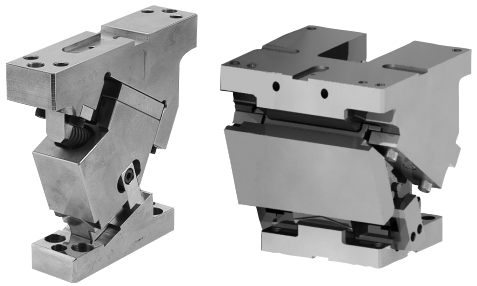
Aerial Cam Unit General Description of UCMSG

FOR PIERCE AND FLANGE



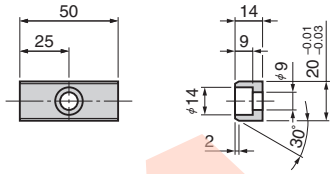
- Highly rigid structure with the overseas automobile manufacturer specification
- 50, 65, 80, 150, 200mm and 300mm are available for the mounting width.
- Angle 0° to 65° increments of 5° is available. (For 65 mm wide, angle 20° to 60° is in increments of 10°).
- ISO springs are used.

■ Option for UCMSG

● Metric Key Specification(-K)

UCMSG50/65

LKU20-50 (with 3-M8 × 15 bolts)

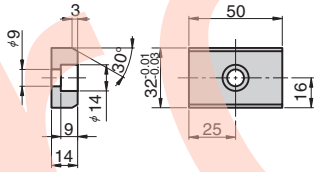


UCMSG80

LKU32-50 (with 3-M8 × 15 bolts)

UCMSG150/200/300

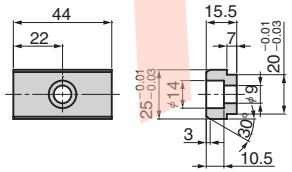
LKU32-50 (with 6-M8 × 15 bolts)



● Metric Key Specification(-KA)

UCMSG50

LKA25-20-44 (with 3-M8 × 15 bolts)

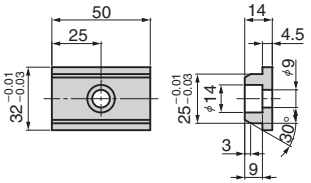


UCMSG80

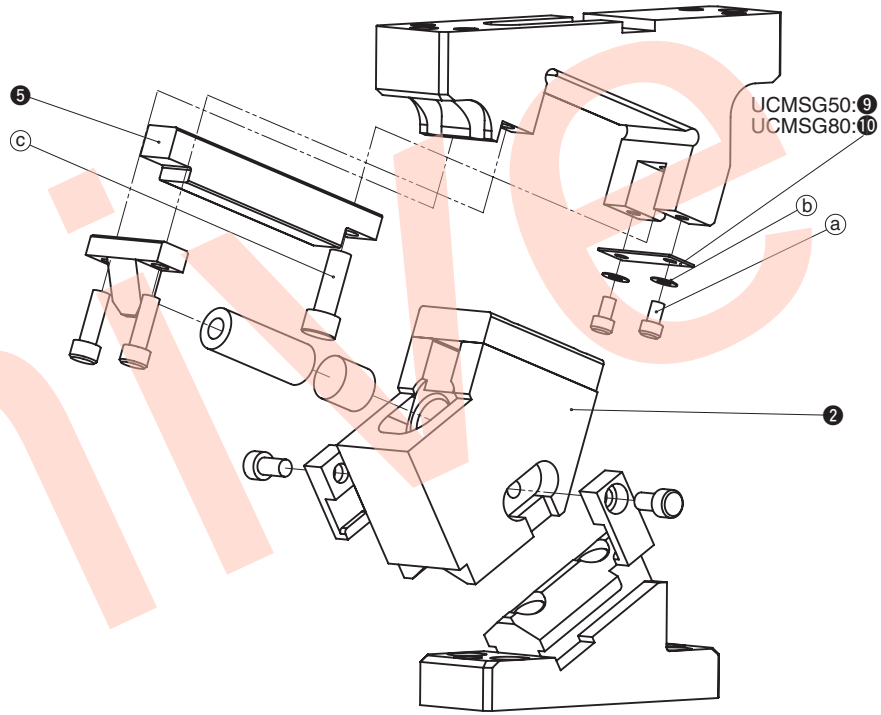
LKE25-32-50 (with 3-M8 × 15 bolts)

UCMSG150/200/300

LKE25-32-50 (with 6-M8 × 15 bolts)



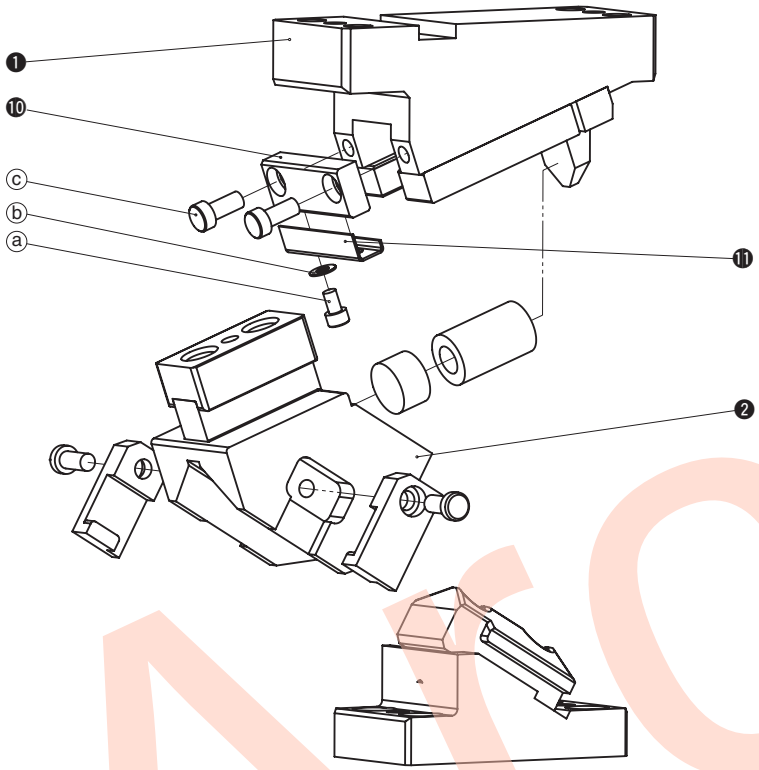
■UCMSG50 (UCMSG80) Structure and Assembly / Disassembly



- Disassembly method of UCMSG50 (same for UCMSG80)
  1) Remove hexagon socket head bolt (ⓐ) and washer (ⓑ) and remove safety plate (UCMSG50:❾ UCMSG80:❿).
  2) Remove hexagon socket head bolt (ⓒ).
  3) Shift guide bar (❺) to the back then remove cam slider (❷) 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

■UCMSG65 Structure and Assembly / Disassembly



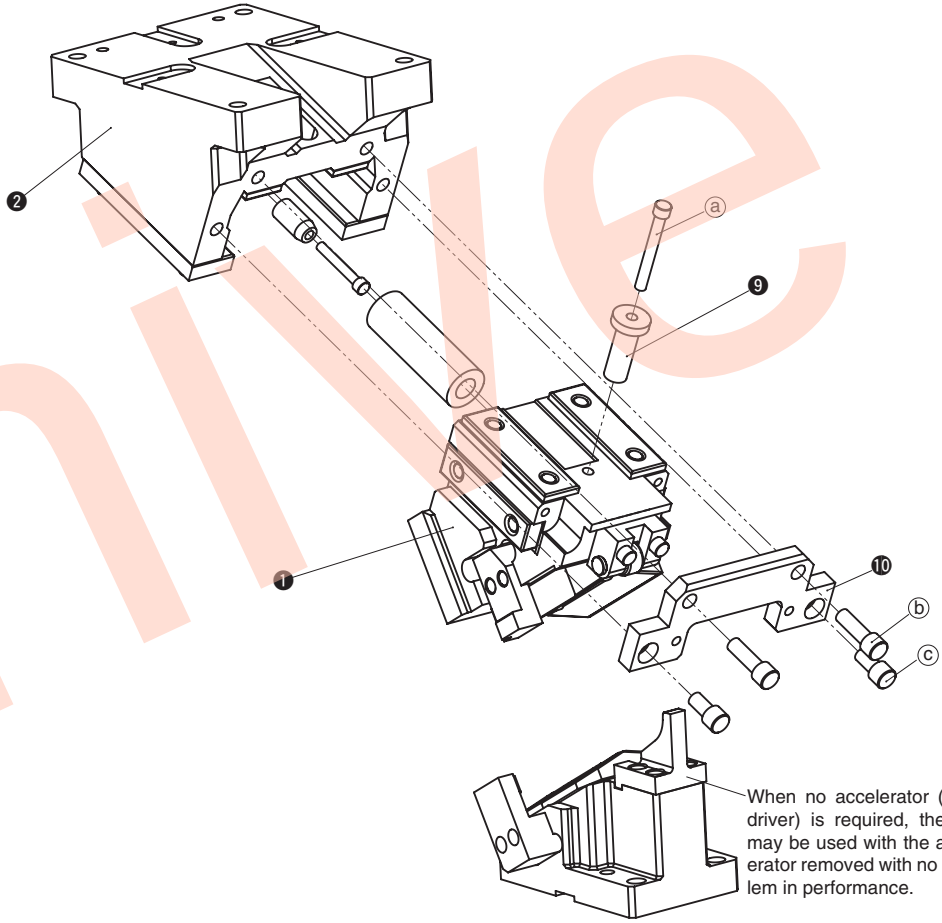
●Disassembly method of UCMSG65

1) Remove hexagon socket head bolt (ⓐ) and washer (ⓑ), and remove safety plate (⓫).
2) Loosen hexagon socket head bolt (ⓒ). Remove stopper plate (❿).
3) Pull cam slider (❶) from cam holder (❷) 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



When no accelerator (roller driver) is required, the unit may be used with the accelerator removed with no problem in performance.

