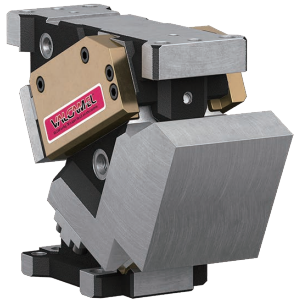
NEW VALCAM-EL™ [Overview]

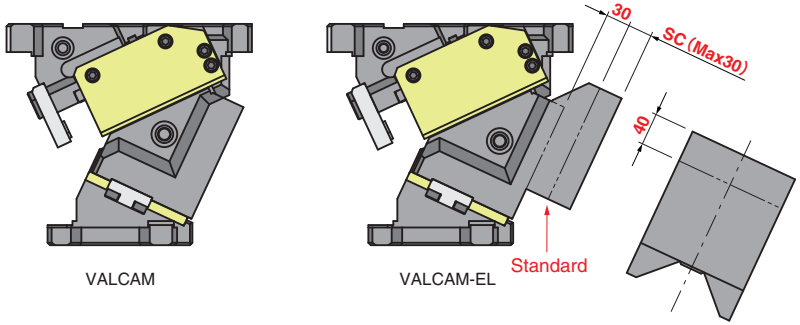
Product Information

- Machining possible even at positions away from the panel edge.
- High flexibility in mounting tools.
- No need for block design and arrangement.
- Same mounting dimensions as VALCAM of the same size.



■Expansion of Cam Slider Mount Face

By extending the cam slider up to 60 mm in the machining direction and expanding it by 40 mm in height compared to the existing VALCAM, the layout design of tools mounted on the unit becomes more flexible and easier.



VALCAM　　VALCAM-EL

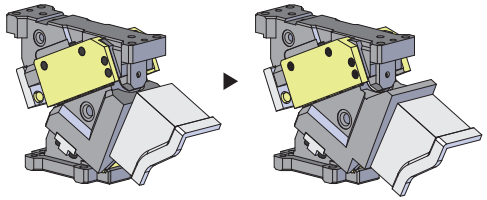
Grade	Mount Face Width mm	Working Force [kN (tonf)] 1,000,000 strokes	Working Force [kN (tonf)] 300,000 strokes	Working Angle 5°increments	Catalog No.	Spring Type	Application
Pink	100	116.1 (11.8)	139.2 (14.2)	0°～70°	VACPEL100	Gas Spring / Coil Spring	Pierce
	140	159.3 (16.3)	191.1 (19.5)		VACPEL140		Trim
	200	197.6 (20.1)	230.5 (23.5)		VACPEL200		Flange

Gas Spring　Coil Spring　Make sure to check your conditions of use

Flexible Design with High Degree of Freedom

Wide Mount Face for Large Tools:

Unlike existing cam units, which struggle with large tools that exceed the mount face, VALCAM-EL features a wide upper mount face, allowing for the installation of larger tools.

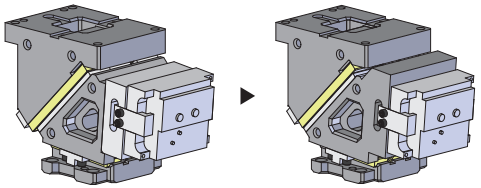


existing cam units
The cutting tool protrudes beyond the mount face.

VALCAM-EL
The blade fits into the mount face.

Reinforced Structure for Heavy Equipment:

Tools like cam pads, which were difficult to install due to weight limitations on the mount face, can be installed with VALCAM-EL thanks to its reinforced structure.

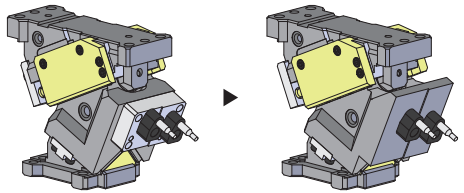


existing cam units
Installation tool weight exceeded.

VALCAM-EL
No blocks required; installationtools within acceptable range.

Reduced Workload with No Need for Block Design and Arrangement:

Areas where blocks were previously attached and adjusted to the slider because the tool couldn't reach the machining part no longer require the cumbersome design and arrangementof blocks, thus reducing the workload.



