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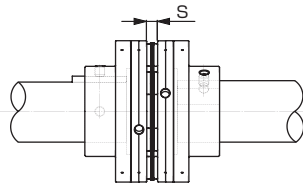
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NEW  
High performance metal disk coupling for semi-assembled  
**SERVOFLEX SFU**



# Check points for design

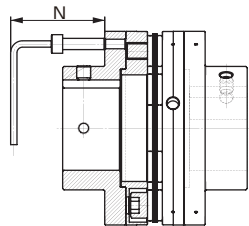
- (5) Overall length of flange inner bore should contact with shaft. Adjust the coupling overall length center position with center of both shafts distance. Then tighten set screws to fix flanges on both shafts. After coupling fixed onto shafts, check the dimension (S) at several points of unit inner end face. If there are some difference at several points, there would be possibility of parallel & angular misalignment. It would be strongly recommended to adjust alignment of 2 shafts again.



| Size    | Dimensions S [mm] |
|---------|-------------------|
| SFU-070 | 5.9               |
| SFU-080 | 7.7               |
| SFU-090 | 8.3               |
| SFU-100 | 10.2              |
| SFU-120 | 10.2              |
| SFU-140 | 10.6              |

## How to remove coupling

- Confirm if torque or axial force is free. In case of failsafe brake device is working, there would be possibi lity. of torque applying on coupling. Be sure to confirm before remove coupling.
- Loosen set screws first, then loosen assembling bolts.
- If you can not disassemble flanges & unit, insert same size with assembling bolts into taps and tighten little by little to separate flanges & unit. Necessary space for disassemble bolts depends on the coupling size as shown in below drawing.  
※Assembling bolts could be use for disassemble, but do not use those again for assemble if tip of the bolts are deformed.



| Size    | Recommended dimension N [mm] |
|---------|------------------------------|
| SFU-070 | 41                           |
| SFU-080 | 57                           |
| SFU-090 | 57                           |
| SFU-100 | 64                           |
| SFU-120 | 66                           |
| SFU-140 | 76                           |

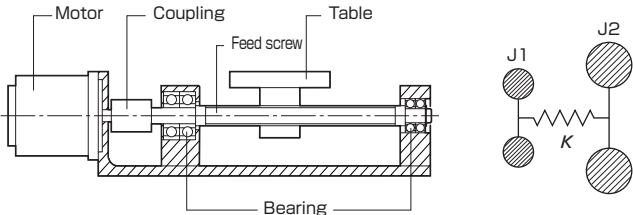
## Important points to note for ball screw feeding system

In servo motor driven ball screw feeding system,there might be possibility of vibration due to gain adjustment.In such case, to skip vibration point(Hz) by electrical filter function adjustment is recommended.If you face vibration problem, it is necessary to re consider whole system natural frequency such as torsional stiffness of the coupling & ball screw as well as moment of inertia.Please feel free to contact us from inquiry page in website to clarify the uncertain matters.

## How to figure out natural frequency of the feeding system

Select coupling based on servo mورتor maximum torque.Then figure out natural frequency (Nf) of the whole system by conditions as described in below illustration.

$K$  : Torsional stiffness of the coupling and feed screw [N·m/rad]  
 $J1$  : Moment of inertia of driving side [kg·m2]  
 $J2$  : Moment of inertia of driven side [kg·m2]



Natural frequency of overall feed screw system Nf [Hz]

$$Nf = \frac{1}{2\pi} \sqrt{K \left( \frac{1}{J1} + \frac{1}{J2} \right)}$$

Torsional spring constant of coupling and feed screw  $\kappa$  [N·m/rad]

$$\frac{1}{K} = \frac{1}{Kc} + \frac{1}{Kb}$$

$Kc$  : Torsional spring constant of coupling [N·m/rad]  
 $Kb$  : Torsional spring constant of feed screw [N·m/rad]

Driving moment of inertia J1 [kg·m2]

$$J1 = Jm + \frac{Jc}{2}$$

$Jm$  : Moment of inertia of servomotor [kg·m2]  
 $Jc$  : Moment of inertia of coupling [kg·m2]

Driven moment of inertia J2 [kg·m2]

$$J2 = Jb + Jt + \frac{Jc}{2}$$

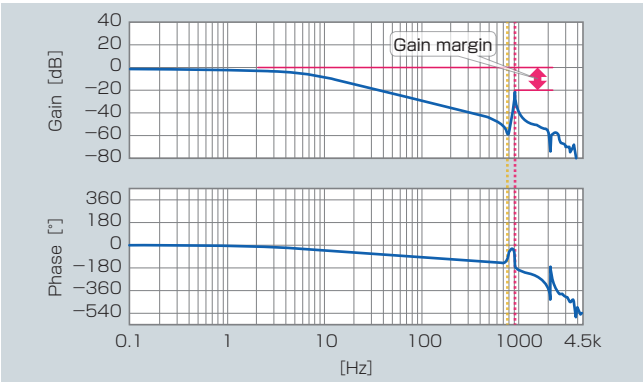
$Jb$  : Moment of inertia of feedscrew [kg·m2]  
 $Jt$  : Moment of inertia of table [kg·m2]  
 $Jc$  : Moment of inertia of coupling [kg·m2]

Moment of inertia of table Jt [kg·m2]

$$Jt = \frac{M \times P^2}{4\pi^2}$$

$M$  : Mass of table [kg]  
 $P$  : Lead of feed screw [m]

If the gain margin of natural frequency is below 10db, there is a high possibility of vibration. It is recommended to set natural frequency higher at the early design stage or use servo filter function(electrical tuning function) to skip the vibration natural frequency point.



