Baumer
Passion for Sensors

The Original Bourdon® –

History and Innovation by Baumer.

BOURDON
The Original by Baumer

Eugène Bourdon, inventor of the pressure gauge – a lead to be followed.

The best way towards a bright future is a bright past.

When he discovered the manometer, Eugène Bourdon was searching for improvement but found a solution that would endure for centuries. Our engineers, much like Bourdon himself, continually find themselves facing challenges: Know the unknown and continuously optimize the solution.

At Baumer, such challenges are addressed with inspiration and ingenuity. Our know-how has been developed, step by step, with every project experience. Expertise, together with the heritage passed on from Eugène Bourdon, gives us a leading position in the manometer sector. Precision, excellence, and the motivation to deliver a top-quality product every time are the hallmarks of our service.

When we look at what we know, we see beyond. We disregard boundaries and embrace the subject in every sense, with openness to originality and innovation. In doing this, we never lose sight of our goal to always deliver sustainable and reliable solutions. And we make sure every delivery is an original: a Baumer. Sharing such common ground, the Bourdon Company joined the Baumer Group. Baumer now proudly holds and supplies the original Bourdon® on the market, as the legacy of an inspired past and a promise for a bright future.

Baumer and Bourdon Haenni.

The name of the 19th century inventor Eugène Bourdon is immediately linked to his legacy: Pressure measurement by what has become a classical solution – the Bourdon tube. In 2005 the Bourdon Haenni Company became part of the Baumer Group and is now Baumer's competence center for mechanical measuring instruments. And its values of pioneering spirit are still alive.

No secret – just a great idea.

In 1849, the French engineer Eugène Bourdon patented the pressure-measuring device commonly known today as the Bourdon® tube. During the construction of a steam engine, he noticed that the helically wound coil of tube used to condense the steam became flattened during fabrication. To correct this, the tube was plugged at one end and pressurized at the other. As a result, the coil began to unwind as the tube regained its circular cross-section. Intrigued by what he saw, Bourdon conducted experiments, and ultimately invented a pressure gauge based on the tip deflection of a curved tube with an elliptical cross section.

Bourdon® tubes are the most commonly used elastic elements in mechanical pressure gauges today, remaining popular due to their great simplicity.

The simplicity of Bourdon® gauges makes them easy to operate and maintain in proper working condition. They also function across a broad pressure range, and offer a high degree of accuracy (up to 0.1 % full scale deflection). Since they do not require an external power source, they are not susceptible to voltage fluctuation and power outages.

Judging by the pace of technological development in today's world, you might think that an invention from the year 1849 would have become obsolete by now. However, the Bourdon® tube remains as popular as ever, thanks to its many advantages.

The original Bourdon® by Baumer.

Case: Stainless steel or Monel, with or without blow-out plug on the back. Safety level S1, S2 or S3 (EN 837).

Window: Instrument glass, polycarbonate or safety glass.

Bourdon® tube: Stainless steel or Monel (seamless as an option).

Process connections (several types: G ½, ½ NPT, M20x1.5, …).

Restrictor screw for reducing pressure peaks.

Vent plug filling with damping fluid (e.g. glycerine, silicone, etc. depending on application). Optional: dry, without filling.

Movement: Stainless steel, optionally available with silicone damping (Dashpot) for applications with vibrations or pulsations.

Standard: EN837-1 or ASME B40.1.

Dial: optional customer specific.

Customer logo: Black or colored.

BOURDON
The Original by Baumer

Today, Baumer offers original Bourdon® products based on over 160 years of technological development.

Bourdon bending machine

Stresstest for ageing and overpressure

Assembly

Today's innovation at Baumer and its original Bourdon®.

Science and history have taught us that improvement and optimization call for extraordinary experience as well as bright, curious minds that are able to confidently explore new territory. Baumer, like Bourdon, is a pioneer. And as a pioneer, Baumer sees in each new situation an opportunity to discover and develop a unique method or process, to innovate.

Baumer still continues manufacturing the famous Bourdon® products adding on modern production and quality methods which provide significant benefits especially for the oil & gas industry.

The production of a Bourdon® tube starts at the bending machine, where metal tubes get their characteristic C-shape and are cut to length. In the next step, the tubes are welded to the process connection and partly undergo a heat treatment and over pressure cycle. Then the manometers are carefully assembled by hand and finally adjusted and calibrated in a semi-automated process. All steps are monitored and documented by the Baumer Traceability System. *BTrace* is a unique method in order fulfillment within the Baumer Production System. Closely intertwining the methodologies of Lean Management, MUDA and KAIZEN, *BTrace* creates added value for the customer in terms of cost efficiency, reliability, traceability, consistency and excellence.

