

K-095

Ratio	Stages	n_{1N} (1) rpm	n_{1Max} (2) rpm	T_{2N} (3) N·m	T_{2Max} (4) N·m	T_{2E} (5) N·m	F_{RMaxP} (7) N	J (8) Kg·cm ²	C_H (6) N·m/'	C_P (7) N·m/'	$\Delta\phi$ '	η %	M Kg
8.71	3	1400	3924	2660	3059	4522	15800	94.0	237	264	10	96	142 - 230
10.41	3	1400	4378	2870	3300	4879	16400	71.0	237	264	10	96	142 - 230
11.99	3	1400	3597	3890	4474	6613	16200	115.0	267	301	8	96	142 - 230
13.85	3	1400	3924	4300	4945	7310	16100	91.0	267	301	8	96	142 - 230
16.56	3	1400	4378	4300	4945	7310	17800	69.0	267	301	8	96	142 - 230
18.96	3	1400	4500	4300	4945	7310	19100	55.0	267	301	8	96	142 - 230
22.37	3	1400	4500	4300	4945	7310	20900	43.0	267	301	8	96	142 - 230
24.75	3	1400	4500	4300	4945	7310	22000	37.0	267	301	8	96	142 - 230
27.91	3	1400	4500	4300	4945	7310	23300	30.0	267	301	8	96	142 - 230
30.82	3	1400	4500	4300	4945	7310	24500	26.0	267	301	7	96	142 - 230
34.23	3	1400	4500	4300	4945	7310	25700	22.0	267	301	7	96	142 - 230
38.30	3	1400	4500	4300	4945	7310	27100	18.0	267	301	7	96	142 - 230
41.87	3	1400	4378	4300	4945	7310	28300	42.0	278	314	7	93	142 - 230
47.93	3	1400	4500	4300	4945	7310	30000	35.0	278	314	7	94	142 - 230
56.55	3	1400	4500	4300	4945	7310	32300	28.0	278	314	7	94	142 - 230
62.55	3	1400	4500	4300	4945	7310	33800	25.0	278	314	7	94	142 - 230
70.54	3	1400	4500	4300	4945	7310	35600	21.0	278	314	7	94	142 - 230
77.89	3	1400	4500	4300	4945	7310	37100	18.0	278	314	7	94	142 - 230
86.52	3	1400	4500	4300	4945	7310	38800	16.0	278	314	7	94	142 - 230
96.80	3	1400	4500	4300	4945	7310	40000	13.0	278	314	7	94	142 - 230
105.13	3	1400	4500	4300	4945	7310	40000	12.0	278	314	7	94	142 - 230
123.93	3	1400	4500	4300	4945	7310	40000	9.3	278	314	7	94	142 - 230
140.28	3	1400	4500	4300	4945	7310	40000	5.9	278	314	7	94	142 - 230
153.21	3	1400	4500	4300	4945	7310	40000	5.2	278	314	7	94	142 - 230
176.05	3	1400	4500	4300	4945	7310	40000	4.0	278	314	7	94	142 - 230

(1) Rated input speed.

(2) Maximum Input Speed.

(3) T_{2N} value is calculated at n_{1n} , continuous duty cycle, uniform operation, KA=1 and unlimited theoretical life time as per ISO-6336 (NL>N00 in the Woehler line). The application factor KA according to DIN-3990-1 must be considered for each duty cycle and machine type.

(4) T_{2Max} only for very short time intervals.

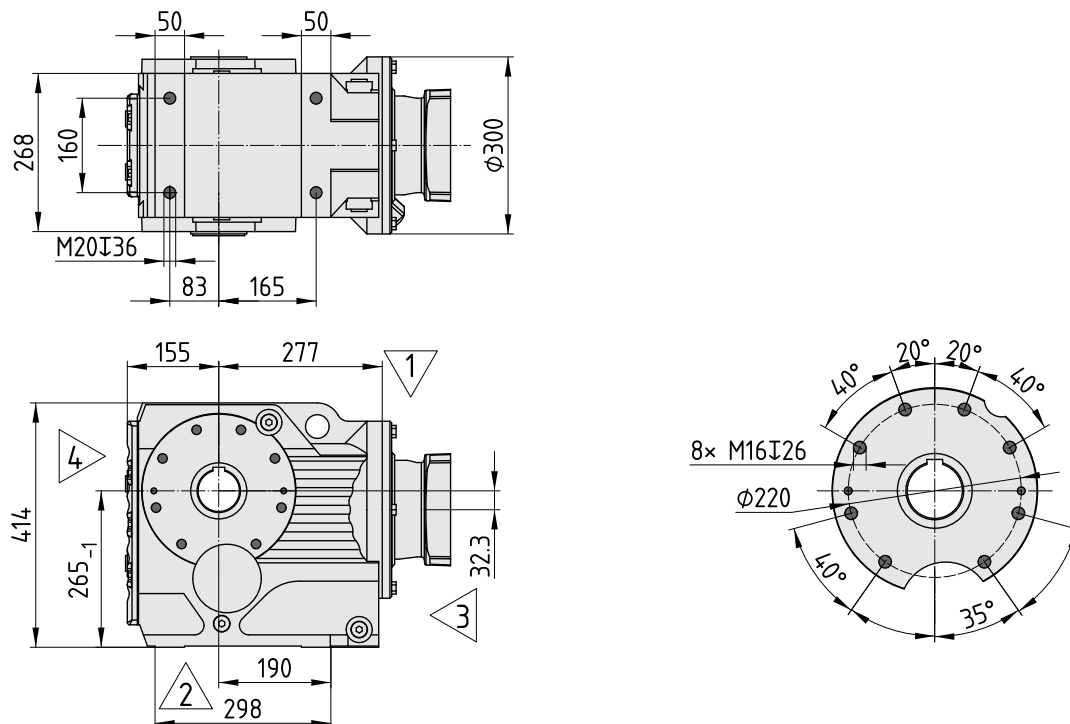
(5) Up to 1000 times during the gearbox's lifetime.

