



Market Solutions

Pulp and Paper Applications

BLH • Nobel Weighing Systems

Brands of VPG Process Weighing





Process Weighing, Web Tension, and Force Control Systems

VPG Process Weighing

BLH • Nobel Weighing Systems

Industry Leadership

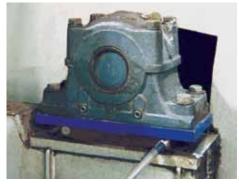
For decades, BLH and Nobel Weighing Systems have been leading manufacturers of advanced measurement and control systems for the pulp and paper industry. Our history in the measurement field goes back to the 1940s, when our predecessors were pioneers in strain gage techniques and in transducers and amplifiers for industrial applications. Throughout the years, we have gained unique knowledge in the area of measurement and control, and were among the first to use microprocessor technology for industrial applications. In the late 1970s, we launched our own digital process control systems. We continue to build on this tradition of innovation.

Proven Experience

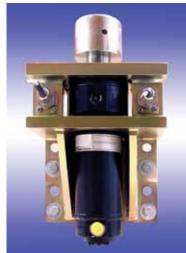
Patented web tension and force control systems have been designed and field-tested with major inputs from the pulp and paper industry. This guarantees that our turn-key solutions will meet your targets when it comes to productivity and functionality.

A Strong Partner

BLH and Nobel Weighing Systems are brands of VPG Process Weighing. We are a part of Vishay Precision Group, one of the world's largest producers of sensors based on resistive foil technology, and sensor-based systems. The company provides vertically integrated products and solutions in the areas of stress measurement, weight modules, and process control systems.



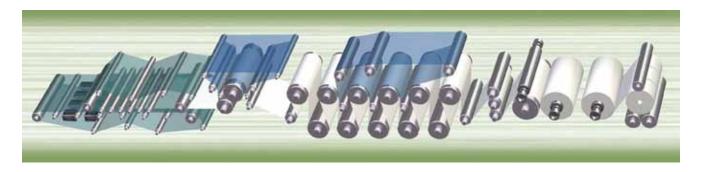
Web tension measurement unit in dryer section



Relief cylinder for a reel



Digital servo controller







Web Tension Systems

Dynamic Resultant Force Measurement

Patented HTU universal web tension load cells, with capacities ranging from 2K to 20K Pounds, measure the resultant force in any direction and are not limited to horizontal or vertical component force. In addition, they do not require unique orientation to achieve maximum sensitivity. This permits the installation of identical load cells at multiple web tension zones regardless of the pillow block mounting or angle configuration of the roller. The low-profile cell is sealed to meet IP67 requirements, temperature compensated to 250°F, and dead weight calibrated to precision accuracy. These features add up to zero maintenance, simple retrofit, and long-term reliability for machines that continuously process material in the paper industry.

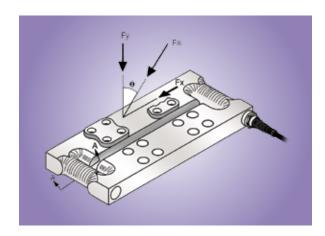


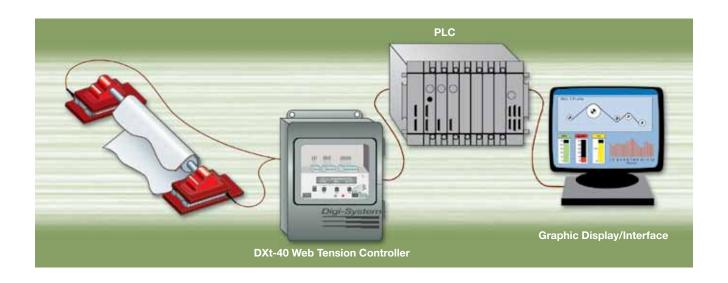
- CalendersBreakers
- Winders
- Rewinders
- Felts Wire sections
- Coaters
- Laminators
- Dryers

Principles of HTU Operation

Force-sensing elements located on each end of the transducer measure the components F_x and F_y of F_R applied along the X and Y axes. Resultant output signals (F_R) can be used to determine the magnitude and direction (0) of the overall force applied by the web. Two full Wheatstone bridges are mounted internally to each tubular cross section to provide independent sensing for each axis, as well as protection from hostile environments.









