

13. Electronic Load Measuring

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13.1 Load Mate Loadlinks



Load Mate Loadlinks

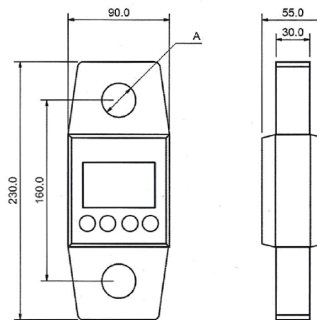
This Load Link is a combination of a sound and proven design, with today's advanced electronics to provide a superb feature set. It is versatile, reliable, accurate and easy to operate.

Features

- New Larger digits on the display
- Fits with standard Shackles
- Small/compact easy to use and carry
- Low power consumption design

Specifications

Display	Digit height 22mm -total screen size 39mm high
Increments	2000kg type = 1 kg , 5000kg type = 2kg
Stable Time	<10 seconds
Auto Zero Range	+/- 20% full scale (at power up)
Stable Time	+/- 2% full scale
Manual Zero Range	+/- 2% full scale
Tare Range	Full capacity
Overload Indication	100% full scale
Maximum Safe Load	120% full scale
Ultimate Safe Load	400% full scale
Batteries	3 x AA (included)
Battery Voltage	Indicated on the display on power up/down
Battery Life	>300 hours



Product Specifications

Name	ITEM #	WLL (tonnes)	A (mm)	Material	Weight (kg)
LOADMATE 5 tonne LOADLINK Completed Kit	29288	5	30	Stainless Steel	3.5
LOADMATE 2 tonne LOADLINK Completed Kit	29287	2	23	Aluminium Alloy	2

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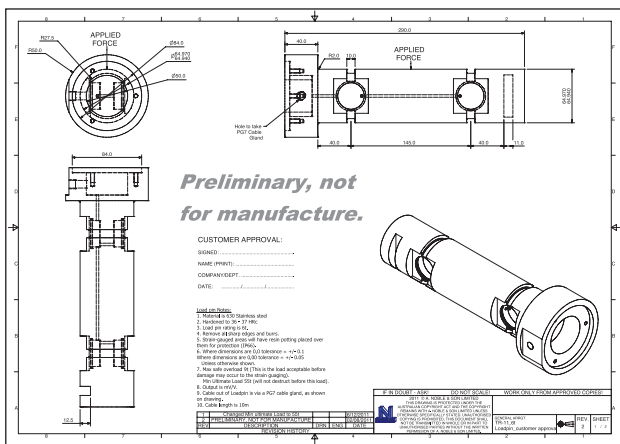
General Information

ELECTRONICS DIVISION PROFILE

A. Noble & Son Ltd. Electronics Division has been both designing and manufacturing load cells and load indicating equipment for over 30 years and is highly regarded as a leader in this field.

The Electronics Division has steadily expanded its scope over the years. Products offered include a range of simple "off the shelf" ready to use products to custom designed and engineered load cell solutions to meet specific customer requirements.

Our load indicating products compliment the traditional wire rope and lifting product lines and fit well with our unique ability to provide engineered lifting solutions to suit almost any application.



Product Range

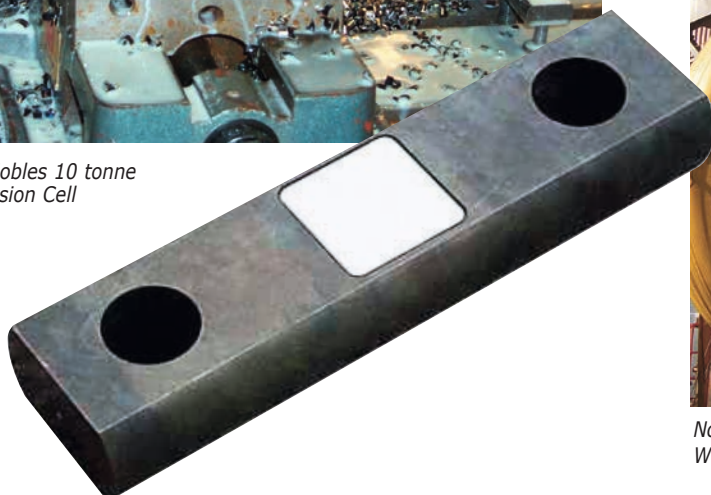
- Lightweight aluminium load cells with varying display options
- Static rope tensioning systems
- Overhead travelling crane safety and load indicating systems
- Safe load indicators for mobile and tower cranes
- Anti Two-Block systems
- Portable weighing systems
- Standard and custom tension and compression cells
- Custom design shear load pins
- Boat lifting straddle crane systems
- Boom angle indicators
- Ship Loader load monitoring
- Intrinsically Safe systems for drill rigs
- Underground mining cage and skip load monitoring
- Underground Communications
- Conveyor belt tension monitoring
- Truck crane systems
- Industrial platform scales

A. Noble & Son Ltd. operates under a Certified Quality Management System in accordance with AS/NZS ISO 9001 and the Electronics Division also has a NATA accredited Metrology Laboratory.

