DETECTOR

SHEATH RESISTANCE TEMPERATURE DETECTOR

KONICS

SS-5040

SHEATHED RESISTANCE BULB is metal sheathed RTD that has a monolithic structure comprising of CERAMIC element and MI cable (MgO compacted, metal sheathed lead wires). This newly developed RTD has very quick response, longer service life and high accuracy under critical conditions.

FEATURES

- **Quick response :**
  Since SHEATHED RTD sensing part is filled with high purity Alumina powder and protected by a metal sheath, it has much faster response than those of ordinary RTD's and can follow any slight change in temperature.
- **High flexibility :**
  Except for the sensing part of up to 60mm from the tip, it can be bent to the radius equal to 2 times of the sheath O.D.
- **High accuracy :**
  Since high purity platinum resistance wire is used, it has high accuracy falling within the class of 0.15, 0.2 or 0.5 stipulated by K.S. or other internationally known Standards.
- **Wide variety of specifications :**
  Outer diameters from 3.2mm to 8.0mm and total length up to 150 meters are available.
- **Wide range of measuring temperatures :**
  From cryogenic (-200°C) to high temperature (+500°C) can be measured although it may vary depending on surrounding atmospheres.
- **Insulation resistance & withstand voltage**

JIS C1606 Metal sheathed Resistance Bulbs		
Sheath O.D. (mm)	Insulation Resistance	Withstand Voltage
3.2	5 MΩ / 250V DC	1 min. / 250V AC
4.8, 6.4, 8.0	5 MΩ / 500V DC	1 min / 500V AC

- Insulation resistance shall be above the listed figures.
- Withstand voltage shall be those withstand for 1 min. under the test voltage. For those with protection tube of less han 4.8mm O.D., test voltage shall be 1/2.

SPECIFICATIONS

¨ Type and codes

Nominal Resistance	Code
Pt100Ω at 0 °C	100

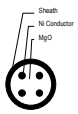
Number of Element	Code
1 (single)	S
2 (double)	D

Number of Leads	Code
2 wires	W
3 wires	X
4 wires	Y

Rated Current	Code
2mA	02
5mA	05
10mA	10

Standard resistivity to JIS and American Curve (α=0.003916). BS and DIN (α=0.00385) also available.

