

## Slim design: integrated motor gearing and limit switches

### The LiMax in brief



**LiMax** - the slim all cylindrical linear actuator with **Maximum** force rating.

The modular LiMax design uses an in-line layout of motor, planetary gearing and lead screw drive (Acme screw) to achieve a high force rating in relation to the diameter of the body. The wide range of options enables a selection of specification to suit most applications. The integrated stroke limit switches are fully adjustable, allowing on-site adjustment to suit the application.

The LiMax is a very cost effective linear actuator offering the optimum price/performance ratio.

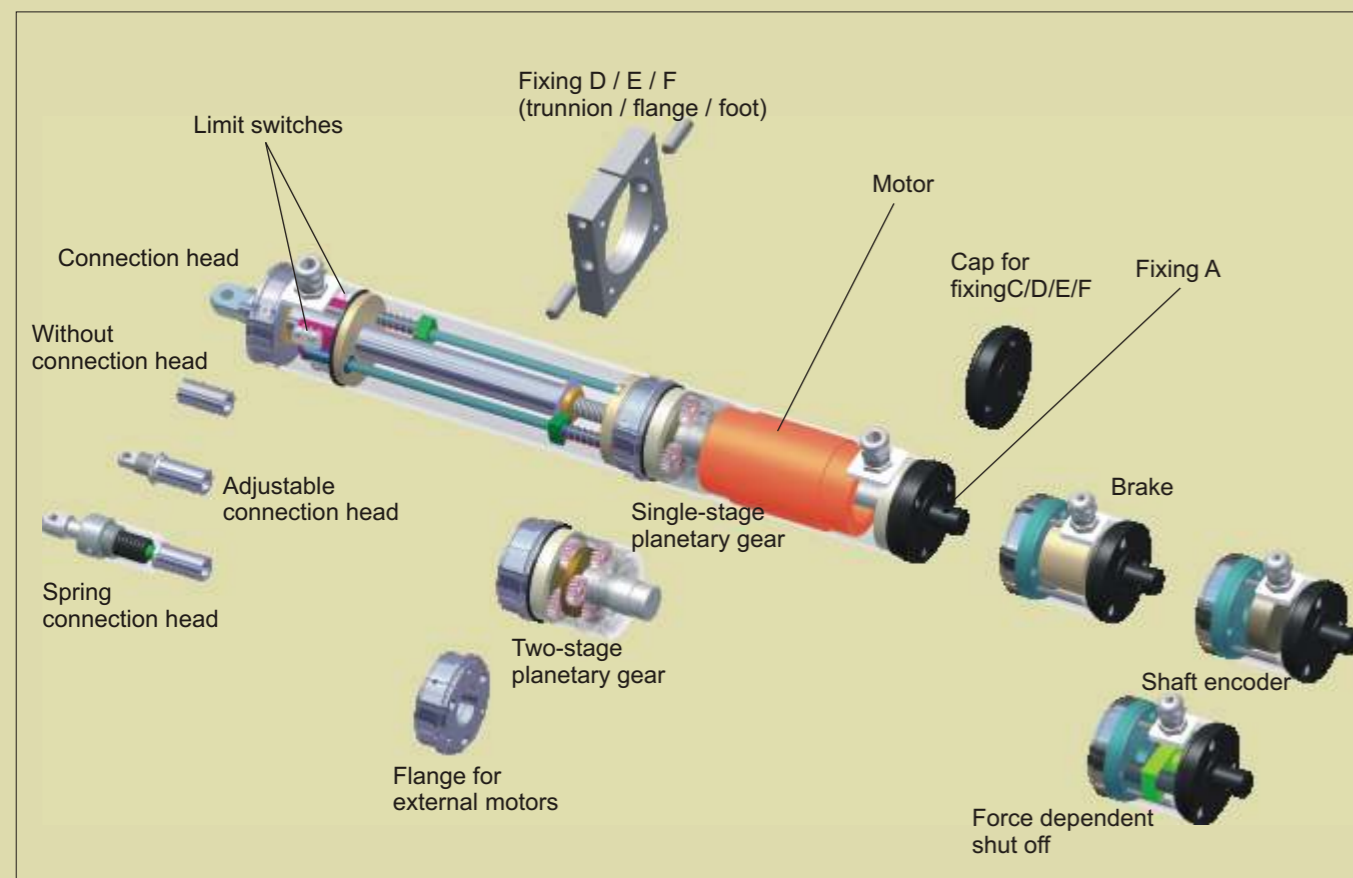
The all-stainless steel body, piston and end fittings are standard and coupled with an IP65 water jet protection rating mean trouble free use in exposed locations and resistance to corrosive environments. The all-cylindrical design will appeal to designers where the actuators are highly visible such as in the facades of modern buildings.

