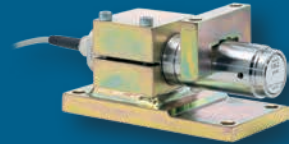


Process Weighing Technologies

Product Overview



SMART SOLUTIONS FOR
DEMANDING INDUSTRIES

BLH NOBEL
A VPG Brand

Solutions for Process Weighing Applications

BLH Nobel is recognized world wide as a leader in the field of industrial weighing and force measurement. As a turnkey supplier of weighing and batching solutions for process weighing applications, we design and manufacture standard and custom solutions that help our customers optimize their processes. Our mission is to be your preferred partner.

We specialize in weighing solutions for processes where liquids, powders or granules are mixed and measured in fractions of a gram or in thousands of tons. With decades of experience, we are equipped to address every imaginable weight-processing need plant-wide, from reactors and process vessels to ingredient storage bins to clean-in-place batching processes.

Our workmanship, knowledge and experience are highly recognized and desired all over the world. As a solutions provider we do not stop with the installed system. You get a partner being on your side after the sales took place.

BLH Nobel — Your Partner, All the Way

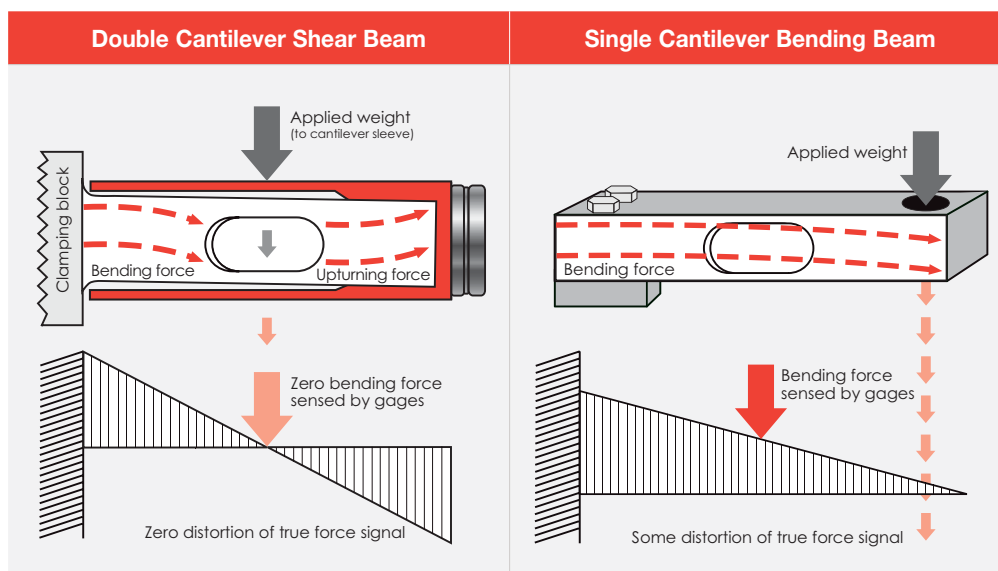
BLH Nobel is a brand of Vishay Precision Group, Inc. (NYSE: VPG), an internationally recognized designer, manufacturer and marketer of systems and sensor-based systems, as well as specialty resistors and strain gages based upon our proprietary technology. VPG provides precision products and solutions, many of which are “designed in” by our customers, specializing in the growing markets of stress, force, weight, pressure, and current measurements.

BLH Nobel offers unparalleled expertise that began in the late 1950s. Our know-how has grown with the experience, talent and skills that came from several acquisitions of well-known brands in the field of weighing and force measurement. Through the years, we've maintained a simple, customer-focused approach: We provide the right system for your specific needs, along with extensive technical documentation to support safe and efficient product designs. As your partner, we work closely with you from start to finish, ensuring smooth installations and reliable, long-running service.

