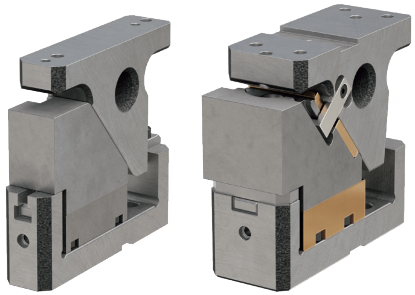
Product Information

- **CMSD** :Cast iron and solid lubricant sliding, Coil spring type
- **CMSDG**:Bronze and solid lubricant sliding, Gas spring type Higher working force
- Ensured rigidity and durability by CAE analysis and endurance test
- Interchangeable between CMSD and CMSDG



Catalog No.	Mount face W	Mount face H	Working Angle	Travel	Working Force [kN (tonf)] Standard Working Force 1,000,000 strokes	Working Force [kN (tonf)] Allowable Working Force 300,000 strokes
CMSD	52	75	00	55	19.6 (2.0)	39.2 (4.0)
			05			
			10			
			15			
			20			
	90	82	00		38.2 (3.9)	76.4 (7.8)
			05			
			10			
			15			
CMSDG	52	75	00	55	39.2 (4.0)	58.8 (6.0)
			05			
			10			
			15			
			20			
	90	82	00		58.8 (6.0)	88.2 (9.0)
			05			
			10			
			15			

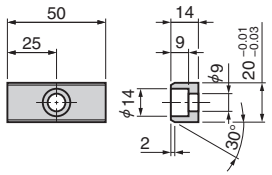
Refer to page 929 for CMSDG working force distribution diagram.

■Option of CMSD・CMSDG

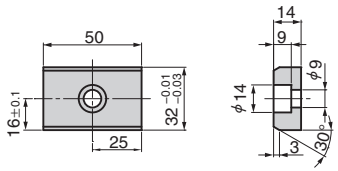
- **Key Specification (−K)**

CMSD52
LKU20-50 (2 pcs, with M8)

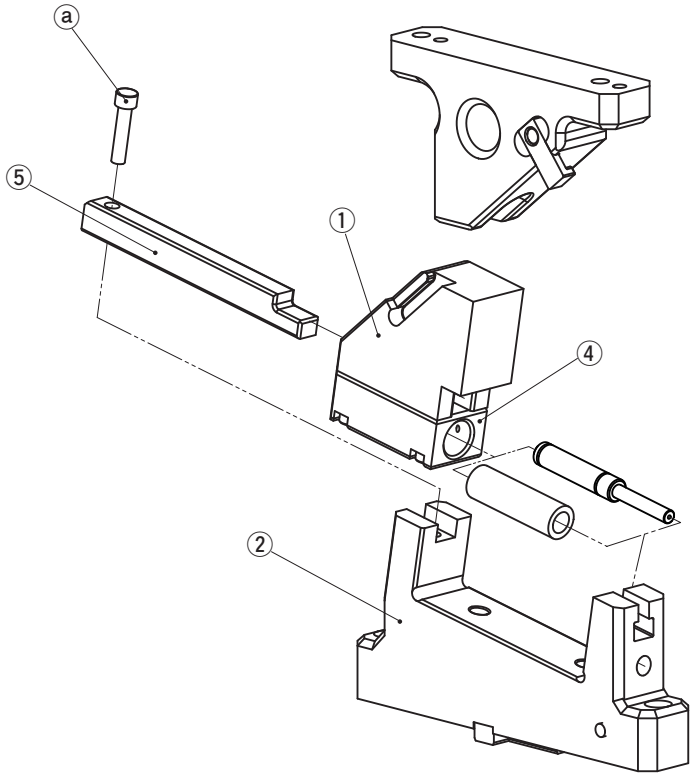
CMSDG52
LKU20-50 (3 pcs, with M8)



CMSD90・CMSDG90
LKU32-50 (2 pcs, with M8)



■CMSD・CMSDG Assembly Instructions



● Disassembly

1) Remove Hexagon Socket Head Bolt (ⓐ), pull out Guide Bar (⑤) from Cam Holder (②) to the rear for 30 mm, and then remove Guide Bar and Cam Slider (①④).
2) Pull up Guide Bar to remove from Cam Slider.

● Assembly

Assembly is the reverse procedure of disassembly.

- Ensure that all parts are clean, particularly the sliding components, to which a small amount of lubricant is applied and is then placed on position.
- Take care the respective tolerances are observed when assembling Guide Bar, Cam Slider and Cam Holder, which also should be identified by the same serial number.
- Ensure that all bolts are tightened to the recommended torque.

⚠ Gas Spring

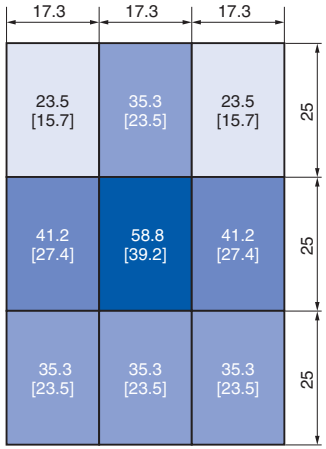
Please contact your local sales representative if you prefer to use a gas spring not specified in our catalog. For use and maintenance of gas spring, please contact the manufacturer directly.

