DOCKWEILER
TUBE SYSTEMS IN STAINLESS STEEL

ASSEMBLY INSTRUCTIONS

for Standardized Clamp Connections

acc. to DIN 32676

Dockweiler standardized Clamp connections consist of:

- 2 clamp ferrules or 1 clamp ferrule and 1 clamp cap
- 1 gasket with / without lip
- 1 stainless steel clamp

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com

CONTENT

1. General Information 3
2. Storage and Transport 4
3. Gasket Material 4
4. Assembly 4
4.1 Assembly Requirements 4
4.2 Welding of Dockweiler Clamp Connections 5
4.3 Assembly of the Clamp Connection 5
4.4 Assembly of the Clamp Gasket 6
4.5 Attaching the Clamp 7
5. First Operational Steps 7
6. Improper Usage 8
7. Maintenance 8
7.1. General Information 8
7.2 Closing and Opening the Clamp Connection 8
7.3 Repair Work 9
8. Enclosed Documents 9

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com

1. GENERAL INFORMATION

Description		Standard Clamp Connection
Dimensions		Imperial, ISO, Metric
Materials / Requirements (Ferrules)		1.4435 / UNS S31603 / BN2 / AD W2 / DIN 17440 / ASTM 279
Nominal Wall Thickness		According to ISO / DIN 32676:2009-05, for standards please have a look at the specifications of Dockweiler AG.
Category according to Pressure Equipment Directive 97/23/EG		Marking not necessary according to Pressure Equipment Directive 97/23/ EG
Conformity Assessment		According to Pressure Equipment Directive 97/ 23 / EG, ASME BPE
Ferrule Marking		Needle Marking (Material / Heat Number / Dockweiler-Number / Dimension)
Operating Conditions		
Medium		Liquids
Substance Group		High purity media
Min. / Max. Permissible Temperature	°C	-60 °C to + 200°C (depending on the material, have a look at „Gasket Material“ page 4)
Min. / Max. Permissible Pressure	bar	0 - 16 bar (232 psi) / according to DIN 32676
Information on Clamps:		DIN ISO 9001 certified
Material		1.4401/ UNS S31600 or 1.4301 UNS S30400
Versions		ASME BPE (single joint), Standard (double joint), Safety Clamp, MHP, Clamp with hexagon screw

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com

2. STORAGE AND TRANSPORT

The components of the Dockweiler Standard Clamp Connection are carefully packed and sufficiently protected for delivery and storage. We recommend storing the components at maximum 10 years in the original packing in a dark and cool place as it is recommended by the EHEDG guideline.
In case the components are transported without the packing, please note that they must be protected against dirt. This is mainly important for the sealing area and the orbital weld ends which are to protect by protection caps.

3. GASKET MATERIAL

Dockweiler AG offers standard gaskets in different materials. For further information please have a look at the overview “Compound Selection” (incl. resistance lists).
Available on the Internet: www.dockweiler.com (Products/Gaskets) or contact us: Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe; Germany; Telephone +49 38757-58-0, Fax: +49 38757-58-222 or Email: info@dockweiler.com.

The gaskets can be used for liquid and gaseous aggregate states of media. For further gasket materials which are not in conformity with the FDA requirements, please contact us. Dockweiler gaskets are cleaned (reduced TOC contamination) and laser marked.

4. ASSEMBLY

4.1 ASSEMBLY REQUIREMENTS

All components of the Dockweiler clamp connection have sealing surfaces which were specially manufactured for this application. They are manufactured and packed **with the greatest care and precision.**

When assembling the clamp connection, the sealing surfaces can be easily damaged. Therefore make sure that they are protected during

- transport
- assembly
- installation
- subsequent cleaning
- storage
- and cleaning!!

Caution !
If the protective caps are removed, the sealing surfaces can be easily damaged. Proper functioning of the clamp connections cannot be guaranteed when damaged.

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com

4.2 WELDING OF DOCKWEILER CLAMP CONNECTIONS

Caution!
Please do not remove the protective cap until shortly before welding the connection to avoid damaging the weld ends. Damaged weld ends cannot be properly orbitally welded.

Please make sure that the sealing surfaces are not damaged during welding. Damaged sealing surfaces can result in leaky connections.

Welding Instructions:

- The clamp connection shall preferably be orbitally welded as this method guarantees a fast, clean, economic and proper welding result and meets highest requirements.
- The root weld must be shielded against discolouration with a root shielding gas. In case discolouration appears nevertheless, we recommend removing it.
- Dockweiler AG recommends tacking the weld ends to avoid misalignment. In order to avoid faulty welds, tacking shall also be carried out with a shielding gas.

Caution!
The surfaces to be welded should be free of cracks and irregularities! Tube ends which are not even can have a negative effect on the welding result and shall be therefore avoided.

- When cleaning the weld seam by a pickling or a mechanical process, make sure that you do not damage or erase the lettering on the connection.
- If weld seams are mechanically polished, make sure that there is no material removal at the sealing edges as this can result in sharp-edged sealing surfaces.
- Remove all polishing and pickling residues before assembling the clamp connection.

4.3 ASSEMBLY OF THE CLAMP CONNECTION

- Remove the protective caps from the sealing surfaces.
- The sealing surfaces and the contact surfaces must be free of any residues.
- Both connection parts must be aligned.
- The axial misalignment of the tube ends must not exceed +/- 0.5 % of the outer tube diameter.
- The angular misalignment must not exceed 0.5 % of the absolute dimension (outer tube diameter).

