

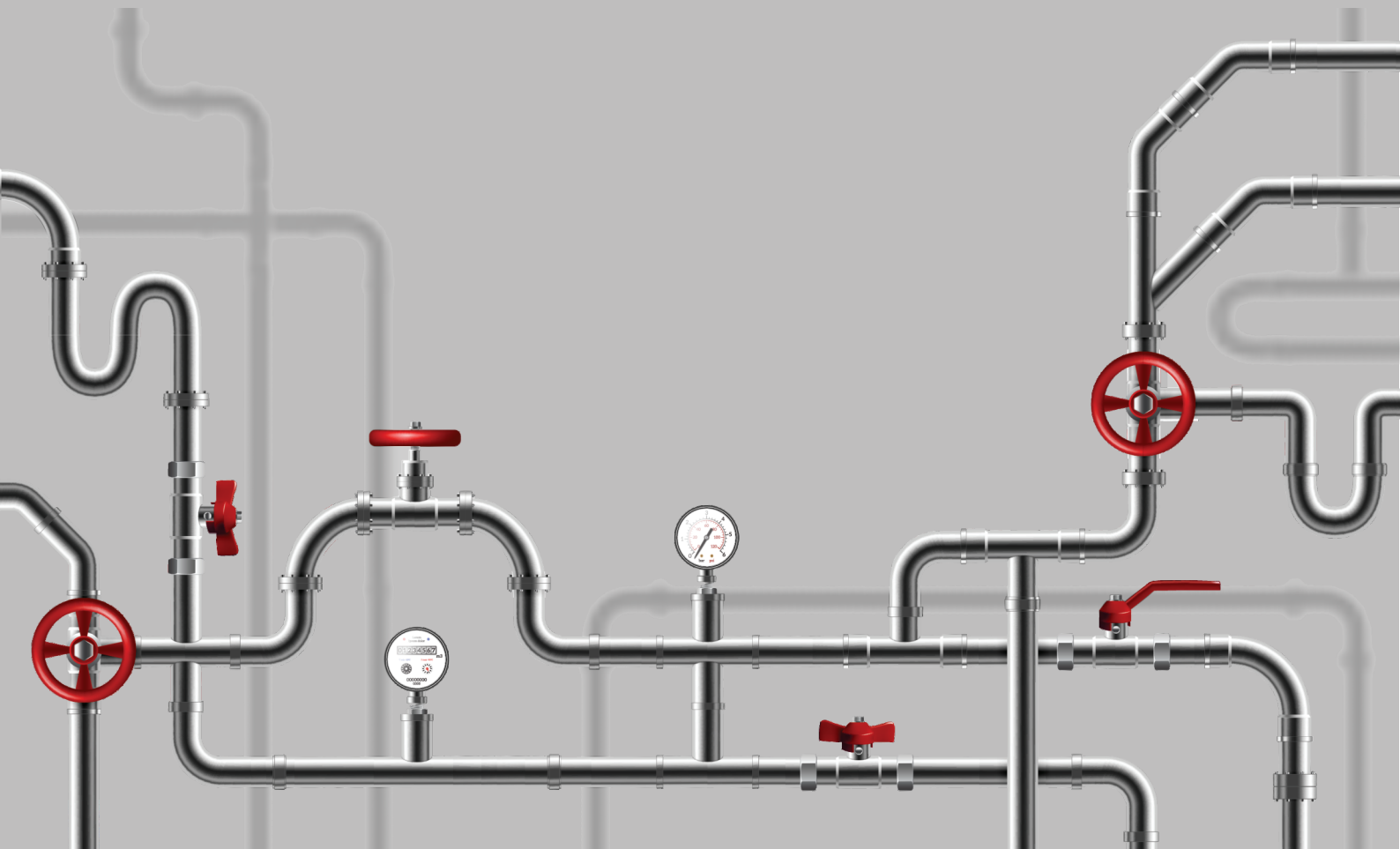


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**MIRAB CO.**

Manufacturer of Industrial Valves  
and Relevant Equipment

# General Notes for Installation, Operation and Maintenance of Mirab Co. Products



## Introduction:

- Careful reading of this manual is recommended to all those who are responsible for the installation, operation, and maintenance of the products of Mirab Co., to achieve the following goals:

1. Preventing the occurrence of danger and possible injuries
2. Reduce installation time and maintenance costs
3. Correct operation and increase the service life of the equipment

This guide has been developed for using valves under normal conditions. For more information about the performance of the valve in special conditions, please contact the technical department of Mirab Co.

