

Patented quality product (patent no. DE 10 2012 017 500.0 and DE 10 2015 015 941 B4)

Calibratable temperature measuring transducer **THERMASGARD® TM43**, with eight switchable measuring ranges (max. -20...+150 °C), active output, straight protective tube, housing made from impact-resistant plastic with snap-on lid (IP54), optionally with or without display. The measuring transducer converts the measured variables into a standard signal of 0-10V or 4...20mA. Available as a U variant (3-wire) or I variant (2-wire).

Calibratable temperature measuring transducer **THERMASGARD® TM65**, with eight switchable measuring ranges (max. -20...+150 °C), active output, straight protective tube, housing made from impact-resistant plastic with quick-locking screws (IP67), optionally with or without display. The standard display can be changed from SI [°C] to imperial [°F] units via DIP switch. The measuring transducer converts the measured variables into a standard signal of 0-10V or 4...20mA. The unit with **Automatic Output Switching (AOS)** detects the required output type and automatically switches to U or I output. Alternatively, a **type version** (2-wire) with 2-wire connection and I output is available.

For the detection of temperatures in liquid or gaseous media. For aggressive media, stainless steel immersion sleeves must be used. It is used e.g. in piping systems, in heating technology, in storage tanks, in district heating compact stations, in hot-water and cold-water systems, in oil and lubricant circulation systems, in mechanical, apparatus and plant engineering as well as in the entire industrial sector. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

TM43

with snap-on lid
(IP54)



TM65

with quick-locking screws
(IP67)



TECHNICAL DATA

TMxx - U

Power supply:	24 V AC / DC (± 10 %)
Load resistance:	$R_L > 15 \text{ k}\Omega$ with U variant (TM43)
Connection type:	3-wire connection
Output:	0-10V

TMxx - I

Power supply:	15...36V DC, depending on working resistance, residual ripple stabilised $\pm 0.3 \text{ V}$
Working resistance:	$R_B \text{ (}\Omega\text{)} = (U_B - 14 \text{ V}) / 0.02 \text{ A}$
Connection type:	2-wire connection
Output:	4...20 mA

TMxx - A (AOS)

Power supply:	24 V AC / DC (± 10 %)
Load resistance:	$R_L = 25...450 \text{ }\Omega$ with AOS I variant $R_L > 15 \text{ k}\Omega$ with AOS U variant
Connection type:	3-wire connection
Output:	automatic 0-10V / 4...20 mA (via Automatic Output Switching – the unit detects the required output type and automatically switches to U or I output)

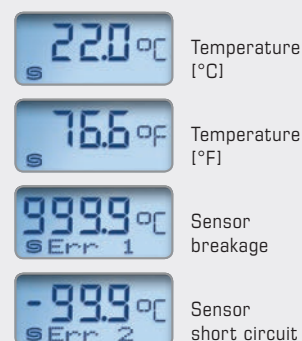
GENERAL

Power consumption:	< 1.0VA / 24V DC; < 2.2VA / 24V AC
System of units:	SI (default) or imperial (TM65 can be changed via DIP switch)
Data points:	temperature [°C] [°F]
Measuring ranges:	multi-range switching with 8 measuring ranges, see table (other ranges optional) with manual zero point correction ($\pm 10 \text{ K}$)
Sensor:	Pt1000, DIN EN 60751, class B (Perfect Sensor Protection)
Accuracy, temperature:	typically $\pm 0.2 \text{ K}$ at +25 °C
Protective tube:	stainless steel, V4A (1.4571), $\varnothing = 6 \text{ mm}$, inserted length (EL) = 50 - 400 mm (see table)
Housing:	plastic, UV-resistant, material polyamide, 30% glass-globe reinforced, colour traffic white (similar to RAL 9016), housing cover for display is transparent! TM43 with snap-on lid TM65 with quick-locking screws (slotted / Phillips head combination)
Housing dimension:	72 x 64 x 37.8 mm (Tyr1 without display) 72 x 64 x 43.3 mm (Tyr1 with display)
Cable connection:	cable gland , plastic (M16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) or M12 connector according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.14 - 1.5 mm ² , via terminal screws
Ambient temperature:	measuring transducer -30...+70 °C
Permitted humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	TM43 IP54 (according to EN 60 529)* Housing tested, TÜV SÜD, Report No. 713160960A (Tyr 01) TM65 IP67 (according to EN 60 529)* Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1) * Housing in the built-in state
Standards:	CE conformity according to EMC directive 2014 / 30 / EU
Optional:	two-line display with illumination , cutout approx. 36 x 15 mm (W x H), for displaying the ACTUAL temperature and the internal diagnostics (sensor breakage, sensor short circuit)

