

THA, THK Thermocouples

Entered into the State Register of measuring instruments under # # 14879-95, 15907-96

SPECIFIC-PURPOSE APPLICATION

Table 1

Thermocouple Type and Version	Measured Media, Temperature Range	Design Features
THA-0196	For temperature measurement of non-ferrous metal melts (copper, aluminium), their alloys and other melts, not destructive to the protection fitting material. Measurement range: 0...1000°C	Head material: aluminium alloy, protection fitting: steel 15Cr25Ti, ϕ 20 mm; submersible part of protection fitting: borosilicated graphite BSG-30, ϕ 42 mm; thermoelectrodes ϕ 3.2 mm; hot junction: insulated
THA-0196C		The same, protection fitting is bent at right angle, thermoelectrodes ϕ 1.2 mm
THA-0196-01	Melts of non-ferrous metals (copper, aluminium), their alloys and other melts, not destructive to the protection fitting material; media containing zinc oxide and other non-ferrous metals oxides, sulfuric acid vapors. Measurement range: 0...1200°C	Head material: aluminium alloy, protection fitting: steel 12Cr18Ni10Ti, ϕ 30 mm; submersible part: borosilicated graphite BSG-30, ϕ 42 mm with internal case MKRTs, ϕ 20 mm; thermoelectrodes ϕ 3.2 mm; hot junction: insulated
THA-1292-02	For temperature measurement of fluid fuel combustion in pulsing flow at up to 170 m/s, pressure: up to 3 MPa; fluid temperature change: up to 150°C/min. Application field: heat-power engineering and gas industry. Measurement range 0...900°C	Head housing: aluminium alloy, armature ϕ 20 mm, steel 15Cr25Ti, with connector M33x2, thermoelectrodes ϕ 1.2 mm, hot junction: non-insulated
THA-1592-02		Similar to TKhA-1292-02, with two sensing elements and thermoelectrodes ϕ 0.7 mm; hot junctions: non-insulated
THA/THK-0395, -01, -03, -04	For temperature measurement of food (meat foods, sausages) in production and sterilization in steam frying chest. Measurement range -40...200°C	No head, protection fitting: steel 12Cr18Ni10Ti, ϕ 3.2 mm, with cable SFKE KhA(KhK), length: 2.5m or TKhA/TKhK-0395,-03, length: 4.5m for TKhA/TKhK-0395-01,-04; thermoelectrodes ϕ 0.5 mm; hot junction: non-insulated (TKhA/TKhK-0395, -01), insulated (TKhA/TKhK-0395-03, -04)
THA/THK-0395 -02, -05		Similar to TKhA/TKhK-0395, cable: thermoelectrode wire ϕ 0.5 mm, fluoroplastic insulation with external enclosure from fluoroplastic tube, length: 2.5 m; hot junction: non-insulated (TKhA/TKhK-0395-02), insulated (TKhA/TKhK-0395-05)
THA-0495	For temperature measurement of corrosive media in blast-furnace production: - top smoke and peripheral gas temperatures; - temperature of blast furnace lining. Measurement range -40...1000°C	Head material: aluminium alloy, protection fitting: steel 15Cr25Ti, ϕ 20 mm, no connector, thermoelectrodes ϕ 1.2 mm, hot junction: insulated
THA-0495-01		The same as TKhA-0495, but protection fitting comes with connector M33x2
THA-0495-02		The same as TKhA-0495, protection fitting: conical connection
THA-1395		Similar to TKhA-0495, 0495-01, 0495-02, accordingly, with two sensing elements each.
THA-1395-01		
THA-1395-02		

Table 1 (continued)

Thermocouple Type and Version	Application Features	Design Features
THA-0496	For fluid temperature measurement in calcining refractory kilns. Measurement range: 0...1200°C	Head material: aluminium alloy, protection fitting: steel 15Cr25Ti or CrNi78Ti (CrNi45Al), ϕ 30 mm. Submersible part material: ceramics MKRTs, ϕ 20 mm. Thermoelectrodes ϕ 1.2 mm. Modular design. Non-leakproof to measured media*
THA-0496-01		The same as TKhA-0496, leakproof. Encapsulation: sealing gasket of FKS rubber blend. No mineral insulation filling
THA-0496-02	For fluid temperature measurement in calcining refractory kilns; melts of non-ferrous metals (copper, aluminium) and their alloys. Measurement range: 0...1200°C	The same as TKhA-0496, protection fitting: steel CrNi78Ti, ϕ 34 mm. Submersible part: self-bonded silicon carbide SKK, ϕ 25 mm*
THA-0496-03		The same as TKhA-0496-02, leakproof. Encapsulation: sealing gasket of FKS rubber blend. No mineral insulation filling
THA-0496C		The same as TKhA-0496-02, fitting: right angle, collet connection

* Thermocouples of solid design and leakproof to measured media at up to P=0.4 MPa are produced acc. to special order.

