

MTB Series Internally Guided Belt Driven Actuator

The Matara MTB series actuator uses a toothed belt drive with an internal linear guide system, which combines high speed with both accuracy and repeatability. These units can be easily combined in various configurations using multi-axis brackets.

High accuracy anodised Aluminium 6063 is used to form the body, with T slots for fixing brackets and switches. This type of unit incorporates a pre-tensioned polyurethane belt with internal steel cords and a zero backlash pulley.

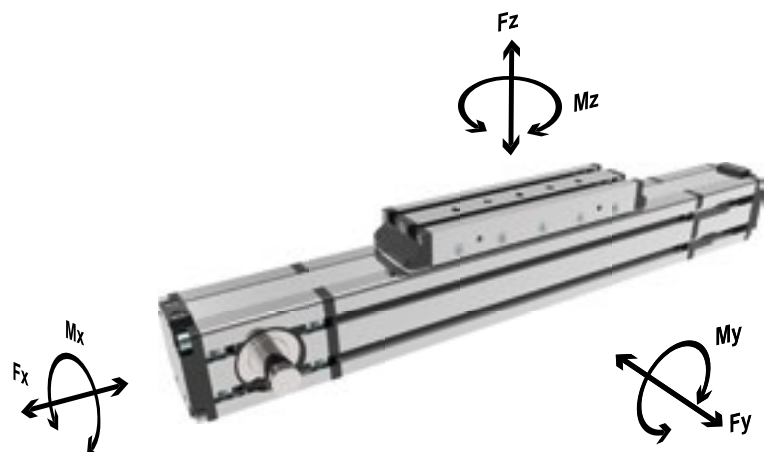
| Technical Data | | | | | |
|--|--------------------|--------|--------|--------|---------|
| Size | | 42x42 | 55x55 | 80x80 | 105x105 |
| Max. speed | m/s | 3 | 3 | 3 | 3 |
| Max. stroke length | mm | 6700 | 6700 | 6700 | 6700 |
| Min. stroke length | mm | 100 | 100 | 100 | 100 |
| Pulley drive ratio | mm | 90 | 120 | 160 | 210 |
| Number of teeth of pulley | | 18 | 24 | 32 | 21 |
| Tooth belt with Steel Reinforced Polyurethane ATL 5** profile clearance 0. Width = | mm | 12 | 16 | 25 | 32 |
| Max rpm | rpm | 2000 | 1500 | 1150 | 850 |
| Base weight | Kg | 1.6 | 3.3 | 6 | 12.5 |
| Add for 100 mm of stroke | Kg | 0.25 | 0.58 | 0.9 | 1.5 |
| Max. load* | Fx N | 460 | 820 | 1650 | 2750 |
| | Fy N | 1560 | 1850 | 4500 | 7500 |
| | Fz N | 1560 | 1850 | 4500 | 7500 |
| Moments* | Mx Nm | 20 | 25 | 80 | 120 |
| | My Nm | 55 | 120 | 450 | 700 |
| | Mz Nm | 55 | 120 | 450 | 700 |
| Inertia moment Aluminium profile | Ix cm ⁴ | 11.8 | 36 | 183 | 440 |
| Inertia moment Aluminium profile | Iy cm ⁴ | 14.2 | 45 | 226 | 535 |
| Repeatability | mm | ± 0.05 | ± 0.05 | ± 0.05 | ± 0.05 |
| Max. radial load on input shaft | N | 220 | 300 | 300 | 400 |
| No load torque | Nm | >0.3 | >0.4 | >0.5 | >0.8 |

** MTB 80 uses an ATL 10 steel reinforced polyurethane belt, profile clearance 0.

* Max values for dynamic conditions. Please refer to the following formula when combined loads are applied.

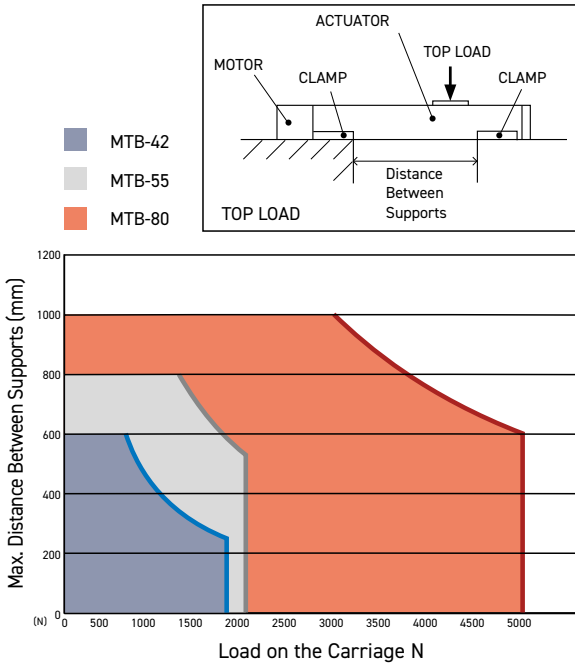
$$\frac{F_{y_A}}{F_y} + \frac{F_{z_A}}{F_z} + \frac{M_{x_A}}{M_x} + \frac{M_{y_A}}{M_y} + \frac{M_{z_A}}{M_z} \leq 1$$

The A letters show the calculated value.

