(Space for Review Stamp)

REV	DATE	DESCRIPTION	BY	CHKD	APPD
1	FEB.21.2022	Issued for As Built	T.Ouchi	T.Arasawa	T.Arasawa
0	SEP.17.2019	Issued for Construction	D.Matsuda	T.Ouchi	K.Uena

OWNER

PT.Bhumi Jati Power

PROJECT TITLE

TANJUNG JATI B EXPANSION (JAWA-4)
COAL FIRED STEAM POWER PLANT 2 x 1,000MW

OWNER'S ENGINEER

PÖYRY

EPC CONTRACTORS

Sumitomo Corporation

PT. Wasa Mitra Engineering

AvantPower Japan Ltd.

PROJECT DOCUMENT NO.	REV
TJB56-L2-OFF-U5-H-I-SPC-0010	1

			TITLE
APPD	T.Arasawa	T.Arasawa	**SPECIFICATION & DIMENSIONAL DRAWING FOR TEMPERATURE GAUGE**
CHKD	T.Arasawa	T.Arasawa	
BY	T.Ouchi	T.Ouchi	

EPC LOT SUB-CONTRACTOR	EPC LOT SUB-CONTRACTOR DOCUMENT NO.	REV
MITSUBISHI HITACHI POWER SYSTEMS	ES-(XTJB)5-28-00-0074	4

Engineering Sheet

Doc. No.	ES-(XTJB)5-28-00-0074	Rev.	4

Date : NOV.13.2018

Customer

Sumitomo Corporation

Kure I&C Engineering Section
Kure Plant Engineering Department

Project

TANJUNG JATI B EXPANSION (JAWA-4)
COAL FIRED STEAM POWER PLANT 2 x 1,000MW

Subject

SPECIFICATION & DIMENSIONAL DRAWING FOR TEMPERATURE GAUGE

Prepared:	K.Kajikawa	NOV.13. 2018
Checked:	T.Ouchi	NOV.13. 2018
Approved:	S.Ichimaru	NOV.13. 2018

NOTICE

The business operations and employees of Mitsubishi Power,Ltd. Involved in design, manufacture, sale, installation and sngineering have been transferred to Mitsubishi Heavy Industries,Ltd. (MHI) as of October 1, 2021. Therefore,please note that the word “Mitsubishi Power” (and/or Mitsuhishi Hitachi Power Systems (“MHPS”)) should be read as “Mitsubishi Heavy Industries (MHI)” in this drawing (or document), unless otherwise notified.

For As Built

WBS Document Code																															
Distribution	Customer																													Copy	Total
	-																														

Revisions			Doc. No.	ES-(XTJB)5-28-00-0074	
Rev.	Description	Revised	Checked	Approved	Date
0	For Approval	-	-	-	-
1	For Approval	K.Kajikawa FEB.12.2019	T.Ouchi FEB.12.2019	K.Uena	FEB.13.2019
2	For Approval	D.Matsuda JUL.8.2019	T.Ouchi JUL.8.2019	K.Uena	JUL.8.2019
3	For Construction	D.Matsuda SEP.17.2019	T.Ouchi SEP.17.2019	K.Uena	SEP.17.2019
4	For As Built	T.Ouchi FEB.21.2022	T.Asasan FEB.21.2022	T.Asasan	FEB.21.2022

Doc. No.	ES-(XTJB)5-28-00-0074

Contents

INSTRUMENT SPECIFICATION SHEETS

Customer: MITSUBISHI HITACHI POWER SYSTEMS, LTD. **Project: (XTJB)5 Tanjung Jati B Expansion (Jawa-4)** **Coal Fired Steam Power Plant 2 x 1,000MW** **Spec No.: KU3-987-844 (13127328-04-49)** **Area: Indonesia** **Material: Temperature Gauges with Thermowells**	**Vendor Name:** **WIKA Japan K.K. Osaka Branch** **Kyomachibori Square 5F** **1-8-33, Kyomachibori, Nishi-ku,** **Osaka, Japan 550-0003** **Vendor Ref-No.: QUO00013570**

INSTRUMENT SPECIFICATION SHEET NO: 001

DIMENSIONAL DRAWING NO: 11412615.01 (TG)
14263266.0C (Neck extension)
14309826.0B (TW) ⚠1

Bimetal thermometer, stainless steel version
Model: S 5550, nominal size 100 mm, adjustable stem and dial
Specifications according to data sheet: TM 55.01 ⚠1

Case: stainless steel 304
Stem material: stainless steel 316Ti
Accuracy class: class 1 per EN 13190
Connection design: 4, compression fitting, sliding on stem
Unit: °C
Scale range: see table below ⚠2
Process connection: 1/2 NPT M
Stem diameter: 10 mm
Insertion length L1: see table below
Window: laminated safety glass
Zero adjustment: zero-point adjustment (external)
Ingress protection: IP65
Dial: white aluminium with black lettering
Tag Plate: SUS304, 1.5t x 80mm x 30mm, with SUS wire ⚠1
Tag No. and Service description will be etched
with Calibri font, Capital letters and black

***Certificate:**
-Manufacturer certificate acc. to EN 10204 2.2
-WIKA standard test report

Extension neck, solid machined
Material: Stainless steel 316L
Instrument connection: 1/2 NPT female
Thermowell connection: 1/2 NPT male
Neck length [N]: see table below
Head diameter [Bd]: 30 mm
Head length [H]: 30 mm
Shank diameter: 21.7 mm

Threaded Thermowell **TW15x-M**, solid machined
Specifications according to data sheet TW95.15 ⚠1

Head design: Round with hexagon
Thermowell style: Straight / Tapered
Material: see table below ⚠2
Connection to thermometer [N]: 1/2 NPT female
Hexagon size [SW]: 36 x 20 mm
Head diameter [Bd]: ø54 x 13 mm
Process thread [P]: 1 NPSM x see table below
Head length [H]: see table below
Insertion length [U]: 110 mm
Tapered length [C]: 50 mm
Bore size [B]: 11 mm
Root diameter [Q]: 29 mm
Tip diameter [V]: 25 mm
Tip thickness [Tt]: 10 mm
Tag No. and material will be stamped on Thermowell

***Certificate:**
-Material certificate 3.1 for TW (with mill sheet)
-Hydrostatic test acc. to EN 10204 3.1

		TG					TW							
Tag No.	Service Name ⚠2	Range °C	Stem dia. mm	Stem length "I1" mm	active length mm ⚠2	Extension neck "N" mm	Process conn.	Material ⚠2	Total length "L" mm	Conn. length "H" mm	Immersion length "U" mm	Taperd length "Ured" mm	ID size mm	OD size Q/V mm
50HAG30CT501	BOILER WATER CIRCULATION PUMP INLET COOLING WATER TEMPERATURE	0/100	10	173	65	-	1 NPSM x 30	A105M	173	63	110	50	11.0	29/25
50HCB01CT501	SOOTBLOWER SUPERHEATER STEAM PRESSURE CONTROL VALVE INLET TEMPERATURE	0/600	10	273	57	100	1 NPSM x 30	F11	173	63	110	50	11.0	29/25
50HCB01CT502	SOOTBLOWER SUPERHEATER STEAM PRESSURE CONTROL VALVE OUTLET TEMPERATURE	0/600	10	248	57	75	1 NPSM x 30	F11	173	63	110	50	11.0	29/25
50HCB02CT501	SOOTBLOWER STEAM PRESSURE CONTROL VALVE (COLD REHEATER SIDE) INLET TEMPERATURE	0/400	10	248	75	75	1 NPSM x 30	A105M	173	63	110	50	11.0	29/25

