

Measurement products by industry

SELECTION GUIDE

NAGANO KEIKI's measurement products are used in various industrial fields as a core technology brand.

New energy

Industrial instruments and process

Semiconductor manufacturing processes and Air conditioning system

FA and industrial machinery

Food, pharmaceuticals and cosmetics

Various mobile vehicle

Core Technologies Supporting Nagano Keiki

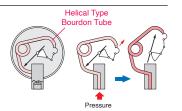
Mechanical Core Technologies

Medium to high pressure

Helical Type Bourdon Tube



The helical type bourdon tube is equipped on a pressure gauge for high pressure measurements not supported on the C-type bourdon tube.

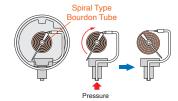


Low to medium pressure

Spiral Type Bourdon Tube



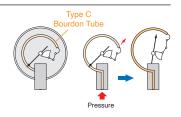
The spiral type bourdon tube is not require the internal mechanism used in general pressure gauges. For that reason, the measurable pressure range is limited, but the durability is superior.



Low to medium pressure

Type C Bourdon Tube

The bourdon tube is the most important component of the mechanical pressure gauge. The Type C bourdon tube is the most commonly used shape, with a wide measurable pressure range and excellent accuracy and durability.

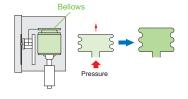


Low pressure

Bellows



The bellows is a thin cylinder element with deep bellows-like folds on the outer circumference. This method uses the displacement caused by applying pressure inside the bellows. It is also possible to measure differential pressure by applying pressure to the inside and outside of the bellows.

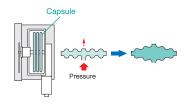


Minute pressure

Capsule



The capsule is made of two corrugated circular metal plates joined together, and the method involves applying pressure to the inside and utilizing the resulting displacement.

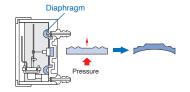


Fine differential pressure

Diaphragm



The diaphragm is an element made of a relatively flexible plate material with a fixed periphery. When pressure is applied, the center part bends, and this displacement is utilized.



Minute pressure

Ultrahigh pressure

Minute pressure	10Pa	100Pa	1kPa	10kPa	100kPa	1MPa	10MPa	100MPa	Ultrahigh pressure
Helical ty	/ре				• • • • • • • • • • • • • • • • • • • •		5MP	a to 700MPa	
Spiral ty	Spiral type				100kPa to 50MPa				
Type C	Type C				30kPa to 100MPa				
Bellows				4kF	a to 1MPa				
Capsule	Capsule			21	kPa to 25kPa				
Diaphrag	Diaphragm 50Pa to 100kPa			кРа					

Electronic Core Technologies (Sensor Element)

Medium to high pressure SS Sensor Semiconductor Strain Gauge Sensor



In this semiconductor strain gauge sensor, a strain gauge is deposited by plasma CVD on a metallic diaphragm and on insulator film. This pressure sensor detects strain caused by the distortion of the diaphragm due to the pressure applied on this diaphragm from liquid, by means of measuring the change in resistance.



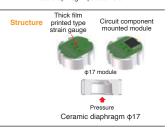
Medium to high pressure MS Sensor Metal Thin Film Strain Gauge Sensor The MS sensor uses a sputter-deposited metal thin film strain gauge as the strain gauge, and compared to the SS sensor, it is a medium-to-high pressure sensor that has both high stability and high electrical stress resistance and can function in higher temperature environments and environments with more noise.



Medium pressure CS Sensor
Ceramic Thick Film
Strain Gauge Sensor

The CS sensor is a ceramic sensor in which a strain gauge and bridge circuit are formed on a ceramic diaphragm by thick film printing.

Because the diaphragm itself is ceramic, it has excellent insulation and corrosion resistance and is a sensor module on which circuit components such as ASIC can also be mounted.



Low to medium pressure Liquid-Filled
SUS316L
Sensor
Stainless Steel Seal

Diaphragm Sensor

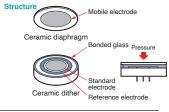


This is a diaphragm-type pressure sensor that has been oil-sealed between the sensor and the SUS316L diaphragm using the MEMS sensor die. This sensor is used for the low and absolute pressures, which detects a change in resistance of the strain gauge by transmitting the pressure received by the SUS316L diaphragm to the sensor die through the filled liquid.



Low pressure CC Sensor
Ceramic Capacitance
Sensor

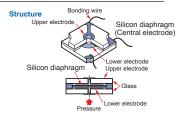
The CC sensor is a highly repeatable low pressure sensor which detects pressure by sensing capacity change between the electrode installed on the ceramic diaphragm and another stationary electrode at the other end.



