

# CrystalCalHP

Calibration Lab  
in a Box



# A Better Way to Calibrate

## Automate Your Calibrations: 7 to 10 Times Faster than a Deadweight Tester



### The GaugeCalHP Comparator

- ▶ Generates pressure up to 15 000 psi.
- ▶ Works with oil, water, or air.\*
- ▶ Faster than any deadweight tester and most automated pressure controllers.
- ▶ Use in a lab or out in the field.

(\* up to 400 inH<sub>2</sub>O)



### FastCalXP Software

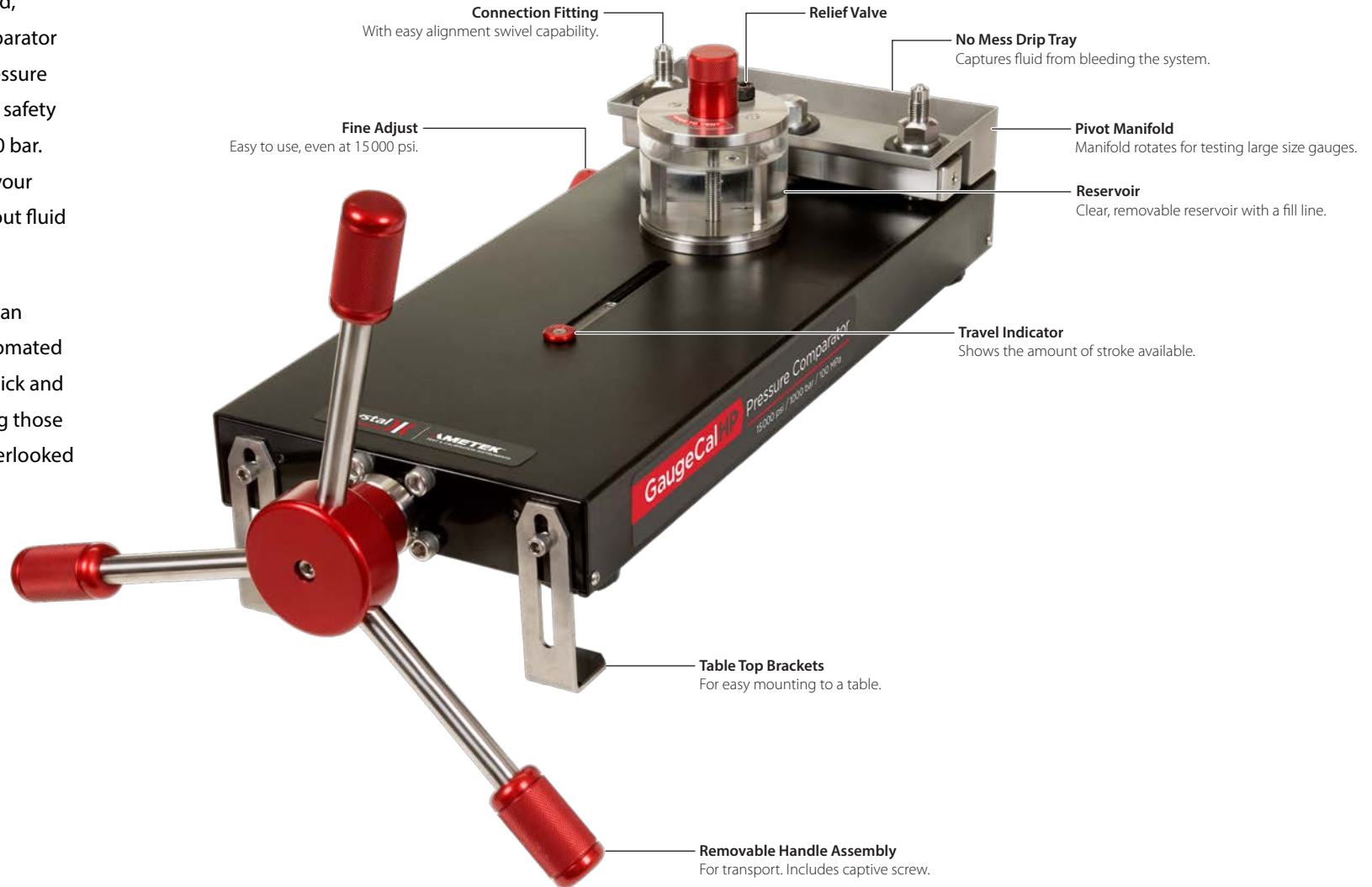
- ▶ Calibrate gauges, transmitters, transducers, and chart recorders.
- ▶ 10 point up and down calibration in less than 3 minutes.
- ▶ Eliminates typing.
- ▶ Reduces calculation errors.
- ▶ Saves time on each calibration.
- ▶ Easy to use, fast to set up.

