



Integrated Flexible System



IF Series base structure deformation under a given amount of force.



Deformation of competitor's base structure under the same amount of force.

Features:

- Timing belt-type actuator using AC servo motor and incremental optical encoder.
- Maximum stroke length: 2500mm; maximum speed: 1750mm/sec.
- Highly rigid base structure.
- Double slider option increases moment capability and allows greater overhang load length.
- Urethane timing belt is highly durable and generates minimal particles.
- Base structure is highly resistant to torsional deformation and warp.

Specifications:

| Type | Motor Capacity (W) | Horizontal Payload (Kg) | Velocity (mm/sec) | Stroke (mm) | Repeatability (mm) | Moment*1 [N • m(Kgf • m)] | | | |
|--------------------|--------------------|-------------------------|-------------------|-------------|--------------------|-----------------------------|--------------|--------------|--------------|
| | | | | | | Slider | Ma | Mb | Mc |
| S (Small Type) | 60 | 5 | 1750 | 200~2000 | ±0.08 | Single | 28.4 (2.9) | 40.2 (4.1) | 65.7 (6.7) |
| | 100 | 10 | | | | Double*2 | 130.3 (13.3) | 185.2 (18.9) | 106.8 (10.9) |
| M (Medium Type) | 200 | 20 | | 200~2500 | | Single | 69.6 (7.1) | 99.0 (10.1) | 161.7 (16.5) |
| | 400 | 40 | | | | Double*3 | 316.5 (32.3) | 450.8 (46.0) | 262.0 (26.8) |

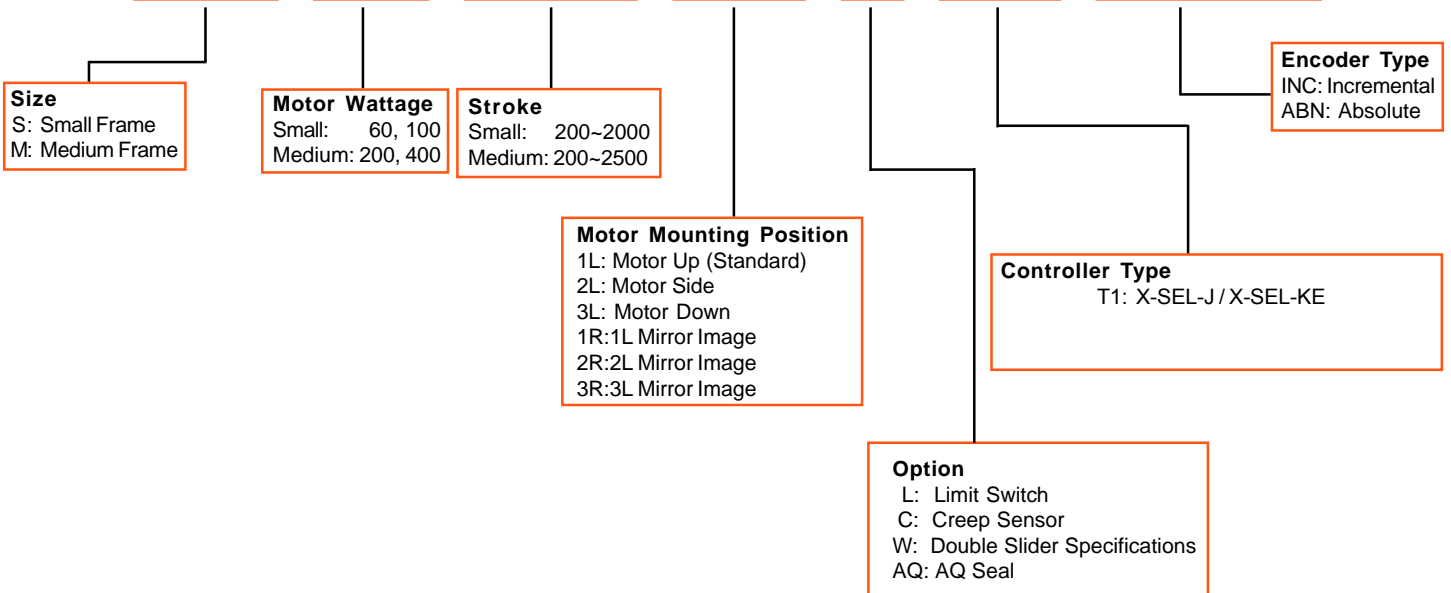
*1: When the moment is a dynamic rated moment load.

