

**Mineral Insulated Resistance Temperature Detectors (RTD's)****Series: GRT**

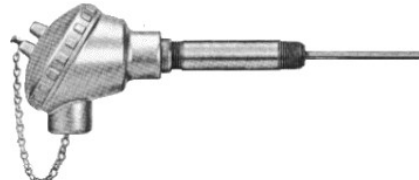
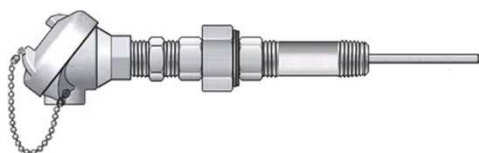
<b>Srl.</b>	<b>Products</b>	<b>Model</b>
<b>A</b>	<b>Resistance Temperature Detector with Head Assemblies shown below</b>	<b>GRT-H</b>
1	Mineral Insulated RTD (Head with Nipple-Union-Nipple) Assembly	GRT-HNUN
2	Mineral Insulated RTD (Head with Nipple-Union) Assembly	GRT-HNU
3	Mineral Insulated RTD (Head with Nipple) Assembly	GRT-HN
4	Mineral Insulated RTD (Head with fix Connector) Assembly	GRT-HFC
5	Mineral Insulated RTD (Head with adjustable Connector) Assembly	GRT-HAC
6	Mineral Insulated RTD (Head without Connector) Assembly	GRT-HWC
7	Mineral Insulated RTD (Head without Swivel Nut) Assembly	GRT-HWS
<b>B</b>	<b>Resistance Temperature Detector Inserts shown below</b>	<b>GRT-I</b>
1	Mineral Insulated RTD Insert (Pot Sealed with Flexible Leads)	GRT-IFL
2	Mineral Insulated RTD Insert (Pot Sealed with Plug & Jack)	GRT-IPJ
3	Mineral Insulated RTD Insert (Pot Sealed with Ceramic Block)	GRT-ICB
4	Mineral Insulated RTD Insert (Pot Sealed with SS base plate & TT)	GRT-ITT
5	Mineral Insulated RTD Insert (Pot Sealed with SS base plate for TT)	GRT-IBP
6	Mineral Insulated RTD Insert (Pot Sealed with Cable Extension)	GRT-ICE
7	Mineral Insulated RTD Insert (Pot Sealed with Cable & Bayonet Cap)	GRT-IBC
8	Mineral Insulated RTD Insert (Sealed with Cable Extension)	GRT-ISC
<b>C</b>	<b>Special Service Resistance Temperature Detector Assemblies shown below</b>	<b>GRT-S</b>
1	Skin type Mineral Insulated RTD Assembly	GRT-SS
2	Multipoint Mineral Insulated RTD Assembly	GRT-SM
3	Sanitary (Hygiene) Mineral Insulated RTD Assembly	GRT-SH
4	Bearing RTD's	GRT-SB
5	Winding RTD's	GRT-SW
6	RTD (Special construction)	GRT-X
<b>Note:</b> Part of our development programs, product specifications, photos, drawings, dimensions and other information provided in catalogue/website may change without any notice.		

## A) RTD with Head Assemblies general specifications

Series: GRT-H

Srl.	Products	Model
1	Mineral Insulated RTD (Head with Nipple-Union-Nipple) Assembly	GRT-HNUN
2	Mineral Insulated RTD (Head with Nipple-Union) Assembly	GRT-HNU
3	Mineral Insulated RTD (Head with Nipple) Assembly	GRT-HN
4	Mineral Insulated RTD (Head with fix Connector) Assembly	GRT-HFC
5	Mineral Insulated RTD (Head with adjustable Connector) Assembly	GRT-HAC
6	Mineral Insulated RTD (Head without Connector) Assembly	GRT-HWC
7	Mineral Insulated RTD (Head without Swivel Nut) Assembly	GRT-HWS

