

# Floating Joint

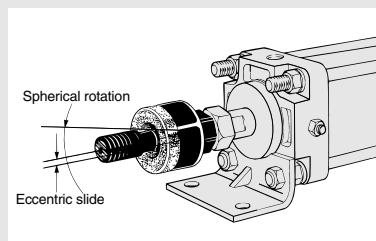
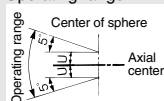
## JA/JAH/JB/JS Series

RoHS

The floating joint can absorb any “off-centering” or “loss of parallel accuracy” between the cylinder and the driven body.

- Centering is unnecessary.
- A high level of machining accuracy is unnecessary.
- The installation time is dramatically reduced.
- It is compact and is suitable for high tensile stresses.
- Long service life (with dustproof cover)
- Rotating angle..... $\pm 5^\circ$

Operating range



### Series Variations

| Series                                                                                                                                  | Cylinder supply pressure |                 | Applicable bore size (mm)                        | Mounting                               | Page |
|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------|--------------------------------------------------|----------------------------------------|------|
| <b>Standard</b><br><b>JA Series</b><br>                | Pneumatic cylinder       | 0.7 MPa or less | 6, 10, 15                                        | Basic type<br>Flange type<br>Foot type | 1144 |
|                                                                                                                                         |                          | 1 MPa or less   | 20, 25, 30, 40, 50, 63<br>80, 100, 125, 140, 160 |                                        |      |
|                                                                                                                                         | Hydraulic cylinder       | 3.5 MPa or less | 20, 25, 30, 40, 50, 63<br>80, 100, 125, 140, 160 |                                        |      |
| <b>Heavy load</b><br><b>JAH Series</b><br>           | Hydraulic cylinder       | 7 MPa or less   | 40, 50, 63, 80, 100                              | Basic type<br>Flange type<br>Foot type | 1151 |
| <b>For compact cylinders</b><br><b>JB Series</b><br> | Pneumatic cylinder       | 1 MPa or less   | 12, 16, 20, 25, 32<br>40, 50, 63, 80, 100        | Basic type<br>(Female thread)          | 1154 |
| <b>Stainless steel type</b><br><b>JS Series</b><br>  | Pneumatic cylinder       | 1 MPa or less   | 10, 16, 20, 25<br>32, 40, 50, 63                 | Basic type                             | 1156 |
|                                                                                                                                         | Hydraulic cylinder       | 3.5 MPa or less | 20, 25, 32<br>40, 50, 63                         |                                        |      |

J□

D-□

-X□

Technical  
Data

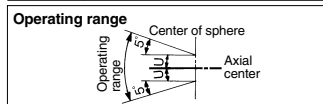
# Floating Joint: Standard Type

# JA Series

RoHS

## Specifications

|                           |                                                                                |
|---------------------------|--------------------------------------------------------------------------------|
| <b>Operating pressure</b> | Pneumatic cylinder:<br>1 MPa or less<br>Hydraulic cylinder:<br>3.5 MPa or less |
| <b>Mounting</b>           | Basic type, Flange type, Foot type                                             |



JA series

## ⚠ Precautions

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions.

## Mounting

## ⚠ Warning

- To screw the male threads of the rod into the female threads of the socket or the case, make sure that it does not bottom out. If the floating joint is used with its rod bottom out, the stud will not be able to float, causing damage.  
For the screw-in depth of the female threads, refer to the dimensions (page 1146). As a rule, after the rod bottoms out, back off 1 to 2 turns.
- The dust cover may adhere to the stud. In this case, move the dust cover at the neck of the stud by the finger or twist the stud slightly left or right to break in the dust cover before use.  
Additionally, when screwing the stud and socket or the case into a driven body, screw in such parts with the dust cover removed. When screwing in such parts without removing the dust cover, this may cause damage to the dust cover.
- To use a floating joint to connect the cylinder rod to a driven body, secure it in place by applying a torque that is appropriate for the thread size. Also, if there is a risk of loosening during operation, take measures to prevent loosening, such as using a locking pin or thread adhesive. In the event that the connected portion becomes loose, the driven body might lose control or fall off, leading to equipment damage or injury to personnel.
- This product is not a rotary joint. So, the product cannot be used for rotational or rotation acting applications.
- Be sure to use the cushion mechanism of the cylinder or the buffer mechanism, such as the shock absorber so that any impact force is not applied to the floating joint when stopping a driven body. If there is no buffer mechanism, an excessive impact force is generated. As a result, the tensile compression force of the floating joint may exceed its maximum level.

