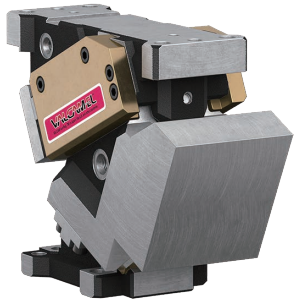
NEW VALCAM-EL™ [Overview]

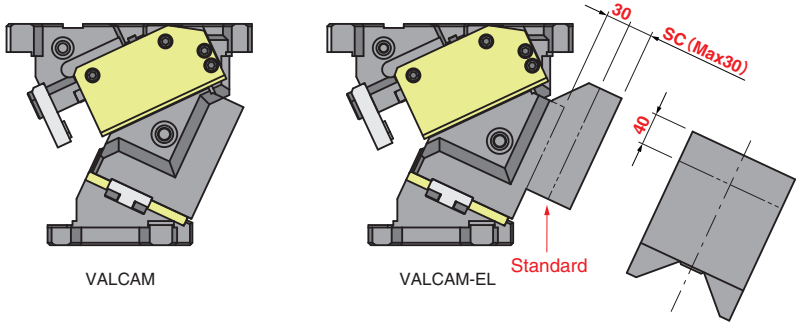
Product Information

- 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

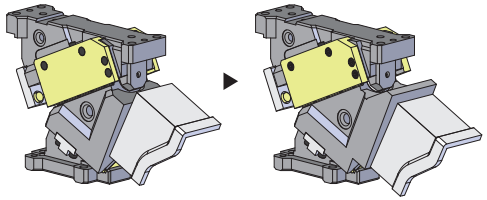
Grade	Mount Face Width mm	Working Force [kN (tonf)] 1,000,000 strokes	Working Force [kN (tonf)] 300,000 strokes	Working Angle 5°increments	Catalog No.	Spring Type	Application
Pink	100	116.1 (11.8)	139.2 (14.2)	0°～70°	VACPEL100	Gas Spring / Coil Spring	Pierce
	140	159.3 (16.3)	191.1 (19.5)		VACPEL140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

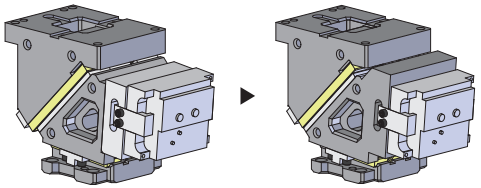


existing cam units
The cutting tool protrudes beyond the mount face.

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.

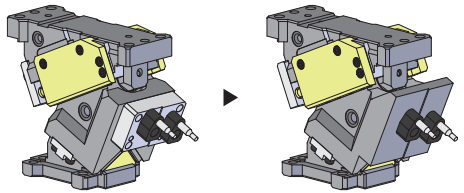


existing cam units
Installation tool weight exceeded.

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.



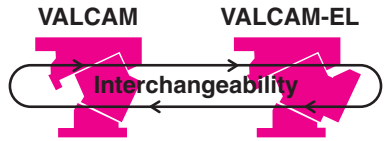
existing cam units
The cutting tool protrudes beyond the mount face.

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.

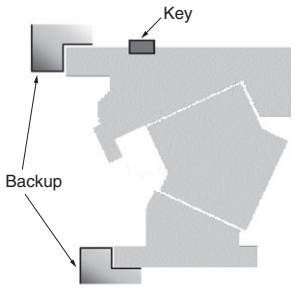


■Backup Settings with Increased Working Force

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

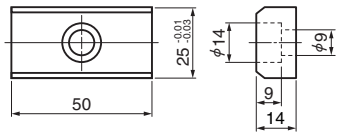
Please contact your local sales representative if you prefer to use a Gas Spring not specified in our catalog. For use and maintenance of Gas Spring, please contact the manufacturer directly.

■Thrust Pad Installation

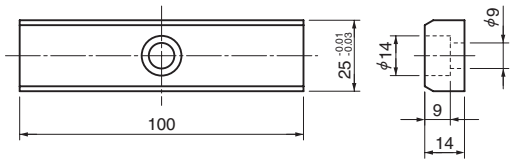
When the unit is used for trimming or flanging, it is recommended a thrust pad be included, so an extreme lateral load is eliminated from trimming or flanging line to the unit.