- The information and pictures in this guide are not enough for the details of the product and it is necessary to refer to the catalog of Mirab Co. for operation and selection of the appropriate valve.
- At the discretion of Mirab Co., the information and explanations contained in this guide are subject to change, in which case the previous versions will be invalid and unreliable.



Mirab Co. will not be responsible or liable for damages caused by non-compliance with the relevant standards and the items mentioned in this guide.

- It is strongly recommended that all chapters of this manual be carefully read before installing, commissioning, and operating the product.



### General recommendation for Shipping and Storage:

1. Normally, the product is packed and tightened according to its dimensions and weight to protect it from weather conditions and possible damage.
2. The valve disc should be placed in a slightly open position during transportation and storage.
3. If the valve is equipped with an actuator, no force should be applied to the actuator and its mounting part to the valve.
4. The tools required for moving and transporting, including belts, cables, or wire ropes, must be selected in proportion to the weight of the valve specified in the tables in the Mirab catalog.
5. For safe handling of the product, two eye bolts are installed on the body of high-weight products, and for high sizes, there are also some additional holes in the flange.
6. Never hang or move the valve from its disc.
7. When moving the product, it is necessary to maintain safe distance from it to prevent injury.
8. The product should be stored in a well-ventilated dry environment away from heat and direct sunlight. Otherwise, the sealing part, which is made of elastomer, will lose its flexibility over time and will not have a proper performance for sealing. The temperature of the warehouse place can be -20 °C to +40 °C. If the temperature of the warehouse is below zero degrees, the body temperature of the product must reach +5 °C before installing the valve in the pipeline.
9. Caps inserted to protect flanges and threads should not be removed until the product is prepared to install in the pipeline.
10. Avoid placing any additional objects directly on the product.
11. It is not recommended to store the product on the ground (direct contact of the body with the ground surface). The best way is to store it on a shelf or a pallet.
12. If the product is stored in the warehouse for a long time, it is recommended that it be placed on the ground from the base support or plate.
13. Spare parts also need protection and usually need to be coated with anti-corrosion materials. It is better to consider code and labels for these parts in a way that they can be easily recognized and used.
14. Shipping products that are packed in cartons should be handled with caution as there is a possibility of damage due to moisture.
15. Transportation of products should be done with caution to prevent falling and impact.
16. The transportation of products should be done by cranes and forklifts, and other unauthorized heavy vehicles such as excavators should not be used for this purpose.
17. During storage, open and close the valve completely at least once every three months to prevent it from tightening and formation of possible deposits.
18. If the product has been stored in the warehouse for more than two years, the seat test must be done before installation in the pipeline and ensure that the product does not leak.



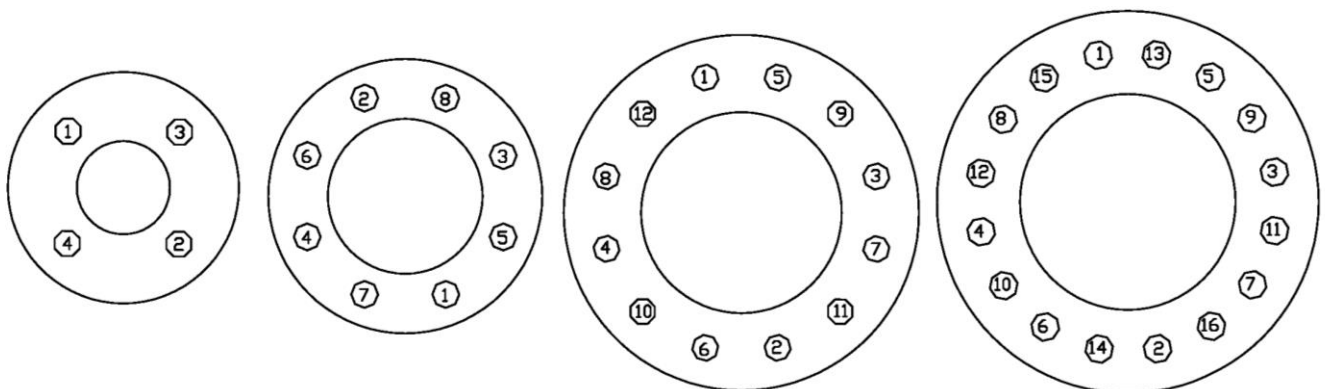
### General recommendation for Installation and Commissioning:

1. The products of Mirab Co. are designed and manufactured according to the standard in such a way that if the notes of this instruction are followed and the valve installed and operated correctly, they will have a safe operation.
2. Consider sufficient space for product installation, maintenance, repair, and inspection.
3. The place of product installation should be suitable and safe.
4. At the time of installation and repairs, the installation site should have sufficient and appropriate lighting.
4. The pipes should have proper support so that no extra force is applied to the product body.
5. The product should not be installed in a position that is exposed to external force and vibrations.
6. If the installation site is outdoors, the product should be protected from direct atmospheric effects.
7. If there are operations such as painting, masonry, etc. near the installation site, it is necessary to cover the product with a suitable cover.
8. For gear-operated valves, if the installed is buried type, it is necessary to cover the gearbox with a suitable cover, and if it has a telescopic stem, it should be removed from the valve and reconnected to it after installing the valve.
9. Any welding operations must be performed before the product is installed in the pipeline to avoid damage to the seals and body cover.
10. After the welding operation is completed, all weld mud and dirt should be removed and cleaned.
11. The installation and commissioning of the valve should be done by qualified and experienced staff.
12. Before starting the installation operation, it is necessary to drain the pipeline from the fluid and inspect and clean the inside of the pipe.
13. Do not remove the cover on the product and the flange caps until the installation.
14. Visually inspect the body and surfaces of the valve flange and actuator to ensure that the product is not damaged during transportation.
15. The internal components including the sealing surfaces of the body and disc should be inspected and cleaned so that there is no paint, pollution, or dust on these parts. If any solvents are used for cleaning, it should be ensured that there will be no damage to these components.
16. Based on the requirements of the EN19 standard, each product has a marking on the body or a nameplate attached to it, which includes at least the manufacturer's trademark (logo), product size (DN/NPS), nominal pressure (PN/CL), and body material. Compare and check the information engraved on the body or nameplate of the product with its catalog and the working conditions of the fluid. If the fluid service conditions are not within the scope of the nameplate specifications, consult with the manufacturer before installation.
17. Under no circumstances, the static pressure of the system should not exceed the nominal pressure of the product.
18. Make sure that the pipes on both sides of the product are aligned with each other. If the pipes are not aligned, the loads on the valve body and flange will cause stress and damage.
19. Before installation, ensure that the pipeline cross flanges are matched with the product flanges.
20. The bases of the product should only be used to support its weight. It is not allowed to apply an additional load to the body.
21. For ease of installation, the distance between pipe flanges should be about 20 mm longer than the size of the flange to the valve flange. This distance can be adjusted by dismantling joints.
22. It is recommended that gaskets (sealing washers) of reinforced type and according to DIN 2690 and DIN EN 1514-1 standards, especially for flanges with raised faces.
23. The sealing gasket must not have scratches or any defects
24. For products that have a flow arrow on the body or plate (control valves, check valves, and strainer), it is necessary to install the product in the direction of fluid flow so that the product has the correct function.
25. Open and close the valve once before installation to make sure it works properly .
25. Place the gasket on the surface of the valve flange and fix it with a little gasket adhesive.