## Selection Procedures

- (1) Find the torque, Ta, applied to the coupling using the output capacity, P, of the driver and the usage rotation speed, n.

$$Ta [N \cdot m] = 9550 \times \frac{P [kW]}{n [min^{-1}]}$$

- (2) Determine the factor  $\kappa$  from the load properties, and find the corrected torque, Td, applied to the coupling.

$$Td [N \cdot m] = Ta [N \cdot m] \times K \text{ (Refer to the table below for values)}$$

|                 | Constant | Vibrations: Small | Vibrations: Medium | Vibrations: Large |
|-----------------|----------|-------------------|--------------------|-------------------|
| Load properties |          |                   |                    |                   |
| K               | 1.0      | 1.25              | 1.75               | 2.25              |

For servo drive, multiply, maximum torque Ts, by safty factor K ( 1.2 to 1.5 )

$$Td [N \cdot m] = Ts [N \cdot m] \times (1.2 \sim 1.5)$$

- (3) Set the size so that the rated coupling torque, Tn, is higher than the corrected torque, Td.

$$Tn [N \cdot m] \geq Td [N \cdot m]$$

- (4) Check that the mount shaft is no larger than the maximum bore diameter of the coupling.

※ Contact Miki Pulley for assistance with any device experiencing extreme periodic vibrations.

Double elements type



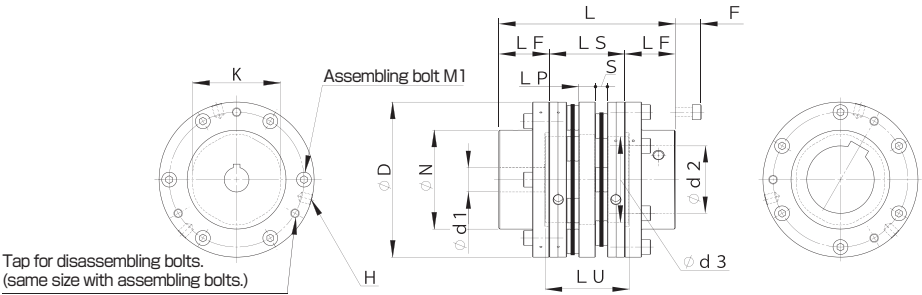
Specification

| Model           | Permissible<br>torqu<br>[N·m] | permissible misalignment |                 |               | Max.rotation<br>speed<br>[min <sup>-1</sup> ] | Tortional<br>stiffness<br>[N·m/rad] | Axial<br>stiffness<br>[N/mm] | Moment<br>of inertia<br>[kg·m <sup>2</sup> ] | Mass<br>[kg] |
|-----------------|-------------------------------|--------------------------|-----------------|---------------|-----------------------------------------------|-------------------------------------|------------------------------|----------------------------------------------|--------------|
|                 |                               | Parallel<br>[mm]         | Angular<br>[° ] | Axial<br>[mm] |                                               |                                     |                              |                                              |              |
| SFU-070DS-100N  | 100                           | 0.25                     | 1(On one side)  | ± 1.0         | 14000                                         | 120000                              | 242                          | 0.66×10 <sup>-3</sup>                        | 1.04         |
| SFU-080DS-200N  | 200                           | 0.31                     | 1(On one side)  | ± 1.0         | 13000                                         | 155000                              | 273                          | 1.58×10 <sup>-3</sup>                        | 1.86         |
| SFU-090DS-300N  | 300                           | 0.32                     | 1(On one side)  | ± 1.2         | 12000                                         | 260000                              | 160.5                        | 2.50×10 <sup>-3</sup>                        | 2.29         |
| SFU-100DS-450N  | 450                           | 0.38                     | 1(On one side)  | ± 1.3         | 10000                                         | 370000                              | 270                          | 4.83×10 <sup>-3</sup>                        | 3.63         |
| SFU-120DS-600N  | 600                           | 0.38                     | 1(On one side)  | ± 1.6         | 8000                                          | 485000                              | 180                          | 10.02×10 <sup>-3</sup>                       | 5.09         |
| SFU-140DS-1000N | 1000                          | 0.44                     | 1(On one side)  | ±2.0          | 7000                                          | 700000                              | 180                          | 22.57×10 <sup>-3</sup>                       | 8.27         |

※ The maximum rotation speed is not designed as dynamic balanced. ※ The value of the torsional stiffness is that of the element alone.

※ The moment of inertia and mass are the values at the maximum bore diameter.

Dimensions



| Model           | d1 · d2 [mm] |      | D<br>[mm] | N<br>[mm] | L<br>[mm] | LU<br>[mm] | LS<br>[mm] | LF<br>[mm] | LP<br>[mm] | S<br>[mm] | F<br>[mm] | d3<br>[mm] | K<br>[mm] | Assembling Bolt M1 |                           |
|-----------------|--------------|------|-----------|-----------|-----------|------------|------------|------------|------------|-----------|-----------|------------|-----------|--------------------|---------------------------|
|                 | Min.         | Max. |           |           |           |            |            |            |            |           |           |            |           | Description        | Tightening<br>torque(N·m) |
| SFU-070DS-100N  | 8            | 25   | 68        | 40        | 83.8      | 42.6       | 37.8       | 23         | 8          | 5.9       | 1         | 36         | 38        | 6-M4               | 3.4                       |
| SFU-080DS-200N  | 11           | 35   | 78        | 54        | 100.4     | 54.2       | 48.4       | 26         | 10         | 7.7       | 5         | 38         | 42        | 6-M6               | 14                        |
| SFU-090DS-300N  | 11           | 38   | 88        | 58        | 108.6     | 55.6       | 48.6       | 30         | 10         | 8.3       | 2         | 48         | 50        | 6-M6               | 14                        |
| SFU-100DS-450N  | 16           | 42   | 98        | 68        | 128.4     | 65.4       | 58.4       | 35         | 12         | 10.2      | 0         | 50         | 56        | 6-M8               | 34                        |
| SFU-120DS-600N  | 19           | 50   | 118       | 78        | 134.4     | 65.4       | 58.4       | 38         | 12         | 10.2      | 1         | 66         | 68        | 6-M8               | 34                        |
| SFU-140DS-1000N | 22           | 60   | 138       | 88        | 157.2     | 74.2       | 67.2       | 45         | 15         | 10.6      | 8         | 76         | 78        | 6-M8               | 34                        |

