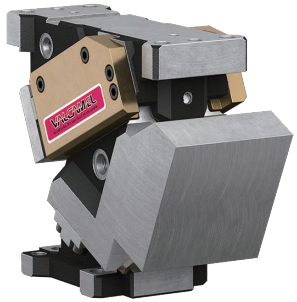
NEW VALCAM-EL™ [Overview]

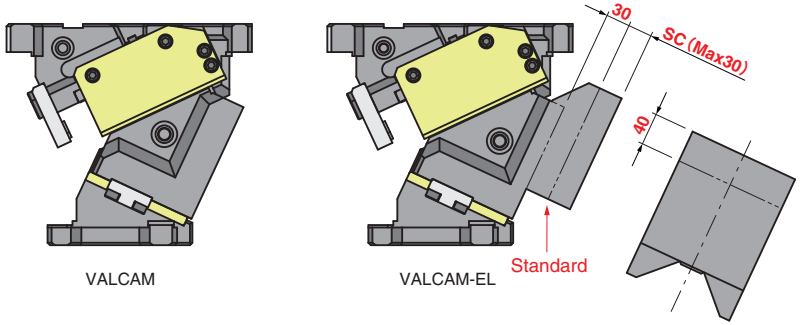
Product Information

- 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

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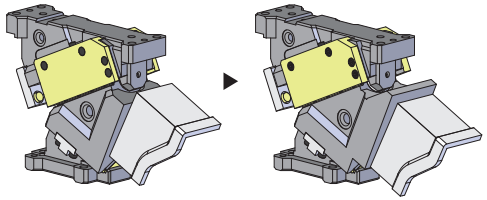
Flexible Design with High Degree of Freedom

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.

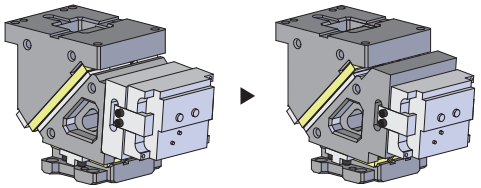


existing cam units
The cutting tool protrudes beyond the mount face.

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.

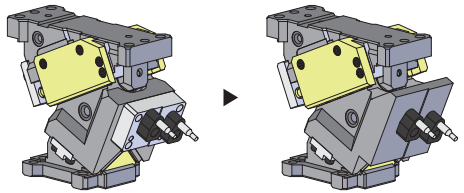


existing cam units
Installation tool weight exceeded.

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.



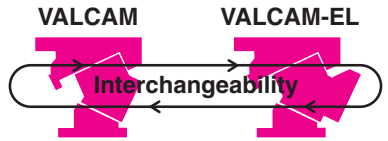
existing cam units
The cutting tool protrudes beyond the mount face.

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.



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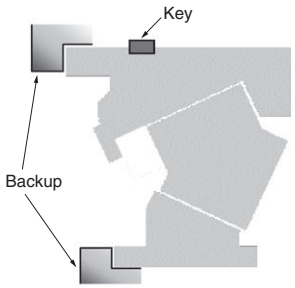
■Backup Settings with Increased Working Force

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

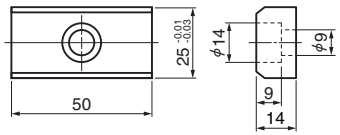
Please contact your local sales representative if you prefer to use a Gas Spring not specified in our catalog. For use and maintenance of Gas Spring, please contact the manufacturer directly.

■Thrust Pad Installation

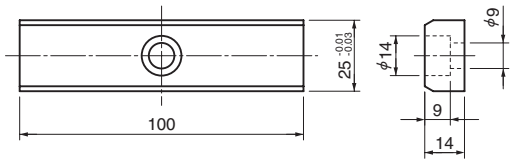
When the unit is used for trimming or flanging, it is recommended a thrust pad be included, so an extreme lateral load is eliminated from trimming or flanging line to the unit.