Element Type (ET)	: Pt-100, Pt-200, Pt-500, Pt-1000, Cu-53, Cu-2000, Pt-10, Pt-46, Pt-50
No. of Elements (NE)	: Simplex, Duplex, Triplex
No. of Wires (NW)	: 2-Wires, 3-Wires, 4-wires
Hot Junction (HJ)	: Ungrounded
Calibration Range°C (CR)	: Specify (-200°C to +850°C)
Calibration Accuracy (CA)	: As per DIN43670 or IEC751 Class-A or B
Sheath Material (SM)	: SS304, SS316, SS316L, SS316Ti, SS321, SS310, Inconel-600
Sheath Dia (SD)	: 3mm, 3.2mm, 4.5mm, 4.8mm, 6mm, 6.4mm, 8mm, 9mm, 10mm, 12.7mm
Sheath Insertion Length (IL)	: Specify (sheath tip to below process connection)
Sheath Extension Length (EL)	: Specify (process connection bottom to below head)
Sheath Total Length (TL)	: Specify (below head/swivel to sheath tip nut i.e IL+EL)
Head Material (HM)	: Die Cast Aluminium (LM6), SS304, SS316, SS316L, CI, PP, Nylon
Cable Entry (CE)	: One / Two Nos. of ½"NPT(F), ½"BSP(F), ¾"ET(F), M20x1.5(F)
Head Type (HT)	: Weatherproof IP-67 or IP-68, Flameproof IIA/IIB, Flameproof IIC
Head Certificate (HC)	: CMRI, DGMS, PESO(CCOE), FM, UL, CSA, ATEX, IECEx
Cold Junction (CJ)	: SS base plate with <u>spring</u> loaded Ceramic Block & <u>Nickel</u> plated Brass terminals, SS base plate with <u>spring</u> loaded Ceramic Block & <u>Silver</u> plated Brass terminals, SS base plate with <u>spring</u> loaded Ceramic Block & <u>SS</u> terminals, SS base plate with Ceramic Block & <u>Nickel</u> plated Brass terminals, SS base plate with head mounted 2-wire Transmitter, SS base plate with PTFE insulated leads for mount Transmitter at your end.
Process Connection (PC)	: Nipple-Union-Nipple, Nipple-Union, Nipple, Adjustable Connector (Male Thread), Fixed Connector (Male Thread), Fixed Connector (Male Thread at both ends), Swivel Nut / w/o Swivel nut/connector, Spring Loaded Nipple-Union-Nipple, Spring Loaded Nipple, Bayonet Cap with spring, Adjustable elliptical flange with grub screw, Not applicable.
Connection Material (CM)	: Cd. plated CS, SS304, SS316
Connection Length (CL)	: 50mm, 100mm, 150mm
Process Connection (PC)	: Threaded, Not applicable Size : ¼", 3/8", ½", ¾", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPP, BSPT, G, R, Rp / (Male or Female)





**B) RTD Inserts general specifications**

Series: GRT-I

Srl.	Products	Model
1	Mineral Insulated RTD Insert (Pot Sealed with Flexible Leads)	GRT-IFL
2	Mineral Insulated RTD Insert (Pot Sealed with Plug & Jack)	GRT-IPJ
3	Mineral Insulated RTD Insert (Pot Sealed with Ceramic Block)	GRT-ICB
4	Mineral Insulated RTD Insert (Pot Sealed with SS base plate & TT)	GRT-ITT
5	Mineral Insulated RTD Insert (Pot Sealed with SS base plate for TT)	GRT-IBP
6	Mineral Insulated RTD Insert (Pot Sealed with Cable Extension)	GRT-ICE
7	Mineral Insulated RTD Insert (Pot Sealed with Cable & Bayonet Cap)	GRT-IBC
8	Mineral Insulated RTD Insert (Sealed with Cable Extension)	GRT-ISC