Nobles also have NATA accredited testing laboratories in eleven of our fifteen branches throughout Australia.



Manufacture of a Nobles 10 tonne Stainless Steel Tension Cell



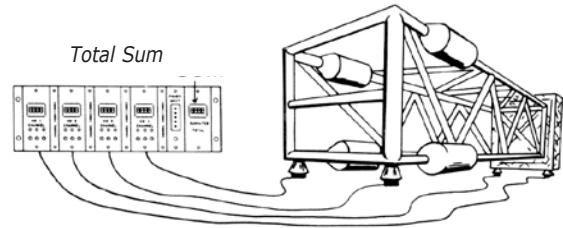
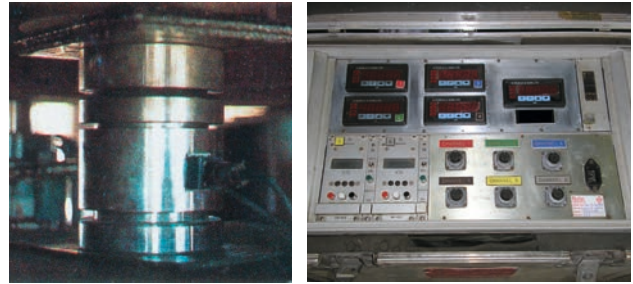
Nobles Tension Load Cell being used with Water Weights to proof load test a ship crane.



General Information

ELECTRONICS DIVISION PROFILE

The company has a fleet of load cells available for hire in varying capacities and configurations. All hire cells come with calibration certification and are transported in durable road boxes. Please contact your nearest Nobles branch for further details on load cell hire systems.

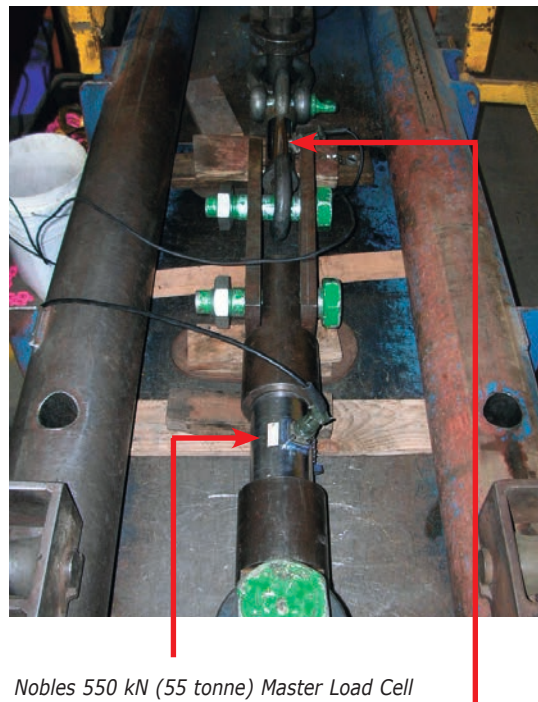


This system shows four of six 150 tonne compression load cells that are available for hire. This type of system can be used for weighing large modules to determine load distribution, load mass weight and centre of gravity.

Nobles also offer a 4 x 50t compression load cell kit for hire.

NATA METROLOGY LABORATORY - Accreditation Number 2073

Nobles Electronics Division has NATA accreditation for the calibration of electronic load cell equipment. The laboratory complies with the requirements of ISO/IEC 17025 for 1.50 force measuring devices and 1.53 testing machines. We can verify the accuracy of your load cell and certify it in accordance with Australian Standard AS 2193.



Nobles 550 kN (55 tonne) Master Load Cell

100 kN (10 tonne) Load Cell being calibrated

Detailed reports are provided after each calibration.

Readouts from both Load Cells are compared and any errors are noted in the cell being calibrated. The cell being calibrated is then respansed to correct the errors.

