

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 upon 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.**

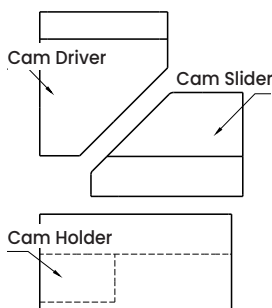
Safety and Working Conditions

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

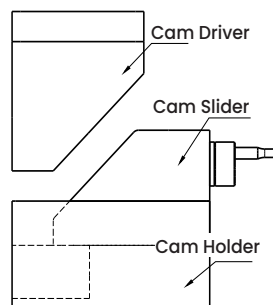
- * To maintain repeated operation of cam unit, it should be secured to the die robustly.
- * Steel or die gas spring used at cam units are insured to bring cam to same starting point at every turn at returns.
- * In case of any adhesion, side guide arms are with safety system to provide bringing cam 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 Units Group and Types:

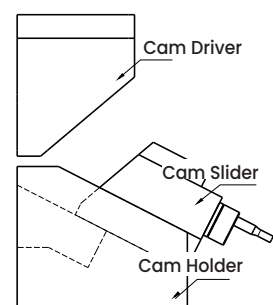
■ Cam Definition



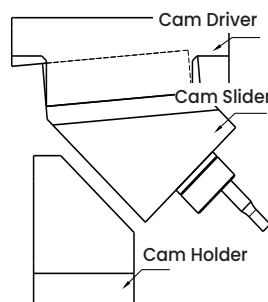
1 - Die Mounted Cams



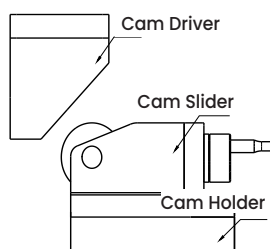
2 - Angular Cams



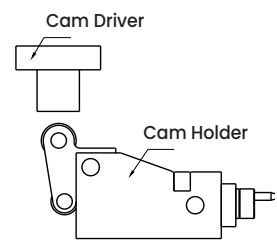
3 - Aerial Cams



4 - Roller Cams



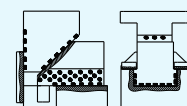
5 - Jointed Cams



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 upon 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.

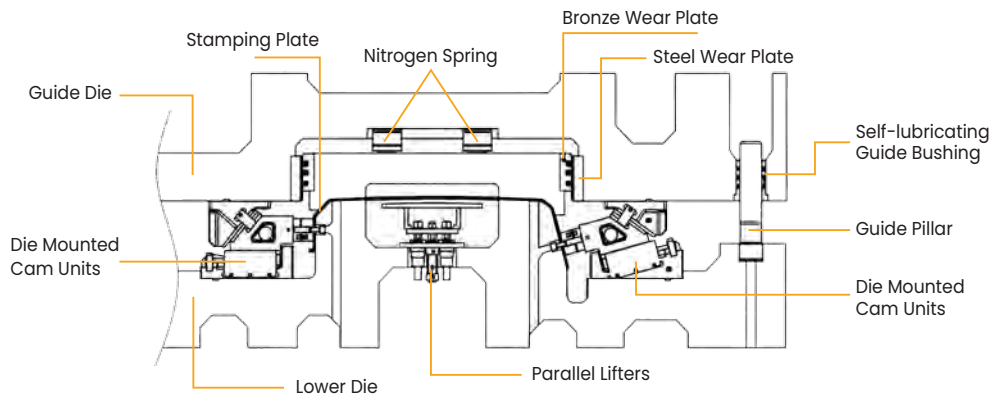


In Steel Casing
Cam Unit: Heat treatment is applied in shaded areas (HRC 45-55).

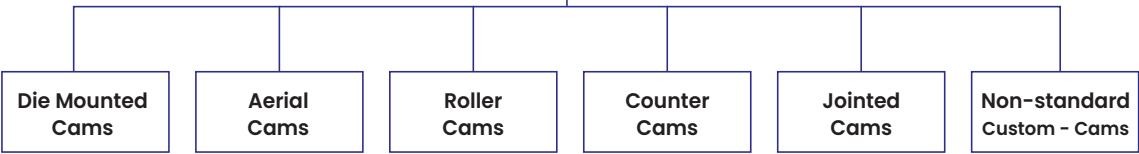
Our company, which offers advanced die component solutions, manufactures **Cam Units** in the category of Die-making Components through reliable, ISO 9001-certified partners in the subcontracting industry. We ensure high-quality standards throughout all production processes. After comprehensive quality control checks are conducted at the production facilities, the products undergo a detailed final inspection by **Güvenal CMM control teams** before shipment.

