Penstock & Valve Specialists

EXPRESS VALVE SERVICES LIMITED
Units 18/19 The Wallows Industrial Estate
Dudley Road, Brierley Hill
West Midlands, DY5 1HR

Tel: 01384 263872
Fax: 01384 480148
e-mail: sales@expressvalves.co.uk

INSTALLATION AND MAINTENANCE RECOMMENDATIONS FOR HANDSTOPS

Please read the following notes prior to commencing installation of the handstops(s).

Handling and Storage

Handstops should be stored in the 'vertical' position wherever possible, provided this can be achieved safely. In situations where handstops are stored horizontally, particular care should be taken to avoid introducing twist or distortions to the frame.

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

General Notes

These installation guidelines apply to Express Valve Services Limited standard handstop product range using competent, trained personnel working with suitable equipment under safe site conditions to carry out the work, and the installation will take place on concrete having a minimum strength of 25 N/mm^2.

Due to civil work tolerances mounting of the handstop unit must be effected by grouting between the wall and frame without contact between the frame and wall avoiding distortion. Attempts to seal between the frame and wall using mastic or resilient compounds may result in leakage.

Generally, all handstop units are despatched with the doors set in the fully closed condition. Moving the door should be avoided until the handstop unit is securely wedged in to the re-formed channel rebates of bolted to the wall.

Pressure from any locating jacks must be spread evenly using timber. Avoid point or concentrated loading to any part of the frame, and never apply jacking loads to the door.

Installation Sequence

Handstop installation avoiding distortion and consequent leakage can be achieved using the following recommendations.

Channel Mounted Handstops

1. Support the handstop unit in its required position in the pre-formed channel rebates (sides and invert). Ensure that the invert of the frame is flush with final invert of the channel.
2. Locate the handstop unit in its final correct position by setting the frame in the pre-formed rebates using jacks and/or packing pieces to the recommended grout thickness between the frame and concrete rebate.
3. Check for plumb and level in all directions, and if necessary adjust the packing thickness to compensate for irregularities in the civil work.
4. Check seal faces with a feeler gauge for non-acceptance of 0.1mm (0.004") around the full perimeter of the aperture. Adjust the packing only where this tolerance is exceeded and sufficient only to close the gap.
5. Grout in accordance with 'Shuttering and Grouting' in this procedure.

Wall Mounted Handstops – Expanding Anchor Bolts

1. Present the handstop unit into its required position ensuring the frame invert is flush with the 'civils' invert. Support the handstop unit along the whole length of the frame bottom cross member.
2. Using the handstop frame as a template drill all holes to the diameter and depth specified for the anchor bolts to be used.

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3. During the drilling cycle anchor bolts may be inserted into the top two holes to prevent movement of the handstop unit, place packing/jacking pieces local to the bolts to the recommended grout thickness. Tighten the anchor bolts sufficiently to hold the packing/jacking pieces in position.
4. The protective coating inside the frame fixing holes may be damaged during the drilling operation. Any damage should be made good immediately after drilling in accordance with the paint specification to prevent corrosion.
5. Blow/remove dust or debris from the drilled holes.
6. Insert the remaining anchor bolts, place packing pieces or jacks of the required grout thickness as close as possible to the fixing. Tighten the anchor bolt sufficiently to 'nip' the packing piece or jack.
7. Check for plumb and level in all directions and adjust jacks or insert additional packing pieces to compensate for irregularities in the civil work.
8. Check seal faces with a feeler gauge for non-acceptance of 0.1mm (0.004") around the full perimeter of the aperture. Adjust the packing only where this tolerance is exceeded and sufficient only to close the gap.
9. Tighten all of the anchor bolts sufficiently to ensure movement of the handstop unit does not occur during grouting. If movement is suspected when tightening the anchor bolts the feeler gauge check and possible adjustment must be repeated.