[Download a free 30-day trial here](#) ◀

# Precision Calibration

**G**augeCalHP is a self-contained, precision hydraulic pressure comparator intended for the calibration of pressure gauges, transmitters, sensors, and safety valves rated up to 15 000 psi / 1000 bar. You may fill the comparator with your choice of water or oil, or use without fluid up to 400 inH<sub>2</sub>O.

The GaugeCalHP is much faster than deadweight testers and most automated pressure controllers; and it's so quick and easy to use, it's ideal for calibrating those low cost gauges that are often overlooked for ISO9000 compliance.



# Systems

CrystalCalHP calibration systems are available in two configurations: basic and expanded systems. The expanded systems include three ultra-rugged, intrinsically safe XP2i digital test gauges. With its 0.1% of reading accuracy, XP2i has long been the industry standard, and the world's most popular test gauge.

## Basic Systems

### CrystalCalHP-NPT/CrystalCalHP-BSP

#### Common Components

Part Number	Description
GAUGEALHP	Pressure Comparator (up to 15 000 psi /1000 bar)
5102	Fine Adjust Kit (installed)
5103	Rebuild Kit
FASTCALXP	FastCalXP Software, USB License Key, CD, and Manual
MPF-CAP	Cap for CPF Male Fittings (2)
5354	USB Footswitch for FastCalXP
3313	USB to RS232 DB9M Adapter
5101	Weather-proof, Hard Carrying Case with Rolling Wheels (includes strap and fluid bottle)

#### Included with -NPT System

Part Number	Description
15 MPF15K-1/4FPT	1/4" NPT Female (2)
MPF-1/8QTF	1/8" NPT Quick Test Female
MPF-1/4QTF	1/4" NPT Quick Test Female
5 MPF-1/2QTF	1/2" NPT Quick Test Female

#### Included with -BSP System

Part Number	Description
15 MPF-1/8QTFB	1/8" BSP Quick Test Female
15 MPF-1/4QTFB	1/4" BSP Quick Test Female
15 MPF-3/8QTFB	3/8" BSP Quick Test Female
15 MPF-1/2QTFB	1/2" BSP Quick Test Female

## Expanded Systems

### CrystalCalHP-NPT-PSI/CrystalCalHP-BSP-PSI

#### Basic System with psi Gauges

Part Number	Description
CRYSTALCALHP-NPT or CRYSTALCALHP-BSP	Basic CrystalCalHP -NPT or -BSP System
15KPSIXP2I	15 000 psi Test Gauge
5KPSIXP2I	5000 psi Test Gauge
1KPSIXP2I	1000 psi Test Gauge

### CrystalCalHP-NPT-BAR/CrystalCalHP-BSP-BAR

#### Basic System with bar Gauges

Part Number	Description
CRYSTALCALHP-NPT or CRYSTALCALHP-BSP	Basic CrystalCalHP -NPT or -BSP System
1KBARXP2I	1000 bar Test Gauge
300BARXP2I	300 bar Test Gauge
70BARXP2I	70 bar Test Gauge

### CrystalCalHP-NPT-KPA/CrystalCalHP-BSP-KPA

#### Basic System with kPa Gauges

Part Number	Description
CRYSTALCALHP-NPT or CRYSTALCALHP-BSP	Basic CrystalCalHP -NPT or -BSP System
100KKPAXP2I	100 000 kPa Test Gauge
30KKPAXP2I	30 000 kPa Test Gauge
7KKPAXP2I	7000 kPa Test Gauge

All NPT and BSP fittings are rated to 10 000 psi, with the exception of those marked 15 (15 000 psi) or 5 (5000 psi).

