



O-KS COMPACT CAM UNIT

The premium model for highest
precision and performance



voestalpine Camtec

Your innovative and reliable partner

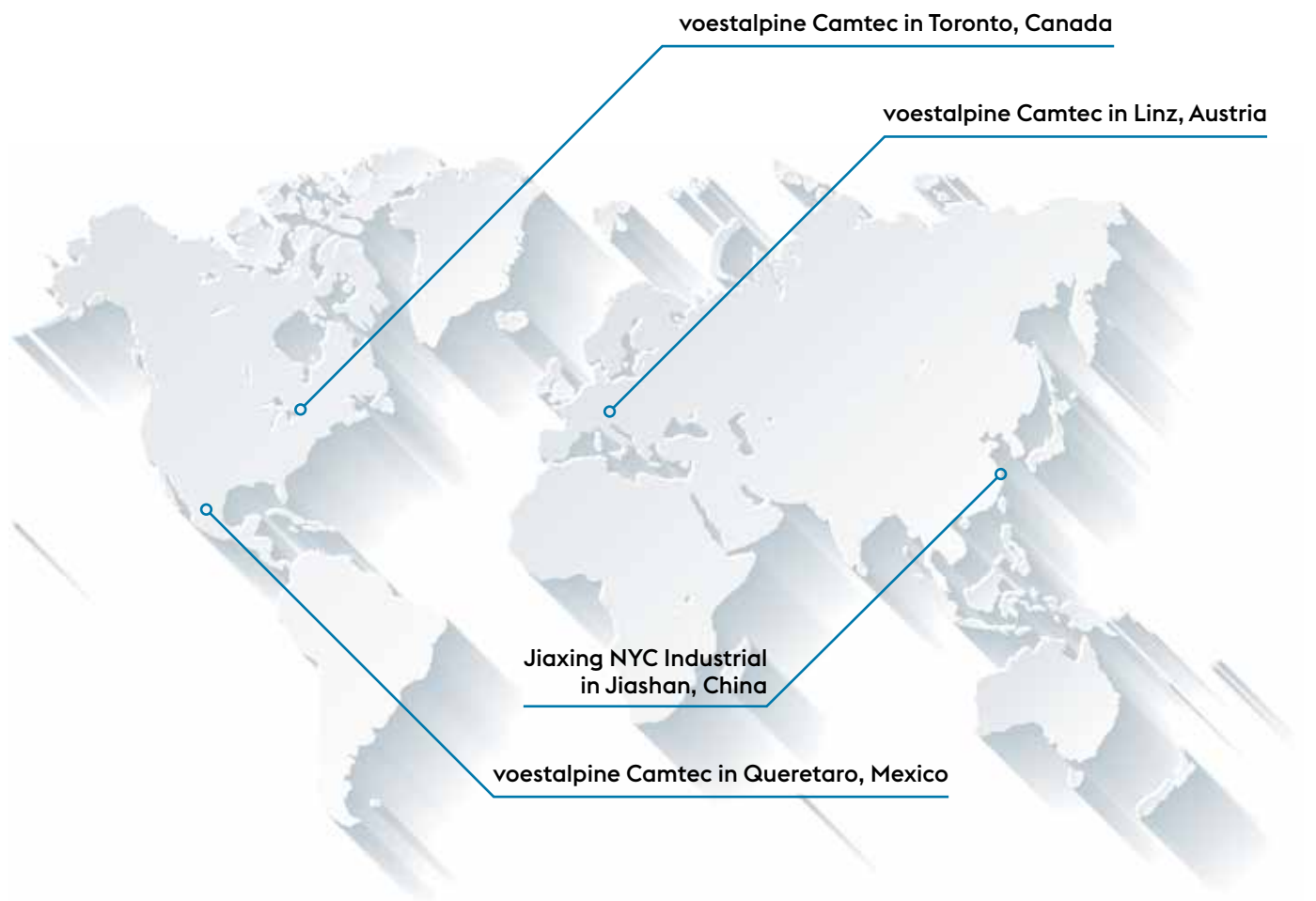
voestalpine Camtec is a world leader with many years of experience in the manufacturing of cam units and maintenance-free sliding elements.

Sector-specific expertise and detailed knowledge of manufacturing processes made voestalpine Camtec the go-to reliable partner of renowned companies in the automotive and mechanical engineering industry. Our customers are provided with innovative products and high-quality service. Our team of highly trained technical specialists is

dedicated to providing excellent, long lasting and effective solutions. They will be happy to support you and answer any questions. voestalpine Camtec's state-of-the-art sliding elements, technologies, spare parts management system, rapid turnaround and our comprehensive service and support put us one step ahead.

WORLDWIDE CUSTOMER SERVICE AND PRODUCT AVAILABILITY

With headquarters in Linz, Austria and locations and subsidiaries around the globe, voestalpine Camtec is able to respond quickly to your needs, providing high quality, local service and support wherever you are. Dedicated inventories in Austria, Canada and China make it possible to react quickly in the event of an emergency breakdown.



Our international team of experts remains at your service:
Find your contact partner online at www.voestalpine.com/camtec
or contact us at sales.camtec@voestalpine.com

O-KS – OPTIMIZED COMPACT CAM UNIT

For high precision with long service life

The newly optimized compact cam unit is of the highest quality and is equipped with innovative features. Our premium model combines improved handling with optimized features. The result is the perfect design of an efficient cam unit for added value.

