Gas Meter & Water Meter

Product Catalogue

Measure the era with advanced technology

TOYOKEIKI

Gas Meter

Our gas meter features

All TOYOKEIKI´s gas meters adopt aluminum die-cast frames and cases that withstand hard environment and are mechanically solid and durable.Our product lineup is below.

Type		
Diaphragm gas meter (no safety function)	 N series	 STK2.5
Diaphragm gas meter	 NB and NS series	 STK25MT1cP
Ultrasonic gas meter	 ETK series	 EBTK series
Prepaid Gas meter	 STK25MI	

Diaphragm gas meter

STK25MT1cP

STK25MT1cP is a compact diaphragm gas meter equipped with a pressure sensor, shock sensor, shut-off valve, and communication lines, using “Micro Controller”.
This type is widely used for LPG user in Japan.

Gas Meter Specifications

Model	STK25MT1cP
Maximum flow rate (m3/h)	2.5
Cyclic volume（L）	0.7
Maximum operating pressure (kPa)	3.3
Absolute maximum pressure（kPa）	10
Maximum index（m³）	9,999.999
Minimum index（L）	0.02

Model		STK25MT1cP	
Dimensions (mm)	Height	251	
	Width	141	166
	Depth	140	
Span between inlet and outlet (mm)		90	130
Connection pipe		15A / 20A	
Operating temperature（°C）		-30 ～ 60	
Gas flow direction		Left to right	
Weight（kg）		2.8	

What “Micro Controller” Gas Meter Can Do？

The Micon Gas Meter shuts off the gas automatically as gas safety apparatus.

In case of an earthquake

If a sensor detects a seismic intensity of 5 while using gas, a meter shuts off the gas flow.

In case of too much gas flows

If an abnormally large amount of gas flows due to incorrect opening of the gas plug or disconnection of the rubber hose, a meter shuts off the gas flow.

In case of a long-time use

If a certain amount of gas is used continuously for a long time due to forgetting to turn off the gas appliance, a meter shuts off the gas flow.

Warning screen even for a slight gas leak

If gas continues to flow for 30 days or more, such as a small amount of gas leak, a warning screen will be displayed.

Prepaid Gas meter
STK25MI

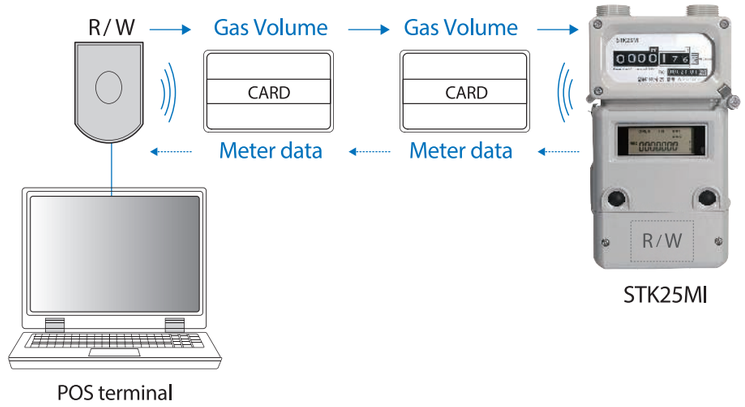
The STK25MI is the diaphragm type pre-paid gas meter based on the STK25MT which is the well matured smart gas meter and long seller for more than a quarter century in Japan.
The STK25MI works as a normal diaphragm gas meter with several safety functions for post-pay use.
The highlight of the STK25MI is the pre-pay function with the embedded NFC card reader/writer.
In combination with POS terminals, the Pre-Pay gas system is easily installed.

Gas Meter Specifications

Model		STK25MI
Maximum flow rate (m^3/h)		2.5
Absolute maximum pressure(kPa)		10
Maximum index (m^3)		9,999.999
Minimum index(L)		0.02
Cyclic volume(L)		0.7
Maximum pressure drop at maximum flow rate (Pa)		200
Error rate	Accuracy class	1.5
	0.016 ~ 0.25 m^3/h (%)	+/−3
	0.25 ~ 2.5 m^3/h (%)	+/−1.5
Meter body		Diecast aluminum
Dimensions (mm)	Height	251
	Width	141
	Depth	140
Span between inlet and outlet (mm)		90
Connection pipe		15A / 20A

