

Thermowell system HIT

with various connection technology

Type series HP1110



Application area

- Pharmaceutical industry
- Biotechnology
- Food industry

Features

- Thermowell system for Hygienic Invasive Temperature measurement (HIT), even in the smallest pipes
- Various connection technology via:
 - Weld-on ends
 - Threaded coupling
 - Clamp connection
- Installation and disassembly of the temperature sensor without interruption of process
- Wetted parts stainless steel mat.- no. 1.4435 (316L)
- Surface roughness $Ra \leq 0.76 \mu\text{m}$ or $0.51 \mu\text{m}$
- Pipe standards:
 - DIN 11866 series A / EN 10357 (DIN 11850)
 - DIN 11866 series B / ISO1127
 - DIN 11866 series C / ASME BPE
- Design: straight pipe system
- Measuring device connection M12 x 1
- Nominal pressure up to 25 bar
- Suitable temperature sensor MiniTherm GA 2730, data sheet DB_T4-017

Options

- Approvals/Certificates
 - Material certificate as per EN 10204-3.1
 - Factory certificate per EN 10204-2.2
 - Roughness height rating with inspection certificate acc. to EN 10204-3.1
- Delta ferrite content $\leq 3 \%$ or $\leq 1 \%$
- Elektropolishing of wetted parts
- Oxygen free of oil and grease
- Free of oil and grease

Application

The HIT thermowell system guarantees hygienic and dead-zone free invasive temperature measurement, especially for the requirements of the food/parmaceutica/biotechnology industry.

The thermowell system for variable connection technology can either be welded orbitally into a pipework system (seal-free) or the connection can be made via industry-standard process connections. In either case, hygienic temperature measurement is guaranteed.

For the temperature measuring we recommend the temperature sensor MiniTherm GA2730, data sheet DB_T4-017.

Technical data

Constructional design

Design	Thermowell, orbitally welded into a pipe system or connected via threaded coupling or clamp connection
Construction form	Straight
Measuring device connection	M12 x 1
Nominal width	See table
Max. pressure	Up to 25 bar

Material wetted parts

Thermowell	Stainless steel mat.-no. 1.4435 (316L)
Pipe system	Stainless steel mat.-no. 1.4435 (316L)
Deltaferrite content	optional $\leq 3\%$ or $\leq 1\%$

Further materials upon request.

Process connection

Various connection technology, possible via:

- Weld-on ends (Insertion length 54 mm or 110 mm))
- Threaded coupling per DIN 11851
- Clamp connection per DIN 32676
- Clamp connection per DIN 11864-3

Surface wetted parts

The surface roughness of the wetted parts made of stainless steel are executed according to EHEDG Doc.8 and ASME BPE SF3.

In case of choosing the additional feature HY, we guarantee the following surface roughness values:

Wetted parts	SF3	SF1
Laser welds	$Ra \leq 0.76 \mu\text{m}$	$Ra \leq 0.76 \mu\text{m}$
Turned parts	$Ra \leq 0.76 \mu\text{m}$	$Ra \leq 0.51 \mu\text{m}$

Option:

Electropolishing of the wetted parts

Temperature sensor

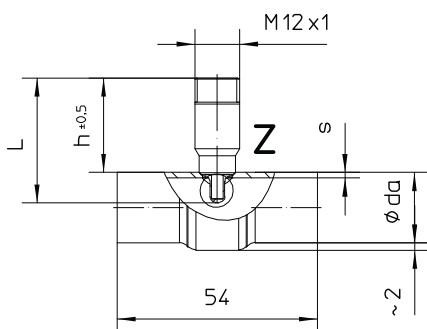
Temperature sensor Resistance thermometer GA2730, data sheet DB_T4-017

Screwing Spring loaded union nut M12 x 1 with spring contact system for best heat transfer

