BONENG

CR
CR Series Helical Gearmotor

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CR *Series Helical Gearmotor*

◆ Highly modular design makes all the spare parts standardization and reducing the delivery time.

◆ Ratio in details and widely range,combination model can reach high ratio.Gearbox is suitable for installation in any angles.

◆ Small horizoncal deviation of output, compact structure, maximum utilization of housing space, accommodation of 2-stage and 3- stage gears in one case.

◆ Low carbon alloy stee gear using carburizing grinding precision and modification to improve the loading capacity,cooling and noise reduction performance.

◆ Gear with low carbon alloy steel hardening gear grinding process and modification technology makes the product has higher bearing capacity, reliable operation, low noise, high efficiency and long service life.

◆ Mounting positon:Foot-mounted,flange mounted,torque arm mounted .

◆ Input model:Motor connection,shaft input and flange input.

Company productis are widely used in ports,metallurgy,hoist,logistics,transportation,arena,electric power,coal mining,cement,buiding materials,paper 8x forestry,agricultural machinery,light industry,textile,chemical plastics,energy conservation,environmental protection and other fields.The technical experts from headqurter and large arena,the application engineer from the regional offices and the after—sales service technician will provide you with comprehensive technical advice and perfect service.

Note: You must conform to the following instructions

◆ The structure scheme,appearance diagram and other attached diagrams in sample anr examples,there is no strict proportion requirement.(The unmarked dimension units are mm).

◆ We can only refer to the marked weight in th manual.

◆ To prevent accidents,all the rotation parts should be added with protective covers according to local safety regulations and laws.

◆ Before testing,users should read instruction manual care fully.

◆ Gear unit has been tested before delivered,users should add lubrication oil before running.

◆ We can only refer to the marked oil in the manual,Actual oil filling level should be the same with the mark on oil immersion lens.

◆ Lubrication oil viscosity should be selected according to working conditions and the temperature of local environment.

◆ Users can only use high guality lubrication oil.

Product Function Mark

 Oil glass

 Breather

 Oil filler

 Oil drain

Contents

1 Sectional Drawings:

C   1-stage   CR   2-stage   CR   3-stage

2 Type Designation:

2.1 CR Series:

CR W 87 - 33.1- M5.5 +V22 - B3 - 90

CR Series

Mounting Mode
- W=Foot-mounted
- L =Flange-mounted
- M=Pug Mill

Size

Nominal Ratio

Input Part
- M=Motor
- AE =Input Shaft
- AG=Connection Flange

Accessories and Special Requests

Mounting Positions

Positions of Motor Terminal Box

Combi-type Designation：CRW87/CRL47-286-M1.1+E02-B3-90

2.2 C Series:

C W 71 - 6.3 - M1.5+V22- B3 -180

C Series

Mounting Mode
- W=Foot-mounted
- L =Flange-mounted

Size

Nominal Ratio

Input Part
- M=Motor
- AE =Input Shaft
- AG=Connection Flange

Accessories and Special Requests

Mounting Positions

Positions of Motor Terminal Box
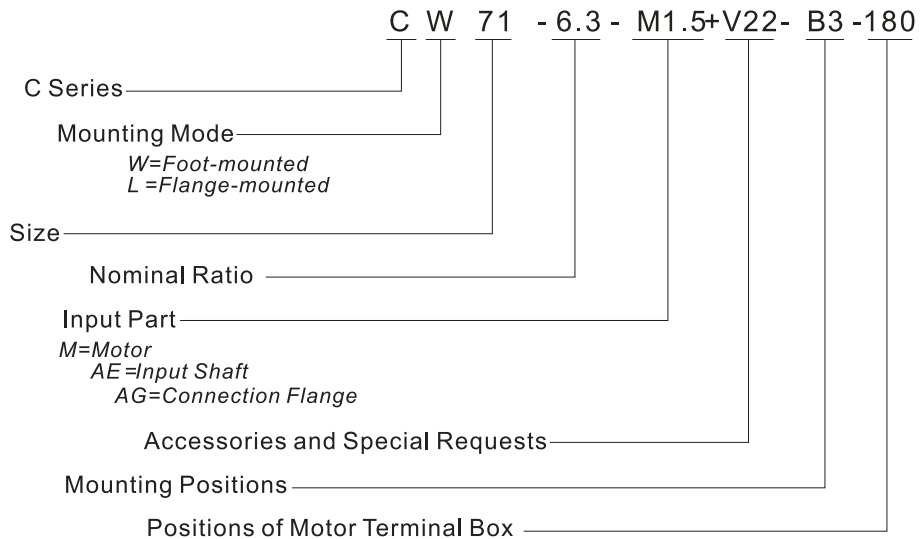
3 Mounting Positions and Position of Motor Terminal Box:

CW..	270 / 0 / 180 / 90	B3 / B8	V6 / V5	B6 / B7
CL..	270 / 0 / 180 / 90	B5 / B51	V3 / V1	B65 / B75
CRW..	270 / 0 / 180 / 90	B3 / B8	V6 / V5	B6 / B7
CRL..	270 / 0 / 180 / 90	B5 / B51	V3 / V1	B65 / B75
CRM..	270 / 0 / 180 / 90	B5	V1	V3

4 Type Selection and Example:

序号 Steps	说 明 Description	代 号 Symbols	参 数 计 算 Parameters Calculation and Guidelines			
1	Driven Machine Factor	f_1	Load Characteristic	每天使用时间（小时）/Operating hours per day (h)		
				≤2	2-10	10-24
			Uniform	1.00（1.00）	1.00（1.25）	1.25（1.50）
			Moderate	1.00（1.25）	1.25（1.50）	1.50（1.75）
			Heavy	1.25（1.50）	1.50（1.75）	1.75（2.00）
			Note: Apply values in the brackets when starts per hour are 10 times or more.			
2	Input Speed	n_1	≤1800r/min　　　　Consult us if higher speed required.			
3	Calculation of the Ratio	i	$i=n_1/n_2$			
4	Transmission Efficiency	η	C：98%　　CR：二 2-stage：96%，三 /3-stage：94%			
5	Calculation of the input power of the gear unit on basis of the torque and power required by the driven machine.	P_1	$P_1=T_2 \cdot n_1 /（9550 \cdot i \cdot η）$　　or $P_1=P_2/η$			
6	Determination of gear unit type referring to the table of transmission capacity after calculation, For directly-connected motor, require to refer to directly-connected motor power table.	T_{2N}、P_{1N}	$T_{2N} \geq T_2 \cdot f_1$　　or $P_{1N} \geq P_1 \cdot f_1$			
7	Check the radial and axial forces on the shafts.	F_{r1}/F_{r2} F_{a1}/F_{a2}	See the table of Radial Force on Output Shaft (Fr2) on P 15.			
8	Determination of Lubrication system		Generally Splash Lubrication			
9	Determination of Cooling System		Generally Air Cooling			
10	Determination of every item included in the Type Designation		For details about Type Designation, see P1.			
11	Normal ambient conditions		Ambient temperature -10 to 40℃, ample space, good ventilation, altitude not exceeding 1000m and common plant dust.			
12	Special ambient conditions		For higher or lower temperature, dusty sites, chemical reaction (acids, alkaline, etc), or open field (sunlight, ice, rain, etc), please consult us!			

1) Gear motor

Known Criteria:

1. The power required by the driven machine P2=20kW, speed n2=27r/min

2. Normal motor: 4-pole, speed n1=1450r/min

3. Load characteristics: moderate, working 6 hours/d and starting 5 times/h

4. Mounting mode: flange-mounted, mounting position B5,
   terminal box position 90

Selection Steps:

1. By referring to the table of Load Characteristic, we get the
   driven machine factor f1=1.25.

2. Calculation of the Ratio:
   As i=n1/n2=1450/27=53.7, nominal ratio iN=53 is appropriate.

3. Calculation of the input power and determination of the motor
   power (transmission efficiency   =94%) :
   P1=P2/   =20/0.94=21.3kW, so 22kW motor is selected.
   Refer to the directly-connected motor power table, it can be directly-connected.

4. Determination of the nominal power of the geared motor P1N:
   P1N ≥P2· f1/   =20∗1.25/0.94=26.6kW

5. The type selected:**CRLa147-53-M22-B5-90**

2) Gear Unit

Known Criteria:

1. The torque required by the driven machine T2=100N.m and
   speed n2=540r/min

2. The motor supplied by users: 4-pole,
   speed n1=1450r/min

3. Load characteristic: moderate, operating 12h/d continuously

4. Mounting mode: shaft input, foot-mounted, mounting position V6

Selection steps:

1. By referring to the table of Load Characteristic, we get the driven
   machine factor f1=1.5.

2. Calculation of the ratio iN:
   As i= n1/ n2=1450/540=2.69, nominal ratio iN=2.7 is appropriate

3. Determination of the nominal torque T2N and nominal power
   P1N of the gear unit (transmission efficiency   =98%) :
   T2N≥T2· f1=100∗1.5=150 N· m;
   P1N≥P1· f1=T2· f1· n1 /(9550· iN·   )
   =100 ∗1.5∗1450/(9550∗2.7∗0.98)
   =8.6kW
   In the table of Transmission Capacity, C71 meets the requirements
   T2N=205 N. m, P1N=11.5 kW)

4. Determination of the input mode:
   As P1N≥P1=T2∗n1 /(9550∗ iN∗   )
   = 100∗1450/(9550∗2.7∗0.98)=5.74kW
   and power of the user-supplied motor is specified as 7.5kW,
   in the table of Dimensions the AE Input Shaft, AE4 is selected.