(6) F_{RMax} for gearboxes with flange and hollow output shaft

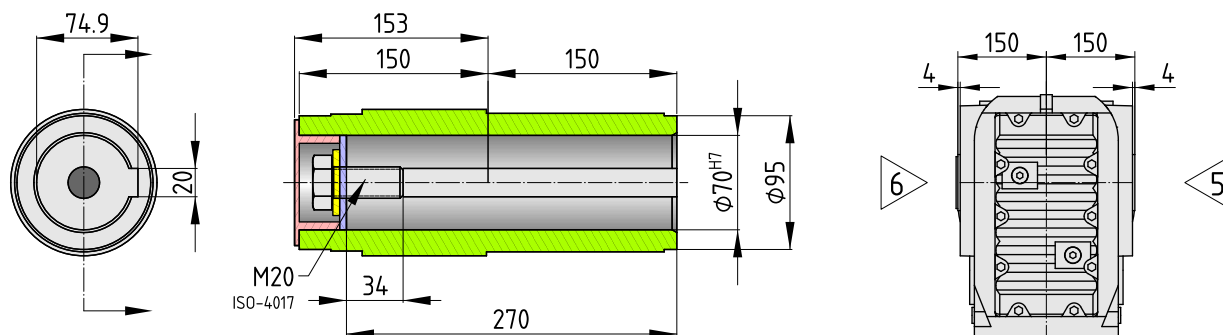
(7) F_{RMax} for gearboxes without flanges and with solid output shaft

(8) Varies depending on input.

KB-095-00: Basic Design

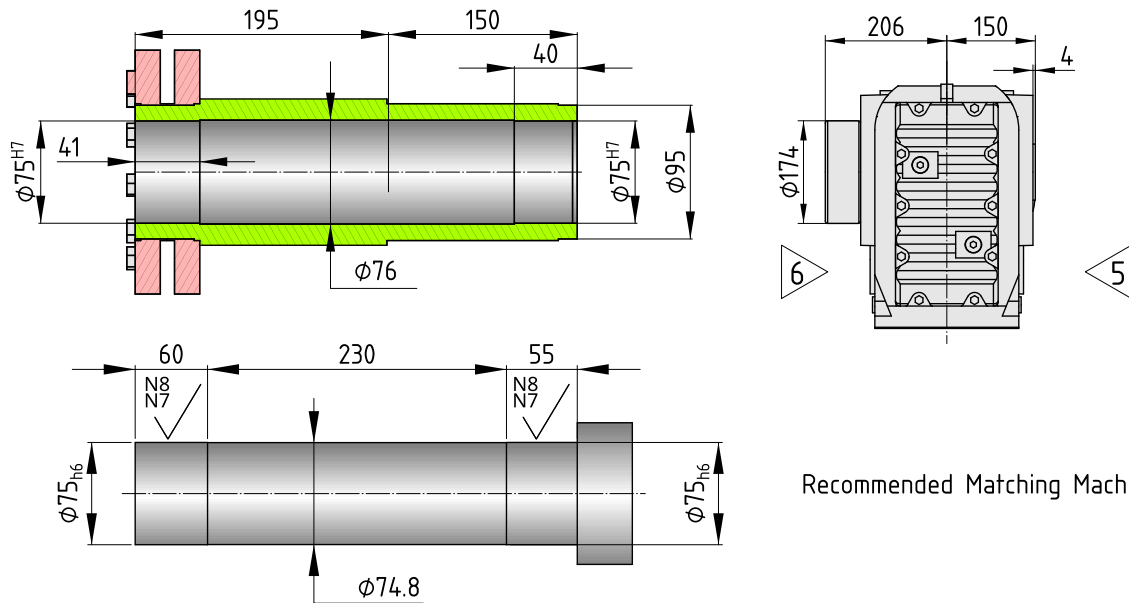


KB-095-00-H: Hollow Shaft with Keyway



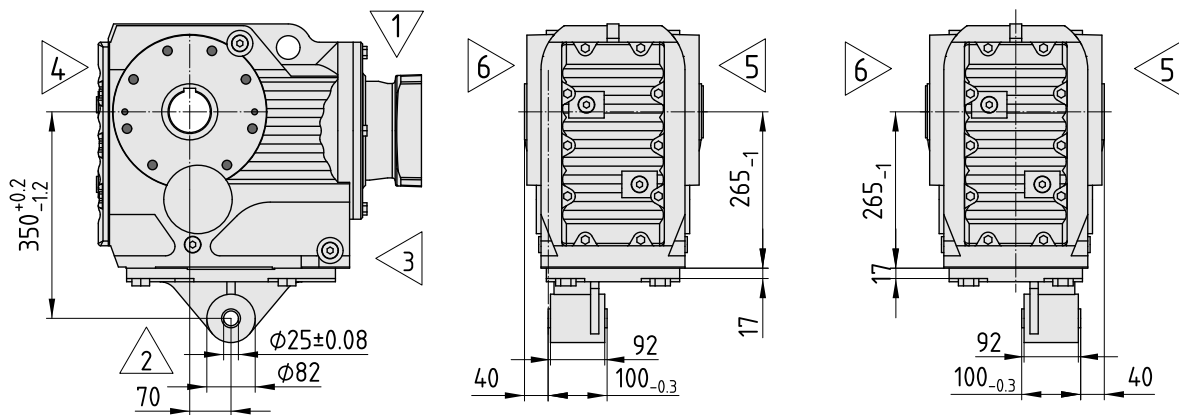
KB-095-00-HS□: Hollow Shaft with Shrink Disk

The drawings depict the shrink disk on side 6 (HS56), but it can also be installed on side 5 (HS5).



