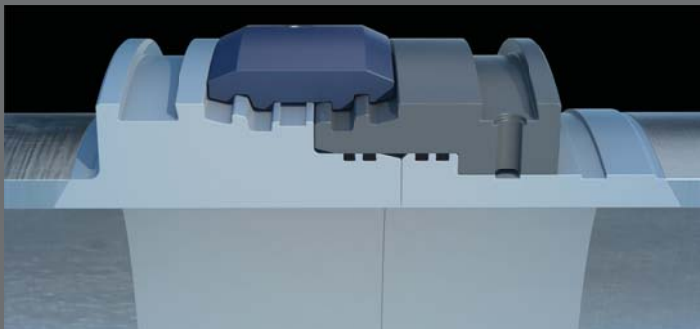




**OIL STATES VR  
PIPELINE CONNECTOR**

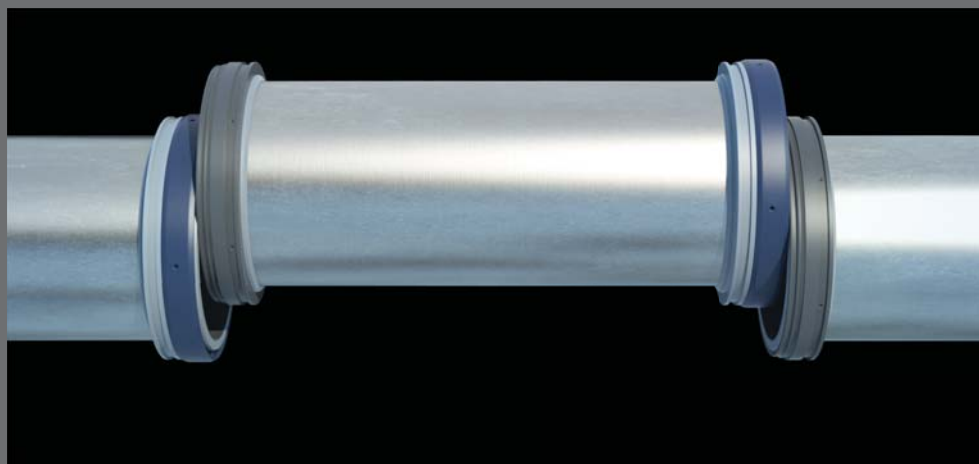


## Horizontal Pipeline Connectors



### Benefits of the Oil States VR System:

- Quick make-up
- 360° rotation
- Self alignment
- No onsite welding
- Tight tolerances
- Internal sealing
- No internal offset
- Pipe or casing compatible
- CSA & ASME design standards
- Horizontal or vertical applications
- Material options available
- High abrasion overlay available

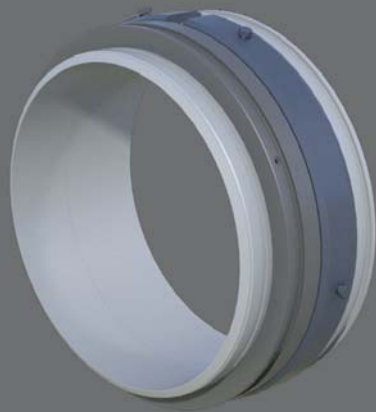


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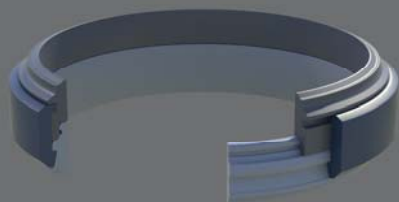


**Replaces bolted, flange connections**



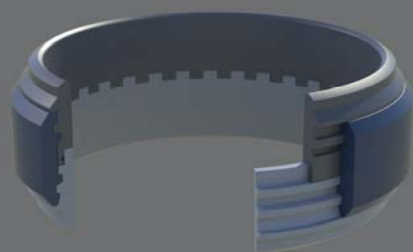
**VR Connector**

**The Oil States VR Connector for horizontal applications where vertical removal of the pipe is needed. Quick connect technology. Make-up in just minutes.**



**SA Connector**

**The Oil States SA Connector is Self-Assembling for vertical applications such as casing and conductor lines.**



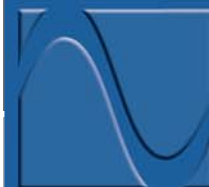
**HT Connector**

**The Oil States HT Connector is High-Torque for vertical applications where twisting is an issue. Commonly used in directional drilling.**



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Press Release

## **Oil States Industries, Inc. receives CRN from ABSA for the VR Connector product line**

**Houston, TX. July 31, 2015:** Oil States Industries, Inc., Houston Operations, has received the Canadian Registration Number (CRN OA15971.2) for the current VR Horizontal Pipeline Connector product line. The VR Connector utilizes a “quick-connect” method that permits the connection of pipelines and replacement of pipe segments where extremely tight tolerances exist and vertical removal of the pipe section may be required.

The Alberta Boilers Safety Association or ABSA reviewed all documents, calculations and design parameters of the VRC. ABSA is the certifying authority of Alberta for reviewing and approving pressure containing fittings and systems. DNV-GL witnessed the Design Qualification Testing (DQT) in Houston to verify compliance with all requirements.

Oil States will be demonstrating a full size 28” connector in Fort McMurray at the Oil Sands Show, September 15-16. The demonstration piece details a fully functioning connector and various connection methods used during installation.