■Key specifications (Option –K)

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

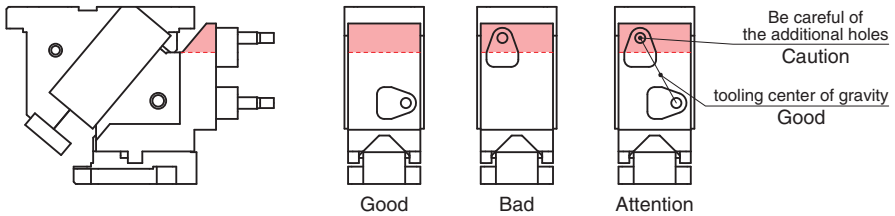


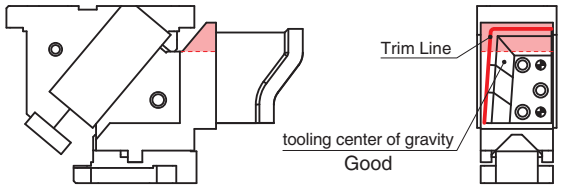
● Cam width 140
(A M8 bolt is included.)



■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.

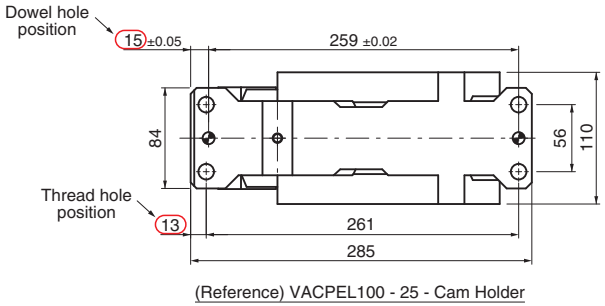




■Dowel hole positions for cam holder

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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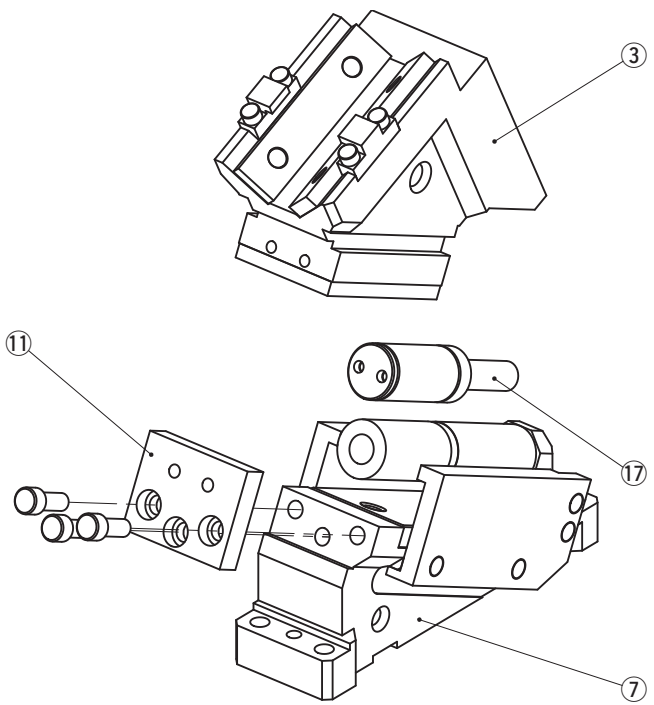
■100・140 Assembly Instructions



● 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

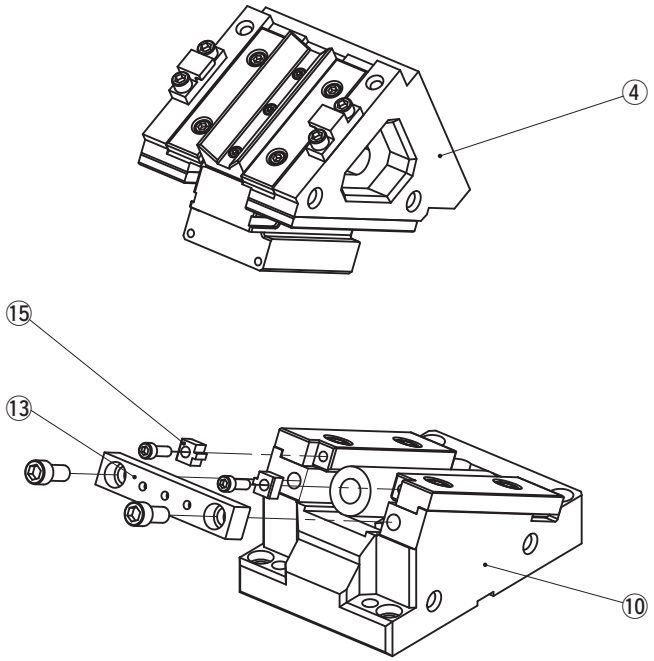
Assembly is the reverse procedure of disassembly.

