

# VCS - ID<sup>®</sup>

Stop leakage at the source



**For aggressive chemicals and dissimilar piping materials**

The VCS-ID<sup>®</sup> 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 .

## 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 0.100" 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. Traditional VCS gaskets leave the steel core exposed to the media. This increases the likelihood of the formation of an electrically conductive bridge between the flange face and steel core of the gasket, especially if the media contains conductive particles that lead to sediment buildup in the pipeline. Because the thickness of the inner PTFE seal is the same as the gasket thickness, the formation of an electrical bridge caused by conductive sediment buildup between the gasket steel core and the flange face is eliminated. 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.

Patent, US 20150276105 A1, 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 benefit of the VCS-ID™ seal is that PTFE doesn't have an affinity for water absorption, installations where electrical isolation testing is performed shortly after hydro-test ARE LESS LIKELY TO 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 page 3).



FIGURE 2

## VCS - ID RECOMMENDED TORQUES

NPS	150#		300#		600#		900#		1500#		2500#		NPS
	Minimum (ft-lb)	Recommended (ft-lb)											
½	40	60	40	60	40	60	130	210	130	210	130	210	½
¾	40	60	75	120	75	120	130	210	130	210	130	210	¾
1	40	60	75	120	75	120	205	340	205	340	205	340	1
1¼	40	60	75	120	75	120	205	340	205	340	305	505	1¼
1½	40	60	130	210	130	210	305	505	305	505	445	745	1½
2	75	120	75	120	75	120	205	340	195	325	305	505	2
2½	75	120	130	210	130	210	305	505	305	505	445	745	2½
3	80	120	130	210	130	210	205	340	445	745	625	1045	3
3½	75	120	130	210	205	340	N/A	N/A	N/A	N/A	N/A	N/A	3½
4	75	120	130	210	205	340	445	745	625	1045	1120	1865	4
5	130	210	130	210	305	505	625	1045	1120	1865	1825	3040	5
6	130	210	130	210	305	505	445	745	850	1415	2775	4620	6
8	130	210	205	340	445	745	850	1415	1445	2405	2775	4620	8
10	205	340	305	505	625	1045	850	1415	2265	3775	5555	9255	10
12	205	340	445	745	625	1045	850	1415	2775	4620	7460	12435	12
14	305	505	445	745	850	1415	1120	1865	4005	6670	N/A	N/A	14
16	305	505	625	1045	1120	1865	1445	2405	5555	9255	N/A	N/A	16
18	445	745	625	1045	1445	2405	2265	3775	7460	12435	N/A	N/A	18
20	445	745	625	1045	1445	2405	2775	4620	9760	16270	N/A	N/A	20
22	625	1045	1120	1865	1825	3040	N/A	N/A	N/A	N/A	N/A	N/A	22
24	625	1045	1120	1865	2265	3775	5555	9255	15690	26145	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
- » Can simplify the hydrotest process

**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



GPT 1:17.06.2021