Tractel®

CATALOG

Lifting & Handling | Measure & Control | Height Safety

Export

www.tractel.com

Company Profile

Tractel® is a world leading safety specialist providing reliable, innovative and cost-effective working-at-height solutions and services. These solutions are used in many end-user applications, in particular in industrial, construction, energy, telecoms and infrastructure projects.

Tractel® 's solutions portfolio comprises of:

- **Height Safety** - Leading provider of working-at-height personal protective equipment – fall arrest devices (stopfor™, blocfor™, derope™), anchors, harnesses - as well as collective protective equipment, such as guardrails, (BlueWater™), safety gates (Fabenco™) and safety nets (Knot®).
- **Load Measurement & Control** – European leader in industrial load measurement and control – dynafor™, handifor™, dynasafe™, dynaline, dynarope, and dynaplug.
- **Lifting & Handling** – World leader in pass-through manual wire rope hoists (tirfor®) and pass- through electrical wire rope hoists (tirak™, minifor™), clamps,pulleys and hooks, as well as ground handling equipment.
- **Temporary & Permanent Access** – World leader in hoists (tirak™) and aluminium platforms (ALTA, skysafe™), mast climbing work and transport platforms and construction elevators (Scanclimber®), Building Maintenance Units and permanent access solutions for industry, infrastructure and buildings.
- **Services** - in-situ inspection and maintenance services for permanent access equipment, workshop maintenance and general overhauls of mechanical equipment, as well as training and rental services

Established more than 70 years ago, Tractel® today has significant manufacturing facilities in Europe (France, Germany, Poland, Spain), the USA (Minneapolis, Houston), Canada (Toronto, Montreal), China (Shanghai), Singapore and Turkey. These facilities are supported by dedicated centres of excellence in R&D, engineering and safety standards. Tractel® has customers in 120 countries, subsidiaries in 19 countries, 10,000 distributors around the world, and employs around 1,100 people.

This network of expertise, experience and geographical locations allows Tractel® to achieve global reach with local presence.

Tractel® Values:

- **Safety:** Safety is paramount in everything we do. Our customers, subcontractors and employees rely on us to keep them safe when working at height and in their respective work environments, and we will do everything we can to maintain that trust.
- **Interests of our Customers:** The Interests of our Customers are at the forefront of our mind. The distributors, contractors and other customers we work with around the world are the lifeblood of our business existence. Our business does well if we deliver the value that makes their business do well.
- **Reliability:** We focus on Reliability. We take pride in the fact that our products and solutions are of the highest quality and work reliably throughout their lifetime. We pride ourselves on being just as reliable in business. We say what we do and do what we say, we are trusted business partners, both inside and outside of our organisation.
- **Entrepreneurship and Innovation:** We value Entrepreneurship and Innovation. We take pride in growing our business, we are agile and fast in developing opportunities. We innovate because it is how we bring better value to our customers, differentiate from our competitors and ultimately ensure that Tractel® continues to thrive for years to come.
- **Focused and Transparent:** We are focused on the projects we have decided to deliver and value team work. Both within our respective organisations and across sister business units. This means we act with transparency between colleagues, and we are accountable for the projects under our responsibility.