ACCESSORIES

(see table)

Display and internal diagnostics
THERMASGARD®
Measuring transducer with display





NEW

S+S REGELTECHNIK

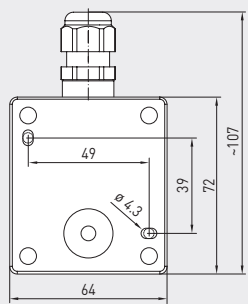
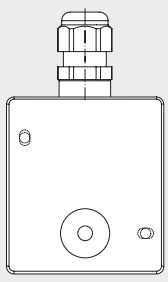
THERMASGARD® TM 43
THERMASGARD® TM 65

Immersion / screw-in / duct temperature measuring transducer,
calibratable, with multi-range switching
and active output (Automatic Output Switching)

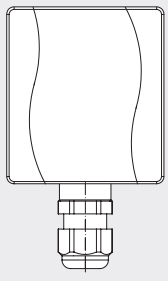
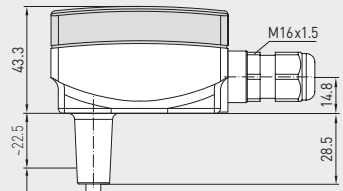
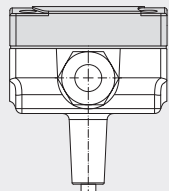
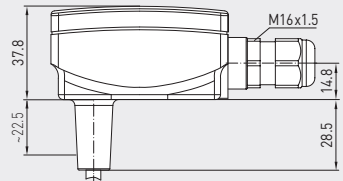
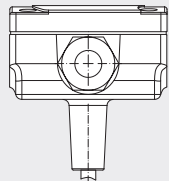


Dimensional drawing
(mm)

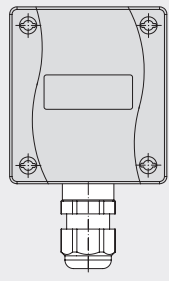
TM 43
TM 65



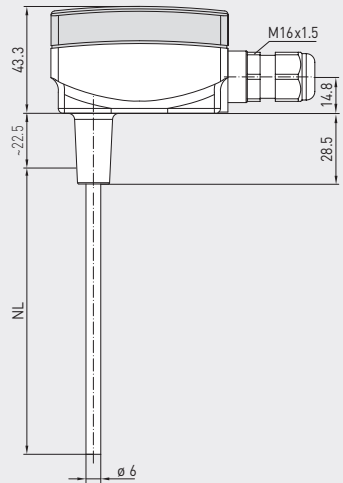
M12 connector
(optional on request)



with snap-on lid



with quick-locking
screws



TM 43
with display and
snap-on lid
(IP54)



TM 65
with display and
quick-locking screws
(IP67)