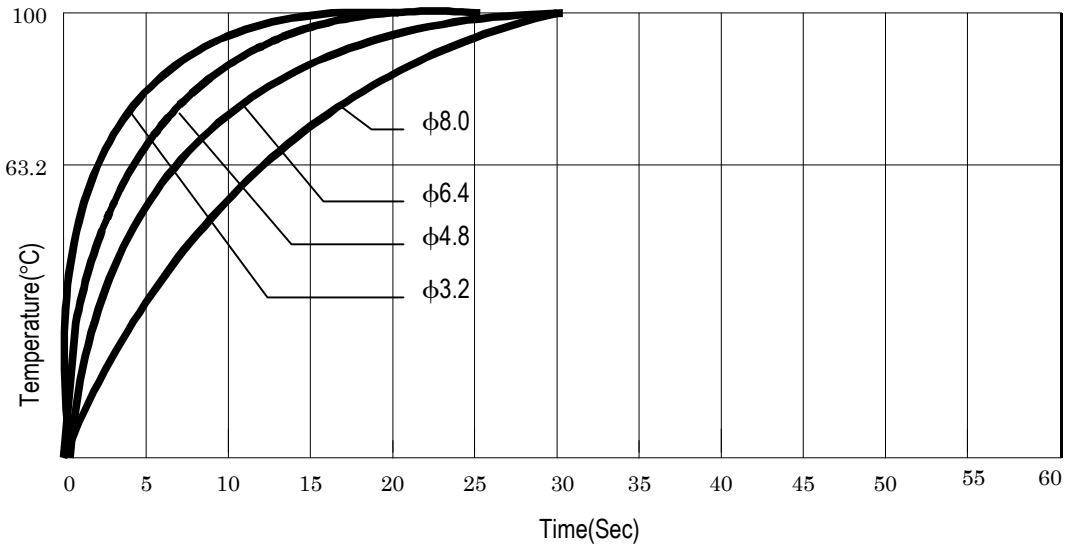
¨ Sheathed leads

	Sheath O.D. (mm)	Conductor Dia. (mm)	Lead Resistance (Ω/m at 20 °C)	Sheath Wall(mm)	Sheath Material	Max Length (m)
	3.2	0.45	0.627	0.48	316 SS	150
	4.8	0.70	0.248	0.73	316 SS	60
	6.4	0.93	0.15		316 SS	30
	8.0	1.14	0.099	1.27	316 SS	15
	4.8	0.38	0.881	0.457	316 SS	60
	6.4	0.48	0.55		316 SS	30
	8.0	0.63	0.31		316 SS	15

¨ Response time of sheath resistance bulb

The "t" constants (63.2%) when RESIMIC is immersed into 100°C (boiling water) from 0 °C (ice bath)

ϕ3.2 less than 2sec
ϕ4.8 less than 4sec
ϕ6.4 less than 6sec
ϕ8.0 less than 11sec



¨ **Nominal resistance for Pt 100Ω element**

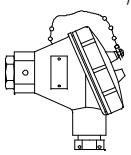
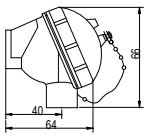
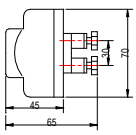
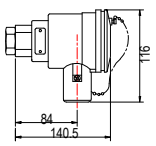
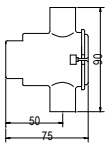
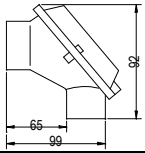
Pt100 : R_0=100.00Ω R_{100}/R_0=1.3850 to JIS C1604 -1989, IEC751, BS1904, DIN43760.

JPt100 : R_0=100.00Ω R_{100}/R_0=1.3916 to JIS C1604 - 1981, American Curve.

Std. °C	Pt100	JPt10	Std °C	Pt100	JPt10	Std °C	Pt100	JPt100	Std °C	Pt100	JPt100	Std °C	Pt100	JPt10
-200	18.49	17.14	0	100.00	100.00	200	175.84	177.13	400	247.04	249.58	600	313.59	
-190	22.80	21.46	10	103.90	103.97	210	179.51	180.86	410	250.48	253.08	610	316.80	
-180	27.08	25.80	20	107.79	107.93	220	183.17	184.58	420	253.90	256.58	620	319.99	
-170	31.32	30.12	30	111.67	111.88	230	186.82	188.29	430	257.32	260.02	630	323.18	
-160	35.53	34.42	40	115.54	115.81	240	190.45	191.99	440	260.72	263.43	640	326.36	
-150	39.71	38.68	50	119.40	119.73	250	194.07	195.67	450	264.11	266.94	650	329.51	
-140	43.87	42.91	60	123.24	123.64	260	197.69	199.33	460	267.49	270.33	660	332.66	
-130	48.00	47.11	70	127.07	127.54	270	201.29	203.01	470	270.86	273.81			
-120	52.11	51.29	80	130.89	131.42	280	204.88	206.66	480	274.22	277.22			
-110	56.19	55.44	90	134.70	135.30	290	208.45	210.30	490	277.56	280.63			
-100	60.25	59.57	100	138.50	139.16	300	212.02	213.93	500	280.90	284.02			
-90	64.30	63.68	110	142.29	143.01	310	215.57	217.54	510	284.22	287.41			
-80	68.33	67.77	120	146.06	146.85	320	219.12	221.15	520	287.53				
-70	72.33	71.85	130	149.82	150.67	330	222.65	224.74	530	290.83				
-60	76.33	75.91	140	153.58	154.49	340	226.17	228.32	540	294.11				
-50	80.31	79.96	150	157.31	158.29	350	229.67	231.89	550	297.39				
-40	84.27	83.99	160	161.04	162.08	360	233.17	235.45	560	300.65				
-30	88.22	88.01	170	164.76	165.86	370	236.65	238.99	570	303.91				
-20	92.16	92.02	180	168.46	169.63	380	240.13	242.53	580	307.15				
-10	96.09	96.02	190	172.16	173.38	390	243.59	246.05	590	310.38				

