VALD

DynaMo Range

User Manual

v0.3
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1 Introduction

This manual provides important context to help you use your DynaMo device safely and responsibly, and to support accurate and effective testing. It will give you essential information for proper operation, handling, care and additional regulatory guidance.

For further information or assistance, please contact:

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1.1 Product Overview

DynaMo Lite

- → Compression dynamometer and inclinometer
- → Fits in palm of hand or in pocket
- → Wearable via Velcro limb wraps

DynaMo Plus

- → Tension/compression dynamometer and inclinometer
- → Inbuilt OLED screen
- → Range of Smart Attachments

DynaMo Max

- → Tension/compression dynamometer and inclinometer
- → Dedicated rig available for IMTP/Belt Squat
- → Highest load capacity and sampling rates

2 Device Specifications

2.1 Operational Description

The DynaMo is a wireless, battery-powered handheld measurement tool designed to assess compressive and/or tensive isometric strength, as well as range of motion. It integrates a precision load cell for force measurement, and an inertial measurement unit (IMU) for capturing movement data. Measurement results are transmitted via an integrated Bluetooth Low Energy (BLE) module to companion software for analysis, visualization, and storage.

All DynaMo devices include a USB-C port for charging the internal lithium-ion battery, along with the power button and an indicator LED. The DynaMo Plus also features a screen for on-device measurement feedback and tracking. Each DynaMo model has a range of attachments that enable unique testing configurations.

2.2 DynaMo Lite

Interface

(1) Multicolored LED

(2) USB-C charging port

(3) Power button

→ Hold to turn device on

→ Hold to turn device off

Attachments and Expansions

Silicon pouch

Limb wraps (3)

- Small: 30 cm
- Medium: 50 cm
- Large: 80 cm

Strength strap

Travel case

Technical Specifications

HARDWARE DIMENSIONS	
UNIT EXCLUDING ATTACHMENTS	
Size	95 mm L x 73 mm W x 42 mm H / 3.7” L x 2.8” W x 1.6” H
Weight	250 g / 0.55 lb
IN TRAVEL CASE INCLUDING ATTACHMENTS	
Size	380 mm L x 380 mm W x 78 mm H / 14.9” L x 14.9” W x 3” H
Weight	1.1 kg / 2.42 lb

SENSOR SPECIFICATIONS

FORCE SENSOR SPECIFICATIONS

Sensor type	Load cell
Max sampling rate	225 Hz
Capacity	1,000 N / 100 kg / 220 lb compression
Resolution	1 N
Accuracy	+/- 1%

MOVEMENT SENSOR SPECIFICATIONS

Sensor type	9-Axis Inertial Measuring Unit (IMU): Accelerometer, Gyroscope and Magnetometer
Max sampling rate	225 Hz
Resolution	1 degree
Accuracy	+/- 3 degrees

ELECTRONIC SPECIFICATIONS

POWER

Battery	Inbuilt 3.7 V 1,000 mA single-cell lithium-ion battery (non-replaceable)
Battery life	10 hours active use (approx.)
Charging method	USB-C cable (supplied)
Charging requirements	USB 5 V d.c., 200 mA (1 W) minimum, IEC 62368-1 compliant

WARNING: *The DynaMo should not be operated while charging is in progress.*

WIRELESS DETAILS

Connectivity	Bluetooth Low Energy 5.1
Frequency	2402 – 2480 MHz
Channels	2 MHz bandwidth, 40 BLE channels with frequency hopping
Modulation	GFSK
EIRP	Max 7.38 dBm

OPERATING CONDITIONS

Temperature	-10 °C – +40 °C
Humidity	30% – 75%
Pressure	70 kPa – 106 kPa

CAUTION: *The surface of the DynaMo may exceed 41°C when operating at maximum ambient temperature.*

TRANSPORT CONDITIONS	
Temperature	-40 °C – +70 °C
Humidity	10% – 100%
Pressure	50 kPa – 106 kPa