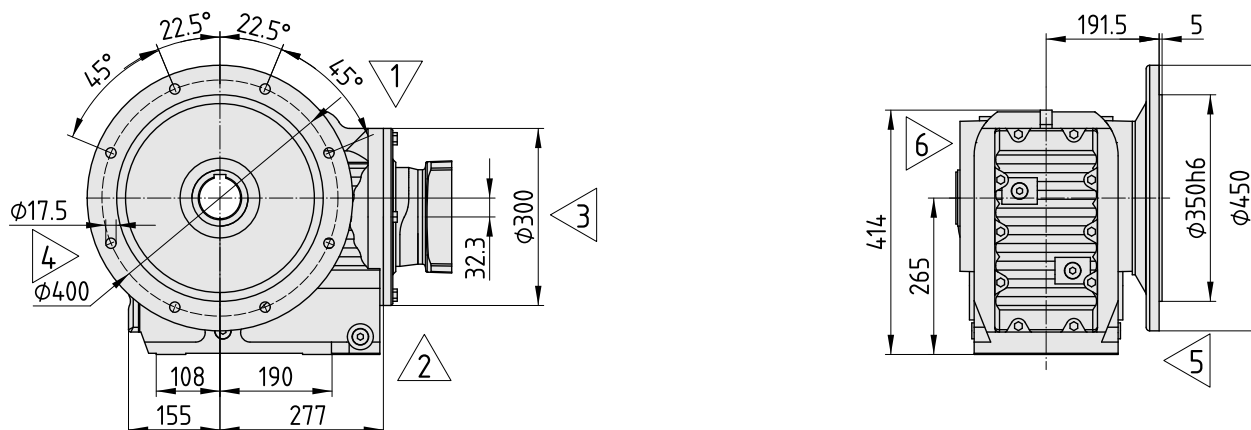
Accessory: Torque Arm

Customer must specify if the torque arm should be placed closer to side 5 or 6.

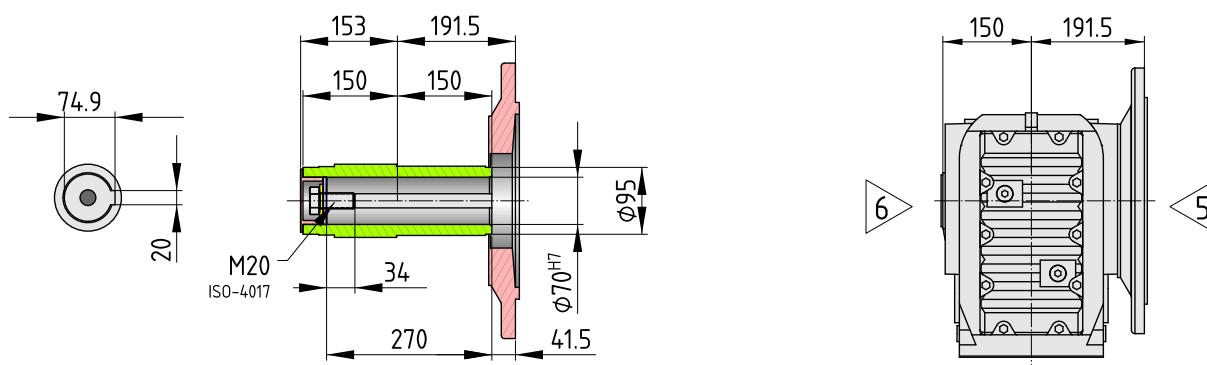


KB-095-F□: B5 Flange Mounted

The drawings depict the flange on side 5 (F5), but it can also be installed on side 6 (F6).

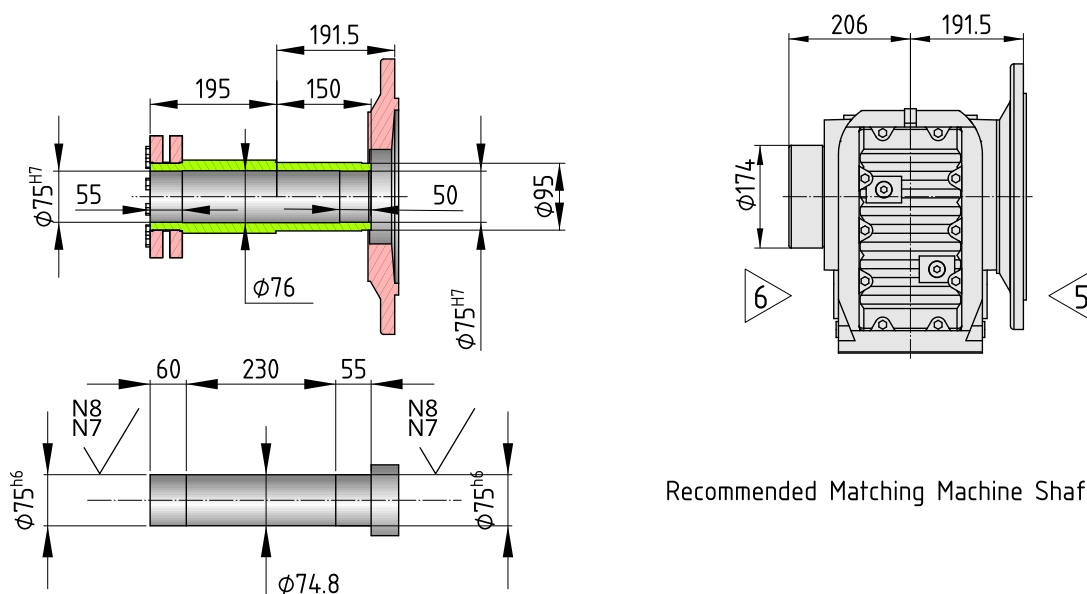


KB-095-F□-H: Hollow Shaft with Keyway



KB-095-F□-HS□: Hollow Shaft with Shrink Disk

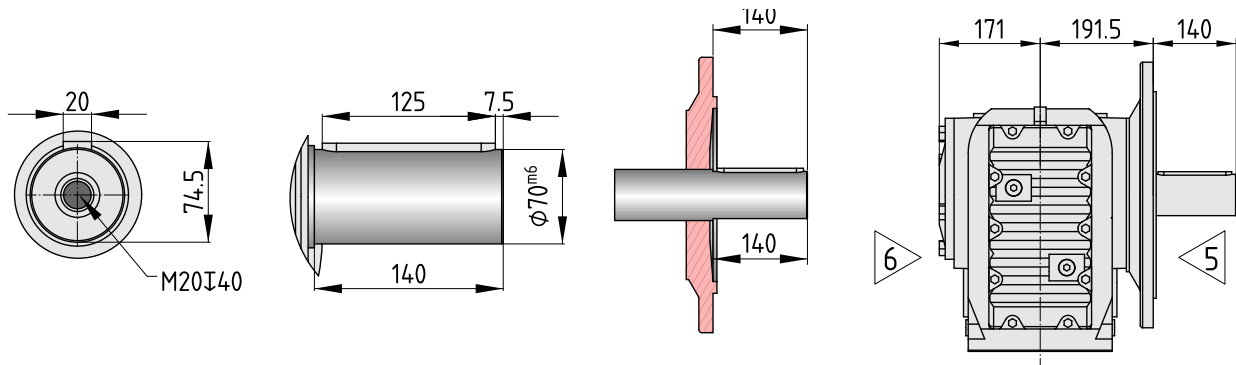
The drawings depict the shrink disk on side 6 (HS56), but it can also be installed on side 5 (HS5). It is always opposite to the flange.



