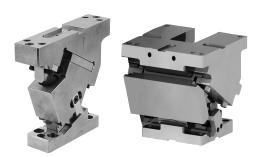


Aerial Cam Unit General Description of UCMSG

FOR PIERCE AND FLANGE

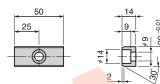


- Highly rigid structure with the overseas automobile manufacturer specification
- ●50, 65, 80, 150, 200mm and 300mm are available for the mounting width.
- Angle 0° to 65° increments of 5° is available.
 (For 65 mm wide, angle 20° to 60° is in increments of 10°).
- ●ISO springs are used.

■ Option for UCMSG

Metric Key Specification(-K)
 UCMSG50/65

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

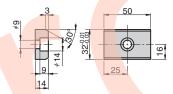


UCMSG80

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

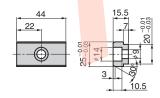
UCMSG150/200/300

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



Metric Key Specification(-KA) UCMSG50

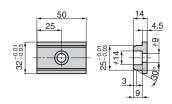
LKA25-20-44 (with 3-M8 \times 15 bolts)



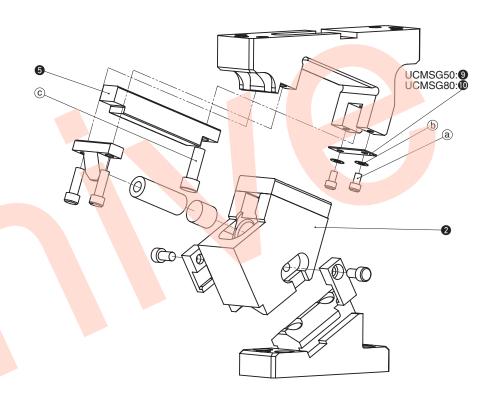
UCMSG80

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



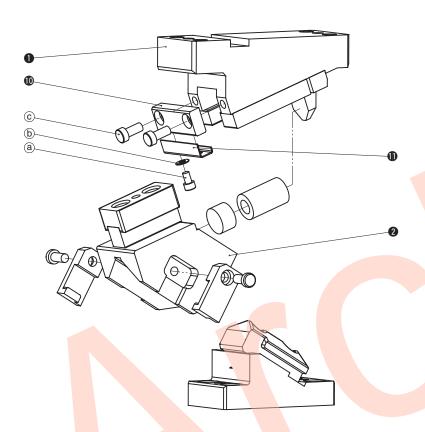
- Disassembly method of UCMSG50 (same for UCMSG80)
 - 1) Remove hexagon socket head bolt (ⓐ) and washer (ⓑ) and remove safety plate (UCMSG50: ① UCMSG80: ①).
 - 2) Remove hexagon socket head bolt (©).
 - 3) Shift guide bar (5) to the back then remove cam slider (2) from cam holder.
- Assembly method of 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