・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	159.3 (16.3)	191.1 (19.5)	VACPEL	140	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	140	–	10	–	ISO		
VACPEL	140	–	10	–	GK	–	NF – K
VACPEL	140	–	10	–	NGD	–	SC15
VACPEL	140	–	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	429	43.8	8902	908	6267.5	640	TF50-100	TH50-75
05	429	43.8	8902	908	6252.3	638	TF50-100	TH50-75
10	429	43.8	8902	908	6236.0	636	TF50-100	TH50-75
15	429	43.8	8902	908	6218.8	635	TF50-100	TH50-75
20	429	43.8	8902	908	6200.9	633	TF50-100	TH50-75
25	429	43.8	8902	908	6182.3	631	TF50-100	TH50-75
30	429	43.8	8902	908	6163.3	629	TF50-100	TH50-75
35	429	43.8	8902	908	6143.9	627	TF50-100	TH50-75
40	429	43.8	8902	908	6124.3	625	TF50-100	TH50-75
45	429	43.8	8902	908	6104.7	623	TF50-100	TH50-75
50	429	43.8	8902	908	6085.2	621	TF50-100	TH50-75
55	393	40.1	8683	886	6502.5	664	TF50-90	TH50-75
60	629	64.2	8683	886	7106.8	725	TF50-90	TH50-75
65	525	53.6	8412	858	8034.5	820	TF50-80	TH50-75
70	443	45.2	8061	823	9134.2	932	TF50-70	TH50-75

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	11162	1139	14881	1518	X750-63
05	11162	1139	14866	1517	X750-63
10	11162	1139	14849	1515	X750-63
15	11162	1139	14832	1513	X750-63
20	11162	1139	14814	1512	X750-63
25	11162	1139	14796	1510	X750-63
30	11162	1139	14777	1508	X750-63
35	11162	1139	14757	1506	X750-63
40	11162	1139	14738	1504	X750-63
45	11162	1139	14718	1502	X750-63
50	11162	1139	14698	1500	X750-63
55	11438	1167	16385	1672	X750-50
60	10911	1113	17278	1763	X750-50
65	11327	1156	20226	2064	X750-38
70	11103	1133	22928	2340	X750-32

Gas filling pressure: 15 Mpa

Spring Force Final Load		Return Force		Spring Model
N	kgf	N	kgf	GD
11014	1124	14725	1503	U.0800.063.TO.C
11014	1124	14706	1501	U.0800.063.TO.C
11014	1124	14685	1498	U.0800.063.TO.C
11014	1124	14663	1496	U.0800.063.TO.C
11014	1124	14641	1494	U.0800.063.TO.C
11014	1124	14617	1492	U.0800.063.TO.C
11014	1124	14593	1489	U.0800.063.TO.C
11014	1124	14568	1487	U.0800.063.TO.C
11014	1124	14544	1484	U.0800.063.TO.C
11014	1124	14519	1481	U.0800.063.TO.C
11014	1124	14494	1479	U.0800.063.TO.C
11499	1173	16462	1680	U.0800.050.TO.C
10713	1093	16952	1730	U.0800.050.TO.C
11224	1145	20028	2044	U.0800.038.TO.C
10987	1121	22672	2313	U.0800.032.TO.C

Gas filling pressure: 15 Mpa

θ	Spring Force Final Load		Return Force		Spring Model
	N	kgf	N	kgf	GSS
00	11578	1181	15469	1579	RV750-063-B
05	11578	1181	15450	1577	RV750-063-B
10	11578	1181	15429	1574	RV750-063-B
15	11578	1181	15408	1572	RV750-063-B
20	11578	1181	15385	1570	RV750-063-B
25	11578	1181	15361	1567	RV750-063-B
30	11578	1181	15337	1565	RV750-063-B
35	11578	1181	15313	1563	RV750-063-B
40	11578	1181	15288	1560	RV750-063-B
45	11578	1181	15263	1557	RV750-063-B
50	11578	1181	15238	1555	RV750-063-B
55	11987	1223	17162	1751	RV750-050-B
60	11090	1132	17550	1791	RV750-050-B
65	11662	1190	20812	2124	RV750-038-B
70	11216	1144	23146	2362	RV750-032-B

