

**GS-HYDRO** – Technical Data

# GS-HP Retain Ring™ System



## **GS-HP Retain Ring™ System**

GS-Hydro is the world's leading supplier of non-welded piping technology – "Piping without Welding". GS-Hydro has over 40 years experience with hydraulic systems and non-welded connection technology. As a continuum of development work GS-Hydro brings now out the latest development of non-welded connection technology.

GS-Hydro's new innovative GS-HP Retain Ring™ pipe connecting method allows piping systems with working pressures up to 400–420 bar to be assembled without welding. The GS-HP Retain Ring™ system provides a fast and easy method to connect pipes with the highest possible quality and reliability, completely leak-free with high levels of joint integrity in the most efficient manner.

GS-Hydro's in-house developed GS-HP Retain Ring™ technology – continues the success of "Piping without Welding" technology and provides now even improved features with numerous benefits:

- **Proven, leak-free technology**
- **Simple, reliable and safe**
- **Highest level of fatigue resistance**
- **Intrinsically clean joint**
- **Small space requirement**
- **Easy and fast to install**
- **No hot-work needed**
- **Environmentally friendly**

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### Connection Technology

The GS-HP Retain Ring™ system provides compact, high pressure joint, in which the flanges are held to the pipe by solid retain ring halves which are sitting in a machined groove on the pipe end. The bonded seal between pipe faces ensures tight sealing when tightening the screws. This new system has been subjected to rigorous burst and impulse testing. The HP-retain rings, flanges and screws absorb the axial forces and shocks. The combination of retain rings and flanges strengthens the pipe (at the location of the groove) in such a manner that connection is stronger than the pipe itself!

GS-Hydro provides various alternatives where new HP-system can be used. This flange system corresponds to ISO 6162-2 SAE J618 bore pattern (6000 psi) for nominal sizes 24–32 (1 1/2"–2") and ISO 6164 (350–400 bar) bore pattern for nominal sizes 40–48 (2 1/2"–3").

- **Pipe to pipe connections**
- **Flange to port connections**
- **Pipe to block connections**
- **Hose fitting connections**
- **Male / female thread connections**
- **Welding hub connections (in the case of connecting to welded systems)**
- **Reducer connections**
- **Vibra bulkhead connections**



### Numerous Benefits to Customers

The GS-HP Retain Ring™ system can be used in a broad range of high pressure piping applications in a wide variety of industries ranging from offshore and marine to various industrial piping systems. The new retain ring system is suitable for various media e.g. high pressure hydraulic oil, lubricating oil fuel oil, sea and fresh water.

This new innovation will provide special benefits in the most demanding applications like with pipe and hose connections where hydraulic system and its components are effected by pulsating load, shocks and constant vibration.

The GS-HP Retain Ring™ system provides a proven, reliable and leak-free piping solution. New design and improved characteristics lead to a minimised need for maintenance, repair or replacement of piping components.

The new innovation is widely patented in several countries.



### The Unique Characteristics of the GS-HP Retain Ring™ System

The excellent sealing performance and very high mechanical strength of new HP-invention has been proven by external testing laboratories. New type of connection technology allows much higher external loads and has unique resistance against external loads.

GS-Hydro's HP Retain Ring connection is the right solution when the final customer application is using thick wall pipes (wt > 8 mm), high working pressures (up to 400–420 bar) and in applications where the pipe connections are under specific stress caused by external load, dynamic impulses and vibration. Because of freely rotating flange connection and self-centering sealing element, the GS-HP Retain Ring™ connection is easy to install and certainly leak proof.