

**Product profile**

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| Part number         | 2016-0518  |
| Article name        | BioShake D30-T elm   |
| Description         | Automation friendly Shaker with heating function and Edge Locking Mechanism. Designed to be integrated in liquid handling and automation platforms to process labware in chemical and biological laboratories. |
| Recommended use     | Automation   Shaking   Heating   Microplates, DW plates, Extraction protocol   |
| Scope of delivery   | BioShake D30-T elm   External power supply   Power cords Europe & US   2x screws to mount device (M3 x 18   DIN 912)   Calibration certificate   Operation & Integration manual                                |
| Conforming use      | System is operated by qualified and trained research and laboratory personnel. Applicable safety standards or rules need always be fulfilled.  |
| Country of origin   | DE   |
| Customs tariff code | 8479 82 00   |

**Mixing**

|                            |   |
|----------------------------|---|
| Mixing frequency range*    | 200 to 2000 rpm with 1 rpm increment resolution |
| Mixing orbit               | constant 3.0 mm diameter                        |
| Mixing regulation accuracy | ± 25 rpm  |
| Accel. / Decel. range      | 1 - 30 seconds                                  |
| Accel. / Decel. resolution | 1 second increments                             |
| Zero position              | Locked zero position with ± 0.1 mm accuracy     |

\* Feasible frequency heavily depends on load weight and height

**Temperature control**

|                         |   |
|-------------------------|---|
| Temperature range*      | RT to 99 °C (RT to 211.82 F) with 0.1 °C increment resolution |
| Temperature accuracy    | ± 0.1 °C  |
| Temperature uniformity* | ±0.5 °C at 45 °C   ±0.7 °C at 75 °C   ±1.0 °C at 95 °C        |
| Heating speed above RT* | ~ 7 K/min (10 min from 21 °C to 95 °C)                        |

\* Value depends on the used thermo-adapter. Given value conditions: RT = 21 °C, Adapter = 2016-1041, 96-well PCR, adapter temperature

**ELM positioning**

|                       |  |
|-----------------------|--|
| Description           | Patented Edge Locking Mechanism (elm) for repeatable and accurate positioning of microplates on a liquid handling or automation platform |
| Unlocked              | Plate locking open, ready for labware exchange manually or with gripper/roboter  |
| Locked                | Plate locking closed, strong diagonal centered fixation  |
| ELM position accuracy | ± 0.1 mm   |

**Thermo-adapter plates for different labware**

|                 |   |
|-----------------|---|
| Description     | An adapter is required for optimal temperature transfer to and/or optimal fixation of labware and needs to be purchased separately. The adapter can be exchanged by the user. |
| Microplates     | All microplates according ANSI-SLAS format<br>4-, 6-, 8-, 12-, 24-, 48-, 96-, 384-, and 1536-well microplates, deep well plates, PCR plates                                   |
| Tubes and Vials | 0.2, 0.5, 1.5, 2.0 ml standard tubes   2.0, 4.0, 6.0, 8.0, 10.0 ml cylindrical shaped vials   |
| Others          | Custom made adapter on request  |

**Device control**

|                      |   |
|----------------------|---|
| Description          | Required electronic for remote control is build in the device. No external controller required.   |
| Operation control    | Remote controlled as described in the Integration Manual  |
| Peripheral interface | EIA-232 / RS-232 interface (2 m cable with RS-232 plug-in connector)<br>optional: USB via USB-Serial Adapters (Rec. DIGITUS DA-70156) or USB via MOXA USB-to-Serial Hub |
| Status               | LED in front (GREEN = ok   RED = error)   |

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**Electrical**

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| Operating voltages | 24 V DC   I <sub>max</sub> : 4.5 A   P <sub>eff</sub> : 85 Watt   P <sub>max</sub> : 108 Watt  |
| Power supply       | Input: 100 - 240 V AC   50 - 60 Hz<br>Output: 24 V DC   I <sub>max</sub> : 5.0 A   P <sub>max</sub> : 120 Watt<br>External power supply unit (CE/UL/CSA approved, 85-264 V AC, 47-63 Hz, IEC/EN60320-1 C14   Degree of protection: IP20) |
| Power connection*  | Prewired cable   length 2 m   barrel connector ID 2.5 mm x OD 5.5 mm   |

\*Only use the device with the delivered power cord. If another power cord is used ensure the wire diameter is adequate.