*2: For the double slider, when the distance between the two sliders is 45mm.

*3: For the double slider, when the distance between the two sliders is 55mm.

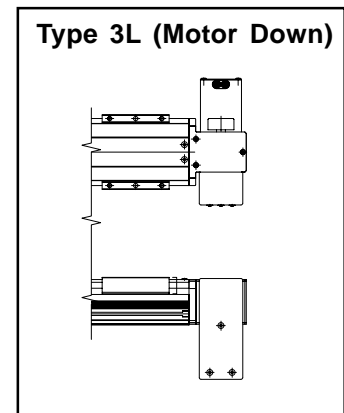
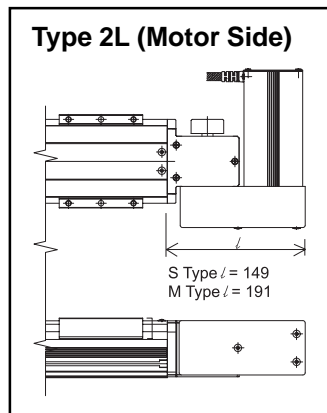
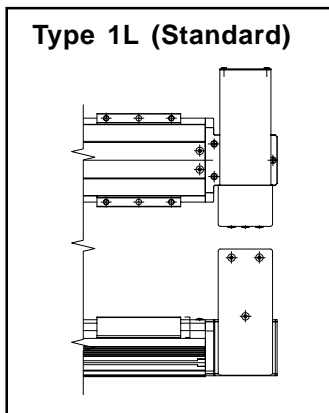
Model Type:

IF-SA-60-600-2R-L-T1-ABN



Optional Motor Positions:

- There are total of 6 positions to choose from regarding the position of the motor on the IF Series actuator. The 1L, 2L and 3L positions are shown below. The other 3 options are the mirror images of the 1L, 2L and 3L positions and are designated as 1R:1L, 2R:2L, and 3L:3R, respectively.

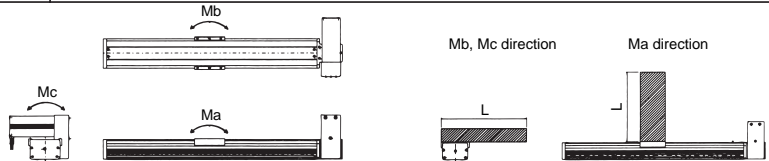


Note: The above 3 diagrams shown are for medium type actuators. Please be aware that for the small type actuators, the motor size varies according to wattage. Therefore, the motor arrangement will vary.

IF-MA-200 [Medium 200W Type]

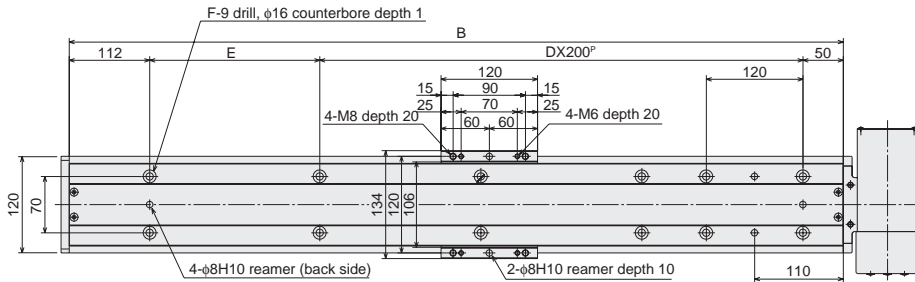
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|--------------------------------|-----------------|--|--------------------------|-----|------|------|------|------|------|------|------|------|-----------------------------------|------|------|------|------|------|------|------|------|--|
| Stroke | mm | 200 | 300 | 400 | 500 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | |
| Rated Output | W | 200 | | | | | | | | | | | | | | | | | | | | |
| Maximum Speed | mm/sec | 1750 | | | | | | | | | | | | | | | | | | | | |
| Repeatability | mm | ± 0.08 | | | | | | | | | | | | | | | | | | | | |
| Unit Weight | kg | 7.7 | 8.5 | 9.3 | 10.0 | 14.0 | 14.8 | 15.6 | 16.4 | 17.2 | 17.9 | 18.7 | 19.5 | 20.3 | 21.1 | 21.9 | 22.7 | 23.5 | 24.3 | 25.1 | 25.8 | |
| Motor | | AC Servo Motor | | | | | | | | | | | | | | | | | | | | |
| Encoder | | Single Unit with the motor | | | | | | | | | | | | | | | | | | | | |
| Feed Structure | | Timing Belt backlash under 0.1mm | | | | | | | | | | | | | | | | | | | | |
| Guide | | IF Exclusive Single Unit | | | | | | | | | | | | | | | | | | | | |
| Motor, Belt Connector | | Deceleration through timing belt | | | | | | | | | | | | | | | | | | | | |
| Base, Slider | | Exclusive extruded aluminum (A6NO1S-T5 equivalent) White alumite treatment | | | | | | | | | | | | | | | | | | | | |
| Slider Payload Weight (*1, *2) | kgw | Horizontal use: 20 | | | | | | | | | | | | | | | | | | | | |
| Load Moment (*1, *3) | N • m (kgf • m) | Single Slider | Ma: 69.6 (7.1) | | | | | | | | | | Mb: 99.0 (10.1) Mc: 161.7 (16.5) | | | | | | | | | |
| | | Double Slider (with span of 55mm) | Ma: 316.5 (32.3) | | | | | | | | | | Mb: 450.8 (46.0) Mc: 262.0 (26.8) | | | | | | | | | |
| | | Double Slider (with span of 80mm) | Ma: 350.0 (35.8) | | | | | | | | | | Mb: 500.0 (51.0) Mc: 262.0 (26.8) | | | | | | | | | |
| Overhang Load Length L (*4) | mm | Single Slider | Ma direction: Under 600 | | | | | | | | | | Mb, Mc direction: Under 600 | | | | | | | | | |
| | | Double Slider (with span of 55mm) | Ma direction: Under 1475 | | | | | | | | | | Mb, Mc direction: Under 1475 | | | | | | | | | |
| | | Double Slider (with span of 80mm) | Ma direction: Under 1600 | | | | | | | | | | Mb, Mc direction: Under 1600 | | | | | | | | | |

