

# VCS - ID™

Stop leakage at the source

# GPT

an EnPro Industries company

INNOVATIVE ENGINEERING FOR CORROSION PROTECTION



For aggressive chemicals  
and dissimilar piping materials

The VCS-ID system is designed to stop media before it has a chance to attack. This Patent Pending product also eliminates the need for exotic cored sealing materials .



Patent Pending #61/932,880

## THE NEED

Challenged by the market to provide a solution for increased electrical isolation in conductive media as well as chemical resistance to particularly aggressive media has led to the development of an isolating system that provides the highest integrity electrical isolation as well as chemical resistance.

## THE SOLUTION

The ID (Inside Diameter) Seal introduces an internal, machined PTFE seal at the bore of the existing VCS design platform. The use of a patented interlocking mechanism (see Fig 2) ensures an extremely tight seal at the bore and a resistance to effects from internal pressure or aggressive media. The interlocking mechanism is intentionally designed to be approximately .100" larger than the pipe ID. During installation/loading, the interlocking mechanism will compress to a final state that is slightly larger than the pipe ID. This reduces cavitation in the piping, reduces flange erosion and helps prevent microbiologically induced corrosion (MIC), while not affecting any line pigging operations.

Additionally, the PTFE interlocking mechanism creates a longer effective distance than the standard platform. By spanning the VCS platform from end to end, the VCS-ID has a much greater electrical isolation in conductive media. Additionally, PTFE is not hygroscopic, so it does not have a tendency to absorb water making it even more attractive as the front line of defense in electrical isolation.

The patent pending, (# 61/932,880) interlocking mechanism is "dual locking" to provide a secure seal that won't dislodge during handling, transport or installation. The "dual locking" feature creates a positive lock in both vertical and radial directions (see fig. 2).

While not only creating an intimate and secure lock, the interlocking mechanism also eliminates the need for exotic metal gasket core material because it breaks the metal-to-metal ion flow. Obtaining exotic metals can cause long lead-times and extra expense that are eliminated with the use of a VCS-ID seal.

Another great benefit of the VCS-ID seal is that because PTFE doesn't have an affinity for water absorption, installations where electrical isolation testing is performed shortly after hydro-test won't be corrupted.

The VCS-ID does not require any more torque than the standard VCS or VCFS making installation just as simple and the same charts can be used (see fig. 3 on next page).



FIGURE 2

## VCS - ID RECOMMENDED TORQUES

NPS	150#		300#		600#		900#		1500#		2500#		NPS
	Minimum (ft-lb)	Recommended (ft-lb)	Minimum (ft-lb)	Recommended (ft-lb)	Minimum (ft-lb)	Recommended (ft-lb)	Minimum (ft-lb)	Recommended (ft-lb)	Minimum (ft-lb)	Recommended (ft-lb)	Minimum (ft-lb)	Recommended (ft-lb)	
1/2	20	55	20	55	20	55	60	105	60	105	65	105	1/2
3/4	20	55	40	105	40	105	65	165	65	165	70	165	3/4
1	25	55	40	105	40	105	105	260	105	260	110	260	1
1 1/4	25	55	45	105	45	105	115	290	115	290	175	430	1 1/4
1 1/2	30	55	80	180	80	180	170	430	170	430	250	630	1 1/2
2	60	105	45	105	45	105	110	290	110	280	170	430	2
2 1/2	65	105	75	180	75	180	165	430	170	430	260	630	2 1/2
3	75	105	85	180	85	180	125	290	255	630	375	890	3
3 1/2	55	105	85	180	125	290	N/A	N/A	N/A	N/A	N/A	N/A	3 1/2
4	6	105	90	180	130	290	255	630	385	890	705	1590	4
5	100	180	100	180	200	430	365	890	665	1590	1125	2585	5
6	110	180	90	180	185	430	275	630	530	1205	1705	3550	6
8	125	180	145	290	280	630	530	1205	935	2045	1775	3365	8
10	155	290	190	430	385	890	555	1205	1525	3210	3500	5335	10
12	170	205	265	630	400	890	570	1205	1810	3930	4895	7845	12
14	215	430	270	630	550	1205	775	1590	2630	5670	N/A	N/A	14
16	210	430	380	890	735	1590	1025	2045	3665	7870	N/A	N/A	16
18	305	630	405	890	970	2045	1565	3210	4990	10570	N/A	N/A	18
20	295	630	405	890	970	2045	1945	3930	6525	13830	N/A	N/A	20
22	435	890	705	1590	1260	2585	N/A	N/A	N/A	N/A	N/A	N/A	22
24	455	890	775	1590	1640	3210	3710	7870	10535	21405	N/A	N/A	24

