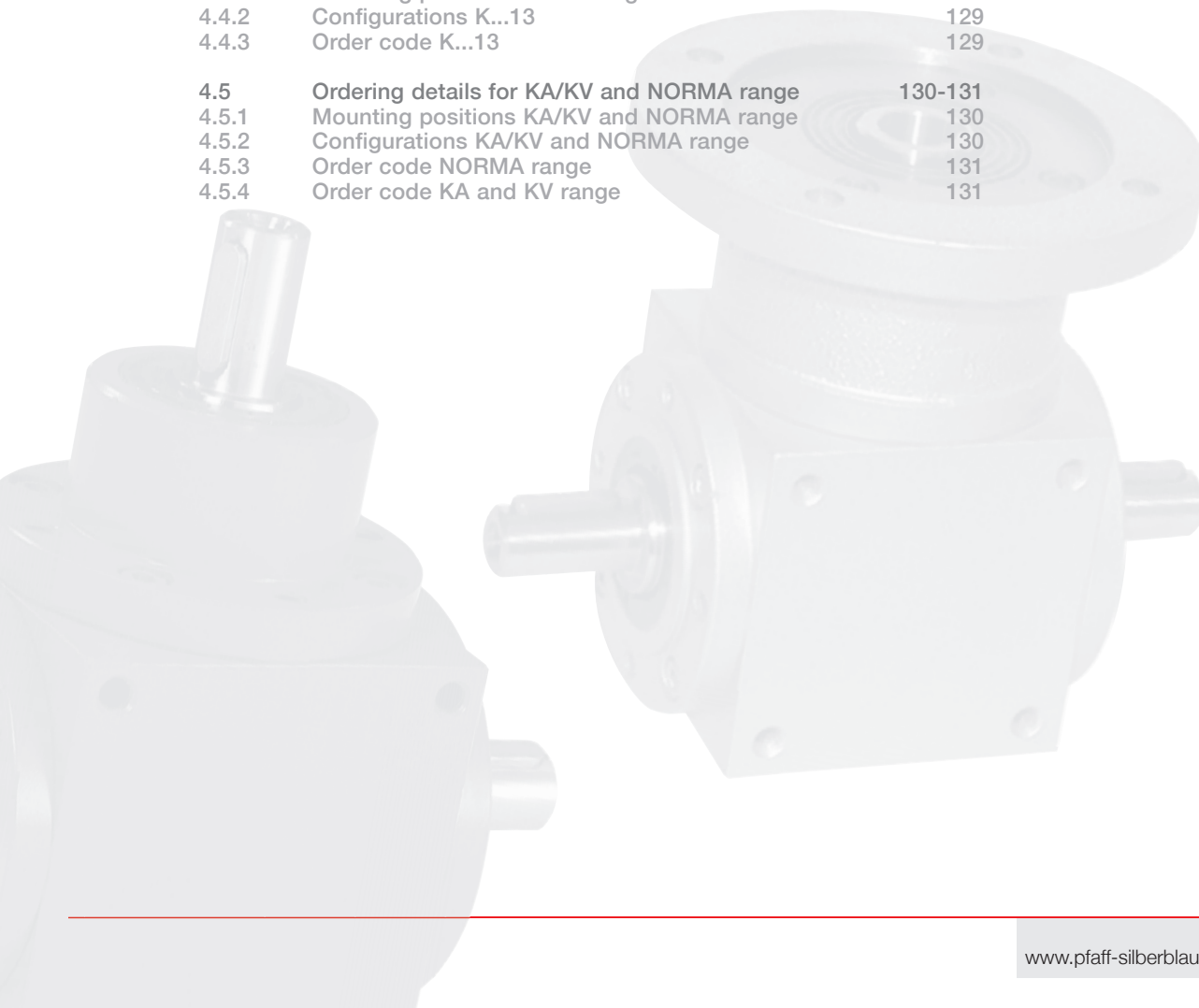


Bevel gear boxes

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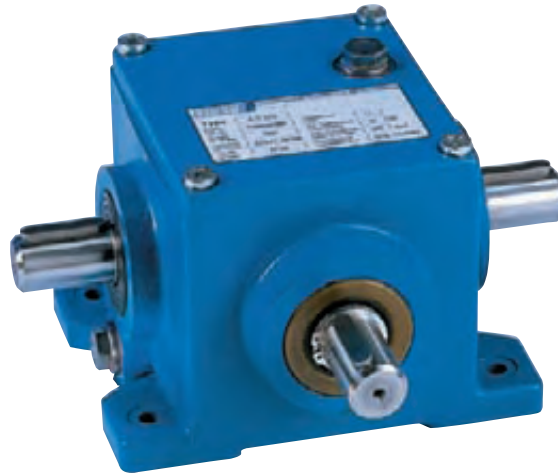
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Bevel gear boxes

4.1 Structural configurations

4



K...13 range



NORMA range



KA and KV range

Bevel gear boxes

4.1 Structural configurations

4.1.1 K...13 range

5 sizes	K 0,5.13 to KV 60.13
Max. output torque	up to 700 Nm
Ratios K 0,5.13-K 25.13	1:1, 2:1, 3:1
Ratios KV 60.13	1:1, 1,5:1, 2:1, 3:1, 4:1 and 5:1

- For multi-screw lifting systems, adjusted to the axis height of our worm gear screw jacks
- Efficient design, with cast-on base strips
- Cast housing with prime coated surface

4.1.2 NORMA range

4 sizes	NM0 to NM3
Max. output torque	up to 40 Nm
Ratios	1:1

- Shaft height adjustment not required due to tailored dimensions
- Complete encapsulation with oil filling as standard
- High efficiency ratings due to cyclo-paloid bevel gear toothing
- Long service life and high angle accuracy due to high-quality materials and state-of-the-art production process
- Usable in all installation positions

4.1.3 KA and KV range

9 sizes	KA 1 to KA 35 and KV 90 to KV 550
Max. output torque	up to 8500 Nm
Ratios	1:1, 1,5:1, 2:1, 3:1, 4:1 5:1 and 6:1

- Hardened, paired, lapped helical tooth pattern
- Cubic, all-round machined symmetrical housing
- All-round fixing holes
- Mounting brackets available as accessories
- Configuration available with output-side hollow shaft
- Configuration available with input-side hollow shaft and IEC flange (rectangular flange available on request)
- Cast housing with prime coated surface
- Corrosion-resistant configuration available (single components up to entire transmission system can be supplied in "all stainless-steel configuration")
- Can be used without change for faster ratio (up to $i = 2:1$)

4.2 Project planning

4.2.1 Technical information

Bevel gear box	Max. operating torque T_{zul} [Nm]		Thermal load limit P_{Grenz} [kW] (at 20 % ED/h and 20 °C)	Possible ratios	Type of gearing design	Housing material	Average oil filling capacity	Drive system weight (with oil filling)	
	i	T_{Betr} [Nm]					[l]	[kg]	
K 0,5.13			2	1 : 1 2 : 1 3 : 1	Straight gearing design	G- AISiCu 4	0,1	1	
	1 : 1	2,6							
	2 : 1	3,7							
	3 : 1	3,5							
K 5.13	Table 4.2.3.1		4,5	1 : 1	Helical gear teeth	GG- 20	0,2	5,3	
K 11.13	Table 4.2.3.1		8,5	2 : 1		GG- 20	0,5	8	
K 25.13	Table 4.2.3.1		16	3 : 1		GG- 20	1	24	
KV 60.13	Table 4.2.3.1		43	1 : 1		GG- 25	2,0	55	
				1,5 : 1					
				2 : 1					
				3 : 1					
				4 : 1					
NMO	4 Nm		-	1 : 1	Helical gear teeth	Al-alloy	0,03	1,2	
	NM1	10 Nm					-	0,06	2,0
	NM2	19 Nm					-	0,09	3,2
	NM3	40 Nm					-	0,15	7,3
KA 1	Table 4.2.3.2		2,5	1 : 1	Helical gear teeth	EN-GJL 250	0,1	2	
KA 5	Table 4.2.3.2		8	1,5 : 1		GG- 25	0,2	6	
KA 9	Table 4.2.3.2		11,5	2 : 1		0,3	10		
KA 18	Table 4.2.3.2		20	3 : 1		0,4	20		
KA 35	Table 4.2.3.2		28	4 : 1		1,0	32		
KV 90	Table 4.2.3.3		56	5 : 1		2,5	70		
KV 120	Table 4.2.3.3		79	6 : 1		5,0	100		
KV 260	Table 4.2.3.3		126			13,5	200		
KV 550	Table 4.2.3.3		155			30	400		

