

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

**WORKING FORCE 3-TON TYPE** 



●The standard working force (one million strokes) achieved 29.4 kN with the mounting width of 52 mm.

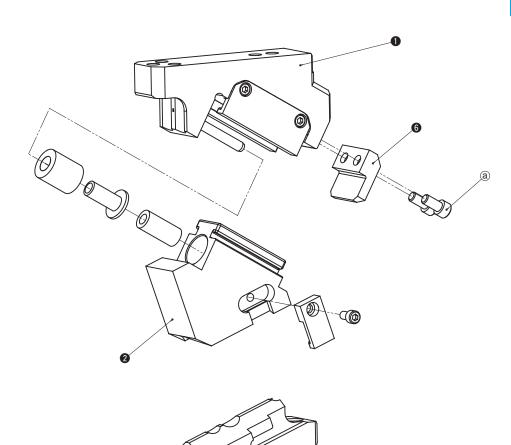
The allowable working force (300,000 strokes) is 58.8 kN.

- Improved durability of coil springs compared to old products.(SACD)
- V-shaped guide.
- Available angle is 0°to 60°at increments of 5°

#### **■ SACE Specifications**

Mounting	Surface	West to a		Working Fo	0	
W	н	Working Angle	Travel	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)	Spring Force N(kgf)
		00	30.2			
		05	33.4			
		10	36.6			
		15	39.9			
		20	43.3			
		25	47.0			
52	75	30	51.0	29.4(3.0)	58.8(6.0)	1425.5(145.5)
		35	55.4			
		40	60.4			
		45	66.2			
		50	73.1			
		55	64.5			
		60	54.0			

#### ■SACE Structure and Assembly / Disassembly

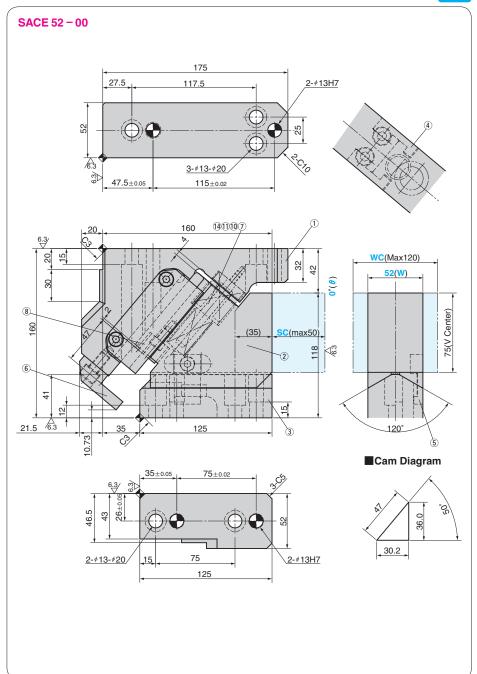


- Disassembly method of SACE52
- 1) Remove hexagon socket head bolt (a), and remove stopper plate (6).
- 2) Pull and remove cam slider (2) from cam holder (1) to the rear.
- Assembly method of SACE52
- 1)Assemble components in the reverse order of disassembly.
- · Make sure that there is no foreign matter 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.



**WORKING FORCE 3-TON TYPE** 





	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Total			
Travel S		Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
30.2	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1913 (195.2)	8.8	SACE	52	00



Catalog No. SACE



Option Code	Specification
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
WC	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to \$\phi\$12H7

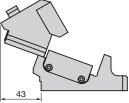
 ↑ Determine the pierce center position in the range of the cam width.



SACE52 - 00 - SC40 - N12 SACE52-00 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

# ■Space for removing



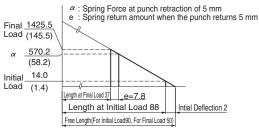
#### **■** Table of Components

No.	Description	Qty	Material and Remark
1	Cam Holder	1	FCD550
2	Cam Slider	1	FCD550 with Graphite
3	Cam Driver	1	SF700
4	Slide Keeper	2	S45C with Graphite
(5)	Positive Return Follower	1	Bronze
6	Stopper Plate	1	S45C(1045)
7	Spring Guide Pin	1	S45C(1045)
8	Stopper	1	Urethane
10	Coil Spring	1	TF20-90
11)	Coil Spring	1	TM30-50
14)	Spring Guide Bush	1	Bronze

⚠ Bolts for assembly are not indicated.

#### **■** Spring Diagram

<ul><li>Spring Used</li></ul>	For Initial Load	TF20-90(1 piece)	
		7.01N/mm(0.72kgf/mm)	
	For Final Load	TM30-50(1 piece)	
		109.65N/mm(11.18kgf/mm)	
<ul> <li>Guideline of spi</li> </ul>	ring durability	TF20-90 1,000,000 strokes	,
		TM30-50 1,000,000 strokes	5

