

Hygienic, Elastomer- and Gap Free Process Connections



Range of applications

Hygienic, elastomer and gap free process connection for use in the breweries, dairy-, food- and pharmaceutical industries as well as in biotechnology and in peripheral applications (water- and waste water treatment, etc.)

Function principle

The cone of the sensor is pressed with a defined power against the sealing angle of the fitting by screwing in the sensor (see the drawing below). Because of that a gap free and perfect hygienic adaption is achieved without using any further elastomer sealing materials.

Hygienic design

Elastomer- and gap free installation. 3-A and EHEDG compliant process connection only for sensors with PEEK sealing cone. For EHEDG a connection with leakage hole is required.

Features

- Defined position of the cable entry by marker on the weld-in sleeve resp. build-in system (e.g. M12 plug).
- Only 3 thread sizes for all sensors: M12, G1/2", G1".
- Modular adaption concept for all established process connections: Tri-Clamp, Dairy flange, DRD, Varivent, BioControl, vibration switch adapter, SMS, RJT, IDF, flanges according to DIN and ISO

Sealing metal to PEEK

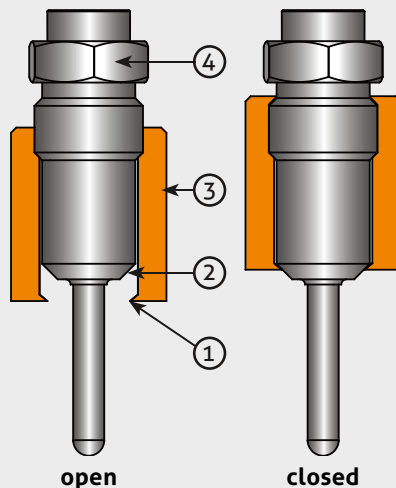


Sealing metal to metal



Schematic diagramm of Negele CLEANadapt sealing principle

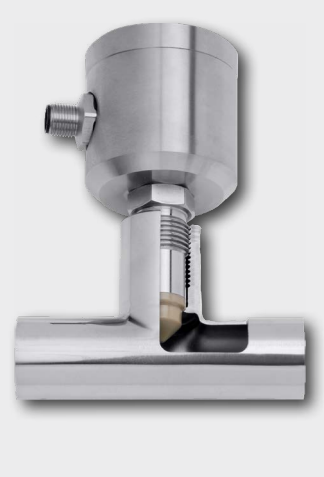
- 1: sealing edge (metal)
- 2: PEEK or metal cone at sensor
- 3: weld-in sleeve
- 4: sensor connection



Defined position of the cable entry



Build-in system EHG for orbital welding into pipes



Specifications		
Process connection	thread torque	M12, G1/2", G1" see table below
Material	option on request	1.4404 / AISI 316L 2.2 factory certificate acc. to DIN EN 10204 made of 1.4435 / AISI 316L with 3.1 inspection certificate
Temperature *	sealing metal-metal sealing metal-PEEK	maximum 250 °C / 482 °F depends on sensor type 140 °C / 284 °F resp. 150 °C / 302 °F
Pressure *	sealing metal-metal sealing metal-PEEK	ca. 50 bar / 725 psi (please also regard pipe specification) ca. 10 bar / 145 psi (please also regard pipe specification)

* Valid for sealing / sealing edge

Thread size	Sealing system	Torque minimum [Nm]	Torque maximum [Nm]
M12 x 1.5	Metall-PEEK	5	10
G1/2"	Metall-PEEK	5	10
G1/2"	Metall-Metall	5	20
G1"	PEEK-Metall	10	20

Weld-in and installation details

Welding into vessels:

Please use fittings of type EMZ, EMK or KEM.

1. Drill a hole with external diameter of the fitting, maximum tolerance: +0.2 mm.
2. Fix the fitting with 4 points (figure 1).
 - Pay attention to the order of fixing!
 - At G1" fix with 8 points (figure 2).
3. Screw in the welding mandrel.
4. Weld the sections between the points (figure 2)
 - 4 sections if M12 or G1/2" thread
 - 8 sections if G1" thread

Welding into pipes:

Therefore we provide the build-in system EHG (see page 3ff) and weld-in fittings of type KEM or EMS (with weld-in collar) if the pipe is pulled-out.