HIGHLY COMPACT IN SPITE OF ITS REDUCED COMPLEXITY

and fewer components

HIGH RETRACTION FORCE

for the processing of high-strength steels

PATENTED 1° ANGLE

of side plates

CONVINCING MANUFACTURING QUALITY

based on certified materials and
optimized surface properties

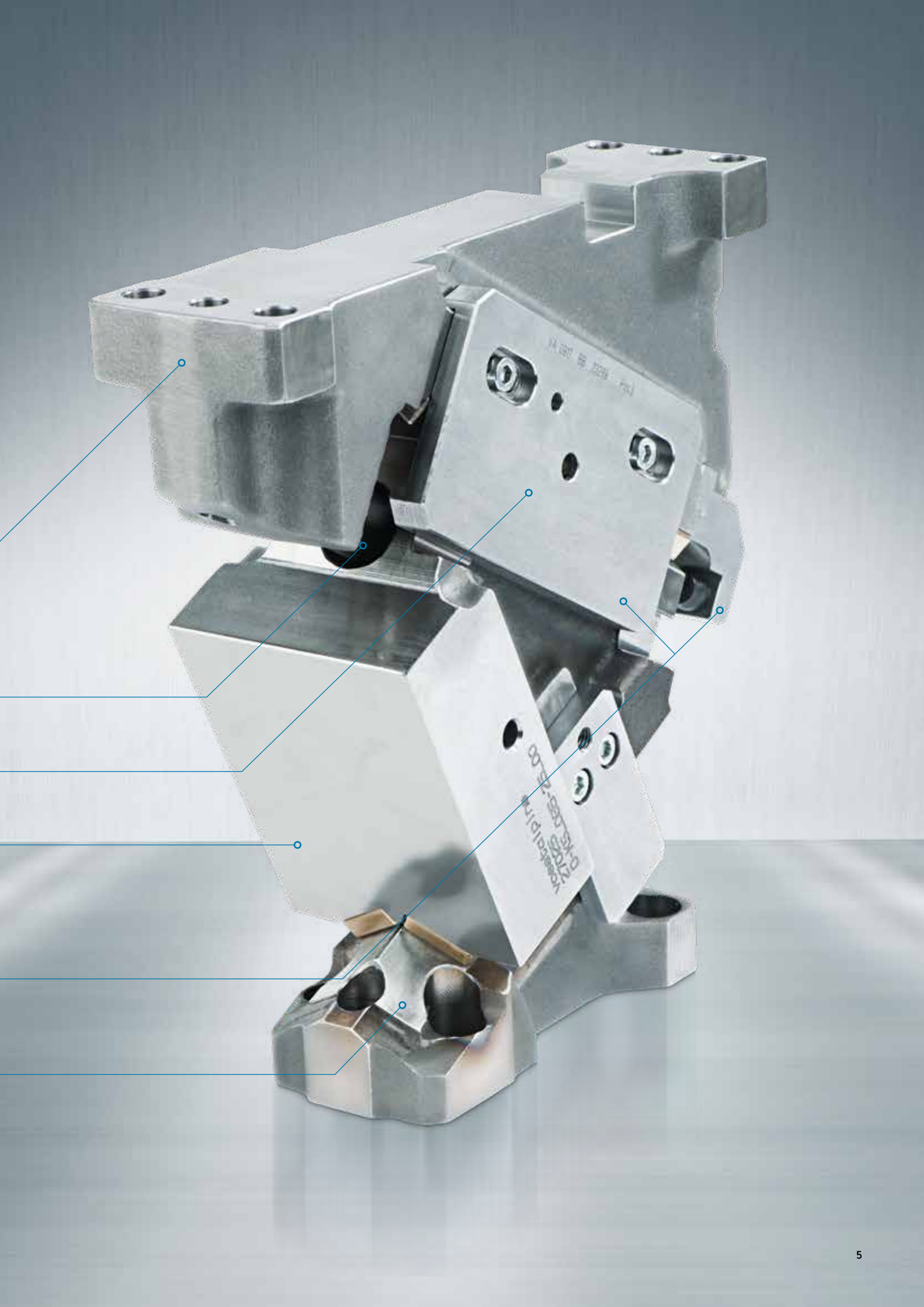
FLEXIBILITY IN CAM REMOVAL

from the back or the side for improved
handling and more efficient tool usage

HARDENED SLIDING SURFACES

for high loads

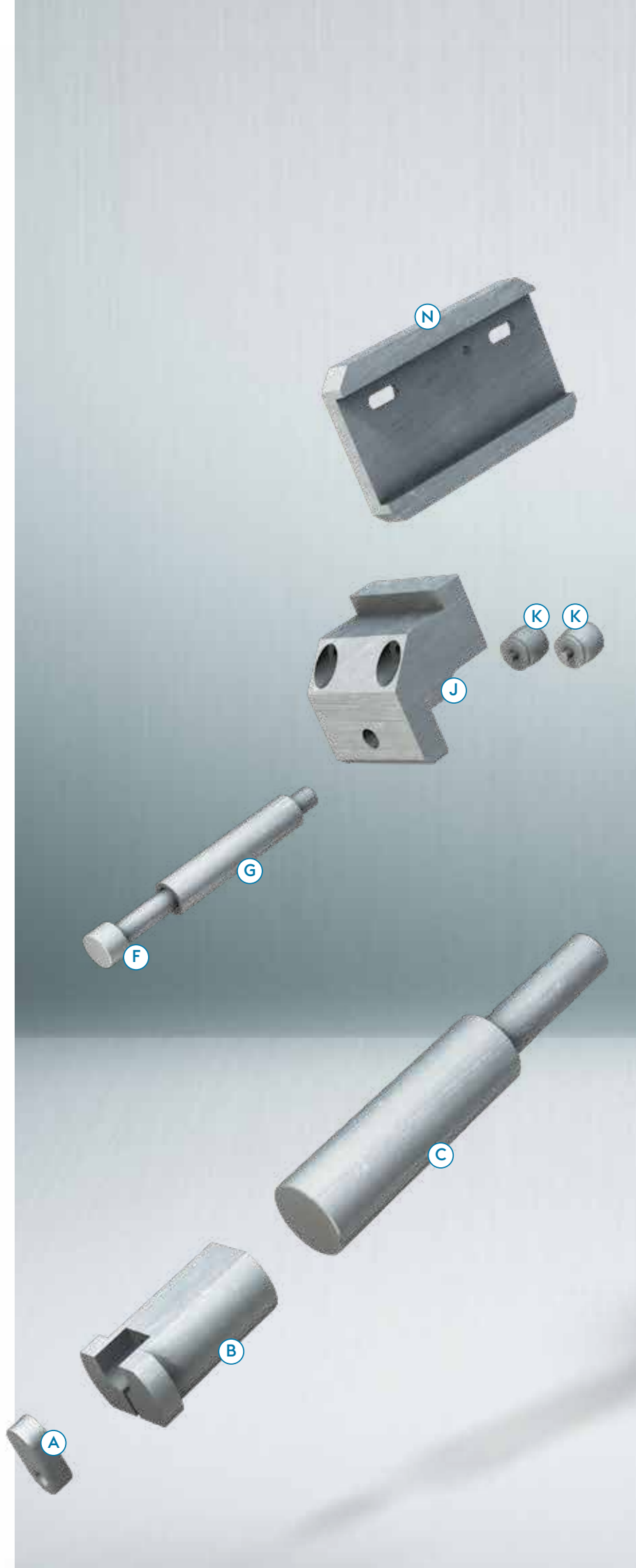
Please find the most state-of-the-art O-KS cam units in our product
finder: www.voestalpine.com/camtec/Product-Finder

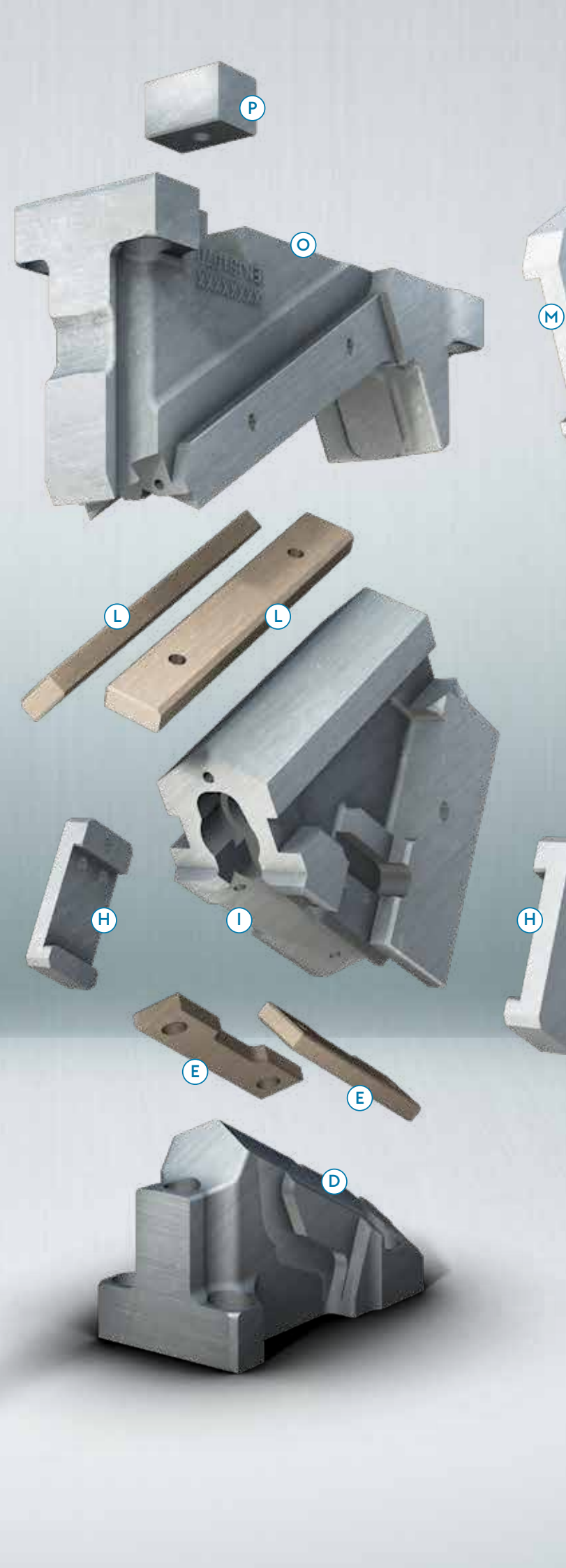


HIGH PRECISION DESIGN

The O-KS cam unit consists of very few components, which guarantees high-quality initial installation and maintenance.

- (A) Lock plate
- (B) Blanking-off plate
- (C) Gas spring
- (D) Driver
- (E) Wear Plates (B)
- (F) Lockout screw
- (G) Lockout sleeve
- (H) Positive return
- (I) Cam unit
- (J) Stop
- (K) Dampers
- (L) Wear Plates (A)
- (M) Side Plate (L)
- (N) Side Plate (R)
- (O) Cam Base
- (P) Fitting key





**FIND YOUR SOLUTION QUICKLY,
EASILY AND SYSTEMATICALLY.**



Our Product-Finder:
[www.voestalpine.com/
camtec/Product-Finder](http://www.voestalpine.com/camtec/Product-Finder)

When it comes to design, ordering and spare parts management, you will be able to quickly and easily find product details and information using our download center.



O-KS TECHNICAL DETAILS

Detailed information at a glance

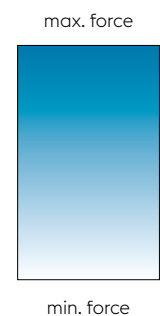
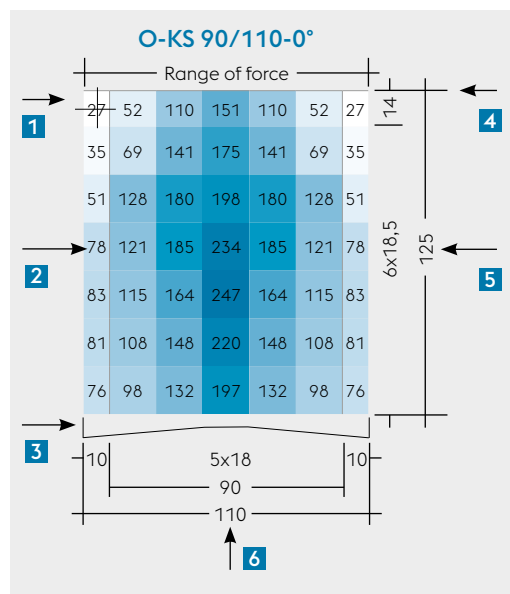
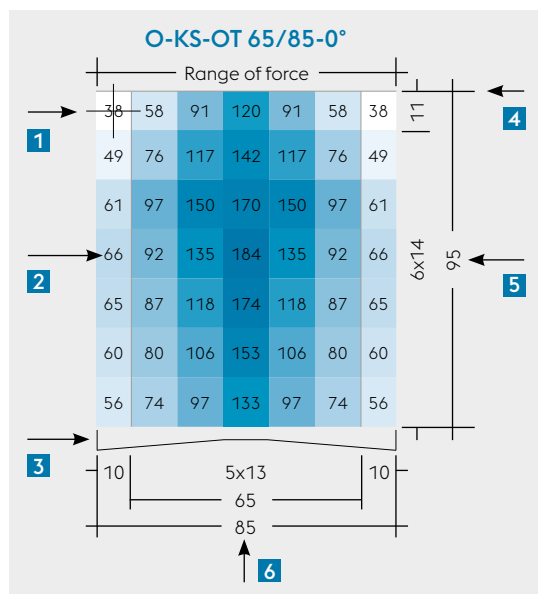
The following information contains pertinent technical data for the Optimized Compact Cam Unit – O-KS. Should you require further information or have any question, an experienced team of specialists will be happy to assist you any time. Please contact us at sales.camtec@voestalpine.com

	O-KS	O-BS
Average service life (depending on loads)	2,000,000 strokes	We offer a cost-optimized basic cam unit for medium-sized quantities. Please send an email to sales.camtec@voestalpine.com for more detailed information.
Guranteed Service Life (Warranty)	1,000,000 strokes	
Precision adjustments made during assembly	Yes	
Sliding surfaces	At least Rz 6.3, hardened	
Field of application	Shaping, beveling, punching cutting	
Angle range	0° – 75°	
Tensile strength of punch, sliding element and cam bed materials	700 N/mm ² minimum	
Available widths	65/85, 90/110, 125/160, 175/220, 260/330*, 400/500*	
Lockout system	Yes	
Guide clamps	Sinter	
Positive return	Both sides	
Tooling Points	Yes	
Gas pressure spring	Norm-specific	
Special cam unit options	Yes	
Compliant with BAK/VDI	Yes	
Compliant with NAAMs	Yes	