4

4.2.2 Dimensioning

Gear dimensioning: The values shown in the table apply to 20 % ED/h and 20 °C ambient temperature. In the event of fluctuating operating conditions, the permitted power and torque ratings must be determined using the operating factors f_1 , f_2 , f_3 , f_4 and f_5 .

$$T_{Betr} = T_{N2} \times f_1 \times f_2 \times f_3$$

$$P_{Betr} = P_N \times f_1 \times f_2 \times f_3$$

$$P_{therm} = P_N \times f_1 / f_4 / f_5$$

$$T_{N2} \text{ [Nm]} = \text{rated drive torque}$$

$$P_N \text{ [kW]} = \text{rated drive capacity}$$

Gear selection according to:

operating performance

$$P_{Betr} < p_{zul} \text{ according to tables 4.2.3}$$

or operating torque

$$T_{Betr} < T_{zul} \text{ according to tables 4.2.3}$$

and therm. Power rating

$$P_{therm} < P_{Grenz} \text{ according to table 4.2.1}$$

Operating factor f_1 (start-up factor)

- $f_1 = 1,0$ Operation with or without light impact
- $f_1 = 1,25$ Operation with medium-strength impact
- $f_1 = 1,4$ Operation with strong impact

Operating factor f_2 (connecting frequency)

- $f_2 = 1,0$ up to 20 start-ups per hour
- $f_2 = 1,1$ up to 60 start-ups per hour
- $f_2 = 1,4$ up to 200 start-ups per hour

Operating factor f_3 (operating time)

- $f_3 = 0,8$ up to two hours per day
- $f_3 = 1,0$ up to eight hours per day
- $f_3 = 1,25$ over eight hours per day

Operating factor f_4 (duty ratio)

- $f_4 = 1,0$ at 20 % ED/h
- $f_4 = 0,85$ at 40 % ED/h
- $f_4 = 0,75$ at 60 % ED/h
- $f_4 = 0,65$ at 80 % ED/h
- $f_4 = 0,55$ at 100 % ED/h

Operating factor f_5 (ambient temperature)

- $f_5 = 1,0$ at 20 °C.
- $f_5 = 0,75$ at 40 °C.
- $f_5 = 0,6$ at 50 °C.
- $f_5 = 0,5$ at 60 °C.
- $f_5 = 0,2$ at 70 °C.

Bevel gear boxes

4.2 Project planning

4.2.3 Performance tables

4.2.3.1 K 5.13 - KV 60.13 range

Input speed n_1 [min ⁻¹]	Output speed n_2 [min ⁻¹]	K5.13		K11.13		K25.13		KV60.13	
		P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]
Ratio 1:1									
50	50	0,2	42	0,4	75	1,2	230	3,7	700
250	250	1,0	38	1,8	69	5,3	202	15,2	580
500	500	1,9	36	3,2	61	10,0	191	26,2	500
750	750	3,0	38	4,8	61	14,0	178	34,6	440
1000	1000	3,7	35	6,0	57	17,5	167	42,9	410
1500	1500	4,3	27	8,2	52	26,0	166	55,0	350
3000	3000	8,0	25	15,0	48	40,0	127	69,1	220
Ratio 1,5:1									
50	33,33	-	-	-	-	-	-	2,4	700
250	166,67	-	-	-	-	-	-	10,6	610
500	333,33	-	-	-	-	-	-	18,9	540
750	500	-	-	-	-	-	-	25,9	495
1000	666,67	-	-	-	-	-	-	32,8	470
1500	1000	-	-	-	-	-	-	43,0	410
3000	2000	-	-	-	-	-	-	62,8	300
Ratio 2:1									
50	25	0,1	48	0,2	82	0,7	250	1,8	700
250	125	0,6	48	1,1	80	3,2	244	8,4	640
500	250	1,1	42	1,8	69	5,5	210	15,2	580
750	375	1,6	41	2,6	66	7,5	191	20,7	526
1000	500	2,0	38	3,3	63	9,8	187	26,2	500
1500	750	3,3	42	4,8	61	14,0	178	35,3	450
3000	1500	4,5	29	8,5	54	26,0	166	55,0	350
Ratio 3:1									
50	16,67	0,1	48	0,2	90	0,5	260	0,9	500
250	83,33	0,4	48	0,8	87	2,2	252	4,0	460
500	166,67	0,8	48	1,3	74	4,1	235	7,3	420
750	250	1,2	44	1,8	69	5,7	218	9,95	380
1000	333,33	1,6	44	2,4	69	6,6	189	12,6	360
1500	500	2,2	42	3,4	65	10,0	191	16,2	310
3000	1000	3,9	37	6,1	58	18,0	172	25,1	240
Ratio 4:1									
50	12,5	-	-	-	-	-	-	0,6	480
250	62,5	-	-	-	-	-	-	2,8	430
500	125	-	-	-	-	-	-	5,3	400
750	187,5	-	-	-	-	-	-	7,4	375
1000	250	-	-	-	-	-	-	9,4	360
1500	375	-	-	-	-	-	-	12,6	320
3000	750	-	-	-	-	-	-	18,9	240
Ratio 5:1									
50	10	-	-	-	-	-	-	0,5	520
250	50	-	-	-	-	-	-	2,5	480
500	100	-	-	-	-	-	-	4,7	450
750	150	-	-	-	-	-	-	6,6	420
1000	200	-	-	-	-	-	-	8,4	400
1500	300	-	-	-	-	-	-	11,6	370

4.2 Project planning

4.2.3.2 KA 1 - KA 35 range

Input speed n_1 [min ⁻¹]	Output speed n_2 [min ⁻¹]	KA 1		KA 5		KA 9		KA 18		KA 35	
		P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]
Ratio 1:1											
50	50	0,09	18	0,26	50	0,68	130	1,05	200	1,68	320
250	250	0,47	18	1,28	49	3,14	120	4,71	180	7,85	300
500	500	0,89	17	2,41	46	5,76	110	8,90	170	14,14	270
1000	1000	1,68	16	4,4	42	9,42	90	15,71	150	23,04	220
1500	1500	2,2	14	5,81	37	12,88	82	20,42	130	28,27	180
2000	2000	2,51	12	6,91	33	12,29	73	25,13	120	35,60	170
3000	3000	3,14	10	8,8	28	18,85	60	28,27	90	40,84	130
Ratio 1,5:1											
50	33,33	0,06	18	0,17	50	0,45	130	0,70	200	1,12	320
250	166,67	0,31	18	0,86	49	2,09	120	3,32	190	5,41	310
500	333,33	0,59	17	1,68	48	3,84	110	6,28	180	10,12	290
1000	666,67	1,12	16	3,07	44	6,98	100	11,17	160	18,15	260
1500	1000	1,57	15	4,19	40	9,42	90	15,71	150	23,04	220
2000	1333,33	1,95	14	5,31	38	11,87	85	19,55	140	27,92	200
3000	2000	2,51	12	6,91	33	15,29	73	25,13	120	35,60	170
Ratio 2:1											
50	25	0,05	18	0,13	50	0,34	130	0,52	200	0,84	320
250	125	0,24	18	0,64	49	1,64	125	2,49	190	4,06	310
500	250	0,47	18	1,26	48	3,14	120	4,71	180	7,85	300
1000	500	0,89	17	2,36	45	5,76	110	8,90	170	14,14	270
1500	750	1,26	16	3,38	43	7,85	100	12,57	160	19,63	250
2000	1000	1,57	15	4,19	40	9,42	90	15,71	150	23,04	220
3000	1500	2,2	14	5,81	37	12,88	82	20,42	130	28,27	180
Ratio 3:1											
50	16,67	0,03	16	0,07	40	0,17	95	0,31	175	0,51	290
250	83,33	0,13	15	0,34	39	0,77	88	1,48	170	2,27	260
500	166,67	0,26	15	0,66	38	1,47	84	2,79	160	4,19	240
1000	333,33	0,49	14	1,29	37	2,62	75	5,24	150	6,98	200
1500	500	0,68	13	1,83	35	3,51	67	6,81	130	9,42	180
2000	666,67	0,84	12	2,23	32	4,54	65	8,38	120	11,87	170
3000	1000	1,15	11	2,93	28	5,45	52	10,47	100	15,71	150
Ratio 4:1											
50	12,5	-	-	0,05	38	0,12	95	0,23	175	0,37	280
250	62,5	-	-	0,25	38	0,60	92	1,11	170	1,77	270
500	125	-	-	0,48	37	1,15	88	2,16	165	3,14	240
1000	250	-	-	0,92	35	2,09	80	3,93	150	5,50	210
1500	375	-	-	1,34	34	2,91	74	5,50	140	7,46	190
2000	500	-	-	1,62	31	3,56	68	6,81	130	9,16	175
3000	750	-	-	2,28	29	4,71	60	7,85	100	12,57	160
Ratio 5:1											
50	10	-	-	0,04	38	0,10	95	0,18	175	0,27	260
250	50	-	-	0,19	37	0,48	92	0,89	170	1,31	250
500	100	-	-	0,37	35	0,92	88	1,68	160	2,41	230
1000	200	-	-	0,69	33	1,68	80	2,93	140	4,19	200
1500	300	-	-	0,94	30	2,29	73	3,77	120	5,81	185
2000	400	-	-	1,17	28	2,85	68	4,61	110	7,54	180
3000	600	-	-	1,70	27	3,77	60	6,28	100	10,05	160
Ratio 6:1											
50	8,33	-	-	0,03	32	0,06	74	-	-	0,18	210
250	41,67	-	-	0,14	31	0,31	70	-	-	0,87	200
500	83,33	-	-	0,26	30	0,60	69	-	-	1,66	190
1000	166,67	-	-	0,51	29	1,19	68	-	-	3,23	185
1500	250	-	-	0,73	28	1,68	64	-	-	4,45	170
2000	333,33	-	-	0,94	27	2,09	60	-	-	5,58	160
3000	500	-	-	1,36	26	2,72	52	-	-	7,85	150

