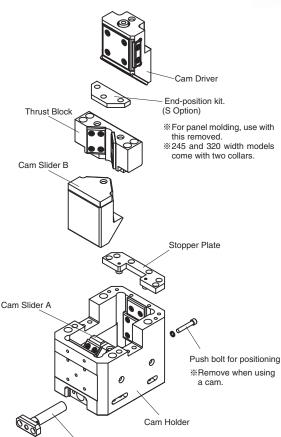
Counter Cam Unit General Description of CTCS / CTVS

THRUST BLOCK TYPE

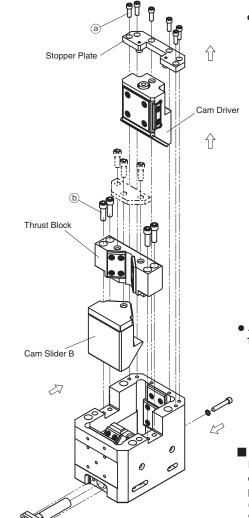
The counter cam unit CTCS and CTVS series are the optimum cam units for bending panels upward. There are 8 variations available; regular / robust type and 4 different widths.

■ Structure and features of counter cam unit

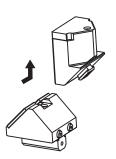


- Robust structure integrated into the casting is applied.
- The highly rigid type is reinforcing the backup wall of cam slider B. It is not necessary to machine the die for backup.
- V-shaped cam slider B is highly resistant to the reaction force on the side. (145/245/320 mm wide only)
- Urethane stopper for shock absorption are provided on the stopper plate to prevent direct force on the screws.
- The thrust block is installed as the stopper of cam slider B. This stopper block could prevent the cam slider B from lifting up over the specified stroke
- A thread hole is drilled so that a pushing bolt for he end-position kit could be installed.

■ Structure and Assembly/Disassembly of CTCS / CTVS



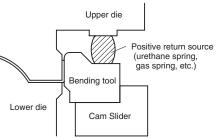
- Disassembly method of CTCS and CTVS
- 1) Loosen hexagon socket head bolt (a) and remove stopper plate.
- 2) Pull and remove cam driver upward.
- 3) Remove hexagon socket head bolt (b) and remove thrust block.
- Slide cam slider B with positive return obliquely upward and remove it. (See the figure below.)
- (In the same way, slide cam slider B diagonally from above to assemble.)



- Assembly method of CTCS / CTVS
- 1)Assemble components in the reverse order of disassembly.
- Make sure that there is no foreign matter on the sliding area and assemble components.
- When cam is disassembled and then reassembled, please do not forget to assemble all bolts provided.

■ For Operation

In order to make the counter cam unit correctly track the up-down motion of the press, use a return assist pressure source (urethane spring, gas spring, etc.) (See the figure below.)



How to handle the Gas Spring

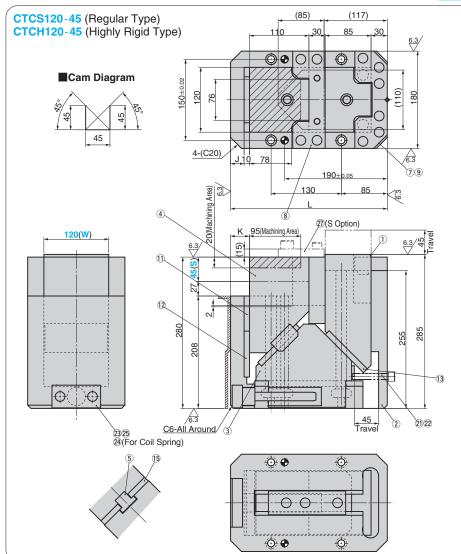
1193

Spring

- If you are planning to use any other gas springs than the ones Sankyo recommends, please let us know first.
- For the handling of the gas spring you have/use, including the maintenance of it on a standalone basis, please contact the gas spring manufacturer from where you purchased.

SPECIAL CAM UNIT



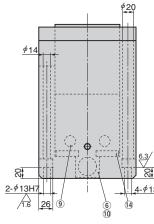


■ Spring Specification

Carina	Spring Force N(kgf)			
Spring PS	Initial Load	Final Load		
ISO	330 (33.7)	1815 (185.1)		
GK	_	2072 (211.3)		



Option Code	Specification	
S	End-position kit is included	
N12	Dowel pin holes of holder ar changed to ϕ 12H7.	
NF	Nitrogen gas not charged.	



■ Specification

Catalog No.	J	K	L
CTCS	25	35	290
СТСН	35	45	300

Catalog No.

