is completely ready for direct installation in the pipework.

However, in view of damage that may have occurred during transport, it is advisable that receiving inspection be carried out as follows

- Check that **the valve delivered is correct** in terms of type, size, equipment, etc.
- Examine the valve, actuator and valve positioner **regarding possible damages.**
- Operate the valve to the limits of its travel to **check the settings of the limit stops.**

4. Installation

Before installing the valve, **ensure that the pipework is free from impurities**, that the pipe ends between which the valve is to be installed are parallel and are correctly aligned, and that the distance between the pipe ends corresponds to the valve length, including gaskets.

The valve should not be used for contraction or aligning incorrectly pipe lines (see Fig. 2).

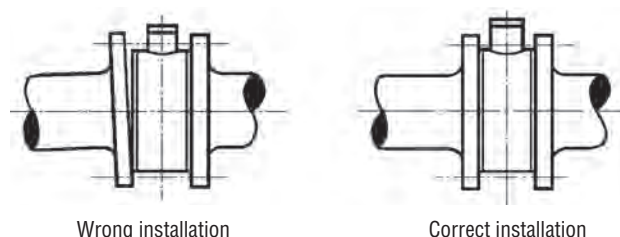


Fig 2: Ensure that the pipe ends align and have the correct distance

Torex TX valves can be installed in any position, regardless of the direction of flow. However, we recommend that, if installed in a horizontal run of pipe, the valve should be mounted with the stem horizontal, in order to prevent the accumulation of dirt and other impurities around the stem ends.

The butterfly valve body is marked with an arrow which indicates that best tightness thereby that the differential pressure gives an additional torque in the closing direction while a differential pressure towards the plane side gives an extra torque in the opening direction.

Locate the valve so that it will be **easily accessible for inspection and service**, particularly if the valve is equipped with an actuator and a valve positioner.

Ensure that the valve is installed so that the connected pipe ends do not obstruct the **free movement of the disc** when the valve is operated.

The pipes should be supported on each side of the butterfly valve, in order to relieve the valve of loads and avoid vibrations.

5. Flange gasket

Gaskets to the dimensions specified in SS 359, DIN 2690 or ANSI B 16.5, 1988, Table E1, Figure E2, Class 150 can be used.

6. Starting up

Before starting up, flush the pipework - with all valves in the open position - so that any impurities that may damage the sealing surfaces of the valve and impede its operation will be flushed away.

7. List of Materials and Spare Parts

Item	Qty	Part	Material	Remark
1a	1	Body	EN 1.4408/CF8M	
1b	1	Body	EN 1.0619	Carbon steel version
2	1	Disc	EN 1.4408/CF8M	
4a	1	Stem, upper	EN 1.4460	
4b	1	Stem, upper	EN 1.4462	NACE-version
5a	1	Stem, lower	EN 1.4460	
5b	1	Stem, lower	EN 1.4462	NACE-version
6	1	Clamp ring	DN >250 EN 1.4408/CF8M DN ≤250 EN 1.4436/AISI316	
7	1	Retaining	EN 1.4436	
8	1	Gasket	Graphite	
9	1	Gasket	Graphite	
10	1	Seat ring	Inconel 718	
14	1	Seat ring	PTFE carbon reinforced	
15	1	Clamp ring	DN >250 EN 1.4408/CF8M DN ≤250 EN 1.4436/AISI316	PTFE-version
18	1	O-ring	FPM	
20	1	Backing ring	PTFE	
21	1	Boxpacking set	Graphite	
22		Cup spring	17-7PH	For SafeGuard version
23	1	Gland cover	EN 1.4408/CF8M	
24	1	Boxpacking set	V-ring PTFE virgin/ PTFE 25 % C	
26	1	Stem bearing	Metaloplast	
27	1	Stem bearing	Metaloplast	
28	2	Pin screw	A4	
29	2	Nut	A4	
31		Screw	A4	
33a	3	Pin	DN≤500 EN 1.4436 DN>500 EN 1.4460	
33b	3	Pin	DN≤500 EN 1.4436 DN>500 EN 1.4462	NACE-version
36	2	Key	Stainless steel	
37	1	Washer	Metaloplast	
38	2	Retaining plate	DN≤200 EN 1.4436 DN>200 EN 1.4460	

1) Clamp ring item 15 must be included if the valve is to be converted from some other type of seat to a PTFE seat ring.

2) Quantity depending on dimension.

*) Recommended spare parts.

