## **SACE** [Overview]

**Compact Type** 

**Product Information** 

- Mount face width 52 mm.
- Working angles from  $0^{\circ}$  to  $60^{\circ}$  in  $5^{\circ}$  increments.
- V-shaped guide.
- •Optimum for high tensile strength steel sheets and thick plate piercing.
- A spring force just under 10% of the working force is attained.



Moun	Mount Face			Working Fore	ce [kN (tonf)]	
W	н	Working Angle	Travel	Standard Working Force 1,000,000 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 Assembly Instructions





#### Disassembly

Remove Hexagon Socket Head Bolts (<sup>(a)</sup>), to pull out Stopper Plate (<sup>(c)</sup>).
 Pull out and remove Cam Slider (<sup>(2)</sup>) from Cam Holder (<sup>(1)</sup>) to the rear.

#### Assembly

Assembly is the reverse procedure of disassembly.

- Ensure that all parts are clean, particularly the sliding components to which a small amount of lubricant is applied and is then placed in position.
- Take care that the respective tolerances are observed when assembling Cam Slider and Cam Holder, which also should be identified by the same serial number.
- $\cdot$  Make sure that all bolts are tighten to the recommended torque after assembly and disassembly.

SACE

Aerial Cam Unit

#### **SACE52-00**





CAD FILE





_	Working Force [kN (tonf)]		Spring	Force	Total				
Travel	Standard	Allowable	N (I	kgf)	Weight	Catalog No.	w	θ	
S	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg				
30.2	29.4	58.8	14.0	1425.5	8.8	SACE	52	00	
	(3.0)	(6.0)	(1.4)	(145.5)	0.0	SACE	52	00	

	Catalog No.	W	]-[	θ	- Option
	SACE	52	—	00	
Order	SACE	52	—	00	- SC40
	SACE	52	—	00	– WC120
	SACE	52	—	00	– SC40 – WC120 – N12

50	Option Code	Specification
ption	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

Befer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

43



For Pierce

SACE 52

660

Refer to page 685 for Table of Components.

659

Copyright © Sankyo Oilless Industry, Inc. All Rights Reserved.

### **Compact Type**

**Aerial Cam Unit** 

#### **SACE52-05**









	Working For	ce [kN (tonf)]	Spring	Force	Total				
Travel	Standard	Allowable	N (I	kgf)	Weight	Catalog No.	w	θ	
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg				
33.4	29.4	58.8	14.0	1425.5	86	SACE	52	05	
	(3.0)	(6.0)	(1.4)	(145.5)	0.0	SACE	52	05	

	Catalog No.	W	]-[	θ	- Option
	SACE	52	—	05	
Order	SACE	52	—	05	- SC40
	SACE	52	—	05	– WC120
	SACE	52	—	05	– SC40 – WC120 – N12

امکر	Option Code	Specification
Option	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

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

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

54



662

Compact Type

**Aerial Cam Unit** 

#### SACE52-10





CAD FILE



	Working Force [kN (tonf)]		Spring	Force	Total				
Travel	Standard	Allowable	N (I	kgf)	Weight	Catalog No.	w	θ	
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg				
36.6	29.4	58.8	14.0	1425.5	8.7	SACE	52	10	
	(3.0)	(0.0)	(1.4)	(145.5)					

	Catalog No.	W	]-[	θ	- Option
Ordor	SACE	52	-	10	
Order	SACE	52	-	10	- SC40
	SACE	52	—	10	– WC120
	SACE	52	-	10	- SC40 - WC120 - N12

50	Option Code	Specification
ption	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

Befer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space



65

SACE 52

664

### Refer to page 685 for Table of Components.

### **Compact Type**

**Aerial Cam Unit** 

#### SACE52-15





	Working For	ce [kN (tonf)]	Spring Force		Total			
Travel	Standard	Allowable	N (kgf)		Weight	Catalog No.	W	θ
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg			
39.9	29.4	58.8	14.0 (1.4)	1425.5	8.7	SACE	52	15
	(3.0)	(0.0)	(1.4)	(145.5)				

	Catalog No.	W	]-[	θ	- Option
	SACE	52	—	15	
Order	SACE	52	—	15	- SC40
	SACE	52	—	15	– WC120
	SACE	52	—	15	- SC40 - WC120 - N12

50	Option Code	Specification
ption	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

Befer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space





For Pierce

### **Compact Type**

**Aerial Cam Unit** 

#### SACE52-20





Travel S         Standard Working Force 1,000,000 strokes         Allowable Working Force 300,000 strokes         N (kgf)           Initial Load         Final I           29.4         58.8         14.0         1422		
S         Working Force         Working Force         Initial Load         Final I           1,000,000 strokes         300,000 strokes         14.0         14.0         14.0	Weight Catalog No. W	θ
29.4 58.8 14.0 14.29	Load kg	
43.3 (3.0) (6.0) (1.4) (145	5.5	

	Catalog No.	W	]-[	θ	- Option
Ordor	SACE	52	-	20	
Order	SACE	52	—	20	- SC40
	SACE	52	-	20	– WC120
	SACE	52	-	20	- SC40 - WC120 - N12

50	Option Code	Specification
ption	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

Befer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

69

For Pierce



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

Refer to page 685 for Table of Components.