High-performance encapsulation against
vibration, mechanical stress and humidity

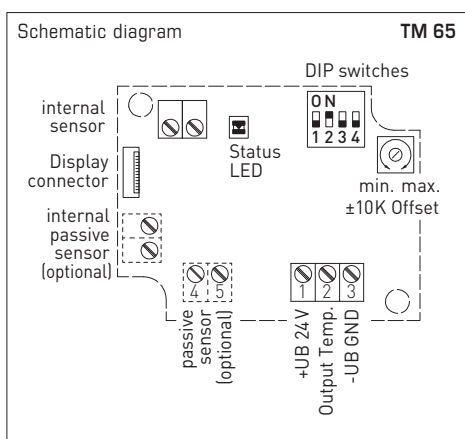
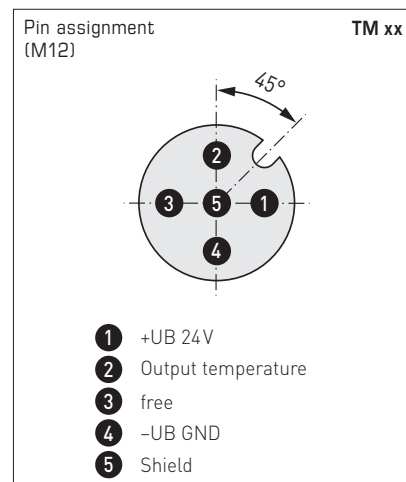
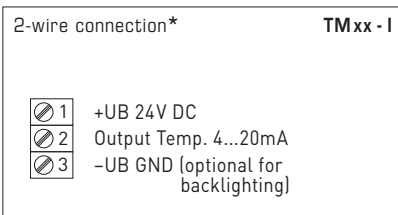
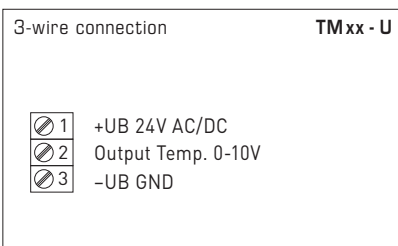
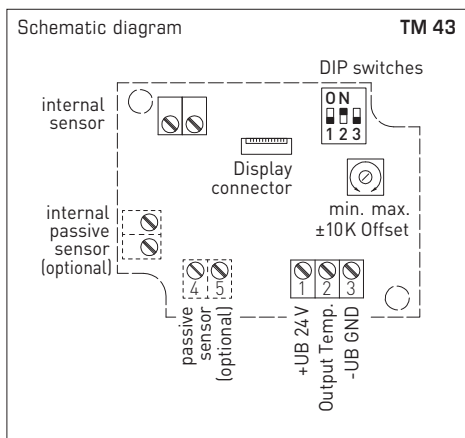
Automatic detection and switching
to standard signal 0...10V or 4...20 mA

PS-PROTECTION
PERFECT SENSOR PROTECTION

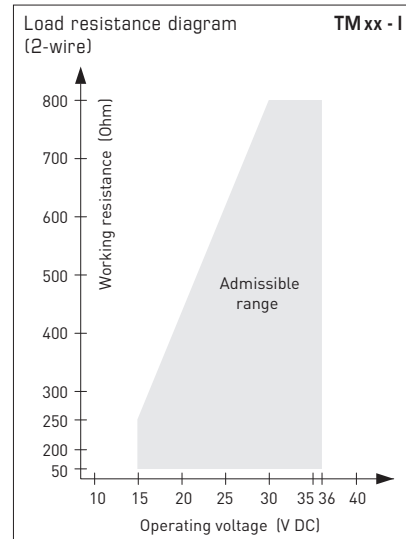
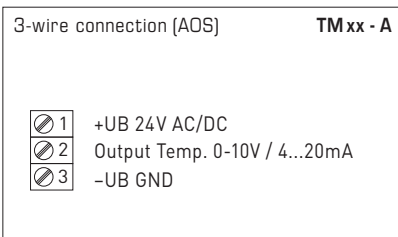
AOS-PATENTED
AUTOMATIC OUTPUT SWITCHING



TM 65
Basic device
with accessories



* 2-wire connection for devices with / without display (not illuminated)
3-wire connection for devices with illuminated display



Measuring ranges [°C] (adjustable)	DIP 1	DIP 2	DIP 3
-20...+ 150 °C	ON	ON	ON
-50... + 50 °C	OFF	ON	ON
-20... + 80 °C	ON	OFF	ON
-30... + 60 °C	OFF	OFF	ON
0... + 40 °C	ON	ON	OFF
0... + 50 °C (default)	OFF	ON	OFF
0...+ 100 °C	ON	OFF	OFF
0...+ 150 °C	OFF	OFF	OFF

Display (switchable)	DIP 4
Imperial [°F]	ON
SI (default) [°C]	OFF

TM 65 Display
Temperature [°C] → [°F]
The display value depends on the set unit system (DIP4).



For further technical information, see the operating instructions





NEW

S+S REGELTECHNIK

THERMASGARD® TM 43
THERMASGARD® TM 65

Immersion / screw-in / duct temperature measuring transducer,
calibratable, with multi-range switching
and active output (Automatic Output Switching)