CTCS

CTCH

Working Force kN(tonf) Standard Working Force kN(tonf) (1,000,000 strokes)	Spring Force	Total Weight kg	Catalog No.	w	Travel S	Spring Type PS*	
29.4 (3.0)	Refer to the table on the following page.	I 88 N I	CTCS CTCH	120	45	ISO NISO	_

ISO: Coil spring

NISO/NGK: without spring Parts for spring assembly are included.

GK: Gas spring (KALLER)

From the spring specin	callon, refer to	o line above a	nd below.
ICOT IM22 179	Carina consta	n+ 22NI /2 27	caf) /mm

45

- ··TJM32-178, Spring constant 33N (3.37kgf) /mm Guideline of spring durability 1,000,000 strokes
- GK ···X350-80-7.0.MPa

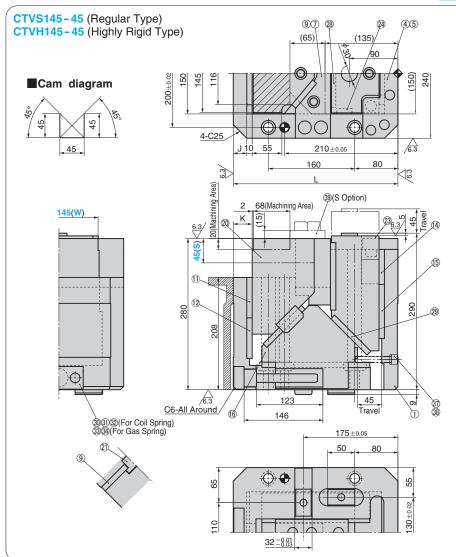


* Use gas spring filling pressure of

ISO

SPECIAL CAM UNIT



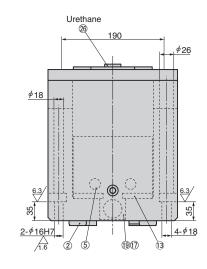


■ Spring Specification

Carina	Spring Fo	rce N(kgf)
Spring PS	Initial Load	Final Load
ISO	330 (33.7)	1815 (185.1)
GK	_	2072 (211.3)



Option Code	Specification	
S	End-position kit is included	
NF	Nitrogen gas not charged.	



■ Specification

Catalog No.	J	K	L
CTVS	25	35	305
CTVH	40	50	320

Working Force kN(tonf) Standard Working Force kN(tonf) (1,000,000 strokes)	Spring Force	Total Weight kg	Catalog No.	w	Travel S	Spring PS	• •
73.5 (7.5)	Refer to the table on the following page.	1240	CTVS CTVH	145	45	ISO GK	NISO NGK

GK: Gas spring (KALLER)

NISO/NGK: without spring Parts for spring assembly are included.



Catalog No.	W]-[S]-[PS
CTVS	145	_	45	_	ISO
CTVH	145	_	45	_	GK -

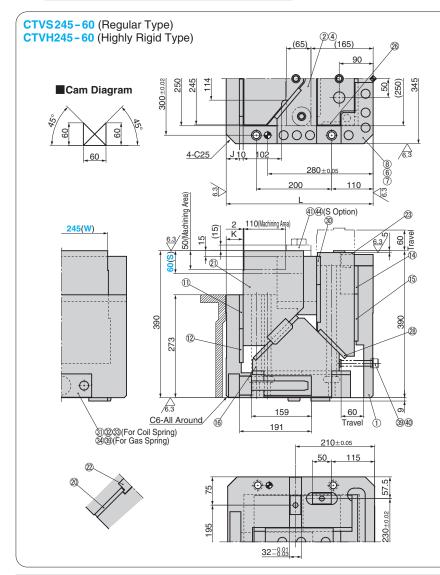
^{*} Use gas spring filling pressure of 7MPa or less to avoid damage to components.

* For the spring specification, refer to the above and below.

- ISO···TJM32-178, Spring constant 33N (3.37kgf) /mm Guideline of spring durability 1,000,000 strokes
- GK ···X350-80-7.0.MPa

SPECIAL CAM UNIT



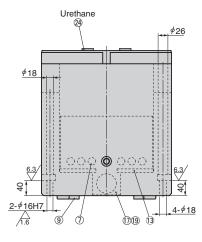


■ Spring Specification

Coring	Spring Fo	rce N(kgf)
Spring PS	Initial Load	Final Load
ISO	582 (59.3)	4074 (415.4)
GK	_	4691 (478.3)



Option Code	Specification	
S	End-position kit is included	
NF	Nitrogen gas not charged.	