# Specifications

## GaugeCalHP

### Performance

Maximum Hydraulic Pressure	15 000 psi/1000 bar/100 MPa
Vacuum	-12.5 psi/-0.86 bar/-86.2 kPa
Maximum Pneumatic Pressure	400 inH <sub>2</sub> O/995 mbar/29 inHg
Sensitivity (fine adjust)	0.01 inH <sub>2</sub> O/0.025 mbar
Burst Pressure	>25 000 psi/1700 bar/170 MPa

### Materials

Wetted Materials	Stainless Steel plus Seals and Acrylic Reservoir
Enclosure	Anodized Aluminum
Seals	Buna N (Nitrile), Viton, and Urethane
Test Media	Water, Oil, or Air

### Dimensions

Width	8.3 in /210 mm
Length	20.5 in /520 mm
Height (base)	5.5 in /140 mm
Height (with handles)	11 in /280 mm
Weight	20 lbs /9kg
Piston Stroke Volume	0.8 in <sup>3</sup> /13.1 cm <sup>3</sup>
Reservoir Volume	10.8 in <sup>3</sup> /176.9 cm <sup>3</sup>

## XP2i

### Accuracy

0 to 20% of Range	±(0.02% of Full Scale)
20 to 110% of Range	±(0.1% of Reading)
Vacuum	±(0.25% of Full Scale*)

\* Full Scale = -14.5 psig.

*Includes all effects of linearity, hysteresis, repeatability, temperature, and stability for one year.*

All models indicate vacuum, but vacuum specification applies to 15 psi, 30 psi, 100 psi, and 300 psi models only.

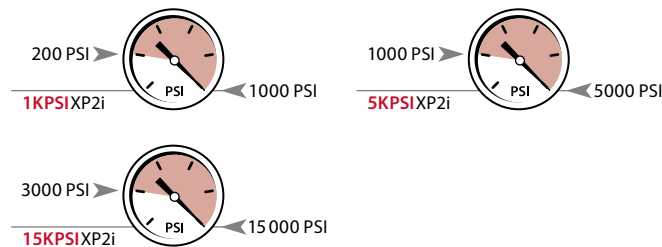
Not recommended for continuous use below -14.5 psi.

Refer to the [XP2i-DP data sheet](#) for gauges that are intended for continuous high vacuum use.

### Of Reading Accuracy

The three gauges included in the expanded CrystalCalHP systems provide ±(0.1% of reading) accuracy from 200 psi /14 bar /1400 kPa to 15 000 psi /1000 bar /100 000 kPa.

The diagrams below show the “of reading” range of each gauge.