INSTRUMENT SPECIFICATION SHEETS

		TG					TW							
Tag No.	Service Name ②'	Range °C	Stem dia. mm	Stem length "I" mm	active length mm ②	Extension neck "N" mm	Process conn.	Material ②	Total length "L" mm	Conn. length "H" mm	Immersion length "U" mm	Taperd length "Ured" mm	ID size mm	OD size Q/V mm
50HCB02CT502	SOOTBLOWER STEAM PRESSURE CONTROL VALVE (COLD REHEATER SIDE) OUTLET TEMPERATURE	0/400	10	248	75	75	1 NPSM x 30	A105M	173	63	110	50	11.0	29/25
50HHR01CT501	PULVERIZER INERT STEAM TEMPERATURE	0/200	10	173	57	-	1 NPSM x 30	A105M	173	63	110	50	11.0	29/25
50LBG21CT501	AUXILIARY STEAM PRESSURE CONTROL VALVE INLET TEMPERATURE	0/600	10	248	57	75	1 NPSM x 30	F11	173	63	110	50	11.0	29/25
50LBG21CT502	AUXILIARY STEAM PRESSURE CONTROL VALVE OUTLET TEMPERATURE	0/600	10	293	57	60	1 NPSM x 90	F11	233	123	110	50	11.0	29/25
50LBG22CT501	AUXILIARY STEAM PRESSURE CONTROL VALVE (COLD REHEATER SIDE) INLET TEMPERATURE	0/400	10	223	75	50	1 NPSM x 30	A105M	173	63	110	50	11.0	29/25
50LBG22CT502	AUXILIARY STEAM PRESSURE CONTROL VALVE (COLD REHEATER SIDE) OUTLET TEMPERATURE	0/400	10	233	75	60	1 NPSM x 30	A105M	173	63	110	50	11.0	29/25

Bimetal thermometer
Model 55, high-quality process version per EN 13190

WIKA data sheet TM 55.01

for further approvals see page 7

Applications

- General process instrumentation in the chemical and petrochemical industries, oil and gas industries, energy and water/wastewater industries
- Temperature measurement in harsh and aggressive environments

Special features

- Scale ranges from -70 ... +600 °C
- For extreme ambient temperatures
- Maintenance-friendly bayonet case
- All stainless steel construction
- Individual stem length from 63 ... 1,000 mm

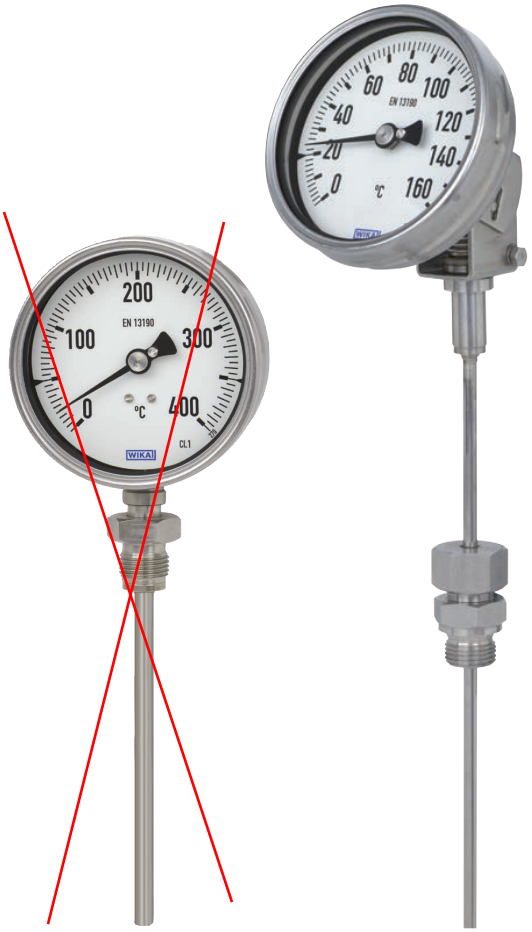


Fig. left: Bimetal thermometer, model R5502
Fig. right: Bimetal thermometer, adjustable stem and dial, model S5550

Description

The model 55 bimetal thermometer has been developed and is manufactured in accordance with the EN 13190 standard. The high-quality thermometer has been designed especially for the requirements of the process industry. Especially in the chemical and petrochemical, oil and gas, and power engineering industries, the temperature measuring instrument completely manufactured from stainless steel is used successfully.

The model 55 satisfies the high requirements for resistance against aggressive media. As an option, the case, the stem and the process connection can be made from 316Ti (1.4571) to fulfil the highest requirements.

To allow optimum fitting to the process, individual insertion lengths and different process connections can be selected.

When it comes to harsh climatic conditions at the place of use, the model 55 is the right choice, as it can be used at temperatures ranging from -40 °C to +70 °C (optional also up to -50 °C or -70 °C).

Standard version

Measuring element
Bimetal coil

Nominal size in mm
63, 100, 160

Connection designs
S Standard (male threaded connection)
1 Plain stem (without thread)
2 Male nut
3 Union nut
4 Compression fitting (sliding on stem)
5 Union nut and loose threaded connection

Model overview

Model	NS	Version
A5525	63	Back mount (axial)
A5500	100	
A5501	160	
R5526	63	Lower mount (radial)
R5502	100	
R5503	160	
S5550	100	Back mount, adjustable stem and dial
S5551	160	

Accuracy class
Class 1 per EN 13190

Working range
Normal (1 year): Measuring range (EN 13190)
Short time (24 h max.): Scale range (EN 13190)

Case, bayonet ring
Stainless steel 1.4301 (304)

Stem, process connection
Stainless steel 1.4571 (316Ti)

Dial
Aluminium white, black lettering

Window
Instrument glass
NS 63: window from polycarbonate

Pointer
Aluminium, black, micro adjustable pointer

Zero adjustment
on case back side, external only for adjustable stem and dial (option)

Insertion length L_1
63 ... 1,000 mm
minimum/maximum length is dependent on the measuring range and diameter

Temperature limits for storage and transport
-50 ... +70 °C

Permissible ambient temperature
-40 ... +70 °C (with/without filling liquid)