Fine differential pressure SC Sensor Silicon Capacitance Sensor



The SC sensor is a differential fine pressure sensor to detect pressure by change in capacitance between the diaphragm and the electrode. The silicon diaphragm is processed with micron-order accuracy on the cutting-edge micro-machining technology.

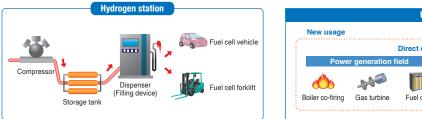


Minute ressure	10Pa	100Pa	1kPa	10kPa	100kPa	1MPa	10MPa	100MPa	Ultrahigh pressure
SS sensor	r	• • • • • • • • • • • • • • • • • • • •			••••		0.3MPa to	200MPa	
MS senso	r						0.3MPa to	180MPa	
CS senso	r						2MPa	to 10MPa	
Liquid-Fille	ed sensor				10kPa to 3.5N	ИРа			
CC senso	CC sensor				20kPa to 1MP				
SC senso	r	1	0Pa to 100kP	а					

New energy



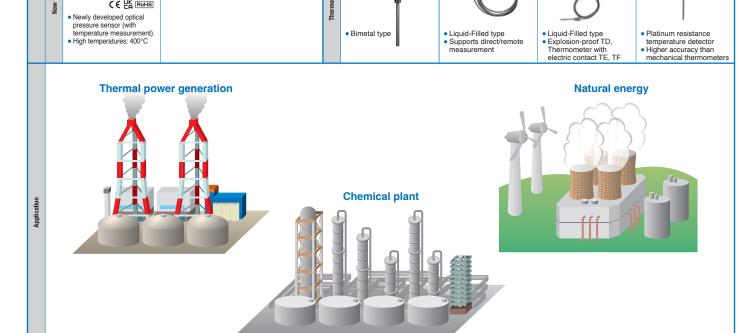




High pressure

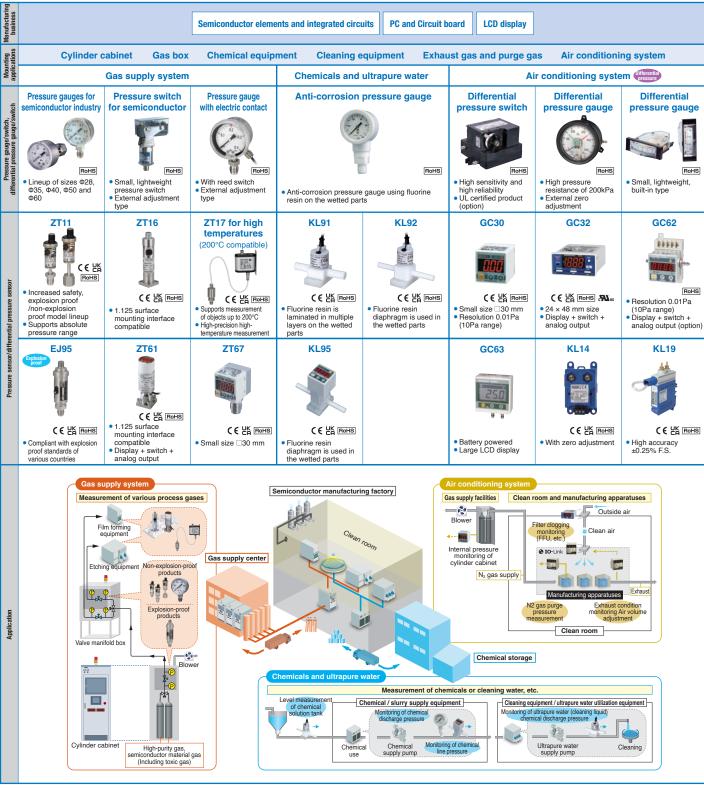
applications

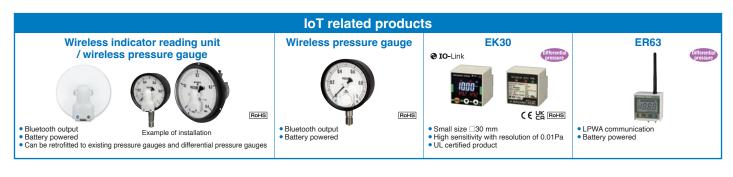


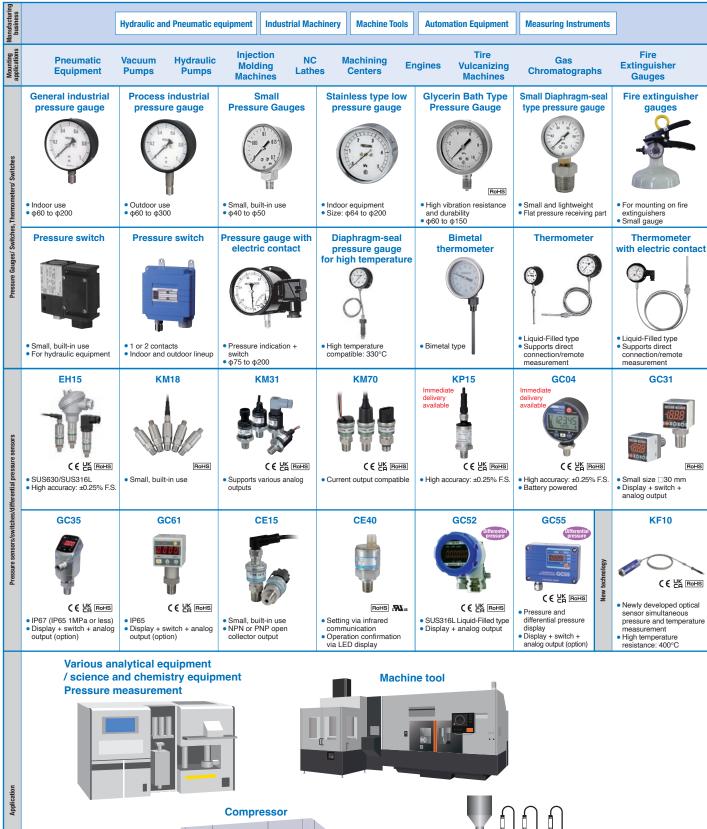


C € KK RoHS

Semiconductor manufacturing process and air conditioning system



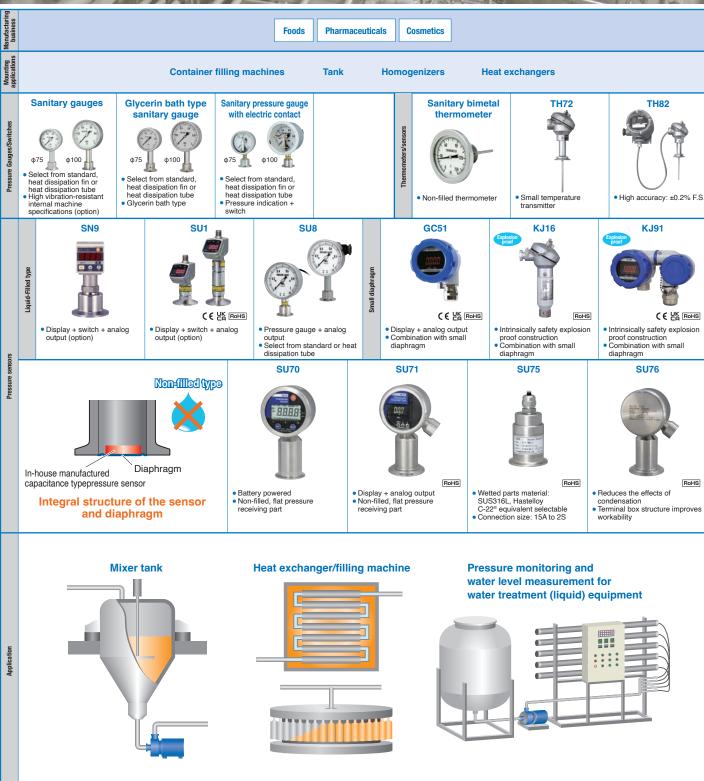




Extrusion machine

Cooling machine

Foods, Pharmaceuticals, Cosmetics









*Note: User-customized product (photo is for illustrative purposes only)



For vehicle control

For brake control

Nagano Keiki Group is

a JCSS-certified company that complies with the international MRA for pressure.

Safe and secure pressure measurement!

Are you measuring the pressure accurately?

Nagano Keiki Group is a JCSS-certified company that complies with the Measurement Law and international MRA based on ISO/IEC 17025, and provides pressure standards, which are the fundamental technologies for metrology and measurement, to customers in a wide range of industries.

Gas differential pressure of 5Pa to 200kPa has been added to the JCSS calibration business, and we will continue to provide reliable differential pressure measurements in the areas of the "environment, safety, security, and energy conservation".

Global standard for pressure measurement



What is an international MRA-certified company?

JCSS calibration company that are further certified as international MRA-compliant accredited company can issue calibration certificates bearing the internationally recognized ILAC MRA-compliant JCSS accreditation symbol (\longrightarrow $J_{\text{css}}^{\text{CSS}}$).

Since IAJapan is a mutually recognized organization between the International Laboratory Accreditation Cooperation (ILAC) and the Asia Pacific Accreditation Cooperation (APAC), the certificates with the ILAC MRA-compliant JCSS accreditation symbol are mutually accepted in the United States (NVLAP, 2LA), the United Kingdom (UKAS), Germany (DKD), Australia (NATA) and other countries.