Wall Mounted Handstops – Chemical/Resin Anchor Bolts

1. Present the handstop unit into its required position ensuring the frame invert is flush with the 'civils' invert. Support the handstop unit along the whole length of the frame bottom cross member.
2. Using the handstop frame as a template drill all holes to the diameter and depth specified for the anchor bolts to be used.
3. The protective coating inside the frame fixing holes may be damaged during the drilling operation. Any damage should be made good immediately after drilling in accordance with the paint specification to prevent corrosion
4. Blow/remove dust or debris from the drilled holes.
5. Follow the recommendations and instruction provided separately with the chemical/resin anchor bolts.
6. Support the studs in the centre of each mounting hole square to the handstop unit mounting face until the resin is fully cured. If the studs are not kept square then the handstop unit may become 'wedged' by the misaligned studs.
7. Fit washers and nuts to the anchor studs, place packing pieces or jacks of the required grout thickness as close as possible to the fixing. Tighten the anchor bolt sufficiently to 'nip' the packing piece or jack.
8. Check for plumb and level in all directions and adjust jacks or insert additional packing pieces to compensate for irregularities in the civil work.
9. Check seal faces with a feeler gauge for non-acceptance of 0.1mm (0.004") around the full perimeter of the aperture. Adjust the packing only where this tolerance is exceeded and sufficient only to close the gap.
10. Tighten all of the anchor bolts sufficiently to ensure movement of the handstop unit does not occur during grouting. If movement is suspected when tightening the anchor bolts the feeler gauge check and possible adjustment must be repeated.

Notes: Anchor Bolts

1. The anchor bolts manufactures installation guidelines must be followed for safe application and use of their products.
2. When 'plated' mild steel anchor bolts are used the exposed portion of the bolt a protective coating should be applied to avoid corrosion.

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Shuttering and Grouting

1. Shutter up around the external profile of the frame and the internal aperture using timber faced with a thin neoprene type sponge material to ensure a good, clean seal without undue pressure.
2. Check again for plumb and levels, and non-acceptance of a 0.01mm (0.004") feeler gauge at the seal faces. If correct mix and pour a fluid grout in proportions of 50 Kg of Ordinary Portland Cement, 50 Kg of silver sand and one small tub (0.227 Kg) of Conbex or equivalent non-shrink additive between the handstop frame and wall or pre-formed rebates.
3. Leave the installation undisturbed for the duration of the grout curing cycle as recommended by the Conbex or equivalent additive manufacturer. When the grout is fully cured, check that the anchor bolts are still tight in sequence (i.e. when one bolt has been checked follow on with the bolt diagonally or diametrically opposite).
4. If all anchor bolts are tight then remove the shuttering and generally clean up and remove any excess grout or debris from the handstop unit. Pay particular attention to the sealing faces to ensure they are not damaged to minimise leakage.
5. If 'excessive' tightening of any of the anchor bolts was required during the above checking procedure re-check the sealing faces for non-acceptance of a 0.1mm (0.004") feeler gauge.
6. Exposed portions of plated steel anchor bolts should be painted on completion of the installation.
7. Do not cut off protruding threads on chemical anchor studs when fitted.

Operation

Raising and lowering the door within the frame should be smooth provided the installation procedure has been implemented correctly.

1. Handstop doors are supplied with one or two lifting handles depending on the size of the equipment with a maximum weight of 25 kilograms for single person operation and this must not be exceeded.
2. Clean the handstop unit to remove excess grout before opening the handstop for the first time. Remove the door from the frame and check all sliding surfaces including the invert and remove any debris.
3. The handstop frame seals are resilient/flexible and may take a slight 'compression set' after a short period in service. This will not detract from correct performance of the unit.
4. Handstops are not intended to provide 'drop tight' leakage performance. However, operating under normal service conditions leakage should not exceed 1.25 litres/minute/metre of seal periphery at door depth head.

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.

Every Six Months

- Check the equipment for signs of wear or damage, with particular attention to the sealing faces if operation procedures allow access to the handstop unit.
- Visually check the equipment for signs of corrosion or damage to the paint system and repair as required.
- Check and adjust the tightness of fasteners that are accessible including the anchor bolts.
- Check for signs of leakage between the handstop frame and civils, make good any faults.