### **Compact Type**

**Aerial Cam Unit** 

#### SACE52-25





	Working For	ce [kN (tonf)]	Spring Force		Total			
Travel	Standard	Allowable	N (kgf)		N (kgf) Weight Catalog No.		w	θ
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg			
47.0	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	8.8	SACE	52	25

	Catalog No.	W	]-[	θ	- Option
	SACE	52	-	25	
Order	SACE	52	—	25	- SC40
	SACE	52	—	25	– WC120
	SACE	52	—	25	- SC40 - WC120 - N12

50	Option Code	Specification
ption	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $ eq$ 12H7.

Befer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

78



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

Refer to page 685 for Table of Components.

669

**Aerial Cam Unit** 

#### **SACE52-30**





CAD FILE



	Working For	ce [kN (tonf)]	Spring	Force	Total	Catalog No.	w	θ
Travel	Standard	Allowable	N (I	kgf)	Weight			
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg			
51.0	29.4	58.8	14.0	1425.5	86	SACE	52	30
	(3.0)	(6.0)	(1.4)	(145.5)	0.0	ONOL	02	

	Catalog No.	W	]-[	θ	- Option
Ordor	SACE	52	-	30	
Order	SACE	52	-	30	- SC40
	SACE	52	-	30	– WC120
	SACE	52	-	30	- SC40 - WC120 - N12

50	Option Code	Specification
Option	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

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

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space





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

Refer to page 685 for Table of Components.

### **Compact Type**

**Aerial Cam Unit** 

#### **SACE52-35**





	Working Force [kN (tonf)]		Spring	Force	Total			θ
Travel	Standard	Allowable	N (I	N (kgf)		Catalog No.	w	
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg			
55.4	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	8.8	SACE	52	35

	Catalog No.	W	]-[	θ	- Option
Order	SACE	52	—	35	0040
	SACE	52 52	_	35 35	– SC40 – WC120
	SACE	52	-	35	- SC40 - WC120 - N12

50	Option Code	Specification
Option	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

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

#### Spring Specification

ŝ

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

94



For Pierce



Standard Cam Units

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

Refer to page 685 for Table of Components.

SACE 52

**Aerial Cam Unit** 

#### **SACE52-40**

160

675

2





	Working For	ce [kN (tonf)]	Spring	Force	Total				
Travel	/el Standard Allowable		N (kgf)		Weight	Catalog No.	w	θ	
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg	_			
60.4	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	8.9	SACE	52	40	

	Catalog No.	W	]-[	θ	- Option
	SACE	52	—	40	
Order	SACE	52	—	40	- SC40
	SACE	52	—	40	– WC120
	SACE	52	-	40	- SC40 - WC120 - N12

50	Option Code	Specification
Option	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\oint$ 12H7.

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

#### Spring Specification

CAD FILE

₽

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

96



SACE
52

Standard Cam Units

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

Refer to page 685 for Table of Components.

**Aerial Cam Unit** 

#### **SACE52-45**





CAD FILE





	Working Force [kN (tonf)] Standard Allowable		Spring	Force	Total				
ravel			N (I	(gf)	Weight	Catalog No.	w	θ	
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg				
66.2	29.4 (3.0)	58.8 (6.0)	14.0 (1.4)	1425.5 (145.5)	9.1	SACE	52	45	

	Catalog No.	W	]-[	θ	- Option
	SACE	52	_	45	
Order	SACE	52	—	45	- SC40
	SACE	52	—	45	– WC120
	SACE	52	-	45	- SC40 - WC120 - N12

50	Option Code	Specification
Option	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

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

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

103



SACE 52

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

D Refer to page 685 for Table of Components.

### Compact Type

**Aerial Cam Unit** 

#### SACE52-50







• Cam Diagram

ŝ

56.0

#### Working Force [kN (tonf)] Spring Force Total Travel N (kgf) Standard Allowable W Weight Catalog No. θ s Working Force Working Force 1,000,000 strokes 300,000 strokes Initial Load **Final Load** kg 29.4 58.8 14.0 1425.5 73.1 8.8 SACE 52 50 (3.0) (1.4) (6.0) (145.5)

	Catalog No.	W	]-[	θ	- Option
Order	SACE SACE	52 52	_	50 50	- SC40
	SACE	52 52	-	50 50	– WC120 – SC40 – WC120 – N12

50	Option Code	Specification
Option	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.

Befer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-90	1	For Initial Load 7.01 N/mm (0.72 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

For Pierce



99

SACE 52

680

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

Refer to page 685 for Table of Components.

