



*The PPC Edge:*  
**DuraPort  
Sight Glasses**

DuraPort Raised  
Face Flange

DuraPort  
Sight Glass

# PresSure Products' line of DuraPort fused sight glasses offers the superior performance, safety and longevity your facility requires. Here's how:

## Strength.

Virtually all glass component failures occur in tensile mode. Even when a compressive load causes a piece of glass to fail, the actual point of failure experiences localized tension. In PresSure Products' DuraPort sight glass, the outer metal ring imposes an enormous static compression on the glass—thus, any tensile load imposed on the unit in service merely serves to relieve some of the pre-loaded compression. Actual tensile loads are borne by the outer metal ring, rather than the glass.

## Fracture Containment.

If the surface of the DuraPort sight glass is chipped from a significant impact, the resulting surface fractures will not grow. The previously mentioned pre-loaded compression eliminates any tension that causes fractures to grow in tempered sight glasses. In the case of a deeper impact, the remaining unbroken thickness of glass will not lose strength, as in tempered sight glasses (*Note: Despite their durability, all damaged DuraPort sight glasses should still be replaced as soon as possible.*)

## Ease of Handling.

The presence of this outer metal ring makes edge chips impossible, and makes it extremely difficult to damage through faulty handling or mounting procedures.

## Thermal Shock Resistance.

Our DuraPorts are far more resistant to thermal shock than conventional glasses, and many other fused sight glass products on the market today. That thermal resistance comes from two factors: First, the glass is low-expansion borosilicate glass, which is already famously resistant to thermal shock; and second, the pre-loaded compression imposed by the metal ring neutralizes any thermally induced tensile load in the glass. As a result, the DuraPort's thermal shock resistance is superior to normal silicate sight glasses or fused glass products made with soda lime glass.

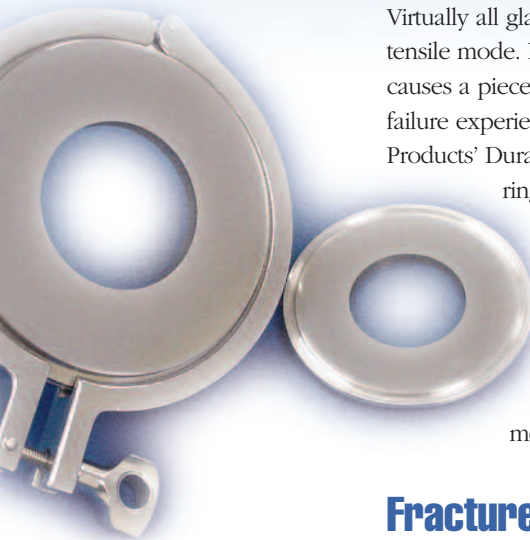
## United States Pharmacopeia Type 1 Glass.

Unlike some other fused glass products being sold, all standard DuraPort products feature true USP Type 1 borosilicate glass. It's the least reactive of all glass types, and is used in sensitive medical glassware. Some medical or pharmaceutical applications may require this glass and, even when it is not absolutely required, it is universally preferred. Note that the glass used to line industrial chemical reactors is not USP type 1 glass—such glass is never used by the medical/pharmaceutical industry for making syringes, sample vials, or other critical sample handling applications. This glass type can be supplied upon request, but offers no advantages compared to the DuraPort's standard USP Type 1 borosilicate.

**PresSure Products, Inc.** has been an American manufacturing leader since 1959. For over 50 years, thousands of customers worldwide have come to rely on the safety, quality, and reliability that have become PPC's trademark. For more information on our DuraPort fused sight glasses, call us toll-free at **(800) 624-9043** or fax to **(304) 744-6705**. PresSure Products Company's engineering staff is available for consultation, product demonstration, and price quotations 8:00 a.m. to 4:30 p.m. EST Monday through Friday.