Permissible operating pressure at the stem
max. 25 bar, static

Ingress protection
IP65 per IEC/EN 60529

Options

- Scale range °F, °C/°F (dual scale)
- Liquid damping up to max. 250 °C (at the sensor)
- Laminated safety glass, clear non-splintering plastic
- Stem diameter 6, 10, 12 mm
- Permissible ambient temperature -50 ... +70 °C or -70 ... +60 °C
- Ingress protection IP66, IP67
- Thermometer with switch contacts (data sheet TV 25.01)
- Special measuring ranges or dial printing to customer specifications (on request)
- Version per ATEX

Scale ranges and measuring ranges [1] (EN 13190)
Scale graduation per WIKA standard

Scale range in °C	Measuring range [1] in °C	Scale spacing in °C
-70 ... +70	-50 ... +50	2
-70 ... +30	-60 ... +20	1
-50 ... +50	-40 ... +40	1
-50 ... +100	-30 ... +80	2
-50 ... +300	0 ... 250	5
-50 ... +500	0 ... 450	5
-40 ... +60	-30 ... +50	1
-40 ... +80	-20 ... +60	2
-40 ... +160	-20 ... +140	2
-30 ... +50	-20 ... +40	1
-30 ... +70	-20 ... +60	1
-20 ... +60	-10 ... +50	1
-20 ... +80	-10 ... +70	1
-20 ... +100	0 ... 80	2
-20 ... +120	0 ... 100	2
-20 ... +140	0 ... 120	2
-10 ... +50	0 ... 40	1
0 ... 60	10 ... 50	1
0 ... 80	10 ... 70	1
0 ... 100	10 ... 90	1
0 ... 120	10 ... 110	2
0 ... 150	20 ... 130	2
0 ... 160	20 ... 140	2
0 ... 200	20 ... 180	2
0 ... 250	30 ... 220	2
0 ... 300	30 ... 270	5
0 ... 400	50 ... 350	5
0 ... 500	50 ... 450	5
0 ... 600	100 ... 500	5

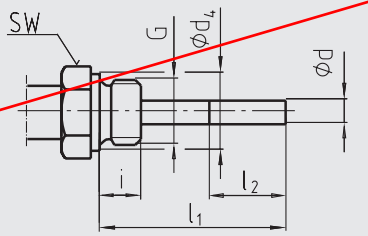
Scale range in °F	Measuring range [1] in °F	Scale spacing in °F
-80 ... +120	-40 ... +100	2
-80 ... +240	-50 ... +210	2
-20 ... +120	0 ... 100	2
0 ... 200	20 ... 180	2
0 ... 250	30 ... 220	2
30 ... 300	60 ... 270	5
30 ... 400	80 ... 350	5
50 ... 300	80 ... 270	5
50 ... 400	100 ... 350	5
100 ... 800	200 ... 700	5
200 ... 700	250 ... 650	5
200 ... 1.000	300 ... 900	5

1) The measuring range is indicated on the dial by two triangular marks.
Only within this range is the stated error limit valid per EN 13190.

Connection designs

Standard design (male thread connection)
Connection, male: G ½ B, G ¾ B, ½ NPT, ¾ NPT
Insertion length l_1 = 63, 100, 160, 200, 250 mm

Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	Ø d_4	Ø d
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



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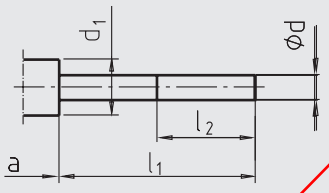
Legend:
G Male thread
i Thread length
Ø d_4 Diameter of the sealing collar
SW Spanner width
Ø d Stem diameter
l_2 active length

Design 1, plain stem (without thread)

Insertion length l_1 = 140, 200, 240, 290 mm

Nominal size	Dimensions in mm			
NS	d_1	Ød	a for axial	a for adjustable stem and dial
63	14	8	15	25
100, 160	18	8	15	25



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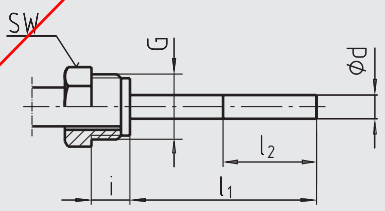
Legend:
a Distance to the case/ articulated joint
Ø d_1 Plain diameter
Ø d Stem diameter
l_2 active length

Design 2, male nut

Insertion length l_1 = 80, 140, 180, 230 mm

Nominal size	Process connection		Dimensions in mm	
NS	G	i	SW	Ø d
63, 100, 160	G ½ B	20	27	8



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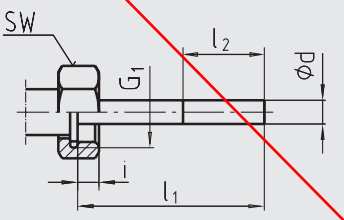
Legend:
G Male thread
i Thread length incl. collar
SW Spanner width
Ø d Stem diameter
l_2 active length

Design 3, union nut

Insertion length l_1 = 89, 126, 186, 226, 276 mm

Nominal size	Process connection		Dimensions in mm	
NS	G	i	SW	Ø d
63, 100, 160	G ½ B	8,5	27	8
	G ¾ B	10,5	32	8
	M24 x 1.5	13,5	32	8



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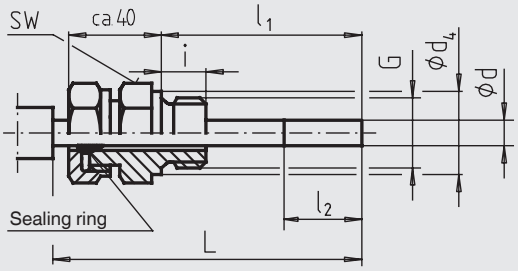
Legend:
G_1 Female thread
i Thread length
SW Spanner width
Ø d Stem diameter
l_2 active length

Design 4, compression fitting (sliding on stem)

Standard insertion length l_1 = 63, 100, 160, 200, 250 mm
Length L = l_1 + 40 mm

Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	Ø d_4	Ø d
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	M18 x 1.5	12	24	23	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



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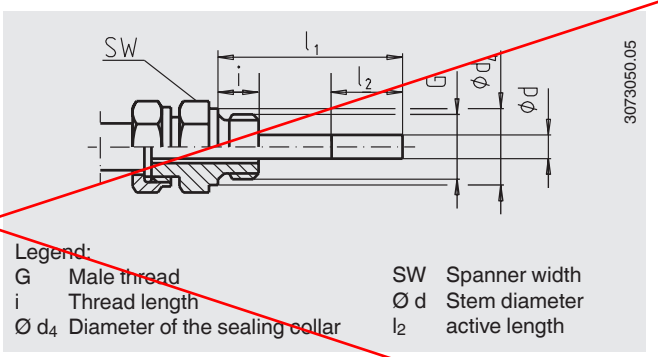
Legend:
G Male thread
i Thread length
Ø d_4 Diameter of the sealing collar
SW Spanner width
Ø d Stem diameter
l_2 active length

Design 5, union nut and loose threaded connection
G ½ B, G ¾ B, M18 x 1.5 and ½ NPT, ¾ NPT
Minimum immersion depth l_{min} approx. 60 mm
Insertion length l_1 = variable
Length L = l_1 + 40 mm
Stainless steel 1.4571