The KIS Double Cantilever Technology Advantage

Our KIS beam technology starts with using the best gages available and the best gage configuration. All KIS beams are factory-calibrated to deliver repeatability, accuracy and reliability at a low installation cost. The sleeve as one of the unique elements of the KIS load cell product design, enables locating the load force application point directly above the strain gage sensors inside. This leads to significant performance advantages compared to traditional load cell product designs, making the KIS load cells insensitive to disturbance forces such as thermal expansion, vibration, or twisting moment.

The KIS Weigh Modules include a stainless steel clamping block and mounting yoke. Our modules are an industry standard for demanding applications, delivering accuracy of 0.02% and repeatability of 0.01%.



Meeting Your Needs

Because we design load cells, instrumentation and related software ourselves we are able to offer complete solutions tailored to your specific requirements. Our ultimate objective is to build the best system for you. We have a proven track record of successfully installed internally-produced custom hardware and software, tailored to meet our customer's needs. Whether you are an OEM designer or have a factory plant requiring a solution or replacement to an existing machine, we ensure the optimized functionality. Our system and application engineers possess the know-how needed to solve intricate weighing problems and related challenges.

BLH Nobel application engineers are the best in the business. With decades of accumulated process industry knowledge and experience, our application engineers profile and model your system before you buy it. After installation, our field service engineers fine-tune the system to ensure optimal dynamic performance and repeatability that meet your expectations. The field-engineering group can provide on-site startup, calibration, and service at your request. Our service engineers are equipped and trained to perform a wide range of calibration procedures. Our service contracts offer a turnkey calibration program that includes full computer generated documentation of results and traceability of methods and equipment.

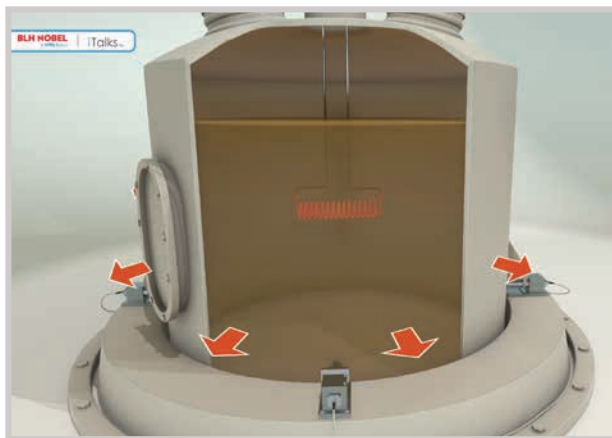
We develop load cells and software adapted to the client's application at our Swedish and American production facilities. Our R&D department is based in Sweden, with supplemental resource in the U.S. All of our products, including those sourced from third parties, are carefully vetted to ensure they meet or exceed our exacting quality standards and perform as expected. Driven by decades of total customer focus, our ultimate goal is the optimal solution for your needs. Our experts are waiting for your project.

Batching Solutions for Reactors and Process Vessels

BLH Nobel batching systems help to maximize product quality, consistency and safety. The batching system's primary function is to convert the signals from transducers to useful information. Our specially developed instrumentation includes more than 250 application software packages that can be adapted to meet your needs. Our instruments are capable of storing up to 30 recipes, across 30 lines, where activities and set point values can be entered. BLH Nobel instruments support a wide range of industrial applications, including process weighing and control, force measurement, factory automation, high dynamic force measurement, and high-speed batching/blending systems.

Process Measurement — Tanks, Silos, and Mixers

Our unique KIS Beam load cell provides accurate measurement in the most demanding process environments. Our solution works well whether you require a simple weight measurement on tanks or a stable measurement during mixing. Our instrumentation systems are powerful, flexible, user-friendly, and designed for easy calibration and set-up.








Custom Weighing Solutions

For decades, customers have turned to our experts for special weighing installations. Whether you are interested in converting a crane in a steel mill or developing a completely new weighing system for a pharmaceutical pilot plant, we can provide a solution.