## Maintenance

## ⚠ Warning

- Do not reuse if disassembled.  
High strength adhesive is applied to the portion of the connection that is threaded to prevent it from loosening, and it must not be disassembled. If it is forcefully disassembled, it could lead to damage.

## Model/Specifications

| Model                             | Applicable bore size (mm) | Applicable cylinder nominal thread size | Maximum operating tension and compression force (N) |             |           | Allowable eccentricity U (mm) | Rotating angle | Ambient temperature |  |  |
|-----------------------------------|---------------------------|-----------------------------------------|-----------------------------------------------------|-------------|-----------|-------------------------------|----------------|---------------------|--|--|
|                                   |                           |                                         | Basic type                                          | Flange type | Foot type |                               |                |                     |  |  |
| Standard/Thread nominal size      |                           |                                         |                                                     |             |           |                               |                |                     |  |  |
| JA6-3-050                         | 6                         | M3 x 0.5                                | 19                                                  | —           | —         | 0.5                           | ±5°            | -5 to 60°C          |  |  |
| JA10-4-070                        | 10                        | M4 x 0.7                                | 54                                                  | —           | —         | 0.5                           |                |                     |  |  |
| JA15-5-080                        | 10, 15                    | M5 x 0.8                                | 123                                                 | —           | —         | 0.5                           |                |                     |  |  |
| JA15-6-100                        | 15                        | M6 x 1                                  | 123                                                 | —           | —         | 0.5                           |                |                     |  |  |
| JA20-8-125                        | 20                        | M8 x 1.25                               | 1100                                                | 1100        | 1000      | 0.5                           |                |                     |  |  |
| JA30-10-125                       | 25, 32                    | M10 x 1.25                              | 2500                                                | 2500        | 2000      | 0.5                           |                |                     |  |  |
| JA40-14-150                       | 40                        | M14 x 1.5                               | 4400                                                | 4400        | 4400      | 0.75                          |                |                     |  |  |
| JA63-18-150                       | 50, 63                    | M18 x 1.5                               | 11000                                               | 11000       | 9000      | 1                             |                |                     |  |  |
| JA80-22-150                       | 80                        | M22 x 1.5                               | 18000                                               | 18000       | 14000     | 1.25                          |                |                     |  |  |
| JA100-26-150                      | 100                       | M26 x 1.5                               | 28000                                               | 28000       | 22000     | 2                             |                |                     |  |  |
| JA140-30-150                      | 125, 140                  | M30 x 1.5                               | 54000                                               | 36000       | 36000     | 2.5                           | ±5°            | -5 to 60°C          |  |  |
| JA160-36-150                      | 160                       | M36 x 1.5                               | 71000                                               | 55000       | 55000     | 3                             |                |                     |  |  |
| Semi-standard/Thread nominal size |                           |                                         |                                                     |             |           |                               |                |                     |  |  |
| JA20-8-100                        | 20                        | M8 x 1                                  | 1100                                                | 1100        | 1000      | 0.5                           |                |                     |  |  |
| JA25-10-150                       | 25                        | M10 x 1.5                               | 2500                                                | 2500        | 2000      | 0.5                           |                |                     |  |  |
| JA32-10-100                       | 32                        | M10 x 1                                 | 2500                                                | 2500        | 2000      | 0.5                           |                |                     |  |  |
| JA40-12-125                       | 32, 40                    | M12 x 1.25                              | 4400                                                | 4400        | 4400      | 0.75                          |                |                     |  |  |
| JA40-12-150                       | 40                        | M12 x 1.5                               | 4400                                                | 4400        | 4400      | 0.75                          |                |                     |  |  |
| JA40-12-175                       | 32, 40                    | M12 x 1.75                              | 4400                                                | 4400        | 4400      | 0.75                          |                |                     |  |  |
| JA50-16-150                       | 50                        | M16 x 1.5                               | 11000                                               | 11000       | 9000      | 1                             |                |                     |  |  |
| JA63-16-200                       | 50, 63                    | M16 x 2                                 | 11000                                               | 11000       | 9000      | 1                             |                |                     |  |  |
| JA80-20-250                       | 80                        | M20 x 2.5                               | 18000                                               | 18000       | 14000     | 1.25                          |                |                     |  |  |
| JA100-24-300                      | 100                       | M24 x 3                                 | 28000                                               | 28000       | 22000     | 2                             |                |                     |  |  |
| JA100-27-150                      | 100                       | M27 x 1.5                               | 28000                                               | 28000       | 22000     | 2                             |                |                     |  |  |
| JA125-27-200                      | 125                       | M27 x 2                                 | 28000                                               | 28000       | 28000     | 2                             |                |                     |  |  |
| JA160-33-200                      | 160                       | M33 x 2                                 | 71000                                               | 55000       | 55000     | 3                             |                |                     |  |  |

