

**Turbine meter, optimum for energy management**

**model 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

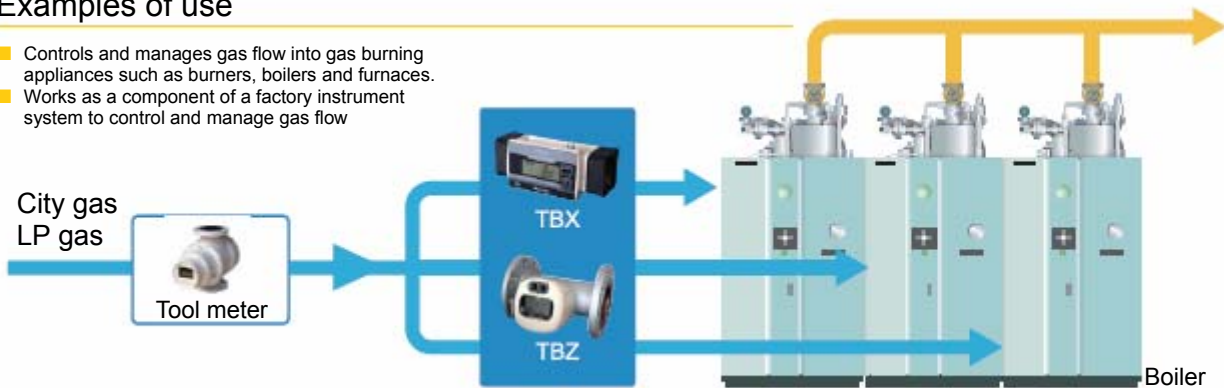


Temperature and pressure compensation

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 30m <sup>3</sup> /h
	100					100m <sup>3</sup> /h
	150					150m <sup>3</sup> /h
		No letter F				Screw: (Rc)TBX30/100 only Flange: TBX100/150 only
		No letter D				Battery 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 60m <sup>3</sup> /h
	150				150m <sup>3</sup> /h
	300				300m <sup>3</sup> /h
		0			
		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°C), 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)



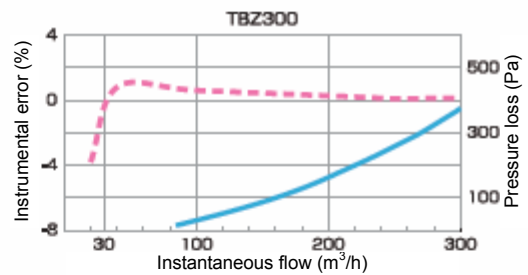
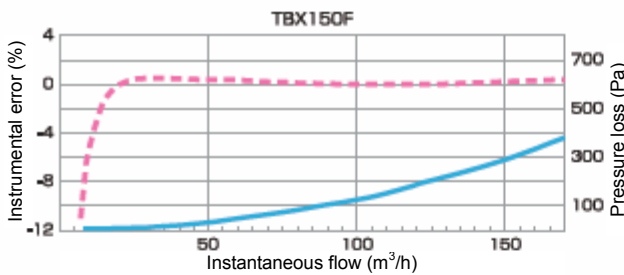
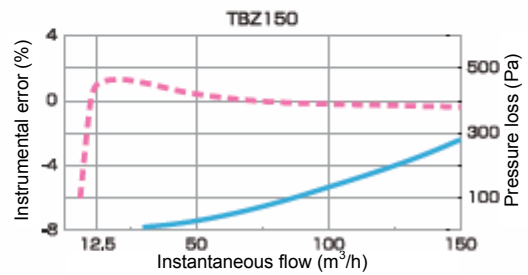
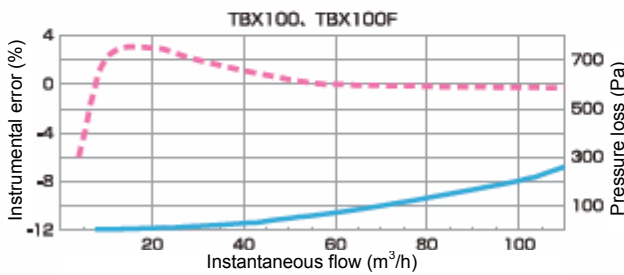
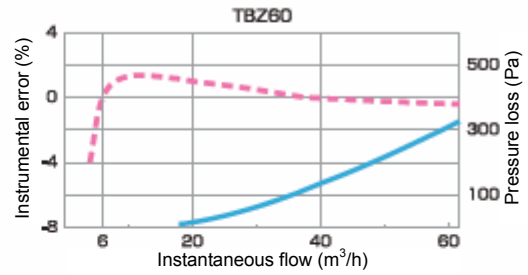
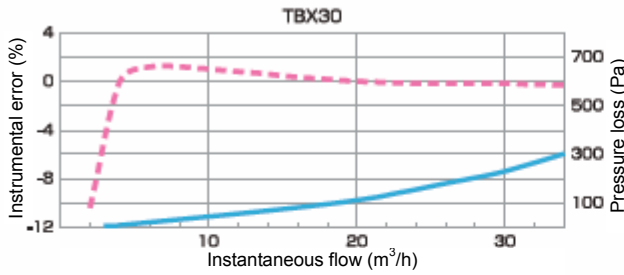
**TBX**  
30 · 100 · 100F · 150F