5. The type selected: **CW71-2.7-AE4-V6**

5 Transmission Capacity:

5.1 C Transmission Capacity:

n_1 (r/min)	n_{2N} (r/min)	i_N	C.31			C.41			C.61			
			T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	
1450	906	1.6	31	1.59	2.95	62	1.58	5.96	114	1.6	10.8	
	763	1.9	30	1.96	2.32	75	1.88	6.06	126	1.92	9.96	
	659	2.2	35	2.19	2.43	85	2.16	5.97	134	2.18	9.33	
	604	2.4	38	2.46	2.35	85	2.38	5.43	123	2.42	7.72	
	537	2.7	42	2.77	2.30	62	2.77	3.40	118	2.71	6.61	
	468	3.1	29	3.15	1.40	48	3.08	2.37	106	3.04	5.29	
	426	3.4	29	3.37	1.31	50	3.46	2.2	90	3.45	3.96	
	382	3.8	20	3.88	0.78	41	3.67	1.70	87	3.78	3.49	
	322	4.5	21	4.53	0.70	26	4.44	0.90	55	4.5	1.86	
	279	5.2				26	5.13	0.77	35	5.11	1.04	
	264	5.5				26	5.53	0.72	37	5.47	1.04	
	230	6.3							43	6.33	1.03	

	C.71			C.81			C.91			C.101		
	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)
	173	1.61	16.3	315	1.56	30.7	505	1.62	47.3	738	1.56	70
	187	1.92	14.8	355	1.93	27.9	570	1.93	44.8	765	1.93	61.13
	200	2.18	13.9	385	2.15	27.2	595	2.15	42	830	2.15	57.28
	203	2.42	12.7	405	2.48	24.8	595	2.48	36.4	830	2.48	52.51
	205	2.71	11.5	405	2.76	22.3	595	2.76	32.7	830	2.76	46.67
	200	3.05	9.96	405	3.09	19.9	595	3.09	29.2	830	3.09	40.65
	200	3.45	8.80	405	3.48	17.7	595	3.48	26	830	3.48	37.06
	190	3.78	7.63	305	3.78	12.3	595	3.78	23.9	830	3.78	33.16
	110	4.5	3.71	290	4.5	9.78	566	4.5	19.1	762	4.5	25.7
	100	5.24	2.90	250	5.07	7.49	395	5.07	11.8	695	5.07	20.29
	100	5.55	2.74	145	5.56	3.96	350	5.56	9.56	556	5.56	15.35
	68	6.28	1.64	155	6.13	3.84	323	6.45	7.60	460	6.45	11.09

5.2 CR Transmission Capacity:

n_1 (r/min)	n_{2N} (r/min)	i_N	CR..37 T_{2N} (N·m)	CR..37 i_{ex}	CR..37 P_{1N} (kW)	CR..47 T_{2N} (N·m)	CR..47 i_{ex}	CR..47 P_{1N} (kW)	CR..67 T_{2N} (N·m)	CR..67 i_{ex}	CR..67 P_{1N} (kW)	CR..77 T_{2N} (N·m)	CR..77 i_{ex}	CR..77 P_{1N} (kW)	CR..87 T_{2N} (N·m)	CR..87 i_{ex}	CR..87 P_{1N} (kW)
1450	290	5.0	130	5	3.95	150	5.02	4.54	290	5.08	8.67	510	4.99	15.5	910	4.9	28.2
	238	6.1	142	6.16	3.5	156	5.98	3.96	310	6.1	7.72	540	5.96	13.8	1020	6.05	25.6
	213	6.8	144	6.88	3.18	159	6.87	3.51	330	6.92	7.24	580	6.77	13	1070	6.76	24
	188	7.7	156	7.71	3.07	163	7.56	3.27	380	7.69	7.5	610	7.52	12.3	1160	7.78	22.6
	167	8.7	156	8.77	2.7	205	8.75	3.56	440	8.79	7.6	630	8.41	11.4	1210	8.66	21.2
	136	10.7	170	10.8	2.39	230	10.43	3.35	470	10.5	6.8	630	10.56	9.06	1180	10.62	16.9
	120	12.1	175	12.06	2.2	245	11.97	3.11	500	11.91	6.37	690	11.99	8.74	1230	11.83	15.8
	107	13.6	185	13.52	2.08	250	13.18	2.88	520	13.25	5.96	720	13.31	8.21	1280	13.64	14.2
	96	15.1	200	15.25	1.99	265	15.34	2.62	550	14.81	5.64	740	14.91	7.54	1340	15.18	13.4
	85	17.0	200	17.33	1.75	290	17.08	2.58	560	16.65	5.11	780	16.78	7.06	1390	17	12.4
	77	18.9	200	18.53	1.64	295	19.13	2.34	480	18.86	3.86	780	18.98	6.24	1440	19.14	11.4
	70	20.8	145	21.35	1.03	250	20.31	1.87	530	20.68	3.89	820	20.79	5.99	1500	20.79	11
	58	24.8	170	24.93	1.04	170	24.62	1.05	305	24.6	1.88	650	24.75	3.99	1550	24.75	9.51
1450	53	27.2	200	27.17	1.12	300	27.69	1.64	520	27.33	2.89	780	27.6	4.29	1500	27.67	8.23
	44	33.1	200	33.49	0.91	300	33.01	1.38	540	32.59	2.52	820	33.12	3.76	1550	33	7.13
	39	37.2	200	37.38	0.81	300	37.91	1.2	570	37.41	2.31	820	37.61	3.31	1550	37.47	6.28
	34	42.2	200	41.91	0.72	300	41.73	1.09	580	41.19	2.14	820	41.75	2.98	1550	41.59	5.66
	30	47.6	200	47.66	0.64	300	48.57	0.94	600	47.94	1.9	820	46.75	2.66	1550	46.58	5.05
	27.4	53.0				300	54.02	0.84	600	53.38	1.71	820	52.44	2.37	1550	52.42	4.49
	24.3	59.7	200	58.74	0.52	300	60.68	0.75	600	59.8	1.52	820	59.51	2.09	1550	59.3	3.97
	21.8	66.6	200	65.56	0.46	300	67.6	0.67	600	66.72	1.37	820	66.3	1.88	1550	66.61	3.53
	19.4	74.7	200	73.52	0.41	300	74.42	0.61	600	73.45	1.24	820	73.6	1.69	1550	73.94	3.18
	17.2	84.5	200	82.92	0.37	300	86.61	0.53	600	85.49	1.07	820	82.42	1.51	1550	82.81	2.84
	15.4	94.4	200	94.2	0.32	300	96.43	0.47	600	95.18	0.96	820	92.45	1.35	1550	93.19	2.53
	13.9	104	200	100.7	0.3	300	108	0.42	600	106.6	0.85	820	104.9	1.19	1550	105.4	2.23
	12.6	115	200	116.1	0.26	300	114.7	0.4	600	113.2	0.8	820	115	1.08	1550	115.5	2.04
	10.6	137	200	135.6	0.22	300	139	0.33	600	137.2	0.66	650	136.9	0.72	1550	137.5	1.71
	9.2	157				300	160.3	0.28	600	158.1	0.58	700	155.4	0.68	1550	160.1	1.47
	8.5	170				300	173.1	0.26	600	170.8	0.53	700	166.4	0.64	1550	169.6	1.39
	7.6	192										800	192.5	0.63	1520	191.89	1.2
	6.6	219													1500	219.6	1.04
	6.2	235													1150	236.3	0.74
	5.5	264															

	CR..97			CR..107			CR..137			CR..147			CR..167		
	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	T_{2N} (N·m)	i_{ex}	P_{1N} (kW)
	1780	5.08	53.2	2900	4.86	90.6	4600	5.04	139	8670	4.99	264			
	1890	6.06	47.4	2970	6.00	75.2	5110	6.02	129	8670	6.02	219			
	1890	6.77	42.4	2970	6.70	67.3	5110	6.82	114	8670	6.72	196			
	2000	7.80	38.9	2970	7.72	58.4	5110	7.84	99	8670	7.74	170			
	2030	8.67	35.6	4300	8.59	76.0	7840	8.69	137	13000	8.61	229	17000	8.91	290
	2090	10.68	29.7	4300	10.68	61.1	8000	10.56	115	13000	10.6	186	17000	10.71	241
	2190	11.90	27.9	4300	11.90	54.9	8000	11.94	102	13000	11.8	167	17000	12.39	208
	2300	13.72	25.5	4300	13.72	47.6	8000	13.75	88.3	12600	13.6	141	17000	13.72	188
	2300	15.27	22.9	4300	15.27	42.8	8000	15.24	79.7	13000	15.2	130	18000	15.26	179
	2400	17.10	21.3	4300	17.10	38.2	8000	16.94	71.7	13000	17	116	15000	16.98	134
	2610	19.26	20.6	4300	19.26	33.9	8000	18.98	64.0	12000	19.1	95.2	16000	18.8	129
	2610	20.92	18.9	4300	20.92	31.2	8000	20.79	58.4	12000	20.8	87.6	16000	20.99	116
	2830	24.90	17.3	4300	24.90	26.2	8000	24.75	49.1	11900	24.8	73.0	14000	24.88	85.4
	2670	27.02	15	4300	28.01	23.3	7680	26.46	44.1	13000	27.8	70.9	18000	27.43	99.6
	2890	33.43	13.1	4300	33.37	19.6	8000	32.73	37.1	13000	33.2	59.5	18000	33.08	82.6
	3000	37.24	12.2	4300	37.18	17.6	8000	36.46	33.3	13000	37.5	52.6	18000	36.85	74.2
	3000	42.96	10.6	4300	42.88	15.2	8000	42.06	28.9	13000	43.2	45.7	18000	42.51	64.3
	3000	47.81	9.53	4300	47.73	13.7	8000	46.81	26.0	13000	47.9	41.2	18000	47.31	57.8
	3000	53.52	8.51	4300	53.43	12.2	8000	52.04	23.3	13000	53.3	37.0	18000	52.97	51.6
	3000	60.28	7.56	4300	60.18	10.8	8000	59.02	20.6	13000	59.6	33.1	18000	59.65	45.8
	3000	65.74	6.93	4300	65.86	9.91	8000	65.87	18.4	13000	65.8	30.0	18000	65.5	41.7
	3000	75.84	6.01	4300	75.88	8.6	8000	75.87	16.0	13000	75.6	26.1	18000	75.47	36.2
	3000	84.40	5.4	4300	84.4	7.74	8000	84.43	14.4	13000	83.8	23.6	18000	83.94	32.6
	3000	94.49	4.82	4300	94.4	6.92	8000	94.53	12.9	13000	93.3	21.2	18000	93.88	29.1
	3000	106.4	4.28	4300	106.3	6.14	8000	106.5	11.4	13000	105	18.9	18000	105.7	25.9
	3000	115.6	3.94	4300	115.7	5.64	8000	115.6	10.5	13000	114	17.3	18000	115	23.8
	3000	137.6	3.31	4300	137.6	4.75	8000	137.7	8.82	13000	136	14.5	18000	136.9	20.0
	3000	155.0	2.94	4300	155.2	4.21	8000	155.1	7.83	13000	154	12.9	18000	154.3	17.7
	3000	170.0	2.68	4300	170.0	3.84	8000	170.1	7.14	13000	168	11.7	18000	169.1	16.2
	3000	187.5	2.43	4300	197.4	3.31	8000	197.3	6.16	13000	195	10.1	18000	186.4	14.7
	2750	220.2	1.9	4300	220.2	2.97	8000	220.3	5.51	13000	218	9.06			
	1600	233.4	1.04	4300	233.3	2.80	8000	233.5	5.20	13000	231	8.55			
	1800	264.4	1.03	4300	264.5	2.47	8000	264.6	4.59	13000	262	7.55			