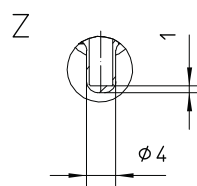
Response time without heat sink compound $t_{90} = 7 \text{ s}$
with heat sink compound $t_{90} = 6 \text{ s}$

Dimensions

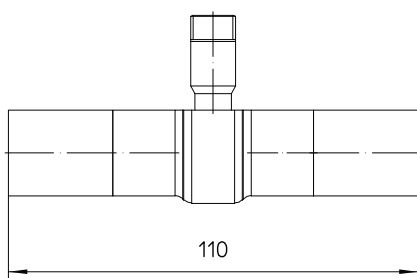
Weld-on ends, insertion length 54 mm



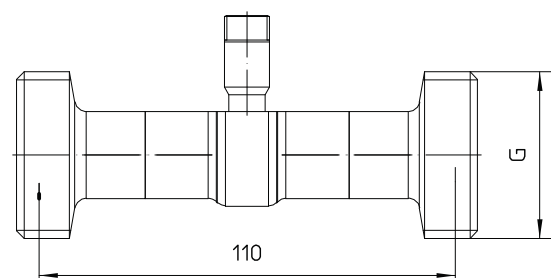
Detail Z



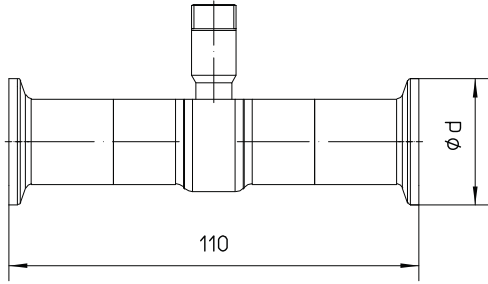
Weld-on ends, insertion length 110 mm



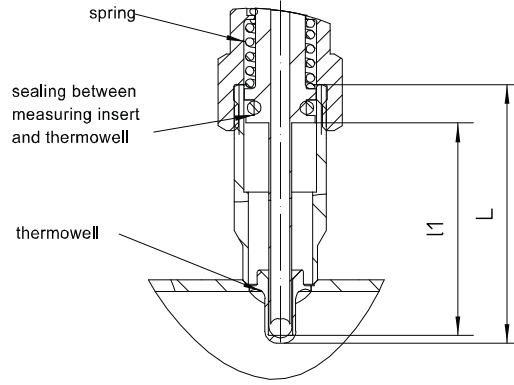
Threaded coupling per DIN 11851



Clamp connection per DIN 32676 and DIN 11864-3



Installation situation

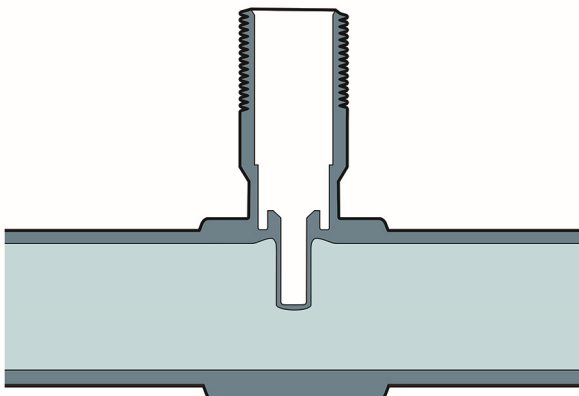


Pipe dimensions

Standard	nominal width	pipe dimensions (da x s) in mm	h in mm	l1 in mm * circular connector	l1 in mm * field housing
DIN 11866 model A	DN 10	13 x 1.5	25.5	28	36
	DN 15	19 x 1.5	25.5		
	DN 20	23 x 1.5	25.5		
	DN 25	29 x 1.5	19.5		
	DN 32	35 x 1.5	19.5		
	DN 40	41 x 1.5	19.5		
	DN 50	53 x 1.5	19.5		
	DN 65	70 x 2.0	19.5		
DIN 11866 model B	DN 13.5	13,5 x 1.6	25.5	28	36
	DN 17.2	17,2 x 1.6	25.5		
	DN 21.3	21,3 x 1.6	25.5		
	DN 26.9	26,9 x 1.6	19.5		
	DN 33.7	33,7 x 2.0	19.5		
	DN 42.4	42,4 x 2.0	19.5		
	DN 48.3	48,3 x 2.0	19.5		
	DN 60.3	60,3 x 2.0	19.5		
DIN 11866 model C	DN 1/2"	12,7 x 1.65	25.5	28	36
	DN 3/4"	19,05 x 1.65	25.5		
	DN 1"	25,4 x 1.65	19.5		
	DN 1 1/2"	38,1 x 1.65	19.5		
	DN 2"	50,8 x 1.65	19.5		
	DN 2 1/2"	63,5 x 1.65	19.5		

* Design without neck tube

Sectional drawing thermowell HP1110



Order details

Thermowell system HIT with various connection technology				
HP1110	thermowell system for Hygienic Invasive Temperature measurement (HIT)			
A10	measuring device connection	M12 x 1		
A99		as per writing		
			insertion length L _R	
B1..	process connetion	weld- on ends	54 mm	
B2..		with extended weld-on ends	110 mm	
B3..		threaded coupling per DIN 11851	110 mm	
