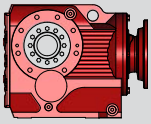
K-155



Ratio	Stages	n_{1N} (1)	n_{1Max} (2)	T_{2N} (3)	T_{2Max} (4)	T_{2E} (5)	F_{RMaxP} (7)	J (8)	C_H (6)	C_P (7)	Δφ	η	M
		rpm	rpm	N·m	N·m	N·m	N	Kg·cm²	N·m/'	N·m/'	'	%	Kg
12.65	3	1400	2000	17000	19550	28900	36700	*	*	*	6	96	663 - 828
14.92	3	1400	2000	18000	20700	30600	38200	*	*	*	6	96	663 - 828
18.37	3	1400	2000	18000	20700	30600	43200	*	*	*	6	96	663 - 828
21.31	3	1400	2500	18000	20700	30600	47000	*	*	*	6	96	663 - 828
23.95	3	1400	3000	18000	20700	30600	50000	*	*	*	6	96	663 - 828
27.62	3	1400	3600	18000	20700	30600	54000	*	*	*	6	96	663 - 828
31.30	3	1400	4200	18000	20700	30600	57500	*	*	*	6	96	663 - 828
38.02	3	1400	4200	18000	20700	30600	63300	*	*	*	5	94	663 - 828
46.79	3	1400	3000	18000	20700	30600	70000	*	*	*	5	94	663 - 828
54.29	3	1400	3000	18000	20700	30600	74900	*	*	*	5	94	663 - 828
61.02	3	1400	3600	18000	20700	30600	79000	*	*	*	5	94	663 - 828
70.38	3	1400	4200	18000	20700	30600	84200	*	*	*	5	94	663 - 828
79.75	3	1400	4200	18000	20700	30600	88900	*	*	*	5	94	663 - 828
91.65	3	1400	4200	18000	20700	30600	94400	*	*	*	5	94	663 - 828
100.22	3	1400	4200	18000	20700	30600	98000	*	*	*	5	94	663 - 828
122.39	3	1400	4200	18000	20700	30600	106500	*	*	*	5	94	663 - 828
150.41	3	1400	4200	18000	20700	30600	112200	*	*	*	5	94	663 - 828

(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.

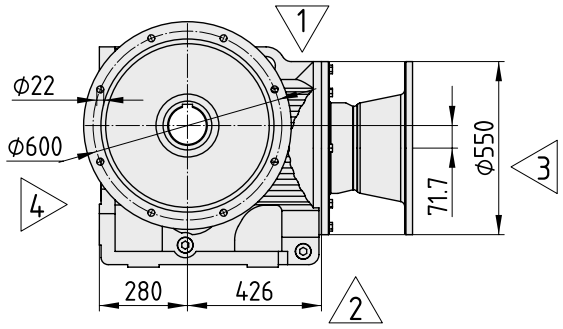
(6) F_{RMax} for gearboxes with flange and hollow output shaft

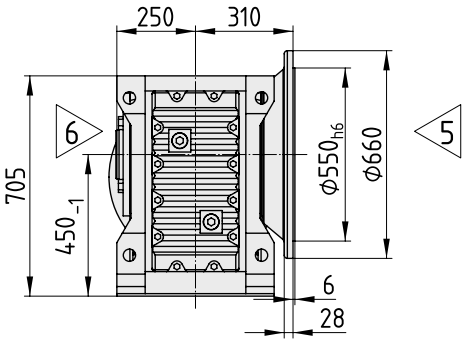
(7) F_{RMax} for gearboxes without flanges and with solid output shaft

(8) Varies depending on input.