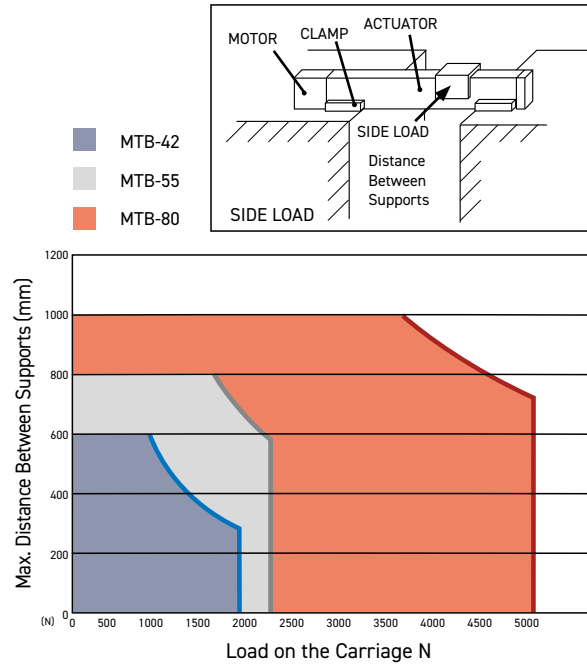


Deflection of Linear Unit

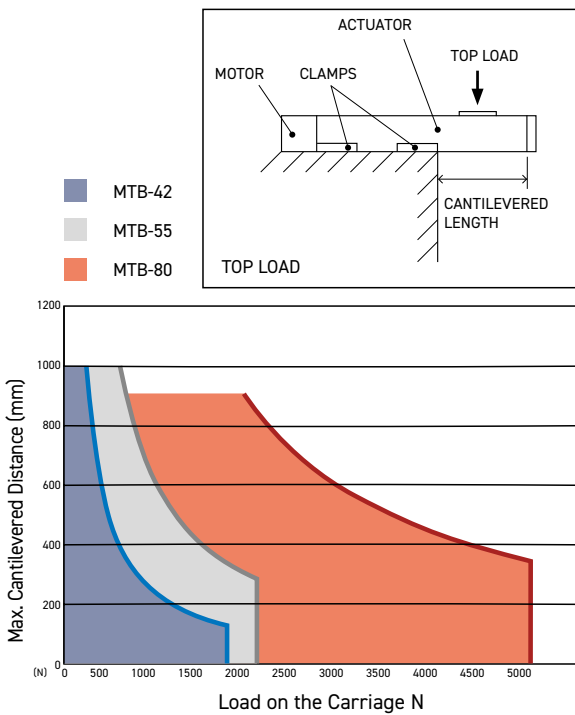
End supported top load



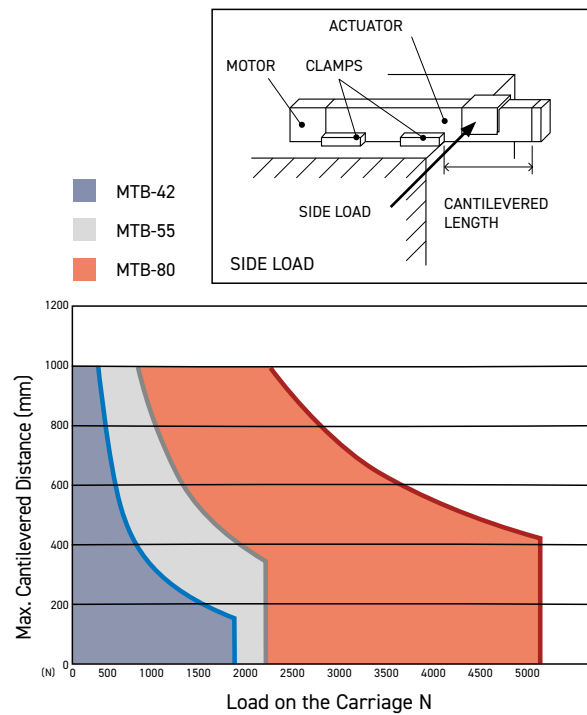
End supported side load