## How to Order

JA F 40 - 14-150 -

### Mounting type

|     |             |
|-----|-------------|
| Nil | Basic type  |
| F   | Flange type |
| L   | Foot type   |

### Applicable bore size (mm)

| Model    | Symbol | Applicable bore size (mm) |
|----------|--------|---------------------------|
| Standard | 6      | 6                         |
|          | 10     | 10                        |
|          | 15     | 10, 15                    |
|          | 20     | 20                        |
|          | 30     | 25, 32                    |
|          | 40     | 40                        |
|          | 63     | 50, 63                    |
|          | 80     | 80                        |
|          | 100    | 100                       |
|          | 140    | 125, 140                  |
|          | 160    | 160                       |
|          | 180    | 180                       |
|          | 200    | 200                       |

### Option

|     |                                                |
|-----|------------------------------------------------|
| Nil | None                                           |
| X11 | High temperature specifications<br>-5 to 100°C |

### Thread nominal size (Standard)

| Nominal thread size | Applicable cylinder nominal thread size |
|---------------------|-----------------------------------------|
| 3-050               | M3 x 0.5                                |
| 4-070               | M4 x 0.7                                |
| 5-080               | M5 x 0.8                                |
| 6-100               | M6 x 1                                  |
| 8-125               | M8 x 1.25                               |
| 10-125              | M10 x 1.25                              |
| 14-150              | M14 x 1.5                               |
| 18-150              | M18 x 1.5                               |
| 22-150              | M22 x 1.5                               |
| 26-150              | M26 x 1.5                               |
| 30-150              | M30 x 1.5                               |
| 36-150              | M36 x 1.5                               |

## ⚠ Caution

- The black zinc chromate treatment is applied to the material surfaces of the case, flange and foot. However, the white deposit may rarely occur on the surface. This white deposit does not affect the product functions. However, if the white deposit becomes a problem from a viewpoint of appearance, special products with the surface treatment changed to the electrodeless nickel plating are also available. For details, please contact SMC.

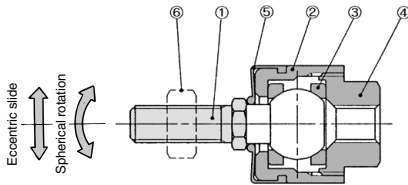
## Made to Order: Individual Specifications -X530

Note) For details, refer to page 1149.

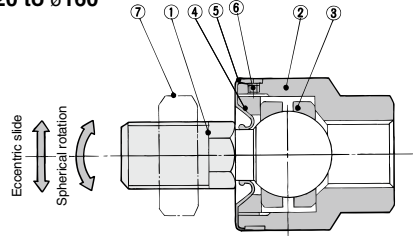
For pneumatic cylinders

## Construction

ø6 to ø15



ø20 to ø160



## Component Parts

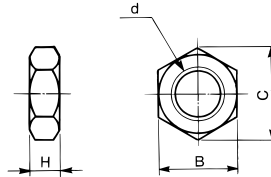
| No. | Description | Material                  | Note                      |
|-----|-------------|---------------------------|---------------------------|
| 1   | Stud        | Free-cutting steel        | Electroless nickel plated |
| 2   | Case        | Brass                     | Electroless nickel plated |
| 3   | Ring        | Stainless steel           |                           |
| 4   | Socket      | Brass                     | Electroless nickel plated |
| 5   | Dust cover  | Synthetic rubber          |                           |
| 6   | Rod end nut | Low carbon steel wire rod | Zinc chromated            |

| No. | Description | Material                  | Note                 |
|-----|-------------|---------------------------|----------------------|
| 1   | Stud        | Chromium molybdenum steel | Dyed black           |
| 2   | Case        | Carbon steel              | Black zinc chromated |
| 3   | Ring        | Chromium molybdenum steel |                      |
| 4   | Cap         | Carbon steel              | Black zinc chromated |
| 5   | Dust cover  | Synthetic rubber          |                      |
| 6   | Set screw   | Carbon steel              | Zinc chromated       |
| 7   | Rod end nut | Carbon steel              | Zinc chromated       |
| 8   | Flange      | Rolled steel              | Black zinc chromated |
| 9   | Foot        | Rolled steel              | Black zinc chromated |