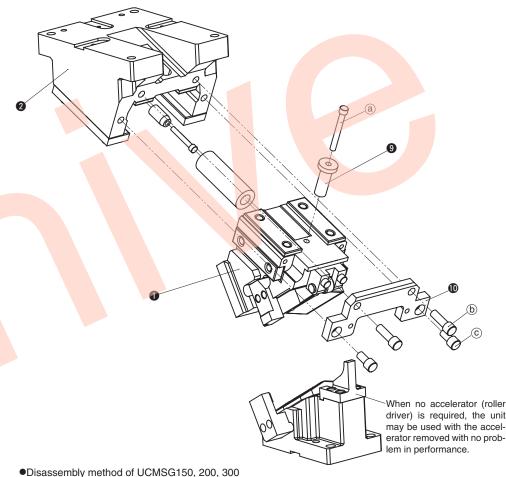
Disassembly method of UCMSG65

- 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

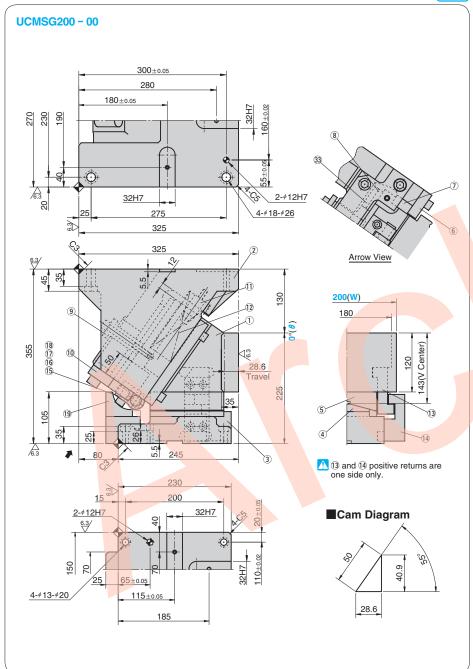
- 1) Assemble components in the reverse order of disassembly.
- Make sure that there is no foreign matter on the sliding area and assemble components.
- The clearance between the cam slider and the cam holder is controlled. Match the stamped serial number on the holder and slider before assembly.
- ·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

UCMSG 50

1262

FOR PIERCE AND FLANGE

CAD FILE



		Working Force kN(tonf) S		Spring Force N(kgf)		Return Slider				
Trave S	Working Force	Allowable Working Force (300,000 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)	10528 (1074.2)	44.0	129.7	UCMSG	200	00



Order

■Table of Components

No. Description

4 Cam Slide Guide

5 Cam Slide Guide

7 Cam Slide Plate

9 Hanger Bolt Sleeve 1 S45C(1045)

1 Positive Return Follower 1 S45C(1045)

8 Lower Plate A

10 Stopper Plate

17 Roller Bracket

19 Roller Driver

33 Lower Plate B

12 Coil Spring

15 Roller

16 Shaft

18 Bushing

11 Spring Guide Pin

① Cam Slider

2 Cam Holder

3 Cam Driver

6 Upper Plate

(W) (θ) Catalog No. **UCMSG** 200 00



Optio

Option Code	Specifi <mark>cation</mark>	
K	Metric dedicated key is a both cam holder and driv (It is not assembled to the	er.
KA	Metric dedicated key is both cam holder and driv (It is not assembled to the	er.
N13	The dowel holes for the and cam driver are chan	



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

UCMSG200 - 00 - K

Qty Material and Remark

1 Bronze with Graphite

2 Bronze with Graphite

2 Bronze with Graphite

1 FC250

1 FC250

1 FC250

1 S45C(1045)

2 S45C(1045)

1 SS400(1020)

1 TJH50-203

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

4 S45C(1045)

1 SOB16-22-20

1 FC250

1 Bronze with Graphite

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

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

46

 α : Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm Final <u>7022.4</u> Load (715.9) <u>5950.6</u> (606.6) Initial <u>862.4</u> Load (87.9) Length at final load 146 e=8.7 Length at initial load 196 Initial deflection 7 Free length 203

■Space for removing

Bolts for assembly are not indicated.

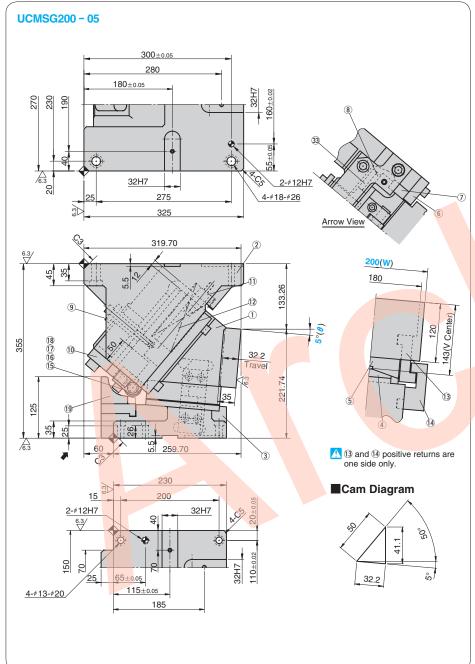
UCMSG 200

1369

1370

FOR PIERCE AND FLANGE





	Working Force kN(tonf) Sp		Spring Fo	Spring Force N(kgf)		Slider	Total			
Travel S	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Weight kg	Catalog No.	(W)	(θ)
32.2	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10488 (1070.2)	44.0	126.6	UCMSG	200	05



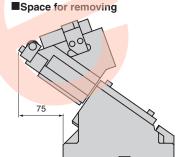
Order

(W) (θ) Catalog No. UCMSG 200 05



	Option
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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.



UCMSG200 - 05 - 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.