26. Place the product between the two pipeline flanges and pass some bolts with appropriate length through the holes at the bottom of the flange and tighten slightly.
27. Pass the other bolts and tighten their nut slightly. Finally, tighten the bolts crosswise. The amount of protrusion at the ends of all bolts should be approximately the same.
28. Connecting the valve to the pipeline flange can be done by a hexagonal bolt with one nut and one washer or a full-thread bolt with two nuts and two washers.
31. Use special pipe wrenches and flat wrenches.
32. The appropriate torque for tightening the bolts should be applied based on the type and material of the bolt and nut according to the standard and table on next page. Excessive tightening of the nuts, which causes unnecessary tension on the bolts and nuts and stretching of the flanges, should be avoided.
33. After completing the installation process, while the valve disc is fully open, wash the pipeline according to the operating instructions of the water supply lines.
34. For control valves, it is recommended to install a strainer with a suitable mesh before the valve to prevent the accumulation of sediments inside the valve.
35. If the valves have a handwheel or operator, completely open and close the valve by handwheel several times, and if it opens and closes easily, the valve is ready for use.
36. Valves are normally closed clockwise. It should be checked that by pressing the start button of the actuator, the valve disc moves in which direction. If the direction of movement is wrong, the limit and torque switches will not work.
37. The dimensions of the handwheel are designed in such a way that an operator can open and close the valve, and therefore using tools such as levers is not required to open and close, and it can cause damage to the end stops of the gearbox/actuator or valve shaft.
37. The working temperature and pressure of the fluid should not be higher than the limit declared in the product catalog or data sheet.

Bolt Tightening Torque Table According to DIN 267				
Bolt Size	Required Torque N.m			
mm	Gr. 3.6	Gr. 4.6	Gr. 5.6-A2	Gr. 8.8
M4	0.85	1.1	1.4	2.9
M5	1.7	2.2	2.8	6
M6	2.9	3.8	4.8	10
M8	7	9.3	12	25
M10	14	19	23	49
M12	24	32	40	86
M14	39	51	64	135
M16	59	79	98	210
M18	81	110	135	290
M20	115	155	190	410
M22	155	205	260	550
M24	200	265	330	710
M27	295	390	490	1050
M30	395	530	560	1450
M33	540	720	900	1900
M36	690	920	1150	2450
M39	920	1200	1500	3200
M42	1100	1500	1850	3950
M45	1400	1850	2300	4950
M48	1700	2250	2800	5950
M52	2150	2900	3600	7650
M56	2700	3600	4500	9550
M60	3350	4450	5550	11900
M64	4000	5350	6700	14300
M68	4850	6500	8100	17300



Sequence for bolts tightening.



### General recommendations for maintenance and repairs:

1. If the product is correctly selected and installed and its maintenance and repairs are carried out according to the provided program and instructions, the lifetime of the product and related equipment will increase.
2. Setting the inspection schedule of the product and related equipment and its regular implementation should be considered in the operator's agenda.
3. In conditions where the installation site is in a pit and there is a possibility of submergence, the possibility of corrosion of the external surfaces of the body will be higher and it is necessary to carry out maintenance and repairs according to these conditions, and of course it is better to design and choose the type of coating based on Burial conditions.
3. In case of wear or damage of internal parts and sealing surfaces, etc., they should be repaired or replaced.
4. Product repairs and replacement of spare parts should be done by qualified and experienced staff.
5. If there is no qualification, it is recommended that the relevant staff participate in the training courses organized by Mirab company.
6. It is recommended to use the necessary safety devices and equipment when performing repairs and replacing spare parts.
7. Before doing any repairs, it is necessary to depressurize the pipeline. As long as the valve is under fluid pressure, it is not allowed to open the gearbox and the actuator. Also, couplings and connections should not be disassembled under pressure.
7. If the valve is controlled by an actuator (electrical/pneumatic/hydraulic), it is necessary to disconnect the valve from the external source first.
8. If the product is installed in a pipeline with high temperature, it is necessary to wait until the temperature of the product's body reaches below the steam temperature after the pressure is released, and if the fluid is toxic and dangerous, the fluid inside The product should be completely removed through the plug or drain valve.
9. Keep in mind that some valves may not have self-locking properties and it is necessary to carefully read the instructions related to these products.
10. After completing the service and repairs and before restarting the line, all connections must be inspected and tightened.
11. If it is necessary to repaint the coating of the valve body due to damage at the project site, blue epoxy paint with RAL 5005 or similar can be used.





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