●Disassembly method of UCMSG150, 200, 300

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

●Assembly method of UCMSG150, 200, 300

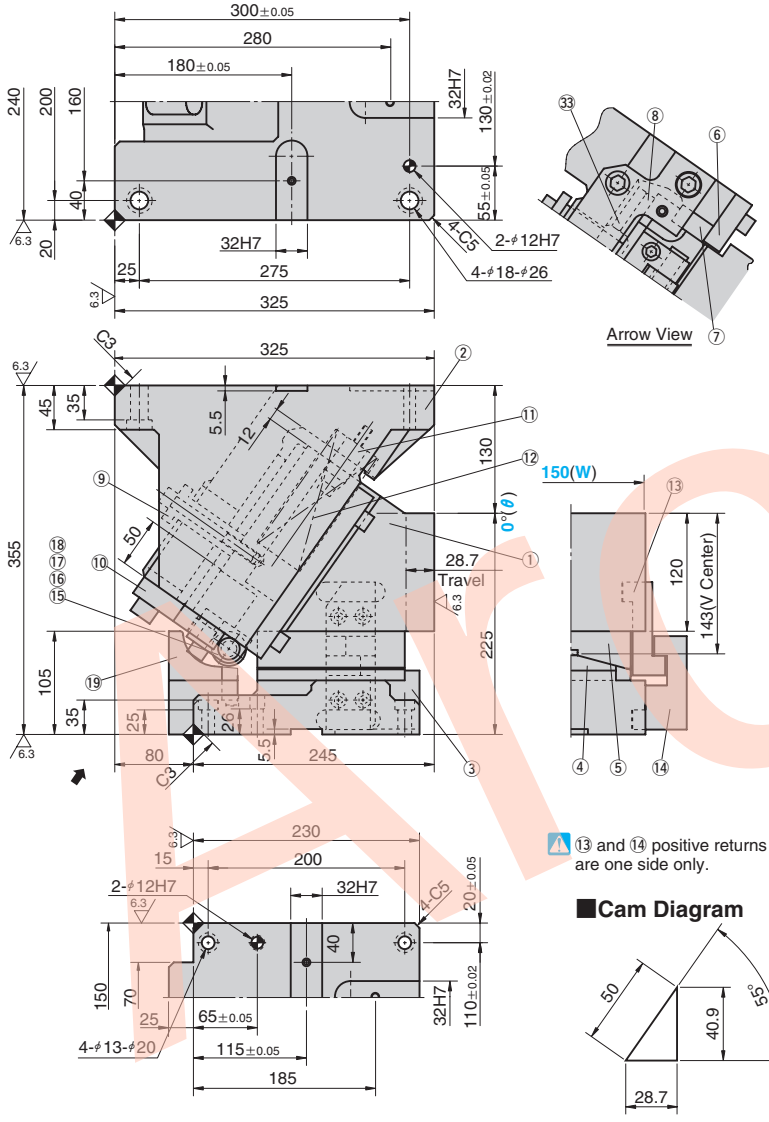
1) Assemble components in the reverse order of disassembly.
   - Make sure that there is no foreign matter on the sliding area and assemble components.
   - The clearance between the cam slider and the cam holder is controlled. Match the stamped serial number on the holder and slider before assembly.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

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 00



⚠ ⑬ and ⑭ positive returns are one side only.

■Cam Diagram

Travel S	Working Force kN(tonf) Standard Working Force (one million strokes)	Working Force kN(tonf) Allowable Working Force (300,000 strokes)	Spring Force N(kgf) Initial Load	Spring Force N(kgf) Final Load	Return Force N(kgf)	Slider Weight kg	Total 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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	00

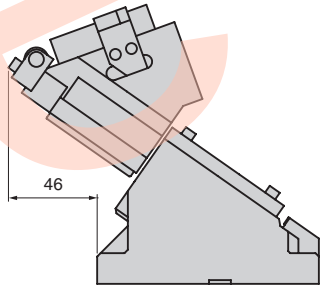
Option

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 φ13.

Order UCMSG150 – 00 – 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.

■Space for removing



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

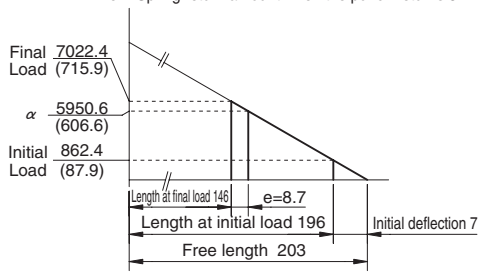
■Table of Components

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



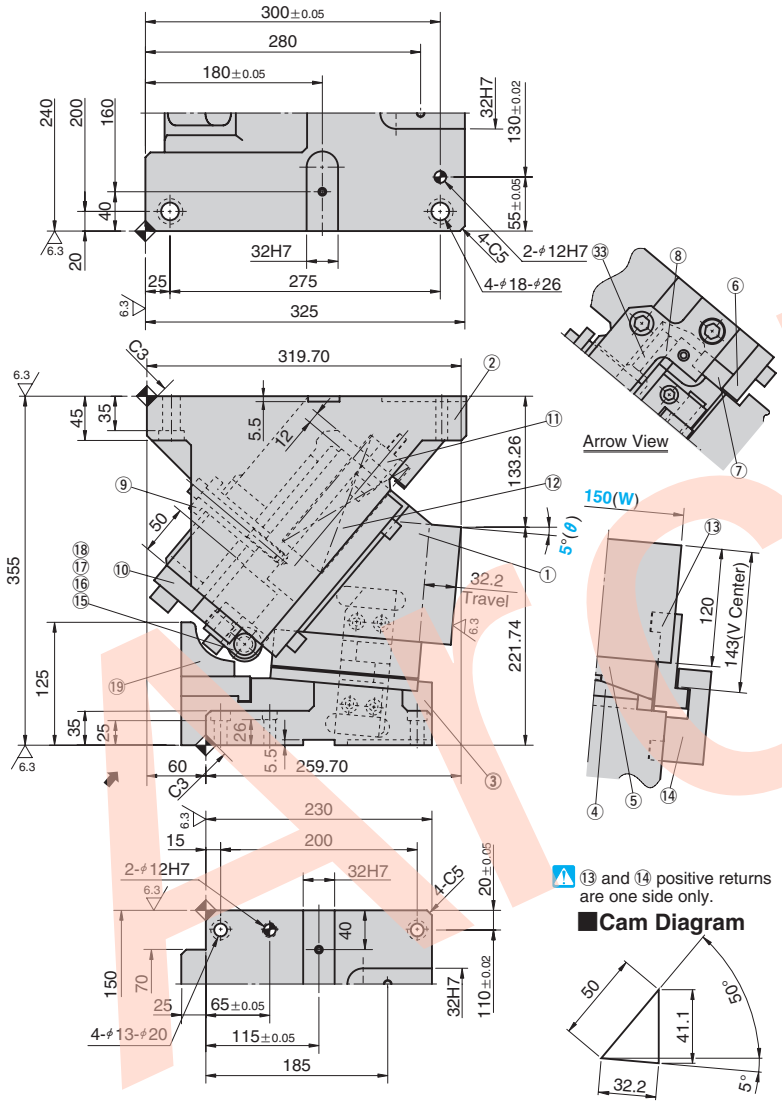
⚠ Bolts for assembly are not indicated.

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 05



⑬ and ⑭ positive returns are one side only.