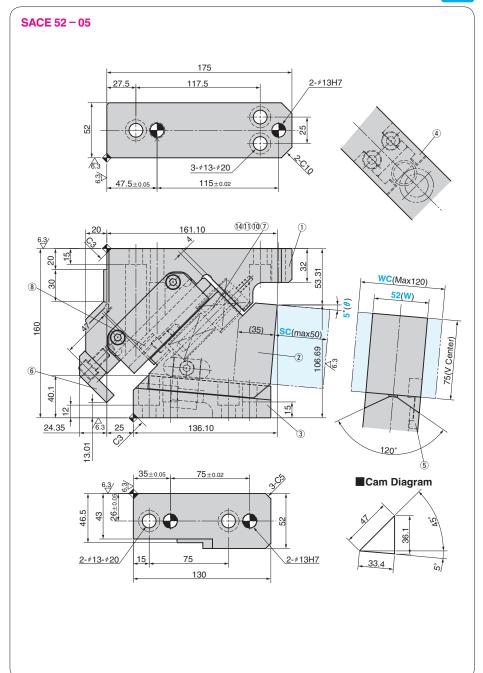


SACE 52



**WORKING FORCE 3-TON TYPE** 





	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Total			
Travel S	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
33.4	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1910 (194.9)	8.6	SACE	52	05



Catalog No. (W) – (*θ*SACE 52 – 05



Option Code	Specification
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

Determine the pierce center position in the range of the cam width.



SACE52 - 05 - SC40 - N12 SACE52 - 05 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole,finished hole) for retainer.

54

**■**Space for removing

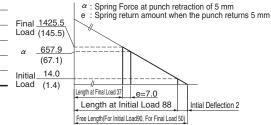
#### **■** Table of Components

No.	Description	Qty	Material and Remark
1	Cam Holder	1	FCD550
2	Cam Slider	1	FCD550 with Graphite
3	Cam Driver	1	SF700
4	Slide Keeper	2	S45C with Graphite
(5)	Positive Return Follower	1	Bronze
6	Stopper Plate	1	S45C(1045)
7	Spring Guide Pin	1	S45C(1045)
8	Stopper	1	Urethane
10	Coil Spring	1	TF20-90
11)	Coil Spring	1	TM30-50
14)	Spring Guide Bush	1	Bronze

Bolts for assembly are not indicated.

#### **■** Spring Diagram

		-		
rk	<ul> <li>Spring Used</li> </ul>	For Initial Load	TF20-90(1 piece)	
			7.01N/mm(0.72kgf/mm)	
te		For Final Load	TM30-50(1 piece)	
			109.65N/mm(11.18kgf/mm)	
_	<ul> <li>Guideline of sp</li> </ul>	ring durability	TF20-90 1,000,000 strokes	,
			TM30-50 1,000,000 strokes	,
—				
_	a	: Spring Force at	t punch retraction of 5 mm mount when the punch returns 5 n	_
	Final 1425.5	. Spring return a	imount when the pullon returns 5 h	11



SACE 52

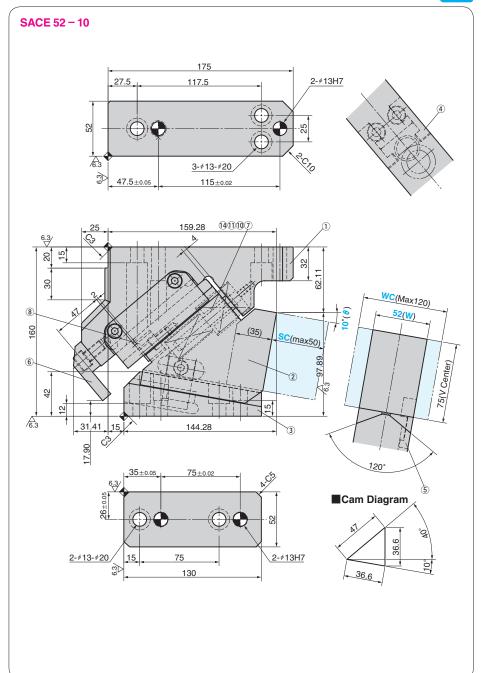


807

## **Aerial Cam Unit**

**WORKING FORCE 3-TON TYPE** 





	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Total			
	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
36.6	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1906 (194.5)	8.7	SACE	52	10



Catalog No. SACE



Option Code	Specification
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

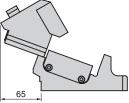
Determine the pierce center position in the range of the cam width.



**SACE52-10-SC40-N12** SACE52-10 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

# **■**Space for removing



#### **■** Table of Components

	<u> </u>								
No.	Description	Qty	<b>Material and Remark</b>						
1	Cam Holder	1	FCD550						
2	Cam Slider	1	FCD550 with Graphite						
3	Cam Driver	1	SF700						
4	Slide Keeper	2	S45C with Graphite						
(5)	Positive Return Follower	1	Bronze						
6	Stopper Plate	1	S45C(1045)						
7	Spring Guide Pin	1	S45C(1045)						
8	Stopper	1	Urethane						
10	Coil Spring	1	TF20-90						
11)	Coil Spring	1	TM30-50						
14)	Spring Guide Bush	1	Bronze						

Bolts for assembly are not indicated.