** Upon Customer's request, mounting sets (ref. "Assemblies and Parts for Temperature Transmitters" section) are used to connect secondary devices.

MEASURED TEMPERATURE RANGE

Measured temperature range:

- from -40 to 200°C** (for THA/THK-0395, -0395-01, -0395-02, -0395-03, -0395-04, -0395-05);
- from 0 to 900°C** (for THA-1292-02, THA-1592-02);
- from 0 to 1000°C** (for THA-0196, -0196C, -0196-01);
- from -40 to 1000°C** (for THA-0495, -0495-01, -0495-02; THA-1395, -1395-01, -1395-02);
- from 0 to 1200°C** (for THA-0496, -0496-01, -0496-02, -0496-03, -0496C).

REFERENCE ACCURACY

Table 2

Standard Curve	Measurement Accuracy, \pm °C	Temperature Range, °C
K	3.25	-40...300
K	0.01 t(*)	300...1200
L	3.25	-40...300
L	0.0087 t(*)	300...600

t(*): measured temperature range.

STANDARD CURVE

Standard curve: K for THA, L for THK.

RESISTANCE TO MECHANICAL EFFECTS

Mechanical effects resistant version: vibration resistant per GOST 12997:

- Group N2** for THA-0495,-1395
- Group N3** for THA-0196,-0496;THA/THK-0395
- Group VI** for THA-1292,-1592

Temperature and relative air humidity resistant version:

- C4** per GOST 12997, up to 85°C: for standard and export versions;
- T3** per GOST 15150, up to 85°C temperature and up to 98% humidity, at 35°C: for tropical version.

TOLERANCE CLASS

Tolerance class: 2 per GOST 6616.

EXPECTED LIFE

- Expected life (at $t_{\text{measurement}} = t_{\text{nom. value}}$);
- 8000 h. minimum: for THA/THK-0395;
- 5000 h. minimum: for THA-0496, THA-0496-01;
- 5000 h. minimum: in gaseous media, 1500 h. minimum: in melts for THA-0496-02, THA-0496-03, THA-0496C;
- 1800 h. minimum: for THA-0196-01;
- 500 h. minimum: for THA-0196, THA-0196C.

VERIFICATION

Interval: one year.
Procedure: per GOST 8.338.

WARRANTY

Warranty period for operation: 18 months from the date of commissioning (within resource limits).
Warranty period for storage: 6 months maximum from the date of production.

DELIVERY SET

Thermocouple;
Product Data Sheet.

SPECIFICATIONS AND DIMENSIONS

Table 3

Thermocouple Type and Version	Thermal Inertia Index, s, max	Maximum Pressure, Pmax MPa	Fig.	Immersion Length L (l length), mm	Weight, kg
THA-1292-02	3	6.3	1	320, 500 (l = 320)	1.25...1.47
THA-1592-02	Similar to THA-1292-02, but double				
THA/THK-0395, -02, -03, -05	5	0.1	5	160 (2500)	0.18...0.45
THA/THK-0395, -01, -04				160 (4500)	
THA-0495	50	1.6	2	320, 400, 500, 630, 800, 1000, 1250, 1600, 2000	0.65...2.57
THA-0495-01			3		1.73...3.65
THA-0495-02			4		1.9...3.82
THA-1395			2		0.67...2.58
THA-1395-01			3		1.75...3.66
THA-1395-02			4		1.92...3.83
THA-0196			500		6.3
	7	800 (500), 1000 (500, 740), 1250 (740, 1100), 1600 (1100, 1460), 2000 (1460, 1600), 2500 (1460, 1600, 1820), 3150 (1600, 1820)			
THA-0196C	8	500 (380), L1 = 400		2.4...7.6	
	9	1000 (740), L1 = 800, 1600 (1100, 1460), L1 = 1250			
THA-0196-01	10	1250, 1600, 2000 (for all l=1100)		4.8...6.9	
THA-0496	300	0.4	11	500 (400), 800 (600), 1000 (800), 1250 (900), 1600 (900), 2000 (900)	2.3...7.2
THA-0496-01			12	800, 1000, 1250, 1600, 2000 at l = 600	4.4...8.6
THA-0496-02					
THA-0496-03			13	500 (300), 800 (600)	2.9...3.7
THA-0496C					