Specification

Catalog No.	J	K	L
CTVS	35	45	390
CTVH	55	65	410

Working Force kN(tonf) Standard Working Force kN(tonf) (1,000,000 strokes)		Total Weight kg	Catalog No.	w	Travel S	Spring Type PS*
117.6 (12.0)	Refer to the table on the following page.	295 0	CTVS CTVH	245	60	ISO NISO GK NGK

ISO: Coil spring

1199

GK: Gas spring (KALLER)

NISO/NGK: without spring Parts for spring assembly are included.



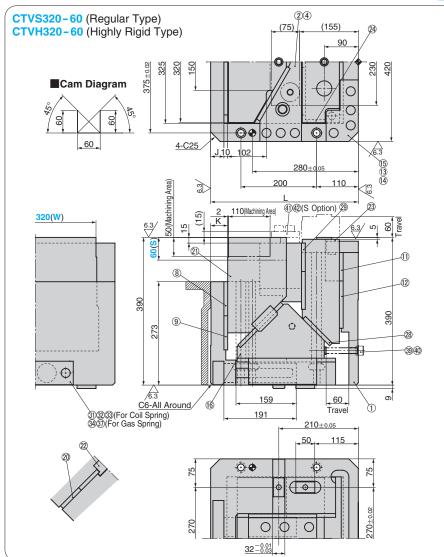
Catalog No.	W]-[S]-[PS
CTVS	245	_	60	_	ISO
CTVH	245	_	60	_	GK -

* Use gas spring filling pressure of 7MPa or less to avoid damage to components.

- * For the spring specification, refer to the above and below.
 - ISO···TJM50-229, Spring constant 58.2N (5.93kgf) /mm Guideline of spring durability 1,000,000 strokes
 - GK ···K750-100-7.0.MPa

SPECIAL CAM UNIT



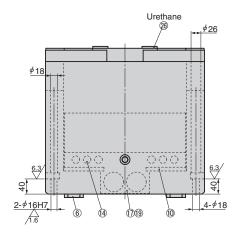


■ Spring Specification

Coring	Spring Fo	rce N(kgf)
Spring PS	Initial Load	Final Load
ISO	1164 (118.7)	8148 (830.9)
GK	_	9382 (956.7)



Option Code	Specification
S	End-position kit is included
NF	Nitrogen gas not charged.



Specification

Catalog No.	J	K	L
CTVS	35	45	390
CTVH	55	65	410

Working Force kN(tonf) Standard Working Force kN(tonf) (1,000,000 strokes)		Total Weight kg	Catalog No.	w	Travel S	Spring Type PS*	
156.8 (16.0)	Refer to the table on the following page.	コマピン ロー	CTVS CTVH	320	60	ISO NIS GK NG	_

ISO: Coil spring

1201

GK: Gas spring (KALLER)

NISO/NGK: without spring Parts for spring assembly are included.



Catalog No.	W]-[S]-[PS
CTVS	320	_	60	_	ISO
CTVH	320	_	60	_	GK -

^{*} Use gas spring filling pressure of 7MPa or less to avoid damage to components.

* For the spring specification, refer to the above and below.

•ISO...TJM50-229, Spring constant 58.2N (5.96kgf) /mm 2 pieces Guideline of spring durability 1,000,000 strokes

•GK ...K750-100-7.0.MPa 2 pieces

Counter Cam Unit ctcs,ctch,ctvs

THRUST BLOCK TYPE

CAD FILE

- **■**Table of Components
- ■CTCS120, CTCH120 .ST=45

		Q	ty		
No.	Description	Coil Spring	Gas Spring	Material and Remark	
1	Cam Driver		1	FC250 with Graphite	
2	Cam Holder		1	FCD550	
3	Cam Slider A		1	FC250 with Graphite	
4	Cam Slider B		1	FC250 with Graphite	
(5)	Cam Positive Return		1	Bronze	
6	Spring Guide Block		1	Bronze with Graphite	
7	Stopper Plate		1	S45C(1045)	
8	Thrust Block		1	Bronze with Graphite	
9	Urethane Stopper	4	4	Urethane	
10	Spring Stopper		1	S45C(1045)	
11)	Wear Plate		1	S45C Copper Powder Sintered	
12)	Wear Plate		1	S45C Copper Powder Sintered	
13	Wear Plate		1	Bronze with Graphite	
14)	Wear Plate	4	4	S45C Copper Powder Sintered	
15	Wear Plate	2	2	S45C Copper Powder Sintered	
21)	Spacer		1	SK5	
22	Locate Cap Bolt		1	M12×68	
(23)	Spring Stopper A	1	-	S45C(1045)	
(23)	Spring Stopper B	-	1	S45C(1045)	
24)	Spring Guide Pin	1	-	S45C(1045) HQI-HT	
or\	Coil Spring	1	-	TJM32-178	
25	Gas Spring	-	1	X350-80-7.0MPa	
27)	Locking Plate(S Option)		1	S45C(1045)	

- When springs are GK, there are threeSpring stopper Bs per spring.
- ⚠ Bolts for assembly are not indicated.

