DH-Budenberg was established in 1996 from the merger of Desgranges & Huot from France ("DH") with the calibration division of the Budenberg Gauge Co of the UK. Both companies have combined more than 200 years of cumulative expertise and the industry’s most talented resources in order to offer the markets widest and most advanced range of pressure standards and pressure calibration systems.

In less than 7 years of continuous development, DH-Budenberg has become a true multi-national organisation with head offices in Manchester (England), Aubervilliers (France), and Rogdau (Germany). This structure has been further strengthened with the opening of DH-Budenberg Inc in San Marcos (Texas, USA), and DH-Budenberg Pvt Ltd in Chennai (India), DH-Budenberg FZCO in Dubai and the introduction of DH-Budenberg F.E. (Far East) in the near future.

Each DH-Budenberg operation offers fully comprehensive customer support including technical services and accredited calibration services. (Accreditation by COFRAC, DKD and UKAS).

Manufacturing is concentrated on the French and UK sites, with a worldwide office network providing over 50 trained representatives and distributors.

The company currently has a turnover exceeding 13 million Euros and employs over 100 people. It is a member of the Electrocal Group which also incorporates Budenberg Gauge Co Ltd, manufacturers of premium quality dial pressure gauges, temperature gauges, valves and manifolds.

Part of the worldwide group of DH-Budenberg companies including Desgranges et Huot and Budenberg Gauge Co Ltd.

DH-Budenberg are registered trademarks.
AUTOMATED Primary Standards

The APX50 Absolute Automatic pressure balance is very well suited for the calibration of absolute Dead-Weight Testers, Digital Pressure Gauges, Barometers and any accurate Sensor or Transmitter such as Quartz Sensors. This standard is now the new worldwide absolute pressure reference.

APX50

**ABSOLUTE AUTOMATIC BALANCE**

Primary standard.

- Pure gas range from 10 kPa up to 2 MPa.
- Highest level achievable uncertainty of measurement ≤ 7 ppm of reading with k=2, from LNE.
- Absolute or gauge pressure high accuracy measurement.
- Fully automatic mass loading, including small masses down to 0.1g.
- Alternative to high accuracy mercury columns.
- Sensitivity ≤ 0.1 ppm.
- Stability ≤ 1 ppm/year.
- Smallest mass down to 1g.
- Repeatability: ≤ 1 ppm from 100 kPa.
- Medium: Clean, dry gas.

50 000-II Series

**AUTOMATIC BALANCE**

Primary standard.

- Gas range from 150 kPa up to 100 MPa.
- Oil range from 150 kPa up to 500 MPa.
- Measurement Uncertainties to 20ppm of reading.
- Fully automatic mass loading of 100kg mass set down to 1kg.
- Pressure sequence control can be local or remote.
- Indefinite spin and float times.
- Integral Piston temperature monitoring.
- Integral Piston Position monitoring.
- Piston can be changed in seconds.

60 000-II Series

**AUTOMATIC BALANCE**

Primary Standard.

- Gas range from 150kPa to 100MPa.
- Oil range from 150kPa to 500Mpa.
- Measurement Uncertainties to 20ppm of reading.
- Fully automatic mass loading of 100kg mass set down to 1kg.
- Pressure sequence control can be local or remote.
- Indefinite spin and float times.
- Integral Piston temperature monitoring.
- Integral Piston Position monitoring.
- Piston can be changed in seconds.

OPTIONAL ACCESSORIES

**DPM1 DIGITAL PRESSURE MONITOR**

The DPM1 is a digital pressure monitor using a high quality oscillating quartz crystal pressure sensor. The frequency of the quartz changes according to the pressure it receives. The DPM1 integrates a second quartz sensor for temperature measurement, is unaffected by vibrations and can be operated on battery, this makes it usable on site. This technology has been selected by DH-Budenberg due to its very good long term stability and high specifications.