## Accessory Dimensions

### Rod end nut

One rod end nut is supplied with the JA series or JAH basic type. If additional nuts are needed, please order them using the part no. shown below.



| Model        | Order no. | d: Thread nominal size | H   | B   | C    |
|--------------|-----------|------------------------|-----|-----|------|
| JA6-3-050    | DA00201   | M3x0.5                 | 2.4 | 5.5 | 6.4  |
| JA10-4-070   | DA00117   | M4x0.7                 | 3.2 | 7   | 8.1  |
| JA15-5-080   | DA00118   | M5x0.8                 | 4   | 8   | 9.2  |
| JA15-6-100   | DA00119   | M6x1                   | 5   | 10  | 11.5 |
| JA20-8-100   | DA00207   | M8x1                   | 5   | 13  | 15   |
| JA20-8-125   | DA00169   | M8x1.25                | 5   | 13  | 15   |
| JA32-10-100  | DA00141   | M10x1                  | 6   | 17  | 19.6 |
| JA30-10-125  | DA00142   | M10x1.25               | 6   | 17  | 19.6 |
| JA25-10-150  | DA00140   | M10x1.5                | 6   | 17  | 19.6 |
| JA40-12-125  | DA00145   | M12x1.25               | 7   | 19  | 21.9 |
| JA40-12-150  | DA00146   | M12x1.5                | 7   | 19  | 21.9 |
| JA40-12-175  | DA00143   | M12x1.75               | 7   | 19  | 21.9 |
| JA40-14-150  | DA00148   | M14x1.5                | 8   | 22  | 25.4 |
| JA50-16-150  | DA00151   | M16x1.5                | 10  | 24  | 27.7 |
| JAH40-16-150 |           |                        | 10  | 24  | 27.7 |
| JA63-16-200  | DA00150   | M16x2                  | 10  | 24  | 27.7 |
| JA63-18-150  | DA00153   | M18x1.5                | 11  | 27  | 31.2 |

| Model         | Order no. | d: Thread nominal size | H  | B  | C    |
|---------------|-----------|------------------------|----|----|------|
| JAH50-20-150  | DA00155   | M20x1.5                | 12 | 30 | 34.6 |
| JA80-20-250   | DA00154   | M20x2.5                | 12 | 30 | 34.6 |
| JA80-22-150   | DA00156   | M22x1.5                | 13 | 32 | 37   |
| JAH63-24-150  | DA00158   | M24x1.5                | 14 | 36 | 41.6 |
| JAH63-24-200  | DA00159   | M24x2                  | 14 | 36 | 41.6 |
| JA100-24-300  | DA00157   | M24x3                  | 14 | 36 | 41.6 |
| JA100-26-150  | DA00160   | M26x1.5                | 16 | 41 | 47.3 |
| JA100-27-150  | DA00161   | M27x1.5                | 16 | 41 | 47.3 |
| JA125-27-200  | DA00162   | M27x2                  | 16 | 41 | 47.3 |
| JA140-30-150  | DA00224   | M30x1.5                | 18 | 46 | 53.1 |
| JAH80-30-150  |           |                        | 18 | 46 | 53.1 |
| JAH80-30-200  | DA00163   | M30x2                  | 18 | 46 | 53.1 |
| JA160-33-200  | DA00225   | M33x2                  | 20 | 50 | 57.7 |
| JA160-36-150  | DA00164   | M36x1.5                | 21 | 55 | 63.5 |
| JAH100-39-150 | DA00204   | M39x1.5                | 23 | 60 | 69.3 |
| JAH100-42-300 | DA00165   | M42x3                  | 25 | 65 | 75   |
| JAH100-48-150 | DA00205   | M48x1.5                | 29 | 75 | 86.5 |

## Floating Joint Replacement Parts

### Dust cover

Order with the following part no. if dust cover is damaged.  
Replaceable dust cover is only for the basic type. Flange type and foot type cannot be replaced.