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

■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)					
10	Stopper Plate	1	SS400(1020)					
1	Spring Guide Pin	1	FC250					
12	Coil Spring	1	TJH50-203					
1:	Driver for Positive Return	1	Bronze with Graphite					
14	Positive Return Follower	1	S45C(1045)					
(15		1	S45C(1045)					
10	Shaft	1	S45C(1045)					
17	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

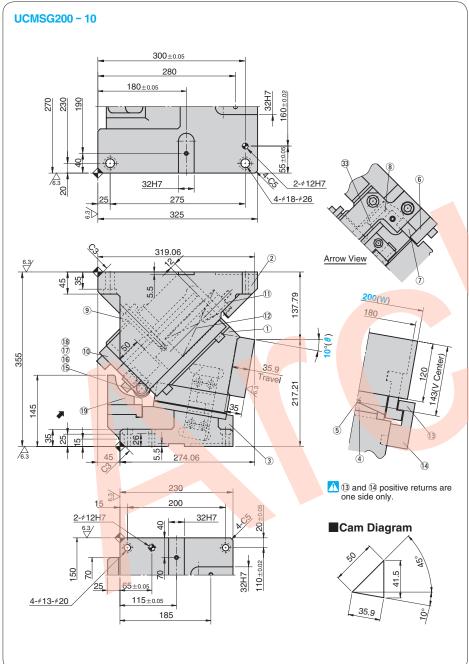
 Spring used TJH50-203 (1 piece) 123.2N/mm(12.56kgf/mm) Spring constant • Guideline of spring durability 300,000 strokes

lpha: Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm Final <u>7022.4</u> Load (715.9) 6073.8 (619.2) Initial 862.4 Load (87.9) Length at final load 146 e=7.7 Length at initial load 196 Initial deflection 7 Free length 203

Bolts for assembly are not indicated.

FOR PIERCE AND FLANGE





	Working Force kN(tonf) Spr		Spring Fo	Spring Force N(kgf)		Slider	Total			
	Standard Working Force (one million strokes)		Initial Load	Final Load	Return 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)	10446 (1065.9)	44.0	124.8	UCMSG	200	10



Order

Catalog No. (W) (θ) UCMSG 200 10



_	Optio

Option Code	Specifi <mark>catio</mark> r	
K	Metric dedicated key is a both cam holder and driv (It is not assembled to the	er.
KA	Metric dedicated key is both cam holder and driv (It is not assembled to the	er.
N13	The dowel holes for the and cam driver are chan	



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 99

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

Table of Components

ш	able of Compone	ents	5
No.	Description	Qty	Material and Remark
1	Cam Slider	1	FC250
2	Cam Holder	1	FC250
	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)
_	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

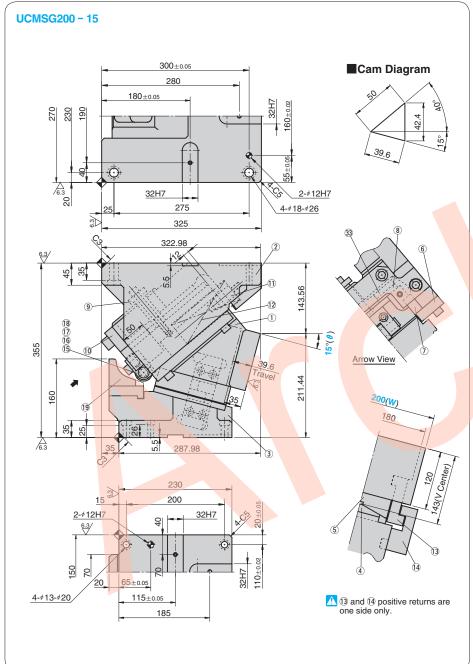
α: Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm Final 7022.4 Load (715.9) 6160.0 (628.0) Initial 862.4 Load (87.9) Length at final load 146 e=7.0Initial deflection 7 Length at initial load 196 Free length 203

Bolts for assembly are not indicated.



FOR PIERCE AND FLANGE





	Working Force kN(tonf) Spring Force			rce N(kgf)	Return	Slider	Total				
		Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg		Catalog No.	(W)	(θ)	
39.6	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10401 (1061.3)	44.0	127.4	UCMSG	200	15	

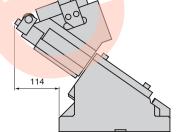


Order

Catalog No. (W) - (θ)
UCMSG 200 - 15

	Optio
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Option Code	Specifi <mark>cation</mark>	
K	Metric dedicated key is atta both cam holder and driver (It is not assembled to the r	
KA	Metric dedicated key is att both cam holder and driver. (It is not assembled to the n	
N13	The dowel holes for the ca and cam driver are change	



■Space for removing



% 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.