- Accuracy ≤ 0.01%.
- 12 Pressure ranges from 0 to 14 MPa. Resolution 10 ppm.
- Temperature fully compensated from -54 to +100°C. Medium Dry gas.
Quality Calibration of the instruments that provide control over industrial processes is the key to efficiency and profitability. Ranging from dead-weight-testers to electronic calibrators including test gauges, our solutions suit all requirements. All instruments are rugged and reliable, carefully designed to resist the harshest environments.

**MANUAL Primary Standards**

The **5100-5200 GAS SERIES** represent the world's ultimate level of primary standard. Implemented by more than 50 countries as primary reference and selected by thousands of users to transfer primary references.

They can be combined with our Terminal 5000 Interface, which gives the user a simple access to the 5000 series state of the art metrological excellence.

**5100-5200 GAS SERIES**
Gas pressure range from 5 kPa up to 100 MPa.
Piston-cylinder made in Tungsten Carbide, geometry ≤ 0.1 µm.
Uncertainty researched ≤ 20 ppm.
Sensitivity ≤ 1 ppm.
Stability ≤ 1 ppm/year.
Austenitic, non-magnetic masses.
Local calculation of the corrected pressure with real time monitoring of ambient conditions via our T 5000 interface.
RS232 and IEEE488 computer interfaces.

**5300 OIL SERIES**
Oil pressure range from 200 kPa up to 500 MPa.
Piston-cylinder made in Tungsten Carbide, geometry ≤ 0.1 µm.
Uncertainty researched ≤ 20 ppm.
Sensitivity ≤ 1 ppm.
Stability ≤ 1 ppm/year.
Austenitic, non-magnetic masses.
Local calculation of the corrected pressure with real time monitoring of ambient conditions via our T 5000 interface.
RS232 and IEEE488 computer interfaces.

**OPTIONAL ACCESSORIES**

**TERMINAL 5000 MONITOR**
The Terminal 5000 has been specifically designed to give the user a simple access to the metrological excellence achievable by DH-Budenberg's 5000 series pressure balances. It determines the value of masses to be loaded to reach any desired pressure. Alternatively, it makes an accurate calculation of the generated pressure when programmed with the masses that have been loaded, by taking into account the metrological characteristics of the piston-cylinder assembly and by using its own internal measurement of environmental parameters (eg, ambient temperature, relative humidity, atmospheric pressure, PCA temperature and PCA float position). The large graphic screen permanently displays, PCA position and temperature, in addition to the calculated pressure values and ambient conditions.
DIFFERENTIAL Primary Standards

Model 1500 and 1600
Differential Pressure transmitters provide critical profit or safety-related information in processes like fiscal flow metering. Model 1500 and 1600 divider pressure balances enable their calibration under real working conditions and therefore bring improved process control. The novel approach of the divider system allows the user to generate stable differential pressures very quickly, thereby reducing calibration times dramatically. The divider is a robust and easy-to-use system which can generate extremely accurate differential pressures, at high static pressures, with the minimum of operator experience.

1500 and 1600 DIVIDER PRESSURE BALANCES
0 to 1 MPa DP range.
Static pressure range to 40 MPa.
Accuracy ≤ 0.005% of reading on DP measurements with no effects from static pressure.

1600 specific features
A vacuum pump can be connected to differential measurement where the static pressure is less than the atmospheric pressure. Differential Pressure transmitters provide critical profit or safety-related information in processes like fiscal flow metering. Model 1500 and 1600 dividers enable calibration under real working conditions and therefore bring improved process control.

DIFFERENTIAL Primary Standards

As proven in independent International studies, the 5500 series of high static pressure "twin-post" balances, provides the highest accuracy differential pressure calibration available in the world today.

5500 DIFFERENTIAL GAS BALANCE
2 kPa to 78 MPa. DP range.
Static pressure range to 80 MPa.
Accuracy ≤ 0.005% of reading on DP. Floating times exceeding 20 minutes up to maximum pressure.
Operation on any gas, including methane and natural gas - flameproof versions available.