■CMSDG Working Force Distribution Diagram

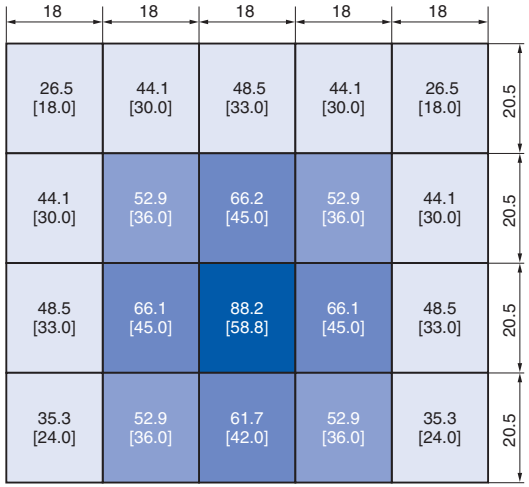
The working forces indicated in the mount face distribution diagram are reached by putting the tooling center of gravity within each area for the following pictures.

: Working force (kN) allowed for up to 300,000 strokes
[ ]: Working force (kN) allowed for up to 1,000,000 strokes

CMSDG52

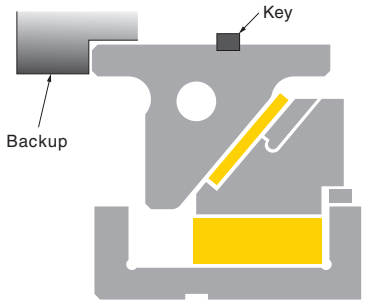


CMSDG90



■CMSDG Backup Settings with Increased Working Force

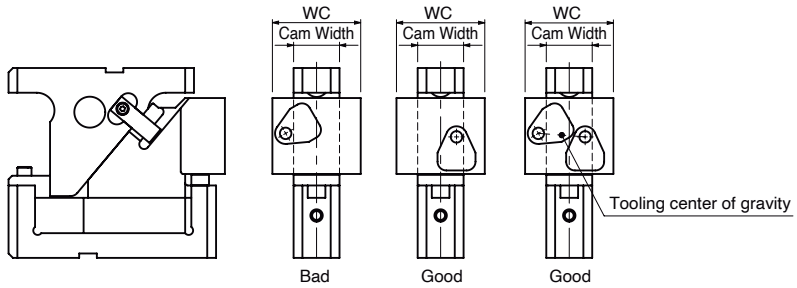
Set a backup or a key for the cam driver when using CMSDG at more than following working force.



W	Working Force [kN (tonf)]
	Standard Working Force 1,000,000 strokes
52	39.2 (4.0)
90	58.8 (6.0)

■CMSD･CMSDG Installation Range of Piercing Punch

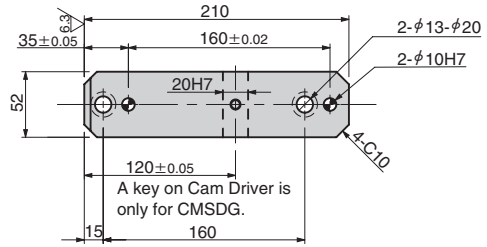
Make sure to mount a tool not to stick out of the cam unit and to keep tooling center of gravity within cam slider width.



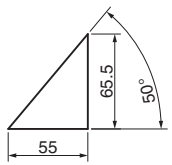
Die Mounted Cam Unit

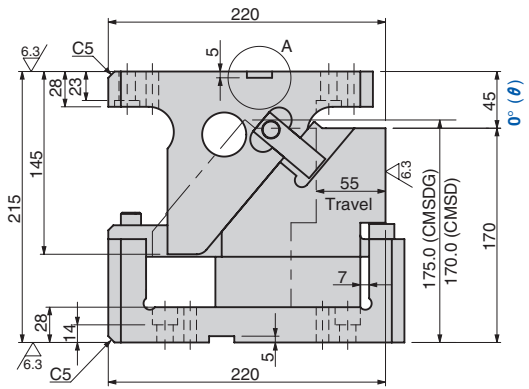
CMSD52-00-55
CMSDG52-00-55

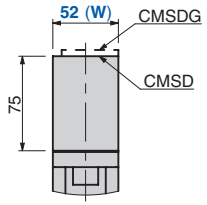
CAD FILE

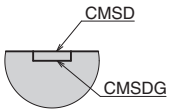


● Cam Diagram

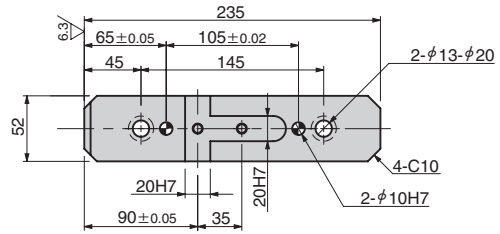


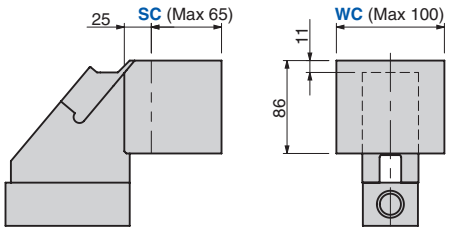






A: No key groove on CMSD Cam Driver.