Bevel gear boxes

4.2 Project planning

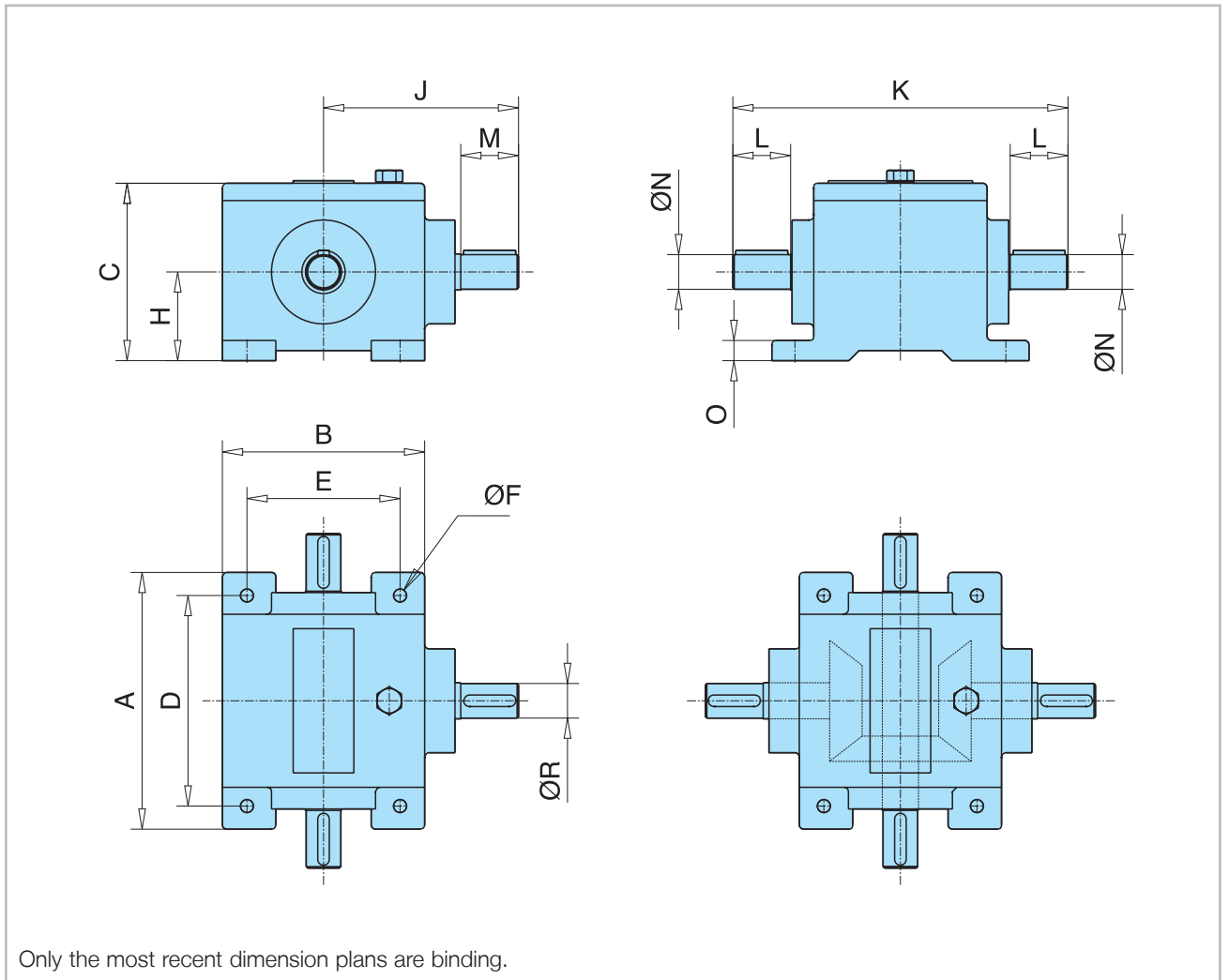
4.2.3.3 KV 90 - KV 550 range

Input speed n_1 [min ⁻¹]	Output speed n_2 [min ⁻¹]	KV 90		KV 120		KV 260		KV 550	
		P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]	P ₁ [kW]	T ₂ [Nm]
Ratio 1:1									
50	50	6,54	1250	9,16	1750	23,04	4400	40,84	7800
250	250	24,87	950	36,65	1400	89,01	3400	154,45	5900
500	500	41,88	800	62,83	1200	146,60	2800	261,78	5000
1000	1000	67,02	640	94,24	900	198,95	1900	418,85	4000
1500	1500	81,68	520	116,23	740	251,31	1600	549,74	3400
2000	2000	92,15	440	127,75	610	-	-	-	-
3000	3000	100,52	320	138,22	440	-	-	-	-
Ratio 1,5:1									
50	33,33	4,54	1300	6,28	1800	15,71	4500	27,92	8000
250	166,67	19,20	1100	26,18	1500	64,57	3700	113,44	6500
500	333,33	31,41	900	45,38	1300	108,20	3100	188,48	5400
1000	666,67	52,36	750	76,79	1100	181,50	2600	328,10	4700
1500	1000	67,02	640	94,24	900	198,95	1900	418,85	4000
2000	1333,33	79,58	570	110,30	790	237,35	1700	516,58	3700
3000	2000	92,15	440	127,75	610	-	-	-	-
Ratio 2:1									
50	25	3,40	1300	4,71	1800	12,04	4600	21,47	8200
250	125	15,71	1200	20,94	1600	51,05	3900	90,31	6900
500	250	24,87	950	36,65	1400	89,01	3400	154,45	5900
1000	500	41,88	800	62,83	1200	146,60	2800	261,78	5000
1500	750	54,97	700	78,53	1000	188,48	2400	353,40	4500
2000	1000	67,02	640	94,24	900	198,95	1900	418,85	4000
3000	1500	81,68	520	116,23	740	251,31	1600	549,74	3500
Ratio 3:1									
50	16,67	1,52	870	2,97	1700	7,33	4200	14,83	8200
250	83,33	7,07	810	12,22	1400	32,29	3700	63,70	7300
500	166,67	13,09	750	21,82	1250	55,85	3200	109,95	6300
1000	333,33	21,64	620	34,21	980	90,75	2600	184,99	5300
1500	500	27,25	530	43,98	840	115,18	2200	240,84	4600
2000	666,67	33,51	480	53,05	760	132,64	1900	293,19	4200
3000	1000	40,84	390	62,83	600	178,01	1700	366,49	3500
Ratio 4:1									
50	12,5	1,26	960	2,09	1600	3,93	3000	11,13	8500
