# K SERIES HELICAL BEVEL GEAR UNITS



# Note!

- 1. The structure scheme, appearance diagram and other attached diagrams in sample are examples, there is no strict proportion requirement. If you need exact dimension of certain types, please contact our sales dept.. (The unmarked dimension units are mm).
- 2. Gear unit has been tested before delivered, users should add lubrication oil before running.
- 3. We can only refer to the marked oil in the mannul. Actual oil filling level should be the same with the mark on oil immersion lens.
- 4. Lubrication oil viscosity should be selected according to working conditions and ambient temperature.
- 5. To prevent accidents, all the rotation parts should be added with protective covers according to safety regulation of the nation and region.
- 6. The solid shaft input structure gear unit is not equipped with any motor.
- 7. Motors of Y series are supplied with protection grade of IP54 unless otherwise specified.
- 8. Unless otherwise specified, you will receive the terminal box at 0°.



#### **Guidelines for the selection**

Gear units are designed under the circumstance of steady load, stated operating time per day and a few sarting times.but the practical condition will be not as perfect as the designed circumstance.so we must confirm driven machine factor f1,prime mover factor f2,starting factor f3 according to actual load type, operating time,starting frequency.let it less than or equale to the service factor fb of selection table,viz f1 × f2 × f3 ≤ fB.the needed torque of service machine multiply the service factor (f1 × f2 × f3) should less than or equale to gear units' permissible torque.

Viz  $T_{N} > T_2 \times f_1 \times f_2 \times f_3$ 

f1 — Driven machine factor(See table 1)

f2 — Prime mover factor(See table 2)

f3 - Start factor(See table 3)

T2 — The torque required by driven machine

TN — Gear unit permissible torque(See page 03)

- ☐ We accept the orders of products of special specification, and provide our customer with exclusive design service.
- □ Along with the technology advanced etc., the prouct of the mannul of RED SUN will be changed, please forgive.





## Service factor:

Table 1	D	riven	machir	ne factor			f1
Driven equipment		operati h load(h	ng time nour)	Driven equipment		peratin load(h	
	≤ 2	> 2-10	> 10		≤ 2	> 2-10	> 10
Sewage treatment Concentrator(Central Transmission) Compressed filter	- 1.0	- 1.3	1.2 1.5	Conveyingmachine Bucket conveyor Winch	_ 1.4	1.4 1.6	1.5 1.6
Flocculator Aerator Collector Vertical,rotary group	0.8 - 1.0	1.0 1.8 1.2	1.3 2.0 1.3	Hoist Belt conveyor≤150kW Belt conveyor≥150kW	1.0	1.5 1.2 1.3	1.8 1.3 1.4
Blended collector Concentrator Screw pump Water wheel machine	1.0 - -	1.3 1.1 1.3	1.5 1.3 1.5 2.0	Elevators for goods* Elevators for customers* Scraper conveyor Automatic ladder Rail traveling mechanism	- - 1.0	1.2 1.5 1.2 1.2	1.5 1.8 1.5 1.4
Pump Centrifugal pump Volume-down pump	1.0	1.2	1.3	Various frequency device	-	1.5	2.0
1Piston >1Piston	1.3 1.2	1.4	1.8 1.5	Reciprocating compressor	-	1.8	1.9
Dredge Bucket conveyor Unloading device Carterpillar traveling mechanism Bucket digger Be used for picking up Be used for rough materials Chopper	- 1.2 - -	1.6 1.3 1.6 1.7 2.2 2.2	1.6 1.5 1.8 1.7 2.2 2.2	Hoisting mechanism** Rotary mechanism* Pitching mechanism Traveling mechanism Lifting mechanism Jibcrane		1.4 1.1 1.6 1.1	1.8 1.4 2.0 1.4 1.6
Traveling mechanism*  Plate blender	_	1.4	1.8	Cooling tower Cooling tower fan	_	_	2.0
Chemical industry  Extruder Paste mixer Rubber calendar Cooling cylinder Material mixer, be used for Uniform medium Non-uniform medium Blender, be used for Uniform density medium Un-uniformed medium Un-uniformed medium Un-uniformed gas absorption	- - - 1.0 1.4 1.0 1.2	- 1.8 1.5 1.3 1.6 1.3 1.6	1.6 1.8 1.5 1.4 1.4 1.7 1.5 1.6 1.8	Fan (Shaft flow and centrifugal type)  Food industry Sugar production Sugar-cane cutter* Sugar crane mill Beet sugar production Beet masher Squeeze machine, mechanical refrigerator, cooking machine Beet cleaner Beet chopper	- - - -	1.4 - - - -	1.5 1.7 1.7 1.2 1.4 1.5
Oven Centrifugal machine  Metal processing equipment Plate turnover	1.0	1.3 1.2	1.5 1.3	Paper-making machinery Various kinds*** Pulper driving device	1 1 7 0	1.8 goods acc	0
Steel pushing device Winding machine	1.0	1.2 1.6	1.2 1.6	Centrifugal compressor	-	1.4	1.5
Cooling bed transverse frame Roller leveler Roller path Continuous Interval Reversing mill Cutter	- - - -	1.5 1.6 1.5 2.0 1.8	1.5 1.6 1.5 2.0 1.8	Rope way cable car Delivery ropeway Cableway of shuttle system T rod elevator		1.3 1.6 1.3	1.4 1.8 1.4
Continuous* Crank type* Continuous casting driving device Rolling mill	1.0 -	1.5 1.0 1.4	1.5 1.0 1.4	Continuous cableway  Cement industry  Concrete blender	-	1.4	1.6
Reversing cogging mill Reversing plate slab mill Reversing wire mill Reversing thin plate mill	- - - -	2.5 2.5 1.8 2.0	2.5 2.5 1.8 2.0	Concrete blender Crusher* Rotary kiln Tube mill Powder concentrator	-   -   -	1.2	1.4 2.0 2.0
Reversing middle thickness plate mill Roll gap adjusting and driving device	0.9	1.8 1.0	1.8 -	Roller press	_ _	1.6 -	1.6 2.0





Table 1		Drive	n mac	hine factor		f	1
Driven equipment		running n load(h		Driven equipment		running load(h	
	≤ 2	> 2-10	> 10		≤ 2	> 2-10	> 10
Wood industry				Plastics industry			
Barking machine				Miller, compound grinding			ı
Feed drive	1.25	1.25	1.50	Coating, film	1.25	1.25	1.25
Main drive	1.75	1.75	1.75	Conveying pipe, Pulling rod, thin type			
Conveyor				Pipe type, Pile drawer	1.25	1.25	1.50
Burner,repeating saw	1.25	1.25	1.50	Continuous mixer, Calender	1.50	1.50	1.50
Rotary tower, transit transport	1.50	1.50	1.50	Blow film, to plasticizing	1.50	1.50	1.50
Main loading,heavy loading Main original wood,land base	1.75	1.75	2.00	Batch mixer	1.75	1.75	1.75
Conveying chain	1.75	1.75	2.00	Rubber industry			
Floor	1.50	1.50	1.50	Continuous strong inner mixer, Mix roller,			
Green-wood	1.50	1.50	1.75	Batch feeding mixer (except for double sticks)	1.50	1.50	1.50
Cutting Chain				Refiner, calender	1.50	1.50	1.50
Saw transmission,traction	1.50	1.50	1.75				ı
Peeling barrel	1.75	1.75	2.00	Double roller clamp feeding and mixed miller	1.25	1.25	1.50
Feed drive				Batch strong inner mixer,			ı
Edging, wood trimmer	1.25	1.25	1.50	Double stick single groove grain stick			
Planer feed, assorting table, Automatic incline lifting	1.20	1.20	1.00	Miller heater, double sticks	1.75	1.75	1.75
Multi-shaft feed.raw wood				Batch feeding mixer			ı
Transportation and rotation	1.75	1.75	1.75	Wave stick miller	2.00	2.00	2.00
Transportation							
Charging tray				Generator and exciter	1.00	1.00	1.25
Plywood lathe drive	1.50	1.50	1.75	Hammer crusher	1.75	1.75	2.00
Conveying chain,Lifting				Sand miller	1.25	1.25	1.50

⚠ Note: Determine required power P₂ of the driven equipment:

### Prime mover factor

Table 2 Factor for prime mover	f 2
Electric motors,hydraulic motors,turbines	1.0
Piston engines 4-6 cylinders	1.25
Piston engines 1–3 cylinders	1.5

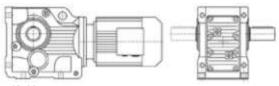
Table 3	Stai	rt factor		fз
f <sub>3</sub> f <sub>1</sub> x f <sub>2</sub> Starts per hour	1	1.25 -1.75	2- 2.75	≥ 3
≤ 5	1	1	1	1
6 – 2 5	1.2	1.12	1.06	1
26-60	1.3	1.2	1.12	1.06
61-180	1.5	1.3	1.2	1.12
> 180	1.7	1.5	1.3	1.2

<sup>\*)</sup>Determine rated power according to maximum torque.
\*\*)It's necessary to check thermal capacity.



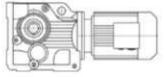


K series gear units are available in the following designs:



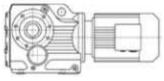
K..Y..

Foot-mounted solid shaft helical bevel gear units



KAB...Y..

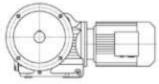
Foot-mounted hollow shaft helical bevel gear





KA...Y..

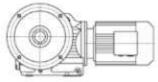
Hollow shaft helical bevel gear units





KF...Y.

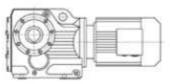
Flanged-mounted solid shaft helical bevel units





KAF...Y..

Flange-mounted hollow shaft helical bevel gear units

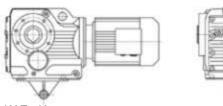




KAZ...Y..

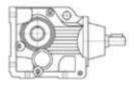
Short-flange-mounted hollow shaft helical bevel gear units

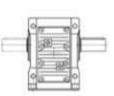
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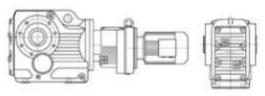
KAT...Y..

Torque-arm-mounted hollow shaft helical bevel gear units

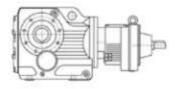




K ( KF、KA、KAF、KAB、KAZ ) S... Helical bevel gear units with solid shaft input

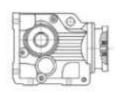


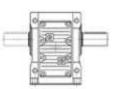
KA ( K、KF、KAF、KAB、KAZ ) ...R...Y... Combi-type helical bevel gear units





KA ( K、KF、KAF、KAB、KAZ ) S...R... Combi-type helical bevel gear units with solid shaft input

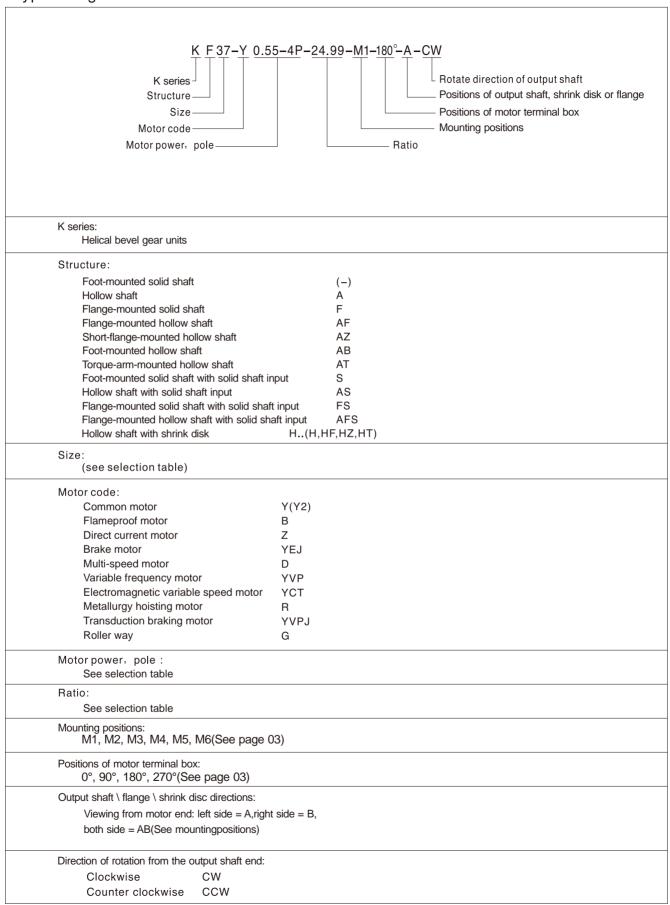




KA ( K、KF、KAF、KAB、KAZ ) ...Y... Customers provide the motor by themselves need connected flange.



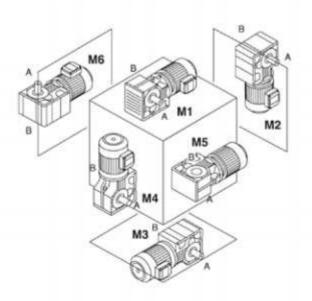
#### Type Designations:

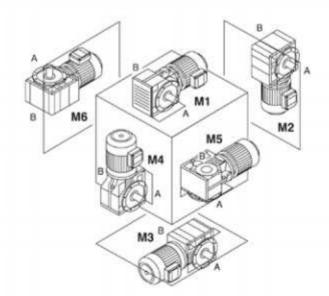


<sup>\*</sup>Dimensions of hollow shaft with shrink disc, see page 40-41.

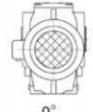


## Mounting positions

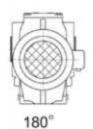




### Positions of motor terminal box:









0° 90° Input power rating and permissible torque

Size	37	47	57	67	77	87	97	107	127	157	167	187
Structure				k	KA I	KF KAF	KAZ	KAT K	AΒ			
Input power rating(kW)	0.18~3.0	0.18~3.0	0.18~5.5	0.18~5.5	0.37~11	0.75~22	1.1~30	3~45	7.5~90	11~160	11~200	18.5~200
Ratio	5.36~ 106.38	5.81~ 131.87	6.57~ 145.14	7.14~ 144.79	7.24~ 192.18	7.19~ 197.37	8.95~ 176.05	8.74~ 141.46	8.68~ 146.07	12.65~ 150.41	17.28~ 163.91	17.27~ 180.78
Permissible torque (n·m)	200	400	600	820	1550	2700	4300	8000	13000	18000	32000	50000

### Gear unit weight

Size	37	47	57	67	77	87	97	107	127	157	167	187
Weight (kgs)	11	20	27	33	57	85	130	250	380	610	1015	1700

The marked weight is average value, it has no constraint force.



#### Oil

#### K...,KAB...:

Size			Oil le	vel(L)		
Size	M1	M2	МЗ	M4	M5	M6
K37	0.5	1	1	1.3	1	1
K47	0.8	1.3	1.5	2	1.6	1.6
K57	1.2	2.3	2.5	3	2.6	2.4
K67	1.1	2.4	2.6	3.4	2.6	2.6
K77	2.2	4.1	4.4	5.9	4.2	4.4
K87	3.7	8	8.7	10.9	7.8	8
K97	7	14	15.7	20	15.7	15.5
K107	10	21	25.5	33.5	24	24
K127	21	41.5	44	54	40	41
K157	31	62	65	90	58	62
K167	35	100	100	125	85	85
K187	60	170	170	205	130	130

#### KF...:

0:			Oil le	vel(L)		
Size	M1	M2	M3	M4	M5	M6
KF37	0.5	1.1	1.1	1.5	1	1
KF47	0.8	1.3	1.7	2.2	1.6	1.6
KF57	1.3	2.3	2.7	3	2.9	2.7
KF67	1.1	2.4	2.8	3.6	2.7	2.7
KF77	2.1	4.1	4.4	6	4.5	4.5
KF87	3.7	8.2	9	11.9	8.4	8.4
KF97	7	14.7	17.3	21.5	15.7	16.5
KF107	10	22	26	35	25	25
KF127	21	41.5	46	55	41	41
KF157	31	66	69	92	62	62

### KA... KAF... KAZ...:

0:			Oil le	vel(L)		
Size	M1	M2	M3	M4	M5	M6
K37	0.5	1	1	1.4	1	1
K47	0.8	1.3	1.6	2.1	1.6	1.6
K57	1.3	2.3	2.7	3	2.9	2.7
K67	1.1	2.4	2.7	3.6	2.6	2.6
K77	2.1	4.1	4.6	6	4.4	4.4
K87	3.7	8.2	8.8	11.1	8	8
K97	7	14.7	15.7	20	15.7	15.7
K107	10	20.5	24	32	24	24
K127	21	41.5	43	52	40	40
K157	31	66	67	87	62	62
KA167	35	100	100	125	85	85
KA187	60	170	170	205	130	130



Output speed	Output torque	Ratio	Service factor	Туре	Pole	Output speed	Output torque	Ratio	Service factor	Туре	Pole
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р
0.18k	W					0.18k	W				
0.09 0.11 0.13 0.14 0.16 0.19 0.21 0.24 0.28 0.31	16482 13692 12013 10807 9293 8236 7226 6388 5533 4868 4184	14975 12440 10914 9819 8443 7483 6565 5804 5027 4423 3801	0.74 0.89 1.0 1.1 1.3 1.5 1.7 1.9 2.2 2.5 2.9	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4 4 4	1.5 1.8 2.0 2.3 2.6 3.0 3.3 3.9 4.3 5.1	994 873 767 675 597 518 462 397 356 299	903 793 697 613 542 471 420 361 323 272	0.78 0.88 1.0 1.1 1.3 1.5 1.7 1.9 2.2	K 67R37 KF 67R37 KA 67R37 KAF67R37	4 4 4 4
0.43 0.17 0.19 0.23 0.25 0.27 0.32 0.37 0.43 0.48 0.56	9037 7888 6711 6144 5575 4732 4135 3562 3158 2756	8211 7167 6097 5582 5065 4299 3757 3236 2869 2504	3.4 0.8 1.0 1.1 1.2 1.3 1.6 1.8 2.1 2.4 2.7	K 107R77 KF 107R77 KA 107R77 KAF107R77	4 4 4 4	2.3 2.6 2.9 3.3 3.8 4.4 5.1 5.8 6.5 7.2 8.4	677 599 521 463 398 351 300 264 237 211 183	615 544 473 421 362 319 273 240 215 192 166	0.8 0.9 1.1 1.2 1.4 1.6 1.9 2.1 2.4 2.7 3.1	K 57R37 KF 57R37 KA 57R37 KAF57R37	4 4 4 4
0.63 0.30 0.34 0.39 0.45 0.50 0.57 0.65	5139 4493 3944 3421 3035 2662 2337	4669 4082 3583 3108 2757 2419 2123	3.1 0.79 0.90 1.0 1.2 1.3 1.5	K 97R57	4	3.7 4.3 4.8 5.6 6.2 7.0 8.3 9.3	413 359 318 275 248 218 184 164	375 326 289 250 225 198 167 149 128	0.9 1.0 1.2 1.4 1.5 1.7 2.0 2.3 2.7	K 47R37 KF 47R37 KA 47R37 KAF47R37	4 4 4 4
0.75 0.86 0.97 1.1 1.3 1.5	2043 1789 1574 1388 1213 1053 941	1856 1625 1430 1261 1102 957 855	2.0 2.3 2.6 2.9 3.3 3.8 4.3	KF 97R57 KA 97R57 KAF97R57	4 4 4	6.8 7.7 8.7 10	226 199 176 150 140	205 181 160 136 127	0.83 0.94 1.07 1.26 1.34	K 37R17 KF 37R17 KA 37R17 KAF37R17	4 4 4 4
1.9 2.1 0.45	818 717 3420	743 651 3107	4.9 5.6 0.74			5.9 6.9 7.9 8.3	275 235 205 195	144.79 123.54 108.03 102.62	2.8 3.3 3.8 4.0	K 67 KF 67 KA 67 KAF67	6 6 6
0.51 0.59 0.67 0.75 0.84	3003 2610 2298 2041 1825	2728 2371 2088 1854 1658	0.85 0.97 1.1 1.2 1.4	K 87R57 KF 87R57	4	9.6 11 13	168 144 126	144.79 123.54 108.03	4.6 5.4 6.1	K 67 KF 67 KA 67 KAF67	4 4 4 4
1.0 1.1 1.3 1.5 1.7	1557 1353 1187 1047 921 799	1415 1229 1078 951 837 726	1.6 1.9 2.1 2.4 2.8 3.2	KA 87R57 KAF87R57	4 4	5.9 6.9 7.8 8.3 9.4	276 235 206 196 172	145.14 123.85 108.29 102.88 90.26	2.0 2.4 2.7 2.9 3.3	K 57 KF 57 KA 57 KAF57	6 6 6
0.9 1.0 1.1 1.3 1.5	1666 1528 1341 1159 1017 897	1514 1388 1218 1053 924 815	0.9 1.0 1.1 1.3 1.4	K 77R37 KF 77R37 KA 77R37 KAF77R37	4 4 4	9.6 11 13 14 15	169 144 126 120 105 89	145.14 123.85 108.29 102.88 90.26 76.56	3.3 3.9 4.5 4.7 5.4 6.3	K 57 KF 57 KA 57 KAF57	4 4 4 4
2.0 2.2 2.5 2.9 3.2 3.8	780 685 608 534 471 404	709 622 552 485 428 367	1.9 2.1 2.4 2.7 3.1 3.6		4	6.4 7.0 8.1 9.4 10	251 231 198 173 162	131.87 121.48 104.37 90.86 85.12	1.50 1.63 1.90 2.2 2.3	K 47 KF 47 KA 47 KAF47	6 6 6