Model		STK25MI
Sensors	Accuracy class	Detect level 5 or stronger
	0.016 ~ 0.25 m^3/h (%)	Optional
	0.25 ~ 2.5 m^3/h (%)	By flow measurement
Operating temperature (°C)		0 ~ 60
Storage temperature (°C)		−20 ~ 70
Gas flow direction		Left to right
Data logging		60 x 240 points
Communication module		NFC card Reader/Write module 3G/4G module (Optional) U-bus module (Optional)
LCD		7 digits and 12 indicators
LED		1 red LED for Alarm
Ingres Protection		IP66 (JIS C 0920)
Battery		Lithium Metal Battery
Estimated battery life		Longer than 10 years (depend on the conditions)

System configuration diagram



No need to read the meter every month.
No need to deliver the gas cylinder in the middle of night.
No need to issue the monthly bill.
No need to worry about miss-collection of bills.

Prepaid gas meter system introduction example (Bangladesh)

Natural Gas Efficiency Project is ongoing mega project from 2017. Pre-Paid Gas Meters are installed in Dhaka and Chittagong over 260,000 units. Because of its convenience, more and more gas users are requesting to install the meter to their house.


Meter installation site


Card charge center

Card charge center


Charge to meter

Diaphragm gas meter (no safety function)

N series

N4

N6

N series is a basic diaphragm gas meter for domestic use and commercial use.

STK2.5

STK2.5

STK2.5 is a compact diaphragm gas meter good for domestic use.

Diaphragm gas meter

NB series

NB6

NB series is widely used for city gas in Japan and measurement block is the same as N series'. It has a pressure sensor, shock sensor and shut-off valve, which are controlled by embedded microcontroller, and has the option of pulse output.

NS series

NS10

Communication port is added to NB series. The communication protocol is the Japanese unique method, called "A line".

Gas Meter Specifications

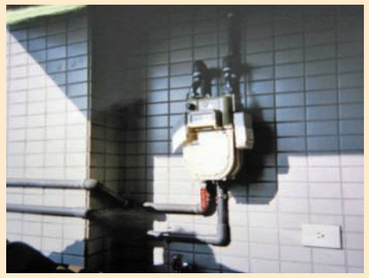
Model	STK2.5	N4	N6
Max flow rate (m³/h)	2.5	4.0	6.0
Starting flow rate (L/h)	1.0	1.0	1.0
Max pressure (kPa)	10	10	10
Height (mm)	230	232	262
Width (mm)	167	174	195
Depth (mm)	135	138	156
Weight (kg)	1.95	2.6	3.6

Gas Meter Specifications

Model	NB/S1.6	NB/S2.5	NB/S4	NB/S6	NB/S10	NB/S16
Max flow rate (m³/h)	1.6	2.5	4.0	6.0	10.0	16.0
Starting flow rate (L/h)	1.0	1.0	1.0	1.0	1.0	1.0
Max pressure (kPa)	10	10	10	10	10	10
Height (mm)	258	280	324	324	422	422
Width (mm)	174	174	195	195	300	300
Depth (mm)	137	138	156	156	213	213
Weight (kg)	3.0	3.3	4.4	4.4	10.9	10.9

Wireless Meter Reading System(Taiwan)

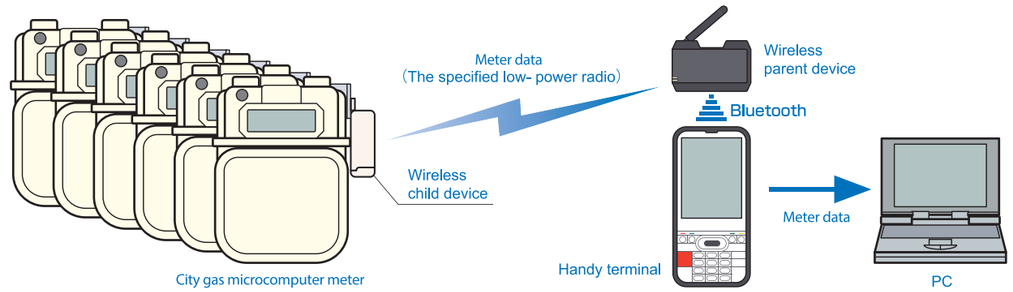
Possible to place the meter at balcony.



NS series meter.

This is a high-rise apartment building in Taiwan. We have installed a TOYOKEIKI made city gas meter and radio to all households, so that we can realize wireless meter reading. We are certified in Taiwan.