One of our projects has been to work closely with one of our customers to overcome a dispensing and weighing accuracy challenge. Solving this issue was critical to the success for this multi-national company that develops vaccines. Not only was the 0.02% accuracy target achieved, but our system consistently achieved sub 0.01% in acceptance testing.

Weigh Modules and Load Cells

Our load cells are simple to install, rugged, insensitive to side loads, extremely accurate and feature a moveable load point.










Features / Products		KIS-1	KIS-2	KIS-3	KIS-8	KIS-9
Material		Stainless Steel, Plated Steel	Stainless Steel, Plated Steel	Stainless Steel, Plated Steel	Stainless Steel	Stainless Steel
Combined error, % of R.O.		±0.03	±0.05	±0.02	±0.075	±0.1
Repeatability, % of R.O.		0.01	0.01	0.01	0.02	0.02
Capacity Ranges	300-2000 kN					
	5-300 kN	500 kN (112 klb) 50 kN (11 klb)	50 kN (11 klb) 1 kN (0.22 klb)	20 kN (4.50 klb) 1 kN (0.22 klb)	200 kN (45 klb) 1 kN (0.22 klb)	100 kN (22 klb) 5 kN (1.12 klb)
	0-5 kN					
Environ. Protection Class		IP67	IP67	IP67	IP67	IP67
Certificates						
Dual bridge		Optional	Optional	Optional	Optional	—
Overload	Safe % of R.L.	200 (150 for 300–500 kN)	200 (150 for 30–50 kN)	200	150	150
	Ultimate % of R.L.	300 (200 for 300 kN)	300 (200 for 30–50 kN)	300	200	200

All units are available as ATEX versions and offer special cable adoption and high environmental protection levels.























KIS-11	KIMD-1	KDH-5	KOM-1	KDH-1	KDH-3
					
Stainless Steel, Plated Steel	Plated Steel	Stainless Steel, Plated Steel	Stainless Steel, Plated Steel	Plated Steel, Painted Steel	Stainless Steel
±0.02	±0.1	±0.075	±0.25	±0.10	±0.12
0.01	0.02	0.02	0.25	0.02	0.02
		2000 kN (450 klb)		1335 kN (300 klb)	
	1000 kN (225 klb)			890 kN (200 klb)	
	250 kN (56 klb)				500 kN (112 klb)
200 kN (45 klb)					100 kN (22 klb)
50 kN (11 klb)		20 kN (4.50 klb)	200 kN (45 klb)		
			10 kN (2.25 klb)		
IP67	IP67	IP67	IP67	NEMA 6, IP67	NEMA 4x/6, IP67
					
Optional	Optional	Optional	Optional	–	–
200	50	200	200	150	150
300	100	300	300	300	300

Weigh Modules and Load Cells

Our load cells are simple to install, rugged, insensitive to side loads, extremely accurate and feature a moveable load point.















Features / Products		EconoMount	EZ-Mount	PRO-Mount	Z-block	KIMD-M
						
Material		Plated Steel, Painted Steel	Stainless Steel	Painted Steel	Painted Steel	Stainless Steel, Plated Steel
Combined error, % of R.O.		±0.02 (load cell) ±0.10 (module)	±0.015 (load cell)	±0.03	±0.10	±0.1
Repeatability, % of R.O.		0.01	0.02	0.01	0.01	0.02
Capacity Ranges	300-2000 kN					2000 kN (450 klb) 500 kN (112 klb)
	5-300 kN			334 kN (75 klb) 44 kN (10 klb)	222 kN (50 klb)	
	0-5 kN	44 kN (10 klb) 2.22 kN (0.5 klb)	2.5 kN (0.6 klb) 0.05 kN (0.011 klb)		2.22 kN (0.5 klb)	
Environ. Protection Class		NEMA 4/4x, IP67	IP68	IP67	IP67	IP67
Certificates						
Dual bridge		–	–	–	–	Optional
Overload	Safe % of R.L.	150	150	150	150	200
	Ultimate % of R.L.	300	300	300	–	300

All units are available as ATEX versions and offer special cable adoption and high environmental protection levels.