Bourdon is a registered trademark in France, N 1696288.

Unique automated calibration system

Automated certification system

Final certificate print out

BTrace comprises six elements:

Baumer Business System for process optimization in production and management.

Traceability throughout the whole order process.

Reliability compliant to the "Zero Defect Philosophy" (ZDP).

Automation representing the advanced and computer-based calibration and certification system.

Consistency in continuous optimization based on Lean Management, MUDA and KAIZEN.

Excellence for highest quality to the customer.

We make the best even better.

Baumer's expertise in manometers, with a large selection of products developed to date, has been repeatedly verified by our satisfied customers. As a moral duty inherited with the Bourdon® name and reputation, Baumer maintains the leading position in the field of manometers, with advanced capabilities and extensive experience in both mechanical and electronic pressure measurement.

This is demonstrated by the countless pressure gauges, transmitters, and switches that bear our name and have provided excellent service in the most varied applications for many years.

With our wide range of pressure measurement equipment and its modular nature, specific customer requirements can always be readily satisfied. And with offices all around the globe, Baumer is always nearby, simplifying communication with our specialists for all your project needs.

No matter what your industry, we can meet your needs for high quality solutions when it comes to measuring of temperature, pressure, fill level or conductivity, even in the most demanding environments.

We specialize in products for the petrochemical industry, aviation and marine applications, power stations, water treatment plants, and food processing. For many years, Baumer original Bourdon® has actively served the EPC industry. You can count on us throughout your project, from product selection and pricing to after-sales service.

Baumer with its original Bourdon® – your reliable partner in your need for high-accuracy solutions in measuring technology.

Excerpt from the portfolio.

Mechanic pressure	Pressure gauge	Pressure gauge with contact	Analog output	Differential pressure gauge	Nominal size (mm)	Bourdon tube	Diaphragm	Bellow	Capsule	Bottom connection	Back connection	Panel mounting (optional)	Wall mounting (optional)		Atex	EN-837	Gost-R	Gost-K	Marine
MMX1	■				40	■				■	■			Industrial pressure gauge		■	■		
MEX2	■				50	■				■	■	■	■	Industrial pressure gauge	■	■	■		■
MEX3, MEM3	■				63	■				■	■	■	■	Industrial pressure gauge	■	■	■		■
MEX5, MEM5	■				100	■				■	■	■	■	Industrial pressure gauge	■	■	■		■
MIX7, MIM7	■				150	■				■	■	■	■	Industrial pressure gauge	■	■	■		■
MEX8	■				160	■				■	■	■	■	Industrial pressure gauge	■	■	■		■
MEP5	■				100	■				■			■	Safety pressure gauges	■	■	■		■
MMN5	■				100	■				■			■	Safety pressure gauges	■	■	■		■
MPx6	■				130	■				■			■	Phenolic / polypropylene pressure gauge		■	■		
MS5, MR5		■			100	■				■	■	■	■	Pressure gauge with mechanical contact			■		
MG5		■			100	■				■	■	■	■	Pressure gauge with inductive contact	■		■		
DPCE 100		■			100		■			■				Diaphragm pressure gauge with contact	■		■		
MA35	■		■		100	■				■	■	■	■	Pressure gauge with analog output			■		
MCD7				■	150				■	■			■	Low differential pressure gauge			■		
MFT5				■	100		■			■		■		Low differential pressure gauge	■		■		
MFT7				■	150		■			■		■		Low differential pressure gauge	■		■		
M87, MZ7, MT7, MQ7				■	150			■		■	■	■	■	Differential pressure gauge	■		■		
M21, M31		■		■	150			■		■	■	■	■	Differential pressure gauge with contact			■		
DPC 100	■				100		■			■				Diaphragm pressure gauge	■		■		
DP 100 Hygienic	■				100		■			■				Hygienic diaphragm pressure gauge	■		■		
MA7	■				150			■		■	■	■	■	Absolute pressure gauge		■	■		
M61		■			150			■		■	■	■	■	Absolute pressure gauge with contact		■	■		
ME7	■				150			■		■	■	■	■	Pressure gauge overpressure resistant			■		
M41		■			150			■		■	■	■	■	Pressure gauge overpressure resistant with contact			■		
DRO80	■				80	■				■	■	■	■	Refrigeration gauge			■		
DRO100	■				100	■				■	■	■	■	Refrigeration gauge			■		
MTA2	■				50				■	■	■	■		Low pressure gauge, brass		■	■		
MTA3	■				63				■	■	■	■		Low pressure gauge, brass		■	■		
MTA5	■				100				■	■	■	■	■	Low pressure gauge, brass		■	■		
MTX5	■				100				■	■	■	■	■	Low pressure gauge, stainless steel		■	■		
MCX5, MCF5	■				100				■	■	■	■	■	Low pressure gauge, overpressure resistant		■	■		
MCX7, MCF7	■				150				■	■	■	■	■	Low pressure gauge, overpressure resistant		■	■		
AMFD														Manifold				■	