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13.2 Telemetry Loadlinks



Telemetry Loadlinks

2.4GHz communication in excess of 100m

I.P.66 'O' ring sealing

Multi unit operation in one area

Remote switch On/Off from handset

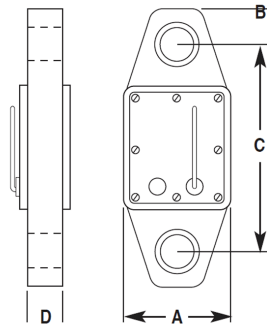
Local and remote low battery warning

Heavy duty carry case

Ability to monitor 2 separate units of measurement

Greater than 5:1 safety factor

Capacities available 12.5 - 200 tonne



Product Specifications

Name	ITEM #	WLL (tonnes)	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)
5t Telemetry Load Link with Carry Case, Readout and NATA Calibration	29558	5	130	32.5	243	32	3
12.5t Telemetry Load Link with Carry Case, Readout and NATA Calibration	29559	12.5	130	44	256	50	4.5
25t Telemetry Load Link with Carry Case, Readout and NATA Calibration	29560	25	136	70	290	61	6.5
35t Telemetry Load Link with Carry Case, Readout and NATA Calibration	29561	35	138	65	310	70	11
50t Telemetry Load Link with Carry Case, Readout and NATA Calibration	29562	50	170	88	304	85	16
T24 Telemetry Loadlink		75	180	98	304	100	17
100t Telemetry Load Link with Carry Case, Readout and NATA Calibration	29563	100	188	100	404	120	28
T24 Telemetry Loadlink		150	248	130	420	130	36

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13.3 Fulmer Tension Meter



Fulmer Tension Meter

The Fulmer Tension Meter allows a rapid tension measurement of fixed or stationary Rope, Rod or Cable. The portable hand held instrument clamps onto the cable exerting a force, and measures the deflection.

Suitable for use on steel wire ropes, natural and man made fibre cord, covered or uncovered ropes, combination ropes, twines and metal rods.

Applications Include:

- Equalise loadings on multi cable assemblies

- Tension to specific loads for optimum performance safety or ensure specifications are met.

- Safety, Performance & Condition Monitoring of:

 - Aerial Mast Stays

 - Fishing Ropes

 - Aircraft Support Cables

 - Oil Rig Support Cables

 - Overhead Cables

 - Lifts and Cable Cars

 - Cranes and General Engineering

 - Mining

 - Architectural Rigging

 - Ships Rigging

Operation Tension is measured by engaging the meter on the loaded member and exerting a deflecting force by a half turn of the handle.

The reaction to the deflecting force acts upon the frame, causing it to bend to an extent that is proportional to the tension in the member.

This is read out on the indicator incorporated in the Tension Meter.

The actual tension or load is obtained from the calibration graph.

The Tension Meter must be calibrated with the same type, size and construction of rope, rod or cable.



Product Specifications

Name	ITEM #	Description	Suits Wire Size (mm)	Length (mm)	Weight (kg)
Fulmer Tension Meter 03L		Suits elevator hoisting ropes	8 - 24	460	3
Fulmer Tension Meter 03G		Improves accuracy at lower cable tensions	6 - 19	460	3
05C Fulmer Tension meter, Rope/Strand diameter 8 mm to 30 mm, max tension 10t-one calibration	29533	Heavy duty for large cables and higher tensions	6 - 31	560	3
03C Fulmer Tension meter, Rope/Strand diameter 5 mm to 19 mm, max tension 3t-one calibration	29534	General purpose multi usage suited for radio and tv mast stays	5 - 20	460	3

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13.4 Rig Mate Crane Scales



RIG-MATE

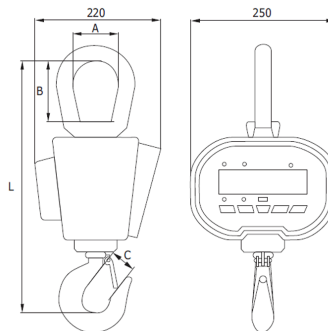
Rig-Mate Compact Crane Scales

Features

- New compact, lighter design
- 30mm backlit LCD display
- Manual or remote operation via remote control
- Water resistant button panel
- 2 rechargeable batteries included
- Display Functions
 - Load/weight, hold, tare, accumulation, kg/lb conversion, gross/net conversion
 - NATA Calibration available on request

Specification

- Display 30mm backlit LCD
- Increments 2t Model - 1kg, 5t Model - 2kg
- Stable Time < 10s
- Tare Range Full Capacity
- Overload Indication 100% Max Capacity
- Maximum Safe Load 120% Max Capacity
- Ultimate Load 400% Max Capacity
- Battery Life 60 - 100 hours
- Charger DC 9V / 1000mA
- Operating Temp -10 to 40 degrees
- Batteries for remote 2 x AA (included)