■Cam Diagram

Travel S	Working Force kN(tonf) Standard Working Force (one million strokes)	Working Force kN(tonf) Allowable Working Force (300,000 strokes)	Spring Force N(kgf) Initial Load	Spring Force N(kgf) Final Load	Return Force N(kgf)	Slider Weight kg	Total 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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	05

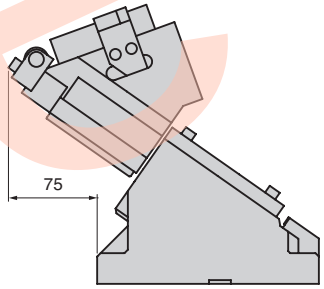
Option

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 φ13.

Order UCMSG150 – 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.

■Space for removing



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

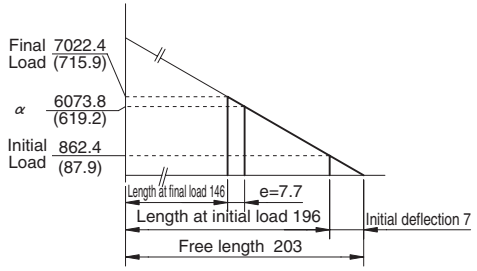
■Table of Components

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

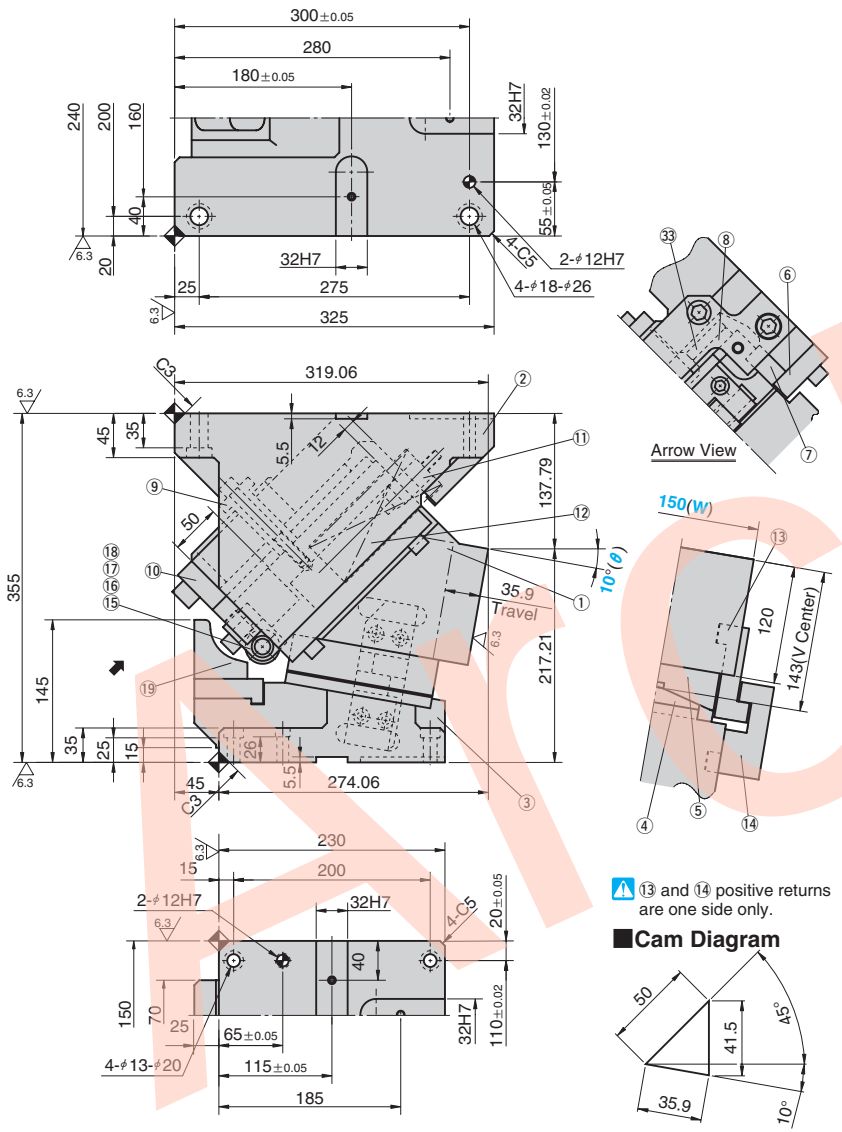
- Spring used TJH50-203 (1 piece)
- Spring constant 123.2N/mm(12.56kgf/mm)
- Guideline of spring durability 300,000 strokes

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



Bolts for assembly are not indicated.

UCMSG150 – 10



⚠ ⑬ and ⑭ positive returns are one side only.

■Cam Diagram

Travel S	Working Force kN(tonf) Standard Working Force (one million strokes)	Working Force kN(tonf) Allowable Working Force (300,000 strokes)	Spring Force N(kgf) Initial Load	Spring Force N(kgf) Final Load	Return Force N(kgf)	Slider Weight kg	Total 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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	10

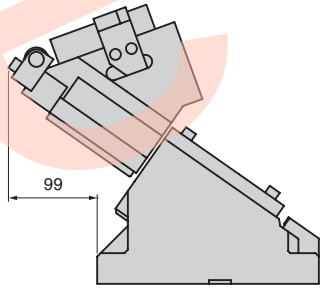
Option

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 φ13.

Order 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.

■Space for removing



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

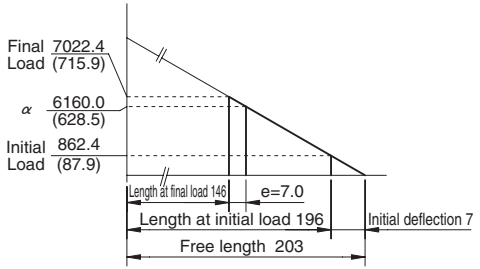
■Table of Components

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



⚠ Bolts for assembly are not indicated.

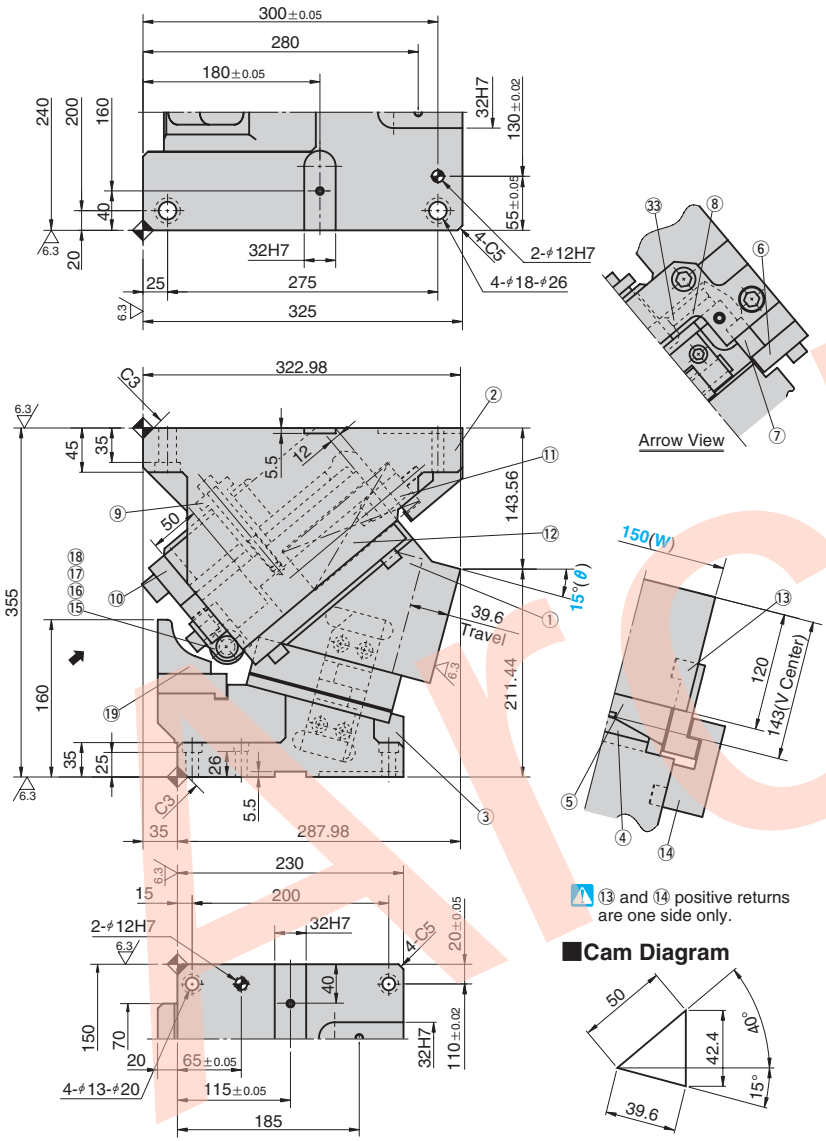
UCMSG 150

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 15



Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	15

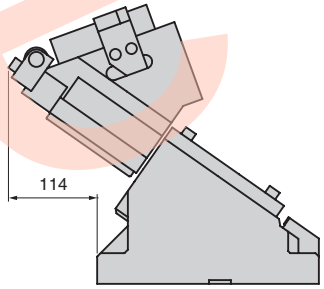
Option

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 φ13.