Refer to page 941, 942 for Table of Components.

Working Force [kN (tonf)]		Spring Force [N (kgf)]		Total Weight kg	Catalog No.	W	θ	Travel S	Spring Type PS
Standard Working Force 1,000,000 strokes	Allowable Working Force 300,000 strokes	Initial Load	Final Load						
19.6 (2.0)	39.2 (4.0)	85.3 (8.7)	606.7 (62.1)	14.2	CMSD	52	00	55	No Code (Coil Spring)
39.2 (4.0)	58.8 (6.0)	—	2465.0 (251.5)	13.7	CMSDG	52	00	55	GK NGK GD NGD

No Code: Coil Spring GK: Gas Spring (KALLER) GD: Gas Spring (DADCO)
NGK/NGD: Without Gas Spring Parts for spring assembly are included.

Order

Catalog No.	W	—	θ	—	S	—	PS	—	Option
CMSD	52	—	00	—	55				
CMSD	52	—	00	—	55				— SC5 — WC100
CMSDG	52	—	00	—	55	—	GK		— NF — SC10 — WC100 — K

Option

Option Code	Specification
NF	Nitrogen gas not charged.
SC	Mount face length is extended from 0 to 65 mm in increments of 1 mm.
WC	The width of the mount face is extended from 53 to 100 mm in increments of 1 mm.
K	Key attached.

Refer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.
Refer to page 927 for key specification.

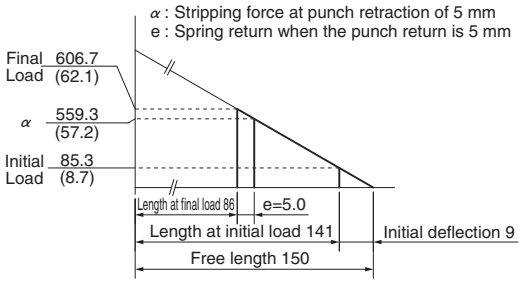
■Spring Specification

No.	PS	Spring Model	Qty	Remark
	No Code	SWS26-150	1	Coil Spring 9.48 N/mm (0.97 kgf/mm)
9	GK	X320-63-TD	1	Gas Spring (KALLER)
	GD	U.0325.063.TO	1	Gas Spring (DADCO)

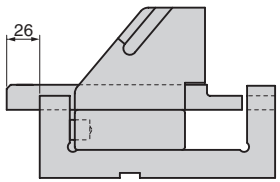
Gas filling pressure is 10 MPa.
Life expectancy of Coil Spring is approximately 300,000 strokes.

■Spring Diagram

・Spring Model SWS26-150 (1 piece)



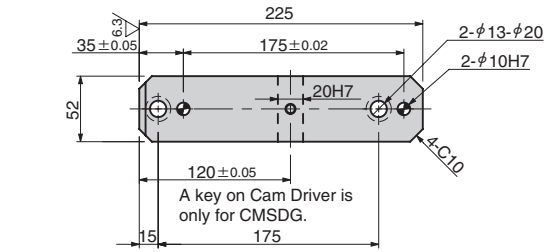
■Rear Removal Space



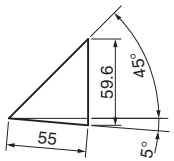
Die Mounted Cam Unit

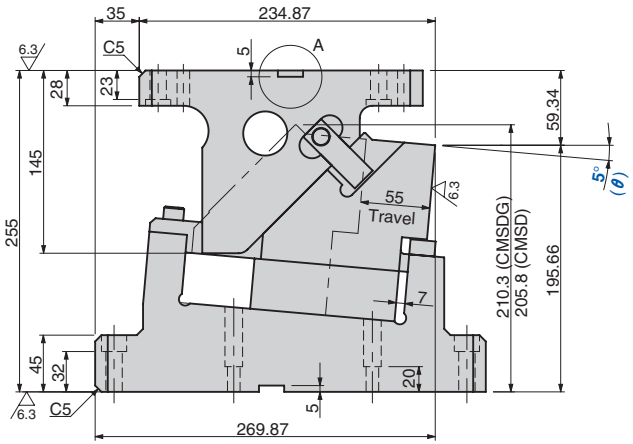
CMSD52-05-55
CMSDG52-05-55

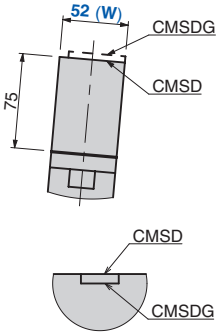
CAD FILE



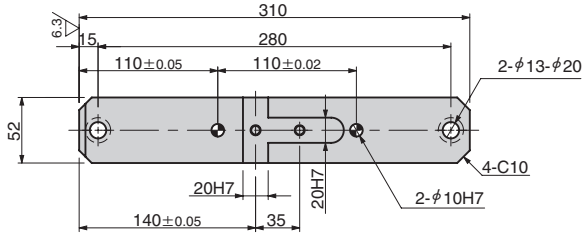
● Cam Diagram

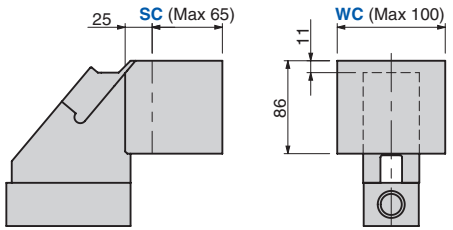






A: No key groove on CMSD Cam Driver.