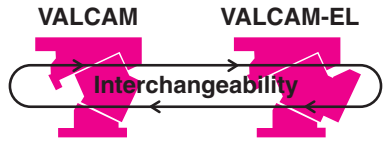
existing cam units
The cutting tool protrudes beyond the mount face.

VALCAM-EL
Reduce man-hours without blocking.

Same Mounting Dimensions as VALCAM100, 140, 200

VALCAM and VALCAM-EL have mounting compatibility.

*The total width of the cam for VALCAM-EL100 and 140 is the mount face width + 10mm.

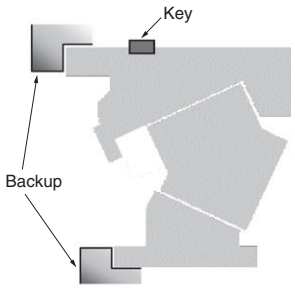


■Backup Settings with Increased Working Force

When using within the following working force range, set a backup or a key for the cam holder or the cam driver.

Mount Face Width [mm]	Operating Working Force [kN (tonf)]
100	79.4 (8.1) or more
140	127.4 (13.0) or more
200	127.4 (13.0) or more

Working Angle	Location for Backup
0～20°	Cam Holder
25°	Cam Holder, Cam Driver
30～70°	Cam Driver



■Standard Durability of Coil Spring

Coil Springs used in VALCAM-EL require maintenance on a regular basis and their durability expires at 300,000 cycles as a rule of thumb. Please note that the durability is based on the tests run by the manufacturer of the Coil Springs and that it's merely an assumption based on such tests. Depending on how the product has been actually used in a particular environment, Coil Springs can break earlier than 300,000 cycles. Regular monitoring and maintenance on Coil Spring are highly recommended.
Example: When it's used with over strokes, the Coil Spring will break earlier due to too much deflection.

■Gas Spring

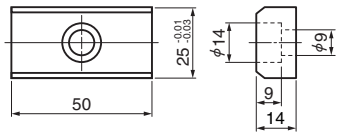
Please contact your local sales representative if you prefer to use a Gas Spring not specified in our catalog. For use and maintenance of Gas Spring, please contact the manufacturer directly.

■Thrust Pad Installation

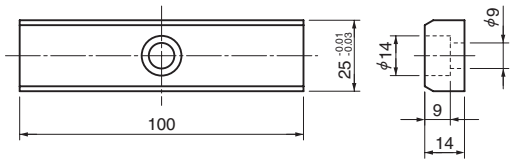
When the unit is used for trimming or flanging, it is recommended a thrust pad be included, so an extreme lateral load is eliminated from trimming or flanging line to the unit.

■Key specifications (Option –K)

● Cam width 100, 200
(A M8 bolt is included.)

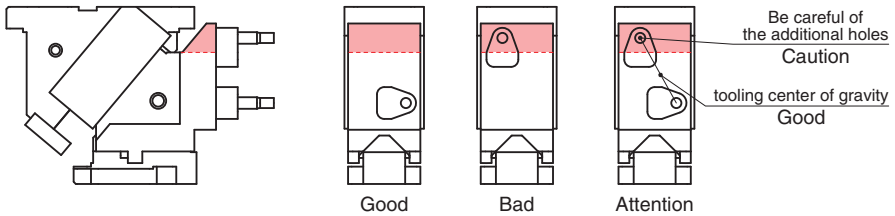


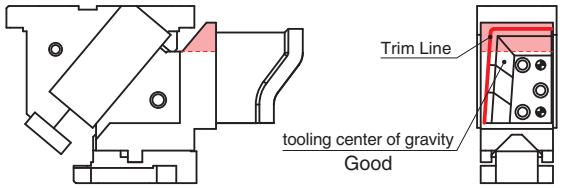
● Cam width 140
(A M8 bolt is included.)