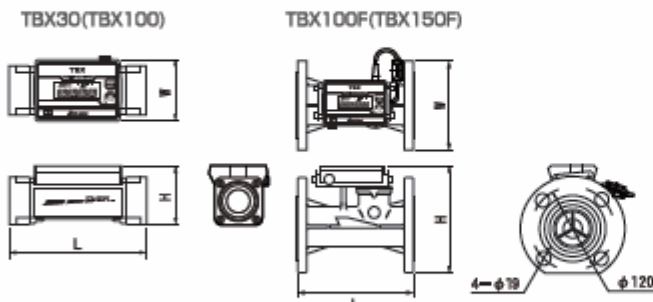
**TBZ**  
60 · 150 · 300

**TBX/TBZ general performance charts (low pressure air)**

— Instrumental error — Pressure loss



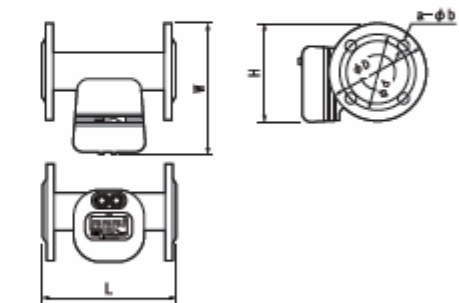
**Dimensional drawing**



**TBX** Unit: mm

Type	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	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	-	-
Accuracy	Flow capacity *1	4~30m <sup>3</sup> /h	10~100m <sup>3</sup> /h	10~100m <sup>3</sup> /h	12.5~150m <sup>3</sup> /h	12.5~150m <sup>3</sup> /h						30~300m <sup>3</sup> /h		
	Maximum working pressure			100kPa		980kPa	350kPa	980kPa	980kPa	350kPa	980kPa	980kPa	350kPa	980kPa
Indicator	Flow sensor			±1%FS		±1%FS and ±3%RS								
	Calculation and temperature & pressure compensation *2			-		±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, 8 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 0.1m <sup>3</sup> /h						LCD, 4 digits, displayable in units of 1m <sup>3</sup> /h		
	Non-compensated flow, instantaneous	LCD, 3 digits, displayable in units of 0.1m <sup>3</sup> /h	LCD, 4 digits, displayable in units of 0.1m <sup>3</sup> /h		LCD, 3 digits, displayable in units of 1m <sup>3</sup> /h	LCD, 4 digits, displayable in units of 0.1m <sup>3</sup> /h						LCD, 4 digits, displayable in units of 1m <sup>3</sup> /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													
Fluid (gas) *4	City gas, LPG, nitrogen etc.													
Posture as installed	Horizontal or vertical													
Installation place	Indoor													
Case	-													
Power	Internal battery	Lithium battery												
	External power	12-24VDC±10% (max. 0.19W, 7mA*6)												
Output	Open drain x 2 (unit pulse, high density pulse *7)													
Standard pulse unit width *8	TBX30-TBX100: 10L/P, TBX150: 100L/P													
	Max load: 24VDC/20mA, pulse width: 40msec													
Material	Aluminum alloy		Cast iron	Aluminum alloy	Pipe: stainless steel, flange: steel, indicator: aluminum alloy							Platinum resistance temperature detector, grade JIS A		
Temperature sensor	-													
Pressure sensor	-													
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		
Option			

\* 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

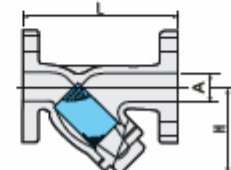
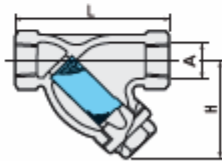
Type	YS32	YS40	YS50	YF50	YDF40	YDF50	YDF80
Maximum working pressure (kPa)	500	500	500	500	980	980	980
Material	FC200	FC200	FC200	FC200	FCD-S	FCD-S	FCD-S
Nominal diameter	32	40	50	50	40	50	80
Connection	Rc1-1/4	Rc1-1/2	Rc2	JIS10K(FF)	JIS10K(RF)		
Mass (kg)	2.3	2.9	4.5	8.2	8.5	11	15
Available for	TBX30(32A)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

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