

## HYDROSTATIC TEST REPORT

DATE: 04-18-08 RK

**Couplings:** Cam & groove couplings: 2" Campbell Cobra stainless steel parts C x E  
- Coupling/ferrule system rated to 250 psi. WP

**Hose:** Chemical hose: 2" Goodyear Viper rated to 200 psi.

**Attachment:** Crimped: stainless steel ferrules

**Goal:** To exceed 800 psi. (hose WP of 200 psi. @ 4 to 1 Safety Factor)

**Results:** Couplings and hose exceeded 5 times the WP. Hose burst at 1190 psi.

**This test was conducted to ASTM D380 standards. See engineering details below.**

**HOSE:** 2" Goodyear Viper chemical hose, 200 psi. WP; initial length of 18-1/2."

**END CONNECTION #1:** Assembled by Campbell, C-316-200C, a new 2" Campbell Cobra stainless part C interlocking hose coupler with a FSS200240 stainless steel ferrule. The assembly was rather difficult, requiring significant pounding but no lube. The hose wall on this end measured between .276" and .312" for a .294" average. The current crimp chart due to expire on 12-31-8 was referenced and interpolated for a crimp  $\phi 2.589$ ". This end was crimped to  $\phi 2.589$ " on a Uniflex S10i using 62 dies in a few hits to be assured of the correct crimp diameter. This end was connected to a previously used A-SS-200 2" female NPT part A with a 2 X 1" reducing bushing with a GMS-4 1" male spud through our tester ground joint style connection. Teflon tape and pipe dope was used on the NPT threads. The tester nut was hand tight. See first connection photo.

**END CONNECTION #2:** Assembled by Campbell, E-316-200C, a new 2" Campbell Cobra stainless part E interlocking hose adapter with a FSS200240 stainless steel ferrule as above however this end assembled far easier than the first with only a few hits but no lube. The hose wall on this end measured between .268" and .298" for a .283" average. The same chart was interpolated for a crimp of  $\phi 2.571$ " using the same crimper and dies. This end was connected to a previously used B-316-200 2" male NPT coupler with a 2" female valve adapter with valve attached. Teflon tape and pipe dope was used on the NPT threads. See second connection photo.

**TEST:** The assembly was filled with water and air was evacuated from the system by use of the valve at the free end. Due to a slightly cool room and component temperatures, warm water of about 71 °F was flowed through the assembly for about 20 minutes to get an assembly test temperature of 70° F. See inlet temp and in tester photos. The assembly was made up and crimped 24 hours before the test. The cam and groove parts were put together just before going in the tester.

Because of the straightness of the hose as seen in the in tester photo, elongation measurements were made at 0, 200, 400, 600, 800 & 1000 psi and were 34", 34 1/2", 35 1/2", 36 1/4", 37" & 37 1/2" respectfully. The hose did exhibit 3 1/2" max elongation (at the 1000 psi) from the original 14" exposed length, which calculates to a 25% elongation.

Pressure was raised steadily until the hose failed in the middle of the exposed length of hose, see burst photo and close up photo. **The highest pressure recorded was 1190 psi.**, see peak photo. There was no movement or leaks detected until the hose failed. The first end showed about 1/32" of the hose elongation between the ferrule and fitting, see first end photo. The second end showed no elongation between the fitting and ferrule, see second end photo. Neither end had any movement of the end of the hose under the ferrule.

Prepared by Randi Kremer, Engineer, Campbell Fittings Inc.