■Regarding the thin section on the top of the mount surface

The upper part of the mount surface is thinner, so please take care not to let taps or knocks penetrate during additional processing.
When using multiple piercing punches or performing trimming, do not set the center of gravity of the processing force in the red range on the upper part of the mount surface.
Even if the center of gravity of the processing force is within the usable range, the upper part of the mount surface is thinner, so deflection may occur during panel processing, resulting in burrs.
Take measures such as using the SC option to ensure thickness.

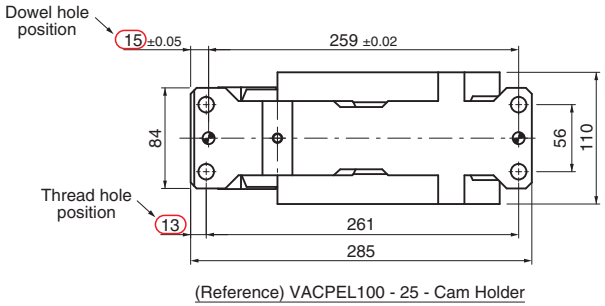




■Dowel hole positions for cam holder

To prevent incorrect assembly of the cam, the dowel positions are intentionally offset in the front/back direction. Make sure that the dowel hole positions are set up according to the catalog indication.

⚠ Width dimension of cam holder is general tolerance.
Do not use side surface of cam unit as locating datum at assembling to die.



(Reference) VACPEL100 - 25 - Cam Holder

■Roughness of Sliding Surface

Machining marks on sliding surface may look rough, but surface roughness is within our standard.
We guarantee the quality of our products through testing and experience.

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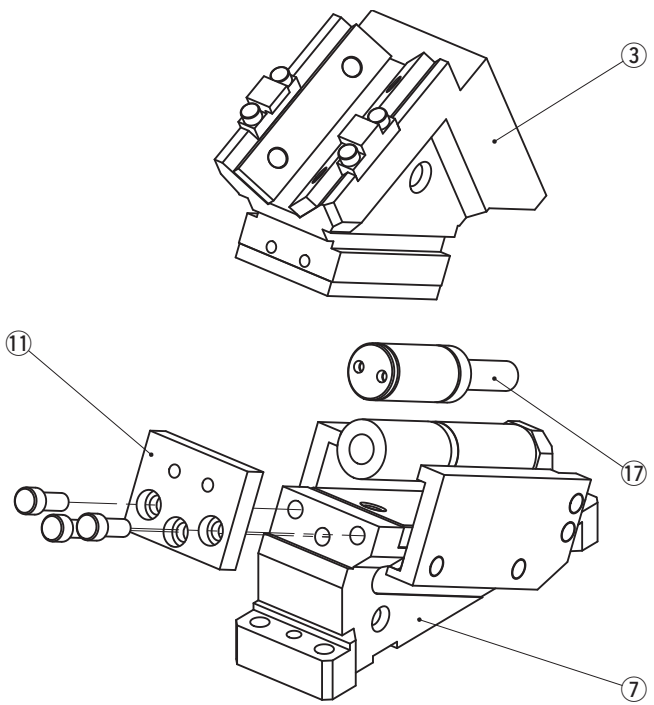
■100・140 Assembly Instructions



● Disassembly

1）Loosen hexagonal socket head bolts and remove (⑪) Stopper Plate.

2）Pull out and remove (③) Cam Slider from (⑦) Cam Holder to the rear.

＊ Note that the Gas Spring is not fixed to Cam Slider.

● Assembly

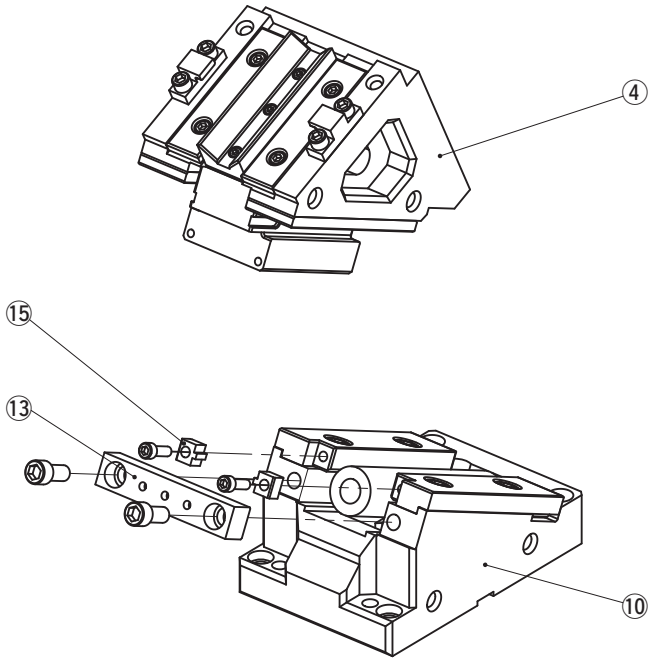
Assembly is the reverse procedure of disassembly.