250	62,5	5,56	850	9,82	1500	18,32	2800	51,05	7800
500	125	10,21	780	17,67	1350	32,72	2500	91,62	7000
1000	250	17,28	660	30,10	1150	54,97	2100	159,69	6100
1500	375	23,17	590	38,48	980	74,61	1900	223,82	5700
2000	500	27,23	520	45,55	870	94,24	1800	261,78	5000
3000	750	33,77	430	54,97	700	125,65	1600	337,70	4300
Ratio 5:1									
50	10	1,02	970	1,57	1500	3,35	3200	7,54	7200
250	50	4,71	900	7,33	1400	15,18	2900	33,51	6400
500	100	8,48	810	13,61	1300	25,13	2400	60,73	5800
1000	200	14,66	700	23,04	1100	39,79	1900	104,71	5800
1500	300	19,48	620	29,84	950	53,40	1700	135,08	4300
2000	400	23,46	560	35,60	850	67,02	1600	159,16	3800
3000	600	31,41	500	46,49	740	81,68	1300	201,05	3200
Ratio 6:1									
50	8,33	0,53	610	0,87	1000	1,83	2100	5,41	6200
250	41,67	2,62	600	4,28	980	8,73	2000	25,31	5800
500	83,33	5,06	580	7,68	880	15,71	1800	45,38	5200
1000	166,67	9,25	530	13,61	780	29,67	1700	80,28	4600
1500	250	12,57	480	17,80	680	39,27	1500	104,71	4000
2000	333,33	15,01	430	20,94	600	48,87	1400	132,64	3800
3000	500	18,85	360	26,18	500	57,59	1100	167,54	3200

Bevel gear boxes

4.3 Dimension plans

4.3.1 K...13 range



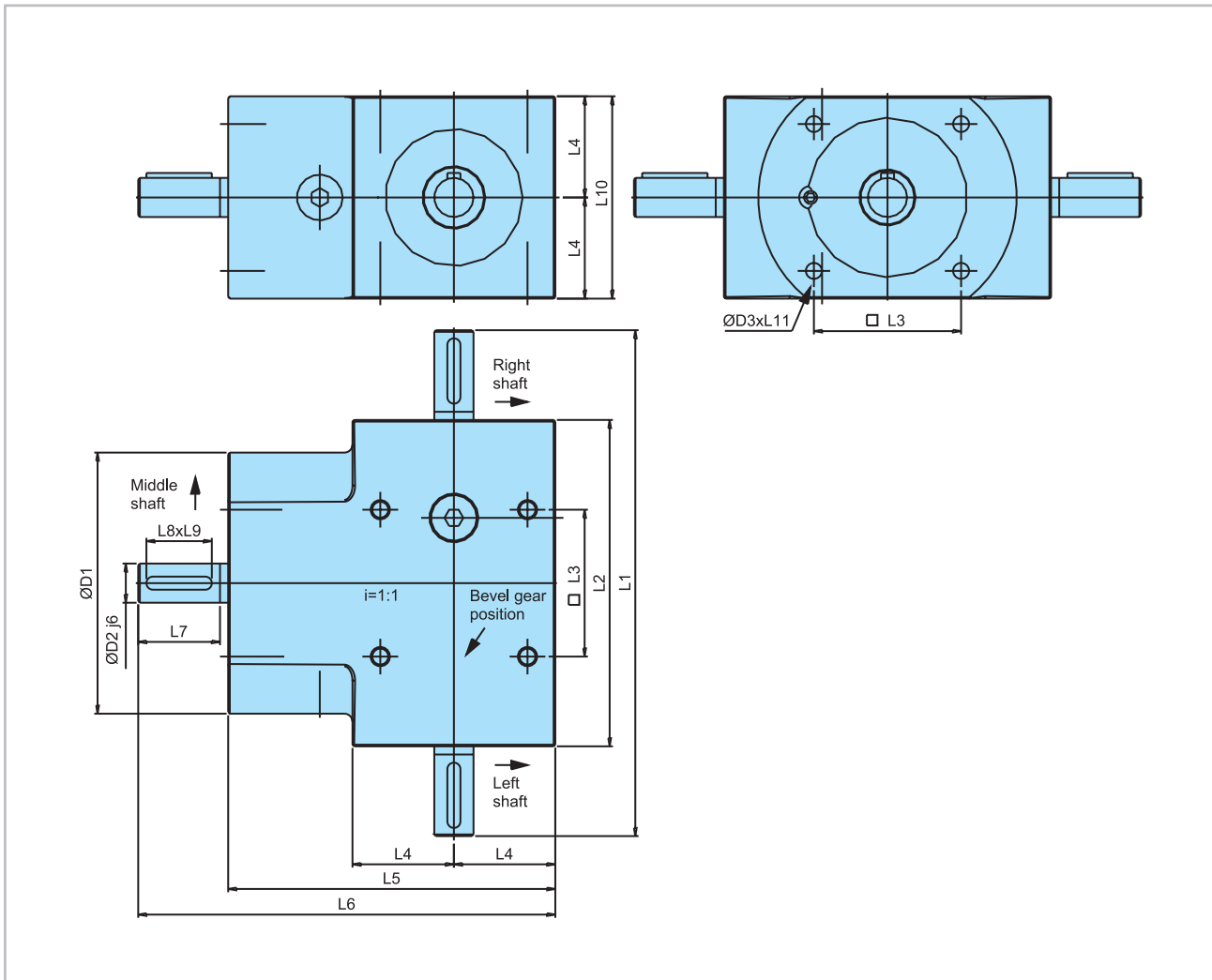
Size	K 0,5.13	K 5.13	K 11.13	K 25.13	KV60.13			
Ratio	1:1 / 2:1 / 3:1	1:1 / 2:1 / 3:1	1:1 / 2:1 / 3:1	1:1 / 2:1 / 3:1	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1
A	105	135	178	230	300	300	300	300
B	64	110	140	230	210	210	210	210
C	64	105	123	152	202	202	202	202
D	84,5	110	146	195	270	270	270	270
E	50	85	106	195	170	170	170	170
ØF	6,5	9	9	11	13	13	13	13
H	32	52,5	61,5	70	102	102	102	102
J	64	110	135	223	273	261	261	248
K	114	170	232	356	406	406	406	406
L	15,5	28	40	80	80	80	80	80
M	15,5	30	40	80	80	68	68	55
ØN	10 _{h6}	16 _{h5}	24 _{h6}	30 _{h6}	42 _{h6}	42 _{h6}	42 _{h6}	42 _{h6}
O	8	12	14	15	15	15	15	15
ØR	10 _{h6}	16 _{h5}	24 _{h6}	30 _{h6}	42 _{h6}	35 _{h6}	35 _{h6}	28 _{h6}

Feather keys and grooves: DIN 6885 Page 1.