ORDERING INFORMATION

THA-0196 - 1250 (740) mm, C4, TU..., P

1 2 3 4 5

1. Thermocouple type and version
2. Immersion length L (l length) per Table 3.
For THA-0496, -0496-01 indicate the material of protection fitting metal part.
3. Climatic type:

traditional	C4;
tropical	T3.
4. Specifications:

TU 311-00226253.026-92	for THA-1292, THA-1592, -0495, -1395;
TU 311-00226253.057-96	for THA-0196;
TU 311-00226253.058-96	for THA-0496;
TU 311-00226253.032-93	for THA/THK-0395.
5. Metrological verification:

GP	- verification by GosStandard Authorities;
P	- metrological verification by manufacturer.

OVERALL AND MOUNTING DIMENSIONS

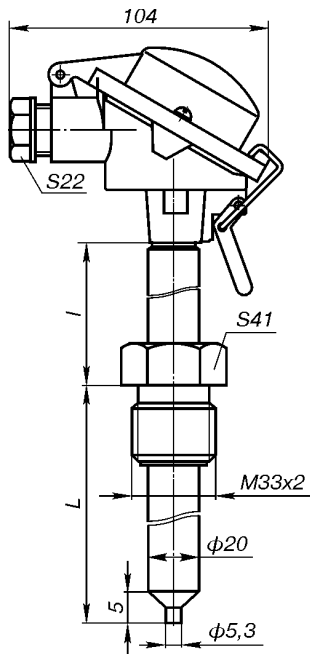


Fig. 1.
THA-1292-02; THA-1592-02.

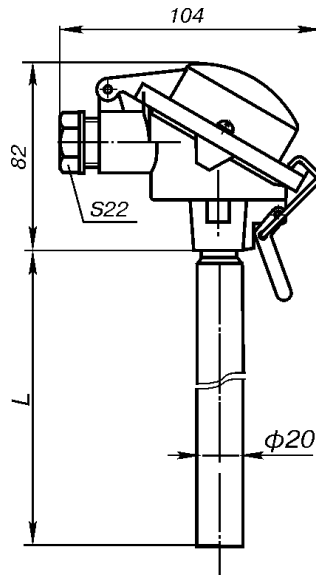


Fig. 2.
THA-0495, THA-1395.

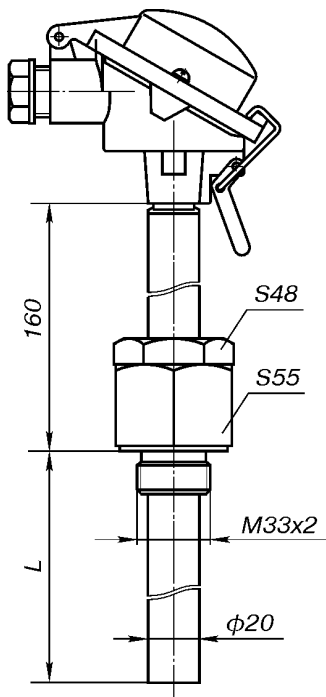
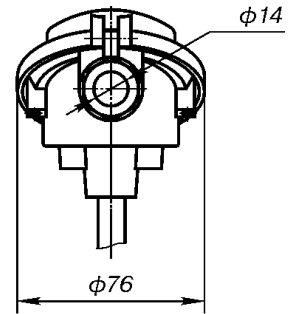


Fig. 3.
THA-0495-01, THA-1395-01;
refer to Fig. 2.

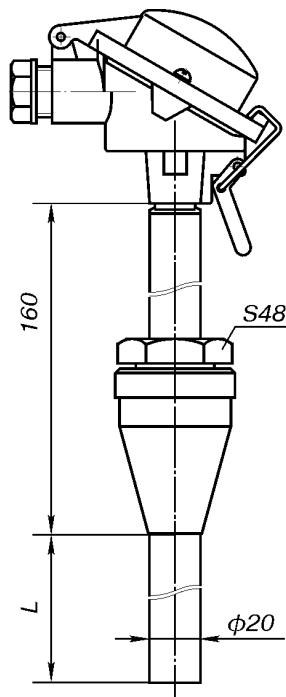


Fig. 4.
THA-0495-02, THA-1395-02
refer to Fig. 2.