・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.

・Make sure that all bolts are tighten to the recommended torque after assembly and disassembly.

■200 Assembly Instructions



● Disassembly

1）Loosen hexagonal socket head bolts and remove (⑮) Safety Block and (⑬) Stopper Plate.

2）Pull out and remove (④) Cam Slider from (⑩) Cam Holder 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.

・Make sure that all bolts are tighten to the recommended torque after assembly and disassembly.

Grade	Working Force [kN (tonf)]		Catalog No.	W	θ 5° increments	Spring Type PS
	1,000,000 strokes	300,000 strokes				
Pink	197.6 (20.1)	230.5 (23.5)	VACPEL	200	00~70	GK NGK GD NGD GSS NGSS ISO

ISO: Coil Spring GK: Gas Spring (KALLER) GD: Gas spring (DADCO) GSS: Gas spring(Special Springs)
NGK/NGD/NGSS: Without Gas Spring Parts for spring assembly are included.

Order

Catalog No.	W		θ		PS		Option
VACPEL	200	–	10	–	ISO		
VACPEL	200	–	10	–	GK	–	NF – K
VACPEL	200	–	10	–	NGD	–	SC15
VACPEL	200	–	10	–	GD	–	NF – SC25 – S – K

Option

Option Code	Specification
NF	Nitrogen gas not charged.
SC	Mount face length is extended from 1 to 30 mm in increments of 1 mm.
S	Lock plate attached.
K	Key attached.

Refer to page 3 for key specification.

■Spring Force & Return Force

● Coil Spring

θ	Spring Force				Return Force		Spring Model	
	Initial Load		Final Load					
	N	kgf	N	kgf	N	kgf		
00	873	89.0	6872	701.2	9391.0	958.3	TJH50-229	TH40-75
05	873	89.0	6872	701.2	9358.0	954.9	TJH50-229	TH40-75
10	873	89.0	6872	701.2	9323.0	951.3	TJH50-229	TH40-75
15	873	89.0	6872	701.2	9286.0	947.6	TJH50-229	TH40-75
20	873	89.0	6872	701.2	9247.0	943.6	TJH50-229	TH40-75
25	873	89.0	6872	701.2	9207.0	939.5	TJH50-229	TH40-75
30	873	89.0	6872	701.2	9166.0	935.3	TJH50-229	TH40-75
35	873	89.0	6872	701.2	9124.0	931	TJH50-229	TH40-75
40	873	89.0	6872	701.2	9082.0	926.7	TJH50-229	TH40-75
45	873	89.0	6872	701.2	9039.0	922.4	TJH50-229	TH40-75
50	873	89.0	6872	701.2	8997.0	918.1	TJH50-229	TH40-75
55	873	89.0	6872	701.2	9786.0	998.6	TJH50-229	TH40-75
60	873	89.0	6872	701.2	10823.0	1104.4	TJH50-229	TH40-75
65	873	89.0	6326	645.5	11227.0	1145.6	TJH50-229	TH40-75
70	702	71.6	6455	658.7	13242.0	1351.3	TJH50-178	TH40-75

Life expectancy of Coil Spring is approximately 300,000 strokes.

