Position paper of the EHEDG Test Methods Subgroup:

Hygienic Process connections to use with hygienic components and equipment

(Version 2, April 2011)

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, cleanable way.

The subgroup recommends using a process connection or pipe coupling of a good hygienic design according to EHEDG Documents 8 (hygienic design criteria) and Document 16 (pipe couplings) and cleanable in-place according to EHEDG Document 2.

Critical to the design and connection are: the avoidance of any dead areas, providing an axial stop with controlled compression of the seal and a centering of the flanges.

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 EL Logo class I (see list of certified components).

This list is not exhaustive.

Process connection	Pipe coupling
In-line ball-shaped housing, APV an SPX Brand, *Germany*	**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
VARINLINE® System housing with EPDM O-ring GEA Tuchenhagen GmbH , *Germany*	**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

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metal to metal sealing process adapter, type System PIEZOTEC for e.g. pressure transmitter PZT Hengesbach GmbH & Co. KG, *Germany*	**ISO 2852 in combination with Kalrez/Stainless Steel gasket** from Dupont de Nemours, *Switzerland*
Aseptoflex Vario Adaptation for pressure, flow and temperature sensors and EPDM, PEEK or metal to metal sealing ifm electronic GmbH, *Germany*	**ISO 2852 in combination with T-ring seals** from Combifit International B.V., *The Netherlands*
Metallic conical seal ifm prover GmbH, *Germany*	**ISO 2853 in combination with T-ring seals** from Combifit International B.V., *The Netherlands*
Process connection code 997 JUMO PEKA for sensors JUMO GmbH & Co. KG, *Germany*	**RHP TM Fitting** Flowmeca, *France*
Process connection code 380 JUMO thread 1/2 inch pipe with CIP-conform sealing cone for sensors JUMO GmbH & Co. KG, *Germany*	**VARIVENT®** in-line flange connection with EPDM O-ring GEA Tuchenhagen GmbH, *Germany*
Metal-metal fitting for sensors, type LZE- KOBOLD Messring GmbH, *Germany*	**Pipe coupling ASEPTO-STAR, type k-flex System** Kieselmann GmbH, *Germany*
PEEK-metal fitting for sensors, type LZE- KOBOLD Messring GmbH, *Germany*	DIN 11851 in combination with **ASEPTO-STAR k-flex** upgrade gaskets from Kieselmann GmbH, *Germany*
PEEK sealed sensors (LS 6200/7200)with process weld-in pipe HWT2X0 Krohne Messtechnik GmbH & Co., *Germany*	**Pipe coupling, type BioConnect A®** Neumo GmbH & Co. KG, *Germany*

Process Connection InTrac pH-Holder in the size of DN50 Mettler-Toledo GmbH Process Analytics, *Switzerland*	**Pipe coupling, type Connect S®** Neumo GmbH & Co. KG, *Germany*
Straight sensor probe insertion arrangement (InFit761/NC/0070/4435/D00/Si9-) Mettler-Toledo GmbH Process Analytics, *Switzerland*	**REHAU RAUISO PE-Xa pipe with stainless steel coupler REHAU EVERLOC** Rehau AG & Co., *Germany*
CLEANadapt with EHG-Tubes Negele Messtechnik GmbH, *Germany*	**SKS gasket set DIN 11851 EHEDG** *(stainless steel outer ring and inner elastomer gasket)* from Siersema Komponenten Service (S.K.S.) B.V., *The Netherlands*
flange connection Aseptic Line sealed with silicone O-ring Thrun Maschinen- und Behälterbau GmbH., *Germany*	**TS-Fitting** Swagelok Biopharm Services Company, *USA*
	HP-Sealcon with EPDM gasket Tuchenhagen Dairy Systems GmbH, *Germany*

The hygienic installation of parts of equipment is also covered in EHEDG Doc 34, Integration of Hygienic and Aseptic Systems.

Note: The Test Method subgroup is comprised of members from research and test institutes involved in the testing, evaluation and certification of components and equipment for food processing.