

## Cam Units Short Definitions

**Cam Units:** In dies, by turning vertical motion of press to horizontal motion within the die, drilling - cutting - form processes are provided in dies. These cam units are standard compact design components, and grouped as die mounted / angular or aerial cam types. As well as standard cam models are suitable to many general usages, also special models are produced as per request. Also, upper casing holes can be finished (with reamer / H7). Also, plate lock systems or gas spring options may be selected.

**Cam Units:** They can be connected to different angles - they can be worked at wide force and stroke ranges. **Giving 10% stroke tolerance is recommended.**

**Safety and Working Conditions:** Lateral loads should be avoided. Cam unit should not be exposed to dirt and burrs (friction surfaces may get damaged).

\* To maintain repeated operation of cam unit, it should be secured to the die robustly.

\* Steel or die gas spring used at cam units are ensured to bring cam to same starting point at every turn at returns.

\* In case of any adhesion, side guide arms are with safety system to provide bringing cam to starting point.

\* When cam units are mounted with replaceable self-lubricating wear plates, they should be lubricated with thin oil regularly.

\* In case of replacement of worn plates, you should be sure that all and centering elements are in their right position.

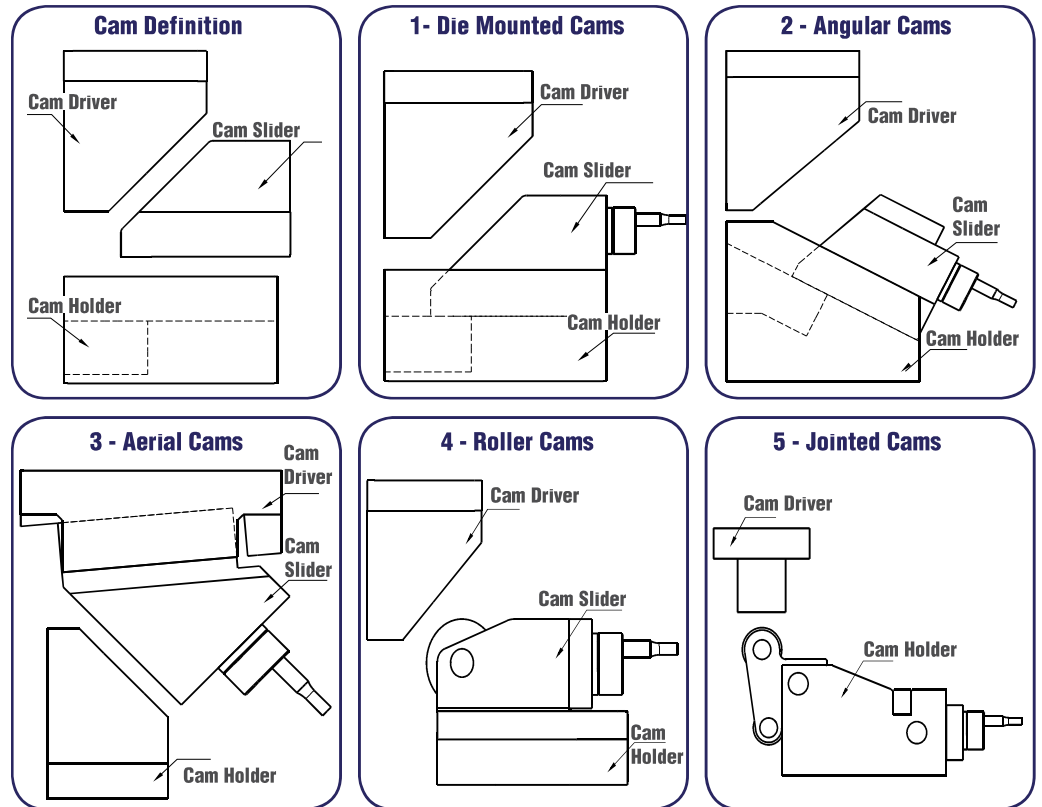
\* If necessary, technical setting should be remade and fixed.

\* For technical service, you can contact with our company.

### Cam Group

Cam Unit Code	Nominal Size
DK Die Mounted Cam Units	52
	65
	100
	150 ~ 300
	400 ~ 600
DAK Angular Cam Units	65
	100
	150
AKSD	52
AKSCD	52
AKHTF	65
AKUC Aerial Cam Units	50
	65
	80
	150
AKSUK	65
	100
	200
AKBK	65 ~ 200
AKUG Aerial Cam Units	50
	65
	80 ~ 200
	300
AKUSL	500 ~ 1000
AKUNR	70
	80
	165 ~ 400
AKCD	52
	90
AKKP	50
	80
	200 ~ 300
AKKSL	500 ~ 1000
AKUSV	60 ~ 110
	165 ~ 400
RK	01 ~ 03
MK	01 ~ 02

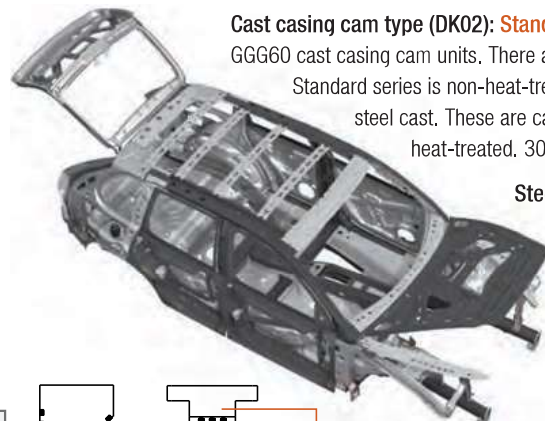
### Cam Units Group and Types:



**Cam products selection:** You can select cam products from our catalogue according to the feature of sheet metal used in your dies in production and load calculations or you can use our technical support service for this matter.

The main purpose in die production is to minimize die production process in terms of time and cost and to simplify the die.

