

Penstock & Valve Specialists

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INSTALLATION AND MAINTENANCE RECOMMENDATIONS

HYDROSTATIC DRAW-OFF VALVES

Please read the following notes prior to commencing installation of the hydrostatic draw-off valves.

Handling and Storage

Hydrostatic valves should be stored vertically with sliding tube fully inserted in the cast iron cylinder to avoid distortion of the tube. Care should be taken during storage and handling to prevent damage to the flange connecting studs (when fitted) at the bottom of the valve.

If chains or slings are to be used for handling purposes the valve body (cylinder) should be protected from damage with cloth sacking or similar material. Never use hooks unless eyebolts are fitted.

Generally, hydrostatic valve equipment is despatched as two sub-assemblies;

- The valve comprising of the cast iron and sliding UPVC cylinder with inlet/outlet fitted. The sub-assembly incorporates a dynamic seal arrangement and a stem connector for connection to the extension stem. The UPVC sliding cylinder is **not** restrained within the valve body and lifting devices must not be attached to this item. The UPVC sliding cylinder is suitable for movement up to the total travel specified. The valve assembly must be lifted vertically with chains or slings attached to the cast iron body as described above. Flange connecting bolts or gaskets are not supplied, however, when the valve flange is studded, studs and nuts are provided.
- The operating equipment configured to satisfy site/client specific requirements will generally comprise of a pillar suitable for floor or mounting on structural steelwork, stem and manual or electrical operation.

Hydrostatic Valve Performance

Hydrostatic valves are available as direct lift or side lift versions. The side lift option has the advantage of providing unrestricted flow at the bellmouth inlet/outlet and should be considered in conditions where there is a significant risk of clogging or ragging of the valve.

Sealing between the valve body and UPVC sliding cylinder is effected by a dynamic seal. The dynamic seal is orientated at the factory to suit the direction of flow through the valve established prior to commencing manufacture of the equipment. Incorrect fitting of the dynamic seal will affect sealing performance of the valve and confirmation of flow direction is advised prior to commencing installation.

These installation guidelines apply to Express Valve Services Limited standard hydrostatic draw-off valve product range using competent, trained personnel working with suitable equipment under safe site conditions to carry out the work.

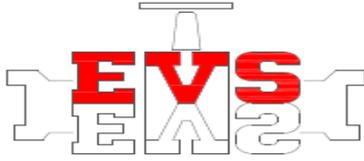
Installation Sequence

Satisfactory hydrostatic valve installation can be achieved using the following recommendations.

Mounting the Valve

1. Ensure that the connecting pipe flange is flat, clean and is horizontal.
2. Obtain gasket and bolts (not Express Valve Services Ltd. supply) of suitable size and type for the application. When the valve flange is studded, studs and nuts are supplied.

Check that the connecting holes in the valve and pipe flange match. Where side lift hydrostatic valves are to be fitted the orientation of the valve body to the mounting flange pipework is important to correctly position the vertical axis of the operating stem.



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3. Clean the pipe flange thoroughly and fit the gasket.
4. Clean the hydrostatic valve base flange. Suspend the valve above the connecting pipe flange and remove any nuts from the mounting studs (when fitted).
5. Align studs/bolts in the valve flange with the holes in the pipe flange and lower the valve into position.
6. Fit the nuts, take up the slack in the nuts.
7. For safety purposes the handling/lifting equipment should remain in position until the valve is securely clamped.
8. Tighten the nuts uniformly, opposite nuts in turn.
9. Check the axis of the valve is vertical, maximum vertical axis misalignment allowable is 0.5° . If alignment errors are observed possible explanations are;
 - The pipe flange mounting surface was not horizontal,
 - The valve flange mounting stud/bolt nuts have not been tightened uniformly.

