

AC Servo Press

# FLEXPRESS EM·SEM

The FlexPress EM·SEM-Series is precisely driven by AC Servo Motor and elaborate ball screw system. The FlexPress cost effective model of AC servo press, is most suitable for press-fit bearing, oil seal etc. with its various functions



## ► Introduction

The FlexPress EM-SEM-Series is precisely driven by AC servo motor and elaborate ball screw system. The FlexPress cost effective model of AC Serv Press, is most suitable for press-fit bearing, oil seal etc. with its various functions

## ► Characteristics

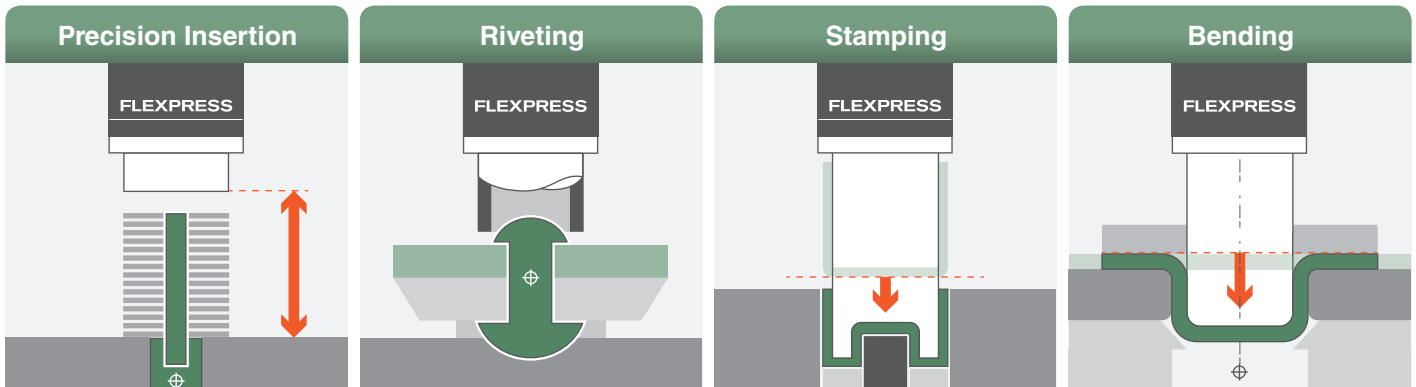
|                                                 |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                        |                    |    |                    |   |           |   |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|--------------------|---|-----------|---|
| <b>High-precision Press-fit system</b>          | <ul style="list-style-type: none"><li>· Repeatability : <math>\pm 0.01\text{mm}</math></li><li>· Min. Position setting unit : <math>0.001\text{mm}</math></li><li>· Inserting pressure : 10N</li></ul>                                                      | <b>Various capacity and wide range of model options</b>                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>· Maximum force : ranging 2kN~100kN (9 models)</li><li>· 5 types of strokes ranging from 150 to 350mm, 50mm step (150 to 400mm for 10 - ton model)</li><li>· Customized model available for 150, 200, 300 and 500 [kN]</li></ul> |                    |    |                    |   |           |   |
| <b>Excellent data analysis and processing</b>   | <ul style="list-style-type: none"><li>· Offers various function to effectively manage force insertion quality</li><li>· Supports various search methods</li><li>· Displays multiple operation data graphs</li></ul>                                         | <b>Various load control and judgement condition</b>                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>· Precision pressure control by setting load, speed and time</li><li>· Real-time operations monitoring with 13 judgement type</li><li>· Accept / reject option accordance with judgement type</li></ul>                          |                    |    |                    |   |           |   |
| <b>Intuitive interface and user convenience</b> | <ul style="list-style-type: none"><li>· Simple model setting using patterns</li><li>· Supports motion simulation of the model</li><li>· Supports multi language (Korean, English, Japanese and Chinese)</li></ul>                                           | <b>External device control</b>                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"><li>· Employs digital I/O contact module through Modbus TCP</li><li>· Able to control external devices (PLC, etc.) through field bus and Ethernet-IP communication</li></ul>                                                         |                    |    |                    |   |           |   |
| <b>Real-time quality management</b>             | <ul style="list-style-type: none"><li>· Saves up to 100 model data</li><li>· Check up to 8 operation results</li></ul>                                                                                                                                      | <b>Overload prevention</b>                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>· Prevention of AC Servo Press and facilities from overload</li><li>· Protection of Press-fit works</li></ul>                                                                                                                    |                    |    |                    |   |           |   |
| <b>Optimal customization</b>                    | <ul style="list-style-type: none"><li>· Specialized engineering service with vast experience and innovative technology</li><li>· Optimal system incorporating customer requirements</li></ul>                                                               | <b>Environment friendly product</b>                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>· Uses electricity – a clean energy</li><li>· No hydraulics – clean work environment</li><li>· Energy saving</li><li>· Low noise level</li></ul>                                                                                 |                    |    |                    |   |           |   |
| <b>CENTER MASTER (optional specification)</b>   | <ul style="list-style-type: none"><li>· Automatic centering compensation if Center Master applied</li><li>· Reduce Press-fit equipment cost</li><li>· Prevent Loose and press-fit errors.</li><li>· Capable of managing quality by Center Master.</li></ul> | <div><div><div>11</div><div>Pneumatic Cylinder</div></div><div><div>5</div><div>Hydraulic Cylinder</div></div><div><div>1</div><div>FLEXPRESS</div></div></div> <div><div>Energy Consumption</div><table><tr><td>Pneumatic Cylinder</td><td>11</td></tr><tr><td>Hydraulic Cylinder</td><td>5</td></tr><tr><td>FLEXPRESS</td><td>1</td></tr></table></div> |                                                                                                                                                                                                                                                                        | Pneumatic Cylinder | 11 | Hydraulic Cylinder | 5 | FLEXPRESS | 1 |
| Pneumatic Cylinder                              | 11                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                        |                    |    |                    |   |           |   |
| Hydraulic Cylinder                              | 5                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                        |                    |    |                    |   |           |   |
| FLEXPRESS                                       | 1                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                        |                    |    |                    |   |           |   |