5.3 CR/CR Combi-type Transmission Capacity:

n_1 (r/min)	n_{2N} (r/min)	i_n	CR..37/CRL37 T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	CR..47/CRL37 T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	CR..67/CRL37 T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	CR..77/CRL37 T_{2N} (N·m)	i_{ex}	P_{1N} (kW)	CR..87/CRL47 T_{2N} (N·m)	i_{ex}	P_{1N} (kW)
1450	9.93	146	200	145.4	0.23	300	144.4	0.34	600	143.6	0.69	820	144.6	0.93	1550	141.6	1.8
	8.79	165	200	163.1	0.20	300	161.8	0.31	600	161	0.61	820	162.1	0.83	1550	155.9	1.64
	7.92	183	200	183.9	0.18	300	182.5	0.27	600	181.6	0.54	820	182.8	0.74	1550	181.5	1.41
	7.04	206	200	209	0.16	300	207.4	0.24	600	206.4	0.48	820	207.8	0.65	1550	202.1	1.26
	6.39	227	200	230.3	0.14	300	233.5	0.21	600	230.4	0.43	820	231.7	0.58	1550	224.1	1.14
	5.73	253	200	257.2	0.13	300	260.8	0.19	600	257.4	0.38	820	258.8	0.52	1550	257.4	0.99
	5.07	286	200	288.2		300	292.3	0.17	600	288.4	0.34	820	290	0.47	1550	283.3	0.9
	4.48	324	200	327.8		300	332.5	0.15	600	328.1	0.3	820	329.8	0.41	1550	327.9	0.78
	3.64	398	200	403.7		300	409.4	0.12	600	404	0.24	820	406.2	0.33	1550	390.8	0.65
	3.22	450	200	450.8		300	457.2		600	451.2	0.22	820	453.6	0.3	1550	448.5	0.57
	2.87	506	200	505.4		300	512.5		600	505.8	0.2	820	508.5	0.27	1550	493.9	0.52
	2.58	562	200	570		300	578.1		600	570.5	0.17	820	573.6	0.24	1550	574.8	0.44
	2.29	632	200	647.8		300	657		600	648.3	0.15	820	651.8	0.21	1550	640	0.4
	2.06	703	200	692.7		300	702.5		600	693.2	0.14	820	696.9	0.19	1550	716.8	0.36
	1.87	774	200	798		300	809.4		600	798.7	0.12	820	803	0.17	1550	761	0.34
	1.57	923	200	931.9		300	945.1		600	932.6		820	937.6	0.14	1550	922.5	0.28
	1.43	1012	200	1016		300	1030		600	1016		820	1022	0.13	1550	1038	0.25
	1.18	1231	200	1252		300	1270		600	1253		820	1260		1550	1237	0.21
	1.05	1384	200	1397		300	1417		600	1398		820	1406		1550	1420	0.18
	0.92	1570	200	1567		300	1589		600	1568		820	1576		1550	1564	0.16
	0.82	1771	200	1782		300	1807		600	1783		820	1792		1550	1820	0.14
	0.74	1972	200	2008		300	2036		600	2009		820	2020		1550	2024	0.13
	0.65	2221	200	2196		300	2227		600	2197		820	2209		1550	2274	
	0.59	2478	200	2451		300	2485		600	2453		820	2466		1550	2533	
	0.52	2811	200	2748		300	2833		600	2796		820	2779		1550	2780	
	0.46	3171	200	3125		300	3222		600	3180		820	3160		1550	3235	
	0.41	3530	200	3521		300	3631		600	3583		820	3560		1550	3598	
	0.36	3976	200	3851		300	3971		600	3919		820	3894		1550	4042	
	0.33	4436	200	4298		300	4432		600	4374		820	4347		1550	4503	
	0.29	4975	200	4820		300	4970		600	4905		820	4874		1550	4957	
	0.26	5628	200	5436		300	5605		600	5532		820	5498		1550	5769	
	0.23	6287	200	6176		300	6368		600	6285		820	6245		1550	6423	
	0.21	6926	200	6605		300	6810		600	6719		820	6676		1550	7194	
	0.18	7977	200	7811		300	7996		600	7892		820	7666				
	0.16	8911	200	8874		300	9084		600	8966		820	8709				
	0.15	9818	200	9490		300	9714		600	9585		820	9310				
	0.13	10856	200	10938		300	11196		600	11050		820	10733				
	0.11	12933	200	12774		300	13076		600	12906		820	12536				
	0.10	14821															
	0.09	16048															
	0.08	18125															

CR..97/CRL67			CR..107/CRL77			CR..137/CRL77			CR..147/CRL87			CR..167/CRL107		
T_{2N} (N·m)	$i\,ex$	P_{1N} (kW)	T_{2N} (N·m)	$i\,ex$	P_{1N} (kW)	T_{2N} (N·m)	$i\,ex$	P_{1N} (kW)	T_{2N} (N·m)	$i\,ex$	P_{1N} (kW)	T_{2N} (N·m)	$i\,ex$	P_{1N} (kW)
3000	141.7	3.49	4300	142.7	4.96	8000	143.2	9.2	13000	139.9	15.3	18000	147.4	20.1
3000	157.7	3.13	4300	158.4	4.47	8000	158.9	8.29	13000	161.4	13.3	18000	170	17.4
3000	176.2	2.81	4300	177.4	3.99	8000	178	7.4	13000	179.6	11.9	18000	189.2	15.7
3000	198.1	2.49	4300	199.7	3.55	8000	200.4	6.58	13000	201.1	10.7	18000	211.9	14
									CR..147/CRL77					
3000	227.2	2.18	4300	221.6	3.2	8000	217.3	6.07	13000	223.6	9.58	18000	223.3	13.3
3000	257.7	1.92	4300	251.7	2.81	8000	246.8	5.34	13000	253.9	8.44	18000	249.5	11.9
3000	286.4	1.73	4300	279.6	2.53	8000	274.2	4.81	13000	282.1	7.59	18000	287.4	10.3
												CR..167/CRL97		
3000	327.3	1.51	4300	312.7	2.27	8000	306.6	4.3	13000	315.5	6.79	18000	319.5	9.28
3000	391	1.26	4300	392.6	1.8	8000	385	3.42	13000	396.1	5.41	18000	393.6	7.53
3000	443.5	1.11	4300	445.8	1.59	8000	437.2	3.01	13000	449.7	4.76	18000	438.5	6.76
3000	493.4	1	4300	494.8	1.43	8000	485.3	2.72	13000	499.3	4.29	18000	505.6	5.87
3000	551.5	0.9	4300	554.4	1.28	8000	543.6	2.42	13000	559.3	3.83	18000	562.7	5.27
3000	620	0.8	4300	623.9	1.14	7680	611.8	2.07	13000	629.4	3.4	18000	630.1	4.71
3000	702.3	0.7	4300	705.7	1	8000	692	1.9	13000	711.9	3.01	18000	709.7	4.18
3000	770.1	0.64	4300	773	0.92	8000	758	1.74	13000	779.8	2.75	18000	770.9	3.85
3000	916.1	0.54	4300	920.2	0.77	8000	902.4	1.46	13000	928.4	2.31	18000	917.6	3.23
3000	1018	0.49	4300	1026	0.69	8000	1006	1.31	13000	1036	2.07	18000	995.7	2.98
3000	1214	0.41	4300	1231	0.58	8000	1208	1.09	13000	1242	1.72	18000	1232	2.41
3000	1393	0.35	4300	1398	0.51	8000	1371	0.96	13000	1411	1.52	18000	1372	2.16
3000	1534	0.32	4300	1552	0.46	8000	1522	0.87	13000	1566	1.37	18000	1583	1.87
3000	1785	0.28	4300	1738	0.41	8000	1705	0.77	13000	1754	1.22	18000	1762	1.68
3000	1988	0.25	4300	1950	0.36	8000	1912	0.69	13000	1967	1.09	18000	1972	1.5
3000	2227	0.22	4300	2213	0.32	8000	2170	0.61	13000	2232	0.96	18000	2221	1.34
3000	2485	0.2	4300	2465	0.29	8000	2417	0.55	13000	2487	0.86	18000	2423	1.22
3000	2708	0.18	4300	2750	0.26	8000	2750	0.48	13000	2745	0.78	18000	2814	1.05
3000	3152	0.16	4300	3079	0.23	8000	3079	0.43	13000	3074	0.7	18000	3132	0.95
3000	3509	0.14	4300	3454	0.21	8000	3454	0.38	13000	3448	0.62	18000	3506	0.85
3000	3931	0.13	4300	3919	0.18	8000	3920	0.34	13000	3913	0.55	18000	3948	0.75
3000	4386		4300	4367	0.16	8000	4367	0.3	13000	4360	0.49	18000	4306	0.69
3000	4829		4300	4847	0.15	8000	4848	0.27	13000	4840	0.44	18000	4968	0.6
3000	5620		4300	5428	0.13	8000	5429	0.24	13000	5420	0.4	18000	5528	0.54
3000	6257		4300	6089	0.12	8000	6090	0.22	13000	6080	0.35	18000	6189	0.48
3000	7008		4300	6909		8000	6910	0.19	13000	6898	0.31	18000	6969	0.43
3000	8078		4300	7780		8000	7791	0.17	13000	7687	0.28	18000	7923	0.37
3000	8994		4300	8727		8000	8739	0.15	13000	8623	0.25	18000	8871	0.33
3000	10073		4300	9903		8000	9916	0.13	13000	9784	0.22	18000	9989	0.3
3000	10695		4300	10856		8000	10871	0.12	13000	10726	0.2	18000	10853	0.27
3000	12964		4300	12923		8000	12941		13000	12769	0.17	18000	12918	0.23
3000	14939		4300	14670		8000	14690		13000	14494	0.15	18000	14551	0.2
3000	16139		4300	15708		8000	15730		13000	15520	0.14	18000	15960	0.19
			4300	18172		8000	18197		13000	17954	0.12	18000	17603	0.17

6 Directly connected motor power table:

P_m(kW) / iN	0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5
1.6																					
1.9																					
2.2																					
2.4																					
2.7																					
3.1																					
3.4																					
3.8																					
4.5																					
5.2																					
5.5																					

(C31 / C41)

P_m(kW) / iN	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11
1.6																							
1.9																							
2.2																							
2.4																							
2.7																							
3.1																							
3.4																							
3.8																							
4.5																							
5.2																							
5.5																							
6.3																							

(C61 / C71)

P_m(kW) / iN	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30
1.6																							
1.9																							
2.2																							
2.4																							
2.7																							
3.1																							
3.4																							
3.8																							
4.5																							
5.2																							
5.5																							
6.3																							

(C81 / C91)

P_m(kW) / iN	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45
1.6													
1.9													
2.2													
2.4													
2.7													
3.1													
3.4													
3.8													
4.5													
5.2													
5.5													
6.3													

(C101)

Note:1. ☐ means permissible directly-connected motor,
2. ☐ means permissible directly-connected motor(The motor's power is more than nominal input power of gear unit, $P_1 > P_{1N}$),
3. ☐ means unallowed directly-connected motor.
4. The selection of motor shall be suitable for driver machine factor and regulations of type selection.
5. The motor is 4-pole motor.

