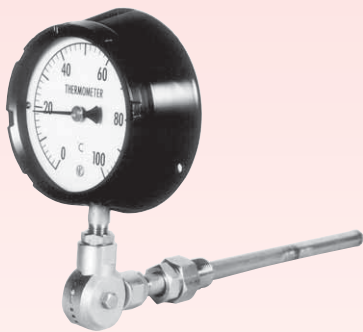


# Indicating Thermometers

## 〈Direct free angle type〉

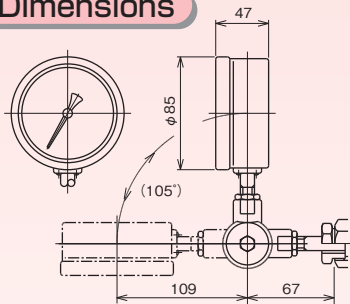
# TL33·34

Liquid filled dial thermometer

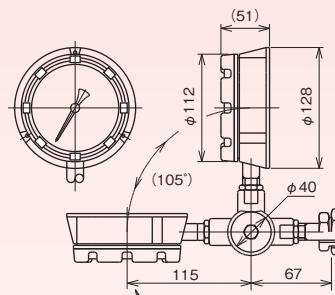


It is a handy thermometer directed freely in the direction which it is easy to look at the instructing section after installation.

### Dimensions



TL33 (φ 75)



TL34 (φ 100)

### Specifications

Item		Description
Manufacturing range		TL33 : -70~150°C TL34 : -70~200°C
Case		TL33 Construction: Drip-proof / equivalent to IP33, Material: AC7A, Finish: Black TL34 Construction: Drip-proof / equivalent to IP43, Material: ADC12, Finish: Black
Wetted parts material		Bulb: SUS304, Connection / Flange: SUS304
Accuracy	Indication error	Within ±2% F.S. at room temperature (20°C)
	Ambient temperature	Within ± 2 %F.S./15°C
Compensation		Bimetal compensation, lead compensation (However, applicable to TL34 0~200°C)
Connection		R1/2, R3/4, 1/2NPT, G1/2B, G3/4B 1/2 is not available with φ 16 bulb and φ 19, φ 23 thermowell.
Flange		JIS10K20ARF, JIS10K25ARF, ANSI1B150RF, ANSI1B300RF
Connection	Without thermowell	Union type
	With thermowell	Double socket union type: R1/2, 1/2NPT

Slide type is not available.

### Range / Bulb DIA. / Bulb length

Range °C	Minimum graduation °C	Bulb minimum insertion length mm										Bulb maximum length mm
		Bimetal compensation					Lead compensation (Not available for TL33)					
		d=φ8	d=φ10	d=φ12	d=φ13	d=φ16	d=φ8	d=φ10	d=φ12	d=φ13	d=φ16	
-70~ 50	2	50	45	40	40	50	160	110	90	75	65	500
-70~100	5	40	40	40	40	40	125	90	75	65	60	
-50~ 50	2	55	45	40	40	55	180	120	95	85	70	
-30~ 50	2	65	55	45	40	40	215	140	110	95	80	
-20~100	2	50	45	40	40	50	160	110	90	75	65	
-10~ 50	1	70	60	50	45	40	265	170	130	110	90	
0~ 50	1	70	60	50	45	40	305	190	145	125	100	
~ 60	1 (2) *	65	55	45	40	40	265	170	130	110	90	
~ 80	2	65	55	45	40	40	245	155	120	105	85	
~100	2	55	45	40	40	55	205	135	105	90	75	
~120	2	50	45	40	40	50	180	120	95	85	70	
~150	2 (5) *	40	40	40	40	40	155	105	85	75	65	
~200	5	—	—	—	—	—	110	80	70	60	55	

- The above lengths are the minimum necessary of the bulb to be inserted into the fluid to be measured.
- Bulb length should be over the above length and specified in 5mm steps.

\* The number ( ) in the minimum scale is for TL33.

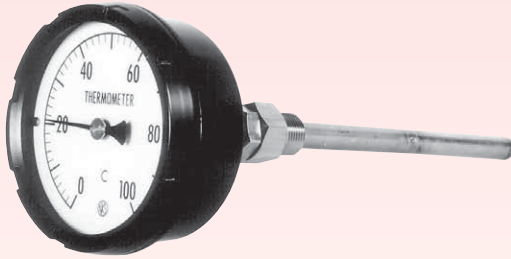
The above minimum insertion length is the length without thermowell. With thermowell, 25mm is added to the above length.

# Indicating Thermometers

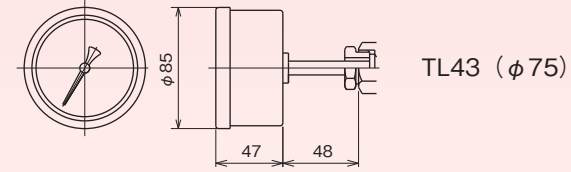
## <Direct T stem type>

# TL43·44

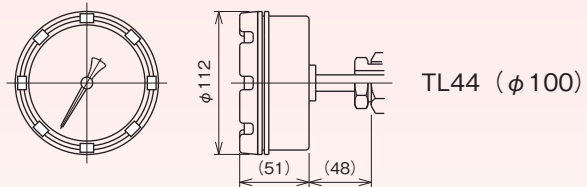
Liquid filled dial thermometer



### Dimensions



TL43 (φ75)



TL44 (φ100)

### Specifications

Item		Description
Manufacturing range		TL44 : -70~150°C TL43 : -70~150°C
Case		TL44 Construction: Drip-proof / equivalent to IP43, Material: ADC12, Finish: Black TL43 Construction: Drip-proof / equivalent to IP43, Material: AC7A, Finish: Black
Wetted parts material		Bulb: SUS304, Connection / Flange: SUS304
Accuracy	Indication error	Within ±2% F.S. at room temperature (20°C)
	Ambient temperature	Within ±2% F.S./15°C
Compensation		Bimetal compensation
Connection		R1½, R¾, ½NPT, G½B, G¾B ½ is not available with φ16 bulb and φ19, φ23 thermowell.
Flange		JIS10K20ARF, JIS10K25ARF, ANSI1B150RF, ANSI1B300RF
Connection	Without thermowell	Union type, Slide type
	With thermowell	Double socket union type: R1½, ½NPT (Connection) Double socket slide type: R1½, ½NPT (Connection)

Slide type is not available with φ8, φ16 bulb.  
When the maximum temperature of temperature range exceeds 400°C, slide type is not available.

### Range / Bulb DIA. / Bulb length

Range °C	Minimum graduation °C	Bulb minimum insertion length mm					Bulb maximum length mm
		Bimetal compensation					
		d=φ8	d=φ10	d=φ12	d=φ13	d=φ16	
-70~ 50	2	50	45	40	40	50	500
-70~100	5	40	40	40	40	40	
-50~ 50	2	55	45	40	40	55	
-30~ 50	2	65	55	45	40	40	
-20~100	2	50	45	40	40	50	
-10~ 50	1	70	60	50	45	40	
0~ 50	1	70	60	50	45	40	
~ 60	1 (2) *	65	55	45	40	40	
~ 80	2	65	55	45	40	40	
~100	2	55	45	40	40	55	
~120	2	50	45	40	40	50	
~150	2 (5) *	40	40	40	40	40	

- The above lengths are the minimum necessary of the bulb to be inserted into the fluid to be measured.
- Bulb length should be over the above length and specified in 5mm steps.

\* The number ( ) in the minimum scale is for TL43.

The above minimum insertion length is the length without thermowell.  
With thermowell, 25mm is added to the above length.