Our standard Die-mounted **DK02 Cam Units** are kept in stock and are ready for immediate shipment. In addition, we offer a wide range of standard and custom-made cam units with different reference codes from the industry. All we need from you is your reference code or technical drawing / 3D model. Our expert team is happy to provide the most suitable solutions for your needs.

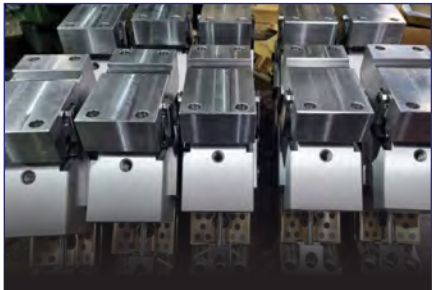
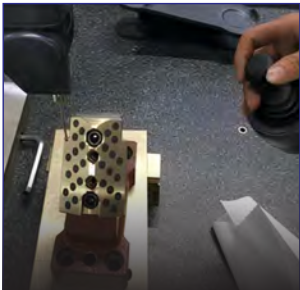
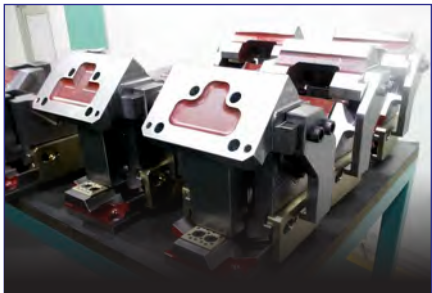
Die Mounted Cam Unit - Position Scheme



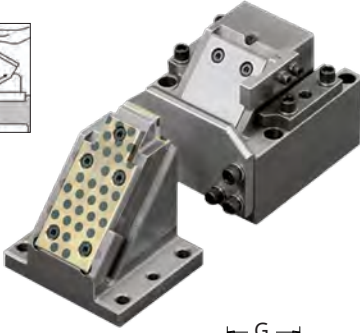
Cam Unit Types you can request quotes for



From our Projects



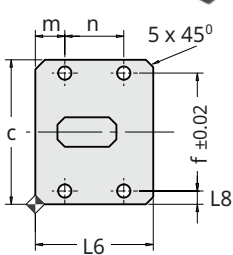
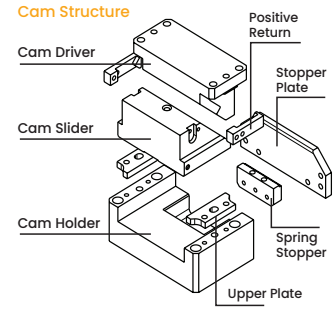
Cam Units



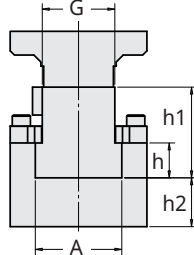
Code: **DK02**

Die Mounted Cam Unit (Ref.: SKC)

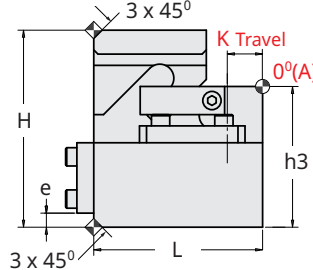
Cam Structure



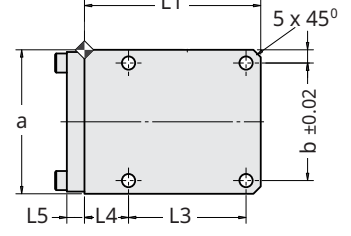
Cam Driver



Front View of Cam

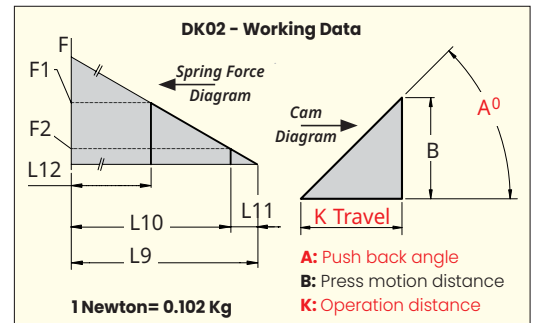


Side View of Cam



Cam Holder

"Order" DK02	Working & Spring Force							Cam Diagram		
	F N/mm	F1 kg.	F2 kg.	L9 mm	L11 mm	L10 mm	L12 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		40	40
52 60	4.2	62.8	11.2	150	13	137	77		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		60	60
100 40	11.8	115	19	100	8	92	52		40	40
100 60	7.8	116.8	20.8	150	13	137	77	45°	60	60
100 80	7.1	132.5	17.3	200	12	188	108		80	80
150 40	19.2	188	32	100	8	92	52		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		40	40
200 60	12.7	285	51	150	13	137	77		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		60	60
300 40	25.1	369	62	100	8	92	52		40	40
300 60	16.7	372	66	150	13	137	77	45°	60	60