Figure 1

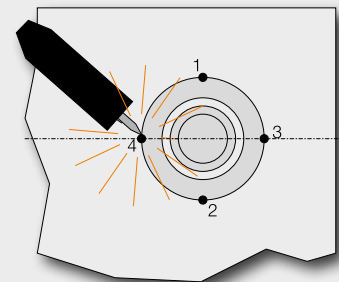
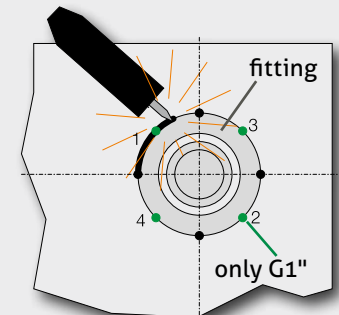


Figure 2



Important



To prevent deformation of the fitting, pauses between the sections should be as long as the fitting needs to cool down again.

Order Code Welding Mandrel ESD

ESD-030	welding mandrel, brass, thread M12 x 1.5
ESD-130	welding mandrel, brass, thread G1/2"
ESD-350	welding mandrel, brass, thread G1"

Welding Mandrels ESD



M12 x 1.5
ESD-030

G1/2"
ESD-130

G1"
ESD-350

EHG-DIN2-... / M12



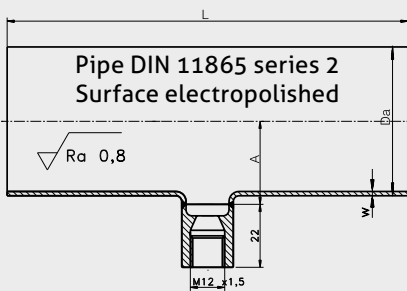
EHG-DIN2-... / 1/2"



EHG-DIN2-... / 1"



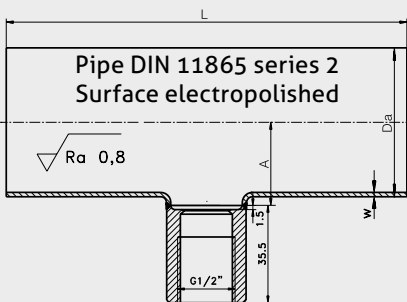
Dimensions EHG-DIN2-... / M12



Dimensions table EHG-DIN2-... / M12

Type	DN	L	A	Da x W
EHG-DIN2-15 / M12	15	70	10	19 x 1.5
EHG-DIN2-20 / M12	20	80	13	23 x 1.5
EHG-DIN2-25 / M12	25	100	15	29 x 1.5
EHG-DIN2-40 / M12	40	120	22	41 x 1.5
EHG-DIN2-50 / M12	50	140	29	53 x 1.5
EHG-DIN2-65 / M12	65	160	38	70 x 2.0
EHG-DIN2-80 / M12	80	180	46	85 x 2.0

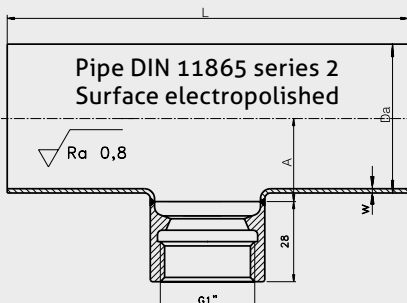
Dimensions EHG-DIN2-... / 1/2"



Dimensions table EHG-DIN2-... / 1/2"

Type	DN	L	A	Da x W
EHG-DIN2-25 / 1/2"	25	100	15	29 x 1.5
EHG-DIN2-40 / 1/2"	40	120	22	41 x 1.5
EHG-DIN2-50 / 1/2"	50	140	29	53 x 1.5
EHG-DIN2-65 / 1/2"	65	160	38	70 x 2.0
EHG-DIN2-80 / 1/2"	80	180	46	85 x 2.0
EHG-DIN2-100 / 1/2"	100	200	55	104 x 2.0

Dimensions EHG-DIN2-... / 1"



Dimensions table EHG-DIN2-... / 1"






