

TBX Turbine Gas Meter



Low Pressure Turbine Gas Meter with LCD display

The TBZ and TBX Series of turbine meters were developed to measure the gas consumption of small boilers, industrial furnaces, other individual pieces of equipment. The TBZ and TBX Series are precise and inexpensive – they are compact, light, and stylish too. They can handle a wide range of pressures and flows. Two built-in pulse oscillators allow remote meter-reading – or the configuration of an advanced energy management system.

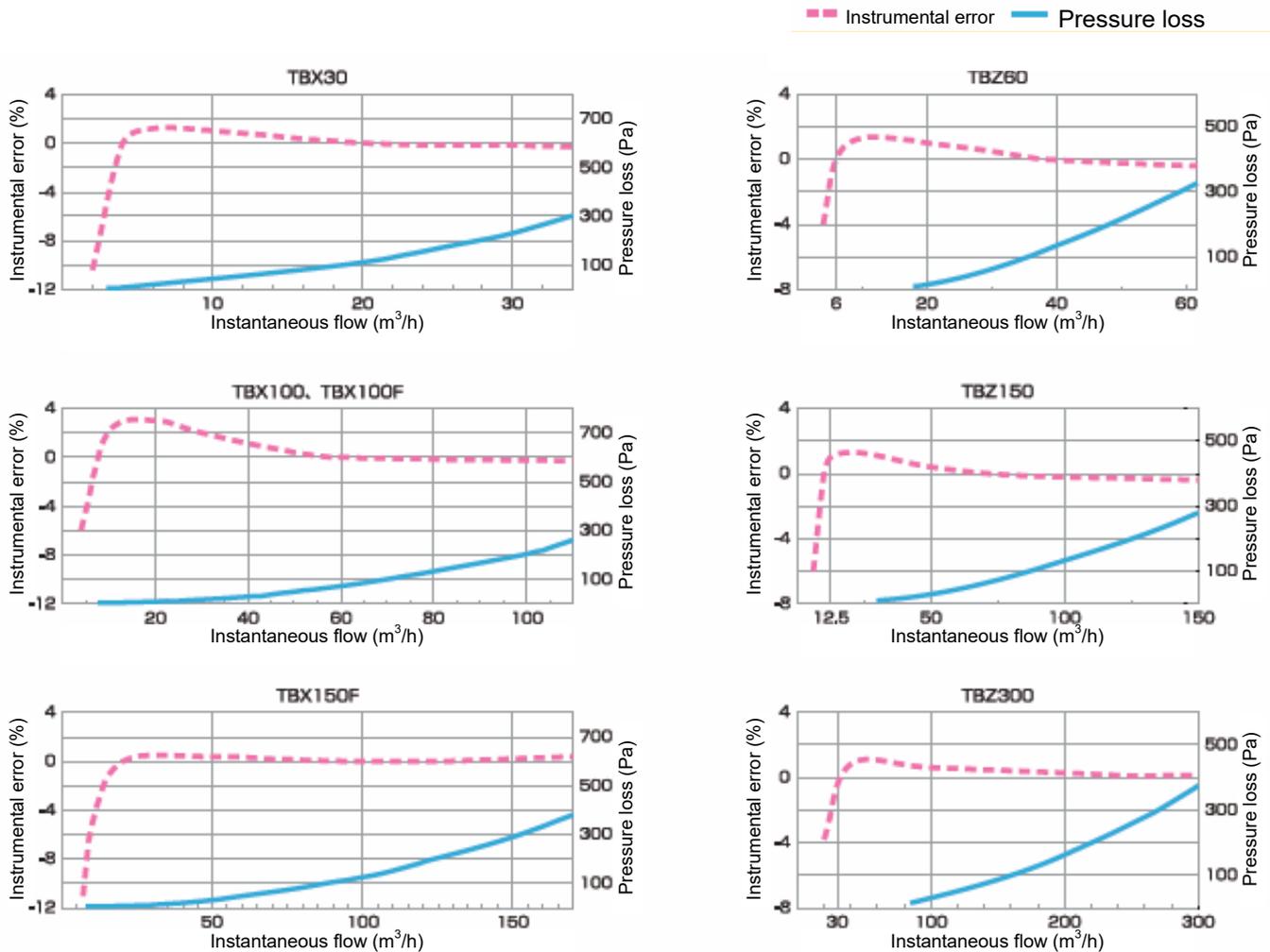
At a glance

- Inline meter takes up less space
- Self-supporting in pipework
- 50mm meter same output as 3inch diaphragm meter
- Maximum operating pressure 1.0 bar