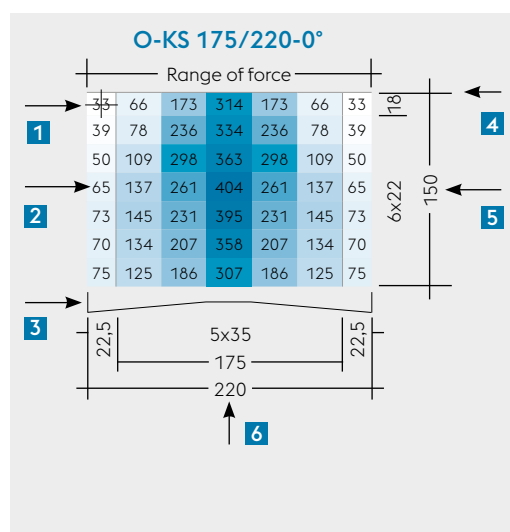
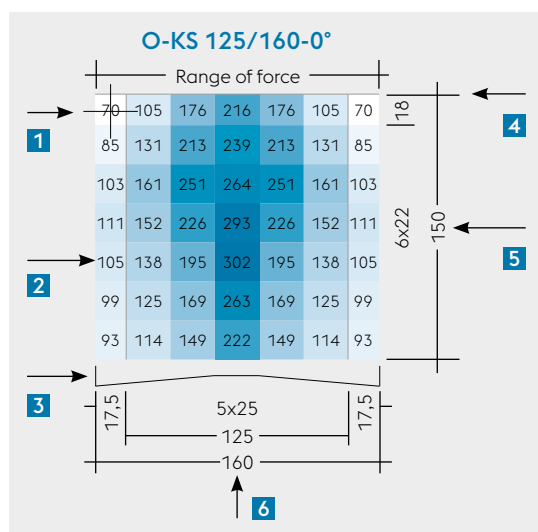
*Available soon

PERMISSIBLE CAM FORCES

The following overview shows the permissible cam force in the center of each field in the direction of cam travel (rounded values). In the event of several different forces, the common center of force must be determined and compared with the values indicated in the table. All introduced forces must always be lower than those indicated in the table.



The coloring in the force diagrams reflects tendencies in the range of values from the smallest force to the maximum cam force for each method of support.



- 1 Force in the center of each field
- 2 Value of force kN
- 3 Cam unit bottom
- 4 Top work face
- 5 Height of calculated work face
- 6 Work face width

The O-KS features a highly convincing force diagram that depicts both shouldering and fitting key support.

O-KS ASSEMBLY 1

FORCE DISTRIBUTION

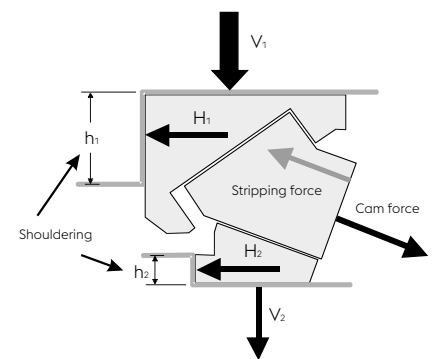
O-KS 65/85 mm cam unit specifications

Identification number		Name		Angle	Weight [kg]		Stroke [mm]
O-KS 65	O-KS 85	O-KS 65	O-KS 85		O-KS 65	O-KS 85	
27000	27020	O-KS 65-0°	O-KS 85-0°	0°	16,24	17,04	28,93
27001	27021	O-KS 65-5°	O-KS 85-5°	5°	16,27	17,06	29,04
27002	27022	O-KS 65-10°	O-KS 85-10°	10°	15,70	16,52	35,00
27003	27023	O-KS 65-15°	O-KS 85-15°	15°	15,78	16,58	35,69
27004	27024	O-KS 65-20°	O-KS 85-20°	20°	15,73	16,53	36,86
27005	27025	O-KS 65-25°	O-KS 85-25°	25°	15,81	16,62	38,22
27006	27026	O-KS 65-30°	O-KS 85-30°	30°	15,56	16,38	35,38
27007	27027	O-KS 65-35°	O-KS 85-35°	35°	15,71	16,52	37,41
27008	27028	O-KS 65-40°	O-KS 85-40°	40°	15,94	16,75	39,57
27009	27029	O-KS 65-45°	O-KS 85-45°	45°	16,13	16,94	42,87
27010	27030	O-KS 65-50°	O-KS 85-50°	50°	16,30	17,12	47,16
27011	27031	O-KS 65-55°	O-KS 85-55°	55°	16,41	17,23	52,85
27012	27032	O-KS 65-60°	O-KS 85-60°	60°	15,92	16,74	49,24
27013	27033	O-KS 65-65°	O-KS 85-65°	65°	16,19	17,00	46,61
27014	27034	O-KS 65-70°	O-KS 85-70°	70°	16,21	17,03	57,59
27015	27035	O-KS 65-75°	O-KS 85-75°	75°	16,24	17,06	76,10

O-KS 65/85mm cam unit force distribution

Angle	Maximum cam force [kN]	Force distribution at maximum cam force [kN]				Shouldering [mm]		Stripping force [kN]
		V1	H1	V2	H2	h1	h2	
0°	184	154	184	154	0	155	20	6,8
5°	209	164	195	146	13	155	20	7,6
10°	186	186	156	154	27	125	30	6,8
15°	202	189	159	137	37	125	30	7,6
20°	187	211	122	147	54	100	60	6,5
25°	203	215	124	129	60	100	60	7,3
30°	200	163	137	63	36	105	60	12,2
35°	205	163	136	45	32	105	60	15,2
40°	208	192	111	58	49	100	80	12,8
45°	213	191	110	40	40	100	80	15,4
50°	217	191	110	25	29	100	80	19,7
55°	220	191	110	11	16	100	80	18,2
60°	212	222	39	39	67	40	110	11,6
65°	218	222	39	25	53	40	110	13,8
70°	222	222	39	13	37	40	110	19,7
75°	225	222	39	5	19	40	110	18,3

The cam unit force is distributed as shown in the sketch:

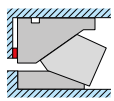


Shouldering: h₁ (top)
h₂ (bottom)
Press: V₁ (vertical)
Cam unit guide: H₁ (horizontal)
Punch: H₂ (horizontal)
V₂ (vertical)

O-KS ASSEMBLY 1

65 mm and 85 mm models

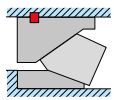
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 65/85-0°							O-KS 65/85-5°							O-KS 65/85-10°							O-KS 65/85-15°						
38	58	91	120	91	58	38	31	47	81	118	81	47	31	37	57	93	128	93	57	37	30	47	83	125	83	47	30
49	76	117	142	117	76	49	40	65	112	142	112	65	40	48	76	120	154	120	76	48	38	64	114	156	114	64	38
61	97	150	170	150	97	61	53	90	150	174	150	90	53	61	97	151	182	151	97	61	51	89	151	187	151	89	51
66	92	135	184	135	92	66	62	97	146	209	146	97	62	70	100	152	186	152	100	70	65	103	163	201	163	103	65
65	87	118	174	118	87	65	62	91	131	205	131	91	62	69	94	136	186	136	94	69	67	97	146	202	146	97	67
60	80	106	153	106	80	60	59	83	117	192	117	83	59	64	87	119	172	119	87	64	63	89	128	195	128	89	63
56	74	97	133	97	74	56	54	76	105	160	105	76	54	59	79	105	152	105	79	59	58	81	114	173	114	81	58
65 mm width							65 mm width							65 mm width							65 mm width						
85 mm width							85 mm width							85 mm width							85 mm width						



Fitting key

Fitting key support at top,
shouldering support at bottom

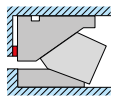
O-KS 65/85-0°							O-KS 65/85-5°							O-KS 65/85-10°							O-KS 65/85-15°						
32	37	37	37	37	37	32	29	36	39	39	39	36	29	35	44	45	45	45	44	35	30	41	48	48	48	41	30
36	37	37	37	37	37	36	33	39	39	39	39	39	33	39	44	45	45	45	44	39	36	47	48	48	48	47	36
36	37	37	37	37	37	36	39	39	40	40	40	39	39	44	45	45	45	45	44	39	41	48	48	48	48	48	41
37	37	37	37	37	37	37	39	39	40	40	40	39	39	44	45	45	45	45	44	39	47	48	48	48	48	48	47
37	37	37	37	37	37	37	40	40	40	40	40	40	40	45	45	45	45	45	45	45	48	48	48	48	48	48	48
37	37	37	37	37	37	37	40	40	40	40	40	40	40	45	45	45	45	45	45	45	49	49	48	48	48	49	49
37	37	37	37	37	37	37	40	40	40	40	40	40	40	45	45	45	45	45	45	45	48	49	49	49	49	49	48
65 mm width							65 mm width							65 mm width							65 mm width						
85 mm width							85 mm width							85 mm width							85 mm width						