Tractel® - Product ranges

Height Safety Products & Systems










Load Measurement and Control





Lifting and Handling

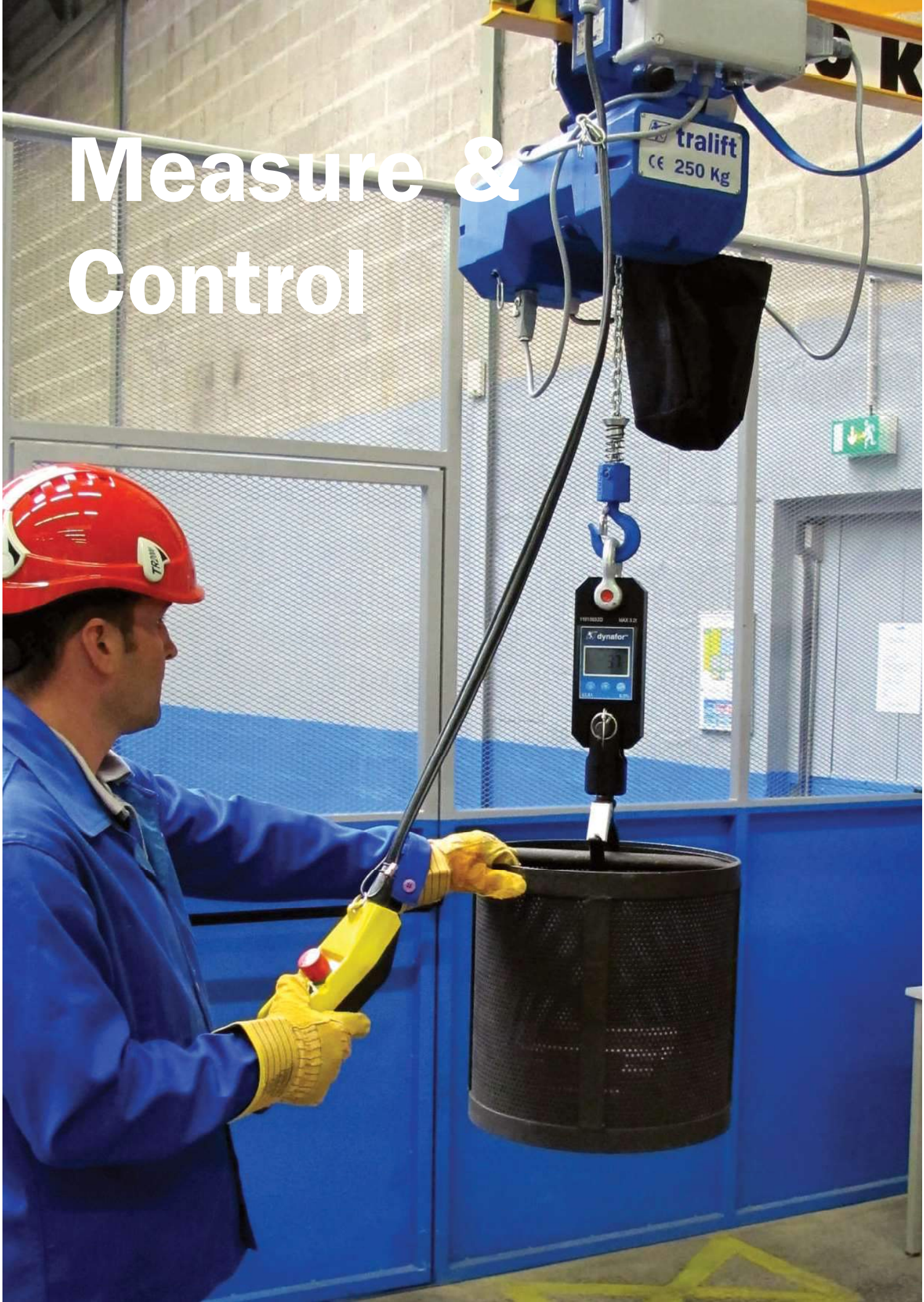










Measure & Control

Dynafor

Page 107–114

Dynasafe

Page 115–117

DMU

Page 118–118

Displays

Page 119–119

Dynarope

Page 120–120

Anchor tester plate

Page 121–121

Selection guide

Selection guide - dynafor™

Measure and control of forces and loads in Industry

Solution for multiple applications. Adjustment certificate. Optional ISO 376.

SELECTION	1	2	3	4	5
MODEL	CAPACITY	PRECISION	REMOTE DISPLAY	PROTECTION RATING	FUNCTIONALITIES
 handifor™	20 / 50 / 100 200 kg	0.5 %	No	IP 40	**Level 1** ■ Tare ■ Units ■ Peak load ■ Automatic Stop
 LLZ2	1/ 3.2 / 6.3 12.5 / 20 t	0.3 %	No	IP 65	
 LLX1	0.5 / 1 / 2 3.2 / 5 / 6.3 12.5 / 20 t	0.2 %	Yes, optional	IP 65	**Level 2** ■ Level 1 functionalities + ■ Settable automatic stop ■ Filtering settable dynamic effects
 LLXh	15 / 25 / 50 100 / 250 t	0.2 %	Yes	IP 66 IP 67 optional	**Level 3** ■ Level 2 functionalities + ■ Functionalities listed below:
 LLX2	0.5 / 1 / 2 3.2 / 5 6.3 / 10 t	0.1 %	Yes	IP 64 IP 67 optional	

LEVEL 3 SPECIFIC FUNCTIONALITIES

FUNCTIONALITY	ADDITIONAL EQUIPMENT
Backlight screen	Remote LLX2 display
Locking of setting menu	DMU WL (Wireless Dynasafe™ Monitoring Unit)
Multiple and settable alarms	DMU WL + AL63 or AL128 display units
Associations of multiple sensors/displays	dynafor™ Connection software
Threshold (5) and dynamic effect management Overload + Cable slack + Summation	Communication Protocol
High visibility wired remote LED display	
Data acquisition on PC (1-8 sensors)	
IT integration (1-32 sensors)	

dynafor™ are only compatible with wireless connection DMU: DMU WL.