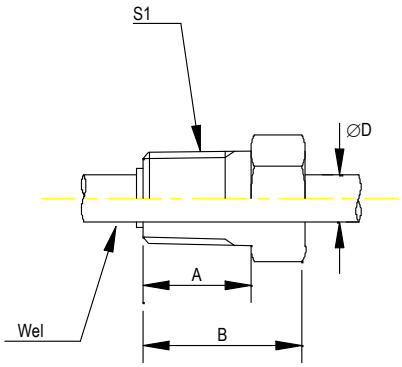
TERMINAL

Other entry threads of PT, NPT or Metrics can be specified

Type	Weather Proof W	Weather Proof W S	Exposed Terminal G T
Material:	Al-alloy diecast. Cast Iron	Al-alloy diecast, Phenol Resin	Phenolic Resin
Conduit CONN:	PF1/2 . PF 3/4	PF 3/8	PF 1/2
No. of Terminals:	2,3,4,6	2,3	2,3,4
Terminal Block:	Bakelite . Ceramic	Bakelite . Ceramic	Bakelite . Ce
Surface Finish:	Melamin baked	Melamin baked	
Surface Color	Metallic Silver	Metallic Silver	Black
Dimensions	PF1/2(W/Cable Gland), PF3/4 	PF1/4 PF1/2 	PF1/2 
Type	*Flame Proof E(E x d II CT5)	Two Way Entry E T	Dual Cable Entry W D
Material :	Al-alloy diecast, Cast Iron, Stain-	Al-alloy diecast	Al-alloy diecast
Conduit CONN :	Stainless Stell	PF 1/2 x 2	PF 1/2 x 2
No. of Terminals :	M16, 20, 25	4, 6	4, 6
Terminal Block	2, 3, 4, 6	Bakelite . Ceramic	Bakelite . Ceramic
Surface Finish :	Bakelite . (Ceramic)	Melamin baked	Melamin baked
Surface Color	Melamin baked	Metallic Silver	Metallic Silver
	Metallic Silver		
Dimensions	PF1/2 PF3/4 	PF1/2 PF3/4 	PF1 

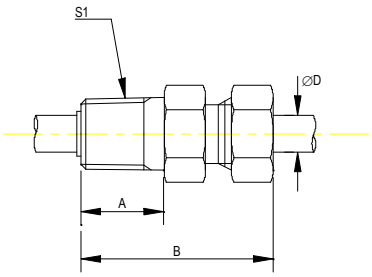
¨ Standard accessories

1. Bushing(fixed) 304S.S.



ϕ D	TYPE	S_1	S_2	A	B
1.0	BN101	PT1/8	–	10	16
1.6	BN161	PT1/8	–	10	16
2.2	BN221	PT1/8	–	10	16
3.2	BN321	PT1/8	–	10	16
	BN322	PT1/4	–	12	20
	BN324	PT1/2	–	20	30
4.8	BN481	PT1/8	–	10	16
	BN482	PT1/4	–	12	20
	BN484	PT1/2	–	20	35
	BN486	PT3/4	–	20	35
6.4	BN642	PT1/4	–	12	20
	BN644	PT1/2	–	20	35
	BN646	PT3/4	–	20	35
8.0	BN802	PT1/4	–	12	20
	BN804	PT1/2	–	20	35
	BN806	PT3/4	–	20	35

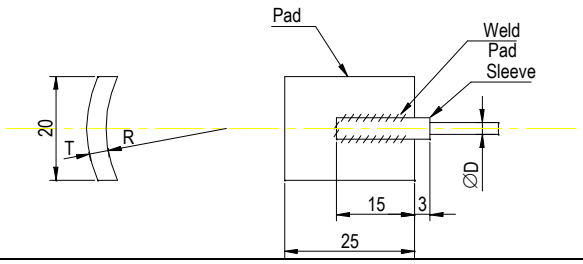
2. Compression Fitting 304S.S.