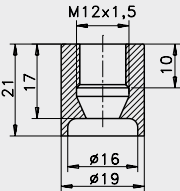
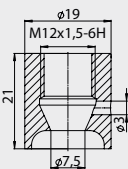
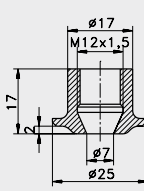
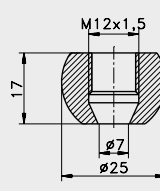
Type	DN	L	A	Da x W
EHG-DIN2-40 / 1"	40	120	22	41 x 1.5
EHG-DIN2-50 / 1"	50	140	29	53 x 1.5
EHG-DIN2-65 / 1"	65	160	38	70 x 2.0
EHG-DIN2-80 / 1"	80	180	46	85 x 2.0
EHG-DIN2-100 / 1"	100	200	55	104 x 2.0

Note

- The EHG build-in system is also available with leakage hole. Order code extension: -L (EHG-DIN...-L).
- The EHG build-in system could be delivered as well as custom-made product acc. to DIN 11850 Series 1, DIN 11866 Series C (OD-Tube) or DIN 11866 Series B (ISO 1127).



Weld-in sleeves and adapter

M12					
					
	Cylindrical sleeve with weld-in ring	Cylindrical sleeve with weld-in ring and leakage hole	Weld-in sleeve with collar	Weld-in ball	DRD (press ring optional)
	EMS-032 * (for installation on pulled-out pipes)	EMS-031 * (for installation on pulled-out pipes)	EMK-032 * (for vessels thick / thin)	KEM-032 * (for sloped installation)	AMK-032/50 (only one size)

* Deliverable with material 1.4435 / AISI 316L and 3.1 inspection certificate on request.






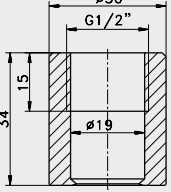
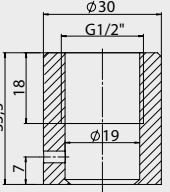
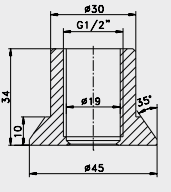
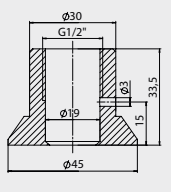
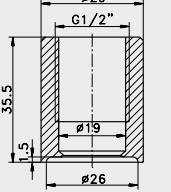
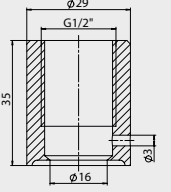
Adapter to standard process connections

M12						
Diameter	Milk pipe (DIN 11851)	Tri-Clamp	Tri-Clamp with leakage hole	Varivent-Inline	SMS	
	1/2" ... 3/4"	-	AMC-032 / 1/2" - 3/4"	AMC-031 / 1/2" - 3/4"	-	
DN10	AMK-032/10	AMC-032/DN10	AMC-031/DN10	AMV-032/10	-	
DN15	AMK-032/15	AMC-032/DN10	AMC-031/DN10	AMV-032/10	-	
DN25	1"	AMK-032/25	AMC-032/DN25	AMC-031/DN25	AMV-032/25	-
DN40	1 1/2"	AMK-032/40	AMC-032/DN25	AMC-031/DN25	AMV-032/40	AMK-032/40
DN50	2"	AMK-032/50	AMC-032/DN50	AMC-031/DN50	AMV-032/40	AMK-032/50
	2 1/2"	AMK-032/65	-	-	AMV-032/40	-
DN65	3"	AMK-032/65	-	-	AMV-032/40	-
DN80		AMK-032/80	-	-	AMV-032/40	-
DN100		AMK-032/100	-	-	AMV-032/40	-

Adapter M12 to other thread sizes and accessories

M12					
	Adapter	Adapter	Dummy flange		
	AMG-032/G1/2" (G1/2" to M12 hygienic)	AMG-032/G3/4" (G3/4" to M12 hygienic)	BST-030 (to close an existing measurement point)		

Weld-in sleeves G1/2"

					
					
Cylindrical sleeve	Cylindrical sleeve with leakage hole	Weld-in sleeve with collar	Weld-in sleeve with collar and leakage hole	Cylindrical sleeve with weld-in ring	Cylindrical sleeve with weld-in ring and leakage hole
EMZ-132 * (for vessels)	EMZ-131 * (for vessels with leakage detection)	EMK-132 * (for thick-walled vessels)	EMK-131 * (for thick-walled vessels)	EMS-132 * (for installation on pulled-out pipes)	EMS-131 * (for installation on pulled-out pipes)

* Deliverable with material 1.4435 / AISI 316L and 3.1 inspection certificate on request.