Order UCMSG150 – 15 – 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.

■Space for removing



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

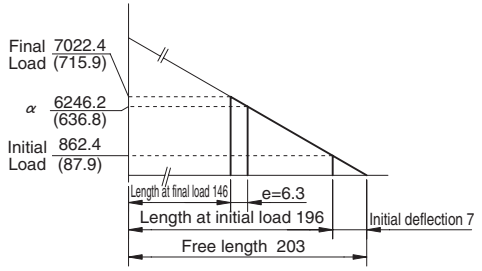
■Table of Components

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



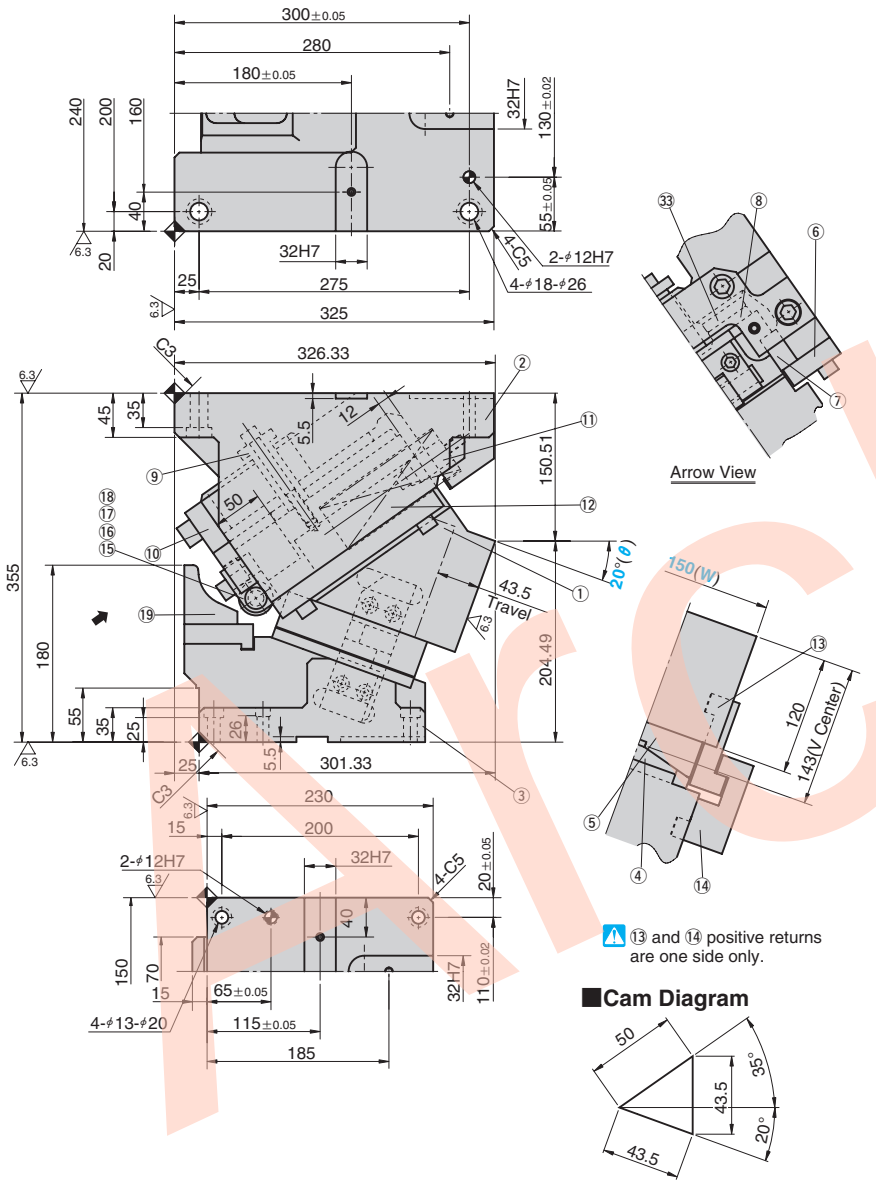
Bolts for assembly are not indicated.

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 20



■Cam Diagram

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	20

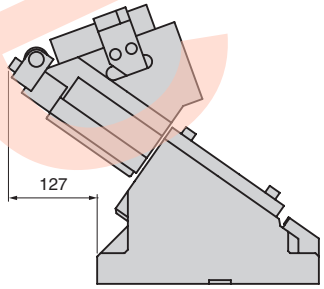
Option

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 φ13.

Order UCMSG150 – 20 – 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.

■Space for removing



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

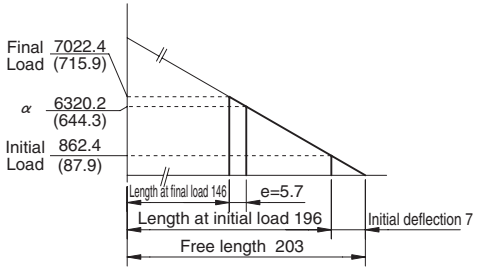
■Table of Components

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



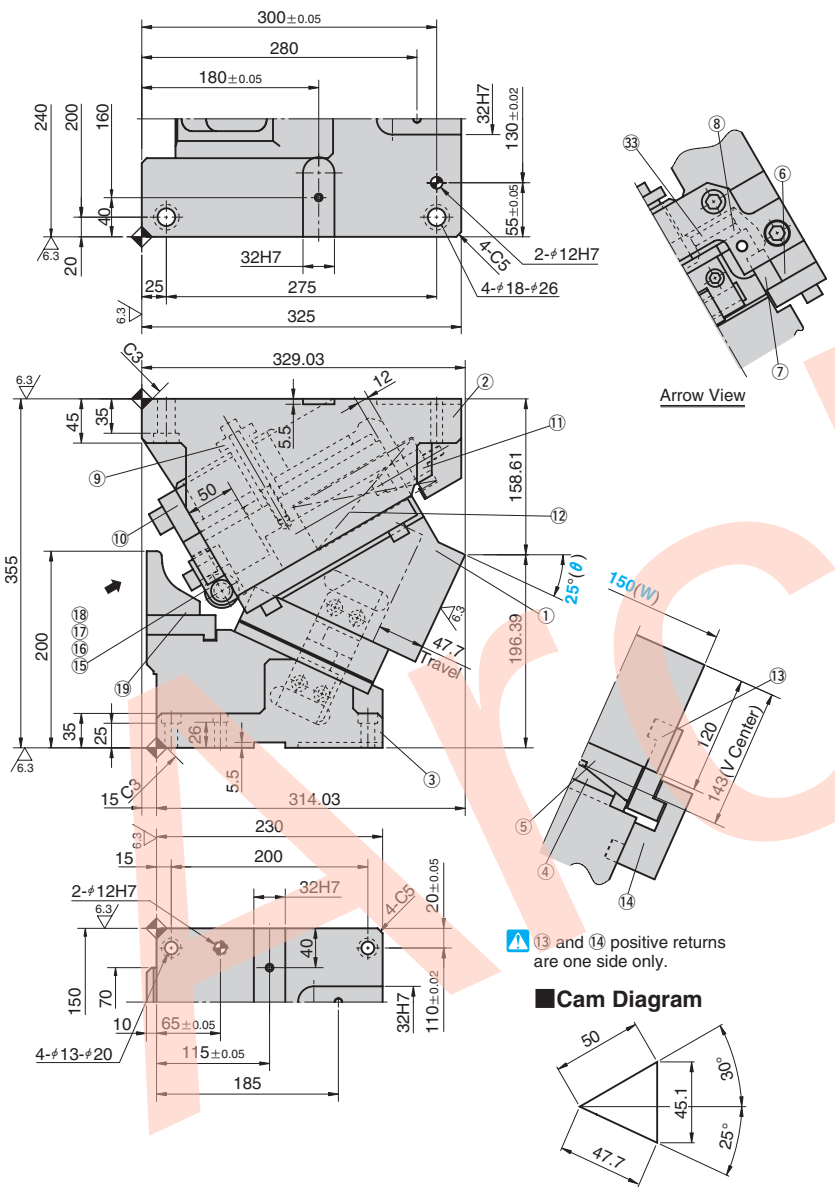
Bolts for assembly are not indicated.

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 25



■Cam Diagram

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	25

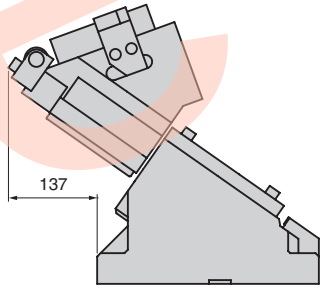
Option

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 φ13.

