

Position Paper of the EHEDG Working Group Certification:

Easy cleanable Pipe couplings and Process connections

(Version 5, June 2019)

When installing hygienic process components and/or equipment in a process line it is of great importance that these components and equipment are connected in a hygienic, easy cleanable way.

Process connections or pipe couplings of a good hygienic and easy cleanable design according to EHEDG Documents 8 (hygienic design principles) and Document 16 (pipe couplings) and cleanable in-place according to EHEDG Document 2 shall be used.

Critical to the design and connection are:

- the avoidance of any crevices or protrusions greater than 0,2 mm,
- providing an axial stop with controlled compression of the seal and *
- a centering of the flanges.*

* *Note:* The axial and radial positioning must be achieved using metallic components.

Certain process connections and pipe couplings have been evaluated and tested for in-place cleanability: Some of these are also certified and can display the EHEDG Logo TYPE EL CLASS I (see list of certified components on the web site www.ehedg.org).

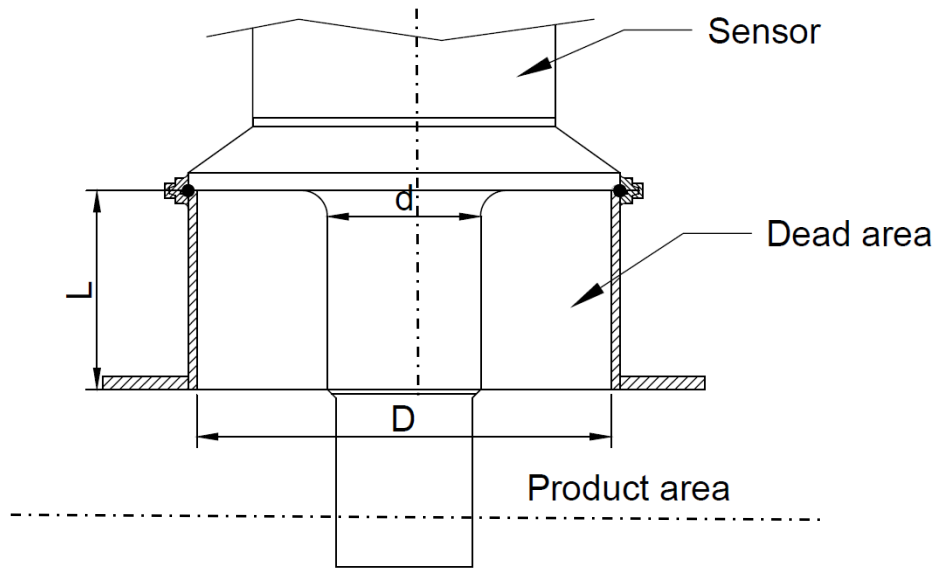
This list is not exhaustive and is open for revision at any time. When additional connections have been successfully tested for in-place cleanability they can be used and included on the following list.

The hygienic installation of parts of equipment is also covered in EHEDG Doc 10, Hygienic design of closed equipment for the processing of liquid food. Avoidance of dead legs is important when installing sensors with process connections.

Pipe line connection

In pipe lines the length of dead leg must be smaller than the inside diameter of it. In the case the sensor protrudes into the dead leg, the length (L) of the dead leg must be $L \leq (D - d)$ (see Figure below). If the calculation of L results in a dimension which is too small for fixing the connection, then these sizes are excluded.

The orientation must allow self-draining of liquids and should not allow air bubbles to accumulate.



Tank connection

Sensors mounted in tanks should be flush to the inside of the tank wall. If a dead leg exists for technical reasons, it must be ensured that the cleaning device is able to reach the surfaces. The above criteria for L still apply.

Note: The Working Group Certification is comprised of EHEDG Authorized Evaluation Officers, linked to the Authorized Testing Laboratories, involved in the testing, evaluation and certification of components and equipment for food processing.

Pipe couplings

DIN 11864-1:2008, Aseptic screwed pipe connection, standard type

DIN 11864-2:2008, Aseptic flanged pipe connection, standard type

DIN 11864-3:2008, Aseptic clamp pipe connection, standard type

DIN 11853-1:2009, Hygienic screwed pipe connection, short type

DIN 11853-2:2009, Hygienic flanged pipe connection, short type

DIN 11853-3:2009, Hygienic clamp pipe connection, short type

ISO 2853, BS 4825 Part 4 in combination with T-seals

Combifit International B.V., *The Netherlands*

ISO 2852, DIN 32676, BS 4825 Part 3 in combination with Tri-Clamp seals

Combifit International B.V., *The Netherlands*

HP-Sealcon with EPM gasket in size DN25 - DN125

GEA Tuchenhausen GmbH, *Germany*

ASEPTO-STAR, type k-flex System (PEEK)

Kieselmann GmbH, *Germany*

DIN 11851 in combination with **ASEPTO-STAR k-flex** upgrade gaskets

Kieselmann GmbH, *Germany*

BioConnect® with EPDM O-ring

Neumo GmbH & Co. KG, *Germany*

SKS gasket set DIN 11851 EHEDG with EPDM or FKM inner gasket

Siersema Componenten Service (S.K.S.) B.V., *The Netherlands*

Process connections

In-line ball-shaped housing with EPDM gasket,
APV a SPX Brand, *Germany*

Sensor connection type BHC 3A DN38 and DN76 with EPDM O-ring,
Baumer, *Denmark*

Process connection type CPA842 with EPDM gasket for EHEDG certified sensors
with diameter 12 mm
Endress+Hauser Conducta GmbH+Co. KG, *Germany*

Retractable assembly type CPA875 with EPDM gaskets for EHEDG certified
sensors with diameter 12 mm
Endress+Hauser Conducta GmbH+Co. KG, *Germany*

VARINLINE® System housing with EPDM O-ring in size N, G
GEA Tuchenhausen GmbH, *Germany*

VARINLINE® tank flange type T and P with EPDM O-ring in size B, F, N, G
GEA Tuchenhausen GmbH, *Germany*

Aseptoflex Vario with EPDM or PEEK sealing
ifm electronic GmbH, *Germany*

Process connection code 997 JUMO PEKA for sensors with EPDM, VMQ or FPM
O-ring
JUMO GmbH & Co. KG, *Germany*

HWT2X0 weld-in process adapter with PEEK sealed sensors
Krohne Messtechnik GmbH & Co., *Germany*

InTrac pH-Holder with EPDM seals
Mettler-Toledo GmbH Process Analytics, *Switzerland*

InFit761/NC/0070/4435/D00/Si9- straight sensor probe insertion arrangement with EPDM seals

Mettler-Toledo GmbH Process Analytics, *Switzerland*

flange connection Aseptic Line sealed with silicone O-ring

Zimmerlin GmbH, *Germany*