CR37 / CR47

iN \ Pm(kW)	0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4
5																					
6.1																					
6.8																					
7.7																					
8.7																					
10.7																					
12.1																					
13.6																					
15.1																					
17																					
18.9																					
20.8																					
24.8																					
27.2																					
33.1																					
37.2																					
42.2																					
47.6																					
53																					
59.7																					
66.6																					
74.7																					
84.5																					
94.4																					
104																					
115																					
137																					
157																					
170																					

CR67 / CR77

iN \ Pm(kW)	0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11
5																											
6.1																											
6.8																											
7.7																											
8.7																											
10.7																											
12.1																											
13.6																											
15.1																											
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20.8																											
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27.2																											
33.1																											
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59.7																											
66.6																											
74.7																											
84.5																											
94.4																											
104																											
115																											
137																											
157																											
170																											
192																											

Note:1. means permissible directly-connected motor,
2. means permissible directly-connected motor(The motor's power is more than nominal input power of gear unit,P1＞P1N),
3. means unallowed directly-connected motor.
4.The selection of motor shall be suitable for driver machine factor and regulations of type selection.
5.The motor is 4-pole motor.

Table (CR87 / CR97)

iN \ Pm (kW)	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30
5																											
6.1																											
6.8																											
7.7																											
8.7																											
10.7																											
12.1																											
13.6																											
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20.8																											
24.8																											
27.2																											
33.1																											
37.2																											
42.2																											
47.6																											
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59.7																											
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84.5																											
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104																											
115																											
137																											
157																											
170																											
192																											
219																											
235																											
264																											

(CR87, CR97)

Table (CR107 / CR137)

iN \ Pm (kW)	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55
5																										
6.1																										
6.8																										
7.7																										
8.7																										
10.7																										
12.1																										
13.6																										
15.1																										
17																										
18.9																										
20.8																										
24.8																										
27.2																										
33.1																										
37.2																										
42.2																										
47.6																										
53																										
59.7																										
66.6																										
74.7																										
84.5																										
94.4																										
104																										
115																										
137																										
157																										
170																										
192																										
219																										
235																										
264																										

(CR107, CR137)

Note:
1. ▢ means permissible directly-connected motor,
2. ▩ means permissible directly-connected motor(The motor's power is more than nominal input power of gear unit,P1＞P1N),
3. ▢ means unallowed directly-connected motor.
4. The selection of motor shall be suitable for driver machine factor and regulations of type selection.
5. The motor is 4-pole motor.

P(kW) / iN	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160
5																																
6.1																																
6.8																																
7.7																																
8.7																																
10.7																																
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137																																
157																																
170																																
192																																
219																																
235																																
264																																

(Watermark: CR147   CR167)

Note:
1. ▢ means permissible directly-connected motor,
2. ▣ means permissible directly-connected motor(The motor's power is more than nominal input power of gear unit,P1＞P1N),
3. ▢ means unallowed directly-connected motor.
4. The selection of motor shall be suitable for driver machine factor and regulations of type selection.
5. The motor is 4-pole motor.

7 Permissible Radial Force and Axial Force on Shaft:

7.1 C Series Radial Force on Input Shaft (Fr1)(N):

	C.31	C.41	C.61	C.71	C.81	C.91	C.101
AE2	803	803	803	803	803	/	/
AE3	/	1504	1504	1504	1504	1504	1504
AE4	/	/	/	2188	2188	2188	2188
AE5	/	/	/	/	4207	4207	4207
AE6	/	/	/	/	/	5664	5664

7.2 CR Series Radial Force on Input Shaft(Fr1)(N):

	Fr1(N)									
	CR.37	CR.47	CR.67	CR.77	CR.87	CR.97	CR.107	CR.137	CR.147	CR.167
AE2	803	803	803	803	803	/	/	/	/	/
AE3	/	1504	1504	1504	1504	1504	1504	/	/	/
AE4	/	/	/	2188	2188	2188	2188	2188	2188	/
AE5	/	/	/	/	4207	4207	4207	4207	4207	4207
AE6	/	/	/	/	/	5664	5664	5664	5664	5664
AE7	/	/	/	/	/	/	/	9957	9957	9957
AE8	/	/	/	/	/	/	/	12546	12546	12546

7.3 C Series Radial Force on Output Shaft (Fr2)(N):

n_{2N} (r/min)	C.31	C.41	C.61	C.71	C.81	C.91	C.101
800 ~ 1120	48	94	196	268	144	280	306
710 ~ 800	48	94	196	285	148	298	510
630 ~ 710	68	94	208	370	376	420	760
560 ~ 630	85	110	1300	433	340	1584	808
500 ~ 560	170	238	2244	944	1020	1683	1879
450 ~ 500	221	548	2380	2176	1658	2389	3040
400 ~ 450	280	1173	2380	2720	2321	3171	3817
355 ~ 400	374	1403	2626	3646	4276	3851	4718
280 ~ 355	391	1471	2848	3825	4675	5253	5960
265 ~ 280	425	1598	3043	4165	5083	6137	6673
250 ~ 265	570	1708	3043	4454	5372	6486	7718
⩽ 250	850	1819	3409	4760	5823	7225	8245

Note: For lower output speed, apply the largest Fr2 value in each type.

7.4 CR Series Radial Force on Output Shaft(Fr2)(N):

n_{2N} (r/min)	Fr2 (N)									
	CR.37	CR.47	CR.67	CR.77	CR.87	CR.97	CR.107	CR.137	CR.147	CR.167
250 ~ 355	684	2052	4689	3591	8082	8865	10170	31050	44370	/
224 ~ 250	711	2223	5031	3591	8505	9450	11160	32310	47800	/
200 ~ 224	900	2358	5211	3465	8802	9810	11520	33750	52560	/
180 ~ 200	1548	2448	5247	3546	9180	10170	12420	35100	48735	/
160 ~ 180	1548	2502	5364	3699	9450	10710	10170	24840	44910	67575
125 ~ 160	1638	2601	5724	5841	9720	10890	11160	27990	51600	74250
112 ~ 125	1629	2772	5985	6066	10260	11430	12420	31230	55710	79830
100 ~ 112	1692	2840	6134	6206	10490	11700	12960	32400	57060	82125
90 ~ 100	1809	2907	6282	6651	10890	12240	13860	34650	56430	91215
80 ~ 90	2151	3033	6480	6858	11340	12600	14400	36540	60300	98010
71 ~ 80	2313	3177	6480	7182	11700	12960	14740	39150	60300	100260
63 ~ 71	2313	3258	6453	7425	11970	13320	15570	39150	58140	108000
56 ~ 63	3474	3438	6876	9090	12510	14318	17280	44460	58140	108000
45 ~ 56	3402	3645	7065	9009	12510	7542	18090	48690	56430	108000
40 ~ 45	3708	4221	7065	8928	14400	9540	19395	48060	56430	108000
35.5 ~ 40	4086	4167	6777	8928	15120	16740	20700	48060	56430	108000
31.5 ~ 35.5	4374	4437	6453	8928	15210	17820	22050	48060	56430	108000
28 ~ 31.5	4455	4635	6453	8928	15210	17820	22950	48060	56430	108000
25 ~ 28	4455	4815	6453	8928	12150	17820	23940	48060	56430	108000
22.4 ~ 25	4455	4878	6453	8928	13680	17820	25200	48060	56430	108000
⩽ 22.4	4455	4878	6453	8928	14220	17820	26280	48060	56430	108000

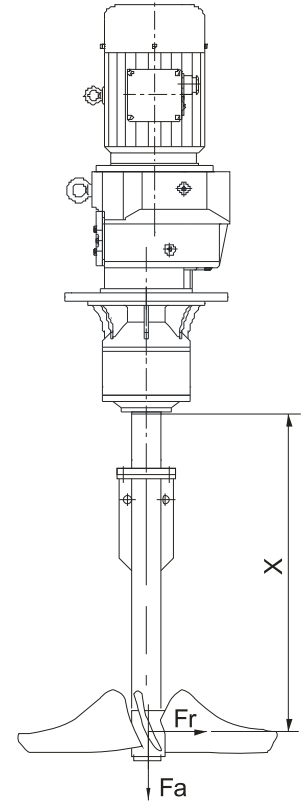Note: For lower output speed, apply the largest Fr2 value in each type.

7.5 Axial Force on CRM Shaft (Fa)(N):

Type	$n_2(r/min)$							
	< 16	16–25	26–40	41–60	61–100	101–160	161–250	251–400
CRM67	17380	13200	10538	8063	6138	4906	3806	3223
CRM77	22000	16940	13090	9977	7337	5808	4411	4070
CRM87	28290	22080	16445	12190	9419	7015	6313	5589
CRM97	34080	26400	19440	13920	10620	8208	6996	5712
CRM107	38760	29760	21360	15600	11736	9804	7140	6744
CRM137	70000	65890	52800	41690	37180	34870	28160	25630
CRM147	70000	66660	50490	43890	36850	30690	26510	24860
CRM167	70000	68580	55728	40824	28944	25488		

7.6 Radial Force on CRM Shaft (Fr2)(N):

Type \ X(mm), Fr (N)	500	1000	2000	3000	4000	5000
CRM67	1100	580	290	—	—	—
CRM77	2290	1200	600	400	—	—
CRM87	3700	1950	1000	670	510	—
CRM97	5670	3000	1540	1030	780	620
CRM107	7940	4230	2180	1470	1100	890
CRM137	13800	7500	3900	2640	2000	1600
CRM147	20000	11000	5700	3880	2930	2300
CRM167	27000	14600	7600	5100	3880	3100

Note: For lower output speed, apply the largest Fr2 value in each type.