This simplification can only be ensured by using standard products as far as possible. In some cases, cam units may be customized according to the operation conditions they will be used. In such cases, if you contact us about product selection or design, we can offer solutions for you.



**Cast casing cam type (DK02): Standard (delivery from stock).**

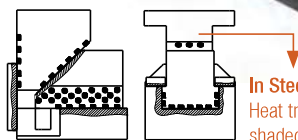
GGG60 cast casing cam units. There are 2 models: Heat-treated and non-heat-treated cams.

Standard series is non-heat-treated. **Heat-treated cams:** Are produced from hardenable steel cast. These are cams of which friction surfaces (cam holder - slider) are heat-treated. 300 - 500 grade is suitable for sheet metals press.

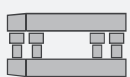
**Steel casing cam type (DK01) : Order as per request.**

Cams with mono block steel casing, of which friction surfaces (lower casing and driver) are applied heat treatment. It has a feature to be used in die 400 - 650 grade and over. They work efficiently in performance 1.5 - 2 times better than load values specified in catalogue in proportion to the normal cast type cams and they give better results in high quantity productions (150.00 - 200.00 pieces / year).

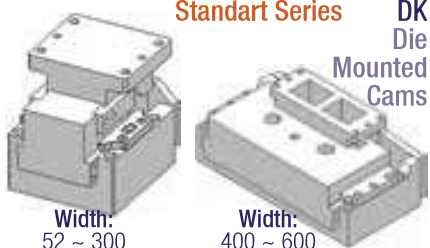
If periodic maintenance, cleaning and lubrication is done, cams can press 1,000,000 pieces and over.



**In Steel Casing Cam Unit:** Heat treatment is applied in shaded areas (HRC 45-55).

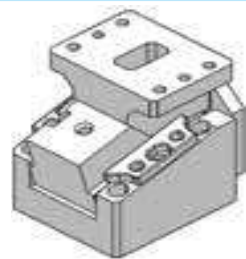


**Standart Series** **DK**  
Die Mounted Cams



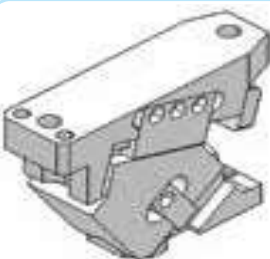
Width: 52 ~ 300      Width: 400 ~ 600

**DAK**  
Angular Cams  
**Standart Series**



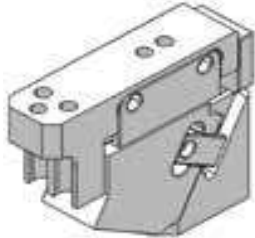
Width: 65 ~ 150

**AKSD**  
Aerial Cams



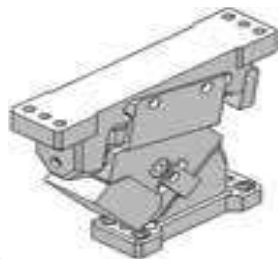
Width: 52

**AKSCD**  
Aerial Cams



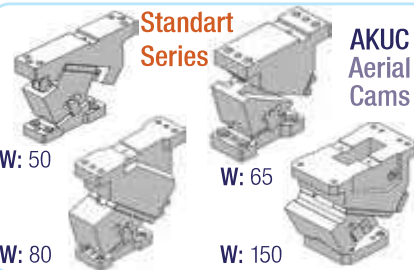
Width: 52

**AKHTF**  
Aerial Cams




Width: 65

**Standart Series** **AKUC**  
Aerial Cams



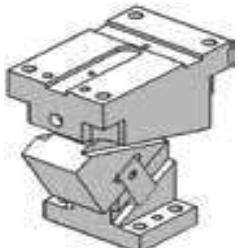
W: 50      W: 65  
W: 80      W: 150

**AKSOUK**  
Aerial Cams



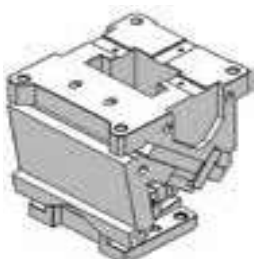
Width: 65 ~ 200

**AKBK**  
Aerial Cams



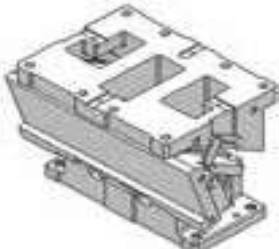
Width: 65 ~ 100 ~ 200

**AKSB**  
Aerial Cams



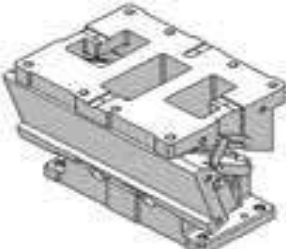
Width: 200 ~ 600

**AKUG**  
Aerial Cams



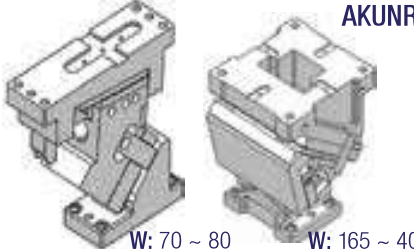
Width: 50 ~ 300

**AKUSL**  
Aerial Cams



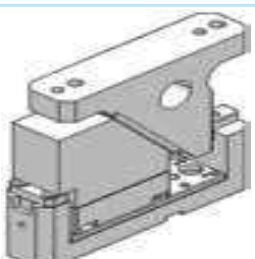
Width: 500 ~ 1000

**AKUNR**



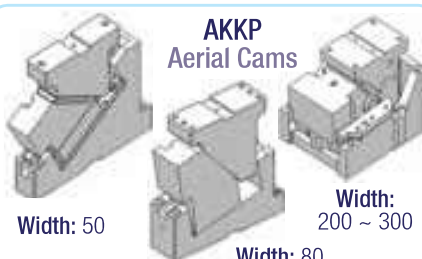
W: 70 ~ 80      W: 165 ~ 400

**AKCD**  
Aerial Cams



Width: 52 ~ 90

**AKKP**  
Aerial Cams



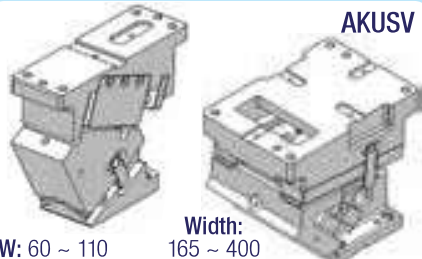
Width: 50      Width: 200 ~ 300  
Width: 80

