### Features of gas springs

1. **Space saving** - Although these gas springs generate heavy loads and have long strokes, they are very compact. It is possible to generate a heavy load in a very small space.

2. **High initial load** - An initial maximum load of 73,900N (approx. 7.5t) can be obtained beginning from the first stroke. This is ideal for machining of high tensile steel sheet and thick plates.

3. **A wide range of strokes** - Because the maximum stroke length is 200mm, these springs are suitable for difficult machining such as deep drawing.

4. **Flat load characteristic** - Because the difference between the initial load and the maximum load is small, these springs are useful for machining of thin materials and for maintaining the balance of the upper and lower dies.

5. **No need for initial deflection** - These gas springs can be fastened in place with bolts, so there is no need to install them with an initial deflection. This simplifies the assembly process.

### Examples of gas spring applications

- Used as blank holder cushion.
- Used as a source of padding force in a bending die.
- Used for double-action bending.
- Used as a source of stripping force in a punching die.

Be sure to use guide pins, bushings and heel guides in order to avoid eccentric loads.

---

**GAS SPRINGS**

- **Product name:**
  - GAS SPRINGS
- **Catalog No.:**
  - GSZ HM FM GSX
- **Features:**
  - No need for initial deflection
  - High initial load
  - A wide range of strokes
- **Examples of gas spring applications:**
  - Used as blank holder cushion.
  - Used as a source of padding force in a bending die.
  - Used for double-action bending.
  - Used as a source of stripping force in a punching die.

---

**Gas spring selection**

- **GSZ**
  - Page: P.1013
  - Features: Featuring high allowable eccentricity of 1° and high speed
  - Specification table:
    - Initial load: 1700 kgf
    - Stroke: 100 mm
    - Delivery time:
      - Standard
      - Special

- **GSX**
  - Page: P.1015
  - Features: Allowable eccentricity of 0.5° (up to 50mm stroke)
  - Specification table:
    - Initial load: 15300 kgf
    - Stroke: 50 mm
    - Delivery time:
      - Standard
      - Special

- **GSC/MGSC**
  - Page: P.1017-1018
  - Features: Super compact type with a shorter overall length than standard
  - Specification table:
    - Initial load: 15300 kgf
    - Stroke: 50 mm
    - Delivery time:
      - Standard
      - Special

- **MGSB**
  - Page: P.1019
  - Features: Wide variety of stroke variations in a compact body (10-80mm)
  - Specification table:
    - Initial load: 15300 kgf
    - Stroke: 50 mm
    - Delivery time:
      - Standard
      - Special

- **MGSR**
  - Page: P.1020
  - Features: Small-diameter screw-in type
  - Specification table:
    - Initial load: 15300 kgf
    - Stroke: 50 mm
    - Delivery time:
      - Standard
      - Special

- **GSR**
  - Page: P.1022
  - Features: Piston rod return speed is adjustable
  - Specification table:
    - Delivery time:
      - Standard
      - Special

- **GSR**
  - Page: P.1023
  - Features: Equivalent to GSZ. Product lineup featuring stroke length up to 300mm
Precautions for the use of gas springs

If a gas spring is used under any of the conditions listed below, explosion of the spring or other malfunction may result in a major accident or in product trouble. Be sure to read the following precautions before using gas springs.

Danger prevention
1. Never disassemble, weld, fuse, heat, or modify gas springs. Gas springs contain high-pressure gas. Failure to observe this precaution may cause the internal parts to burst out.
2. Gas recharge and pressure adjustment are not possible. Attempting to do so may cause the spring to explode or result in other major accidents.
3. The operating environment temperature range (Temperature around the die) is 0 to 40°C. Use gas springs only within this range. If gas springs are heated to 70°C or higher, the spring may explode or other major accidents may occur. Even if a major accident does not occur, the heat will deteriorate the gas seal, possibly resulting in gas leakage. A clearance of approximately 1mm on each side of the spring is recommended in order to dissipate heat and prevent contact with the mounting holes.

Disposal method
4. Wear protective goggles and discharge the gas from the cylinder before disposing. Cutting the mounting bolt hole all the way through and verify that the nitrogen gas is discharged completely before disposing.

