

# GAS SPRINGS

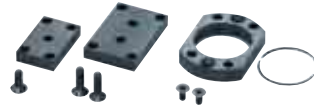
## GAS SPRINGS

Add.



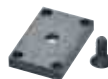
Price Cut  
5%

Add.



Name	— Compact heavy load type —	— Plates for GSX —	— Compact type —	— Plates for GSM —
Catalog No.	GSX	AM	GSM	HM FM
Delivery	①	①	①	①
Page	1011	1012	1013	1014 1014

Add.



— Short type —	— Plates for GSC —	— Heavy load mini type —	— Mini type —	— Threaded type —
GSC	BM	MGSC	MGSA H F	MGSB
①	①	①	① ①	①
1015	1015	1016	1017	1018

New

Delivery Shorten



Add.



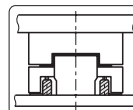
— Extra heavy duty type —	— ISO/CNOMO standard type —	— Plates for GSE —	— Slow return type —
GSR	GSE	SF KF	GSSR
①	①	② ③	①
1019	1021	1022 1022	1023

### Comparison of GSM · MGSC · GSX · GSC

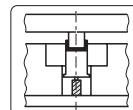
TYPE	GSM P.1013		MGSC P.1016		GSX P.1011		GSC P.1015	
	D-S	L	D-S	L	D-S	L	D-S	L
16-10	—	—	55	1000	—	—	—	—
16-15	—	—	65	1000	—	—	—	—
16-25	—	—	85	1020	—	—	—	—
16-38	—	—	111	—	—	—	—	—
19-10	—	—	55	—	—	—	—	—
19-15	85	—	65	1700	—	—	—	—
19-25	105	—	85	1730	—	—	—	—
19-38	135	1500	111	—	—	—	—	—
19-50	160	(153)	—	—	—	—	—	—
19-63	190	—	—	—	—	—	—	—
19-80	220	—	—	—	—	—	—	—
25-10	—	—	55	—	—	—	—	—
25-15	85	—	65	3600	—	—	—	—
25-25	105	3000	85	(367)	—	—	—	—
25-38	135	(306)	111	—	—	—	—	—
25-50	160	—	—	—	—	—	—	—
25-63	190	—	—	—	—	—	—	—
25-80	225	—	—	—	—	—	—	—
32-10	75	—	—	—	75	—	—	—
32-15	85	—	—	—	85	55	—	—
32-25	105	—	—	—	105	65	3750	—
32-38	135	5000	—	—	135	85	(382)	—
32-50	160	(510)	—	—	155	111	—	—
32-63	195	—	—	—	—	135	—	—
32-80	230	—	—	—	—	195	3750	3820
38-10	75	—	—	—	75	—	—	—
38-15	85	—	—	—	85	55	—	—
38-25	105	—	—	—	105	65	9030	7500
38-38	135	10000	—	—	135	85	(921)	(765)
38-50	160	(1020)	—	—	155	111	—	—
38-63	205	—	—	—	—	135	—	—
38-80	240	—	—	—	—	155	7500	7650
50-10	90	—	—	—	—	—	—	—
50-15	115	—	—	—	75	60	—	—
50-25	135	—	—	—	85	70	15000	15300
50-38	165	20000	—	—	105	90	(1937)	—
50-50	190	(2039)	—	—	135	116	—	—
50-63	220	—	—	—	155	140	—	—
50-80	255	—	—	—	—	200	15000	15300
63-10	95	—	—	—	—	—	—	—
63-15	115	—	—	—	75	—	—	—
63-25	135	—	—	—	85	—	—	—
63-38	165	30000	—	—	105	90	31000	—
63-50	190	(3059)	—	—	135	116	(3161)	—
63-63	220	—	—	—	155	—	—	—
63-80	255	—	—	—	205	—	—	—
63-80	255	—	—	—	240	—	—	—

Printed in red are new products

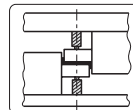
### Usage examples of gas springs



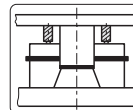
As a cushion for blank holder



As a source for padding in a bending die



For double-action bending



As a source for stripping in a punching die

Use guide pin bushings and heel guides in order not to apply an eccentric load.