Standard bore combination

| 型式                  | Standard bore diamters |              |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---------------------|------------------------|--------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|                     | d1·d2                  | d1 · d2 [mm] |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                     |                        | 8            | 9 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 | 56 | 60 |
| SFU-070DS-□-□-100N  | d1                     | ●            | ● | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                     | d2                     | ●            | ● | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |    |    |    |    |    |
| SFU-080DS-□-□-200N  | d1                     |              |   |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |    |
|                     | d2                     |              |   |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |    |
| SFU-090DS-□-□-300N  | d1                     |              |   |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |
|                     | d2                     |              |   |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |
| SFU-100DS-□-□-450N  | d1                     |              |   |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |
|                     | d2                     |              |   |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |
| SFU-120DS-□-□-600N  | d1                     |              |   |    |    |    |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |
|                     | d2                     |              |   |    |    |    |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |
| SFU-140DS-□-□-1000N | d1                     |              |   |    |    |    |    |    |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |
|                     | d2                     |              |   |    |    |    |    |    |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |

※ The bore diameters marked with ● are supported as standard bore diameter.

How to Place an Oder

SFU-080SS-25H-30H-200N

Size

Type

SS : Single Element

Description of Permissible torque

bore d1-d2bore & tolerance

No mark : Old JIS(Class2,E9)  
H : JIS B 0401 H9  
J : JIS B 0401 JS9  
P : JIS B 0401 P9  
N : New Motor Standard G7 / F7  
For the detail, refer to page 008 bottom part.

# Semi-assembled design by flanges, spacer unit & bolts reduce assembling time.

SFU is new partially designed metal disc coupling (flanges, spacer unit & bolts) that enable quick assemble/disassemble compared with existing parts distribution type.(model:SFS) Assembling/disassembling without moving both side shafts improve productivity significantly. We' ve launched both single element & more flexible double elements type to meet the diverse assembly needs of customers.



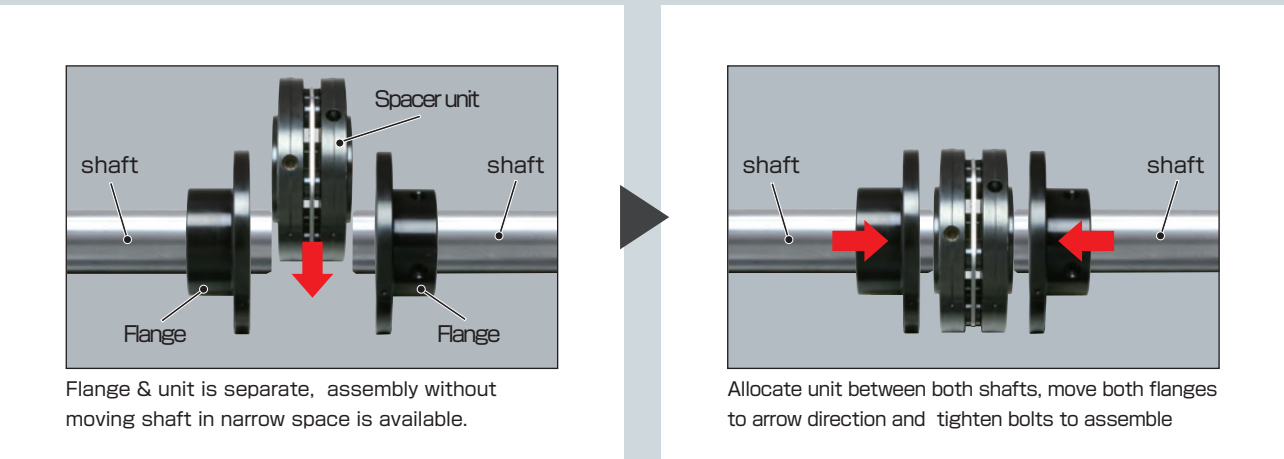
## Semi-assembled unit design with High torque, Ultra-High stiffnes

SFU has both single & double elements unit semi-assembled precisely in-house. Customer could finish assemble just tightening bolts between flange & unit. Elements are same with that of high stiffness SFF model, realized high torque, ultra-high stiffness.



## Easy to install

Less parts rather than existing model(SFS). Separatable flanges & unit makes it possible to install, uninstall coupling without moving both shafts, shorten assembly & disassembly time significantly.



## Single & Double element unit specification

Both single & double element type built-in disc spring unit is assembled by accurate specialized jig to achieve high concentricity.

### Single element

- Permissible torque 100 ~ 1000N · m
- Outer diameter  $\phi 68 \sim 138$
- Adaptable shaft diameter  $\phi 8 \sim 60$
- Ambient temperature  $-30 \sim 120^{\circ}\text{C deg. (C)}$

Flange material : equivalent to S45C  
Surface treatment : Blackening

Space unit material : equivalent to S45C  
Surface treatment : Blackening

Element material : Disc spring SUS304  
Color : equivalent to S45C

Boles material : Structural alloy steel  
Surface treatment : Blackening

TORQUE    THRUST  
BENDING    RADIAL

### Double element

- Permissible torque 100 ~ 1000N · m
- Outer diameter  $\phi 68 \sim 138$
- Adaptable shaft diameter  $\phi 8 \sim 60$
- Ambient temperature  $-30 \sim 120 \text{ deg. (C)}$

