

INSTALLATION, OPERATION, STORAGE AND MAINTENANCE INSTRUCTIONS FOR SERIES SVTC CLAMP TYPE SIGHT GLASSES

WARNING: ONLY PROPERLY TRAINED PERSONNEL SHOULD INSTALL AND MAINTAIN WATER GAUGE GLASS AND CONNECTIONS. REMEMBER TO WEAR SAFETY GLOVES AND GLASSES DURING INSTALLATION. BEFORE INSTALLING, MAKE SURE ALL PARTS ARE FREE OF CHIPS AND DEBRIS. IMPROPER INSTALLATION/MAINTENANCE OF GAUGE GLASS AND CONNECTIONS CAN CAUSE IMMEDIATE OR DELAYED BREAKAGE RESULTING IN BODILY INJURY AND/OR PROPERTY DAMAGE.

1.0 INTRODUCTION: Sight glasses are simple devices for the observation of a vessel's contents and can be expected to perform reliably for many years. To achieve extended reliable service life it is imperative that Sight glasses be properly specified, free of shock loading, caused by rapid temperature changes, or mechanical impacting and lastly, by using good workmanship in the assembly, installation and maintenance of the sight glass.

Most lens failures occur either at the time of glass installation or as soon as the system is pressurized. These failures have occurred as a result of stress concentrations imposed on the lens. Chipped lens edges, warped or dirty lens seats in the upper flange, lower flange, use of gaskets with chips or lumps, careless seating of the lens and gaskets in their seat and uneven bolt loading are typical causes of stress concentrations. With good workmanship these are all rather simple to avoid. It is imperative that all personnel involved in the assembly, installation and maintenance of a sight glass read and understand all instructions in this manual.

2.0 INSPECTION: The SVTC series sight glass assembly should be inspected carefully for shipping damage. If damage is evident, do not attempt installation and notify the carrier immediately. If damage is suspected consult factory before attempting installation.

3.0 STORAGE: The Series SVTC sight glass assembly should be carefully stored after inspection. They should be stored in such a manner as to be protected from adjacent equipment, the weather, dust, dirt, and any corrosive atmospheres. The lens requires extra attention due to the fact that they are easily damaged. It is best to leave all parts of the assembly in the original packaging while awaiting installation.

4.0 HANDLING: Personnel handling any Sight glass component should have clean hands, free of all dust, dirt, and grease. components should only be placed on clean surfaces covered with clean cloth or clean paper. Eye protection and safety gloves should be worn at all times during handling and installation.

5.0 ASSEMBLY: Series SVTC Sight glasses are shipped from the factory as a kit but must be assembled onto the tank welding ferrule in the field.

Only qualified personnel who are familiar with Sight glasses and have read and understand all instructions in this manual should assemble the sight glass. Personnel should have copies of this Manual and any applicable drawing at their immediate disposal.

Before starting assembly of the Series SVTC Sight glass, the lenses should be examined for scratches and other imperfections. To examine a lens for scratches, shine a flashlight or other bright concentrated light onto the lens at about a 45° angle. Any mark that glistens should be immediate cause for rejection of the lens. If any other type of flaw, such as a chip is apparent, no matter how small, lens should be rejected and assembly should be delayed pending replacement.

DANGER: LENSES THAT HAVE SCRATCHES OR OTHER IMPERFECTIONS ARE WEAKENED AND SHOULD NOT BE USED UNDER ANY CIRCUMSTANCE.

Always assemble Series SVTC Sight glass using new lenses and gaskets. The potential of hidden damage makes used lenses and gaskets poor safety risks. The lenses and gaskets should be verified as correct for the application before commencing installation.

Assembly can begin once it has been determined that all the parts are free of damage and are new and suited for the application. Place lens housing or 'sight glass cover' face down on a clean surface. Place an adequate number of 1/64" thick Non-Asbestos shims into the sight glass cover to cause the lens to slightly protrude from the cartridge as shown in Figure 1. The required number of shims may vary from assembly to assembly so each unit must be independently verified. To verify the protrusion use a 12" metal scale and a small piece of clean dry paper, 0.005" - 0.010" thick. Place the scale on edge across the lens and cartridge, and using the paper as a feeler gage, determine if the lens is aligned with or slightly above the cartridge rim. The paper should easily pull from between the cartridge rim and scale edge.