Gas filling pressure: 15 Mpa

■Weight*1

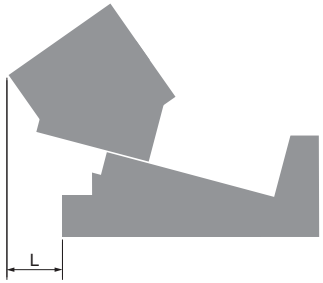
θ	Total Weight kg	Cam Slider Weight kg	Max. Tool Weight*2 kg
00	53.0	21.8	14.2
05	52.5	21.8	14.3
10	51.9	21.8	14.5
15	51.6	21.8	14.9
20	51.3	21.8	15.4
25	51.2	21.8	16.1
30	50.9	21.8	17.0
35	51.2	21.8	18.2
40	52.0	21.8	19.6
45	53.4	21.8	21.4
50	54.9	21.8	21.4
55	56.9	23.4	19.8
60	57.7	23.9	19.3
65	58.9	25.1	18.1
70	59.2	25.1	18.1

*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	0.0
05	0.0
10	0.0
15	6.8
20	14.1
25	27.5
30	40.7
35	51.7
40	62.3
45	67.5
50	68.3
55	77.2
60	85.8
65	92.7
70	98.8

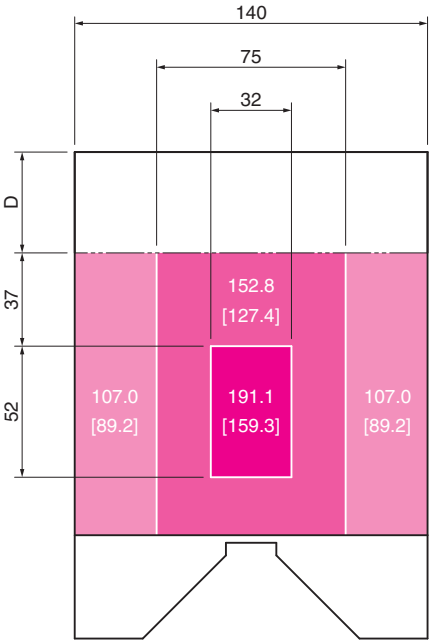


■Working Force Distribution Diagram

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

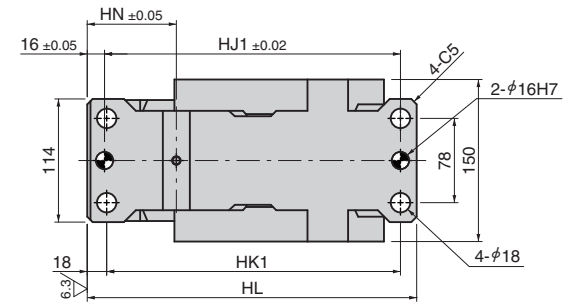
: Working force (kN) allowed for up to 300,000 strokes
[ ]: Working force (kN) allowed for up to 1,000,000 strokes

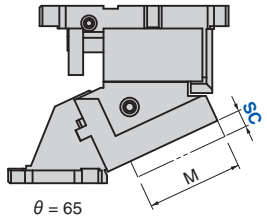
θ	D mm
00	40
05	40
10	40
15	40
20	40
25	40
30	40
35	40
40	40
45	40
50	40
55	35
60	30
65	25
70	27