Output speed	Output torque	Ratio	Service factor	Туре	Pole	Output speed	Output torque	Ratio	Service factor	Type	Pole
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р
0.18k	W					0.25k	W				
11 12 13 15 16	153 141 121 106 99	131.87 121.48 104.37 90.86 85.12	2.5 2.7 3.1 3.6 3.8	K 47 KF 47 KA 47 KAF47	4 4 4 4	0.86 1.0 1.1 1.3 1.5	2484 2186 1928 1685 1463 1307	1625 1430 1261 1102 957 855	1.6 1.8 2.1 2.4 2.8 3.1	K 97R57 KF 97R57 KA 97R57 KAF97R57	4 4 4 4
8.0 8.7 10 12	202 186 159 138	106.38 97.81 83.69 72.54	0.93 1.01 1.18 1.36	K 37 KF 37 KA 37 KAF37	6 6 6	0.7 0.7 0.8 1.0	3192 2834 2535 2163	2088 1854 1658 1415	0.80 0.90 1.0 1.2	K 87R57	4
13 14 17 19 21 24	124 114 97 84 79 68	106.38 97.81 83.69 72.54 67.80 58.60	1.52 1.65 1.93 2.2 2.4 2.8			1.0 1.1 1.3 1.5 1.7 1.9 2.2	1879 1648 1454 1280 1110 975	1415 1229 1078 951 837 726 638	1.2 1.4 1.5 1.7 2.0 2.3 2.6	KF 87R57 KA 87R57 KAF87R57	4 4 4
28 31 37 39 46 48 56 60 69 81 91 106 114 133 156 175	58 52 44 41 35 34 29 27 23 20 18 15 14 12 10 9	49.79 44.46 37.97 35.57 29.96 28.83 24.99 23.36 20.19 17.15 15.31 13.08 12.14 10.49 8.91 7.96	3.2 3.6 4.3 4.5 5.4 5.6 6.5 6.7 7.4 8.5 9.2 10 11 12 15 16	K 37 KF 37 KA 37 KAF37	4 4 4 4	1.3 1.5 1.7 2.0 2.2 2.5 2.9 3.2 3.9 4.3 4.9 5.7 6.4 7.3 8.2	1610 1413 1246 1084 951 844 741 654 547 489 433 376 330 292 260	1053 924 815 709 622 552 485 428 358 320 283 246 216 191 170	0.9 1.0 1.2 1.3 1.5 1.7 2.0 2.2 2.7 3.0 3.4 3.9 4.4 5.0 5.6	K 77R37 KF 77R37 KA 77R37 KAF77R37	4 4 4 4
$\begin{array}{c} 0.25 k \\ 0.14 \\ 0.16 \\ 0.19 \\ 0.21 \\ 0.24 \\ 0.28 \\ 0.31 \\ 0.27 \end{array}$	15010 12907 11438 10036 8872 7685 6761	9819 8443 7482 6565 5804 5027 4423	0.81 0.95 1.07 1.2 1.4 1.6	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4 4 4	2.3 2.6 3.0 3.3 3.9 4.3 5.1 5.8 6.4	937 829 720 642 552 494 416 367 332	613 542 471 420 361 323 272 240 217	0.8 0.9 1.1 1.2 1.4 1.6 1.9 2.1 2.3	K 67R37 KF 67R37 KA 67R37 KAF67R37	4 4 4 4
0.37 0.43 0.23 0.25 0.27 0.32 0.37 0.43 0.48 0.56 0.63 0.74	9320 8533 7743 6572 5743 4947 4386 3828 3368 2857	3801 3237 6097 5582 5065 4299 3757 3236 2869 2504 2203 1869	2.1 2.5 0.81 0.88 1.0 1.1 1.3 1.5 1.7 2.0 2.2 2.6	K 107R77 KF 107R77 KA 107R77 KAF107R77	4 4 4 4	3.3 3.8 4.4 5.1 5.8 6.5 7.2 8.4 9.9 11 13	644 553 488 417 367 329 294 254 216 193 165 145	421 362 319 273 240 215 192 166 141 126 108 95	0.9 1.0 1.2 1.4 1.5 1.7 1.9 2.2 2.6 2.9 3.4 3.9	K 57R37 KF 57R37 KA 57R37 KAF57R37	4 4 4 4
0.82 0.91 1.06	2582 2343 2013 4751	1689 1533 1317 3108	2.9 3.2 3.7 ————	V 0755		4.2 4.8 5.0 5.7	536 471 447 395	154.02 135.28 128.52 113.56	2.7 3.1 3.3 3.7	K 77 KF 77 KA 77 KAF77	8 8 8
0.50 0.57 0.65 0.75	4215 3698 3245 2837	2757 2419 2123 1856	1.0 1.1 1.2 1.4	K 97R57 KF 97R57 KA 97R57 KAF97R57	4 4 4 4	4.4 4.7 5.5 6.3	507 474 407 357	192.18 179.37 154.02 135.28	2.9 3.1 3.6 4.1	K 77 KF 77 KA 77 KAF77	6 6 6



Output	Output	Ratio	Service factor	Туре	Pole	Output	Output torque	Ratio	Service factor	Туре	Pol				
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р				
0.25k	W					0.37k	W								
5.2	430	123.54	1.8	K 67	8	0.19	16930	7483	0.72						
6.0 6.3	376 357	108.03 102.62	2.1 2.2	KF 67 KA 67	8 8	0.21 0.24	14853 13131	6565 5804	0.82 0.93	V 107D77	4				
7.2	313	90.04	2.5	KAF67	8	0.28	11373	5027	1.07	K 127R77 KF 127R77	4 4				
5.9	382	144.79	2.0	K 67	6	0.31 0.37	10007 8600	4423 3801		KA 127R77 KAF127R77	4 4				
6.9	326	123.54	2.4	KF 67	6	0.43	7324	3237	1.67	KAI 12/11//	7				
7.9 8.3	285 271	108.03 102.62	2.7 2.8	KA 67 KAF67	6 6	0.72 0.79	4357 3975	1926 1757	2.80 3.07						
9.6	234	144.79	3.3	K 67	4	0.90	3486	1541	3.51						
11	199	123.54	3.9	KF 67	4	0.37	8500	3757	0.88						
13 14	174 166	108.03 102.62	4.4 4.7	KA 67	KA 67 4 KAF67 4	0.43 0.48	7321 6491	3236 2869	1.03 1.16						
5.9	383	145.14	1.5	TOT OT		0.46	5665	2504		K 107R77	4				
5.9 6.9	383	123.85	1.5	K 57	7 6 0.63 4984 7 6 0.74 4229	2203	1.51	KF 107R77	4						
7.8	286	108.29	2.0	KF 57 KA 57			1869 1689		KA 107R77 KAF107R77	4 4					
8.3 9.4	272 238	102.88 90.26	2.1 2.4	KAF57	6	0.91	3468	1533	2.2	1071177	7				
11	202	76.56	2.8			1.06 1.21	2980 2602	1317 1150	2.5 2.9						
9.6	234	145.14	2.4			0.65	4803	2123	0.84						
11	200	123.85	2.8	K 57	4	0.75	4199	1856	0.96						
13 14	175 166	108.29 102.88	3.2 3.4	KF 57 KA 57	4 4	0.86 0.97	3676 3235	1625 1430	1.10 1.25	K 97R57	4				
15	146	90.26	3.9	KAF57	4	1.1	2853	1261	1.42	KF 97R57	4				
18	124	76.56	4.6			1.3 1.5	2493 2165	1102 957	1.62 1.87	KA 97R57 KAF97R57	4 4				
6.4 7.0	348 321	131.87 121.48	31.87 1.08 21.48 1.17 K 47 6 1.6 1934	855	2.1	KAI 9/113/	7								
8.1	276	104.37	1.36	KF 47	6	1.9 2.1	1681 1473	743 651	2.4 2.7						
9.4 10	240 225	90.86 85.12	1.57 1.67	KA 47 KAF47	6 6	2.4	1296	573	3.1						
11	213	131.87	1.77		4	1.0	3201	1415	0.79						
11	196	121.48	1.92	K 47 KF 47	4 4	1.1	2781	1229	0.91						
13 15	169 147	104.37 90.86	2.2 2.6	KA 47	4	1.3 1.5	2439 2152	1078 951	1.04 1.18	K 87R57	4				
16	137	85.12	2.7	KAF47	4	1.7	1894	837	1.34	KF 87R57 KA 87R57	4 4				
10	221		85.12	85.12	85.12 83.69	85.12 83.69	0.9	K 37	6	1.9 2.2	1643 1443	726 638	1.55 1.76	KAF87R57	4
12	192	72.54	1.0	KF 37	6	2.5	1272	562	2.0						
13 15	179 155	67.80 58.60	1.1 1.2	KA 37	6	2.9	1072 964	474 426	2.4 2.6						
17	131	49.79	1.4	KAF37	6	3.3 3.7	844	373	3.0						
13	172	106.38	1.1			1.7	1844	815	0.79						
14 17	158 135	97.81 83.69	1.2 1.4			2.0 2.2	1604 1407	709 622	0.91 1.04						
19	117	72.54	1.6			2.5	1249	552	1.17	K 77R37	4				
21 24	109 95	67.80 58.60	1.7 2.0			2.9	1097	485	1.33	KF 77R37	4				
28	80	49.79	2.3			3.2 3.9	968 810	428 358	1.50 1.80	KA 77R37 KAF77R37	4				
31 37	72 61	44.46 37.97	2.6			4.3	724	320	2.0	NAF//HJ/	4				
37	57	37.97 35.57	3.1 3.3	K 37	4	4.9 5.7	640 557	283 246	2.3 2.6						
46	48	29.96	3.9	KF 37	4	6.4	489	216	3.0						
48 56	47 40	28.83 24.99	4.0 4.7	KA 37 KAF37	4 4	7.3 8.2	432 385	191 170	3.4 3.8						
60	38	23.36	4.9		•	9.3	339	150	4.3						
69 81	33 28	20.19 17.15	5.3 6.1			3.3	950	420	0.81	·					
91	25	15.31	6.7			3.9 4.3	817 731	361 323	0.94 1.05						
106 114	21 20	13.08 12.14	7.3 7.7			5.1	615	272	1.25	K 67R37	4				
133	17	10.49	8.9		5.8 6.4	543 491	240 217	1.42 1.57	KF 67R37 KA 67R37	4 4					
156	14	8.91	10		7.3	432	217 191	1.78	KAF67R37	4					
175 204	13 11	7.96 6.80	11 13			8.4	376	166	2.05						
218	10	6.37	13			9.7 12	326 269	144 119	2.37 2.86						



Output speed r/min	Output torque Nm	Ratio i	Service factor	Type Type	Pole p	Output speed r/min	Output torque Nm	Ratio i	Service factor	Type Type	Pole p
0.37k	W					0.37k	W				
5.1 5.8 6.5 7.2	618 543 486 434	273 240 215 192	0.91 1.04 1.16 1.30	K 57R37 KF 57R37 KA 57R37	4 4	8.5 9.7 10 12	392 341 319 282	104.37 90.86 85.12 75.2	0.96 1.10 1.18 1.33	K 47 KF 47 KA 47 KAF47	6 6 6
8.4 9.9 11 13 15	376 319 285 244 215	166 141 126 108 95	1.50 1.77 1.98 2.3 2.6	KA 57R37 KAF57R37	4	11 12 13 15	315 290 249 217 203	131.87 121.48 104.37 90.86 85.12	1.19 1.30 1.51 1.73 1.85	K 47 KF 47 KA 47	4 4 4
3.8 4.1 4.6	868 813 729	174.99 164.05 147.09	2.9 3.1 3.5	K 87 KF 87 KA 87 KAF87	8 8 8	18 20 22	180 167 151	75.20 69.84 63.30 97.81	2.1 2.3 2.5	KAF47	4
4.5 5.1	740 657	197.27 174.99	3.4 3.9	K 87 KF 87 KA 87 KAF87	6 6 6	14 17 19 21 24 28	200 173 162 140 119	97.81 83.69 72.54 67.80 58.60 49.79	0.80 0.94 1.08 1.16 1.34 1.58		
5.0 5.2 5.9 6.9	671 637 563 481	135.28 128.52 113.56 97.05	2.2 2.3 2.6 3.0	K 77 KF 77 KA 77 KAF77	8 8 8	31 37 39 46	106 91 85 72	44.46 37.97 35.57 29.96 28.83	1.77 2.07 2.21 2.63 2.73	K 37 KF 37	4
5.7 6.5 6.9 7.8	578 508 482 426	154.02 135.28 128.52 113.56	2.5 2.9 3.0 3.4	K 77 KF 77 KA 77 KAF77	6 6 6	56 60 69 81	60 56 69 48 81 41 91 37	24.99 23.36 20.19 17.15 15.31	3.15 3.28 3.60 4.13 4.5	KA 37 KAF37	4 4
7.23 7.75 9.02	459 429 368	192.18 179.37 154.02	3.2 3.4 4.0	K 77 KF 77 KA 77 KAF77	4 4 4 4	106 114 133 156 175	31 29 25 21	13.08 12.14 10.49 8.91 7.96	5.0 5.2 6.0 7.1 7.7		
6.2 6.5 7.4	536 509 446	108.03 102.62 90.04	1.44 1.52 1.73	K 67 KF 67 KA 67	8 8 8	204 218 259	16 15 13	6.80 6.37 5.56	8.7 9.0 10		
				KAF67	8	0.55k	W				
7.2 8.2 8.6 9.8	464 405 385 338	123.54 108.03 102.62 90.04	1.66 1.90 2.0 2.3	K 67 KF 67 KA 67 KAF67	6 6 6	0.08 0.10 0.11 0.12 0.19	57099 47998 44111 39170 24662	16978 14272 13116 11647 7333	0.82 0.98 1.07 1.20 1.9	K 187R97 KA 187R97	
9.6 11 13 15 18	346 295 258 215 182	144.79 123.54 108.03 90.04 76.37	2.2 2.6 3.0 3.6 4.2	K 67 KF 67 KA 67 KAF67	4 4 4 4	0.12 0.14 0.16 0.21 0.26 0.34	38783 34395 28913 21988 18046	11532 10227 8597 6538 5366 4059	0.78 0.87 1.04 1.37 1.67	K 167R97 KA 167R97	
7.1 8.2 8.6 10 12 13	465 406 386 339 287 259	123.85 108.29 102.88 90.26 76.56 69.12	1.2 1.4 1.5 1.7 2.0 2.2	K 57 KF 57 KA 57 KAF57	6 6 6	0.20 0.23 0.35 0.46	13651 23142 19947 13365 10247	6881 5931 3974 3047	2.2 0.73 0.85 1.27 1.65	K 157R97 KF 157R97 KA 157R97 KAF157R97	4 4
9.6 11 13 14 15 18 20	347 296 259 246 216 183 165	145.14 123.85 108.29 102.88 90.26 76.56 69.12	1.6 1.9 2.2 2.3 2.6 3.1 3.4	K 57 KF 57 KA 57 KAF57	4 4 4 4	0.31 0.37 0.43 0.47 0.55 0.72 0.79 0.90 1.0 1.2	14875 12783 10886 9891 8569 6477 5909 5183 4513 3958 3447	4423 3801 3237 2941 2548 1926 1757 1541 1342 1177 1025	0.82 0.96 1.12 1.24 1.43 1.89 2.1 2.4 2.7 3.1	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4