### New product and standard expansion

<b>New product</b>	MGSC (P.1016)	Total of 12
<b>Standard expansion</b>	GSX (P.1011)	11 added, making total of 21.
	GSM (P.1013)	17 added, making total of 40.
	GSC (P.1015)	3 added, making total of 18.
	GSE (P.1021)	10 added, making total of 43.

Gas springs overall 53 added, making total of 186 (40% increase compared to previous number).

The lineup has been expanded to enable the optimum spring to be selected according to the die space.

# GAS SPRING — GUIDE —

Printed in red are new products

## Gas spring selection guide

Model	Page	Features
<b>GSX</b>	P.1011	New compact high-load type which has an allowable eccentricity of 15 times that of the conventional product. (Based on comparison with Misumi's conventional product.)
<b>GSM</b>	P.1013	Original compact, high-load type. Features a wide lineup (0.2 to 5.5 t).
<b>GSC</b>	P.1015	Super-compact type which boasts particularly short total length
<b>MGSC</b>	P.1016	New Arrival "Small size, heavy load" Smaller and higher heavy load endurance than existing types.
<b>MGSA</b>	P.1017	Small diameter type with large choice of strokes (10 ~ 80 mm)
<b>MGSB</b>	P.1018	Small diameter, screw-in type. Requires periodic lubrication with grease.
<b>GSR</b>	P.1019	This type has a completely sealed construction (patented) which employs a "metal bellows", resulting in extremely high durability
<b>GSE</b>	P.1021	Conforms to ISO (international standard) and CNOMO (French standard). Available in a wide range (25 ~ 200 mm) of strokes.
<b>GSSR</b>	P.1023	High-added-value type which incorporates a slow return function

Model	Page	Allowable eccentricity	Lubrication method	Delivery period
<b>GSX</b>	P.1011	0.3/100mm	Oil-free	In stock
<b>GSM</b>	P.1013	0.02/100mm	Oil-free	In stock
<b>GSC</b>	P.1015	0.02/100mm	Oil-free	In stock
<b>MGSC</b>	P.1016	0.02/100mm	Oil-free	In stock
<b>MGSA</b>	P.1017	0.02/100mm	Oil-free	In stock
<b>MGSB</b>	P.1018	0.02/100mm	Requires periodic lubrication with grease.	In stock
<b>GSR</b>	P.1019	0.3/100mm	Oil-free	In stock
<b>GSE</b>	P.1021	0.3/100mm	Oil-free	3 days
<b>GSSR</b>	P.1023	0.02/100mm	Oil-free	In stock

Model	Standard table																																																																																																								
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# PRECAUTIONS FOR USE OF GAS SPRINGS

## — GUIDE —

### ■ Precautions for using gas springs

If a gas spring is used in the following way, a major accident, such as an explosion, or product trouble may occur.

#### ■ Danger prevention

① Never disassemble, weld, fuse, heat or modify a gas spring.

A gas spring contains high-pressure gas, so if you fail to heed this precaution the parts are liable to fly about.

② You cannot re-charge a gas spring with gas or adjust the pressure.

If you attempt to re-charge a gas spring, a major accident, such as an explosion, is likely to occur.

③ The working ambient temperature range of a gas spring is 0 ~ 40°C (32 ~ 104°F).

Use a gas spring within this temperature range.

If a gas spring overheats, a major accident, such as an explosion, is likely to occur. Also, the gas seal deteriorates due to heat, which may result in gas leakage.

#### ■ Disposal method

④ Wear protective goggles, bleed off the gas inside the cylinder, and then dispose of the gas spring.