Element Type (ET)	: Pt-100, Pt-200, Pt-500, Pt-1000, Cu-53, Cu-2000, Pt-10, Pt-46, Pt-50
No. of Elements (NE)	: Simplex, Duplex, Triplex
No. of Wires (NW)	: 2-Wires, 3-Wires, 4-wires
Hot Junction (HJ)	: Ungrounded
Calibration Range°C (CR)	: Specify (-200°C to +850°C)
Calibration Accuracy (CA)	: As per DIN43670 or IEC751 Class-A or B
Sheath Material (SM)	: SS304, SS316, SS316L, SS316Ti, SS321, SS310, Inconel-600
Sheath Dia (SD)	: 3mm, 3.2mm, 4.5mm, 4.8mm, 6mm, 6.4mm, 8mm, 9mm, 10mm, 12.7mm
Sheath Insertion Length (IL)	: Specify (sheath tip to below process connection)
Sheath Extension Length (EL)	: Specify (below seal pot to process connection bottom)
Sheath Total Length (TL)	: Specify (below seal pot to sheath tip i.e IL+EL)
Cold Junction (CJ)	: SS base plate with spring loaded Ceramic Block & Nickel plated Brass terminals, SS base plate with spring loaded Ceramic Block & Silver plated Brass terminals, SS base plate with spring loaded Ceramic Block & SS terminals, SS base plate with Ceramic Block & Nickel plated Brass terminals, SS base plate with head mounted 2-wire Transmitter, SS base plate with PTFE insulated leads for mount Transmitter at your end, Miniature Plug & Jack, Standard Plug & Jack, Plug-in-Connector (round) Male & Female, Pot sealed with Flexible Leads, Pot sealed with Cable extension, Pot Sealed with Cable & Bayonet Cap, Sealed with Cable extension, Sealed with Flexible Leads
Cable Insulation (CI)	: PTFE insulated flexible leads, PVC insulated flexible leads, PTFE-PTFE insulated Cable, PTFE-PTFE-SS braided Cable, PTFE-PTFE-SS braided overall SS flex hose-conduit, PTFE-PTFE-SS braided overall heat shrink tube, PTFE-FG insulated Cable / PTFE-FG-SS braided Cable, PTFE-FG-SS braided overall SS flex hose-conduit
Cable/Leads Length (CL)	: Specify Leads length (MM), Cable length (Mtrs.)
Process Connection (PC)	: Adjustable Connector (Male Thread), Fixed Connector (Male Thread at top end), Fixed Connector (Male Thread at bottom ends), Spring Loaded Nipple-Union-Nipple, Spring Loaded Nipple, Bayonet Cap with spring, Adjustable elliptical flange with grub screw, Not applicable.
Connection Material (CM)	: Cd. plated CS, SS304, SS316

Connection Length (CL) : 50mm, 100mm, 150mm  
 Process Connection (PC) : Threaded, Not applicable  
 Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5  
 Type : NPT, NPSM, BSP, BSPP, BSPT, G, R, Rp / (Male or Female)



### C) Special Service RTD's general specifications

Series: GRT-S

Srl.	Products	Model
1	Skin type Mineral Insulated RTD Assembly	GRT-SS
2	Multipoint Mineral Insulated RTD Assembly	GRT-SM
3	Sanitary (Hygiene) Mineral Insulated RTD Assembly	GRT-SH
4	Bearing RTD's	GRT-SB
5	Winding RTD's	GRT-SW
6	RTD (Special construction)	GRT-X

#### 4) Bearing RTD specifications:

**Model** : GRT-SB  
**Design** : Push fit type, Button type, Spring with Bayonet cap type, Fix connection type, Adjustable connection type  
**Element Type (ET)** : Pt-100, Pt-200, Pt-500, Pt-1000, Cu-53, Cu-2000, Pt-10, Pt-46, Pt-50  
**No. of Elements (NE)** : Simplex, Duplex, Triplex  
**No. of Wires (NW)** : 2-Wires, 3-Wires, 4-wires  
**Calibration Range°C (CR)** : -45°C to +300°C, Specify others  
**Calibration Accuracy (CA)** : As per DIN43670 or IEC751 Class-A or B  
**Sheath Material** : SS304, SS316, SS316L  
**Sheath Dia** : 3.2mm, 3.5mm, 4mm, 5mm, 6mm  
**Sheath Length** : 10mm, 15mm, 20mm 25mm, 50mm, 100mm  
**Cable Length (CL)** : 1 Mtrs., 2 Mtrs, 3 Mtrs., 4 Mtrs, 5 Mtrs  
**Cable Insulation (CI)** : PTFE insulated flexible leads, PVC insulated flexible leads, PTFE-PTFE insulated Cable, PTFE-PTFE-SS braided Cable, PTFE-PTFE-SS braided overall SS flex hose-conduit, PTFE-PTFE-SS braided overall heat shrink tube, PTFE-FG insulated Cable / PTFE-FG-SS braided Cable, PTFE-FG-SS braided overall SS flex hose-conduit  
**Process Connection (PC)** : Adjustable Connector, Spring Loaded Nipple-Union-Nipple, Spring Loaded Nipple, Bayonet Cap with spring, spring loaded mounting and retaining thrust washer, Using high temperature epoxy resin, Not applicable.  
**Connection Material (CM)** : SS304, SS316, Cd plated CS.  
**Connection Length (CL)** : 50mm, 100mm, 150mm, Not applicable  
**Process Connection (PC)** : Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5  
 Type : NPT, NPSM, BSP, BSPP, BSPT, G, R, Rp  
 Profile : Male, Female  
**Application** : Bearings, Thrust bearing plates, Shafts and motor stator windings