DMU WL

AL 63

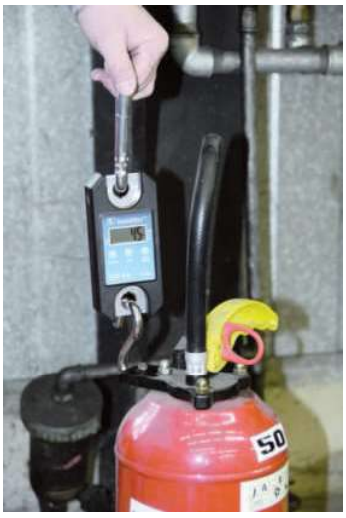
LLX2 display

handifor™

A convenient electronic load indicator including hooks for measuring small weights, quickly and easily.
Specifications:

- 5-digit LCD display, 14 mm
- Safety factor: at least 4 times WLL
- Accuracy: 0.5% of measuring range
- Units: kg, daN, lbs
- Protection class: IP40
- Operating temperature: -10 to +50 °C
- In conformity with: CEM2004/108/C

Model	W.L.L	Accuracy	Min. Value	Resolution	Weight (kg)	Product Code
handifor™ 20	20	0.1	0.1	0.1	0,5	199919
handifor™ 50	50	0.25	0.2	0.2	0,5	199929
handifor™ 100	100	0.5	0.2	0.2	0,6	199939
handifor™ 200	200	1	0.5	0.5	0,9	199949



dynafor™ LLZ2

Featuring an integrated display, the dynafor™ LLZ2 series of load indicators provides great value,
with an accuracy of 0.3% of maximum measuring range.

- 5-digit, 17.8mm LCD display
- Safety factor: 4
- Protection class: IP65
- Operating temperature: -20 to +50
- Conforms to 2006/42/CE and 2004/108/CE

Model	WLL	Resolution	Product Code
LLZ2-1	1 t	1	260889
LLZ2-3.2	3,2 t	2	260899
LLZ2-6.3	6,3 t	5	260909
LLZ2-12.5	12,5 t	10	260919
LLZ2-20	20 t	20	260929

Delivered with cardboard box, except for models LLZ-10 and LLZ-20 (delivered with plastic box with 1 verification certificate, operating instructions and certificate of conformity)

dynafor™ LLX1

Technology, serving industry

Option : display

The dynafor™ LLX1 series consists of industrial load indicators with integrated display. Extreme accuracy with full traceability: 0.2% of the maximum measuring range. In addition to the stand-alone application, it is possible to expand the LLX1 series with a separate display. Combined with the remote display, measurements can be easily remotely read.

- 18 mm LCD display
- Safety factor: at least 4 times WLL
- Units: kg, t/daN, kN/lbs, ton (US)
- Default integrated transmitter
- ZigBee 2.4 GHz, default range 40 m
- In conformity with: CE2006/42/EC, CEM2004/108/CE, EN300/440-2 V1.1.1
- Protection class: IP65
- Remote display: IP54
- Operating temperature: -20 to +40 °C
- Test load: 2 times WLL

Model	WLL	Resolution	Product Code
LLX1 0.5 - Sensor only	0,5 t	0.2	210269
LLX1 1 - Sensor only	1 t	0.5	210279
LLX1 2 - Sensor only	2 t	1	210289
LLX1 3.2 - Sensor only	3,2 t	1	210299
LLX1 5 - Sensor only	5 t	2	210309
LLX1 6.3 - Sensor only	6,3 t	2	210319
LLX1 12.5 - Sensor only	12,5 t	5	210329
LLX1 20 - Sensor only	20 t	10	210339

Delivered with plastic box with 1 verification certificate and operating instructions
Delivered with battery for sensor, without shackles and without hook.