#### Spring Diagram

		grain	
nd Remark	<ul><li>Spring Used</li></ul>	For Initial Load	TF20-90(1 piece)
			7.01N/mm(0.72kgf/mm)
ith Graphite		For Final Load	TM30-50(1 piece)
			109.65N/mm(11.18kgf/mm)
Graphite	<ul> <li>Guideline of spring durabili</li> </ul>		TF20-90 1,000,000 strokes
			TM30-50 1,000,000 strokes
5)	Final 1425.5 Load (145.5)	: Spring Force a : Spring return a	t punch retraction of 5 mm mount when the punch returns 5 mm
	723 7		

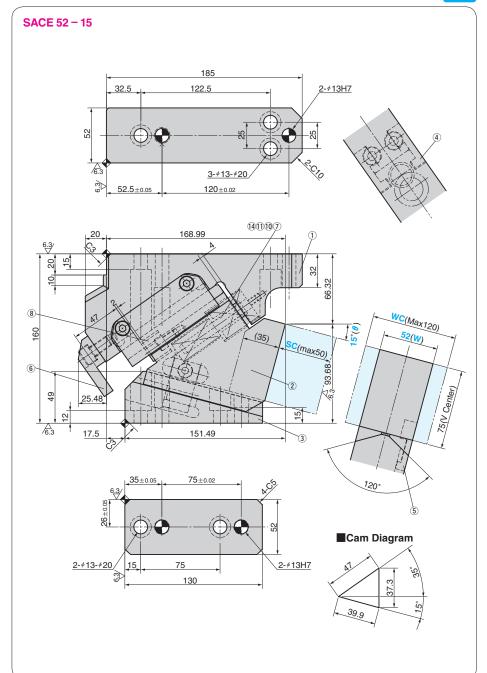
(73.8) Initial 14.0 Load (1.4) ength at Final Load 37 e=6.4 Length at Initial Load 88 Intial Deflection 2 Free Length(For Initial Load90, For Final Load 50)

> SACE 52



**WORKING FORCE 3-TON TYPE** 





	Working Force kN(tonf) Spring Force N(kgf)			Return	Total				
Travel S		Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
39.9	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1903 (194.2)	9.0	SACE	52	15



Catalog No. SACE



Option Code	Specification
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

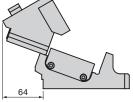
⚠ Determine the pierce center position in the range of the cam width.



**SACE52 - 15 - SC40 - N12** SACE52 - 15 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

**■**Space for removing



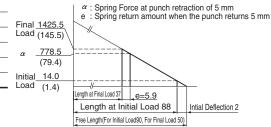
#### **■** Table of Components

No.	Description	Qty	Material and Remark
1	Cam Holder	1	FCD550
2	Cam Slider	1	FCD550 with Graphite
3	Cam Driver	1	SF700
4	Slide Keeper	2	S45C with Graphite
(5)	Positive Return Follower	1	Bronze
6	Stopper Plate	1	S45C(1045)
7	Spring Guide Pin	1	S45C(1045)
8	Stopper	1	Urethane
10	Coil Spring	1	TF20-90
11)	Coil Spring	1	TM30-50
14)	Spring Guide Bush	1	Bronze

↑ Bolts for assembly are not indicated.

#### Spring Diagram

	_ opg =	.g. a		
mark	<ul><li>Spring Used</li></ul>	For Initial Load	TF20-90(1 piece)	
			7.01N/mm(0.72kgf/mm)	
phite		For Final Load	TM30-50(1 piece)	
			109.65N/mm(11.18kgf/mm)	
ite	<ul> <li>Guideline of sp</li> </ul>	oring durability	TF20-90 1,000,000 stroke	S
			TM30-50 1,000,000 stroke	s
	4	<ul> <li>Spring Force at Spring return a</li> </ul>	at punch retraction of 5 mm amount when the punch returns 5	mı
	Final 1425.5	√/ opg :o.a u	anount mon the panon retains o	

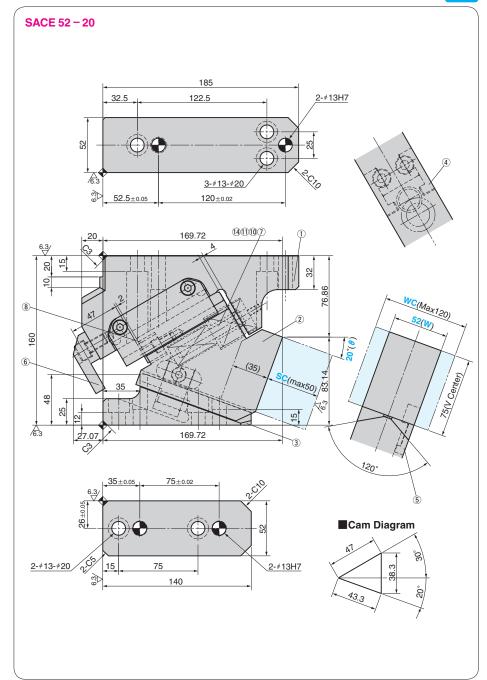


SACE 52



**WORKING FORCE 3-TON TYPE** 





	Working Force kN(tonf) Spring Force N(kgf)			Return	Total				
Travel S	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
43.3	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1899 (193.8)	8.9	SACE	52	20



(θ) Catalog No. (W) **SACE** 



Option Code	Specification
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

Determine the pierce center position in the range of the cam width.