GSR: Make a 3 mm hole at the position of the punch mark of the plug at the center of the bottom face.

GSX, GSM, GSC, GSSR, MGSH, MGSA, MGSB and GSB: Make a hole that passes through the bolt hole.

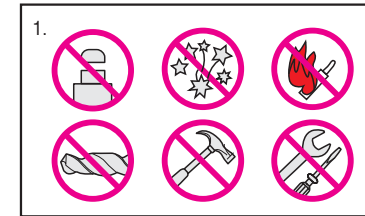
Confirm that the nitrogen gas has been bled off completely, and then dispose of the gas spring.

#### ■ Gas leakage prevention

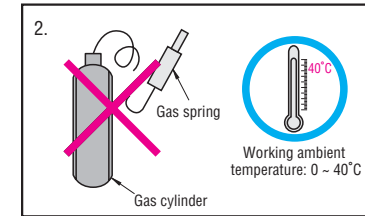
⑤ Do not use the gas spring in the following ways.

Failure to observe this precaution may result in gas leakage and other trouble. Also a major accident, such as an explosion, may occur.

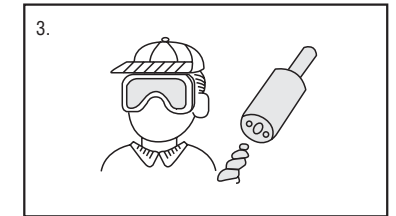
Methods of use that are considered problematical	Phenomena that may occur	Result
a Application of an oblique load or a transverse load	Eccentric load and/or Damage	Gas leakage
b Gas spring is not bolted fixed.		
c There are no sub-guides, or they are insufficient in number.		
d The load distribution at the front, rear, left and right of the inside the die is not uniform.		
e There is an obstacle touching the gas spring inside the die.		
f The gas spring is fixed using the screw hole at the end of the piston rod.		
g An extension pin is installed on the piston rod.		
h The piston rod is not pushed face on.		
i The load receiving face of the piston rod is deformed.		
j The piston rod was cut.		
k Welding spatter adheres to the piston rod.	Seal damage	Gas leakage and/or explosion, etc.
l Cutting chips and metallic dust adhere to the piston rod.		
m The piston rod is dented.		
n The shot count limit is exceeded.		
o The spring is immersed in lubricating oil.		
p The gas spring is exposed to moisture, steam or chemicals.		
q The gas spring was re-charged with gas or the pressure was adjusted.	Reduction of durability	Gas leakage and/or explosion, etc.
r The gas spring is used at high temperature (40°C or above) or low temperature (0°C or below).		
s Overstocking		
t The cylinder was ground.		
u The piston rod was abruptly released.		
v The gas spring was used or stored outdoors or in a humid location.		
w The gas spring was disassembled, welded, fused, heated or modified.	Unexpected problems	Gas leakage and/or explosion, etc.
x The gas spring is built into a building or a vehicle.		
y Other unexpected method of use (use other than in a die)		



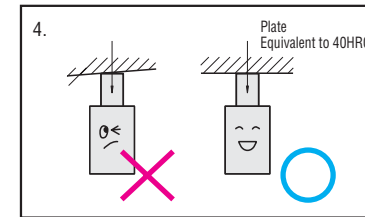
Never disassemble, weld, fuse, heat or modify a gas spring.



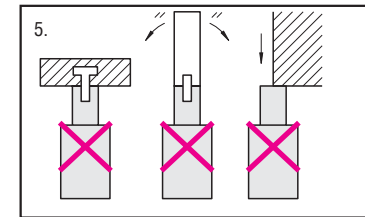
Do not re-charge the gas spring with gas, or adjust the pressure. The working ambient temperature range is between 0 and 40°C.