**Note:-**

- 1) Specifications other than above available on request
- 2) Moisture proof design. Oil Resistant Design
- 3) Available in Wire Wound or Thin Film versions
- 4) Customized dimensions of sheath & leads can be supplied on request
- 5) Various colour codes and UL approved lead wires can be supplied on request
- 6) PESO, ATEX, IECEX, CSA certified sensors to Ex(ia), Ex(e) and Ex(d) standards on request
- 7) GOST standard calibration certificate on request
- 8) Single or multi channel temperature monitors/scanner/recorder to complete the system on request
- 9) Thermocouple type instead of RTD also available on request

5) **Winding RTD specifications:**

<b>Model</b>	: <b>GRT-SW</b>
Element Type (ET)	: Pt-100, Pt-200, Pt-500, Pt-1000, Cu-53, Cu-2000, Pt-10, Pt-46, Pt-50
No. of Elements (NE)	: Simplex, Duplex, Triplex
No. of Wires (NW)	: 2-Wires, 3-Wires, 4-wires
Calibration Range°C (CR)	: -45°C to +180°C, Specify others
Calibration Accuracy (CA)	: As per DIN43670 or IEC751 Class-A or B
Body Material (BM)	: Fiberglass, PTFE
Body Size (BS)	: 100mm long x 8mm width x 2mm thick
Leads Length (LL)	: 1 Mtrs., 2 Mtrs, 3 Mtrs., 4 Mtrs, 5 Mtrs
Leads Insulation (LI)	: PTFE insulated flexible leads
Temperature Class	: -40 to +155°C (temperature class F), -40 to +180°C (temperature class H)
Application	: Electric Motors, Generators/Alternators, Transformers, Control Panel, Heat shrink and bus bar and many more.

**Note:-**

- 1) Specifications other than above available on request
- 2) Available in Wire Wound or Thin Film versions
- 3) Customized dimensions of body & leads can be supplied on request
- 4) Various colour codes and UL approved lead wires can be supplied on request
- 5) ATEX, IECEX, CSA certified sensors to Ex(ia), Ex(e) and Ex(d) standards on request
- 6) GOST standard calibration certificate on request
- 7) Single or multi channel temperature monitors/scanner/recorder to complete the system on request
- 8) Thermocouple type instead of RTD also available on request
- 9) Ex-stock delivery available for standard size sensors





**Add-On optional Items (AO):** SS304/SS316/Ni. plated Brass **Cable Gland** / SS304/SS316/ Aluminium/Brass **Plug** / SS304/SS316 **Tag Plate** / SS **or** MS **Clamp** with Head for 2"Nb Pipe mount / SS **or** MS **Bracket** (L shape) with Head for Surface mount / Nipple-Shear Valve-Nipple Assembly (SS or CS) / Nipple-ShearGate Valve-Nipple Assembly (SS or CS) / Nipple-Union-Nipple with spring loading arrangement / Extension Piece with spring loaded with oil sealed / Extension piece with adjustable connector / Adjustable Elliptical Flange with Grub screws / Ceramic beaded insulation / Ceramic tube insulation / Mill Connector (Specify No. of Pins) / Omega make Plug & Jack / Omega type Plug & Jack / LEMO make Plug-in-Connector / LEMO type Plug-in-Connector / Capri Connector / Spring loading over Pot seal & Cable / Compensating grade (KXA) Cable (specify insulation) / Extension grade (KX) Cable (specify insulation) / Leads with Lugs / Transmitter mounted in Head (specify model), others on request.

**Routine Check/Tests/Reports:**

- T1 - Physical, Visual & Dimensional check
- T2 - Thread Check by thread Gauge.
- T3 - Nitrogen leak test for hot end weld joints
- T4 - Insulation Resistance (IR) (>100 M Ohms @500VDC at 25°C)
- T5 - Calibration at 2 points with certificate
- T6 - Head area classification certificate

**Standard Features (unless specified by customer):** (1) Compact mass of MgO insulation (2) Conductor dia proportionate to sheath dia & No. of conductors (3) Parallel sheath dia (4) Simplex-Ungrounded (5) 2 Point ANSI MC 96.1 Class-2 calibration (6) Cold end pot sealed & provided with PTFE or PVC insulated flexible leads (7) Plastic plugged/protected threads, (8) TT mounting through 2 M4 spring loaded screws at 33mm PCD, (9) Ni. plated Brass terminal screw (10) Terminal screws without spring (11) 41mm OD x 33mm PCD ceramic block, (12) Epoxy coating on Aluminium head (13) Single 1/2"NPTF cable entry (14) 1/2"BSPF at head bottom (15) Head with screwed cap & chain (16) Aluminium tag plate with chain, (17) IP-65, T6 head.

