

# **Aerial Cam Unit General Description of UCMSG**

#### **FOR PIERCE AND FLANGE**

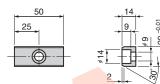


- Highly rigid structure with the overseas automobile manufacturer specification
- ●50, 65, 80, 150, 200mm and 300mm are available for the mounting width.
- Angle 0° to 65° increments of 5° is available.
   (For 65 mm wide, angle 20° to 60° is in increments of 10°).
- ●ISO springs are used.

#### **■** Option for UCMSG

Metric Key Specification(-K)
 UCMSG50/65

LKU20-50 (with 3-M8  $\times$  15 bolts)

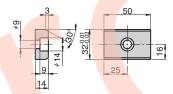


UCMSG80

LKU32-50 (with 3-M8 imes 15 bolts)

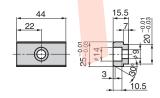
UCMSG150/200/300

LKU32-50 (with  $6-M8 \times 15$  bolts)



# Metric Key Specification(-KA) UCMSG50

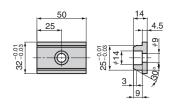
LKA25-20-44 (with 3-M8  $\times$  15 bolts)



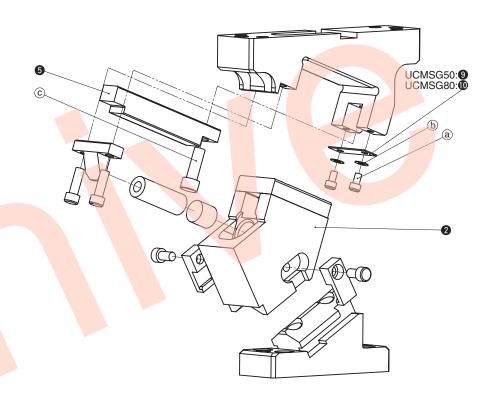
#### UCMSG80

LKE25-32-50 (with 3-M8 × 15 bolts) UCMSG150/200/300

LKE25-32-50 (with 6-M8  $\times$  15 bolts)



#### ■UCMSG50 (UCMSG80) Structure and Assembly / Disassembly



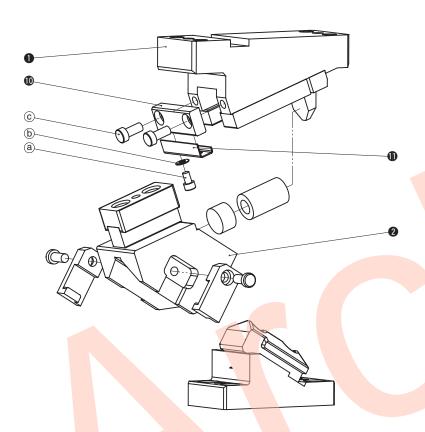
- Disassembly method of UCMSG50 (same for UCMSG80)
  - 1) Remove hexagon socket head bolt (ⓐ) and washer (ⓑ) and remove safety plate (UCMSG50: ① UCMSG80: ①).
  - 2) Remove hexagon socket head bolt (©).
  - 3) Shift guide bar (5) to the back then remove cam slider (2) from cam holder.
- Assembly method of UCMSG50 (same for UCMSG80)
  - 1) Assemble components in the reverse order of disassembly.
  - Make sure that there is no foreign matter on the sliding area and assemble components.
  - The clearance between the guide bar/cam slider and the cam holder is controlled. Match the stamped serial number on the holder and slider before assembly.
  - When cam is disassembled and then reassembled, please do not forget to assemble all bolts provided



# **Aerial Cam Unit General Description of UCMSG**

**FOR PIERCE AND FLANGE** 

#### ■UCMSG65 Structure and Assembly / Disassembly



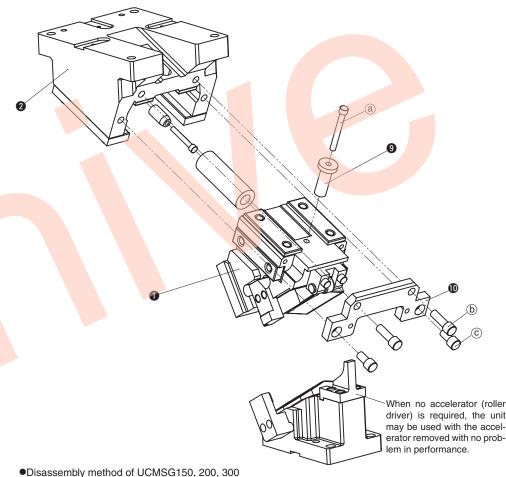
#### Disassembly method of UCMSG65

- 1) Remove hexagon socket head bolt (a) and washer (b), and remove safety plate (1).
- 2) Loosen hexagon socket head bolt (©). Remove stopper plate (10).
- 3) Pull cam slider (1) from cam holder (2) to the rear.

#### Assembly method of UCMSG65

- 1) Assemble components in the reverse order of disassembly.
- Make sure that there is no foreign matter on the sliding area and assemble components.
- The clearance between the guide bar/cam slider and the cam holder is controlled. Match the stamped serial number on the holder and slider before assembly.
- · When cam is disassembled and then reassembled, please do not forget to assemble all bolts provided

#### **UCMSG150**, 200, 300 Structure and Assembly / Disassembly



- 1) Loosen hexagon socket head bolt (a) and remove hanger bolt sleeve (9).
- 2) Loosen hexagon socket head bolt ((b), (c)) and remove backup plate (10).
- 3) Pull cam slider (1) from cam holder (2) to the rear.

