Reliability, Creativity
and Service

Turbine meter, optimum for energy management

Model TBX/TBZ

Optimum control of energy for boilers and industrial furnaces

Sensor System & Service

AICHI TOKEIDENKI CORPORATION

Easy-to-use electric type

Specifications

12~24V

DC

New version operating on an external power

A new TBX-series turbine meter operates on external power of 12-24VDC. Except the configuration of operating power, the specifications are the same as those of the existing series of built-in battery operated products.

model TBX

- Two independent pulse generators
- LCD for displaying various types of information
- The original model using internal battery is still available

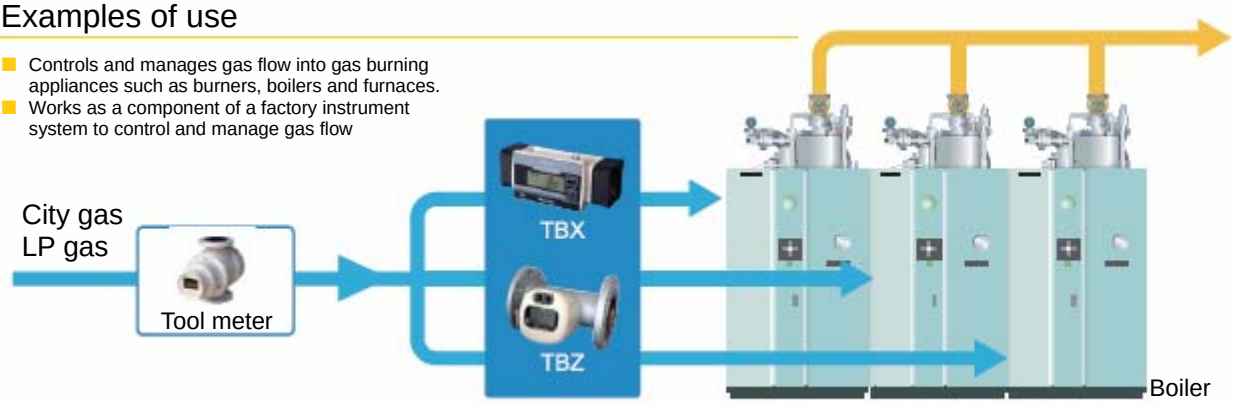
model TBZ

Temperature and pressure compensation

Displays the gas flow converted into a value under standard conditions, and temperature and pressure; provides a consistent energy management.

Examples of use

- Controls and manages gas flow into gas burning appliances such as burners, boilers and furnaces.
- Works as a component of a factory instrument system to control and manage gas flow



Designation

Type	Capacity	Connector type	Power source		Flow direction	Connector diameter	Description
TBX							TBX
	30						30m³/h
	100						100m³/h
	150						150m³/h
		No letter					Screw: (Rc)TBX30/100 only
		F					Flange: TBX100/150 only
			No letter				Battery
			D				External power
					L		From left (to right)
					R		From right (to left)
					U		From bottom (to top), TBX100 only
					D		From top (to bottom), TBX100 only
						3	32A (Rc1 – 1/4), TBX30 only
						4	40A (Rc1 – 1/2), TBX30 only

Type	Capacity	-	Compensation type	-	Compensation criteria	-	Flow direction	Description
TBZ								TBZ
	60							60m³/h
	150							150m³/h
	300							300m³/h
			0					No compensation
			3.5					Temperature and pressure compensation, 350kPa
			9.9					Temperature and pressure compensation, 980kPa
			3.5P					Pressure compensation only, 350kPa
			9.9P					Pressure compensation only, 980kPa
					N			Temperature (0℃), pressure (1 atom)
					S			Other than the above represented by letter N
					No letter			No compensation
							L	From left (to right)
							R	From right (to left)
							U	From bottom (to top)
							D	From top (to bottom)

TBX

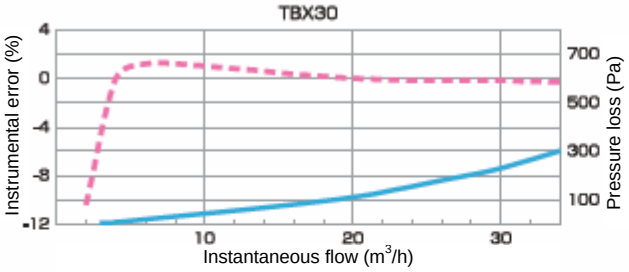
30 · 100 · 100F · 150F

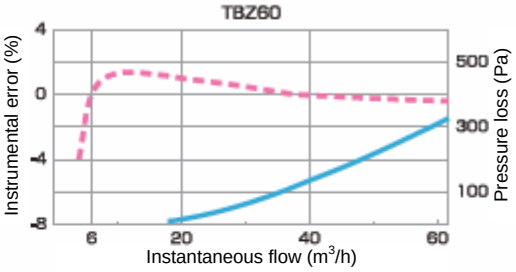
TBZ

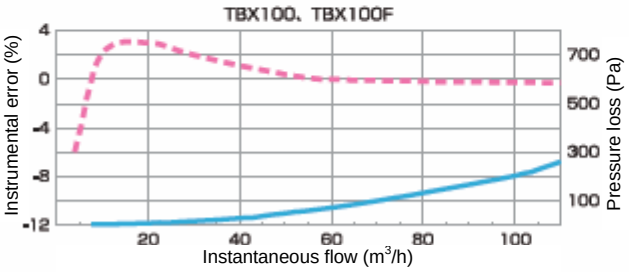
60 · 150 · 300

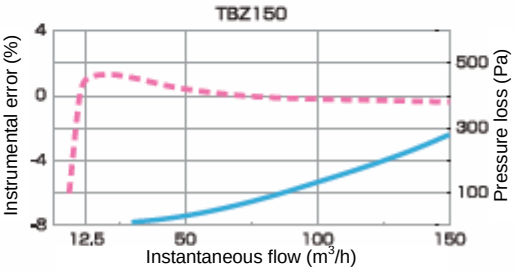
TBX/TBZ general performance charts (low pressure air)