Customised versions can be manufactured where necessary.

Feel free to contact us.

#### Options:

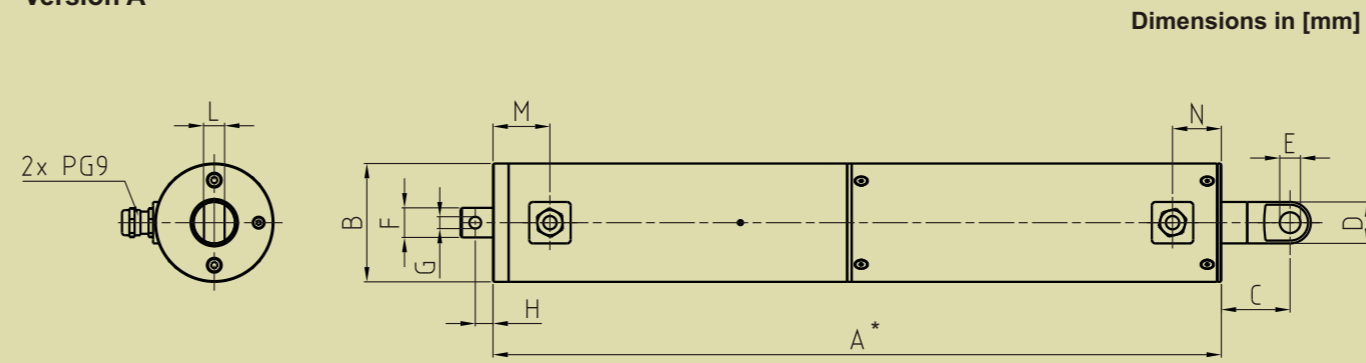
- Wide selection of AC- and DC-Motors available
- Customized stroke lengths
- Large range of encoder
- Lubricating nipple in connection head
- Flange for external motors



Subject to changes - for updated information refer to [www.framo-morat.com](http://www.framo-morat.com)

## Wide range of mounting facilities

Dimensions (for DC on request) / fixing versions  
Version A



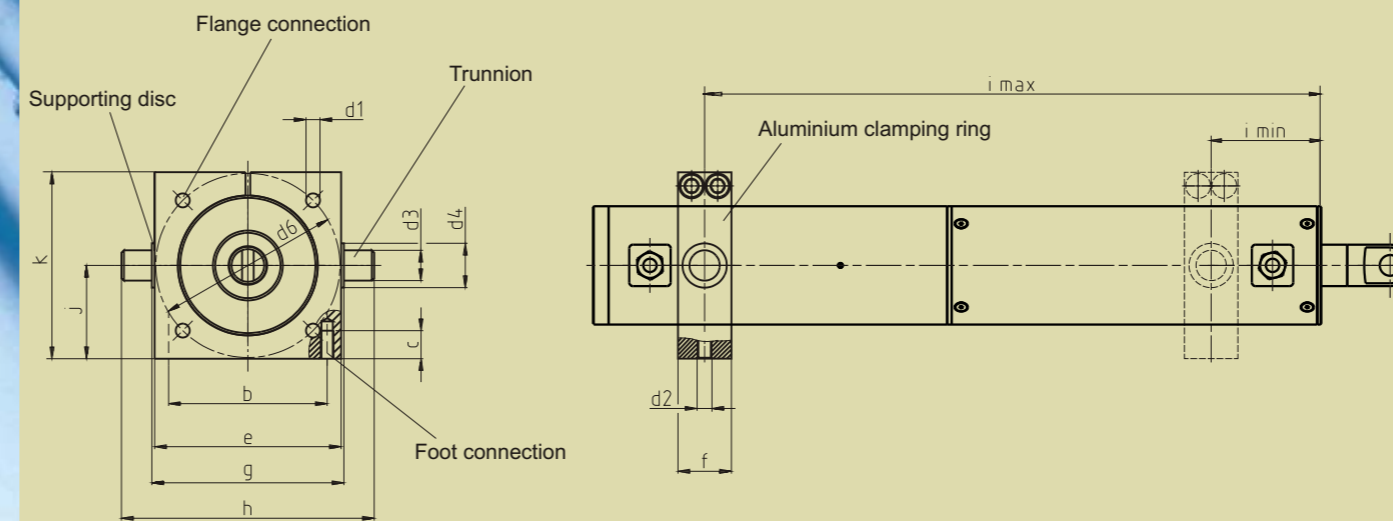
| Type     | Basic stroke** | A*      |         | B   | C    | D   | E   | F   | G  | H  | L  | M    | N  |
|----------|----------------|---------|---------|-----|------|-----|-----|-----|----|----|----|------|----|
|          |                | 1-stage | 2-stage |     |      |     |     |     |    |    |    |      |    |
| LiMax 60 | 200            | 541     | 553     | Ø60 | 34   | Ø20 | Ø8  | Ø15 | Ø5 | 10 | 8  | 36   | 31 |
| LiMax 80 | 200            | 562,5   | 577,5   | Ø80 | 46,5 | Ø28 | Ø14 | Ø20 | Ø8 | 12 | 14 | 38,5 | 33 |

