



Product information  
**Hygienic Design**  
*GHMadapt / Accessories*





## Characteristics

### GHMadapt

- Welding sleeves without / with leakage holes
- Adapters
- Welding fittings
- CIP-/SIP-cleaning
- EHEDG certified

### Connection cables

- P67, IP69K
- 4-, 5- and 8-pole

### Function

With the process adaptation it is a matter according to the use in the tanks or in the tubes of choosing a flawless, hygienic process connection.

Diameters, volumes and construction form mark size and type of the connection. Medium, temperature and pressure the possible principle.

## Applications

### Food-, beverage and pharmaceutical industry

- Tube systems
- Tanks
- Vessels and other containers

### Advantage

- Thread types M12, G ½, G 1
- Leakage holes
- Modular adaption at all common process connections
- Hygienic-connection cables

Device overview

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<b>Welding sleeve</b>	
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Errors and technical changes reserved.

# Process Adaptation and Accessories

## Application field

Hygienic requirements for dead spot free and elastomer free process adaptation in a wide application field of food and beverage industry.

## Function GHMadapt

The hygienically designed cone of the sensor, will be pressed with a defined stud torque against the sealing edge of the welding sleeve.



## Technical data

Process connection	: thread M12, G ½", G 1" stud torque values see table below
Material	: stainless steel 1.4404, AISI 316L 2.2 or 3.1 certification optional
<i>Operating temperature</i>	
Sealing metal-metal	: max. 250 °C
Sealing metal-PEEK	: max. 150 °C
<i>Process pressure</i>	
Sealing metal-metal	: max. 50 bar
Sealing metal-PEEK	: max. 10 bar

## Mounting notes for fittings

### Butt welding in tanks

1. drilling the hole with outer diameter of the sleeve,
  - max. tolerance +0.2 mm
2. tacking the fitting with 4 point (Figure 1)
  - take care for the tacking sequence
  - for G 1 are 8 tacking points necessary (Figure 2)
3. screw in welding tool (see AMH121, -122, -123)
4. welding the sectors between the tacks
  - 4 sectors for thread M12 and G ½"
  - 8 sectors for thread G 1"

### Butt welding in tubes

Besides the APH tube-system we also offer ball sleeves or sleeves with welding shoulder for pipes with collar.



To prevent a glowing through or warping the sleeve during the welding process, it is necessary between the single sections to take a break, to cool down the sleeve.

## Tightening torque

Thread	Sensor / sleeve	Min. torque [Nm]	Max. torque [Nm]
M12x1.5 hygienic	PEEK / metal	5	10
G ½" hygienic	PEEK / metal	5	10
G ½" hygienic	metal / metal	5	20
G 1" hygienic	PEEK / metal	10	20

## Approvals / conformities



## Characteristics

- Defined position of the cable- or plug entry (sensor) with a mark on the welding fitting
- Only 3 thread types for all sensors: M12, G ½", G 1"
- Adaptation for all popular process connection as: VARINLINE®, Tri-Camp, milk-pipe, DRD, ...
- Reducing adapter for the replacement of existing sensors e.g. vibration limiter
- Models with leakage holes

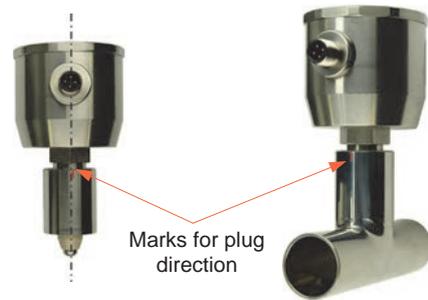
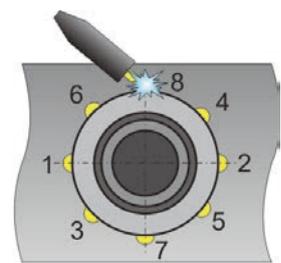