Recommended Matching Machine Shaft

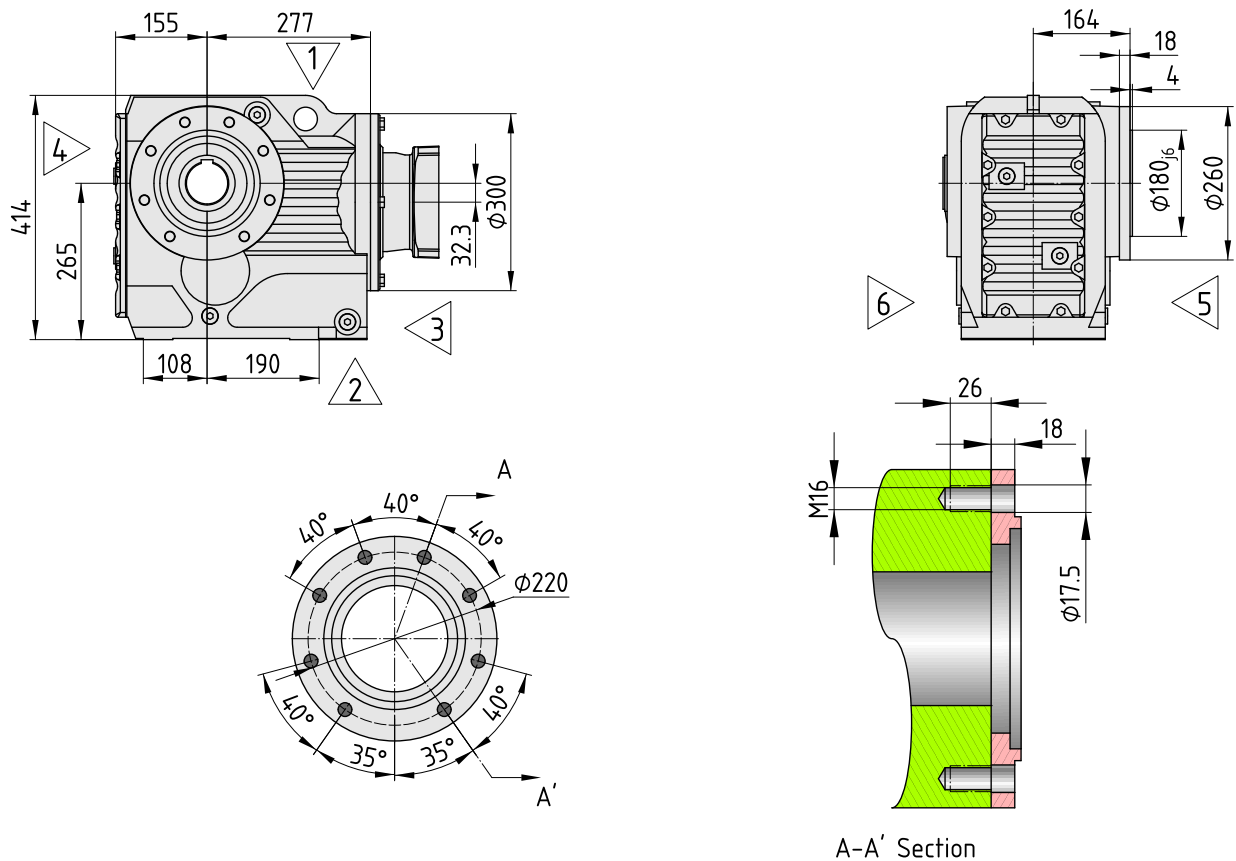
KB-095-F□-P□: Single Solid Shaft with Key

The drawings depict the solid shaft on side 5 (P5), but it can also be installed on side 6 (P6). It is always on the same side as the flange.

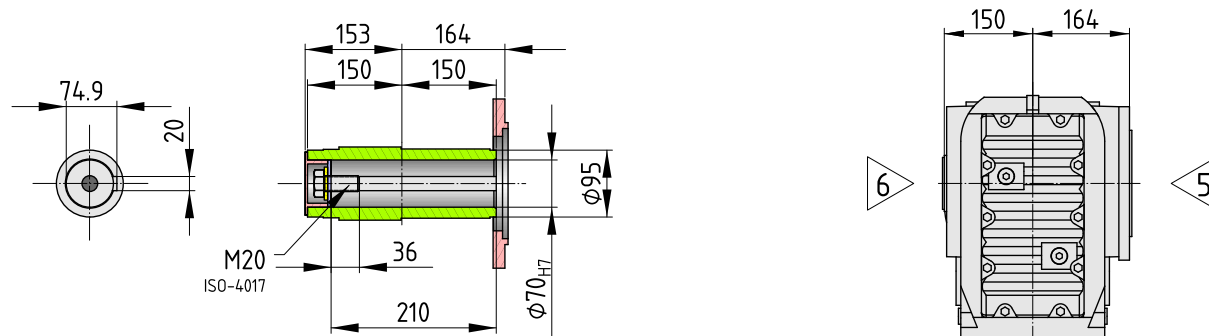


KB-095-Z□: B5 Flange Mounted

The drawings depict the flange on side 5 (Z5), but it can also be installed on side 6 (Z6).