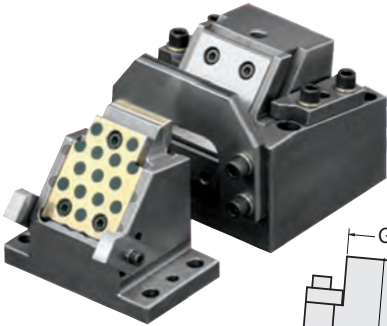
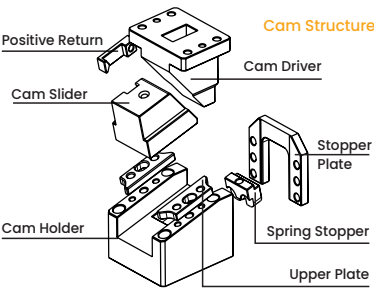


Spring Diagram (Technical Drawing) Detail

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 (Upon request)
P: Self-lubricating wear plate model
F8: Front Holes Ø 8 H7 finish pin hole may be changed
GY: Gas spring may be used.
I: Heat treatment may be applied.

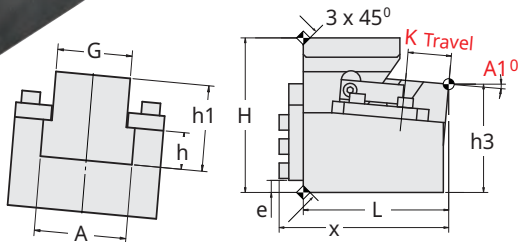
Order Example: **DK02.65 40**

"Order" DK02	Working Force		Cam W kg.	Cam Front View					Cam Side View					Cam Driver						Cam Holder						
	Standard	Allowable		G	A	h	h1	h2	K	L	H	h3	e	c	f	m	n	L6	L8	a	b	L1	L3	L4	L5	
52 25	1.5 Ton	3 Ton	8	52	62	25	65	35	25	120	140	100	10	98	80	20	40	80	9	98	80	120	80	30	12	
52 40			8						40	135							50	90				135	95			
52 60			14						60	180							70	110				180	140			
65 40	2 Ton	4 Ton	20	65	80	30	70	45	40	140	160	115	25	130	105	20	60	100	12.5	130	105	145	100	30	12	
65 60			21						60	190							70	110				180	125	40		
100 40	3 Ton	6 Ton	37	100	120	40	100	50	40	190	200	150	30	165	140	20	80	120	12.5	175	150	190	130	45	16	
100 60			38						60	210							100	140				220	160			
100 80			44						80	250							110	150				220	160			
150 40	6 Ton	9 Ton	63	150	180	40	100	70	40	190	220	170	45	230	200	20	80	120	15	260	220	190	125	45	19	
150 60			69						60	210							100	140				200	135			
200 40	8 Ton	12 Ton	82	200	230	40	110	70	40	200	240	180	40	280	250	20	90	130	15	310	270	200	135	45	20	
200 60			84						60	220							110	150				210	145			
250 40	10 Ton	15 Ton	106	250	280	50	130	80	40	210	270	210	50	330	300	20	100	140	15	360	320	200	135	45	20	
250 60			127						60	230							120	160				220	155			
300 40	12 Ton	18 Ton	106	300	330	50	130	80	40	210	270	210	50	380	350	20	100	140	15	410	370	200	135	45	20	
300 60			128						60	230							120	160				220	155			