Order UCMSG150 – 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.

■Space for removing



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

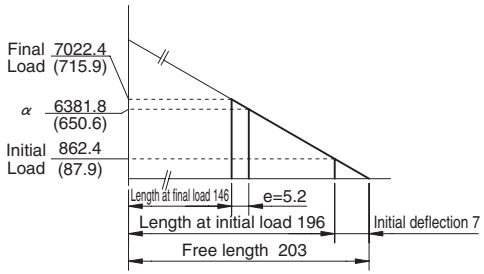
■Table of Components

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



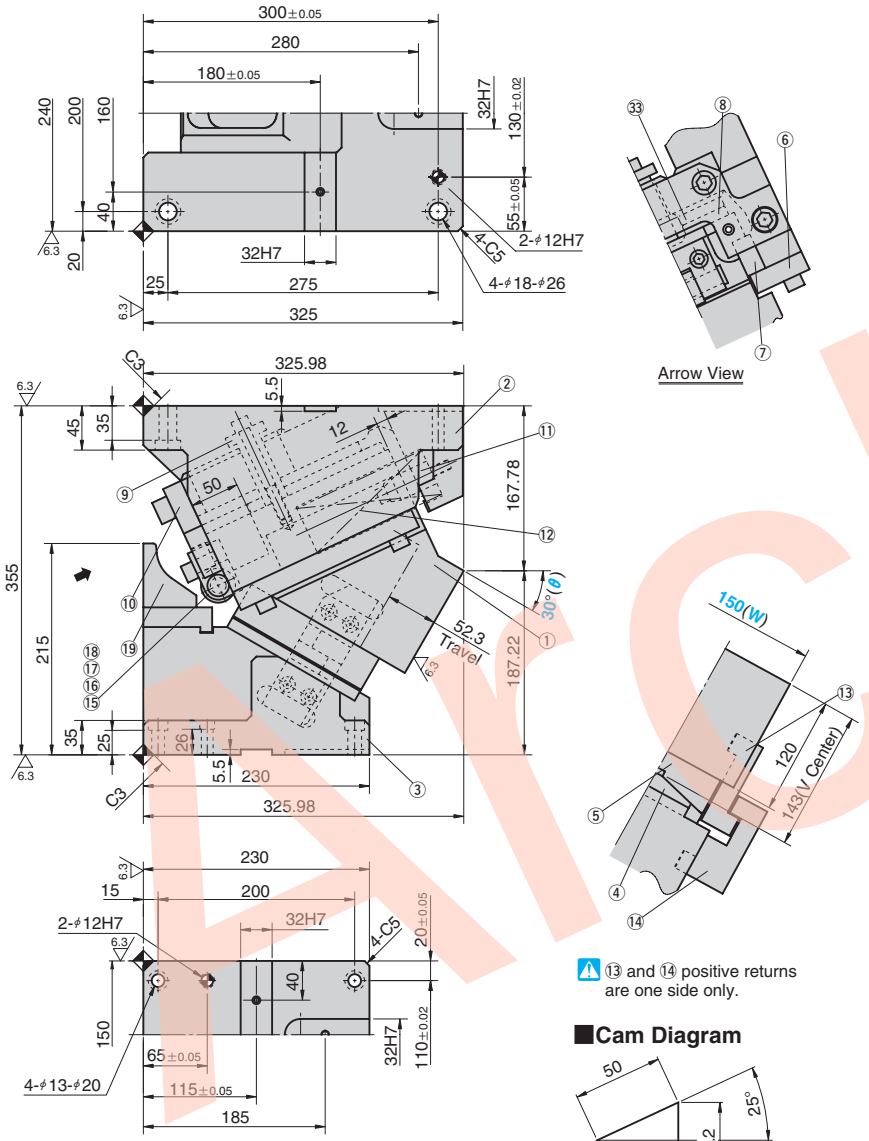
⚠ Bolts for assembly are not indicated.

Aerial Cam Unit

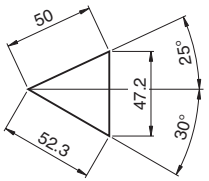
FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 30



■Cam Diagram



Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	30

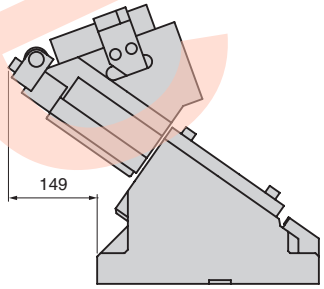
Option

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 φ13.

Order UCMSG150 – 30 – 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.

■Space for removing



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

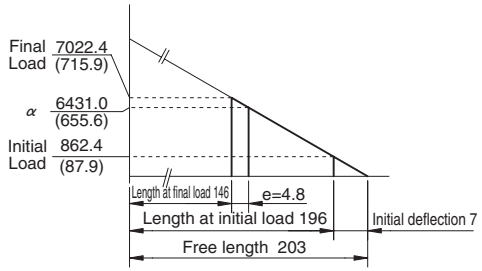
■Table of Components

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



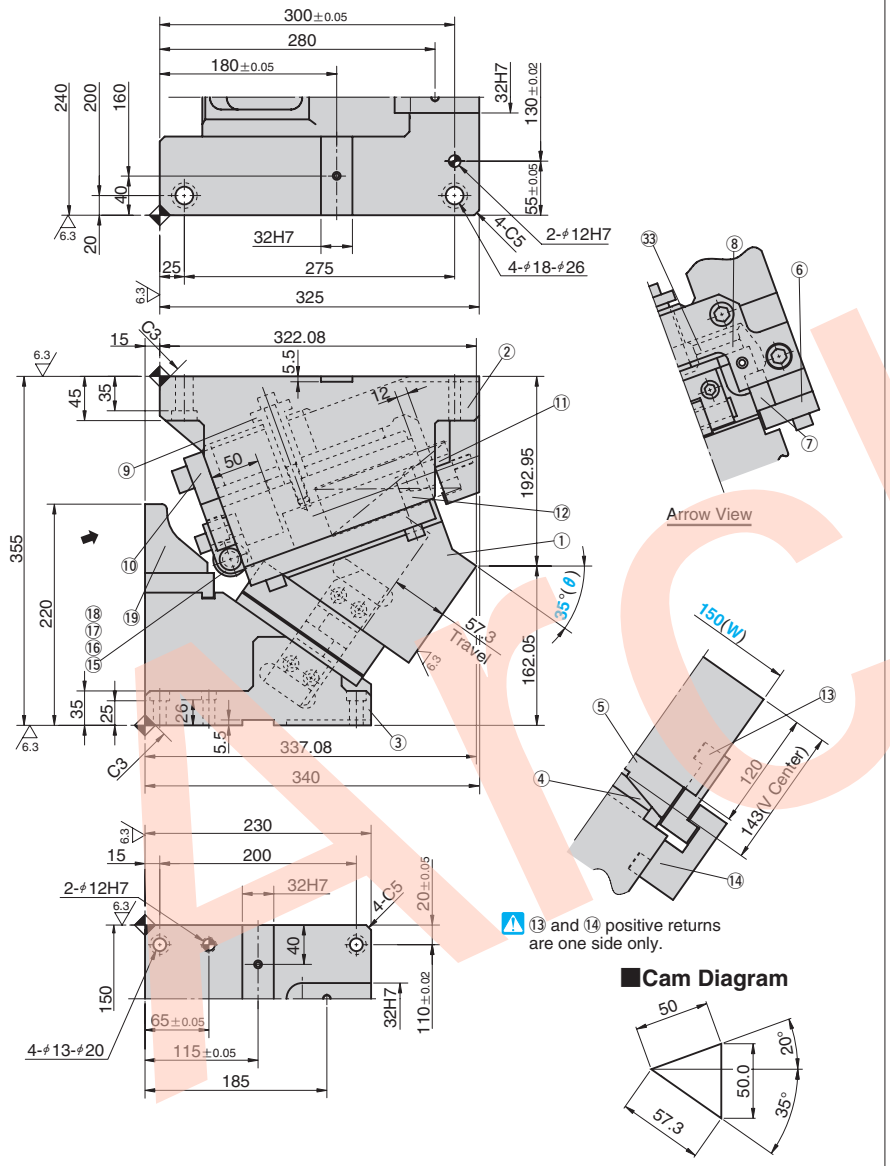
Bolts for assembly are not indicated.

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 35



⚠ ⑬ and ⑭ positive returns are one side only.

■Cam Diagram

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	35

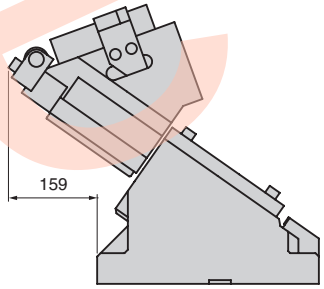
Option

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 φ13.