Preventing gas leakage
5. Do not use gas springs under any of the conditions listed below. Failure to observe these precautions may result in gas leakage and other problems. Moreover, a spring explosion or other major accident may occur.

<table>
<thead>
<tr>
<th>Conditions of use that may cause problems</th>
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<th>Consequence</th>
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<td>a. An oblique load or transverse load is applied.</td>
<td>Eccentric load and/or spring damage</td>
<td>Gas leakage</td>
</tr>
<tr>
<td>b. Gas spring is not fixed with bolts.</td>
<td>Seal damage</td>
<td>Gas leakage</td>
</tr>
<tr>
<td>c. Sub-guides are not used or the number is insufficient.</td>
<td>Loss of durability</td>
<td>Gas leakage and/or explosion or other accidents</td>
</tr>
<tr>
<td>d. The load distribution is not even in all four directions inside the die.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. There is an obstruction which contacts the gas spring inside the die.</td>
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<tr>
<td>f. The gas spring is fixed in place using the tap hole on the end of the piston rod.</td>
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<tr>
<td>g. An extension pin is mounted on the end of the piston rod.</td>
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<tr>
<td>h. The pressure on the piston rod is not applied to the entire surface.</td>
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<td></td>
</tr>
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<td>i. The piston rod contact face is deformed.</td>
<td></td>
<td></td>
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<tr>
<td>j. The piston rod is cut.</td>
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<td>k. Welding spatter has adhered to the piston rod.</td>
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Use spring pins to prevent eccentric loads.

Use sub guide pins to prevent eccentric loads.

Wear safety goggles and discharge gas before disposal.

Do not exceed the shot limit.

Do not apply excessive lubricant.

Do not grind the cylinder or cut the piston rod.

Do not incorporate in a building or vehicle.

Do not use or store outdoors or at high humidity place.

Do not use for applications other than dies.

Keep clearance 0.5—1mm per side.
Precautions for the use of gas springs

If a gas spring is used under any of the conditions listed below, explosion of the spring or other malfunction may result in a major accident or in product trouble. Be sure to read the following precautions before using gas springs.

**Danger prevention**

1. Never disassemble, weld, fuse, heat, or modify gas springs. Gas springs contain high-pressure gas. Failure to observe this precaution may cause the internal parts to burst out.
2. Gas recharge and pressure adjustment are not possible. Attempting to do so may cause the spring to explode or result in other major accidents.
3. The operating environment temperature range (temperature around the die) is 0 — 40°C. Use gas springs only within this range. If gas springs are heated to 70°C or higher, the spring may explode or other major accidents may occur.
   
   Even if a major accident does not occur, the heat will deteriorate the gas seal, possibly resulting in gas leakage.

A clearance of approximately 1 mm on each side of the spring is recommended in order to dissipate heat and prevent contact with the mounting holes.

**Disposal method**

1. Wear protective goggles and discharge the gas from the cylinder before disposing of the spring.

2. Cut the mounting bolt hole all the way through and verify that the nitrogen gas is discharged completely before disposing.

3. Do not use gas springs under any of the conditions listed below.

**Preventing gas leakage**

1. Do not use gas springs under any of the conditions listed below. Failure to observe these precautions may result in gas leakage and other problems. Moreover, a spring explosion or other major accident may occur.

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**Unexpected problems**

- Use sub guide pins to prevent eccentric loads.
- Use sub guide pins to prevent eccentric loads.
- Do not exceed the shot limit.
- Do not apply excessive lubricant.
- Do not grind the cylinder or cut the piston rod.
- Do not incorporate in a building or vehicle.

Wear safety goggles and discharge gas before disposal.

Fasten with bolts and flange.

Do not use or store outdoors or at high humidity place.

Do not use for applications other than dies.