Rounded values

O-KS ASSEMBLY 1

65 mm and 85 mm models

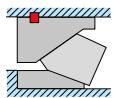
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 65/85-20°								O-KS 65/85-25°								O-KS 65/85-30°								O-KS 65/85-35°							
37	56	93	132	93	56	37		30	47	81	127	81	47	30		17	26	49	99	49	26	17		14	21	39	78	39	21	14	
48	75	120	158	120	75	48		38	64	113	158	113	64	38		22	37	77	147	77	37	22		18	30	64	132	64	30	18	
61	97	149	187	149	97	61		50	87	150	192	150	87	50		29	56	127	190	127	56	29		23	45	110	191	110	45	23	
74	108	160	187	160	108	74		67	109	174	203	174	109	67		41	82	167	200	167	82	41		32	68	166	205	166	68	32	
73	100	145	186	145	100	73		68	103	156	202	156	103	68		47	81	151	199	151	81	47		41	77	155	205	155	77	41	
68	91	129	181	129	91	68		66	94	137	203	137	94	66		48	74	128	198	128	74	48		44	73	132	205	132	73	44	
62	84	114	167	114	84	62		61	85	121	187	121	85	61		45	64	104	177	104	64	45		43	65	109	179	109	65	43	
65 mm width 85 mm width								65 mm width 85 mm width								65 mm width 85 mm width								65 mm width 85 mm width							



Fitting key

Fitting key support at top, shouldering support at bottom

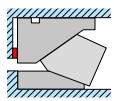
O-KS 65/85-20°								O-KS 65/85-25°								O-KS 65/85-30°								O-KS 65/85-35°							
36	49	58	58	58	49	36		30	44	62	63	62	44	30		17	26	44	57	44	26	17		14	21	37	56	37	21	14	
44	58	58	58	58	58	44		37	55	63	63	63	55	37		22	35	57	57	57	35	22		18	29	52	59	52	29	18	
51	58	59	59	59	58	51		45	63	63	63	63	63	45		29	45	57	57	57	45	29		23	38	59	59	59	38	23	
58	58	59	59	59	58	58		55	63	63	63	63	63	55		38	56	57	57	57	56	38		32	51	59	59	59	51	32	
59	59	59	59	59	59	59		58	63	63	63	63	63	58		44	57	57	57	57	57	44		39	58	60	59	60	58	39	
58	59	59	59	59	59	58		58	63	63	63	63	63	58		46	58	58	57	58	58	46		43	60	60	59	60	60	43	
56	59	59	59	59	59	56		55	63	63	63	63	63	55		44	56	58	58	58	56	44		43	57	60	60	60	57	43	
65 mm width 85 mm width								65 mm width 85 mm width								65 mm width 85 mm width								65 mm width 85 mm width							

Rounded values

O-KS ASSEMBLY 1

65 mm and 85 mm models

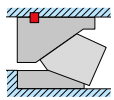
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 65/85-40°							O-KS 65/85-45°							O-KS 65/85-50°							O-KS 65/85-55°						
18	29	57	113	57	29	18	15	23	44	92	44	23	15	11	16	29	62	29	16	11	10	13	22	45	22	13	10
24	41	88	161	88	41	24	19	32	71	149	71	32	19	14	22	50	119	50	22	14	11	17	38	96	38	17	11
32	62	143	208	143	62	32	25	49	124	205	124	49	25	18	34	90	192	90	34	18	14	26	71	176	71	26	14
44	85	167	208	167	85	44	34	70	163	211	163	70	34	25	56	152	215	152	56	25	20	44	124	217	124	44	20
53	88	149	207	149	88	53	46	83	152	213	152	83	46	35	72	155	217	155	72	35	28	61	150	220	150	61	28
55	83	129	204	129	83	55	50	82	137	211	137	82	50	41	74	143	215	143	74	41	32	63	146	214	146	63	32
52	74	111	180	111	74	52	48	74	119	184	119	74	48	42	68	123	185	123	68	42	34	60	124	182	124	60	34
65 mm width							65 mm width							65 mm width							65 mm width						
85 mm width							85 mm width							85 mm width							85 mm width						



Fitting key

Fitting key support at top,
shouldering support at bottom

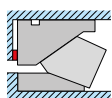
O-KS 65/85-40°							O-KS 65/85-45°							O-KS 65/85-50°							O-KS 65/85-55°						
18	29	54	74	54	29	18	15	23	42	70	42	23	15	11	16	28	52	28	16	11	10	13	22	44	22	13	10
24	40	73	74	73	40	24	19	31	60	77	60	31	19	14	22	47	78	47	22	14	11	17	37	80	37	17	11
32	52	74	74	74	52	32	25	43	77	77	77	43	25	18	33	78	79	78	33	18	14	26	62	80	62	26	14
44	71	75	75	75	71	44	34	57	77	77	77	57	34	25	45	78	79	78	45	25	20	37	78	80	78	37	20
52	75	75	75	75	75	52	46	72	77	77	77	72	46	35	60	79	79	79	60	35	28	51	80	80	80	51	28
55	74	75	75	75	74	55	50	73	78	78	78	73	50	41	64	79	79	79	64	41	32	53	81	81	81	53	32
52	70	76	75	76	70	52	48	68	77	78	77	68	48	42	61	80	80	80	61	42	34	54	82	82	82	54	34
65 mm width							65 mm width							65 mm width							65 mm width						
85 mm width							85 mm width							85 mm width							85 mm width						

Rounded values

O-KS ASSEMBLY 1

65 mm and 85 mm models

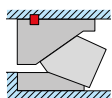
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 65/85-60°							O-KS 65/85-65°							O-KS 65/85-70°							O-KS 65/85-75°						
18	30	63	117	63	30	18	16	24	49	106	49	24	16	11	16	33	74	33	16	11	10	14	25	55	25	14	10
23	43	98	166	98	43	23	19	34	79	165	79	34	19	14	23	58	135	58	23	14	12	19	43	112	43	19	12
31	66	158	211	158	66	31	25	53	135	218	135	53	25	18	37	102	205	102	37	18	15	29	79	183	79	29	15
44	88	171	212	171	88	44	34	73	172	216	172	73	34	25	59	162	222	162	59	25	20	47	138	221	138	47	20
49	87	154	212	154	87	49	43	80	159	217	159	80	43	34	71	165	222	165	71	34	27	60	156	225	156	60	27
49	78	134	211	134	78	49	47	77	141	218	141	77	47	39	73	146	222	146	73	39	30	61	151	223	151	61	30
46	68	111	180	111	68	46	44	68	118	183	118	68	44	38	66	122	188	122	66	38	31	57	129	188	129	57	31
65 mm width							65 mm width							65 mm width							65 mm width						
85 mm width							85 mm width							85 mm width							85 mm width						



Fitting key

Fitting key support at top,
shouldering support at bottom

O-KS 65/85-60°							O-KS 65/85-65°							O-KS 65/85-70°							O-KS 65/85-75°						
18	30	63	117	63	30	18	16	24	49	106	49	24	16	11	16	33	74	33	16	11	10	14	25	55	25	14	10
23	43	98	166	98	43	23	19	34	79	165	79	34	19	14	23	58	135	58	23	14	12	19	43	112	43	19	12
31	66	158	206	158	66	31	25	53	135	218	135	53	25	18	37	102	205	102	37	18	15	29	79	183	79	29	15
44	88	171	208	171	88	44	34	73	172	216	172	73	34	25	59	161	218	161	59	25	20	47	138	218	138	47	20
49	87	154	210	154	87	49	43	80	159	217	159	80	43	34	71	165	221	165	71	34	27	60	156	224	156	60	27
49	78	134	210	134	78	49	47	77	141	218	141	77	47	39	73	146	221	146	73	39	30	61	151	223	151	61	30
46	68	111	180	111	68	46	44	68	118	183	118	68	44	38	66	122	188	122	66	38	31	57	129	188	129	57	31
65 mm width							65 mm width							65 mm width							65 mm width						
85 mm width							85 mm width							85 mm width							85 mm width						

Rounded values

O-KS ASSEMBLY 2

FORCE DISTRIBUTION

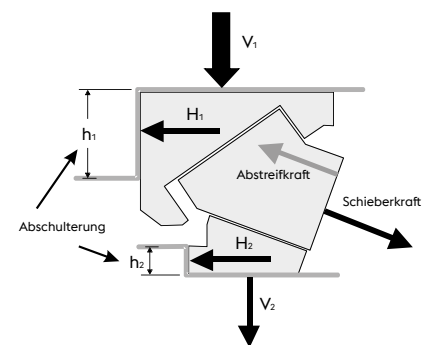
O-KS 90/110 mm cam unit specifications

Identification number		Name		Angle	Weight [kg]		Stroke [mm]
O-KS 90	O-KS 110	O-KS 90	O-KS 110		O-KS 90	O-KS 110	
27040	27060	O-KS 90-0°	O-KS 110-0°	0°	34,98	36,10	28,925
27041	27061	O-KS 90-5°	O-KS 110-5°	5°	34,83	35,97	29,036
27042	27062	O-KS 90-10°	O-KS 110-10°	10°	34,68	35,80	35,004
27043	27063	O-KS 90-15°	O-KS 110-15°	15°	34,65	35,80	35,688
27044	27064	O-KS 90-20°	O-KS 110-20°	20°	34,05	35,16	36,864
27045	27065	O-KS 90-25°	O-KS 110-25°	25°	34,09	35,24	38,222
27046	27066	O-KS 90-30°	O-KS 110-30°	30°	34,44	35,56	35,382
27047	27067	O-KS 90-35°	O-KS 110-35°	35°	34,84	35,94	37,407
27048	27068	O-KS 90-40°	O-KS 110-40°	40°	33,57	34,69	39,568
27049	27069	O-KS 90-45°	O-KS 110-45°	45°	34,02	35,12	42,886
27050	27070	O-KS 90-50°	O-KS 110-50°	50°	34,19	35,34	47,155
27051	27071	O-KS 90-55°	O-KS 110-55°	55°	34,38	35,50	52,845
27052	27072	O-KS 90-60°	O-KS 110-60°	60°	32,88	34,00	49,24
27053	27073	O-KS 90-65°	O-KS 110-65°	65°	33,26	34,37	46,605
27054	27074	O-KS 90-70°	O-KS 110-70°	70°	33,49	34,63	57,588
27055	27075	O-KS 90-75°	O-KS 110-75°	75°	33,72	34,84	76,1