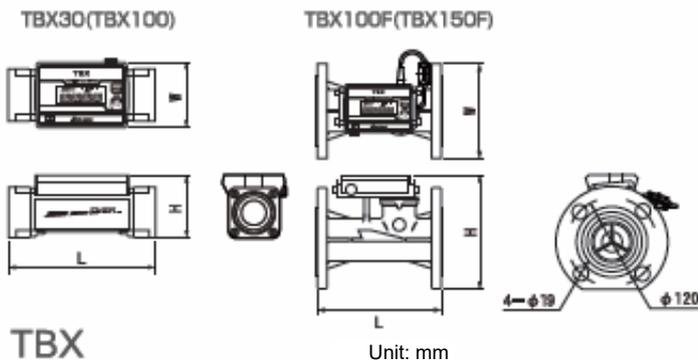
Technical Data

Model	DN mm	Minimum Flow Rate m3/h	Maximum Flow Rate m3/h	Connections
TBX/20	20	4	30	BSP Screwed
TBX/25	25	4	30	BSP Screwed
TBX/32	32	4	30	BSP Screwed
TBX/40	40	4	30	BSP Screwed
TBX/50	50	10	100	BSP Screwed
TBX/F50	50	12.5	150	PN16 Flanged

TBX/TBZ general performance charts (low pressure air)

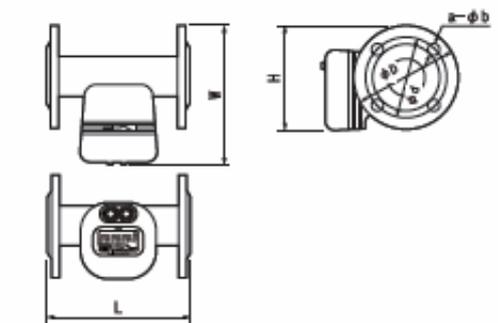


Dimensional drawing



Type	External dimension L	H	W
TBX30	170	74	73
TBX100	200	100	85
TBX100F	200	161	Φ 155
TBX150F	200	148	Φ 155

TBX100F can change the direction of the indicator depending on the flow direction. The indicator can be separated from the unit for remote indication.



Type	External dimension L	H	W	JIS 10K flange			
TBZ60	200	150	197	ΦD 140	Φd 105	a Φb 4-19	Normal diameter 40A
TBZ150	220	158	211	155	120	4-19	50A
TBZ300	250	185	246	185	150	8-19	80A

Specifications

Base type		TBX30	TBX100	TBX100F	TBX150F	TBZ60		TBZ150		TBZ300				
Designation	Compensated flow (temperature and pressure compensated)	-	-	-	-	-	TBZ60-3.5	TBZ60-9.9	-	TBZ150-3.5	TBZ150-9.9	-	TBZ300-3.5	TBZ300-9.9
	Actual flow (no temperature or pressure compensated)	-	-	-	-	TBZ60-0	-	-	TBZ150-0	-	-	TBZ300-0	-	-
Flow capacity *1		4~30m ³ /h	10~100m ³ /h	10~100m ³ /h	12.5~150m ³ /h	6~60m ³ /h		12.5~150m ³ /h		30~300m ³ /h				
Maximum working pressure		100kPa				980kPa	350kPa	980kPa	980kPa	350kPa	980kPa	350kPa	980kPa	
Flow sensor		±1%FS				±1%FS and ±3%RS		±1%FS and ±3%RS		±1%FS and ±3%RS				
Accuracy	Calculation and temperature & pressure compensation *2	-				-		-		-				
	Compensated flow, accumulated (for "compensated flow" type only)	-				LCD, large type, 9 digits, displayable in units of 10 liters		LCD, large type, 9 digits, displayable in units of 10 liters		LCD, large type, 9 digits, displayable in units of 10 liters				
Indicator	Trip flow *3	LCD, large type, 6 digits, displayable in units of 10 liters			LCD, 6 digits, displayable in units of 100 liters	LCD, large type, 8 digits, displayable in units of 10 liters		LCD, large type, 8 digits, displayable in units of 10 liters		LCD, large type, 8 digits, displayable in units of 100 liters				
	Non-compensated flow, accumulated	LCD, large type, 8 digits, displayable in units of 10 liters			LCD, 8 digits, displayable in units of 100 liters	LCD, large type, 9 digits, displayable in units of 10 liters		LCD, large type, 9 digits, displayable in units of 10 liters		LCD, large type, 9 digits, displayable in units of 100 liters				
	Compensated flow, instantaneous (for "compensated flow" type only)	-				LCD, 4 digits, displayable in units of 0.1m ³ /h		LCD, 4 digits, displayable in units of 0.1m ³ /h		LCD, 4 digits, displayable in units of 1m ³ /h				
	Non-compensated flow, instantaneous	LCD, 3 digits, displayable in units of 0.1m ³ /h	LCD, 4 digits, displayable in units of 0.1m ³ /h		LCD, 3 digits, displayable in units of 1m ³ /h	LCD, 4 digits, displayable in units of 0.1m ³ /h		LCD, 4 digits, displayable in units of 0.1m ³ /h		LCD, 4 digits, displayable in units of 1m ³ /h				
	Temperature (for "temperature & pressure compensated" type only)	-				LCD, 3 digits, displayable in units of 0.1°C		LCD, 3 digits, displayable in units of 0.1°C		LCD, 3 digits, displayable in units of 0.1°C				
Pressure (for "compensated flow" type only)	-				LCD, 3 digits, displayable in units of 1kPa		LCD, 3 digits, displayable in units of 1kPa		LCD, 3 digits, displayable in units of 1kPa					
Connector diameter		Rc1-1/2, Rc1-1/4	Rc2	JIS 10K 50A Flange		JIS 10K 40A Flange		JIS 10K 50A Flange		JIS 10K 80A Flange				
Working temperature range		-10°C to +60°C				-10°C to +60°C								
Fluid (gas) *4		City gas, LPG, nitrogen etc.				City gas, LPG, nitrogen etc.								
Posture as installed		Horizontal or vertical				Horizontal or vertical (indicator's posture changeable accordingly)								
Installation place		Indoor				Outdoor or indoor *5								
Case		-				Drip-proof IPX2 or equivalent (JIS C0920)								
Power	Internal battery	Lithium battery				Lithium battery								
	External power	12-24VDC±10% (max. 0.19W, 7mA*6)				12-24VDC±10% (max. 0.19W, 7mA*6)								
Output		Open drain x 2 (unit pulse, high density pulse *7)				Open collector x 2 (compensation pulse, non-compensation pulse *7)								
Standard pulse unit width *8		TBX30-TBX100: 10L/P, TBX150: 100L/P Max load: 24VDC/20mA, pulse width: 40msec				100L/P Max load: 24VDC/20mA, pulse width: 40msec								
Material		Aluminum alloy	Cast iron	Aluminum alloy		Pipe: stainless steel, flange: steel, indicator: aluminum alloy								
Temperature sensor		-				Platinum resistance temperature detector, grade JIS A								
Pressure sensor		-				Semiconductor pressure sensor (high precision)								
Mass		0.8kg	1.8kg	7.0kg	2.5kg	5.3kg		6.0kg		9.4kg				