■Key specifications (Option –K)

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

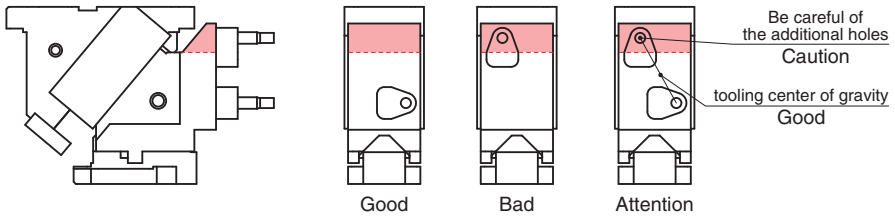


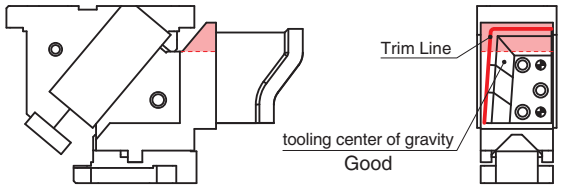
● Cam width 140
(A M8 bolt is included.)



■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.

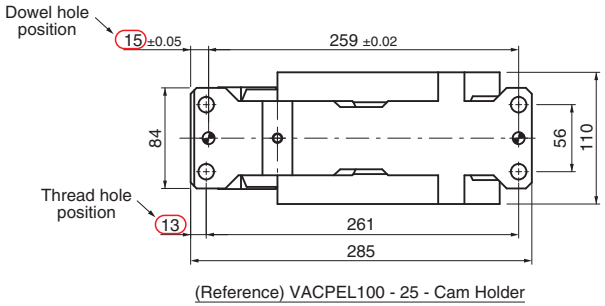




■Dowel hole positions for cam holder

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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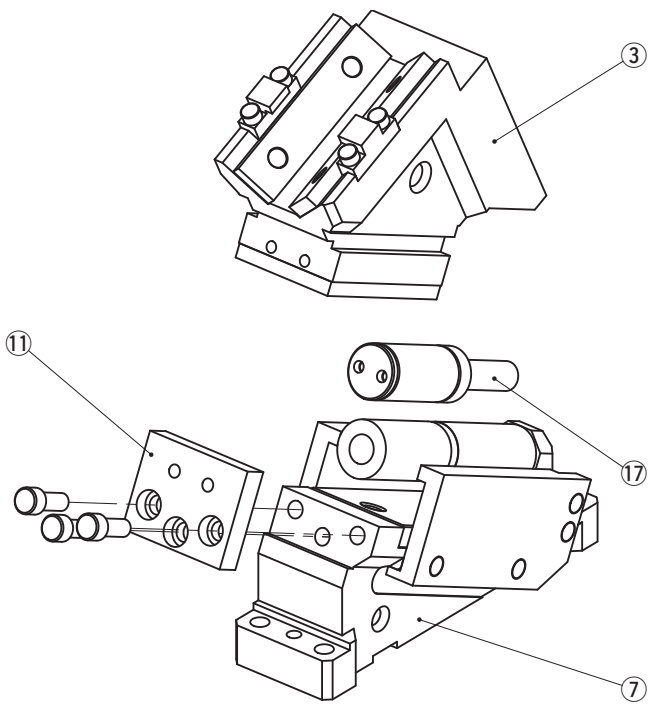
■100・140 Assembly Instructions



● 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.

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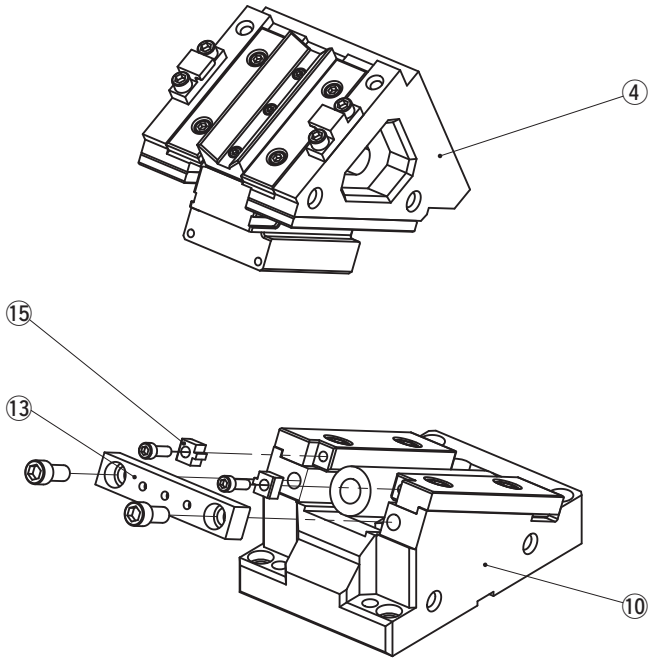
■200 Assembly Instructions



● 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.