Figure 1

Figure 2

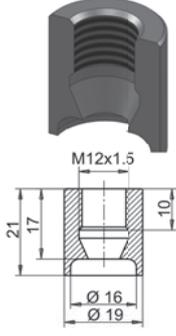
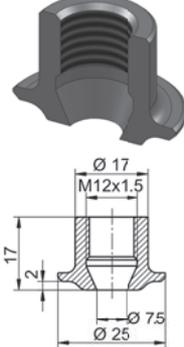
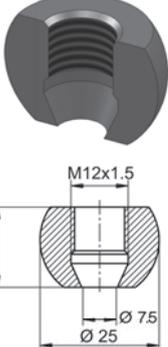
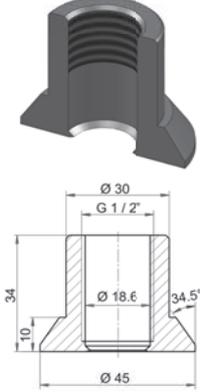
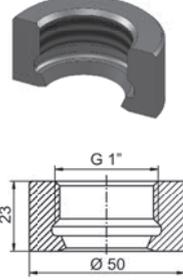
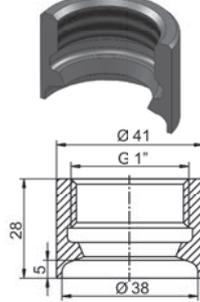
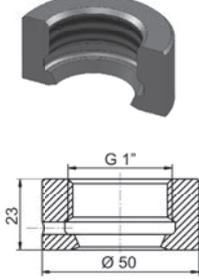


4 sectors with M12 and G ½"



8 sectors with G 1

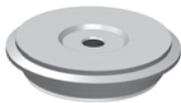
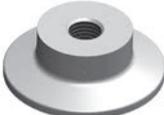
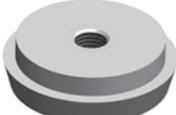
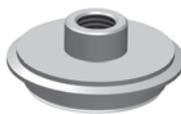
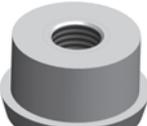
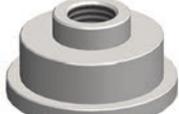
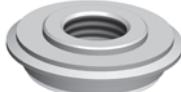
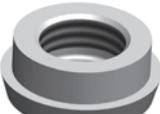
Hygienic welding sleeves

Specification	Cylindric sleeve	Cylindric sleeve with collar	Cylindric sleeve with leakage hole	Collar sleeve	Ball sleeve
Applications	for containers	for collars	for containers with leakage hole	for thick-walled containers	for inclined mounting
M12	-		-		
	not available	APH121-00	not available	APH141-00	APH151-00
G 1/2"					
	APH112-00	APH122-00	APH132-00	APH142-00	APH152-00
G 1"				-	-
	APH113-00	APH123-00	APH133-00	not available	not available

**Additional accessories**

Specification	Blind glands	Welding tools (material brass)	Reducing adapter		
Applications	closing of the process thread	prevents the warping of the sleeve	reducing the process thread		
M12					
	AMH111-00	AMH121-00	not available	not available	nct available
G 1/2"					
	AMH112-00	AMH122-00	AMH132-00 G 3/4" > G 1/2" hyg. for limit switches (tuning fork)	AMH131-00 G 1" hyg. > G 1/2" hyg.	AMH134-00 G 1" > G 1/2" hyg. for limit switches (tuning fork)
G 1"					
	AMH113-00	AMH123-00	AMH133-00 G 1 1/2" > G 1" hyg.	not available	nct available

**Process adapters (material 1.4404)**

Process-connection	VARINLINE® incl. O-Ring	Tri-Camp	Milk pipe DIN 11851	DRD (clamping ring optional)	DRD clamping ring
<b>M12</b> Nominal diameter (DN)					
10	APH211-00 <sup>1)</sup>	APH411-00	APH311-00	APH651-00	APH659-00
15			APH321-00		
25	APH231-00 <sup>2)</sup>	APH431-00	APH331-00		
40	APH241-00 <sup>3)</sup>		APH451-00		
50		APH461-00	APH351-00		
65		APH471-00	APH361-00		
80		APH481-00	APH371-00		
100		APH381-00			
<b>G 1/2"</b> Nominal diameter (DN)					
25	APH232-00 <sup>2)</sup>	APH432-00	APH322-00	APH652-00	APH659-00
32	-		APH332-00		
40	APH242-00 <sup>3)</sup>	APH452-00	APH342-00		
50			APH462-00		
65		APH472-00	APH362-00		
80		APH482-00	APH372-00		
100		APH382-00			
<b>G 1"</b> Nominal diameter (DN)					
25	APH233-00 <sup>2)</sup>	APH433-00	APH323-00	APH653-00	APH659-00
32	-		APH333-00		
40	APH243-00 <sup>3)</sup>	APH453-00	APH343-00		
50			APH463-00		
65		APH473-00	APH363-00		
80		APH483-00	APH373-00		
100		APH383-00			