Bevel gear boxes

4.3 Dimension plans

4.3.2 NORMA range



4

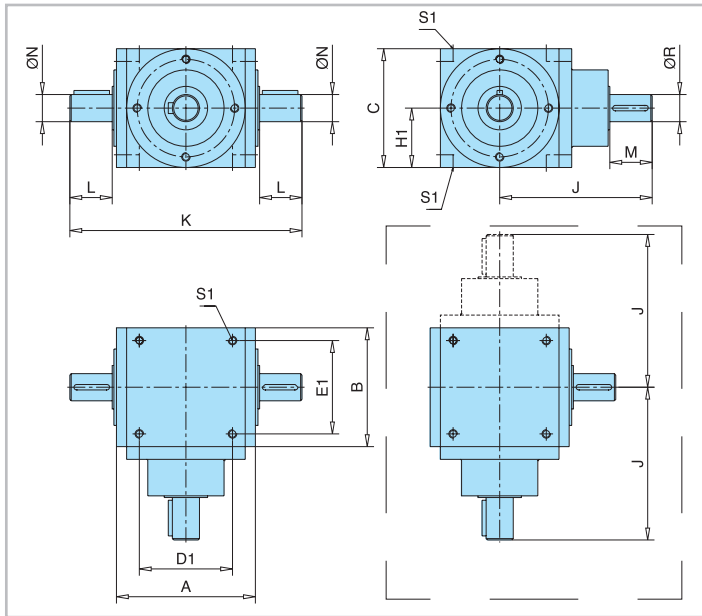
Size	NM0	NM1	NM2	NM3
Ratio	1:1	1:1	1:1	1:1
ØD1	65	80	90	100
ØD2	12	12	14	18
ØD3	M5	M6	M6	M8
L1	130	155	180	220
L2	85	100	115	130
L3	37	45	55	60
L4	25	31	37,5	41
L5	85	100	115	130
L6	107,5	127,5	147,5	175
L7	20	25	30	42,5
L8	4	4	5	6
L9	14	20	25	36
L10	50	62	75	82
L11	10	12	12	12

Radial forces are not allowed on the "middle" drive shaft.
Oil filling as standard

Bevel gear boxes

4.3 Dimension plans

4.3.3 KA and KV range



Only the most recent dimension plans are binding.

Size	KA 1				KA 5			
	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1 / 6:1	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1 / 6:1
A	84	84	-	-	110	110	110	110
B	65	65	-	-	90	90	90	90
C	65	65	-	-	90	90	90	90
D1 ^{±0,2}	45	45	-	-	70	70	70	70
E1 ^{±0,2}	45	45	-	-	70	70	70	70
H1	32,5	32,5	-	-	45	45	45	45
J	100	100	-	-	122	122	132	132
K	144	144	-	-	190	190	190	190
L	26	26	-	-	35	35	35	35
M	26	26	-	-	35	35	35	35
ØN _{j6}	12	12	-	-	18	18	18	18
ØR _{j6}	12	12	-	-	18	12	12	12
S1	M 6x12	M 6x12	-	-	M 8x14	M 8x14	M 8x14	M 8x14

Size	KA 9				KA 18			
	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1 / 6:1	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1 / 6:1
A	144	144	144	144	164	164	164	164
B	120	120	120	120	140	140	140	140
C	120	120	120	120	140	140	140	140
D1 ^{±0,2}	100	100	100	100	110	110	110	110
E1 ^{±0,2}	100	100	100	100	110	110	110	110
H1	60	60	60	60	70	70	70	70
J	162	162	172	162	180	180	195	195
K	244	244	244	244	274	274	274	274
L	45	45	45	45	50	50	50	50
M	45	45	45	35	50	50	50	50
ØN _{j6}	25	25	25	25	32	32	32	32
ØR _{j6}	25	20	20	15	32	28	24	24
S1	M 10x16	M 10x16	M 10x16	M 10x16	M 10x20	M 10x20	M 10x20	M 10x20

Shaft adapters: j₆, Shaft center holes: DIN 332 Page 2, Feather keys and grooves: DIN 6885 Page 1

Bevel gear boxes

4.3 Dimension plans

Size	KA 35				KV 90			
	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1 / 6:1	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1 / 6:1
A	190	190	190	190	264	264	264	264
B	160	160	160	160	230	230	230	230
C	160	160	160	160	230	230	230	230
D1 ^{±0,2}	120	120	120	120	180	180	180	180
E1 ^{±0,2}	120	120	120	120	180	180	180	180
H1	80	80	80	80	115	115	115	115
J	212	212	232	232	305	310	310	300
K	320	320	320	320	460	460	460	460
L	60	60	60	60	90	90	90	90
M	60	60	60	60	90	80	80	70
ØN ₆	35	35	35	35	55	55	55	55
ØR ₆	35	28	24	24	55	40	40	35
S1	M 12x24	M 12x24	M 12x24	M 12x24	M 16x32	M 16x32	M 16x32	M 16x32

4

Size	KV 120				KV 260			
	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1 / 6:1	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1 / 6:1
A	300	300	300	300	402	402	402	402
B	260	260	260	260	350	350	350	350
C	260	260	260	260	350	350	350	350
D1 ^{±0,2}	220	220	220	220	285	285	285	285
E1 ^{±0,2}	220	220	220	220	285	285	285	285
H1	130	130	130	130	175	175	175	175
J	380	360	360	360	570	540	540	510
K	570	570	570	570	820	820	820	820
L	110	110	110	110	170	170	170	170
M	110	90	90	90	170	140	140	110
ØN ₆	60	60	60	60	80	80	80	80
ØR ₆	60	50	50	45	80	65	65	55
S1	M 16x32	M 16x32	M 16x32	M 16x32	M 20x40	M 20x40	M 20x40	M 20x40

Size	KV 550				
	1:1 / 1,5:1 / 2:1	3:1	4:1	5:1	6:1
A	490	490	490	490	490
B	450	450	450	450	450
C	450	450	450	450	450
D1 ^{±0,2}	360	360	360	360	360
E1 ^{±0,2}	360	360	360	360	360
H1	225	225	225	225	225
J	600	570	570	530	540
K	940	940	940	940	940
L	150	150	150	150	150
M	150	120	120	110	110
ØN ₆	90	90	90	90	90
ØR ₆	90	75	75	60	60
S1	M 20x40	M 20x40	M 20x40	M 20x40	M 20x40

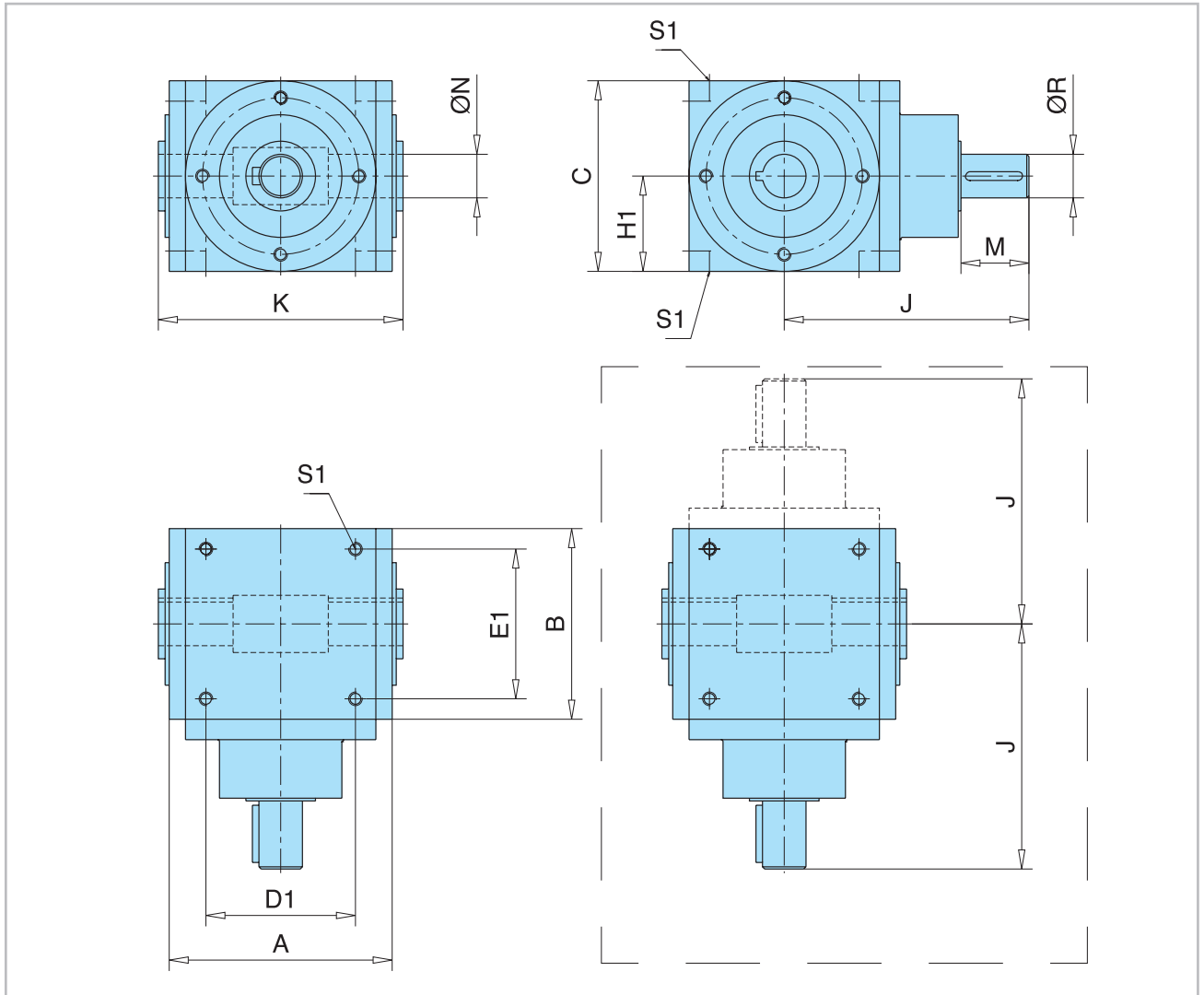
Shaft adapters: j6

Shaft center holes: DIN 332 Page 2.