Order UCMSG150 – 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.

■Space for removing



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

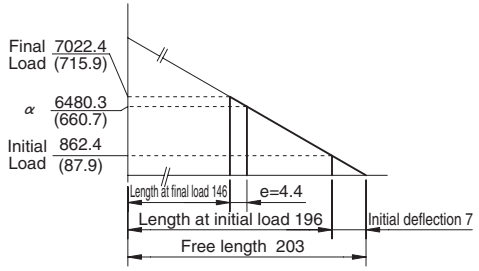
■Table of Components

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



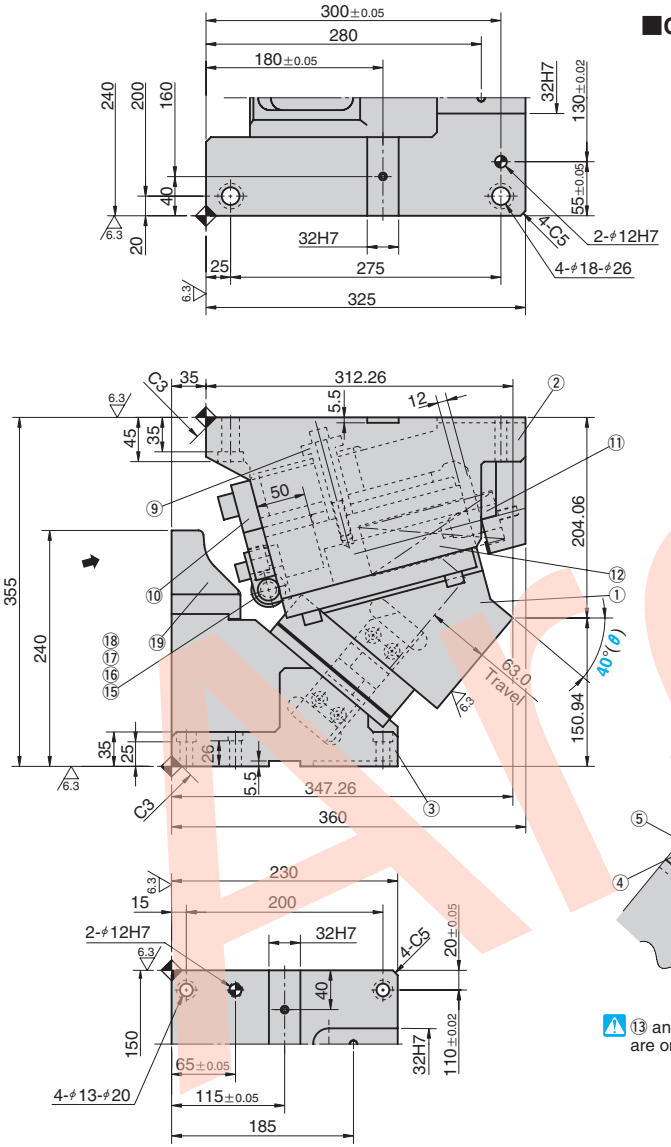
⚠ Bolts for assembly are not indicated.

Aerial Cam Unit

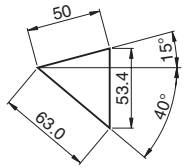
FOR PIERCE AND FLANGE

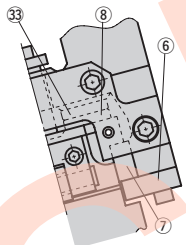
CAD FILE

UCMSG150 – 40

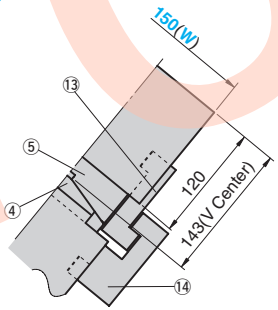


■Cam Diagram





Arrow View



⚠ ⑬ and ⑭ positive returns are one side only.

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	40

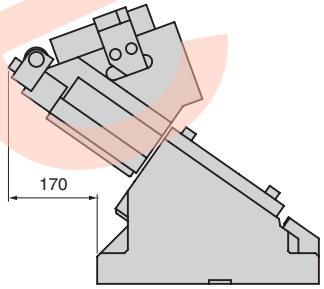
Option

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 φ13.

Order UCMSG150 – 40 – 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.

■Space for removing



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

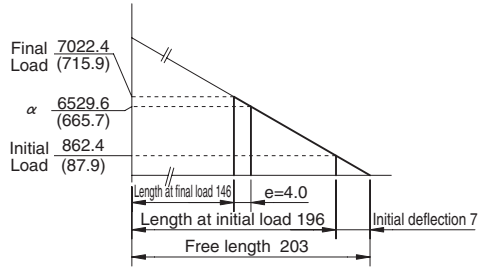
■Table of Components

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



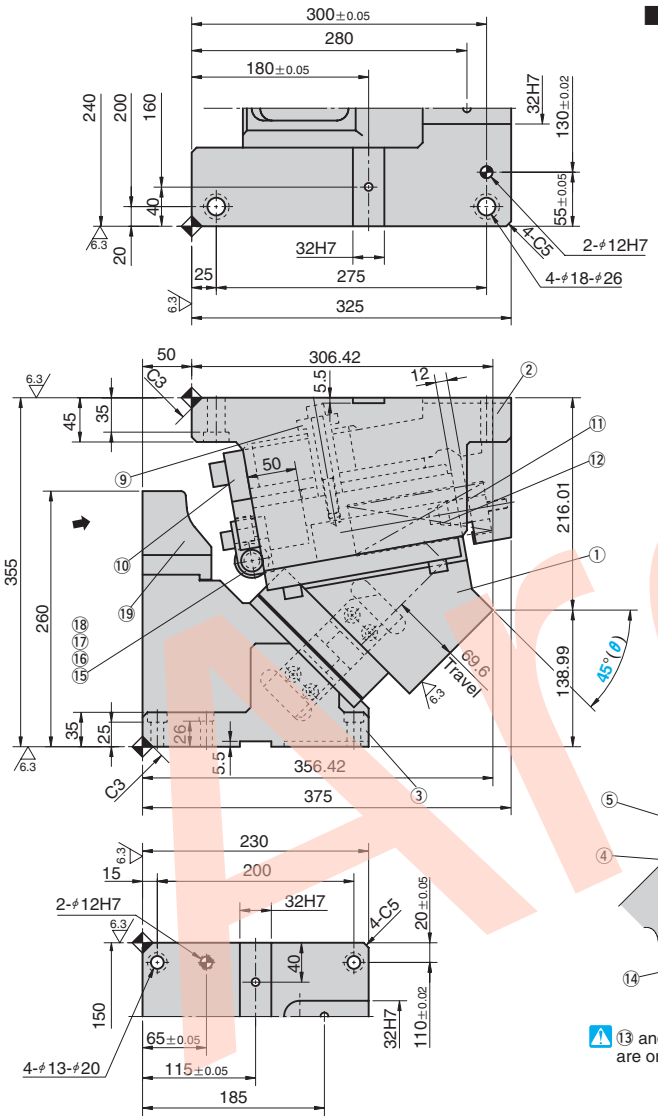
⚠ Bolts for assembly are not indicated.

Aerial Cam Unit

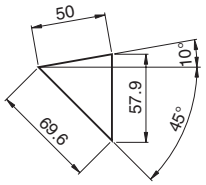
FOR PIERCE AND FLANGE

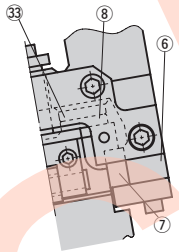
CAD FILE

UCMSG150 – 45

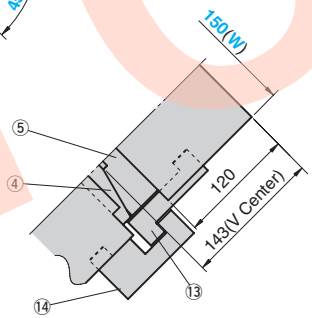


■Cam Diagram





Arrow View



⚠ ⑬ and ⑭ positive returns are one side only.

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	45

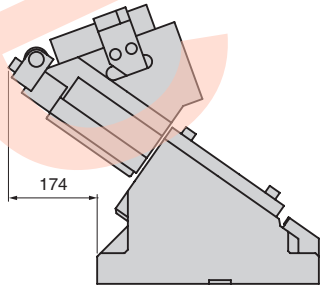
Option

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 φ13.

Order UCMSG150 – 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.