System configuration diagram of Wireless Meter Reading System for City Gas



Ultrasonic gas meter
ETK series

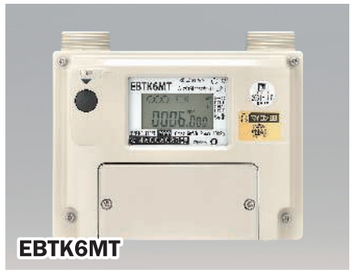
ETK25MT

ETK series product adopts leading edge technology “Ultra Sonic Measurement technology” .
They measure the flow velocity making use of the time gap between ultrasonic wave transmission and calculate the volume of gas flow based on the flow velocity. This series has no moving mechanical portion for measurement and has high reliability for longer time.
This series is very compact and light weight. ETK series has a pressure sensor, a shock sensor, a shut-off valve and communication lines and all of them are controlled by an embedded microcontroller powered by embedded long life lithium primary batteries.

Gas Meter Specifications

Model		ETK25MTaPR	ETK4MTaPR
Maximum flow rate (m³/h)		2.5	4.0
Maximum operating pressure (kPa)		3.3	
Absolute maximum pressure (kPa)		10	
Maximum index (m³)		9,999.999	
Minimum index (L)		0.2	
Dimensions(mm)	Height	146	
	Width	174	
	Depth	100	
Span between inlet and outlet (mm)		90 / 130	
Connection pipe		15A / 20A	
Operating temperature (˚C)		-30 ~ 60	
Gas flow direction		Left to right	
Weight (kg)		1.6	

Ultrasonic gas meter
EBTK series


EBTK6MT


EBTK10MT


EBTK16MT

EBTK series are large-sized ultrasonic gas meters (mainly used for commercial use).
They are lighter and smaller than Past Diagram Meter and have more functions.
The flow rate integration display counter shows 4 digits(m^3) and 3 digits(L) for EBTK&MT, and shows 5 digits (m^3) and 2 digits (L) for EBTK10MT and EBTK16MT.

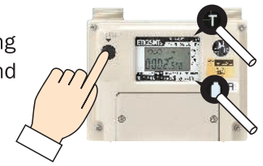
Gas Meter Specifications

Model		EBTK6MT	EBTK10MT	EBTK16MT
Maximum flow rate (m³/h)		6.0	10.0	16.0
Maximum operating pressure (kPa)		3.3		
Absolute maximum pressure (kPa)		10		
Maximum index (m³)		9,999.999	99,999.99	99,999.99
Minimum index (L)		0.2	2.0	2.0
Dimensions (mm)	Height	146	210	210
	Width	174	299	299
	Depth	100	148	148
Span between inlet and outlet (mm)		130	220	220
Connection pipe		20A	32A	40A
Operating temperature (˚C)		-30~60		
Gas flow direction		Left to right		
Weight (kg)		1.6	4.0	4.0

ETK series & EBTK series Features

Easy to check and operate.

Setting status and terminal status of a meter will always be displayed. You can configure various meter settings by operating a resume button and a magnet.

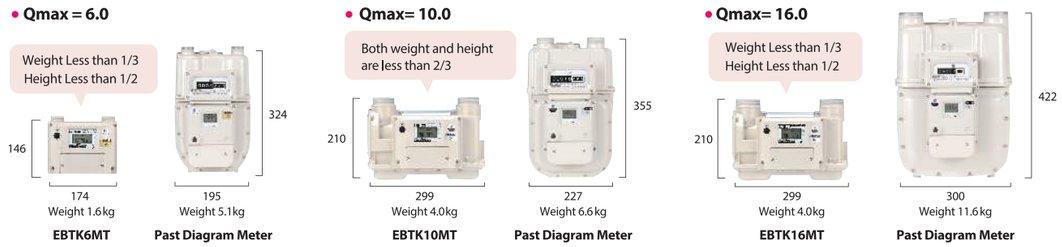


Possible to know the reason for blocking and warning in detail.

In addition to the reason for blocking /warning, you can also check for abnormalities before the display shows warning signals. This is helpful when you analyze the time of shutoff.

Compact and lightweight ! They can be installed even in narrow spaces.