Keep clearance 0.5—1 mm per side.
GAS SPRINGS
—HIGH ALLOWABLE ECCENTRICITY AND HIGH SPEED TYPE—

<table>
<thead>
<tr>
<th>GSZ</th>
<th>GSZH (KM plate set)</th>
<th>GSZF (FM plate set)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSZ25-25</td>
<td>GSZH32-63</td>
<td>GSZF50-10</td>
</tr>
</tbody>
</table>

- Nitrogen gas charge pressure: kgf/cm²
- Load: kgf

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Load</th>
<th>Stroke (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.11</td>
<td>95</td>
<td>75</td>
</tr>
<tr>
<td>0.11</td>
<td>105</td>
<td>80</td>
</tr>
<tr>
<td>0.13</td>
<td>120</td>
<td>88</td>
</tr>
<tr>
<td>2.18</td>
<td>165</td>
<td>127</td>
</tr>
<tr>
<td>1.18</td>
<td>125</td>
<td>105</td>
</tr>
<tr>
<td>1.15</td>
<td>115</td>
<td>100</td>
</tr>
<tr>
<td>1.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.98</td>
<td>240</td>
<td>160</td>
</tr>
<tr>
<td>0.57</td>
<td>120</td>
<td>88</td>
</tr>
<tr>
<td>0.52</td>
<td>105</td>
<td>80</td>
</tr>
<tr>
<td>0.35</td>
<td>95</td>
<td>75</td>
</tr>
<tr>
<td>0.35</td>
<td>190</td>
<td>127</td>
</tr>
</tbody>
</table>

- Cylinder body: Equivalent to GSZH40
- Piston rod: SACM12 [Surface] 1000rpm [Speed] 3mm [Clearance] 3.5mm [Countersinking/Barrel Turning]

- Do not use the gas spring using the screw hole at the front end or install an extension gas.

- Product information:
  - Stroke: 10mm ~ 25mm
  - Maximum load: 10kN ~ 50kN

- Dimensions and specifications for GSZH and GSZF:
  - GSZH: 32 ~ 100
  - GSZF: 50 ~ 100

- Load and stroke limitations:
  - Load: 10kN ~ 50kN
  - Stroke: 10mm ~ 25mm

- Allowable eccentricity has been improved.

- Note:
  - The initial load and maximum load vary depending on the temperature and operation speed. The load is set at 0.10kN.
  - When using GSZH, GSZF, or GSZ, ensure the gas charge pressure is within the specified range.
  - When using GSZH or GSZF, ensure the gas charge pressure is within the specified range.

- Shipping information:
  - Days to Ship: 3 ~ 4 days

- Order information:
  - Catalog No.:
  - Price: ~88 times greater!

- Note:
  - The allowable eccentricity has been improved.

- GSZ: Main body
  - Stroke: 10mm ~ 25mm
  - Load: 10kN ~ 50kN

- GSZH: KM plate set
  - Stroke: 10mm ~ 25mm
  - Load: 10kN ~ 50kN

- GSZF: FM plate set
  - Stroke: 10mm ~ 25mm
  - Load: 10kN ~ 50kN

- LS/ST: 38, 25, M8

- Note:
  - Allowable eccentricity: Diameter

- Note:
  - Approx. 88 times greater!

- GSZ: Main body
  - Stroke: 10mm ~ 25mm
  - Load: 10kN ~ 50kN

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  - Load: 10kN ~ 50kN

- GSZF: FM plate set
  - Stroke: 10mm ~ 25mm
  - Load: 10kN ~ 50kN

- Note:
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  - Stroke: 10mm ~ 25mm
  - Load: 10kN ~ 50kN

- GSZF: FM plate set
  - Stroke: 10mm ~ 25mm
  - Load: 10kN ~ 50kN

- Note:
  - Allowable eccentricity: Diameter

- Note:
  - Approx. 88 times greater!
GAS SPRINGS
—HIGH ALLOWABLE ECCENTRICITY AND HIGH SPEED TYPE—

