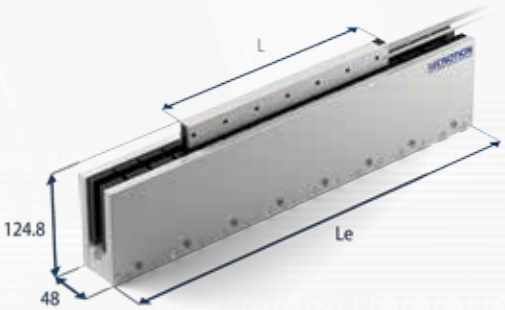
| | Parameter | Remarks | Symbol | Unit | UXX3 | | UXX6 | | UXX9 | | UXX12 | | UXX18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Performance | Winding type | | | | N | S | N | S | N | S | N | S | N |
| | Motortype, max voltage ph-ph | | | | 3-phase synchronous Ironless, 230$V_{ac\ rms}$ (300$V_{dc}$) | | | | | | | | |
| | Peak Force @ 20°C/s increase | magnet @ 25°C | $F_p$ | N | 700 | | 1400 | | 2100 | | 2800 | | 4200 |
| | Continuous Force* | coils @ 110°C | $F_c$ | N | 141 | | 282 | | 423 | | 564 | | 846 |
| | Maximum Speed** | @ 300 V | $v_{max}$ | m/s | 2.7 | 6.6 | 2.7 | 6.6 | 2.7 | 6.6 | 2.7 | 6.6 | 2.7 |
| | Motor Force Constant | mount. sfc. @ 20°C | K | $N/A_{rms}$ | 124 | 50.3 | 124 | 50.3 | 124 | 50.3 | 124 | 50.3 | 124 |
| | Motor Constant | coils @ 25°C | S | $N^2/W$ | 323 | | 647 | | 970 | | 1293 | | 1940 |
| Electrical | Peak Current | magnet @ 25°C | $I_p$ | $A_{rms}$ | 5.6 | 13.9 | 11.3 | 28 | 16.9 | 42 | 22.6 | 56 | 34 |
| | Maximum Continuous Current | coils @ 110°C | $I_c$ | $A_{rms}$ | 1.14 | 2.80 | 2.27 | 5.6 | 3.4 | 8.4 | 4.5 | 11.2 | 6.8 |
| | Back EMF Phase-$Phase_{peak}$ | | $B_{emf}$ | V/m/s | 101 | 41 | 101 | 41 | 101 | 41 | 101 | 41 | 101 |
| | Resistance per Phase* | coils @ 25°C ex. cable | $R_{ph}$ | Ω | 15.8 | 2.6 | 7.9 | 1.29 | 5.3 | 0.86 | 4.0 | 0.65 | 2.6 |
| | Induction per Phase | I < 0.6 Ip | $L_{ph}$ | mH | 28 | 4.6 | 14 | 2.3 | 9 | 1.5 | 7 | 1.2 | 4.7 |
| | Electrical Time Constant* | coils @ 25°C | $\tau_e$ | ms | 1.8 | | 1.8 | | 1.8 | | 1.8 | | 1.8 |
| Thermal | Maximum Continuous Power Loss | all coils | $P_c$ | W | 82 | | 165 | | 247 | | 330 | | 494 |
| | Thermal Resistance | coils to mount. sfc. | $R_{th}$ | °C/W | 1.04 | | 0.52 | | 0.35 | | 0.26 | | 0.17 |
| | Thermal Time Constant* | up to 63% max. coiltemp. | $\tau_{th}$ | s | 156 | | 156 | | 156 | | 156 | | 156 |
| | Temperature Cut-off / Sensor | | | | PTC 1kΩ / NTC | | | | | | | | |
| Mechanical | Coil Unit Weight | ex. cables | W | kg | 0.55 | | 0.95 | | 1.35 | | 1.75 | | 2.55 |
| | Coil Unit Length | ex. cables | L | mm | 134 | | 248 | | 362 | | 476 | | 704 |
| | Motor Attraction Force | | $F_a$ | N | 0 | | 0 | | 0 | | 0 | | 0 |
| | Magnet Pitch NN | | τ | mm | 57 | | 57 | | 57 | | 57 | | 57 |
| | Cable Mass | | m | kg/m | 0.18 | | 0.18 | | 0.18 | | 0.18 | | 0.18 |
| | Cable Type (Power) | length 1 m | d | mm (AWG) | 6.4 (18) except UXX3S*** | | | | | | | | |
| | Cable Type (Sensor) | length 1 m | d | mm (AWG) | 4.3 (26) | | | | | | | | |