**AKKSL**  
Aerial Cams




Width: 500 ~ 1000

**AKUSV**




W: 60 ~ 110      Width: 165 ~ 400

**RK 01**  
Roller Cams




Width: 63  
90  
135

**RK 02**  
Roller Cams



Width: 68  
88  
132 - 196

**RK 03**  
Roller Cams



Width: 50  
63  
90  
135  
200

**MK 01**  
Jointed Cams  
Punch Dia.

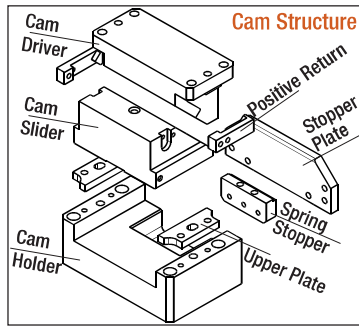


Ø 1,5 ~ Ø 6  
Ø 12  
Ø 16  
Ø 25  
Ø 32  
Ø 50

**MK 02**  
Jointed Cams

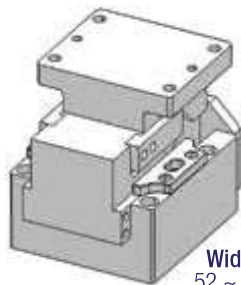


Punch Dia.  
Ø 12 - Ø 16  
Ø 25 - Ø 32

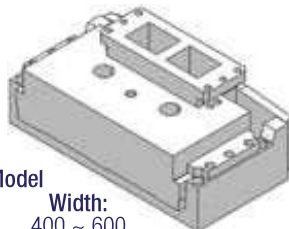


## Die Mounted Cam Unit

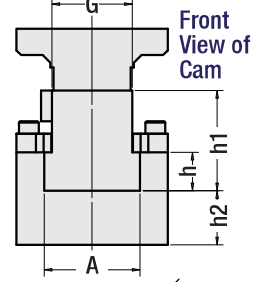
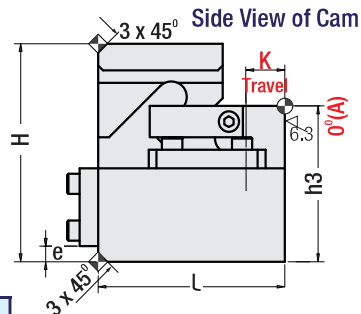
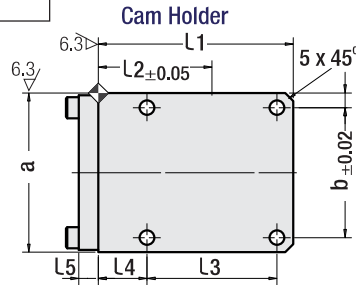
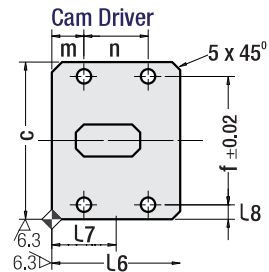
Code: **DK02**



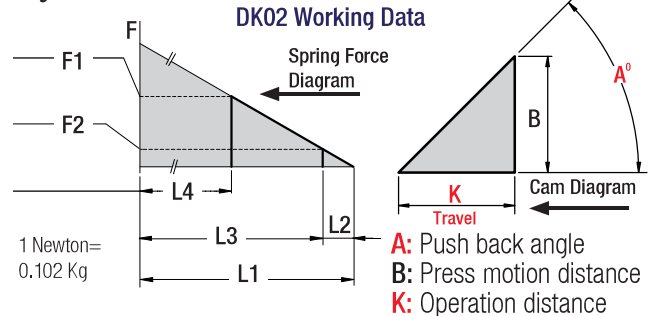
Width: 52 ~ 300



Width: 400 ~ 600



DK02 Model	Working & Spring Force							Cam Diagram		
	F N/mm	F1 kg.	F2 kg.	L1 mm	L2 mm	L3 mm	L4 mm	A° Angle	B mm	K Travel
52 25	9	60.7	14.7	70	8	62	37	45°	25	25
52 40	6.3	61.4	10.2	100	8	92	52	45°	40	40
52 60	4.2	62.8	11.2	150	13	137	77	45°	60	60
65 40	7.8	76.8	12.8	100	8	92	52	45°	40	40
65 60	5.2	77.4	13.8	150	13	137	77	45°	60	60
100 40	11.8	115	19	100	8	92	52	45°	40	40
100 60	7.8	117	21	150	13	137	77	45°	60	60
100 80	7.1	133	18	200	12	188	108	45°	80	80
150 40	19.2	188	32	100	8	92	52	45°	40	40
150 60	12.7	190	34	150	13	137	77	45°	60	60
200 40	19.2	282	47	100	8	92	52	45°	40	40
200 60	12.7	285	51	150	13	137	77	45°	60	60
250 40	25.1	369	62	100	8	92	52	45°	40	40
250 60	16.7	372	66	150	13	137	77	45°	60	60
300 40	25.1	369	62	100	8	92	52	45°	40	40
300 60	16.7	372	66	150	13	137	77	45°	60	60
400 60								45°	60	60
500 60	37.7	953	31	150	2	148	88	45°	60	60
600 60								45°	60	60