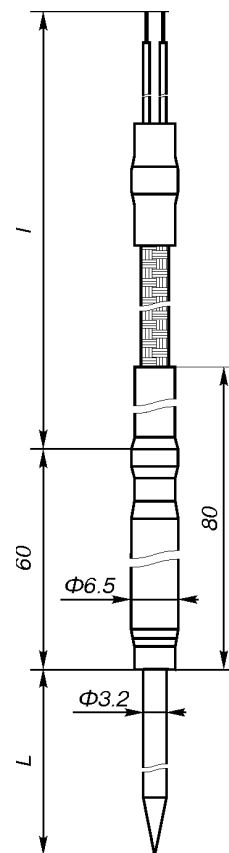


Fig. 5.
THA/THK-0395, -01...-05.

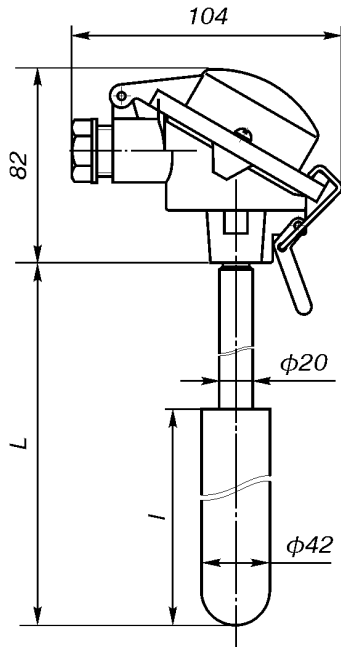


Fig.6.
THA-0196 (for L=800 (380) mm).

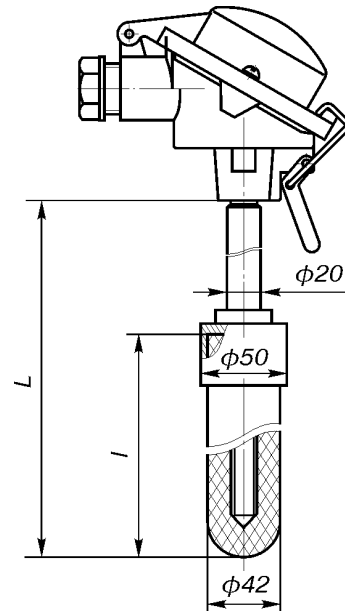


Fig.7.
THA-0196 with bracket φ50 mm (for L > 800 (500),
1000, 1250, 1600, 2000, 2500, 3150 mm);
refer to Fig.6.

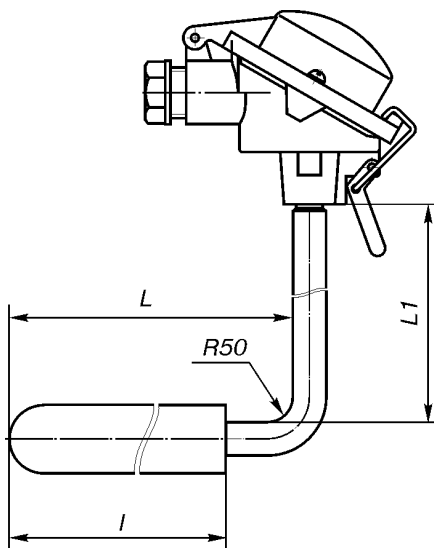


Fig.8.
THA-0196C (for L=500 mm only);
refer to Fig.6.

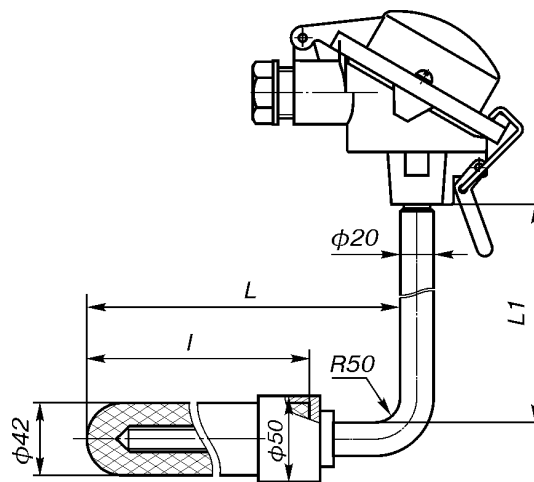


Fig.9.
THA-0196C with bracket φ50 mm
(for L > 1000, 1600 mm);
refer to Fig.6.