All specifications ±10%




*UXX6 in 456mm magnet yoke shown*

Approvals

CE RoHS

| UXX3S Power Cable (FLEX cable of 3m) | |
|---|---|
| Cable Type | 9.0 (21) mm (AWG) |
| Cable Life**** | 5,000,000 cycles |
| Bending Radius Static | 4x cable diameter |
| Bending Radius Dynamic | 10x cable diameter |

*****Depending on Bending Radius, Velocity and Acceleration.*

| Magnet yoke dimensions | | | |
|---|---|---|---|
| Le (mm) | 114 | 171 | 456 |
| M6 bolts | 2 | 3 | 8 |
| Mass (kg/m) | 25 | | |
| *Magnet yokes can be butted together.* | | | |

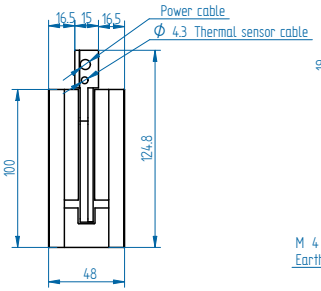
** These values are only applicable when the mounting surface is at 20°C and the motor is driven at maximum continuous current. If these values differ in your application, please check our simulation tool.*

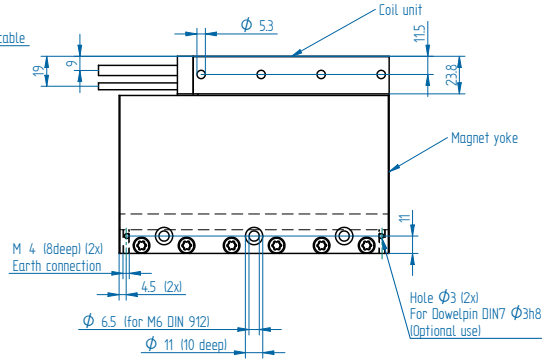
*** Actual values depend on bus voltage. Please check the F/v diagram in our simulation tool.*

**** The UXX3S is only available with a FLEX power cable. The specifications for this cable can be found in the table on the right side of this page.*

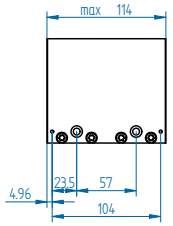
*Mounting instructions and flatness or parallelism requirements can be found in the Ironless installation manual. CAD files and 3D models can be downloaded from our website.*