### Spring Diagram (Technical Drawing) Detail

F: Load = N / mm (Final load)

F1: Final load = (Process pressure spring force)

F2: Initial load N = Spring initial loading

L1: Spring free length mm = Open spring length

L2: Spring initial loading mm = Clamping

L3: Spring length under first load mm

L4: Spring length under last load

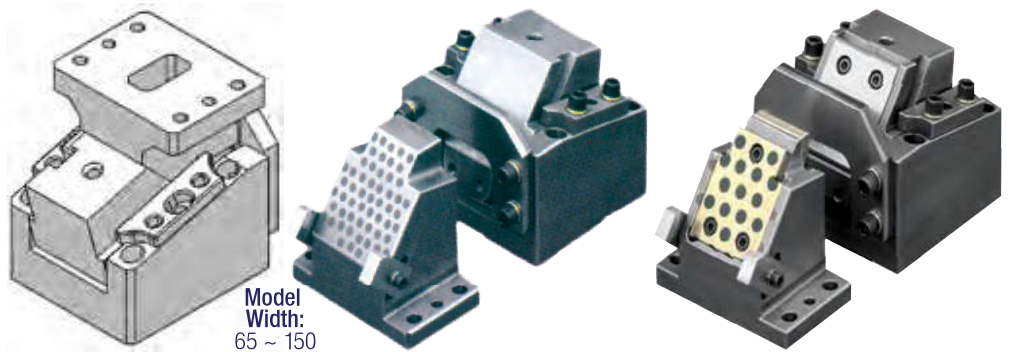
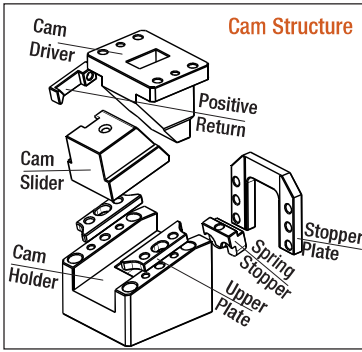
**Optional** (As per request) **P:** Self-lubricating wear plate model

**F8:** Front Holes  $\varnothing 8$  H7 finish pin hole may be changed

**GY:** Gas spring may be used. **I:** Heat treatment may be applied.

Order Example: DK02 (52 25 ... Nominal Size)

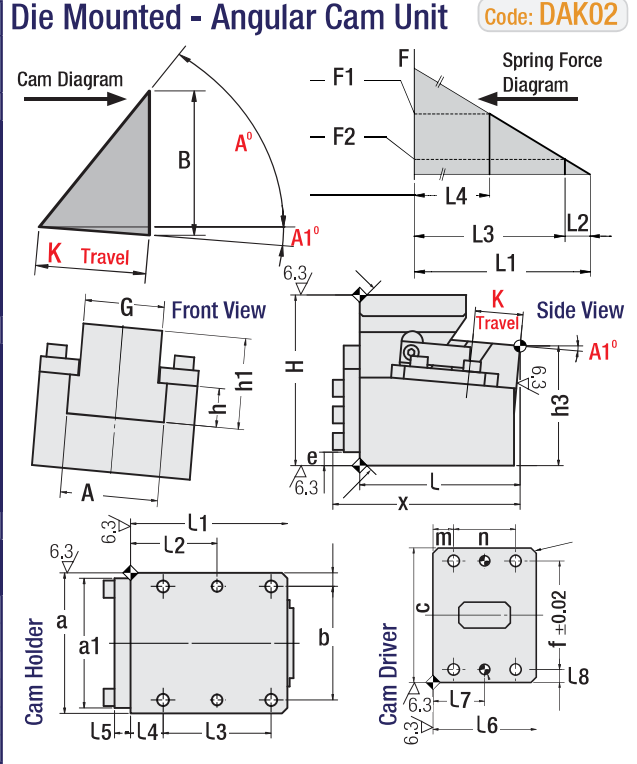
Order DK02 Model	Working Force		Cam W. Kg.	Cam Front View (mm)					Cam Side View (mm)					Cam Driver (mm)				Cam Holder (mm)									
	Standard	Allowable		G	A	h	h1	h2	K Travel	L	H	h3	e	c	f	m	n	L6	L7	L8	a	b	L1	L2	L3	L4	L5
52 25			8						25	120												120	70	80			
52 40	1.5 Ton	3 Ton	8	52	62	25	65	35	40	135	140	100	10	98	80	20	50	90	45	9	98	80	135	80	95	30	12
52 60			14						60	180							70	110	55			180	55	140			
65 40	2 Ton	4 Ton	20	65	80	30	70	45	40	140	160	115	25	130	105	20	60	100	50	12.5	130	105	145	80	100	30	12
65 60			21						60	190							70	110	55			180	105	125	40		
100 40	3 Ton	6 Ton	37	100	120	40	100	50	40	190			30	165	140	20	80	120	60	12.5	175	140	190	105	130	45	16
100 60			38						60	210	200	150					100	140	70			220	135	160		15	
100 80			44						80	250			10				110	150	75				220	135	160		15
150 40	6 Ton	9 Ton	63	150	180	40	100	70	40	190	220	170	45	230	200	20	80	120	60	15	260	210	190	105	125	45	19
150 60			69						60	210							100	140	70			200	110	135		19	
200 40	8 Ton	12 Ton	82	200	230	40	110	70	40	200	240	180	40	280	250	20	90	130	65	15	310	260	200	110	135	45	20
200 60			84						60	220							110	150	75			210	120	145		20	
250 40	10 Ton	15 Ton	106	250	280	50	130	80	40	210	270	210	50	330	300	20	100	140	70	15	360	310	200	105	135	45	20
250 60			127						60	230							120	160	80			220	125	155		20	
300 40	12 Ton	18 Ton	106	300	330	50	130	80	40	210	270	210	50	380	350	20	100	140	70	15	410	360	200	105	135	45	20
300 60			128						60	230							120	160	80			220	125	155		20	
400 60			203	400	435																	525	142				50
500 60	14	21	237	500	535	60	125	125	60	320	250	195	15	360	300	20	100	140	70	15	625	162	300	210	280	70	50
600 60			279	600	635																	725	192				50