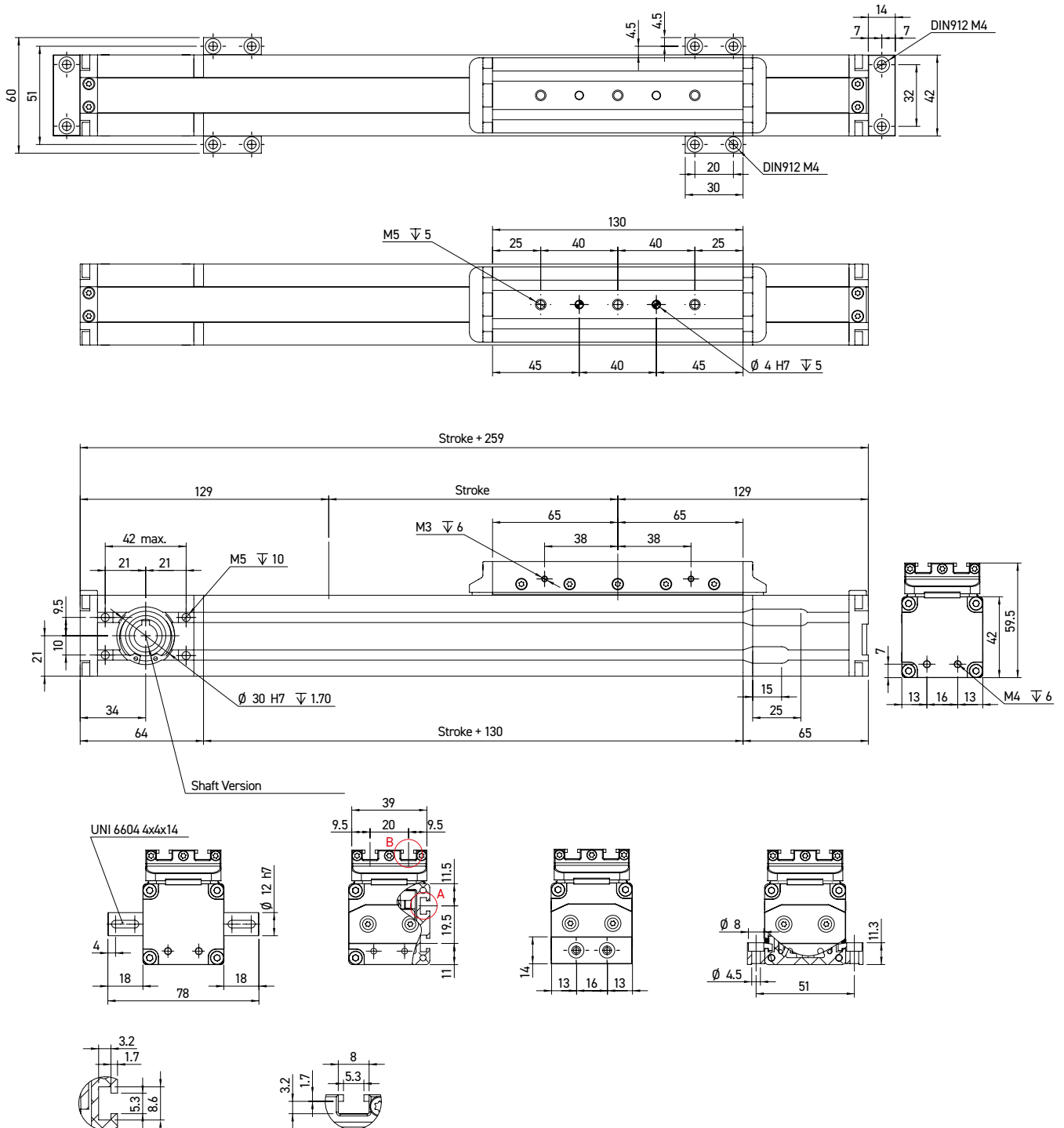
Cantilevered top load



Cantilevered side load



MTB42 Series Dimensions



View A

View B



Female mount F2



Left mount M2L

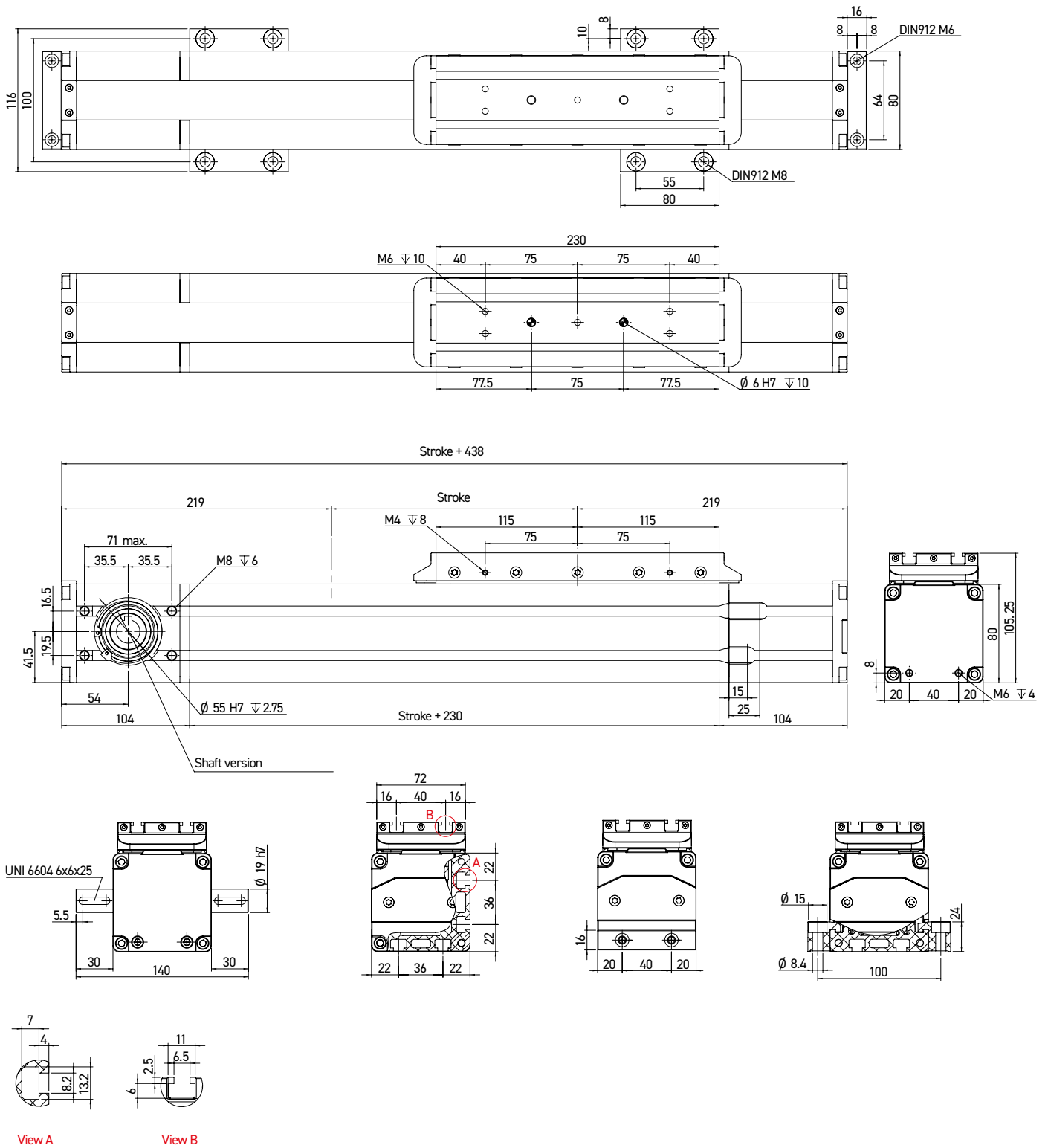