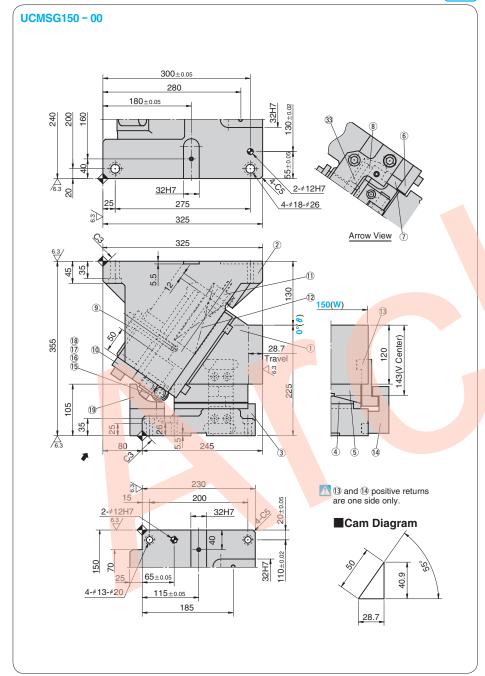
#### Assembly method of UCMSG150, 200, 300

- 1) Assemble components in the reverse order of disassembly.
- Make sure that there is no foreign matter on the sliding area and assemble components.
- The clearance between the cam slider and the cam holder is controlled. Match the stamped serial number on the holder and slider before assembly.
- · When cam is disassembled and then reassembled, please do not forget to assemble all bolts provided

**UCMSG** 50

#### **FOR PIERCE AND FLANGE**

CAD FILE



	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Slider	Total			
	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
28.6	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10448 (1066.1)	36.3	117.6	UCMSG	150	00

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(W) Catalog No. **UCMSG** 



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$\sim$	1	

Option	
Code	Specification
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to #13.



For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

# **■**Space for removing

\* This assumes that the (9) Hanger Bolt Sleeve is removed.

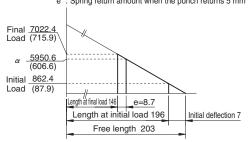
#### **■**Table of Components

	able of compone	J1110				
No.	Description	Qty	Material and Remark			
1	Cam Slider	1	FC250			
2	Cam Holder	1	FC250			
3	Cam Driver	1	FC250			
4	Cam Slide Guide	1	S45C(1045)			
(5)	Cam Slide Guide	1	Bronze with Graphite			
6	Upper Plate	2	S45C(1045)			
7	Cam Slide Plate	2	Bronze with Graphite			
8	Lower Plate A	2	Bronze with Graphite			
9	Hanger Bolt Sleeve	1	S45C(1045)			
10	Stopper Plate	1	SS400(1020)			
11)	Spring Guide Pin	1	FC250			
12	Coil Spring	1	TJH50-203			
13	Driver for Positive Return	1	Bronze with Graphite			
14)	Positive Return Follower	1	S45C(1045)			
15	Roller	1	S45C(1045)			
16	Shaft	1	S45C(1045)			
17)	Roller Bracket	1	S45C(1045)			
18	Bushing	1	SOB16-22-20			
19	Roller Driver	1	S45C(1045)			
33	Lower Plate B	4	S45C(1045)			

#### **■**Spring Diagram

 Spring used TJH50-203 (1 piece) •Spring constant 123.2N/mm(12.56kgf/mm) 300.000 strokes •Guideline of spring durability

> $\alpha$ : Spring Force at punch retraction of 5 mm e : Spring return amount when the punch returns 5 mm

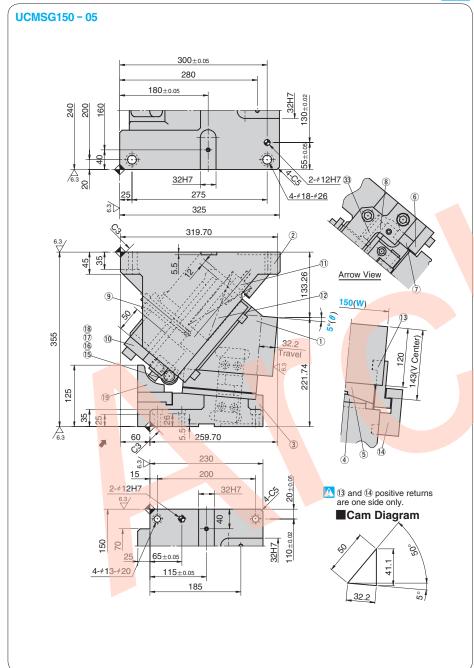


Bolts for assembly are not indicated.

**UCMSG** 150

#### **FOR PIERCE AND FLANGE**

CAD FILE



_		orce kN(tonf)	Spring Fo	rce N(kgf)	Return	Slider	Total			
Trave S	Working Force	Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg		Catalog No.	(W)	(θ)
32.2	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10416 (1062.8)	36.3	114.0	UCMSG	150	05

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05



(W) Catalog No.

**UCMSG** 

	Opti
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	Option
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Option Code	Specifi <mark>cation</mark>
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to \$13.



For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

# 75

**■**Space for removing

\* This assumes that the (9) Hanger Bolt Sleeve is removed.

#### ■ Table of Components

Table of Compone			<u> </u>
No.	Description	Qty	<b>Material and Remark</b>
1	Cam Slider	1	FC250
2	Cam Holder	1	FC250
3	Cam Driver	1	FC250
4	Cam Slide Guide	1	S45C(1045)
(5)	Cam Slide Guide	1	Bronze with Graphite
6	Upper Plate	2	S45C(1045)
7	Cam Slide Plate	2	Bronze with Graphite
8	Lower Plate A	2	Bronze with Graphite
9	Hanger Bolt Sleeve	1	S45C(1045)
10	Stopper Plate	1	SS400(1020)
11)	Spring Guide Pin	1	FC250
12	Coil Spring	1	TJH50-203
13	Driver for Positive Return	1	Bronze with Graphite
14)	Positive Return Follower	1	S45C(1045)
15)	Roller	1	S45C(1045)
16	Shaft	1	S45C(1045)
17)	Roller Bracket	1	S45C(1045)
18	Bushing	1	SOB16-22-20
19	Roller Driver	1	S45C(1045)

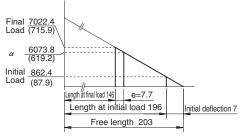
4 S45C(1045)

33 Lower Plate B

#### **■**Spring Diagram

 Spring used TJH50-203 (1 piece) 123.2N/mm(12.56kgf/mm) Spring constant · Guideline of spring durability 300,000 strokes

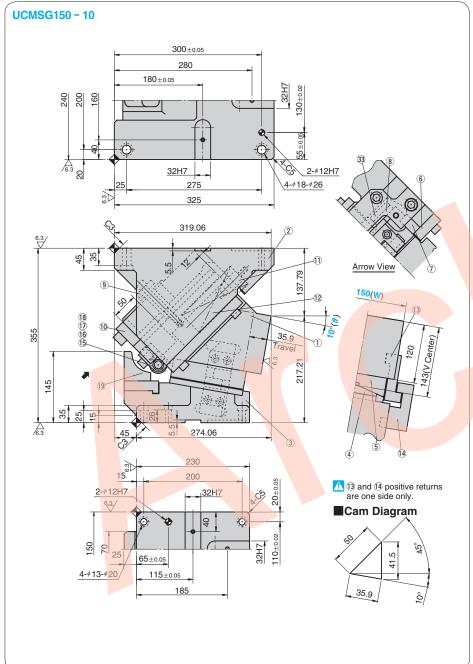
α : Spring Force at punch retraction of 5 mm e : Spring return amount when the punch returns 5 mm



Bolts for assembly are not indicated.