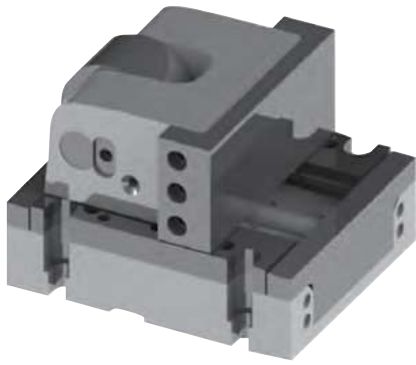
Model Width: 65 ~ 150

Code: DAK02

DAK02 Model	Working & Spring Force							Cam Diagram			
	F N/mm	F1 kg.	F2 kg.	L1 mm	L2 mm	L3 mm	L4 mm	A° Angle	A1° Angle	B mm	K Trav.
65 05 45	6.3	75.5	18	125	14	111	66	55°	5°	67.9	45
65 05 70	5.6	99	19.4	175	17	158	88	55°	5°	105.7	70
65 10 45	6.3	75.5	18	125	14	111	66	50°	10°	60.6	45
65 10 70	5.6	99	19.4	175	17	158	88	50°	10°	94.3	70
65 15 45	6.3	75.5	18	125	14	111	66	45°	15°	55.1	45
65 15 70	5.6	99	19.4	175	17	158	88	45°	15°	85.7	70
65 20 45	6.3	75.5	18	125	14	111	66	40°	20°	50.8	45
65 20 70	5.6	99	19.4	175	17	158	88	40°	20°	79.1	70
100 05 45	9.4	113	27	125	14	111	66	55°	5°	67.9	45
100 05 70	6.8	117	20	175	14.5	161	91	55°	5°	105.7	70
100 10 45	9.4	113	27	125	14	111	66	50°	10°	60.6	45
100 10 70	6.8	117	20	175	14.5	161	91	50°	10°	94.3	70
100 15 45	9.4	113	27	125	14	111	66	45°	15°	55.1	45
100 15 70	6.8	117	20	175	14.5	161	91	45°	15°	85.7	70
100 20 45	9.4	113	27	125	14	111	66	40°	20°	50.8	45
100 20 70	6.8	117	20	175	14.5	161	91	40°	20°	79.1	70
150 05 45	15.3	184	44	125	14	111	66	55°	5°	67.9	45
150 05 70	11	188	32	175	14	161	91	55°	5°	105.7	70
150 10 45	15.3	184	44	125	14	111	66	50°	10°	60.6	45
150 10 70	11	188	32	175	14	161	91	50°	10°	94.3	70
150 15 45	15.3	184	44	125	14	111	66	45°	15°	55.1	45
150 15 70	11	188	32	175	14	161	91	45°	15°	85.7	70
150 20 45	15.3	184	44	125	14	111	66	40°	20°	50.8	45
150 20 70	11	188	32	175	14	161	91	40°	20°	79.1	70

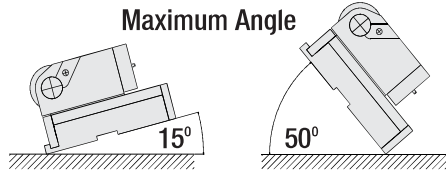
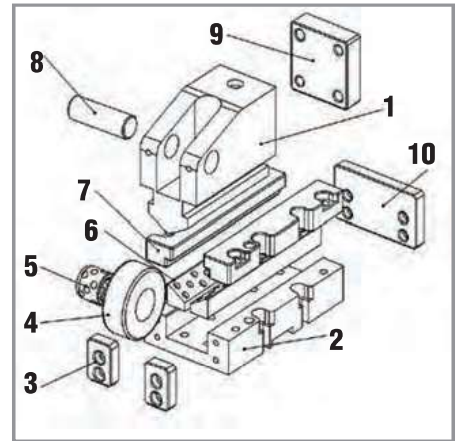
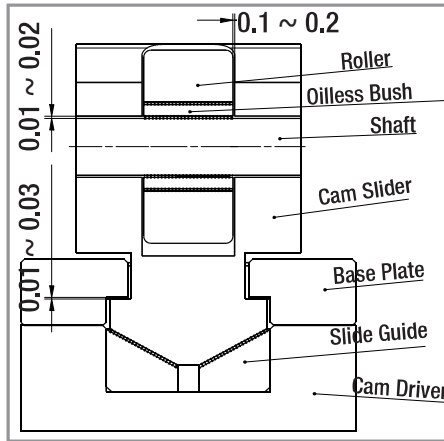