\* Measurement A is based on the basic stroke. For longer strokes measurement "A" varies according to the extension of the stroke length.

\*\* Shorter stroke lengths on request

Max. stroke length:  
LiMax 60 = 400mm  
LiMax 80 = 800mm

Version D: Trunnion  
Version E: Flange mounting  
Version F: Foot mounting



|          | i min. | i max.       | e   | k   | Trunnion |    |       |    | Flange |    | Foot |    |    |    |    |
|----------|--------|--------------|-----|-----|----------|----|-------|----|--------|----|------|----|----|----|----|
|          |        |              |     |     | h        | j  | d3 h7 | d4 | g      | d1 | d6   | d2 | b  | c  | f  |
| LiMax 60 | 55     | 428 + stroke | 78  | 80  | 108,4    | 40 | 8     | 14 | 82,4   | 6  | 79   | M6 | 69 | 12 | 16 |
| LiMax 80 | 60     | 437 + stroke | 100 | 110 | 130,4    | 50 | 10    | 16 | 102,4  | 7  | 100  | M8 | 87 | 16 | 20 |

\* Measurement "i max." is based on the basic stroke. For longer strokes measurement "i max." varies according to the extension of the stroke length

All measurement in mm

## Customized stroke lengths on request

Performance table (for DC on request)

LiMax 60 - 1 x 230 V AC

| Speed<br>n, [min <sup>-1</sup> ] | Motor power<br>P1 [kW] | Duty cycle [%] | Planetary gear stages | Trapezoidal thread [mm] | Stroke speed [mm/s] | Max. stroke force [N] at stroke length [mm] |      |
|----------------------------------|------------------------|----------------|-----------------------|-------------------------|---------------------|---|------|
|                                  |                        |                |                       |                         |                     | 200   | 300  |
| 1200                             | 0,06                   | 15             | 1:1                   | Tr12x6 So               | 120                 | 210   | 210  |
| 1200                             | 0,06                   | 15             | 1:1                   | Tr12x4 Ss               | 80                  | 250   | 250  |
| 1200                             | 0,06                   | 15             | 1:1                   | Tr12x3 Sd               | 60                  | 290   | 290  |
| 1200                             | 0,06                   | 15             | 1:1                   | Tr12x2 Sd               | 40                  | 320   | 320  |
| 1200                             | 0,06                   | 15             | 1-st.                 | Tr12x6 So               | 31                  | 770   | 770  |
| 1200                             | 0,06                   | 15             | 1-st.                 | Tr12x4 Ss               | 21                  | 930   | 930  |
| 1200                             | 0,06                   | 15             | 1-st.                 | Tr12x2 Sd               | 10                  | 1150  | 1150 |
| 1200                             | 0,06                   | 15             | 2-st.                 | Tr12x6 So               | 8                   | 2550  | 2550 |
| 1200                             | 0,06                   | 15             | 2-st.                 | Tr12x3 Sd               | 4                   | 3500  | 2250 |
| 1200                             | 0,06                   | 15             | 2-st.                 | Tr12x2 Sd               | 3                   | 3500  | 3500 |