Product Specifications

Name	ITEM #	WLL (tonnes)	A (mm)	B (mm)	C (mm)	L (mm)	Weight (kg)
Crane Scale 5t Rigmate	27456	5	85	115	40	480	15
Crane Scale 2t Rigmate	27276	2	70	100	35	420	11.5

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RIG-MATE

Rig-Mate Crane Scales

Features

30mm LCD display

Manual or Remote Operation

Easy to replace lead-acid battery and AC to DC power adaptor/recharger

6V/10Ah rechargeable battery included

Infrared remote control operating distance of 20m

Display Functions; Load/weight - hold, tare, accumulation, kg/lb conversion, gross/net conversion

NATA Calibration available on request (Uncalibrated Accuracy +/- 2%)

Specification

Display 30mm, 5 digit LCD

Display Increments 10t - 5kg, 20t - 10kg

Tare Range Full capacity

Stable Time < 10 seconds

Overload Indication 100% max capacity

Max Safe Load 125% max capacity

Ultimate Load 400% max capacity

Operation Time 60 - 100 hours

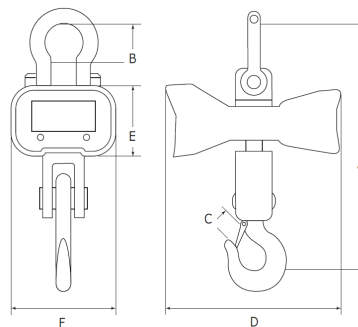
Battery Type Fully sealed lead-acid battery, 6V / 10Ah

Charger DC 9V / 1500mA

Operating Temp - 10 to + 40 degrees

Remote Control Batteries 2 x AA (Supplied)

Uncalibrated Accuracy +/- 2%



Product Specifications

Name	ITEM #	WLL (tonnes)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Weight (kg)
Crane Scale 20t Rigmate	29547	20	940	220	75	360	155	230	67
Crane Scale 10t Rigmate	29545	10	850	120	70	360	155	230	44

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13.5 Load Cells



Universal Load Cells

Universal low profile, high accuracy Universal Load Cells have a compact design and come in capacities ranging from 1 tonne to 100 tonne. The Universal Load Cells are constructed in tool steel with a corrosion resistant plated finish and are fully environmentally sealed.

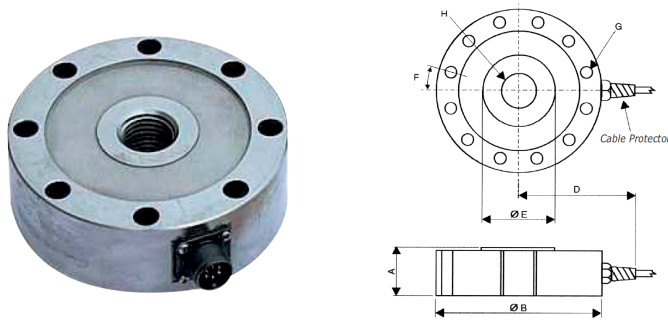
Applications for Universal Load Cells include:

Materials testing in compression or tension

High capacity tension weighing and overhead weighing of cranes

The low profile is ideal for compression weighing of hoppers, tanks and silos

A range of universal load cells is available in standard sizes and special sizes can be custom manufactured on request.



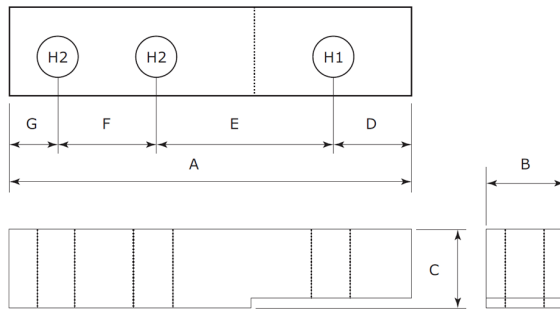
Product Specifications

Name	ITEM #	WLL (tonnes)	A (mm)	B (mm)	D (mm)	E (mm)
Universal 5		5	35	105	95	35
25t Universal Loadcell System c/w HH4-WT display 20m cable and NATA calibration	29583	25	44.5	155	125	65
Universal 50		50	63.5	205	145	95
Universal 100		100	90	280	185	125



Shear Beam Load Cells

Shear Beam Load Cells are used in applications such as platform scales where half of the cell is attached to a stable structure and the other half is attached to a structure that is designed to be load bearing and have some movement.