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Grade	Working Force [kN (tonf)]		Catalog No.	W	θ 5° increments	Spring Type PS
	1,000,000 strokes	300,000 strokes				
Pink	116.1 (11.8)	139.2 (14.2)	VACPEL	100	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	100	–	10	–	ISO		
VACPEL	100	–	10	–	GK	–	NF – K
VACPEL	100	–	10	–	NGD	–	SC15
VACPEL	100	–	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	275	28.0	5701	582	7616.8	777	TF40-100	TH40-75
05	275	28.0	5701	582	7607.3	776	TF40-100	TH40-75
10	275	28.0	5701	582	7597.1	775	TF40-100	TH40-75
15	275	28.0	5701	582	7586.5	774	TF40-100	TH40-75
20	275	28.0	5701	582	7575.3	773	TF40-100	TH40-75
25	275	28.0	5701	582	7563.8	772	TF40-100	TH40-75
30	275	28.0	5701	582	7551.9	771	TF40-100	TH40-75
35	275	28.0	5701	582	7539.8	769	TF40-100	TH40-75
40	275	28.0	5701	582	7527.7	768	TF40-100	TH40-75
45	275	28.0	5701	582	7515.5	767	TF40-100	TH40-75
50	275	28.0	5701	582	7503.3	766	TF40-100	TH40-75
55	252	25.7	5560	567	7958.0	812	TF40-90	TH40-75
60	402	41.1	5560	567	8797.1	898	TF40-90	TH40-75
65	336	34.3	5387	550	9610.8	981	TF40-80	TH40-75
70	283	28.9	5162	527	10647.0	1086	TF40-70	TH40-75

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

● Gas Spring

θ	Spring Force		Return Force		Spring Model
	Final Load				
	N	kgf	N	kgf	GK
00	6836	698	9115	930	X500-63
05	6836	698	9106	929	X500-63
10	6836	698	9095	928	X500-63
15	6836	698	9085	927	X500-63
20	6836	698	9074	926	X500-63
25	6836	698	9062	925	X500-63
30	6836	698	9050	923	X500-63
35	6836	698	9038	922	X500-63
40	6836	698	9026	921	X500-63
45	6836	698	9014	920	X500-63
50	6836	698	9002	919	X500-63
55	6993	714	10016	1022	X500-50
60	6693	683	10597	1081	X500-50
65	6930	707	12373	1263	X500-38
70	6803	694	14044	1433	X500-32

Gas filling pressure: 15 Mpa

Spring Force		Return Force		Spring Model
Final Load				
N	kgf	N	kgf	GD
6666	680	8916	910	U.0600.063.TO.C
6666	680	8904	909	U.0600.063.TO.C
6666	680	8891	907	U.0600.063.TO.C
6666	680	8878	906	U.0600.063.TO.C
6666	680	8863	904	U.0600.063.TO.C
6666	680	8849	903	U.0600.063.TO.C
6666	680	8833	901	U.0600.063.TO.C
6666	680	8818	900	U.0600.063.TO.C
6666	680	8802	898	U.0600.063.TO.C
6666	680	8787	897	U.0600.063.TO.C
6666	680	8771	895	U.0600.063.TO.C
6909	705	9888	1009	U.0600.050.TO.C
6513	665	10303	1051	U.0600.050.TO.C
6772	691	12082	1233	U.0600.038.TO.C
6652	679	13723	1400	U.0600.032.TO.C