Flange material : equivalent to S45C  
Surface treatment : Blackening

Space unit material : equivalent to S45C  
Surface treatment : Blackening

Element material : Disc spring SUS304  
Color : equivalent to S45C

Boles material : Structural alloy steel  
Surface treatment : Blackening

TORQUE    THRUST  
BENDING    RADIAL

Single element type



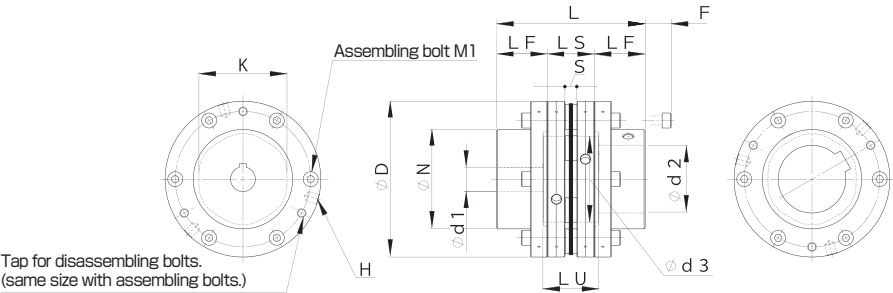
Specification

| Model           | Permissible torque<br>[N·m] | permissible misalignment |                 |               | Max.rotation speed<br>[min <sup>-1</sup> ] | Tortional stiffness<br>[N·m/rad] | Axial stiffness<br>[N/mm] | Moment of inertia<br>[kg·m <sup>2</sup> ] | Mass<br>[kg] |
|-----------------|-----------------------------|--------------------------|-----------------|---------------|--------------------------------------------|----------------------------------|---------------------------|-------------------------------------------|--------------|
|                 |                             | Parallel<br>[mm]         | Angular<br>[° ] | Axial<br>[mm] |                                            |                                  |                           |                                           |              |
| SFU-070SS-100N  | 100                         | 0.02                     | 1               | ±0.5          | 18000                                      | 240000                           | 484                       | 0.53×10 <sup>-3</sup>                     | 0.86         |
| SFU-080SS-200N  | 200                         | 0.02                     | 1               | ±0.5          | 17000                                      | 310000                           | 546                       | 1.26×10 <sup>-3</sup>                     | 1.52         |
| SFU-090SS-300N  | 300                         | 0.02                     | 1               | ±0.6          | 15000                                      | 520000                           | 321                       | 2.01×10 <sup>-3</sup>                     | 1.90         |
| SFU-100SS-450N  | 450                         | 0.02                     | 1               | ±0.65         | 13000                                      | 740000                           | 540                       | 3.88×10 <sup>-3</sup>                     | 3.01         |
| SFU-120SS-600N  | 600                         | 0.02                     | 1               | ±0.8          | 11000                                      | 970000                           | 360                       | 8.17×10 <sup>-3</sup>                     | 4.31         |
| SFU-140SS-1000N | 1000                        | 0.02                     | 1               | ±1.0          | 9500                                       | 1400000                          | 360                       | 18.43×10 <sup>-3</sup>                    | 6.93         |

※ The maximum rotation speed is not designed as dynamic balanced. ※ The value of the torsional stiffness is that of the element alone.

※ The moment of inertia and mass are the values at the maximum bore diameter.

Dimensions



| Model           | d1 · d2 [mm] |      | D<br>[mm] | N<br>[mm] | L<br>[mm] | LU<br>[mm] | LS<br>[mm] | LF<br>[mm] | S<br>[mm] | F<br>[mm] | d3<br>[mm] | K<br>[mm] | Assembling Bolt M1 |                        |
|-----------------|--------------|------|-----------|-----------|-----------|------------|------------|------------|-----------|-----------|------------|-----------|--------------------|------------------------|
|                 | Min.         | Max. |           |           |           |            |            |            |           |           |            |           | Description        | Tightening torque(N·m) |
| SFU-070SS-100N  | 8            | 25   | 68        | 40        | 69.9      | 28.7       | 23.9       | 23         | 5.9       | 1         | 36         | 38        | 6-M4               | 3.4                    |
| SFU-080SS-200N  | 11           | 35   | 78        | 54        | 82.7      | 36.5       | 30.7       | 26         | 7.7       | 5         | 38         | 42        | 6-M6               | 14                     |
| SFU-090SS-300N  | 11           | 38   | 88        | 58        | 90.3      | 37.3       | 30.3       | 30         | 8.3       | 2         | 48         | 50        | 6-M6               | 14                     |
| SFU-100SS-450N  | 16           | 42   | 98        | 68        | 106.2     | 43.2       | 36.2       | 35         | 10.2      | 0         | 50         | 52        | 6-M8               | 34                     |
| SFU-120SS-600N  | 19           | 50   | 118       | 78        | 112.2     | 43.2       | 36.2       | 38         | 10.2      | 1         | 66         | 72        | 6-M8               | 34                     |
| SFU-140SS-1000N | 22           | 60   | 138       | 88        | 131.6     | 48.6       | 41.6       | 45         | 10.6      | 8         | 76         | 80        | 6-M8               | 34                     |

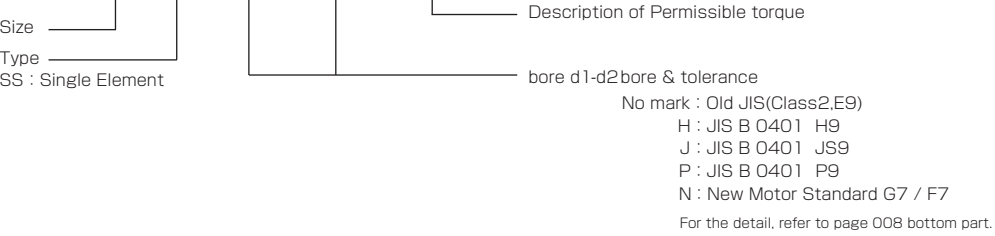
Standard bore combination

| Model               | Standard bore diamters |    |              |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---------------------|------------------------|----|--------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|                     | d1                     | d2 | d1 · d2 [mm] |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                     |                        |    | 8            | 9 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 | 56 | 60 |
| SFU-070SS-□-□-100N  | d1                     | ●  | ●            | ● | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                     | d2                     | ●  | ●            | ● | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |    |    |    |    |    |
| SFU-080SS-□-□-200N  | d1                     |    |              |   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |    |
|                     | d2                     |    |              |   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |    |    |
| SFU-090SS-□-□-300N  | d1                     |    |              |   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |    |
|                     | d2                     |    |              |   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |    |    |    |
| SFU-100SS-□-□-450N  | d1                     |    |              |   |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |    |    |
|                     | d2                     |    |              |   |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |
| SFU-120SS-□-□-600N  | d1                     |    |              |   |    |    |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |
|                     | d2                     |    |              |   |    |    |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |
| SFU-140SS-□-□-1000N | d1                     |    |              |   |    |    |    |    |    |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |    |
|                     | d2                     |    |              |   |    |    |    |    |    |    |    |    |    |    | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |

※ The bore diameters marked with ● are supported as standard bore diameter.