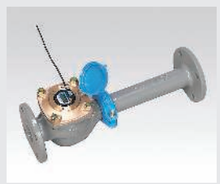
Size comparison with EB series and diagram meters in the past



Water Meter

Our water meter features

TOYOKEIKI's water meters have 3 major categories, the smallest single jet domestic meters, the multi jet domestic & commercial meters and the waltman large meters. Some meters have pulse output functions.

Type	None output	Pulse output
Single jet	 TD 13 DN:15	 EA 13 DN:15
Multi jet	 TD 20/25/30/40 DN:20,25,30,40	 EA 20/25 DN:20,25
Waltman		 JEA30/40 DN:30,40
Waltman (with vertical turbine shaft)	 TFWD series DN:50,75,100  BFWD series DN:50,75,100	 TFEA series DN:50,75,100  BFEA series DN:50,75,100

Single jet

TD13 / EA13

TD13 is a single jet compact water meter. The dry registers support its good accuracy and the long term reliability. All meters of TD series are made of the lead free copper alloy and suitable for domestic and commercial drinking water supply. TD13 is so short as 100mm while TD13L is 165mm long. EA13 has a microcontroller in the register box to output pulses and multi information.

TD13L
None output

EA13
Pulse output

Water Meter Specifications

Model	TD13	TD13L	EA13	EAL13
Q3 Nominal Flow Rate (m^3/h)	2.5	2.5	2.5	2.5
R (Q3/Q1)	100	100	100	100
Q1 Minimum Flow Rate (m^3/h)	0.025	0.025	0.025	0.025
Q2 Transitional Flow Rate (m^3/h)	0.04	0.04	0.04	0.04
Q4 Overload Flow Rate (m^3/h)	3.125	3.125	3.125	3.125
Maximum Pressure Loss at Q3 (MPa)	0.063	0.063	0.063	0.063
Maximum Admissible Pressure (MPa)	1	1	1	1
Pulse Value (L/pulse)	NA	NA	10 (or the optional value)	10 (or the optional value)

Multi jet
TD 20/25/30/40

TD series uses multi jet technology. Their dry registers support its good accuracy and the long-term reliability. All of them are made of lead-free copper alloy and suitable for domestic and commercial drinking water supply.

TD20
None output

Water Meter Specifications

Model	TD20	TD25	TD30	TD40
Q3 Nominal Flow Rate (m³/h)	4.0	6.3	10	10
R (Q3/Q1)	100	100	100	100
Q1 Minimum Flow Rate (m³/h)	0.04	0.063	0.1	0.1
Q2 Transitional Flow Rate (m³/h)	0.064	0.1008	0.16	0.16
Q4 Overload Flow Rate (m³/h)	5.0	7.875	12.5	12.5
Maximum Pressure Loss at Q3 (MPa)	0.063			
Maximum Admissible Pressure (MPa)	1			

Multi jet　Waltman
EA 20/25　JEA 30/40

EA series and JEA series use multi jet technology. Their dry registers support its good accuracy and the long-term reliability. All of them are made of lead-free copper alloy and suitable for domestic and commercial drinking water supply. They also have a microcontroller in the register box to output pulses and multi-information.

EA20
Pulse output

JEA40
Pulse output

Water Meter Specifications

Model	EA20	EA25	JEA30	JEA40
Q3 Nominal Flow Rate (m³/h)	4.0	6.3	10	16
R (Q3/Q1)	100	100	100	100
Q1 Minimum Flow Rate (m³/h)	0.04	0.063	0.1	0.16
Q2 Transitional Flow Rate (m³/h)	0.064	0.1008	0.16	0.256
Q4 Overload Flow Rate (m³/h)	5.0	7.875	12.5	20
Maximum Pressure Loss at Q3 (MPa)	0.063			
Maximum Admissible Pressure (MPa)	1			
Pulse Value (L/pulse)	10 (or the optional value)			100 (or the optional value)

Advanced Use of Water Meter
Telemetering System (AMR)

The meter(s) is connected by cable to the counting devices.
The metermen do not need to get in to high security residences (areas).
This system provides you not only easy meter reading but also detecting leaking or other unusual matter.

Electronic Meter

Cable Connection

Electronic Counter

Centralized Reading System

Electronic Counter
Warning Signals

On the electronic counter, you can check the meter value and warning information such as water leakage.