Note : The cotter in this Fig. is of stainless steel but Teflon cotter(Type TCF) is also available.

ϕ D	TYPE	S_1	S_2	A	B
1.0	CF 101	PT1/8	–	10	33
1.6	CF161	PT1/8	–	10	33
	CF162	PT1/4	–	12	35
2.2	CF221	PT1/8	–	10	33
	CF222	PT1/4	–	12	35
3.2	CF321	PT1/8	–	10	33
	CF322	PT1/4	–	12	35
	CF324	PT1/2	PT1/8	20	59
	CF326	PT3/4	PT1/8	20	59
4.8	CF481	PT1/8	–	10	33
	CF482	PT1/4	–	12	35
	CF484	PT1/2	PT1/8	20	59
	CF486	PT3/4	PT1/8	20	59
6.4	CF642	PT1/4	–	12	35
	CF644	PT1/2	PT1/4	20	59
	CF646	PT3/4	PT1/4	20	59
8.0	CF802	PT1/4	–	12	35
	CF804	PT1/2	PT1/4	20	59
	CF806	PT3/4	PT1/4	20	59

4. Pad 304 S.S.

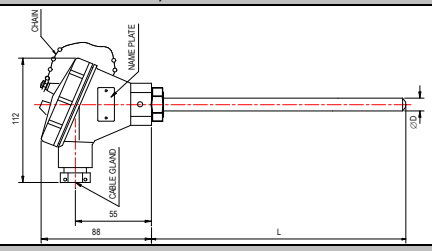
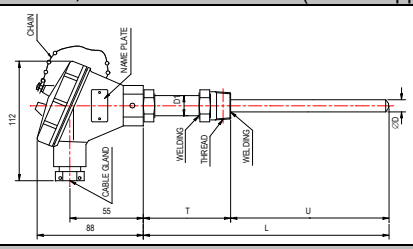
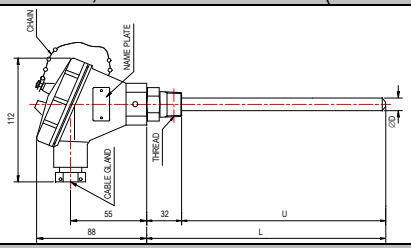
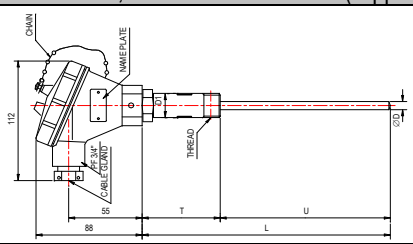
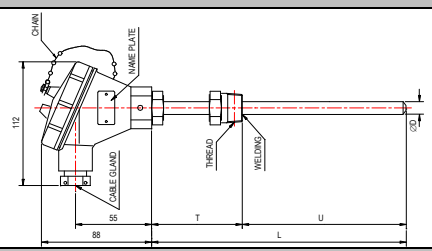
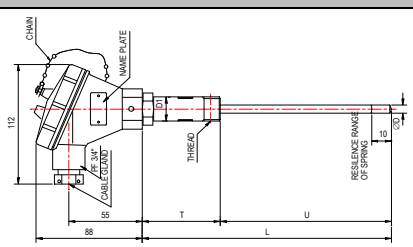
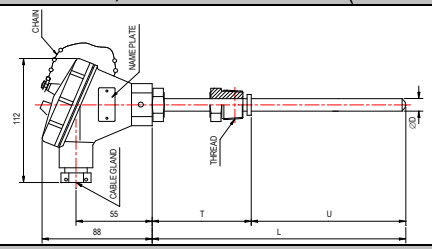
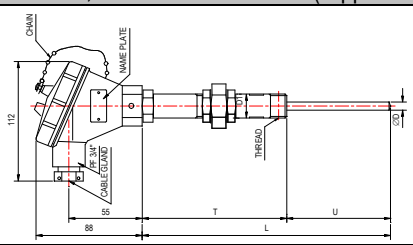
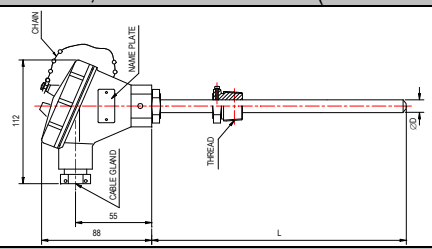
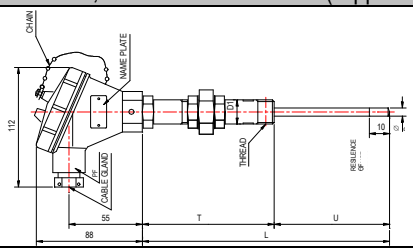
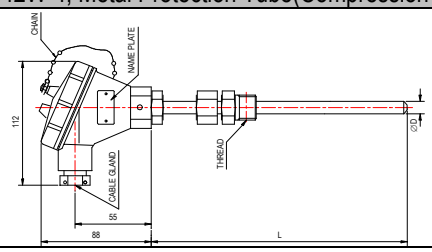
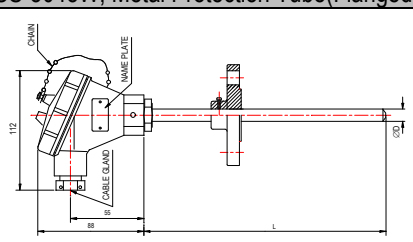