Refer to page 941, 942 for Table of Components.

Working Force [kN (tonf)]		Spring Force [N (kgf)]		Total Weight kg	Catalog No.	W	θ	Travel S	Spring Type PS
Standard Working Force 1,000,000 strokes	Allowable Working Force 300,000 strokes	Initial Load	Final Load						
19.6 (2.0)	39.2 (4.0)	85.3 (8.7)	606.7 (62.1)	18.5	CMSD	52	05	55	No Code (Coil Spring)
39.2 (4.0)	58.8 (6.0)	—	2465.0 (251.5)	19.2	CMSDG	52	05	55	GK NGK GD NGD

No Code: Coil Spring GK: Gas Spring (KALLER) GD: Gas Spring (DADCO)
NGK/NGD: Without Gas Spring Parts for spring assembly are included.

Order

Catalog No.	W		θ		S		PS		Option
CMSD	52	–	05	–	55				
CMSD	52	–	05	–	55				– SC5 – WC100
CMSDG	52	–	05	–	55	–	GK		– NF – SC10 – WC100 – K

Option

Option Code	Specification
NF	Nitrogen gas not charged.
SC	Mount face length is extended from 0 to 65 mm in increments of 1 mm.
WC	The width of the mount face is extended from 53 to 100 mm in increments of 1 mm.
K	Key attached.

Refer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.
Refer to page 927 for key specification.

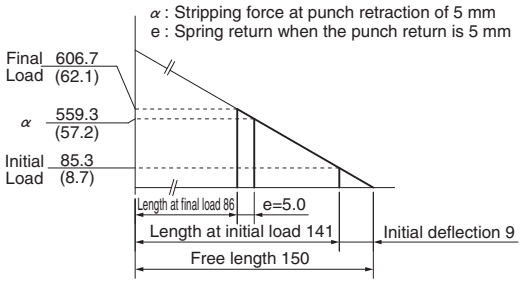
■Spring Specification

No.	PS	Spring Model	Qty	Remark
	No Code	SWS26-150	1	Coil Spring 9.48 N/mm (0.97 kgf/mm)
9	GK	X320-63-TD	1	Gas Spring (KALLER)
	GD	U.0325.063.TO	1	Gas Spring (DADCO)

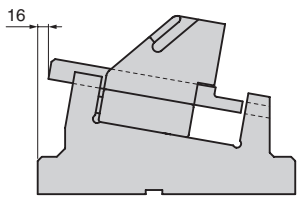
Gas filling pressure is 10 MPa.
Life expectancy of Coil Spring is approximately 300,000 strokes.

■Spring Diagram

・Spring Model SWS26-150 (1 piece)