dynafor™ LLX2

High-tech technology, serving industry

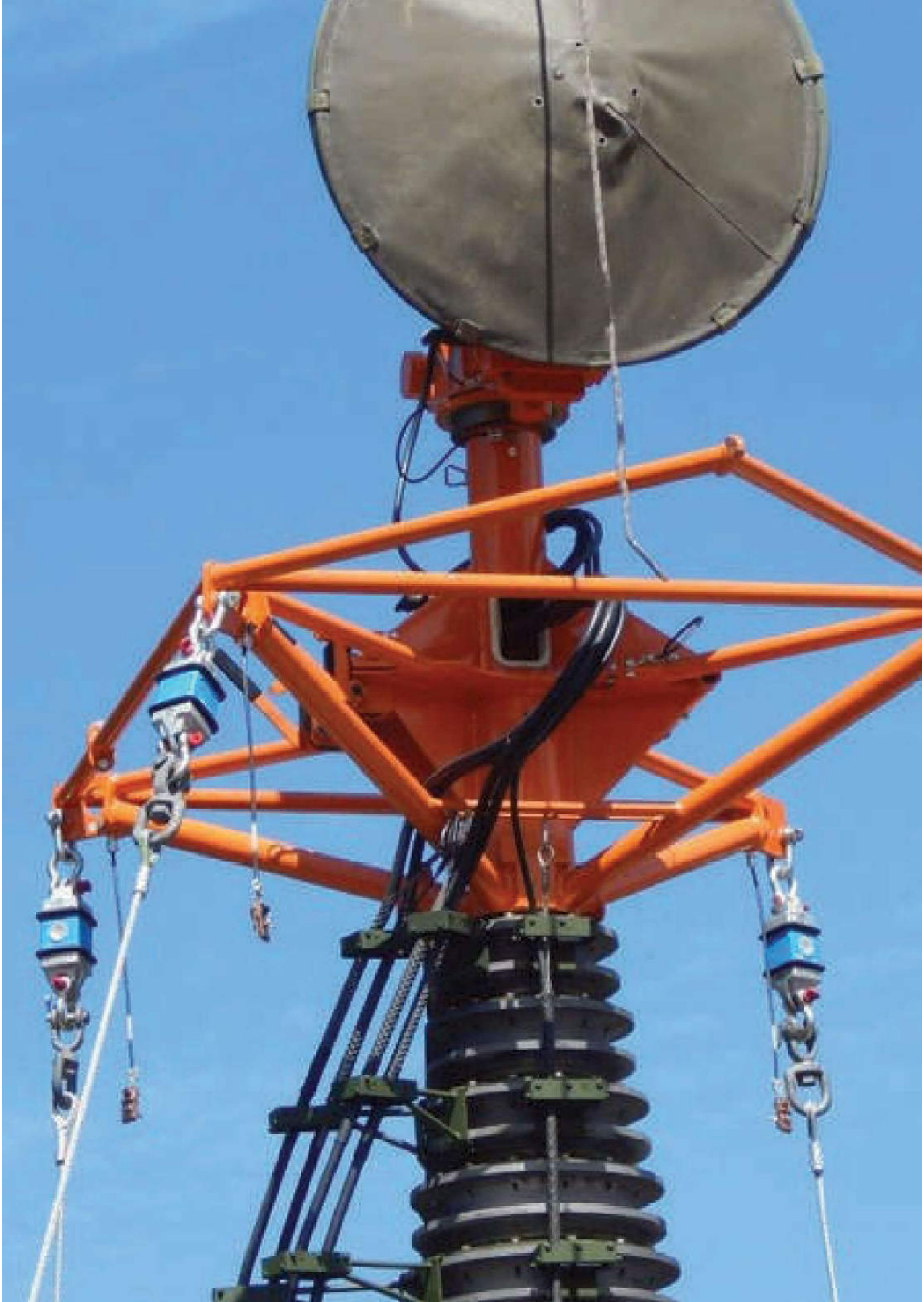
The dynafor™ LLX2 series is the industrial standard for load indicators. Offering extreme accuracy with full traceability (0.1% of the maximum measuring range), the LLX2 is suitable for simple to highly complex projects, and can be combined with monitoring software for simultaneously reading, managing and storing data from up to 8 load cells. The remote display is designed for simultaneously reading 4 load cells.