## ► Application of FLEXPRESS

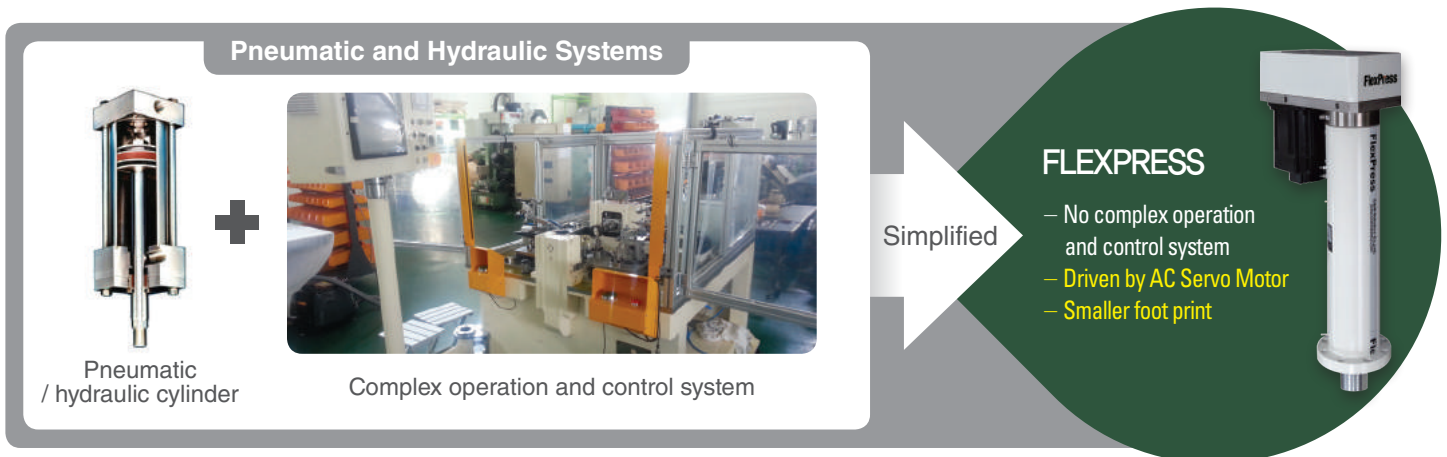
**Press-fit** Bearing, oil seal, bush, pin, shaft, gear and more