<table>
<thead>
<tr>
<th>Load (kgf)</th>
<th>Load (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.11</td>
<td>95</td>
</tr>
<tr>
<td>0.11</td>
<td>105</td>
</tr>
<tr>
<td>0.21</td>
<td>220</td>
</tr>
<tr>
<td>0.15</td>
<td>150</td>
</tr>
<tr>
<td>2.95</td>
<td>255</td>
</tr>
<tr>
<td>1.85</td>
<td>125</td>
</tr>
<tr>
<td>1.66</td>
<td>220</td>
</tr>
<tr>
<td>1.18</td>
<td>125</td>
</tr>
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<td>115</td>
</tr>
<tr>
<td>0.49</td>
<td>95</td>
</tr>
<tr>
<td>0.32</td>
<td>85</td>
</tr>
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</table>

- Load N × 12 ≈ MPa
- GSZ (Main body)
- GSZH (FM plate set)
- GSZ (FM plate set)
- GSZ63-20
- GSZ32-63
- GSZ32-45
- GSZ25-45
- GSZ19-32
- GSZ19-25

- Allowable eccentricity has been improved.
- GSZ load characteristic graph
- This graph shows the quasi-static characteristics. Actual characteristics vary depending on temperature and operating speed.

Order | Catalog No. | Days to Ship | Price
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
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<tbody>
<tr>
<td>RFS</td>
<td>GSZ-32-25</td>
<td>3 days</td>
<td>80</td>
</tr>
<tr>
<td>FB8</td>
<td>GSZ25-45</td>
<td>7 days</td>
<td>60</td>
</tr>
<tr>
<td>FB6</td>
<td>GSZ32-45</td>
<td>5 days</td>
<td>50</td>
</tr>
<tr>
<td>FB4</td>
<td>GSZ45-50</td>
<td>10 days</td>
<td>90</td>
</tr>
</tbody>
</table>

- Shot limit: Number of shots per minute
- The shot limit may be affected by the operating environment. The figures shown here are for reference only.
- Gas spring temperature range
- The allowable eccentricity of the gas spring will be reduced by 4% if the surface temperature of the gas spring exceeds 100°C.

- When using GSZ32, 38, or 45, be sure to use the flange mounting flange and hole bolts.

GSZ19-45
GSZH (FM plate set)
GSZ32-63
GSZF (FM plate set)

- GSZ (Main body)
- GSZH (FM plate set)
- GSZ (FM plate set)
- GSZ63-20
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- When using GSZ32, 38, or 45, be sure to use the flange mounting flange and hole bolts.
### GAS SPRINGS

**STANDARD TYPE**

**GSX**

- **Gas charge hole**
- **Load kgf**
  - 1.93 180 130 49000
  - 1.91 170 125 48000
  - 1.80 155 117 47000
  - 1.75 145 113 45500
  - 1.61 1.45 240 160 31500
  - 1.19 180 130 29000
  - 1.09 155 117 28000
  - 0.90 0.80 220 140 19900
  - 0.70 185 122 19800
  - 0.62 155 105 19700
  - 0.60 145 100 19500
  - 0.59 135 97 19100
  - 0.55 120 88 18800
  - 0.49 105 80 18400
  - 0.47 95 75 17800
  - 0.41 0.57 220 140 9350
  - 0.45 155 105 9250
  - 0.43 145 100 9000
  - 0.42 135 97 8850
  - 0.39 120 88 8700
  - 0.35 105 80 8600
  - 0.32 85 70 8000
  - 0.30 0.57 220 140 9350

- **Order**
- **Price**

**Endurance test results**

- **Catalog No.**
  - GSX38–50
  - GSX50–50

- **Amplitude**
  - 40mm
  - 48mm

- **Mounting direction**
  - MT 0.5°
  - MT 0.9°

- **Coating method**
  - Forced air cooling
  - Forced air cooling

**Allowable eccentricity**

- Alleviates eccentricity: Alleviates eccentricity has been improved.

### Gas spring temperature range

The operating environment temperature range is 0–45°C. Ensure that the surface temperature of the gas spring does not exceed 70°C.

### GSX load characteristic graph

This graph shows the quasi-static characteristics. Actual characteristics vary depending on temperature and operation speed.