O-KS 90/110 mm cam unit force distribution

Angle	Maximum cam force [kN]	Force distribution at maximum cam force [kN]				Shouldering [mm]		Stripping force [kN]
		V1	H1	V2	H2	h1	h2	
0°	247	207	247	207	0	190	30	6,8
5°	297	233	278	207	18	190	30	7,6
10°	308	308	258	255	45	148	30	6,7
15°	323	302	253	218	59	148	30	7,5
20°	325	367	212	256	93	109	65	6,4
25°	347	367	212	220	103	109	65	7,2
30°	361	294	247	114	66	143	65	12,2
35°	372	295	248	82	57	143	65	16,1
40°	370	341	197	103	87	102	105	11,7
45°	373	334	193	71	71	102	105	15,4
50°	385	339	195	44	52	102	105	24,4
55°	390	339	196	20	28	102	105	23,5
60°	366	384	68	67	115	52	135	11,1
65°	376	383	68	43	91	52	135	14,0
70°	384	384	68	23	64	52	135	22,1
75°	388	384	68	9	33	52	135	23,5

The cam unit force is distributed as shown in the sketch:

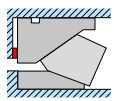


Shouldering: h₁ (top)
h₂ (bottom)
Press: V₁ (vertical)
Cam unit guide: H₁ (horizontal)
Punch: H₂ (horizontal)
V₂ (vertical)

O-KS ASSEMBLY 2

90 mm and 110 mm models

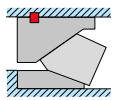
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 90/110-0°								O-KS 90/110-5°								O-KS 90/110-10°								O-KS 90/110-15°							
27	52	110	151	110	52	27		27	41	87	146	87	41	27		24	47	118	174	118	47	24		25	41	78	161	78	41	25	
35	69	141	175	141	69	35		34	49	128	184	128	49	34		36	85	154	214	154	85	36		31	54	135	208	135	54	31	
51	128	180	198	180	128	51		51	94	173	204	173	94	51		51	116	208	241	208	116	51		40	69	206	257	206	69	40	
78	121	185	234	185	121	78		65	129	203	286	203	129	65		74	150	221	281	221	150	74		48	70	253	290	253	70	48	
83	115	164	247	164	115	83		70	116	177	297	177	116	70		94	140	213	308	213	140	94		69	119	227	323	227	119	69	
81	108	148	220	148	108	81		72	102	158	252	158	102	72		68	121	187	281	187	121	68		81	123	198	317	198	123	81	
76	98	132	197	132	98	76		69	97	141	211	141	97	69		71	110	160	238	160	110	71		80	108	173	272	173	108	80	
90 mm width 110 mm width								90 mm width 110 mm width								90 mm width 110 mm width								90 mm width 110 mm width							



Fitting key

Fitting key support at top, shouldering support at bottom

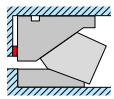
O-KS 90/110-0°								O-KS 90/110-5°								O-KS 90/110-10°								O-KS 90/110-15°							
27	50	58	54	58	50	27		27	40	67	66	67	40	27		24	45	74	78	74	45	24		25	40	62	80	62	40	25	
33	60	62	62	62	60	33		33	45	67	67	67	45	33		34	65	75	78	75	65	34		31	52	80	84	80	52	31	
33	61	62	63	62	61	33		45	60	67	72	67	60	45		39	68	75	75	75	68	39		40	64	79	80	79	64	40	
58	60	60	63	60	60	58		47	61	65	65	65	61	47		53	70	75	75	75	70	53		48	63	79	81	79	63	48	
60	57	61	60	61	57	60		57	64	64	65	64	64	57		69	74	76	76	76	74	69		58	76	80	83	80	76	58	
61	60	62	58	62	60	61		61	63	65	65	65	63	61		53	75	75	66	75	75	53		70	80	81	82	81	80	70	
62	62	54	59	54	62	62		59	63	66	66	66	63	59		62	75	69	69	69	75	62		73	80	81	81	81	80	73	
90 mm width 110 mm width								90 mm width 110 mm width								90 mm width 110 mm width								90 mm width 110 mm width							

Rounded values

O-KS ASSEMBLY 2

90 mm and 110 mm models

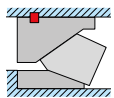
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 90/110-20°							O-KS 90/110-25°							O-KS 90/110-30°							O-KS 90/110-35°						
35	58	125	209	125	58	35	27	42	97	185	97	42	27	12	16	31	73	31	16	12	11	14	24	30	24	14	11
51	93	175	251	175	93	51	34	56	153	239	153	56	34	15	20	50	149	50	20	15	12	17	37	57	37	17	12
55	130	232	291	232	130	55	36	39	215	292	215	39	36	19	27	43	228	43	27	19	17	23	45	209	45	23	17
57	148	283	319	283	148	57	66	140	277	339	277	140	66	27	55	198	302	198	55	27	18	24	170	297	170	24	18
59	148	250	325	250	148	59	73	143	249	347	249	143	73	33	69	212	347	212	69	33	19	25	216	361	216	25	19
85	140	212	318	212	140	85	73	130	221	347	221	130	73	37	79	194	361	194	79	37	30	56	208	372	208	56	30
88	124	183	287	183	124	88	71	123	190	318	190	123	71	45	81	169	318	169	81	45	38	72	181	343	181	72	38
90 mm width 110 mm width							90 mm width 110 mm width							90 mm width 110 mm width							90 mm width 110 mm width						



Fitting key

Fitting key support at top,
shouldering support at bottom

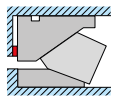
O-KS 90/110-20°							O-KS 90/110-25°							O-KS 90/110-30°							O-KS 90/110-35°						
35	57	98	99	98	57	35	27	41	83	106	83	41	27	12	16	31	57	31	16	12	11	14	24	30	24	14	11
50	87	99	94	99	87	50	34	55	105	107	105	55	34	15	20	49	92	49	20	15	12	17	37	45	37	17	12
47	98	99	100	99	98	47	36	35	102	103	102	35	36	19	27	41	95	41	27	19	17	23	43	97	43	23	17
44	98	99	100	99	98	44	55	95	102	104	102	95	55	27	51	87	95	87	51	27	18	21	92	97	92	21	18
47	99	98	100	98	99	47	64	104	105	105	105	104	64	33	64	95	95	95	64	33	19	21	98	93	98	21	19
74	98	99	100	99	98	74	65	100	107	106	107	100	65	37	75	95	95	95	75	37	30	52	99	95	99	52	30
81	97	99	100	99	97	81	66	102	107	106	107	102	66	45	79	95	95	95	79	45	38	69	98	96	98	69	38
90 mm width 110 mm width							90 mm width 110 mm width							90 mm width 110 mm width							90 mm width 110 mm width						

Rounded values

O-KS ASSEMBLY 2

90 mm and 110 mm models

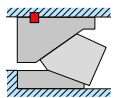
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 90/110-40°							O-KS 90/110-45°							O-KS 90/110-50°							O-KS 90/110-55°						
13	17	34	96	34	17	13	12	15	27	62	27	15	12	8	9	14	35	14	9	8	7	8	11	13	11	8	7
15	21	61	166	61	21	15	14	18	43	132	43	18	14	9	12	21	89	21	12	9	9	11	17	37	17	11	9
19	31	124	275	124	31	19	18	24	45	250	45	24	18	11	14	37	196	37	14	11	11	16	41	167	41	16	11
28	58	229	354	229	58	28	21	36	179	346	179	36	21	15	26	135	308	135	26	15	14	22	83	292	83	22	14
34	72	243	370	243	72	34	25	45	242	369	241	45	25	22	44	201	376	201	44	22	17	31	166	367	166	31	17
43	87	225	365	225	87	43	29	52	231	373	231	52	29	29	60	235	385	235	60	29	21	43	195	385	195	43	21
43	85	192	349	192	85	43	39	71	200	367	200	71	39	33	63	226	378	226	63	33	21	46	209	390	209	46	21
90 mm width							90 mm width							90 mm width							90 mm width						
110 mm width							110 mm width							110 mm width							110 mm width						



Fitting key

Fitting key support at top, shouldering support at bottom

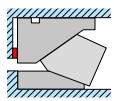
O-KS 90/110-40°							O-KS 90/110-45°							O-KS 90/110-50°							O-KS 90/110-55°						
13	17	34	86	34	17	13	12	15	27	62	27	15	12	8	9	14	35	14	9	8	7	8	11	13	11	8	7
15	21	60	124	60	21	15	14	18	42	119	42	18	14	9	12	21	82	21	12	9	9	11	17	33	17	11	9
19	31	121	124	121	31	19	18	24	43	126	43	24	18	11	14	36	130	36	14	11	11	16	40	129	40	16	11
28	54	120	124	120	54	28	21	34	117	125	117	34	21	15	26	120	131	120	26	15	14	22	80	132	80	22	14
34	68	116	124	116	68	34	25	41	124	128	124	41	25	22	41	129	128	129	41	22	17	29	121	132	121	29	17
43	83	116	124	116	83	43	29	49	126	129	126	49	29	29	57	129	122	129	57	29	21	41	131	132	131	41	21
43	82	116	121	116	82	43	39	68	126	119	126	68	39	33	59	128	114	128	59	33	21	43	130	123	130	43	21
90 mm width							90 mm width							90 mm width							90 mm width						
110 mm width							110 mm width							110 mm width							110 mm width						