● Gas Spring

θ	Spring Force Final Load		Return Force		Spring Model
	N	kgf	N	kgf	GK
00	13914	1420	18686	1907	X1000-63
05	13914	1420	18653	1903	X1000-63
10	13914	1420	18618	1900	X1000-63
15	13914	1420	18581	1896	X1000-63
20	13914	1420	18542	1892	X1000-63
25	13914	1420	18502	1888	X1000-63
30	13914	1420	18461	1884	X1000-63
35	13914	1420	18419	1880	X1000-63
40	13914	1420	18376	1875	X1000-63
45	13914	1420	18334	1871	X1000-63
50	13914	1420	18292	1867	X1000-63
55	13914	1420	19898	2031	X1000-63
60	13914	1420	22004	2245	X1000-63
65	13478	1375	24030	2452	X1000-63
70	12692	1295	26155	2669	X1000-63

Gas filling pressure: 15 Mpa

Spring Force Final Load		Return Force		Spring Model
N	kgf	N	kgf	GD
14733	1503	19835	2024	U.1000.063.TO.C
14733	1503	19795	2020	U.1000.063.TO.C
14733	1503	19752	2016	U.1000.063.TO.C
14733	1503	19707	2011	U.1000.063.TO.C
14733	1503	19660	2006	U.1000.063.TO.C
14733	1503	19612	2001	U.1000.063.TO.C
14733	1503	19562	1996	U.1000.063.TO.C
14733	1503	19511	1991	U.1000.063.TO.C
14733	1503	19460	1986	U.1000.063.TO.C
14733	1503	19408	1980	U.1000.063.TO.C
14733	1503	19357	1975	U.1000.063.TO.C
14733	1503	21056	2149	U.1000.063.TO.C
14733	1503	23283	2376	U.1000.063.TO.C
13950	1423	24851	2536	U.1000.063.TO.C
12858	1312	26467	2701	U.1000.063.TO.C

Gas filling pressure: 15 Mpa

θ	Spring Force Final Load		Return Force		Spring Model
	N	kgf	N	kgf	GSS
00	14733	1503	19835	2024	U.1000.063.TO.C
05	14733	1503	19795	2020	U.1000.063.TO.C
10	14733	1503	19752	2016	U.1000.063.TO.C
15	14733	1503	19707	2011	U.1000.063.TO.C
20	14733	1503	19660	2006	U.1000.063.TO.C
25	14733	1503	19612	2001	U.1000.063.TO.C
30	14733	1503	19562	1996	U.1000.063.TO.C
35	14733	1503	19511	1991	U.1000.063.TO.C
40	14733	1503	19460	1986	U.1000.063.TO.C
45	14733	1503	19408	1980	U.1000.063.TO.C
50	14733	1503	19357	1975	U.1000.063.TO.C
55	14733	1503	21056	2149	U.1000.063.TO.C
60	14733	1503	23283	2376	U.1000.063.TO.C
65	13950	1423	24851	2536	U.1000.063.TO.C
70	12858	1312	26467	2701	U.1000.063.TO.C

Gas filling pressure: 15 Mpa

■Weight*1

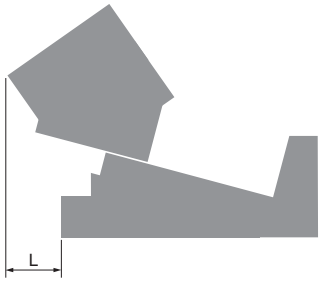
θ	Total Weight kg	Cam Slider Weight kg	Max. Tool Weight*2 kg
00	95.8	45.1	29.3
05	95.9	45.1	29.4
10	95.5	45.1	29.9
15	94.4	45.1	30.7
20	93.2	45.1	31.8
25	91.9	45.1	33.2
30	91.4	45.1	35.1
35	90.9	45.1	37.5
40	91.5	45.1	40.5
45	94.0	45.1	44.2
50	95.2	45.1	44.2
55	97.0	46.8	42.5
60	96.6	45.6	43.7
65	99.1	47.0	42.3
70	103.7	51.0	38.3

*1 This is the weight without SC option. Reduce tool weight when with SC option since the slider gets heavier.
*2 Tool weight is estimated value. Allowable tool weight varies depending on press speed.