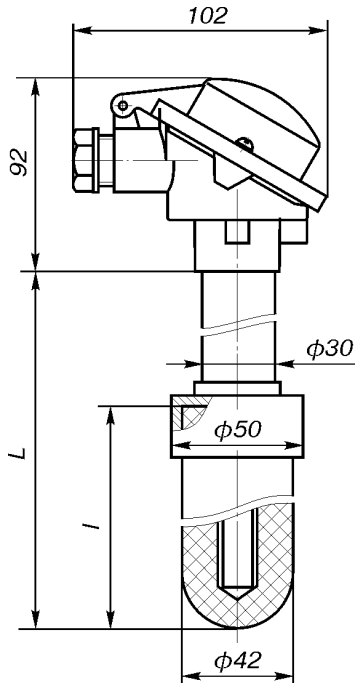


Fig. 10.
THA-0196-01.

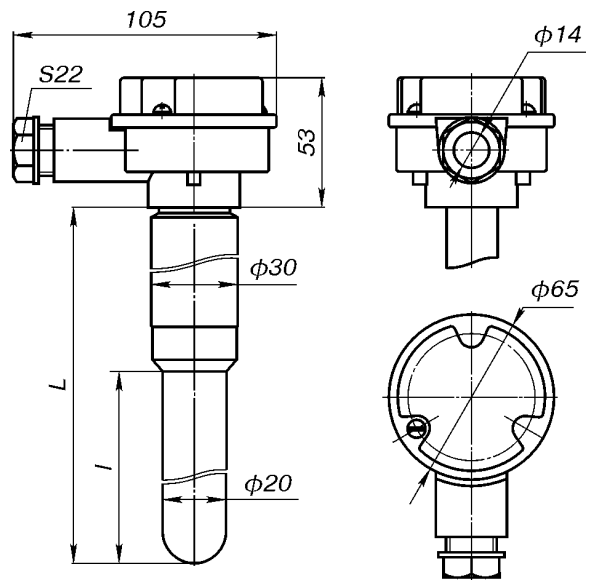


Fig. 11.
THA-0496,-01.

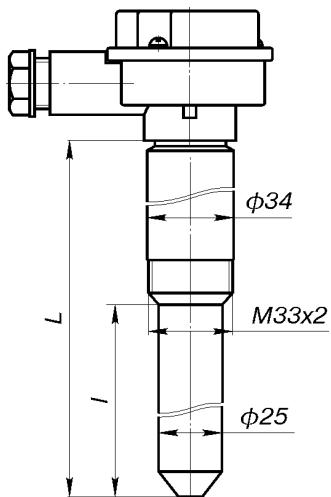


Fig. 12.
THA-0496-02,-03;
refer to Fig.11.

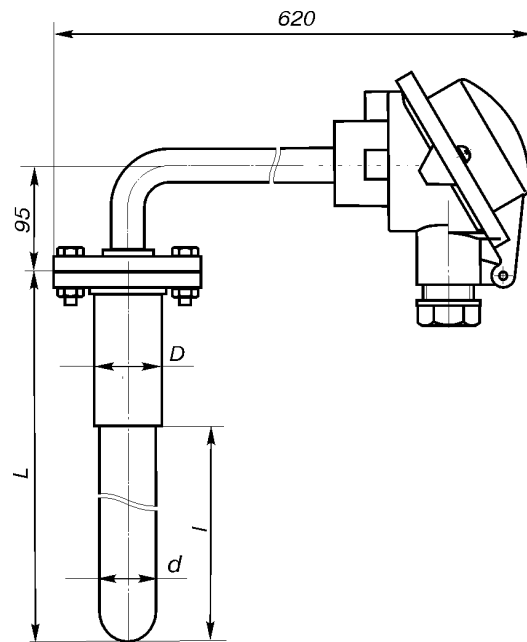


Fig. 13.
THA-0496C.