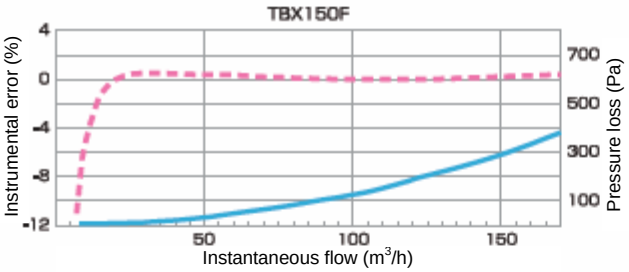
Instrumental error — Pressure loss

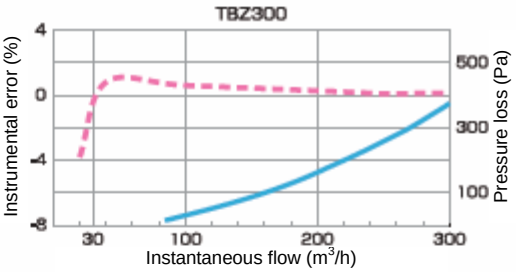








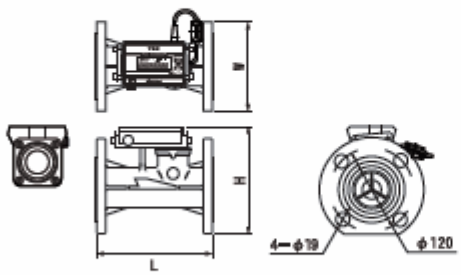




Dimensional drawing

TBX30(TBX100)

TBX100F(TBX150F)

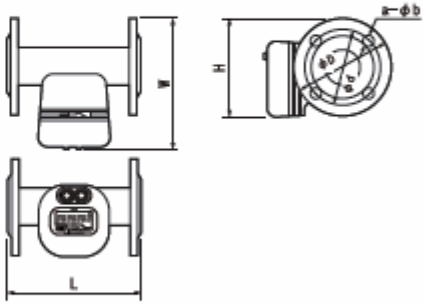


TBX

Unit: mm

Type \ External dimension	L	H	W
TBX30	170	74	73
TBX100	200	100	85
TBX100F	200	161	Φ155
TBX150F	200	148	Φ155

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



TBZ

Unit: mm

Type \ External dimension	L	H	W	JIS 10K flange			
				ΦD	Φd	a—Φb	Nominal diameter
TBZ60	200	150	197	140	105	4-19	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		4~30m³/h	10~100m³/h	10~100m³/h	12.5~150m³/h	6~60m³/h			12.5~150m³/h			30~300m³/h		
Maximum working pressure		100kPa				980kPa	350kPa	980kPa	980kPa	350kPa	980kPa	980kPa	350kPa	980kPa
Accuracy	Flow sensor	±1%FS				±1%FS and ±3%RS								
	Calculation and temperature & pressure compensation *2	-				-	±2%RSmax	±3%RSmax	-	±2%RSmax	±3%RSmax	-	±2%RSmax	±3%RSmax
Indicator	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 100 liters
	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 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 100 liters
	Compensated flow, instantaneous (for "compensated flow" type only)					LCD, 4 digits, displayable in units of 0.1m³/h								LCD, 4 digits, displayable in units of 1m³/h
	Non-compensated flow, instantaneous	LCD, 3 digits, displayable in units of 0.1m³/h	LCD, 4 digits, displayable in units of 0.1m³/h		LCD, 3 digits, displayable in units of 1m³/h	LCD, 4 digits, displayable in units of 0.1m³/h								LCD, 4 digits, displayable in units of 1m³/h
	Temperature (for "temperature & pressure compensated" type only)	-				LCD, 3 digits, displayable in units of 0.1°C								
	Pressure (for "compensated flow" type only)	-				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)				-								
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: Internal battery	TBX: External power	TBZ
Flow meter				
Accessory	External connection cable		 TBXD-SS-B C cable, 5m	
Option	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		 TBXD-SS-B	

* 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)

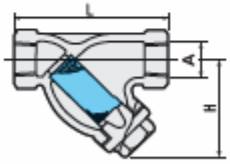
To protect the meter and keep it in good condition, install the strainer upstream of the meter.
* Note that the strainer is a source of pressure drop.

◎ 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

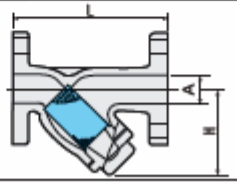
◎ Outer dimension: screw connection type — Unit: mm

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



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

The specifications shown here are as of June 2014.

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Important information: The technical specifications are subject to change without notice to make sure that they are updated for better performance. For any inquiries about new catalogues, product information etc., please contact us.

Update no. 3.2
MK-TBX_TBZ-030T