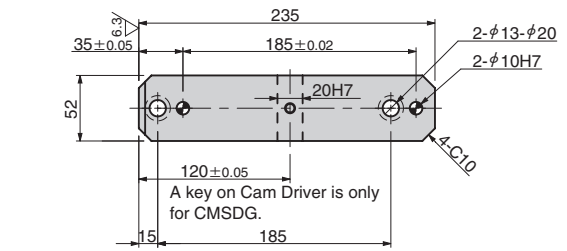


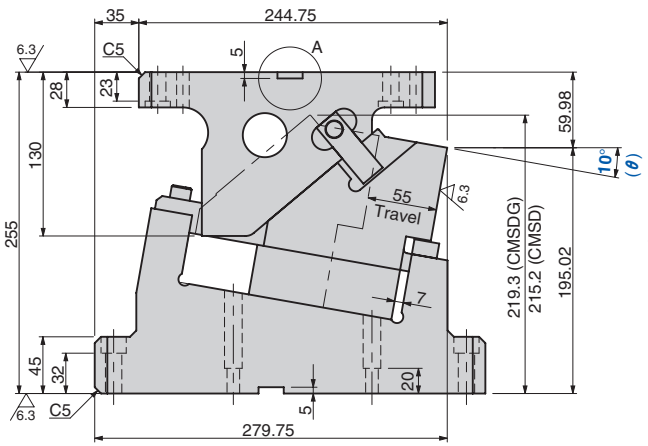
■Rear Removal Space

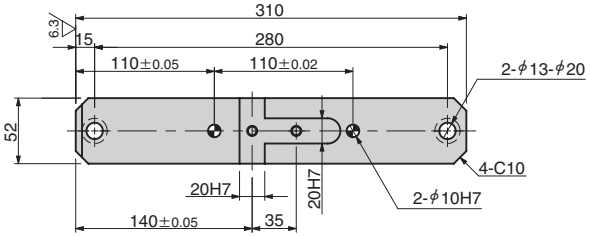


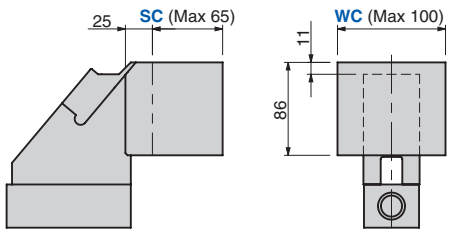
Die Mounted Cam Unit

CMSD52-10-55
CMSDG52-10-55

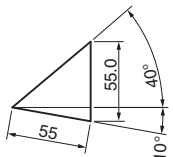


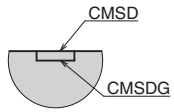




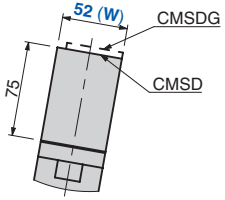


● Cam Diagram





A: No key groove on CMSD Cam Driver.



Refer to page 941, 942 for Table of Components.

Working Force [kN (tonf)]		Spring Force [N (kgf)]		Total Weight kg	Catalog No.	W	θ	Travel S	Spring Type PS
Standard Working Force 1,000,000 strokes	Allowable Working Force 300,000 strokes	Initial Load	Final Load						
19.6 (2.0)	39.2 (4.0)	85.3 (8.7)	606.7 (62.1)	19.4	CMSD	52	10	55	No Code (Coil Spring)
39.2 (4.0)	58.8 (6.0)	—	2465.0 (251.5)	20.1	CMSDG	52	10	55	GK NGK GD NGD

No Code: Coil Spring GK: Gas Spring (KALLER) GD: Gas Spring (DADCO)
NGK/NGD: Without Gas Spring Parts for spring assembly are included.

Order

Catalog No.	W		θ		S		PS		Option
CMSD	52	—	10	—	55				
CMSD	52	—	10	—	55				— SC5 — WC100
CMSDG	52	—	10	—	55	—	GK		— NF — SC10 — WC100 — K

Option

Option Code	Specification
NF	Nitrogen gas not charged.
SC	Mount face length is extended from 0 to 65 mm in increments of 1 mm.
WC	The width of the mount face is extended from 53 to 100 mm in increments of 1 mm.
K	Key attached.

Refer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.
Refer to page 927 for key specification.

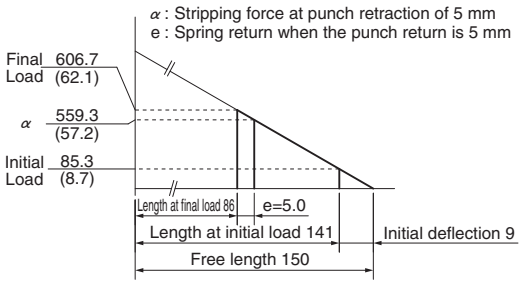
■Spring Specification

No.	PS	Spring Model	Qty	Remark
	No Code	SWS26-150	1	Coil Spring 9.48 N/mm (0.97 kgf/mm)
9	GK	X320-63-TD	1	Gas Spring (KALLER)
	GD	U.0325.063.TO	1	Gas Spring (DADCO)

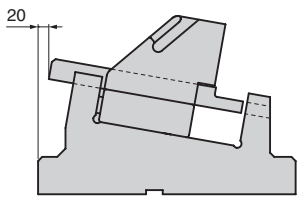
Gas filling pressure is 10 MPa.
Life expectancy of Coil Spring is approximately 300,000 strokes.

■Spring Diagram

・Spring Model SWS26-150 (1 piece)