Warnings	Signals
Reverse flow warning	The small arrow blinks (inside the large arrow)
Leakage warning (during leaking)	The teardrop signal blinks
Leakage warning (leakage occurred in the past)	The teardrop signal appears
Large flow rate warning Excessive flow warning	The signal on the left blinks
Meter battery voltage drop warning	The battery signal blinks

Waltman (with vertical turbine shaft)

TFWD series

TFWD series is the vertical waltmann water meter with a dry register. It is used for wide range flow rate. The body is made of ductile iron.

TFWD50
None output

Waltman (with vertical turbine shaft)

TFEA series

TFEA series is the vertical waltmann water meter with a dry register. It is used for wide range flow rate. The body is made of ductile iron. It has a microcontroller in the register box to output pulses and multi information.

TFEA50
Pulse output

Water Meter Specifications

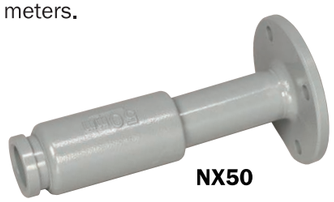
Model	TFWD50	TFWD75	TFWD100
Q3 Nominal Flow Rate (m³/h)	40	63	100
R (Q3/Q1)	100	100	100
Q1 Minimum Flow Rate (m³/h)	0.4	0.63	1.0
Q2 Transitional Flow Rate (m³/h)	0.64	1.008	1.6
Q4 Overload Flow Rate (m³/h)	50	78.75	125
Maximum Pressure Loss at Q3 (MPa)	0.063		
Maximum Admissible Pressure (MPa)	1		

Water Meter Specifications

Model	TFEA50	TFEA75	TFEA100
Q3 Nominal Flow Rate (m³/h)	40	63	100
R (Q3/Q1)	100	100	100
Q1 Minimum Flow Rate (m³/h)	0.4	0.63	1.0
Q2 Transitional Flow Rate (m³/h)	0.64	1.008	1.6
Q4 Overload Flow Rate (m³/h)	50	78.75	125
Maximum Pressure Loss at Q3 (MPa)	0.063		
Maximum Admissible Pressure (MPa)	1		
Pulse Value (L/pulse)	100 (1000, or the other optional value)		1000 (100, or the other optional value)

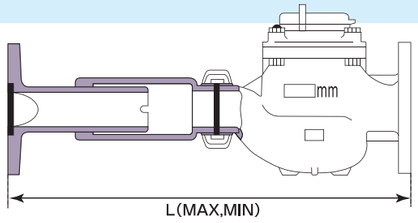
Telescopic tube "NX series" "TX series" "NXS series"

They are telescopic inlet pipes for large-sized water meters. The extension and contraction width can be secured at 100 mm or more, so they make it easy to replace large water meters.



NX50

Note:TX series will be bolted. Some telescopic pipes support meters with outlet pipes of 50mm - 100mm. The extension and contraction dimensions of TX and outlet pipes are different from NX's dimensions.



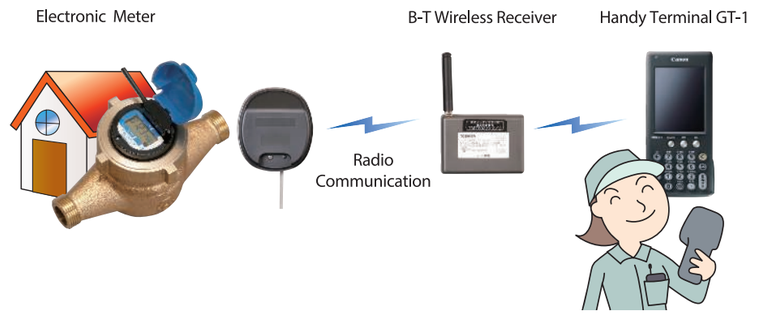
Unit : mm

Model	Standard installation dimension	Extension and contraction dimension		
	L	L(MAX)	L(MIN)	Width
NX50	560	605	475	130
NX75	630	675	540	135
NX100	750	775	620	155
NX150	1,000	1,070	865	205
TX200	1,160	1,230	1,110	130

Advanced Use of Water Meter

Wireless Meter Reading System

This is the system that meterman can connect to the meter through radio communication.
This system helps meterman when they need to read meters at difficult places.



Waltman (with vertical turbine shaft)

BFWD series

BFWD series is the vertical-waltmann-type large water meter with a dry register. It can be used for wide range flow rate. The body is made of ductile iron. Its flange type might be customized by requests.