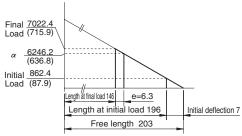
■Table of Components

_			
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)
•Guideline of spring durability 300,000 strokes

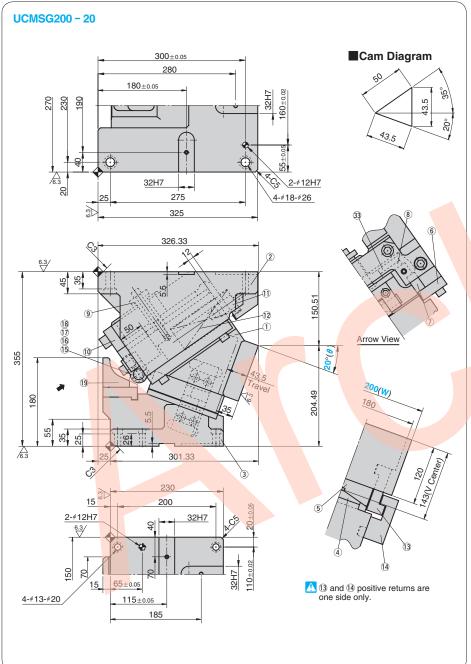
 α : Spring Force at punch retraction of 5 mm e : Spring return amount when the punch returns 5 mm



Bolts for assembly are not indicated.

FOR PIERCE AND FLANGE





	Working Force kN(tonf) Spring Force N(kgf)				Return	Slider	Total			
Travel S	Standard Working Force (one million strokes)		Initial Load	Final Load	Force N(kgf)	Weight kg		Catalog No.	(W)	(θ)
43.5	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10353 (1056.4)	44.0	123.2	UCMSG	200	20



Order

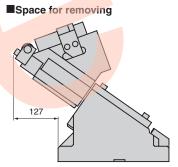
(W) (θ) Catalog No. **UCMSG** 200 20

	Optio

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 holde 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.



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

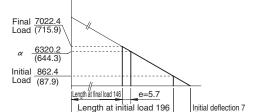
■Table of Components

Table of Compone				<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)
	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

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



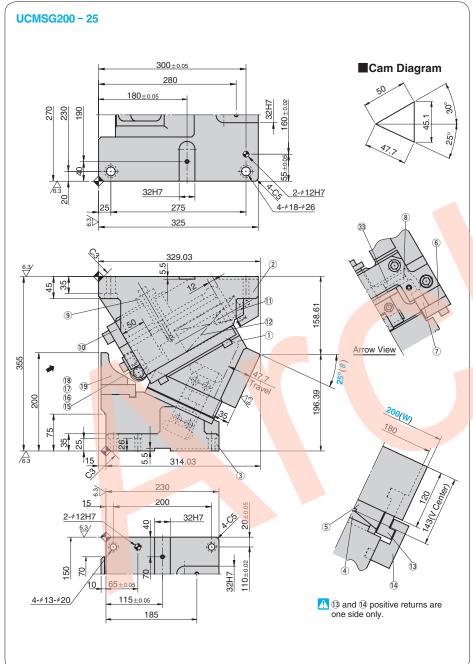
Free length 203

Bolts for assembly are not indicated.



FOR PIERCE AND FLANGE





	Working Force kN(tonf) Spring			Spring Force N(kgf)		Slider	Total			
Travel S	Standard Working Force (one million strokes)		Initial Load	Final Load	Return 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)	10303 (1051.3)	44.0	123.0	UCMSG	200	25



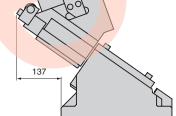
Order

Catalog No. **UCMSG**

(W) (θ) 200 25

Option

	Option Code	Specification Specific Specifi
	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

UCMSG200 - 25 - 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.