■Rear Removal Space

- Coil Spring
- Gas Spring

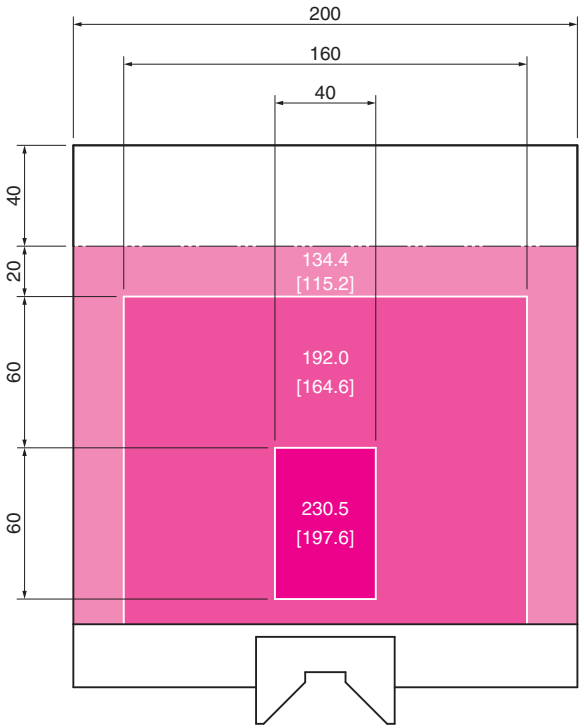
θ	L mm
00	45.5
05	55.3
10	63.8
15	71.8
20	84.2
25	96.5
30	106.0
35	120.0
40	132.0
45	144.0
50	153.0
55	162.0
60	162.0
65	159.0
70	154.0



■Working Force Distribution Diagram

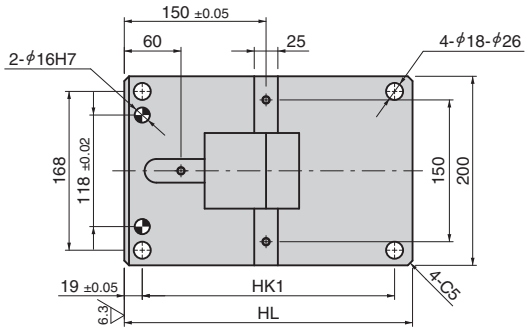
The working forces indicated in the mount face distribution diagram are reached by putting the toolingcenter of gravity within each area for the following pictures.
Please avoid positioning the machining center of gravity within the upper 40 mm area of the mounting surface.

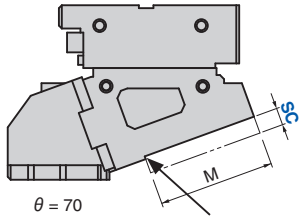
: Working force (kN) allowed for up to 300,000 strokes
[ ]: Working force (kN) allowed for up to 1,000,000 strokes



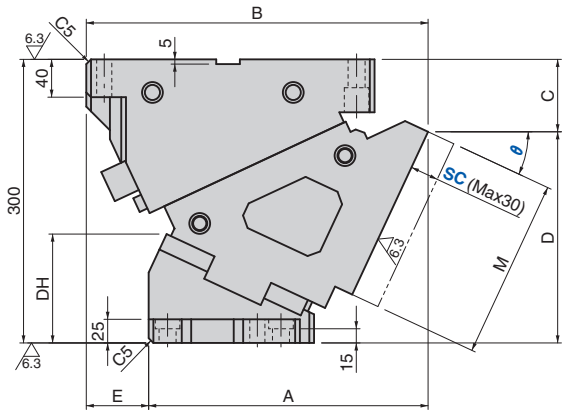
VACPEL200

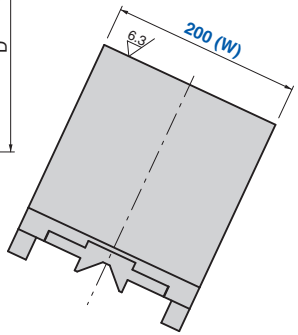
CAD FILE

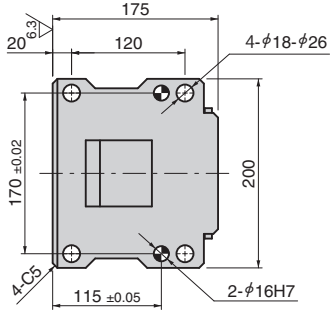




Cannot be used on stepped or abutting parts.