Feather keys and grooves:
DIN 6885 Page 1.

4.3 Dimension plans

4.3.4 KA...H and KV...H range with output-side hollow shaft



Only the most recent dimension plans are binding.

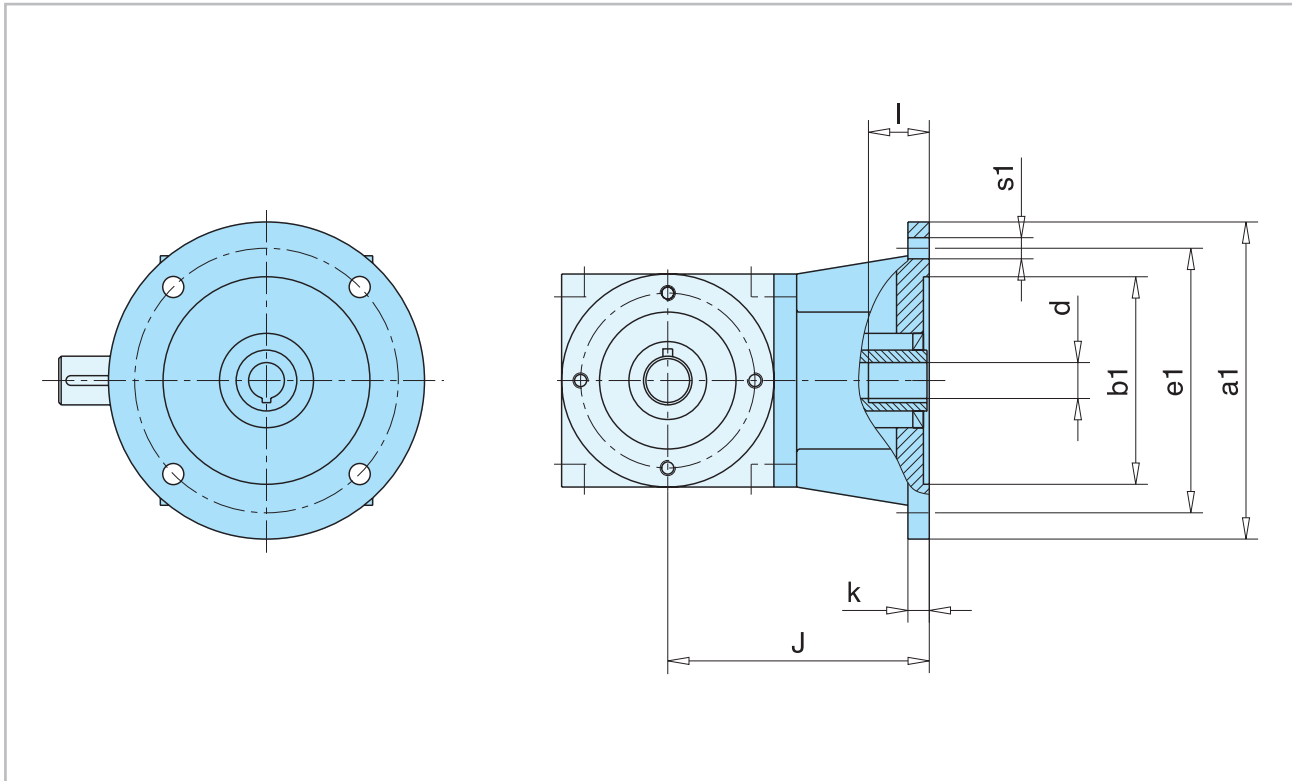
Size	KA 1 H	KA 5 H	KA 9 H	KA 18 H	KA 35 H	KV 90 H	KV 120 H	KV 260 H	KV 550 H
A	84	110	144	164	190	280	300	402	490
B	65	90	120	140	160	230	260	350	450
C	65	90	120	140	160	230	260	350	450
$D_1^{+0,2}$	45	70	100	110	120	180	220	285	360
$E_1^{+0,2}$	45	70	100	110	120	180	220	285	360
H1	32,5	45	60	70	80	115	130	175	225
J	Dependent on transmission, see chapter 4.3.2 for dimensions								
K	92	124	160	174	206	300	350	480	640
M	Dependent on transmission, see chapter 4.3.2 for dimensions								
$\varnothing N^{H7}$	12	18	25	32	35	55	60	80	100
$\varnothing R_6$	Dependent on transmission, see chapter 4.3.2 for dimensions								
S1	M 6x12	M 8x16	M 10x18	M 10x18	M 12x24	M 16x32	M 16x32	M 20x40	M 20x40

Shaft center holes: DIN 332, Page 2, Feather keys and grooves: DIN 6885 Page 1.

Bevel gear boxes

4.3 Dimension plans

4.3.5 KA...FH and KV...FH range with input-side hollow shaft and motor flange



4

Only the most recent dimension plans are binding.

Size	Motor type	IEC flange			Hollow shaft Ød x l	Flange dimensions				
		Øa1	Øb1	Øe1		J	k	s1		
KA 1 FH	63	120	80	100	Ø11x23	90	10	4xØ7		
	71	105	70	85				4xØ7		
KA 5 FH	71	140	95	115	Ø14x30	110	12	4xØ9		
	80	120	80	100				4xØ7		
		160	110	130				4xØ9		
KA 9 FH	80	160	110	130	Ø19x40	135	15	4xØ9		
	90 L / S	140	95	115				4xØ9		
		160	110	130				4xØ9		
		200	130	165				4xØ11		
KA 18 FH	90 L / S	160	110	130	Ø24x50	170	15	4xØ9		
	100 L	200	130	165				4xØ11		
		250	180	215				4xØ14		
KA 35 FH	90 L / S	200	130	165	Ø24x50	190	18	4xØ11		
	100 L	250	180	215				Ø28x60	4xØ14	
	112 M									
KV 90 FH	132 S / M	300	230	265	Ø38x81*	305	18	4xM12		
	160 M / L	350	250	300	Ø42x111*			4xM16		
	180 M / L	350	250	300	Ø48x111*			335	24	4xM16
	200 L	400	300	350	Ø55x111*					4xM16
KV 120 FH					on request					