Designed for use as a differential pressure primary standard, the 5500 series can also be used as a high pressure pneumatic primary standard. This dual function capability effectively provides the user with two genuine primary standards in one instrument.
DIGITAL Primary Standards

DPG10G (Gauge)
Digital Primary Pressure standards are built around an original concept first introduced by DESGRANGES & HUOT in the early 80’s. The DPG technology combines a piston-cylinder assembly with an electronic force cell. They are the only pressure standards to associate the metrological performances of pressure balances with the convenience of digital transfer standards. Measuring can be done from zero to full scale. Ideally suited as working standard in calibration laboratory, including accredited laboratories and especially dedicated to gauge and high absolute pressures.

DPG10G (GAUGE)
Ranges from 0 to 50 MPa.
Resolution down to 0,1 Pa.
Accuracy ≤ 15ppm over 3 years.
Self calibrating with ACF™.
Integrated Environment Monitoring Module™.
Computer interface for full automation capability.
Traceable accredited calibration certificate as standard.

Typical uncertainty researched for a 200 kPa range \((k=2)\) \(U=0.8 \text{ Pa} + 1.E-5 \text{ P}\).

DIGITAL Primary Standards

DPG10A (Absolute)
Ideally suited for the calibration of low gauge pressure, absolute pressure, Air Data Test Systems and avionics instruments.
A distinct advantage of the Digital Piston Gauge over traditional piston gauge technology is that it can perform calibrations from zero pressure upwards. In traditional piston gauges, the lower limit is determined by the mass of the piston, but with the DPG range, this mass can be tared out.

DPG10A (ABSOLUTE)
Ranges from 0 to 5 MPa.
Resolution down to 0,1 Pa.
Accuracy ≤ 15 ppm over 3 years.
Self calibrating with ACF™.
Integrated Environment Monitoring Module™.
Computer interface for full automation capability.
Traceable accredited calibration certificate as standard.

Typical uncertainty researched for a 200 kPa range \((k=2)\) \(U=0.8 \text{ Pa} + 1.E-5 \text{ P}\).

OPTIONAL ACCESSORIES

Manifold
Fluid Interface
Pump
Manifold
5000 Bar Valve
Variable Volume
AUTOMATIC Pressure Controllers

GPC1, GPC2 and GPC3
The Models GPC1, GPC2 and GPC3 are truly advanced gas-operated pressure controllers and calibration standards offering high performance measurement speed and versatility for industrial applications.
GPC2 is specially designed to be coupled with our DPG Series in order to provide it with a high accuracy pressure regulator.

GPC1 AND GPC2 (GAUGE AND ABSOLUTE)
Accuracy \( \leq 0.025\% \).
Pressure ranges up to 10 MPa.
Control precision \( \leq 0.004\% \).
Local and remote mode operation.
Fast generation speed down to 10 seconds.
Internal memory for 10 calibration sequences.
Leak compensation ability.
IEEE and RS232 communication ports.

GPC3 (GAUGE AND ABSOLUTE)
Accuracy \( \leq 0.01\% \).
Pressure ranges up to 10 MPa.
Control precision \( \leq 0.004\% \).
Local and remote mode operation.
Fast generation speed down to 10 seconds.
Internal memory for 10 calibration sequences.
Leak compensation ability.
IEEE and RS232 communication ports.

AUTOMATIC Pressure Controllers

GPSII
The GPS-II combines hydraulic pressure generation and calibration capabilities up to 150 MPa with a high accuracy quartz crystal sensor as the reference for pressure measurement.

GPSIII
The GPSIII is the high pressure version of DH-Budenberg’s hydraulic generator range, which is rack mounted and provides immediate accessibility to internal components.
Its high speed capability to generate and measure accurate pressures makes it ideal for laboratories or industrial environments.

GPSII (GAUGE AND ABSOLUTE)
Accuracy \( \leq 0.01\% \).
Pressure ranges up to 150 MPa.
Can be supplied with three sub-ranges.
Calibrations typically \( \leq 0.01\% \) of each sub-range.
Stability control: 0.002%.
Full automatic operation.
Oil or Water operation.