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

■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)
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

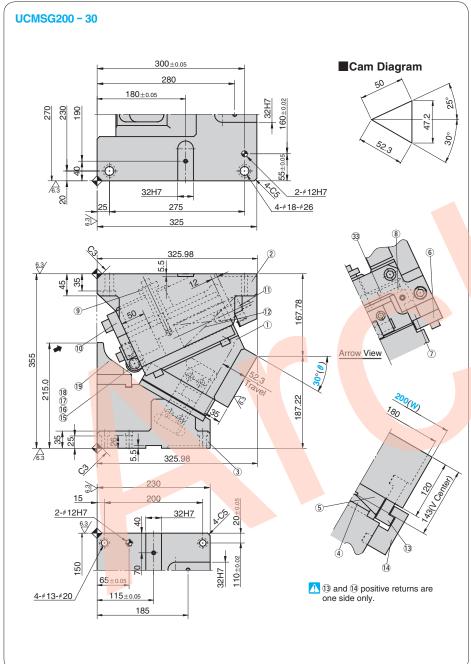
 Spring used TJH50-203 (1 piece) Spring constant 123.2N/mm(12.56kgf/mm) •Guideline of spring durability 300,000 strokes

α : Spring Force at punch retraction of 5 mm
e : Spring return amount when the punch returns 5 mm Final 7022.4 Load (715.9) 6381.8 (650.6) Initial 862.4 Load (87.9) Length at final load 146 e=5.2 Length at initial load 196 Initial deflection 7 Free length 203

Bolts for assembly are not indicated.

FOR PIERCE AND FLANGE





	Working Force kN(tonf) Spring Force N(kgf)			Return	Slider	Total				
Travel S		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)	10251 (1046.0)	44.0	121.7	UCMSG	200	30



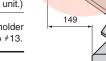
Order

Catalog No. (W) (θ) **UCMSG** 200 30



	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 holde and cam driver are changed to #13



■Space for removing



* 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

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		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

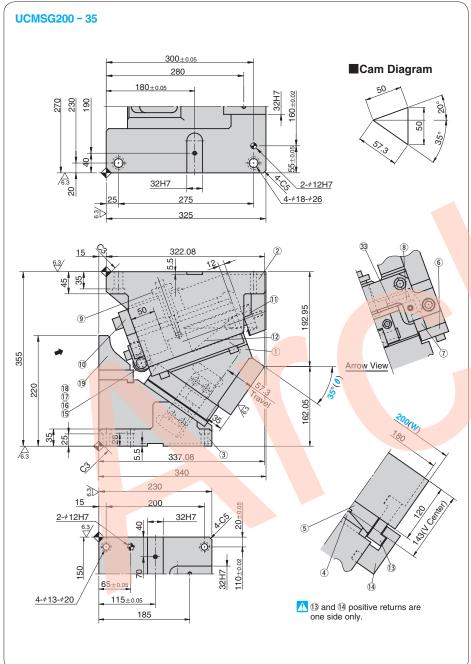
•Spring used TJH50-203 (1 piece) 123.2N/mm(12.56kgf/mm) Spring constant •Guideline of spring durability 300,000 strokes

α: Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm Final <u>7022.4</u> Load (715.9) Initial 862.4 Load (87.9) Length at final load 146 Length at initial load 196 Initial deflection 7 Free length 203

Bolts for assembly are not indicated.

FOR PIERCE AND FLANGE





	Working Fo	orking Force kN(tonf) Spring For			Return	Slider	Total			
Travel S		Allowable Working Force (300,000 strokes)	Initial Load	Final Load	Force N(kgf)	Weight kg		Catalog No.	(W)	(θ)
57.3	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10198 (1040.6)	44.0	125.3	UCMSG	200	35



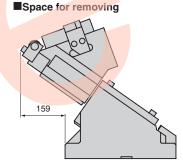
Order

Catalog No. (V

(W) - (θ) 200 - 35



on	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.





UCMSG200 - 35 - 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.

(9) Hanger Bolt Sleeve is removed.