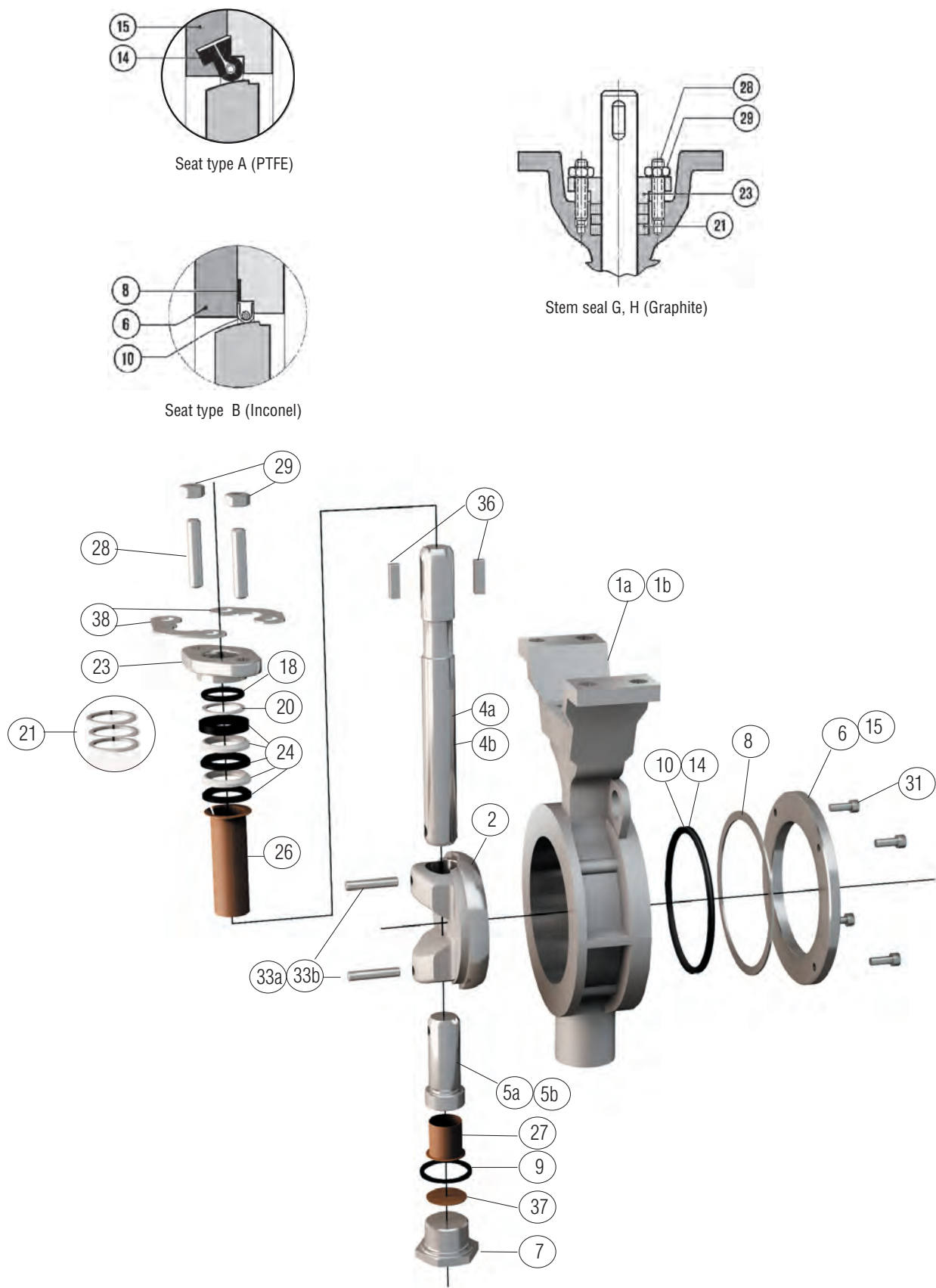


Fig 3. Spare parts, stem sealing and seatrings

8. Spare parts

State the following data when ordering spare parts:

1. Product code of the valve - incl. DN according to VLEETB4143 and the Manuf. No. specified on the identification plate of the valve.

Ordering example: 2382BB-0200-BAAABA
manuf. No 1234567,
Seatring item10.
Quantity 1 st.

9. Maintenance

If the valve disc or seat ring has sustained damage due to impurities in the pipework or for some other reason, or if the seat ring and stem seals need replacing after a long period of service, the valve must be overhauled.