GPSIII (GAUGE AND ABSOLUTE)
Accuracy \( \leq 0.01\% \).
Pressure ranges 0 to 500 MPa.
Up to 3 sensors with each 3 sub-ranges.
Stability control \( \leq 0.005\% \).
Quartz crystal sensor.
IEEE and RS232 communication ports.
Adjustable pressure ramping.
HYDRAULIC Dead Weight Testers

An industry standard across the world for almost 100 years, the latest family of DH-Budenberg hydraulic dead weight testers continues in the footsteps of their predecessors. Ergonomic layout, simple to use, and with a wide range of patented, unique features, these dead weight testers are the ideal workshop or laboratory instrument when high accuracy calibrations are required across a wide pressure range. Robustness, high quality and longevity continue to feature heavily on DH-Budenberg dead weight testers, with standard warranty periods up to 3 years.

PNEUMATIC Dead Weight Testers

An industry standard across the world for almost 100 years, the latest family of DH-Budenberg pneumatic dead weight testers continues in the footsteps of their predecessors. New to the latest series are soft-seat operating valves and a fine volume control, to allow even greater ease-of-use. There are many unique features in the range, such as a pure gas piston-cylinder up to 70bar, thereby removing the problems associated with liquid-lubricated pistons. Robustness, high quality and longevity continue to feature heavily on DH-Budenberg dead weight testers, with standard warranty periods up to 3 years.

OPTIONAL ACCESSORIES

Model 35 Oil Seal  Heavy Duty Carry Cases  Model 29 Motor Drive  Constant Volume Valve  Fig 24 Vacuum Adaptor  Model 38 Oil Seal
PORTABLE Multifunction Pressure Calibrators

PPS41 FAMILY
The PPS41 family is the latest offering from DH-Budenberg’s range of portable electronic pressure calibrators. The PPS41 includes as standard: pressure and temperature calibration, leak-testing, pressure switch testing and data-logging, but now comes with the option of two integral sensors allowing for calibration in both pneumatic and hydraulic mediums using just one calibrator. Complete with an IP65 case, re-chargeable batteries and Windows based software as standard, the PPS41 is a truly portable all-round mini calibration laboratory.

BENCHTOP Electronic Pressure Calibrators

H541 P541
The S41 family of Calibrators is a powerful range of instruments providing optimum features for industrial users whilst being user-friendly and rugged enough for harsh environments. These calibrators include high accuracy measurement of pressure along with integral pressure generation on the hydraulic units. The S41 series includes as standard: pressure and temperature calibration, leak-testing, pressure switch testing and data-logging, and have the option of two integral sensors allowing for calibration in both pneumatic and hydraulic mediums using just one calibrator. Complete with a rugged ABS case, re-chargeable batteries and Windows based software as standard, the S41 series is a true all-round mini calibration laboratory.
Industrial Range
Exceeding Pressure Standards Since 1856

HANDHELD Multifunction Calibrators

PPS20 PPS21
The PPS20/21 family is the most comprehensive multi-function device in the range of DH-Budenberg portable electronic calibrators. Simple to operate, lightweight and with hands-free case available as an option, the PPS20 and PPS21 are the ideal calibrators for a wide range of process instrumentation applications. In addition to internal and external pressure modules, the PPS20 can be used to calibrate transmitters, transducers and PT100's. The more advanced PPS21 can be used, additionally, as a loop calibrator, a frequency generator/calibrator, a thermocouple simulator/calibrator and a multimeter.

HANDHELD MULTIFUNCTION CALIBRATOR
Accuracies to 0.025%.
Pressure ranges up to 700barg (10,000psig) or 20barA (300psiA).
Up to two integral pressure sensor ranges.
External pressure sensors.
Twenty-one Standard Pressure units.
Other inputs: mV, mA, V, Pt100
HART Communications option.
Wide range of accessories available.