JCSS calibration by Nagano Keiki Group

Not only can it measure traceable pressure values in accordance with national metrology standards, it can also prove metrological traceability.

[What is JCSS?]

This system was established in accordance with Chapter 8 of the Measurement Law to ensure measurement traceability.

The certification body, National Institute of Technology and Evaluation IAJapan examines and certifies whether the technical capabilities and traceability of businesses that calibrate measuring instruments meet the international standard ISO/IEC17025 (JIS Q 17025).

Calibration range

Equipment type	Calibration range							
		Nagano Keiki	Futaba Sokki	NAGANO KEISO				
Weight type pressure balance	Gas absolute pressure	10kPa to 350kPa	5kPa to 350kPa	_				
	Gas gauge pressure	0.01MPa to 7MPa	-90kPa to7000kPa	2kPa to 2MPa				
	Liquid gauge pressure	0.2MPa to 500MPa	1MPa to 500MPa	0.2MPa to 200MPa				
Digital pressure gauge	Gas absolute pressure	5kPa to 350kPa	5kPa to7000kPa	2kPa to 2MPa				
	Gas gauge pressure	-80kPa to 7MPa	-90kPa to7000kPa	-90kPa to 2MPa				
	Gas differential pressure	5Pa to 200kPa	_	10Pa to 1.0MPa				
	Liquid gauge pressure	1MPa to 500MPa	1MPa to 500MPa	0.2MPa to 200MPa				
Mechanical	Gas absolute pressure	5kPa to 350kPa	_	5kPa to 2MPa				
pressure gauge	Gas gauge pressure	-80kPa to 7MPa	5kPa to7000kPa	-90kPa to 2MPa				
	Gas differential pressure	0.01MPa to 0.2MPa	_	20Pa to 1.5MPa				
	Liquid gauge pressure	1MPa to 500MPa	1MPa to 500MPa	0.2MPa to 200MPa				
Liquid column	Water column gauge pressure	_	5kPa to 20kPa	2kPa to 20kPa				
pressure gauge	Mercury column gauge pressure	_	5kPa to 200kPa	_				

Repair/Maintenance/Calibration services

NAGANO KEISO CO., LTD. provides various services for the pressure standards you are using.

NAGANO KEISO CO., LTD.

Head Office: Tokyo Sales Office

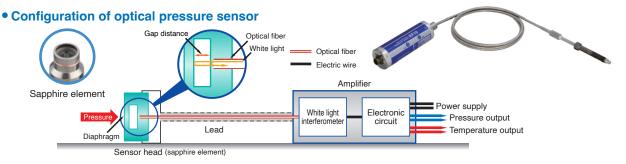
1-30-4 Higashi Magome, Ota-ku, Tokyo 143-0022 (Nagano Keiki Building)

Phone: 03-5718-3281 (main)

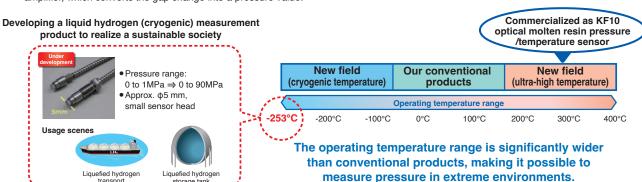
Fax: 03-5718-0238

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A new "Optical" pressure measurement technology, capable of withstanding extreme environments, has been added!



When pressure is applied to the diaphragm, the distance of the space (gap) formed within the sapphire element changes. White light emitted from the amplifier's light source is reflected by the sapphire element and measured by the interferometer inside the amplifier, which converts the gap change into a pressure value.



Ueda Measuring Instruments Factory

*Note: User-customized product (photo is for illustrative purposes only)



The largest mechanical pressure gauge factory in the country

It mainly supplies mechanical pressure gauges, pressure switches, and thermometers to all industrial uses, occupying 60% of domestic market share. It also provides calibration services that conform to international standards.

Maruko Electronic Instruments Factory



Pressure sensor factory with the world's largest production capacity

It mainly supplies pressure sensor developed in-house, applying elements ranging from extra-high pressure to ultra-low pressure for various industrial equipment. It delivers superior products and creative technologies to the global parter.

Nagano Keiki Technical Solutions Center



Research and development base to create new values of measurement business

It was established as a research and development base for developing new businesses. It is responsible for exploration and commercialization in new business areas. There is also a product display area and a history room where you can see the history of Nagano Keiki.

The contents in the catalog are subject to change without notice.

M NAGANO KEIKI

NAGANO KEIKI CO., LTD.

URL: https://www.naganokeiki.co.jp/

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