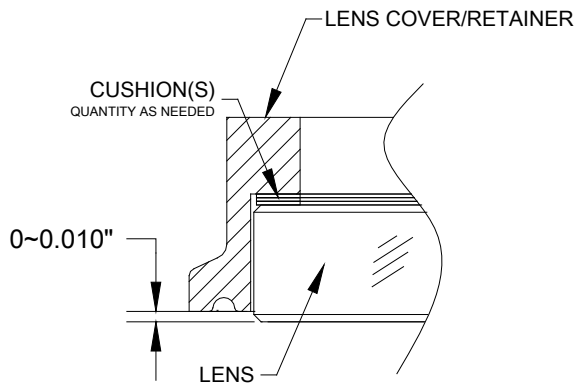


FIGURE 1

6.0 INSTALLATION: Only qualified personnel who are familiar with Sight glasses and have read and understand all instructions in this manual should assemble the sight glass. Personnel must have copies of this manual and any drawings at their disposal.

WARNING: SYSTEM PRESSURE MUST BE DROPPED TO ZERO AND ALLOWED TO REACH AMBIENT TEMPERATURE AND BE PURGED OF ALL MEDIA BEFORE ATTEMPTING TO SERVICE THE SIGHT GLASS AND THAT THE PRESSURE CANNOT BE PUT BACK INTO THE SYSTEM, EVEN INADVERTENTLY, WHILE SERVICE IS IN PROGRESS.

Assemble the series SVTC sight glass (note: the parts will be loose up to this point) onto the heavy wall clamp type ferrule which has an approved clamp type seal gasket in place (these parts are by others). Center the sight glass lens and lens cover. Once in place and centered attach a suitable clamp (by others). Tighten the Clamp Fitting following the clamp manufactures instructions and torquing requirements.

7.0 START-UP: Verify that all assembly and installation procedures have been followed and have been completed. Check the lens in the sight glass before start-up to insure that there are no chips, scratches or blemishes. Using a flashlight or other bright concentrated light, examine each lens carefully. If any type of flaw is apparent, start-up should be delayed pending the replacement of the lens and gaskets.

Gaskets frequently assume a compression-set over a period of time; therefore it is recommended that the Sight glass have its clamp retightened to the proper torque value before start-up. Torque values should be brought up to the recommended value. To avoid risk to personnel caution must be taken when adding pressure to the system.

WARNING: ALL PERSONNEL SHOULD KEEP CLEAR OF THE SIGHT GLASS UNTIL THE MAXIMUM WORKING

PRESSURE OR TEST PRESSURE HAS BEEN REACHED AND STABILIZED. UNDER NO CIRCUMSTANCE SHOULD ANY PERSONNEL LOOK THROUGH THE SIGHT GLASS UNTIL START UP IS COMPLETE.

8.0 OPERATION: Sight glasses provide a window for the observation of a vessels contents and as such do not require operation instructions. However, it is important that the Sight glass was properly sized for the design conditions and assembled properly. It is also important that the Sight glass is not located in an area where objects may be dropped, thrown or generally allowed to come in contact with it. The Sight glass should also be protected from thermal shock, which could be a result of exposure to cold air blasts or cold water rinse. It is mandatory that any personnel using Sight glasses wear safety glasses that meet industrial standards.

WARNING: SIGHT GLASSES SHOULD BE BROUGHT INTO OPERATION SLOWLY TO AVOID EXCESS SHOCK OR STRESS ON THE LENSES. RAPID PRESSURIZATION OF A SIGHT GLASS MAY CAUSE A LENS TO CRACK AND/OR BREAK WITH RESULTING SUDDEN RELEASE OF PRESSURE, CAUSING SERIOUS INJURY TO PERSONNEL AND EXTENSIVE PROPERTY DAMAGE

9.0 MAINTENANCE: Daily inspection should be made to insure that there are no leaks and that the lenses are free of scratches, chips or other blemishes. Lenses can be kept clean using a commercial glass cleaner such as Windex. Metal brushes, scrapers and similar instruments should never be used to clean a lens, as these objects will cause damage.

CAUTION: DO NOT CLEAN A LENS WHILE SIGHT GLASS IS UNDER PRESSURE. SIGHT GLASS MUST BE FREE OF POSITIVE OR NEGATIVE PRESSURE LOADS AND ALLOWED TO REACH AMBIENT TEMPERATURE BEFORE CLEANING.

When it becomes necessary to completely overhaul a sight glass the work should only be done by qualified personnel who are familiar with equipment of this type and have read and understand all instructions in this manual. Personnel should have copies of this Manual and any drawings at their immediate disposal. All maintenance personnel should wear safety glasses that meet industrial standards.

Before any maintenance is started it should be ascertained that the proper replacement parts are available. Follow instructions as detailed in Section 6.0 of this manual.