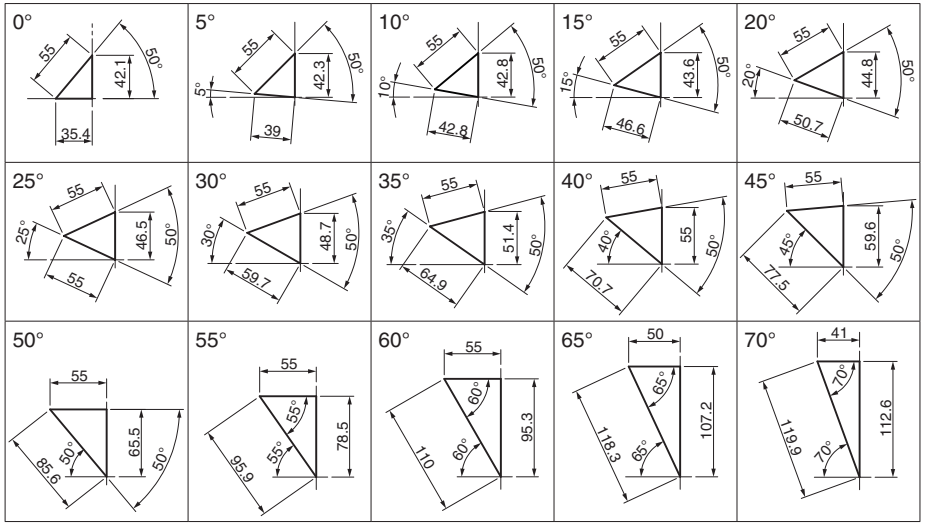






θ	A	B	C	D	E	HL	HK1	DH	M
00	205.00	321.00	27.00	273.00	116	270	232	61.0	
05	225.25	333.25	38.48	261.52	108	280	242	67.8	
10	244.83	343.83	48.03	251.97	99	290	252	77.9	
15	263.76	351.76	57.61	242.39	88	295	257	89.4	
20	281.03	358.03	67.16	232.84	77	300	262	102.0	
25	295.64	361.64	76.61	223.39	66	305	267	115.8	190
30	312.61	364.61	88.91	211.09	52	310	272	127.5	
35	328.95	362.95	102.01	197.99	34	310	272	139.0	
40	344.68	358.68	116.85	183.15	14	310	272	149.4	
45	356.83	352.83	140.38	159.62	-4	310	272	151.7	
50	368.43	345.43	154.54	145.46	-23	310	272	163.5	
55	384.22	342.22	162.76	137.24	-42	310	272	169.5	
60	390.09	336.09	167.34	132.66	-54	310	272	172.5	200
65	405.24	336.24	175.99	124.01	-69	310	272	177.0	
70	423.46	335.46	191.46	108.54	-88	310	272	175.8	