**Pressurization** Cramping, riveting, bonding, caulking, stamping, forming and more



## ► Comparison to Pneumatic and Hydraulic Systems



## ► User Interface

1 : 1



Touch Panel PC

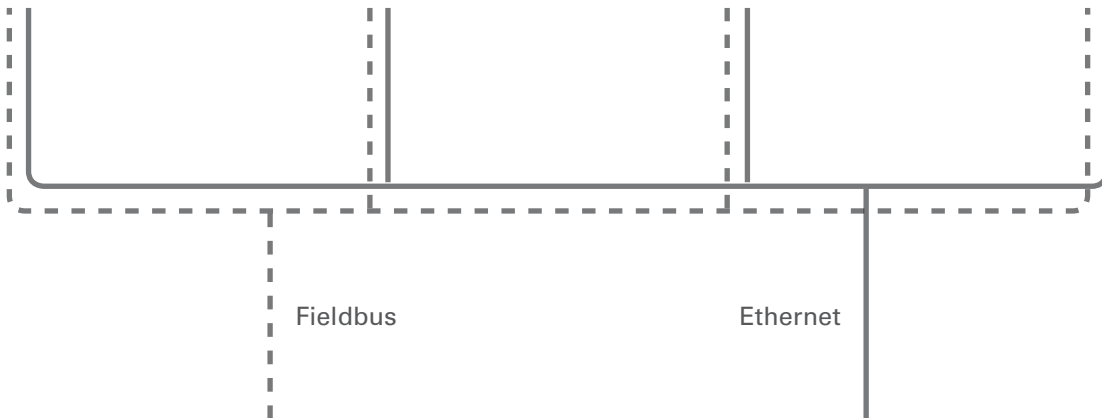
- Provides exclusive monitoring program
- Connects up to 8 drivers



PLC

- Provides Control support using electric contact
- Employs remote I/O module
- Supports CC-LINK field bus
- Supports ProfiBus and ProfiNet field bus
- Supports Modbus TCP and Ethernet-IP communication

1 : N



PLC



Touch Panel PC

## Monitoring Program

### Intuitive user interface

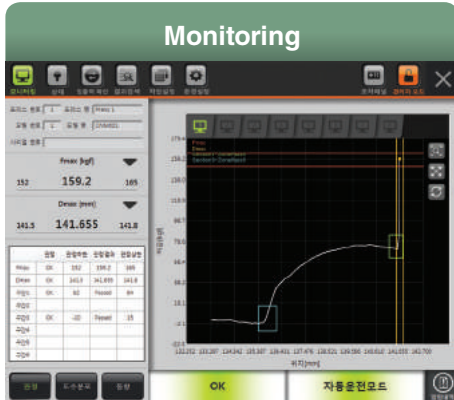
- Simple model setting using patterns
- Supports motion simulation of the model
- Supports Korean, English, Japanese and Chinese

### Exceptional data analysis

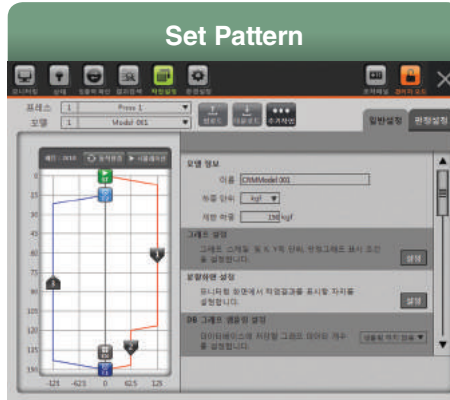
- Offers various functions to effectively control insertion quality
- Supports various search methods (Model name, Serial number)
- Displays multiple operation data graphs