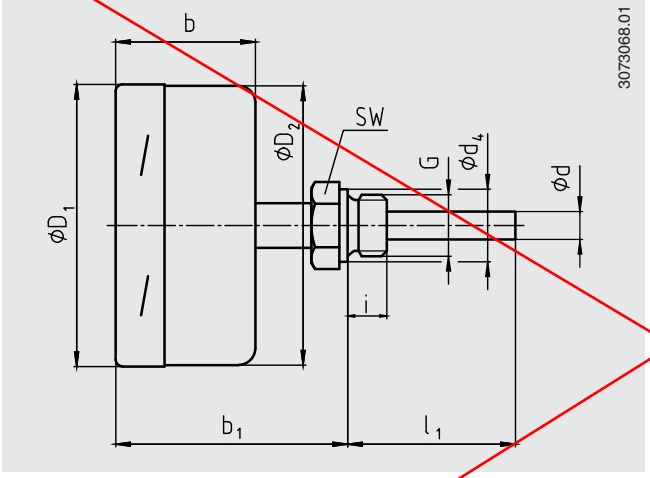
Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	Ø d_4	Ø d
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	M18 x 1.5	12	24	23	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



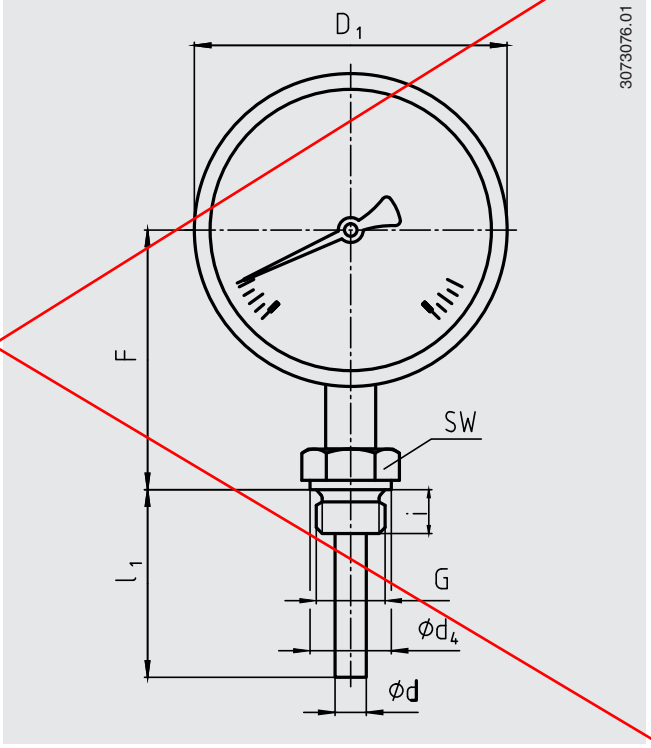
Legend:
G Male thread
i Thread length
Ø d_4 Diameter of the sealing collar
SW Spanner width
Ø d Stem diameter
l_2 active length

Dimensions in mm

Back mount (BM)



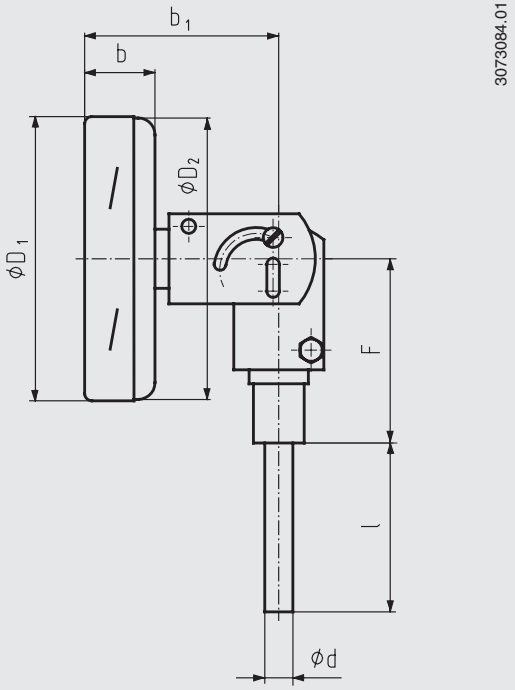
Lower mount (LM)



NS	Dimensions in mm									Weight in kg	
	b	b_1 1)	d 2)	d_4	Ø D_1	Ø D_2	F 1)	G	SW	Model A55xx	Model R55xx
63	35	60	8	26	64	62	57	G ½ B	27	0.25	0.25
100	50	83	8	26	101	99	83	G ½ B	27	0.8	0.8
160	50	83	8	26	161	159	113	G ½ B	27	1.1	1.1

1) With scale ranges ≥ 0 ... 300 °C the dimensions increase by 40 mm
2) Option: stem Ø 6, 10, 12 mm

Adjustable stem and dial version



NS	Dimensions in mm						Weight in kg
	b	b_1	d 1)	Ø D_1	Ø D_2	F	Model S55xx
100	25	68	8	101	99	68	0.5
160	25	68	8	161	159	68	0.7

1) Option: stem Ø 6, 10, 12 mm

Thermowell

In principle, the operation of a mechanical thermometer without a thermowell with low process-side loading (low pressure, low viscosity and low flow velocities) is possible.

However, in order to enable exchanging the thermometer during operation (e.g. instrument replacement or calibration) and to ensure a better protection of the instrument and also the plant and the environment, it is advisable to use a thermowell from the extensive WIKA thermowell portfolio.

For further information on the calculation of the thermowell, see Technical information IN 00.15.

Approvals

Logo	Description	Country
	EU declaration of conformity ATEX directive (option) Hazardous areas	European Union
	EAC (option) ■ Electromagnetic compatibility ■ Low voltage directive ■ Hazardous areas	Eurasian Economic Community
	GOST (option) Metrology, measurement technology	Russia
	KazInMetr (option) Metrology, measurement technology	Kazakhstan
-	**MTSCHS (option)** Permission for commissioning	Kazakhstan
	BelGIM (option) Metrology, measurement technology	Belarus
	UkrSEPRO (Option) Metrology, measurement technology	Ukraine
	Uzstandard (option) Metrology, measurement technology	Uzbekistan
-	**CRN (option)** Safety (e.g. electr. safety, overpressure, ...)	Canada

Certificates (options)

- 2.2 test report
- 3.1 inspection certificate
- DKD/DAkkS calibration certificate

Approvals and certificates, see website

Ordering information
Model / Nominal size / Scale range / Connection size / Connection location / Options

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de

Screw-in thermowell (solid-machined) Models TW15-H, TW15-R and TW15-M

Applications

- Chemical industry, process technology, equipment manufacturing
- For high chemical demands
- For high process loads

Special features

- International standard
- Model TW15-R: Design suitable for use of special material
- Possible thermowell forms:
  - tapered, straight or stepped
  - “Quill Tip” version (with open tip)

Screw-in thermowell, model TW15-H

Description

Each thermowell is an important component of any temperature measurement point. It is used to separate the process from the surrounding area, thus protecting the environment and operating personnel and keeps aggressive media, high pressures and flow rates from the temperature sensor itself and thereby enables the thermometer to be exchanged during operation.