Specifications:

- 25mm LCD display with backlight
- Safety factor at least 4 x WLL
- Units: kg, t/daN, kN/lbs, ton (US)
- ZigBee 2.4 GHz, default range 80m
- Conforms to CE2006/42/EC, CEM2004/108/CE, EN300/440-2 V1.1.1
- Protection class: IP64
- Remote display: IP54
- Operating temperature: -20 to +40 °C
- Test load: 2 x WLL

Model	WLL	Resolution	Classification	Product Code
LLX2 0.5t - Sensor only - I.P. 66	0,5 t	0,1 kg	I.P. 64	108179
LLX2 1t - - Sensor only - I.P. 66	1 t	0,2 kg	I.P. 64	108189
LLX2 2t - Sensor only - I.P. 66	2 t	0,5 kg	I.P. 64	108199
LLX2 3,2t - Sensor only - I.P. 66	3,2 t	0,5 kg	I.P. 64	108209
LLX2 5t - Sensor only - I.P. 66	5 t	1 kg	I.P. 64	108219
LLX2 6,3t - Sensor only - I.P. 66	6,3 t	1 kg	I.P. 64	108229
LLX2 10t - Sensor only - I.P. 66	10 t	2 kg	I.P. 64	108239

Delivered with plastic box with 1 verification certificate and operating instructions
Delivered with battery for sensor and charger for display, without shackles and without hook.
* Accuracy ± 0,2% for the models I.P. 67 and range scope 60 m



dynafor™ LLXh

High-tech technology serving industry

The dynafor™ LLXH series are the industrial standard for load indicators. Extreme accuracy with full traceability: 0.2% of the maximum measuring range. In addition to the stand-alone application, the LLXH is suitable for very complex projects. Combined with monitoring software, it can be used for simultaneously reading, managing and storing measuring data from up to 8 load cells. The remote display is designed for simultaneously reading 4 load cells.

Specifications:

- 25 mm LCD display LCD with backlight
- Safety factor: at least 4 times WLL
- Units: kg, t/daN, kN/lbs, ton (US)
- ZigBee 2.4 GHz, default range 80 m
- In conformity with: CE2006/42/EC, CEM2004/108/CE, EN300/440-2 V1.1.1
- Protection class: IP65
- Remote display: IP54
- Operating temperature: -20 to +40 °C
- Test load: 2 times WLL

Model	WLL	Classification	Resolution	Product Code
LLXH 15t	15 t	I.P. 65	5 kg	193089
LLXH 25t	25 t	I.P. 65	10 kg	193099
LLXH 50t	50 t	I.P. 65	20 kg	193109
LLXH 100t	100 t	I.P. 65	50 kg	193119
LLXH 250t	250 t	I.P. 65	100 kg	193129
dynafor™ LLXH 15t - Sensor only - I.P. 65	15 t	I.P. 65	5 kg	193139
dynafor™ LLXH 25t - Sensor only - I.P. 65	25 t	I.P. 65	10 kg	193149
dynafor™ LLXH 50t - Sensor only - I.P. 65	50 t	I.P. 65	20 kg	193159
dynafor™ LLXH 100t - Sensor only - I.P. 65	100 t	I.P. 65	50 kg	193169
dynafor™ LLXH 250t - Sensor only - I.P. 65	250 t	I.P. 65	100 kg	193179

Also available with I.P. 67

dynafor™ LLXh

Options & Accessories for LLXH

Model	Product Code
separate remote display	108249
display assembly kit	87758
monitoring software	68968
bow shackle LLXH 15 t	112427
bow shackle LLXH 25 t	47946
bow shackle LLXH 50 t	47956
bow shackle LLXH 100 t	38166
bow shackle LLXH 250 t	93106
swivel hook LLXH 15 t	113227
swivel hook LLXH 25 t	51207
swivel hook LLXH 50 t	51447
Communication protocole	199459

Model	Product Code
Adjustment certificate - 15t	109407
Adjustment certificate - 25t & 50t	109417
Adjustment certificate - 100t	111377
Adjustment certificate - 250t	112277

Selection guide

Selection guide - dynasafe™

Mechanical force and load monitoring systems

Basic solution for compliance with Directive 2006/42/EC.

1. SELECTING A MECHANICAL SENSOR

MODEL	VERSION	LOCATION	CAPACITY PER FALL	WIRE ROPE DIAMETER
HF 31/1	A2	On cable	200 to 3 200 daN	5 to 16 mm
HF 32/2	A or A2 or B	On cable	300 to 6 000 daN	17 to 26 mm
HF 32/3	A or A2 or B	On cable	1 000 to 12 000 daN	24 to 36 mm
HF 05/X*	A and B	Dead end	50 to 3 200 daN	-
HF 05/Z*	B	Dead end	10 to 12 000 daN	-

X*: from 1 to 4 - Z*: 1 to 7

HF 31 HF 05

Electronic force and load monitoring systems

Electronic management assistance solution. For compliance with Directive 2006/42/EC.