Adapter to standard process connections

G1/2"					
Diameter	Milk pipe (DIN 11851)	Tri-Clamp	Tri-Clamp with leakage hole	Varivent-Inline	DRD (press ring optional)
DN10	-	AMC-132/DN10	AMC-131/DN10	-	AMK-132/50
DN15	-	AMC-132/DN10	AMC-131/DN10	-	AMK-132/50
DN20	AMK-132/20	AMC-132/DN10	AMC-131/DN10	-	AMK-132/50
DN25	1"	AMK-132/25	AMC-131/DN25	AMV-132/25	AMK-132/50
DN32	AMK-132/32	AMC-132/DN25	AMC-131/DN25	AMV-132/25	AMK-132/50
DN40	1½"	AMK-132/40	AMC-131/DN25	AMV-132/40	AMK-132/50
DN50	2"	AMK-132/50	AMC-131/DN50	AMV-132/40	AMK-132/50
	2½"	AMK-132/65	AMC-131/2½"	AMV-132/40	-
DN65	3"	AMK-132/65	AMC-131/DN65	AMV-132/40	AMK-132/50
DN80	AMK-132/80	AMC-132/DN80	AMC-131/DN80	AMV-132/40	AMK-132/50
DN100	AMK-132/100	-	-	AMV-132/40	AMK-132/50

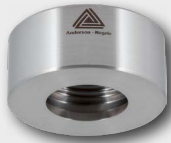



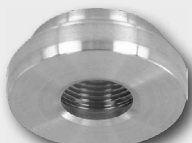
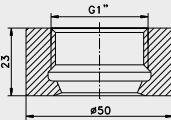
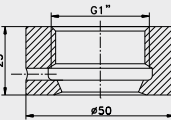
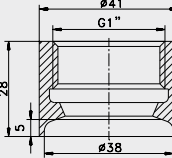
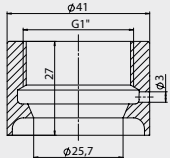
Adapter to standard process connections

G1/2"					
Diameter		SMS	BioControl		
DN20		AMK-132/20	-		
DN25	1"	-	-		
DN40	1½"	AMK-132/40			
DN50	2"	AMK-132/50	AMB-50/½" and AMB-65/½"		
DN65	2½"	-	from DN40 up to DN100		
DN80		-			
DN100		-			

Adapter G1/2" to other thread sizes and accessories

G1/2"						
		Adapter	Adapter	Adapter	Dummy flange	
		AMG-1 (G1" hygienic to G1/2" hygienic)	AMG-132 (G1" to G1/2" hygienic)	AMG-132 / 3/4" (G3/4" to G1/2" hygienic)	BST-130 (to close an existing measurement point)	

Weld-in sleeves and adapter





G1"					
					
	Cylindrical sleeve	Cylindrical sleeve with leakage hole	Cylindrical sleeve with weld-in ring	Cylindrical sleeve with weld-in ring and leakage hole	DRD (press ring optional)
	EMZ-352 * (for vessels thick / thin)	EMZ-351 * (for vessels with leakage detection)	EMS-352 * (for installation on pulled-out pipes)	EMS-351 * (for installation on pulled-out pipes)	AMK-352/50 (only one size)

* Deliverable with material 1.4435 / AISI 316L and 3.1 inspection certificate on request.