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com

4.4 ASSEMBLY OF THE CLAMP GASKET

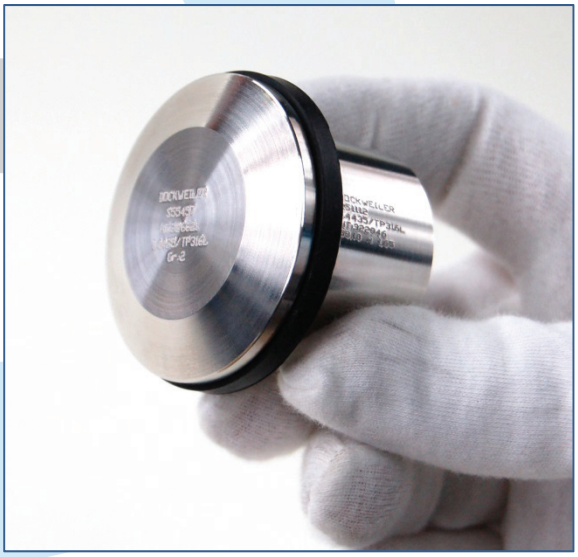
Make sure that the clamp gasket is centered and placed flush in the sealing point / groove. The inner diameter of the gasket shall not extend into the tube connection (cover effect) or be too small for the sealing surface (risk of a gap).
The Dockweiler clamp gasket must be manually placed between the two clamp ferrules of the tube connection.

- Use gloves.
- Do not use any sharp-edged, metallic items.
- Damaged gaskets must be removed and replaced.
- Sealing groove / point must be kept away from dirt.
- The marking shall be prominently placed.

Caution!
Contaminations with grinding dust, pickling residues or unsuitable cleaning agents can destroy the gasket. This can result in a leaky connection.

Do not use any wire brushes or machines to clean the clamp connection in fully assembled state as this can result in surface removal.

1. The gasket must be centered.



2. Install the gasket as shown in the picture.

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com

4.5 ATTACHING THE CLAMP

1. Put the clamp manually over the connection.
2. Insert the clamp screw into the slit of the clamp. This can be carried out without problems if the right clamp size is used.
3. Check the correct position of the clamp.
4. Do not use any tools such as tongs to attach the clamp.
5. Tighten the butterfly nut of the clamp **by hand** (approx. 5 to 7 Nm).

In case clamp connections are to be used in safety zones, Dockweiler AG provides special clamps (see page 3, clamp versions).

To release the clamp connection, follow the procedure in reverse!

5. FIRST OPERATIONAL STEPS

In order to guarantee that employees and other third parties will not be jeopardized, the plant operator has to make sure that the tube system and the related clamp connections are checked and operated properly by trained and instructed personnel. The operator has to issue operating instructions to guarantee that the operators and maintenance personnel receives all the necessary operating instructions for the plant as well as for the clamp connections. Corresponding national provisions of the country of installation concerning the operation of tube systems including these clamp connections must be observed.
If you use mechanical tubing control devices, please pay attention that these devices do not damage the sealing elements (including the sealing surface).

Caution!

Start up and shut down operations of the clamp connection have to be carried out in such a way that the temperature increase and the pressure increase do not result in an uncontrolled stress increase and / or a pressure blow.

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com

6. IMPROPER USAGE

An additional check of the clamp connection is necessary if the permissible pressure was exceeded by more than 10 % during an operating interruption or the permissible operating temperature was exceeded or fell below the permissible value**.** The same is true if a clamp connection or an equipment piece of the connection was damaged. Please contact Dockweiler for consultation in such an event.

7. MAINTENANCE

7.1. GENERAL INFORMATION

All measures necessary for inspection and maintenance have to be carried out in accordance with the national provisions of the country of installation.

The clamp connections must be regularly maintained by trained personnel to ensure that they permanently stay tight under the expected mechanical, chemical and thermal exposures. According to the operating conditions and experiences, the operator of the plant has to set the necessary measures for inspections and maintenance by operation instructions. The inspection and maintenance work includes in particular the monitoring and ensuring of

- Tightness
- Marking
- and the proper functioning of the safety and alarm equipment.

7.2 CLOSING AND OPENING THE CLAMP CONNECTION

See also 4.3 to 4.5.
Locking clamps on pressurized clamp connections shall only be tightened by trained personnel taking into account that this has to be carried out with the utmost caution. It is not allowed to release the locking clamp in this case. **Danger of accident!**

Do not release the locking clamp until the pressure balance with the atmosphere has been carried out (this means that this procedure shall only be done after the pressure line was closed and released. During this process the pressure gauge has to be monitored.). Then the locking clamp has to be released so that the tube ends are still held by it. Afterwards they must be vented a little bit and loosened sufficiently until they do not stick together anymore. Now you can remove the locking clamp and the clamp connection can be loosened.

If a leakage of the medium is expected when opening the clamp connection, special safety measures are necessary, such as personal protective equipment.

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com

7.3 REPAIR WORK

All damaged locking elements as well as damaged gaskets may no longer be used and have to be replaced by new ones. Repair work which jeopardizes the safety of the clamp connection and measures which modify the material characteristics, e.g. by welding or cold or hot deformation, may only be carried out in accordance with the national provisions of the country of installation and only with a written approval by Dockweiler AG.

8. ENCLOSED DOCUMENTS

- Pressure Directive 97 / 23 /EG
- AD 2000 Certificate
- Corresponding national provisions
- Installation dimensions according to the valid product catalogue of Dockweiler AG or dimension tables on www.dockweiler.com
- Technical Specifications

Version: 26/02/2014

Dockweiler AG, An der Autobahn 10/20, 19306 Neustadt-Glewe, Germany
Telefon: +49 38757 / 58-0 Telefax +49 38757 / 58-222
E-Mail: info@dockweiler.com Internet: www.dockweiler.com