■Space for removing



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

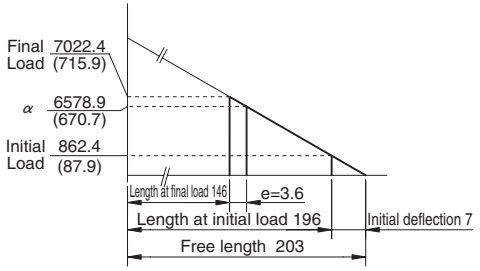
■Table of Components

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



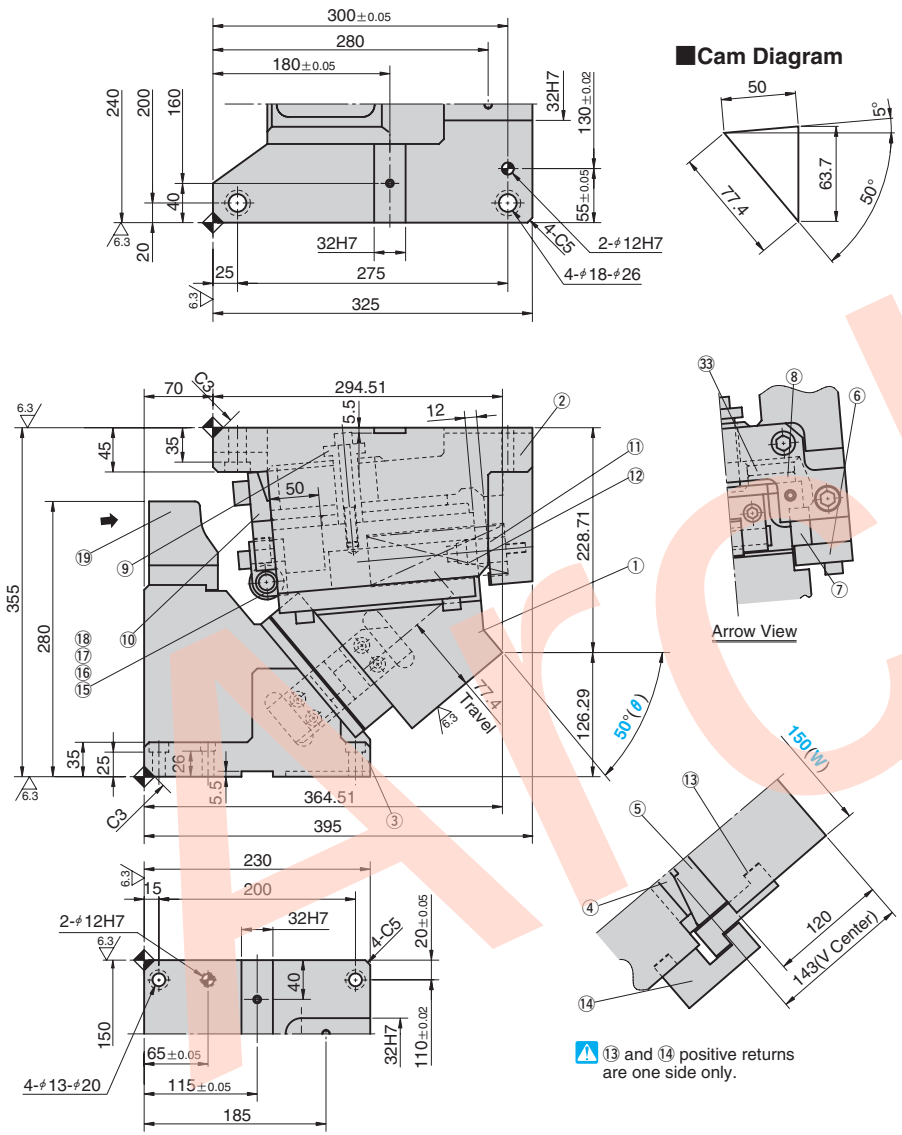
⚠ Bolts for assembly are not indicated.

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 50



■Cam Diagram

Arrow View

⚠ ⑬ and ⑭ positive returns are one side only.

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	50

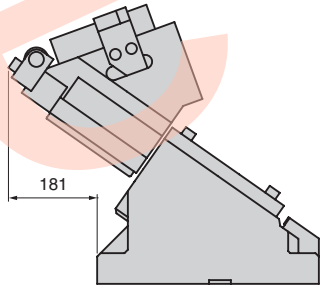
Option

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 φ13.

Order UCMSG150 – 50 – 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.

■Space for removing



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

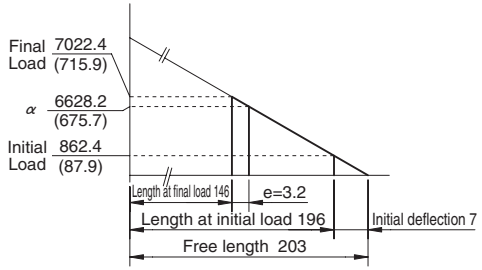
■Table of Components

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



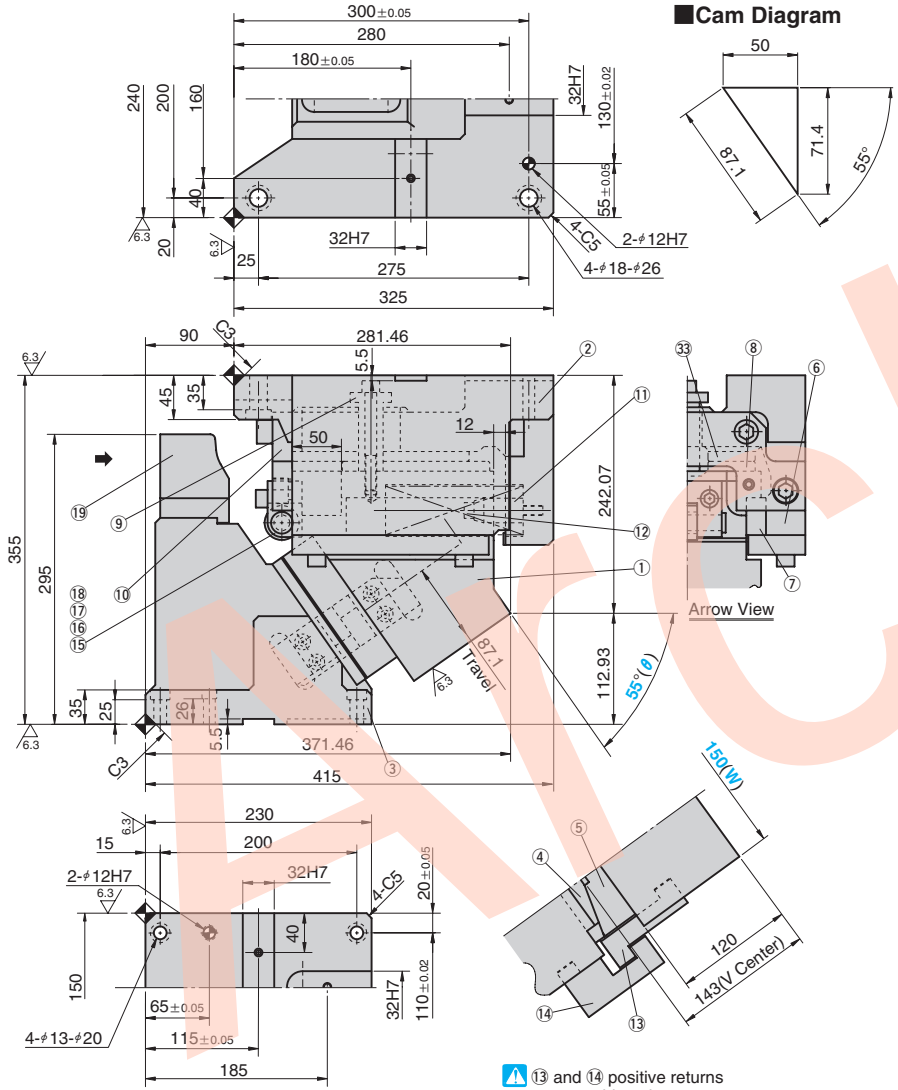
⚠ Bolts for assembly are not indicated.

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 55



■Cam Diagram

⚠ ⑬ and ⑭ positive returns are one side only.

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	55

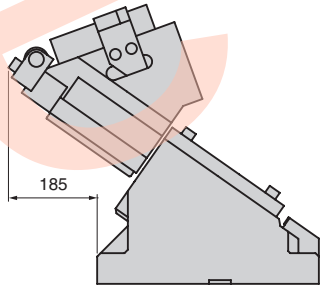
Option

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 φ13.

Order UCMSG150 – 55 – 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.