#### **FOR PIERCE AND FLANGE**





	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Slider	Total			
	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
35.9	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10381 (1059.3)	36.3	113.4	UCMSG	150	10



(W)  $(\theta)$ Catalog No. **UCMSG** 10



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Option Code	Specification
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to \$13.



UCMSG150 - 10 - K

For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

# 99

**■**Space for removing

\* This assumes that the (9) Hanger Bolt Sleeve is removed.

#### **■**Table of Components **■**Spring Diagram

No.	Description	Qty	<b>Material and Remark</b>				
1	Cam Slider	1	FC250				
2	Cam Holder	1	FC250				
3	Cam Driver	1	FC250				
4	Cam Slide Guide	1	S45C(1045)				
(5)	Cam Slide Guide	1	Bronze with Graphite				
6	Upper Plate	2	S45C(1045)				
7	Cam Slide Plate	2	Bronze with Graphite				
	Lower Plate A	2	Bronze with Graphite				
9	Hanger Bolt Sleeve	1	S45C(1045)				
10	Stopper Plate	1	SS400(1020)				
11)	Spring Guide Pin	1	FC250				
12	Coil Spring	1	TJH50-203				
13	Driver for Positive Return	1	Bronze with Graphite				
14)	Positive Return Follower	1	S45C(1045)				
15	Roller	1	S45C(1045)				
16	Shaft	1	S45C(1045)				
17)	Roller Bracket	1	S45C(1045)				
18	Bushing	1	SOB16-22-20				

1 S45C(1045)

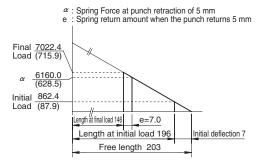
4 S45C(1045)

19 Roller Driver

33 Lower Plate B

 Spring used TJH50-203 (1 piece) 123.2N/mm(12.56kgf/mm) Spring constant

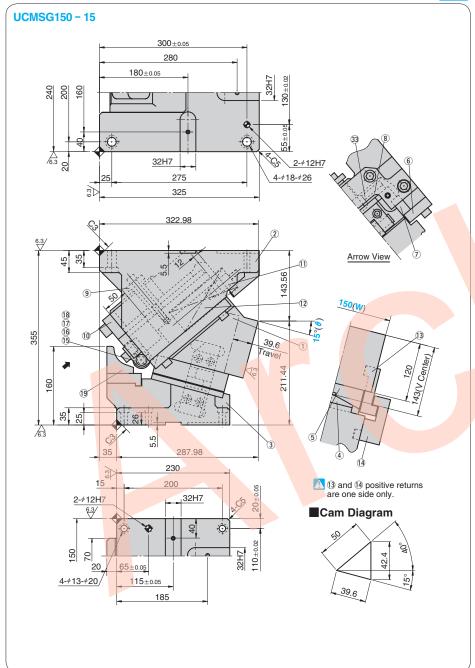
 Guideline of spring durability 300.000 strokes



Bolts for assembly are not indicated.

#### **FOR PIERCE AND FLANGE**

CAD FILE



	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Slider	Total	Total		
	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
39.6	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10343 (1055.4)	36.3	111.9	UCMSG	150	15

15



Catalog No.

(W)  $(\theta)$ 

150

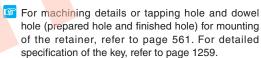
**UCMSG** 

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Option Code	Specifi <mark>cation</mark>
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to #13.





# **■**Space for removing 114

\* This assumes that the (9) Hanger Bolt Sleeve is removed.

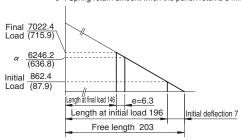
#### ■ Table of Components

	Table of Components								
No.	Description	Qty	<b>Material and Remark</b>						
1	Cam Slider	1	FC250						
2	Cam Holder	1	FC250						
3	Cam Driver	1	FC250						
4	Cam Slide Guide	1	S45C(1045)						
(5)	Cam Slide Guide	1	Bronze with Graphite						
6	Upper Plate	2	S45C(1045)						
7	Cam Slide Plate	2	Bronze with Graphite						
8	Lower Plate A	2	Bronze with Graphite						
9	Hanger Bolt Sleeve	1	S45C(1045)						
10	Stopper Plate	1	SS400(1020)						
11)	Spring Guide Pin	1	FC250						
12)	Coil Spring	1	TJH50-203						
13	Driver for Positive Return	1	Bronze with Graphite						
14)	Positive Return Follower	1	S45C(1045)						
15)	Roller	1	S45C(1045)						
16	Shaft	1	S45C(1045)						
17)	Roller Bracket	1	S45C(1045)						
18)	Bushing	1	SOB16-22-20						
19	Roller Driver	1	S45C(1045)						
33	Lower Plate B	4	S45C(1045)						

#### ■Spring Diagram

 Spring used TJH50-203 (1 piece) 123.2N/mm(12.56kgf/mm) Spring constant · Guideline of spring durability 300,000 strokes

lpha: Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm



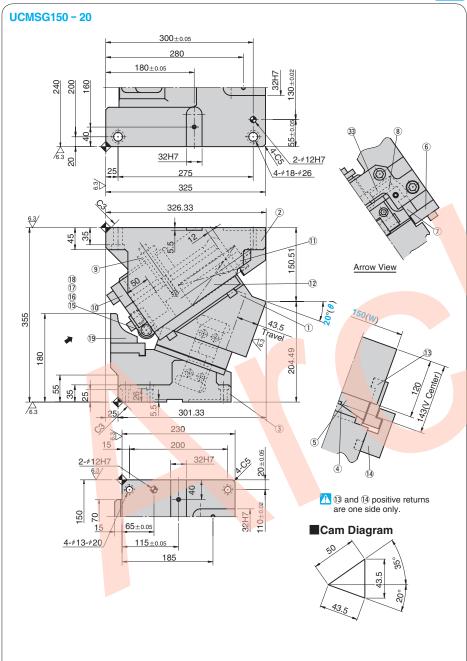
**UCMSG** 150

Bolts for assembly are not indicated.