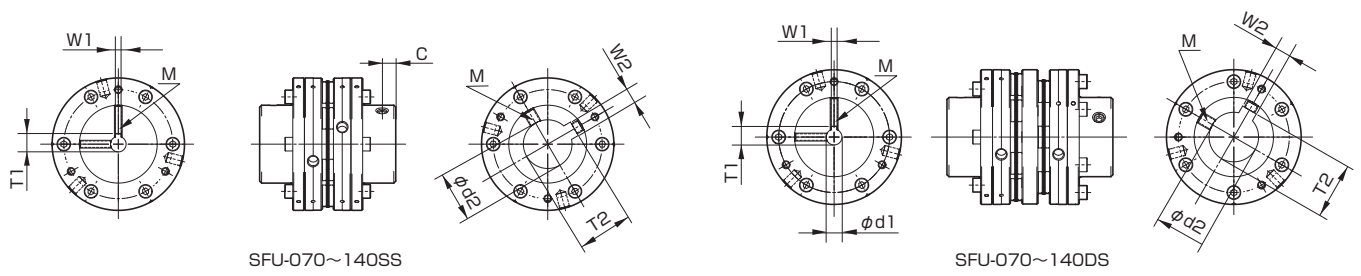
How to Place an Oder

SFU-080SS-25H-30H-200N



# Standard Bore-Drilling reference table

Refer to below table for bore drilling specification of keyway with set screw type.