■CTVS145, CTVH145 •ST=45

		Q	ty	
No.	Description	Coil Spring	Gas Spring	Material and Remark
1	Cam Holder	1		FCD550
2	Key	4	1	SS400(1020)
4	Stopper Plate	1	l	S45C(1045)
(5)	Ureathane Stopper A	4	1	Urethane
7	Thrust Block	1	l	Bronze with Graphite
9	Wear Plate E		1	Bronze with Graphite
11)	Wear Plate A-1	1	l	Bronze with Graphite
12)	Wear Plate A-2	1	l	Bronze with Graphite
13	Wear Plate B	2	2	Bronze with Graphite
14)	Wear Plate C	1		Bronze with Graphite
15	Wear Plate D	1		Bronze with Graphite
16	Cam Slider A	1		FC250
17)	Spring Guide Block	1		S45C(1045)
19	Spring Stopper	1		S45C(1045)
20	Cam Slider B	1	l	FC250
21)	Cam Positive Return	1	l	S45C(1045)
23	Cam Driver	1	l	FC250
24)	Wear Plate	2	2	S45C Copper Powder Sintered
26	Urethane Stopper B	1		Urethane
28	Wear Plate	1		S45C Copper Powder Sintered
29	Wear Plate F	1		Bronze with Graphite
30	Spring Stopper A	1	-	S45C(1045)
31)	Coil Spring	1	-	TJM32-178
32	Spring Guide Pin	1	-	S45C(1045) HQI-HT
33	Spring Stopper B	-	1	S45C(1045)
34)	Gas Spring	-	1	X350-80-7.0MPa
37)	Locate Cap Bolt	1		M12×68
38	Spacer	1	l	S45C(1045)
39	Locking Plate(S Option)	1		S45C(1045)

When springs are GK, there are three
3 Spring stopper Bs per spring.

■CTVS245, CTVH245 •ST=60

.5	·S1=60			-S1=60				
		Q	ty					
No.	Description	Coil Gas Spring Spring		Material and Remark	No.	Descrip		
1	Cam Holder	1		FCD550	1	Cam Holder		
2	Thrust Block	1	1	FCD550	2	Thrust Block		
4	Wear Plate E	4	1	Bronze with Graphite	4	Wear Plate E		
6	Stopper Plate R	1	1	S45C(1045)	6	Key		
7	Urethane Stopper A	8	3	Urethane	8	Wear Plate A		
8	Stopper Plate L	1	1	S45C(1045)	9	Wear Plate A		
9	Key	4	1	SS400(1020)	10	Wear Plate E		
11)	Wear Plate A-1	2	2	Bronze with Graphite	11)	Wear Plate C		
12	Wear Plate A-2	2	2	Bronze with Graphite	12	Wear Plate D		
13	Wear Plate B	4	1	Bronze with Graphite	13	Stopper Plate		
14)	Wear Plate C	2	2	Bronze with Graphite	14)	Urethane Sto		
15	Wear Plate D	2	2	Bronze with Graphite	15	Stopper Plate		
16	Cam Slider A	1	1	FC250	16	Cam Slider A		
17)	Spring Guide Block	1	1	S45C(1045)		Spring Guide		
19	Spring Stopper	1	1	S45C(1045)		Spring Stopp		
20	Wear Plate G	2	2	Bronze with Graphite		Wear Plate G		
21)	Cam Slider B	1	1	FC250		Cam Slider E		
22	Cam Positive Return	1	1	S45C(1045)		Cam Positive		
23	Cam Driver	1	1	FC250		Cam Driver		
24)	Urethane Stopper B	2	2	Urethane		Wear Plate		
26	Wear Plate	2	2	S45C Copper Powder Sintered		Urethane Sto		
28	Wear Plate F	2	2	Bronze with Graphite		Wear Plate F		
29	Wear Plate	2	2	S45C Copper Powder Sintered		Wear Plate		
30	Wear Plate	2	2	S45C Copper Powder Sintered		Wear Plate		
31)	Spring Stopper A	1	-	S45C(1045)	31)	Spring Stopp		
32	Spring Guide Pin	1	-	S45C(1045) HQI-HT	32	Spring Guide		
33	Coil Spring	1	-	TJM50-229	33	Coil Spring		
34)	Gas Spring	-	1	X750-100-7.0MPa	34)	Spring Stopp		
37)	Spring Stopper B	-	1	S45C(1045)	37)	Gas Spring		
39	Locate Cap Bolt	1	1	M16×88	39	Locate Cap E		
40	Spacer	1	1	S45C(1045)	40	Spacer		
41	Locking Plate(S Option)	1	1	S45C(1045)	<u>41</u>)	Locking Plate(S		
44)	Locking Collar(S Option)	2	2	S45C(1045)	42			
	W Mb an anning some of the second state of the					\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		