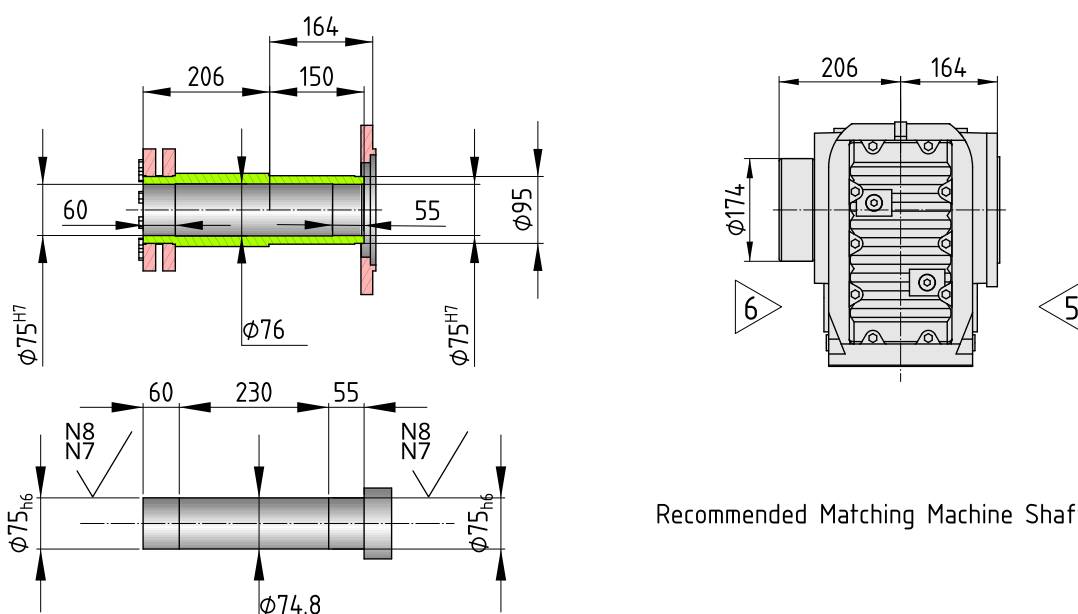


KB-095-Z□-H: Hollow Shaft with Keyway



KB-095-Z□-HS□: Hollow Shaft with Shrink Disk

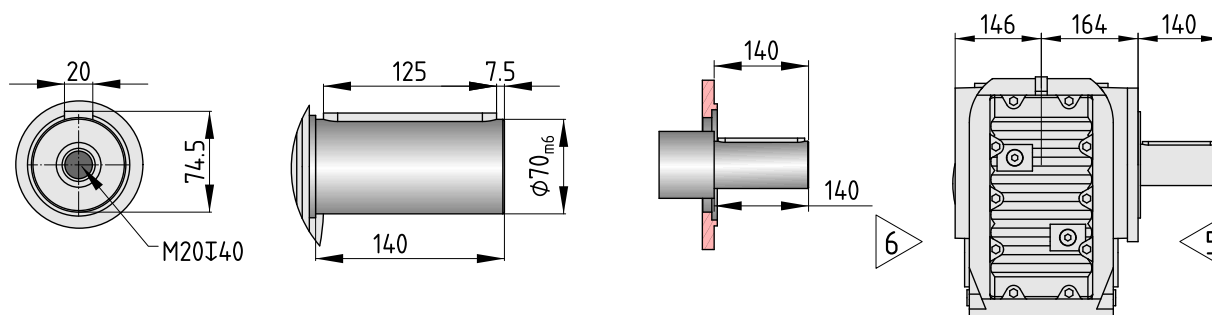
The drawings depict the shrink disk on side 6 (HS56), but it can also be installed on side 5 (HS5). It is always opposite to the flange.