Adapter to standard process connections

G1"						
Diameter	Milk pipe (DIN 11851)	Tri-Clamp	Tri-Clamp with leakage hole	Varivent-Inline	Varivent-Inline with leakage hole	
DN25	1"	AMK-352/DN25	AMC-352/DN25	AMC-351/DN25	AMV-352/DN25	AMV-351/DN25
DN32		AMK-352/DN32	AMC-352/DN25	AMC-351/DN25	AMV-352/DN25	AMV-351/DN25
DN40	1½"	AMK-352/DN40	AMC-352/DN25	AMC-351/DN25	AMV-352/DN40	AMV-351/DN40
DN50	2"	AMK-352/DN50	AMC-352/DN50	AMC-351/DN50	AMV-352/DN40	AMV-351/DN40
	2½"	AMK-352/DN65	AMC-352/2½"	AMC-351/2½"	AMV-352/DN40	AMV-351/DN40
DN65	3"	AMK-352/DN65	AMC-352/DN65	AMC-351/DN65	AMV-352/DN40	AMV-351/DN40
DN80		AMK-352/DN80	AMC-352/DN80	AMC-352/DN80	AMV-352/DN40	AMV-351/DN40
DN100		AMK-352/DN100	-	-	AMV-352/DN40	AMV-351/DN40

Adapter G1" to other thread sizes and accessories

G1"					
	Adapter	Adapter	Adapter	Dummy flange	
	AMG-352 G1½" (G1½" to G1" hygienic)	AMG-352 G1¾" (G1¾" to G1" hygienic)	AMG-352 G2" (G2" to G1" hygienic)	BST-350 (to close an existing measurement point)	

Note on 3-A Sanitary Standard 74-

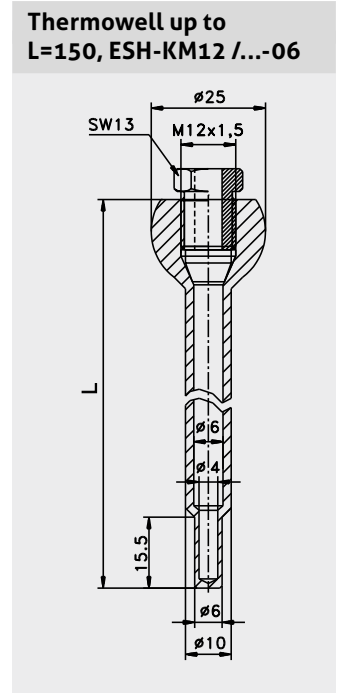
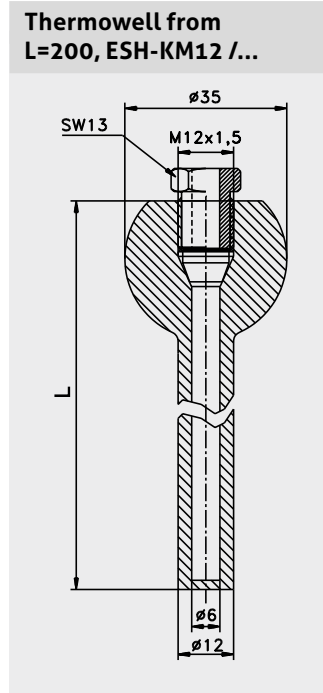
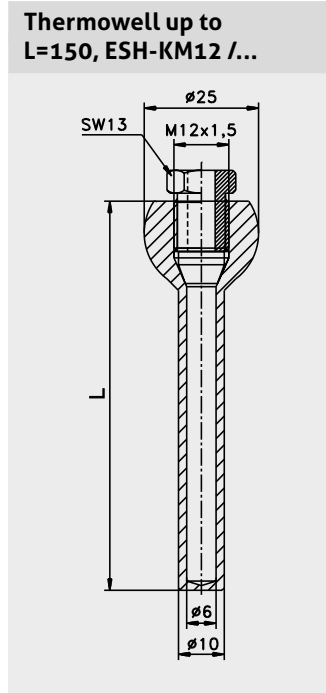
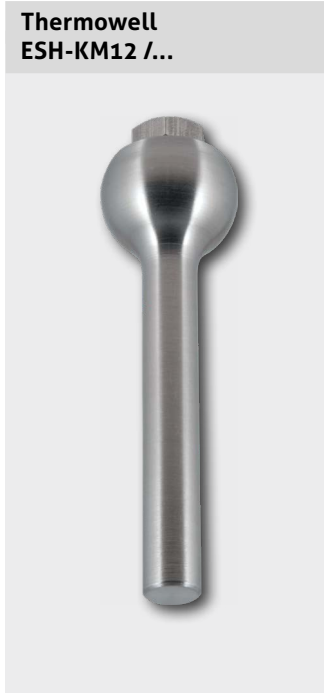
Information on installation according to 3-A standard is available on our website:
www.anderson-negele.com/3A74.pdf

Click on the PDF icon to download the document.