### Real-time quality management

- Saves up to 100 model data
- Check up to 8 operation results



Data graphs and decisions



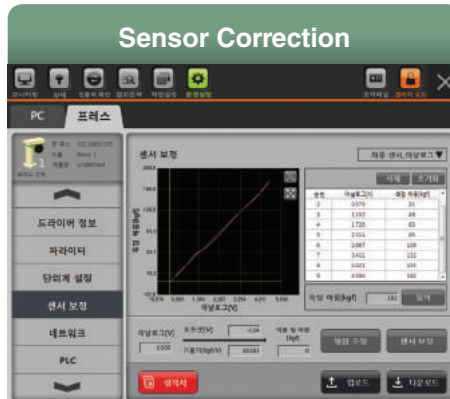
Motion set up



Judgement



I/O contact and T-chart



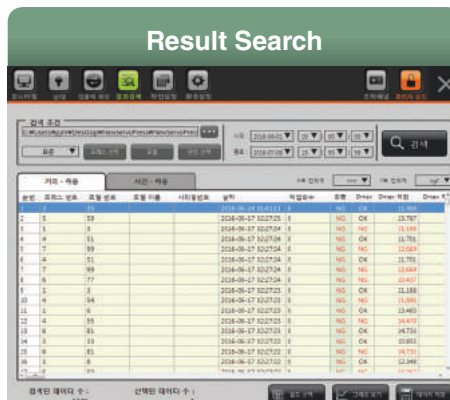
Sensor Calibration



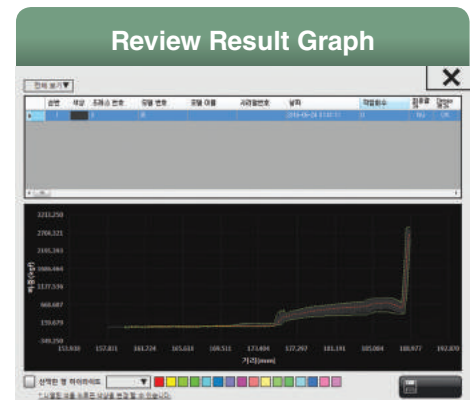
Press status



Communicates with external device



Database



Graph review

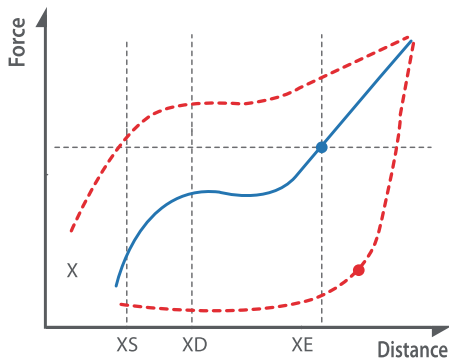
## ► Judgement Type

13 Judgement types

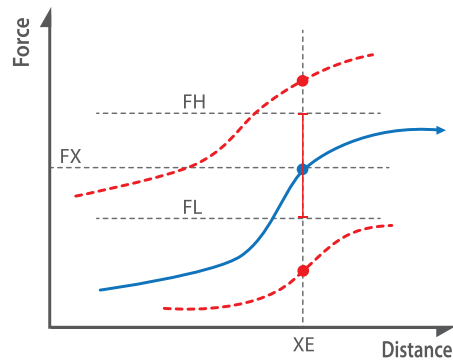
Exclusive monitoring  
program

Monitoring of each  
operation

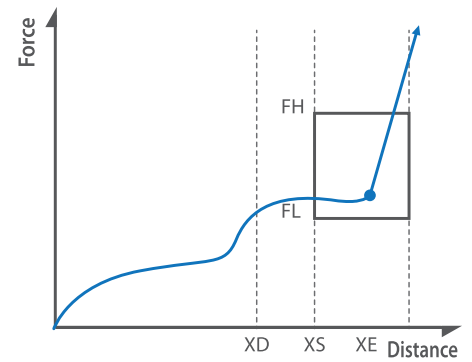
Press-fit point



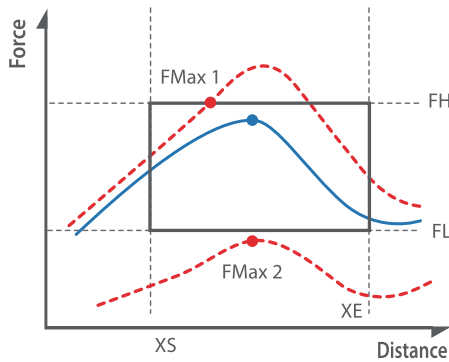
Force at position



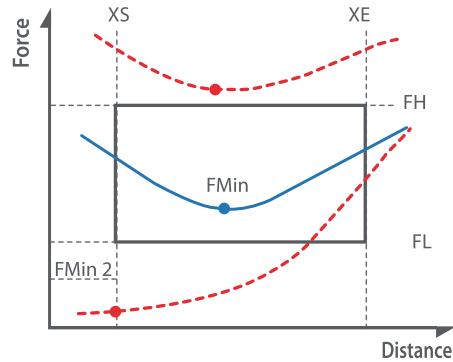
Pinches



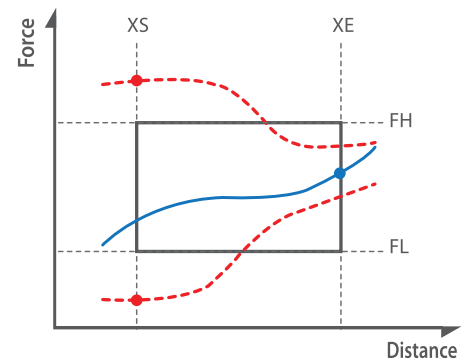
Max.Force



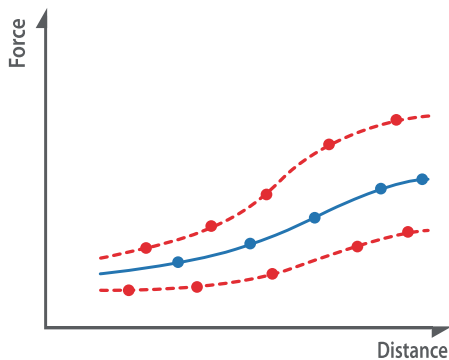
Min.Force



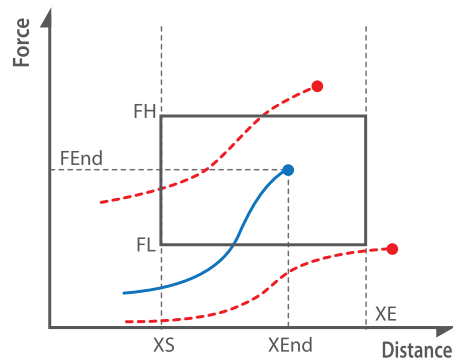
Pass Left to Right



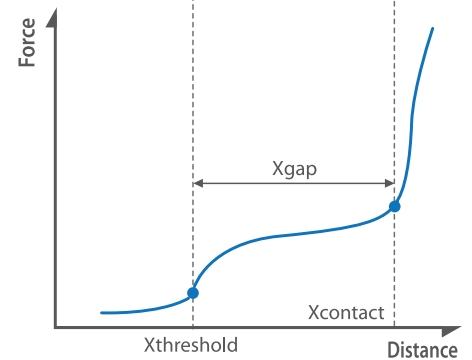
Band Pass



Box Termination



Depth



## ► Specifications of FLEXPRESS EM·SEM

EX) SEM – 05015

SEM

050

15

SEM

Force

Stroke

EM : Standard type

SEM : High speed type

2 [kN] : 002  
 5 [kN] : 005  
 10 [kN] : 010  
 15 [kN] : 015  
 20 [kN] : 020  
 30 [kN] : 030  
 50 [kN] : 050  
 70 [kN] : 070  
 100 [kN] : 100

150 [mm] : 15  
 200 [mm] : 20  
 250 [mm] : 25  
 300 [mm] : 30  
 350 [mm] : 35  
 400 [mm] : 40



| Common Specification  |          |                                                                      |              |             |
|-----------------------|----------|----------------------------------------------------------------------|--------------|-------------|
| Speed Setting Unit    |          | 0.01 [mm/s]                                                          |              |             |
| Position Setting Unit |          | 0.001 [mm]                                                           |              |             |
| Thrust Setting Unit   |          | 10 [N]                                                               |              |             |
| Repeatability         | Position | ±0.01mm (Under zero load)                                            |              |             |
|                       | Force    | Below ± 1% of [F.S]                                                  |              |             |
| Interface             |          | Hard Disk : SSD 256GB<br>CPU : 1.8GHz<br>Memory : 4GB<br>C&M Program |              |             |
| Force [kN]            | Model    | Stroke [mm]                                                          | Speed [mm/s] | Weight [kg] |