#### **FOR PIERCE AND FLANGE**





		Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Slider	Total	Total		
Т		Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
_	43.5	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10304 (1051.4)	36.3	111.3	UCMSG	150	20



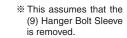
Catalog No. **UCMSG** 

(W)  $(\theta)$ 20

۱	Option
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Option Code	Specifi <mark>cation</mark>
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to #13.





For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

#### ■ Table of Components

	Table of Components							
No	Description	Qty	Material and Remark					
(1	Cam Slider	1	FC250					
(2	Cam Holder	1	FC250					
(3	Cam Driver	1	FC250					
(4	Cam Slide Guide	1	S45C(1045)					
(5	Cam Slide Guide	1	Bronze with Graphite					
(6	Upper Plate	2	S45C(1045)					
(7	Cam Slide Plate	2	Bronze with Graphite					
(8	Lower Plate A	2	Bronze with Graphite					
(9	Hanger Bolt Sleeve	1	S45C(1045)					
1	Stopper Plate	1	SS400(1020)					
1	Spring Guide Pin	1	FC250					
1	Coil Spring	1	TJH50-203					
(1)	Driver for Positive Return	1	Bronze with Graphite					
1	Positive Return Follower	1	S45C(1045)					
(1	Roller	1	S45C(1045)					
(1)	Shaft	1	S45C(1045)					
1	Roller Bracket	1	S45C(1045)					
(18	Bushing	1	SOB16-22-20					
(19	Roller Driver	1	S45C(1045)					
(3:	Lower Plate B	4	S45C(1045)					

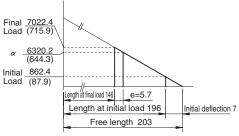
#### **■**Spring Diagram

<ul> <li>Spring used</li> </ul>	TJH50-203 (	(1 piece)
<ul> <li>Spring constant</li> </ul>	123.2N/mm(	12.56kgf/mm)
•Guideline of spring	durability	300 000 stroke

127

**■**Space for removing

α: Spring Force at punch retraction of 5 mm
e: Spring return amount when the punch returns 5 mm



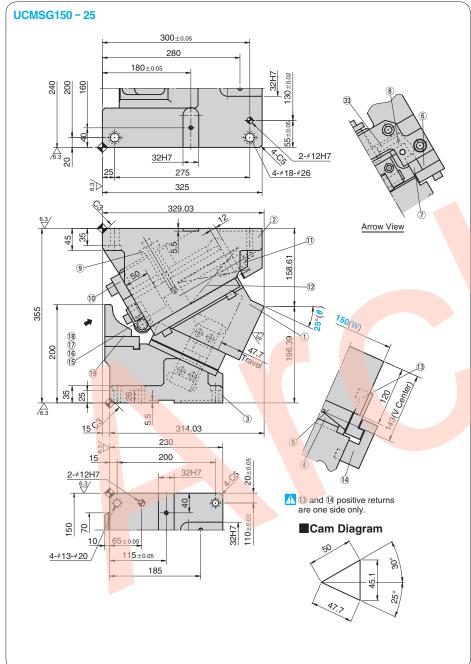
Bolts for assembly are not indicated.

**UCMSG** 

1350

#### **FOR PIERCE AND FLANGE**





	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Slider	Total	Total		
Travel S	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
47.7	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10263 (1047.2)	36.3	111.2	UCMSG	150	25

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25



**■**Table of Components

Description

1 Cam Slider

2 Cam Holder

3 Cam Driver

6 Upper Plate

4 Cam Slide Guide

5 Cam Slide Guide

7 Cam Slide Plate

9 Hanger Bolt Sleeve 1 S45C(1045)

1 Bronze with Graphite

8 Lower Plate A

10 Stopper Plate

12 Coil Spring

17 Roller Bracket

19 Roller Driver

33 Lower Plate B

15 Roller

16 Shaft

(18) Bushina

1 Spring Guide Pin

1 Positive Return Follower 1

(W) Catalog No. **UCMSG** 

Option
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Option Code	Specification Sp
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to ∮13.



**Qty Material and Remark** 

1 Bronze with Graphite

2 Bronze with Graphite

2 Bronze with Graphite

SS400(1020)

TJH50-203

S45C(1045)

S45C(1045)

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

4 S45C(1045)

1 SOB16-22-20

FC250

1 FC250

1 FC250

1 FC250

1 S45C(1045)

2 S45C(1045)

For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

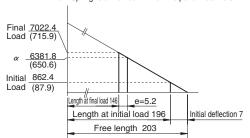
# **■**Space for removing 137

 This assumes that the (9) Hanger Bolt Sleeve is removed.

#### **■**Spring Diagram

<ul> <li>Spring used</li> </ul>	TJH50-203 (1 piece)
<ul> <li>Spring constant</li> </ul>	123.2N/mm(12.56kgf/mm)
Guideline of spring	durability 300,000 strokes

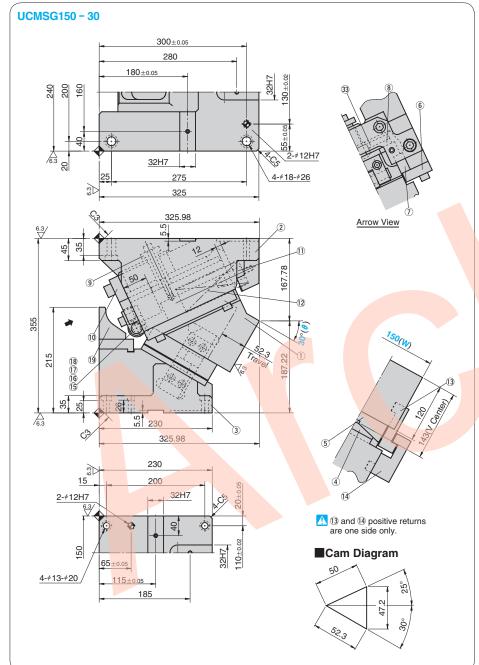
2 : Spring Force at punch retraction of 5 mm
 e : Spring return amount when the punch returns 5 mm



Bolts for assembly are not indicated.