Dual mount D2



Right mount M2R

MTB80 Series Dimensions



Female mount F9



Left mount M9L

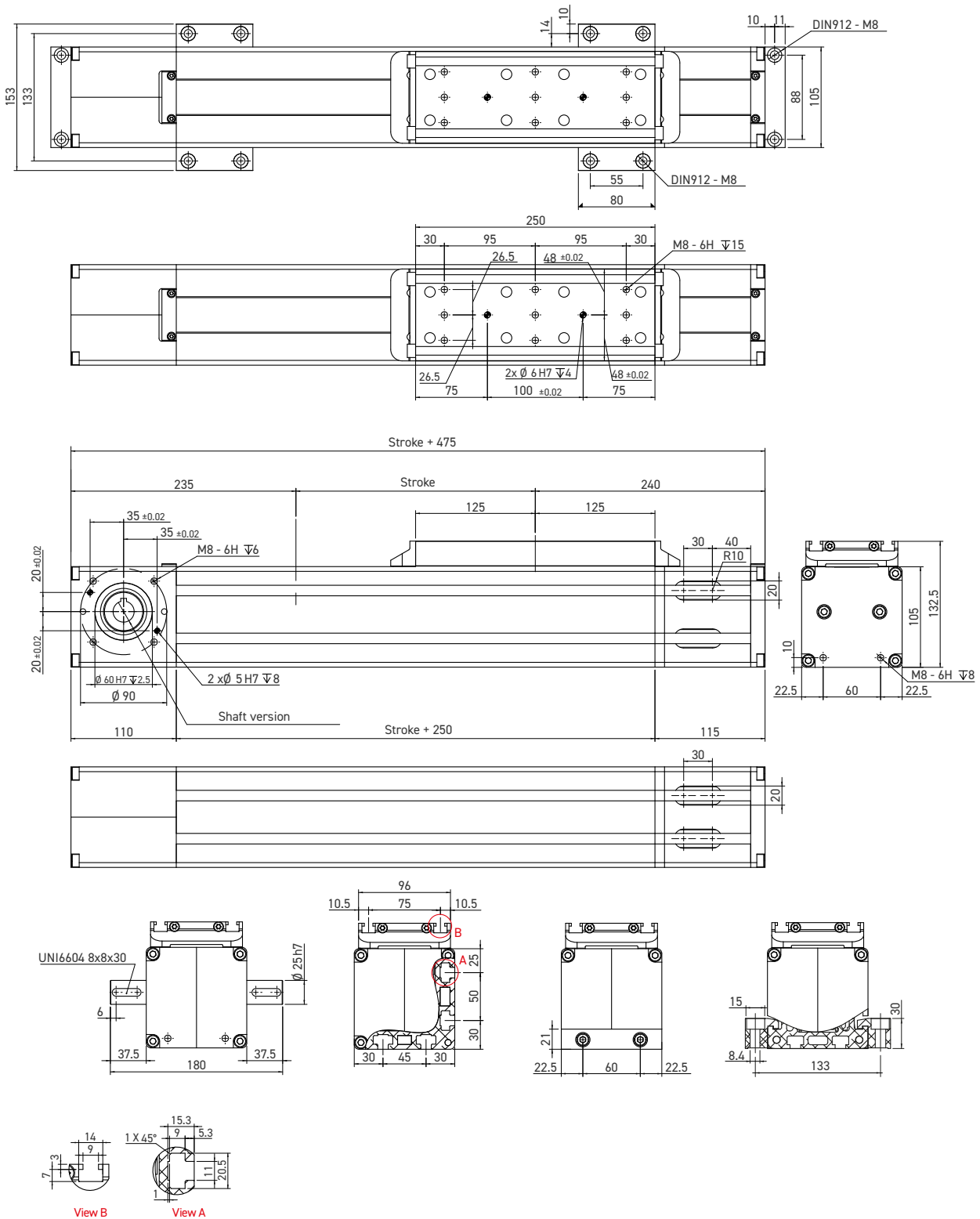


Dual mount D9



Right mount M9R

MTB105 Series Dimensions