Rounded values

O-KS ASSEMBLY 2

90 mm and 110 mm models

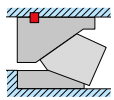
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 90/110-60°								O-KS 90/110-65°								O-KS 90/110-70°								O-KS 90/110-75°							
13	17	36	107	36	17	13		11	14	25	28	25	14	11		8	10	16	37	16	10	8		8	8	11	22	11	8	8	
15	22	60	191	60	22	15		14	18	36	48	36	18	14		9	13	27	99	27	13	9		9	11	19	61	19	11	9	
20	33	121	296	121	33	20		17	24	34	278	34	24	17		12	17	27	226	27	17	12		10	15	49	188	49	15	10	
28	60	253	357	253	60	28		21	33	43	355	43	33	21		13	20	126	336	126	20	13		13	20	56	321	56	20	13	
38	85	255	365	255	85	38		28	59	231	372	231	59	28		20	40	231	376	231	40	20		18	35	177	377	177	35	18	
45	95	239	366	239	95	45		34	73	264	376	264	73	34		24	49	245	384	245	49	24		25	41	211	388	211	41	25	
56	97	209	365	209	97	56		41	79	231	376	231	79	41		29	56	236	383	236	56	29		27	40	150	383	150	40	27	
90 mm width								90 mm width								90 mm width								90 mm width							
110 mm width								110 mm width								110 mm width								110 mm width							



Fitting key

Fitting key support at top,
shouldering support at bottom

O-KS 90/110-60°								O-KS 90/110-65°								O-KS 90/110-70°								O-KS 90/110-75°							
13	17	36	107	36	17	13		11	14	25	28	25	14	11		8	10	16	37	16	10	8		8	8	11	22	11	8	8	
15	22	60	191	60	22	15		14	18	36	48	36	18	14		9	13	27	99	27	13	9		9	11	19	61	19	11	9	
20	33	121	296	121	33	20		17	24	34	278	34	24	17		12	17	27	226	27	17	12		10	15	49	188	49	15	10	
28	60	253	350	253	60	28		21	33	43	355	43	33	21		13	20	126	336	126	20	13		13	20	56	321	56	20	13	
38	85	255	357	255	85	38		28	59	231	368	231	59	28		20	40	231	368	231	40	20		18	35	177	368	177	35	18	
45	95	239	358	239	95	45		34	73	264	368	264	73	34		24	49	245	373	245	49	24		25	41	211	377	211	41	25	
56	97	209	358	209	97	56		41	79	231	369	231	79	41		29	56	236	373	236	56	29		27	40	150	378	150	40	27	
90 mm width								90 mm width								90 mm width								90 mm width							
110 mm width								110 mm width								110 mm width								110 mm width							

Rounded values

O-KS ASSEMBLY 3

FORCE DISTRIBUTION

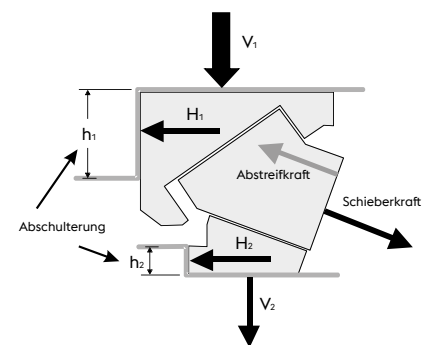
O-KS 125/160 mm cam unit specifications

Identification number		Name		Angle	Weight [kg]		Stroke [mm]
O-KS 125	O-KS 160	O-KS 125	O-KS 160		O-KS 125	O-KS 160	
27040	27060	O-KS 125-0°	O-KS 160-0°	0°	57,47	59,69	35,353
27041	27061	O-KS 125-5°	O-KS 160-5°	5°	57,31	59,53	35,488
27042	27062	O-KS 125-10°	O-KS 160-10°	10°	56,73	58,95	42,782
27043	27063	O-KS 125-15°	O-KS 160-15°	15°	56,69	58,91	43,619
27044	27064	O-KS 125-20°	O-KS 160-20°	20°	56,65	58,88	46,08
27045	27065	O-KS 125-25°	O-KS 160-25°	25°	56,78	59,00	47,778
27046	27066	O-KS 125-30°	O-KS 160-30°	30°	54,16	56,43	44,228
27047	27067	O-KS 125-35°	O-KS 160-35°	35°	54,41	56,68	46,758
27048	27068	O-KS 125-40°	O-KS 160-40°	40°	54,03	56,30	50,873
27049	27069	O-KS 125-45°	O-KS 160-45°	45°	54,44	56,71	55,114
27050	27070	O-KS 125-50°	O-KS 160-50°	50°	55,06	57,33	48,503
27051	27071	O-KS 125-55°	O-KS 160-55°	55°	55,26	57,53	54,355
27052	27072	O-KS 125-60°	O-KS 160-60°	60°	54,53	56,80	49,24
27053	27073	O-KS 125-65°	O-KS 160-65°	65°	54,84	57,11	46,605
27054	27074	O-KS 125-70°	O-KS 160-70°	70°	55,08	57,35	57,588
27055	27075	O-KS 125-75°	O-KS 160-75°	75°	55,15	57,41	76,1

O-KS 125/160 mm cam unit force distribution

Angle	Maximum cam force [kN]	Force distribution at maximum cam force [kN]				Shouldering [mm]		Stripping force [kN]
		V1	H1	V2	H2	h1	h2	
0°	302	253	302	253	0	190	40	9,2
5°	305	239	285	213	19	190	40	10,3
10°	376	376	316	311	55	150	40	9,2
15°	395	369	310	267	72	150	40	10,3
20°	392	443	256	309	113	115	85	8,8
25°	422	446	258	268	125	115	85	9,9
30°	405	330	277	128	74	130	85	17,6
35°	420	333	280	92	65	130	85	23,2
40°	422	389	225	118	99	105	135	16,8
45°	440	394	228	83	83	105	135	22,2
50°	430	378	218	49	58	105	135	33,0
55°	445	387	223	22	32	105	135	25,4
60°	428	449	79	78	135	53	160	14,8
65°	441	450	79	50	107	53	160	18,6
70°	460	460	81	28	76	53	160	27,7
75°	445	440	78	10	38	53	160	25,5

The cam unit force is distributed as shown in the sketch:

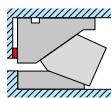


Shouldering: h₁ (top)
h₂ (bottom)
Press: V₁ (vertical)
Cam unit guide: H₁ (horizontal)
Punch: H₂ (horizontal)
V₂ (vertical)

O-KS ASSEMBLY 3

125 mm and 160 mm models

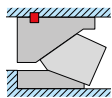
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 125/160-0°							O-KS 125/160-5°							O-KS 125/160-10°							O-KS 125/160-15°						
70	105	176	216	176	105	70	45	62	111	177	111	62	45	58	88	154	247	154	88	58	49	66	137	244	137	66	49
85	131	213	239	213	131	85	54	80	149	211	149	80	54	68	111	208	283	208	111	68	58	96	197	297	197	96	58
103	161	251	264	251	161	103	64	107	210	232	210	107	64	85	142	288	317	288	142	85	68	126	277	332	277	126	68
111	152	226	293	226	152	111	82	146	240	264	240	146	82	106	173	283	342	283	173	106	95	165	304	365	304	165	95
105	138	195	302	195	138	105	94	136	208	305	208	136	94	114	160	243	376	243	160	114	105	161	261	395	261	161	105
99	125	169	263	169	125	99	94	124	177	282	177	124	94	109	145	207	334	207	145	109	105	145	220	366	220	145	105
93	114	149	222	149	114	93	87	114	154	240	154	114	87	99	132	178	279	178	132	99	100	133	190	308	190	133	100
125 mm width 160 mm width							125 mm width 160 mm width							125 mm width 160 mm width							125 mm width 160 mm width						



Fitting key

Fitting key support at top,
shouldering support at bottom

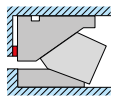
O-KS 125/160-0°							O-KS 125/160-5°							O-KS 125/160-10°							O-KS 125/160-15°						
70	97	112	112	112	97	70	45	61	104	124	104	61	45	58	86	133	145	133	86	58	49	66	127	161	127	66	49
83	112	112	112	112	112	83	54	77	124	124	124	77	54	68	104	145	145	145	104	68	58	92	160	161	160	92	58
92	112	112	112	112	112	92	64	96	126	124	126	96	64	85	124	145	146	145	124	85	68	112	160	161	160	112	68
101	112	110	112	110	112	101	78	122	126	124	126	122	78	102	144	145	146	145	144	102	95	147	155	161	155	147	95
98	111	112	112	112	111	98	93	122	123	122	123	122	93	112	144	143	142	143	144	112	105	149	157	159	157	149	105
96	110	111	112	111	110	96	94	118	122	124	122	118	94	109	137	145	144	145	137	109	105	139	160	160	160	139	105
92	108	112	112	112	108	92	87	111	124	124	124	111	87	99	128	143	146	143	128	99	100	130	158	159	158	130	100
125 mm width 160 mm width							125 mm width 160 mm width							125 mm width 160 mm width							125 mm width 160 mm width						

Rounded values

O-KS ASSEMBLY 3

125 mm and 160 mm models

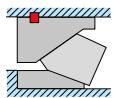
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 125/160-20°							O-KS 125/160-25°							O-KS 125/160-30°							O-KS 125/160-35°						
57	80	150	300	150	80	57	49	75	139	295	139	75	49	13	18	37	88	37	18	13	9	12	23	55	23	12	9
71	110	204	345	204	110	71	60	93	170	358	170	93	60	15	25	62	169	62	25	15	11	18	46	138	46	18	11
91	146	265	380	265	146	91	71	132	244	400	244	132	71	20	38	106	285	106	38	20	14	29	101	274	101	29	14
111	168	270	388	270	168	111	91	166	341	422	341	166	91	31	75	235	359	235	75	31	22	54	180	370	180	54	22
118	173	274	392	274	173	118	107	169	304	420	304	169	107	46	93	226	405	226	93	46	35	79	215	420	215	79	35
117	161	242	385	242	161	117	109	158	257	416	257	158	109	55	101	200	374	200	101	55	46	88	194	400	194	88	46
108	145	206	335	206	145	108	104	145	218	366	218	145	104	61	98	168	314	168	98	61	52	88	165	339	165	88	52
125 mm width 160 mm width							125 mm width 160 mm width							125 mm width 160 mm width							125 mm width 160 mm width						