BFWD50
None output

Water Meter Specifications

Model	BFWD50	BFWD75	BFWD100
Q3 Nominal Flow Rate (m³/h)	40	63	100
R (Q3/Q1)	100	100	100
Q1 Minimum Flow Rate (m³/h)	0.4	0.63	1.0
Q2 Transitional Flow Rate (m³/h)	0.64	1.008	1.6
Q4 Overload Flow Rate (m³/h)	50	78.75	125
Maximum Pressure Loss at Q3 (MPa)	0.063		
Maximum Admissible Pressure (MPa)	1		

Waltman (with vertical turbine shaft)

BFEA series

BFEA series is the vertical-waltmann-type large water meter with a dry register. It can be used for wide range flow rate. The body is made of the ductile iron. Its flange type might be customized by requests. It has the embedded microcontroller to output the pulse and multi information.

BFEA series
Pulse output

Water Meter Specifications

Model	BFEA50	BFEA75	BFEA100
Q3 Nominal Flow Rate (m³/h)	40	63	100
R (Q3/Q1)	100	100	100
Q1 Minimum Flow Rate (m³/h)	0.4	0.63	1.0
Q2 Transitional Flow Rate (m³/h)	0.64	1.008	1.6
Q4 Overload Flow Rate (m³/h)	50	78.75	125
Maximum Pressure Loss at Q3 (MPa)	0.063		
Maximum Admissible Pressure (MPa)	1		
Pulse Value (L/pulse)	100 (1000, or the other optional value)		1000 (100, or the other optional value)

ISO 9001

ISO 9001 is the certification for internationally recognized quality management system that improves the ability to manufacture and deliver high quality products.In February 1994, our water meters, LP gas meters, and city gas meters with AMR (automatic meter reading) were designated as ISO 9001.In September 2012, our installation of solar panels and their ancillary service were also designated as ISO 9001.

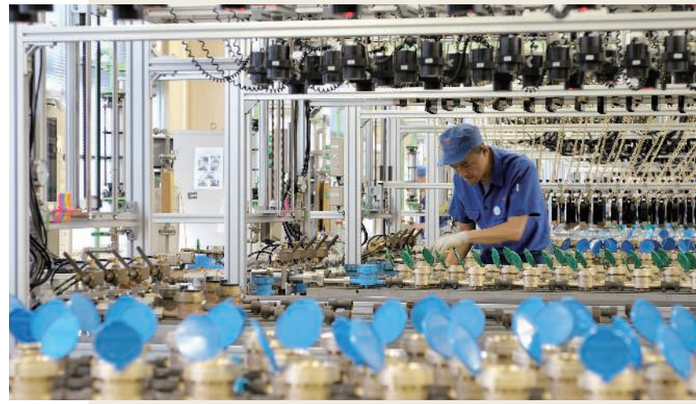
Automatic leak test system

Performance test

ISO 14001

ISO 14001 is the certification for internationally recognized environmental management system that aims to protect environment. In November 2000, we have acquired the ISO 14001 at Matsumoto factory. The designation also includes water meters, LP gas meters, city gas meters with AMR.

Piston prober for verification test



About TOYOKEIKI

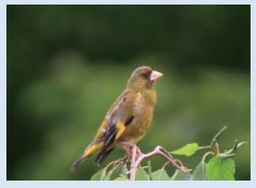
We contribute to the advance of society though measurements.

TOYOKEIKI is a water meter and gas meter manufacturer, which has a significant share of them. Our company was founded in 1949 and has a long history of winning business competitions, and at a result, we have been gaining a large market share. We are now one of the most popular companies in the meter market as well as in Nagano prefecture.
In addition, we are entering new fields of business, such as the distribution of PV (Photo Voltaic system) and Home Energy Management System (HEMS). At first, it looked like entering the new market was going to difficult, but it resulted in a positive outcome to help us expand our business.
Mainly our business activities are done in Japan, but we are interested in making them more global. Furthermore, we would like to have more manufacture bases in other than Japan, so that we already formed a business tie-up with a Vietnamese company.

Be an Environment-Friendly Company

We are seeking to be a “Green Company”. These days, there are many crises out there caused by environmental degradation, so we have to take good care of environment not only in our country, but also in the world. Although it costs money to protect the environment, in order to stop global warning, take measures against global water shortage, combat deforestation and desertification, and face other problems threatening humankind, we consider it crucial to go to the expense of environmental measures. That is why we have acquired ISO 14001 certification in 2000 in order to promote environmental protection.