**Other process adapters on request**

**VARIVENT/VARINLINE® Process connection**

<sup>1)</sup> Type B

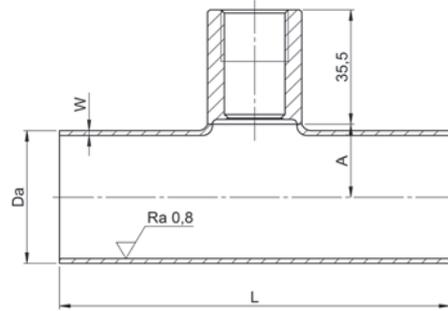
<sup>2)</sup> Type F

<sup>3)</sup> Type N

Varinline and Varivent are registered trademarks of GEA Tuchenhausen GmbH.

**Hygienic welding fittings series APH material 1.4404 • DIN 11850 series 2**

Hygienic welding fittings can also be customized and delivered according to DIN 11850 series 1, DIN 11866 series C (OD Tube) or DIN 11866 series B (EN ISO 1127).



Process thread M12	DN	L	A	Da x W
APH501-015-00	15	70	10	19 x 1.5
APH501-025-00	25	100	15	29 x 1.5
APH501-040-00	40	120	22	41 x 1.5
APH501-050-00	50	140	29	53 x 1.5
APH501-065-00	65	160	38	70 x 2.0
APH501-080-00	80	180	46	85 x 2.0
Process thread G 1/2"				
APH502-025-00	25	100	15	29 x 1.5
APH502-040-00	40	120	22	41 x 1.5
APH502-050-00	50	140	29	53 x 1.5
APH502-065-00	65	160	38	70 x 2.0
APH502-080-00	80	180	46	85 x 2.0
APH502-100-00	100	200	55	104 x 2.0
Process thread G 1"				
APH503-025-00	25	100	15	29 x 1.5
APH503-040-00	40	120	22	41 x 1.5
APH503-050-00	50	140	29	53 x 1.5
APH503-065-00	65	160	38	70 x 2.0
APH503-080-00	80	180	46	85 x 2.0
APH503-100-00	100	200	55	104 x 2.0

**Certificates and protocols for all APH articles**

The above-named welding sleeves, fittings and process adapters can be also delivered with below-listed test reports, inspection certificates or measurement protocols for surfaces according to DIN EN 10204

Test report 2.2	Option: WZ2.2
Inspection certificate 3.1 material in contact with products	Option: APZMAT
Measurement protocol for surface roughness incl. inspection certificate 3.1 material	Option: RA08 Option: RA06 Option: RA04

These options will be added to the article number on request, whereby multiple responses are possible. E.g. APH501-015-00-WZ2.2 APH501-015-00-WZ2.2-RA06

**Note:** All above-listed welding sleeves, fittings and process adapters can be also delivered in stainless steel 1.4435.

**Product Information**

**Hygienic Design - Accessories**

**Hygienic  
 Connection Cable  
 Series ACH  
 (4- and 5-pole)**



- Cable socket M12x1
- PVC-cable flexcord grey
- Straight or angular type
- 4- or 5- pole, wire-end sleeve
- Material stainless steel union nut
- IP67 according to IEC 60529/A1
- IP69K protected against high pressure and steam-cleaning according to IEC 60529/A1
- Heat- and cold-resistant, operating range -25..70°C
- Vibration lock
- Industry-standard-cable colors

**Characteristics**

The connection cable is suitable for middle mechanical strain. High reliability against acids and caustics. Therefore the cables are ideal for application in food and beverage industry. Conditional abrasion characteristics, dependent arising oil and chemical resistance.