| Models compliant with the old JIS standard (class 2) JIS B 1301 1959 |                                   |                                        |                                   |                    | Models compliant with the new JIS standard (H9) JIS B 1301 1996 |                                   |                                   |                                   |                    | Models compliant with the new JIS standard (JS9) JIS B 1301 1996 |                                   |                      |                                   |                    | Models compliant with the new JIS standard (P9) JIS B 1301 1996 |                                   |                                        |                                   |                    |
|----------------------------------------------------------------------|-----------------------------------|----------------------------------------|-----------------------------------|--------------------|-----------------------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------|------------------------------------------------------------------|-----------------------------------|----------------------|-----------------------------------|--------------------|-----------------------------------------------------------------|-----------------------------------|----------------------------------------|-----------------------------------|--------------------|
| Bore description                                                     | Bore diameter [d1・d2]             | Keyway width [W1・W2]                   | Keyway height [T1・T2]             | Set screw hole [M] | Bore description                                                | Bore diameter [d1・d2]             | Keyway width [W1・W2]              | Keyway height [T1・T2]             | Set screw hole [M] | Bore description                                                 | Bore diameter [d1・d2]             | Keyway width [W1・W2] | Keyway height [T1・T2]             | Set screw hole [M] | Bore description                                                | Bore diameter [d1・d2]             | Keyway width [W1・W2]                   | Keyway height [T1・T2]             | Set screw hole [M] |
|                                                                      | Tolerance H7, H8                  | Tolerance E9                           | -                                 | -                  |                                                                 | Tolerance H7, H8                  | Tolerance E9                      | -                                 | -                  |                                                                  | Tolerance H7, H8                  | Tolerance E9         | -                                 | -                  |                                                                 | Tolerance H7, H8                  | Tolerance E9                           | -                                 | -                  |
| 8                                                                    | 8 <sup>+0.022</sup> <sub>0</sub>  | -                                      | -                                 | 2-M4               | 8H                                                              | 8 <sup>+0.022</sup> <sub>0</sub>  | 3 <sup>+0.025</sup> <sub>0</sub>  | 9.4 <sup>+0.3</sup> <sub>0</sub>  | 2-M4               | 8J                                                               | 8 <sup>+0.022</sup> <sub>0</sub>  | 3 ±0.0125            | 9.4 <sup>+0.3</sup> <sub>0</sub>  | 2-M4               | 8P                                                              | 8 <sup>+0.022</sup> <sub>0</sub>  | 3 <sup>-0.009</sup> <sub>-0.031</sub>  | 9.4 <sup>+0.3</sup> <sub>0</sub>  | 2-M4               |
| 9                                                                    | 9 <sup>+0.022</sup> <sub>0</sub>  | -                                      | -                                 | 2-M4               | 9H                                                              | 9 <sup>+0.022</sup> <sub>0</sub>  | 3 <sup>+0.025</sup> <sub>0</sub>  | 10.4 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 9J                                                               | 9 <sup>+0.022</sup> <sub>0</sub>  | 3 ±0.0125            | 10.4 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 9P                                                              | 9 <sup>+0.022</sup> <sub>0</sub>  | 3 <sup>-0.009</sup> <sub>-0.031</sub>  | 10.4 <sup>+0.3</sup> <sub>0</sub> | 2-M4               |
| 10                                                                   | 10 <sup>+0.022</sup> <sub>0</sub> | -                                      | -                                 | 2-M4               | 10H                                                             | 10 <sup>+0.022</sup> <sub>0</sub> | 3 <sup>+0.025</sup> <sub>0</sub>  | 11.4 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 10J                                                              | 10 <sup>+0.022</sup> <sub>0</sub> | 3 ±0.0125            | 11.4 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 10P                                                             | 10 <sup>+0.022</sup> <sub>0</sub> | 3 <sup>-0.009</sup> <sub>-0.031</sub>  | 11.4 <sup>+0.3</sup> <sub>0</sub> | 2-M4               |
| 11                                                                   | 11 <sup>+0.018</sup> <sub>0</sub> | -                                      | -                                 | 2-M4               | 11H                                                             | 11 <sup>+0.018</sup> <sub>0</sub> | 4 <sup>+0.030</sup> <sub>0</sub>  | 12.8 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 11J                                                              | 11 <sup>+0.018</sup> <sub>0</sub> | 4 ±0.0150            | 12.8 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 11P                                                             | 11 <sup>+0.018</sup> <sub>0</sub> | 4 <sup>-0.012</sup> <sub>-0.042</sub>  | 12.8 <sup>+0.3</sup> <sub>0</sub> | 2-M4               |
| 12                                                                   | 12 <sup>+0.018</sup> <sub>0</sub> | 4 <sup>+0.050</sup> <sub>-0.020</sub>  | 13.5 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 12H                                                             | 12 <sup>+0.018</sup> <sub>0</sub> | 4 <sup>+0.030</sup> <sub>0</sub>  | 13.8 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 12J                                                              | 12 <sup>+0.018</sup> <sub>0</sub> | 4 ±0.0150            | 13.8 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 12P                                                             | 12 <sup>+0.018</sup> <sub>0</sub> | 4 <sup>-0.012</sup> <sub>-0.042</sub>  | 13.8 <sup>+0.3</sup> <sub>0</sub> | 2-M4               |
| 14                                                                   | 14 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.050</sup> <sub>-0.020</sub>  | 16.0 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 14H                                                             | 14 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.030</sup> <sub>0</sub>  | 16.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 14J                                                              | 14 <sup>+0.018</sup> <sub>0</sub> | 5 ±0.0150            | 16.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 14P                                                             | 14 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>-0.012</sup> <sub>-0.042</sub>  | 16.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               |
| 15                                                                   | 15 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.050</sup> <sub>-0.020</sub>  | 17.0 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 15H                                                             | 15 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.030</sup> <sub>0</sub>  | 17.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 15J                                                              | 15 <sup>+0.018</sup> <sub>0</sub> | 5 ±0.0150            | 17.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 15P                                                             | 15 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>-0.012</sup> <sub>-0.042</sub>  | 17.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               |
| 16                                                                   | 16 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.050</sup> <sub>-0.020</sub>  | 18.0 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 16H                                                             | 16 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.030</sup> <sub>0</sub>  | 18.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 16J                                                              | 16 <sup>+0.018</sup> <sub>0</sub> | 5 ±0.0150            | 18.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 16P                                                             | 16 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>-0.012</sup> <sub>-0.042</sub>  | 18.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               |
| 17                                                                   | 17 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.050</sup> <sub>-0.020</sub>  | 19.0 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 17H                                                             | 17 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.030</sup> <sub>0</sub>  | 19.3 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 17J                                                              | 17 <sup>+0.018</sup> <sub>0</sub> | 5 ±0.0150            | 19.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 17P                                                             | 17 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>-0.012</sup> <sub>-0.042</sub>  | 19.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4               |
| 18                                                                   | 18 <sup>+0.018</sup> <sub>0</sub> | 5 <sup>+0.050</sup> <sub>-0.020</sub>  | 20.0 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 18H                                                             | 18 <sup>+0.018</sup> <sub>0</sub> | 6 <sup>+0.030</sup> <sub>0</sub>  | 20.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 18J                                                              | 18 <sup>+0.018</sup> <sub>0</sub> | 6 ±0.0150            | 20.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 18P                                                             | 18 <sup>+0.018</sup> <sub>0</sub> | 6 <sup>-0.012</sup> <sub>-0.042</sub>  | 20.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               |
| 19                                                                   | 19 <sup>+0.021</sup> <sub>0</sub> | 5 <sup>+0.050</sup> <sub>-0.020</sub>  | 21.0 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 19H                                                             | 19 <sup>+0.021</sup> <sub>0</sub> | 6 <sup>+0.030</sup> <sub>0</sub>  | 21.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 19J                                                              | 19 <sup>+0.021</sup> <sub>0</sub> | 6 ±0.0150            | 21.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 19P                                                             | 19 <sup>+0.021</sup> <sub>0</sub> | 6 <sup>-0.012</sup> <sub>-0.042</sub>  | 21.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               |
| 20                                                                   | 20 <sup>+0.021</sup> <sub>0</sub> | 5 <sup>+0.050</sup> <sub>-0.020</sub>  | 22.0 <sup>+0.3</sup> <sub>0</sub> | 2-M4               | 20H                                                             | 20 <sup>+0.021</sup> <sub>0</sub> | 6 <sup>+0.030</sup> <sub>0</sub>  | 22.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 20J                                                              | 20 <sup>+0.021</sup> <sub>0</sub> | 6 ±0.0150            | 22.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 20P                                                             | 20 <sup>+0.021</sup> <sub>0</sub> | 6 <sup>-0.012</sup> <sub>-0.042</sub>  | 22.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               |