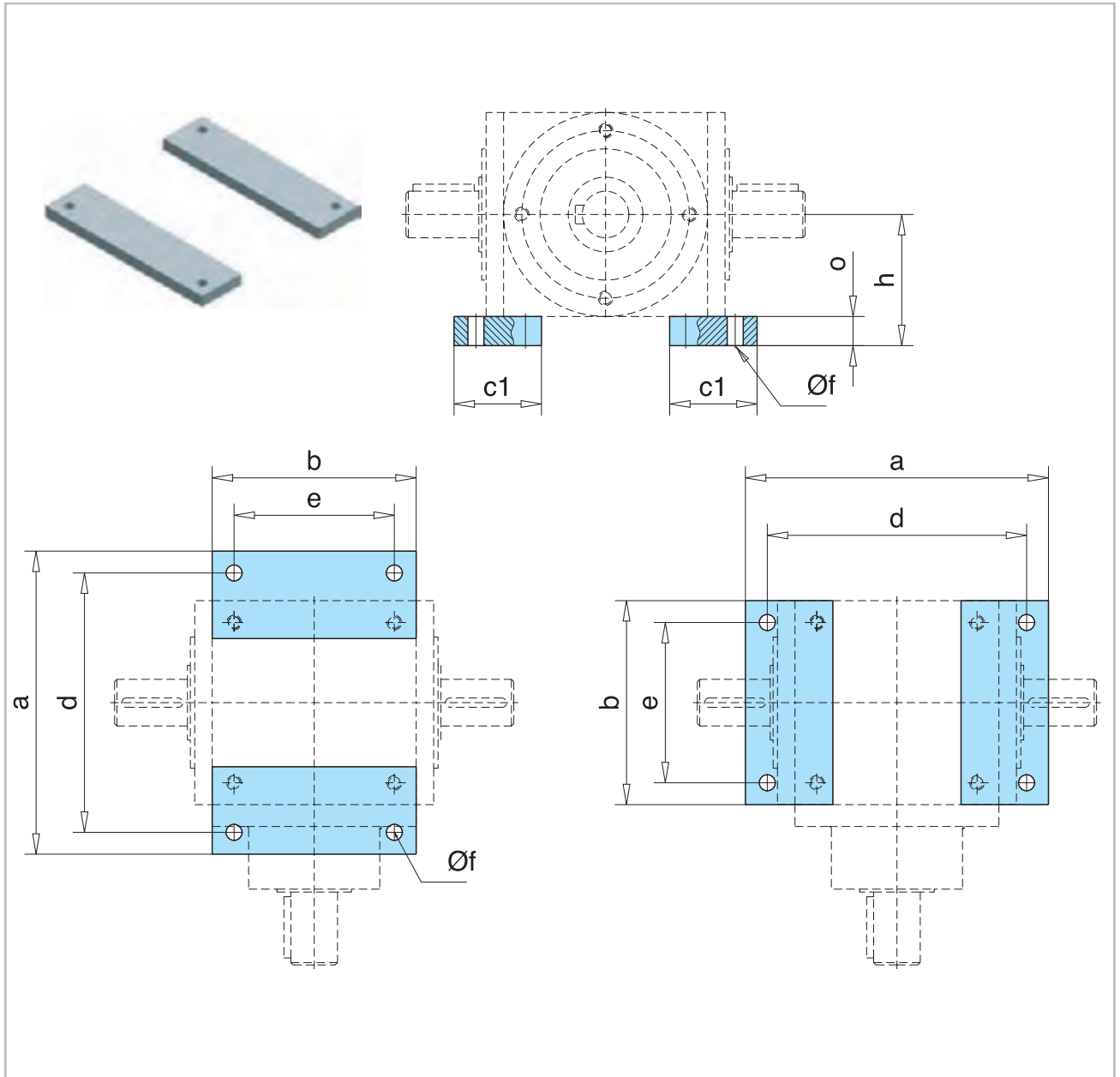
* Assembly using clamping elements - special torque wrench required!

Non-listed dimensions can be found under the respective gear type in chapter 4.3.2 or 4.3.3

4.3 Dimension plans

4.3.6 AI Mounting brackets for KA and KV range

4



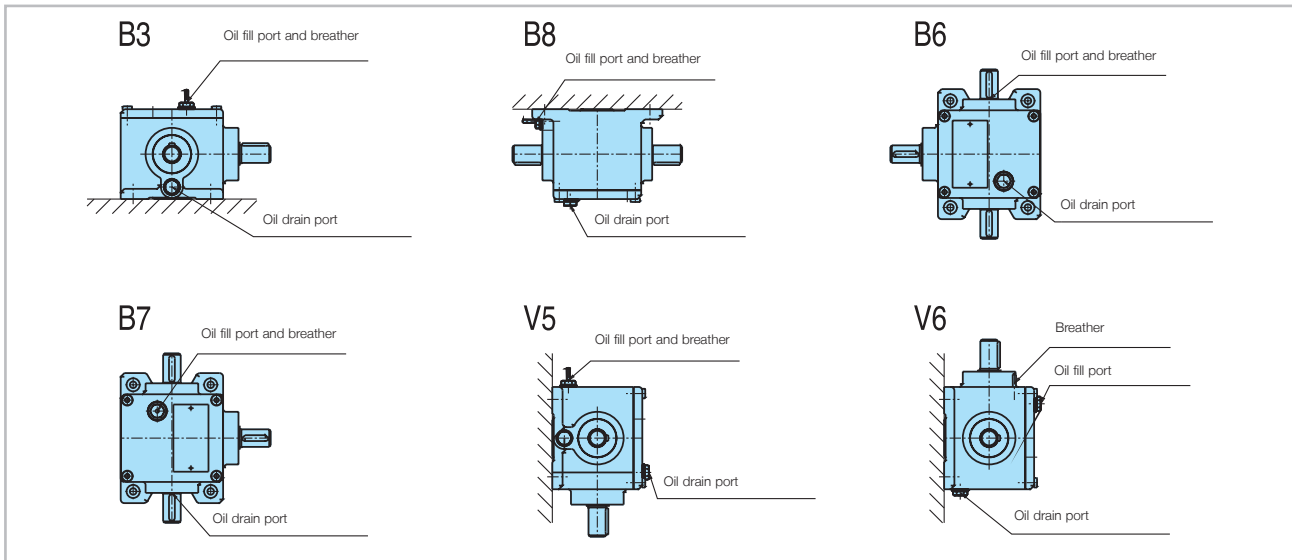
Size	KA1	KA 5	KA 9	KA 18	KA 35	KV 90	KV 120	KV 260	KV 550
a	100	140	190	210	250	340	380	490	590
b -0,5	84	90	120	140	160	230	260	350	450
c1	35	45	55	60	80	100	100	130	140
d ^{+0,2}	95	125	168	190	215	295	335	440	540
e	70	72	100	110	134	190	220	285	360
Øf	6,6	9,0	11	11	14	18	18	22	22
h	44,5	57	75	90	105	145	165	210	255
o	12	12	15	20	25	30	35	35	30

Bevel gear boxes

4.4 Ordering details for K...13

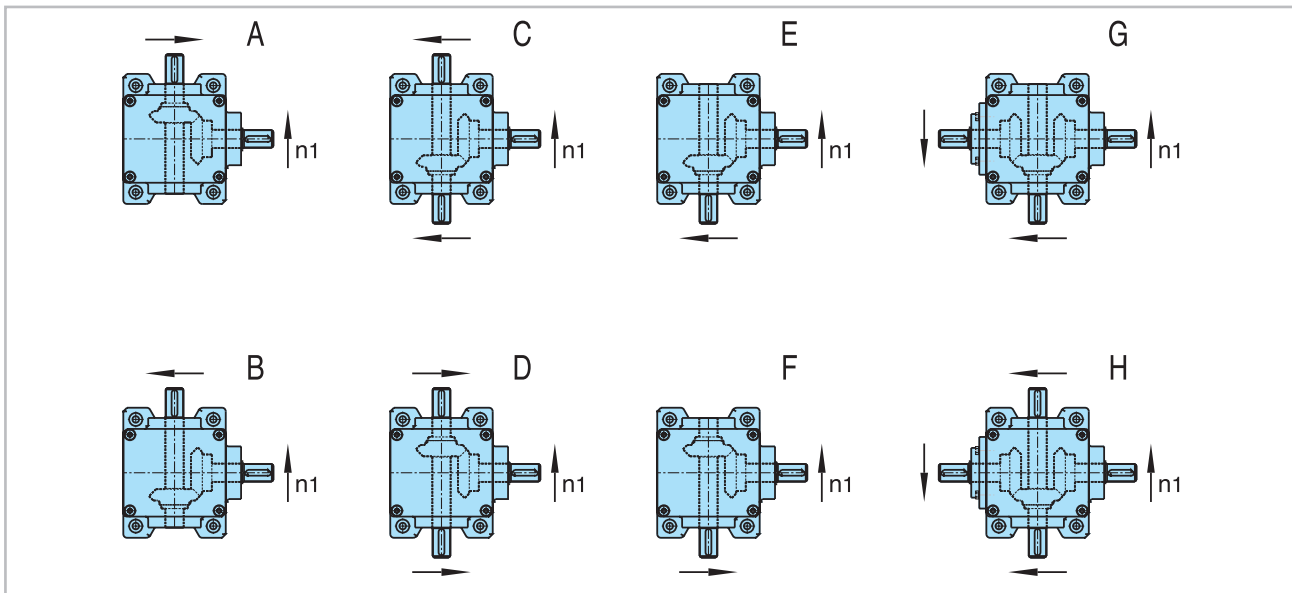
To process orders correctly we need to know the mounting position and configuration of the bevel gear box in addition to the type of gear box and ratio.