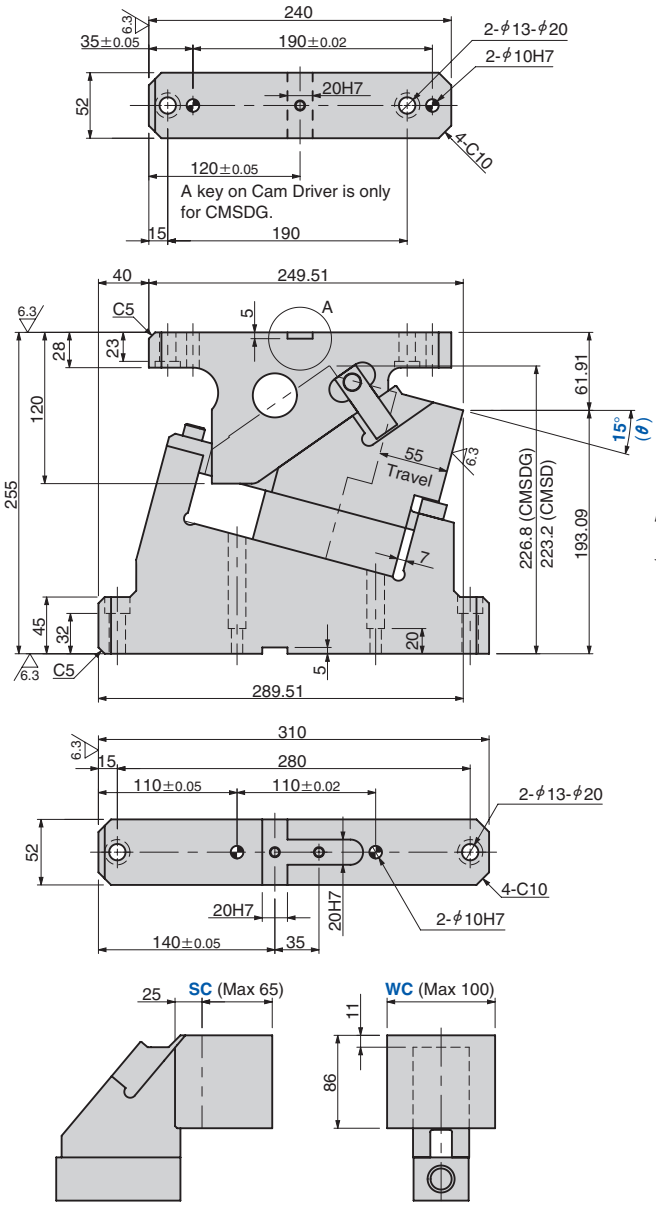
■Rear Removal Space



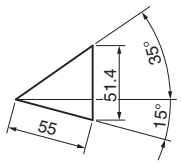
Die Mounted Cam Unit

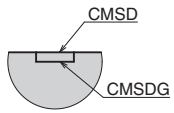
CMSD52-15-55
CMSDG52-15-55

CAD FILE

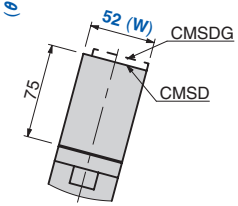


● Cam Diagram





A: No key groove on CMSD Cam Driver.



Refer to page 941, 942 for Table of Components.

Working Force [kN (tonf)]		Spring Force [N (kgf)]		Total Weight kg	Catalog No.	W	θ	Travel S	Spring Type PS
Standard Working Force 1,000,000 strokes	Allowable Working Force 300,000 strokes	Initial Load	Final Load						
19.6 (2.0)	39.2 (4.0)	85.3 (8.7)	606.7 (62.1)	20.0	CMSD	52	15	55	No Code (Coil Spring)
39.2 (4.0)	58.8 (6.0)	—	2465.0 (251.5)	20.7	CMSDG	52	15	55	GK NGK GD NGD

No Code: Coil Spring GK: Gas Spring (KALLER) GD: Gas Spring (DADCO)
NGK/NGD: Without Gas Spring Parts for spring assembly are included.

Order

Catalog No.	W	—	θ	—	S	—	PS	—	Option
CMSD	52	—	15	—	55				
CMSD	52	—	15	—	55				— SC5 — WC100
CMSDG	52	—	15	—	55	—	GK		— NF — SC10 — WC100 — K

Option

Option Code	Specification
NF	Nitrogen gas not charged.
SC	Mount face length is extended from 0 to 65 mm in increments of 1 mm.
WC	The width of the mount face is extended from 53 to 100 mm in increments of 1 mm.
K	Key attached.

Refer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.
Refer to page 927 for key specification.

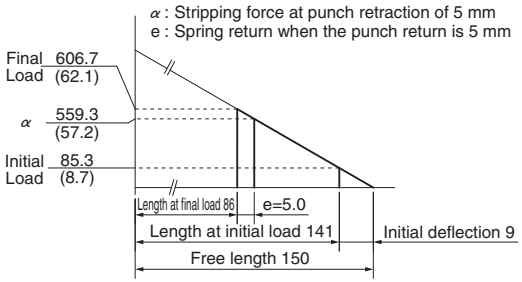
■Spring Specification

No.	PS	Spring Model	Qty	Remark
	No Code	SWS26-150	1	Coil Spring 9.48 N/mm (0.97 kgf/mm)
9	GK	X320-63-TD	1	Gas Spring (KALLER)
	GD	U.0325.063.TO	1	Gas Spring (DADCO)

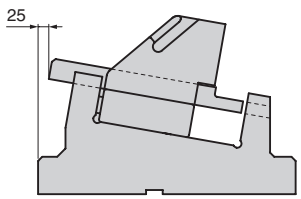
Gas filling pressure is 10 MPa.
Life expectancy of Coil Spring is approximately 300,000 strokes.

■Spring Diagram

・Spring Model SWS26-150 (1 piece)