#### **FOR PIERCE AND FLANGE**





	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Slider	Total			
Travel S	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
52.3	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10220 (1042.9)	36.3	110.2	UCMSG	150	30



**■**Table of Components

Description

1 Cam Slider

2 Cam Holder

3 Cam Driver

6 Upper Plate

4 Cam Slide Guide

5 Cam Slide Guide

7 Cam Slide Plate

9 Hanger Bolt Sleeve 1 S45C(1045)

1 Bronze with Graphite

8 Lower Plate A

10 Stopper Plate

12 Coil Spring

17 Roller Bracket

19 Roller Driver

33 Lower Plate B

15 Roller

16 Shaft

(18) Bushina

11 Spring Guide Pin

1 Positive Return Follower

Catalog No.

(W)  $(\theta)$ 30

**UCMSG** 

	Opti
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Option Code	Specific	ation		
K	Metric dedicated ke both cam holder and (It is not assembled	d drive	er.	
KA	Metric dedicated ke both cam holder an (It is not assembled	<b>d</b> driv	er.	
N13	The dowel holes for and cam driver are			



**Qty Material and Remark** 

1 Bronze with Graphite

2 Bronze with Graphite

2 Bronze with Graphite

SS400(1020)

TJH50-203

S45C(1045)

S45C(1045)

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

4 S45C(1045)

1 SOB16-22-20

FC250

1 FC250

1 FC250

1 FC250

1 S45C(1045)

2 S45C(1045)

For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

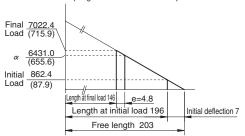
# **■**Space for removing 149

 This assumes that the (9) Hanger Bolt Sleeve is removed.

#### ■Spring Diagram

 Spring used TJH50-203 (1 piece) Spring constant 123.2N/mm(12.56kgf/mm) Guideline of spring durability 300,000 strokes

> $\alpha$  : Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm

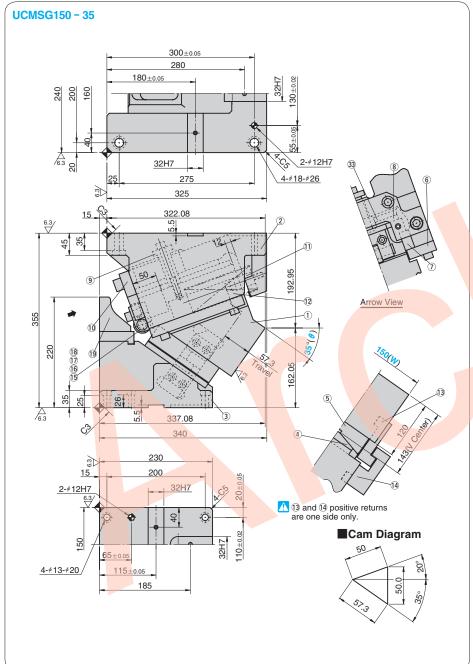


Bolts for assembly are not indicated.

**UCMSG** 150

#### **FOR PIERCE AND FLANGE**





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	Working Force kN(tonf)		Spring Force N(kgf)		Return	Slider	Total			
Travel S	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
57.3	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10176 (1038.4)	36.3	113.1	UCMSG	150	35

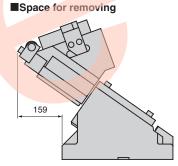


Catalog No. **UCMSG** 

(W)  $(\theta)$ 35

	Optio
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Option Code	Specification
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to #13.



UCMSG150 - 35 - K

\* This assumes that the (9) Hanger Bolt Sleeve is removed.

For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

#### ■ Table of Components

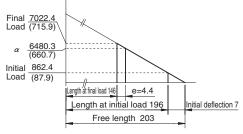
	Table of Compone	me	5
No	Description	Qty	Material and Remark
(1	Cam Slider	1	FC250
(2	Cam Holder	1	FC250
(3	Cam Driver	1	FC250
(4	Cam Slide Guide	1	S45C(1045)
(5	Cam Slide Guide	1	Bronze with Graphite
(6	Upper Plate	2	S45C(1045)
(7	Cam Slide Plate	2	Bronze with Graphite
(8	8 Lower Plate A 9 Hanger Bolt Sleeve 10 Stopper Plate		Bronze with Graphite
(9			S45C(1045)
1			SS400(1020)
1	Spring Guide Pin	1	FC250
1	Coil Spring		TJH50-203
(1)	Driver for Positive Return	1	Bronze with Graphite
1	Positive Return Follower	1	S45C(1045)
(1	Roller	1	S45C(1045)
(1)	Shaft	1	S45C(1045)
1	Roller Bracket		S45C(1045)
(18	18 Bushing		SOB16-22-20
(19	Roller Driver	1	S45C(1045)
(3:	Lower Plate B	4	S45C(1045)

#### **■**Spring Diagram

 Spring used TJH50-203 (1 piece) Spring constant 123.2N/mm(12.56kgf/mm)

 Guideline of spring durability 300.000 strokes

lpha: Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm



**UCMSG** 150

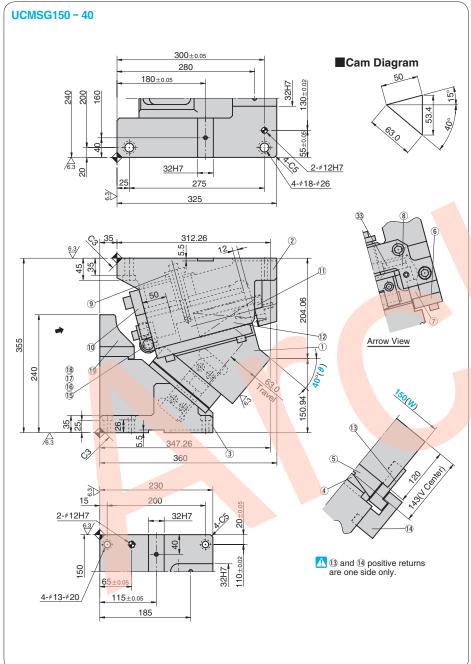
1356

Bolts for assembly are not indicated.