ϕ D	t
3.2	4
4.8	5

Note : Specify “R” when ordering.
However, in case R≧50mm, it will be made as “flat.”

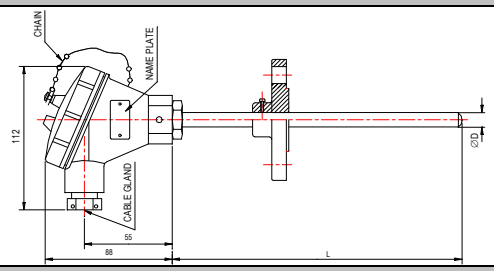
DIMENSIONS

¨ **Standard model of sheath resistance bulb assembly (Weatherproof type)**

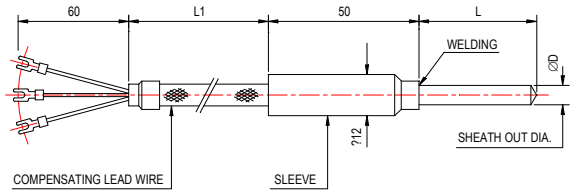
SS-5041W, Metal Protection Tube	SS-5043W, Metal Protection Tube(Metal Support
	
SS-5042W, Metal Protection Tube (Screwed)	SS-5044W-1, Metal Protection Tube(Nipple)
	
SS-5042W-1, Metal Protection Tube (Screwed)	SS-5044W-1-1, Metal Protection Tube (Nipple)
	
SS-5042W-2, Metal Protection Tube (Screwed)	SS-5044W-2, Metal Protection Tube(Nipple Union)
	
SS-5042W-3, Metal Protection Tube(Slide Screwed)	SS-5044W-2-1, Metal Protection Tube (Nipple Union)
	
SS-5042W-4, Metal Protection Tube(Compression fitting)	SS-5045W, Metal Protection Tube(Flanged)
	

¨ (Weatherproof, general type)