THERMASGARD® TM 43 Temperature measuring transducer (basic device with snap-on lid), <i>Standard</i>					
Type / WG01B	Output	Inserted Length (EL)	Display	Item No.	Price
TM 43-I	(2-wire)			IP54	
TM43-I 50mm	4...20mA	50 mm		1101-7112-0019-900	77,44 €
TM43-I 50mm LCD	4...20mA	50 mm	■	1101-7112-2019-900	148,52 €
TM43-I 100mm	4...20mA	100 mm		1101-7112-0029-900	78,71 €
TM43-I 100mm LCD	4...20mA	100 mm	■	1101-7112-2029-900	149,78 €
TM43-I 150mm	4...20mA	150 mm		1101-7112-0039-900	79,86 €
TM43-I 150mm LCD	4...20mA	150 mm	■	1101-7112-2039-900	150,95 €
TM43-I 200mm	4...20mA	200 mm		1101-7112-0049-900	80,25 €
TM43-I 200mm LCD	4...20mA	200 mm	■	1101-7112-2049-900	151,33 €
TM43-I 250mm	4...20mA	250 mm		1101-7112-0059-900	81,58 €
TM43-I 250mm LCD	4...20mA	250 mm	■	1101-7112-2059-900	153,48 €
TM43-I 300mm	4...20mA	300 mm		1101-7112-0069-900	82,91 €
TM43-I 300mm LCD	4...20mA	300 mm	■	1101-7112-2069-900	153,98 €
TM 43-U	(3-wire)			IP54	
TM43-U 50mm	0-10V	50 mm		1101-7111-0019-900	77,44 €
TM43-U 50mm LCD	0-10V	50 mm	■	1101-7111-2019-900	148,52 €
TM43-U 100mm	0-10V	100 mm		1101-7111-0029-900	78,71 €
TM43-U 100mm LCD	0-10V	100 mm	■	1101-7111-2029-900	149,78 €
TM43-U 150mm	0-10V	150 mm		1101-7111-0039-900	79,86 €
TM43-U 150mm LCD	0-10V	150 mm	■	1101-7111-2039-900	150,95 €
TM43-U 200mm	0-10V	200 mm		1101-7111-0049-900	80,25 €
TM43-U 200mm LCD	0-10V	200 mm	■	1101-7111-2049-900	151,33 €
TM43-U 250mm	0-10V	250 mm		1101-7111-0059-900	81,58 €
TM43-U 250mm LCD	0-10V	250 mm	■	1101-7111-2059-900	153,48 €
TM43-U 300mm	0-10V	300 mm		1101-7111-0069-900	82,91 €
TM43-U 300mm LCD	0-10V	300 mm	■	1101-7111-2069-900	153,98 €

THERMASGARD® TM 65 Temperature measuring transducer (basic device with quick-locking screws), <i>Premium</i>					
Type / WG01	Output	Inserted Length (EL)	Display	Item No.	Price
TM 65-I	(2-wire)			IP67	
TM65-I 50mm	4...20mA	50 mm		1101-7122-0019-900	107,32 €
TM65-I 50mm LCD	4...20mA	50 mm	■	1101-7122-2019-900	161,87 €
TM65-I 100mm	4...20mA	100 mm		1101-7122-0029-900	107,61 €
TM65-I 100mm LCD	4...20mA	100 mm	■	1101-7122-2029-900	162,15 €
TM65-I 150mm	4...20mA	150 mm		1101-7122-0039-900	107,85 €
TM65-I 150mm LCD	4...20mA	150 mm	■	1101-7122-2039-900	162,42 €
TM65-I 200mm	4...20mA	200 mm		1101-7122-0049-900	108,08 €
TM65-I 200mm LCD	4...20mA	200 mm	■	1101-7122-2049-900	162,62 €
TM65-I 250mm	4...20mA	250 mm		1101-7122-0059-900	108,42 €
TM65-I 250mm LCD	4...20mA	250 mm	■	1101-7122-2059-900	162,96 €
TM65-I 300mm	4...20mA	300 mm		1101-7122-0069-900	109,23 €
TM65-I 300mm LCD	4...20mA	300 mm	■	1101-7122-2069-900	163,76 €
TM65-I 400mm	4...20mA	400 mm		1101-7122-0089-900	111,43 €
TM65-I 400mm LCD	4...20mA	400 mm	■	1101-7122-2089-900	165,98 €
TM 65-A	* (3-wire AOS)			IP67	
TM65-A 50mm	0-10V / 4...20mA	50 mm		1101-712E-0019-900	107,32 €
TM65-A 50mm LCD	0-10V / 4...20mA	50 mm	■	1101-712E-2019-900	161,87 €
TM65-A 100mm	0-10V / 4...20mA	100 mm		1101-712E-0029-900	107,61 €
TM65-A 100mm LCD	0-10V / 4...20mA	100 mm	■	1101-712E-2029-900	162,15 €
TM65-A 150mm	0-10V / 4...20mA	150 mm		1101-712E-0039-900	107,85 €
TM65-A 150mm LCD	0-10V / 4...20mA	150 mm	■	1101-712E-2039-900	162,42 €
TM65-A 200mm	0-10V / 4...20mA	200 mm		1101-712E-0049-900	108,08 €
TM65-A 200mm LCD	0-10V / 4...20mA	200 mm	■	1101-712E-2049-900	162,62 €
TM65-A 250mm	0-10V / 4...20mA	250 mm		1101-712E-0059-900	108,42 €
TM65-A 250mm LCD	0-10V / 4...20mA	250 mm	■	1101-712E-2059-900	162,96 €
TM65-A 300mm	0-10V / 4...20mA	300 mm		1101-712E-0069-900	109,23 €
TM65-A 300mm LCD	0-10V / 4...20mA	300 mm	■	1101-712E-2069-900	163,76 €
TM65-A 400mm	0-10V / 4...20mA	400 mm		1101-712E-0089-900	111,43 €
TM65-A 400mm LCD	0-10V / 4...20mA	400 mm	■	1101-712E-2089-900	165,98 €