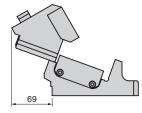
SACE52 - 20 - SC40 - N12 SACE52 - 20 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

the die due to the protrusio
length, you will need to machin

#### ■Space for removing

the die for clearance.



#### **■** Table of Components

_								
No.	Description	Qty	Material and Remark					
1	Cam Holder	1	FCD550					
2	Cam Slider	1	FCD550 with Graphite					
3	Cam Driver	1	SF700					
4	Slide Keeper	2	S45C with Graphite					
(5)	Positive Return Follower	1	Bronze					
6	Stopper Plate	1	S45C(1045)					
7	Spring Guide Pin	1	S45C(1045)					
8	Stopper	1	Urethane					
10	Coil Spring	1	TF20-90					
11)	Coil Spring	1	TM30-50					
14)	Spring Guide Bush	1	Bronze					

Bolts for assembly are not indicated.

#### **■** Spring Diagram

• Spring Used For Initial Load TF20-90(1 piece) 7.01N/mm(0.72kgf/mm) For Final Load TM30-50(1 piece) 109.65N/mm(11.18kgf/mm)

 Guideline of spring durability TF20-90 1,000,000 strokes TM30-50 1,000,000 strokes

α: Spring Force at punch retraction of 5 mm
e: Spring return amount when the punch returns 5 mm Final <u>1425.5</u> Load (145.5) 833.3 (85.0)Initial 14.0 Load (1.4) Length at Final Load 37 \_\_\_e=5.4 Length at Initial Load 88 Intial Deflection 2 Free Length(For Initial Load90, For Final Load 50)

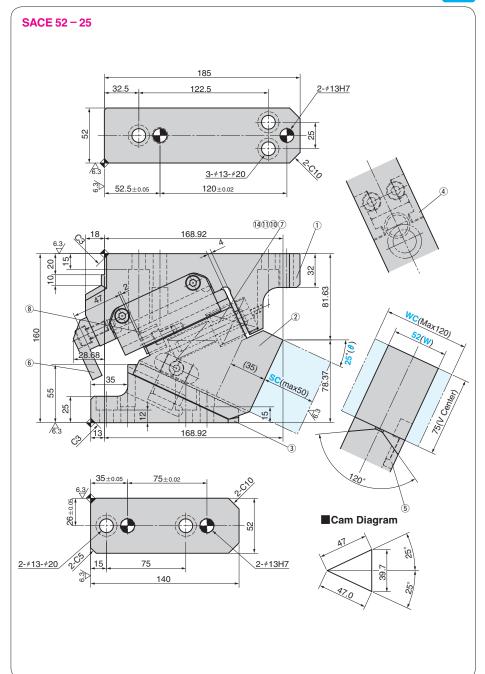
SACE

52



**WORKING FORCE 3-TON TYPE** 





	Working Force kN(tonf) Spring Force N(kgf)				Return	Total			
Travel S		Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
47.0	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1895 (193.4)	8.8	SACE	52	25



Catalog No. SACE



	Option Code	Specification
•	sc	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
	wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
	N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

A Determine the pierce center position in the range of the cam width.



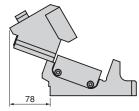
SACE52 - 25 - SC40 - N12 SACE52 - 25 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

A	When the slider interferes wit
	the die due to the protrusio
	length, you will need to machin

#### ■Space for removing

the die for clearance.



#### **■** Table of Components

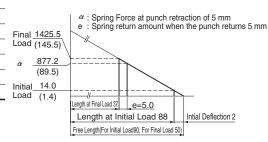
_	<del>-</del>								
No.	Description	Qty	<b>Material and Remark</b>						
1	Cam Holder	1	FCD550						
2	Cam Slider	1	FCD550 with Graphite						
3	Cam Driver	1	SF700						
4	Slide Keeper	2	S45C with Graphite						
(5)	Positive Return Follower	1	Bronze						
6	Stopper Plate	1	S45C(1045)						
7	Spring Guide Pin	1	S45C(1045)						
8	Stopper	1	Urethane						
10	Coil Spring	1	TF20-90						
11)	Coil Spring	1	TM30-50						
14)	Spring Guide Bush	1	Bronze						
_									

Bolts for assembly are not indicated.

#### **■** Spring Diagram

• Spring Used For Initial Load TF20-90(1 piece) 7.01N/mm(0.72kgf/mm) For Final Load TM30-50(1 piece) 109.65N/mm(11.18kgf/mm) Guideline of spring durability