Output speed	Output torque	Ratio	Service factor	Type	Pole	Output speed	Output torque	Ratio	Service factor	Туре	Pole		
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р		
0.55k	W					0.55k	W						
0.48 0.56 0.63 0.74	9649 8421 7409 6286	2869 2504 2203 1869	0.78 0.89 1.01 1.20	K 107R77	4	3.8 4.1 4.5	1290 1209 1084	174.99 164.05 147.09	2.0 2.1 2.3	K 87 KF 87 KA 87 KAF87	8 8 8 8		
0.82 0.91 1.1 1.2 1.4	5680 5156 4429 3868 3414	1689 1533 1317 1150 1015	1.32 1.46 1.70 1.94 2.2	KF 107R77 KA 107R77 KAF107R77	4 4 4	4.5 5.1 5.4 6.0	1101 976 915 821	197.27 174.99 164.05 147.09	2.3 2.6 2.8 3.1	K 87 KF 87 KA 87 KAF87	6 6 6		
1.6 1.8 2.0 2.3	2929 2630 2307 2038	871 782 686 606	2.6 2.9 3.3 3.7			6.5 6.9 7.8 9.1	755 717 634 541	135.28 128.52 113.56 97.05	1.9 2.0 2.3 2.7	K 77 KF 77 KA 77 KAF77	8 8 8		
1.0 1.1 1.3 1.5	4809 4241 3706 3218 2875	1430 1261 1102 957 855	0.8 1.0 1.1 1.3	K 97R57 KF 97R57 KA 97R57 KAF97R57	4	5.7 6.5 6.9 7.8	859 755 717 634	154.02 135.28 128.52 113.56	1.70 1.93 2.0 2.3	K 77 KF 77 KA 77 KAF77	6 6 6		
1.9 2.1 2.4 2.8 3.2 3.6	2499 2189 1927 1695 1470 1285	743 651 573 504 437 382	1.6 1.8 2.1 2.4 2.8 3.1		4 4 4	9.0 10 11 12 14	547 481 457 403 345	154.02 135.28 128.52 113.56 97.05	2.7 3.0 3.2 3.6 4.2	K 77 KF 77 KA 77 KAF77	4 4 4 4		
1.5 1.7 1.9 2.2	1026 3198 2815 2442 2146	951 837 726 638	3.9 0.79 0.90 1.04 1.18	K 87R57 KF 87R57 KA 87R57 KAF87R57		7.2 8.2 8.6 10 12	689 603 573 502 426	123.54 108.03 102.62 90.04 76.37	1.12 1.28 1.35 1.53 1.81	K 67 KF 67 KA 67 KAF67	6 6 6		
2.5 2.9 3.3 3.7 4.2 4.7	1890 1594 1433 1254 1110 985	562 474 426 373 330 293	1.34 1.59 1.77 2.0 2.3 2.6		KF 87R57 KA 87R57	KF 87R57 KA 87R57	KF 87R57 KA 87R57	4 4 4 4	11 13 15 18	439 384 320 271	123.54 108.03 90.04 76.37	1.76 2.0 2.4 2.8	K 67 KF 67 KA 67 KAF67
5.6 5.9 6.9	841 794 676	250 236 201	3.0 3.2 3.8			8.2 8.6 9.8 12	604 574 504 427	108.29 102.88 90.26 76.56	0.93 0.98 1.12 1.32	K 57 KF 57 KA 57	6 6 6		
2.5 2.9 3.2	1856 1631 1439	552 485 428	0.78 0.89 1.01			13 14 15	386 339 320	69.12 60.81 57.42	1.46 1.66 1.76	KAF57	6		
3.9 4.3 4.9 5.7 6.4 7.3 8.2 9.3	1204 1076 952 827 726 642 572 504	358 320 283 246 216 191 170	1.21 1.35 1.53 1.76 2.0 2.3 2.5 2.9	K 77R37 KF 77R37 KA 77R37 KAF77R37	4 4 4 4	11 13 14 15 18 20 23 24	440 385 365 321 272 246 216 204	123.85 108.29 102.88 90.26 76.56 69.12 60.81 57.42	1.28 1.47 1.54 1.76 2.1 2.3 2.6 2.8	K 57 KF 57 KA 57 KAF57	4 4 4 4		
5.1 5.8 6.4 7.3 8.4 9.7	915 807 730 642 558 484 400	272 240 217 191 166 144 119	0.84 0.95 1.1 1.2 1.4 1.6 1.9	K 67R37 KF 67R37 KA 67R37 KAF67R37	4 4 4 4	13 15 16 18 20 22	371 323 302 267 248 225	104.37 90.86 85.12 75.20 69.84 63.30	1.01 1.17 1.24 1.41 1.52 1.67	K 47 KF 47 KA 47 KAF47	4 4 4 4		
7.2 8.4 9.9	646 558 474	192 166 141	0.87 1.0 1.2	K 57R37 KF 57R37 KA 57R37	4 4	24 28 30	202 174 164	56.83 48.95 46.03	1.86 2.2 2.3				
9.9 11 13 15	424 363 319	126 108 95	1.3 1.6 1.8		4 4 4	24 28 31 37	208 177 158 135	58.6 49.79 44.46 37.97	0.90 1.06 1.19 1.39	K 37 KF 37 KA 37 KAF37	4 4 4 4		



Output speed	Output torque	Ratio	Service factor	Туре	Pole	Output speed	Output torque	Ratio	Service factor	Туре	Pole	
r/min	Nm	i	f <sub>B</sub>	Туре	р	r/min	Nm	i	f <sub>B</sub>	Туре	р	
0.55k	W					0.75k	W					
39 46 48 56 60 69 81 91 106 114 133 156	126 106 102 89 83 72 61 54 46 43 37	35.57 29.96 28.83 24.99 23.36 20.19 17.15 15.31 13.08 12.14 10.49 8.91	1.49 1.77 1.84 2.1 2.2 2.4 2.8 3.0 3.3 3.5 4.0 4.8	K 37 KF 37 KA 37 KAF37	4 4 4 4	1.9 2.2 2.5 2.9 3.3 3.7 4.2 4.7 5.6 5.9 6.9	3329 2926 2577 2174 1954 1711 1513 1344 1147 1082 922	726 638 562 474 426 373 330 293 250 236 201	0.76 0.87 0.98 1.17 1.30 1.48 1.68 1.89 2.2 2.3 2.8	K 87R57 KF 87R57 KA 87R57 KAF87R57	4 4 4 4	
175 204 218 259	28 24 23 19	7.96 6.80 6.37 5.36	5.2 5.8 6.0 6.9			3.9 4.3 4.9 5.7 6.4	1642 1468 1298 1128 991	358 320 283 246 216	0.89 0.99 1.12 1.29 1.47	K 77R37 KF 77R37 KA 77R37 KAF77R37	4 4 4	
0.75k 0.11 0.12 0.19 0.21	60151 53414 33630 30901	13116 11647 7333 6738	0.78 0.88 1.40 1.52	K 187R97 KA 187R97	4 4	3.9 4.4 4.8	1737 1508 1389	175.47 152.31 140.28	2.3 2.7 2.9	K 97 KF 97 KA 97 KAF97	8 8 8 8	
0.23 0.16 0.21 0.26	27443 39426 29984 24609	5984 8597 6538 5366	1.71 0.76 1.00 1.22	K 167R97 KA 167R97	4 4	4.6 5.4 5.9 6.6	1456 1254 1140 1017	147.09 126.68 115.16 102.71	1.7 2.0 2.2 2.5	K 87 KF 87 KA 87 KAF87	8 8 8	
0.34 0.41 0.35 0.46	18615 15405 18225 13974	4059 3359 3974 3047	1.62 1.95 0.93 1.21			4 4	5.2 5.5 6.2 7.2	1295 1214 1088 937	174.99 164.05 147.09 126.68	2.0 2.1 2.3 2.7	K 87 KF 87 KA 87 KAF87	6 6 6
0.83 1.02 0.43	7705 6260 14845	1680 1365 3237	2.2 2.7 0.82	KA 157R97 KAF157R97	4 4	7.0 8.0 8.5	956 848 795	197.27 174.99 164.05	2.7 3.0 3.2	K 87 KF 87 KA 87	4 4 4	
0.47 0.55 0.72 0.79 0.90 1.0 1.2	13488 11685 8833 8058 7067 6154 5398 4701	2941 2548 1926 1757 1541 1342 1177	0.91 1.05 1.38 1.52 1.73 1.99 2.3 2.6	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4 4 4	9.4 6.7 7.1 8.0 9.4 10	712 1001 951 840 718 658	147.09 135.28 128.52 113.56 97.05 88.97	3.6 1.46 1.53 1.73 2.0 2.2	KAF87 K 77 KF 77 KA 77 KAF77	6 6 6 6	
1.5 0.82 0.91 1.1	7746 7030 6040	1689 1533 1317	3.0 0.97 1.07 1.25	K 107R77	4	9.0 10 11 12 14	746 655 623 550 470	154.02 135.28 128.52 113.56 97.05	1.95 2.2 2.3 2.6 3.1	K 77 KF 77 KA 77 KAF77	4 4 4 4	
1.2 1.4 1.6 1.8 2.0 2.3	5274 4655 3994 3586 3146 2779	1150 1015 871 782 686 606	1.43 1.62 1.88 2.1 2.4 2.7	KF 107R77 KA 107R77 KAF107R77	4 4 4	11 13 15 18 20 23	598 523 436 370 334 294	123.54 108.03 90.04 76.37 68.95 60.66	1.29 1.47 1.77 2.1 2.3 2.6	K 67 KF 67 KA 67 KAF67	4 4 4 4	
1.5 1.6 1.9 2.1 2.4 2.8 3.2 3.6 4.6 5.4 6.0 7.0	4389 3921 3407 2986 2628 2311 2004 1752 1399 1183 1064 913	957 855 743 651 573 504 437 382 305 258 232 199	0.9 1.0 1.2 1.4 1.5 1.7 2.0 2.3 2.9 3.4 3.8 4.4	K 97R57 KF 97R57 KA 97R57 KAF97R57	4 4 4 4	24 11 13 14 15 18 20 23 24 28 31	277 600 525 498 437 371 335 295 278 237 215	57.28 123.85 108.29 102.88 90.26 76.56 69.12 60.81 57.42 48.89 44.43	2.8  0.9 1.1 1.1 1.3 1.5 1.7 1.9 2.0 2.4 2.6	K 57 KF 57 KA 57 KAF57	4 4 4 4	



Output speed	Output torque	Ratio	Service factor	Туре	Pole	Output speed	Output torque	Ratio	Service factor	Туре	Pole			
r/min	Nm	i	$f_{\scriptscriptstyle B}$	Type	р	r/min	Nm	i	$f_{\scriptscriptstyle B}$	Type	р			
0.75k	W					1.1kV	<b>V</b>							
18 20 22 24 28 30 35 39	364 338 307 275 237 223 192 171	75.2 69.84 63.30 56.83 48.95 46.03 39.61 35.39	1.03 1.11 1.23 1.37 1.59 1.69 1.96 2.2	K 47 KF 47 KA 47 KAF47	4 4 4 4	1.5 1.8 2.0 2.3 2.6 3.0	6047 5314 4641 4029 3625 3148	899 790 690 599 539 468	2.0 2.3 2.6 3.0 3.4 3.9	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4 4 4			
31 37 39 46 48 56 60 69 81	215 184 172 145 140 121 113 98 83	31.19 44.46 37.97 35.57 29.96 28.83 24.99 23.36 20.19 17.15	2.5 0.87 1.02 1.09 1.30 1.35 1.55 1.62 1.78 2.0	K 37 KF 37	4 4	1.2 1.4 1.6 1.8 2.0 2.3 2.7 3.1 3.5 4.0 4.5	7735 6827 5859 5260 4614 4076 3464 3060 2704 2361 2065	1150 1015 871 782 686 606 515 455 402 351 307	1.0 1.1 1.3 1.4 1.6 1.8 2.2 2.5 2.8 3.2 3.6	K 107R77 KF 107R77 KA 107R77 KAF107R77	4 4 4 4			
91 106 114 133 156 175 204 218	74 63 59 51 43 39 33	15.31 13.08 12.14 10.49 8.91 7.96 6.80 6.37	2.2 2.4 2.6 3.0 3.5 3.8 4.3	KA 37 KAF37	4 4	1.9 2.1 2.4 2.8 3.2 3.6 4.1	4998 4379 3854 3390 2939 2569 2300	743 651 573 504 437 382 342	0.81 0.92 1.05 1.19 1.38 1.57	K 97R57 KF 97R57 KA 97R57 KAF97R57	4 4 4 4			
259 1.1kW 0.15 0.17 0.19 0.21 0.23	26 V 62528 54267 48971 44998 39962	9363 8126 7333 6738 5984	0.75 0.87 0.96 1.04 1.18	K 187R97 KA 187R97	4 4	2.9 3.3 3.7 4.2 4.7 5.6 5.9 6.9	3188 2865 2509 2220 1971 1682 1587 1352	474 426 373 330 293 250 236 201	0.80 0.89 1.01 1.14 1.29 1.51 1.60 1.88	K 87R57 KF 87R57 KA 87R57 KAF87R57	4 4 4 4			
0.26 0.29 0.32	35728 32122 29144 35835	5350 4810 4364 5366	1.32 1.46 1.61			3.9 4.4 4.8 5.5	2548 2212 2037 1810	175.47 152.31 140.28 124.61	1.6 1.8 2.0 2.2	K 97 KF 97 KA 97 KAF97	8 8 8			
0.29 0.34 0.42 0.51 0.64 0.82	32042 27107 22432 18305 14518 11340	4798 4059 3359 2741 2174 1698	0.94 1.11 1.34 1.64 2.1 2.7	K 167R97 KA 167R97	4 4	5.2 5.9 6.5 7.3	1904 1653 1522 1352	175.47 152.31 140.28 124.61	2.1 2.4 2.7 3.0	K 97 KF 97 KA 97 KAF97	6 6 6 6			
1.00	9363 8622	1402 1291	3.2 3.5			8.0 9.1 10	1238 1074 989	175.47 152.31 140.28	3.3 3.7 4.1	KF 97 KA 97 KAF97	4 4 4			
0.40 0.46 0.54 0.60 0.83 1.0	23480 20375 17430 15507 11219 9116	3516 3051 2610 2322 1680 1365	0.72 0.83 0.97 1.09 1.51 1.86	KF 157R97			KF 157R97	4 4	5.2 5.5 6.2 7.2	1899 1780 1596 1375	174.99 164.05 147.09 126.68	1.34 1.42 1.59 1.84	K 87 KF 87 KA 87 KAF87	6 6 6
1.0 1.1 1.3 1.5 1.6	9116 8207 7299 6291 5703	1365 1229 1093 942 854	1.86 2.1 2.3 2.7 3.0	KA 157R97 KAF157R97	4 4	8.0 8.5 9.5	1234 1157 1037 894	174.99 164.05 147.09 126.68	2.1 2.2 2.4 2.8	K 87 KF 87 KA 87 KAF87	4 4 4 4			
0.72 0.79 0.90 1.0 1.2	12955 11818 10365 9027 7917 6894	1926 1757 1541 1342 1177 1025	0.9 1.0 1.2 1.4 1.5	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4 4 4	6.7 7.1 8.0 9.4	1468 1395 1232 1053	115.16 135.28 128.52 113.56 97.05	0.99 1.04 1.18 1.38	K 77 KF 77 KA 77 KAF77	6 6 6 6			



Output speed r/min	Output torque Nm	Ratio i	Service factor	Type Type	Pole p	Output speed r/min	Output torque Nm	Ratio	Service factor	Type Type	Pole p
1.1kW	J					1.5kW	J				
10 11 12 14 16 18 19	954 906 801 685 628 551 522	135.28 128.52 113.56 97.05 88.97 78.07 73.99	1.53 1.61 1.82 2.1 2.3 2.6 2.8	K 77 KF 77 KA 77 KAF77	4 4 4 4	0.21 0.23 0.26 0.29 0.32 0.39 0.46 0.56 0.62	61360 54494 48720 43803 39741 32866 27884 22940 20654	6738 5984 5350 4810 4364 3609 3062 2519 2268		< 187R97 <a 187r97<="" td=""><td>4 4</td></a>	4 4
14 16 18 20 23 24 29 32 36	724 635 539 486 428 404 344 313 271	102.62 90.04 76.37 68.95 60.66 57.28 48.77 44.32 38.39	1.06 1.21 1.43 1.58 1.80 1.91 2.2 2.5 2.8	K 67 KF 67 KA 67 KAF67	4 4 4 4	0.34 0.42 0.51 0.64 0.82 1.0	36964 30589 24961 19798 15463 12767 11757	4059 3359 2741 2174 1698 1402 1291	0.81 0.98 1.21 1.52	< 167R97 <a 167r97<="" td=""><td>4 4</td></a>	4 4
16 18 20 23 24 29 32 36 39	637 540 488 429 405 345 313 271 252	90.26 76.56 69.12 60.81 57.42 48.89 44.43 38.49 35.70	0.89 1.04 1.16 1.31 1.39 1.64 1.80 2.1 2.2			0.6 0.8 1.0 1.1 1.3 1.5 1.6 2.5 2.8	21118 15299 12431 11192 9954 8578 7777 5145 4581	2319 1680 1365 1229 1093 942 854 565 503	1.5 1.7	< 157R97 <f 157r97<br=""><a 157r97<br=""><af157r97< td=""><td>4 4 4 4</td></af157r97<></a></f>	4 4 4 4
46 51 58 62	214 193 170 160	30.28 27.34 24.05 22.71	2.6 2.9 3.3 3.5	K 57 KF 57 KA 57 KAF57	4 4 4	2.6 3.3 3.8	4881 3807 3342	536 418 367	3.2 H	<ul><li>127R87</li><li>4 127R87</li><li>4 127R87</li><li>4 127R87</li><li>4 127R87</li></ul>	4 4 4
72 80 92 106 117 124 146 161 185 213	136 124 107 93 84 79 68 61 53	19.34 17.57 15.22 13.25 11.92 11.26 9.59 8.71 7.55 6.57	4.0 4.2 4.6 4.7 4.9 5.1 5.6 6.0 6.4 7.0		·	0.80 0.91 1.0 1.2 1.4 1.6 1.8 2.0 2.3	16000 14033 12221 10718 9334 8187 7194 6284 5455	1757 1541 1342 1177 1025 899 790 690 599	1.49 1.70 1.94 2.2	< 127R77 <f 127r77<br=""><a 127r77<br=""><af127r77< td=""><td>4 4 4 4</td></af127r77<></a></f>	4 4 4 4
25 29 30	401 345 325	56.83 48.95 46.03	0.94 1.09 1.16	14 1-	_	2.6 3.0 3.4	4908 4262 3734	539 468 410	2.5 2.9 3.3		
35 40 45 48 54 64 72	279 250 220 207 183 154 138	39.61 35.39 31.19 29.32 25.91 21.81 19.58	1.35 1.51 1.71 1.82 2.1 2.4 2.7	K 47 KF 47 KA 47 KAF47	4 4 4 4	1.4 1.6 1.8 2.0 2.3 2.7 3.1	9243 7932 7121 6247 5519 4690 4144	1015 871 782 686 606 515 455	1.4   1.6   1.8	< 107R77 <f 107r77<br=""><a 107r77<br=""><af107r77< td=""><td>4 4 4 4</td></af107r77<></a></f>	4 4 4 4
47 56 60	211 176 165	29.96 24.99 23.36	0.89 1.07 1.11			3.5 4.0 4.6	3661 3196 2796	402 351 307	2.1 2.4 2.7		
69 82 91 107 115 133 157 176 206 220 261	142 121 108 92 86 74 63 56 48 45 38	20.19 17.15 15.31 13.08 12.14 10.49 8.91 7.96 6.80 6.37 5.36	1.22 1.40 1.52 1.68 1.76 2.0 2.4 2.6 2.9 3.0 3.5	K 37 KF 37 KA 37 KAF37	4 4 4 4	2.4 2.8 3.2 3.7 4.1 4.6 5.4 6.0 7.0	5218 4590 3980 3479 3114 2778 2350 2113 1812	573 504 437 382 342 305 258 232 199	1.3 1.5	K 97R57 KF 97R57 KA 97R57 KAF97R57	4 4 4 4