PPS21
HANDHELD MULTIFUNCTION CALIBRATOR
Accuracies to 0.006%.
Pressure ranges up to 700barg (10,000psig) or 20barA (300psiA).
Up to two integral pressure sensor ranges.
External pressure sensors.
Twenty-one Standard Pressure units.
Other inputs: mV, mA, V, Pt100, resistance, Hz, thermocouples, pulse counter.
Outputs: mA, V, resistance, frequency, pulse HART Communications option.
Calibration management software available.

SPECIAL Applications

Model 500 FORCE CALIBRATOR
When used in conjunction with a DH-Budenberg Model 580M, the Model 500 Force Calibrator can be used to calibrate load cells and proving rings up to 50kN with a standard accuracy of 0.05%

Models 80 and 82 - PIPELINE TESTERS
DH-Budenberg's Industry standard pipeline testers covering the ranges between 1.5bar to 600bar. Both pneumatic and hydraulic circuits can be tested using these devices. Both units are specified as the necessary calibration standard to be used, in many of the International procedures used by pipeline testing companies and their clients.

Model 249T
DIFFERENTIAL DEAD WEIGHT TESTER
Used as an Industrial standard calibration instrument for high-static differential pressure. Accepted and used by most of the Oil and Gas Majors and operators, the 249T has a proven record of reliable performance in Fiscal metering applications.

283 and 284 HIGH PRESSURE DEAD WEIGHT TESTERS
With ranges up to 8,000bar, these are true primary standard high pressure dead weight testers. Applications ranging from typical industrial high pressure hydraulics through military ballistics testing are covered using these rugged, and yet, easy to operate units. The 284 also includes automatic mass handling, which is unique in the DH-Budenberg Industrial range.

PREMIUM CALIBRATION SYSTEM
A unique semi-automated system designed and installed by DH-Budenberg in laboratories across the world. The system comprises deadweight testers, ancillaries, software and training to allow a laboratory to offer pressure calibration for ALL instruments from simple indicators, such as gauges, to dead weight testers. The system uses DH-Budenberg's proprietary Class A deadweight testers with accuracies to 0.006% rdg, proprietary PCS software, and is delivered with all of the accessories needed.
PORTABLE Dead Weight Testers

439P 439TP 278 279
DH-Budenberg offer a wide range of dead weight testers for applications in the field, where both portability and high accuracy are required. This range of equipment offers a true primary standard alternative to the lower accuracy electronic calibrator. Covering hydraulic, pneumatic and differential pressure applications, using standard piston-cylinder technology, these products provide laboratory standards in all environments.

439P PNEUMATIC DEAD WEIGHT TESTER
Standard range to 1000mbar.
Optional range extension to 2000mbar.
Accuracies to 0.006%rdg.
23x16x18cm, 7kg.

439TP DIFFERENTIAL DEAD WEIGHT TESTER
Standard static range 0 to 1000mbar.
Optional static range extension to 2000mbar.
Differential pressure range to 935mbar (or, 1935mbar).
Accuracies to 0.006%rdg.
2 cases 23x16x18cm each.
2 cases 7kg each.

278 HYDRAULIC DEAD WEIGHT TESTER
Standard range to 70bar.
Accuracies to 0.008%rdg.
1 case 51x41x34cm, 14kg.
1 case 42x42x59cm, 13kg.

279 HYDRAULIC DEAD WEIGHT TESTER
Standard range to 15bar.
Optional range extension to 40bar.
Accuracies to 0.008%rdg.
1 case 51x41x34cm, 14kg.
1 case 25x25x29cm, 19kg.

LC2 Controllers

PNEUMATIC/HYDRAULIC LC2
The LC2 series has been specially developed for service in a robust environment. The modular format makes this unit suitable for inclusion into almost any system. The use of advanced, modern materials, combined with ease of operation, makes the LC2 particularly suitable for the harsher industrial and production environment. The key operational features are its ability to quickly and easily calibrate gauges and pressure sensors at the touch of a button and without complicated software menus or system set up.