TF20-90 1,000,000 strokes TM30-50 1,000,000 strokes



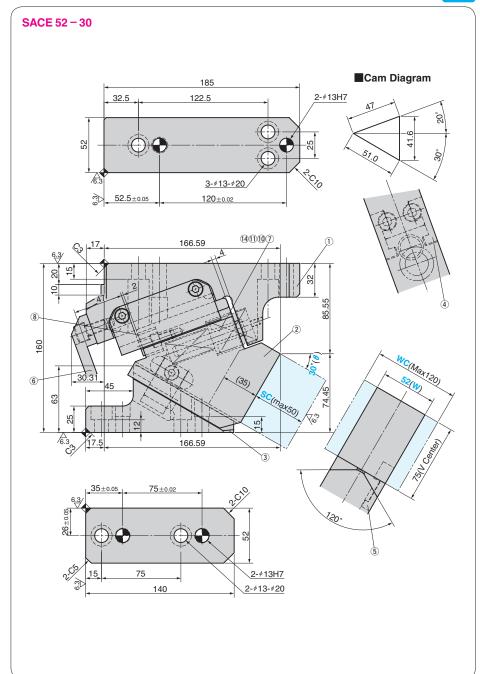
SACE

52



**WORKING FORCE 3-TON TYPE** 





	Working Force kN(tonf) Spring Force N(kgf)		Return	Total					
Travel S		Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
51.0	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1891 (193.0)	8.6	SACE	52	30



Catalog No. **SACE** 



Option Code	Specification
sc	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

Determine the pierce center position in the range of the cam width.



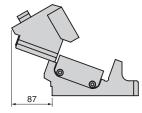
SACE52 - 30 - SC40 - N12 SACE52 - 30 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

<u> </u>	/hen the	e slider	interferes	with
th	ne die d	due to	the protru	sion
le	ngth, yo	ou will ne	eed to mad	chine

#### ■Space for removing

the die for clearance.



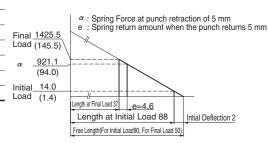
#### **■** Table of Components

_	-							
No.	Description	Qty	<b>Material and Remark</b>					
1	Cam Holder	1	FCD550					
2	Cam Slider	1	FCD550 with Graphite					
3	Cam Driver	1	SF700					
4	Slide Keeper	2	S45C with Graphite					
(5)	Positive Return Follower	1	Bronze					
6	Stopper Plate	1	S45C(1045)					
7	Spring Guide Pin	1	S45C(1045)					
8	Stopper	1	Urethane					
10	Coil Spring	1	TF20-90					
11)	Coil Spring	1	TM30-50					
14)	Spring Guide Bush	1	Bronze					

Bolts for assembly are not indicated.

#### **■** Spring Diagram

	_	
<ul><li>Spring Used</li></ul>	For Initial Load	TF20-90(1 piece)
		7.01N/mm(0.72kgf/mm)
	For Final Load	TM30-50(1 piece)
		109.65N/mm(11.18kgf/mm)
<ul> <li>Guideline of sp</li> </ul>	ring durability	TF20-90 1,000,000 strokes
		TM30-50 1,000,000 strokes



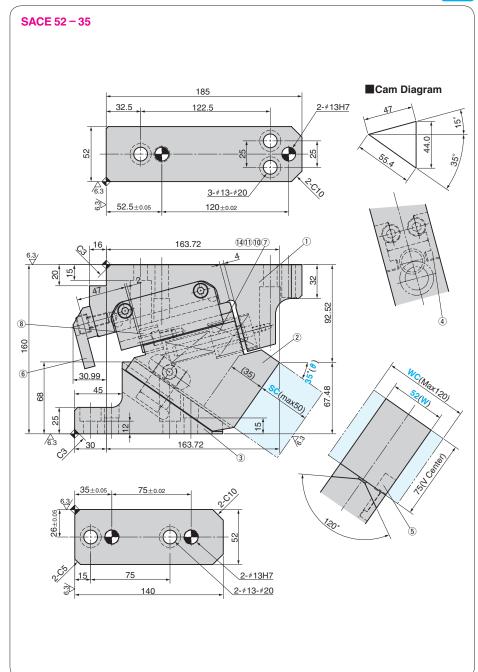
SACE

816



**WORKING FORCE 3-TON TYPE** 





	Working Force kN(tonf) Spring Force N(kgf)			Return	Total				
Travel S		Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
55.4	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1887 (192.6)	8.8	SACE	52	35



Catalog No. SACE



Option Code	Specification
sc	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

A Determine the pierce center position in the range of the cam width.



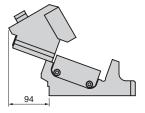
SACE52 - 35 - SC40 - N12 SACE52 - 35 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

Mhen the sl	ider interf	eres with

the die due to the protrusion length, you will need to machine the die for clearance.

### ■Space for removing



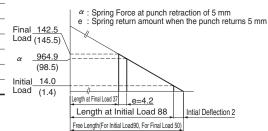
#### ■ Table of Components

_	<u> </u>							
No.	Description	Qty	Material and Remark					
1	Cam Holder	1	FCD550					
2	Cam Slider	1	FCD550 with Graphite					
3	Cam Driver	1	SF700					
4	Slide Keeper	2	S45C with Graphite					
(5)	Positive Return Follower	1	Bronze					
6	Stopper Plate	1	S45C(1045)					
7	Spring Guide Pin	1	S45C(1045)					
8	Stopper	1	Urethane					
10	Coil Spring	1	TF20-90					
11)	Coil Spring	1	TM30-50					
14)	Spring Guide Bush	1	Bronze					

M Bolts for assembly are not indicated.