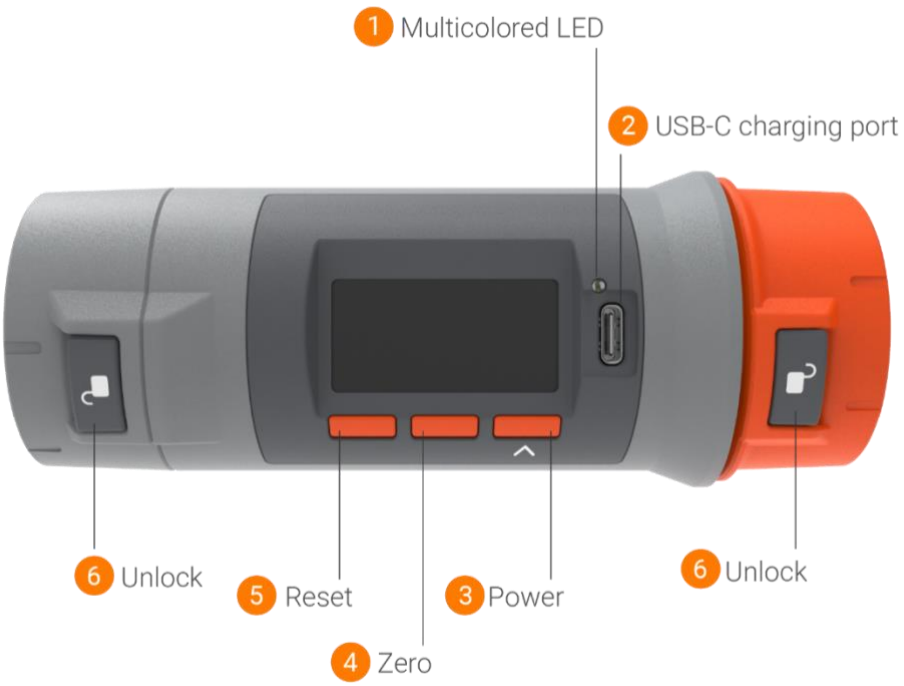
CAUTION: *Observe the storage conditions and never store the DynaMo in an automobile except when transporting.*

SOFTWARE REQUIREMENTS	
iOS	
Compatible devices	All iOS mobile phones and tablets purchased after July 2017
Operating system	Minimum requirement – iOS 11
ANDROID	
Compatible devices	All Android mobile phones and tablets purchased after July 2014
Operating system	Minimum requirement – Android 5

ATTACHMENTS	
Attachments	Silicone Pouch, 3 x Adjustable Sleeves (Small/ Medium/ Large), Strength Strap, Charging Cable, Carry Case

2.3 DynaMo Plus

Interface



(1) Multicolored LED

(2) USB-C charging port

(3) Power button

→ Hold to turn device on

→ Hold to turn device off

(4) Zero button

→ Press during testing to zero the device

(5) Peak reset button

→ Press during testing to reset the peak force value

(6) Unlock latch

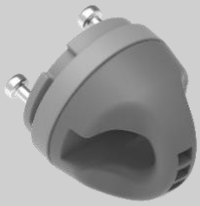
→ Push inwards to release attachment

Attachments and Expansions

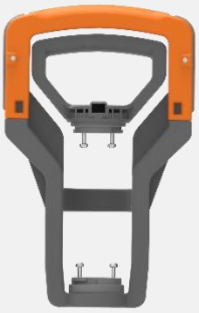
Curved pad

Flat pad

Palm pad



Tension link (2)



Grip

Ankle strap

Range of motion (ROM) strap

Strength strap

Handle

Carabiner (2)

Small travel case

Large travel case

Technical Specifications

HARDWARE DIMENSIONS	
UNIT EXCLUDING ATTACHMENTS	
Size	134 mm L x 53 mm W x 53 mm H / 5.2” L x 2” W x 2” H
Weight	300 g / 0.66 lb
IN TRAVEL CASE INCLUDING ATTACHMENTS	
Size	370 mm L x 265 mm W x 195 mm H / 14.5” L x 10.4” W x 7.6” H
Weight	4 kg / 8.8 lb

SENSOR SPECIFICATIONS	
FORCE SENSOR SPECIFICATIONS	
Sensor type	Load cell
Max sampling rate	225 Hz
Capacity	2,000 N / 200 kg / 440 lb tension –1,000 N / 100 kg / 220 lb compression
Resolution	1 N
Accuracy	+/- 1%
MOVEMENT SENSOR SPECIFICATIONS	
Sensor type	9-Axis Inertial Measuring Unit (IMU): Accelerometer, Gyroscope and Magnetometer
Max sampling rate	225 Hz
Resolution	1 degree
Accuracy	+/- 3 degrees

ELECTRONIC SPECIFICATIONS	
POWER	
Battery	Inbuilt 3.7 V 650 mA single-cell lithium-ion battery (non-replaceable)
Battery life	10 hours active use (approx.)
Charging method	USB-C cable (supplied)
Charging requirements	USB 5 V d.c., 200 mA (1 W) minimum, IEC 62368-1 compliant
Screen	Inbuilt OLED display