**DuraPort Sight  
Glass**





## Metal Ring Composition.

In general, it's best practice to match the fused glass metal ring material to the vessel material. Matching alloy compositions is particularly important when the process fluid is an electrolyte, like ionic aqueous solutions (including water). In such environments, the different compositions of metals in contact with a contiguous body of electrolytic process fluid will develop a relative electrostatic potential. Often, this situation will result in a slow corrosion of the metal composition with higher reduction potential (the "baser" alloy). If the sight glass ring is made of a nobler alloy, the ring might not corrode, but its presence in the electrolytic medium can cause corrosion process to accelerate elsewhere in the vessel.

Other fused glass manufacturers may substitute metal ring material with a supposedly "superior" grade of alloy at their convenience. But this claim of one grade of metal being superior is meaningless, since suitability of a particular metal depends entirely on the chemical environment. PPC's DuraPort sight glasses, conversely, are always made of materials exactly as specified by the customer. *Note on metal naming scheme: In the US, there are three widely used naming schemes for stainless steels: The composition naming scheme (1810 stainless steel), SAE scheme (304 stainless steel), and the UNS scheme (S30400). 1810 stainless steel, 304 stainless steel, and S30400 all refer to the same material. In general, there are three names in common use for each given stainless steel material.*

## 316 Stainless Steel (SAE naming scheme).

This material is known as S31603 or other S316xx in the UNS naming scheme. Some of the most popular sizes of DuraPort sight glasses are available in 316 stainless steel. If the tank or the vessel on which the sight glass is to be mounted is made of 316 stainless steel, then it is best practice to use 316 stainless steel sight glasses.

## 2205 Duplex Stainless Steel (composition naming scheme).

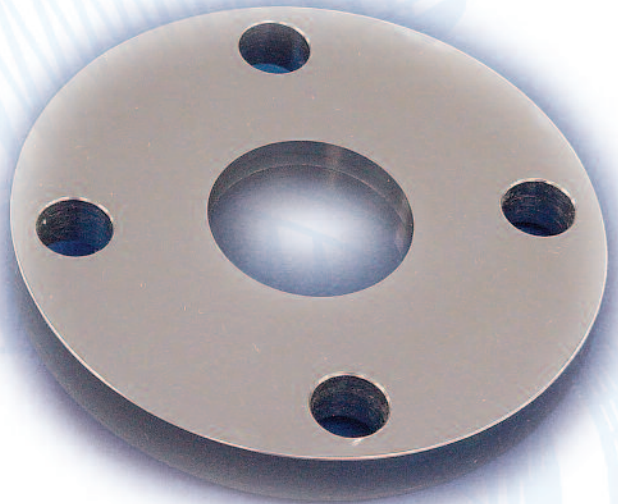
This is also known as the UNS 32205 or UNS 31803 series. As the UNS designation indicates, this is a 300 series stainless steel, and is formulated to be compatible with 300 series stainless steel vessels. If the vessel specifies a 300 series stainless steel sight glass, this is the material that is designed to be compatible.

## Carbon Steel.

Different grades of carbon steel can be supplied by PPC as requested. Matching grades of carbon steel is usually not as important, since it is never used in corrosive electrolytic environments. Regardless, the customer may specify desired carbon steel grade, or accept PPC's standard grades.

## Hastelloy.

Different grades of hastelloy can be supplied upon request.



MADE IN THE USA



DuraPort  
Full Face  
Flange

**PPC also offers custom sizes—inquire with our experienced sales engineers. Standard models are Factory Mutual (FM) approved.**

DuraPort Weld-In





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If you would like to receive our new process equipment CD catalog or place an order with an in-house sales representative, please call us toll-free at **(800) 624-9043** Monday to Friday, 8:00 a.m.–4:30 p.m. EST or fax to **(304) 744-6705**. A complete listing of PresSure Products Company's safety sight glass line is also available on the Web at [www.pressureproducts.com](http://www.pressureproducts.com).