

# Subsea Pipeline Technology

## Ball Flange® Misaligning Connector

For fast, stress-free connections of misaligned pipelines

ISO 9001



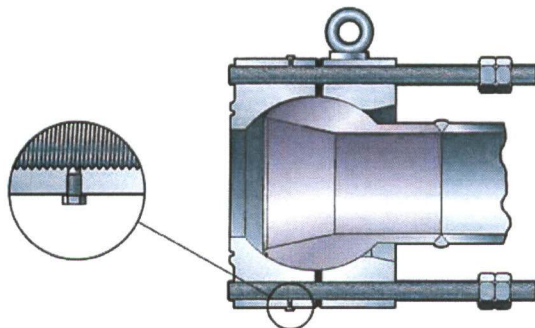
The HydroTech Ball Flange Misaligning Connector is a metal-seal, ball-and-socket connector for bolting together misaligned pipe ends. The connector accommodates up to 10° of angular misalignment and can be rotated like a swivel-ring flange, enabling divers to make a quick and cost-effective connection. The Ball Flange Connector mates directly to a standard RTJ flange to provide a permanent, stress-free connection.

Ball Flange Connectors incorporate a metal-to-metal seal that can be tested and verified. Sealing integrity is maintained at any angle of misalignment, and the seal is unaffected by externally applied bending loads at all operating pressures. Wiper seals protect the metal seal area from contamination.

HydroTech Ball Flange Connectors are available from stock in 4 inch through 24 inch, ANSI 900 rating. Thousands of these connectors have been installed worldwide, in sizes from 2-inch through 42-inch.

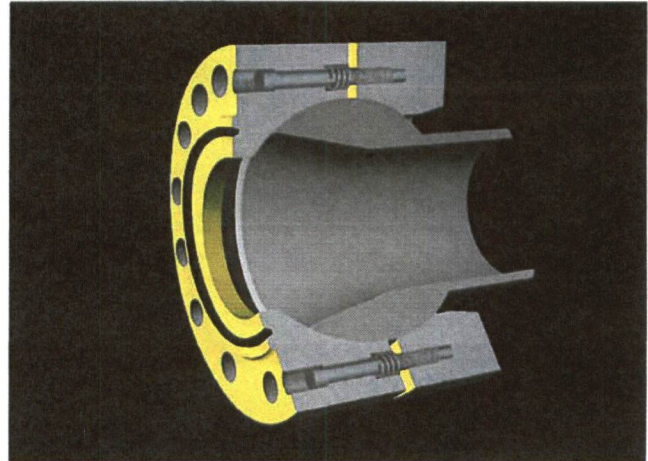
### SpeedLoad™ Option

For large-diameter pipeline tie-ins, installation time and diver effort can be greatly reduced by utilizing the Ball Flange SpeedLoad option. With SpeedLoad, the studs are preinstalled in the Ball Flange and are held in place by retainer bolts. When the connector is positioned, the diver loosens the retainer bolts and pushes the studs through the bolt holes on the mating flange. One or more of the studs can be left uninstalled to allow “long bolts” to be used to facilitate initial alignment.



With the SpeedLoad Option, studs and nuts are preinstalled in the Ball Flange Connector as shown above. Retainer bolts tipped with brass bushings hold the studs in place until the diver loosens them in order to push the studs through the mating flange. For convenience, both nuts are initially placed on the free end of the studs.

\* The patented Ball Flange was previously sold by Big Inch Marine Systems, which was acquired by Oil States in 2002.



Ball Flange Connector (WE x RTJ)

### Design Specifications

HydroTech Ball Flange Connectors meet the requirements of API 6H and are designed in accordance with ASME Pressure Vessel Code, Section VIII, Division 2, unless otherwise specified. Material and configuration of the butt-weld ends are in accordance with ASME B16.5 or MSS SP-44 to match the pipeline.

Ball Flange Connectors can be installed using either torque wrenches or stud tensioners.