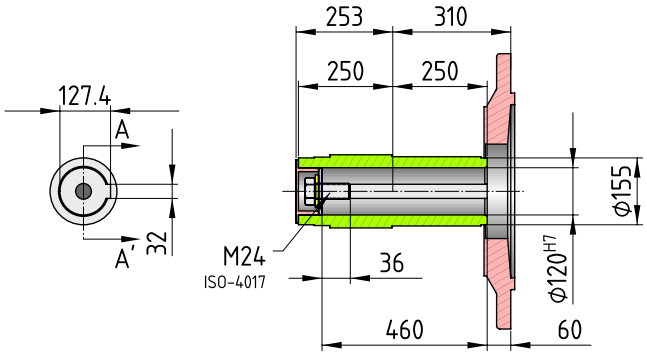
KB-155-F□: B5 Flange Mounted

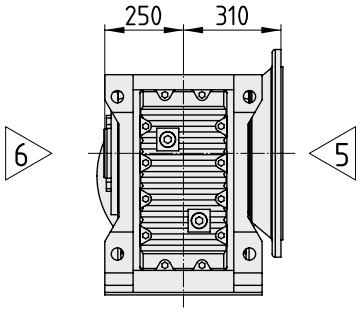
The drawings depict the flange on side 5 (F5), but it can also be installed on side 6 (F6).





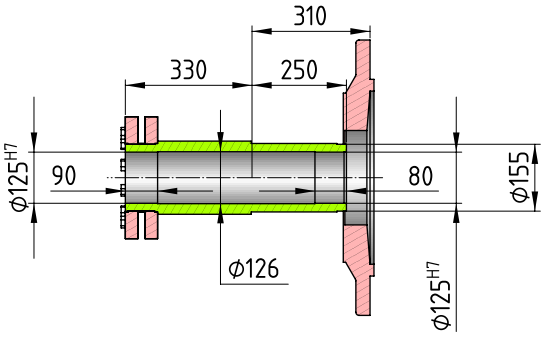
KB-155-F□-H: Hollow Shaft with Keyway

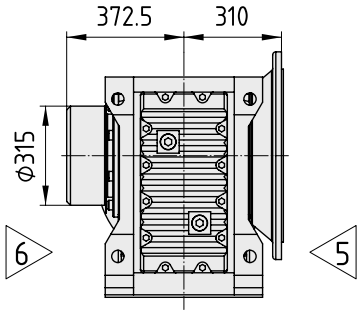


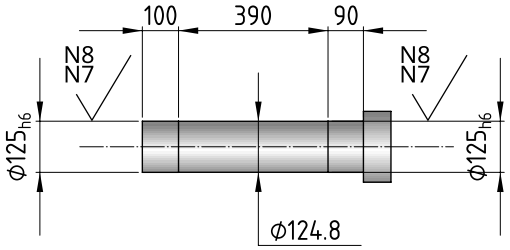


KB-155-F□-HS□: Hollow Shaft with Shrink Disk

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.