#### **■** Spring Diagram

• Spring Used For Initial Load TF20-90(1 piece) 7.01N/mm(0.72kgf/mm) For Final Load TM30-50(1 piece) 109.65N/mm(11.18kgf/mm) Guideline of spring durability TF20-90 1,000,000 strokes TM30-50 1,000,000 strokes

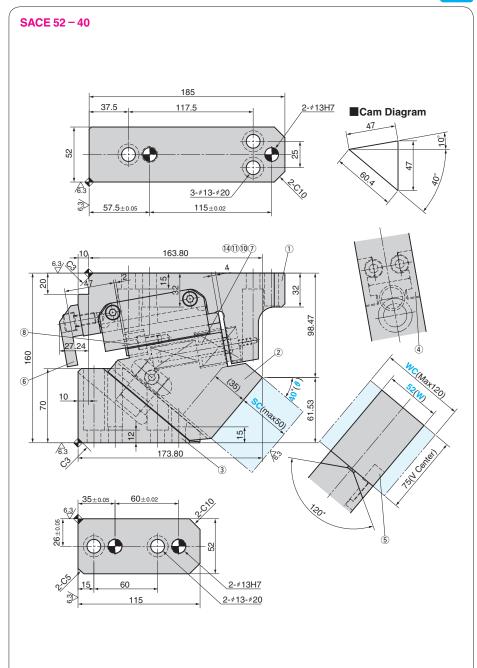


SACE 52



**WORKING FORCE 3-TON TYPE** 





	Working Force kN(tonf) Sp		Spring Force N(kgf)		Return	Total			
Travel S	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
60.4	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1883 (192.2)	8.9	SACE	52	40



Catalog No. (W) -  $(\theta)$  SACE 52 - 40



Option Code	Specification					
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).					
WC	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).					
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7					

Determine the pierce center position in the range of the cam width.



SACE52 - 40 - SC40 - N12 SACE52 - 40 - WC120

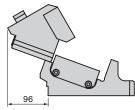
Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole,finished hole) for retainer.

SACE	52	40

the die due to the protrusion length, you will need to machine the die for clearance.

Mhen the slider interferes with

### ■Space for removing



#### **■** Table of Components

No.	Description	Qty	Material and Remark
1	Cam Holder	1	FCD550
2	Cam Slider	1	FCD550 with Graphite
3	Cam Driver	1	SF700
4	Slide Keeper	2	S45C with Graphite
(5)	Positive Return Follower	1	Bronze
6	Stopper Plate	1	S45C(1045)
7	Spring Guide Pin	1	S45C(1045)
8	Stopper	1	Urethane
10	Coil Spring	1	TF20-90
11)	Coil Spring	1	TM30-50
14)	Spring Guide Bush	1	Bronze

↑ Bolts for assembly are not indicated.

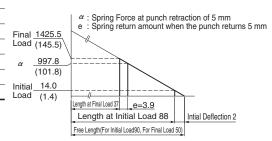
#### **■** Spring Diagram

• Spring Used For Initial Load TF20-90(1 piece) 7.01N/mm(0.72kgf/mm)

For Final Load TM30-50(1 piece)

• Guideline of spring durability TF20-90 1,000,000 strokes

TM30-50 1,000,000 strokes

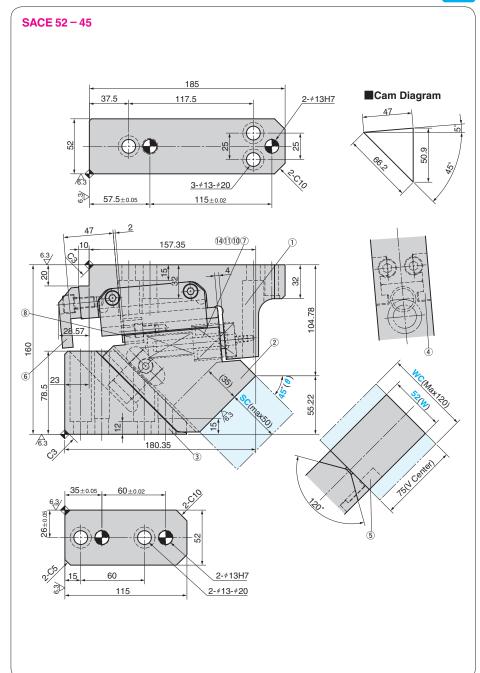


SACE 52



**WORKING FORCE 3-TON TYPE** 





	Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Total			
Travel S	Standard Working Force (one million strokes)	Allowable Working Force (300,000 strokes)		Final Load	Force N(kgf)	e Weight	Catalog No.	(W)	(θ)
66.2	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1879 (191.7)	9.1	SACE	52	45



Catalog No. (W) -  $(\theta)$  SACE 52 - 45



Option Code	Specification
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

Determine the pierce center position in the range of the cam width.



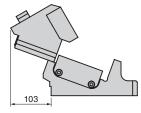
SACE52 - 45 - SC40 - N12 SACE52 - 45 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole,finished hole) for retainer.

When the slider interferes with the die due to the protrusion

length, you will need to machine the die for clearance.