Female mount F25



Left mount M25L



Dual mount D25



Right mount M25R

MTB Series Order Example

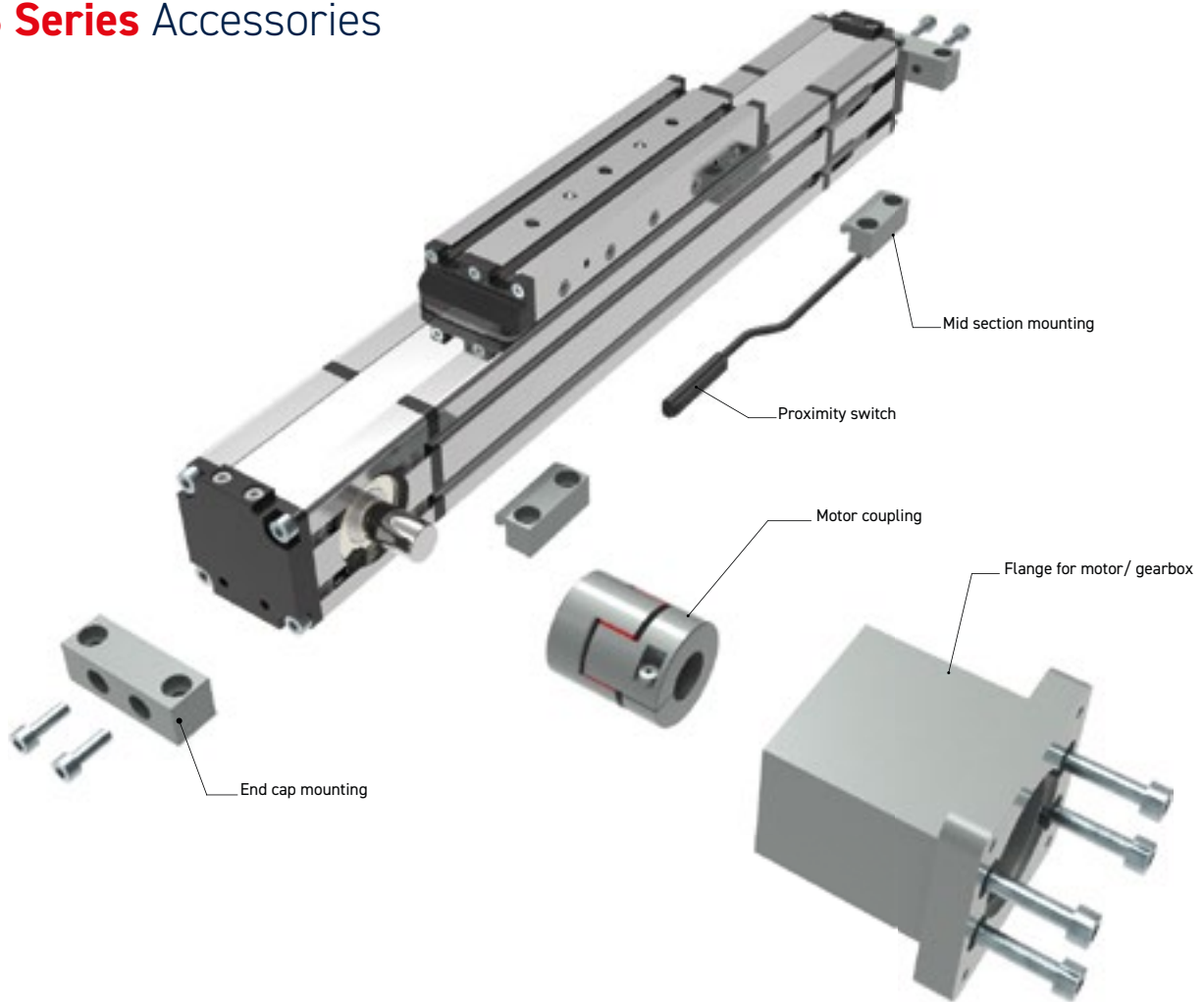
Code: **MTB** **55** - **2100** - **F4**
Options: 1 2 3 4