8 Dimensions:

L   Lc

E

t
b
Φd

h1

R   B1

B

Foot-mounted   **CW31~CW101**

L   Lc

E

t
b
Φd

ΦP2
ΦN2

h1

f2   C2

E2
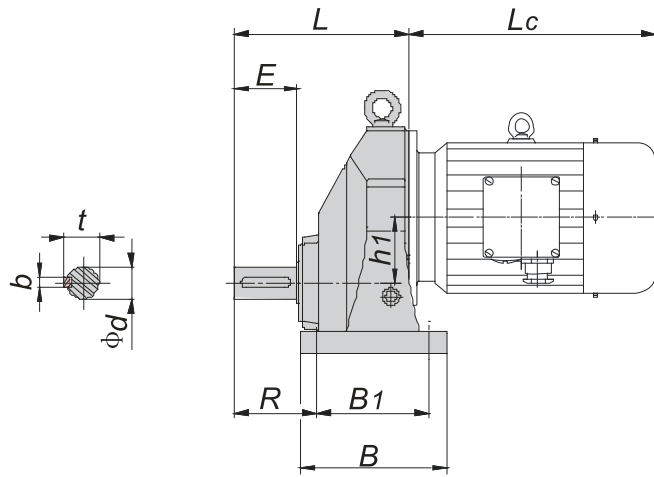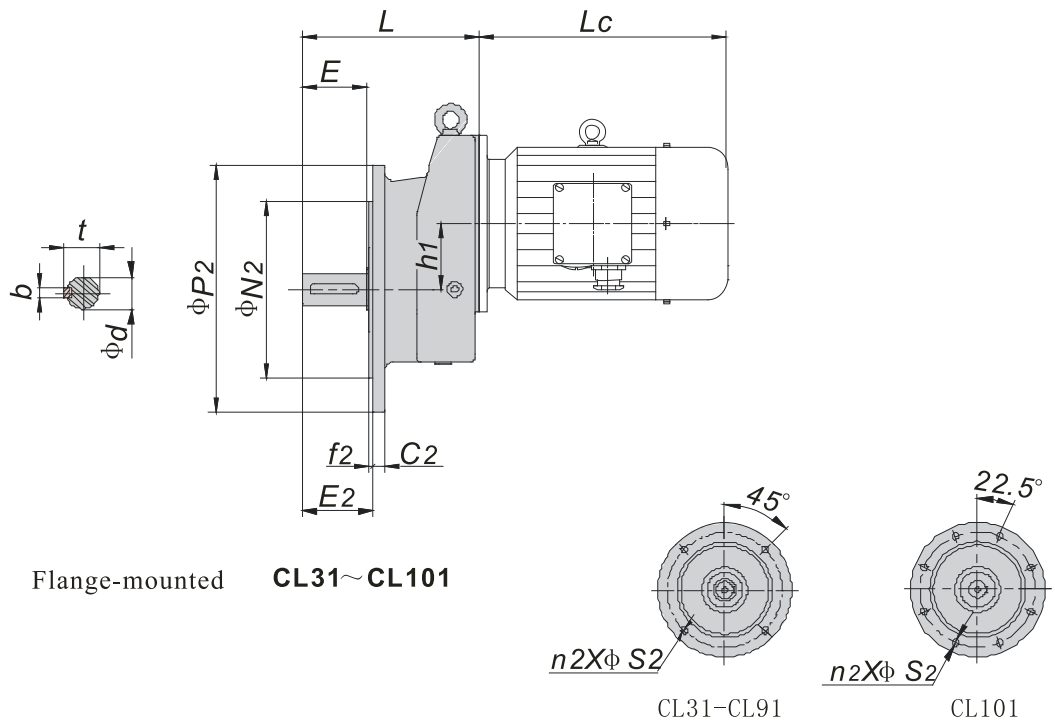
Flange-mounted   **CL31~CL101**

45°   22.5°

n2XΦ S2   n2XΦ S2

CL31-CL91   CL101
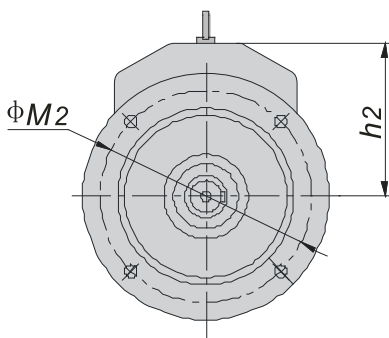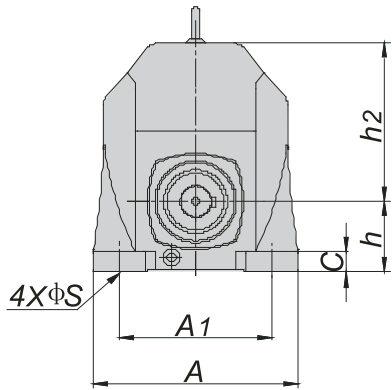
Size	31	41	61	71	81	91	101
A	160	180	180	230	290	340	400
A1	125	135	135	170	215	260	310
B	140	140	155	190	210	240	270
B1	110	110	120	150	160	180	210
b	6	8	8	12	14	14	18
C	12	16	20	25	30	35	45
C2	8	12	12	15	18	20	22
d	20k6	25k6	25k6	40k6	45k6	50k6	60m6
E	40	50	50	80	90	100	120
E2	50	60	60	90	100	110	130
f2	3	3.5	3.5	4	5	5	5
h	55	70	80	90	100	120	140
h1	44	52	58	73	93	115	130
h2	107	135	141	178	223	270	310
L	156	170	178	243	254	283	332
M2	130	165	165	215	300	350	400
n2	4	4	4	4	4	4	8
N2	110h7	130h7	130h7	180h7	250h7	300h7	350h7
P2	160	200	200	250	350	400	450
R	52	72	75	105	120	133	152
S	9	11	14	18	18	20	22
S2	9	11	11	14	18	18	18
t	22.5	28	28	43	48.5	53.5	64
* (kg)	4	7	12	20	33	60	75

Note: * The weight of motor and lubricant is not included.

CR
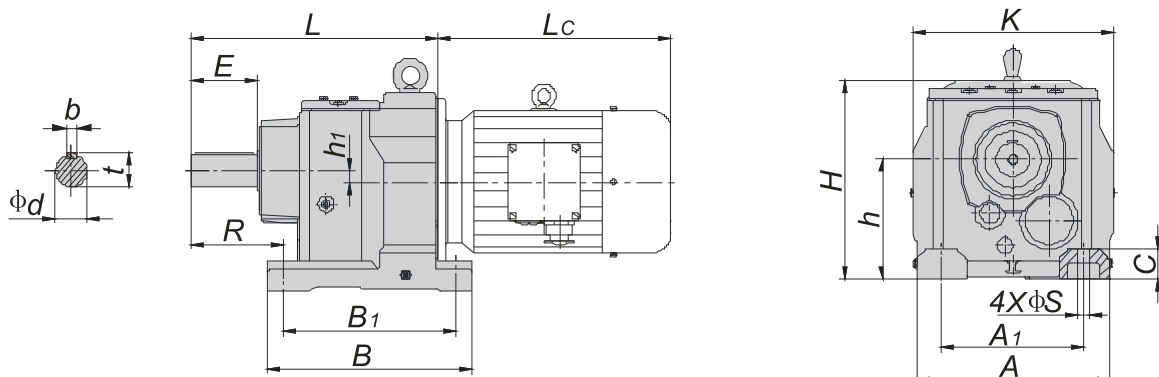
CRW37～CRW167
Foot-mounted
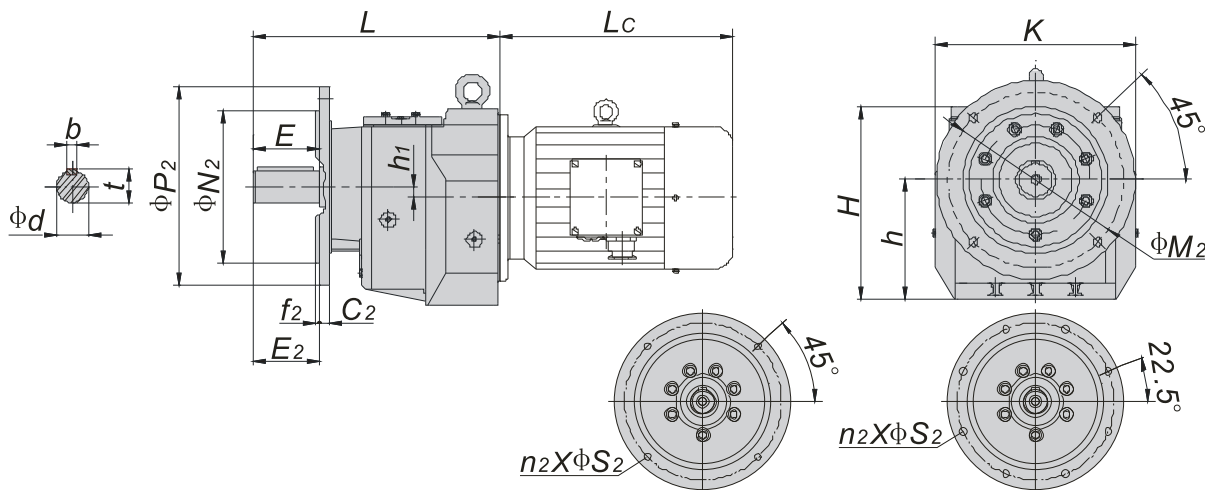
CRL37～CRL167
Flange-mounted