| 22                                                                   | 22 <sup>+0.021</sup> <sub>0</sub> | 7 <sup>+0.061</sup> <sub>-0.025</sub>  | 25.0 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 22H                                                             | 22 <sup>+0.021</sup> <sub>0</sub> | 6 <sup>+0.030</sup> <sub>0</sub>  | 24.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 22J                                                              | 22 <sup>+0.021</sup> <sub>0</sub> | 6 ±0.0150            | 24.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               | 22P                                                             | 22 <sup>+0.021</sup> <sub>0</sub> | 6 <sup>-0.015</sup> <sub>-0.042</sub>  | 24.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5               |
| 24                                                                   | 24 <sup>+0.021</sup> <sub>0</sub> | 7 <sup>+0.061</sup> <sub>-0.025</sub>  | 27.0 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 24H                                                             | 24 <sup>+0.021</sup> <sub>0</sub> | 8 <sup>+0.036</sup> <sub>0</sub>  | 27.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 24J                                                              | 24 <sup>+0.021</sup> <sub>0</sub> | 8 ±0.0180            | 27.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 24P                                                             | 24 <sup>+0.021</sup> <sub>0</sub> | 8 <sup>-0.015</sup> <sub>-0.042</sub>  | 27.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               |
| 25                                                                   | 25 <sup>+0.021</sup> <sub>0</sub> | 7 <sup>+0.061</sup> <sub>-0.025</sub>  | 28.0 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 25H                                                             | 25 <sup>+0.021</sup> <sub>0</sub> | 8 <sup>+0.036</sup> <sub>0</sub>  | 28.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 25J                                                              | 25 <sup>+0.021</sup> <sub>0</sub> | 8 ±0.0180            | 28.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 25P                                                             | 25 <sup>+0.021</sup> <sub>0</sub> | 8 <sup>-0.015</sup> <sub>-0.042</sub>  | 28.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               |
| 28                                                                   | 28 <sup>+0.021</sup> <sub>0</sub> | 7 <sup>+0.061</sup> <sub>-0.025</sub>  | 31.0 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 28H                                                             | 28 <sup>+0.021</sup> <sub>0</sub> | 8 <sup>+0.036</sup> <sub>0</sub>  | 31.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 28J                                                              | 28 <sup>+0.021</sup> <sub>0</sub> | 8 ±0.0180            | 31.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 28P                                                             | 28 <sup>+0.021</sup> <sub>0</sub> | 8 <sup>-0.015</sup> <sub>-0.042</sub>  | 31.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               |
| 30                                                                   | 30 <sup>+0.021</sup> <sub>0</sub> | 7 <sup>+0.061</sup> <sub>-0.025</sub>  | 33.0 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 30H                                                             | 30 <sup>+0.021</sup> <sub>0</sub> | 8 <sup>+0.036</sup> <sub>0</sub>  | 33.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 30J                                                              | 30 <sup>+0.021</sup> <sub>0</sub> | 8 ±0.0180            | 33.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               | 30P                                                             | 30 <sup>+0.021</sup> <sub>0</sub> | 8 <sup>-0.015</sup> <sub>-0.042</sub>  | 33.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6               |
| 32                                                                   | 32 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>+0.061</sup> <sub>-0.025</sub> | 35.5 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 32H                                                             | 32 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>+0.036</sup> <sub>0</sub> | 35.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 32J                                                              | 32 <sup>+0.025</sup> <sub>0</sub> | 10 ±0.0180           | 35.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 32P                                                             | 32 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>-0.015</sup> <sub>-0.042</sub> | 35.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               |
| 35                                                                   | 35 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>+0.061</sup> <sub>-0.025</sub> | 38.5 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 35H                                                             | 35 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>+0.036</sup> <sub>0</sub> | 38.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 35J                                                              | 35 <sup>+0.025</sup> <sub>0</sub> | 10 ±0.0180           | 38.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 35P                                                             | 35 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>-0.015</sup> <sub>-0.042</sub> | 38.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               |
| 38                                                                   | 38 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>+0.061</sup> <sub>-0.025</sub> | 41.5 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 38H                                                             | 38 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>+0.036</sup> <sub>0</sub> | 41.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 38J                                                              | 38 <sup>+0.025</sup> <sub>0</sub> | 10 ±0.0180           | 41.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 38P                                                             | 38 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>-0.015</sup> <sub>-0.042</sub> | 41.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               |
| 40                                                                   | 40 <sup>+0.025</sup> <sub>0</sub> | 10 <sup>+0.061</sup> <sub>-0.025</sub> | 43.5 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 40H                                                             | 40 <sup>+0.025</sup> <sub>0</sub> | 12 <sup>+0.043</sup> <sub>0</sub> | 43.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 40J                                                              | 40 <sup>+0.025</sup> <sub>0</sub> | 12 ±0.0215           | 43.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 40P                                                             | 40 <sup>+0.025</sup> <sub>0</sub> | 12 <sup>-0.018</sup> <sub>-0.042</sub> | 43.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               |
| 42                                                                   | 42 <sup>+0.025</sup> <sub>0</sub> | 12 <sup>+0.075</sup> <sub>-0.032</sub> | 45.5 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 42H                                                             | 42 <sup>+0.025</sup> <sub>0</sub> | 12 <sup>+0.043</sup> <sub>0</sub> | 45.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 42J                                                              | 42 <sup>+0.025</sup> <sub>0</sub> | 12 ±0.0215           | 45.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 42P                                                             | 42 <sup>+0.025</sup> <sub>0</sub> | 12 <sup>-0.018</sup> <sub>-0.042</sub> | 45.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8               |
| 45                                                                   | 45 <sup>+0.025</sup> <sub>0</sub> | 12 <sup>+0.075</sup> <sub>-0.032</sub> | 48.5 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 45H                                                             | 45 <sup>+0.025</sup> <sub>0</sub> | 14 <sup>+0.043</sup> <sub>0</sub> | 48.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 45J                                                              | 45 <sup>+0.025</sup> <sub>0</sub> | 14 ±0.0215           | 48.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 45P                                                             | 45 <sup>+0.025</sup> <sub>0</sub> | 14 <sup>-0.018</sup> <sub>-0.042</sub> | 48.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              |
| 48                                                                   | 48 <sup>+0.025</sup> <sub>0</sub> | 12 <sup>+0.075</sup> <sub>-0.032</sub> | 51.5 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 48H                                                             | 48 <sup>+0.025</sup> <sub>0</sub> | 14 <sup>+0.043</sup> <sub>0</sub> | 51.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 48J                                                              | 48 <sup>+0.025</sup> <sub>0</sub> | 14 ±0.0215           | 51.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 48P                                                             | 48 <sup>+0.025</sup> <sub>0</sub> | 14 <sup>-0.018</sup> <sub>-0.042</sub> | 51.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              |
| 50                                                                   | 50 <sup>+0.025</sup> <sub>0</sub> | 12 <sup>+0.075</sup> <sub>-0.032</sub> | 53.5 <sup>+0.3</sup> <sub>0</sub> | 2-M8               | 50H                                                             | 50 <sup>+0.025</sup> <sub>0</sub> | 14 <sup>+0.043</sup> <sub>0</sub> | 53.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 50J                                                              | 50 <sup>+0.025</sup> <sub>0</sub> | 14 ±0.0215           | 53.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 50P                                                             | 50 <sup>+0.025</sup> <sub>0</sub> | 14 <sup>-0.018</sup> <sub>-0.042</sub> | 53.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10              |
| 55                                                                   | 55 <sup>+0.030</sup> <sub>0</sub> | 15 <sup>+0.075</sup> <sub>-0.032</sub> | 60.0 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 55H                                                             | 55 <sup>+0.030</sup> <sub>0</sub> | 16 <sup>+0.043</sup> <sub>0</sub> | 59.3 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 55J                                                              | 55 <sup>+0.030</sup> <sub>0</sub> | 16 ±0.0215           | 59.3 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 55P                                                             | 55 <sup>+0.030</sup> <sub>0</sub> | 16 <sup>-0.018</sup> <sub>-0.042</sub> | 59.3 <sup>+0.3</sup> <sub>0</sub> | 2-M10              |
| 56                                                                   | 56 <sup>+0.030</sup> <sub>0</sub> | 15 <sup>+0.075</sup> <sub>-0.032</sub> | 61.0 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 56H                                                             | 56 <sup>+0.030</sup> <sub>0</sub> | 16 <sup>+0.043</sup> <sub>0</sub> | 60.3 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 56J                                                              | 56 <sup>+0.030</sup> <sub>0</sub> | 16 ±0.0215           | 60.3 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 56P                                                             | 56 <sup>+0.030</sup> <sub>0</sub> | 16 <sup>-0.018</sup> <sub>-0.042</sub> | 60.3 <sup>+0.3</sup> <sub>0</sub> | 2-M10              |
| 60                                                                   | 60 <sup>+0.030</sup> <sub>0</sub> | 15 <sup>+0.075</sup> <sub>-0.032</sub> | 65.0 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 60H                                                             | 60 <sup>+0.030</sup> <sub>0</sub> | 18 <sup>+0.043</sup> <sub>0</sub> | 64.4 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 60J                                                              | 60 <sup>+0.030</sup> <sub>0</sub> | 18 ±0.0215           | 64.4 <sup>+0.3</sup> <sub>0</sub> | 2-M10              | 60P                                                             | 60 <sup>+0.030</sup> <sub>0</sub> | 18 <sup>-0.018</sup> <sub>-0.042</sub> | 64.4 <sup>+0.3</sup> <sub>0</sub> | 2-M10              |