| Options | | Selection | | | |
|---------|------------------|------------------------------|------------------------------|------------------------------|-----------------------------------|
| 1 | Series | MTB | | | |
| 2 | Size | 42 (42x42) | 55 (55x55) | 80 (80x80) | 105 (105x105) |
| 3 | Stroke | 0-6700 mm | | | |
| 4 | Shaft Versions * | F0 F2 M2L M2R D2 | F2 F4 M6L M6R D6 | F6 F9 M9L M9R D9 | F22 F25 M25L M25R D25 |

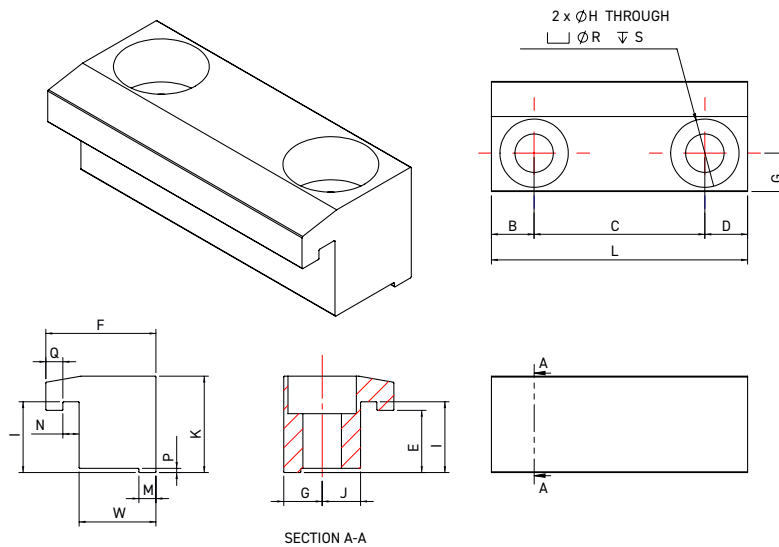
*Shaft Version Codes

| | | | | | |
|-----|-----------------------------------|------|-------------------------------|-----|--------------------------|
| F0 | Female shaft Ø10 mm with keyshaft | M2L | Male shaft Ø12 mm mount left | D2 | Double male shaft Ø12 mm |
| F2 | Female shaft Ø12 mm with keyshaft | M6L | Male shaft Ø16 mm mount left | D6 | Double male shaft Ø16 mm |
| F4 | Female shaft Ø14 mm with keyshaft | M9L | Male shaft Ø19 mm mount left | D9 | Double male shaft Ø19 mm |
| F6 | Female shaft Ø16 mm with keyshaft | M25L | Male shaft Ø25 mm mount left | D25 | Double male shaft Ø25 mm |
| F9 | Female shaft Ø19 mm with keyshaft | M2R | Male shaft Ø12 mm mount right | | |
| F22 | Female shaft Ø22 mm with keyshaft | M6R | Male shaft Ø16 mm mount right | | |
| F25 | Female shaft Ø25 mm with keyshaft | M9R | Male shaft Ø19 mm mount right | | |