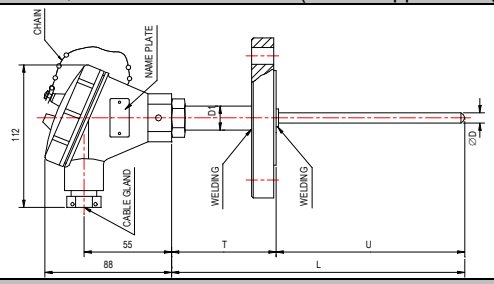
SS-5045W, Metal Protection Tube(Slide Flanged)



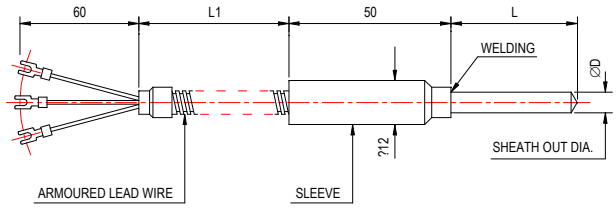
SS-5048GD, Compensation lead



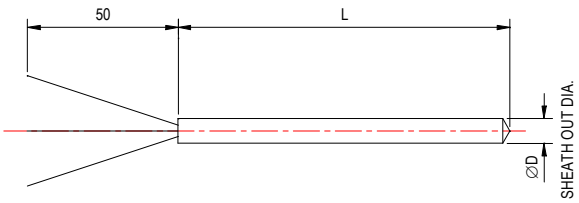
SS-5046W, Metal Protection Tube (Metal Support Flanged)



