

## Benefits of GS-flange technology



**GS-PIPING  
WITHOUT  
WELDING™**



GS-Hydro is a company, which utilises non-welded connection technology and has delivered leak-free piping systems around the world for over thirty years. Few factors must be managed in the fabrication of high-pressure piping and leak-free systems and those should be considered at the planning and installation phases. These factors are choosing the right connection

technique, accurate dimensions and solid supporting of the pipes. When these factors are realised, the piping will be tensionless and stable and there will be no excessive strain on the joints. This is an absolute prerequisite for leak-free piping. Further advantage is an inherently clean system with cost savings in reduced maintenance and flushing.

**Substantial benefits in pipe sizes from O.D. 25 mm, compared to fitting connections:**

- smaller connection size
- reasonable installation space due to lower tightening torque
- higher working pressure
- cost efficiency due to material mixture possibility
- easier and lighter installation due to the option of using counter flanges



# GS-Flange technology comparison

## Smaller connection size

The benefits of the GS-flange connection can be seen with smaller-size tubes. One benefit of the GS-flange, with pipe outside diameter of 20 to 42 mm compared to a fitting connection (e.g. DIN, JIC), is their smaller size. The weight reduction of pipe-to-pipe diameter is 30% in sizes from 38 mm to 25 mm.

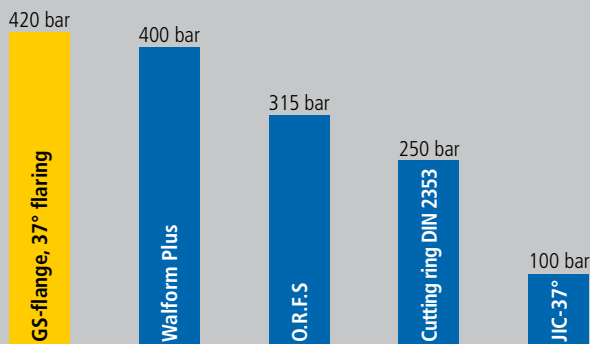


Contrary to common belief, the SAE standardized GS-Flange connection is smaller and lighter than a cutting ring connection for the matching pipe size (e.g. Ø 38 mm).



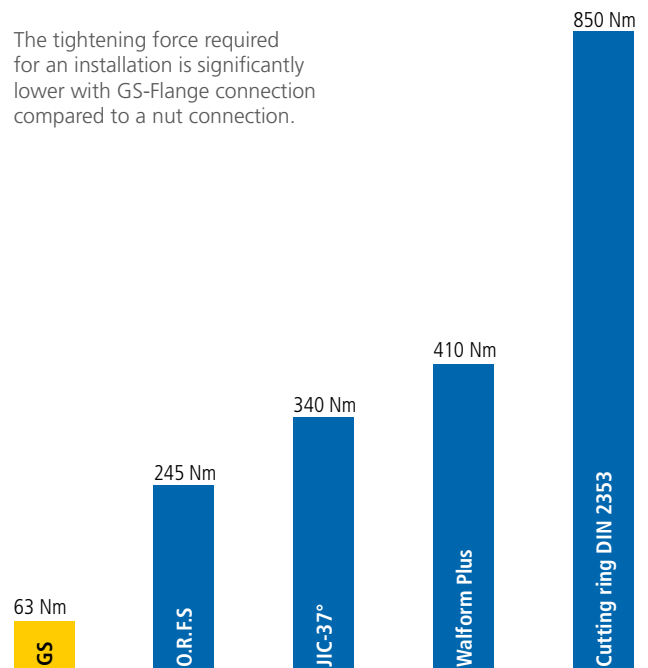
## Higher working pressure

A further benefit of the GS-flange connection is that the pressure rating is stable, almost within the entire operating range, whereas in fitting connections (e.g. DIN, JIC) the pressure rating drops dramatically as the size increases.



Working pressures for the connections (pipe O.D. 38 mm) according to the ISO-standards.

The tightening force required for an installation is significantly lower with GS-Flange connection compared to a nut connection.



Needed tightening forces for the connections for pipe O.D. 38 mm.