Output speed	Output torque	Ratio	Service factor	Туре	Pole	Output speed	Output torque	Ratio	Service factor	Туре	Pole
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	$f_{\scriptscriptstyle B}$	Type	р
1.5kW	V					1.5kW	<b>V</b>				
4.2 4.8 5.6 5.9 7.0 7.7	3005 2668 2277 2149 1830 1667	330 293 250 236 201 183	0.84 0.95 1.11 1.18 1.39 1.52	K 87R57 KF 87R57 KA 87R57 KAF87R57	4 4 4 4	23 24 29 32 36 39 46	585 552 470 427 370 343 291	60.81 57.42 48.89 44.43 38.49 35.70 30.28	0.96 1.02 1.20 1.32 1.52 1.64 1.94	K 57 KF 57 KA 57 KAF57	4 4 4 4
4.9 5.8 6.2	2770 2334 2163	141.93 119.58 110.83	2.7 3.2 3.5	K 107 KF 107 KA 107 KAF107	8 8 8 8	51 58 62 72	263 231 218 186	27.34 24.05 22.71 19.34	2.1 2.4 2.6 2.9	KAI 37	7
4.5 4.9 5.5	2972 2738 2432	152.31 140.28 124.61	1.36 1.48 1.66	K 97 KF 97 KA 97 KAF97	8 8 8 8	35 40 45 48	381 340 300 282	39.61 35.39 31.19 29.32	0.99 1.10 1.25 1.33	K 47	4
5.2 6.0 6.6 7.4	2569 2229 2053 1824	175.47 152.31 140.28 124.61	1.57 1.81 1.97 2.2	K 97 KF 97 KA 97 KAF97	6 6 6	54 64 72 83 88	249 210 188 162 153	25.91 21.81 19.58 16.86 15.86	1.51 1.79 2.0 2.2 2.3	KF 47 KA 47 KAF47	4 4 4
8.0 9.2 10 11	1688 1465 1349 1199	175.47 152.31 140.28 124.61	2.4 2.7 3.0 3.4	K 97 KF 97 KA 97 KAF97	4 4 4 4	103 115 119	131 117 113	13.65 12.19 11.77 23.36	2.6 2.8 3.0		
6.3 7.2 7.9 9.0	2153 1854 1686 1503	147.09 126.68 115.16 102.71	1.18 1.37 1.50 1.69	K 87 KF 87 KA 87 KAF87	6 6 6	60 225 69 194 82 165 91 147 107 126 115 117	194 165 147 126	20.19 17.15 15.31 13.08 12.14	0.82 0.90 1.03 1.12 1.23 1.29	K 37 KF 37	4
8.0 8.5 9.5 11 12 14	1683 1578 1415 1218 1108 988 830	174.99 164.05 147.09 126.68 115.16 102.71 86.34	1.51 1.61 1.79 2.1 2.3 2.6 3.1	K 87 KF 87 KA 87 KAF87	4 4 4 4	1133 157 176 206 220 261	117 101 86 77 65 61 52	10.49 8.91 7.96 6.80 6.37 5.36	1.49 1.75 1.90 2.2 2.2 2.6	KA 37 KAF37	4 4
8.0 9.4 10 12	1680 1436 1317 1155	113.56 97.05 88.97 78.07	0.87 1.01 1.11 1.26	K 77 KF 77 KA 77 KAF77	6 6 6	2.2kW 0.33 0.39 0.46	57466 47524 40321	4364 3609 3062	0.82 0.99 1.17		
10 11 12 14 16 18	1301 1236 1092 933 856 751	135.28 128.52 113.56 97.05 88.97 78.07	1.12 1.18 1.33 1.56 1.70 1.94	K 77 KF 77 KA 77	4 4 4	0.50 0.56 0.63 0.69 0.78 0.88	37108 33171 29866 27048 23979 21135	2818 2519 2268 2054 1821 1605	1.27 1.42 1.57 1.74 1.96 2.2	K 187R97 KA 187R97	
19 22 24 27 31 35	712 623 561 492 434 385	73.99 64.75 58.34 51.18 45.16 40.04	2.0 2.3 2.6 3.0 3.4 3.8	KAF77	4	0.52 0.63 0.65 0.84 1.0	36094 29655 28628 22360 18462 17000	2741 2252 2174 1698 1402 1291	0.83 1.01 1.05 1.35 1.63 1.77	K 167R97 KA 167R97	4 4
16 18 20	866 735 663	90.04 76.37 68.95	0.89 1.05 1.16			1.3 1.5	14498 12431	1101 944	2.1 2.4		
23 24 29 32 36 39 46 51	583 551 469 426 369 343 291 262	60.66 57.28 48.77 44.32 38.39 35.62 30.22 27.28	1.32 1.40 1.64 1.81 2.1 2.2 2.7 2.9	K 67 KF 67 KA 67 KAF67	4 4 4 4	0.85 1.0 1.2 1.3 1.5 1.7	22123 17975 16184 14393 12404 11246 9955	1680 1365 1229 1093 942 854 756	0.76 0.94 1.05 1.18 1.36 1.50	K 157R97 KF 157R97 KA 157R97 KAF157R97	



Output speed r/min	Output torque Nm	Ratio	Service factor	гуре	Pole	Output speed r/min	Output torque Nm	Ratio	Service factor	Type	Pole
1/111111	INIII	ı	f <sub>B</sub>	Type	р 	17111111	INIII	· ·	f <sub>B</sub>	Type	р
2.2kW	V					2.2kW	V				
2.6 3.0 3.4 3.9	7058 6229 5504 4833	536 473 418 367	1.73 1.96 2.2 2.5	K 127R87 KF 127R87 KA 127R87 KAF127R87	4 4 4 4	40 46 49 55	490 430 407 356	35.20 30.89 29.27 25.62	3.0 3.4 3.6 4.1	K 77 KF 77 KA 77 KAF77	4 4 4 4
1.4 1.6 1.8 2.1 2.4 2.6 3.0 3.5	13497 11838 10403 9086 7888 7098 6163 5399	1025 899 790 690 599 539 468 410	2.8 0.91 1.03 1.17 1.34 1.55 1.72 1.98 2.3	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4 4 4	23 25 29 32 37 40 47 52 59 63	844 797 678 616 534 495 420 379 334 315	60.66 57.28 48.77 44.32 38.39 35.62 30.22 27.28 24.00 22.66	0.91 0.97 1.14 1.25 1.44 1.56 1.83 2.0 2.3	K 67 KF 67	4 4
2.3 2.8 3.1 3.5 4.0 4.6 5.1 5.8	7980 6782 5992 5294 4622 4043 3648 3200	606 515 455 402 351 307 277 243	0.94 1.11 1.26 1.42 1.63 1.86 2.1	K 107R77 KF 107R77 KA 107R77 KAF107R77	4 4 4 4	74 81 93 107 116 136 150 173	268 244 211 184 170 145 132 114	19.30 17.54 15.19 13.22 12.24 10.42 9.47 8.20 7.14	2.7 2.9 3.1 3.4 2.9 3.2 3.4 3.6 4.0	KA 67 KAF67	4 4
3.7 4.2 4.7 5.5 6.1 7.1	5030 4504 4016 3397 3055 2620	382 342 305 258 232 199	0.80 0.90 1.01 1.19 1.32 1.54	K 97R57 KF 97R57 KA 97R57 KAF97R57	4 4 4 4	32 37 40 47 52	618 535 497 421 380	44.43 38.49 35.70 30.28 27.34	0.91 1.05 1.14 1.34 1.48	K 57	4
5.0 5.9 6.4 7.1	3948 3326 3083 2763	141.93 119.58 110.83 99.34	1.90 2.3 2.4 2.7	K 107 KF 107 KA 107 KAF107	8 8 8 8	52 59 63 73 8 81 8 93	334 316 269 244 212 184	24.05 22.71 19.34 17.57 15.22 13.25	1.69 1.79 2.0 2.1 2.4 2.3	KF 57 KA 57 KAF57	4 4 4
6.1 6.7 7.5 14	3200 2947 2618 1443	152.31 140.28 124.61 103.78	1.26 1.37 1.54 2.80	K 97 KF 97 KA 97 KAF97	6 6 6	107 119 126	166 157 360	11.92 11.26 25.91	2.4 2.5 1.04		
8.1 9.3 10 11 14 15	2440 2118 1951 1733 1443 1346	175.47 152.31 140.28 124.61 103.78 96.80	1.66 1.91 2.1 2.3 2.8 3.0	K 97 KF 97 KA 97 KAF97	4 4 4 4	65 73 84 90 104 116 121	303 272 234 221 190 170	21.81 19.58 16.86 15.86 13.65 12.19	1.24 1.38 1.52 1.62 1.78 1.94 1.61	K 47 KF 47 KA 47 KAF47	4 4 4 4
9.7 11 12 14 16 18 20 23	2046 1762 1602 1428 1201 1103 980 876	147.09 126.68 115.16 102.71 86.34 79.34 70.46 63.00	1.24 1.44 1.58 1.78 2.1 2.3 2.6 2.9	K 87 KF 87 KA 87 KAF87	4 4 4 4	134 156 109 135 159 178 209 223	147 127 182 146 124 111 95 89	10.56 9.10 13.08 10.49 8.91 7.96 6.80 6.37	1.79 2.1 0.85 1.03 1.21 1.32 1.49 1.54	K 37 KF 37 KA 37 KAF37	4 4 4 4
13 15 16 18 19 22 24 28 31 35	1579 1350 1237 1086 1029 901 811 712 628 557	113.56 97.05 88.97 78.07 73.99 64.75 58.34 51.18 45.16 40.04	0.9 1.08 1.18 1.34 1.42 1.62 1.80 2.0 2.3 2.6	K 77 KF 77 KA 77 KAF77	4 4 4 4	265	75	5.36	1.77		



Output speed	Output torque	Ratio	Service factor	Type	Pole	Output speed	Output torque	Ratio	Service factor	Type	Pole
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р
3.0kW	V					3.0kW	V				
0.46 0.5 0.56 0.63 0.69	54983 50602 45233 40726 36883	3062 2818 2519 2268 2054	0.85 0.93 1.04 1.15 1.27	K 187R97 KA 187R97	4	10 12	2692 2268	141.93 119.58	2.8 3.3	K 107 KF 107 KA 107 KAF107	4 4 4 4
0.69 0.78 0.88 1.0 1.2	36883 32699 28820 25050 21476	1821 1605 1395 1196	1.27 1.44 1.63 1.88 2.2	NA 187897	4	7.7 9.3 9.9 11	3496 2911 2716 2427	124.61 103.78 96.80 86.52	1.16 1.39 1.49 1.67	K 97 KF 97 KA 97 KAF97	6 6 6
0.84 1.0 1.1 1.3 1.5 1.7	30490 25175 23182 19770 16951 15137 13593	1698 1402 1291 1101 944 843 757	0.99 1.2 1.3 1.52 1.77 1.99 2.2	K 167R97 KF 167R97 KA 167R97 KAF167R97	4 4 4 4	8.1 9.3 10 11 14 15 16	3328 2889 2660 2363 1968 1836 1646	175.47 152.31 140.28 124.61 103.78 96.80 86.52 77.89	1.21 1.40 1.52 1.71 2.05 2.20 2.46 2.74	K 97 KF 97 KA 97 KAF97	4 4 4 4
1.2 1.3 1.5 1.7	22069 19627 16915 15335	1229 1093 942 854	0.77 0.86 1.00 1.10	K 157R97 KF 157R97 KA 157R97	4 4 4	20 23 25	1338 1186 1072	70.54 62.55 56.55	3.02 3.41 3.77		
1.9 2.5 2.8 2.6	13575 10146 9032 9625	756 565 503 536	1.25 1.67 1.87 ————————————————————————————————————	KA 157R97 KAF157R97	4 4	9.6 11 12 14 16	2790 2403 2184 1948 1637	147.09 126.68 115.16 102.71 86.34	0.91 1.06 1.16 1.30 1.55	K 87	4
3.0 3.4 3.9 4.3 4.9	8494 7506 6590 5926 5207	473 418 367 330 290	1.44 1.63 1.85 2.1 2.3	K 127R87 KF 127R87 KA 127R87 KAF127R87	4 4 4 4	18 20 23 25 29	1505 1336 1195 1074 932 835	79.34 70.46 63.00 56.64 49.16 44.02	1.69 1.90 2.1 2.4 2.7 2.9	KF 87 KA 87 KAF87	4 4 4
1.8 2.1 2.4 2.6 3.0 3.5	14186 12390 10756 9679 8404 7362	790 690 599 539 468 410	0.86 0.99 1.14 1.26 1.45 1.66	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4 4 4	16 18 19 22	1687 1481 1403 1228	36.52 88.97 78.07 73.99 64.75	0.86 0.98 1.04 1.19	K 77 KF 77	4 4
3.1 3.5 4.0 4.6 5.1 5.8	8170 7219 6303 5513 4974 4363	455 402 351 307 277 243	0.92 1.04 1.19 1.36 1.51	K 107R77 KF 107R77	4 4	24 28 31 35 40 46	1106 971 856 759 668 586	58.34 51.18 45.16 40.04 35.20 30.89	1.32 1.50 1.70 1.92 2.2 2.5	KA 77 KAF77	4 4
6.6 7.5 8.5 9.5	3861 3394 3017 2676 2496	215 189 168 149 139	1.95 2.2 2.5 2.8 3.0	KA 107R77 KAF107R77	4 4	32 37 40 47 52 59	841 728 676 573 517 455	44.32 38.39 35.62 30.22 27.28 24.00	0.92 1.06 1.14 1.34 1.49 1.65	K 67	4
5.5 6.1 7.1	4893 4400 3774	258 232 199	0.83 0.92 1.07	K 97R57 KF 97R57 KA 97R57 KAF97R57	4 4 4 4	63 74 81 93	430 366 333 288 251	24.00 22.66 19.30 17.54 15.19 13.22	1.65 1.71 1.95 2.1 2.3 2.5	KF 67 KA 67 KAF67	4 4 4
5.0 5.9 6.4 7.1	5366 4543 4204 3768	141.46 119.76 110.83 99.34	1.40 1.66 1.79 2.0	K 107 KF 107 KA 107	8 8 8 8	116 136 150	232 198 180	12.24 10.42 9.47	2.1 2.4 2.5		
7.9 6.8 8.0 8.7	3402 3968 3360 3109	89.68 141.46 119.76 110.83	1.9 2.2 2.4	KAF107 K 107 KF 107 KA 107	8 6 6 6	47 52 59 63 73	574 519 456 431 367	30.28 27.34 24.05 22.71 19.34	0.98 1.09 1.24 1.31 1.47	K 57 KF 57 KA 57 KAF57	4 4 4 4



Output speed	Output torque	Ratio	Service factor	Туре	Pole	Output speed	Output torque	Ratio	Service factor	Туре	Pole
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р
3.0kV	V					4.0kW	J				
93 107 119 126 148 163 188 216	289 251 226 214 182 165 143 125	15.22 13.25 11.92 11.26 9.59 8.71 7.55 6.57	1.74 1.9 1.7 1.8 2.1 2.2 2.4 2.6	K 57 KF 57 KA 57 KAF57	4 4 4 4	4.0 4.6 5.1 5.8 6.6 7.5 8.5 9.5	8404 7350 6632 5818 5148 4525 4022 3567 3232	351 307 277 243 215 189 168 149 135	0.89 1.02 1.13 1.29 1.46 1.66 1.68 1.9 2.1	K 107R77 KF 107R77 KA 107R77 KAF107R77	4 4
73 84 90 104 116 121	371 320 301 259 231 223	19.58 16.86 15.86 13.65 12.19 11.77	1.01 1.12 1.19 1.31 1.42 1.18	K 47	4	7.1	5032	199	0.80	K 97R57 KF 97R57 KA 97R57 KAF97R57	4 4 4 4
134 156 166 193 216	223 200 173 162 140 125	10.56 9.1 8.56 7.36 6.58	1.16 1.31 1.53 1.56 1.68 1.81	KF 47 KA 47 KAF47	4 4 4	5.3 5.8 6.4	6825 6202 5570	134.94 122.60 110.13	1.8 2.0 2.2	K 127 KF 127 KA 127 KAF127	8 8 8 8
159 178 209	110 169 151 129	5.81 8.91 7.96 6.8	1.96 0.89 0.97 1.09	K 37 KF 37	4 4	6.6 7.1 7.8 8.7	5464 5047 4587 4119	146.07 134.94 122.60 110.13	2.2 2.4 2.7 3.0	K 127 KF 127 KA 127 KAF127	6 6 6
223 265 4.0kV	121 102	6.37 5.36	1.13	KA 37 KAF37	4	6.4 7.1 7.9 8.7	5605 5024 4536 4120	110.83 99.34 89.68 81.46	1.34 1.50 1.66 1.83	K 107 KF 107 KA 107 KAF107	8 8 8
1.7 2.8 0.57 0.63	19697 12272 59473 53547	825 514 2510 2268		< 187R107 <a 187r107<="" td=""><td>4 4</td><td>6.8 8.0 8.7 9.7</td><td>5309 4473 4146 3716 3354</td><td>141.93 119.58 110.83 99.34 89.68</td><td>1.42 1.68 1.81 2.0 2.2</td><td>K 107 KF 107 KA 107 KAF107</td><td>6 6 6</td></a>	4 4	6.8 8.0 8.7 9.7	5309 4473 4146 3716 3354	141.93 119.58 110.83 99.34 89.68	1.42 1.68 1.81 2.0 2.2	K 107 KF 107 KA 107 KAF107	6 6 6
0.70 0.79 0.90 1.0 1.2 1.4	48494 42993 37894 32936 28237 24696 22240	2054 1821 1605 1395 1196 1046 942	0.97 1.09 1.24 1.43 1.66 1.90 2.1	K 187R97 KA 187R97	4 4	10 12 13 14 16 18 20	3527 2986 2764 2477 2236 2031 1802	141.46 119.76 110.83 99.34 89.68 81.46 72.27	2.1 2.5 2.7 3.0 3.4 3.7 4.2	K 107 KF 107 KA 107 KAF107	4 4 4 4
1.0 1.1 1.3 1.5 1.7 1.9 2.3	33101 30480 25994 22288 19903 17873 14874	1402 1291 1101 944 843 757 630		K 167R97 KA 167R97	4 4	10 12 14 15 17	3498 3107 2588 2414 2157 1942	140.28 124.61 103.78 96.80 86.52 77.89	1.16 1.30 1.56 1.67 1.87 2.1	K 97 KF 97 KA 97 KAF97	4 4 4 4
1.7 1.9 2.5 2.9 3.3	20163 17849 13339 11876 10223	854 756 565 503 433	1.27 1.42	K 157R97 KF 157R97 KA 157R97 KAF157R97	4 4 4 4	13 14 17 18	2872 2561 2153 1978	70.54 115.16 102.71 86.34 79.34	0.88 0.99 1.18 1.28	K 87	4
2.7 3.0 3.4 3.9 4.3 4.9 5.6	12655 11167 9869 8665 7901 6943 6057	536 473 418 367 330 290 253	1.24 1.41	KAF157R97 K 127R87 KF 127R87 KA 127R87 KAF127R87	4 4 4 4	20 23 25 29 33 39	1757 1571 1412 1226 1098 911	70.46 63.00 56.64 49.16 44.02 36.52	1.44 1.62 1.80 2.1 2.3 2.8	KF 87 KA 87 KAF87	4 4 4
2.4 2.6 3.0 3.5	14341 12905 11205 9816	599 539 468 410	0.95 1.09	K 127R77 KF 127R77 KA 127R77 KAF127R77	4 4 4 4						