Process Weighing, Web Tension, and Force Control Systems

Force Nip Load

Winders, Slitters, Rewinders, Calendars, and Press Section Force and Position Control

We have been delivering systems for controlling nip loads for decades. Our experienced engineers design system components such as force measurement blocks, cylinders, valves, and control units. This guarantees optimized performance that is independent of the type of machine on which the system is installed. The control unit is a digital, multi-channel, servo controller that is specially designed for fast force- and position-control loops.

The Rider Roll System (RRS) for winders and slitters is a force- and position-control system with separate controls for each side. The system features soft contact with the core, high nip-load accuracy, and dynamic force detection to prevent roll kickouts.

For rewinders, we can supply a system with correction for variable web width. This system is also available with single-channel pressure control.

The system for calenders is similar to the RRS, but includes correction for the changing angles of the arms.

The press-control system provides pressure and position control of the nip load in the press section or calenders.



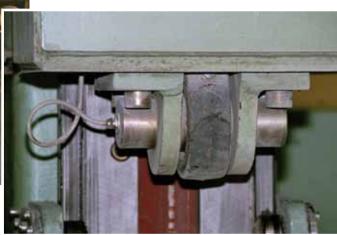
microPOS4 Digital Servo Controller



Winder with Rider Roll System RRS



Force transducer KISD mounted in the rider roll







Reel Optimizing

Nip Load, Density, Diameter, Force, and Position Control

Measure, Control, and Optimize Your Reel

The patented **Reel Optimizing System (ROS)** is a hydraulic force and position control system developed to eliminate wrinkles and cracks during the critical shifting phase, and improve roll density. With load cells in the primary and secondary arms installed close to the spool, the system provides extremely accurate measurement of nip force.

The ROS gives your reel smooth and synchronized movement of the arm, and a correct nip load from the first meters in turn-up position to the complete roll length. This is accomplished by measuring and controlling the nip load forces and cylinder positions in both the primary and secondary arms.

Roll Density, Diameter, and Length

Roll density is measured and optimized by controlling the nip load. Online density measurement provides very fast feedback for optimizing the calander after line shutdowns, or when changing grades.

The system provides very accurate length and diameter measurement, and includes a feature for calculating the required tambour diameter for the scheduled winder sets.

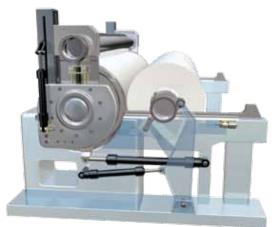
Optimizing Logger

The system's optimizing logger stores data on a PC for analysis.

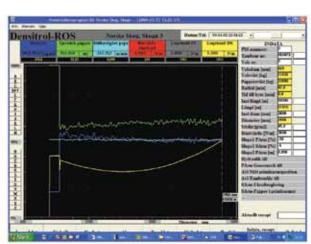




Reel with optimizing systems ROS



ROS system overview



Reel optimizing logger



Process Weighing, Web Tension, and Force Control Systems

Disc Gap

Refiners Position and Pressure Control

Disc Gap Control (DGC) Systems are installed in pulp and paper mills worldwide.

These systems were designed to fit most new disc refiners and enable easy retrofit of old ones.

We offer two standard solutions:

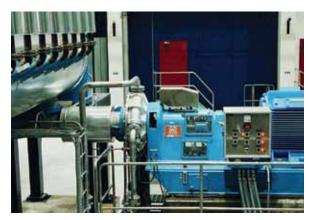
The basic system incorporates a manual- or stepper-motor-controlled hydraulic servo valve, with mechanical feedback from the grinding plate and a transducer for measuring the disc position.