| 2                     | EM-00215 | 150                                                                  | 125          | 16          |
|                       | EM-00220 | 200                                                                  |              | 17          |
|                       | EM-00225 | 250                                                                  |              | 19          |
|                       | EM-00230 | 300                                                                  |              | 20          |
|                       | EM-00235 | 350                                                                  |              | 21          |
| 5                     | EM-00515 | 150                                                                  | 125          | 16          |
|                       | EM-00520 | 200                                                                  |              | 18          |
|                       | EM-00525 | 250                                                                  |              | 20          |
|                       | EM-00530 | 300                                                                  |              | 22          |
|                       | EM-00535 | 350                                                                  |              | 24          |
| 10                    | EM-01015 | 150                                                                  | 125          | 16          |
|                       | EM-01020 | 200                                                                  |              | 18          |
|                       | EM-01025 | 250                                                                  |              | 20          |
|                       | EM-01030 | 300                                                                  |              | 22          |
|                       | EM-01035 | 350                                                                  |              | 24          |
| 15                    | EM-01515 | 150                                                                  | 125          | 16          |
|                       | EM-01520 | 200                                                                  |              | 18          |
|                       | EM-01525 | 250                                                                  |              | 20          |
|                       | EM-01530 | 300                                                                  |              | 22          |
|                       | EM-01535 | 350                                                                  |              | 24          |