1. SELECTING A STRAIN GAUGE SENSOR

MODEL	LOCATION	CAPACITY PER FALL	WIRE ROPE DIAMETER
HF 35	On cable	50 to 12 000 daN	5 to 36 mm
HF 10	Dead end	50 to 12 000 daN	-
HF 50	Load pin	-	-

Any strain gauge sensor*. Standard or specific, all capacities.

HF 35 HF 10 HF 50

2. SELECTING A CONNECTION

TYPE OF CONNECTION	ADDITIONAL EQUIPMENT
Wired link	LLXt RS module + Adjustment software
Wireless link	LLXt WL module + Adjustment software

LLXt RS

LLXt WL

3. SELECTING FUNCTIONALITIES

FUNCTIONALITY	ADDITIONAL EQUIPMENT
Threshold (5) and dynamic effect management Overload + Cable slack + Summation	DMU WL (Wireless **dynasafe**™ Monitoring Unit) DMU RS (RS 485 **dynasafe**™ Monitoring Unit)
High visibility wired remote LED display	**AL 63** or **AL 128** Display
Remote LCD display	Remote **LLX2** display
Data acquisition on PC (1-8 sensors)	DMU + **dynafor**™ Connection software
IT integration (1-32 sensors)	DMU + Communication Protocol

A wired connection is always preferred for applications where safety is critical.

DMU WL

AL63

LLX2 display

dynasafe™

Optimize operator safety and machine sustainability

dynasafe™ mechanical load limiter HF31-32

Mechanical load limiter for installation on steel cable. Generates an 'all or nothing' type signal in the event that a programmable target value is exceeded.

Version with two independent thresholds.
Load capacity from 200 daN to 3200 daN at the wire.

Specifications:

- Capacity 3.2 t-6 t-12 t
- Wire rope up to ø 36 mm
- Protection class: IP63
- Operating temperature: -30 to +80 °C
- In conformity with 2006/42/CE

Functional:

- For direct installation onto wire rope
- With connector and 2 m cable
- Mechanically adjustable
- Automatic reset if wire rope unloaded

HF 31/A and HF32/A versions with relay contact. Breaking capacity 230 VAC/4 A.
HF32/B version with microswitch. Breaking capacity 25 mA for use in combination with HF85/1 monitor.

dynasafe™ HF 05

Mechanical load limiter which generates an “all or nothing” type signal in the event that a programmable target value is exceeded.

This load limiter can be easily installed in a lifting rope's dead end.

Specifications:

- Capacity up to 12 t
- Protection class: IP63
- Operating temperature: -30 to +80 °C
- In conformity with 2006/42/CE

Functional:

- Dead-end installation
- With connector and 2 m cable
- Adjustable switching level
- Automatic reset if wire rope unloaded

HF 05/A version with relay contacts. Breaking capacity 230 VAC/4 A.
HF05/B version with microswitch. Breaking capacity 25 mA. For use in combination with HF85/1 monitor.

Load capacity from 25 daN to 3200 daN (A version) & from 25 daN to 12000 daN (B version).

dynasafe™ HF 05/B

Mechanical load limiter with great response sensitivity, which generates an “all or nothing” type signal in the event that a programmable target value is exceeded. To be used in connection with monitor HF 85 to measure dynamic forces.

- Load capacity from 25 daN to 12000 daN.

dynasafe™

Optimize operator safety and machine sustainability

dynasafe™ HF35 - Installation on wire rope

- Load limiter for installation on the wire rope, based on the strain gauge technology and used in particular to limit and display loads.
- To be used in connection with monitors HF 80 monitors or HF 87 displays.
- Load capacity from 50 daN to 12000 daN per fall.

dynasafe™ HF10 - Dead-end installation

- Load sensor based on the strain gauge technology, used in particular to limit and display loads.
- To be used in connection with HF 80 monitors or HF 87 displays.
- Load capacity from 100daN to 12000 daN.

dynasafe™ HF50 - Load pin

- Load pin based on the strain gauge technology and used in particular to limit and display loads.
- To be used in connection with HF 80 monitors or HF 87 displays.
- The load pin will be designed according to the customer's specifications.
- Load capacity from 50 daN to 100.000 daN

dynafor™ D.M.U.