CRLa37～CRLa107
CRLb37～CRLb87

CRLa137～CRLa167
CRLb97～CRLb167

$n_2X\Phi S_2$
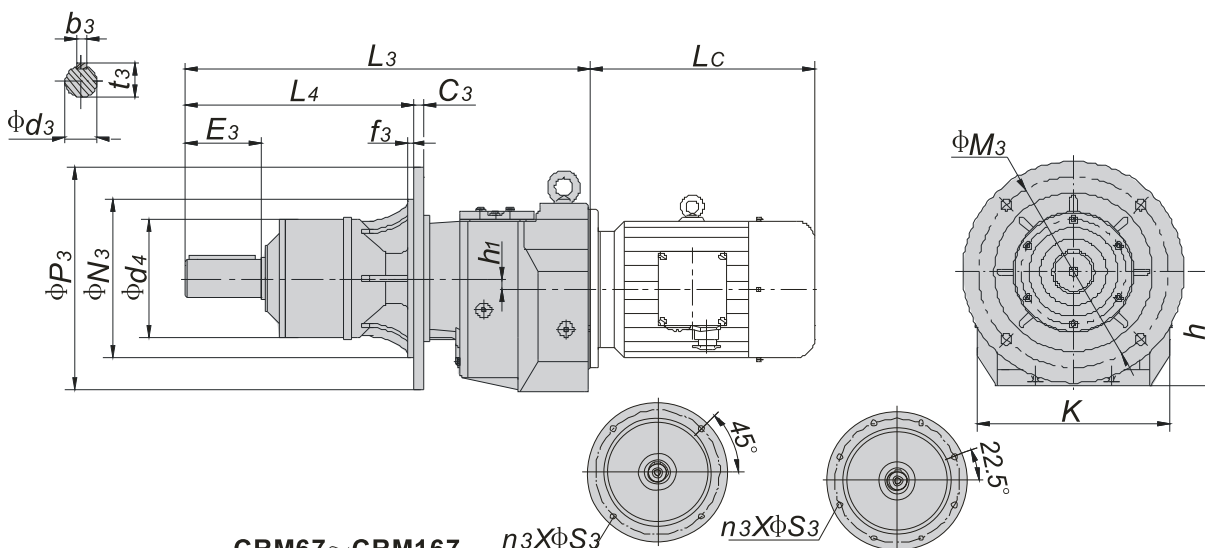
CRM67～CRM167
Pug Mill

CRM67～CRM87

CRM97～CRM167

$n_3X\Phi S_3$

		37	47	67	77	87	97	107	137	147	167
	A	145	170	210	230	290	340	400	450	530	660
	A1	110	135	150	170	215	250	290	340	380	500
	B	160	195	235	245	310	365	440	490	590	670
	B1	130	165	195	205	260	310	370	410	500	580
	b	8	8	10	12	14	18	20	25	28	32
	C	18	24	30	30	45	55	65	70	80	100
	d	25k6	30k6	35k6	40k6	50k6	60m6	70m6	90m6	110m6	120m6
	E	50	60	70	80	100	120	140	170	210	210
	E2	50	60	70	80	100	120	140	170	210	210
	H	152	190	215	234	298	368	414	505	569	679
	h	90	115	130	140	180	225	250	315	355	425
	h1	4.9	15.4	19.4	9.9	16.8	11.2	24.4	35.2	41	63
	K	161	180	221	241	303	340	415	464	548	660
	L	213	240	285	307	377	444	501	600	695	790
	R	75	90	100	115	140	160	185	220	260	270
	S	9	13.5	13.5	17.5	17.5	22	26	33	39	39
	t	28	33	38	43	53.5	64	74.5	95	116	127
CRLa..	C2	8	10	12	15	16	18	20	22	22	25
	f2	3	3	3.5	4	5	5	5	5	5	6
	M2	100	115	165	215	265	300	300	400	400	500
	N2	80h7	95h7	130h7	180h7	230h7	250h7	250h7	350h7	350h7	450h7
	n2	4	4	4	4	4	4	4	8	8	8
	P2	120	140	200	250	300	350	350	450	450	550
	S2	6.6	9	11	13.5	13.5	17.5	17.5	17.5	17.5	22
CRLb..	C2	10	10	15	18.5	18	22	22	25	25	28
	f2	3.5	3.5	4	4	5	5	5	5	5	6
	M2	130	130	215	265	300	400	400	500	500	600
	N2	110h7	110h7	180h7	230h7	250h7	350h7	350h7	450h7	450h7	550h7
	n2	4	4	4	4	4	8	8	8	8	8
	P2	160	160	250	300	350	450	450	550	550	660
	S2	9	9	13.5	13.5	17.5	17.5	17.5	17.5	17.5	22
CRM..	b3			12	14	18	20	22	28	28	32
	C3			16	18	18	22	25	25	28	31
	d3			40k6	50k6	60m6	70m6	80m6	100m6	110m6	125m6
	d4			144	170	186	214	232	253	274	290
	E3			80	100	120	140	170	210	210	210
	f3			4	5	5	5	5	5	6	6
	L3			464	534	644	749	870	1035	1154	1313
	L4			240	300	360	420	500	600	660	730
	M3			265	300	300	400	500	500	600	600
	N3			230h7	250h7	250h7	350h7	450h7	450h7	550h7	550h7
	n3			4	4	4	8	8	8	8	8
	P3			300	350	350	450	550	550	660	660
	S3			13.5	17.5	17.5	17.5	17.5	17.5	22	22
	t3			43	53.5	64	74.5	85	106	116	132
*(kg)	CRL	9	14	27	33	60	110	150	255	365	615
	CRM	/	/	46	63	98	175	250	400	565	885

Note: * The weight of motor and lubricant is not included.

9 Input Part:
9.1 C Series Dimensions of AE Input Shaft :
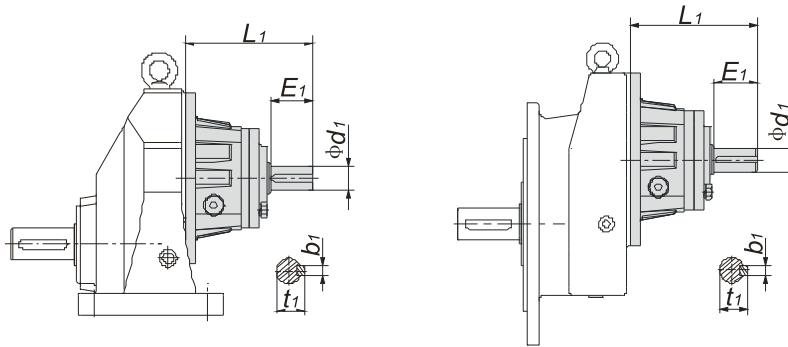
Size	Input Shaft	Range of Power*	d1	E1	L1	b1	t1	Weight(kg)
31	AE2	0.12–1.1kW	19k6	40	117	6	21.5	3.2
41	AE2	0.12–1.1kW	19k6	40	119	6	21.5	3.9
	AE3	1.5–5.5kW	28k6	60	175	8	31	7.5
61	AE2	0.12–1.1kW	19k6	40	119	6	21.5	3.9
	AE3	1.5–5.5kW	28k6	60	175	8	31	7.5
71	AE2	0.12–1.1kW	19k6	40	111	6	21.5	4.7
	AE3	1.5–5.5kW	28k6	60	165	8	31	8.5
	AE4	7.5–11kW	38k6	80	216	10	41	12.8
81	AE2	0.12–1.1kW	19k6	40	108	6	21.5	5.9
	AE3	1.5–5.5kW	28k6	60	158	8	31	9.9
	AE4	7.5–11kW	38k6	80	209	10	41	14.5
	AE5	15–22kW	42k6	110	271	12	45	25.4
91	AE3	1.5–5.5kW	28k6	60	156	8	31	11.9
	AE4	7.5–11kW	38k6	80	203	10	41	17
	AE5	15–22kW	42k6	110	265	12	45	26.6
	AE6	30–45kW	48k6	110	327	14	51.5	51.6
101	AE3	1.5–5.5kW	28k6	60	146	8	31	13.9
	AE4	7.5–11kW	38k6	80	190	10	41	19.3
	AE5	15–22kW	42k6	110	252	12	45	29.1
	AE6	30–45kW	48k6	110	314	14	51.5	50.8

*Range of Power is based on 4-pole motor

9.2 C Series Dimensions of AG Connection Flange:

AG63-AG200   AG225-AG315
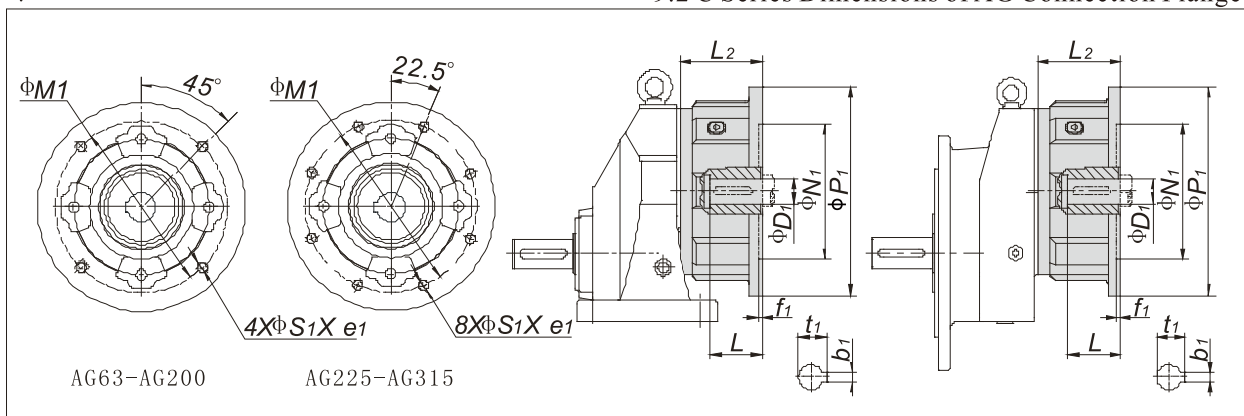
Size	Flange	e1	D1	N1	M1	P1	f1	b1	t1	L	S1	L2	Weight (kg)
31	AG63	14	11H7	95H7	115	140	4	4	12.8	23	M8	59	4.5
	AG71	14	14H7	110H7	130	160	4	5	16.3	30	M8	59	4.5
	AG80	18	19H7	130H7	165	200	4	6	21.8	40	M10	74	7.3
41	AG71	14	14H7	110H7	130	160	4	5	16.3	30	M8	61	4.6
	AG80	18	19H7	130H7	165	200	4	6	21.8	40	M10	76	8
	AG90	18	24H7	130H7	165	200	4	8	27.3	50	M10	81	9.1
	AG100	21	28H7	180H7	215	250	5	8	31.3	60	M12	96	13.1
	AG112	21	28H7	180H7	215	250	5	8	31.3	60	M12	96	13.1
61	AG 71	14	14H7	110H7	130	160	4	5	16.3	30	M8	61	4.6
	AG 80	18	19H7	130H7	165	200	4	6	21.8	40	M10	76	8
	AG 90	18	24H7	130H7	165	200	4	8	27.3	50	M10	81	9.1
	AG100	21	28H7	180H7	215	250	5	8	31.3	60	M12	96	13.1
	AG112	21	28H7	180H7	215	250	5	8	31.3	60	M12	96	13.1
71	AG 80	18	19H7	130H7	165	200	4	6	21.8	40	M10	68	9.7
	AG 90	18	24H7	130H7	165	200	4	8	27.3	50	M10	73	10.6
	AG100	21	28H7	180H7	215	250	5	8	31.3	60	M12	86	13.9
	AG112	21	28H7	180H7	215	250	5	8	31.3	60	M12	86	13.9
	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	103	19.7
81	AG 90	18	24H7	130H7	165	200	5	8	27.3	50	M10	70	11.1
	AG100	21	28H7	180H7	215	250	5	8	31.3	60	M12	83	15.8
	AG112	21	28H7	180H7	215	250	5	8	31.3	60	M12	83	15.8
	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	96	22.6
	AG160	28	42H7	250H7	300	350	6	12	45.3	110	M16	143	37.2
	AG180	28	48H7	250H7	300	350	6	14	51.8	110	M16	143	37.2
91	AG100	21	28H7	180H7	215	250	5	8	31.3	60	M12	78	17
	AG112	21	28H7	180H7	215	250	5	8	31.3	60	M12	78	17
	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	94	24.5
	AG160	28	42H7	250H7	300	350	6	12	45.3	110	M16	137	40.4
	AG180	28	48H7	250H7	300	350	6	14	51.8	110	M16	137	40.4
	AG200	28	55H7	300H7	350	400	6	16	59.3	110	M16	167	51.9
101	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	83	25.4
	AG160	28	42H7	250H7	300	350	6	12	45.3	110	M16	124	43.4
	AG180	28	48H7	250H7	300	350	6	14	51.8	110	M16	124	43.4
	AG200	28	55H7	300H7	350	400	6	16	59.3	110	M16	154	52.4
	AG225	28	60H7	350H7	400	450	6	18	64.4	140	M16	182	89

