OPTOFORCE
SENSING FLEXIBILITY

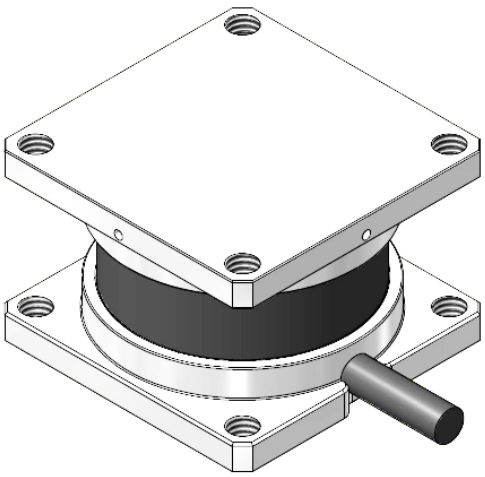
# OMD

OPTOFORCE MEASUREMENT DEVICE

TECHNICAL DATASHEET v1.3

## 3 Axis Force Sensor

## OMD-20-FE-200N



## BENEFITS

- Force measurement in 3D
- High resolution
- Low chemical reactivity
- Highly adaptable product design
- Dust and water proof
- High overload range
- Robust design and easy to use
- Highly reliable
- Low power consumption
- High sensitivity

## TECHNICAL DATA

**Sensing surface:**

Silicone rubber

**Sensor base:**

Metal or ABS like plastic

**Operation temperature**

Plastic base version: -10°C to 40°C

Metal base version: -40°C to 85°C

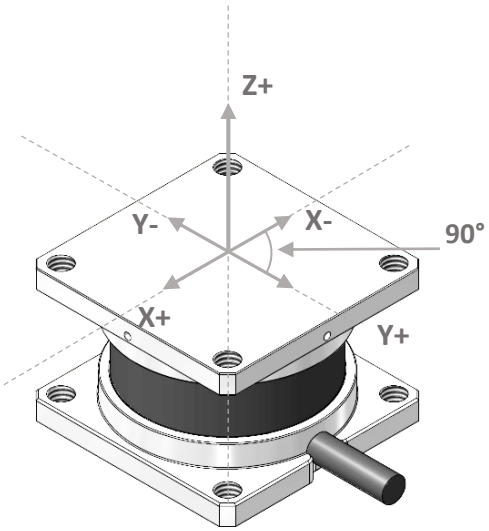
**Measurement properties**

Safe overload 600% of N.C (Fz)

# OMD – OPTOFORCE MEASUREMENT DEVICE

## O M D - 20 - FE - 200N

### PERSPECTIVE




## DESCRIPTION

**One of the first 3D compliant force sensor**

Its complaint surface makes it prone to contact with different sized objects

**Large sensitive area**

The sensing area is the whole surface of the silicone dome

**Corrosion resistance**

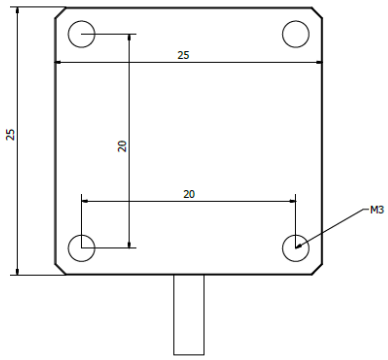
The silicone surface also provides excellent corrosion resistance and isolation to external stress

**Typical application**

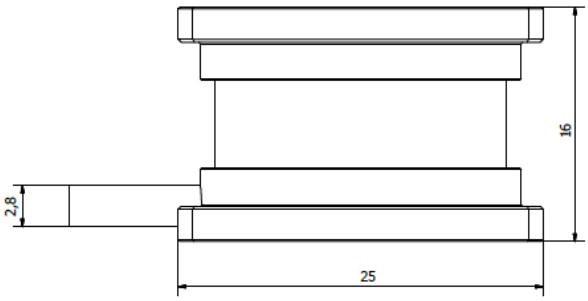
- Smart handling
- Robotic hand and robotic legs
- Load and compression sensing
- Automation and control

Note: All dimensions are in mm unless otherwise specified

### BOTTOM




### SIDE




## NOTES

Please note that the life span of these units can be reduced considerably if they are used in extreme conditions (e.g. with high grinding surfaces, exceeded temperature range). We cannot be held responsible in such cases. Solutions do exist for many problems – please contact us to find out more.

## TECHNICAL PARAMETERS

| Sensor Type | 3 Axis | Force Sensor |
|---|---|---|
| | | |
| Dimensions | Height x width x length | 16 x 25 x 25 mm |
| | | |
| Weight | With 1 m cable (without) | 23 g (11 g) |
| | | |
| Nominal Capacity (NC) | Fz (compression) | 200 N |
| | Fz (tension) | 100 N |
| | Fx, Fy | ± 20 N |
| | | |
| Single-Axis Overload | Fz | 600 % NC |
| | Fx, Fy | ± 200 % NC |
| | | |
| Typical deformation | Fz (compression) | 1.2 mm |
| | Fz (tension) | 1 mm |
| | Fx, Fy | ± 1.5 mm |
| | | |
| Nonlinearity | Fz (compression) | < 2 % FS |
| | | |
| Temperature compensation | All axis | -10 °C - +40 °C |
| | | |
| Power requirement | In continuous operation | 10 mA |

Parameters were measured at room temperature.
Specifications are subject to change without notice.
Updated on April 14, 2015.

## SENSOR DESIGN NOTES

The versatility of the OMD sensor makes it easily scalable (fingertip or palm sized) and customizable, thus OptoForce is keen to help developers by offering high freedom in the sensor design.

The following sensor physical parameters can be customized:

- **Surface size and diameter –** smaller or bigger, even highly flattened sensor can be made
- **Surface material** - silicone, polyurethane or even metallic materials
- **Surface look** - can be dotted, lined or can have any surface
- **Surface shape** - cube, pyramid or any shape is plausible even convex or concave
- **Measurement range** - by changing the hardness of the silicone
- **Sensor base** - can be metal or other plastic
- **Sensor fixture** - hole size or position and even the shape

OptoForce's goal is to help and enable customers to design and create their own end-product solutions that meet applicable functional standards and requirements with the help of the OMD.

For more information please do not hesitate to contact us at:
**info@optoforce.com**