Note on EHEDG Hygienic Standard Type EL Class I

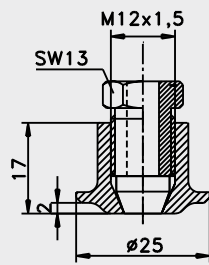
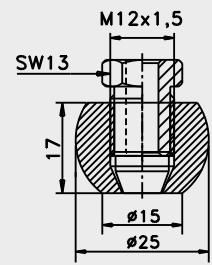
Information on installation according to EHEDG standard and indications for CLEANadapt adapters with leakage holes is available on our website:
www.anderson-negele.com/EHEDG.pdf

Click on the PDF icon to download the document.



Specification ESH-KM12		
Process connection		weld-in thermowell
Application		For installation of temperature sensors in pipes and vessels. Suitable for sensor types: TSMx/N01/... and TSBx/N01/...
Materials	thermowell optional	stainless steel 1.4404 / AISI 316L 1.4435 / AISI 316L with 3.1 inspection certificate (acc. to DIN EN 10204)
Mounting system sensor	clamp ring	M12x1.5 with PEEK clamp-ring
Torque		maximum 10 Nm
Operating pressure		maximum 50 bar / 725 psi

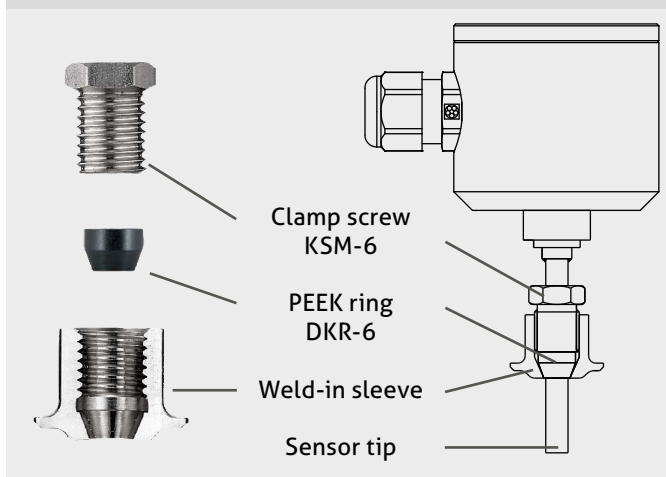
Order code	
ESH-KM12	weld-in sleeve with thermowell incl. clamp screw KSM-6 and sealing cone DKR-6
	Length L in mm
	85 suitable for sensors from length 100 mm, sensor tip \varnothing 6 mm
	150 suitable for sensors from length 165 mm, sensor tip \varnothing 6 mm
	230 suitable for sensors from length 245 mm, sensor tip \varnothing 6 mm
	400 suitable for sensors from length 415 mm, sensor tip \varnothing 6 mm
	85-6 suitable for sensors from length 100 mm, sensor tip \varnothing 4 mm
	150-6 suitable for sensors from length 165 mm, sensor tip \varnothing 4 mm
	230-6 suitable for sensors from length 245 mm, sensor tip \varnothing 4 mm
	400-6 suitable for sensors from length 415 mm, sensor tip \varnothing 4 mm
ESH-KM12 /	150

Weld-in sleeve
EMK-25/76Weld-in sleeve
EMK-25/76Weld-in sleeve
KEV-25/76Weld-in sleeve
KEV-25/76

Specification EMK-25/76 and KEV-25/76

Process connection	cavity free	weld-in thermowell
Application		For installation of temperature sensors in pipes and vessels. Suitable for sensor types: TSMx/N01/... and TSBx/N01/...
Material	optional	stainless steel 1.4404 / AISI 316L 1.4435 / AISI 316L with 3.1 inspection certificate (acc. to DIN EN 10204)
Mounting system sensor	clamp ring	M12x1.5 with PEEK clamp-ring
Torque		maximum 10 Nm
Operating pressure		maximum 10 bar