LiMax 80 - 3 x 230 / 400 V AC

| Speed<br>n, [min <sup>-1</sup> ] | Motor power<br>P1 [kW] | Duty cycle [%] | Planetary gear stages | Trapezoidal thread [mm] | Stroke speed [mm/s] | Max. stroke force [N] at stroke length [mm] |      |      |
|----------------------------------|------------------------|----------------|-----------------------|-------------------------|---------------------|---|------|------|
|                                  |                        |                |                       |                         |                     | 200   | 300  | 400  |
| 2700                             | 0,22                   | 30             | 1:1                   | Tr18x8 So               | 360                 | 250   | 250  | 250  |
| 2700                             | 0,22                   | 30             | 1:1                   | Tr18x4 Ss               | 180                 | 320   | 320  | 320  |
| 2700                             | 0,22                   | 30             | 1:1                   | Tr18x3 Sd               | 135                 | 340   | 340  | 340  |
| 2700                             | 0,22                   | 30             | 1-st.                 | Tr18x8 So               | 84                  | 1000  | 1000 | 1000 |
| 2700                             | 0,22                   | 30             | 1-st.                 | Tr18x4 Ss               | 42                  | 1320  | 1320 | 1320 |
| 2700                             | 0,22                   | 30             | 1-st.                 | Tr18x3 Sd               | 31                  | 1400  | 1400 | 1400 |
| 2700                             | 0,22                   | 30             | 2-st.                 | Tr18x8 So               | 19                  | 3750  | 3750 | 3750 |
| 2700                             | 0,22                   | 30             | 2-st.                 | Tr18x4 Ss               | 10                  | 5000  | 5000 | 5000 |
| 2700                             | 0,22                   | 30             | 2-st.                 | Tr18x3 Sd               | 7                   | 5200  | 5200 | 5200 |

LiMax 80 - 1 x 230 V AC

| Speed<br>n, [min <sup>-1</sup> ] | Motor power<br>P1 [kW] | Duty cycle [%] | Planetary gear stages | Trapezoidal thread [mm] | Stroke speed [mm/s] | Max. stroke force [N] at stroke length [mm] |      |      |
|----------------------------------|------------------------|----------------|-----------------------|-------------------------|---------------------|---|------|------|
|                                  |                        |                |                       |                         |                     | 200   | 300  | 400  |
| 2700                             | 0,12                   | 15             | 1:1                   | Tr18x8 So               | 360                 | 130   | 130  | 130  |
| 2700                             | 0,12                   | 15             | 1:1                   | Tr18x4 Ss               | 180                 | 180   | 180  | 180  |
| 2700                             | 0,12                   | 15             | 1:1                   | Tr18x3 Sd               | 135                 | 190   | 190  | 190  |
| 2700                             | 0,12                   | 15             | 1-st.                 | Tr18x8 So               | 84                  | 540   | 540  | 540  |
| 2700                             | 0,12                   | 15             | 1-st.                 | Tr18x4 Ss               | 42                  | 720   | 720  | 720  |
| 2700                             | 0,12                   | 15             | 1-st.                 | Tr18x3 Sd               | 31                  | 760   | 760  | 760  |
| 2700                             | 0,12                   | 15             | 2-st.                 | Tr18x8 So               | 19                  | 2050  | 2050 | 2050 |
| 2700                             | 0,12                   | 15             | 2-st.                 | Tr18x4 Ss               | 10                  | 2700  | 2700 | 2700 |
| 2700                             | 0,12                   | 15             | 2-st.                 | Tr18x3 Sd               | 7                   | 2850  | 2850 | 2850 |

Depending on application a brake is requested.

Duty ratio applies to 10 minutes duty time.

For tensile loading applies the maximum stroke force of the particular stroke speed.

#### Ordersample

Type - Version - stroke force - stroke speed  
LiMax 60 - WA - 1150 - 10

So = No self-locking  
Ss = Static self-locking  
Sd = Dynamic self-locking

#### General information

- Maximum allowable ambient temperature -20 up to +60°C.
- For minus degrees a motor standby heating is required.
- A re-lubrication nipple is recommended for vertical applications.
- The piston rod is not torsion protected.

## Stainless steel and water jet protection

### Application examples

#### Architecture Solar Shading



Attractive all-cylindrical stainless steel design is very suited to modern building solar shading systems.

#### Telecommunications



High force rating and weatherproof design is suitable for all applications exposed to the elements.