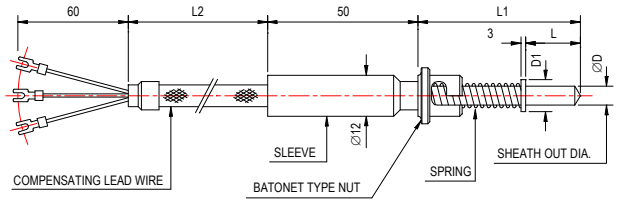
SS-5048GE, Armoured lead



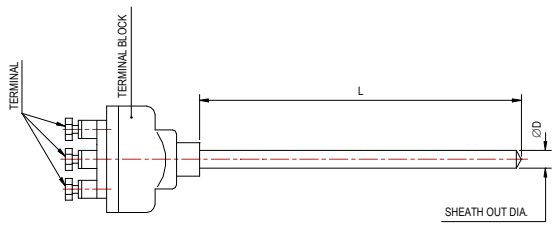
SS-5048GA, Basic



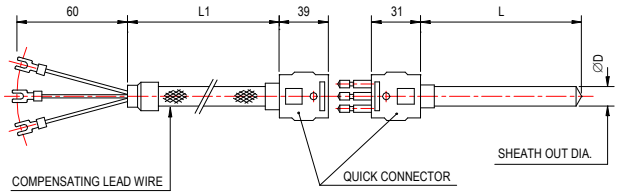
SS-5048GF, Bayonet Mount



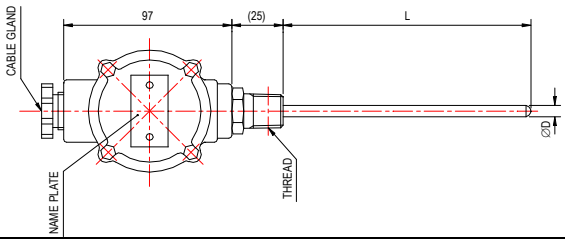
SS-5048GB, Exposed Terminal



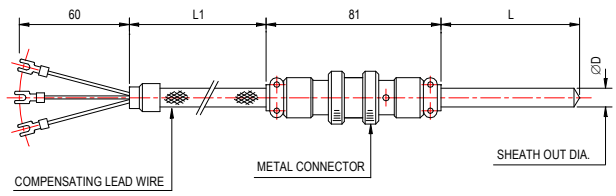
SS-5048GC, Quick Connector



SS-5048GC, Joint Box

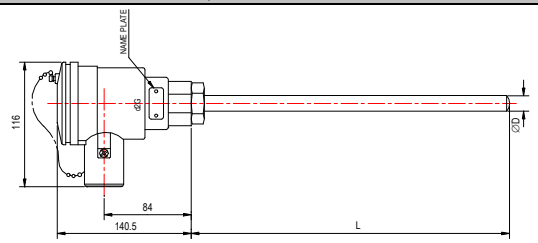


SS-5048, Metal Connector

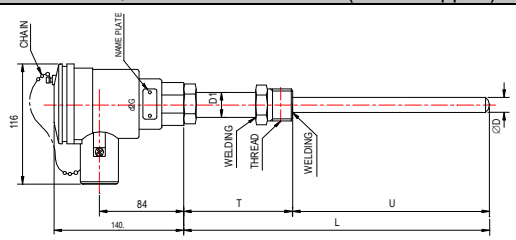


¨ Standard model of sheath resistance bulb assembly (Explosion proof)

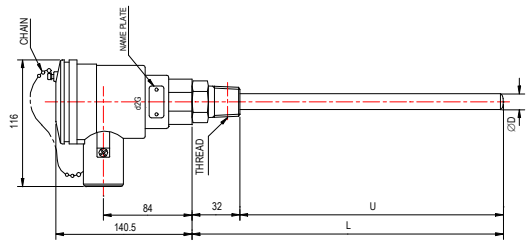
SS-5041E, Metal Protection Tube



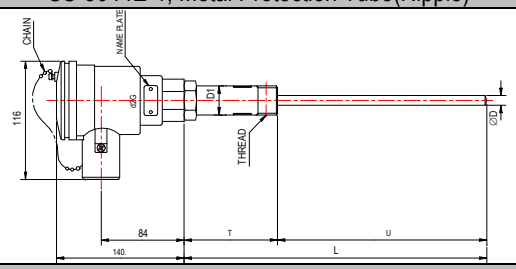
SS-5043E, Metal Protection Tube(Metal Support)



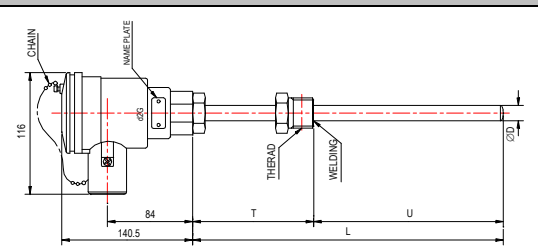
SS-5042E, Metal Protection Tube (Screwed)



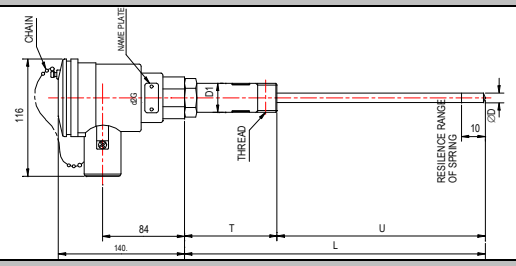
SS-5044E-1, Metal Protection Tube(Nipple)



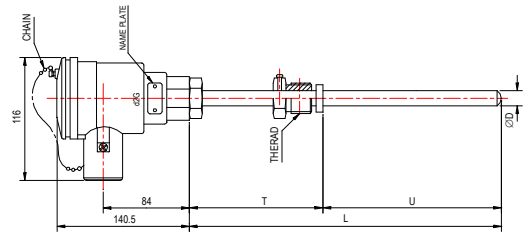
SS-5042E-1, Metal Protection Tube (Screwed)



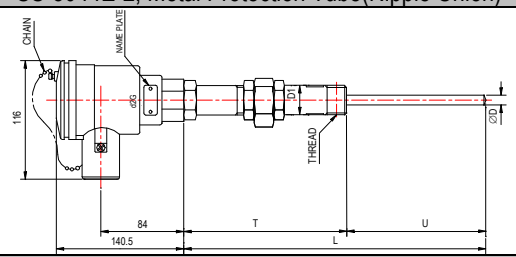
SS-5044E-1-1, Metal Protection Tube Spring load(Nipple)