Showcase of sealing principle



Clamp Connection with PEEK ring

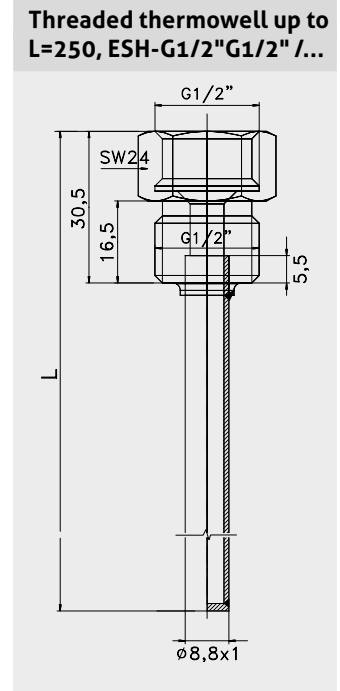
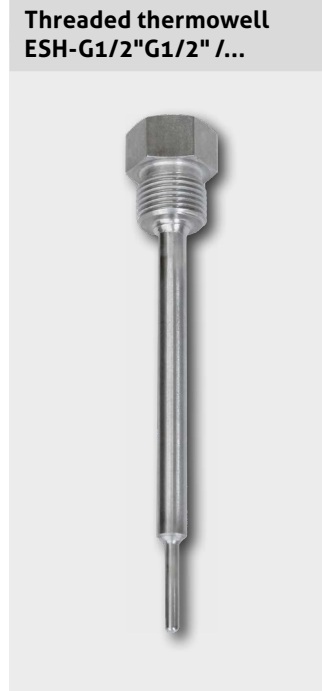
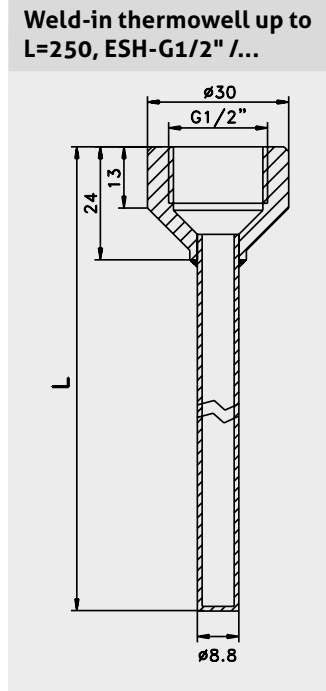


The sensor is sealed by means of the conic sealing ring, made of heat-resistance PEEK material.

Tightening the clamp screw the gap between sensor and sleeve will be closed totally and the sealing ring will be pressed against the sensor.


Order Code

EMK-25/76	Weld-in sleeve with collar incl. clamp screw KSM-6 and sealing PEEK ring DKR-6
KEV-25/76	Weld-in sleeve incl. clamp screw KSM-6 and sealing PEEK ring DKR-6
KSM-6	Clamp screws for EMK-25/76 and KEV-25/76, material 1.4305 (AISI 303)
DKR-6	Sealing ring for pipes \varnothing 6 mm, material PEEK



Specification ESH-G1/2" (Weld-in Thermowell) and ESH-G1/2"G1/2" (Threaded Thermowell)		
Process connection	ESH-G1/2" ESH-G1/2"G1/2"	weld-in thermowell threaded thermowell G1/2" standard thread
Application		For installation of temperature sensors in pipes and vessels. Suitable for sensor types: TSMF/G01/... and TSBF/G01/...
Materials	thermowell	stainless steel 1.4404 / AISI 316L
Mounting system sensor		G1/2" standard thread
Torque		maximum 10 Nm
Operating pressure		maximum 50 bar / 725 psi

Order code	
ESH-G1/2"	weld-in thermowell with G1/2" standard thread for sensor
ESH-G1/2"G1/2"	G1/2" standard threaded thermowell with G1/2" standard thread for sensor
	Length L in mm
	050 suitable for sensors with length 50 mm, sensor tip \varnothing 6 mm
	100 suitable for sensors with length 100 mm, sensor tip \varnothing 6 mm
	150 suitable for sensors with length 150 mm, sensor tip \varnothing 6 mm
	150-4 suitable for sensors with length 150 mm, sensor tip \varnothing 4 mm, only for ESH-G1/2"G1/2"
	200 suitable for sensors with length 200 mm, sensor tip \varnothing 6 mm
	250 suitable for sensors with length 250 mm, sensor tip \varnothing 6 mm
ESH-G1/2" /	150