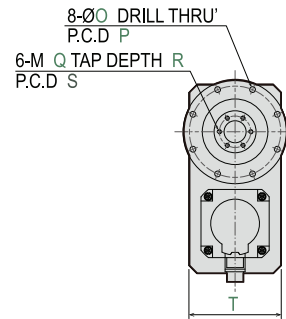
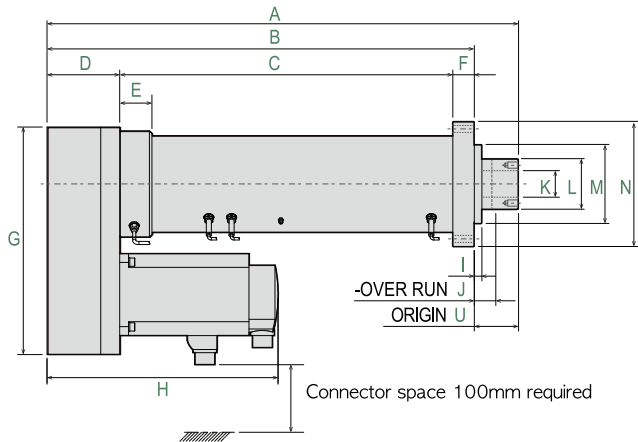
| Force [kN] | Model     | Stroke [mm] | Speed [mm/s] | Weight [kg] |
|------------|-----------|-------------|--------------|-------------|
| 20         | EM-02015  | 150         | 100          | 30          |
|            | EM-02020  | 200         |              | 32          |
|            | EM-02025  | 250         |              | 34          |
|            | EM-02030  | 300         |              | 36          |
|            | EM-02035  | 350         |              | 38          |
| 30         | EM-03015  | 150         | 83.3         | 34          |
|            | EM-03020  | 200         |              | 36          |
|            | EM-03025  | 250         |              | 38          |
|            | EM-03030  | 300         |              | 40          |
|            | EM-03035  | 350         |              | 42          |
| 50         | EM-05015  | 150         | 95.2         | 130         |
|            | EM-05020  | 200         |              | 134         |
|            | EM-05025  | 250         |              | 140         |
|            | EM-05030  | 300         |              | 145         |
|            | EM-05035  | 350         |              | 150         |
| 70         | EM-07015  | 150         | 133.3        | 140         |
|            | EM-07020  | 200         |              | 145         |
|            | EM-07025  | 250         |              | 150         |
|            | EM-07030  | 300         |              | 155         |
|            | EM-07035  | 350         |              | 160         |
| 100        | EM-10015  | 150         | 95.2         | 200         |
|            | EM-10020  | 200         |              | 210         |
|            | EM-10025  | 250         |              | 220         |
|            | EM-10030  | 300         |              | 230         |
|            | EM-10035  | 350         |              | 240         |
| Force [kN] | Model     | Stroke [mm] | Speed [mm/s] | Weight [kg] |
|            |           |             |              |             |
|            |           |             |              |             |
|            |           |             |              |             |
|            |           |             |              |             |
| 10         | SEM-01015 | 150         | 178.6        | 18          |
|            | SEM-01020 | 200         |              | 20          |
|            | SEM-01025 | 250         |              | 22          |
|            | SEM-01030 | 300         |              | 24          |
|            | SEM-01035 | 350         |              | 26          |
| 30         | SEM-03015 | 150         | 138.9        | 95          |
|            | SEM-03020 | 200         |              | 98          |
|            | SEM-03025 | 250         |              | 101         |
|            | SEM-03030 | 300         |              | 104         |
|            | SEM-03035 | 350         |              | 107         |
| 50         | SEM-05015 | 150         | 185.2        | 145         |
|            | SEM-05020 | 200         |              | 150         |
|            | SEM-05025 | 250         |              | 155         |
|            | SEM-05030 | 300         |              | 160         |
|            | SEM-05035 | 350         |              | 163         |

\* 70% of Max Thrust is recommended in mass production line

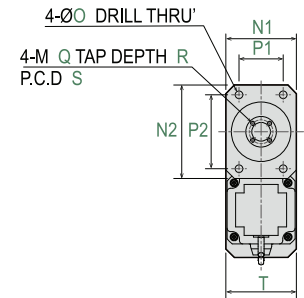
\* Recommended payload is 3% of Max Thrust