| Part no. for dust cover | Applicable model |
|-------------------------|------------------|
| P2152051                | JA6, JA10        |
| P2152052                | JA15, JB12, JB16 |
| P215215                 | JA20, JB20       |
| P215225                 | JA30, JB30       |
| P215235                 | JA40, JB40       |
| P215245                 | JA63, JA50, JB63 |

| Part no. for dust cover | Applicable model     |
|-------------------------|----------------------|
| P215255                 | JA80, JAH40, JB80    |
| P215265                 | JA100, JAH50, JB100  |
| P215275                 | JA125, JAH63         |
| P215285                 | JA140, JAH80, JB140  |
| P215295                 | JA160, JAH100, JB160 |

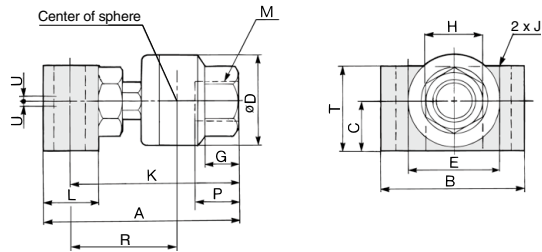
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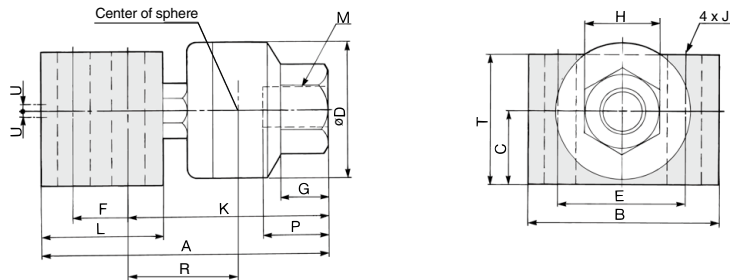
Technical Data