- *1: Even load distribution on the slider.
Fix base securely to a flat, strong frame.
- *2: At an acceleration of 0.3G and a speed of 1750mm/sec.
- *3: In case the running span is 10,000km.
Direction of load moment is shown on the right diagram.
- *4: When the center of gravity for the attached object is 1/2 of the overhang length.



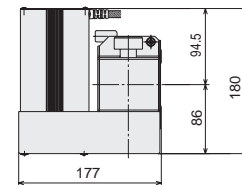
Dimensions

Single Slider

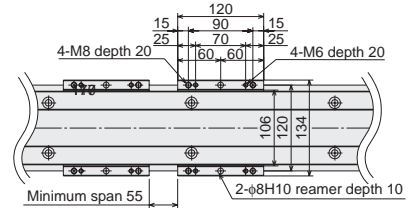
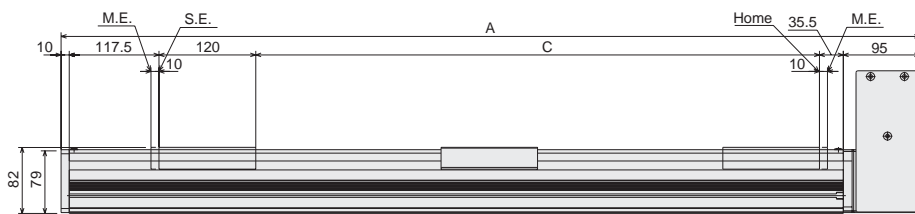


* During homing, since the slider will move up to M.E., please be cautious of interferences with surrounding objects.

M.E.: Mechanical End
S.E.: Stroke End



Double Slider



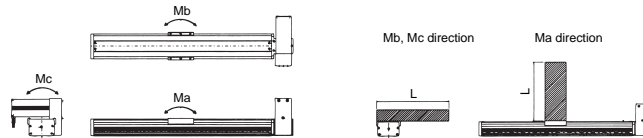
* For the double slider, the stroke span is shorter due to the slider length + slider.

| Stroke | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 |
|--------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| A | 578 | 678 | 778 | 878 | 978 | 1078 | 1178 | 1278 | 1378 | 1478 | 1578 | 1678 | 1778 | 1878 | 1978 | 2078 | 2178 | 2278 | 2378 | 2478 | 2578 | 2678 | 2778 | 2878 |
| B | 473 | 573 | 673 | 773 | 873 | 973 | 1073 | 1173 | 1273 | 1373 | 1473 | 1573 | 1673 | 1773 | 1873 | 1973 | 2073 | 2173 | 2273 | 2373 | 2473 | 2573 | 2673 | 2773 |
| C | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 |
| D | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 |
| E | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 |
| F | 8 | 8 | 10 | 10 | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 | 20 | 22 | 22 | 24 | 24 | 26 | 26 | 28 | 28 | 30 | 30 |