Many valves are installed in such locations that their performance is of decisive importance to the entire process. Such valves should be inspected regularly and any faults should immediately be corrected.

9.1 To remove the valve from the pipework

The procedure for inspection and maintenance, for which no special tools are necessary, is as follows:

Ensure that the valve is not under pressure.

1. Ensure that the recommended spare parts and also the gaskets for the pipe flanges are available.
2. Close the valve.
3. Shut off all compressed air connections and isolate all electrical connections to the actuator.
4. Disconnect all compressed air lines and electric cables connected to the actuator.
5. Note the direction of flow which is shown by an arrow on the valve body.
6. Release the flanged joint between the valve and the pipework. Then lift out the valve. **Apply all lifting forces to the valve itself and not to the actuator.**

9.2 To change an Inconel seat ring

If an actuator is fitted to the valve, it need not be removed for inspection and replacement of the seat ring.

1. Set the valve to the fully open position.

2. Remove the bolts, clamp ring (6), gasket (8) and seat ring (10). Use the two tapped holes (M6) in the retainer ring to remove the ring from the valve body.
3. Carefully wash all parts. First use warm water and then, if necessary, a suitable solvent. Do not scrape any of the machined surface with hard tools.
4. Examine the surfaces on the periphery of the valve disc. Minor scratches and marks on the sealing surface can be rubbed down with emery paper.
5. Inspect the seat ring. During such overhauls, it is always advisable to fit a new seat ring.
6. Refit the gasket (8).
7. Spray the valve disc, sealing surface and seat ring with a suitable lubricant, such as Molykote 321 R or Gleitmo 900 or Unimoly C 220. Allow the lubricant to dry for at least 15 minutes.
8. Fit the seat ring (10) and clamp ring (6) into the valve body.
9. Screw in the retainer ring bolts, but don't tighten the retainer ring.
10. Check that the A-measure is correct according to 9.4.

9.3 To replace PTFE seat rings.

- 1-4 See the corresponding items in section 9.2.
5. Carefully clean the groove in the body into which the seat ring is mounted.
6. Make sure that the PTFE seat ring is mounted with its L - shaped (or the sharp corner) side towards the retainer ring.
7. The disc must be turned 180° before the retainer ring is placed in the valve. When the seatring is correctly positioned into the retainer ring, place the package in the valve.
8. Carefully fasten the retainer ring, but do not tighten it.

9. Close the disc for centering the seating, screw down the retainer ring to keep the seating in place.

10. Check that the seating is centered. The play shall be evenly applied between the disc and the body.

Start to fasten the retainer ring by crosswisely changing screws with evenly applied force.

11. The retainer ring shall more or less flush with the valve body. If not, gently hammer with a plastic hammer at the same time as the screws are tightened.
12. Now you can mount the actuator and adjust the end positions of the actuator until you get the correct A-measure. This is described separately below.

The valves seat ring should now be correctly prepared and should not leak. Please note that PTFE can leak before it becomes warm and adjusts to the disc. This is however a small leakage and should not be considered. The valve will be tight shortly.

9.4 To adjust a new seat ring in a valve with manual operating lever or worm gear unit

1. Close the valve to the sealing position corresponding to the value of dimension "A" shown in Fig. 4.
2. Adjust the end stop of the operating lever or the worm gear unit so that the sealing position will not be exceeded.
3. Tighten the retainer ring bolts in diagonally opposite pairs.

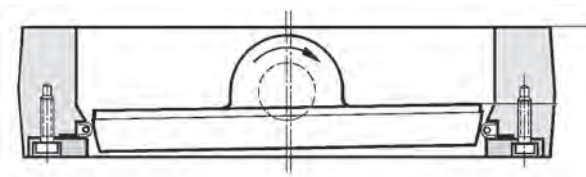


Fig. 4. Adjusting a new seat ring.

9.5 To adjust the seat ring in a valve with pneumatic actuator

1. Turn the valve to closed position, although without applying a sealing torque. The valve disc should then only just be in contact with the seat ring in the valve body.
2. Adjust the end position stop to the position in which the valve is almost closed.
3. Connect the compressed air supply to the actuator. If the end position stop is correctly set, the valve disc will not move.
4. Adjust the end position stop until the actuator has turned the valve disc to the sealing position, i.e. dimension "A" shown on the valve in accordance with section 9.4 and Fig. 4.
5. Lock the end position stop so that the sealing position will not be exceeded.
6. Tighten the retainer ring bolts.