Order DAK02 Model	Working Force		Cam W. Kg.	Cam Front View (mm)				Cam Side View (mm)					Cam Driver (mm)					Cam Holder (mm)										
	Standard	Allowable		G	A	h	h1	K	L	x	H	h3	e	c	f	m	n	L6	L7	L8	a	a1	b	L1	L2	L3	L4	L5
65 05 45	2	4	19	65	80	30	70	45	151	176	160	112	12.5	130	105	20	60	100	50	12.5	130	120	105	145	80	100	30	15
65 05 70	2	4	22.2	65	80	30	70	70	195	220	170	123	25	130	105	20	60	100	50	12.5	130	120	105	180	65	125	40	15
65 10 45	2	4	20	65	80	30	70	45	155	180	160	109	25	130	105	20	60	100	50	12.5	130	120	105	145	79	100	30	15
65 10 70	2	4	20.5	65	80	30	70	70	199	224	170	111	25	130	105	20	60	100	50	12.5	130	120	105	180	65	125	40	15
65 15 45	2	4	22	65	80	30	70	45	158	183	170	105	25	130	105	20	60	100	50	12.5	130	120	105	145	80	100	30	15
65 15 70	2	4	22	65	80	30	70	70	202	227	170	104	40	130	105	20	70	110	55	12.5	130	120	105	180	65	125	40	15
65 20 45	2	4	22	65	80	30	70	45	160	185	170	101	30	130	105	20	60	100	50	12.5	130	120	105	145	80	100	30	15
65 20 70	2	4	21	65	80	30	70	70	203	228	170	96	40	130	105	20	70	110	55	12.5	130	120	105	180	65	125	40	15
100 05 45	4	8	33	100	120	40	90	45	172	197	200	145	27.5	165	140	20	60	100	50	12.5	175	150	140	160	90	105	40	15
100 05 70	4	8	38	100	120	40	90	70	207	234	200	147	30	165	140	20	80	120	60	12.5	175	150	140	190	70	130	45	15
100 10 45	4	8	33	100	120	40	90	45	178	205	200	135	30	165	140	20	60	100	50	12.5	175	150	140	160	90	105	40	15
100 10 70	4	8	38	100	120	40	90	70	213	240	200	134	30	165	140	20	80	120	60	12.5	175	150	140	190	70	130	45	15
100 15 45	4	8	33	100	120	40	90	45	183	210	200	129	32.5	165	140	20	70	110	55	12.5	175	150	140	160	90	105	40	15
100 15 70	4	8	38	100	120	40	90	70	217	244	200	130	35	165	140	20	90	130	65	12.5	175	150	140	190	70	130	45	15
100 20 45	4	8	32	100	120	40	90	45	186	213	200	118	35	165	140	20	70	110	55	12.5	175	150	140	160	90	105	40	15
100 20 70	4	8	39	100	120	40	90	70	219	246	200	121	45	165	140	20	90	130	65	12.5	175	150	140	190	70	130	45	15
150 05 45	6.6	10	62	150	180	40	100	45	193	229	220	159	30	230	200	20	70	110	55	15	260	220	210	190	105	125	45	20
150 05 70	6.6	10	73	150	180	40	100	70	218	254	220	167	40	230	200	20	90	130	65	15	260	220	210	200	120	135	45	20
150 10 45	6.6	10	63	150	180	40	100	45	200	236	220	152	40	230	200	20	70	110	55	15	260	220	210	190	105	125	45	20
150 10 70	6.6	10	73	150	180	40	100	70	224	260	220	153	40	230	200	20	90	130	65	15	260	220	210	200	120	135	45	20
150 15 45	6.6	10	65	150	180	40	100	45	205	240	220	144	40	230	200	20	80	120	60	15	260	220	210	190	105	125	45	20
150 15 70	6.6	10	77	150	180	40	100	70	229	265	230	153	55	230	200	20	100	140	70	15	260	220	210	200	120	135	45	20
150 20 45	6.6	10	66	150	180	40	100	45	208	224	220	136	40	230	200	20	80	120	60	15	260	220	210	190	105	125	45	20
150 20 70	6.6	10	75	150	180	40	100	70	232	268	230	137	55	230	200	20	100	140	70	15	260	220	210	200	120	135	45	20



## Roller Cam Unit

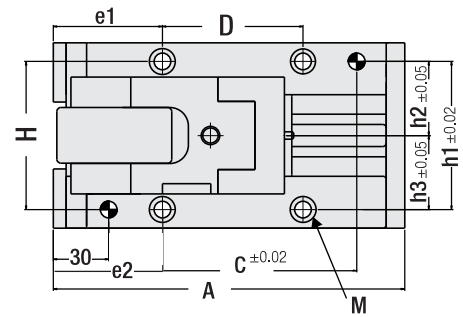
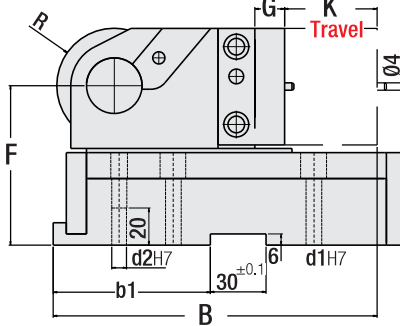
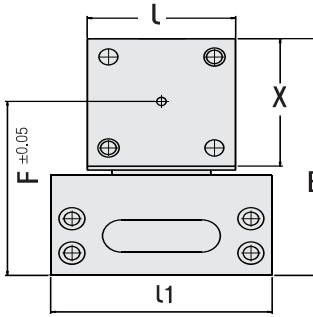
Code: **RK**



N - Newton = (0.102)Kg.  
daN -10 Newton = (1.020)Kg.

Part No.	Description	Material
1	Cam Slider	CK45
2	Cam Driver	CK45
3	Stopper Plate	CK45
4	Roller	1.7131
5	Oilless Bush	SAE 430B

Part No.	Description	Material
6	Slide Guide	SAE 430B
7	Base Plate	SAE 430B
8	Shaft	1.7131
9	Punch Plate	CK45
10	Spring Plate	CK45