IF-MA-400 [Medium 400W Type]

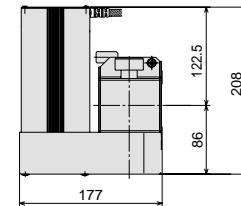
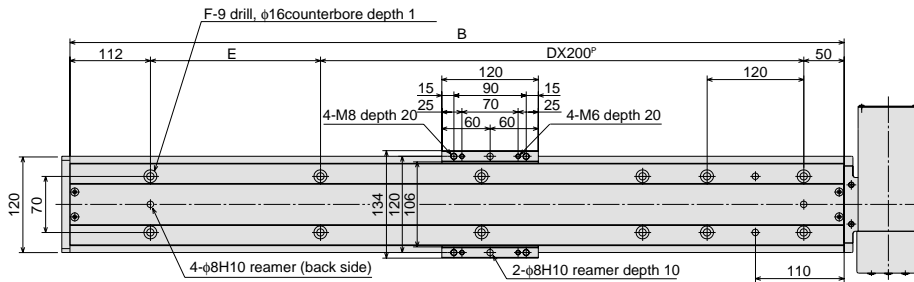
| | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|-----------------|--|--------------------------|-----|------|------|------|------|------|------|------|------|-----------------------------------|------|------|------|------|------|------|------|------|--|
| Stroke | mm | 200 | 300 | 400 | 500 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | |
| Rated Output | W | 400 | | | | | | | | | | | | | | | | | | | | |
| Maximum Speed | mm/sec | 1750 | | | | | | | | | | | | | | | | | | | | |
| Repeatability | mm | ± 0.08 | | | | | | | | | | | | | | | | | | | | |
| Unit Weight | kg | 8.2 | 9.0 | 9.8 | 10.5 | 14.5 | 15.3 | 16.1 | 16.9 | 17.7 | 18.4 | 19.2 | 20.0 | 20.8 | 21.6 | 22.4 | 23.2 | 24.0 | 24.8 | 25.6 | 26.3 | |
| Motor | | AC Servo Motor | | | | | | | | | | | | | | | | | | | | |
| Encoder | | Single Unit with the motor | | | | | | | | | | | | | | | | | | | | |
| Feed Structure | | Timing Belt backlash under 0.1mm | | | | | | | | | | | | | | | | | | | | |
| Guide | | IF Exclusive Single Unit | | | | | | | | | | | | | | | | | | | | |
| Motor, Belt Connector | | Deceleration through timing belt | | | | | | | | | | | | | | | | | | | | |
| Base, Slider | | Exclusive extruded aluminum (A6N01S-T5 equivalent) White alumite treatment | | | | | | | | | | | | | | | | | | | | |
| Slider Payload Weight (*1, *2) | kgw | Horizontal use: 40 | | | | | | | | | | | | | | | | | | | | |
| Load Moment (*1, *3) | N • m (kgf • m) | Single Slider | Ma: 69.6 (7.1) | | | | | | | | | | Mb: 99.0 (10.1) Mc: 161.7 (16.5) | | | | | | | | | |
| | | Double Slider (with span of 55mm) | Ma: 316.5 (32.3) | | | | | | | | | | Mb: 450.8 (46.0) Mc: 262.0 (26.8) | | | | | | | | | |
| | | Double Slider (with span of 80mm) | Ma: 350.0 (35.8) | | | | | | | | | | Mb: 500.0 (51.0) Mc: 262.0 (26.8) | | | | | | | | | |
| Overhang Load Length L (*4) | mm | Single Slider | Ma direction: Under 600 | | | | | | | | | | Mb, Mc direction: Under 600 | | | | | | | | | |
| | | Double Slider (with span of 55mm) | Ma direction: Under 1475 | | | | | | | | | | Mb, Mc direction: Under 1475 | | | | | | | | | |
| | | Double Slider (with span of 80mm) | Ma direction: Under 1600 | | | | | | | | | | Mb, Mc direction: Under 1600 | | | | | | | | | |

- *1: Even load distribution on the slider.
Fix base securely to a flat, strong frame.
- *2: At an acceleration of 0.3G and a speed of 1750mm/sec.
- *3: In case the running span is 10,000km.
Direction of load moment is shown on the right diagram.
- *4: When the center of gravity for the attached object is ½ of the overhang length.