Output speed	Output torque	Ratio	Service factor	Type	Pole	Output speed	Output torque	Ratio	Service factor	Type	Pole
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р
4.0kV	V					5.5kW	7				
22 25 28 32 36 38 41 47 49 56	1615 1455 1276 1126 998 957 878 770 730 639	64.75 58.34 51.18 45.16 40.04 38.39 35.20 30.89 29.27 25.62	0.90 1.00 1.14 1.29 1.46 1.52 1.66 1.89 2.0 2.3	K 77 KF 77 KA 77 KAF77	4 4 4 4	3.4 3.9 4.4 5.0 5.7 6.7 7.1 8.6 9.7	13570 11914 10713 9414 8213 6980 6590 5454 4805	418 367 330 290 253 215 203 168 148	0.90 1.03 1.14 1.30 1.49 1.75 1.71 2.1	K 127R87 KF 127R87 KA 127R87 KAF127R87	4 4 4 4
62 71 48 53	576 505 754 680	23.08 20.25 30.22 27.28	2.5 2.9 1.02 1.13	K 67 KF 67 KA 67 KAF67		6.7 7.6 8.6 9.7 11	6980 6136 5454 4837 4383	215 189 168 149 135	1.08 1.23 1.38 1.55 1.72	K 107R77 KF 107R77 KA 107R77 KAF107R77	4 4 4 4
60 64 75 82 95	598 565 481 437 379	24.00 22.66 19.30 17.54 15.19	1.26 1.30 1.48 1.59 1.74		4 4 4	4.8 5.9 7.2 7.8	10288 8423 6833 6338	150.03 122.83 99.65 92.42	1.64 2.0 2.5 2.7	K 157 KF 157 KA 157 KAF157	8 8 8 8
109 118 138 152 176 202	330 305 260 236 204 178	13.22 12.24 10.42 9.47 8.20 7.14	1.91 1.63 1.81 1.91 2.02 2.2		4	5.3 5.9 6.5 8.1	9253 8399 7556 6143	134.94 122.60 110.13 89.43	1.3 1.5 1.6 2.0	K 127 KF 127 KA 127 KAF127	8 8 8
60 63 74 82	600 566 482 438	24.05 22.71 19.34 17.57	0.94 1.00 1.12 1.19	K 57 KF 57 KA 57 KAF57		7.1 7.8 8.7 11	6940 6299 5667 4599	134.94 122.60 110.13 89.43	1.76 1.94 2.2 2.7	K 127 KF 127 KA 127 KAF127	6 6 6
95 109 121 128	380 330 297 281	15.22 13.25 11.92 11.26	1.33 1.45 1.31 1.39		4 4 4 4	8.7 9.7 11 12	5700 5109 4612 4190	110.83 99.34 89.68 81.46	1.32 1.47 1.63 1.79	K 107 KF 107 KA 107 KAF107	6 6 6
150 165 191 219	239 217 188 164	9.59 8.71 7.55 6.57	1.59 1.69 1.82 1.98			10 12 13 14 16	4866 4100 3800 3406 3075	141.93 119.58 110.83 99.34 89.68	1.55 1.83 1.98 2.2 2.4	K 107 KF 107 KA 107 KAF107	4 4 4 4
5.5kV 0.79 0.90 1.0 1.2 1.4 1.5 2.0 2.3	59116 52104 45286 38826 33957 30580 23926 20095	1821 1605 1395 1196 1046 942 737 619	0.80 0.90 1.04 1.21 1.38 1.54 2.0 2.3	K 187R97 KA 187R97	4 4	18 12 14 15 17 18 20 23 25 30	2793 4273 3558 3319 2967 2671 2419 2145 1939 1643	81.46 124.61 103.78 96.80 86.52 77.89 70.54 62.55 56.55 47.93	2.7 0.95 1.1 1.2 1.35 1.5 1.65 1.85 2.1 2.4	K 97 KF 97 KA 97 KAF97	4 4 4 4
1.31 1.5 1.7 1.9 2.3 2.6 3.0 3.4	35742 30645 27367 24575 20452 18212 15550 13700	1101 944 843 757 630 561 479 422	0.84 0.98 1.10 1.22 1.47 1.65 1.93 2.2		4 4	17 18 20 23 25 29 33	2960 2720 2416 2160 1942 1686 1509	86.34 79.34 70.46 63.00 56.64 49.16 44.02	0.85 0.95 1.05 1.15 1.3 1.5	K 87 KF 87 KA 87 KAF87	4 4 4 4
2.2 2.5 2.9 3.3 3.8	21458 18342 16329 14057 12271	661 565 503 433 378	0.79 0.92 1.04 1.20 1.38	KF 157R97 4 KA 157R97 4	4 4 4 4	39 46 52 32 36	1252 1076 956 1548 1373	36.52 31.39 27.88 45.16 40.04	1.85 2.3 2.5 0.94 1.06	K 77 KF 77	4 4



Output speed	Output torque	Ratio	Service factor	Type	Pole	Output speed	Output torque	Ratio	Service factor	Туре	Pole
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	$f_B$	Type	р
5.5kV	V					7.5kW	V				
62 71 81 91 107	791 694 613 543 464	23.08 20.25 17.87 15.84 13.52	1.84 2.0 2.2 2.4 2.5	K 77 KF 77 KA 77 KAF77	4 4 4 4	6.4 7.8 9.6 10 12	10522 8614 6989 6482 5593	150.03 122.83 99.65 92.42 79.75	1.6 2.0 2.4 2.6 3.0	K 157 KF 157 KA 157 KAF157	6 6 6
117 133 60 64	424 371 823 777	12.36 10.81 24.00 22.66	2.6 2.7 0.91 0.94	NAI 77		7.1 7.8 8.7 11	9464 8590 7727 6272	134.94 122.48 110.18 89.43	1.29 1.42 1.58 1.95	K 127 KF 127 KA 127 KAF127	6 6 6
75 82 95 109 118 138 152	662 601 521 453 420 357 325 281	19.30 17.54 15.19 13.22 12.24 10.42 9.47	1.08 1.16 1.26 1.39 1.39 1.32 1.39	K 67 KF 67 KA 67 KAF67	4 4 4 4	10 11 12 13 16 18 21	6736 6223 5648 5081 4124 3805 3272	146.07 134.94 122.60 110.13 89.43 82.52 70.95	1.81 1.96 2.2 2.4 3.0 3.2 3.7	K 127 KF 127 KA 127 KAF127	4 4 4 4
82 95 109 121 128 150 165 191 219	245 602 522 454 409 386 329 299 259 225	8.20 7.14 17.57 15.22 13.25 11.92 11.26 9.59 8.71 7.55 6.57	1.47 1.61 0.87 0.96 0.97 1.01 1.06 1.16 1.23 1.33 1.44	K 57 KF 57 KA 57 KAF57	4 4 4 4	10 12 13 15 16 18 20 22 26 30 35 40	6545 5514 5111 4581 4136 3757 3333 3024 2599 2269 1925 1682	141.93 119.58 110.83 99.34 89.68 81.46 72.27 65.58 56.37 49.20 41.74 36.48	1.15 1.36 1.47 1.64 1.82 2.00 2.3 2.5 2.9 3.2 3.6 4.0	K 107 KF 107 KA 107 KAF107	4 4 4
7.5kV 1.8 2.0 2.4	36021 31437 26808	825 720 614		K 187R107 KA 187R107		15 17 19 21 23	4464 3990 3592 3253 2884	96.80 86.52 77.89 70.54 62.55	0.91 1.01 1.13 1.24 1.40	K 97 KF 97	4
1.2 1.4 1.5 2.0 2.4	52220 45670 41129 32179 27027	1196 1046 942 737 619	0.90 1.03 1.14 1.46 1.74	K 187R97 KA 187R97	4 4	26 30 35 38 43	2608 2210 1931 1766 1579	56.55 47.93 41.87 38.30 34.23	1.55 1.83 2.1 2.3 2.6	KA 97 KAF97	4 4
2.8 1.7 1.9 2.3 2.6 3.0 3.5 4.0	22879 36807 33052 27507 24494 20914 18425 16024	524 843 757 630 561 479 422 367	2.1 0.82 0.91 1.09 1.23 1.44 1.63 1.88	K 167R97 KF 167R97 KA 167R97 KAF167R97	4 4 4 4	23 26 30 33 40 47 52 59 65	2905 2612 2267 2030 1684 1448 1286 1149 1033 897	63.00 56.64 49.16 44.02 36.52 31.39 27.88 24.92 22.41	0.87 0.97 1.12 1.20 1.40 1.75 1.90 2.0 2.1	K 87 KF 87 KA 87 KAF87	4 4 4 4
3.4 3.9 4.4 5.0	18906 16504 14496 12662	433 378 332 290	0.89 1.03 1.17 1.34	K 157R97 KF 157R97 KA 157R97 KAF157R97	4 4 4 4	75 84 92 101	897 803 736 666	19.45 17.42 15.95 14.45	2.4 2.6 2.3 3.0		
4.4 5.0 5.8 6.8 7.2 8.7 9.9	14408 12662 11046 9387 8863 7335 6462	330 290 253 215 203 168 148	0.85 0.97 1.11 1.30 1.38 1.67	K 127R87 KF 127R87 KA 127R87 KAF127R87	4 4 4 4	47 50 57 63 72 82 92 108	1424 1350 1181 1064 934 824 730 623	30.89 29.27 25.62 23.08 20.25 17.87 15.84 13.52	1.02 1.08 1.23 1.37 1.56 1.65 1.80 1.82	K 77 KF 77 KA 77 KAF77	4 4 4 4
4.4 5.3 5.8 7.1	15382 12623 11537 9467	164.44 135.38 164.44 135.38	2.0 2.4 2.61 3.18	K 167 KA 167 K 167 KA 167	8 8 6 6	118 135 153 173 202	570 499 440 390 333	12.36 10.81 9.54 8.46 7.22	1.89 1.95 2.0 2.1 2.3		



Output speed	Output torque	Ratio	Service factor	Type	Pole	Output speed	Output torque	Ratio	Service factor	Type	Pole
r/min	Nm	i	$f_{\scriptscriptstyle B}$	Type	р	r/min	Nm	İ	$f_{\scriptscriptstyle B}$	Type	р
11kW						11kW					
1.8	52831	825	0.89			20	4888	72.27	1.54		
2.0	46107	720	1.02	K 187R107	4	22	4435	65.58	1.70	K 107	4
2.4 2.8	39319 32915	614 514	1.20 1.43	KA 187R107		26 30	3813 3328	56.37 49.2	1.97 2.2	KF 107 KA 107	4 4
3.3	28753	449	1.63			35	2823	41.74	2.5	KAF107	4
4.0	23374	365	2.0			40	2467	36.48	2.7		
2.0	47196	737	1.00	K 187R97	4	21	4771	70.54	0.85		
2.4	39639	619	1.19	KA 187R97	4	23	4231	62.55	0.96		
2.8	33556	524	1.40			26 30	3825 3242	56.55 47.93	1.06 1.25	K 97	4
4.7	20044	313	1.50			35	2832	41.87	1.43	KF 97 KA 97	4 4
5.3	17482	273		K 167R107		38	2590	38.3	1.56	KAF97	4
5.8 6.7	16009 13960	250 218	1.88 2.2	KA 167R107	4	43 47	2315 2085	34.23 30.82	1.75 1.94		
7.2	13000	203	2.3			52	1888	27.91	2.1		
						59	1674	24.75	2.4		
2.6 3.0	35925 30674	561 479	0.84 0.98	K 167R97	4	65	1513	22.37	2.7		
3.5	27024	422	1.11	KA 167R97	4	33	2977	44.02	0.82		
4.0	23502	367	1.28			40	2470	36.52	0.95		
				K 157R97	4	47 52	2123 1886	31.39 27.88	1.20 1.30		
4.4	21260	332	0.80	KF 157R97	4	59	1685	24.92	1.39		
5.0	18571	290	0.91	KA 157R97	4	65	1516	22.41	1.43	K 87	4
				KAF157R97	4	75	1315	19.45	1.64	KF 87	4
6.8	13768	215	0.89	K 127R87	4	84 92	1178 1079	17.42 15.95	1.76 1.57	KA 87 KAF87	4 4
7.2	13000	203	0.94	KF 127R87	4	101	977	14.45	1.9	KAF07	4
8.7	10758	168	1.14	KA 127R87	4	116	849	12.56	2.0		
9.9	9478	148	1.29	KAF127R87	4	131 147	753 674	11.13 9.96	2.1 2.2		
5.4	18313	135.38	1.64	K 167	8	177	559	8.27	2.4		
6.6	14932	110.38	2.0	KA 167	8	203	486	7.19	2.5		
5.9	16740	164.44	1.80	K 167	6	63	1561	23.08	0.93		
7.2	13782	135.38	2.2	KA 167	6	72 82	1370 1209	20.25 17.87	1.03 1.13		
8.9	11122	164.44	2.7	K 167	4	92	1071	15.84	1.23	K 77	4
11	9158	135.38	3.3	KA 167	4	108	914	13.52	1.38	KF 77	4
5.9	16615	122.83	1.02	K 157	8	118	836	12.36	1.12	KA 77	4 4
7.3	13480	99.65	1.26	KF 157	8	135 153	731 645	10.81 9.54	1.27 1.37	KAF77	4
7.9	12502	92.42	1.35	KA 157	8	173	572	8.46	1.46		
9.1	10788	79.75	1.57	KAF157	8	202	488	7.22	1.57		
6.5	15273	150.03	1.11	K 157	6	1 5 1-337					
7.9	12504	122.83	1.35	KF 157	6	15kW	50017	04.4	0.00		
9.7 10	10144 9408	99.65 92.42	1.67 1.80	KA 157	6	2.4 2.8	53617 44884	614 514	0.88 1.05	K 187R107	4
12	8119	79.75	2.1	KAF157	6	3.3	39208	449		KA 187R107	
0.7	10147	150.00	1 67	V 157	A	4.0	31873	365	1.47		
9.7 12	10147 8308	150.03 122.83	1.67 2.0	K 157 KF 157	4 4	5.4	23403	268	2.0		
15	6740	99.65	2.5	KA 157	4	4.7	27332	313	1.10		
16	6251	92.42	2.7	KAF157	4	5.3	23839	273	1.26		
11	9127	134.94	1.34			5.8 6.7	21831 19037	250 218	1 58	K 167R107	
12	8295	122.60	1.47	K 127	4	7.2	17727	203	1.70	KA 167R107	4
13	7449	110.13	1.64	KF 127	4	7.9	16155	185	1.86		
16 18	6049 5581	89.43 82.52	2.0 2.2	KA 127 KAF127	4 4	9.0	14234	163	2.1		
21	4799	70.95	2.5	NAL 127	4	6.2	20696	237	0.82		
40	7.460	446.00		I/ 407	4	7.0	18338	210	0.92	K 157R107	
13 15	7496 6719	110.83 99.34	1.00 1.12	K 107 KF 107	4 4	7.9 9.4	16068 13535	184 155		KF 157R107 KA 157R107	
16	6066	89.68	1.12	KA 107	4	12	11003	126		KAF157R107	
18	5510	81.46	1.36	KAF107	4	13	9606	110	1.76		



Output speed	Output torque	Ratio	Service factor	Type	Pole	Output speed	Output torque	Ratio	Service factor	Type	Pole
r/min	Nm	i	$f_{\scriptscriptstyle B}$	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р
15kW						18.5k	W				
5.4 6.0	25096 22285	180.78 160.53	1.87 2.1	K 187 KA 187	6 6	2.9 3.3	54981 48028	514 449	0.85 0.98 K	187R107	4
7.2 8.8	18793 15324	135.38 110.39	1.60 1.96	K 167 KA 167	6 6	4.0 5.5 6.5	39043 28667 24281	365 268 227	1.20 KA 1.64 1.9	187R107	4
8.9 11	15166 12486	164.44 135.38	1.12 1.36	K 167 KA 167	4 4	4.7 5.4	33481 29202	313 273	0.90 1.03		
7.9 9.7 10 12 14	16990 13833 12830 11071 9770	122.39 99.65 92.42 79.75 70.35	1.00 1.22 1.32 1.53 1.73	K 157 KF 157 KA 157 KAF157	6 6 6	5.9 6.7 7.2 7.9 9.0 11	26742 23319 21714 19789 17436 14868	250 218 203 185 163 139	1.12 1.29 K 1.39 KA 1.52 1.73 2.0	167R107 \ 167R107	
9.7 12 15 16 18	13837 11329 9191 8524 7355	150.03 122.83 99.65 92.42 79.75	1.22 1.49 1.84 2.0 2.3	K 157 KF 157 KA 157 KAF157	4 4 4 4	8.0 9.5 12 13	12943 19682 16580 13478 11766	121 184 155 126 110	1.26 KA	157R107 157R107 157R107 157R107	4 4
11 12 13 16	12445 11307 10157 8248	134.94 122.60 110.13 89.43	0.97 1.08 1.20 1.48	K 127 KF 127	4 4	5.4 6.0 6.7 7.4	30951 27484 24745 22317	180.78 160.53 144.53 130.35	1.52 1.71 1.9 2.1	K 187 KA 187	6 6
18 21 23 27 31	7611 6544 5774 4987 4410	82.52 70.95 62.60 54.07 47.82	1.61 1.87 2.1 2.5 2.8	KA 127 KAF127	4	8.1 9.2 10 11	20424 18136 16328 14726	180.78 160.53 144.53 130.35	2.3 2.6 2.9 3.2	K 187 KA 187	4 4
16 18 20	8271 7513 6665	89.68 81.46 72.27	0.91 1.00 1.13			11 13 17	15195 12471 9851	134.5 110.39 87.20	1.98 2.4 3.1	K 167 KA 167	4
22 26 30 35 40	6048 5199 4538 3850 3365	65.58 56.37 49.2 41.74 36.48	1.24 1.45 1.62 1.80 2.0	K 107 KF 107 KA 107 KAF107	4 4 4 4	10 11 12 14	17061 15823 13654 12050	99.65 92.42 79.75 70.38	0.99 1.08 1.24 1.4	K 157 KF 157 KA 157 KAF157	6 6 6
45 47 51	2972 2844 2637 4421	32.22 30.84 28.59 47.93	2.2 2.3 2.6			12 15 16 18	13827 11258 10441 9010	122.39 99.65 92.42 79.75	1.22 1.50 1.62 1.88	K 157 KF 157	4 4
35 38 43 47 52 59	3862 3532 3157 2843 2574 2283	41.87 38.3 34.23 30.82 27.91 24.75	1.05 1.14 1.28 1.42 1.57 1.77	K 97 KF 97 KA 97 KAF97	4 4 4 4	21 24 27 31 39	7951 6894 6133 5286 4295	70.38 61.02 54.29 46.79 38.02	2.1 2.5 2.8 3.2 3.9	KA 157 KAF157	4 4
65 77 88	2063 1749 1527	24.75 22.37 18.96 16.56	1.77 1.96 2.3 2.6			13 16 18	12442 10103 9323	110.13 89.43 82.52	0.98 1.21 1.31	V 107	4
47 52 59 65 75 84 92	2895 2571 2298 2067 1794 1607 1471	31.39 27.88 24.92 22.41 19.45 17.42 15.95	0.88 0.99 1.10 1.23 1.37 1.41 1.48	K 87 KF 87 KA 87	4 4 4	21 23 27 31 37 41 47 53	8016 7072 6109 5403 4540 4121 3544 3127	70.95 62.60 54.07 47.82 40.19 36.48 31.36 27.67	1.52 1.73 2.0 2.3 2.7 3.0 3.4 3.9	K 127 KF 127 KA 127 KAF127	4 4 4 4
101 116 131 147 177 203	1333 1158 1027 919 763 663	14.45 12.56 11.13 9.96 8.27 7.19	1.5 1.53 1.58 1.73 1.84 2.2	KAF87	4	20 22 26 30 35 40	8165 7409 6368 5558 4716 4121	72.27 65.58 56.37 49.2 41.74 36.48	0.92 1.01 1.18 1.35 1.47 1.64	K 107 KF 107 KA 107 KAF107	4 4 4 4