Aerial Cam Unit

SACE52-55



CAD	
FILE	

	Working Fore	ce [kN (tonf)]	Spring	Force	Total			
Travel	Standard	Allowable	N (kgf)		Weight	Catalog No.	w	θ
5	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg	_		
64.5	29.4 (3.0)	58.8 (6.0)	36.1 (3.7)	1425.5 (145.5)	8.9	SACE	52	55

	Catalog No.	W	]-[	θ	- Option
	SACE	52	_	55	
Order	SACE	52	—	55	- SC40
	SACE	52	—	55	– WC120
	SACE	52	—	55	- SC40 - WC120 - N12

50	Option Code	Specification				
ption	SC	Nount face length is extended from 1 to 50 mm in increments of 1 mm.				
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm				
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $ eq$ 12H7.				

Befer to page 377 for the machining details of tapped holes and dowel holes for retainer mounting.

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-70	1	For Initial Load 9.02 N/mm (0.92 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space



99

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

Refer to page 685 for Table of Components.

### **Compact Type**

**Aerial Cam Unit** 

#### **SACE52-60**



CAD FILE

16.8



Travel S	Working Force [kN (tonf)]		Spring	Force	Total Weight	Catalog No.	w	θ
	Standard	Allowable	N (kgf)					
	Working Force 1,000,000 strokes	Working Force 300,000 strokes	Initial Load	Final Load	kg			
54.0	29.4 (3.0)	58.8 (6.0)	75.7 (7.7)	1425.5 (145.5)	8.5	SACE	52	60

	Catalog No.	W	]-[	θ	- Option
	SACE	52	—	60	
Order	SACE	52	—	60	- SC40
	SACE	52	-	60	– WC120
	SACE	52	-	60	- SC40 - WC120 - N12

50	Option Code	Specification				
Option	SC	Mount face length is extended from 1 to 50 mm in increments of 1 mm.				
	WC	The width of the mount face is extended from 53 to 120 mm in increments of 1 mm.				
	N12	Dowel holes of Cam Holder and Cam Driver are changed to $\phi$ 12H7.				

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

#### Spring Specification

No.	Spring Model	Qty	Remark
10	TF20-50	1	For Initial Load 12.62 N/mm (1.29 kgf/mm)
11	TM30-50	1	For Final Load 109.65 N/mm (11.18 kgf/mm)

Life expectancy of Coil Spring is approximately 1,000,000 strokes.

#### Spring Diagram

#### Rear Removal Space

99



For Pierce

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



## **SACE** [Table of Components]

Compact Type

Aerial Cam Unit

#### SACE52



No.	Description	Qty	Material and Remark
1	Cam Holder	1	Cast Iron
2	Cam Slider	1	Cast Iron with Graphite
3	Cam Driver	1	Cast Iron
4	Slide Keeper	2	Steel with Graphite
5	Positive Return Follower	1	Bronze
6	Stopper Plate	1	Steel
7	Spring Guide Pin	1	Steel
8	Stopper	1	-
10	Coil Spring	1	TF20-90 0°~50°
10	Coil Spring	1	TF20-70 55°
10	Coil Spring	1	TF20-50 60°
11	Coil Spring	1	TM30-50
14	Spring Guide Bush	1	Bronze

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

## **Cam Units [Overview]**

**Additional Machining** 

#### Information

Tapped Hole and Dowel Hole (Prepared Hole, Finish) Machining for Retainer Mounting

#### Instruction method for machining

Indicate the tapped hole diameter and the dowel hole (or prepared hole) diameter with the XY coordinates.

#### To indicate the coordinates

- The origin is positioned at the upper left corner of the mount face. (However, machining uses our machining datum as the reference.)
- · Indication symbol
- -M…Tapped hole, -N…Dowel prepared hole, -K…Dowel finish hole

#### Machining standard

- · Tapped holes and dowel prepared holes are machined to general tolerances.
- The hole depth is 2.5 times the diameter for both tapped holes and dowel holes. The dowel pilot hole is processed for 2 times the diameter.
- $\cdot$  The dowel hole spacing is machined to the tolerance of  $\pm 0.02$ .The hole tolerance is H7.

#### (Example of Aerial Cam Unit)





#### (Example of Die Mounted Cam Unit)





#### Other machining

Please give instructions on a separate drawing for drilling or cutting other than tapped holes and dowel holes.