9.3 CR Series Dimensions of AP Connection Flange:

AP100—AP200   AP225—AP280
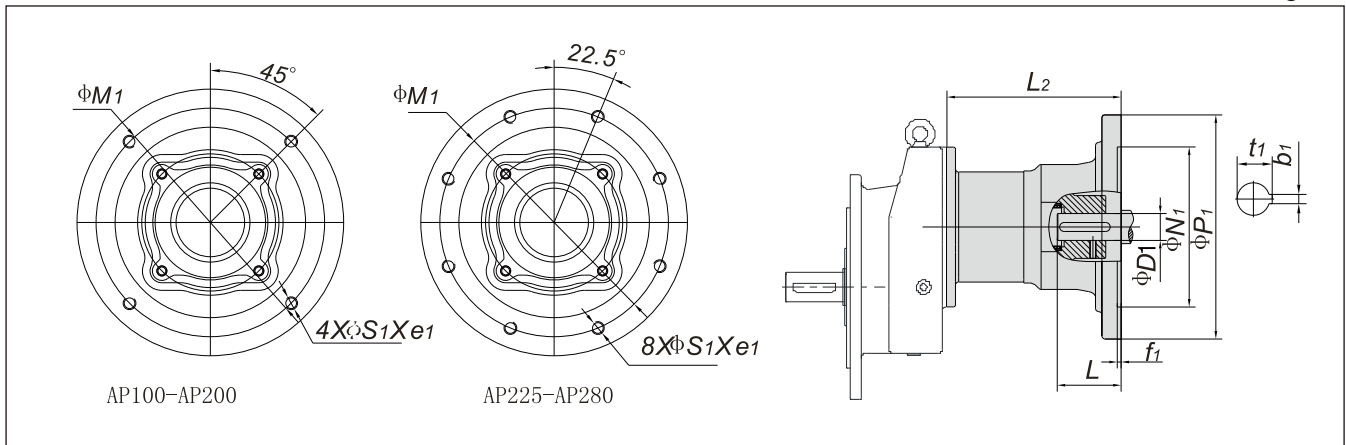
Size	Flange	e1	D1	N1	M1	P1	f1	b1	t1	L	S1	L2	(kg) Weight
41、61	AP100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	191	15.5
71	AP100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	181	16.5
	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	210	24.6
81	AP100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	171	17.9
	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	203	26.3
	AP160	28	42H7	250H7	300	350	6	12	45.3	110	M16	272	48.5
	AP180	28	48H7	250H7	300	350	6	14	51.8	110	M16	272	48.5
91	AP100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	172	19.9
	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	202	28.8
	AP160	28	42H7	250H7	300	350	6	12	45.3	110	M16	270	49.7
	AP180	28	48H7	250H7	300	350	6	14	51.8	110	M16	270	49.7
	AP200	28	55H7	300H7	350	400	6	16	59.3	110	M16	327	83.5
101	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	189	31.1
	AP160	28	42H7	250H7	300	350	6	12	45.3	110	M16	257	52.2
	AP180	28	48H7	250H7	300	350	6	14	51.8	110	M16	257	52.2
	AP200	28	55H7	300H7	350	400	6	16	59.3	110	M16	327	82.7
	AP225	28	60H7	350H7	400	450	7	18	64.4	140	M16	354	90.4

Note:Recommended for chemical mixing etc. which needs 24
hours of continuous operation and motor frequent reverse
and other load shock occasions.

9.4 CR Series Dimensions of AE Input Shaft :
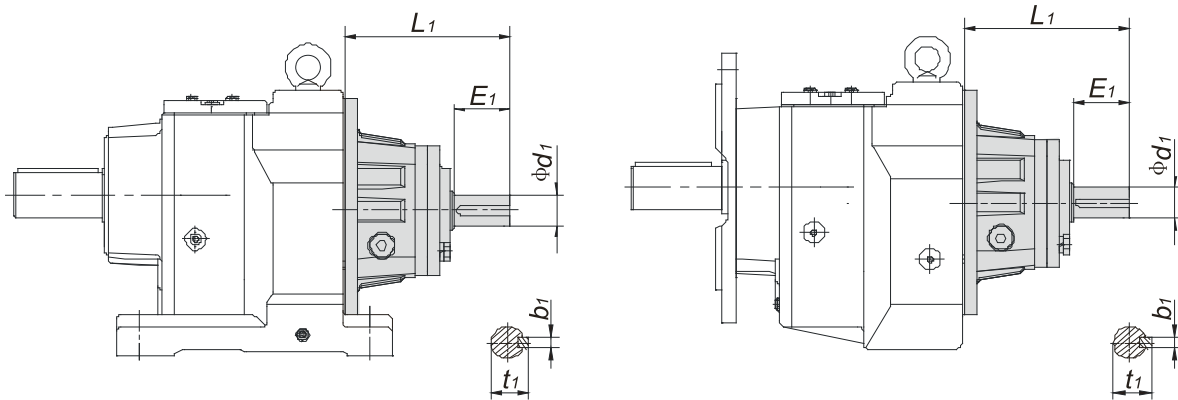
Size	Flange	Range of Power *	d1	E1	L1	b1	t1	Weight(kg)
37	AE2	0.12–1.1kW	19k6	40	117	6	21.5	3.2
47	AE2	0.12–1.1kW	19k6	40	119	6	21.5	3.9
	AE3	1.5–4kW	28k6	60	175	8	31	7.5
67	AE2	0.12–1.1kW	19k6	40	119	6	21.5	3.9
	AE3	1.5–5.5kW	28k6	60	175	8	31	7.5
77	AE2	0.12–1.1kW	19k6	40	111	6	21.5	4.7
	AE3	1.5–5.5kW	28k6	60	165	8	31	8.5
	AE4	7.5–11kW	38k6	80	216	10	41	12.8
87	AE2	0.12–1.1kW	19k6	40	108	6	21.5	5.9
	AE3	1.5–5.5kW	28k6	60	158	8	31	9.9
	AE4	7.5–11kW	38k6	80	209	10	41	14.5
	AE5	15–22kW	42k6	110	271	12	45	25.4
97	AE3	1.5–5.5kW	28k6	60	156	8	31	11.9
	AE4	7.5–11kW	38k6	80	203	10	41	17
	AE5	15–22kW	42k6	110	265	12	45	26.6
	AE6	30–45kW	48k6	110	327	14	51.5	51.6
107	AE3	1.5–5.5kW	28k6	60	146	8	31	13.9
	AE4	7.5–11kW	38k6	80	190	10	41	19.3
	AE5	15–22kW	42k6	110	252	12	45	29
	AE6	30–45kW	48k6	110	314	14	51.5	50.8
137 147	AE4	7.5–11kW	38k6	80	176	10	41	23.7
	AE5	15–22kW	42k6	110	238	12	45	37.3
	AE6	30–45kW	48k6	110	298	14	51.5	57.2
	AE7	55–90kW	55m6	110	297	16	59	64
137	AE8	110–132kW	70m6	140	377	20	74.5	84.4
147	AE8	110–200kW	70m6	140	377	20	74.5	84.4
167	AE5	15–22kW	42k6	110	228	12	45	48.8
	AE6	30–45kW	48k6	110	280	14	51.5	66
	AE7	55–90kW	55m6	110	279	16	59	73
	AE8	110–200kW	70m6	140	361	20	74.5	96

* Range of Power is based on 4-pole motor.

: 9.5 CR Series Dimensions of AG Connection Flange:

AG63-AG200   AG225-AG315
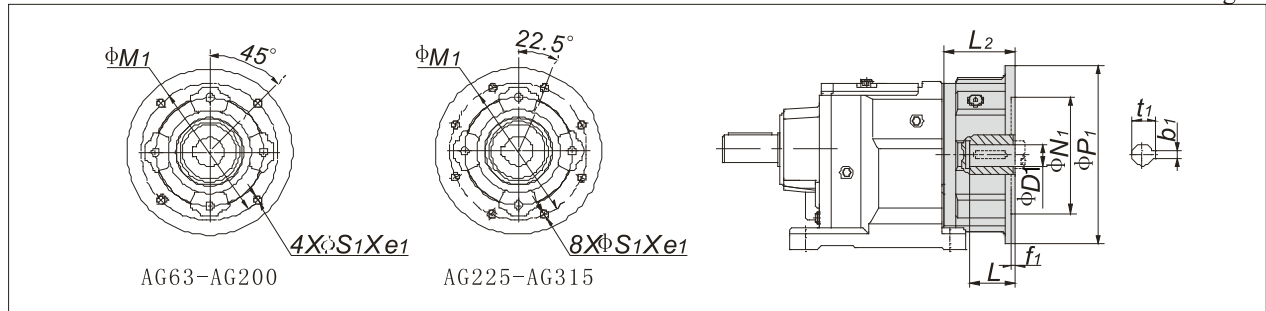
Size	Flange	e1	D1	N1	M1	P1	f1	b1	t1	L	S1	L2	Weight (kg)
37	AG63	14	11H7	95H7	115	140	4	4	12.8	23	M8	59	4.5
	AG71	14	14H7	110H7	130	160	4	5	16.3	30	M8	59	4.5
	AG80	18	19H7	130H7	165	200	4	6	21.8	40	M10	74	7.3
47	AG63	14	11H7	95H7	115	140	4	4	12.8	23	M8	61	4.6
	AG71	14	14H7	110H7	130	160	4	5	16.3	30	M8	61	4.6
	AG80	18	19H7	130H7	165	200	4	6	21.8	40	M10	76	8
	AG90	18	24H7	130H7	165	200	4	8	27.3	50	M10	81	9
	AG100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	96	13.1
67	AG63	14	11H7	95H7	115	140	4	4	12.8	23	M8	61	4.6
	AG71	14	14H7	110H7	130	160	4	5	16.3	30	M8	61	4.6
	AG80	18	19H7	130H7	165	200	4	6	21.8	40	M10	76	8
	AG90	18	24H7	130H7	165	200	4	8	27.3	50	M10	81	9
	AG100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	96	13.1
77	AG71	14	14H7	110H7	130	160	4	5	16.3	30	M8	53	5.5
	AG80	18	19H7	130H7	165	200	4	6	21.8	40	M10	68	9.7
	AG90	18	24H7	130H7	165	200	4	8	27.3	50	M10	73	10.6
	AG100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	86	13.9
	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	103	19.7
87	AG80	18	19H7	130H7	165	200	4	6	21.8	40	M10	65	10.2
	AG90	18	24H7	130H7	165	200	4	8	27.3	50	M10	70	11.1
	AG100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	83	15.8
	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	96	22.6
	AG160	28	42H7	250H7	300	350	6	12	45.3	110	M16	143	37.2
	AG180	28	48H7	250H7	300	350	6	14	51.8	110	M16	143	37.2
97	AG90	18	24H7	130H7	165	200	4	8	27.3	50	M10	64	14.1
	AG100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	78	17
	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	94	24.5
	AG160	28	42H7	250H7	300	350	6	12	45.3	110	M16	137	40.4
	AG180	28	48H7	250H7	300	350	6	14	51.8	110	M16	137	40.4
	AG200	28	55H7	300H7	350	400	6	16	59.3	110	M16	167	51.9
107	AG100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	69	19.6
	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	83	25.4
	AG160	28	42H7	250H7	300	350	6	12	45.3	110	M16	124	43.4
	AG180	28	48H7	250H7	300	350	6	14	51.8	110	M16	124	43.4
	AG200	28	55H7	300H7	350	400	6	16	59.3	110	M16	154	52.4
	AG225	28	60H7	350H7	400	450	6	18	64.4	140	M16	182	89
137 147	AG132	21	38H7	230H7	265	300	5	10	41.3	80	M12	71	33.1
	AG160	28	42H7	250H7	300	350	6	12	45.3	110	M16	110	50
	AG180	28	48H7	250H7	300	350	6	14	51.8	110	M16	110	50
	AG200	28	55H7	300H7	350	400	6	16	59.3	110	M16	138	60.3
	AG225	28	60H7	350H7	400	450	6	18	64.4	140	M16	166	98.6
	AG250	28	65H7	450H7	500	550	7	18	69.4	140	M16	171	122.56
147	AG280	28	75H7	450H7	500	550	7	20	79.9	140	M16	171	122.56
167	AG160	28	42H7	250H7	300	350	6	12	45.3	110	M16	100	59.7
	AG180	28	48H7	250H7	300	350	6	14	51.8	110	M16	100	59.7
	AG200	28	55H7	300H7	350	400	6	16	59.3	110	M16	120	70.7
	AG225	28	60H7	350H7	400	450	7	18	64.4	140	M16	148	100.9
	AG250	28	65H7	450H7	500	550	7	18	69.4	140	M16	153	133.8
	AG280	28	75H7	450H7	500	550	7	20	79.9	140	M16	153	133.8
	AG315	35	80H7	550H7	600	660	7	22	85.4	170	M20	200	221.7