Product Specifications

Name	ITEM #	WLL (tonnes)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H1 (tapped)	H2 (mm)
Shear Beam Load Cells 0.5 tonne		0.5	130	30	30	12.5	76	25.4	16		13
Shear Beam Load Cells 01 tonne		1	130	30	30	12.5	76	25.4	16		13
Shear Beam Load Cells 02 tonne		2	130	30	30	12.5	76	25.4	16		13
Shear Beam Load Cells 03 tonne		3	191	43	45	22	90	60	20	20	20
Shear Beam Load Cells 05 tonne		5	191	43	45	22	90	60	20	20	20
Shear Beam Load Cells 10 tonne		10	245	48	60	23	120	75	25	26	22

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Load Cell Pins

Load Cell Pins are a speciality of Nobles Electronics Division and we regularly manufacture application specific pins. All load cell pins are made to order as each one is different in regard to configuration, capacity and dimensions.

Load Cell Pins are available with rated loads 2 tonne to 1,000 tonne.

The field-proven load measuring pins offer an alternative solution in addition to exhibiting the following advantages.

- Simple exchange with existing shafts or pivots without alterations to the construction.

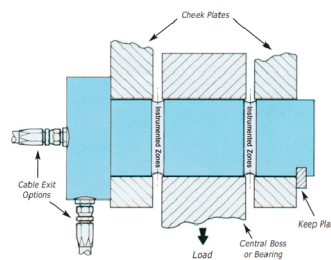
- Complete protection of the transducer by the bearings.

- No reduction in the lifting height.

- The function of these strain gauge measuring pins depends on the determination of shear forces which are introduced into the measuring element by suitable design and arrangement.

Selection and Application

Unlike the majority of measuring devices, a Load Measuring Pin can be fitted or retrofitted without the need for expensive modifications or fittings. The pin is strain gauged in two shear planes.





Conveyor Belt Tension Monitoring

Features

Single and multi load cell systems.

Compression tension or load cell pins.

Modular design electronics for flexibility.

Customer individual requirements designed.

High/low alarm trip monitoring with outputs.

Compatible outputs for all types of logic units (mV/V or 4-20mA outputs nominal).

Nobles conveyor belt tension monitoring systems use a standard 10 tonne stainless steel tension load cell with in-line eyes. Other load cell configurations and capacities are also available to suit specific applications.

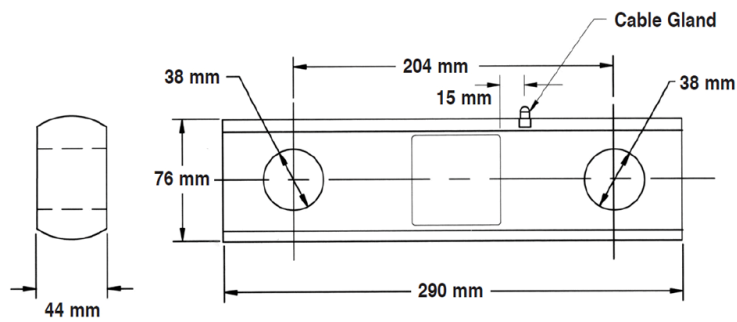
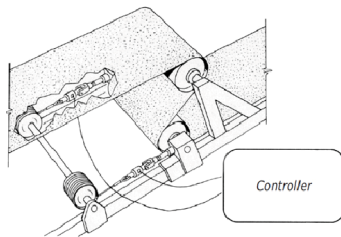
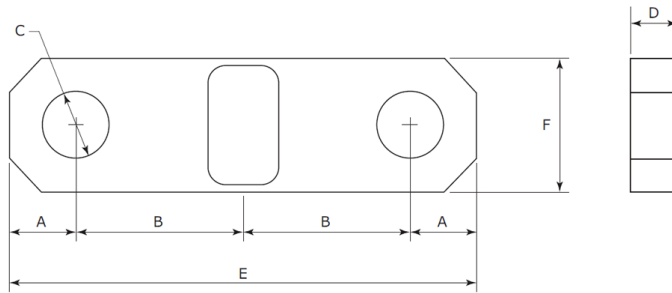




Plate Load Cells

Nobles manufacture a range of plate cells in-house and various display options are available. Plate cells are a low cost tension cell where articulation of the load does not occur. Plate cells are usually secured with sister plates and are not suitable for applications with high rotational torque.



Product Specifications

Name	ITEM #	WLL (tonnes)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
1.5t Nobles Plate Load Cell	29528	1.5	30	70	35	14	200	55
2.5t Nobles Plate Load Cell	29529	2.5	30	75	30	16	210	60
5t Nobles Plate Load Cell	29530	5	30	75	35	21	210	65
7.5t Nobles Plate Load Cell	29531	7.5	45	65	36	25	220	66
10t Nobles Plate Load Cell	29532	10	50	80	41	25	260	82

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