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**Operating, transport and storage conditions**

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|----------------------------|---|
| Operating range            | 5 °C - 45 °C (41 - 113 F)   10 - 80 % RH   up to 2000 m above sea level   non-condensing                              |
| Floor base requirements    | stable (resonance free)   horizontal   dry   inside buildings   even   well ventilated and no direct exp. to sunlight |
| Transportation and storage | -10 °C - 60 °C (14 - 140 F)   10 - 80 % RH   non-condensing   |

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**General properties**

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| Housing material        | Aluminum anodized  |
| Degree of protection    | IP20 (Protected against solid objects up to 12 mm   No protection against water)                           |
| Pollution degree        | 1 (no contamination or only dry, non-conductive contamination, whereby the contamination has no influence) |
| Airborne sound emission | < 70 db (A)  |

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**Dimension and weight**

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| Dimensions       | (W x D x H) 142 x 99 x 60.45 mm   5.59 x 3.9 x 2.38 inch                   |
| Weight           | 1.7 kg   3.75 lbs  |
| Packaging size   | (W x D x H) 495 x 260 x 100 mm   19.49 x 10.24 x 3.94 inch   cardboard box |
| Packaging weight | 3 kg   6.61 lbs  |

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**Certifications**

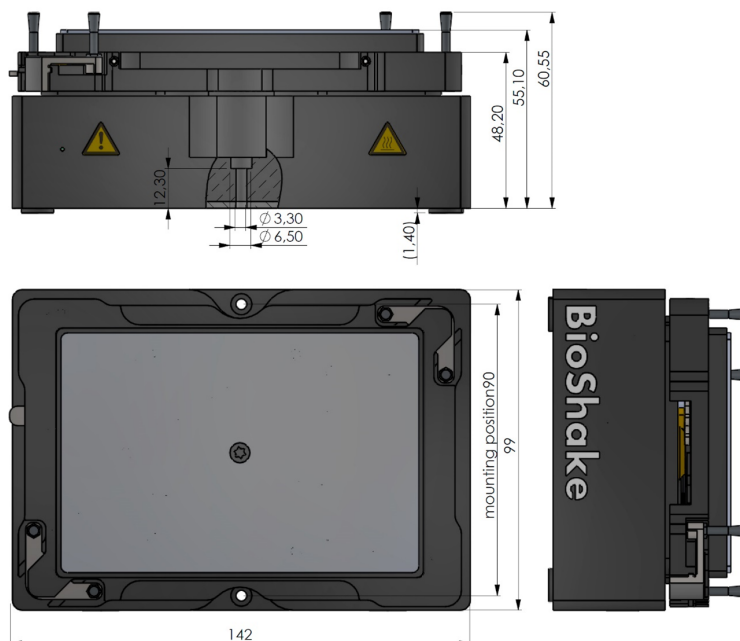
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|-----------------------|---|
| Regulatory compliance | 2014/30/EU, 2015/863/EU, 2011/65/EU, DIN EN 61010-1:2020-03, DIN EN 61010-2-010:2015-05, DIN EN 61010-2-051:2016-02, DIN EN 61326-1:2013-07, DIN EN 50581:2013-02, DIN EN 61000-3-2:2015-03, DIN EN 61000-3-3:2014-03   |
| Patents pending       | WO2008135565, US8323588, EP2144716, WO2011113858, US9126162, EP2547431, WO2013113847, US10052598, EP2809436, WO2013113849, US9371889, EP2809435, WO2014207243, US20160368003, EP3013480, WO002022128814A1, WO002022128809A2<br>Please notify us or our designated agent, if you believe that a user has infringed our intellectual property rights. |

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**Drawing**

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