## GS-PIPING WITHOUT WELDING™

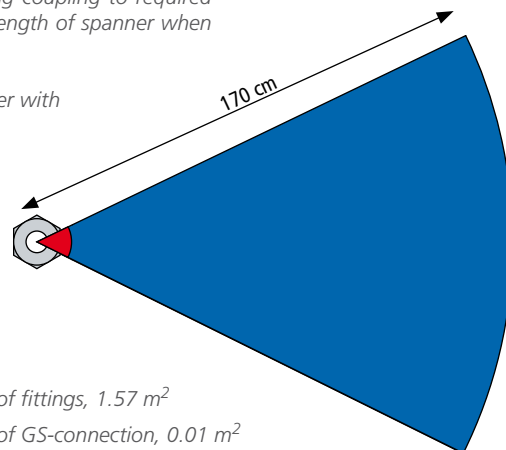
### Reasonable installation space

Lower tightening torque enables the installation space to be reasonable. In the worst case, the installation space of a large bite type fitting can be 1 m<sup>2</sup>. In extremely few installation sites there is enough space for these kinds of installations. Compared to the flange technique, the need for space for fitting connections can be over a hundredfold!

The significance of the installation space is often underestimated. As the requirements for efficiency and space grow, high-pressure tube piping need to be made in tighter and tighter spaces both in the mobile, as well as industrial and maritime installations. Therefore, the connection technique should be decided at the design phase and not at the installation site.

Tightening of Ø 38 mm cutting ring coupling to required torque (= 850 kN), needs 170 cm length of spanner when using 500 N (50 kg) force.

GS-flange system needs only spanner with length of 16 cm!



 Space needed for tightening of fittings, 1.57 m<sup>2</sup>

 Space needed for tightening of GS-connection, 0.01 m<sup>2</sup>

### Cost efficiency

Because of more coating alternatives: a combination of hot dip galvanized flanges plus stainless steel cones gives significant savings compared to completely stainless steel fittings.

### An option to use counter flanges

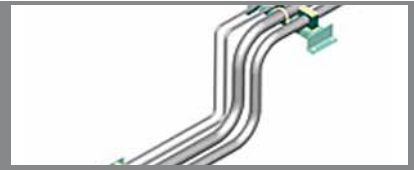
Flange connection can also be built without nuts which makes the connection even lighter and very easy to maintain even in tight circumstances. As a result, the installation is much easier and lighter due to the option of using counter flanges.



### Optimal solutions for GS-SAE flange connections

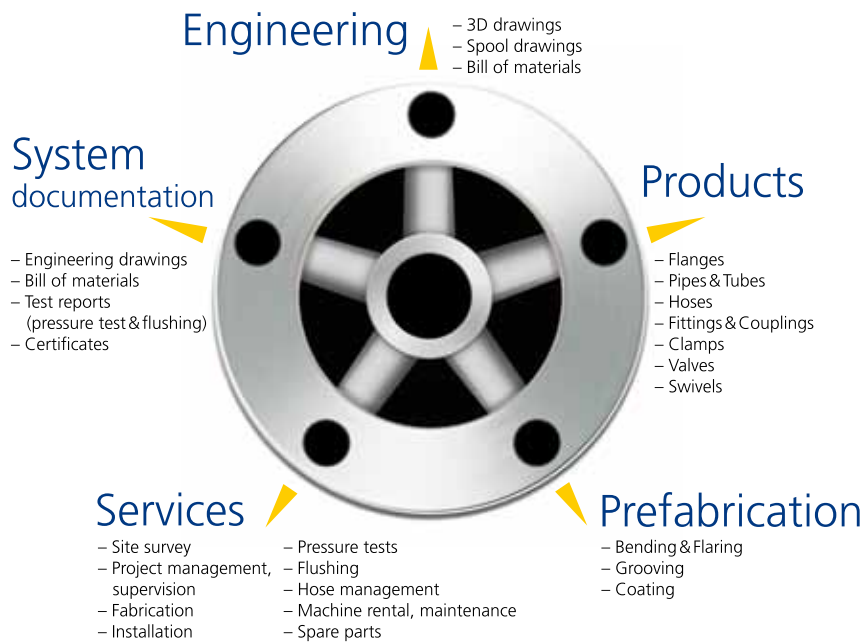


# Creating Value Together



**GS-Hydro** is the world's leading supplier of innovative, non-welded piping solutions for hydraulic, and other – both low and high pressure – applications with high demands on quality, reliability and cleanliness. Global GS-Hydro network helps customers to grow their business by offering high quality products and comprehensive services.

## GS-Hydro system offering



**Headquarters in Finland: GS-Hydro Oy**, Lautatarhankatu 4, FI-13110 Hämeenlinna, FINLAND  
 tel. +358 3 65 641, fax +358 3 653 2768, e-mail sales@gshydro.com  
 Please view our web site to find GS-Hydro in Your region [www.gshydro.com](http://www.gshydro.com)