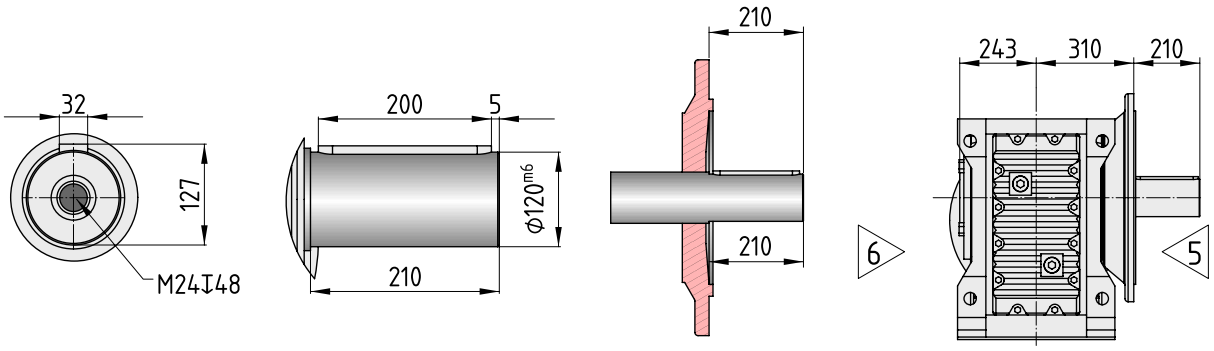




Recommended Matching Machine Shaft

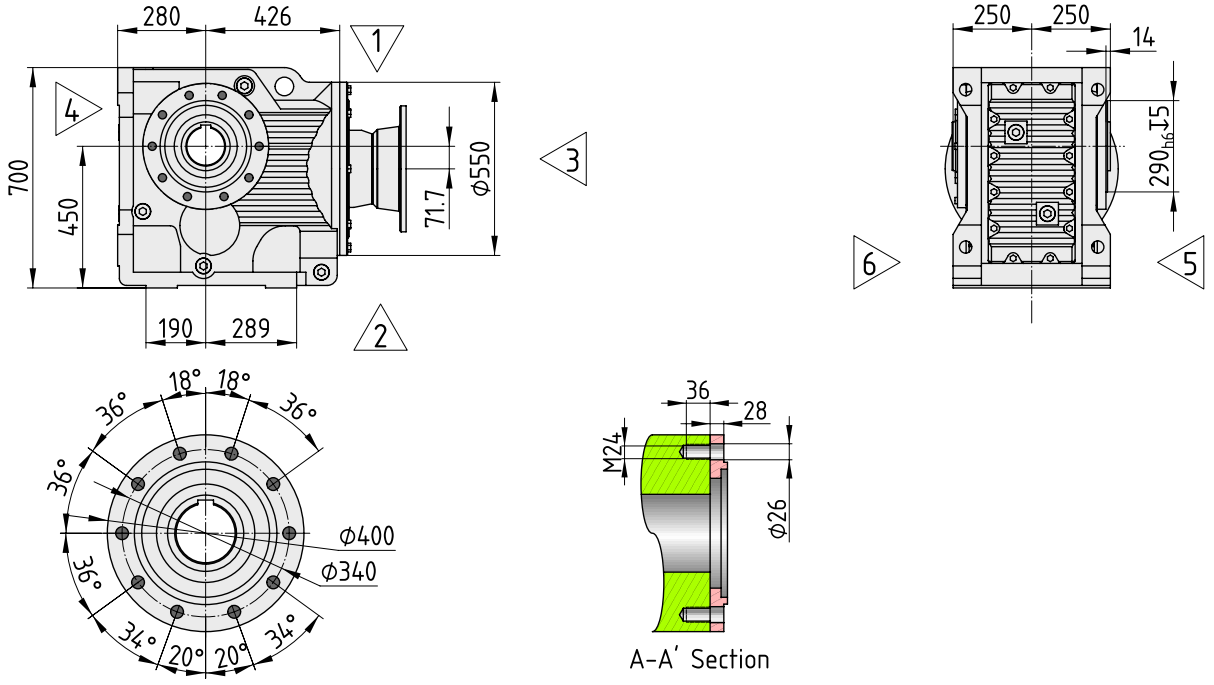
KB-155-F□-P□: Single Solid Shaft with Key

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.