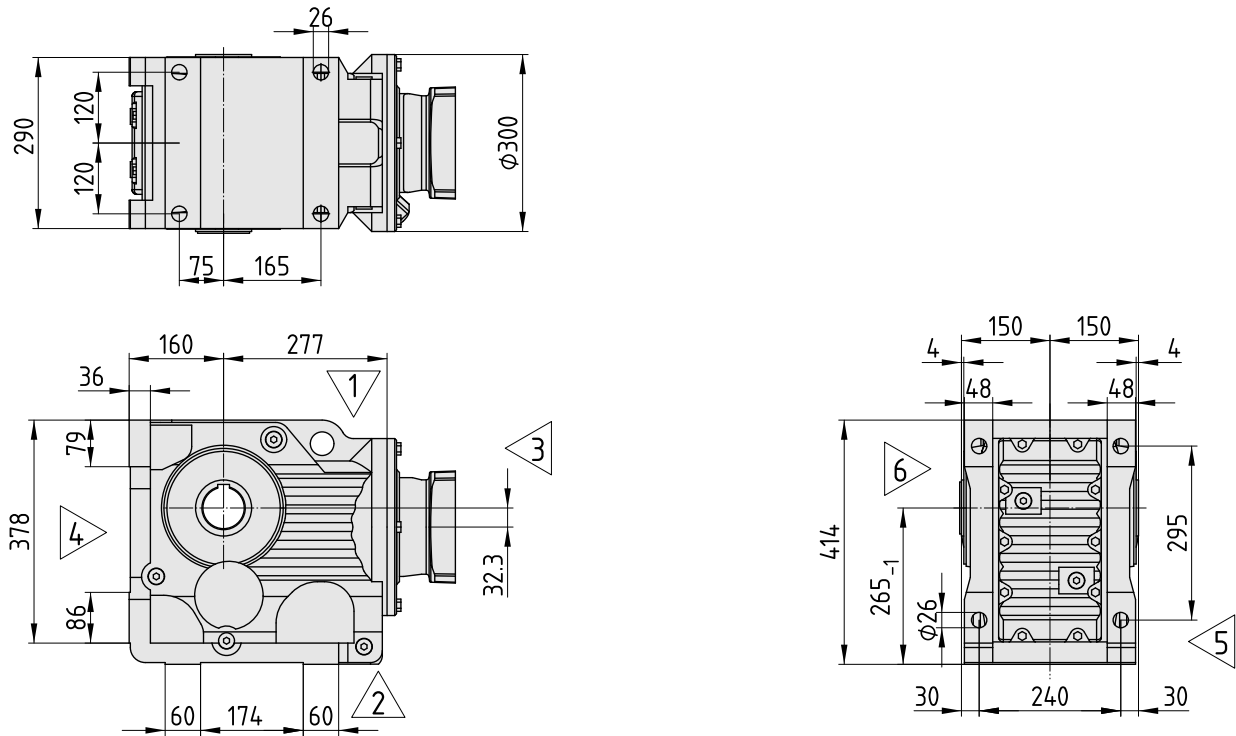
Recommended Matching Machine Shaft

KB-095-Z□-P□: Single Solid Shaft with Key

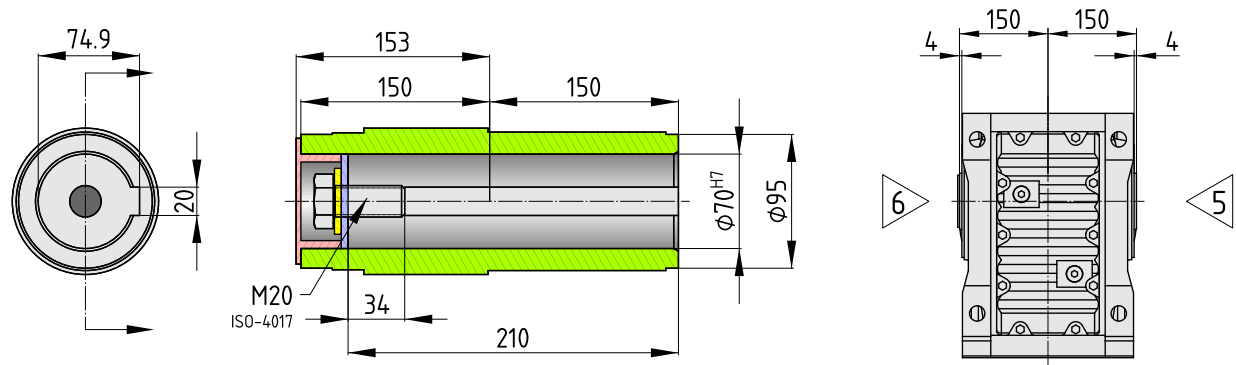
The drawings depict the solid shaft on side 5 (P5), but it can also be installed on side 6 (P6). It is always on the same side as the flange.



KG-095-00: Foot Mounted

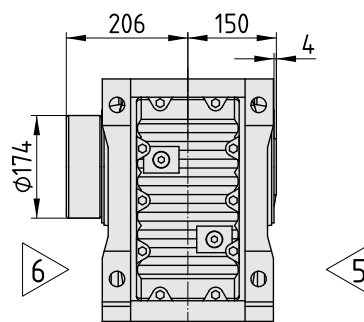
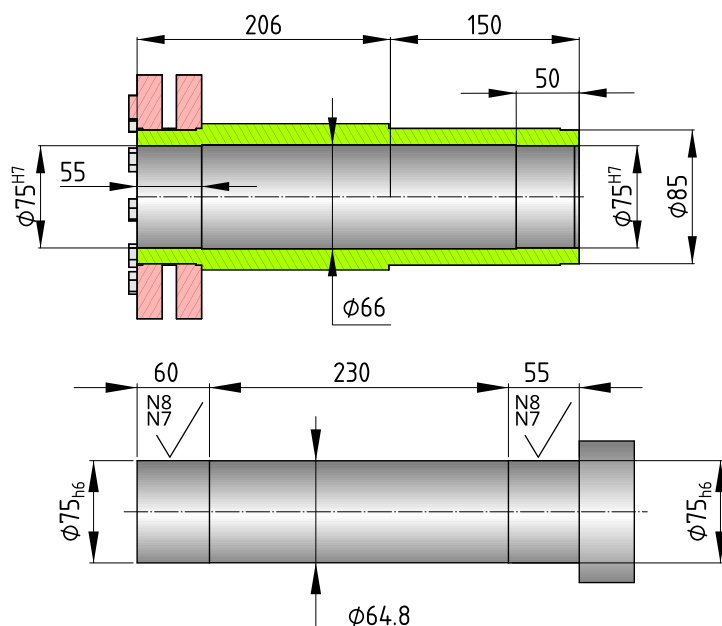


KG-095-00-H: Hollow Shaft with Keyway



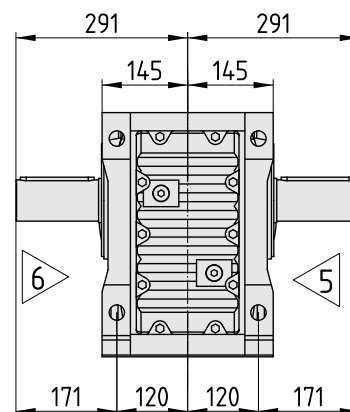
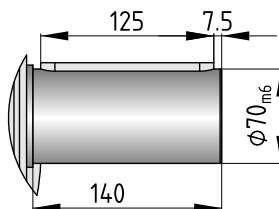
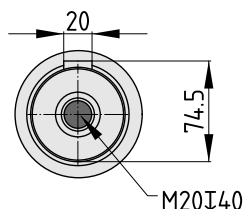
KG-05-00-HS□: Hollow Shaft with Shrink Disk

The drawings depict the shrink disk on side 6 (HS56), but it can also be installed on side 5 (HS5).



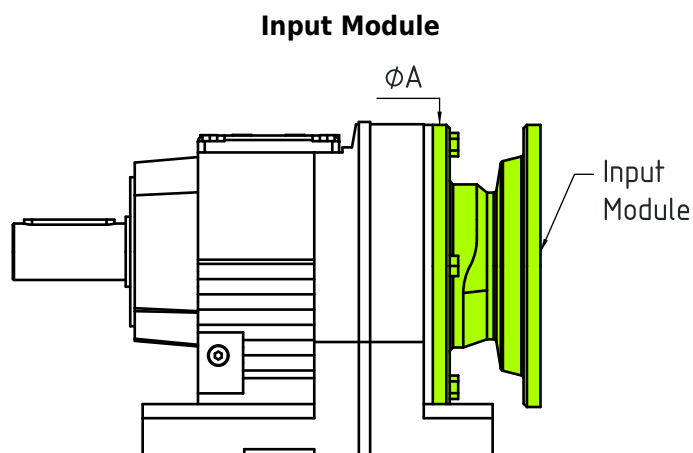
Recommended Matching Machine Shaft

KG-095-00-P□ / KG-095-00-DP: Single/Double Solid Shaft with Key



Input Modules

To simplify input module selection, Servotak uses modular input blocks. Each gearbox size and family combination has a interface code, that lets you quickly determine which input modules can be installed. Input modules are shared between R, F and K gearboxes. A is the diameter of the interface flange for that gearbox.