MTB Series Accessories

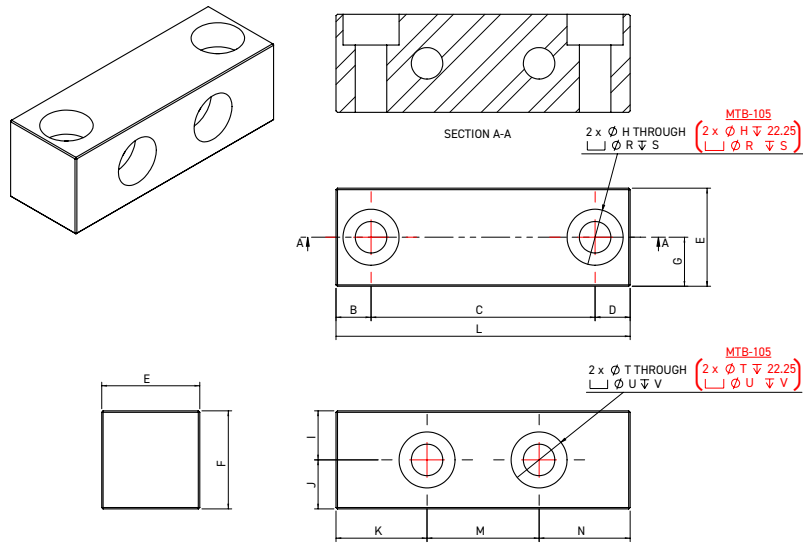


Mid Section Mounting



| Linear Unit | Dimensions (mm) | | | | | | | | | | | | | | | ØH | ØR | ∇S | Code |
|-------------|-----------------|----|------|------|------|-----|------|-----|------|----|---|-----|-----|-----|----|-----|----|-----|----------|
| | B | C | D | E | F | G | I | J | K | L | M | N | P | Q | W | | | | |
| MTB 42 | 5 | 20 | 5 | 7.3 | 12.9 | 4.5 | 8.3 | 4.5 | 11.3 | 30 | 2 | 1.9 | 0.5 | 2 | 9 | 4.3 | 8 | 4.4 | A0AA003L |
| MTB 55 | 8 | 34 | 8 | 12.9 | 16 | 6 | 13.9 | 6 | 17 | 50 | 2 | 2.5 | 0.5 | 1.5 | 12 | 5.5 | 10 | 5.4 | A1AA003L |
| MTB 80 | 12.5 | 55 | 12.5 | 16 | 26.5 | 8 | 17.9 | 10 | 24 | 80 | 2 | 4.5 | 0.5 | 4 | 18 | 8.4 | 15 | 8.6 | A2AA003L |
| MTB 105 | 12.5 | 55 | 12.5 | 22 | 33.5 | 10 | 23.9 | 14 | 29.7 | 80 | - | 5.2 | 0.5 | 4 | 24 | 8.4 | 15 | 8.6 | A3AA003L |

End Cap Mounting

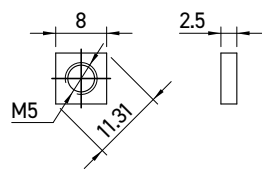


| Linear Unit | Dimensions (mm) | | | | | | | | | | | | ØH | ØR | S | T | U | V | Code |
|-------------|-----------------|----|-----|----|----|-----|----|----|------|-----|----|------|-----|----|-----|-----|----|-----|----------|
| | B | C | D | E | F | G | I | J | K | L | M | N | | | | | | | |
| MTB 42 | 5 | 32 | 5 | 14 | 14 | 7 | 7 | 7 | 13 | 42 | 16 | 13 | 4.5 | 8 | 4.4 | 4.5 | 8 | 4.4 | A0AA001L |
| MTB 55 | 7 | 41 | 7 | 15 | 15 | 7.5 | 7 | 8 | 16 | 55 | 23 | 16 | 5.5 | 10 | 5 | 5.5 | 10 | 5 | A1AA001L |
| MTB 80 | 8 | 64 | 8 | 16 | 16 | 8 | 8 | 8 | 20 | 65 | 40 | 20 | 6.6 | 11 | 6 | 6.6 | 11 | 6 | A2AA001L |
| MTB 105 | 8.5 | 88 | 8.5 | 21 | 21 | 10 | 10 | 11 | 22.5 | 105 | 60 | 22.5 | 9 | 15 | 8.6 | 9 | 15 | 8.6 | A3AA001L |

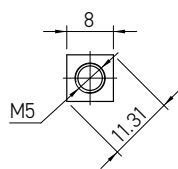
Slot Nuts

Square Nuts

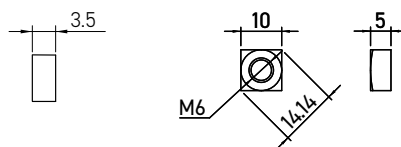
DQM05-01



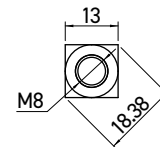
DQM05



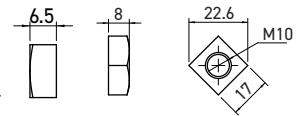
DQM06



DQM08

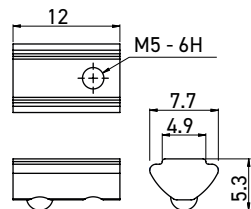


DQM10

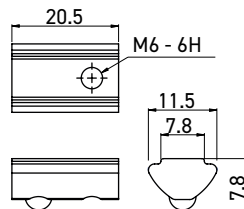


T Nuts

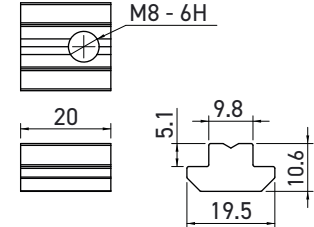
DTM05-M5



DTM06-M6

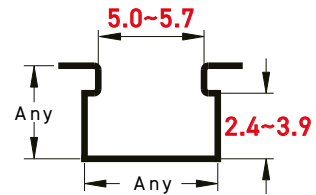
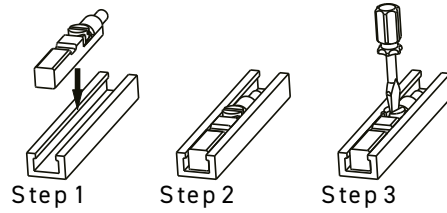