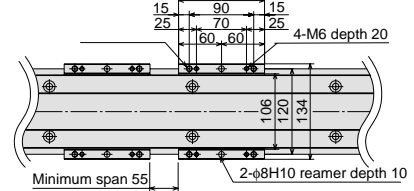
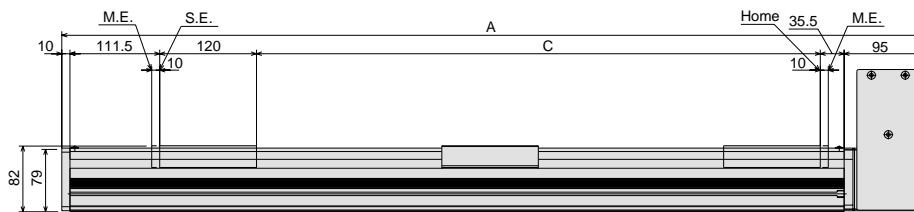


Dimensions

Single Slider



Double Slider



* For the double slider, the stroke span is shorter due to the slider length + slider

| Stroke | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 |
|--------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| A | 578 | 678 | 778 | 878 | 978 | 1078 | 1178 | 1278 | 1378 | 1478 | 1578 | 1678 | 1778 | 1878 | 1978 | 2078 | 2178 | 2278 | 2378 | 2478 | 2578 | 2678 | 2778 | 2878 |
| B | 473 | 573 | 673 | 773 | 873 | 973 | 1073 | 1173 | 1273 | 1373 | 1473 | 1573 | 1673 | 1773 | 1873 | 1973 | 2073 | 2173 | 2273 | 2373 | 2473 | 2573 | 2673 | 2773 |
| C | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 |
| D | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 |
| E | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 | 111 | 211 |
| F | 8 | 8 | 10 | 10 | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 | 20 | 22 | 22 | 24 | 24 | 26 | 26 | 28 | 28 | 30 | 30 |

Option:

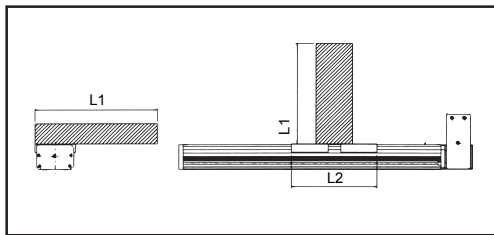
• Double Slider:

The double slider option provides the added feature and ability to vary the distance between the two sliders. One slider is mounted to the timing belt and linear guide, while the other is mounted *only* to the linear motion guide. The double Slider option increases the overhang load capability of the IF Series actuator and adds a new dimension of flexibility to accommodate a wide variety of configurations.

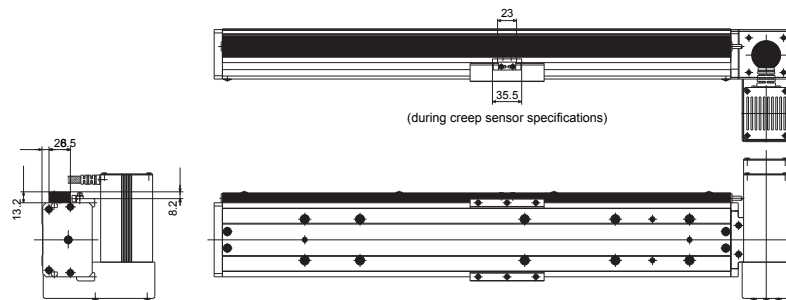
Utilizing the double slider specifications:

Please make sure that the overhang load is maintained within a $L1/L2 \leq 5$ relationship (see diagram below). By increasing the distance between the sliders, the M_a and M_b moment and overhang load capability can be increased.

Note: Because the slider is added to the standard stroke length, the effective stroke of the actuator will be decreased by the distance between the sliders plus the width of the slider.



- **Limit Switch:** This option is used to detect the location of the home position (see diagram below for mounting location).
- **Creep Sensor:** This option is used when high-speed homing is desired (see diagram below for mounting location).
- **Double Slider:** This option is used when the overhang load length and/or moment exceeds the specifications of the standard single-slider version actuator.
- **AQ Seal:** Use this option to reduce troublesome greasing work to a minimal frequency (long term maintenance free operation of 5000km or 3 years between application of grease).



Note:1 With the E/G Type controller, you can only have one limit sensor (limit switch or creep sensor).

Note:2 The actuator dimensions vary according to the desired option. Please contact your IAI representative for details.