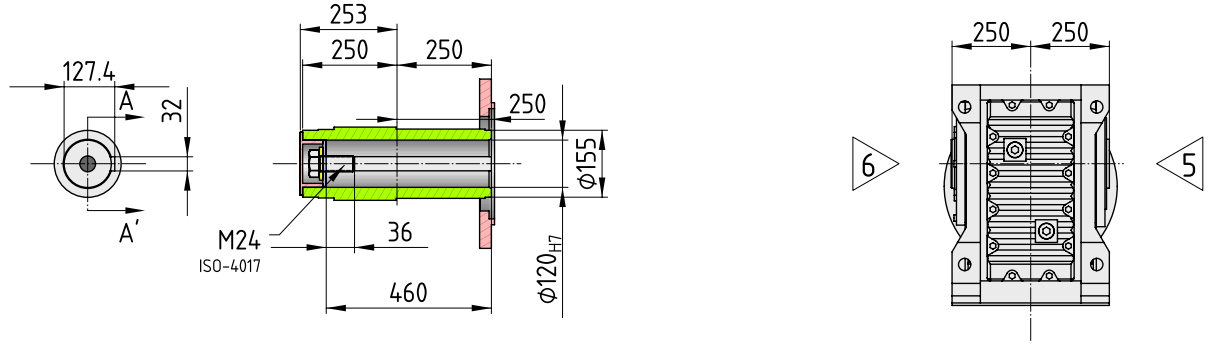


KB-155-Z□: B5 Flange Mounted

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

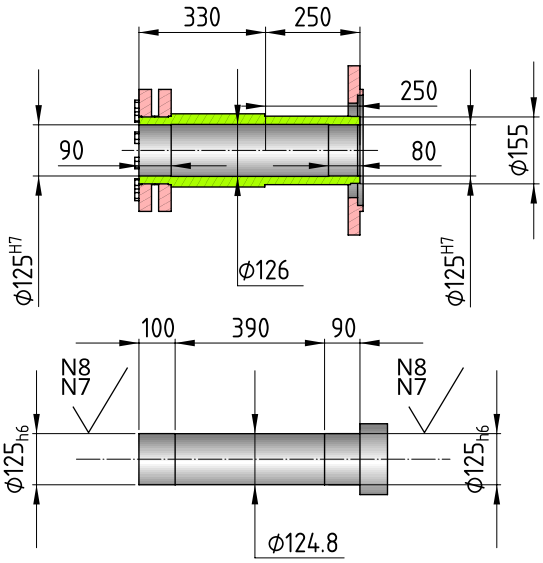


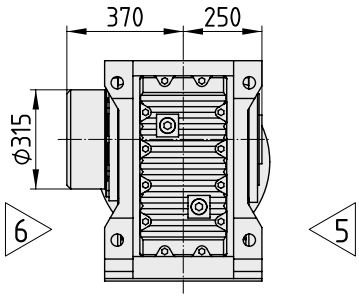
KB-155-Z□-H: Hollow Shaft with Keyway



KB-155-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.

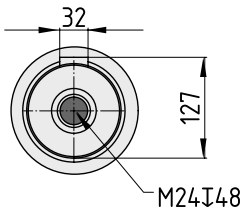


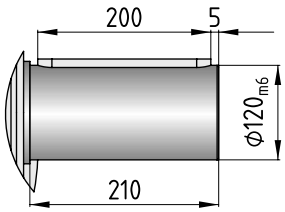


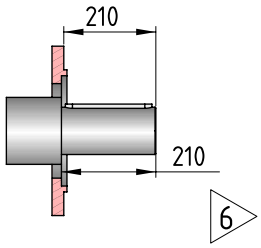
Recommended Matching Machine Shaft

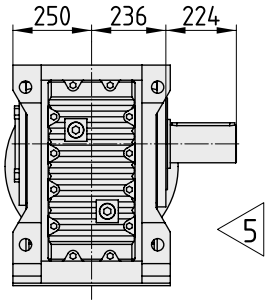
KB-155-Z□-P□: Single Solid Shaft with Key

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.