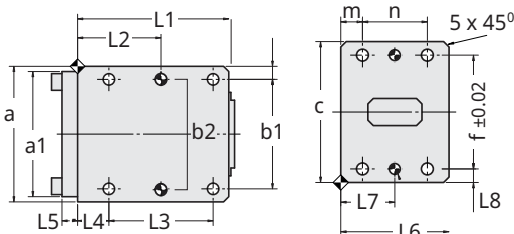
Code: **DAK02**

Die Mounted
Angular Cam Unit



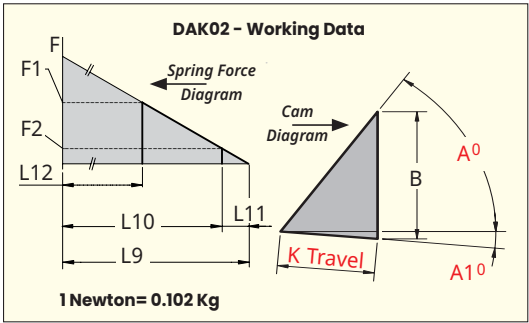
Front View

Side View



Cam Holder

Cam Driver



"Order" DAK02	Working & Spring Force							Cam Diagram			
	F N/mm	F1 kg.	F2 kg.	L9 mm	L11 mm	L10 mm	L12 mm	A° Angle	A1° Angle	B mm	K Travel
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			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			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			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			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			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			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			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			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			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			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			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			79.1	70

"Order" DAK02	Working Force		Cam W. kg.	Cam Front View				Cam Side View						Cam Driver								Cam Holder									
	Standard	Allowable		G	A	h	h1	K	L	x	H	h3	e	c	f	m	n	L6	L7	L8	a	a1	b1	b2	L1	L2	L3	L4	L5		
65 05 45	2 Ton	4 Ton	19	65	80	30	70	45	151	176	160	112	12.5	130	105	20	60	100	50	12.5	130	120	105	105	145	80	100	30	15		
65 05 70			22.2					70	195	220	170	123	25												180	65	125	40			
65 10 45	2 Ton	4 Ton	20	65	80	30	70	45	155	180	160	109	25	130	105	202	60	100	50	12.5	130	120	105	105	145	79	100	30	15		
65 10 70			20.5					70	199	224	170	111													180	65	125	40			
65 15 45	2 Ton	4 Ton	22	65	80	30	70	45	158	183	170	105	25	130	105	20	60	100	50	12.5	130	120	105	105	145	80	100	30	15		
65 15 70								70	202	227		104	40					180	65						125	40					
65 20 45	2 Ton	4 Ton	22	65	80	30	70	45	160	185	170	101	30	130	105	20	60	100	50	12.5	130	120	105	105	145	80	100	30	15		
65 20 70			21					70	203	228		96	40					180	65						125	40					
100 05 45	4 Ton	8 Ton	33	100	120	40	90	45	172	199	200	145	27.5	165	140	20	60	100	50	12.5	175	165	150	140	160	90	105	40	15		
100 05 70			38					70	207	234		147	30					180	65					120	60	150	190	70		130	45
100 10 45	4 Ton	8 Ton	33	100	120	40	90	45	178	205	200	135	30	165	140	20	60	100	50	12.5	175	165	150	140	160	90	105	40	15		
100 10 70			38					70	213	240		134						150	190					70	130	45					
100 15 45	4 Ton	8 Ton	33	100	120	40	90	45	183	210	200	129	32.5	165	140	20	70	110	55	12.5	175	165	150	140	160	90	105	40	15		
100 15 70			38					70	217	244		130	35					90	130					65	150	190	70	130		45	
100 20 45	4 Ton	8 Ton	32	100	120	40	90	45	186	213	200	118	35	165	140	20	70	110	55	12.5	175	165	150	140	160	90	105	40	15		
100 20 70			39					70	219	246		121	45					90	130					65	150	190	70	130		45	
150 05 45	6.6 Ton	10 Ton	62	150	180	40	100	45	193	229	220	159	30	230	200	20	70	110	55	15	260	240	220	210	190	105	125	45	20		
150 05 70			73					70	218	254		167	40					90	130						65	200	120			135	
150 10 45	6.6 Ton	10 Ton	63	150	180	40	100	45	200	236	220	152	40	230	200	20	70	110	55	15	260	240	220	210	190	105	125	45	20		
150 10 70			73					70	224	260		153						90	130						65	200	120			135	
150 15 45	6.6 Ton	10 Ton	65	150	180	40	100	45	205	240	220	144	40	230	200	20	80	120	60	15	260	240	220	210	190	105	125	45	20		
150 15 70			77					70	229	265	230	153	55					100	140						70	200	120			135	
150 20 45	6.6 Ton	10 Ton	66	150	180	40	100	45	208	244	220	136	40	230	200	20	80	120	60	15	260	240	220	210	190	105	125	45	20		
150 20 70			75					70	232	268	230	137	55					100	140						70	200	120			135	