#### **FOR PIERCE AND FLANGE**





		Working Force kN(tonf) Spring Force N(kgf)		Return	Slider	Total				
Travel S	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
63.0	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10132 (1033.9)	36.3	114.7	UCMSG	150	40

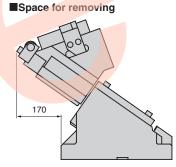


Catalog No.

(W)  $(\theta)$ 

**UCMSG** 

Option Code	Specification Sp
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to #13.



UCMSG150 - 40 - K

\* This assumes that the (9) Hanger Bolt Sleeve is removed.

For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

#### **■**Spring Diagram

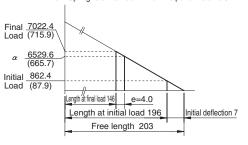
	able of Compone	ents	<u> </u>
No.	Description	Qty	Material and Remark
1	Cam Slider	1	FC250
2	Cam Holder	1	FC250
3	Cam Driver	1	FC250
4	Cam Slide Guide	1	S45C(1045)
(5)	Cam Slide Guide	1	Bronze with Graphite
6	Upper Plate	2	S45C(1045)
7	Cam Slide Plate	2	Bronze with Graphite
8	Lower Plate A	2	Bronze with Graphite
9	Hanger Bolt Sleeve	1	S45C(1045)
10	Stopper Plate	1	SS400(1020)
11)	Spring Guide Pin	1	FC250
12	Coil Spring	1	TJH50-203
13	Driver for Positive Return	1	Bronze with Graphite
14)	Positive Return Follower	1	S45C(1045)
15	Roller	1	S45C(1045)
16	Shaft	1	S45C(1045)
17)	Roller Bracket	1	S45C(1045)
18	Bushing	1	SOB16-22-20
19	Roller Driver	1	S45C(1045)

4 S45C(1045)

33 Lower Plate B

<ul> <li>Spring used</li> </ul>	TJH50-203 (1 piece)	
<ul> <li>Spring constant</li> </ul>	123.2N/mm(12.56kgf/mm)	
•Guideline of spring of	lurability 300,000 strokes	

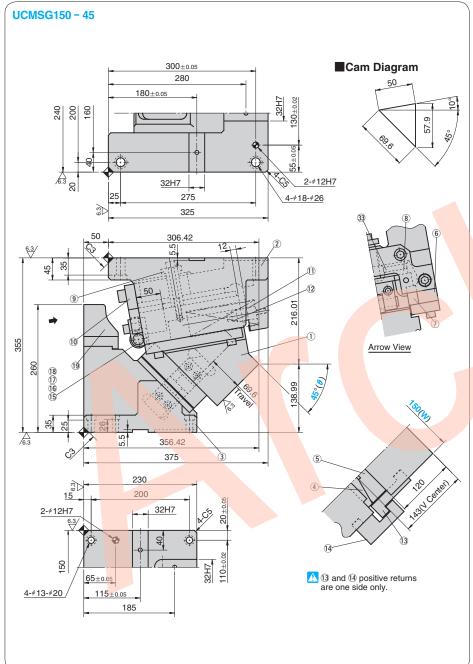
lpha: Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm



Bolts for assembly are not indicated.

#### **FOR PIERCE AND FLANGE**





	Working Force kN(tonf) Spring Force N(kgf)				Return	Slider	Total			
	Standard Working Force (one million strokes)		Lood	Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
69.6	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10087 (1029.3)	36.3	115.8	UCMSG	150	45

 $(\theta)$ 

45



**■**Table of Components

Des

6 Upper Plate

7 Cam Slide Plate

9 Hanger Bolt Sleeve 1 S45C(1045)

1 Bronze with Graphite

8 Lower Plate A

10 Stopper Plate

12 Coil Spring

17 Roller Bracket

19 Roller Driver

33 Lower Plate B

15 Roller

16 Shaft

18 Bushing

1 Spring Guide Pin

1 Positive Return Follower

No.

Catalog No.

(W)

**UCMSG** 

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كُلُّ	Optio
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Option Code	Specifi <mark>cation</mark>
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to #13.



2 S45C(1045)

2 Bronze with Graphite

2 Bronze with Graphite

SS400(1020)

FC250

1 TJH50-203

S45C(1045)

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

4 S45C(1045)

1 SOB16-22-20

For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

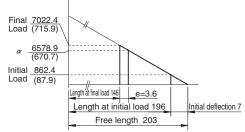
# 174

**■**Space for removing

 This assumes that the (9) Hanger Bolt Sleeve is removed.

#### ■Spring Diagram

No.	. Description	Qty	Material and Remark	•Spring used TJH50-203 (1 piece)
1	Cam Slider	1	FC250	• Spring constant 123.2N/mm(12.56kgf/mm)
2	Cam Holder	1	FC250	•Guideline of spring durability 300,000 strokes
3	Cam Driver	1	FC250	$\alpha$ : Spring Force at punch retraction of 5 mm
4	Cam Slide Guide	1	S45C(1045)	e : Spring return amount when the punch returns 5 mm
(5)	Cam Slide Guide	1	Bronze with Graphite	

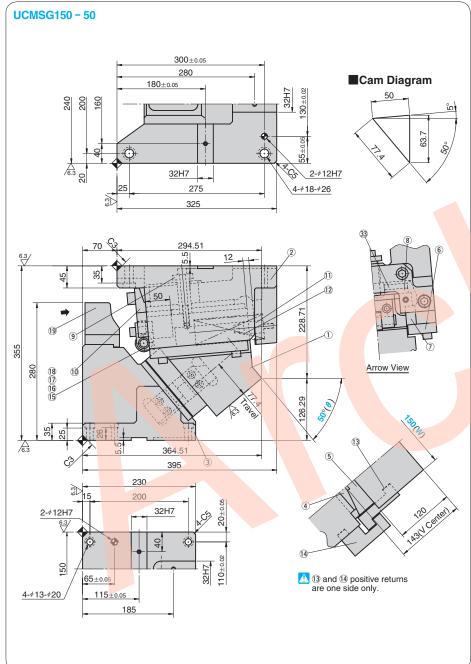


Bolts for assembly are not indicated.