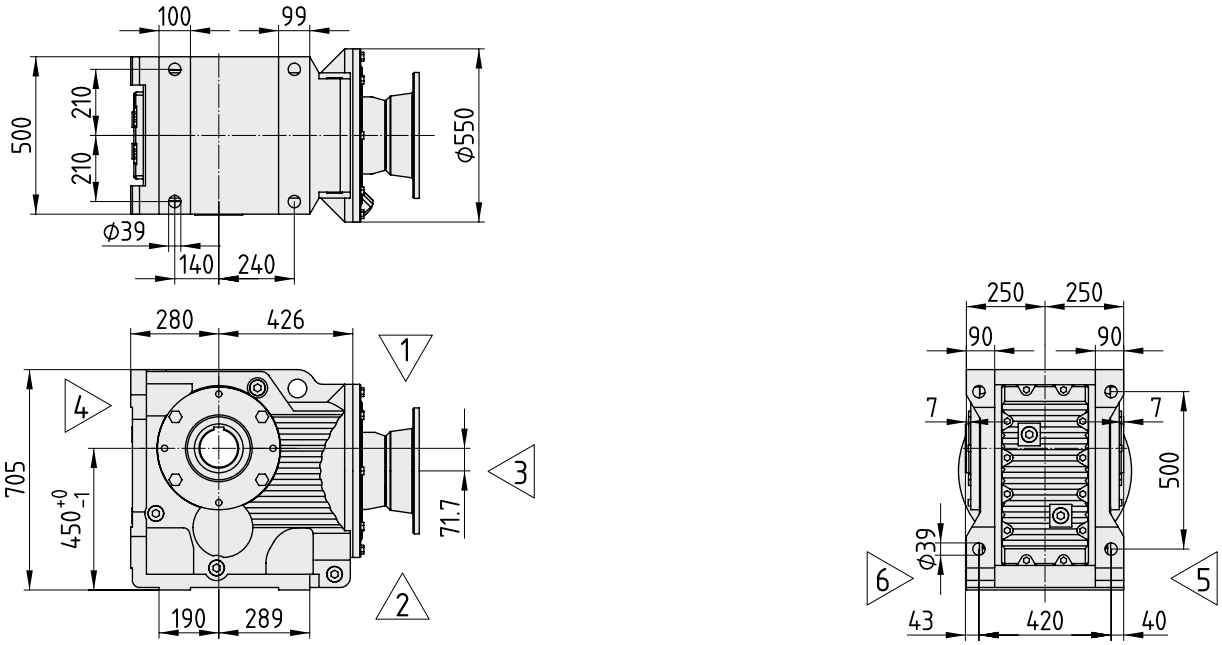




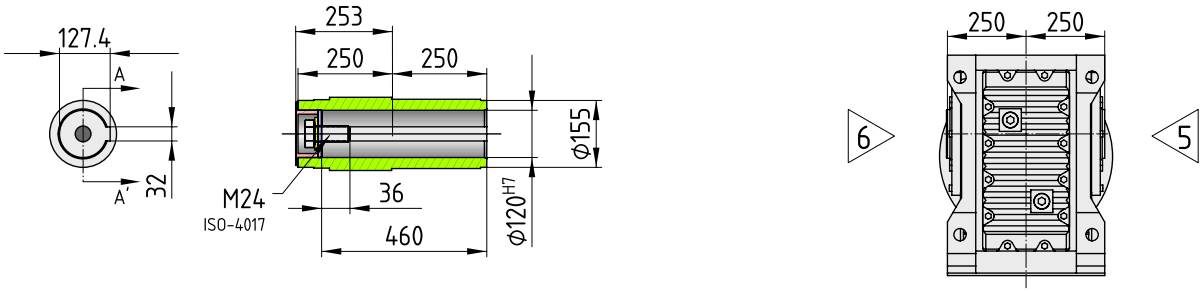




KG-155-OO: Foot Mounted

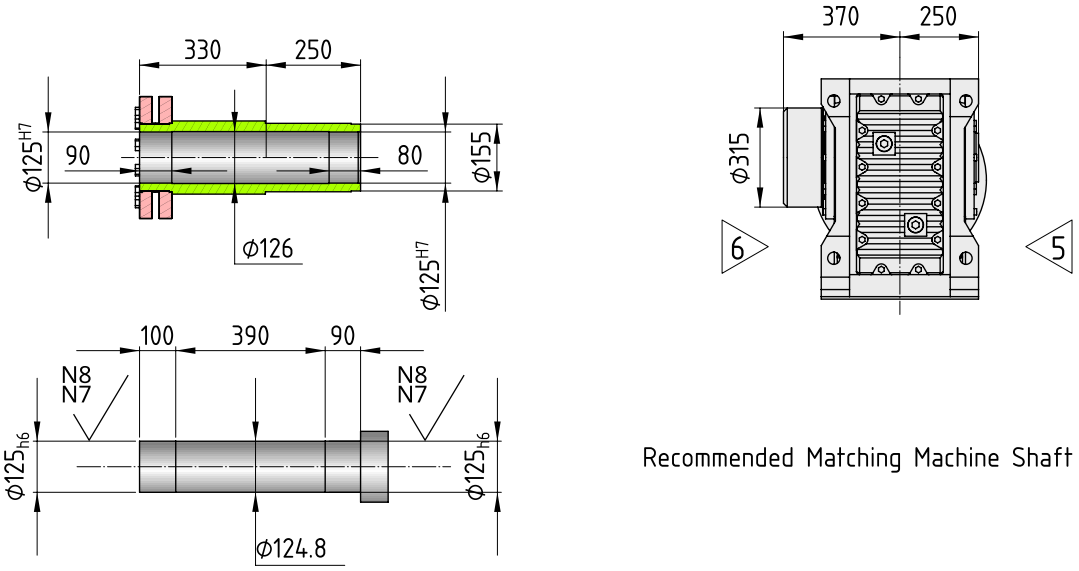


KG-155-OO-H: Hollow Shaft with Keyway