**Technical data**

Connector	: socket M12x1
Handle body	: plastic, PVC
Cap nut	: stainless steel 1.4404
Contact retainer	: plastic PVC grey
Contacts	: metal, Cu Zn, gold-plated
Seal	: plastic, FPM, FKM
Current load	: max. 4 A
Rated voltage	: max. 250 V
Isolation resistance	: ≥ 10 <sup>9</sup> MΩ
Degree of pollution	: 3/2, according to DIN VDE 0110
Ambient temperature	: -25..70 °C
Protection class	: IP67/IP69K (only in closed conditions)
Mechanical life	: minimal 100 mating cycles

**Cable colors:**

1 = brown, 2 = white, 3 = blue, 4 = black, 5 = grey

**4-pole**

**Ordering code for straight sockets**

ACH111 -  -  -

<b>1. Cable length</b>	
005	5 meter (standard)
010	10 meter
<b>2. Shield</b>	
0	without shield
<b>3. Options</b>	
00	without option

**Ordering code for angular sockets**

ACH121 -  -  -

<b>1. Cable length</b>	
005	5 meter (standard)
010	10 meter
020	20 meter
0	without shield
<b>2. Shield</b>	
0	without shield
<b>3. Options</b>	
00	without option

**5-pole**

**Ordering code for straight sockets**

ACH112 -  -  -

<b>1. Cable length</b>	
005	5 meter (standard)
010	10 meter
<b>2. Shield</b>	
0	without shield
<b>3. Options</b>	
00	without option

**Ordering code for angular sockets**

ACH122 -  -  -

<b>1. Cable length</b>	
005	5 meter (standard)
010	10 meter
020	20 meter
<b>2. Shield</b>	
0	without shield
<b>3. Options</b>	
00	without option

# Hygienic Connection Cable Series ACH (8-pole, shielded)



- Cable socket M12x1
- PVC- and halogen-free cable, dove-blue, matt
- Straight or angular type
- 8-pole, wire-end sleeve
- stainless steel union nut
- IP67 according to IEC 60529/A1
- IP69K protected against high-pressure and steam-cleaning according to IEC 60529/A1
- Heat- and cold-resistant, operating temp. -40..+105 °C
- Vibration lock

## Characteristics

This shielded, flexible, flame-resistant and halogen-free sensor cable is perfectly suitable for industrial mechanical and plant engineering with highest demands, especially for the application in the food and beverage industry (packaging and filling machines).

Resistant against all common acidic and alkaline detergents and disinfection agents.

## Technical data

Connector	: socket M12x1
Handle body	: plastic, PVC
Cap nut	: stainless steel 1.4404
Contact retainer	: plastic PVC grey
Contacts	: metal, Cu Zn, gold-plated
Seal	: plastic, FPM, FKM
Current load	: max. 4 A
Rated voltage	: max. 250 V
Isolation resistance	: $\geq 10^9$ M $\Omega$
Degree of pollution	: 3/2, according to DIN VDE 0110
Ambient temperature	: -25..70 °C
Protection class	: IP67/IP69K (only in closed conditions)
Mechanical life	: minimal 100 mating cycles

## Cable colors:

1 = brown, 2 = white, 3 = blue, 4 = black, 5 = gray, 6 = pink,  
7 = blue, 8 = red, shield = black

## 8-pole, straight

### Ordering code

ACH113 -  1. -  2. -  3.

Location Martens	
<b>1. Cable length</b>	
005	5 meter
010	10 meter
<b>2. Shield</b>	
1	shield (not placed on the union nut)
<b>3. Options</b>	
00	without option

## 8-pole, angular

### Ordering code

ACH123 -  1. -  2. -  3.

Location Martens	
<b>1. Cable length</b>	
005	5 meter
010	10 meter
<b>2. Shield</b>	
1	shield (not placed on the union nut)
<b>3. Options</b>	
00	without option