**Shot limit**

- **GSX**
  - Stroke (mm)
  - 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80
  - Shot limit (gpm)
  - 220 160 125 100 75 65 55 50 45 40 35

- FIGURE SHOWS FOR REFERENCE ONLY.
## GAS SPRINGS
### STANDARD TYPE

**GAS SPRINGS**

**GSX**

<table>
<thead>
<tr>
<th>Weight (kgf)</th>
<th>D</th>
<th>e</th>
<th>L</th>
<th>H</th>
<th>Load (kgf)</th>
<th>Catalog No.</th>
<th>Base unit price</th>
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<tbody>
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**GSX load characteristic graph**

- This graph shows the quasi-static characteristics. Actual characteristics vary depending on temperature and operation speed.
- Load (kgf) = Load (N) / 9.80665
- Load (kgf) = Load (N) / 100

### Endurance test results

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>GSX32-50</th>
<th>GSX50-50</th>
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<tbody>
<tr>
<td>Angle</td>
<td>45mm</td>
<td>45mm</td>
</tr>
<tr>
<td>Oscillation</td>
<td>50 (g)</td>
<td>50 (g)</td>
</tr>
<tr>
<td>Mounting</td>
<td>180 ° 57</td>
<td>180 ° 57</td>
</tr>
<tr>
<td>Coating</td>
<td>For up to 100°C</td>
<td>For up to 100°C</td>
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</tbody>
</table>

### Allovable eccentricity

Allovable eccentricity has been improved.

**Gas spring temperature range**

The operating environment temperature range is 0 to 45°C. Ensure that the surface temperature of the gas spring does not exceed 70°C.

**GSX load characteristic graph**

- Provided balls: A: B: a: b: P: Catalog No. 1−8: 9 piece
- It is recommended that thread locking compound be applied to the bolts before they are used.

### Shot limit

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>GSX32-40</th>
<th>GSX32-50</th>
</tr>
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<tbody>
<tr>
<td>10</td>
<td>220</td>
<td>160</td>
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<tr>
<td>15</td>
<td>160</td>
<td>120</td>
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<td>20</td>
<td>120</td>
<td>100</td>
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<tr>
<td>25</td>
<td>80</td>
<td>75</td>
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<td>30</td>
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<tr>
<td>35</td>
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<td>45</td>
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<td>50</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>55</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>60</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

**Shot limit**

- Number of shots per minute
- Shot limit may be affected by the operating environment. Figures shown here are for reference only.
GAS SPRINGS

MINI TYPE

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Material</th>
<th>Specification</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGSA</td>
<td>Main body</td>
<td>SACM645</td>
<td>1,300HV</td>
<td>800</td>
</tr>
<tr>
<td>MGSB</td>
<td>Secondary body</td>
<td>SACM645</td>
<td>1,550HV</td>
<td>800</td>
</tr>
</tbody>
</table>

**Price Notes**

- Base unit price: Y—9 pieces
- Special urethane seal: ¥25,000/hole
- Special urethane seal: ¥25,000/hole

---

**GAS SPRINGS (THREADED TYPE)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Material</th>
<th>Specification</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>MGSB</td>
<td>Main body</td>
<td>SACM645</td>
<td>1,300HV</td>
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<tr>
<td>MGSB</td>
<td>Secondary body</td>
<td>SACM645</td>
<td>1,550HV</td>
<td>800</td>
</tr>
</tbody>
</table>

**Price Notes**

- Base unit price: Y—9 pieces
- Special urethane seal: ¥25,000/hole
- Special urethane seal: ¥25,000/hole

---

**Gas Spring Temperature Range**

- The service environment temperature range is 0～40°C. Ensure that the surface temperature of the gas spring does not exceed 70°C.

---

**Endurance Test Results**

- The load increases approximately 300,000 shots due to friction between the rod and special urethane seal.

---

**Load Characteristic Graph for MGSA and MGSB**

- This graph shows the quasi-static characteristics. Actual characteristics vary depending on temperature and operation speed.
The initial load and maximum load vary depending on the temperature and operation speed. The load error is

-0.08
-0.06
-0.04
-0.02
-0.00
Weight
25
19
12
15
38
50
80

bf6

Load characteristic graph for MGSA and MGSB

-0.33
-0.22
-0.16
-0.15
-0.11
-0.08

This graph shows the quasi-static characteristics.