* This assumes that the

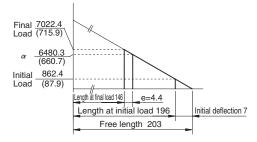
■Table of Components

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)
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

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

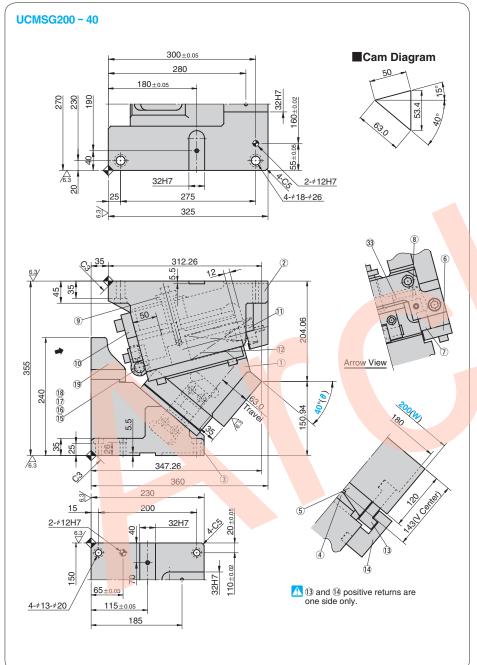


Bolts for assembly are not indicated.



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)
63.0	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10144 (1035.1)	44.0	126.8	UCMSG	200	40



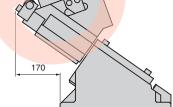
Order

Catalog No. (W) (θ) **UCMSG** 200



	Option
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Option Code	Specifi <mark>catio</mark> r	
K	Metric dedicated key is a both cam holder and driv (It is not assembled to the	er.
KA	Metric dedicated key is both cam holder and driv (It is not assembled to the	er.
N13	The dowel holes for the and cam driver are chan	



■Space for removing

UCMSG200 - 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.

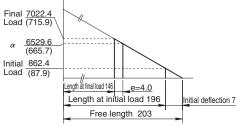
■Table of Components

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)
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

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



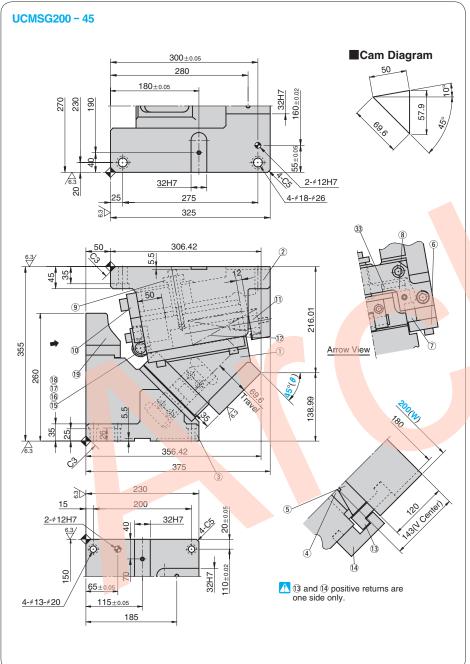
Bolts for assembly are not indicated.

UCMSG 200

1386

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)
69.6	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10090 (1029.6)	44.0	127.9	UCMSG	200	45



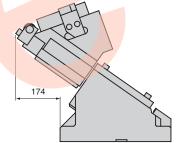
Order

Catalog No. (V

(W) - (θ) 200 - 45

	Optio
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Option Code	Specific <mark>ation</mark>	
K	Metric dedicated key is atta both cam holder and driver (It is not assembled to the	1.
KA	Metric dedicated key is at both cam holder and driver. (It is not assembled to the r	
N13	The dowel holes for the cand cam driver are change	



■Space for removing

Order UCMSG200 - 45 - 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.

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

■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)
10	Stopper Plate	1	SS400(1020)
11)	Spring Guide PinCoil SpringDriver for Positive Return		FC250
12			TJH50-203
13			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

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

Final 7022.4
Load (715.9)

α 6578.9

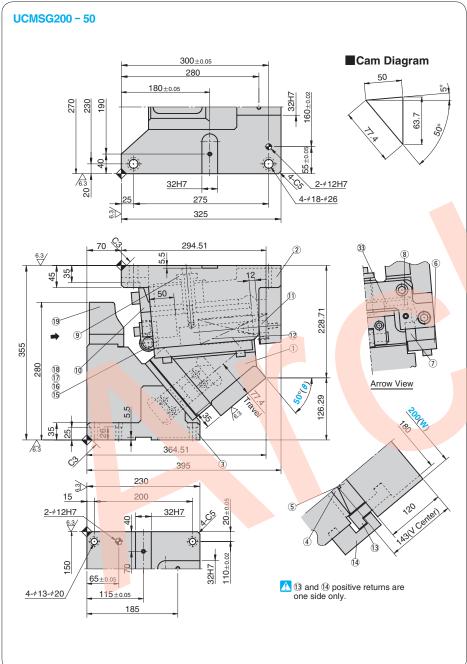
Initial 862.4
Load (87.9)