Reference	Interface Code	A
R□-015	A	105
R□-025	B	120
R□-035	B	120
R□-045	C	160
R□-055	C	160
R□-065	C	160
R□-075	D	200
R□-085	E	250
R□-095	F	300
R□-105	G	350
R□-135	H	400
R□-145	I	450
R□-165	J	550

Reference	Interface Code	A
F□-035	B	120
F□-045	B	120
F□-055	C	160
F□-065	C	160
F□-075	D	200
F□-085	E	250
F□-095	F	300
F□-105	G	350
F□-125	I	450
F□-155	J	550

Reference	Interface Code	A
K□-035	B	120
K□-045	C	160
K□-055	C	160
K□-065	C	160
K□-075	D	200
K□-085	E	250
K□-095	F	300
K□-105	G	350
K□-125	I	450
K□-155	J	550
K□-165	J	550
K□-185	J	550

IEC Motor Flanges

Each standard IEC motor flange has a set number of interfaces with which it is compatible. Z5 is the length of the input flange, and sometimes varies between interfaces. All IEC motor flanges are for IM B5 / IM V1 / IM V3 Motors.

Motor Size	Interface Code	Z
63	A, B, C	50
63	D	54
71	A, B, C, D	54
80	A, B, C, D, E	69
90	B, C, D, E	69
100	C, D, E, F, G	81
112	C, D, E, F, G	81
132	D, E, F, G, H, I	92

Motor Size	Interface Code	Z
160	E, F	125
160	G, H, I, J	124
180	E, F	125
180	G, H, I, J	124
200	F, G, H, I, J	144
225	F, G, H, I, J	159
250	I, J	180
280	I, J	180

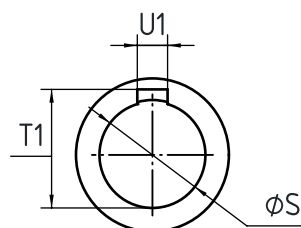
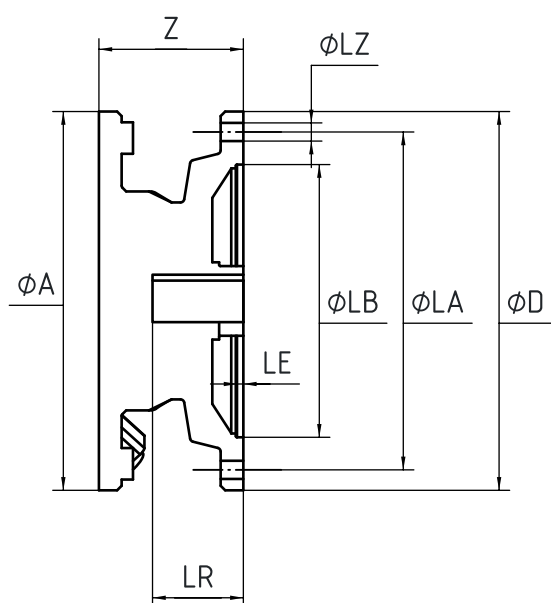


Fig. 1

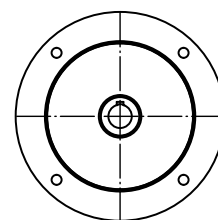
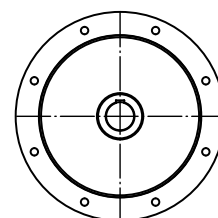


Fig. 2

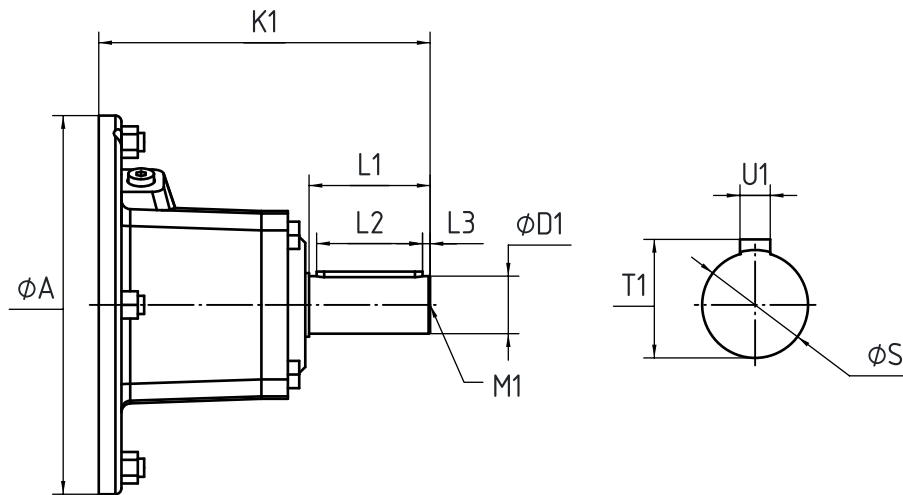


Motor Size	LB	LA	LE	D	LZ	S	LR	T1	U1	Fig
63	95	115	3.5	140	M08	11	23	12.8	4	1
71	110	130	3.5	160	M08	14	30	16.3	5	1
80	130	165	4.5	200	M10	19	40	21.8	6	1
90	130	165	4.5	200	M10	24	50	27.3	8	1
100	180	215	5	250	M12	28	60	31.3	8	1
112	180	215	5	250	M12	28	60	31.3	8	1
132	230	265	5	300	M12	38	80	41.3	10	1
160	250	300	6	350	M16	42	110	45.3	12	1
180	250	300	6	350	M16	48	110	51.8	14	1
200	300	350	7	400	M16	55	110	59.3	16	1
225	350	400	7	450	M16	60	140	64.4	18	2
250	450	500	7	550	M16	65	140	69.4	18	2
280	450	500	7	550	M16	75	140	79.9	20	2

Solid Input Shafts

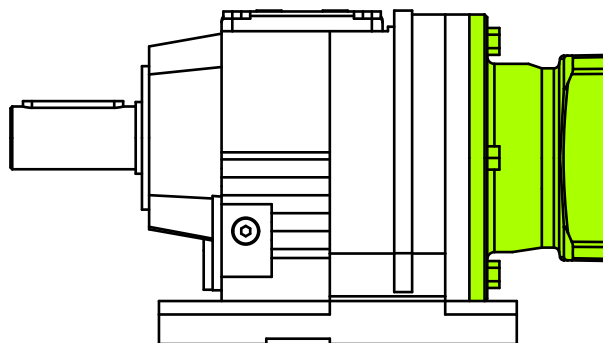
Each solid input shaft has a set of interfaces with which it is compatible. K1 is the length from the interface to the tip of the shaft.