Automatic Output Switching: * patented analogue interface (patent no. DE 10 2015 015 941 B4)
Unit automatically detects the required output type 0-10V or 4...20mA.

Extra charge: Cable connection with **M12 connector** according to DIN EN 61076-2-101 on request

Immersion / screw-in / duct temperature measuring transducer,
calibratable, with multi-range switching
and active output (Automatic Output Switching)

One basic device in four variants...



PATENTED
DE 10 2012 017 500.0

**TMxx +
TH08-MS/xx**

Immersion / screw-in
temperature sensor
with immersion sleeve, brass,
nickel-plated / galvanised

**TMxx +
TH08-VA/xx**

Immersion / screw-in
temperature sensor
with immersion sleeve,
stainless steel, V4A

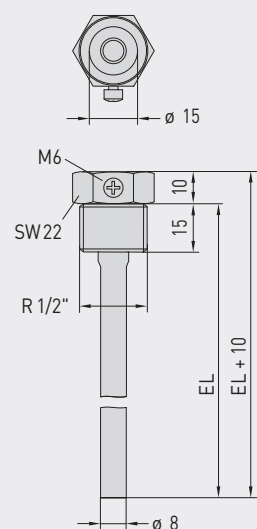
**TMxx +
TH08-VA/xx/90**

Immersion / screw-in
temperature sensor with
immersion sleeve with neck
tube, stainless steel, V4A

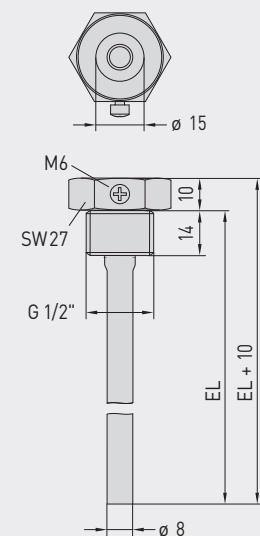
**TMxx +
MF-15-K**

Duct temperature sensor
with mounting flange, plastic

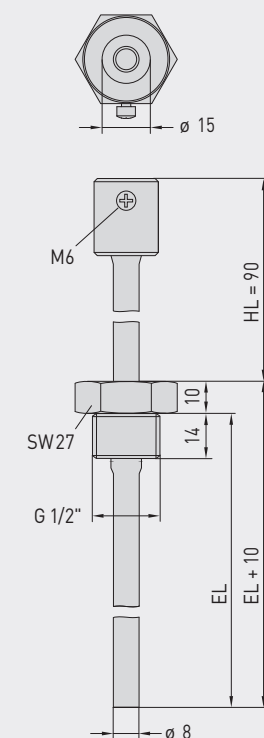
Dimensional drawing
TH08-MS/xx
[mm]