Conditioning and management of sensor signals

DMU - dynafor™ Monitoring Unit

The dynafor™ monitoring unit is a configurable device for managing 5 relays which are triggered in response to signals received from 1 or more load indicators and load limiters.

2 configurations possible

- RS DMU: wired connection
- WL DMU: wireless connection

When using the Dynafor™ monitoring unit, users can:

- Measure the rope tension or loads from 1 or more sensors
- Manage 5 relays with adjustable thresholds and hysteresis
- Monitor the network
- Check the dynamic effects
- Include data (black box)
- Connect the unit to a AL63/AL128 LED display with a cable
- Connect the unit to a hand-held display with ZigBee 2.4 GHz technology
- Connect the unit to a PC with a USB interface

Model	Product Code
dynafor™ Monitoring Unit	261959

dynafor™ AL 63 et AL 128

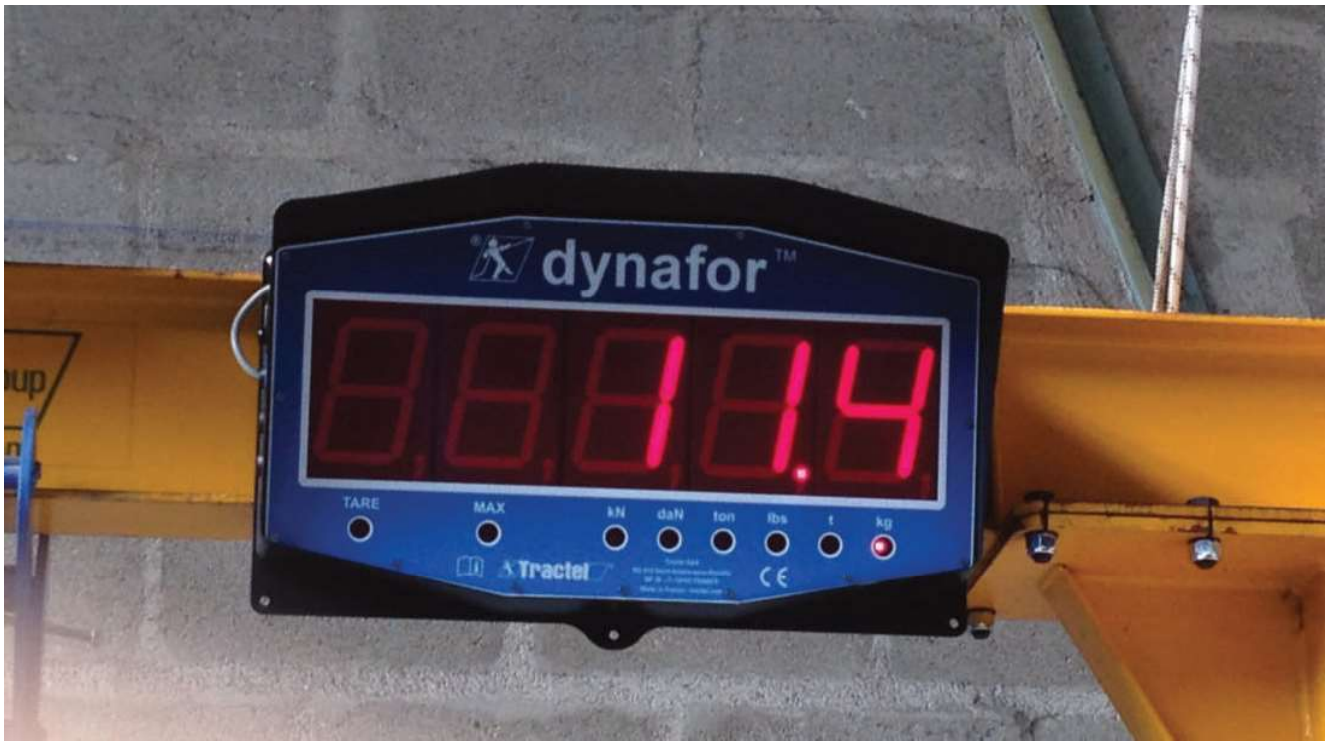
Designed to visualize the efforts or loads mesured by one or more sensors.

- From 1 up to 4 sensors, with automatic sum function.
- Tare, peak hold, unit's selection with the TLC remote control.
- Adjustable dynamic effects filter.
- Network communication through BUS RS 485
- Complementary to the LLX2 monitors.