WARNING: *The DynaMo should not be operated while charging is in progress.*

WIRELESS DETAILS	
Connectivity	Bluetooth Low Energy 5.1
Frequency	2402 – 2480 MHz
Channels	2 MHz bandwidth, 40 BLE channels with frequency hopping
Modulation	GFSK
EIRP	Max 7.38 dBm

OPERATING CONDITIONS	
Temperature	-10 °C – +40 °C
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Pressure	70 kPa – 106 kPa

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TRANSPORT CONDITIONS	
Temperature	-40 °C – +70 °C
Humidity	10% – 100%
Pressure	50 kPa – 106 kPa

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SOFTWARE REQUIREMENTS	
iOS	
Compatible devices	All iOS mobile phones and tablets purchased after July 2017
Operating system	Minimum requirement – iOS 11
ANDROID	
Compatible devices	All Android mobile phones and tablets purchased after July 2014
Operating system	Minimum requirement – Android 5

ATTACHMENTS	
Smart Attachments	Palm Pad, Flat Pad, Curved Pad, Tension Links, Grip Strength Attachment
Other Attachments	Adjustable ROM Strap, Ankle Attachment, Handle Attachment, Adjustable Strap Attachment, Carabiners, Travel Case

2.4 DynaMo Max

Interface

(1) Multicolored LED

(2) USB-C charging port

(3) Power button

→ Hold to turn device on

→ Hold to turn device off

Attachments and Expansions

Curved pad

Flat pad

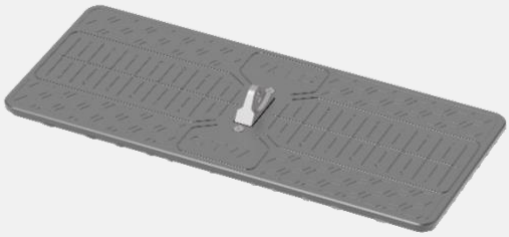
Tension strap

Ankle strap

Handle

Range of motion (ROM) strap

Carabiner (up to 3)



Lifting base plate

Lifting bar (or belt)

Technical Specifications

HARDWARE DIMENSIONS	
UNIT EXCLUDING ATTACHMENTS	
Size	153 mm L x 50 mm W x 50 mm H / 6” L x 2” W x 2” H
Weight	400 g / 0.9 lb

SENSOR SPECIFICATIONS	
FORCE SENSOR SPECIFICATIONS	
Sensor type	Load cell
Max sampling rate	1,200 Hz
Capacity	10,000 N / 1,000 kg / 2,200 lb
Resolution	1 N
Accuracy	+/- 1%
MOVEMENT SENSOR SPECIFICATIONS	
Sensor type	9-Axis Inertial Measuring Unit (IMU): Accelerometer, Gyroscope and Magnetometer
Max sampling rate	225 Hz
Resolution	1 degree
Accuracy	+/- 3 degrees

ELECTRONIC SPECIFICATIONS	
POWER	
Battery	Inbuilt 3.7 V 400 mA single-cell lithium-ion battery (non-replaceable)
Battery life	10 hours active use (approx.)
Charging method	USB-C cable (supplied)
Charging requirements	USB 5 V d.c., 200 mA (1 W) minimum, IEC 62368-1 compliant

WARNING: *The DynaMo should not be operated while charging is in progress.*

WIRELESS DETAILS	
Connectivity	Bluetooth Low Energy 5.1
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SOFTWARE REQUIREMENTS	
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Compatible devices	All iOS mobile phones and tablets purchased after July 2017
Operating system	Minimum requirement – iOS 11
ANDROID	
Compatible devices	All Android mobile phones and tablets purchased after July 2014
Operating system	Minimum requirement – Android 5

ATTACHMENTS	
Attachments	Flat Pad, Curved Pad, Adjustable Strap, Ankle Strap, ROM Sleeve, Handle, 2x Carabiners, Travel Case
Expansion Pack	IMTP Baseplate, IMTP Lifting Bar, 2x Carabiners

3 Usage & Safety

3.1 Regulatory Statements

United States (FCC)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Canada (ISED)

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux CNR exempts de licence d'Innovation, Sciences et Développement économique Canada. L'exploitation est soumise aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage.
2. L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAUTION: *Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate this equipment.*