Cherry blossoms in our head office



Resting bird in “Grouse Forest”

Toyo Measurement Equipment History Museum

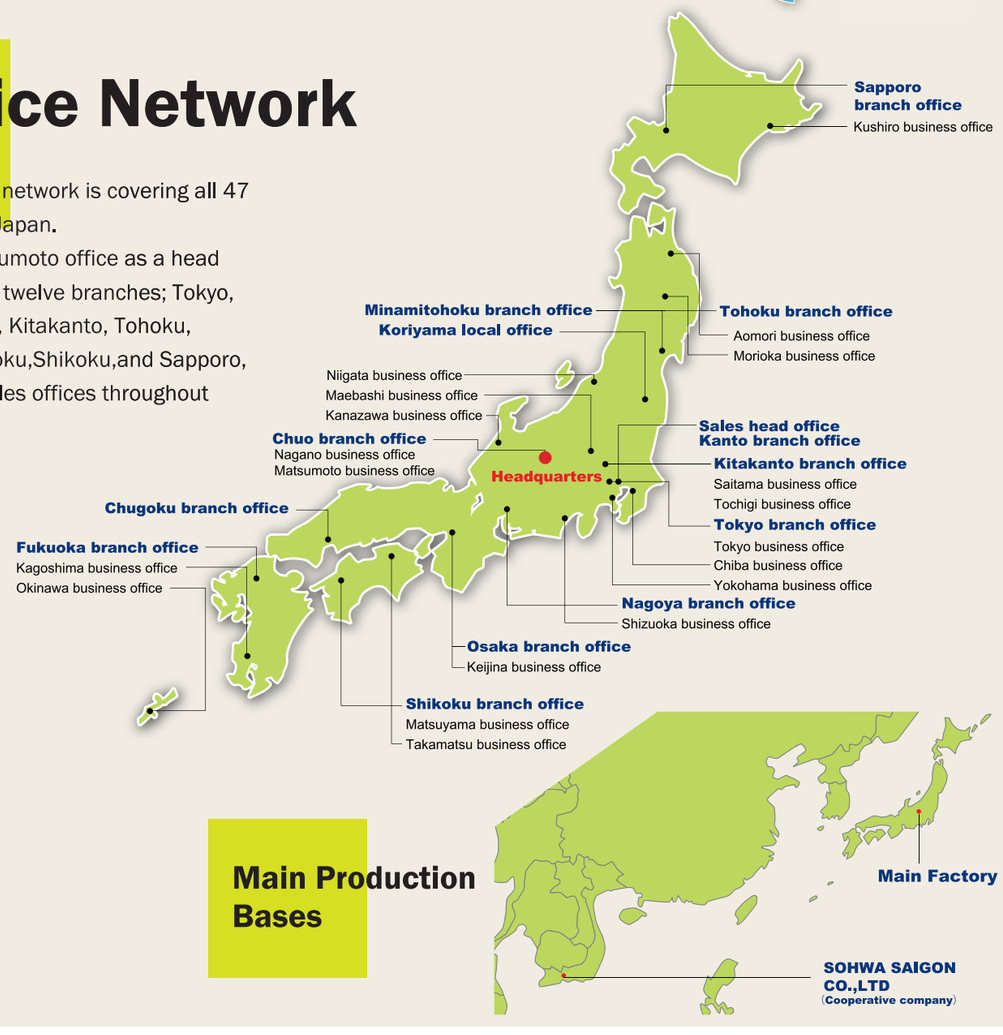
Japanese Tea room"SHOSEIAN"

Active Meters

As well as we are doing sales activities in Japan, we have been developing sales channels around the world so now we export high-quality products in Asia and South America.

Service Network

Our supporting network is covering all 47 prefectures of Japan.
To be the Matsumoto office as a head office, we have twelve branches; Tokyo, Osaka, Nagoya, Kitakanto, Tohoku, Fukuoka,Chugoku,Shikoku,and Sapporo, and over 30 sales offices throughout Japan in total.



Prepaid gas meter system (Bangladesh)

TOYOKEIKI

https://www.toyo-keiki.co.jp/english/

3967-10 Wada, Matsumoto City, Nagano Prefecture 390-1298
Phone : +81-263-48-1121　　FAX : +81-263-48-1130
E-mail address : international@toyo-keiki.co.jp

202106_50（Ver.1.0）