#### **FOR PIERCE AND FLANGE**





Travel S		Working Force kN(tonf) Spring Force N(kgf)				Slider	Total			
	Working Force	Allowable Working Force (300,000 strokes)		Final Load	Return Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
77.4	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10042 (1024.7)	36.3	117.5	UCMSG	150	50

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**50** 



Catalog No.

(W)

**UCMSG** 150

	0
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	Option

Option Code	Specifi <mark>cation</mark>
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to #13.



**■**Table of Components

Description

1 Cam Slider

2 Cam Holder

3 Cam Driver

6 Upper Plate

4 Cam Slide Guide

5 Cam Slide Guide

7 Cam Slide Plate

9 Hanger Bolt Sleeve 1 S45C(1045)

1 Bronze with Graphite

8 Lower Plate A

10 Stopper Plate

12 Coil Spring

17 Roller Bracket

19 Roller Driver

33 Lower Plate B

15 Roller

16 Shaft

(18) Bushina

1 Spring Guide Pin

1 Positive Return Follower 1

#### UCMSG150 - 50 - K

**Qty Material and Remark** 

1 Bronze with Graphite

2 Bronze with Graphite

2 Bronze with Graphite

SS400(1020)

TJH50-203

S45C(1045)

S45C(1045)

1 S45C(1045)

1 S45C(1045)

1 SOB16-22-20

1 S45C(1045)

4 S45C(1045)

FC250

1 FC250

1 FC250

1 FC250

1 S45C(1045)

2 S45C(1045)

For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

#### This assumes that the (9) Hanger Bolt Sleeve is removed.

#### ■Spring Diagram

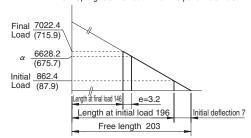
 Spring used Spring constant

TJH50-203 (1 piece) 123.2N/mm(12.56kgf/mm) Guideline of spring durability 300.000 strokes

**■**Space for removing

181

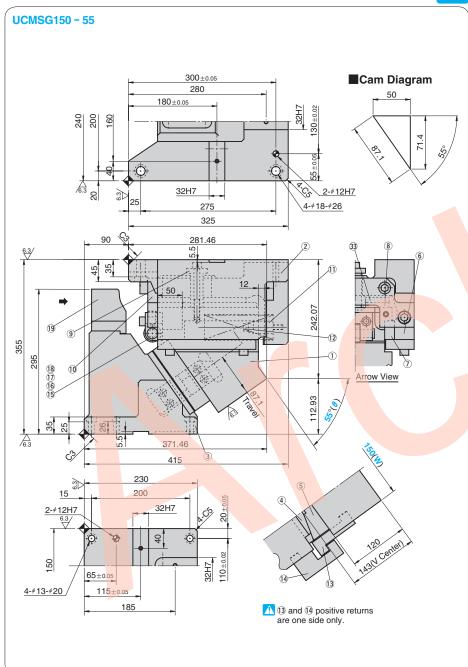
2 : Spring Force at punch retraction of 5 mm
 e : Spring return amount when the punch returns 5 mm



Bolts for assembly are not indicated.

#### **FOR PIERCE AND FLANGE**





Travel S		Working Force kN(tonf) Spring Force N(kgf)				Slider	Total			
	Working Force	Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
87.1	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	9997 (1020.1)	36.3	117.5	UCMSG	150	55



Catalog No. **UCMSG** 

(W)  $(\theta)$ 55

**■**Table of Components

Description

1 Cam Slider

2 Cam Holder

3 Cam Driver

6 Upper Plate

4 Cam Slide Guide

5 Cam Slide Guide

7 Cam Slide Plate

9 Hanger Bolt Sleeve 1 S45C(1045)

1 Bronze with Graphite

8 Lower Plate A

10 Stopper Plate

12 Coil Spring

17 Roller Bracket

19 Roller Driver

33 Lower Plate B

15 Roller

16 Shaft

18 Bushina

1 Spring Guide Pin

1 Positive Return Follower

	Optio
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Option Code	Specific	atior	1	
K	Metric dedicated ke both cam holder an (It is not assembled	d driv	er.	
KA	Metric dedicated ke both cam holder an (It is not assembled	<mark>d</mark> driv	er.	
N13	The dowel holes for and cam driver are			



**Qty Material and Remark** 

1 Bronze with Graphite

2 Bronze with Graphite

2 Bronze with Graphite

SS400(1020)

FC250

1 TJH50-203

S45C(1045)

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

4 S45C(1045)

1 SOB16-22-20

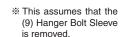
1 FC250

1 FC250

1 FC250

1 S45C(1045)

2 S45C(1045)



For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

#### **■**Spring Diagram

<ul> <li>Spring used</li> </ul>	TJH50-203 (	(1 piece)
<ul> <li>Spring constant</li> </ul>	123.2N/mm(	12.56kgf/mm)
•Guideline of spring	durability	300 000 stroke

185

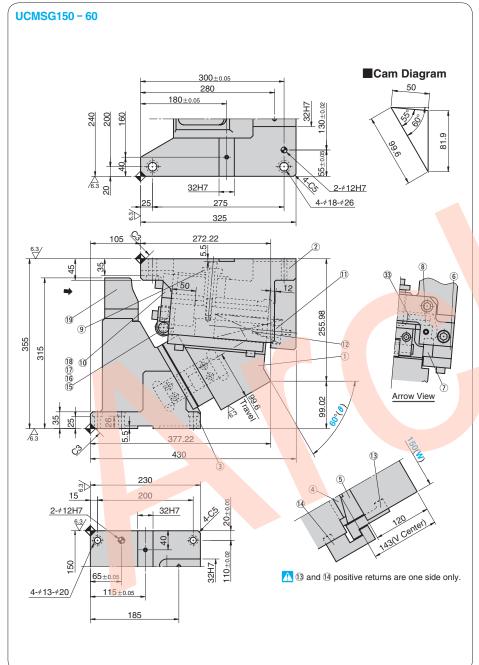
 $\alpha$  : Spring Force at punch retraction of 5 mm e : Spring return amount when the punch returns 5 mm Final 7022.4 Load (715.9) Initial 862.4 Load (87.9) ength at final load 146 e=2.9 Length at initial load 196 Initial deflection 7 Free length 203

**■**Space for removing

Bolts for assembly are not indicated.