FIGURE 3

**NOTE:**

1. For max torque values contact GPT Engineering.
2. All values have been calculated assuming a 0.16 coefficient of friction and new nuts and bolts. If using non-lubricated bolts increase torque by 15%. If using PTFE or Xylon coated studs use recommended values.
3. The minimum values are based on flange design codes calling for minimum seating stress (Y value). Sometimes minimum seating stress is inadequate to seat the gasket because the bolting and flange rigidity are insufficient to effect a proper seal. Care should be taken to ensure proper placement during installation.
4. Excessive flange rotation could lead to inadequate stress on the internal sealing mechanism.

## VCS - ID BENEFITS

- » Applications with chemicals that would chemically attack GRE
- » Installations where electrical isolation testing is performed shortly after hydro-testing
- » Creates greater gap for greater electrical resistance
- » Great for use in high Chloride applications that could cause Stress Corrosion Cracking with a stainless steel core
- » Eliminates the need for exotic metal cores that match the exotic metal flange material
- » Available with G-11 carrier for 392°F / 200°C
- » Dual Seal nominal pipe size in 6" and up are standard

**VISION STATEMENT**

Sealing, Connecting and Protecting the World's Pipelines

**STRATEGIC MISSION STATEMENT**

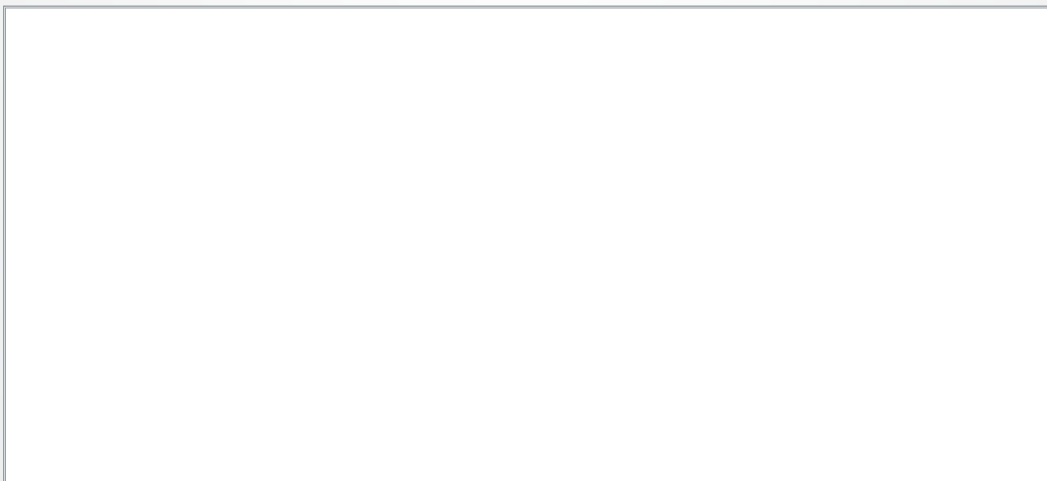
With global focus on safety, reliability and sustainability, we produce innovative solutions that enhance the integrity of pipeline systems today to meet the demands of tomorrow.

**QUALITY POLICY**

At GPT we are committed to manufacturing and supplying only reliable, high-quality products that exceed our customers' requirements and expectations.



GPT Wheat Ridge, Colorado



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4990 Iris St., Wheat Ridge, CO 80033  
Tel: (303) 988-1242 Fax: (303) 988-1922  
www.gptindustries.com

6455 Clara Road, Suite 300, Houston, TX 77041  
Tel: (713) 747-6948 Fax: (713) 747-6029  
www.gptindustries.com

Unit 3-5, Chester Road, Colmworth Business Park  
Eaton Socon, St. Neots, Cambridgeshire, PE 19 8YT  
Tel: +44 (0) 1480 404661 Fax: +44 (0) 1480 404662  
www.gptindustries.com