\* Separately consult is needed for product selection

## ► Dimensions of FLEXPRESS EM



20kN~100kN



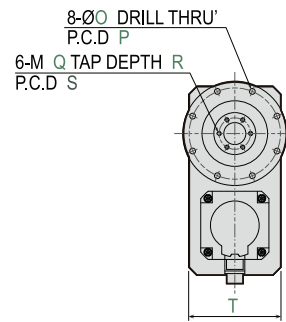
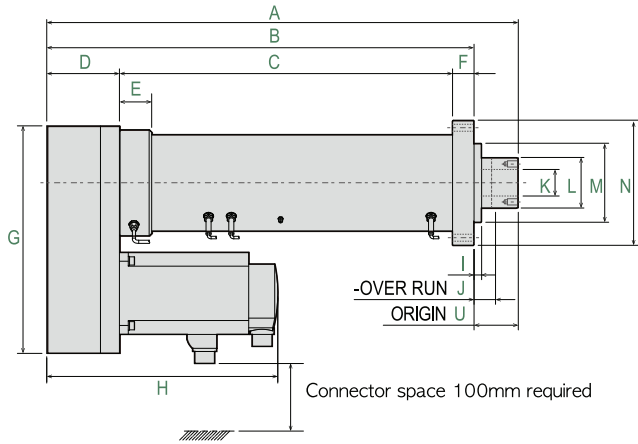
2kN ~ 15kN

| Force<br>[kN] | Model    | Dimension [mm] |      |     |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|---------------|----------|----------------|------|-----|-----|----|----|-----|-------|----|----|-------|-------|------|--------------|----|--------------|----|----|----|-----|-----|
|               |          | A              | B    | C   | D   | E  | F  | G   | H     | I  | J  | K(H7) | L(g6) | M    | N<br>(N1xN2) | O  | P<br>(P1xP2) | Q  | R  | S  | T   | U   |
| 2             | EM-00215 | 480            | 430  | 337 | 75  | 27 | 18 | 203 | 178.0 | 12 | 25 | ø20   | ø36   | ø70  | 83x110       | 9  | 52x87        | 5  | 12 | 28 | 83  | 50  |
|               | EM-00220 | 530            | 480  | 387 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-00225 | 580            | 530  | 437 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-00230 | 630            | 580  | 487 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-00235 | 680            | 630  | 537 | 75  | 27 | 18 | 203 | 206.0 | 12 | 25 | ø20   | ø36   | ø70  | 83x110       | 9  | 52x87        | 5  | 12 | 28 | 83  | 50  |
|               | EM-00515 | 480            | 430  | 337 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-00520 | 530            | 480  | 387 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-00525 | 580            | 530  | 437 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
| 5             | EM-00530 | 630            | 580  | 487 | 75  | 27 | 18 | 203 | 206.0 | 12 | 25 | ø20   | ø36   | ø70  | 83x110       | 9  | 52x87        | 5  | 12 | 28 | 83  | 50  |
|               | EM-00535 | 680            | 630  | 537 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-01015 | 480            | 430  | 337 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-01020 | 530            | 480  | 387 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
| 10            | EM-01025 | 580            | 530  | 437 | 75  | 27 | 18 | 203 | 213.0 | 12 | 25 | ø20   | ø36   | ø70  | 83x110       | 9  | 52x87        | 5  | 12 | 28 | 83  | 50  |
|               | EM-01030 | 630            | 580  | 487 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-01035 | 680            | 630  | 537 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-01515 | 480            | 430  | 337 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
| 15            | EM-01520 | 530            | 480  | 387 | 75  | 27 | 18 | 203 | 233.0 | 12 | 25 | ø20   | ø36   | ø70  | 83x110       | 9  | 52x87        | 5  | 12 | 28 | 83  | 50  |
|               | EM-01525 | 580            | 530  | 437 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-01530 | 630            | 580  | 487 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-01535 | 680            | 630  | 537 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
| 20            | EM-02015 | 553            | 493  | 381 | 92  | 31 | 20 | 235 | 270.0 | 12 | 35 | ø32   | ø50   | ø88  | ø148         | 9  | 125          | 6  | 15 | 40 | 115 | 60  |
|               | EM-02020 | 603            | 543  | 431 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-02025 | 653            | 593  | 481 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-02030 | 703            | 643  | 531 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-02035 | 753            | 693  | 581 | 92  | 40 | 20 | 235 | 384.0 | 12 | 35 | ø32   | ø50   | ø88  | ø148         | 9  | 125          | 6  | 15 | 40 | 115 | 60  |
|               | EM-03015 | 602            | 542  | 430 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-03020 | 652            | 592  | 480 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-03025 | 702            | 642  | 530 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
| 30            | EM-03030 | 752            | 692  | 580 | 92  | 40 | 20 | 235 | 384.0 | 12 | 35 | ø32   | ø50   | ø88  | ø148         | 9  | 125          | 6  | 15 | 40 | 115 | 60  |
|               | EM-03035 | 802            | 742  | 630 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-05015 | 700            | 630  | 470 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-05020 | 750            | 680  | 520 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
| 50            | EM-05025 | 800            | 730  | 570 | 126 | 50 | 34 | 430 | 395.2 | 16 | 45 | ø49   | ø85   | ø146 | ø228         | 16 | 196          | 8  | 20 | 67 | 220 | 70  |
|               | EM-05030 | 850            | 780  | 620 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-05035 | 900            | 830  | 670 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-07015 | 780            | 710  | 550 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
| 70            | EM-07020 | 830            | 760  | 600 | 126 | 60 | 34 | 430 | 445.2 | 16 | 45 | ø49   | ø85   | ø146 | ø228         | 16 | 196          | 8  | 20 | 67 | 220 | 70  |
|               | EM-07025 | 880            | 810  | 650 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-07030 | 930            | 860  | 700 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-07035 | 980            | 910  | 750 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
| 100           | EM-10015 | 900            | 780  | 590 | 150 | 70 | 40 | 470 | 469.2 | 20 | 95 | ø68   | ø100  | ø164 | ø258         | 18 | 220          | 10 | 25 | 84 | 240 | 120 |
|               | EM-10020 | 950            | 830  | 640 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-10025 | 1000           | 880  | 690 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-10030 | 1050           | 930  | 740 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-10035 | 1100           | 980  | 790 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |
|               | EM-10040 | 1150           | 1030 | 840 |     |    |    |     |       |    |    |       |       |      |              |    |              |    |    |    |     |     |