Based on the almost limitless application possibilities, there are a large number of variants, such as thermowell designs or materials. The type of process connection and the basic method of manufacture are important design differentiation criteria. A basic differentiation can be made between threaded and weld-in thermowells, and those with flange connections.

Furthermore, one can differentiate between fabricated and solid-machined thermowells. Fabricated thermowells are constructed from a tube, that is closed at the tip by a welded solid tip. Solid-machined thermowells are manufactured from barstock.

The TW15 series of solid-machined screw-in thermowells are suitable for use with numerous electrical and mechanical thermometers from WIKA.

Due to the heavy-duty design, these international design thermowells are the first choice for use the chemical and petrochemical industries and in plant construction.

Standard version

Versions
Model TW15-H: hexagon (continuous)
Model TW15-R: spanner flats
Model TW15-M: round with hexagon

Thermowell materials
Stainless steel 304/304L, 316/316L, 1.4571,
Hastelloy C4 (2.4610), Hastelloy C276 (2.4819),
Monel 400 (2.4360), titanium grade 2 (3.7035), A105
Materials per ASTM specifications

Process connection
Male thread ½ NPT, ¾ NPT, 1 NPT

Connection to thermometer
G ½, ½ NPT (female)
“Quill Tip” version with weld-in connection ½" and ¾"

Bore size
Ø 6.6 mm, Ø 8.5 mm

Insertion length U
To customer specification

Connection length H
To customer specification (min. 45 mm)

Max. process temperature, process pressure
Depending on
- Thermowell design
  - Dimensions
  - Material
- Process conditions
  - Flow rate
  - Density of medium

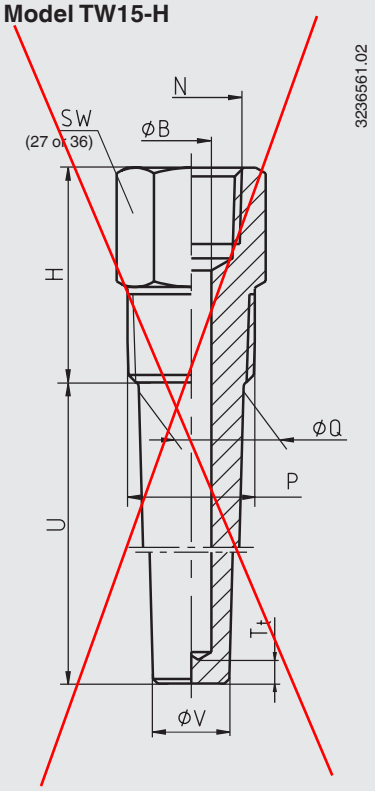
Options

- Other dimensions and materials
- “Quill Tip” version
- Quality certificates
- Wake frequency calculation to ASME PTC 19.3 TW-2016 is recommended in critical applications as a WIKA engineering service

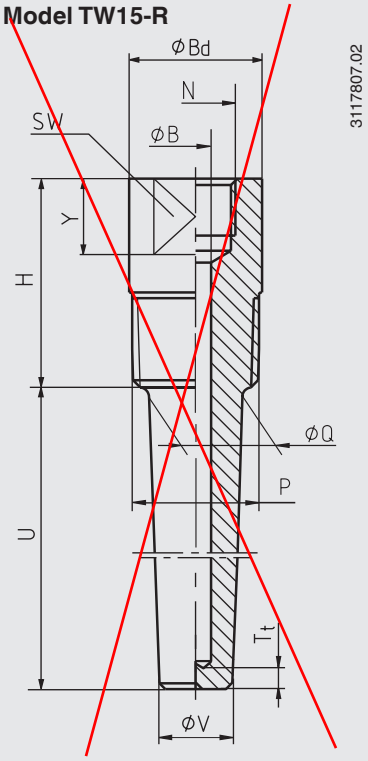
For further information see Technical information IN 00.15 “Wake frequency calculation”.

Dimensions in mm

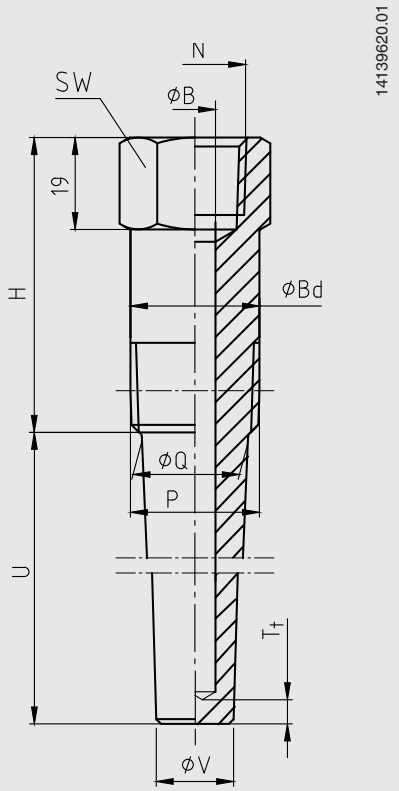
Model TW15-H



Model TW15-R



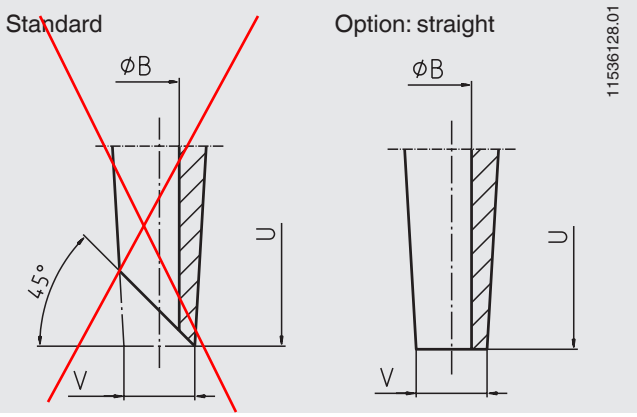
Model TW15-M



Legend:

P	Process connection	SW	Spanner width	Ø V	Tip diameter
H	Connection length	Y	Height of spanner flats (20 mm)	Ø Bd	Head diameter
U	Insertion length	Ø B	Bore size	T_t	Tip thickness (6.5 mm)
N	Connection to thermometer	Ø Q	Root diameter		

“Quill Tip” version



Thermowell form tapered

Process connection	Head version				Dimensions in mm					Weight in kg	
	Hexagon or round with hexagon		Round with spanner flats								
	Metric	Imperial	Metric	Imperial	N	Ø Q	Ø V	Ø B	H	U = 2 ½"	U = 7 ½"
½ NPT	SW 27	SW 1.125"	Ø 34 mm with SW 28	Ø 1.375" with SW 1 ⅛"	½ NPT or G ½	16	13	6.6 or 8.5	45	0.20	0.36
¾ NPT	SW 27	SW 1.125"			½ NPT or G ½	22	16	6.6 or 8.5	45	0.31	0.56
1 NPT	SW 36	SW 1.375"			½ NPT or G ½	27	19	6.6 or 8.5	45	0.50	0.84