Accessories Spare Parts					
					
Diameter	Clamp ring Varivent	Sealing ring Varivent	Clamp ring Tri-Clamp	Sealing ring Tri-Clamp	
DN10	-	-	SRC-10	DRC-10	
DN15	SRV-15	DRV-15	SRC-10	DRC-15	
DN20	-	-	SRC-10	DRC-20	
DN25	SRV-25	DRV-25	SRC-25	DRC-25	
DN32	-	-	SRC-25	DRC-32	
DN40	SRV-40	DRV-40	SRC-25	DRC-40	
DN50	-	-	SRC-50	DRC-50	
DN65	-	-	SRC-65	DRC-65	
DN80	-	-	SRC-80	DRC-80	

Accessories Spare Parts					
					
Diameter	Press ring DRD	Sealing ring DRD	Slotted nut Milk pipe DIN 11851	Sealing ring Milk pipe	
DN10	-	-	-	-	
DN15	-	-	-	-	
DN20	-	-	-	-	
DN25			NMM-25	DRM-25	
DN32			-	-	
DN40	ADD-50	FDD-50	NMM-40	DRM-40	
DN50	for AMK-352/DN50	for AMK-352/DN50	NMM-50	DRM-50	
DN65			NMM-65	DRM-65	
DN80			NMM-80	DRM-80	
DN100			NMM-100	DRM-100	

Re-Sharpener tool for CLEANadapt

Specified Usage

By using the re-sharpening tool you can try to rework a slightly deformed sealing edge in order to still achieve a sealed process.

Important



The mounting of the sensors under the usage of Teflon tape should be avoided because:

- the faultfree sensor function is no longer guaranteed due to the isolating effect of the sealing tape.
- if the sealing edge isn't tight, the medium can infiltrate the weld-in sleeve and as a consequence germs can occur.

Re-Sharpener Tool NSW-030 for M12 x 1,5



Order Code Re-Sharpener Tool NSW

NSW-030	re-sharpening tool for thread M12x1.5 respectively EMS-032
NSW-130	re-sharpening tool for thread G1/2" respectively EMZ-132
NSW-350	re-sharpening tool for thread G1" respectively EMZ-352

Transport / Storage



- No outdoor storage
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration
- Storage temperature -55...+90 °C (-67...194 °F)
- Relative humidity maximum 98 %

Reshipment



- Sensors and process connection shall be clean and free of media or heat-conductive paste and must not be contaminated with dangerous media!
- Use suitable transport packaging only to avoid damage of the equipment!

Cleaning / Maintenance



- In case of using pressure washers, don't point nozzle directly to electrical connections of built-in sensors!




Standards and Guidelines



- You have to comply with applicable regulations and directives

Food applications				
	Type	CLEANadapt M12	CLEANadapt G1/2"	CLEANadapt G1"
	Temperature TSBF / Temperature TSMF /	C01 /...	C02, C03, C04, C05, C06 /... C02, C03, C04, C05, C06 /...	
	Temperature TFP-	06*, 06.2* * with clamp ring		
	Limit NCS-	01, 02	L-11, L-12 11, 12 M	
	Limit NVS-	041, 061, 081	141, 143, 146 161, 163, 166 181, 183, 186	345
	Limit and Temperature NFP-		41	
	Level NSL-		F...S00 M...S00	F...S01 M...S01
	Level LAR-			361
	Flow monitoring		FTS-141 FWS-141 FWA-141	

Food applications				
	Type	CLEANadapt M12	CLEANadapt G1/2"	CLEANadapt G1"
	Pressure			P41 / P42 DAN-HH DAC-341 LAR-361 MPF-series L3-series D3-series
	Pressure MAN-			63, 63A 90, 90-BAT
	Conductivity ILM-			4
	Turbidity ITM-		51	

Pharma applications				
	Type	CLEANadapt M12	CLEANadapt G1/2"	CLEANadapt G1"
	Temperature TSBP / Temperature TSMP /	C01 /...	C02 /...	
	Limit NCS-	01P, 02P		
	Pressure MAN-			90P, 90P-BAT