CTVH Table of Components

- When springs are GK, there are three
 ③ Spring stopper Bs per spring.
- (ii) Spring stopper Bs per spring.
- ⚠ Bolts for assembly are not indicated.

■CTVS320, CTVH320 •ST=60

٠S	Γ=60			
		Q	ty	
No.	Description	Coil Spring	Gas Spring	Material and Remark
1	Cam Holder	1		FCD550
2	Thrust Block	1		FCD550
4	Wear Plate E	4	ļ	Bronze with Graphite
6	Key	4	ļ	SS400(1020)
8	Wear Plate A-1	2	2	Bronze with Graphite
9	Wear Plate A-2	2	2	Bronze with Graphite
10	Wear Plate B	4	ļ	Bronze with Graphite
11)	Wear Plate C	2	2	Bronze with Graphite
12	Wear Plate D	4	ļ	Bronze with Graphite
13	Stopper Plate R	1		S45C(1045)
14)	Urethane Stopper A	8	3	Urethane
15	Stopper Plate L	1		S45C(1045)
16	Cam Slider A	1		FC250
17)	Spring Guide Block	1		S45C(1045)
19	Spring Stopper	2	2	S45C(1045)
20	Wear Plate G	4	1	Bronze with Graphite
21)	Cam Slider B	1	l	FC250
22	Cam Positive Return	1	l	S45C(1045)
23	Cam Driver	1	l	FC250
24)	Wear Plate	2	2	S45C Copper Powder Sintere
26	Urethane Stopper B	2	2	Urethane
28	Wear Plate F	2	2	Bronze with Graphite
29	Wear Plate	2	2	S45C Copper Powder Sintere
30	Wear Plate	2	2	S45C Copper Powder Sintere
31)	Spring Stopper A	1	-	S45C(1045)
32)	Spring Guide Pin	2	-	S45C(1045) HQI-HT
33	Coil Spring	2	-	TJM50-229
34)	Spring Stopper B	-	1	S45C(1045)
37)	Gas Spring	-	2	X750-100-7.0MPa
39	Locate Cap Bolt	1		M16×88
40	Spacer	1		S45C(1045)
41)	Locking Plate(S Option)	1		S45C(1045)
42)	Locking Collar(S Option)	2	2	S45C(1045)
	No. 1 2 4 6 8 9 00 11 12 13 14 15 15 16 17 19 20 22 23 24 28 29 30 30 32 29 30 30 30 30 30 30 30 30 30 30 30 30 30	1 Cam Holder 2 Thrust Block 4 Wear Plate E 6 Key 8 Wear Plate A-1 9 Wear Plate A-2 10 Wear Plate B 11 Wear Plate C 12 Wear Plate D 13 Stopper Plate R 14 Urethane Stopper A 15 Stopper Plate L 16 Cam Slider A 17 Spring Guide Block 18 Spring Stopper 20 Wear Plate G 21 Cam Slider B 22 Cam Positive Return 23 Cam Driver 24 Wear Plate 26 Urethane Stopper B 27 Wear Plate 28 Wear Plate 29 Wear Plate 29 Wear Plate 20 Urethane Stopper B 20 Wear Plate 21 Spring Stopper B 22 Spring Stopper A 23 Spring Stopper A 25 Spring Stopper B 26 Spring Stopper B 27 Gas Spring 28 Locate Cap Bolt 29 Locking Plate(S Option)	No. Description Oi Coin Spring	No. Description Coll Gas Spring Spri

^{*}When springs are GK, there are three
③ Spring stopper Bs per spring.

⚠ Bolts for assembly are not indicated.

[⚠] Bolts for assembly are not indicated.