Fitting key

Fitting key support at top, shouldering support at bottom

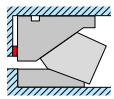
O-KS 125/160-20°							O-KS 125/160-25°							O-KS 125/160-30°							O-KS 125/160-35°						
57	80	144	202	144	80	57	49	75	135	219	135	75	49	13	18	37	88	37	18	13	9	12	23	55	23	12	9
71	109	186	202	186	109	71	60	93	160	221	160	93	60	15	25	61	156	61	25	15	11	18	45	128	45	18	11
91	139	201	202	201	139	91	71	130	221	221	221	130	71	20	38	99	198	99	38	20	14	29	97	208	97	29	14
111	161	201	202	201	161	111	91	151	220	221	220	151	91	31	70	190	199	190	70	31	22	54	170	208	170	54	22
118	165	201	202	201	165	118	107	160	221	221	221	160	107	46	91	197	195	197	91	46	35	79	201	205	201	79	35
117	157	202	202	202	157	117	109	155	221	221	221	155	109	55	100	186	195	186	100	55	46	88	182	202	182	88	46
108	145	192	202	192	145	108	104	145	206	221	206	145	104	61	98	161	197	161	98	61	52	88	156	204	156	88	52
125 mm width 160 mm width							125 mm width 160 mm width							125 mm width 160 mm width							125 mm width 160 mm width						

Rounded values

O-KS ASSEMBLY 3

125 mm and 160 mm models

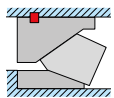
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 125/160-40°							O-KS 125/160-45°							O-KS 125/160-50°							O-KS 125/160-55°						
12	18	38	102	38	18	12	10	14	27	70	27	14	10	14	44	106	131	106	44	14	13	22	57	106	57	22	13
15	24	63	191	63	24	15	12	20	53	162	53	20	12	19	47	112	165	112	47	19	15	28	68	137	68	28	15
20	38	106	320	106	38	20	16	33	113	309	113	33	16	21	49	119	253	119	49	21	20	39	88	207	88	39	20
30	72	221	405	221	72	30	25	63	213	411	213	63	25	23	51	130	403	130	51	23	28	60	113	398	113	60	28
41	85	234	422	234	85	41	38	83	229	435	229	83	38	24	63	194	427	194	63	24	40	86	168	441	168	86	40
54	99	212	410	212	99	54	48	94	220	440	220	94	48	24	66	200	430	200	66	24	49	104	178	445	178	104	49
61	101	180	347	180	101	61	54	93	189	386	189	93	54	31	68	175	391	175	68	31	50	107	164	396	164	107	50
125 mm width							125 mm width							125 mm width							125 mm width						
160 mm width							160 mm width							160 mm width							160 mm width						



Fitting key

Fitting key support at top,
shouldering support at bottom

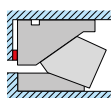
O-KS 125/160-40°							O-KS 125/160-45°							O-KS 125/160-50°							O-KS 125/160-55°						
12	18	38	102	38	18	12	10	14	27	70	27	14	10	14	44	105	122	105	44	14	13	22	57	106	57	22	13
15	24	62	184	62	24	15	12	20	53	158	53	20	12	19	47	112	165	112	47	19	15	28	68	137	68	28	15
20	38	103	270	103	38	20	16	33	111	279	111	33	16	21	49	119	247	119	49	21	20	39	88	201	88	39	20
30	72	213	269	213	72	30	25	63	205	276	205	63	25	23	51	122	271	122	51	23	28	60	105	274	105	60	28
41	85	225	269	225	85	41	38	83	220	278	220	83	38	24	63	184	273	184	63	24	40	86	158	280	158	86	40
54	99	203	269	203	99	54	48	94	210	280	210	94	48	24	66	190	273	190	66	24	49	104	167	280	167	104	49
61	101	175	266	175	101	61	54	93	183	281	183	93	54	31	68	168	273	168	68	31	50	107	157	279	157	107	50
125 mm width							125 mm width							125 mm width							125 mm width						
160 mm width							160 mm width							160 mm width							160 mm width						

Rounded values

O-KS ASSEMBLY 3

125 mm and 160 mm models

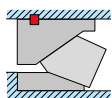
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 125/160-60°							O-KS 125/160-65°							O-KS 125/160-70°							O-KS 125/160-75°						
14	20	42	113	42	20	14	10	14	27	71	27	14	10	6	23	107	130	107	23	6	10	21	98	148	98	21	10
17	27	69	217	69	27	17	12	20	52	174	52	20	12	8	25	116	188	116	25	8	11	25	111	184	111	25	11
22	40	109	359	109	40	22	16	31	106	333	106	31	16	10	31	129	265	129	31	10	14	33	136	215	136	33	14
33	73	213	420	213	73	33	24	59	195	434	195	59	24	15	41	147	434	147	41	15	20	45	168	414	168	45	20
47	100	273	428	273	100	47	37	87	265	441	265	87	37	21	59	221	457	221	59	21	31	62	188	442	188	62	31
59	115	257	428	257	115	59	49	102	256	440	256	102	49	26	68	226	460	226	68	26	41	71	194	445	194	71	41
66	114	221	413	221	114	66	56	103	223	431	223	103	56	33	73	204	440	204	73	33	47	73	181	397	181	73	47
125 mm width							125 mm width							125 mm width							125 mm width						
160 mm width							160 mm width							160 mm width							160 mm width						



Fitting key

Fitting key support at top,
shouldering support at bottom

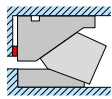
O-KS 125/160-60°							O-KS 125/160-65°							O-KS 125/160-70°							O-KS 125/160-75°						
14	20	42	113	42	20	14	10	14	27	71	27	14	10	6	23	107	130	107	23	6	10	21	98	148	98	21	10
17	27	69	217	69	27	17	12	20	52	174	52	20	12	8	25	116	188	116	25	8	11	25	111	184	111	25	11
22	40	109	359	109	40	22	16	31	106	333	106	31	16	10	31	129	265	129	31	10	14	33	136	215	136	33	14
33	73	213	420	213	73	33	24	59	195	434	195	59	24	15	41	147	434	147	41	15	20	45	168	414	168	45	20
47	100	273	428	273	100	47	37	87	265	441	265	87	37	21	59	221	457	221	59	21	31	62	188	442	188	62	31
59	115	257	428	257	115	59	49	102	256	440	256	102	49	26	68	226	460	226	68	26	41	71	194	445	194	71	41
66	114	221	413	221	114	66	56	103	223	431	223	103	56	33	73	204	440	204	73	33	47	73	181	397	181	73	47
125 mm width							125 mm width							125 mm width							125 mm width						
160 mm width							160 mm width							160 mm width							160 mm width						

Rounded values

O-KS ASSEMBLY 4

175 mm and 220 mm models

Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 175/220-0°

33	66	173	314	173	66	33
39	78	236	334	236	78	39
50	109	298	363	298	109	50
65	137	261	404	261	137	65
73	145	231	395	231	145	73
70	134	207	358	207	134	70
75	125	186	307	186	125	75

175 mm width
220 mm width

O-KS 175/220-5°

28	53	140	315	140	53	28
33	68	217	351	217	68	33
37	87	294	384	294	87	37
48	110	267	412	267	110	48
45	90	247	452	247	90	45
40	71	221	403	221	71	40
50	86	193	342	193	86	50

175 mm width
220 mm width

O-KS 175/220-10°

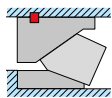
35	72	175	382	175	72	35
42	86	223	428	223	86	42
44	90	294	451	294	90	44
57	129	315	470	315	129	57
71	149	280	559	280	149	71
76	142	243	489	243	142	76
74	135	213	393	213	135	74

175 mm width
220 mm width

O-KS 175/220-15°

40	63	125	348	125	63	40
47	79	158	410	158	79	47
52	101	266	418	266	101	52
32	40	317	500	317	40	32
67	131	279	601	279	131	67
80	143	244	534	244	143	80
74	134	219	431	219	134	74

175 mm width
220 mm width



Fitting key

Fitting key support at top, shouldering support at bottom

O-KS 175/220-0°

33	65	154	167	154	65	33
39	74	183	138	183	74	39
50	99	182	142	182	99	50
65	128	159	177	159	128	65
73	141	176	160	176	141	73
70	133	181	173	181	133	70
75	122	158	183	158	122	75

175 mm width
220 mm width

O-KS 175/220-5°

28	53	134	194	134	53	28
33	67	195	190	195	67	33
37	78	195	195	195	78	37
48	102	174	157	174	102	48
45	85	181	145	181	85	45
40	69	180	173	180	69	40
50	85	176	194	176	85	50

175 mm width
220 mm width

O-KS 175/220-10°

35	72	167	203	167	72	35
42	85	203	211	203	85	42
44	84	220	222	220	84	44
57	121	218	191	218	121	57
71	145	218	189	218	145	71
76	141	219	208	219	141	76
74	135	205	218	205	135	74

175 mm width
220 mm width

O-KS 175/220-15°

40	63	119	205	119	63	40
47	79	147	228	147	79	47
52	100	236	190	236	100	52
32	33	236	226	236	33	32
67	129	235	207	235	129	67
80	143	225	226	225	143	80
74	134	210	236	210	134	74

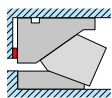
175 mm width
220 mm width

Rounded values

O-KS ASSEMBLY 4

175 mm and 220 mm models

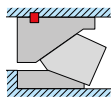
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 175/220-20°							O-KS 175/220-25°							O-KS 175/220-30°							O-KS 175/220-35°						
36	74	183	413	183	74	36	29	54	148	404	148	54	29	18	27	63	254	63	27	18	15	20	43	112	43	20	15
44	88	195	479	195	88	44	34	70	204	510	204	70	34	20	33	85	396	85	33	20	16	25	68	247	68	25	16
53	99	126	546	126	99	53	42	97	284	586	284	97	42	21	37	126	502	126	37	21	19	32	97	441	97	32	19
67	148	371	601	371	148	67	46	113	381	619	381	113	46	20	45	238	599	238	45	20	21	35	116	545	116	35	21
71	149	340	586	340	149	71	41	86	347	652	347	86	41	24	53	239	582	239	53	24	21	35	156	632	156	35	21
79	153	298	586	298	153	79	57	124	305	585	305	124	57	23	45	198	482	198	45	23	26	51	207	589	207	51	26
86	147	260	512	260	147	86	67	141	270	514	270	141	67	25	42	137	395	137	42	25	29	57	184	497	184	57	29
175 mm width							175 mm width							175 mm width							175 mm width						
220 mm width							220 mm width							220 mm width							220 mm width						