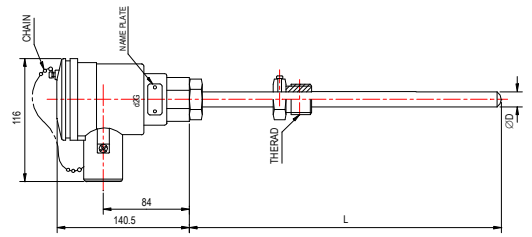
SS-5042E-2, Metal Protection Tube (Screwed)



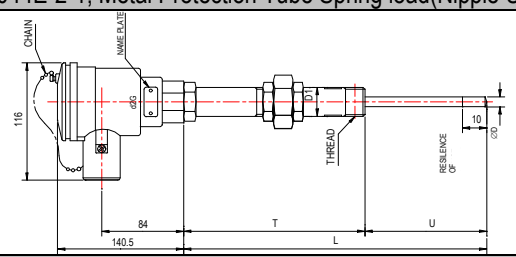
SS-5044E-2, Metal Protection Tube(Nipple Union)



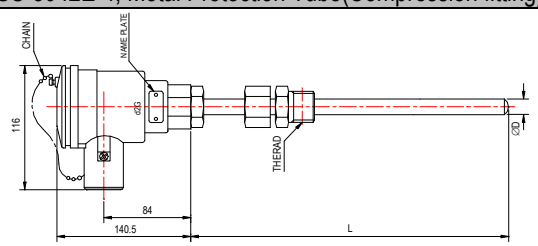
SS-5042E-3, Metal Protection Tube(Slide Screwed)



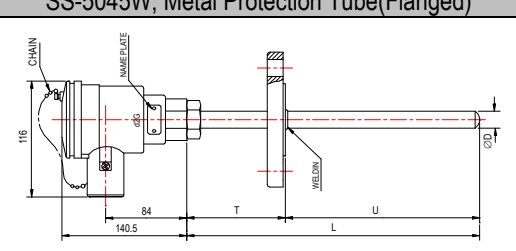
SS-5044E-2-1, Metal Protection Tube Spring load(Nipple Union)



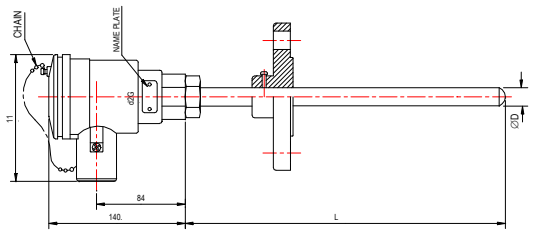
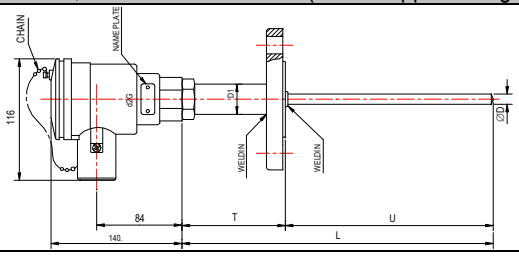
SS-5042E-4, Metal Protection Tube(Compression fitting)



SS-5045W, Metal Protection Tube(Flanged)



¨ **(Explosion proof)**

SS-5045E, Metal Protection Tube(Slide Flanged)	SS-5046E, Metal Protection Tube (Metal Support Flanged)
	

ORDERING CODE

SS-5043W	Element(S/D)	Sheath Dia	Insert Length(U)	Total Length(L)	Connection	Sheath Mat'L
	Pt100Ω(S)	4.8 ϕ	150/250		PT1/2	SUS316

SS-5043E	Element(S/D)	Sheath Dia	Insert Length(U)	Total Length(L)	Connection	Sheath Mat'L
	Pt100Ω(S)	4.8	150/250		PT1/2	SUS316