■Space for removing



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

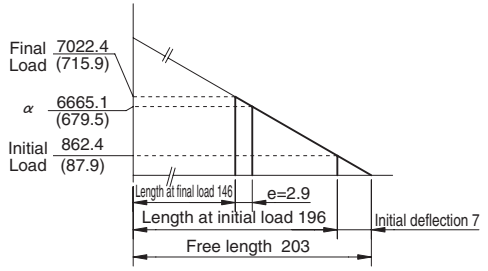
■Table of Components

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



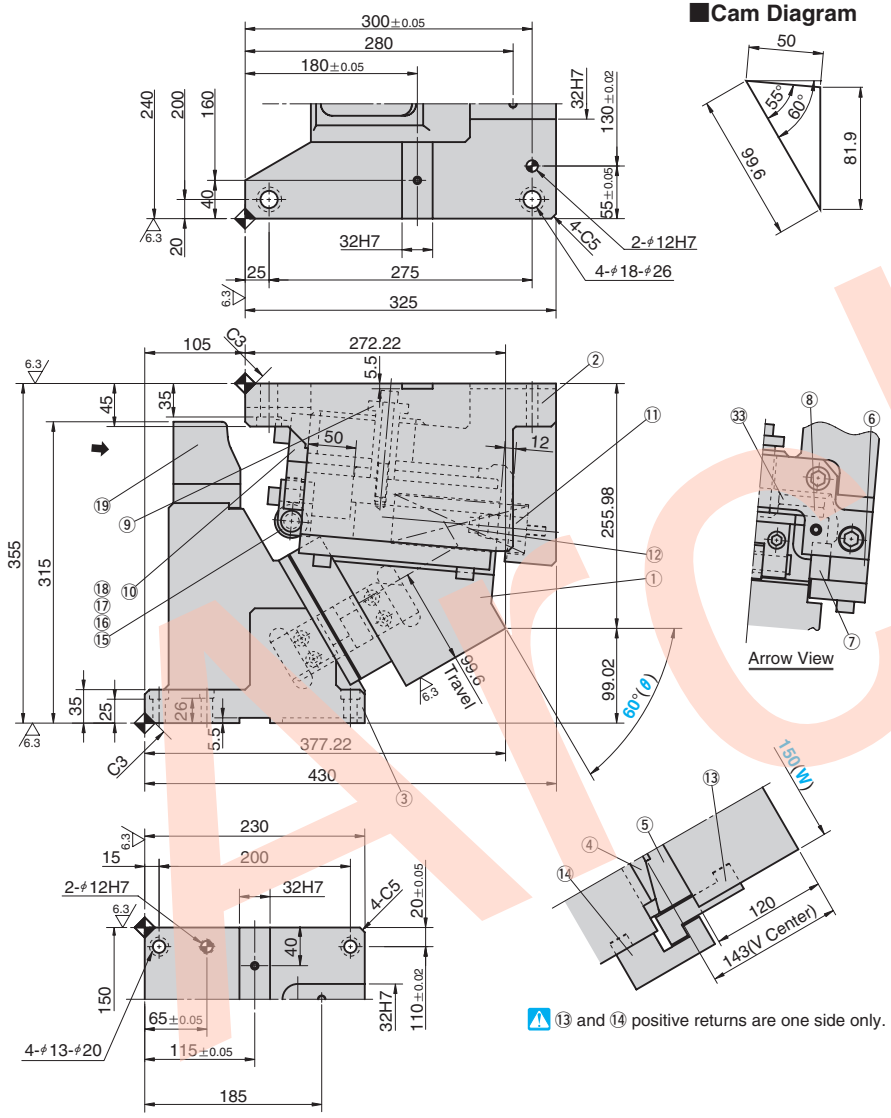
⚠ Bolts for assembly are not indicated.

Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 60



■Cam Diagram

⚠ ⑬ and ⑭ positive returns are one side only.

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	60

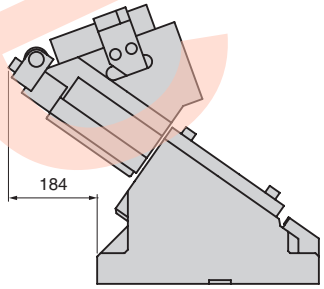
Option

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 φ13.

Order UCMSG150 – 60 – 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.

■Space for removing



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

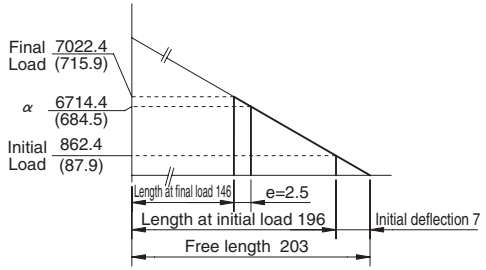
■Table of Components

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



⚠ Bolts for assembly are not indicated.

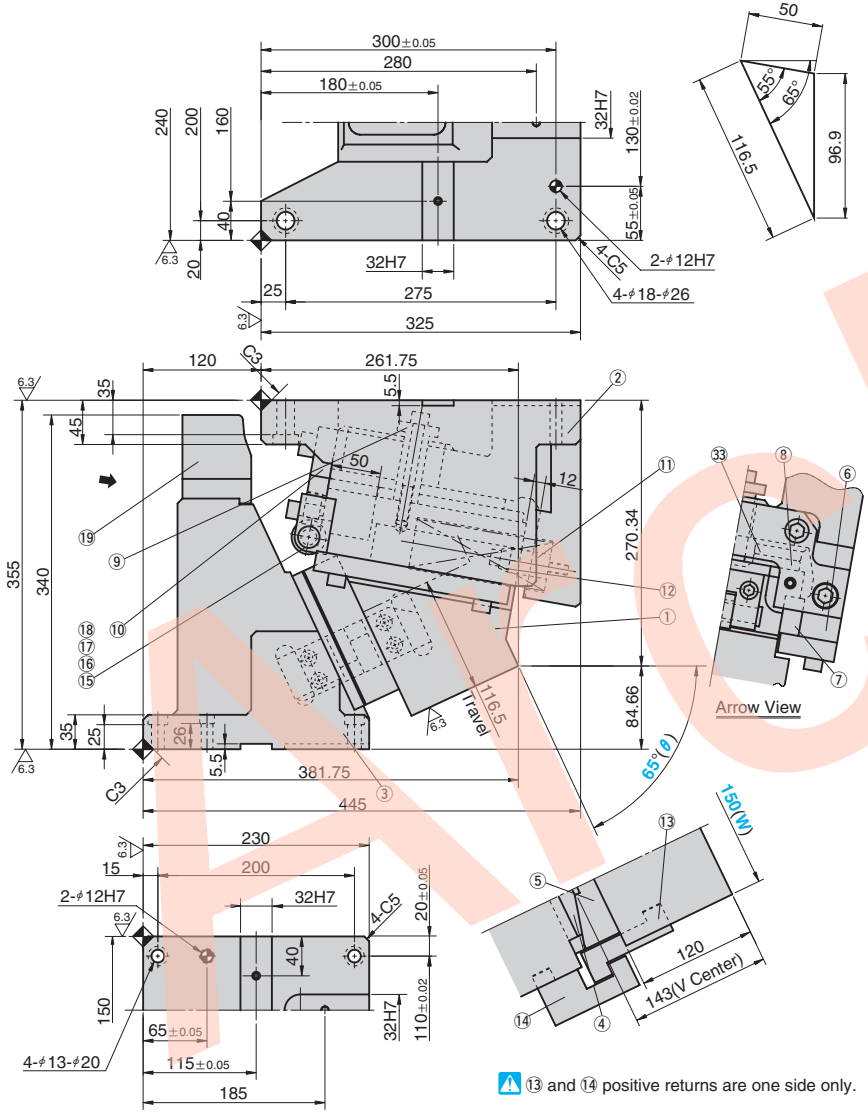
Aerial Cam Unit

FOR PIERCE AND FLANGE

CAD FILE

UCMSG150 – 65

■Cam Diagram



⚠ ⑬ and ⑭ positive returns are one side only.

Travel S	Working Force kN(tonf)		Spring Force N(kgf)		Return Force N(kgf)	Slider Weight kg	Total Weight kg	Catalog No.	(W)	(θ)
	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Initial Load	Final Load						
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

Order

Catalog No.	(W)	–	(θ)
UCMSG	150	–	65

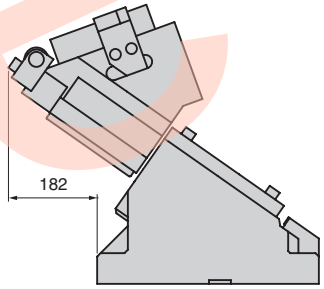
Option

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 φ13.

Order UCMSG150 – 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.

■Space for removing



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

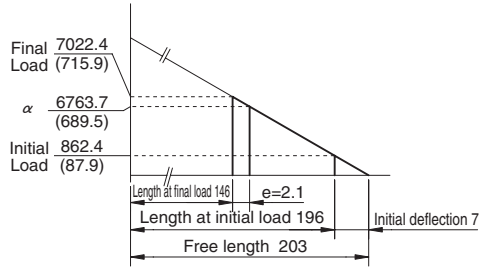
■Table of Components

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



⚠ Bolts for assembly are not indicated.