PNEUMATIC LC2 CONTROLLERS
Pressure Ranges: -1 to 600 bar pneumatic, up to 1400 bar hydraulic.
Stability: 0.05% FS, Accuracy: 0.1% FS.
Achieves required pressure value in 1-3 seconds.
Automatic Leakage compensation.
Operation through manual keypad or communication port.
Option: RS232 Communication Port.
Special configurations are available at customer request.
Trusted and Respected throughout the Globe

CONTACT US WORLDWIDE

DH-Budenberg Ltd.
2 Gilchrist Road,
Northbank Industrial Estate,
Irlam, Manchester, UK, M44 5AY.
Tel: +44 (0)870 7877370.
Fax: +44 (0)870 7877369.
Email: sales@dh-budenberg.co.uk

DH-Budenberg S.A.
BP125,
56, rue des Ecoles,
93303 Aubervilliers,
Cedex, France.
Tel: +33 (0)1 48 39 83 11.
Fax: +33 (0)1 48 33 65 90.
Email: dhonline@dh-budenberg.com

DH-Budenberg F.Z.C.O.
Dubai Airport Free Zone, Phase 4,
Office No.114A, PO Box 54639,
Dubai, United Arab Emirates
Tel: +971 4 2045104.
Fax: +971 4 2045103.
Email: sales@dh-budenbergfzco.com

DH-Budenberg S.A.
BP125,
56, rue des Ecoles,
93303 Aubervilliers,
Cedex, France.
Tel: +33 (0)1 48 39 83 11.
Fax: +33 (0)1 48 33 65 90.
Email: dhonline@dh-budenberg.com

DH-Budenberg GmbH.
Raiffeisenstrasse 2,
D-63110 Rodgau,
Germany.
Tel: +49 (0)6106 82 940.
Fax: +49 (0)6106 82 9417.
Email: kontakt@dh-budenberg.de

DH-Budenberg Instrumentation Pvt Ltd.
299-300, 2nd Main Road,
Nehru Nagar, Old Mahabalipuram Road,
Chennai 600 096, India.
Tel: +91 44 2454 0014.
Fax: +91 44 2454 1862.
Email: dhubudenberg@vsnl.net

DH-Budenberg F.E.
161B Jalan Loyang Besar
#03-11 The Lighthouse
Singapore 509410
Tel: +65 6600 5657
Fax: +65 6826 4101
Email: DH_Budenberg@SingNet.com.sg

DH-Budenberg Inc.
300 CM Allen Parkway,
Suite 212A,
San Marcos, TX 78666, USA.
Tel: (Toll Free) 1 877 713 2733.
Tel: +1 512 353 3133.
Fax: +1 512 353 3106.
Email: sales@dh-budenberginc.com

DH-Budenberg GmbH.
Raiffeisenstrasse 2,
D-63110 Rodgau,
Germany.
Tel: +49 (0)6106 82 940.
Fax: +49 (0)6106 82 9417.
Email: kontakt@dh-budenberg.de

DH-Budenberg F.Z.C.O.
Dubai Airport Free Zone, Phase 4,
Office No.114A, PO Box 54639,
Dubai, United Arab Emirates
Tel: +971 4 2045104.
Fax: +971 4 2045103.
Email: sales@dh-budenbergfzco.com

DH-Budenberg F.E.
161B Jalan Loyang Besar
#03-11 The Lighthouse
Singapore 509410
Tel: +65 6600 5657
Fax: +65 6826 4101
Email: DH_Budenberg@SingNet.com.sg

DH-Budenberg Inc.
300 CM Allen Parkway,
Suite 212A,
San Marcos, TX 78666, USA.
Tel: (Toll Free) 1 877 713 2733.
Tel: +1 512 353 3133.
Fax: +1 512 353 3106.
Email: sales@dh-budenberginc.com

Your Local Distributor