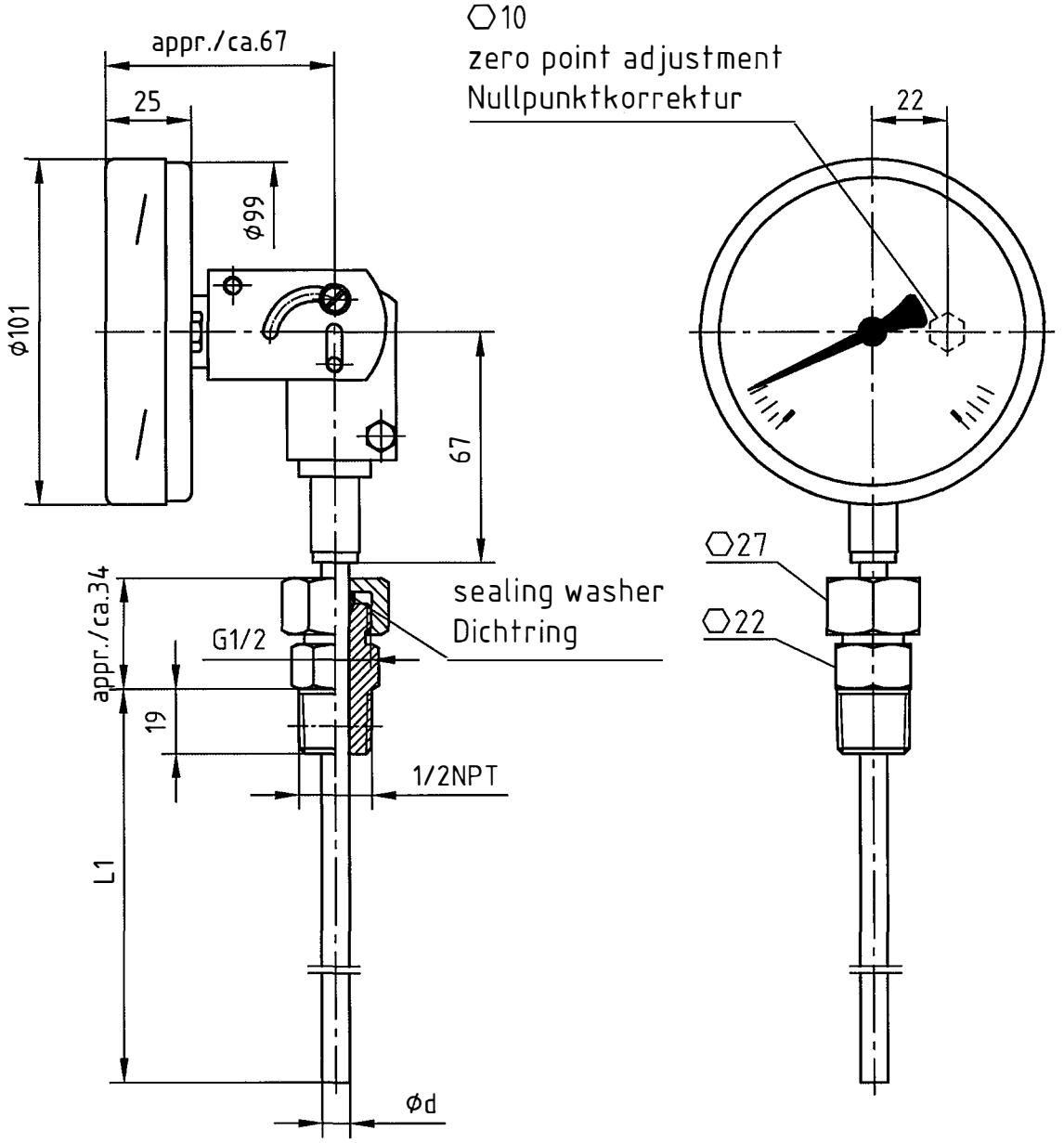
Suitable stem lengths of mechanical dial thermometers

Connection type	Stem length l_1
S, 4, 5	l_1 = U + H - 10 mm
2	l_1 = U + H - 30 mm

Ordering information

Model / Thermowell form / Process connection / Connection to thermometer / Insertion length U / Connection length H / Thermowell material / Head diameter Ø Bd / Bore diameter Ø B / Root diameter Ø Q / Tip diameter Ø V / Assembly with thermometer / Certificates / Options

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de



11:23 - 21.05.2013
Freigabe-22

REVISION	
	01

M-ZNG S5550/4 1/2NPT M.0-PKTVSTEL.

BIMETAL-THERMOMETER

BIMETALL-THERMOMETER

Drwg-No. / S-Nr.: 11412615.01

Material	Scale	drawn/gez.	21.05.13	HUPEL	Reference	
	1:2	check/gepr.	21.05.13	MASSONA	UV/DA 22	Sheet / Blatt 1 / 1

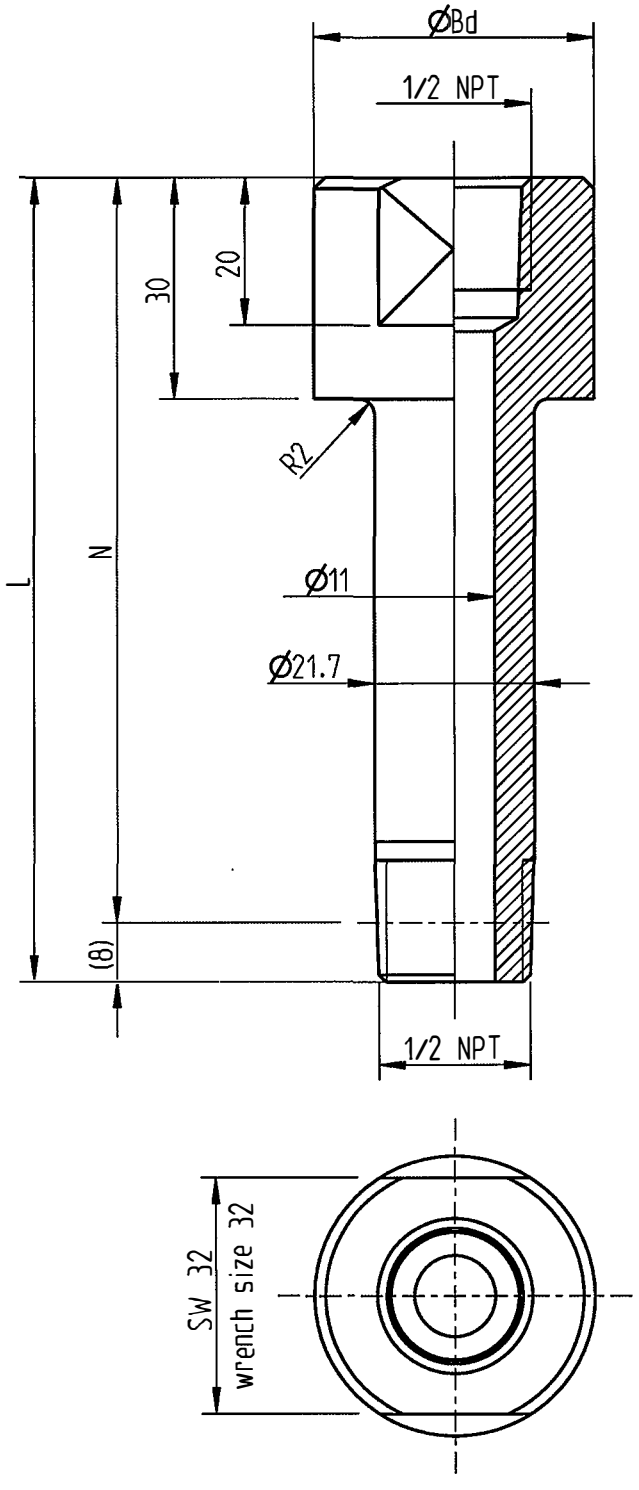
Blank / Rohteil	Nom.Size / NG	100	Coment / Bemerkung