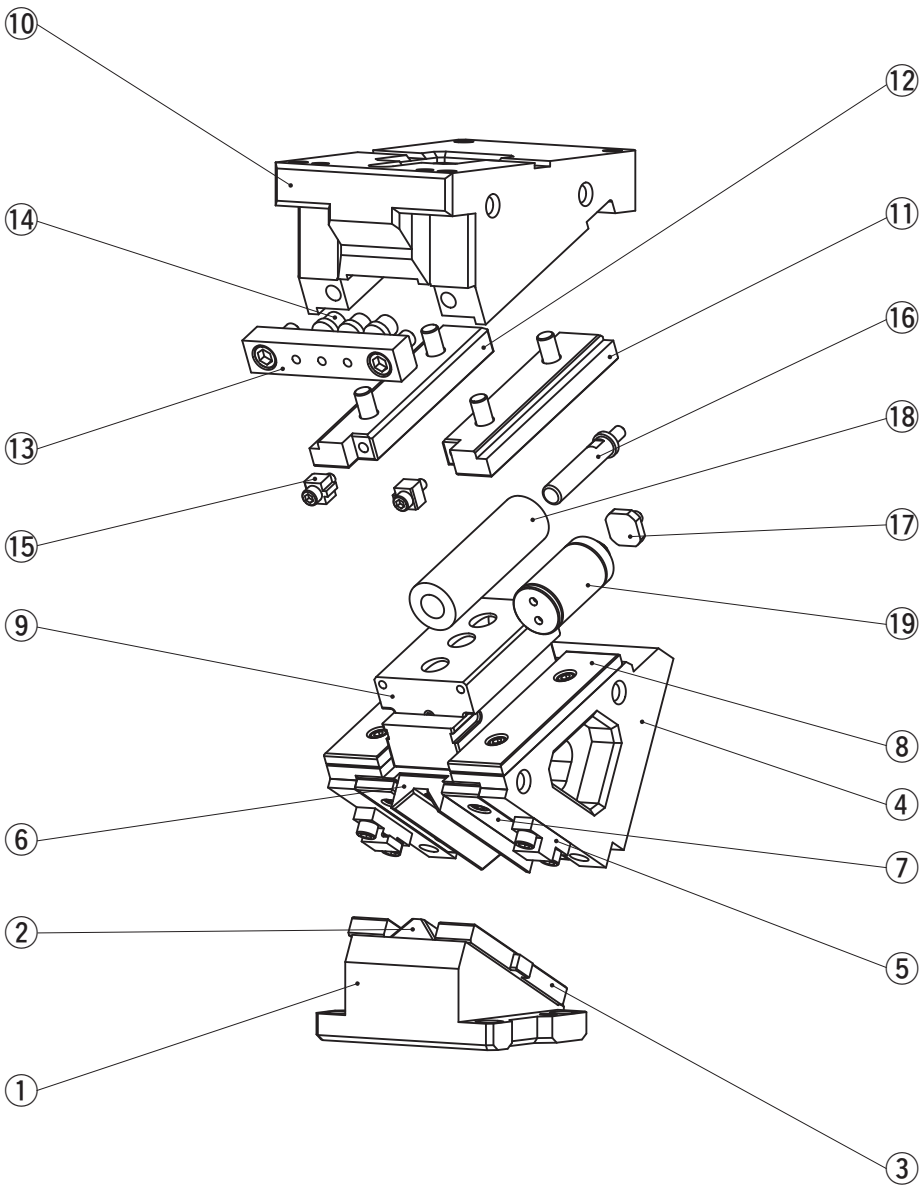
■カム線図



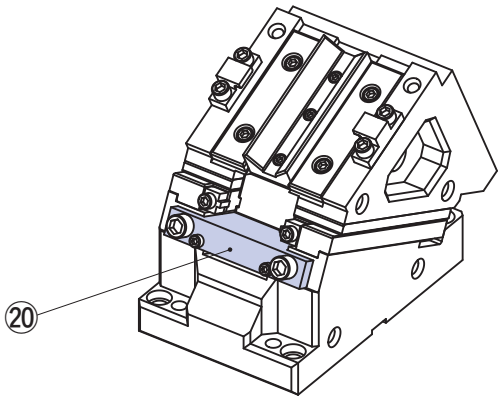
Refer to page 28 for Table of Components.

Aerial Cam Unit

VACPEL200



● Lock System



No.	Description	Qty	
		Coil Spring	Gas Spring
1	Cam Driver	1	
2	Cam Slide Guide A	1	
3	Driver Plate	2	
4	Cam Slider	1	
5	Positive Return Follower	2	
6	Cam Slide Guide B	1	
7	Slide Plate 01	2	
8	Slide Plate 02	2	
9	Spring Guide Plate	1	
10	Cam Holder	1	
11	Base Plate B	1	
12	Base Plate A	1	
13	Stopper Plate	—	
14	Stopper	3	
15	Safty Block	2	
16	Spring Guide Pin	1	—
17	Pin	—	1
18	Coil Spring	1	—
19	Gas Spring	—	1
20	Lock Plate	1	

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