KG-155-OO-HS□: Hollow Shaft with Shrink Disk

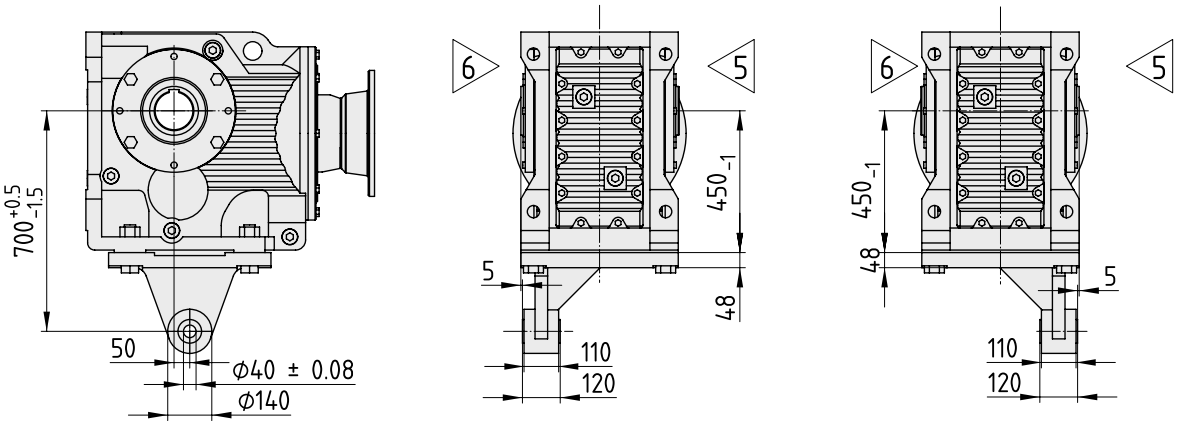
The drawings depict the shrink disk on side 6 (HS56), but it can also be installed on side 5 (HS5).



