

ATZTA TBX/TBZ



Optimum control of energy for boilers and industrial furnaces

Easy-to-use electric type



TBX-D
30 · 100 · 100F · 150F

Specifications

12~24V



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

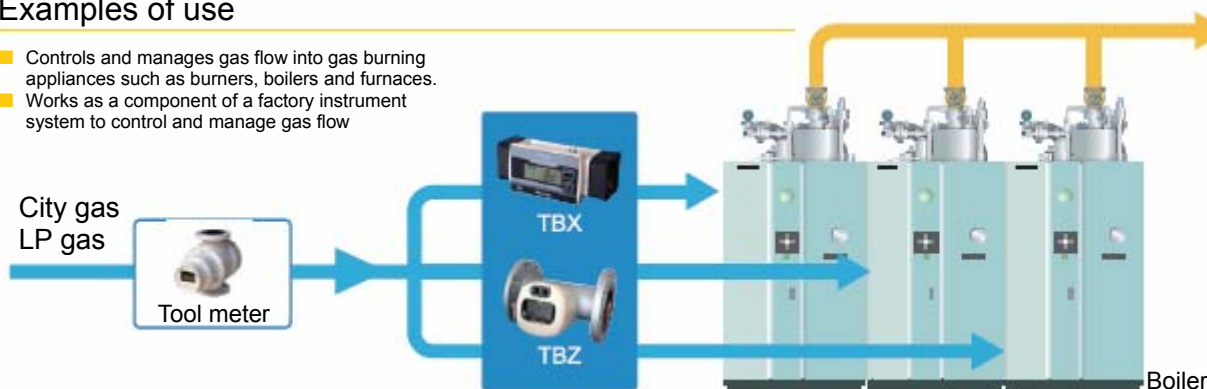


Temperature and pressure compensation

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	30					TBX
	100					30m ³ /h
	100					100m ³ /h
	150					150m ³ /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	60				TBZ
	150				60m ³ /h
	300				150m ³ /h
		0			300m ³ /h
		3.5			No compensation
		9.9			Temperature and pressure compensation, 350kPa
		3.5P			Temperature and pressure compensation, 980kPa
		9.9P			Pressure compensation only, 350kPa
					Pressure compensation only, 980kPa
			N		Temperature (0°C), pressure (1 atm)
			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)



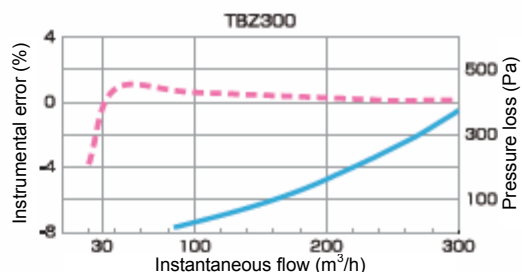
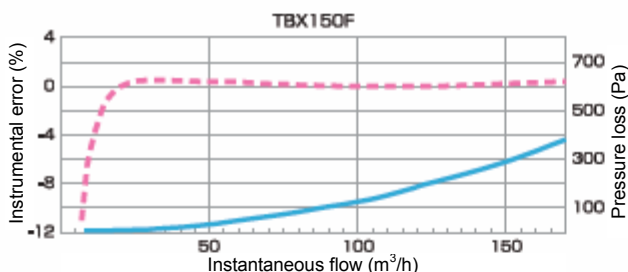
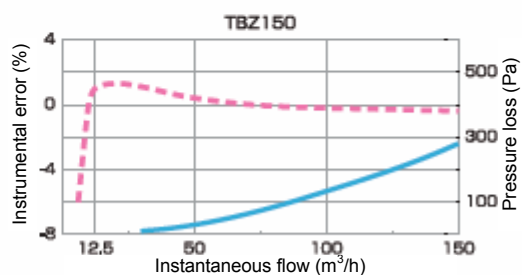
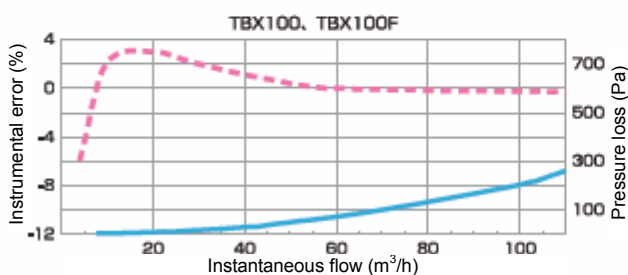
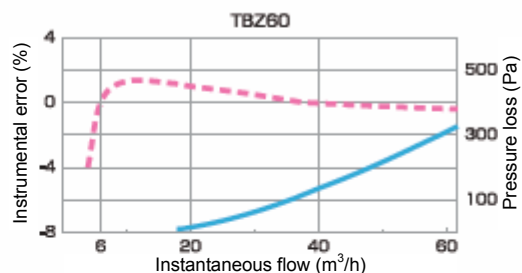
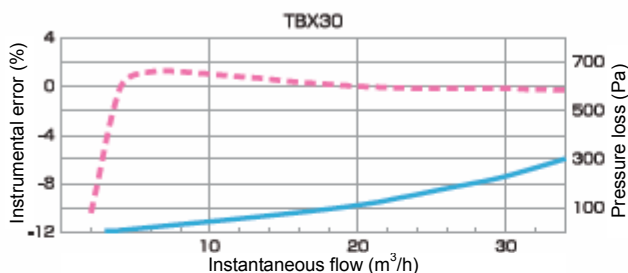
TBX
30 · 100 · 100F · 150F