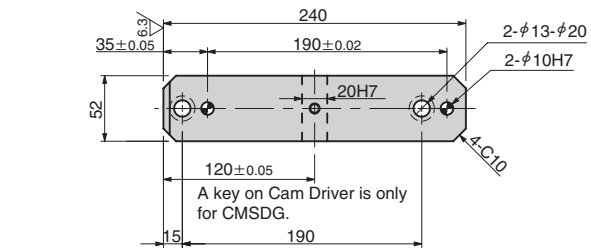
■Rear Removal Space



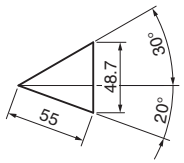
Die Mounted Cam Unit

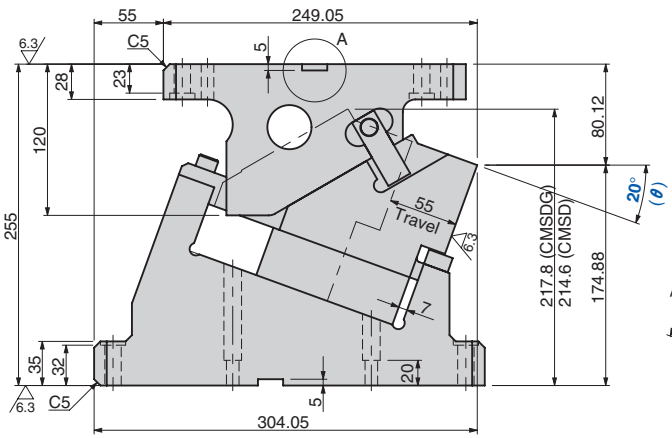
CMSD52-20-55
CMSDG52-20-55

CAD FILE

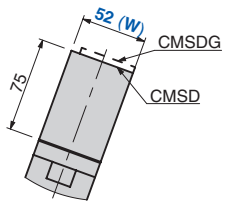


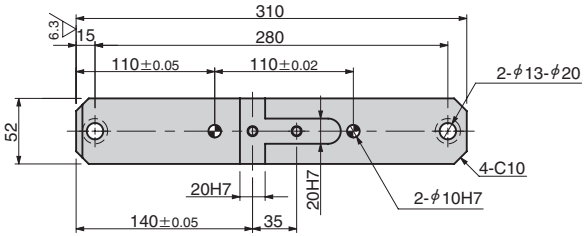
● Cam Diagram

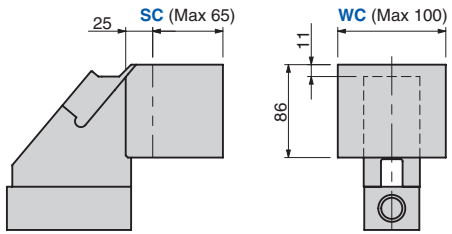




A: No key groove on CMSD Cam Driver.







Refer to page 941, 942 for Table of Components.

Working Force [kN (tonf)]		Spring Force [N (kgf)]		Total Weight kg	Catalog No.	W	θ	Travel S	Spring Type PS
Standard Working Force 1,000,000 strokes	Allowable Working Force 300,000 strokes	Initial Load	Final Load						
19.6 (2.0)	39.2 (4.0)	85.3 (8.7)	606.7 (62.1)	19.5	CMSD	52	20	55	No Code (Coil Spring)
39.2 (4.0)	58.8 (6.0)	—	2465.0 (251.5)	20.3	CMSDG	52	20	55	GK NGK GD NGD

No Code: Coil Spring GK: Gas Spring (KALLER) GD: Gas Spring (DADCO)
NGK/NGD: Without Gas Spring Parts for spring assembly are included.

Order

Catalog No.	W	—	θ	—	S	—	PS	—	Option
CMSD	52	—	20	—	55				
CMSD	52	—	20	—	55				— SC5 — WC100
CMSDG	52	—	20	—	55	—	GK		— NF — SC10 — WC100 — K

Option

Option Code	Specification
NF	Nitrogen gas not charged.
SC	Mount face length is extended from 0 to 65 mm in increments of 1 mm.
WC	The width of the mount face is extended from 53 to 100 mm in increments of 1 mm.
K	Key attached.

Refer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.
Refer to page 927 for key specification.

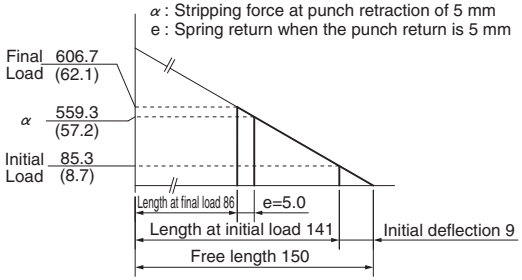
■Spring Specification

No.	PS	Spring Model	Qty	Remark
	No Code	SWS26-150	1	Coil Spring 9.48 N/mm (0.97 kgf/mm)
9	GK	X320-63-TD	1	Gas Spring (KALLER)
	GD	U.0325.063.TO	1	Gas Spring (DADCO)

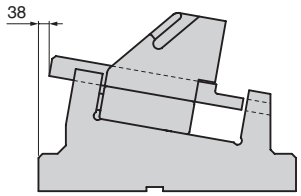
Gas filling pressure is 10 MPa.
Life expectancy of Coil Spring is approximately 300,000 strokes.

■Spring Diagram

・Spring Model SWS26-150 (1 piece)