### Ordering Information

Please provide the following information on any purchase order or request for quotation:

- Nominal pipe size
- Pipe wall thickness or bore
- Pipe grade
- Design rating
- Flange specification
- Fastener type: tensioned or torqued



Ball Flange Connectors, in a wide range of sizes, are kept in stock, ready for delivery.

© 2008 Oil States Industries Incorporated



www.oilstates.com

**OIL STATES HOUSTON**  
SALES, MANUFACTURING  
& SERVICE:  
6120 E. Orem Drive  
Houston, Texas 77048  
USA  
Ph +1 713 445 2210  
Fx +1 713 445 2380  
houston@oilstates.com

**SALES OFFICES:**  
**AZERBAIJAN**  
Suite 5 1F Amirov Street  
AZ1000 Baku  
Azerbaijan  
Ph +994 12 4 379 125  
Fx +994 12 5 981 125

**FRANCE**  
36, Bd des Océans  
Cedex 9  
13275 Marseille  
France  
Ph +33 491 40 8935

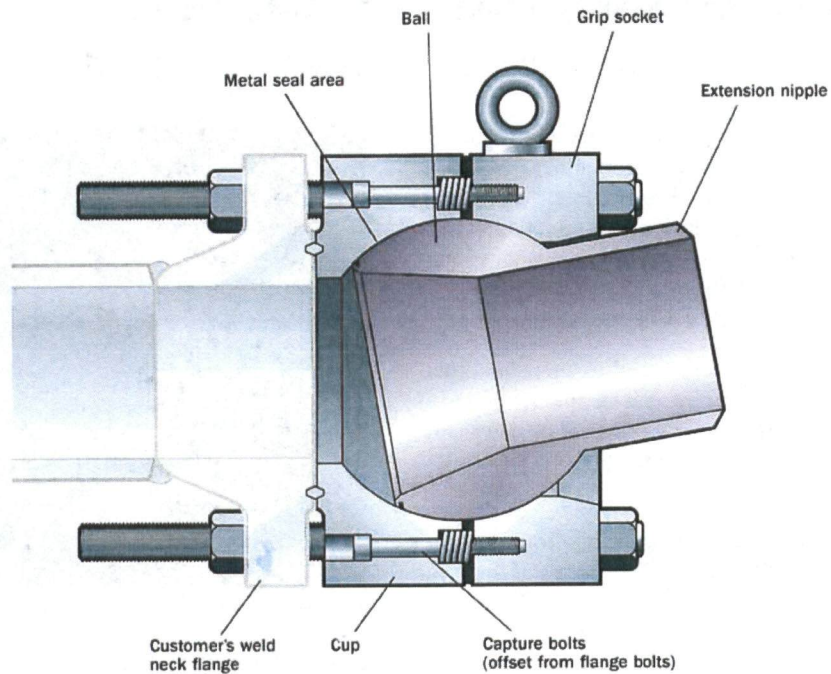
**NIGERIA**  
No. 50C Glover Road  
Ikoyi, Lagos, Nigeria  
Ph +234 1 2692216  
Fx +234 1 2691979

**NORWAY**  
Lokkevelen 103  
4001 Stavanger  
Norway  
Ph +47 4000 3707  
Fx +47 5189 5480

**SCOTLAND**  
Blackness Road  
Altens Industrial Estate  
Aberdeen AB12 3LH  
Scotland  
Ph +44 (0)1224 896190

**VIETNAM**  
102 Bis/M Le Lai Street  
District 1  
Ho Chi Minh City  
SR Vietnam  
Ph +84 8 925 3545  
Fx +84 8 825 8806

**HydroTech Ball Flange Connector**  
 ± 10° misalignment correction plus bolt-hole rotation



**Typical Ball Flange Applications**

If pipe-end misalignment exceeds 10° or if the pipe ends are offset, two Ball Flange Connectors are always required. If misalignment is 10° or less, a spoolpiece connection requires only a single Ball Flange Connector and a Swivel Ring Flange. In some cases, one pipe end will have to be moved to provide gross alignment.