Gas filling pressure: 15 Mpa

θ	Spring Force		Return Force		Spring Model
	Final Load				
	N	kgf	N	kgf	GSS
00	7193	734	9612	981	RV500-063-B
05	7193	734	9600	980	RV500-063-B
10	7193	734	9587	978	RV500-063-B
15	7193	734	9573	977	RV500-063-B
20	7193	734	9559	975	RV500-063-B
25	7193	734	9544	974	RV500-063-B
30	7193	734	9529	972	RV500-063-B
35	7193	734	9513	971	RV500-063-B
40	7193	734	9498	969	RV500-063-B
45	7193	734	9482	968	RV500-063-B
50	7193	734	9467	966	RV500-063-B
55	7426	758	10631	1085	RV500-050-B
60	6903	704	10922	1114	RV500-050-B
65	7239	739	12918	1318	RV500-038-B
70	6974	712	14390	1468	RV500-032-B

Gas filling pressure: 15 Mpa

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■Weight*1

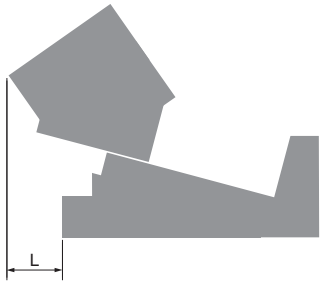
θ	Total Weight kg	Cam Slider Weight kg	Max. Tool Weight*2 kg
00	33.0	13.7	9.1
05	33.0	13.7	9.1
10	32.6	13.7	9.3
15	32.4	13.7	9.5
20	32.3	13.7	9.9
25	32.2	13.7	10.3
30	32.1	13.7	10.9
35	32.1	13.7	11.6
40	32.0	13.7	12.5
45	32.1	13.7	13.7
50	32.8	13.7	13.7
55	34.3	15.2	12.2
60	35.2	15.8	11.6
65	35.5	16.1	11.3
70	35.9	16.3	11.1

*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	1.0
10	9.9
15	16.9
20	27.0
25	37.7
30	50.4
35	60.8
40	71.0
45	74.7
50	74.1
55	82.4
60	88.1
65	93.4
70	101.5

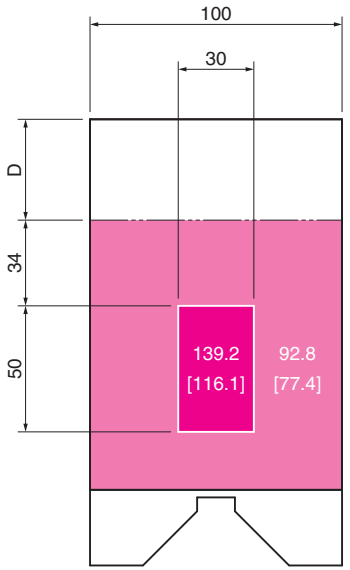


■Working Force Distribution Diagram

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	30
60	27
65	22
70	18



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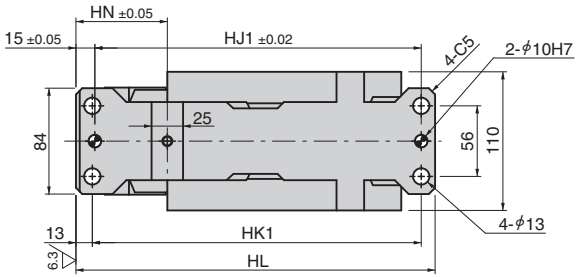
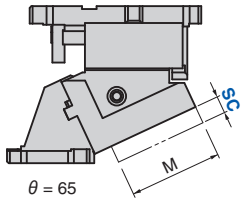
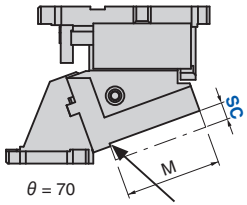
VACPEL100