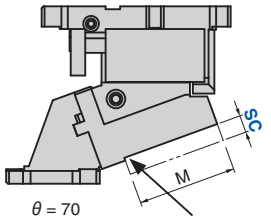


VACPEL140

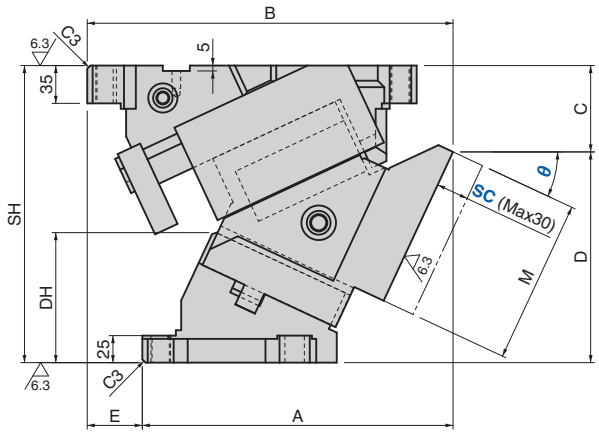
CAD FILE

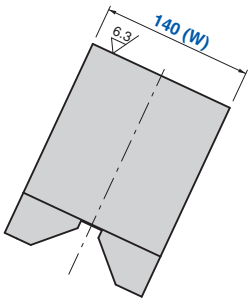


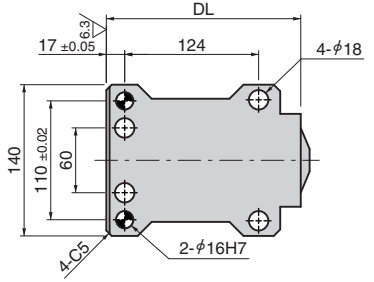




Cannot be used on stepped or abutting parts.

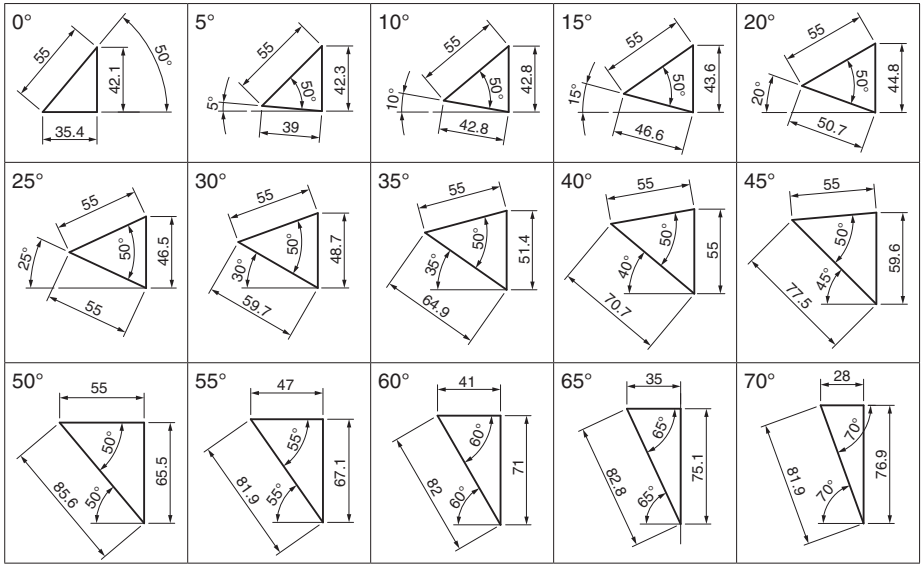






θ	A	B	C	D	E	SH	HL	HK1	HJ1	HN	DH	DL	M
00	205.00	310.00	33.00	242.00	105		280	247	249		81.7		
05	222.22	319.22	40.17	234.83	97		285	252	254	122.5	89.7		
10	239.81	326.81	47.51	227.49	87		290	257	259		98.6		
15	256.75	331.75	57.95	217.05	75	275	295	262	264		105.4		
20	273.03	336.03	68.45	206.55	63		300	267	269		113.0	180	
25	287.67	338.67	79.95	195.05	51		305	272	274	82.5	120.3		152
30	301.65	338.65	93.39	181.61	37		305	272	274		126.3		
35	314.99	337.99	107.70	167.30	23		310	277	279		131.8		
40	325.69	334.69	127.85	152.15	9	280	310	277	279		136.7		
45	336.78	333.78	148.77	136.23	-3	285	315	282	284		141.0		
50	342.28	334.28	168.41	121.59	-8	290	325	292	294		146.9	175	
55	349.42	323.42	180.70	114.30	-26	295	325	292	294	122.5	148.8		155
60	353.86	314.86	188.01	111.99	-39	300	325	292	294		155.2	170	160
65	359.89	305.89	197.39	107.61	-54	305	325	292	294		159.1		165
70	362.63	301.63	201.37	103.63	-61		325	292	294		166.9	161	170