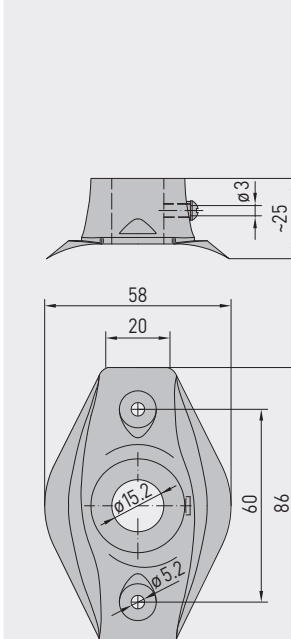
Dimensional drawing
TH08-VA/xx
[mm]



Dimensional drawing
TH08-VA/xx/90
[mm]



Dimensional drawing
MF-15-K
[mm]





... through combination with accessories:



TH08-MS/xx
 Immersion sleeve,
 brass, nickel-plated / galvanised,
 thread-sealing, conical,
 according to DIN 10226



TH08-VA/xx
 Immersion sleeve,
 stainless steel, V4A,
 flat-sealing, cylindrical,
 according to DIN 228



TH08-VA/xx/90
 Immersion sleeve with neck tube,
 stainless steel, V4A,
 flat-sealing, cylindrical,
 according to DIN 228



MF-15-K
 Mounting flange,
 plastic

THERMASGARD® TH08 Immersion sleeve Ø 8 mm (Accessories)					
Type / WG01B	p _{max} (static)	T _{max}	Inserted Length (EL)	Item No.	Price
TH08-MS/xx	Brass nickel-plated / galvanised			without neck tube	
TH08-MS 50MM	10 bar	+150 °C	50 mm	7100-0011-0010-132	13,42 €
TH08-MS 100MM	10 bar	+150 °C	100 mm	7100-0011-0020-132	14,04 €
TH08-MS 150MM	10 bar	+150 °C	150 mm	7100-0011-0030-132	15,18 €
TH08-MS 200MM	10 bar	+150 °C	200 mm	7100-0011-0040-132	16,24 €
TH08-MS 250MM	10 bar	+150 °C	250 mm	7100-0011-0050-132	18,81 €
TH08-MS 300MM	10 bar	+150 °C	300 mm	7100-0011-0060-132	19,66 €
TH08-MS 350MM	10 bar	+150 °C	350 mm	7100-0011-0070-132	20,18 €
TH08-MS 400MM	10 bar	+150 °C	400 mm	7100-0011-0080-132	20,70 €
TH08-VA/xx	Stainless steel, V4A (1.4571)			without neck tube	
TH08-VA 50MM	40 bar	+600 °C	50 mm	7100-0012-0010-132	23,13 €
TH08-VA 100MM	40 bar	+600 °C	100 mm	7100-0012-0020-132	25,48 €
TH08-VA 150MM	40 bar	+600 °C	150 mm	7100-0012-0030-132	27,56 €
TH08-VA 200MM	40 bar	+600 °C	200 mm	7100-0012-0040-132	28,91 €
TH08-VA 250MM	40 bar	+600 °C	250 mm	7100-0012-0050-132	35,98 €
TH08-VA 300MM	40 bar	+600 °C	300 mm	7100-0012-0060-132	37,65 €
TH08-VA 350MM	40 bar	+600 °C	350 mm	7100-0012-0070-132	38,38 €
TH08-VA 400MM	40 bar	+600 °C	400 mm	7100-0012-0080-132	39,42 €
TH08-VA/xx/90	Stainless steel, V4A (1.4571)			with neck tube (90 mm)	
TH08-VA 50/90MM	40 bar	+600 °C	50 mm	7100-0012-0012-132	31,11 €
TH08-VA 100/90MM	40 bar	+600 °C	100 mm	7100-0012-0022-132	32,51 €
TH08-VA 150/90MM	40 bar	+600 °C	150 mm	7100-0012-0032-132	34,11 €
TH08-VA 200/90MM	40 bar	+600 °C	200 mm	7100-0012-0042-132	35,56 €
TH08-VA 250/90MM	40 bar	+600 °C	250 mm	7100-0012-0052-132	37,26 €
TH08-VA 300/90MM	40 bar	+600 °C	300 mm	7100-0012-0062-132	40,39 €
Note:	inner diameter of socket 15.0 mm For further information see last chapter!				
Mounting flange (Accessories)					
Type / WG01B		T _{max}		Item No.	Price
MF					
MF-15-K	Mounting flange, plastic, 56.8x84.3mm, Ø 15.2mm tube gland	+100 °C		7100-0032-0000-000	6,55 €
Note:	For further information see last chapter!				