Length at final load 146
Length at initial load 196
Length at initial load 196
Free length 203

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)
77.4	147.0 (15.0)	294.0 (30.0)	862.4 (87.9)	7022.4 (715.9)	10035 (1024.0)	44.0	129.8	UCMSG	200	50

 (θ)

50



Order

(W) Catalog No. UCMSG 200



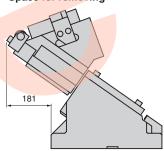
٥	ptio
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Option Code	Specifi <mark>cation</mark>	
K	Metric dedicated key is at both cam holder and drive (It is not assembled to the	er.
KA	Metric dedicated key is a both cam holder and drive (It is not assembled to the	er.
N13	The dowel holes for the and cam driver are change	



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

		abic of compone					
	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			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 16 Shaft		1	S45C(1045)			
			1	S45C(1045)			
	Roller Bracket Bushing			S45C(1045)			
				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

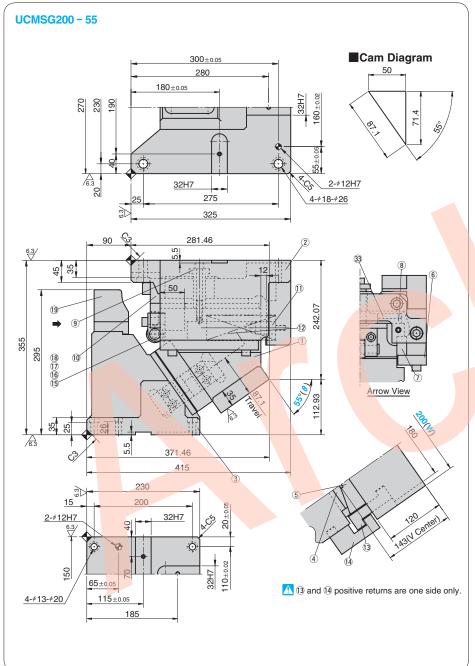
α: Spring Force at punch retraction of 5 mm e: Spring return amount when the punch returns 5 mm Final 7022.4 Load (715.9) Initial 862.4 Load (87.9) Length at final load 146 e=3.2 Length at initial load 196 Initial deflection 7 Free length 203

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)			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)	9981 (1018.5)	44.0	132.6	UCMSG	200	55

 (θ)

55



Order

■Table of Components

No. Description

4 Cam Slide Guide

5 Cam Slide Guide

7 Cam Slide Plate

9 Hanger Bolt Sleeve 1 S45C(1045)

1 Positive Return Follower 1 S45C(1045)

8 Lower Plate A

10 Stopper Plate

17 Roller Bracket

19 Roller Driver

33 Lower Plate B

12 Coil Spring

15 Roller

16 Shaft

18 Bushina

11 Spring Guide Pin

1 Cam Slider

② Cam Holder

3 Cam Driver

6 Upper Plate

(W) Catalog No. **UCMSG** 200



	Option

Option Code	Specifi <mark>cation</mark>	
K	Metric dedicated key is a both cam holder and driv (It is not assembled to the	er.
KA	Metric dedicated key is both cam holder and driv (It is not assembled to the	er.
N13	The dowel holes for the and cam driver are chan	



Qty Material and Remark

1 Bronze with Graphite

2 Bronze with Graphite

2 Bronze with Graphite

1 FC250

1 FC250

1 FC250

1 S45C(1045)

2 S45C(1045)

1 SS400(1020)

1 TJH50-203

1 S45C(1045)

1 S45C(1045)

1 S45C(1045)

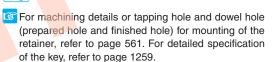
1 S45C(1045)

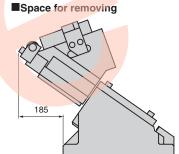
4 S45C(1045)

1 SOB16-22-20

1 FC250

1 Driver for Positive Return 1 Bronze with Graphite



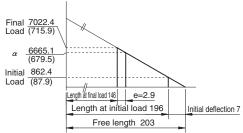


 This assumes that the (9) Hanger Bolt Sleeve is removed.