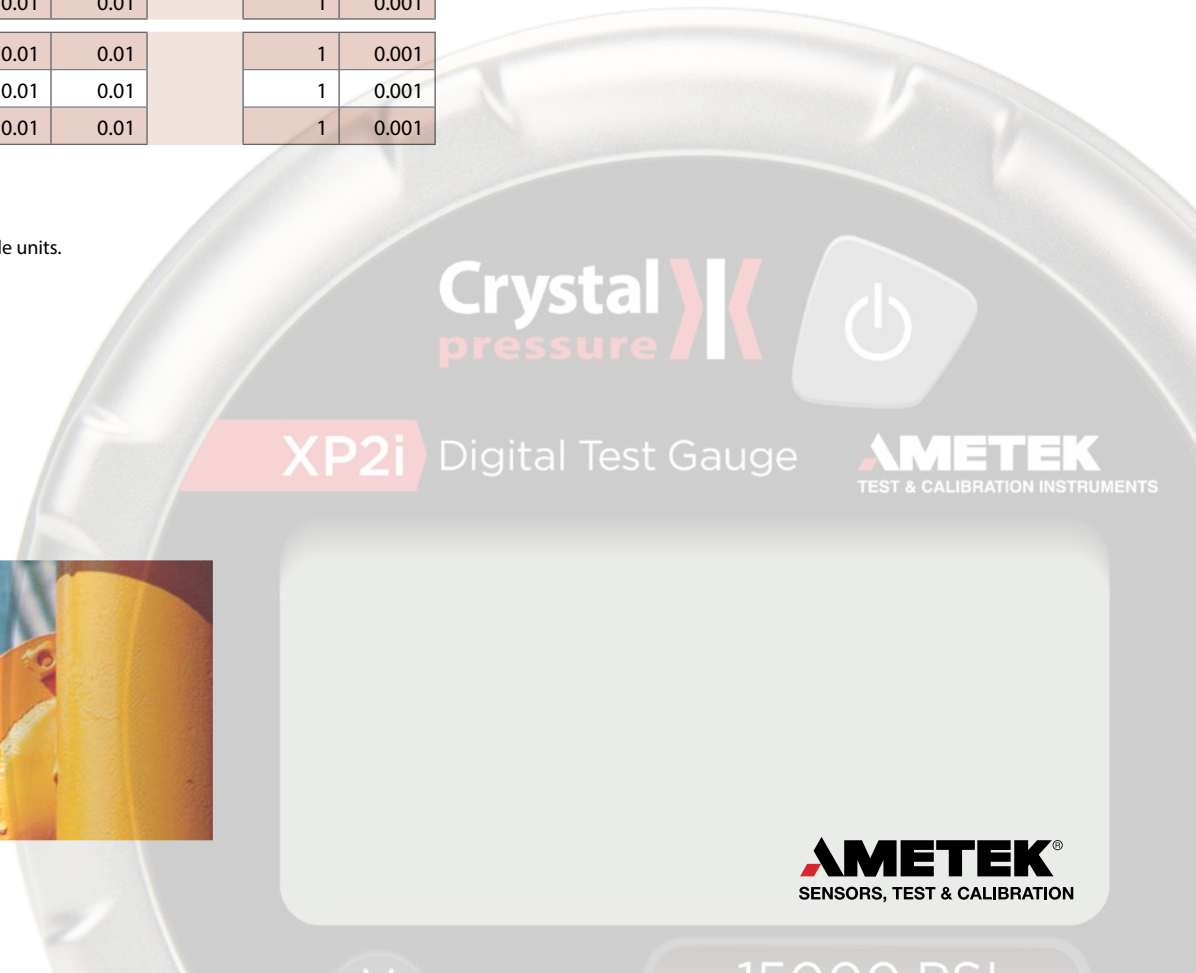
For detailed specifications see the Data Sheets at [crystalengineering.net/gaugecalhp](http://crystalengineering.net/gaugecalhp) and [crystalengineering.net/xp2i](http://crystalengineering.net/xp2i).



# XP2i Ranges, and Resolutions

P/N	Range	Overpressure	Display Resolution									
			psi	inH <sub>2</sub> O	inHg	mmHg	mmH <sub>2</sub> O	kg/cm <sup>2</sup>	bar	mbar	kPa	MPa
1KPSI	1000 psi	2.0 x	0.1		0.1			0.001	0.001		0.1	0.0001
70BAR	70 bar	2.0 x	0.1		0.1			0.001	0.001		0.1	0.0001
7KKPA	7000 kPa	2.0 x	0.1		0.1			0.001	0.001		0.1	0.0001
5KPSI	5000 psi	1.5 x	0.1		1			0.01	0.01		1	0.001
300BAR	300 bar	1.5 x	0.1		1			0.01	0.01		1	0.001
30KKPA	30 000 kPa	1.5 x	0.1		1			0.01	0.01		1	0.001
15KPSI	15 000 psi	1.3 x	1					0.01	0.01		1	0.001
1KBAR	1000 bar	1.3 x	1					0.01	0.01		1	0.001
100KKPA	100 000 kPa	1.3 x	1					0.01	0.01		1	0.001

- Unneeded pressure units may be disabled via the RS-232 connector using ConfigXP software.
- kPa models can display pressure in kPa, MPa, and bar (or mbar) only. psi and bar models can display all available units.



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**Crystal**   
**pressure**

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