Output speed r/min	Output torque Nm	Ratio	Service factor	Type Type	Pole p	Output speed r/min	Output torque Nm	Ratio	Service factor	Type Type	Pole p
18.5k		<u> </u>		.,,,,,	P	22kW		<u> </u>	•в	.,,,,,	<u> </u>
46 48 51 57 66 76	3640 3484 3230 2931 2519 2199	32.22 30.84 28.59 25.94 22.30 19.46	1.86 1.88 2.1 2.3 2.7 3.1	K 107 KF 107 KA 107 KAF107	4 4 4 4	9.7 11 12 14 16	20289 18817 16237 14330 12424	99.65 92.42 79.75 70.38 61.02	0.83 0.90 1.04 1.18 1.36	K 157 KF 157 KA 157 KAF157	6 6 6
35 48 53 59 66 78 89	1865 4730 3482 3153 2796 2527 2142 1871	16.51 41.87 30.82 27.91 24.75 22.37 18.96 16.56	3.6 0.85 1.16 1.28 1.45 1.60 1.9 2.2	K 97 KF 97 KA 97 KAF97	4 4 4 4	12 15 16 18 21 24 27 31 39	16502 13388 12417 10714 9456 8198 7294 6286 5108	122.83 99.65 92.42 79.75 70.38 61.02 54.29 46.79 38.02	1.03 1.26 1.36 1.58 1.79 2.1 2.3 2.7 3.3	K 157 KF 157 KA 157 KAF157	4 4 4 4
106 123 59 66 76 84 102 117 132 148 178 204	1565 1355 2815 2532 2197 1968 1633 1419 1257 1125 934 812	13.85 11.99 24.92 22.41 19.45 17.42 14.45 12.56 11.13 9.96 8.27 7.19	2.6 2.7 0.83 0.85 0.98 1.05 1.12 1.21 1.25 1.32 1.41 1.50	K 87 KF 87 KA 87 KAF87	4 4 4 4	16 18 21 23 27 31 37 40 47 53 61 70	12015 11087 9532 8410 7264 6425 5400 4901 4215 3719 3212 2841	89.43 82.52 70.95 62.60 54.07 47.82 40.19 36.48 31.36 27.67 23.90 21.14	1.02 1.10 1.28 1.45 1.68 1.90 2.3 2.5 2.9 3.3 3.8 4.3	K 127 KF 127 KA 127 KAF127	4 4 4 4
22kW 3.3 4.0 5.5 6.5 7.4 8.8		449 365 268 227 199 168	0.82 1.01 1.38	K 187R107 KA 187R107		26 30 35 40 46 48 51 57	7573 6610 5608 4901 4329 4143 3841 3485	56.37 49.20 41.74 36.48 32.22 30.84 28.59 25.94	0.99 1.11 1.23 1.38 1.56 1.54 1.76 1.94	K 107 KF 107 KA 107	4 4 4
5.4 5.9 6.7 7.2 7.9 9.0	34727 31801 27730 25822 23533 20734 17681	273 250 218 203 185 163 139	1 10	K 167R107 KA 167R107		66 76 89 102 109 125 147	2996 2614 2218 1939 1815 1584 1343	22.30 19.46 16.51 14.43 13.51 11.79	2.2 2.3 2.6 2.6 2.9 3.0 3.3	KAF107	4
9.5 12 13	15392 19717 16028 13992	121 155 126 110	0.86 1.06	K 157R107 KF 157R107 KA 157R107 KAF157R107	4 4	48 53 59 66 78 89	4141 3750 3325 3005 2547 2225	30.82 27.91 24.75 22.37 18.96 16.56	0.98 1.08 1.22 1.34 1.59	K 97 KF 97 KA 97	4 4 4
5.4 6.0 6.7 7.4	36807 32684 29427 26540	180.78 160.53 144.53 130.35	1.28 1.44 1.60 1.77	K 187 KA 187	6 6	106 123 137 164	1861 1611 1439 1202	13.85 11.99 10.71 8.95	1.87 2.1 2.2 2.3	KAF97	4
8.6 8.1 9.2 10 11	24288 21567 19418 17512	113.18 180.78 160.53 144.53 130.35	1.94 2.2 2.4 2.7	K 187 KA 187	4 4	76 84 102 117 132 148	2613 2340 1941 1687 1495 1338	19.45 17.42 14.45 12.56 11.13 9.96	0.83 0.88 0.94 1.02 1.05 1.11	K 87 KF 87 KA 87 KAF87	4 4 4 4
11 13 17 19	18070 14831 11715 10460	134.5 110.39 87.20 77.86	1.66 2.0 2.6 2.9	K 167 KA 167	4 4	178 204	1111 966	8.27 7.19	1.18 1.27		



Output	Output	Ratio	Service	Type	Pole	Output	Output	Ratio	Service	Туре	Pole
speed r/min	torque Nm	i	factor f <sub>B</sub>	Туре	р	speed r/min	torque Nm	i	factor f <sub>B</sub>	Туре	
		'	'В	Турс	P	17111111	INIII	'	'B	Турс	р
30kW	•					37kW					
5.5	49099	268	0.96	K 187R107	4	5.5	56947	268	0.83	V 107D107	
6.5 7.4	41587 36458	227 199	1.13 1.29	KA 187R107	4	6.5 7.4	48235 42285	227 199	0.97 1.11	K 187R107 KA 187R107	4 4
8.8	30778	168	1.5			8.8	35698	168	1.32		
6.7	39938	218	0.75			8.0	39310	185	0.77	I	
7.2 7.9	37190 33893	203 185	0.81 0.89			9.1 11	34635 29536	163 139	0.87 1.02	K 167R107 KA 167R107	4 4
9.0	29862	163	1.01	K 167R107	4	12	25711	121	1.17	107 10711107	•
11	25465	139	1.18	KA 167R107	4						
12	22168	121	1.36			8.2 8.9	40572 37268	180.78 166.06	1.16 1.26		
8.1	33120	180.78	1.42			10	32436	144.53	1.45	K 187	4
8.9	30423	166.06	1.54			11	29395	130.98	1.60	KA 187	4
10	26478	144.53	1.78	K 187	4	13	25400	113.18	1.85		•
11 13	23996 20735	130.98 113.18	1.96 2.3	KA 187	4	14 17	23046 19853	102.69 88.46	2.0 2.4		
14	18813	102.69	2.5					201.70			
17	16206	88.46	2.9			14	24559	109.43	1.22		
13	20048	109.43	1.50			17 19	19646 17828	87.54 78.44	1.53 1.69	V 407	4
17	15975	87.20	1.88	V 407	4	22	15301	68.18	2.0	K 167 KA 167	4 4
19	14554	79.44	2.1	K 167 KA 167	4 4	24	13582	60.52	2.2	107	7
22 24	12427 11088	67.83 60.52	2.4 2.7	107		35	9592	42.74	3.1		
						16	20741	92.42	0.82		
15 16	18256 16932	99.65 92.42	0.93 1.00			19 21	17898 15795	79.75 70.38	0.95 1.07	K 157	4
18	14611	79.75	1.16			24	13694	61.02	1.24	K 157 KF 157	4 4
21	12894	70.38	1.31	K 157	4	27	12184	54.29	1.39	KA 157	4
24	11179	61.02	1.51	KF 157	4	32	10501	46.79	1.61	KAF157	4
27	9946	54.29	1.70	KA 157 KAF157	4 4	39	8533	38.02	1.98		
31 39	8572 6965	46.79 38.02	1.97 2.4	IVAL 137	7	47	7025	31.30	2.4		
47	5734	31.30	3.0			24	14049	62.60	0.87		
21	12998	70.95	0.94			27 31	12135 10732	54.07 47.82	1.01 1.14		
23	11469	62.60	1.07			37	9020	40.19	1.35		
27	9906	54.07	1.23	K 127	4	41	8187	36.48	1.49	16 10=	
31	8761	47.82	1.39	KF 127	4	47	7040	31.36	1.74	K 127 KF 127	4 4
37 40	7363 6683	40.19 36.48	1.66 1.83	KA 127 KAF127	4 4	53 62	6212 5366	27.67 23.90	1.97 2.3	KA 127	4
47	5747	31.36	2.1	10/01/12/	•	70	4747	21.14	2.6	KAF127	4
53	5071	27.67	2.4			83	3988	17.77	2.8		
61	4380	23.90	2.8			103	3220	14.35	3.1		
35	7647	41.74	0.90		_	116 138	2870 2410	12.78 10.74	3.1 3.5		
40	6683	36.48	1.01			171	1948	8.68	3.5		
46	5903	32.22	1.08								
51 57	5238 4752	28.59 25.94	1.29 1.42	K 107	4	41	8187 6921	36.48 30.84	0.83 0.92		
66	4752 4085	23.94	1.63	KF 107	4	48 52	6921 6416	30.84 28.59	1.05		
76	3565	19.46	1.66	KA 107	4	57	5822	25.94	1.16		
89	3025	16.51	1.87	KAF107	4	66	5005	22.3	1.33	K 107 KF 107	4
102 109	2644 2475	14.43 13.51	1.90 2.15			76	4367	19.46	1.35	KF 107 KA 107	4 4
109	2475	11.79	2.15			90 103	3705 3238	16.51 14.43	1.53 1.55	KAF107	4
147	1832	10.00	2.39			110	3032	13.51	1.75		
168	1601	8.74	2.45			126 148	2646 2244	11.79 10.00	1.79 1.82		
59	4534	24.75	0.89			169	1961	8.74	1.95		
66 78	4098 3474	22.37 18.96	0.99 1.16	K 97	4						
89	3034	16.56	1.33	KF 97	4						
106	2537	13.85	1.59	KA 97	4						
123	2197	11.99	1.66	KAF97	4						
137 164	1962 1640	10.71 8.95	1.37 1.52								
107	1040	0.90	1.52								



Output speed	Output	Ratio	Service factor	Туре	Pole	Output speed	Output torque	Ratio	Service factor	Туре	Pole
r/min	Nm	i i	f <sub>B</sub>	Туре	р	r/min	Nm	i 	f <sub>B</sub>	Туре	р
45kW						55kW					
6.5 7.4 8.8	58664 51428 43416	227 199 168		K 187R107 KA 187R107		17 19 22 24	29204 25974 22745 20263	87.54 77.86 68.18 60.74	1.03 1.16 1.32 1.48	K 167 KA 167	4 4
11 12	35922 31270	139 121		K 167R107 KA 167R107	4 4	29 35 41	17207 14258 12170	51.58 42.74 36.48	1.75 2.1 2.5		·
8.2 8.9 10 11 13 14 17 20	49344 45326 39449 35751 30892 28029 24145 20291	180.78 166.06 144.53 130.98 113.18 102.69 88.46 74.34	0.95 1.04 1.19 1.31 1.52 1.68 1.9 2.3	K 187 KA 187	4 4	24 27 32 39 47 54 62 69	20357 18111 15609 12684 10442 9214 7990 7109	61.02 54.29 46.79 38.02 31.30 27.62 23.95 21.31	0.83 0.93 1.08 1.33 1.62 1.84 2.1 2.4	K 157 KF 157 KA 157 KAF157	4 4 4 4
14 17 19	29869 23894 21683	109.43 87.54 79.44	1.01 1.26 1.42	K 167	4	81 99 117	6128 4977 4220	18.37 14.92 12.65	2.8 3.4 3.8		
22 24 29 35	18610 16519 14079 11666	68.18 60.52 51.58 42.74	1.62 1.82 2.1 2.6	KA 167	4	37 47 53 62 70	13408 10465 9234 7976 7056	40.19 31.36 27.67 23.90 21.14	0.91 1.17 1.32 1.53 1.73	K 127 KF 127	4 4
21 24 27 32 39 47	19210 16655 14818 12771 10378 8543	70.38 61.02 54.29 46.79 38.02 31.30	0.88 1.02 1.14 1.32 1.63 2.0	K 157 KF 157 KA 157	4 4 4	83 103 116 138 171	5928 4787 4267 3583 2896	17.77 14.35 12.78 10.74 8.68	2.06 2.38 1.88 2.1 2.3	KA 127 KAF127	4 4
54 62 69 81	7539 6537 5817 5014	27.62 23.95 21.31 18.37	2.2 2.6 2.9 3.4	KAF157	4	75kW	59298 52224 47016	130.35 114.80 103.35	0.79 0.90 1.00	K 187	4
31 37 41 47 53	13052 10970 9957 8562 7555	47.82 40.19 36.48 31.36 27.67	0.94 1.11 1.23 1.43 1.62	K 127	4	17 20 23 28 32	40242 33818 29283 24402 20803	88.46 74.34 64.37 53.64 45.73	1.17 1.39 1.61 1.9 2.3	KA 187	4
62 70 83 103 116 138 171	6526 5773 4850 3917 3491 2931 2369	23.90 21.14 17.77 14.35 12.78 10.74 8.68	1.87 2.1 2.3 2.5 2.6 2.8 2.9	KF 127 KA 127 KAF127	4 4 4	19 22 24 29 34 41 46 52	35420 30857 27531 23496 19598 16595 14616 13042	77.86 67.83 60.52 51.65 43.08 36.48 32.13 28.67	0.85 0.97 1.09 1.28 1.53 1.81 2.1 2.3	K 167 KA 167	4 4
52 57 66 76 90 103 110 126 148 169	7804 7080 6087 5312 4506 3939 3688 3218 2729 2386	28.59 25.94 22.30 19.46 16.51 14.43 13.51 11.79 10.00 8.74	0.87 0.96 1.10 1.11 1.26 1.44 1.47 1.55 1.60 1.64	K 107 KF 107 KA 107 KAF107	4 4 4 4	61 39 47 54 62 69 81 99	11114 17296 14239 12565 10895 9694 8357 6787 5755	24.43 38.02 31.30 27.62 23.95 21.31 18.37 14.92 12.65	2.7 0.98 1.19 1.35 1.55 1.75 2.0 2.5 2.9	K 157 KF 157 KA 157 KAF157	4 4 4 4
55kW  10 11 13 14 17 20 23		145.33 130.98 114.80 102.69 88.46 74.34 64.37	1.02 1.14 1.30 1.45 1.59 1.90 2.19	K 187 KA 187	4 4	47 53 62 70 83 103 114 138	14271 12592 10877 9621 8084 6528 5900 4886 3949	31.36 27.67 23.90 21.14 17.77 14.35 12.78 10.74 8.68	0.86 0.97 1.12 1.27 1.36 1.51 1.54 1.72	K 127 KF 127 KA 127 KAF127	4 4 4 4



Output speed	Output torque	Ratio	Service factor	Туре	Pole	Output speed	Output torque	Ratio	Service factor	Type	Pole
r/min	Nm	i	f <sub>B</sub>	Type	р	r/min	Nm	i	f <sub>B</sub>	Type	р
90kW	•					132kV	W				
14 16 19 23 28 31 34 38	56058 51134 42242 35139 29282 26427 23796 21170	102.69 93.67 77.38 64.37 53.64 48.41 43.59 38.78	0.84 0.92 1.11 1.34 1.61 1.8 2.0 2.2	K 187 KA 187	4 4	20 23 28 31 34 38 45 53	59121 51192 42659 38499 34666 30841 26570 22331 19333	74.34 64.37 53.64 48.41 43.59 38.78 33.41 28.08 24.31	0.79 0.92 1.10 1.22 1.36 1.52 1.77 2.1 2.3	K 187 KA 187	4 4
22 24	37028 33038	67.83 60.52	0.81 0.91			74 86	16112 13734	20.26 17.27	2.6 2.8		
29 35 40 45 52 61 73 86	28157 23332 19953 17807 15651 13336 11054 9433	51.58 42.74 36.55 32.62 28.67 24.43 20.25 17.28	1.07 1.29 1.51 1.69 1.92 2.3 2.7 3.2	K 167 KA 167	4 4	35 41 46 54 61 74 86	33990 29012 25942 22053 19429 16104 13742	42.74 36.48 32.62 27.73 24.43 20.25 17.28	0.88 1.04 1.16 1.36 1.55 1.87 2.2	K 167 KA 167	4 4
39 47 54 62 69 81	20755 17087 15078 13074 11633 10028	38.02 31.30 27.62 23.95 21.31 18.37	0.82 0.99 1.12 1.29 1.45 1.69	K 157 KF 157 KA 157 KAF157	4 4 4 4	62 70 81 100 118	19047 16947 14609 11866 10060	23.95 21.31 18.37 14.92 12.65	0.89 1.00 1.16 1.43 1.59	K 157 KF 157 KA 157 KAF157	4 4 4 4
99 117	8145 6906	14.92 12.65	2.1 2.5			160kV	V				
62 70 83 103 116 138 171	13052 11546 9701 7834 6982 5863 4738	23.90 21.14 17.77 14.35 12.78 10.74 8.68	0.94 1.06 1.15 1.26 1.28 1.43 1.45	K 127 KF 127 KA 127 KAF127	4 4 4 4	28 33 42 47 61 74 86	51708 44082 34096 30693 23434 19530 16648	53.64 45.73 35.37 31.84 24.31 20.26 17.27	0.91 1.07 1.38 1.53 1.9 2.1 2.3	K 187 KA 187	4 4
110kV		0.00	1.10			41 62	35166 23338	36.48 24.21	0.86 1.29	K 167 KA 167	4 4
17 20	58625 49267	88.46 74.34	0.80 0.95			73 86	19800 16657	20.54 17.28	1.52 1.81	KA 107	4
21 24 33 35 38	46173 41853 30307 28332 26178	69.67 63.14 45.73 42.75 39.50	1.02 1.12 1.55 1.66 1.80	K 187 KA 187	4 4	81 100 118	17708 14382 12194	18.37 14.92 12.65	0.96 1.18 1.39	K 157 KF 157 KA 157 KAF157	4 4 4 4
42 53	23441 18610	35.37 28.08	2.0			200kV	N				
29 35 41 46 54 61	34184 28325 24176 21618 18378 16191	51.58 42.74 36.48 32.62 27.73 24.43	0.88 1.06 1.24 1.39 1.64 1.86	K 167 KA 167	4 4	33 45 47 59 74 86	55103 40258 38366 30618 24413 20810	45.73 33.41 31.84 25.41 20.26 17.27	0.85 1.17 1.23 1.54 1.69 1.87	K 187 KA 187	4 4
74 86 60	13420 11452 15872	20.25 17.28 23.95	2.2 2.6 1.07	K 157	4	61 73 86	29437 24750 20906	24.43 20.54 17.35	1.02 1.22 1.44	K 167 KA 167	4 4
70 81 100 118	14123 12174 9888 8384	21.31 18.37 14.92 12.65	1.20 1.39 1.71 2.0	KF 157 KA 157 KAF157	4 4 4	100 118	17978 15243	14.92 12.65	0.94 1.05	K 157 KF 157 KA 157 KAF157	4 4 4 4