U3SB "S" Type	Canister	KISD-6	KIMD-6	KOSD-40	CLC
					
Plated Steel (type A), Stainless Steel (type B)	Painted Steel	Stainless Steel	Stainless Steel	Stainless Steel	Painted Steel
±0.02 (type A) ±0.05 (type B)	±0.05 – 0.10	±0.1	±0.25	±0.5 (500kN version: ±1)	±0.1
0.01	0.01 – 0.02	0.02	0.05	0.25	0.02
	2224 kN (500 klb)				2000 kN (450 klb)
		1000 kN (225 klb)			
				500 kN (112 klb)	
			200 kN (45 klb)		250 kN (56 klb)
		50 kN (11 klb)	10 kN (2.25 klb)	10 kN (2.25 klb)	
89 kN (20 klb)					
0.222 kN (0.05 klb)	2.22 kN (0.5 klb)				
IP67	IP67	IP67	IP67	IP67	IP67
 	 	   	   	   	
–	Optional	Optional	Optional	Optional	–
150	150	200	200	200	200
300	300	300	300	300	300

Instruments

We offer a complete program of instrumentation, transmitters, and batching units. Our instruments are known for their accuracy and reliability. Our instrumentation are optimized for process industry. Easy to calibrate, they are supporting various communication protocols.









Features/Products		G5 PM	G5 RM	G5 RMD	G4 PM
					
Display		Color LCD	–	OLED	Color LCD
Number of Weighing Channels		1	1	1	up to 8
Gross/Net		✓	✓	✓	✓
Environmental Protection Class		IP65 (panel)	IP20	IP20	IP65 (panel)
Legal for trade		✓	–	–	–
Interfaces	Ethernet	✓	✓	✓	✓
	USB	✓	✓	✓	✓
	RS485 Modbus RTU	✓	✓	✓	✓
	Analog Output	✓	✓	✓	✓
	Analog Input	✓	✓	✓	–
Digital I/O	Inputs	4	4	4	up to 128
	Outputs	4	4	4	up to 128
Fieldbus Support	Modbus TCP	✓	✓	✓	✓
	Profibus	✓	✓	✓	✓
	DeviceNet	✓	✓	✓	✓
	Ethernet/IP	✓	✓	✓	✓
	ControlNet	✓	✓	✓	–
	PROFINET	✓	✓	✓	–
Software Features	EtherCat	✓	✓	✓	–
	Power Supply	24 VDC & 230 VAC	24 VDC	24 VDC	24 VDC & 230 VAC
	Web browser	✓	✓	✓	✓
	Batching	–	–	–	✓
	Totalizers	✓	✓	✓	✓
	Crane Weighing	✓	✓	–	✓
	Belt Weighing	–	–	–	✓
	Force Measurement	✓	✓	✓	✓
Load Cell Supervision	Flow rate	✓	✓	✓	✓
		✓	✓	✓	–
Certificates		   	  	  	  

reliability, user-friendliness, and their ability to communicate easily with virtually any factory networks. options, amongst EtherNet/IP and PROFINET.

G4 RM	AST 3P	WST 3P	TAD 3	WIN 5
				
LCD	LCD	LCD	LCD	LED
up to 6	1	1	1	1
✓	–	✓	✓	✓
IP20	IP20	IP20	1P65 (panel)	IP65 (panel)
–	–	–	–	–
✓	–	–	–	–
✓	–	–	–	–
✓	✓	✓	✓	✓
✓	✓	✓	optional	✓
–	–	–	–	–
up to 128	2	2	up to 32	1
up to 128	2	2	up to 32	2
✓	–	–	–	–
✓	–	✓	–	–
✓	–	–	–	–
✓	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
24 VDC	24 VDC	24 VDC	24 VDC	24 VDC & 230 VAC
✓	–	–	–	–
✓	–	–	✓	–
✓	–	–	✓	–
✓	–	–	✓	–
✓	–	–	–	–
✓	–	–	–	–
✓	–	–	✓	–
–	–	–	–	–
  				

Instruments

We offer a complete program of instrumentation, transmitters, and batching units. Our instruments are known for their accuracy and reliability. Our instrumentation are optimized for process industry. Easy to calibrate, they are supporting various communication protocols.