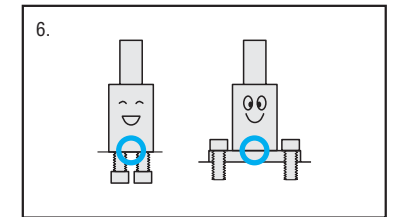
Wear protective goggles, bleed off the gas and then dispose of the gas spring.



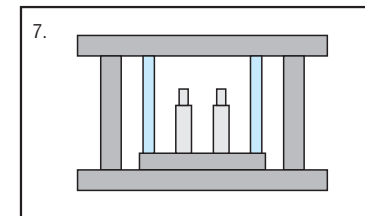
Do not apply an oblique load or a transverse load.



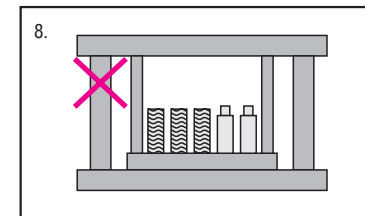
Do not fix the gas spring using the screw hole at the end, install an extension pin, or push down only on one side.



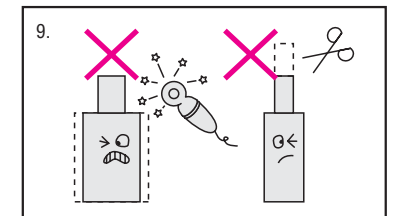
Fix the gas spring with bolts and the flange.



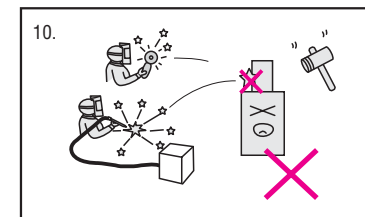
Use sub-guide pins to prevent the occurrence of eccentric loads.



Make the load uniform.



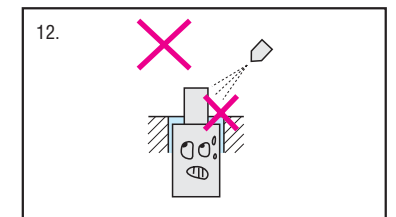
Never grind the cylinder or cut the piston rod.



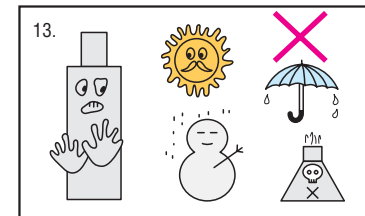
Be careful of the adhesion of welding spatter, cutting chips and metal dust.



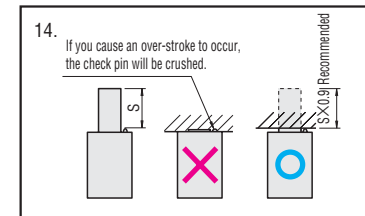
Do not exceed the shot count limit.



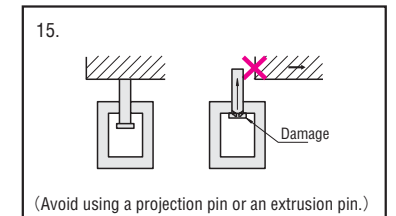
Do not immerse the gas spring in lubricating oil.



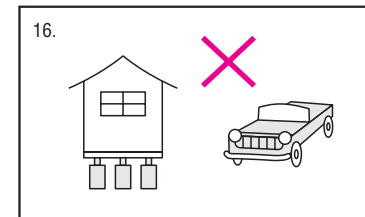
Never use or store the gas spring outdoors or in a humid location.



Do not cause an over-stroke to occur.



Do not abruptly release the piston rod.



Do not build the gas spring into a building or a vehicle.



Do not use other than in a die.

#### ■ Allowable eccentricity

If you apply an eccentric load, gas leakage may occur.

Catalog No.	Allowable eccentricity
GSX	0.3/100mm
GSR	
GSE	
GSM	0.02/100mm
GSC	
MGSC	
MGSA	
MGSB	
GSSR	