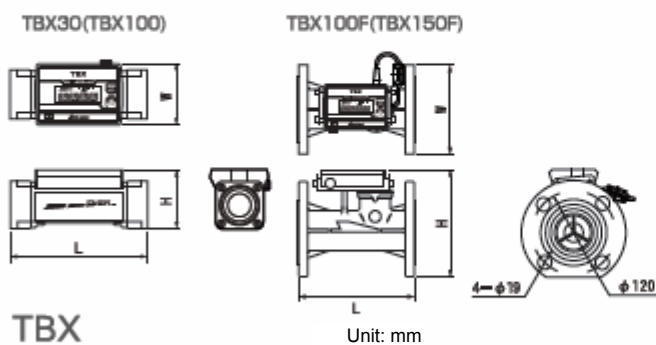
TBZ
60 · 150 · 300

TBX/TBZ general performance charts (low pressure air)

— Instrumental error — Pressure loss



Dimensional drawing

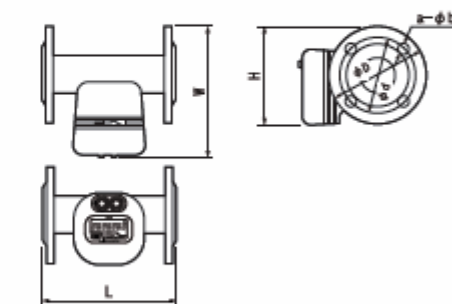


TBX

Type	External dimension	L	H	W
TBX30		170	74	73
TBX100		200	100	85
TBX100F		200	161	φ155
TBX150F		200	148	φ155

Unit: mm

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

Type	External dimension	L	H	W	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

Unit: mm

JIS 10K flange

● 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		±1%FS and ±3%RS		±1%FS and ±3%RS		±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		LCD, large type, 9 digits, displayable in units of 100 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, large type, 8 digits, displayable in units of 10 liters		LCD, large type, 8 digits, displayable in units of 100 liters		LCD, large type, 8 digits, displayable in units of 100 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, large type, 9 digits, displayable in units of 10 liters		LCD, large type, 9 digits, displayable in units of 100 liters		LCD, large type, 9 digits, displayable in units of 100 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 0.1m³/h		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, 4 digits, displayable in units of 0.1m³/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		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 1kPa		
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		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		JIS 10K 80A Flange		
Working temperature range		-10°C to +60°C				-10°C to +60°C		-10°C to +60°C		-10°C to +60°C		-10°C to +60°C		
Fluid (gas) *4		City gas, LPG, nitrogen etc.				City gas, LPG, nitrogen etc.		City gas, LPG, nitrogen etc.		City gas, LPG, nitrogen etc.		City gas, LPG, nitrogen etc.		
Posture as installed		Horizontal or vertical				Horizontal or vertical (indicator's posture changeable accordingly)		Horizontal or vertical (indicator's posture changeable accordingly)		Horizontal or vertical (indicator's posture changeable accordingly)		Horizontal or vertical (indicator's posture changeable accordingly)		
Installation place		Indoor				Outdoor or indoor *5		Outdoor or indoor *5		Outdoor or indoor *5		Outdoor or indoor *5		
Case		-				Drip-proof IPX2 or equivalent (JIS C0920)		Drip-proof IPX2 or equivalent (JIS C0920)		Drip-proof IPX2 or equivalent (JIS C0920)		Drip-proof IPX2 or equivalent (JIS C0920)		
Power	Internal battery	Lithium battery				Lithium battery		Lithium 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)		Open collector x 2 (compensation pulse, non-compensation pulse *7)		Open collector x 2 (compensation pulse, non-compensation 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		100L/P Max load: 24VDC/20mA, pulse width: 40msec		100L/P Max load: 24VDC/20mA, pulse width: 40msec		100L/P Max load: 24VDC/20mA, pulse width: 40msec		
Material		Aluminum alloy				Pipe: stainless steel, flange: steel, indicator: aluminum alloy		Pipe: stainless steel, flange: steel, indicator: aluminum alloy		Pipe: stainless steel, flange: steel, indicator: aluminum alloy		Pipe: stainless steel, flange: steel, indicator: aluminum alloy		
Temperature sensor		-				Platinum resistance temperature detector, grade JIS A		Platinum resistance temperature detector, grade JIS A		Platinum resistance temperature detector, grade JIS A		Platinum resistance temperature detector, grade JIS A		
Pressure sensor		-				Semiconductor pressure sensor (high precision)		Semiconductor pressure sensor (high precision)		Semiconductor pressure sensor (high precision)		Semiconductor pressure sensor (high precision)		
Mass		0.8kg	1.8kg	3.1kg	2.5kg	5.3kg	6.0kg	9.4kg	6.0kg	9.4kg	9.4kg	9.4kg	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		 TBXD-SS-B C cable, 5m	
	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)

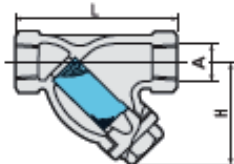
To protect the meter and keep it in good condition, install the strainer upstream of the meter.

* Note that the strainer is a source of pressure drop.

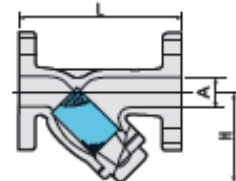
Standard specifications

Type	YKDS32	YKDS40	YKDS50	YF50	YDF40	YDF50	YDF80
Maximum working pressure (kPa)	500	500	500	500	980	980	980
Material	FCD450	FCD450	FCD450	FC200	FCD450-10	FCD450-10	FCD450-10
Nominal diameter	32	40	50	50	40	50	80
Connection	Rc1-1/4	Rc1-1/2	Rc2	JIS10K(FF)	JIS10K(RF)		
Mass (kg)	2	2.5	4	9	11	14.5	23
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	100
YS40	40	160	105
YS50	50	180	125



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.

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3.4

Technical specifications in this catalog are up-to-date as of april 2024.