#### ■Space for removing



#### **■** Table of Components

No.	Description	Qty	Material and Remark
140.	Description	Qty	Waterial and Hemark
1	Cam Holder	1	FCD550
2	Cam Slider	1	FCD550 with Graphite
3	Cam Driver	1	SF700
4	Slide Keeper	2	S45C with Graphite
(5)	Positive Return Follower	1	Bronze
6	Stopper Plate	1	S45C(1045)
7	Spring Guide Pin	1	S45C(1045)
8	Stopper	1	Urethane
10	Coil Spring	1	TF20-90
11)	Coil Spring	1	TM30-50
14)	Spring Guide Bush	1	Bronze

⚠ Bolts for assembly are not indicated.

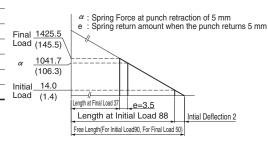
### **■** Spring Diagram

• Spring Used For Initial Load TF20-90(1 piece) 7.01N/mm(0.72kgf/mm)

For Final Load TM30-50(1 piece)

• Guideline of spring durability TF20-90 1,000,000 strokes

TM30-50 1,000,000 strokes

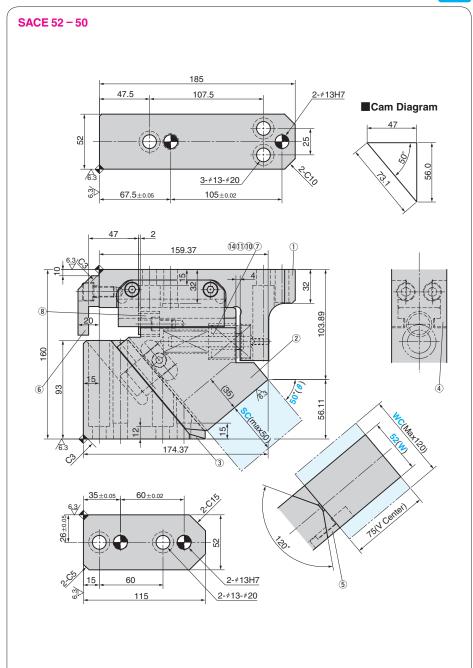


SACE 52



**WORKING FORCE 3-TON TYPE** 





	Working Force kN(tonf)		Spring Force N(kgf)		Return Total				
	Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
73.1	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	1875 (191.3)	8.8	SACE	52	50



Catalog No. SACE



	Option Code	Specification
	SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
•	wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
	N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

A Determine the pierce center position in the range of the cam width.



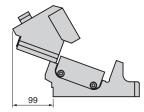
SACE52-50 - SC40-N12 SACE52-50 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

kg	,		
3.8	SACE	52	50

### ■Space for removing

Mhen the slider interferes with the die due to the protrusion length, you will need to machine the die for clearance.



#### **■** Table of Components

_	-								
No.	Description	Qty	<b>Material and Remark</b>						
1	Cam Holder	1	FCD550						
2	Cam Slider	1	FCD550 with Graphite						
3	Cam Driver	1	SF700						
4	Slide Keeper	2	S45C with Graphite						
(5)	Positive Return Follower	1	Bronze						
<b>6</b>	Stopper Plate	1	S45C(1045)						
7	Spring Guide Pin	1	S45C(1045)						
8	Stopper	1	Urethane						
10	Coil Spring	1	TF20-90						
11)	Coil Spring	1	TM30-50						
14)	Spring Guide Bush	1	Bronze						

M Bolts for assembly are not indicated.

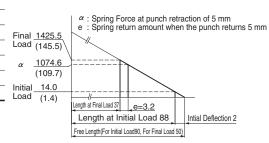
#### **■** Spring Diagram

• Spring Used For Initial Load TF20-90(1 piece) 7.01N/mm(0.72kgf/mm)

For Final Load TM30-50(1 piece)

109.65N/mm(11.18kgf/mm) Guideline of spring durability TF20-90 1,000,000 strokes

TM30-50 1,000,000 strokes



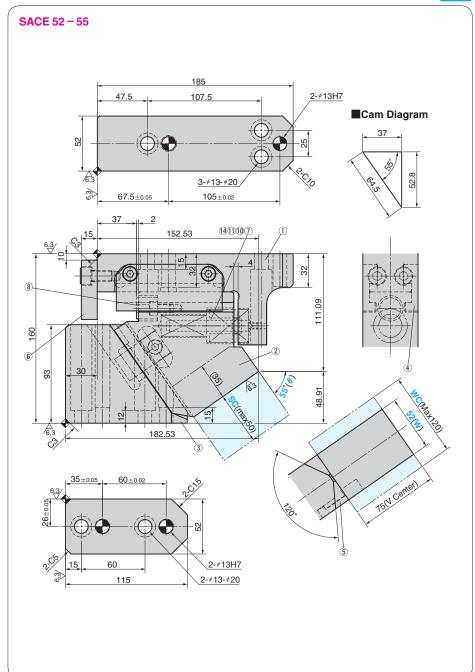
SACE

52



**WORKING FORCE 3-TON TYPE** 





ı		Working Fo	rce kN(tonf)	Spring Fo	rce N(kgf)	Return	Total			
			Allowable Working Force (300,000 strokes)		Final Load		Weight		(W)	(θ)
	64.5	29.4 (3.0)	58.8 (6.0)	36.1 (3.7)	1425.5 (145.5)	2040 (208.1)	8.9	SACE	52	55



Catalog No. (W) – (θ)

SACE 52 – 55



Option Code	Specification
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7

Determine the pierce center position in the range of the cam width.