Features/Products		LCp-104	LCp-100/200	DXp-40	DXp-10/15
					
Display		LED	LED	LCD	–
Number of Weighing Channels		up to 4	1	up to 4	1
Gross/Net		✓	✓	✓	✓
Environmental Protection Class		IP65 (panel)	IP65 (panel)	NEMA 4, NEMA 4x	NEMA 4, NEMA 4x
Legal for trade		–	✓	–	–
Interfaces	Ethernet	–	–	–	–
	USB	–	–	–	–
	RS485 Modbus RTU	✓	✓	✓	–/✓
	Analog Output	✓	✓	✓	✓
	Analog Input	–	–	–	–
Digital I/O	Inputs	1	4	4	–
	Outputs	8	0/16	up to 8	–
Fieldbus Support	Modbus TCP	–	–	–	–
	Profibus	✓	✓	–	–
	DeviceNet	✓	✓	–	–
	Ethernet/IP	–	–	–	–
	ControlNet	–	–	–	–
	PROFINET	–	–	–	–
	EtherCat	–	–	–	–
Power Supply		115 & 230 VAC	115 & 230 VAC	115 & 230 VAC	115 & 230 VAC
Software Features	Web browser	–	–	–	–
	Batching	–	–	–	–
	Totalizers	–	–	–	–
	Crane Weighing	–	–	–	–
	Belt Weighing	–	–	–	–
	Force Measurement	✓	✓	✓	–
	Flow rate	✓	✓	–	–
Load Cell Supervision		✓	–	✓	–
Certificates			 IEC1010-2		

reliability, user-friendliness, and their ability to communicate easily with virtually any factory networks. options, amongst EtherNet/IP and PROFINET.

PS-1045	PS-1050	PS-2010W	PS-1020	Plug-In Weigh Module
				
LED	LED	LCD	–	–
1	1	1	1	up to 2
✓	✓	✓	–	–
IP20	IP20	NEMA 4X in fiberglass enclosure	IP20	IP20
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
✓	✓	✓	–	–
✓	✓	✓	✓	–
–	–	–	✓	–
2	2	4	–	–
2	2	8	–	–
–	–	–	–	–
✓	✓	–	–	–
✓	✓	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
24 VDC	24 VDC	115 & 230 VAC, 24 VDC	24 VDC	24 VDC from backplane
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	✓	–	–
–	–	–	–	–
–	–	–	–	–
CE	CE	CS	CE	

Accessories and Third Party Products

At BLH Nobel we strive to provide the optimum solutions for our customers in the process weighing industry. Therefore, we offer



<p>FSK-40 Complete Field Service Kit</p>		<p>Start-up, commissioning, routine servicing, and calibration of process weighing systems can be simplified significantly using the FSK-40 Service and Calibration Kit. This complete kit is equipped with a four-channel load cell instrument, an instrument calibrator, a serial communication module, operation and servicing manuals, and a set of 10-foot remote connection cables. The entire assembly is housed in a rugged, portable suitcase with shock mounting.</p>
<p>Model LCc-II Load Cell Calibrator</p>		<p>For indication and calibration of up to 10 load cells</p> <p>Ten registers with 10-point linearization curves each</p> <p>Quick Cal, 10-point dead load, or data sheet calibration/each register</p> <p>Peak and valley storage capability for each register</p>
<p>Model 325 Precision Calibrator</p>		<p>Compact, rugged construction for cal lab or plant floor service</p> <p>Model 625: five ranges, 56 calibration points, 0.05% accuracy</p> <p>Model 325: eight ranges, three bridge impedance selections, vernier</p> <p>Model 125 Pocket Calibrator: palm sized, four selectable ranges</p>
<p>GATE 3S Gateway</p>		<p>Communication link between local network for transferring weight, force or servo data over external networks (field buses) to PCs or PLCs</p>

both, BLH Nobel and 3rd party high quality accessories, to assure the best match for your unique application demands.