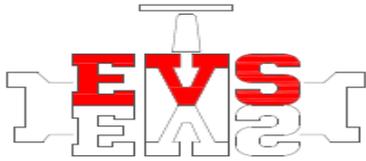
Operating Equipment

1. Hydrostatic draw-off valves are despatched as two sub-assemblies as described previously, however, where more than one unit is involved the operating equipment will be identified with an item number to match the respective valve assembly.
2. Manufacturers of proprietary operators (e.g. electric actuators, gearboxes, etc. provide Installation, Maintenance and Operating Instructions for their equipment.
3. Express Valve Services Limited recommend the use of installation engineers experienced in commissioning operating equipment where electric actuators are involved. Damage can be caused to the hydrostatic draw-off valve and operating equipment as a result of incorrect setting of limit and torque switches.
4. The following guidelines cover the installation of stems, guide brackets, coping brackets, pillars etc. but excludes equipment referred to in Item 2 above. Refer to the equipment manufacturers documentation for detailed instructions.
5. Attach the extension stem assembly to the valve and support the operating equipment securely in vertical alignment. Use the stem as a guide to mark out the positions of guide brackets, coping brackets etc. Please note: When coping brackets are supplied they are generally fitted to the pillar base flange.
6. Fix and grout the guide bracket(s), coping bracket(s) etc. to the 'civils' for the type of anchor bolts specified.
7. Note, that the pillar should be set to provide correct vertical alignment of the stem support at the top of the pillar **before** fitting and tightening the fasteners/anchor bolts through the pillar base flange. This will ensure that the clearances in the pillar base flange do not create misalignment of the stem.
8. On completion of the above procedure check that the operating equipment is in vertical alignment. Fit the means of operation, e.g. handwheel, gearbox, actuator etc. if necessary (electric actuators may be despatched in their original packing to avoid damage).

Operating Criteria

On completion of the installation the 'coupled' sub-assemblies must satisfy the following criteria to ensure satisfactory operation of the equipment.

1. The maximum allowable vertical axis misalignment is 0.5° ,
2. The axis of both sub-assemblies must be concentric,
3. The distance specified between the valve mounting flange and bellmouth outlet must not be exceeded.



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4. The distance specified between the bellmouth outlet and the pillar base must not vary by +/-25mm.

Operating Instructions

1. Refer to the documentation provided by the manufacturers of proprietary operating equipment covering installation, commissioning, operation and maintenance.
2. Where handwheels are fitted the direction of raising (closing) the sliding cylinder is marked on the handwheel rim. For powered actuation lowering (opening) and (raising) closing directions are marked on the operating unit.
3. If 'tight spots' are encountered during operation of the equipment avoid using excessive force since this may cause damage to the stem and/or drive nut. In such cases determine the cause and resolve the obstruction to correct operation of the equipment. The risk of potential leakage and operational problems can be reduced by implementation of a maintenance schedule.
4. The working life of the hydrostatic draw-off valve will be prolonged if minimum force is used to achieve satisfactory performance.
5. Handwheel diameters and operator sizes will have been determined with the above in mind. Express Valve Services Limited does not advise increasing/changing to larger handwheels to resolve operating problems. Similarly, for powered actuation it is not advisable to alter the settings of torque or limit switches after these have been correctly set during commissioning of the equipment.
6. Operating equipment utilising rising stems should be fitted with protection tubes.

Maintenance Schedule

Frequency of maintenance is dependent on the frequency of use and operating duty, in view of this the following recommendations must be considered as minimum requirements.

Refer to the documentation provided by the manufacturers of proprietary operating equipment covering maintenance.

Handwheel thrust assemblies, electric actuators or gearboxes must not be removed from pillars unless the operating stem is adequately clamped to prevent movement of the sliding UPVC cylinder.

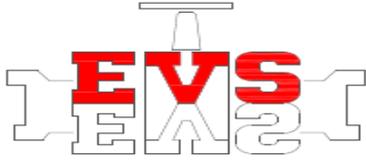
1. Every Month

- To reduce the risk of sticking hydrostatic draw-off valves should be at least one cycle if the unit has not been operated in the previous month.

2. Every Six Months

Carry out a thorough visual inspection and implement the following actions;

- Remove the stem protection tube,
- With the UPVC sliding cylinder fully raised remove the old grease and replace with a recommended grease suitable for the application,
- Clean the exposed areas of the hydrostatic draw-off valve by hosing down with clean water,
- Check the tightness of accessible fasteners,
- Check the equipment for signs of corrosion or damage to the paint system and repair as necessary.



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Recommended Lubricants

- For general lubrication purposes under normal operating conditions we recommend Shell Alvania R2 (or equivalent) for greasing stem screw threads, yoke/drive sleeves and thrust housings.
- For high duty or aggressive effluent applications we recommend Rocol Tuflube Allweather grease for lubricating stem and nut block screw threads.
- For potable water applications we recommend using Rocol MX22 or Rocol MX66 grease.