**Special Features on request:** (1) Reduced or Increased tip dia sheath (2) Ceramic to Metal Seal at cold end (3) Calibration standard BS, JIS, GOST & others (4) Response time test, seismic/non-seismic vibration tests & others (5) MI Cable material certificate (6) Specify Tr. Model (7) Drawing & Data sheet for approval, (8) Intrinsic Safety (ia) Assembly, (9) UL, CSA, PTB, GOST-R, BIS, Baseefa, CE, NEMA 4X certified Head, (10) Silver plated Brass or SS terminal screws.

**Recommended element type and its range span:** (-)200 to (+)850°C depends on element type, conductor and sheath material.

**Note:-** Specifications other than above offered on request. Refer "optional items list" or "accessories catalogue" for more details, if required

**Accessories for Temperature Elements (RTD's/Thermocouples)**

Srl.	Products	Model
1	Weatherproof Head-Single cable entry	GA-HW1
2	Weatherproof Head-Double cable entry	GA-HW2
3	Flameproof IIA IIB Head-Single cable entry	GA-HFB1
4	Flameproof IIC Head-Single cable entry	GA-HFC1
5	Flameproof IIA IIB Head-Double cable entry	GA-HFB2
6	Flameproof IIC Head-Double cable entry	GA-HFC2

7	Flameproof IIA IIB Cable Gland (Double compression)	GA-GDFB
8	Flameproof IIC Cable Gland (Double compression)	GA-GDFC
9	Weatherproof Cable Gland (Double compression)	GA-GDW
10	Weatherproof Cable Gland (Single compression)	GA-GSW
11	Cable entry Plug	GA-CP
12	Swivel Nut	GA-SN
13	Swivel Nut with Ferrule	GA-SNF
14	Seal Pot	GA-SP
15	Terminal Block-Ceramic	GA-TB
16	Head mounted 2-Wire Transmitter	GA-TTM
17	Head mounted Smart Transmitter	GA-TTS
18	Base plate (for Element/TT)	GA-BP
19	Nipple (cylindrical)	GA-NC
20	Nipple (Hex)	GA-NH
21	Nipple (Spring loaded)	GA-NS
22	Union (3 piece)	GA-U3
23	Nipple-Union (4 pieces)	GA-NU4
24	Nipple-Union-Nipple (5 pieces)	GA-NUN5
25	Union (1 piece)	GA-U1
26	Nipple-Union (2 pieces)	GA-NU2
27	Nipple-Union-Nipple (3 pieces)	GA-NUN3
28	Compression Fitting (adjustable)	GA-ACF
29	Bayonet Cap Holder	GA-BCH
30	Bayonet Cap, Spring & Stopper	GA-BCS
31	Omega connector-Big size	GA-OCB
32	Omega miniature connector	GA-OCM
33	Omega type connector	GA-OTCB
34	Omega type miniature connector	GA-OTCM
35	Mill Grade connector	GA-MC
36	LEMO connector	GA-LC
37	Shear Valve	GA-SV
38	Skin Pad-Retractable type	GA-SPR
39	Skin Pad-Knife Edge type	GA-SPK
40	Skin Pad-Plain type	GA-SPP
41	Skin Pad-Washer type	GA-SPW
42	Skin-Pad Shield	GA-SPS
43	Weatherproof IP65 / IP66 / IP67 / IP68	GA-WP
44	Flameproof CMRI, DGMS, PESO(CCOE), FM, UL, CSA, ATEX, IECEx	GA-FP
45	Calibration certificate from NABL lab	GA-C1
46	Calibration certificate from NPL-New Delhi	GA-C2
47	RTD Element (Thin film)	GA-RTT
48	RTD Element (Wire wound)	GA-RTW
49	Thermocouple conductor	GA-TC
50	Ceramic Bead	GA-CB
51	Ceramic Tube	GA-CT
51	Others, please specify	GA-X