■Spring Diagram

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

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

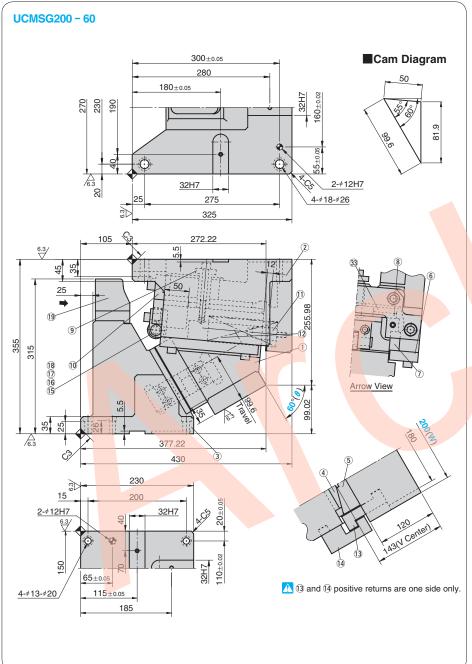


Bolts for assembly are not indicated.



FOR PIERCE AND FLANGE





	Working Force kN(tonf)		Spring Force N(kgf)		Return	Slider	Total			
	Standard Working Force (one million 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)	9927 (1013.0)	44.0	135.1	UCMSG	200	60



Order

Catalog No. UCMSG

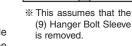
(W) (θ) 200 60



	Option

Metric dedicated key is attached fo both cam holder and driver. (It is not assembled to the main unit Metric dedicated key is attached fo both cam holder and driver. (It is not assembled to the main unit The dowel holes for the cam holder.)	Option Code	Specifi <mark>catio</mark>	n
both cam holder and driver. (It is not assembled to the main unit The dowel holes for the cam holder	K	both cam holder and dri	ver.
N112	KA	both cam holder and driv	er.
and cam driver are changed to #13	N13		





■Space for removing

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

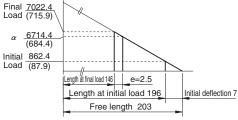
Table of Components							
No.	Description	Qty	Material and Remark				
1	Cam Slider	1	FC250				
2	Cam Holder	1	FC250				
3	Cam Driver	1	FC250				
4	Cam Slide Guide	1	S45C(1045)				
(5)	Cam Slide Guide	1	Bronze with Graphite				
6	Upper Plate	2	S45C(1045)				
7	Cam Slide Plate	2	Bronze with Graphite				
8	Lower Plate A	2	Bronze with Graphite				
9	Hanger Bolt Sleeve	1	S45C(1045)				
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				
	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

184

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

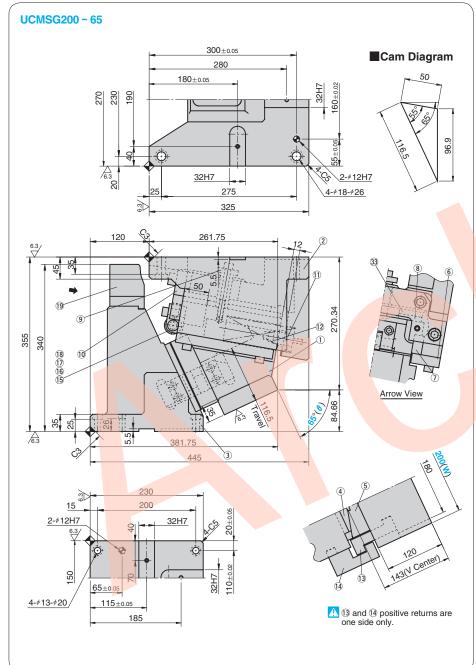


Bolts for assembly are not indicated.



FOR PIERCE AND FLANGE





	Working Force kN(tonf) Spring Fo		rce N(kgf) Return		Slider	Total				
Travel S	Standard Working Force (one million strokes)		Initial Load	Final Load	Force N(kgf)	Weight kg		Catalog No.	(W)	(θ)
116.5	147.0 (15.0)	294.4 (30.0)	862.4 (87.9)	7022.4 (715.9)	9875 (1007.6)	44.0	138.9	UCMSG	200	65

 (θ)

65



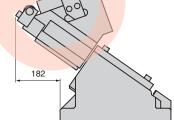
Order

Catalog No.

(W) -

	Opt
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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.



■Space for removing

Order UCMSG200 - 65 - 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.

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

■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)
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

Bolts for assembly are not indicated.