<p>PS-121 Power Supply</p>		<p>The PS-121 power supply module supplies 24 VDC power to the BLH Nobel PS series transmitter: PS-1020, PS-1045, and PS-1050. Each module is capable of powering a single PS series transmitter with six transducers or two PS series transmitters with four transducers connected.</p>
<p>RD 10 Display</p>		<p>RD 10 is a compact, digit-for-digit, high visibility remote display. The large LED display (57 mm digits) and wide viewing angle contribute to ease of reading at long distances</p>
<p>Zener Barriers</p>		<p>In the event of an electrical fault, the diodes limit the voltage that can reach the hazardous area and the resistor limits the current</p> <p>One channel contains 2x MTL7761P and 1x MTL7766P</p> <p>Compatible with elder MTL barriers of the same type</p>
<p>LCT 1008 Load Cell Tester</p>		<p>System diagnostic and service</p> <p>Calibration function</p> <p>Testing of individual load cell</p> <p>Easy connection to Junction Box SL-5</p>

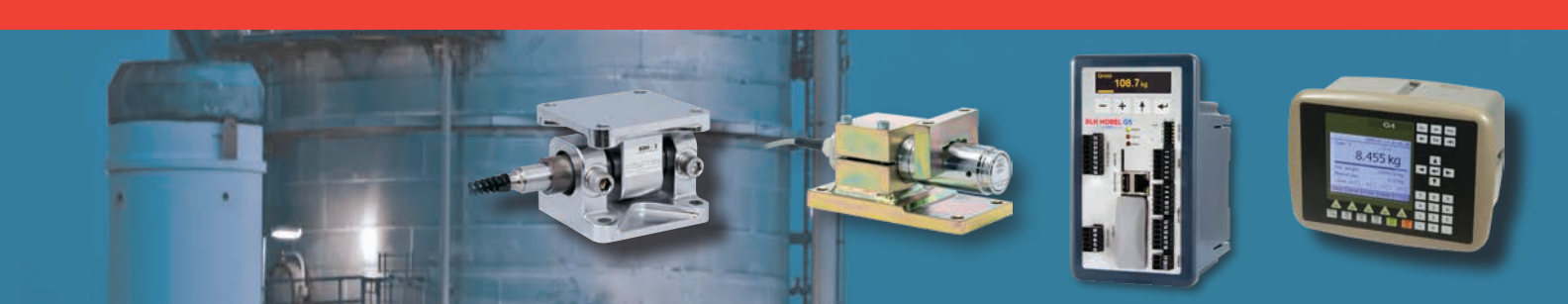
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<p>SL-4 Junction Box</p>		<p>The junction box allows fast and easy connection of many transducers to a single weighing instrument</p> <p>ATEX certified for use at applications in explosive environments</p>
<p>SL-5 Junction Box</p>		<p>Rugged summing junction box, built for harsh environment. Easy connection to load cell tester model 1006 for testing of individual transducer, calibration, service and diagnostic</p>
<p>SL-11 Junction Box</p>		<p>Allows fast and easy connection of up to 4 transducers to a single weighing instrument</p> <p>Meets IP 65 requirements</p> <p>4 cable glands M16 and 1 cable gland M20 in nickel plated metal</p> <p>Painted cast aluminum encasing</p>
<p>SL-21 Junction Box</p>		<p>Allows for fast and easy connection of up to 4 transducers to a single weighing instrument</p> <p>Meets IP 66 requirements</p> <p>4 cable glands M16 and 1 cable gland M20 in nickel plated metal</p> <p>Stainless steel encasing</p>

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