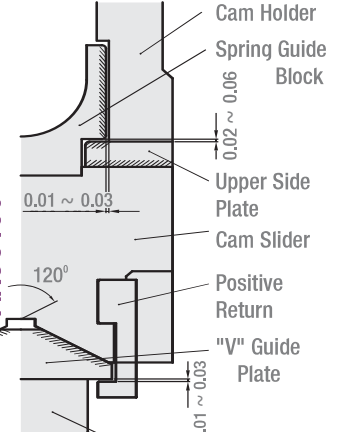
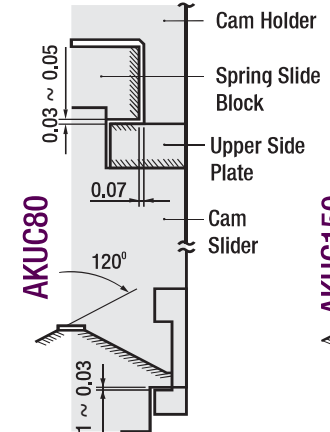
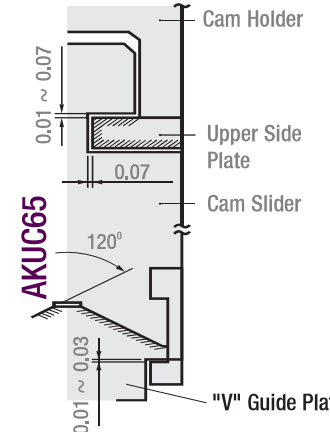
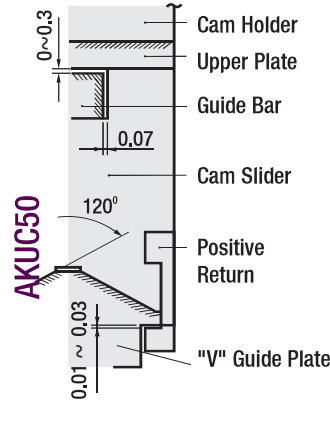
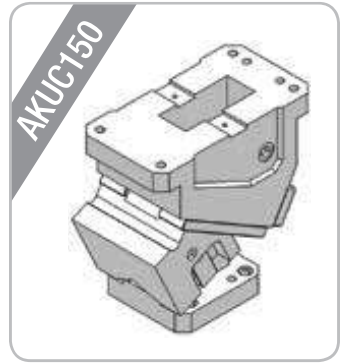
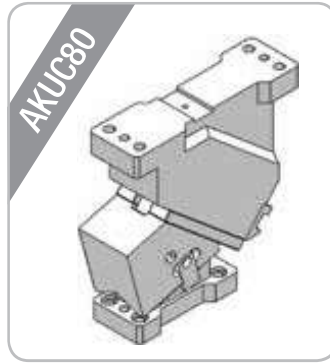
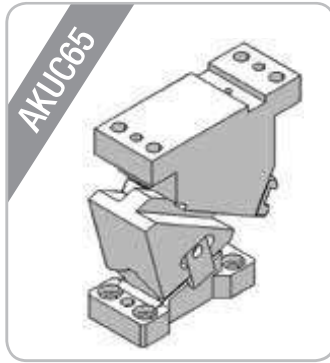
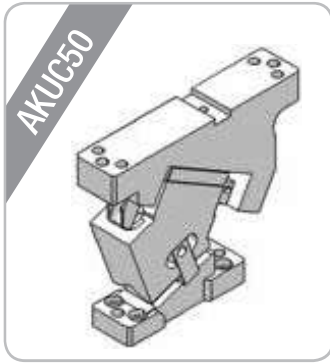