#### **FOR PIERCE AND FLANGE**





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Ī		Working Fo	orking Force kN(tonf) Spring Force N(kgf) Return Slice		Slider	Total					
			Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
	99.6	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	9953 (1015.6)	36.3	122.0	UCMSG	150	60



Catalog No. **UCMSG** 

(W)  $(\theta)$ 150 60

	Option
	Optioi

Option Code	Specification Sp
K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
KA	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
N13	The dowel holes for the cam holder and cam driver are changed to #13.



For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

# **■**Space for removing 184

\* This assumes that the (9) Hanger Bolt Sleeve is removed.

#### ■ Table of Components

	Table of Components									
No.	Description	Qty	<b>Material and Remark</b>							
1	Cam Slider	1	FC250							
2	Cam Holder	1	FC250							
3	Cam Driver	1	FC250							
4	Cam Slide Guide	1	S45C(1045)							
(5)	Cam Slide Guide	1	Bronze with Graphite							
6	Upper Plate	2	S45C(1045)							
7	Cam Slide Plate	2	Bronze with Graphite							
8	Lower Plate A	2	Bronze with Graphite							
9	Hanger Bolt Sleeve	1	S45C(1045)							
10	Stopper Plate	1	SS400(1020)							
11)	Spring Guide Pin	1	FC250							
12	Coil Spring	1	TJH50-203							
13	Driver for Positive Return	1	Bronze with Graphite							
14)	Positive Return Follower	1	S45C(1045)							
15	Roller	1	S45C(1045)							
16	Shaft	1	S45C(1045)							
17	Roller Bracket	1	S45C(1045)							
18	Bushing	1	SOB16-22-20							
19	Roller Driver	1	S45C(1045)							

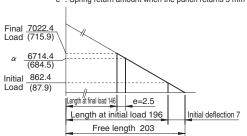
4 S45C(1045)

33 Lower Plate B

#### **■**Spring Diagram

 Spring used TJH50-203 (1 piece) 123.2N/mm(12.56kgf/mm) Spring constant Guideline of spring durability 300.000 strokes

 $\alpha$ : Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm

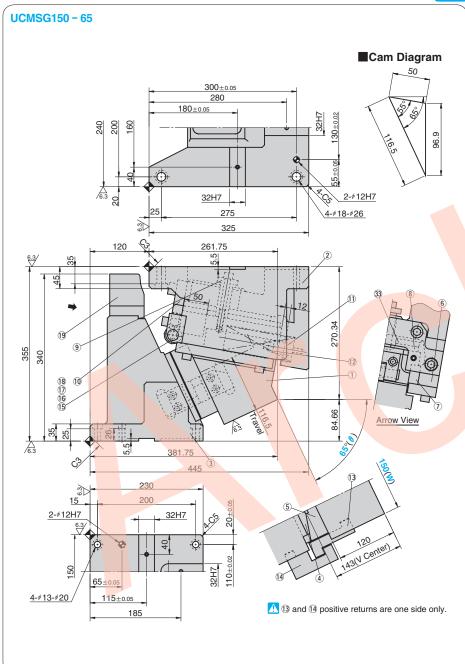


Bolts for assembly are not indicated.

**UCMSG** 150

#### **FOR PIERCE AND FLANGE**





		orce kN(tonf)	Spring Fo	rce N(kgf)	Return Slider		Total			
Trave S	Working Force	Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
116.5	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	9910 (1011.2)	36.3	126.0	UCMSG	150	65



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Catalog No. (W

(W) - (θ) 150 - 65

Option

	Option Code	Specification Specific Action
	K	Metric dedicated key is attached for both cam holder and driver. (It is not assembled to the main unit.)
\	KA	Metric dedicated key is attached fo both cam holder and driver. (It is not assembled to the main unit.)
	N13	The dowel holes for the cam holder and cam driver are changed to #13.



% This assumes that the (9) Hanger Bolt Sleeve is removed.

For machining details or tapping hole and dowel hole (prepared hole and finished hole) for mounting of the retainer, refer to page 561. For detailed specification of the key, refer to page 1259.

#### ■Table of Components ■Spring

No.	No. Description		Material and Remark
1	Cam Slider	1	FC250
2	Cam Holder	1	FC250
3	Cam Driver	1	FC250
4	Cam Slide Guide	1	S45C(1045)
(5)	Cam Slide Guide	1	Bronze with Graphite
6	Upper Plate	2	S45C(1045)
7	Cam Slide Plate	2	Bronze with Graphite
8	Lower Plate A	2	Bronze with Graphite
9	Hanger Bolt Sleeve	1	S45C(1045)
10	Stopper Plate	1	SS400(1020)
11)	Spring Guide Pin	1	FC250
12	Coil Spring	1	TJH50-203
13	Driver for Positive Return	1	Bronze with Graphite
14)	Positive Return Follower	1	S45C(1045)
15	Roller	1	S45C(1045)
16	Shaft	1	S45C(1045)
17	Roller Bracket	1	S45C(1045)
18	Bushing	1	SOB16-22-20
19	Roller Driver	1	S45C(1045)
33	Lower Plate B	4	S45C(1045)

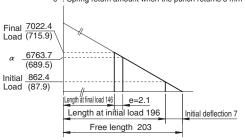
#### **■**Spring Diagram

•Spring used TJH50-203 (1 piece)
•Spring constant 123.2N/mm(12.56kgf/mm)
•Guideline of spring durability 300,000 strokes

182

**■**Space for removing

α : Spring Force at punch retraction of 5 mm
e : Spring return amount when the punch returns 5 mm



Bolts for assembly are not indicated.