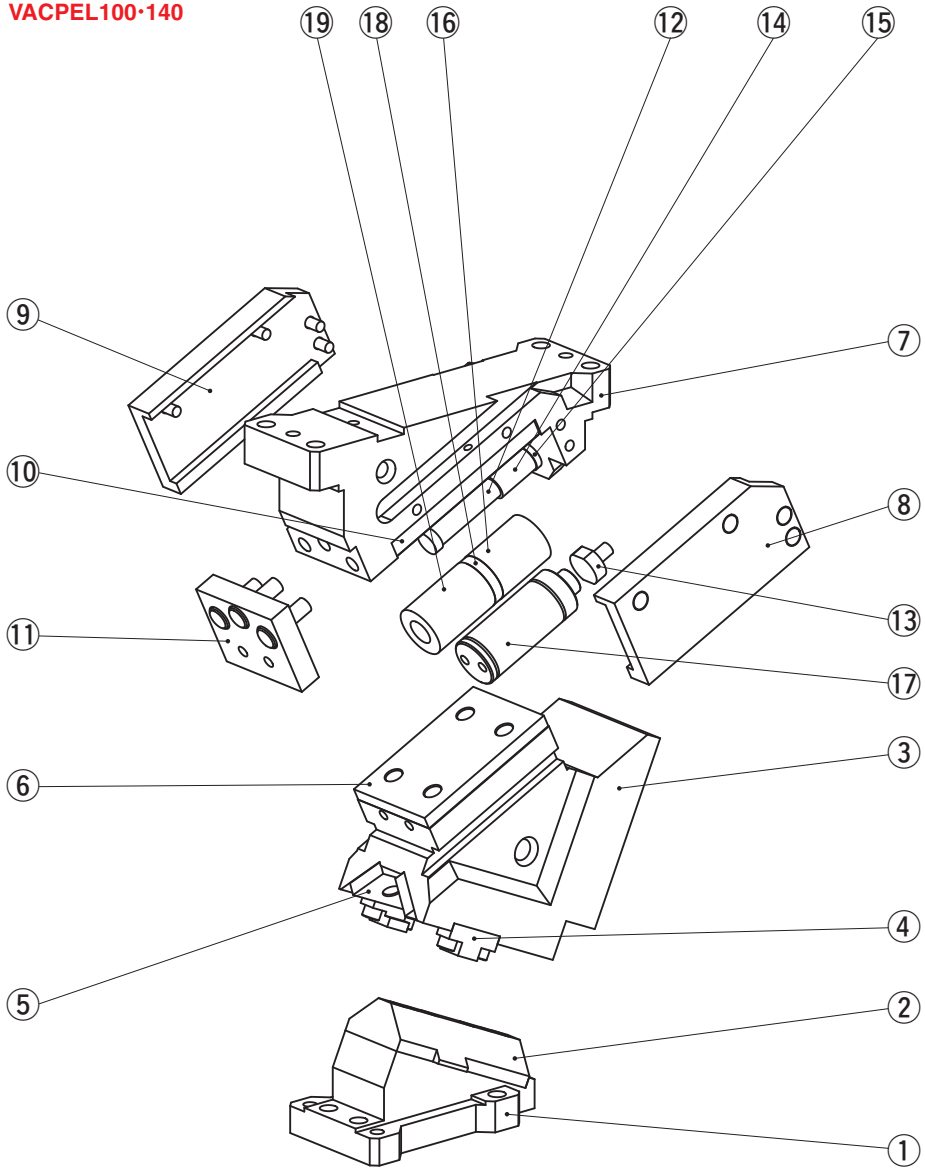
■Cam Diagram



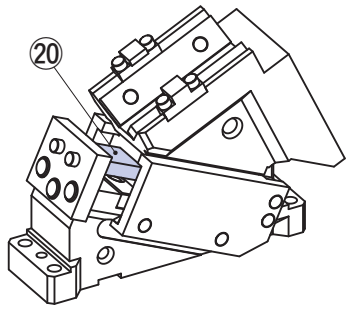
Refer to page 20 for Table of Components.

Aerial Cam Unit

VACPEL100·140



● Lock System



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

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