B4..		clamp per DIN 32676	110 mm	
B5..		clamp per DIN 11864-3 aseptic coupling side	110 mm	
03	pipe dimensions	for pipes per DIN 11866 model A	DN 10 (13 x 1.5)	
04			DN 15 (19 x 1.5)	
05			DN 20 (23 x 1.5)	
06			DN 25 (29 x 1.5)	
07			DN 32 (35 x 1.5)	
08			DN 40 (41 x 1.5)	
09			DN 50 (53 x 1.5)	
10			DN 65 (70 x 2.0) ¹	
22			for pipes per DIN 11866 model B	DN 13.5 (13.5 x 1.6)
23				DN 17.2 (17.2 x 1.6)
24		DN 21.3 (21.3 x 1.6)		
25		DN 26.9 (26.9 x 1.6)		
26		DN 33.7 (33.7 x 2.0)		
27		DN 42.4 (42.4 x 2.0)		
28		DN 48.3 (48.3 x 2.0)		
29		DN 60.3 (60.3 x 2.0) ¹		
43		for pipes per DIN 11866 model C	DN 1/2" (12.7 x 1.65)	
44			DN 3/4" (19.05 x 1.65)	
45			DN 1" (25.4 x 1.65)	
46			DN 1 1/2" (38.1 x 1.65)	
47			DN 2" (50.8 x 1.65)	
48			DN 2 1/2" (63.5 x 1.65) ¹	
HY		surface roughness wetted parts	hygienic design per EHEDG and ASME BPE SF3, turned parts Ra ≤ 0.76 µm	
HY06			hygienic design per EHEDG and ASME BPE SF3, turned parts Ra ≤ 0.51 µm	
HY99			as per writing	
G12		material thermowell	stainless steel mat.-no. 1.4435 (316L)	
G12.9			stainless steel mat.-no. 1.4435 (316L) delta ferrite content ≤ 3 %	
G12.7			stainless steel mat.-no. 1.4435 (316L) delta ferrite content ≤ 1 %	
G9	as per writing			

Additional features (to be indicated in case of need, only)		
W1020	material certificate	per EN 10204-3.1, wetted parts
W1101	test report	per EN 10204-2.2, standard certificate
W1223	inspection certificate	per EN 10204-3.1, roughness height rating Ra
W4001	free of oil and grease for oxygen	
W4002	free of oil and grease	
W4035	wetted parts electropolished	
W4030	labelling	with TAG-no., lasered
W4113		with serial number, lasered
W4131	thermowell tip filled with heat sink compound	

Order code (example): HP1110 – B303 – HY - G12.9

¹ maximum pressure up to 16 bar