An electronic unit controls and monitors disc gap and wear. The gap can be set either manually or remotely. The position of the discs is maintained independent of load variations or loss of power.

We also offer a more advanced electro-hydraulic system with a digital servo position controller, servo valve, and feedback from position transducers for gap width and disc wear. A pressure loop control can also be included.

Interface to the DCS is made with either analog or binary signals, and digitally transmitted via serial or fieldbus communication.





Disc refiner with SK 700 tracer valve







Weighing

Paper Rolls, Pulpers, and Coating Kitchen

Nobel Weighing Systems and BLH have four decades of experience in pulp and paper mill process control. In addition to providing precision force and web tension measurement for machine operation, we have extensive experience in mill process weighing and batching.

We provide weighing systems that reject side load forces introduced by thermal expansion and vibration. This guarantees high reliability and accurate production in coating kitchens.

We weigh finished "Jumbo" rolls with overhead crane scales or at fixed weighing stations. Conventional rolls are weighed on lifting tables after slitting and winding.

Pulpers and barking drums are weighed by highcapacity load cell systems that also control filling levels.

Our transducers and instruments are designed for easy installation and use, and provide excellent performance in harsh process environments.

We offer the broadest range of load cells and weighing instrumentation on the market. Providing customized solutions, special load cells and instrumentation software modifications is not an option; it is standard procedure with us.



KIS and TAD3



KDH and LCp-104





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Worldwide Contacts

www.weighingsolutions.com



The Americas

United States Vishay Precision Group – BLH

3 Edgewater Drive • Norwood, MA 02062 Ph: +1-781-298-2200 • Fax: +1-781-762-3988

E-mail: pw.usa@vishaypg.com

Canada Vishay Precision Group - BLH

14 Steinway, Unit 10 • Toronto • Ontario M9W 6M6

Ph: +1-800-567-6098 (toll free), +1-416-251-2554 • Fax: +1-416-251-2690

E-mail: pw.can@vishaypg.com

Asia

Taiwan, R.O.C. Vishay Precision Group – Weighing Systems*

8F-1, 171, Section 2, Datong Road • Sijhih City, Taipei 22183

Ph: +886-2-8692-6888 • Fax: +886-2-8692-6818

E-mail: pw.roc@vishaypg.com

*Asia except China

P.R. China Vishay Precision Group – Weighing Systems

A8220, Shanghai Jia Hua Business Center No. 808 Hong Qiao Road • Shanghai 200030

Ph: +86-21-6448-6090, Ext. 6098 • Fax: +86-21-6448-6070

E-mail: pw.prc@vishaypq.com

Israel Vishay Precision Group – Weighing Systems

2 HaOfan Street • Holon 58814

Ph: +972-3-557-0888 • Fax: +972-3-556-8116

E-mail: pw.il@vishaypq.com

Europe

United Kingdom Vishay Precision Group – Nobel Weighing Systems

Airedale House • Canal Road • Bradford BD2 1AG Ph: +44-1274-782229 • Fax: +44-1274-782230

E-mail: pw.uk@vishaypg.com

Germany Vishay Precision Group – Nobel Weighing Systems

Tatschenweg 1 • 74078 Heilbronn

Ph: +49-7131-39099-0 • Fax: +49-7131-39099-229

E-mail: pw.de@vishaypg.com

France Vishay Precision Group – Nobel Weighing Systems

10 Rue Francis Vovelle • 28000 Chartres

Ph: +33-2-37-33-31-25 • Fax: +33-2-37-33-31-29

E-mail: pw.fr@vishaypg.com

Sweden Vishay Precision Group – Nobel Weighing Systems

P.O. Box 423 • SE-691 27 Karlskoga

Ph: +46-586-63000 • Fax: +46-586-63099

E-mail: pw.se@vishaypg.com

Norway Vishay Precision Group – Nobel Weighing Systems

Brobekkveien 80 • 0582 Oslo

Ph: +47-22-88-40-90 • Fax: +47-22-88-40-99

E-mail: pw.no@vishaypg.com