\*\*\*\*\*

Oil States Industries, Inc. is a diverse company supplying products and services to Offshore Oil & Gas, Onshore Oil & Gas, Defense and General Industry. Three business units, comprised of the Elastomer Group, the Offshore Construction Group and the Marine Pipelines Group, service these markets. Oil States is headquartered in Arlington, Texas with locations in 11 countries and more than 1700 employees. Additional information is available at [www.oilstates.com](http://www.oilstates.com).



## VR Connector Design Qualification Testing Summary

### *ABSA Certification in Process*

The Oil States VR Connector has passed Design Qualification Testing (DQT) as witnessed by DNV GL in Houston, Texas. Paperwork has now been completed and submission made to ABSA for a CRN number in Alberta Canada. The design and testing parameters were in accordance with CSA Z662 and ASME B31.3.



Items covered under the testing procedure included:

- Torsion
- Bending
- Compression
- Pressure to 1150psig
- 100 Make/Break Cycles

All items tested were passed as designed.



The new Oil States VR Pipeline Connector is designed to facilitate the rotation or removal of horizontal pipe sections where little or no tolerance exists. The connector utilizes a four piece forging design and operates much like a quick-coupling. The lock ring holds a sliding coupling in place to ensure complete double O-ring sealing. Once the lock is expanded, the sliding coupling or box can be moved back to clear the pipe. The pipe can then be lifted out for replacement or rotated in-place to maximize wear-life as required.



Oil States Industries, Inc. has been developing specialized pipeline connectors and pipeline repair systems for the oil and gas industry for over 40 years. Products are available for land based, shallow water and deepwater applications. For more information visit [www.oilstates.com](http://www.oilstates.com).



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# VR Connector Data Chart



Type	Mat Yield	Pipe Nominal OD		Pipe Wall Thickness		Connector OD		Connector ID		Made-up Length		Tension Yield		Bending Yield		Compression Yield		Internal Yield Pressure		Torsion	
	(ksi)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(kips)	(MN)	(kips ft)	(MNm)	(kips)	(MN)	(psi)	(Mpa)	(kips ft)	(kNm)
SA2	100	18.625	473	0.435	11.0	21.24	540	17.76	451	5.75	146	1,350	6	516	0.7	1,688	7.5	3,000	20.7	13.0	17.6
SA2	100	20	508	0.625	15.9	22.33	567	18.75	476	6.04	154	1,527	6.8	819	1.1	2,092	9.3	3,000	20.7	15.0	20.3
SA2	100	22	559	0.625	15.9	24.33	618	20.75	527	6.04	154	1,685	7.5	1,000	1.4	2,308	10.3	3,000	20.7	15.5	21.0
SA2	100	24	610	0.75	19.1	27.50	699	22	559	9.07	230	2,555	11.4	1,729	2.3	3,757	16.7	3,000	20.7	39.0	52.9
SA2	100	24	610	1.0	25.4	27.50	699	22	559	9.07	230	2,555	11.4	1,729	2.3	3,757	16.7	3,000	20.7	39.0	52.9
SA2	100	26	660	0.75	19.1	29.50	749	24	610	9.07	230	2,777	12.4	2,049	2.8	4,084	18.2	3,000	20.7	42.0	56.9
SA2	100	26	660	1.0	25.4	29.50	749	24	610	9.07	230	2,777	12.4	2,049	2.8	4,084	18.2	3,000	20.7	42.0	56.9
SA2	100	30	762	0.75	19.1	33.50	851	28	711	9.07	230	3,222	14.3	2,770	3.8	4,738	21.1	3,000	20.7	50.0	67.8
SA2	100	30	762	1.0	25.4	33.50	851	28	711	9.07	230	3,222	14.3	2,770	3.8	4,738	21.1	3,000	10.3	50.0	67.8
SA2	100	36	914	1.0	25.4	39.50	1003	34	864	9.07	230	3,888	17.3	4,057	5.5	5,718	25.4	3,000	20.7	60.0	81.3
HD (IF)	100	20	508	1.0	25.4	22.71	577	18.00	457	10.34	263	3,104	13.8	1,170	1.6	3,104	13.8	3,000	20.7	15.0	20.3
HD (IF)	100	22	559	1.0	25.4	24.71	628	20.00	508	10.34	263	3,431	15.3	1,436	1.9	3,431	15.3	3,000	20.7	15.5	21.0
HD (IF)	100	30	762	1.0	25.4	34.10	866	27.00	686	15.38	391	6,984	31.1	3,950	5.4	6,984	31.1	3,000	10.3	50.0	67.8
HD (IF)	100	30	762	1.0	25.4	34.10	866	27.00	686	15.38	391	6,984	31.1	3,950	5.4	6,984	31.1	3,000	20.7	50.0	67.8
HD (IF)	100	36	914	1.0	25.4	41.00	1041	37.00	864	15.38	391	8,454	37.6	5,834	7.9	8,454	37.6	3,000	20.7	60.0	81.3
HD (IF)	100	36	914	1.0	25.4	40.00	1016	33.00	838	15.38	391	8,454	37.6	5,834	7.9	8,454	37.6	3,000	20.7	60.0	81.3
VRC	36	28	711	0.69	17.5	32.63	829	26.62	676	13.24	336	1,060	4.7	607	0.8	1,060	4.7	740	5.1	n/a	n/a
VRC	36	30	762	0.69	17.5	34.18	868	28.62	727	13.24	336	1,060	4.7	607	0.8	1,060	4.7	740	5.1	n/a	n/a