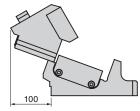
SACE52 - 55 - SC40 - N12 SACE52 - 55 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

↑ When the slider interferes with
the die due to the protrusion
length, you will need to machine

#### ■Space for removing

the die for clearance.



#### **■** Table of Components

No.	Description	Qty	Material and Remark			
1	Cam Holder	1	FCD550			
2	Cam Slider	1	FCD550 with Graphite			
3	Cam Driver	1	SF700			
4	Slide Keeper	2	S45C with Graphite			
(5)	Positive Return Follower	1	Bronze			
6	Stopper Plate	1	S45C(1045)			
7	Spring Guide Pin	1	S45C(1045)			
8	Stopper	1	Urethane			
10	Coil Spring	1	TF20-70			
11)	Coil Spring	1	TM30-50			
14)	Spring Guide Bush	1	Bronze			
=						

Bolts for assembly are not indicated.

#### **■** Spring Diagram

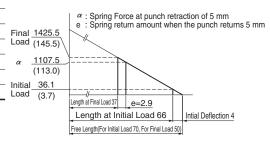
• Spring Used For Initial Load TF20-70(1 piece)

9.02N/mm(0.92kgf/mm)
For Final Load TM30-50(1 piece)

Final Load 1 M30-50(1 piece) 109.65N/mm(11.18kgf/mm)

Guideline of spring durability TF20-70 1,000,000 strokes

TM30-50 1,000,000 strokes

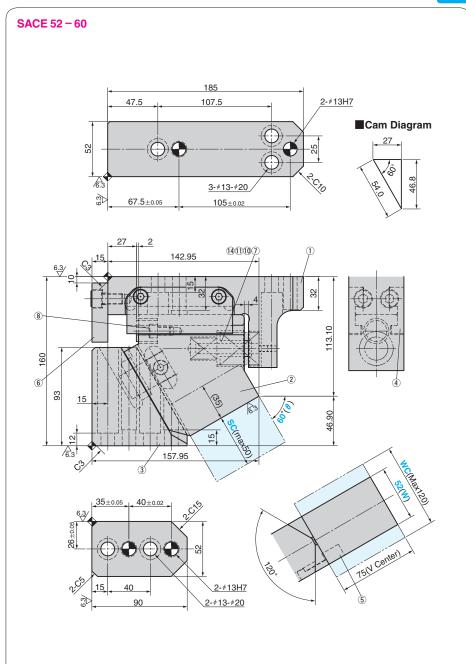


SACE 52



**WORKING FORCE 3-TON TYPE** 





Ī	Travel S	Working Force kN(tonf) Spring F		Spring Fo	rce N(kgf)	Return	Return Total			
		Standard Working Force (one million strokes)			Final Load	Force N(kgf)	Weight kg	Catalog No.	(W)	(θ)
	54.0	29.4 (3.0)	58.8 (6.0)	75.7 (7.7)	1425.5 (145.5)	2255 (230.1)	8.5	SACE	52	60



Catalog No. SACE



Option Code	Specification		
SC	The mount surface is extended in the range from 1 to 50 mm (in the increments of 1 mm).		
wc	The mounting surface width (W) is changed within the range 53 mm - 120 mm (1 mm increments).		
N12	Dowel Pin holes of cam holder and cam driver are changed to $^{\phi}$ 12H7		

Determine the pierce center position in the range of the cam width.



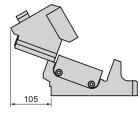
SACE52-60 - SC40-N12 SACE52-60 - WC120

Refer to page 559 for detailed specifications of tapped holes and dowel pin holes (prepared hole, finished hole) for retainer.

↑ When the slider interferes with
the die due to the protrusion
length, you will need to machine

#### ■Space for removing

the die for clearance.



#### **■** Table of Components

_	·						
No.	Description	Qty	Material and Remark				
1	Cam Holder	1	FCD550				
2	Cam Slider	1	FCD550 with Graphite				
3	Cam Driver	1	SF700				
4	Slide Keeper	2	S45C with Graphite				
(5)	Positive Return Follower	1	Bronze				
6	Stopper Plate	1	S45C(1045)				
7	Spring Guide Pin	1	S45C(1045)				
8	Stopper	1	Urethane				
10	Coil Spring	1	TF20-50				
11)	Coil Spring	1	TM30-50				
14)	Spring Guide Bush	1	Bronze				

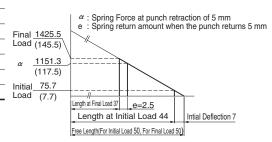
Bolts for assembly are not indicated.

#### **■** Spring Diagram

• Spring Used For Initial Load TF20-50(1 piece) 12.62N/mm(1.29kgf/mm) For Final Load TM30-50(1 piece) 109.65N/mm(22.66kgf/mm)

• Guideline of spring durability TF20-50 1,000,000 strokes

TM30-50 1,000,000 strokes



SACE 52