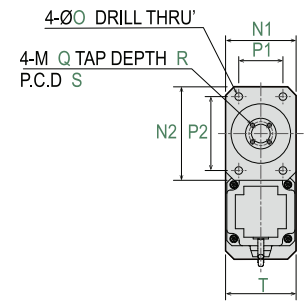
\* Please separately consult for 150~500 [kN] specifications.

\* Drawings are available for download at [www.cnmrobotics.com](http://www.cnmrobotics.com).

## ► Dimensions of FLEXPRESS SEM



20kN~100kN



2kN ~ 15kN

| Force<br>[kN] | Model     | Dimension [mm] |     |     |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|---------------|-----------|----------------|-----|-----|-----|----|----|-----|-------|----|----|-----|-----|------|--------|----|-------|---|----|----|-----|----|
|               |           | A              | B   | C   | D   | E  | F  | G   | H     | I  | J  | K   | L   | M    | N      | O  | P     | Q | R  | S  | T   | U  |
| 10            | SEM-01015 | 480            | 430 | 337 | 75  | 27 | 18 | 203 | 253   | 12 | 25 | ø20 | ø36 | ø70  | 83x110 | 9  | 52x87 | 5 | 12 | 28 | 83  | 50 |
|               | SEM-01020 | 530            | 480 | 387 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-01025 | 580            | 530 | 437 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-01030 | 630            | 580 | 487 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-01035 | 680            | 630 | 537 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
| 30            | SEM-03015 | 611            | 551 | 430 | 101 | 40 | 20 | 290 | 351.5 | 12 | 35 | ø32 | ø50 | ø88  | ø148   | 9  | 125   | 6 | 15 | 40 | 140 | 60 |
|               | SEM-03020 | 661            | 601 | 480 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-03025 | 711            | 651 | 530 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-03030 | 761            | 701 | 580 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-03035 | 811            | 751 | 630 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
| 50            | SEM-05015 | 700            | 630 | 470 | 126 | 50 | 34 | 430 | 445.2 | 16 | 45 | ø49 | ø85 | ø146 | ø228   | 16 | 196   | 8 | 20 | 67 | 220 | 70 |
|               | SEM-05020 | 750            | 680 | 520 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-05025 | 800            | 730 | 570 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-05030 | 850            | 780 | 620 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |
|               | SEM-05035 | 900            | 830 | 670 |     |    |    |     |       |    |    |     |     |      |        |    |       |   |    |    |     |    |

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