The load increases until approximately 300,000 shots due to friction between the rod and special urethane seal.

Prepare a tap hole for MGSB as shown above, so that the MGSB flange will be in close contact with the mounting surface.

Applicable wrench: Use a PUS wrench (P.133).

The shot limit may be affected by the operating environment. The figures shown here are for reference only.

The shot limit is affected by the operating environment. The figures shown here are for reference only.

Gas spring temperature range

The service environment temperature range is 0~40°C. Ensure that the surface temperature of the gas spring does not exceed 70°C.

MGSB is not an oil-free product.

Surface temperature of the gas spring does not exceed 70°C.

Gas spring temperature range

The service environment temperature range is 0~40°C. Ensure that the surface temperature of the gas spring does not exceed 70°C.

MGSB is not an oil-free product.

After applying initial break-in grease, grease the piston rod at intervals of 10,000 shots. The use of molybdenum disulfide (MoS2) grease is recommended.
### GAS SPRINGS

---ISO/CNMMO STANDARD TYPE---

**GSK**

![Image of GSK Gas Spring]

- **GSK250 – 750**
- **GSK1500 – 3000**

**Specifications**

- **Load-N/kg**
- **Part Number**
- **Compatible GSE**
- **Mounting hole depth d (mm)**

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>D</th>
<th>d</th>
<th>H</th>
<th>h</th>
<th>T</th>
<th>F</th>
<th>G</th>
<th>Top for mounting M4</th>
<th>J</th>
<th>Q</th>
<th>Load-N/kg</th>
<th>Part Number</th>
<th>Compatible GSE</th>
<th>Mounting hole depth d (mm)</th>
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</thead>
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<td>4</td>
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<td>20</td>
<td>2</td>
<td>20600 (266)</td>
<td>GSK250-30</td>
<td>GSK250</td>
<td>37543 (381)</td>
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<tr>
<td>0.60</td>
<td>20</td>
<td>50</td>
<td>16.5</td>
<td>1.6</td>
<td>4</td>
<td>3.5</td>
<td>2</td>
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<td>2</td>
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<td>2</td>
<td>850 (860)</td>
<td>GSK250-30</td>
<td>GSK250</td>
<td>910</td>
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</tbody>
</table>

**Notes**

- **Mounting hole depth d (mm)** means that the GSK mounting hole is shallower than that of GSE.
- **Negative “Mounting hole depth diff.” means that the GSK mounting hole is deeper than that of GSE.

---End---
**Adjustment valve open**

- Make sure to use the gas spring within the specified stroke range so that it does not contact the overstroke check pin.

---

**Features**

- The return time (speed) of the piston rod can be adjusted using the needle valve. To adjust the needle valve, insert a hex wrench into the hexagon socket hole for return speed adjustment.

  - Turn clockwise: The valve closes and the piston rod returns slower.
  - Turn counterclockwise: The valve opens and the piston rod returns faster.

- If the needle valve is tightened too much, the valve may be deformed, resulting in malfunction of the gas spring.

- Do not use two or more gas springs on either the die side or punch side. Because it is difficult to synchronize the return timing of multiple gas springs, the die guide may seize or the die may be damaged.

- If the needle valve is tightened too much, the valve may be deformed, resulting in malfunction of the gas spring.

- Depending on the operating environment, the gas spring may experience an overstroke, which can cause gas leakage and may result in malfunction of the gas spring.

- Do not turn the needle valve stopper. Although it is bonded in place, turning it forcefully may cause gas leakage.

- If the stopper comes off, the needle valve may jump out of the spring.

- Do not use two or more gas springs on either the die side or punch side. Because it is difficult to synchronize the return timing of multiple gas springs, the die guide may seize or the die may be damaged.

- If the needle valve is tightened too much, the valve may be deformed, resulting in malfunction of the gas spring.

- Do not turn the needle valve stopper. Although it is bonded in place, turning it forcefully may cause gas leakage.

- If the stopper comes off, the needle valve may jump out of the spring.