Permissible torque	Output speed	Ratio	Type	Power	Permissible torque	Output speed	Ratio	Type	Power
Nm	r/min	i	Type	kW/4p	Nm	r/min	i	Type	kW/4p
	5.0 5.2 5.9	279 267 234		0.18		1.0 1.1 1.3	1388 1218 1053		0.25
200	6.8 7.7 8.7 10	205 181 160 136	K 37R17 KF 37R17 KA 37R17 KAF37R17	0.25	1550	1.5 1.7 2.0 	924 815 709 622	K 77R37 KF 77R37	0.37
	11	127 110		0.37		2.5 2.9 3.2	552 485 428	KA 77R37 KAF77R37	0.55
	2.5	96  552			-	3.9	358		0.75
	2.8 3.3	495 416		0.18		4.3 4.9 5.7	320 283 246		1.1
400	3.7 4.3 4.8	375 326 289	K 47R37 KF 47R37	0.25		0.34 0.39 0.45	4037 3609 3107		0.18
	5.6 6.3 7.2	250 219 193	KA 47R37 KAF47R37	0.37		0.51 0.59 0.67	2728 2371 2088		0.25
	8.3 9.3	167 149		0.55		0.75	1854 1658		
	1.5	906			_	0.98 1.1	1415 1229	K 87R57	0.37
	1.7 2.0 2.3	806 699 615		0.18	2700	1.3 1.5 1.7	1078 951 837	KF 87R57 KA 87R57 KAF87R57	0.55
	2.6 2.9 3.3	544 473 421	K 57R37 KF 57R37 KA 57R37	0.25		1.9 2.2	726 638		0.75
600	3.8 4.4 5.1	362 319 273		0.37		2.5 3.0 3.3	562 474 426		1.1
	5.8 6.5 7.2	240 215 192	KAF57R37	0.55	-	3.8 4.2 4.8	373 330 293		1.5
	8.4 9.9 11	166 141 126		0.75		5.6 5.9 7.0	250 236 201		2.2
	13 15	108 95		1.10	-	0.23 0.26 0.30	6027 5392 4669		0.18
	1.2 1.3 1.5	1171 1034 903		0.18		0.34	4082 3583		0.25
	1.8	793 697				0.45 0.51 0.58	3108 2757 2419		0.37
	2.3 2.6	613 542	K 67R37 KF 67R37	0.25		0.66 0.75	2123 1856	K 97R57	
820	3.0 3.3 3.9	471 420 361	KA 67R37 KAF67R37	0.37	4300	0.86 0.98 1.1	1625 1430 1261	KF 97R57 KA 97R57	0.55
	4.3 5.1	323 272		0.55		1.3 1.5	1102 957	KAF97R57 -	0.75
	5.8 6.4 7.3	240 217 191		0.75		1.6 1.9 2.1	855 743 651		1.1
	0.59	2370	K 77R37		1	2.4 2.8	573 504		1.5
1550	0.68 0.78 0.92	2050 1772 1514	KF 77R37 KA 77R37 KAF77R37	0.18		3.2 3.6 4.1	437 382 342		2.2

All gear units are overloaded in above table. Determination of operating torque should not higher than the gearunit's nominal torque.



Permissible torque	Output speed	Ratio	Type	Power	Permissible torque	Output speed	Ratio	Type	Power
Nm	r/min	i	Туре	kW/4p	Nm	r/min	i	Туре	kW/4p
4300	4.6 5.4 6.0	305 258 232	K 97R57 KF 97R57 KA 97R57	3.0		1.5 1.8 2.0	899 790 690	K 127R77	3.0
	7.1	199	KA 97R57 KAF97R57	4.0		2.3 2.6	599 539	KF 127R77 KA 127R77	4.0
	0.13 0.15 0.17	10528 9391 8211		0.18	13000	3.0 3.4	468 410	KAF127R77	5.5
	0.19 0.23 0.25	7167 6097 5582		0.25		2.6 2.9 3.3	536 473 418	K 127R87 KF 127R87	4.0 5.5
	0.27 5065 0.32 4299 0.37 3757	5065 4299		0.37	-	3.8 4.2	367 330	KA 127R87 KAF127R87	7.5
	0.43 0.48 0.56	3236 2869 2504		0.55		4.8 0.08 0.09	290 17679 15729		
	0.63 0.74	2203 1869		0.75	-	0.10 0.11	14721 13097		0.55
8000	0.83 0.91 1.1	1689 1533 1317	K 107R77 KF 107R77 KA 107R77 KAF107R77	1.1		0.12 0.14 0.16 0.18	11368 10114 8718 7734		
	1.2 1.4 1.6	1150 1015 871		1.5		0.27 0.31 0.35	5074 4514 3974		1.1
	1.8 2.0 2.3	782 686 606		2.2		0.40 0.46 0.48	3516 3047 2899	K 157R97 KF 157R97	1.5
	2.7 3.1	515 455		3.0		0.60	2319 2026	KA 157R97 KAF157R97	1.5
	3.6 4.1	402 351		4.0	18000	0.77 0.83 1.0	1802 1680 1365		2.2
	4.7 5.2 5.9	307 277 243		5.5	10000	1.1 1.3	1229 1093		3.0
	0.08 0.09	17550 16006		0.18	-	1.5 1.6 1.8	942 854 756		4.0
	0.10 0.11	14975 12440			_	2.1 2.5	661 565		5.5
	0.13 0.14	10914 9819		0.25	-	2.9 3.3	503 433		7.5
	0.16 0.19 0.21	8443 7483 6565		0.37		5.0	290		11
	0.24	5804	V 407D77		-	4.8	307	K 157R107 KF 157R107	11
13000	0.28 0.31 0.37	5027 4423 3801	K 127R77 KF 127R77 KA 127R77	0.55		5.6 6.2 7.0	260 237 210	KA 157R107 KAF157R107	15
		KAF127R77	0.75		0.07 0.08	19653 17345			
	0.55 0.63 0.72	2548 2218 1926		1.1	-1	0.09 0.11 0.12 0.14	14945 13190 11532 10227	K 167R97	0.55
	0.79 0.90	1757 1541		1.5	32000	0.16	8597	KA 167R97	0.75
	1.0 1.2	1342 1177		2.2	-1	0.21 0.26 0.29	6538 5366 4798		1.1
	1.4	1025				0.29	4059		1.5

All gear units are overloaded in above table. Determination of operating torque should not higher than the gearunit's nominal torque.

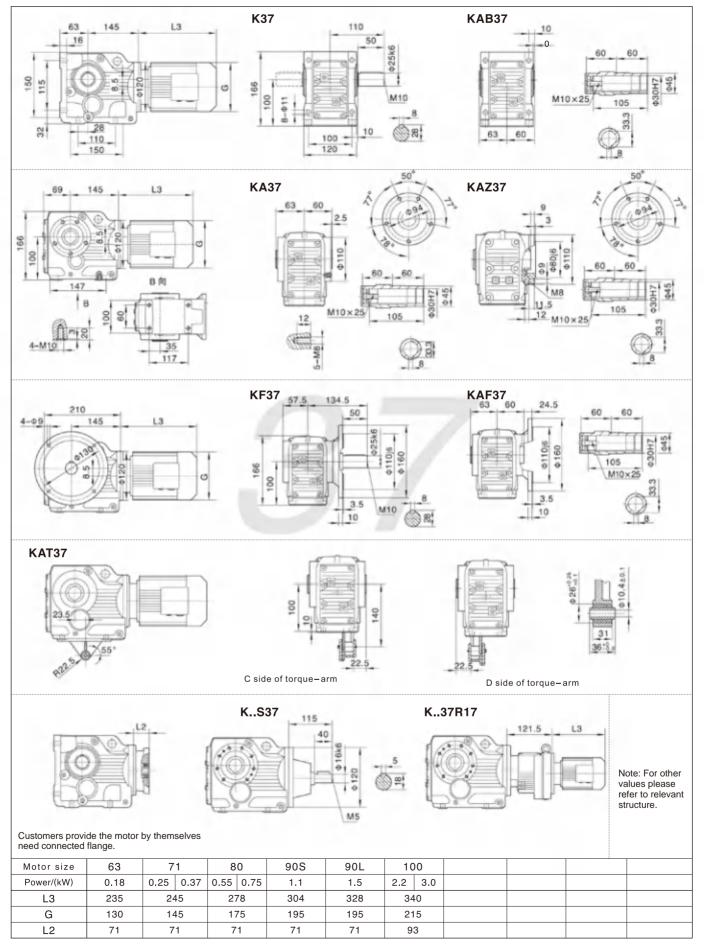




Permissible torque	Output speed	Ratio	Type	Power	Permissible torque	Output speed	Ratio	Туре	Powe
Nm	r/min	i	Type	kW/4p	Nm	r/min	i	Type	kW/4p
	0.42 0.52	3359 2741		2.2		2.0 2.4	720 614		15
	0.63 0.65	2252 2174		3	50000	2.9 3.3	514 449	K 187R107	18.5
	0.85 1.0	1698 1402		4		4.0 5.5	365 268	KA 187R107	30 37
	1.1 1.3	1291 1101	K 167R97 KA 167R97			6.5 7.4	227 199		45
32000	1.5 1.7 1.9	944 843 757		7.5		8.8	168		
02000	2.6 3.0	561 479		11					
	3.4 3.9	422 367		15					
	4.7	313		18.5					
	5.4 5.9	273 250		22					
	6.7 7.2 7.9	218 203 185	K 167R10 KA 167R10						
	9.0	163		37					
	11 12	139 121		45					
	0.04 0.05 0.06 0.07 0.08	32625 27165 24353 19144 16978		0.55					
	0.10 0.11 0.12	14272 13116 11647		0.75					
	0.13 0.15 0.17	10413 9363 8126		1.1					
	0.19 0.21 0.24	7333 6738 5984		1.5					
50000	0.27 0.30 0.33	5350 4810 4364	K 187R97	2.2 7					
00000	0.39 0.46	3609 3062	KA 187R97	3					
	0.56 0.63 0.69	2519 2268 2054		4					
	0.78 0.88	1821 1605		5.5					
	1.0 1.2	1395 1196		7.5					
	2.0 2.4	737 619		15					
	2.8	524		18.5					

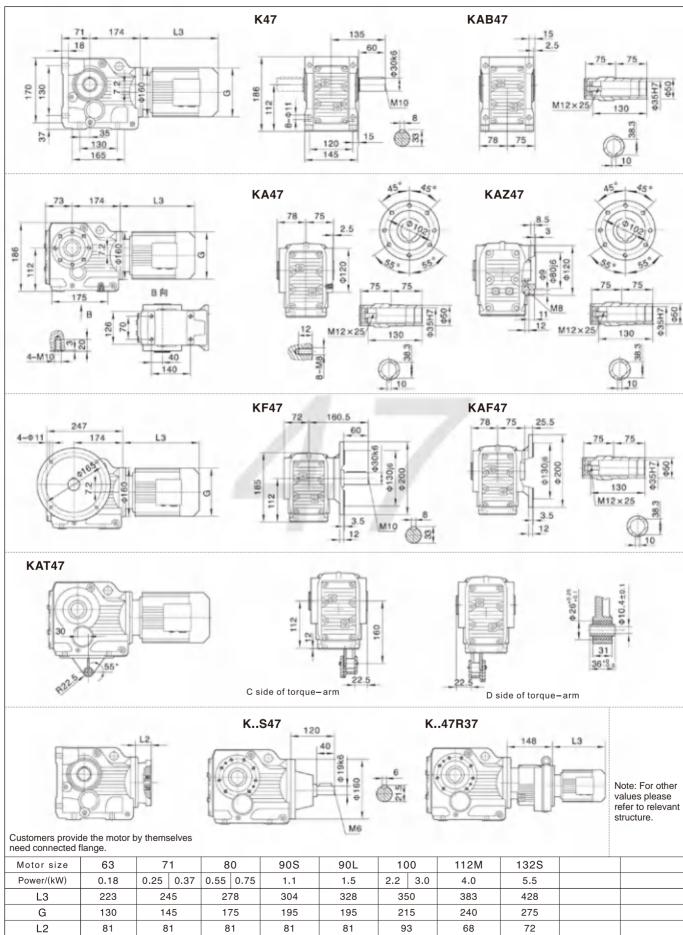
All gear units are overloaded in above table. Determination of operating torque should not higher than the gearunit's nominal torque.





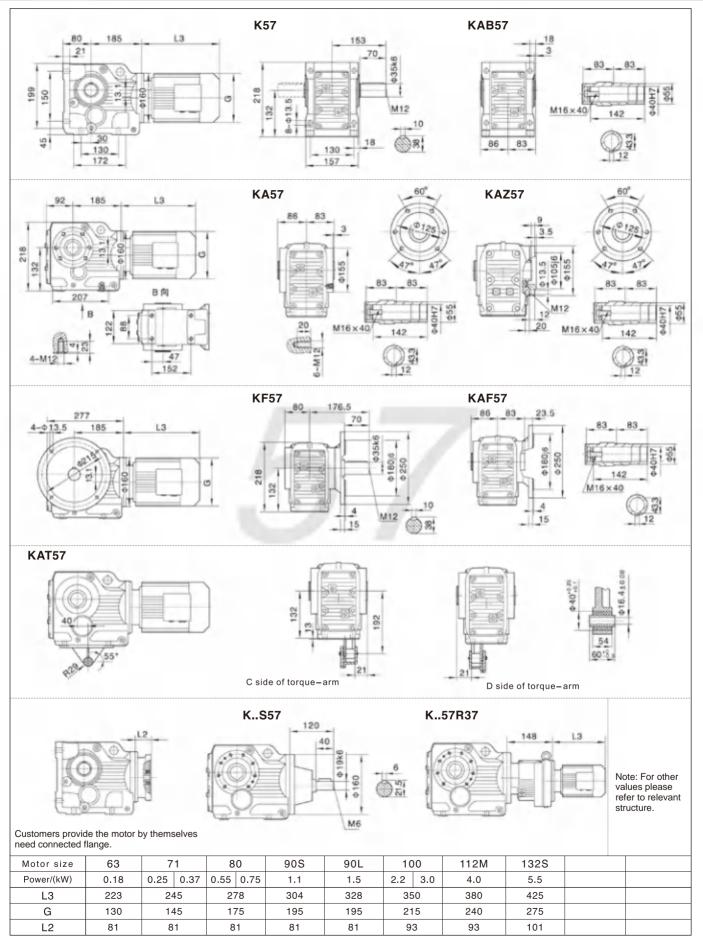






Note:1.The housings of KA、KF、KAF、KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAZ, KAB.

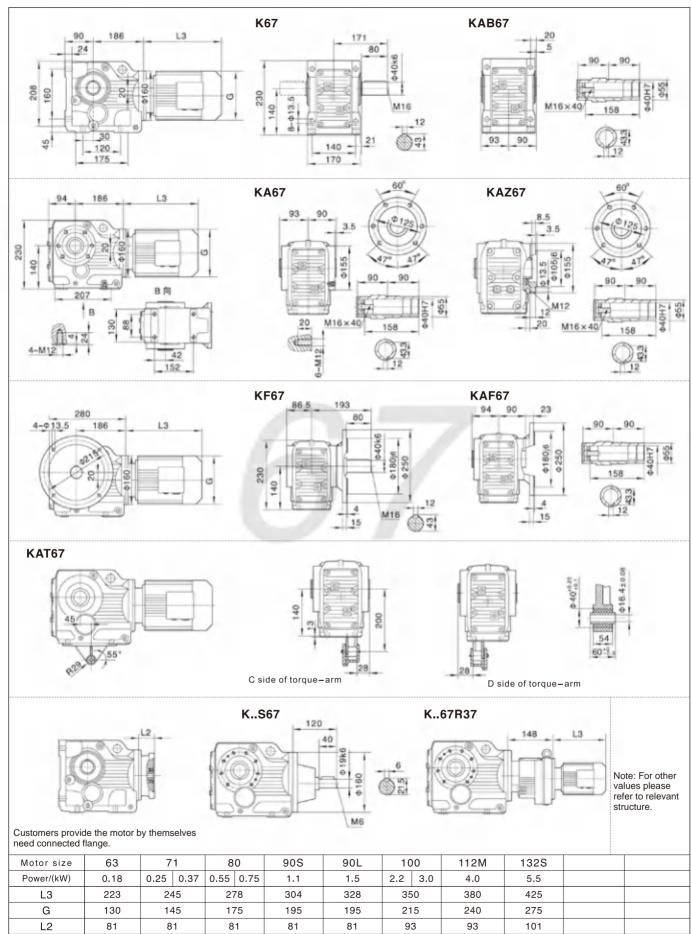




Note:1.The housings of KA、KF、KAF、KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAZ, KAB.

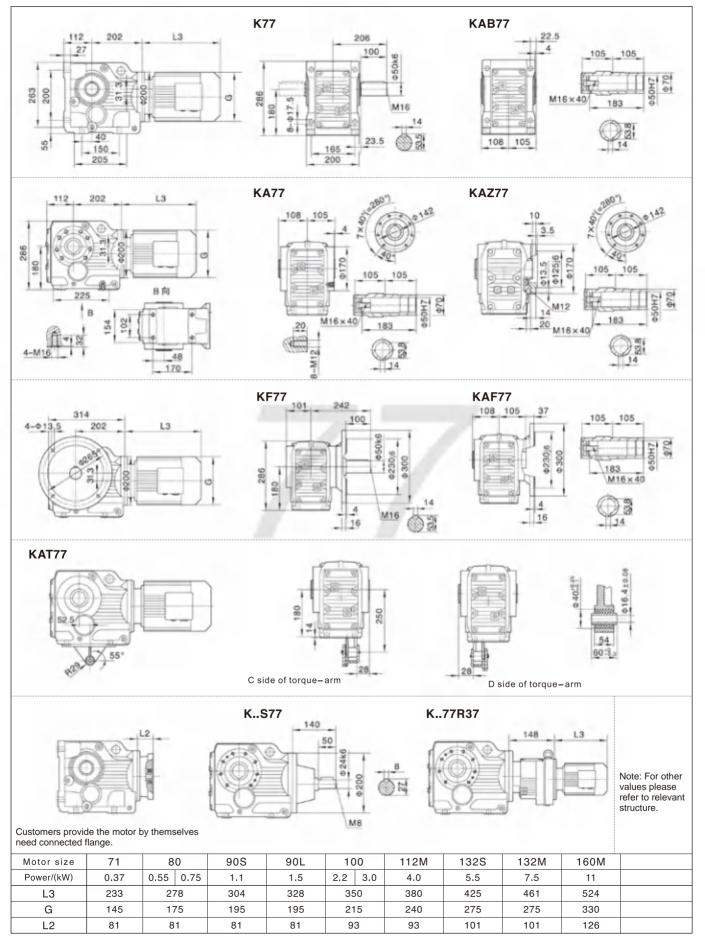






Note:1. The housings of KA、KF、KAF、KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAZ, KAB.