Multiple configurations of monitors, sensors and LED displays are possible via the use of different technologies: BUS RS 485, wireless connection, displays and software. They also enable recording and monitoring with dynafor™ LLX2 displays.

A standard installation consists of at least 4 elements:

- 1 dynafor™ AL 63 or AL 128 mm display kit
- 1 or more strain gauge sensors (Maximum 4)
- 1 dynafor™ LLXt RS 485 module
- 1 RS 485 BUS lead cable.



dynarope™

Tensiometers

The display contains a Standard Data Bank (DB) that includes several items that are identified by a “Reference Number”. Each reference corresponds to a calibration process carried out on a particular sample.
The measurement wire rope is deemed to have a minimum length of 8 mm, and is assumed to be tensioned between a fixed and and a “flexible” end (e.g. an aerial mast) in order to render negligible the influence of placing the sensor on the cable. Placing the sensor on the wire rope causes a shorting of the wire rope by approximately 1.5 mm.
If the installation does not match the above description or if the cable you wish to measure does not appear in the list, we recommend that a custom calibration is carried out (see user manual) or that you order a specific calibration filling the corresponding from in (consult our commercial staff).

dynarope™ HF 36

Model	Description	W.L.L	Rope Diameter	Product Code
HF36/1/LPT	complete kit	2-50	5-13	187938
dynarope HF36/1/LPT sensor only	complete kit	-	-	190598
dynarope™ HF 36 Tension Meter	complete kit	-	-	230517
HF36/2/LPT	complete kit	4-200	9-28	187948
dynarope HF36/2/LPT sensor only	complete kit	-	-	190608
dynarope™ HF 36 Tension Meter	complete kit	-	-	230527

dynarope™ HF37

The dynarope™ tension meter is a precision device for measuring forces in a tensioned cable or rope. The meter can be attached directly to the cable and has a fixed display.

Applications: antenna wires, suspension bridges, electronics, sailing ships, etc.

When the tension meter is placed on a tensioned cable, the load cell will generate a signal which is more or less proportional to the force.

There is a large variety of cables, each cable having its own characteristics such as composition, diameter, rigidity, density, etc. The database includes several basic wire rope data.

The HF 37 series can be connected to a PC for managing and storing measurement results.

Delivery (kit) includes:

Plastic case, measuring sensor with display, batteries, USB cable and software loader light.

Including: CE certificate, calibration report and user and maintenance manual.

A convenient weigher including hooks for measuring small weights quickly and easily.

- Can be placed directly on cable or rope
- Extensive wire rope database
- IP 65
- Customized setting
- Accuracy: <1% FS
- Cables 5-18 mm

dynaplug™ & Anchor tester plate TA

Anchor point testers

dynaplug™ HF 44

The dynaplug™ anchor tester is an electronic load cell designed to measure anchor strength in construction material. The tool measures traction forces up to 5000 daN. Its shape as a tripod has been especially designed to minimize its influence on the concrete around the fixing. The three legs made in stainless steel can be adapted from 70 mm up to 190 mm high. Two programs have been included into the electronics: Program n°1 applies a force of 500 daN on the fixing during 20 seconds. Program n°2 applies a force between of 1000 daN on the fixing during 3 minutes.

Standard content of delivery:

- Anchor tester Dynaplug™
- 4 Studs M10, M12, M14, M16 + 1 traction fork
- 3 threaded rods to adjust the height of the legs
- 1 fixing tube with a chain
- CE certificate & calibration certificate
- User manual
- Carrying box

Model	Product Code
HF44/1/LPT 15kN	190028
HF44/2/LPT 25kN	190038
HF44/3/LPT 50kN	190048

Anchor Tester TA

Anchor testers TA are test specimens endowed with a breaking section calibrated to break under a determined traction force. The anchor tester must be installed between the anchor point to be tested and the loading device by means of shackles or any other adequate mechanical connection.

Tractel offers 5 types of anchor testers calibrated to break respectively at: 600 daN, 1500 daN, 2000 daN and 4000 daN, tolerance range of +/- 10%. Anchor testers are made of stainless steel and for single use only.

Model	Breaking load (daN)	Product Code
TA 600 - 20 plates	600	193269
TA 1000 - 20 plates	1000	261769
TA 1200 - 20 plates	1200	261779
TA 1500 - 20 plates	1500	193279
TA 2000 - 20 plates	2000	193289
TA 4000 - 10 plates	4000	193299