#### Handling



Fully adjustable limit switches mean flexibility in setting-up

### Benefits at a glance

#### Economically

- Optimum price/performance ratio
- Low operating cost
- Simple installation and start-up
- Low maintenance
- Long life cycle
- Integrated options

#### Reliable operation

- Life time lubrication
- Reliable under extreme conditions like heat, dust, moisture
- Force dependent shut-off option
- Integrated safety switch
- Thermal protection
- Reproducible positioning accuracy

#### Design freedom

- Fully adjustable limit sw
- Water jet protected (IP65) option
- Stainless steel resists corrosion
- Modular design many options
- Various types of mounting and end connection
- Reliable integration in existing control systems
- High power density
- Wide range of three-phase, single phase AC and also DC motors
- Customized versions to special order
- Special stroke lengths available on request

#### Pharma-/ Chemistry-/ Food industry



The water jet protection (IP65) and stainless steel design is resistant to exposure in highly corrosive environments.

## More about Framo® . . .

#### Worm Gear Sets

Millions in use worldwide. Catalog worm gear sets are available from stock. Custom versions on request.



#### Gears

On specification External gears / Internal gears, spur gears, helical gears and spherical gears.

#### LiMax

The slim, strong and all stainless steel linear actuator with integrated free adjustable limit switches.



#### Mini

Extremely compact linear actuator with integrated limit switches and many options.

#### Compacta

Slip-on geared motor with built-in limit switches and many options.

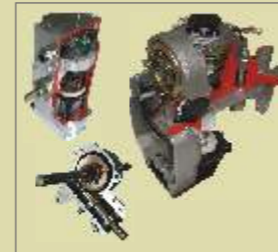


#### LinearChain

The Framo® Push-Pull Chain combines long strokes with minimum space requirements.

#### DiscPower

Disc motor with integrated planetary gear.



#### Custom Drives

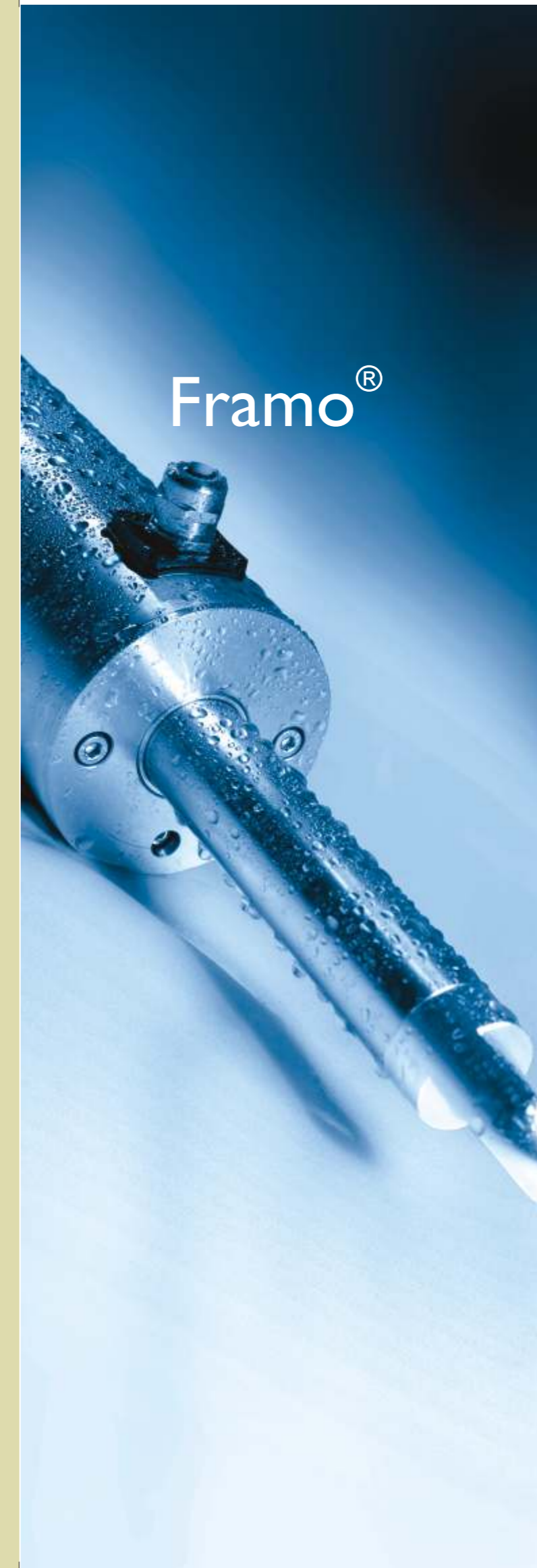
Framo designs and produces custom drives from worm gear box to complete drives.

Framo Morat - your competent partner for drive and gear technology

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LiMax

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