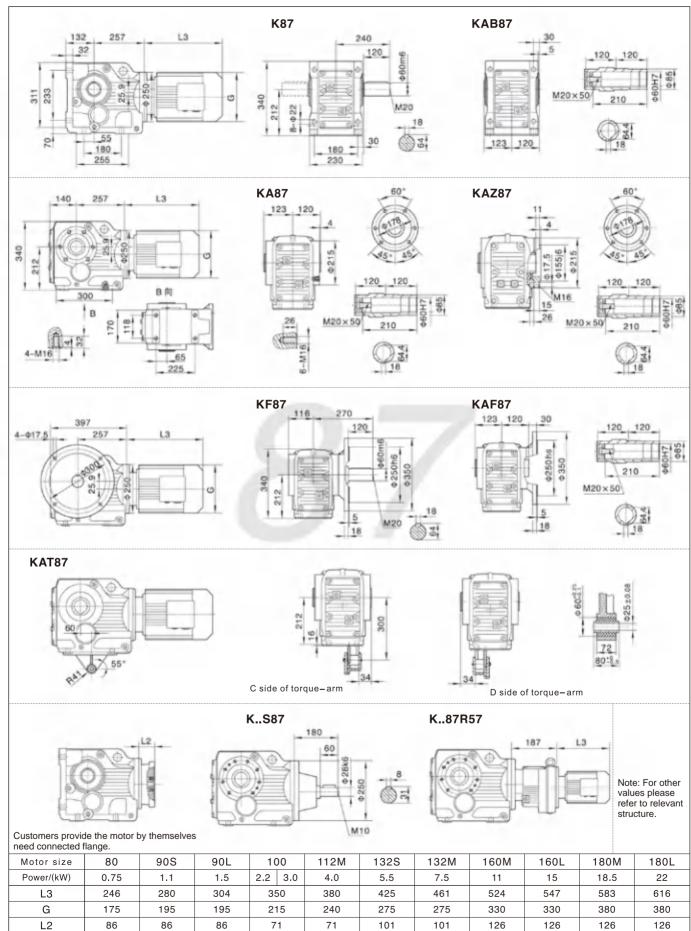




Note:1.The housings of KA、KF、KAF、KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAZ, KAB.

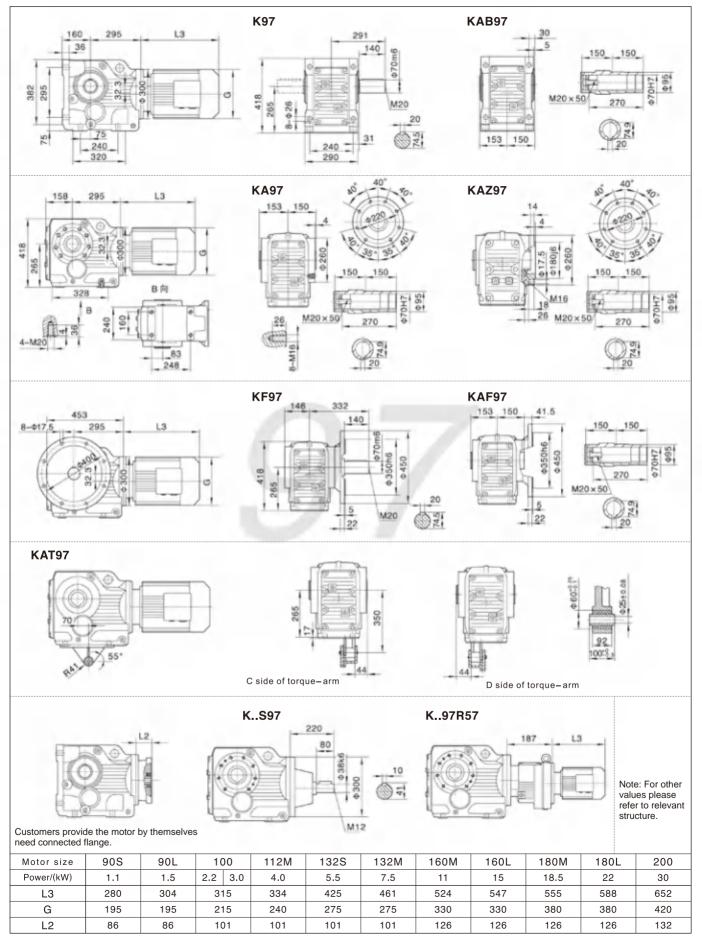






Note:1.The housings of KA, KF, KAF, KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAF, KAZ, KAB.

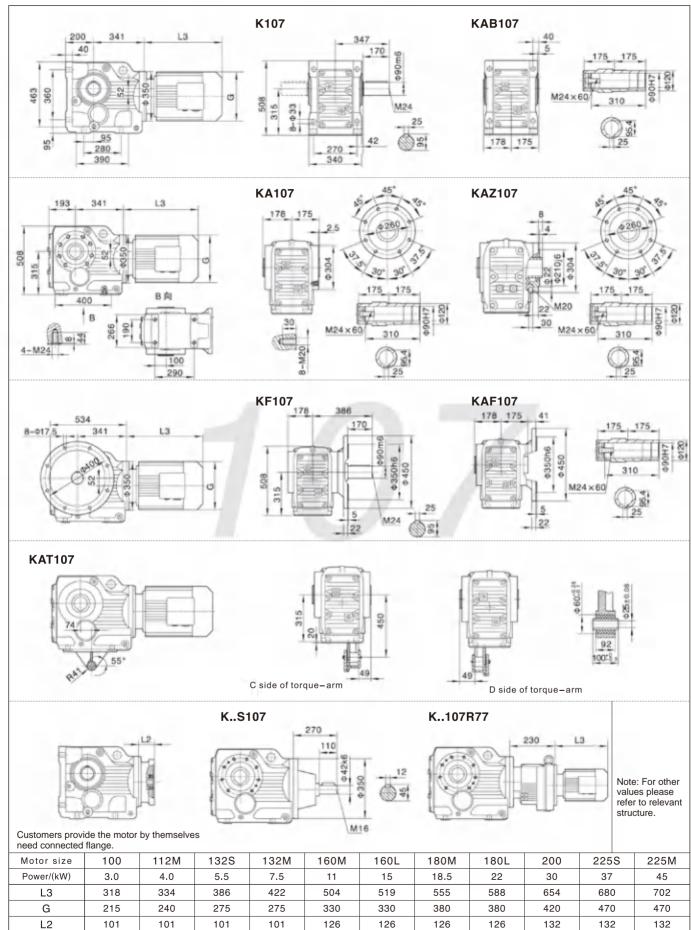




Note:1.The housings of KA, KF, KAF, KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAF, KAZ, KAB.

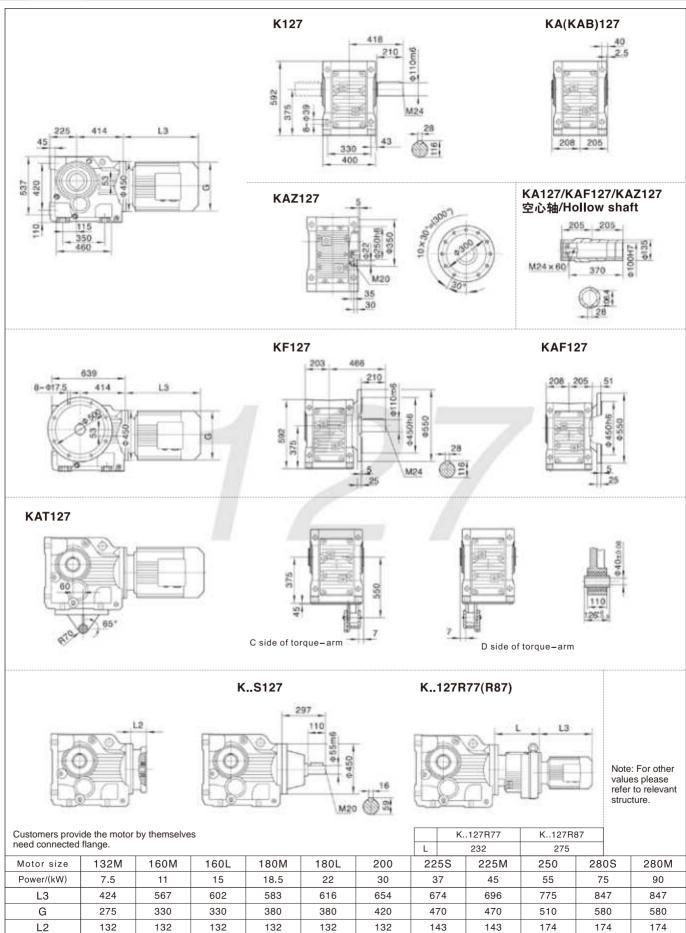






Note:1.The housings of KA, KF, KAF, KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAF, KAZ, KAB.

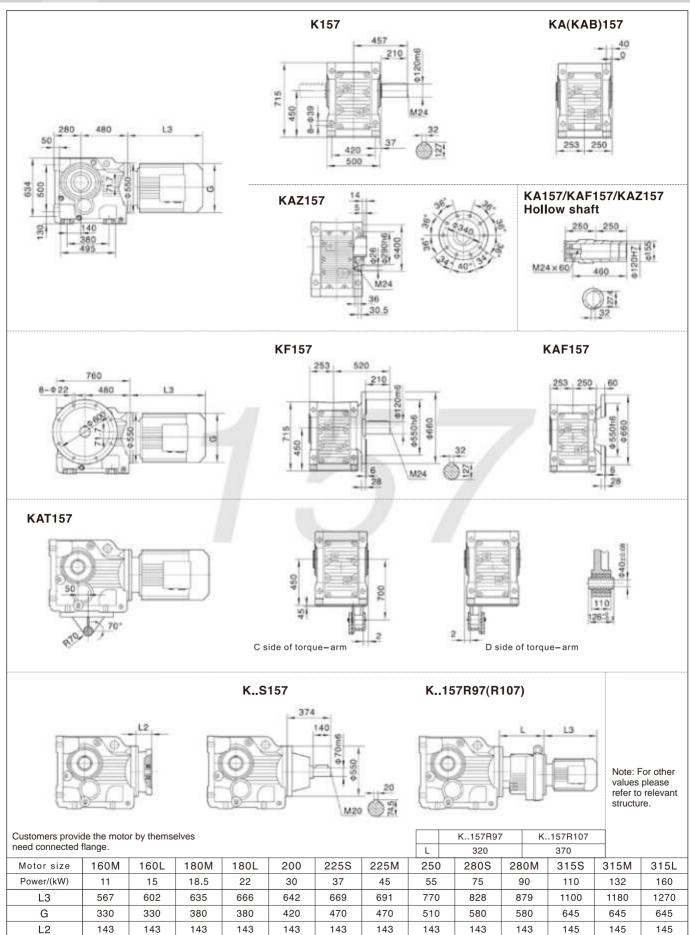




Note:1.The housings of KA、KF、KAF、KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAF, KAZ, KAB.

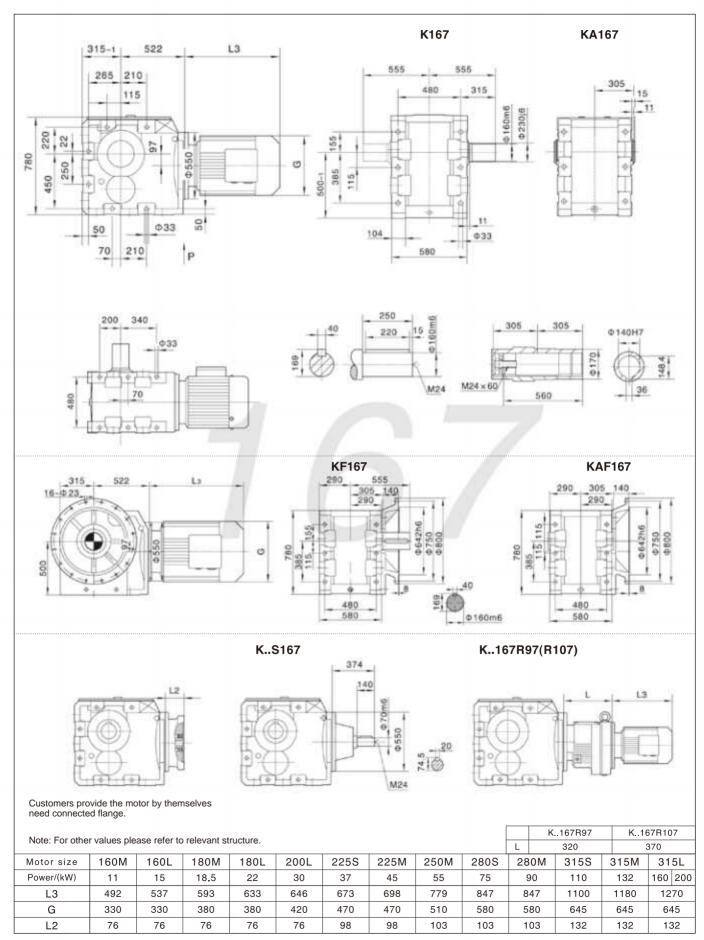






Note:1.The housings of KA, KF, KAF, KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAF, KAZ, KAB.



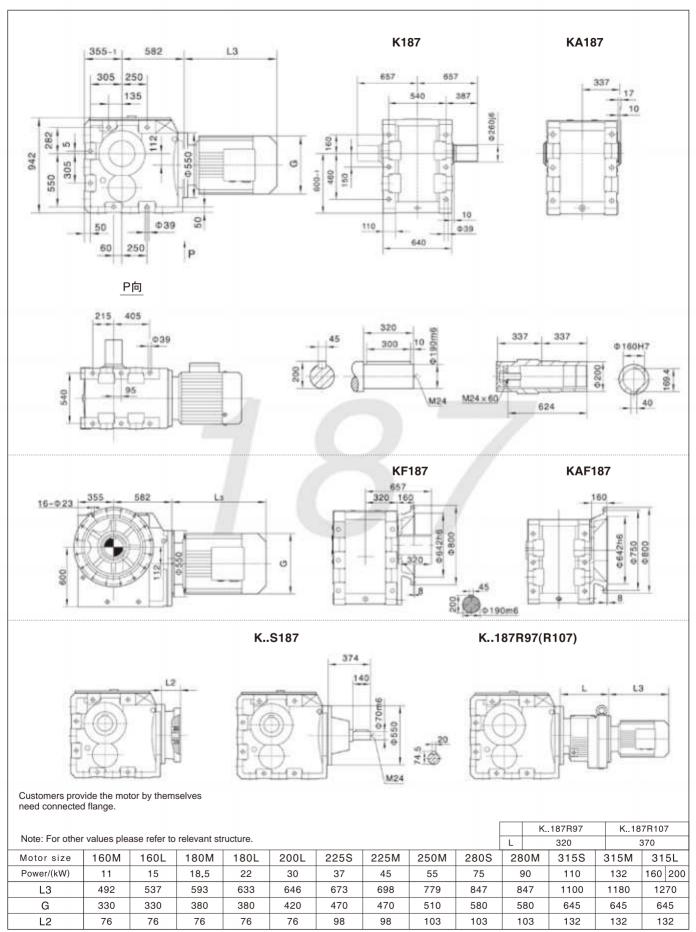


 $Note: 1. The \ housings \ of \ KA, \ KF, \ KAF, \ KAZ \ are \ common \ parts. The \ mounting \ dimensions \ may \ consult \ each \ other. \ 2. \ "K..." \ means \ K, \ KA, \ KF, \ KAF, \ KAZ, \ KAB.$ 

K





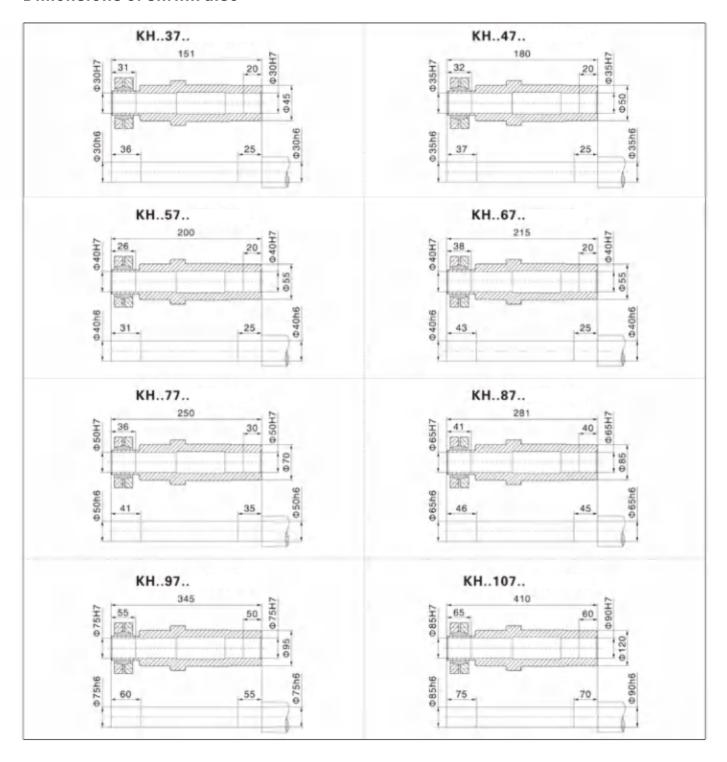


Note:1.The housings of KA、KF、KAF、KAZ are common parts. The mounting dimensions may consult each other. 2. "K..." means K, KA, KF, KAF, KAZ, KAB.





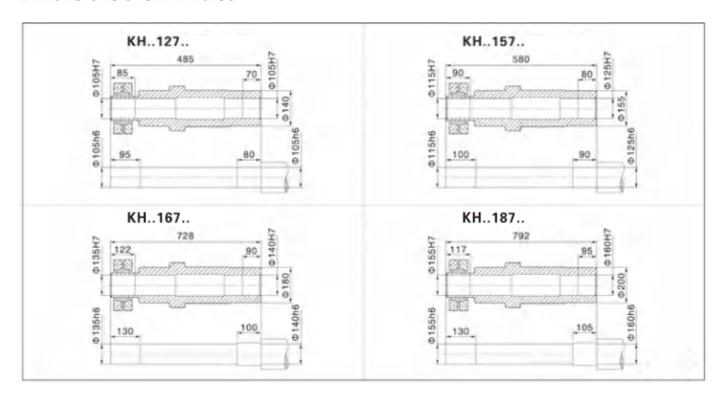
#### Dimensions of shrink disc

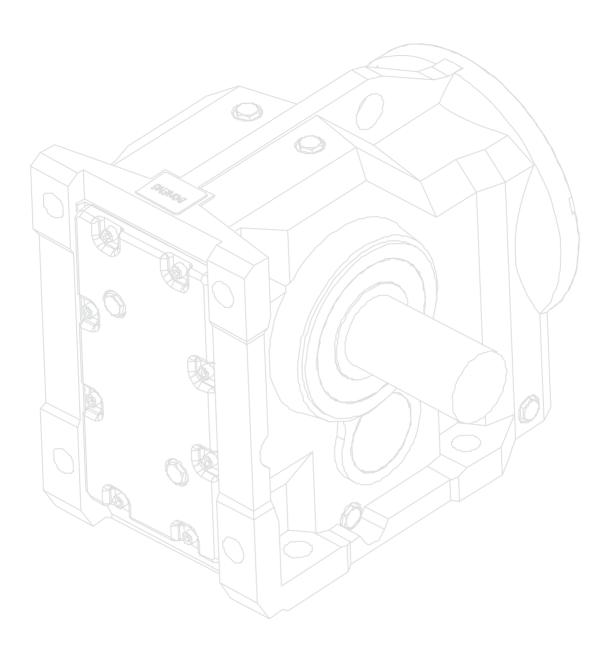






#### Dimensions of shrink disc





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