DTM10-M8



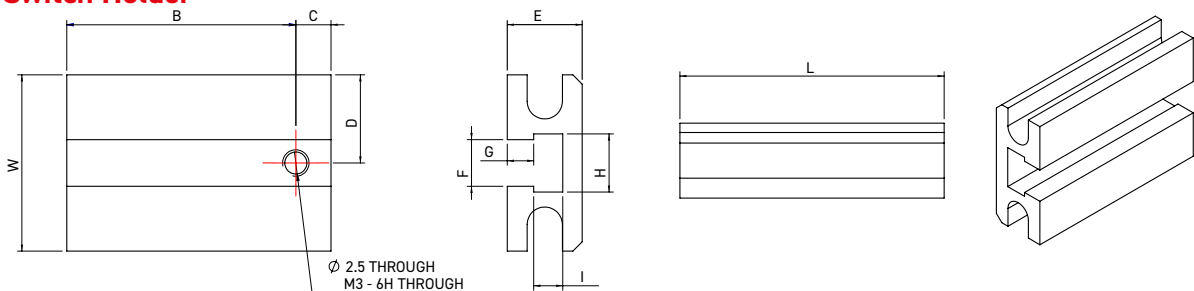
| Code | Nut Type | MTB 42 | MTB 55 | MTB 80 | MTB 105 |
|----------|------------------|--------|--------|--------|---------|
| DQM05-01 | Square Nut - M5 | X | | | |
| DQM05 | Square Nut - M5 | | X | | |
| DQM06 | Square Nut - M6 | | | X | |
| DQM08 | Square Nut - M8 | | | X | |
| DQM10 | Square Nut - M10 | | | | X |
| DTM05-M5 | Slot Nut T - M5 | | X | | |
| DTM06-M6 | Slot Nut T - M6 | | | X | |
| DTM10-M8 | Slot Nut T - M10 | | | | X |

Magnetic Sensor



| Characteristic | AL39-R | AL39-S |
|--------------------------|--|---|
| Switching Logic | SPST Normally Open | Solid State Output, Normally Open |
| Sensor Type | Reed Switch | NPN/PNP Automatic Detection |
| Operating Voltage | 5~240V DC/AC | 5~30V DC |
| Switching Current | 100 mA Max. | 100 mA Max. |
| Switching Rating | 10 W Max. | 3 W Max. |
| Current Consumption | — | 7.5 mA Max. @ 24V |
| Voltage Drop | 2.5V Max. @ 100mA DC | 1 V Max. @ 200 mA DC |
| Leakage Current | — | 0.01 mA Max. |
| Indicator | Red LED | Red LED |
| Cable | 2.9 , 2C, Grey Oil Resistat PUR | 2.9 , 3C, Black Oil Resistat PUR |
| Sensitivity | 35 ~ 45 Gauss | 40 ~ 800 Gauss |
| Switching Frequency | 200 Hz | 5000 Hz |
| Temperature range | -10 ~ 70°C | -10 ~ 70°C |
| Shock | 30 G | 50 G |
| Vibration | 9 G | 9 G |
| Enclosure Classification | IP 65 (EN60529) | IP 65 (EN60529) |
| Protection Circuit | — | Power Reverse Polarity; Surge Suppression |
| CE Certificate NO. | E8N 11 0 4 53334 005 | — |
| 3C Certificate NO. | No. : 2 004010305127433 | — |
| CNEx Certificate NO. | CNEx16.2333X(ExnCIICT6GC) | — |
| Connect Diagram | | |
| | <p>AL-39R AL-39R-QD8 AL-39R-QD12 AL-39R-EZ2M</p> | <p>M8, M12, EZ QUICK CONNECT OR (IEC61076-2-101)</p> <p>2 wire QD wiring OR 3 wire QD wiring</p> <p>M83M OR M83M M124M OR M124M EZ2M OR EZ3M </p> |

Sensor Switch Holder



| Linear Unit | Dimensions (mm) | | | | | | | | | | Code |
|-------------|-----------------|---|-----|-----|-----|-----|-----|-----|----|----|------------|
| | B | C | D | E | F | G | H | I | L | W | |
| MTB 80 | 26 | 4 | 6.5 | 6.5 | 5.3 | 1.8 | 6.6 | 3.3 | 30 | 13 | A9AA_AD80 |
| MTB 105 | 26 | 4 | 10 | 8.5 | 5.3 | 3 | 6.6 | 3.3 | 30 | 20 | A9AA_AD105 |