## MAGNET YOKES

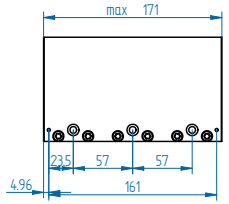


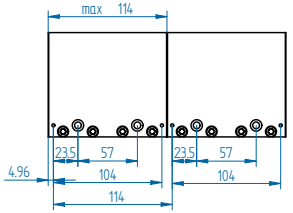

UXX 114mm



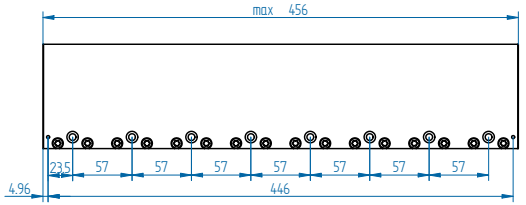

UXX 171mm



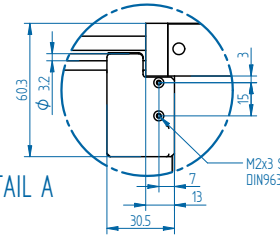

2x UXX 114mm




UXX 456mm

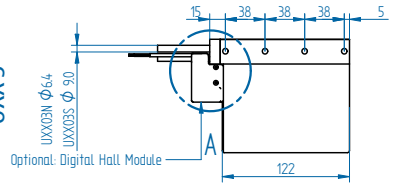



## COIL UNITS

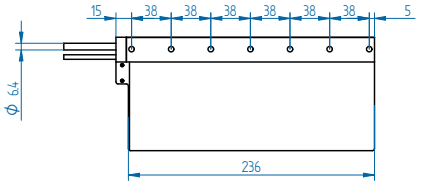



DETAIL A

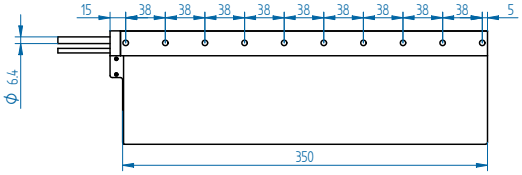
UXX 3



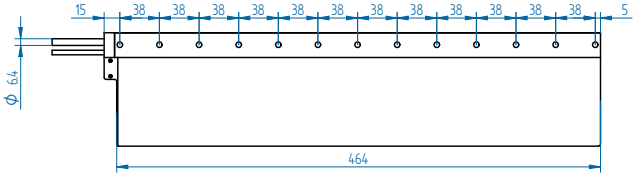

UXX 6



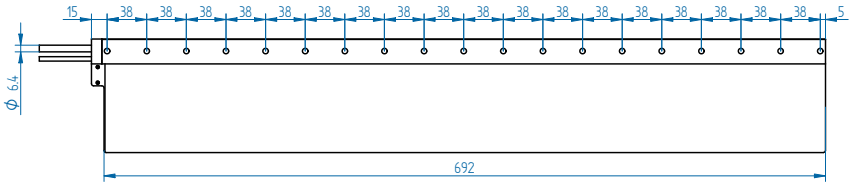

UXX 9




UXX 12




UXX 18



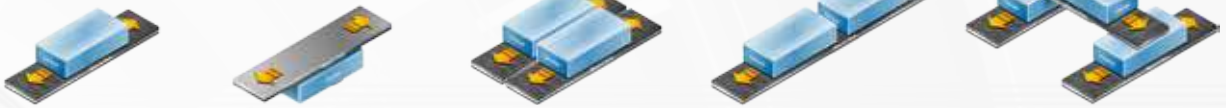
# Features

## Tecnotion's linear motor performances advantages

## [ DIRECT DRIVE ADVANTAGES ]

**The direct drive technology of linear motors is a perfect way to enhance productivity, accuracy, and dynamic performance. Linear motors eliminate the need for mechanical transmissions like rack and pinion, belts and speed reducers. Between coil unit and magnets there is no contact, this means no mechanical wear. The technology makes designs slimmer, modular and reduces costs.**

**Modular system.** All motors can be used in various configurations:



*1. single moving coil* *2. moving magnet* *3. parallel coupled coil* *4. in-line on a single track* *5. crosstable or gantry*

**High force density**

More force in a smaller packing means lowering footprint and fits better in smal(ler) spaces.

**Low cogging**

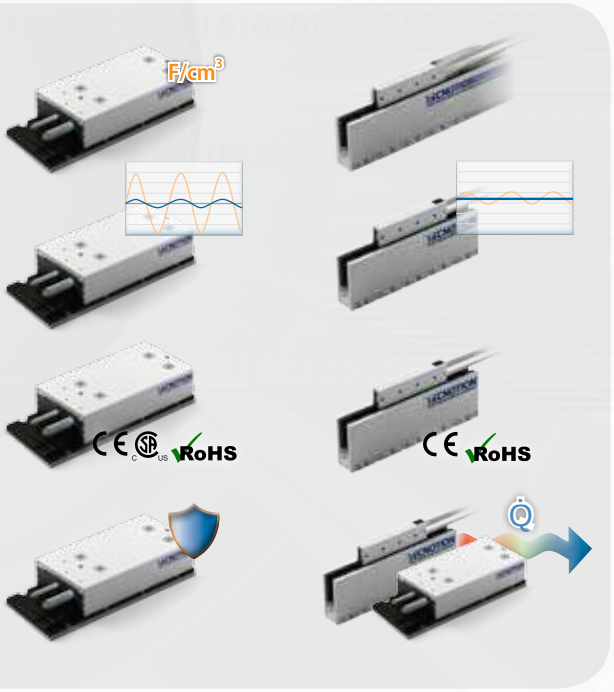
Optimized iron core motor design, for smooth motion and position accuracy in your application.

**Approved for CSA and CE, ROHS**

Iron core motors are approved for CE, CSA and ROHS.

**Aluminium housed design**

Housed design with integrated water cooling for TBW- and TL series.




**High acceleration and dynamics**

The outstanding force to mass ratio of the ironless coils enables unmatched system dynamics.

**No cogging, extremely low force ripple**

Ironless motors have no cogging effects. Offering smooth motion and position accuracy in your application.

**Approved for CE and ROHS**

Ironless motors are CE and RoHS approved.

**Low thermal resistance**

Allowing good heat transfer, achieving an extremely high continuous force for all motors when using a descent size heatsink or active cooling.