Surface texture/Oberflaeche						Tol. ISO 2768 - mK			
ISO 1302						0.5 ...6	>6 ...30	>30 ...120	>120 ...400
R_z in µm	-	63	16	4	1	±0.1	±0.2	±0.3	±0.5

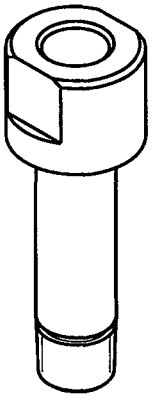
Check dimension / Pruefmaß | ISO 13715 | Toler. ISO 8015 | Unit / Einheit [mm]

created/erstellt 18.09.2008 KRESSBJ

ALEXANDER WIEGAND SE & Co. KG
D-63908 Klingenberg
www.wika.com



1:2



Oberfläche öl- und fettfrei,
bei Ferriten geeigneter Korrosionsschutz
Surface free of oil and grease,
for ferritic material use corrosion protection

Workflow
Freigabe-08

REVISION	
CR090010	0C
	0B
27.11.17	01

MASSZCHG HALS-RO 1/2NPT-i 1/2NP B011

NECKTUBE
HALSROHR

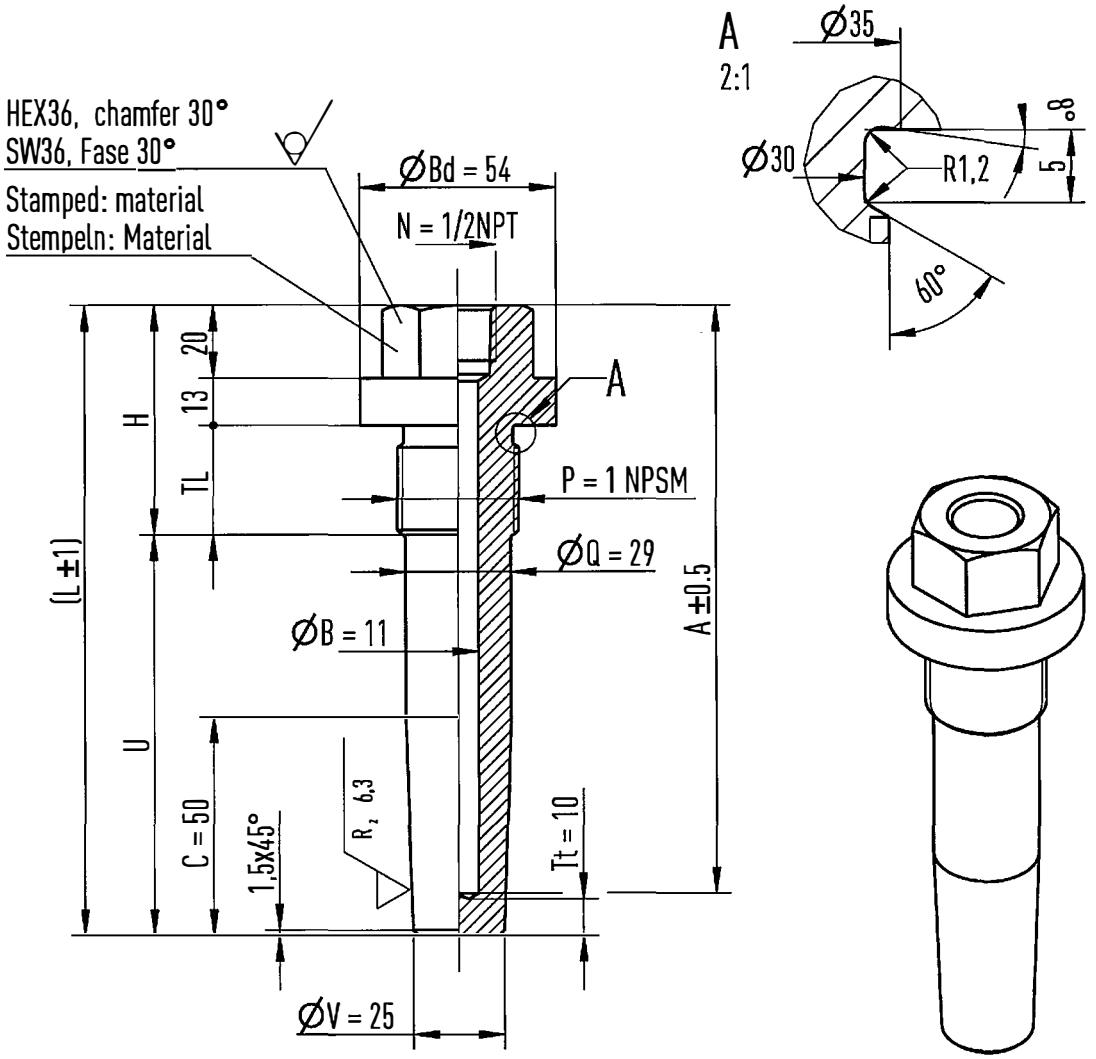
Item no. / Artikel-Nr.
14263266.0C

Material	Scale	modified Bearbeitung	26.10.18	KNEISEK	Reference
	1:1	released Freigabe	26.10.18	THIESR	UV/DA 08 Sheet / Blatt 1 / 1
Blank Rohteil	Nom.Size NG				Comment Bemerkung

Surface texture/Oberfläche						Tol. ISO 2768 - mK				Check dimension	ISO 13715	Toler. ISO 8015	Unit Einheit
ISO 1302						0,5 ...6	>6 ...30	>30 ...120	>120 ...400	Prüfmaß			
R_z in µm	-	63	16	4	1	±0,1	±0.2	±0,3	±0,5				[mm]

created/erstellt
KESSLES
27.11.2017

ALEXANDER WIEGAND SE & Co. KG
D-63908 Klingenberg
www.wika.com



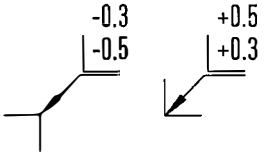
Customer approval / Kundenfreigabe

Date / Datum:

Name:

Signature/ Unterschrift:

Surface free of oil and grease,
for ferritic material use corrosion protection
Oberfläche öl- und fettfrei,
bei Ferriten geeigneter Korrosionsschutz



Workflow
Freigabe-DB

REVISION	
CR092999	0B
CR089625	0A
	01

first created
KESSLES
17.10.2018
© by WIKA

MASSZCHG TW15-MX WJ YAMAMOTO

TW15-MX - THERMOWELL
TW15-MX - SCHUTZROHR

drawing number
14309826.0B

material	scale	modified	28.01.19	KUNKELM	reference
	1:2	released	28.01.19	KRESSBJ	UV/DR 08 sheets 1 / 1
raw part / nominal size					comments

Surface texture						Tol. ISO 2768 - mK				Check indicator	ISO 13715	ISO 8015	units
ISO 1302						0,5 ...6	>6 ...30	>30 ...120	>120 ...400				mm [inch]
R_z in µm	-	63	16	4	1	±0,1	±0,2	±0,3	±0,5	language GER/ENG			

ALEXANDER WIEGAND SE & Co. KG
WIKA D-63911 Klingenberg
www.wika.com

Thermowell Calculation Program
ASME_PTC_19_3_TW_2016_v2_7_1

Customer: MHPS Kure

Name: N. Yamamoto

Project: (XTJB)5,6 Tanjung Jati B Expansion (Jawa-4)

Date: 4/15/2019 Rev.1

Ref.-No.: (KU3-987-844) 13127328-04-49

Calculation

Generate PDF

Export data

rmax= 0.8

FMx= 1000

Details On/Off

WIKA Japan K.K.

MG Shibaura Bldg. 6F
1-8-4, Shibaura, Minato-ku
Tokyo 105-0023

phone: +81 3 5439 6673
fax: +81 3 5439 6674

	Process data	Process data							Thermowell data										Calculation result								
Selection	Display detail TAG-No	Temperature	Pressure	Mass flow rate	Med. density	Inner diameter	Dyn. viscosity	Shielded length	WIKA TW Type	Insertion length	Stepped length	Step radius at B	Root radius at A	Bore diameter	Root diameter	Tip diameter	Tip thickness	TW material	Safety fatigue	Safety bending	Safety pressure	Ratio limit fw/fnc	Frequency ratio	Result	Optimized length	Note code
All	WIKA description	T	P	flr	rho	Di	my	Sl	/	U	U_S	R_S	R_Q	B	Q	V	Tt	mat	dyn	stat	Sp	rmax_	r	Eval.	Uopt	/
	ASME description							Lo		L	Ls	rB	rA	db	A	B									Lopt	
	Chooce units --->	°C	barg	kg/h	kg/m3	mm	mPa s	mm	/	mm	mm	mm	mm	mm	mm	mm	mm	name	x	x	x	/	/	/	mm	/
☑	50HAG30CT501	90	50.5	290	965.3	97.18	0.314	65.56	TW15	110				11	29	25	10	A105	3329130	140.7	9.43	0.40	0.00	✓		
☑	50HCB01CT501	483	281	27100	113.4	104.3	0.0326	59	TW15	110				11	29	25	10	F11	45.63321	17.04	1.14	0.40	0.06	✓		
☑	50HCB01CT502	483	281	27100	113.4	137.1	0.0326	68	TW15	110				11	29	25	10	F11	158.2168	17.04	1.14	0.40	0.03	✓		
☑	50HCB02CT501	373	61	27100	23.22	146.4	0.0235	37.97	TW15	110				11	29	25	10	A105	29.57284	97.28	6.65	0.40	0.13	✓		
☑	50HCB02CT502	373	61	27100	23.22	193.7	0.0235	39.7	TW15	110				11	29	25	10	A105	93.08027	99.02	6.65	0.40	0.07	✓		
☑	50HHR01CT501	410	19	2280	6.509	154.1	0.0245	64.11	TW15	110				11	29	25	10	A105	1907.993	255.8	17.15	0.80	0.03	✓		
☑	50LBG21CT501	483	281	54000	113.4	137.1	0.0326	68	TW15	110				11	29	25	10	F11	39.71696	17.04	1.14	0.40	0.06	✓		
☑	50LBG21CT502	483	281	54000	113.4	256.4	0.0326	102	TW15	110				11	29	25	10	F11	2197.949	17.04	1.14	0.40	0.02	✓		
☑	50LBG22CT501	373	61	13000	23.22	317.5	0.0235	46.05	TW15	110				11	29	25	10	A105	3102.842	99.23	6.65	0.40	0.01	✓		
☑	50LBG22CT502	373	61	13000	23.22	363.5	0.0235	48.44	TW15	110				11	29	25	10	A105	5462.087	99.23	6.65	0.40	0.01	✓		
☐																										
☑	60HAG30CT501	90	50.5	290	965.3	97.18	0.314	65.56	TW15	110				11	29	25	10	A105	3329130	140.7	9.43	0.40	0.00	✓		
☑	60HCB01CT501	483	281	27100	113.4	104.3	0.0326	59	TW15	110				11	29	25	10	F11	45.63321	17.04	1.14	0.40	0.06	✓		
☑	60HCB01CT502	483	281	27100	113.4	137.1	0.0326	68	TW15	110				11	29	25	10	F11	158.2168	17.04	1.14	0.40	0.03	✓		
☑	60HCB02CT501	373	61	27100	23.22	146.4	0.0235	37.97	TW15	110				11	29	25	10	A105	29.57284	97.28	6.65	0.40	0.13	✓		
☑	60HCB02CT502	373	61	27100	23.22	193.7	0.0235	39.7	TW15	110				11	29	25	10	A105	93.08027	99.02	6.65	0.40	0.07	✓		
☑	60HHR01CT501	410	19	2280	6.509	154.1	0.0245	64.11	TW15	110				11	29	25	10	A105	1907.993	255.8	17.15	0.80	0.03	✓		
☑	60LBG21CT501	483	281	54000	113.4	137.1	0.0326	68	TW15	110				11	29	25	10	F11	39.71696	17.04	1.14	0.40	0.06	✓		
☑	60LBG21CT502	483	281	54000	113.4	256.4	0.0326	102	TW15	110				11	29	25	10	F11	2197.949	17.04	1.14	0.40	0.02	✓		
☑	60LBG22CT501	373	61	13000	23.22	317.5	0.0235	46.05	TW15	110				11	29	25	10	A105	3102.842	99.23	6.65	0.40	0.01	✓		
☑	60LBG22CT502	373	61	13000	23.22	363.5	0.0235	48.44	TW15	110				11	29	25	10	A105	5462.087	99.23	6.65	0.40	0.01	✓		
☐																										