*1 Flow capacity refers to the actual (non-compensated) flow.
 *2 -3.5 for 20kPa and -9.9 for 150kPa or above
 *3 Compensated trip flow "accumulated" for "compensated flow" (temperature & pressure compensation) type; and non-compensated trip flow "accumulated" for "actual flow" (without temperature & pressure compensation) type
 *4 No entry of contaminants such as oil mist (heavy carbide of C5 or above) and dust powder into the meter is permissible.
 *5 For outdoor installation, no direct splash of water onto the unit is permissible.
 *6 Average under the standard condition
 *7 The high density pulse and non-compensation pulse are an actual flow pulse output in phase with the revolution of the impeller.
 *8 TBZ: compensation pulse, TBX: unit pulse

● Accessories and options

Item	TBX		TBZ
	Internal battery	External power	
Flow meter			
Accessory	External connection cable		
	External connection cable	TBX-SS-B cable, 2m, with a junction terminal box	TBZ-SS-B cable, 10m, with a junction terminal box and two clamp filters
Option	Junction terminal box		

* The external connection cables for the internal battery and external power types are different in the number of cores and therefore not compatible each other.

● Strainer (optional)

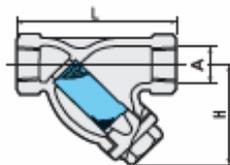
To protect the meter and keep it in good condition, install the strainer upstream of the meter.
 * Note that the strainer is a source of pressure drop.

○ Standard specifications

Type	YS32	YS40	YS50	YF50	YDF40	YDF50	YDF80
Maximum working pressure (kPa)	500	500	500	500	980	980	980
Material	FC200	FC200	FC200	FC200	FCD-S	FCD-S	FCD-S
Nominal diameter	32	40	50	50	40	50	80
Connection	Rc1-1/4	Rc1-1/2	Rc2	JIS10K(FF)	JIS10K(RF)		
Mass (kg)	2.3	2.9	4.5	8.2	8.5	11	15
Available for	TBX30(32A)	TBX30(40A)	TBX100	TBX100F-150F	TBZ60	TBZ150	TBZ300

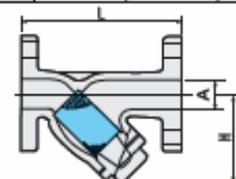
○ Outer dimension: screw connection type Unit: mm

Type	A	L	H (approximate)
YS32	32	145	105
YS40	40	160	110
YS50	50	180	130



○ Outer dimension: flange connection type Unit: mm

Type	A	L	H (approximate)
YF50	50	220	130
YDF40	40	240	155
YDF50	50	250	170
YDF80	80	320	215



Before use, read through the instructions to ensure that the product is used safely.