| New motor standard JIS C 4210 2001 |                                        |                                   |                                   |                           |
|------------------------------------|----------------------------------------|-----------------------------------|-----------------------------------|---------------------------|
| Bore description                   | Bore (d1・d2) [mm]                      | Keyway (W1・W2) [mm]               | Key width (T1・T2) [mm]            | Set screw (M) Description |
|                                    | G7 / F7                                | H9                                | -                                 | -                         |
| 14N                                | 14 <sup>+0.024</sup> <sub>-0.036</sub> | 5 <sup>+0.030</sup> <sub>0</sub>  | 16.3 <sup>+0.3</sup> <sub>0</sub> | 2-M4                      |
| 19N                                | 19 <sup>+0.028</sup> <sub>-0.047</sub> | 6 <sup>+0.030</sup> <sub>0</sub>  | 21.8 <sup>+0.3</sup> <sub>0</sub> | 2-M5                      |
| 24N                                | 24 <sup>+0.028</sup> <sub>-0.047</sub> | 8 <sup>+0.036</sup> <sub>0</sub>  | 27.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6                      |
| 28N                                | 28 <sup>+0.028</sup> <sub>-0.047</sub> | 8 <sup>+0.036</sup> <sub>0</sub>  | 31.3 <sup>+0.3</sup> <sub>0</sub> | 2-M6                      |
| 38N                                | 38 <sup>+0.050</sup> <sub>-0.025</sub> | 10 <sup>+0.036</sup> <sub>0</sub> | 41.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8                      |
| 42N                                | 42 <sup>+0.050</sup> <sub>-0.025</sub> | 12 <sup>+0.043</sup> <sub>0</sub> | 45.3 <sup>+0.3</sup> <sub>0</sub> | 2-M8                      |
| 48N                                | 48 <sup>+0.050</sup> <sub>-0.025</sub> | 14 <sup>+0.043</sup> <sub>0</sub> | 51.8 <sup>+0.3</sup> <sub>0</sub> | 2-M10                     |
| 55N                                | 55 <sup>+0.080</sup> <sub>-0.043</sub> | 16 <sup>+0.043</sup> <sub>0</sub> | 59.3 <sup>+0.3</sup> <sub>0</sub> | 2-M10                     |
| 60N                                | 60 <sup>+0.080</sup> <sub>-0.043</sub> | 18 <sup>+0.043</sup> <sub>0</sub> | 64.4 <sup>+0.3</sup> <sub>0</sub> | 2-M10                     |

## Set screw position

| Model   | Dimension C [mm] |
|---------|------------------|
| SFU-070 | 7                |
| SFU-080 | 8                |
| SFU-090 | 9                |
| SFU-100 | 12               |
| SFU-120 | 12               |
| SFU-140 | 15               |

## NOTE

- The keyways and set screws of the left and right flanges do not align precisely because the keyway alignment is checked by visual inspection.
- Set screws are included with other parts.
- If higher precision alignment of the left and right keyways is required, please contact us from inquiry page on our website.

# Check points for design

## Special points to take note

You should note the following matters to prevent any problems at end users.

- Be sure to keep permissible mis-alignment of parallel, angular, and axial figures.
- Be sure to tighten bolts with specified torque.

## Handling Precautions

SFU model is delivered by 4 kind of parts(Flanges, Unit, Assembling bolts,Set screws) Unit is assembled with high accuracy by specialized jig. If strong impact given to the unit at assembling process, accuracy would not be kept and there would be a possibility of damage or breakage.

- Ambient temperature is - 30~120 deg.(C). Even though water & oil resistance, too much is not recommended.

## Assembly

Install flanges on both shafts first and unit next. Then tighten assembling bolts.