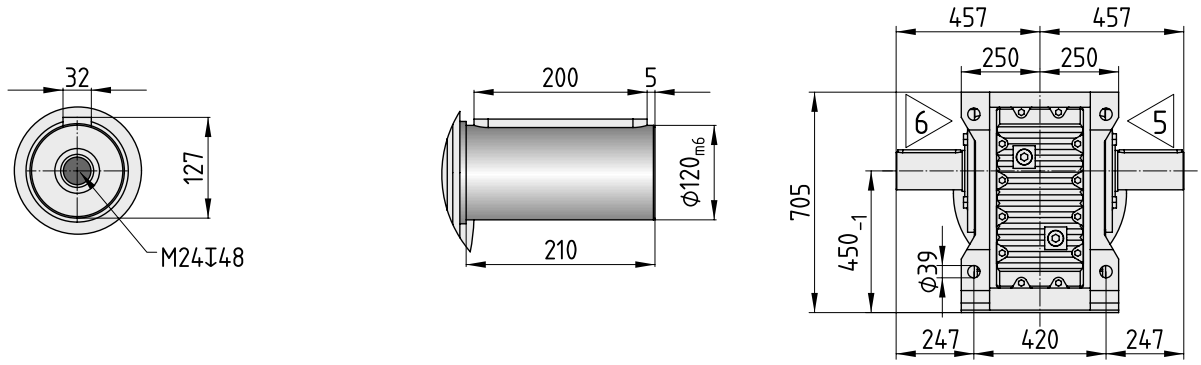
Recommended Matching Machine Shaft

Accessory: Torque Arm

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



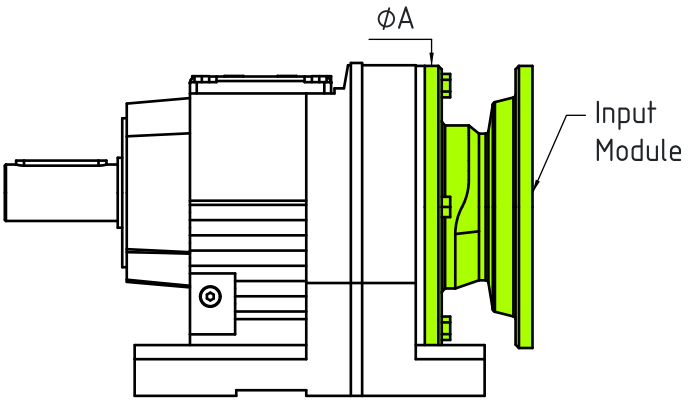
KG-155-OO-P□ / KG-155-OO-DP: Single/Double Solid Shaft with Key



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.

Input Module



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

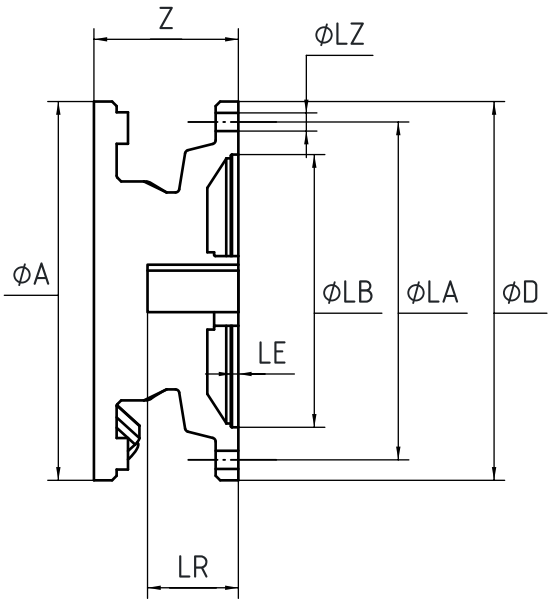
Reference	Interface Code	A
K□-035	B	120
K□-045	C	160
K□-055	C	160
K□-065	C	160
K□-075	D	200
K□-085	E	250
K□-095	F	300
K□-105	G	350
K□-125	I	450
K□-155	J	550
K□-165	J	550
K□-185	J	550

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



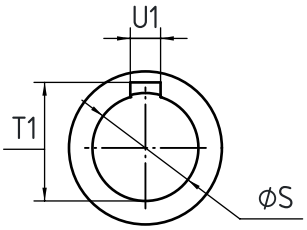


Fig. 1

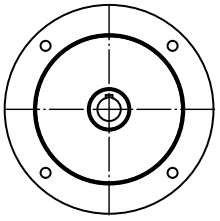
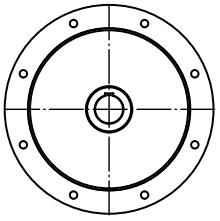