---

**Structure**

- Needle valve
- Overstroke check pin
- Needle valve stopper
- Barrel finishing
- Special structure

---

**Precautions**

- Do not turn the needle valve stopper. Although it is bonded in place, turning it forcefully may cause gas leakage.

- If the stopper comes off, the needle valve may jump out of the spring.

- Do not use two or more gas springs on either the die side or punch side. Because it is difficult to synchronize the return timing of multiple gas springs, the die guide may seize or the die may be damaged.

- If the needle valve is tightened too much, the valve may be deformed, resulting in malfunction of the gas spring.

- Do not turn the needle valve stopper. Although it is bonded in place, turning it forcefully may cause gas leakage.

- If the stopper comes off, the needle valve may jump out of the spring.

---

**Order**

- Catalog No: GSSR
- Days to Ship: Quotation
- Price: Quotation

---

**Example of use**

- GSSR
- GSSR50

---

**Shot limit**

- Stroke: 25, 50, 80
- Shot limit (spm): 14, 10, 5

---

**Limit stroke speed**

- The stroke speed shall not exceed 80mm/sec.

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**GSSR50 cylinder return time**

- This graph shows the mean value from 10 piston rods. Use it only as a reference.

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**Return speed**

- When the piston rod descends, nitrogen gas flows into the auxiliary pressure chamber.

- Because the nitrogen gas in the auxiliary pressure chamber reduces the pressure in the main pressure chamber, the return speed of the piston rod slows down.

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**Load curve**

- Load diagram of GSSR50-50

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**Shot limit**

- Stroke: 25, 50, 80
- Shot limit (spm): 14, 10, 5

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**Limit stroke speed**

- The stroke speed shall not exceed 80mm/sec.
**GAS SPRINGS  — SLOW RETURN TYPE —**

- A gas spring is used in excess of the specified stroke range, gas leakage will occur and the piston rod will not return. Make sure to use the gas spring within the specified stroke range so that it does not contact the overstroke check pin.

### Features
- The return time (speed) of the piston rod can be adjusted using the needle valve. To adjust the needle valve, insert a hex wrench into the hexagon socket hole for return speed adjustment.
  - Turn clockwise: The valve closes and the piston rod returns slower.
  - Turn counterclockwise: The valve opens and the piston rod returns faster.
- The operating environment temperature range is 0℃ to 40℃. Ensure that the surface temperature of the gas spring does not exceed 70℃.
- GSSR can be used without lubrication.
- Do not turn the needle valve stopper. Although it is bonded in place, turning it forcefully may cause gas leakage.
- If the needle valve is tightened too much, the valve may be deformed, resulting in malfunction of the gas spring.
- Do not use two or more gas springs on either the die side or punch side. Because it is difficult to synchronize the return timing of multiple gas springs, the die guide may seize or the die may be damaged.
- If the stopper comes off, the needle valve may jump out of the spring. If a gas spring is used in excess of the specified stroke range, gas leakage will occur and the piston rod will not return. Make sure to use the gas spring within the specified stroke range so that it does not contact the overstroke check pin.

### Structure
- Needle valve stopper
- Overstroke check pin

### Precautions
- Do not use two or more gas springs on either the die side or punch side. Because it is difficult to synchronize the return timing of multiple gas springs, the die guide may seize or the die may be damaged.
- If the needle valve is tightened too much, the valve may be deformed, resulting in malfunction of the gas spring.
- Do not turn the needle valve stopper. Although it is bonded in place, turning it forcefully may cause gas leakage.
- The operating environment temperature range is 0℃ to 40℃. Ensure that the surface temperature of the gas spring does not exceed 70℃.
- GSSR can be used without lubrication.
- For the precautions for use, refer to P.1011.

### Relationship between piston rod return time and needle valve position for GSSR

- This graph shows the average value from 10 piston rods. Use it only as a reference.

### Shot limit
- Shot limit: Number of shots per minute
- The shot limit may be affected by the operating environment. The figures shown here are for reference only.

### Limit stroke speed
- The stroke speed shall not exceed 80mm/sec.
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