Shaft Size	Interface Code	K1
E14×30	A	72
E16×40	B	102
E19×40	B	130
E19×40	C	123
E19×40	D	116
E19×40	E	111
E24×50	C	159
E24×50	D	151
E28×60	E	156
E28×60	F	151
E28×60	G	145
E38×80	D	224
E38×80	E	219
E38×80	F	214
E38×80	G	208
E38×80	H	201
E38×80	I	193
E42×110	E	292
E42×110	F	287
E42×110	G	281
E42×110	H	274
E42×110	I	266
E42×110	J	258
E48×110	F	327
E48×110	G	321
E48×110	H	314
E48×110	I	306
E48×110	J	298
E55×110	H	308
E55×110	I	300
E55×110	J	292
E70×140	I	383
E70×140	J	374



Shaft Size	D1	L1	L13	L14	T1	U1	M
E14×30	14	30	4	22	16	5	M05
E16×40	16	40	4	32	18	5	M05
E19×40	19	40	4	32	21.5	6	M06
E24×50	24	50	5	40	27	8	M08
E28×60	28	60	5	50	31	8	M10
E38×80	38	80	5	70	41	10	M12
E42×110	42	110	10	70	45	12	M16
E48×110	48	110	10	80	51.5	14	M16
E55×110	55	110	10	90	59	16	M20
E70×140	70	140	15	110	74.5	20	M20

Servomotor Flanges

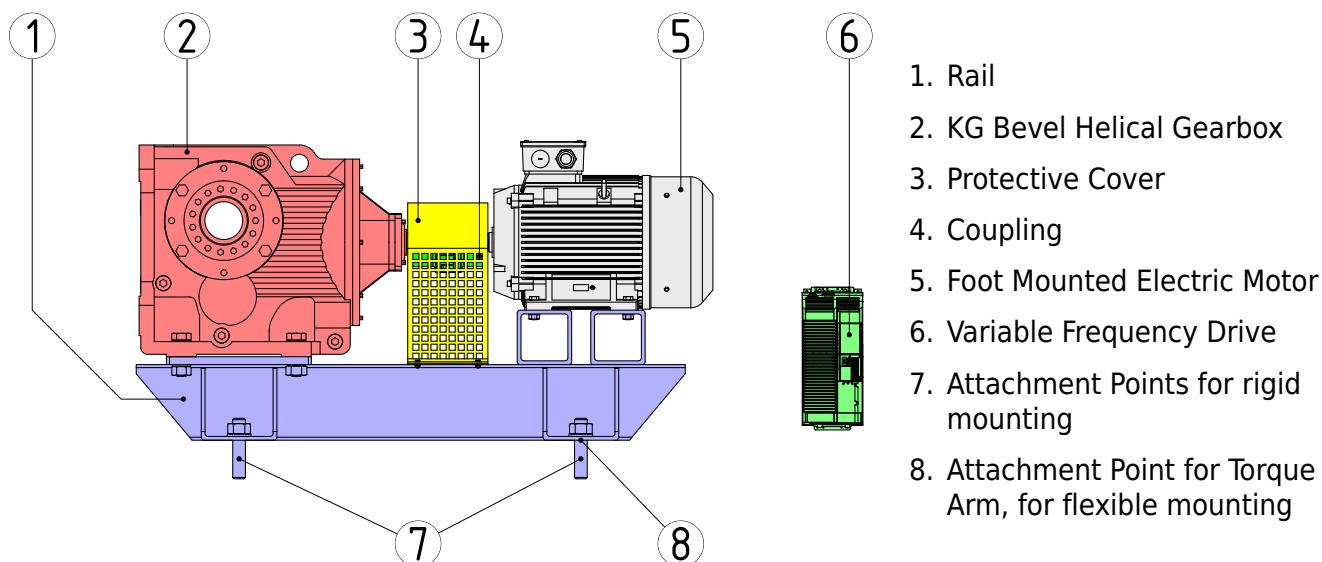


Since servomotors, unlike IEC motors, don't have standard dimensions, it is necessary to know the exact dimensions of the servomotor to ascertain the correct input flange for it. Input flanges are often custom made for the customer's order, which allows Servotak to provide flanges for basically every servomotor. The structure of the reference for the servomotor input flange is detailed at the end of this document, Order References chapter.

Swing Bases

A swing base is composed of a foot mounted helical-bevel KG gearbox with a solid input shaft, a coupling, a foot-mounted electric motor and a protective cover, all mounted on a torsionally rigid rail.

- The gearbox can go from size KG-095 to size KG-185, and can have either solid or hollow output shafts.
- The motor is a 4-pole asynchronous IEC motor, whose power ranged from 30 to 315 kW, with a corresponding frame size of 200 to 355.
- The coupling is either a hydraulic coupling, or a flexible coupling. In the later case, either a soft starter or a variable frequency drive is required to achieve a soft start.
- The protective cover protects the coupling and shields operators and bystanders from the rotating parts.
- The rail is either directly mounted to a solid foundation (usually concrete) with 4 bolts when rigidly attached, or is flexibly mounted to a shaft with a torque arm.



They're normally used for machines that require soft starts such as general purpose conveyors, bucket conveyors, and machines with large moments of inertia.

Each type of coupling type presents different advantages and disadvantages. Hydraulic couplings, using the Föttinger Principle, predate electronics, having been invented at the start of the 20th century, and have been adopted in trains and boats. With modern electronics, soft starters and variable frequency drives became more and more cost effective. These systems have very high efficiency, protect the motor and other mechanical components, while lacking the disadvantages of hydraulic couplings.