Fig. 2

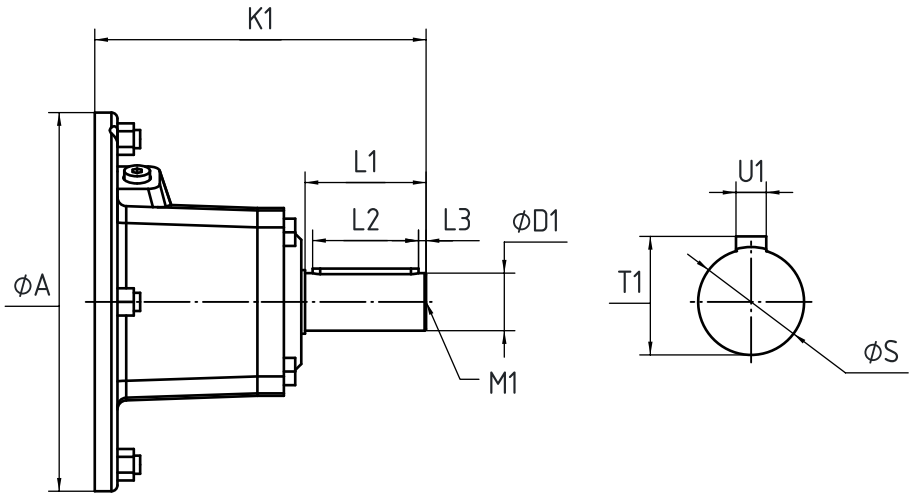


Motor Size	LB	LA	LE	D	LZ	S	LR	T1	U1	Fig
63	95	115	3.5	140	M08	11	23	12.8	4	1
71	110	130	3.5	160	M08	14	30	16.3	5	1
80	130	165	4.5	200	M10	19	40	21.8	6	1
90	130	165	4.5	200	M10	24	50	27.3	8	1
100	180	215	5	250	M12	28	60	31.3	8	1
112	180	215	5	250	M12	28	60	31.3	8	1
132	230	265	5	300	M12	38	80	41.3	10	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

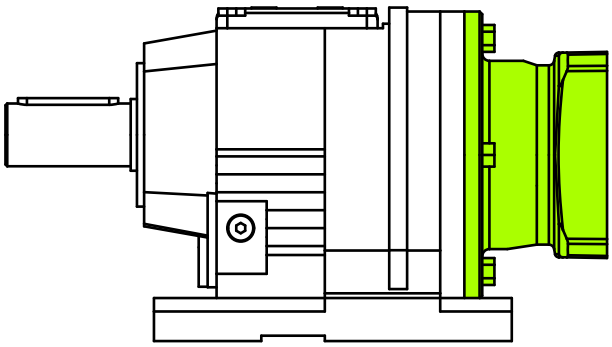
Each solid input shaft has a set of interfaces with which it is compatible. K1 is the length from the interface to the tip of the shaft.

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

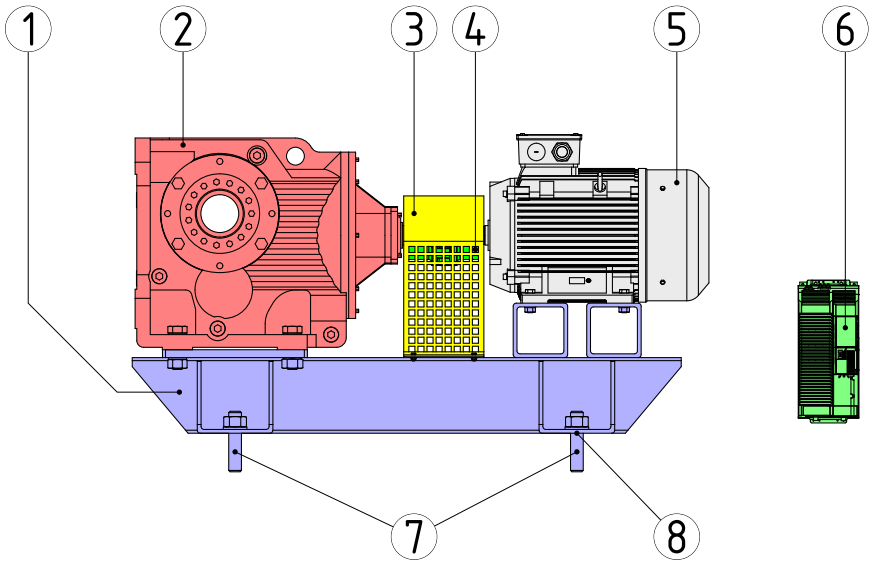


Since servomotors, unlike IEC motors, don’t have standard dimensions, it is necessary to know the exact dimensions of the servomotor to ascertain the correct input flange for it. Input flanges are often custom made for the customer’s order, which allows Servotak to provide flanges for basically every 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.



1. Rail
2. KG Bevel Helical Gearbox
3. Protective Cover
4. Coupling
5. Foot Mounted Electric Motor
6. Variable Frequency Drive
7. Attachment Points for rigid mounting
8. Attachment Point for Torque Arm, for flexible mounting

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.