Fitting key

Fitting key support at top,
shouldering support at bottom

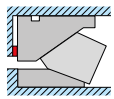
O-KS 175/220-20°							O-KS 175/220-25°							O-KS 175/220-30°							O-KS 175/220-35°						
36	74	177	280	177	74	36	29	54	143	306	143	54	29	18	27	62	216	62	27	18	15	20	43	112	43	20	15
44	88	186	278	186	88	44	34	70	194	300	194	70	34	20	33	80	269	80	33	20	16	25	67	221	67	25	16
53	99	107	228	107	99	53	42	97	267	267	267	97	42	21	37	115	258	115	37	21	19	32	89	279	89	32	19
67	140	270	283	270	140	67	46	107	301	239	301	107	46	20	45	224	276	224	45	20	21	35	104	282	104	35	21
71	148	307	287	307	148	71	41	84	304	237	304	84	41	24	53	225	278	225	53	24	21	35	140	286	140	35	21
79	153	285	287	285	153	79	57	124	285	237	285	124	57	23	45	188	270	188	45	23	26	51	194	287	194	51	26
86	147	249	285	249	147	86	67	141	259	271	259	141	67	25	42	131	266	131	42	25	29	57	174	283	174	57	29
175 mm width							175 mm width							175 mm width							175 mm width						
220 mm width							220 mm width							220 mm width							220 mm width						

Rounded values

O-KS ASSEMBLY 4

175 mm and 220 mm models

Permissible cam forces



Shouldering

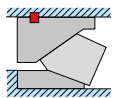
Shouldering support at top and bottom

O-KS 175/220-40°											
17	26	68	282	68	26	17					
19	29	86	440	86	29	19					
20	32	94	538	94	32	20					
22	46	196	465	196	46	22					
23	49	212	612	212	49	23					
24	49	207	662	207	49	24					
24	44	150	629	150	44	24					
175 mm width						220 mm width					

O-KS 175/220-45°											
15	20	37	68	37	20	15					
16	26	68	163	68	26	16					
20	36	139	482	139	36	20					
23	42	144	533	144	42	23					
27	43	109	636	109	43	27					
30	46	94	652	94	46	30					
33	55	138	571	138	55	33					
175 mm width						220 mm width					

O-KS 175/220-50°											
9	11	14	29	14	11	9					
10	13	24	59	24	13	10					
13	20	59	75	59	20	13					
14	29	136	486	136	29	14					
17	40	197	646	197	40	17					
22	38	126	652	126	38	22					
26	43	120	608	120	43	26					
175 mm width						220 mm width					

O-KS 175/220-55°											
7	8	10	13	10	8	7					
7	9	17	68	17	9	7					
9	13	47	348	47	13	9					
10	18	88	533	88	18	10					
14	22	74	646	74	22	14					
16	26	89	688	89	26	16					
18	30	108	682	108	30	18					
175 mm width						220 mm width					



Fitting key

Fitting key support at top, shouldering support at bottom

O-KS 175/220-40°											
17	26	67	257	67	26	17					
19	29	82	344	82	29	19					
20	32	83	308	83	32	20					
22	46	191	342	191	46	22					
23	49	200	351	200	49	23					
24	49	203	567	203	49	24					
24	44	150	629	150	44	24					
175 mm width						220 mm width					

O-KS 175/220-45°											
15	20	37	68	37	20	15					
16	26	67	138	67	26	16					
20	36	131	320	131	36	20					
23	42	133	295	133	42	23					
27	43	97	351	97	43	27					
30	46	81	361	81	46	30					
33	55	129	358	129	55	33					
175 mm width						220 mm width					

O-KS 175/220-50°											
9	11	14	29	14	11	9					
10	13	24	59	24	13	10					
13	20	59	67	59	20	13					
14	29	128	302	128	29	14					
17	40	184	362	184	40	17					
22	38	122	554	122	38	22					
26	43	115	485	115	43	26					
175 mm width						220 mm width					

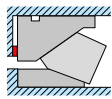
O-KS 175/220-55°											
7	8	10	13	10	8	7					
7	9	17	68	17	9	7					
9	13	47	340	47	13	9					
10	18	80	349	80	18	10					
14	22	61	375	61	22	14					
16	26	85	596	85	26	16					
18	30	100	521	100	30	18					
175 mm width						220 mm width					

Rounded values

O-KS ASSEMBLY 4

175 mm and 220 mm models

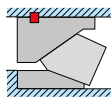
Permissible cam forces



Shouldering

Shouldering support at top and bottom

O-KS 175/220-60°							O-KS 175/220-65°							O-KS 175/220-70°							O-KS 175/220-75°						
13	20	61	175	61	20	13	10	13	24	46	24	13	10	8	9	14	30	14	9	8	7	8	11	13	11	8	7
15	25	95	408	95	25	15	12	17	46	147	46	17	12	9	12	24	101	24	12	9	8	9	16	34	16	9	8
16	23	64	514	64	23	16	14	23	91	489	91	23	14	11	16	59	357	59	16	11	10	13	35	139	35	13	10
11	10	96	602	96	10	11	15	22	75	626	75	22	15	13	20	82	628	82	20	13	11	19	84	535	84	19	11
17	29	119	648	119	29	17	17	26	91	671	91	26	17	14	24	102	694	102	24	14	14	25	114	645	114	25	14
20	41	178	632	178	41	20	17	38	194	682	194	38	17	15	26	108	702	108	26	15	15	29	137	694	137	29	15
15	23	136	593	136	23	15	19	40	185	671	185	40	19	16	30	142	696	142	30	16	17	30	130	688	130	30	17
175 mm width						175 mm width						175 mm width						175 mm width									
220 mm width						220 mm width						220 mm width						220 mm width									



Fitting key

Fitting key support at top,
shouldering support at bottom

O-KS 175/220-60°							O-KS 175/220-65°							O-KS 175/220-70°							O-KS 175/220-75°						
13	20	61	175	61	20	13	10	13	24	46	24	13	10	8	9	14	30	14	9	8	7	8	11	13	11	8	7
15	25	95	408	95	25	15	12	17	46	147	46	17	12	9	12	24	101	24	12	9	8	9	16	34	16	9	8
16	23	64	514	64	23	16	14	23	91	489	91	23	14	11	16	59	357	59	16	11	10	13	35	139	35	13	10
11	10	96	602	96	10	11	15	22	75	626	75	22	15	13	20	82	628	82	20	13	11	19	84	535	84	19	11
17	29	119	648	119	29	17	17	26	91	671	91	26	17	14	24	102	694	102	24	14	14	25	114	645	114	25	14
20	41	178	632	178	41	20	17	38	194	682	194	38	17	15	26	108	702	108	26	15	15	29	137	694	137	29	15
15	23	136	593	136	23	15	19	40	185	671	185	40	19	16	30	142	696	142	30	16	17	30	130	688	130	30	17
175 mm width						175 mm width						175 mm width						175 mm width									
220 mm width						220 mm width						220 mm width						220 mm width									

Rounded values



PRE-MACHINING SERVICES

**Flexible, precise and economical –
reducing your die build time**

voestalpine Camtec can provide custom machining to the cam unit prior to shipping. We would utilize your CAD info to input threaded holes, pre-drill bore holes, custom milling or even mount trim steels or forms onto the cam face. This is a great benefit and saves customers days of preparation when cams arrive prior to mounting the cams on

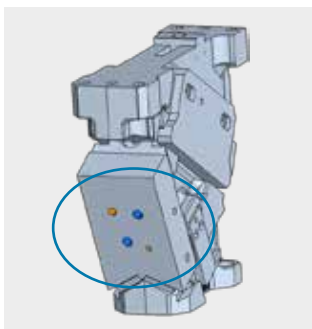
the die assembly. Please send us any inquiries regarding Pre-machining Services to the following email address:
anarbeitung.camtec@voestalpine.com

We are very flexible and are willing to complete to your requirements.

Example of O-KS preprocessing

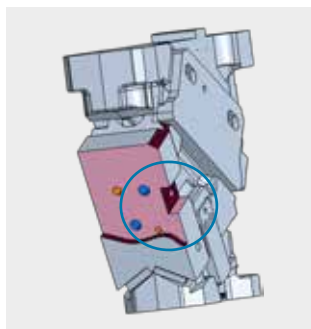
Standard preprocessing

Processing on working face



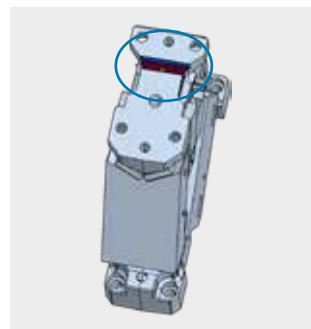
Extended preprocessing

Processing to side of working face



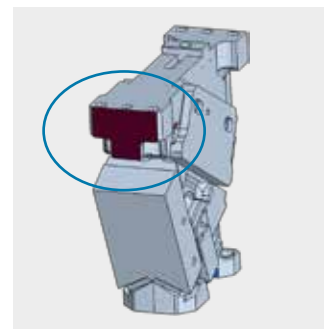
Extended preprocessing

Processing on punch (groove)



Extended preprocessing

Processing on cam bed





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www.voestalpine.com/camtec/Product-Finder

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09/2018

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