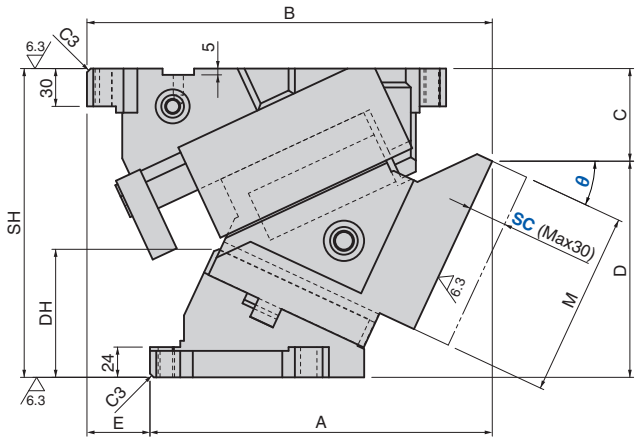
CAD FILE

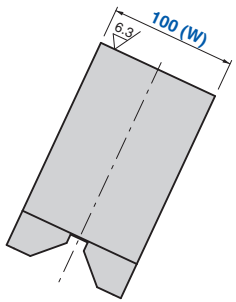


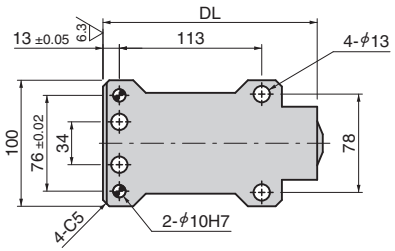




Cannot be used on stepped or abutting parts.

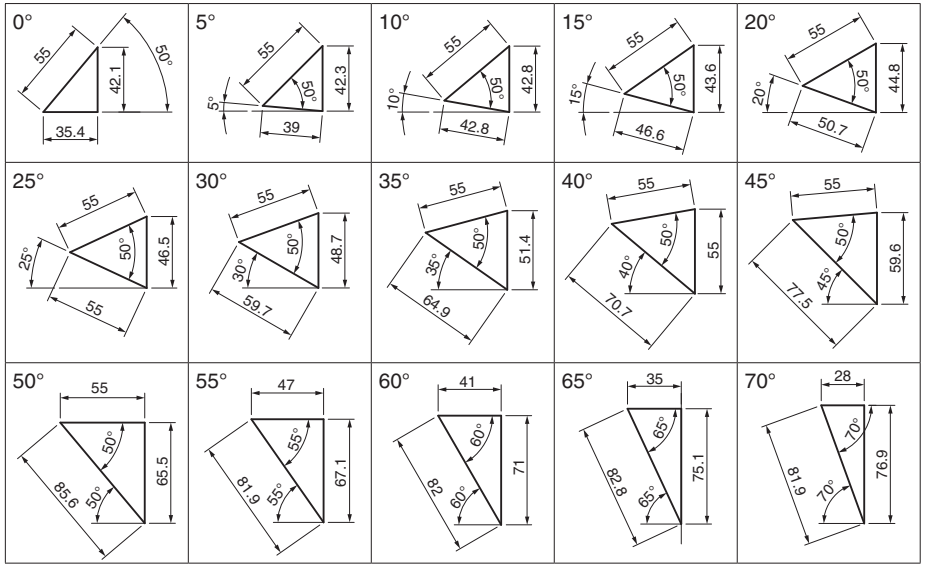






θ	A	B	C	D	E	SH	HL	HK1	HJ1	HN	DH	DL	M
00	197.00	290.00	23.00	222.00	93		260	236	234		67.0		
05	212.33	300.33	32.65	212.35	88		265	241	239	112.5	72.5		
10	227.07	307.07	41.48	203.52	80		270	246	244		79.9		
15	243.21	313.21	51.43	193.57	70		275	251	249		87.1	170	
20	258.74	317.74	62.46	182.54	59	245	280	256	254		94.0		
25	271.65	321.65	73.51	171.49	50		285	261	259	72.5	101.6		147
30	281.95	320.95	85.52	159.48	39		285	261	259		108.7		
35	293.64	319.64	99.44	145.56	26		285	261	259		114.4		
40	300.74	315.74	112.23	132.77	15		285	261	259		121.4	165	
45	306.25	315.25	124.82	120.18	9		290	266	264		128.7	160	
50	314.19	316.19	144.17	105.83	2	250	295	271	269		134.5		
55	315.34	303.34	157.93	102.07	-12	260	295	271	269	102.5	140.2	155	150
60	319.03	294.03	168.92	101.08	-25		295	271	269		147.5		155
65	324.21	285.21	173.31	96.69	-39	270	295	271	269		150.9	150	160
70	333.00	278.00	179.12	90.88	-55		295	271	269		157.2		165

■Cam Diagram



Refer to page 20 for Table of Components.