**RK 01** 3000 / 5000 / 15000 - **RK 02** 3000 / 5000 / 15000 / 20000 - **RK 03** 2000 / 3000 / 5000

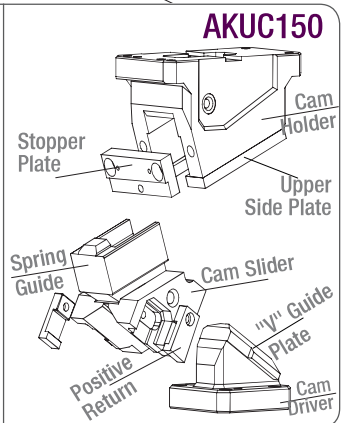
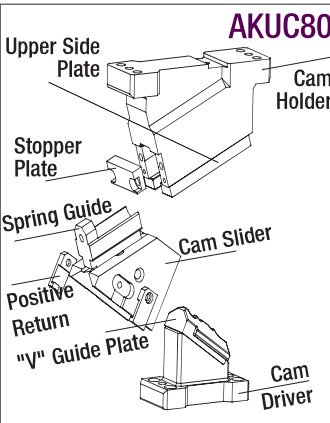
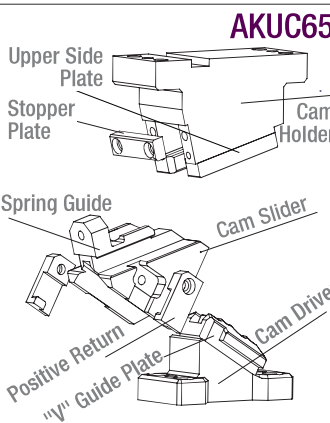
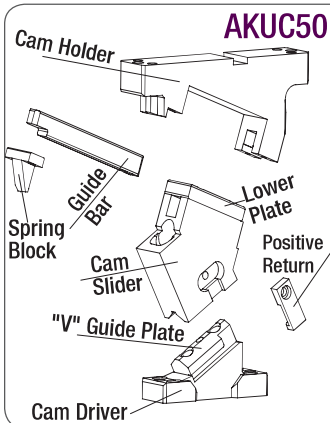
Order Codes Model / Dimension	Punch Force Max.	Return Spring Force daN		K Travel	Dimension / mm																
		Min.	Max.		L	X	F	E	L1	A	B	C	D	H	G	b1	h1	h2	h3	e1	e2
RK01 3000 50	3000	300	440	50	190	198	56	88	79	20	75	79	39.5	39.5	51	67	4 x M8	∅ 8	31		
RK01 3000 80	daN	350	580	80	220	228	86	118	105	20	75	105	52.5	52.5	51	67	4 x M8	∅ 8	36		
RK01 5000 50	5000	300	440	50	190	198	56	88	105	20	75	105	52.5	52.5	51	67	4 x M8	∅ 8	36		
RK01 5000 80	daN	350	580	80	220	228	86	118	105	20	75	105	52.5	52.5	51	67	4 x M8	∅ 8	36		
RK01 5000 100				100	260	268	126	158	30												
RK01 15000 50	15000	570	1070	50	190	198	56	88	155	20	75	155	77.5	77.5	51	67	4 x M8	∅ 8	45		
RK01 15000 80	daN	500	870	80	220	228	86	118	155	20	75	155	77.5	77.5	51	67	4 x M8	∅ 8	45		
RK01 15000 100		500	870	100	260	268	126	158	30												
RK02 3000 50	3000	300	440	50	200	208	56	116	82	-	90.5	82	41	41	48	76	4 x M8	∅ 8	31		
RK02 3000 80	daN	350	580	80	230	238	86	146	102	-	90.5	102	51	51	48	73	4 x M8	∅ 8	36		
RK02 3000 100				100	260	258	106	166													
RK02 5000 50	5000	300	440	50	200	208	59	116	102	-	90.5	102	51	51	48	73	4 x M8	∅ 8	36		
RK02 5000 80	daN	350	580	80	230	238	89	146	102	-	90.5	102	51	51	48	73	4 x M8	∅ 8	36		
RK02 5000 100				100	260	258	109	166													
RK02 15000 50	15000	570	1070	50	220	216	47	123	150	-	96.5	150	75	75	50	88	4 x M10	∅ 10	45		
RK02 15000 80	daN	500	870	80	250	246	77	153	150	-	96.5	150	75	75	50	88	4 x M10	∅ 10	45		
RK02 15000 100		500	870	100	270	266	97	173													
RK02 20000 50	20000	750	1490	50	250	258	67	143	222	-	102	222	111	111	52	90	4 x M12	∅ 12	55		
RK02 20000 80	daN			80	280	288	97	173	222	-	102	222	111	111	52	90	4 x M12	∅ 12	55		
RK02 20000 100				100	300	308	117	193													
RK03 2000 22	2000	200	460	22	115	103	30	50	63	15	65	63	31.5	31.5	32.5	43	4 x M6	∅ 6	23		
RK03 2000 35	daN			35	136	137	51	71													
RK03 3000 50	3000	300	450	50	190	167	134	76	80	16	85	80	40	40	59	-	4 x M8	∅ 8	31		
RK03 3000 80	daN	350	580	80	220	227	164	106	80	16	85	80	40	40	59	-	4 x M8	∅ 8	31		
RK03 3000 100				100	260	287	204	146													
RK03 5000 50	5000	300	440	50	190	167	134	76	110	16	85	110	55	55	59	-	4 x M8	∅ 8	36		
RK03 5000 80	daN	350	580	80	220	227	164	106	110	16	85	110	55	55	59	-	4 x M8	∅ 8	36		

# Aerial Cam Unit

Code: AKUC



Note: Self-lubricating system is applied in shaded areas.



## AKUC50

Order	Angle	Travel
AKUC 50 00	00	30.2
AKUC 50 05	05	30.5
AKUC 50 10	10	30.3
AKUC 50 15	15	30.5
AKUC 50 20	20	30.4
AKUC 50 25	25	30.0
AKUC 50 30	30	32.0
AKUC 50 35	35	35.4
AKUC 50 40	40	38.6
AKUC 50 45	45	42.3
AKUC 50 50	50	46.7
AKUC 50 55	55	52.1
AKUC 50 60	60	59.1
AKUC 50 65	65	58.3
AKUC 50 70	70	57.6

Width: 50 mm

## AKUC65

Order	Angle	Travel
AKUC 65 00	00	15
AKUC 65 05	05	15.1
AKUC 65 10	10	15.2
AKUC 65 15	15	15.5
AKUC 65 20	20	16.5
AKUC 65 25	25	17.1
AKUC 65 30	30	18.5
AKUC 65 35	35	19.6
AKUC 65 40	40	21.5
AKUC 65 45	45	23.3
AKUC 65 50	50	26.5
AKUC 65 55	55	29.7
AKUC 65 60	60	35.0
AKUC 65 65	65	41.3
AKUC 65 70	70	51.1

Width: 65 mm

## AKUC80

Order	Angle	Kurs
AKUC 80 00	00	32.1
AKUC 80 05	05	38.4
AKUC 80 10	10	38.9
AKUC 80 15	15	39.7
AKUC 80 20	20	46.1
AKUC 80 25	25	47.8
AKUC 80 30	30	54.3
AKUC 80 35	35	57.4
AKUC 80 40	40	64.3
AKUC 80 45	45	69.6
AKUC 80 50	50	77.8
AKUC 80 55	55	87.2
AKUC 80 60	60	98.5
AKUC 80 65	65	81.6
AKUC 80 70	70	86.4

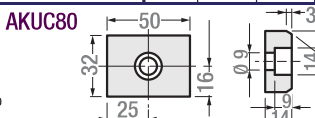
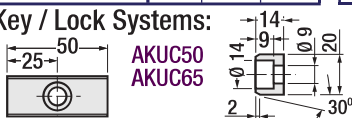
Width: 80 mm


## AKUC150

Order	Angle	Travel
AKUC 150 00	00	32.1
AKUC 150 05	05	32.3
AKUC 150 10	10	38.9
AKUC 150 15	15	39.7
AKUC 150 20	20	46.1
AKUC 150 25	25	47.8
AKUC 150 30	30	54.3
AKUC 150 35	35	57.4
AKUC 150 40	40	64.3
AKUC 150 45	45	69.6
AKUC 150 50	50	77.8
AKUC 150 55	55	87.2
AKUC 150 60	60	98.5
AKUC 150 65	65	93.2
AKUC 150 70	70	86.4

Width: 150 mm

### Key / Lock Systems:



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