4.4.1 Mounting positions K...13 range



4

4.4.2 Configurations K...13 range



4.4.3 Order code K...13 range

Ordering designation:

1 - 2 - 3 - 4 - 5
K ■ ■ ■ ■ .13- ■ : ■ - ■ - ■ ■ ■ ■ ■ ■ ■ ■

Example: **K25.13-2:1-C-B6-1000**

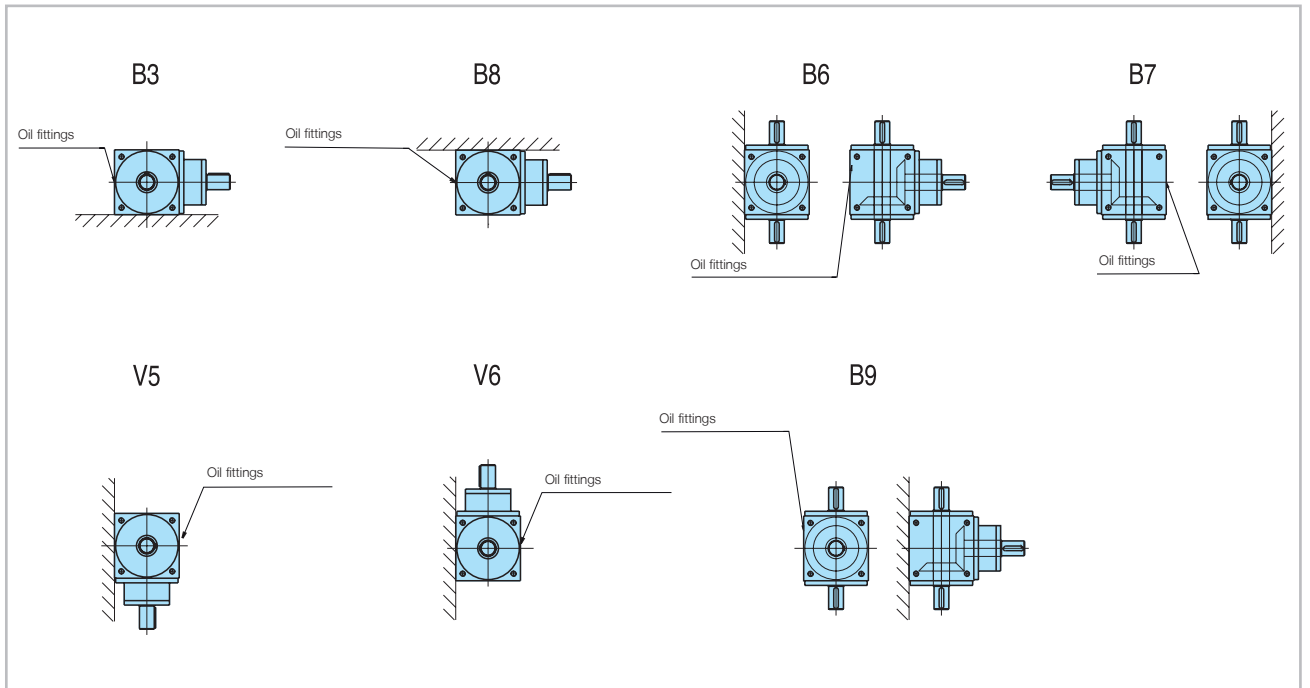
1. Product designation/size: e. g. **K25.13**,
2. Ratio: 1:1; 2:1; 3:1
 (for KV 60.13 **1:1; 1,5:1; 2:1; 3:1; 4:1; 5:1**)
3. Design: **A; B; C; D; E; F; G; H**
4. Mounting positions: B3; B8; B6; B7; V5; V6
5. Input speed n_1

Bevel gear boxes

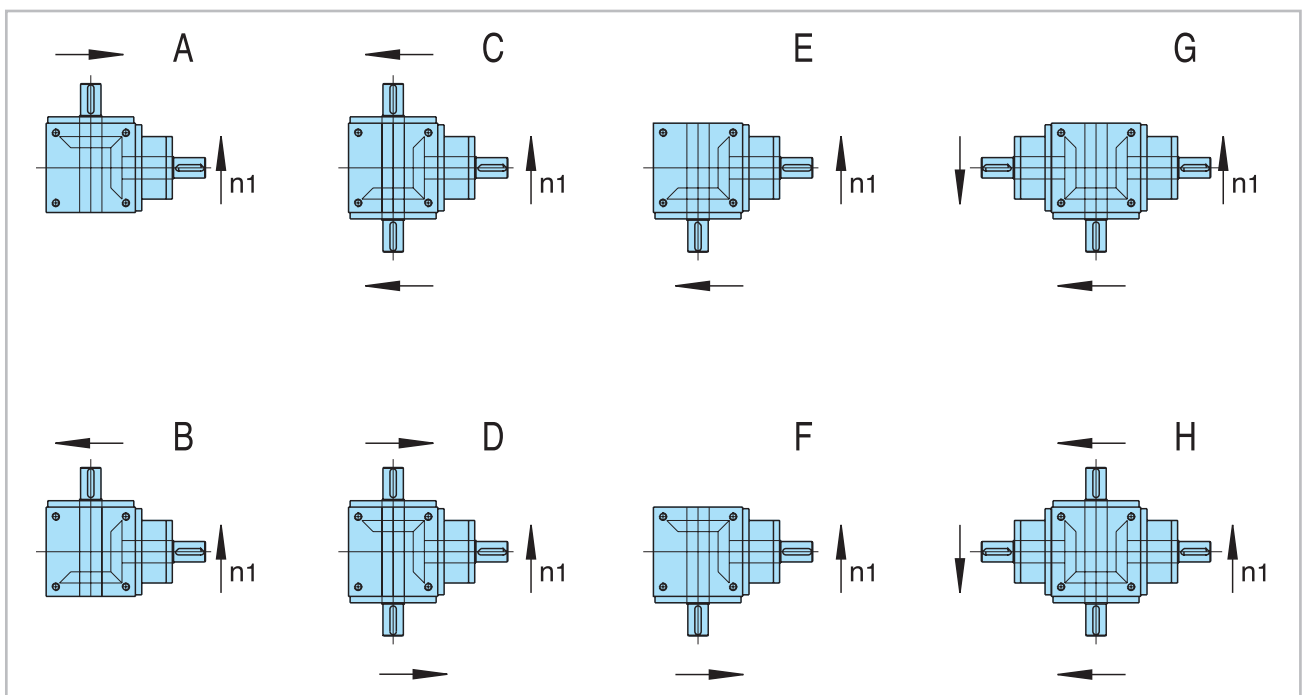
4.5 Ordering details for KA / KV and NORMA

To process orders correctly we need to know the mounting position and configuration of the bevel gear box in addition to the type of gear box and ratio.

4.5.1 Mounting positions KA / KV and NORMA range



4.5.2 Configurations KA / KV and NORMA range



Configurations G and H only for KA and KV range.

Bevel gear boxes

Application example

4

Manufacturer's illustration:
SBS Bühnentechnik GmbH
Multi-screw lifting system
for adjusting hall platforms
in the Culture Centre in
Frankfurt/Oder.



Manufacturer's illustration:
SBS Bühnentechnik GmbH
Multi-screw lifting system
(HSE high performance
worm gear screw jacks)
with safety device accord-
ing to BGV C1 (VBG 70)
for adjusting hall platforms
in the Culture Centre in
Frankfurt/Oder.
Synchronization is effected
by means of bevel gear
boxes and connecting
shafts.