■Rear Removal Space

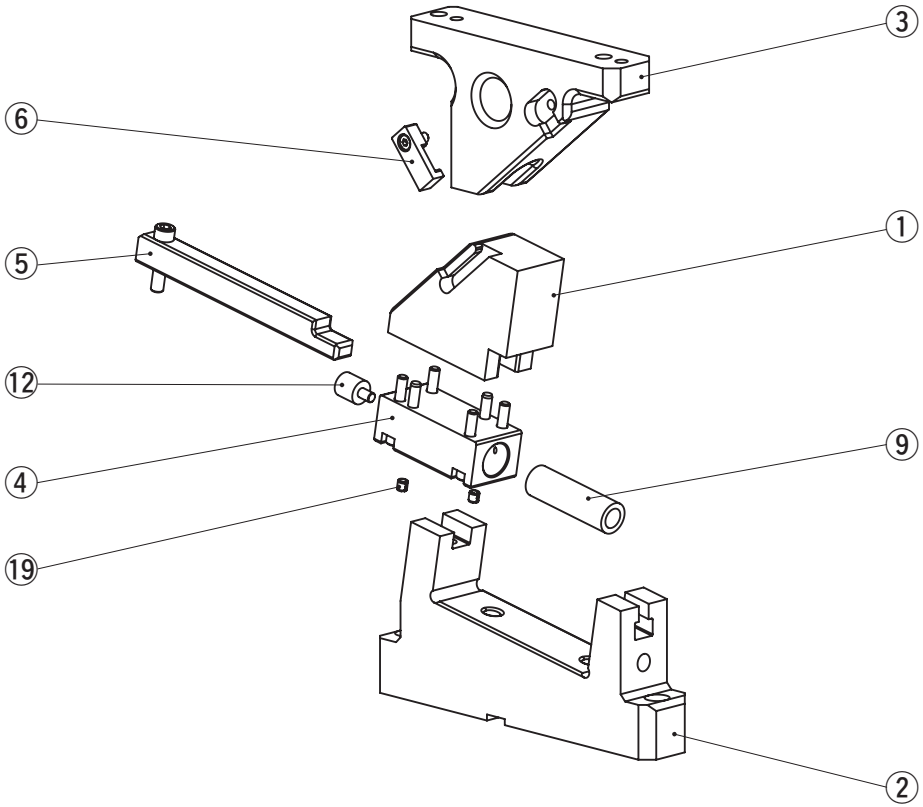


NEW CMSD·CMSDG [Table of Components]

For Pierce

Die Mounted Cam Unit

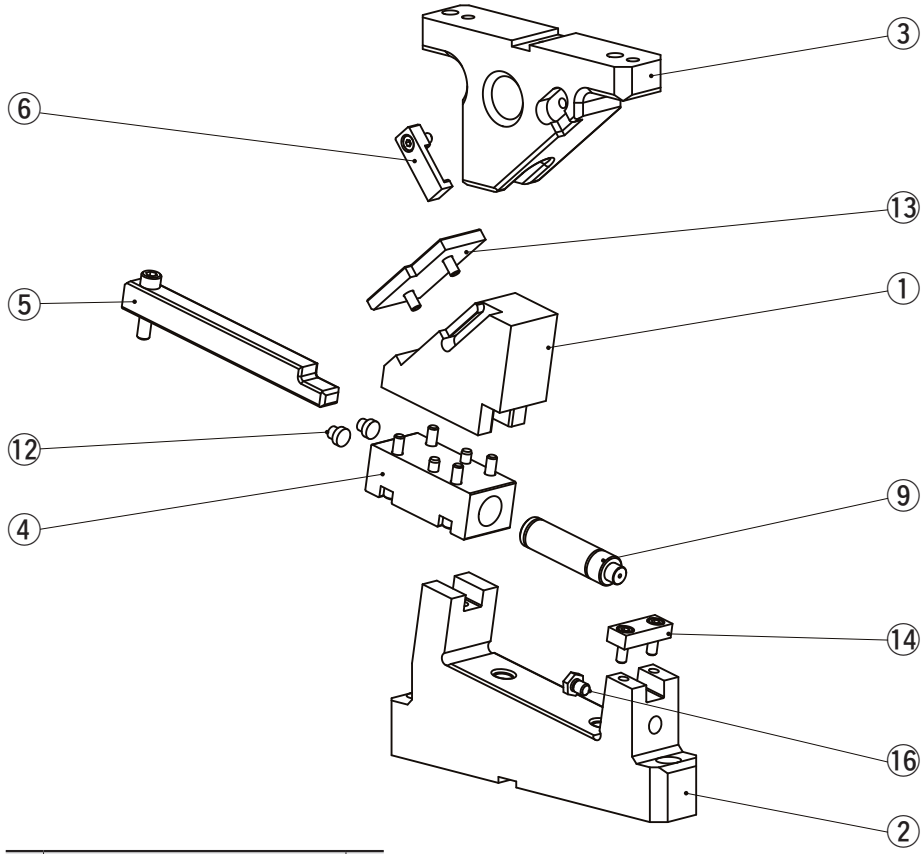
CMSD52



No.	Description	Qty
1	Cam Slider	1
2	Cam Holder	1
3	Cam Driver	1
4	Cam Lower Slider	1
5	Guide Bar	1
6	Positive Return Follower	1
9	Coil Spring	1
12	Stopper	1
19	Spring Plug	2

Bolts, nuts, dowels, and washers for assembly are not indicated.

CMSDG52



No.	Description	Qty
1	Cam Slider	1
2	Cam Holder	1
3	Cam Driver	1
4	Cam Lower Slider	1
5	Guide Bar	1
6	Positive Return Follower	1
9	Gas Spring	1
12	Stopper	2
13	Wear Plate	1
14	Block	1
16	Stop Pin	1

Bolts, nuts, dowels, and washers for assembly are not indicated.