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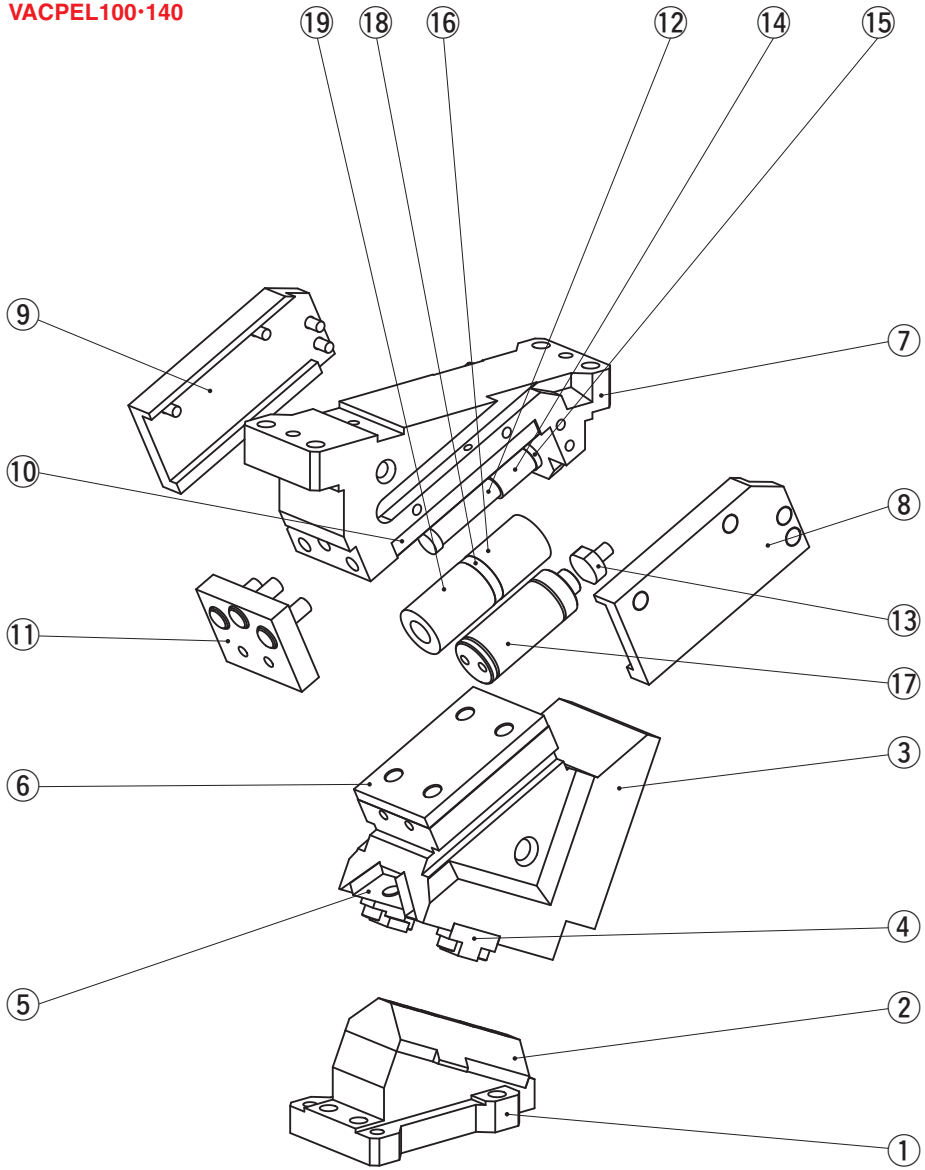
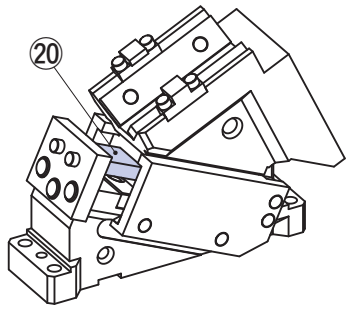
Aerial Cam Unit

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.

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