Seals

			EN-837	PED	Gost-R	Gost-K	3A
D030	Screwed connection, plastic	0...2.5 bar to 0...10 bar	■	■			
D04x	Screwed connection, stainless steel	0...1 bar to 0...250 bar	■	■			
D05x	Screwed conncetion, flush diaphragm	0...1 bar to 0...600 bar	■	■			
DT1	Standard seal for medium high pressure	0...16 bar to 0...160 bar	■	■			
DT2	Standard seal for normal pressure	0...1 bar to 0...25 bar	■	■			
DT3	Standard seal for low pressure	0...160 mbar to 0...6 bar	■	■			
DT5	Standard seal for very high pressure	0...250 bar to 0...1000 bar	■	■			
DT8	Standard seal for high pressure	0...100 bar to 0...400 bar	■	■			
1500	Tongue seal with external thread	0...2.5 bar to 0...1000 bar	■	■			
1510	Tongue seal with union nut	0...2.5 bar to 0...1000 bar	■	■			
D82x	Flange seal, flush diaphragm	0...160 mbar to 0...420 bar	■	■			
D4xx	Flange seal, diaphragm not flush	0...160 mbar to 0...420 bar	■	■			
D6xx	Seal with extended flange	0...160 mbar to 0...160 bar	■	■			
D912	Process seal for transmitters	0...10 mbar to 0...250 bar	■	■			
D801	Cell type	0...160 mbar to 0...400 bar	■	■			
D850	Flange type with extended diaphragm	0...160 mbar to 0...40 bar	■	■			
1650	Tubular seal for flange mounting	0...1.6 bar to 0...250 bar	■	■			
1620	Tubular seal with clamp connection	0...1.6 bar to 0...40 bar	■	■			
1530	Tubular seal, connection A DIN 11887	0...1.6 bar to 0...40 bar	■	■	■		■
1520	Tubular seal, connection SMS 1146	0...1.6 bar to 0...40 bar	■	■	■		■
1540	Tubular seal, sterile screwed connection ISO	0...1.6 bar to 0...40 bar	■	■	■		■
DANC	Clamp connection	0...1 bar to 0...40 bar	■	■	■		■
DAEL	SMS 1145 (union nut)	0...1 bar to 0...40 bar	■	■	■		■
DAEF	SMS 1145 (threaded socket)	0...1 bar to 0...40 bar	■	■	■		■
DAVA	Varivent®	0...1 bar to 0...40 bar	■	■	■		■
DAPH	Clamp connection	0...4 bar to 0...25 bar	■	■	■		■
DADF	DIN 11851 (threaded socket)	0...1 bar to 0...40 bar	■	■	■		■
DADL	DIN 11851 (union nut)	0...1 bar to 0...40 bar	■	■	■		■

Thermometers

						Gost-R	Gost-K
TB40, TB63	■		40, 63 mm	–30...+500 °C	Industrial standard type	■	
TB80, TB100, TB160	■		Ø 80, 100, 160 mm	–30...+500 °C	Industrial standard type	■	
TBH	■		Ø 80, 100 mm	–20...+250 °C	Short immersion tube	■	
TBL	■		Ø 100 mm	–20...+250 °C	For airducts		
TBX	■		Ø 80...160 mm	–30... +80 °C	Conical immersion tube		
TBI	■		Ø 80...160 mm	–70...+600 °C	Stainless steel, IP67	■	
TBHI	■		Ø 100, Ø 130 mm	–70...+600 °C	Heavy industry version, IP68	■	
TBHA	■		Ø 80, Ø 100 mm	–20...+160 °C	Clamp-on thermometer		
TSS		■	Ø 63...250 mm	–200...+800 °C	Direct measurement	■	
TSF		■	Ø 63...250 mm	–200...+800 °C	Remote measurement	■	
TSSE		■	Ø 100, Ø 160 mm	–200...+800 °C	Direct reading with contact	■	
TSFE		■	Ø 100, Ø 160 mm	–200...+800 °C	Remote measurement with contact	■	

Thermowells

T8410, T8911, T9093, T9143, T9346	650 °C	250 bar	Screwed connection		
T8416, T8916, T9144, T9357	650 °C	250 bar	Welded connection		
AGW, AGF	600 °C	400 bar	Process thermowells	■	■

For further information please visit:
www.baumer.com/bourdon

For more information
about our worldwide
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www.baumer.com/bourdon

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