9.6 To inspect and replace the upper stem seal:

9.6.1 Boxpacking of graphite type

The boxpacking usually requires inspection and adjustment after the valve has been taken into service.

Ensure that the valve is not under pressure.

1. Remove the actuator.
2. Remove the nuts (29) and remove the gland cover (23) and the boxpacking set (21).
3. Clean the surfaces of the stem, gland cover (23) and recess in the valve body.
4. Carefully examine the stem surface which must be completely free from marks and scratches.
5. Fit new boxpacking set (21). Then fit the gland cover (23) and the nuts (29).
6. Tighten the nuts (29) sufficiently to ensure that the boxpacking is correctly seated and that it is in contact with both the stem and the valve body.

Note: Check the condition of the boxpacking and, after the valve has been taken into service, retighten the nuts (29), if necessary.

9.6.2 Boxpacking Zebra-CL™

The sealing requires inspection and adjustment when the valve is taken into operation.

Ensure that the valve is free of pressure.

1. Dismount the actuator.
2. Remove the nuts (29). Lift off the gland cover (23). Then remove the boxpacking set (24) and the o-ring (18).
3. Clean the stem surfaces, gland cover (23) and the recess in the valve body.
4. Inspect the stem surface thoroughly. It should be free from marks and scratches.
5. Lubricate the stem with suitable lubrication.
6. Replace the boxpacking set (24) and the greased o-ring (18). Then mount the gland cover (23) and nuts (29).
7. Tighten the nuts (29) until the boxpacking gets in place and is in contact with both the stem and valve body. Check the tightness of the boxpacking and retighten the nuts (29) – if necessary - when the valve is taken into operation.

9.6.3 Boxpacking SafeGuard

The sealing requires inspection and adjustment when the valve is taken into operation.

Ensure that the valve is free of pressure.

1. Dismount the actuator.
2. Remove the nuts (29) and the cup spring (22). Lift off the gland cover (23). Then remove the boxpacking and the o-ring (18).
3. Clean the stem surfaces, gland cover (23) and the recess in the valve body.
4. Inspect the stem surface thoroughly. It should be free from marks and scratches.
5. Lubricate the stem with suitable lubrication.

6. Replace the boxpacking and the greased O-ring (18). Then mount the gland cover (23) and nuts (29).
7. Tighten the nuts (29) until the boxpacking gets in place and is in contact with both the stem and valve body. Check the tightness of the packing and retighten the nuts (29) – if necessary - when the valve is taken into operation.

9.7 To change the packing, item No. 9

Ensure that the valve is not under pressure.

1. Remove the Retaining (7) and gasket (9).
2. Carefully clean the retaining (7) and the lower, loadcarrying part of the stem (5).
3. Fit a new gasket (9).
4. Spray locking compound, such as Loctite 641, onto the screw threads in the valve body.
5. Fit and tighten the retaining (7).

10. To replace the stems and the valve disc

If the valve disc (2) or stems (4) and (5) have been damaged and need replacing, the valve must be sent to NAF for repair, since special tools and fixtures are necessary for correct assembly.

11. Fitting the actuator to the valve

1. The actuator can be mounted directly on the valve. The mounting flange and the stem of the valve follow the NAF standard for securing the actuator.
2. Turn the valve to the closed position (clockwise), although without applying a closing torque. (The valve disc should then only just be in contact with the seal ring in the valve body.)
3. Fit the actuator. The actuator should be in the **"almost closed"** position, i.e. 5 - 8° of the rotary travel of the actuator should remain before the end position. Adjust the end position stop of the actuator to **this almost closed position**.

4. Connect the compressed air supply to the actuator. (Applies to pneumatic actuators.)
5. Adjust the end position stop until the actuator has turned the valve disc to the sealing position. This sealing position varies from valve to valve, and the dimension is specified on the valve body adjacent to the arrow showing the direction of flow. See dimension "A" in Fig. 4 in section 9.4.
6. **General**
The actuator may be fitted either in line with the connected pipes or transversely to them. An intermediate plate is necessary for mounting the actuator in line with the pipework.

N.B. The direction of closure must always be clock wise, as viewed from the actuator.

Before fitting the actuator, it is important to ensure that the actuator fits the stem. First try without keys, to check that the drive slips easily onto the stem. Also check that the keys are easy to fit and match the keyways in the stem. Grease the actuator stem entry.

Take care to ensure that the end position stops on the actuator are correctly set and locked. If the end position stop for the closed position is incorrectly set, the valve disc may overtravel, which could damage the sealing elements.



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VLEEIM4143-02 09.10

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