Foot Type: JAL20 to JAF160

JAL20 to 100



JAL125 to 160



| Applicable<br>bore size<br>(mm)                                      | Model         | M               |       | A    | B   | C    | D    | E  | F  | K    | L  | T  | J   | G    | H  | Center of<br>sphere<br>R | Maximum<br>thread depth<br>P | Allowable<br>eccentricity<br>U | Maximum operating<br>tension and<br>compression<br>force (N) | Weight<br>(kg) |
|----------------------------------------------------------------------|---------------|-----------------|-------|------|-----|------|------|----|----|------|----|----|-----|------|----|--------------------------|------------------------------|--------------------------------|--------------------------------------------------------------|----------------|
|                                                                      |               | Nominal<br>size | Pitch |      |     |      |      |    |    |      |    |    |     |      |    |                          |                              |                                |                                                              |                |
|                                                                      |               |                 |       |      |     |      |      |    |    |      |    |    |     |      |    |                          |                              |                                |                                                              |                |
| <b>Standard</b> Pneumatic: Up to 1 MPa Hydraulic: Up to 3.5 MPa      |               |                 |       |      |     |      |      |    |    |      |    |    |     |      |    |                          |                              |                                |                                                              |                |
| 20                                                                   | JAL20-8-125   | 8               | 1.25  | 44   | 30  | 11.5 | 21   | 18 | —  | 38   | 12 | 19 | 6.6 | 7    | 13 | 24.5                     | 8                            | 0.5                            | 1000                                                         | 0.09           |
| 25, 32                                                               | JAL30-10-125  | 10              | 1.25  | 52   | 42  | 14   | 24   | 24 | —  | 44   | 16 | 25 | 9   | 8    | 17 | 28.5                     | 9                            | 0.5                            | 2000                                                         | 0.18           |
| 40                                                                   | JAL40-14-150  | 14              | 1.5   | 67   | 52  | 17.5 | 31   | 30 | —  | 57.5 | 19 | 30 | 11  | 11   | 22 | 35.5                     | 13                           | 0.75                           | 4400                                                         | 0.36           |
| 50, 63                                                               | JAL63-18-150  | 18              | 1.5   | 82.5 | 56  | 23   | 41   | 34 | —  | 71.5 | 22 | 38 | 11  | 13.5 | 27 | 44.5                     | 15                           | 1                              | 9000                                                         | 0.61           |
| 80                                                                   | JAL80-22-150  | 22              | 1.5   | 98.5 | 70  | 28   | 50   | 42 | —  | 86   | 25 | 47 | 14  | 16   | 32 | 53                       | 18                           | 1.25                           | 14000                                                        | 1.09           |
| 100                                                                  | JAL100-26-150 | 26              | 1.5   | 123  | 80  | 35   | 59.5 | 48 | —  | 107  | 32 | 58 | 16  | 20   | 41 | 65                       | 24                           | 2                              | 22000                                                        | 2.03           |
| 125, 140                                                             | JAL140-30-150 | 30              | 1.5   | 187  | 96  | 45   | 79   | 60 | 44 | 125  | 80 | 79 | 18  | 22   | 46 | 67.5                     | 38                           | 2.5                            | 36000                                                        | 6.4            |
| 160                                                                  | JAL160-36-150 | 36              | 1.5   | 213  | 116 | 55   | 96   | 74 | 48 | 144  | 90 | 89 | 22  | 24   | 55 | 78                       | 42                           | 3                              | 55000                                                        | 10             |
| <b>Semi-standard</b> Pneumatic: Up to 1 MPa Hydraulic: Up to 3.5 MPa |               |                 |       |      |     |      |      |    |    |      |    |    |     |      |    |                          |                              |                                |                                                              |                |
| 20                                                                   | JAL20-8-100   | 8               | 1     | 44   | 30  | 11.5 | 21   | 18 | —  | 38   | 12 | 19 | 6.6 | 7    | 13 | 24.5                     | 8                            | 0.5                            | 1000                                                         | 0.09           |
| 25                                                                   | JAL25-10-100  | 10              | 1.5   | 52   | 42  | 14   | 24   | 24 | —  | 44   | 16 | 25 | 9   | 8    | 17 | 28.5                     | 9                            | 0.5                            | 2000                                                         | 0.18           |
| 32                                                                   | JAL32-10-100  | 10              | 1     | 52   | 42  | 14   | 24   | 24 | —  | 44   | 16 | 25 | 9   | 8    | 17 | 28.5                     | 9                            | 0.5                            | 2000                                                         | 0.18           |
| 32, 40                                                               | JAL40-12-125  | 12              | 1.25  | 67   | 52  | 17.5 | 31   | 30 | —  | 57.5 | 19 | 30 | 11  | 11   | 22 | 35.5                     | 13                           | 0.75                           | 4400                                                         | 0.36           |
| 40                                                                   | JAL40-12-150  | 12              | 1.5   | 67   | 52  | 17.5 | 31   | 30 | —  | 57.5 | 19 | 30 | 11  | 11   | 22 | 35.5                     | 13                           | 0.75                           | 4400                                                         | 0.36           |
| 32, 40                                                               | JAL40-12-175  | 12              | 1.75  | 67   | 52  | 17.5 | 31   | 30 | —  | 57.5 | 19 | 30 | 11  | 11   | 22 | 35.5                     | 13                           | 0.75                           | 4400                                                         | 0.36           |
| 50                                                                   | JAL50-16-150  | 16              | 1.5   | 82.5 | 56  | 23   | 41   | 34 | —  | 71.5 | 22 | 38 | 11  | 13.5 | 27 | 44.5                     | 15                           | 1                              | 9000                                                         | 0.61           |
| 50, 63                                                               | JAL63-16-200  | 16              | 2     | 82.5 | 56  | 23   | 41   | 34 | —  | 71.5 | 22 | 38 | 11  | 13.5 | 27 | 44.5                     | 15                           | 1                              | 9000                                                         | 0.61           |
| 80                                                                   | JAL80-20-250  | 20              | 2.5   | 98.5 | 70  | 28   | 50   | 42 | —  | 86   | 25 | 47 | 14  | 16   | 32 | 53                       | 18                           | 1.25                           | 14000                                                        | 1.09           |
| 100                                                                  | JAL100-24-300 | 24              | 3     | 123  | 80  | 35   | 59.5 | 48 | —  | 107  | 32 | 58 | 16  | 20   | 41 | 65                       | 24                           | 2                              | 22000                                                        | 2.03           |
| 100                                                                  | JAL100-27-150 | 27              | 1.5   | 123  | 80  | 35   | 59.5 | 48 | —  | 107  | 32 | 58 | 16  | 20   | 41 | 65                       | 24                           | 2                              | 22000                                                        | 2.03           |
| 125                                                                  | JAL125-27-200 | 27              | 2     | 155  | 88  | 38   | 66   | 54 | 36 | 102  | 70 | 69 | 14  | 20   | 41 | 56                       | 24                           | 2                              | 28000                                                        | 4.1            |
| 160                                                                  | JAL160-33-200 | 33              | 2     | 213  | 116 | 55   | 96   | 74 | 48 | 144  | 90 | 89 | 22  | 24   | 55 | 78                       | 42                           | 3                              | 55000                                                        | 10             |