9.6 CR Series Dimensions of AP Connection Flange:

AP100-AP200   AP225-AP280
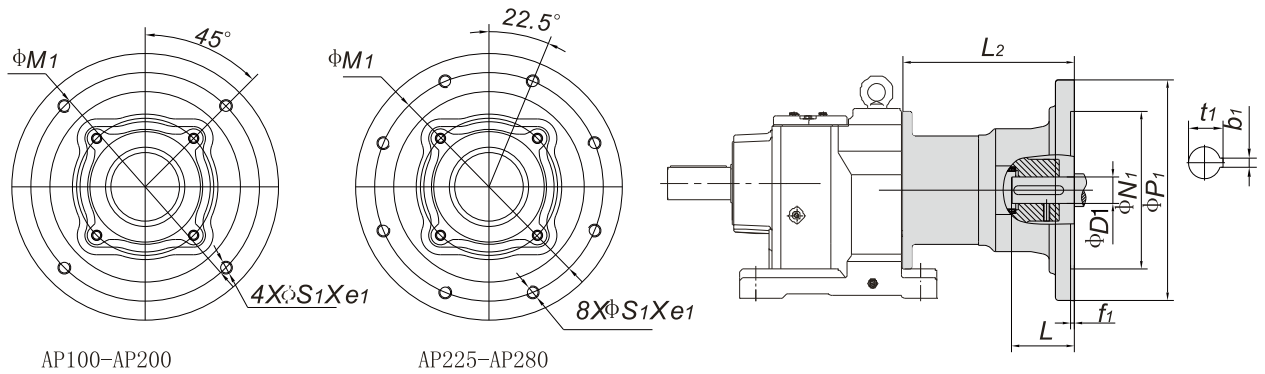
Size	Flange	e1	D1	N1	M1	P1	f1	b1	t1	L	S1	L2	(kg) Weight
47、67	AP100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	191	15.5
77	AP100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	181	16.5
	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	210	24.6
87	AP100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	171	17.9
	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	203	26.3
	AP160	28	42H7	250H7	300	350	6	12	45.3	110	M16	272	48.5
	AP180	28	48H7	250H7	300	350	6	14	51.8	110	M16	272	48.5
97	AP100\112	21	180H7	180H7	215	250	5	8	31.3	60	M12	172	19.9
	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	202	28.8
	AP160	28	42H7	250H7	300	350	6	12	45.3	110	M16	270	49.7
	AP180	28	48H7	250H7	300	350	6	14	51.8	110	M16	270	49.7
	AP200	28	55H7	300H7	350	400	6	16	59.3	110	M16	327	83.5
107	AP100\112	21	28H7	180H7	215	250	5	8	31.3	60	M12	161	21.9
	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	189	31.1
	AP160	28	42H7	250H7	300	350	6	12	45.3	110	M16	257	52.2
	AP180	28	48H7	250H7	300	350	6	14	51.8	110	M16	257	52.2
	AP200	28	55H7	300H7	350	400	6	16	59.3	110	M16	327	82.7
	AP225	28	60H7	350H7	400	450	7	18	64.4	140	M16	354	904
137 147	AP132	21	38H7	230H7	265	300	5	10	41.3	80	M12	175	35.5
	AP160	28	42H7	250H7	300	350	6	12	45.3	110	M16	243	60.4
	AP180	28	48H7	250H7	300	350	6	14	51.8	110	M16	243	60.4
	AP200	28	55H7	300H7	350	400	6	16	59.3	110	M16	316	89.1
	AP225	28	60H7	350H7	400	450	7	18	64.4	140	M16	343	96.8
	AP250	28	65H7	450H7	500	550	7	18	69.4	140	M16	361	130.7
147	AP280	28	75H7	450H7	500	550	7	20	79.9	140	M16	361	130.7
167	AP160	28	42H7	250H7	300	350	6	12	45.3	110	M16	233	71.9
	AP180	28	48H7	250H7	300	350	6	14	51.8	110	M16	233	71.9
	AP200	28	55H7	300H7	350	400	6	16	59.3	110	M16	298	97.9
	AP225	28	60H7	350H7	400	450	7	18	64.4	140	M16	325	105.6
	AP250	28	55H7	450H7	500	550	7	18	69.4	140	M16	343	140.5
	AP280	28	75H7	450H7	500	550	7	20	79.9	140	M16	343	140.5

Note:Recommended for chemical mixing etc. which needs 24 hours of continuous operation and motor frequent reverse and other load shock occasions.Please call us if required AP315.

9.7 CR series straight motor size chart:
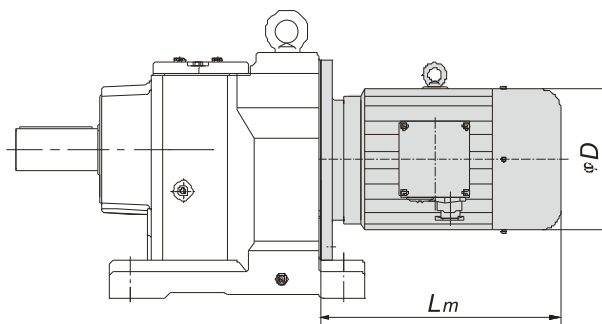
Power of 4P (kW)		0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
Lm (mm)	M	249	249	249	249	313	313	358	358	409	409	454	482	517	594	637	652	652	710	797	797	836	946	946
	MH	/	/	/	/	/	291	309	341	387	407	429	522	558	584	629	642	688	725	732	757	/	/	/
	MP	/	/	/	/	/	311	341	369	407	442	464	522	558	629	659	642	688	725	732	757	/	/	/
	ME	287	287	287	287	358	358	403	403	474	474	519	555	592	689	734	747	747	805	887	887	966	1081	1081
	MEE	/	/	/	/	/	/	/	413	479	479	529	582	617	679	724	757	757	800	/	/	/	/	/
	MV	338	338	338	338	408	408	443	443	514	514	564	602	637	709	754	782	782	825	922	922	976	1091	1091
	MVE	338	338	338	338	408	408	443	443	514	514	564	602	637	709	754	782	830	870	872	897	941	1061	1061
D(mm)		147	147	147	147	159	159	176	176	200	200	220	259	259	314	314	356	356	397	446	446	485	547	547
(kg)	M	12	12	15	15	22	22	29	29	42	42	64	115	115	182	182	220	220	303	463	463	482	731	731
	MH	/	/	/	/	/	30	32	36	56	61	70	78	93	139	161	237	244	288	332	362	/	/	/
	MP	/	/	/	/	/	32	35	44	63	68	73	91	102	160	179	243	249	292	342	372	/	/	/
	ME	13	13	16	16	25	25	35	30	47	47	69	123	123	211	211	240	240	332	501	501	520	769	769
	MEE	/	/	/	/	/	/	/	39	55	55	76	134	134	223	223	260	260	358	521	521	540	800	800
	MV	13	13	16	16	24	24	40	30	44	44	66	117	117	184	184	223	223	307	394	394	489	742	742
	MVE	14	14	17	17	26	26	45	35	59	59	71	125	125	203	203	240	240	336	423	423	527	780	780

Power of 4P (kW)		0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
Lm (mm)	YZ	/	/	/	/	/	/	/	/	432	432	434	517	547	649	649	657	657	721	/	/	/	/	/
	YZE	/	/	/	/	/	/	/	/	507	507	509	592	652	744	744	743	743	803	/	/	/	/	/
	YZP	/	/	/	/	/	/	/	/	552	552	554	637	672	764	764	778	778	821	922	922	976	1091	1091
	YZPE	/	/	/	/	/	/	/	/	552	552	554	637	672	764	764	778	778	821	922	922	976	1091	1091
	YPG	/	/	/	/	/	/	/	/	432	432	434	517	547	649	649	657	657	721	797	797	836	946	946
D(mm)		/	/	/	/	/	/	/	/	259	259	259	259	259	314	314	356	356	356	446	446	485	547	547
(kg)	YZ	/	/	/	/	/	/	/	/	47	47	69	120	120	187	187	228	228	311	/	/	/	/	/
	YZE	/	/	/	/	/	/	/	/	52	52	74	128	128	216	216	248	248	340	/	/	/	/	/
	YZP	/	/	/	/	/	/	/	/	49	49	71	122	122	189	189	231	231	315	402	402	497	750	750
	YZPE	/	/	/	/	/	/	/	/	54	54	76	130	130	208	208	248	248	344	431	431	535	788	788
	YPG	/	/	/	/	/	/	/	/	47	47	69	120	120	187	187	228	228	311	463	463	482	731	731

Note:(1) Lm size is specific motor reference length for directly-connected gear units.
(2) The above data of explosion-proof motor is reference value of standard explosion-proof motor.
(3) If MV or MVE is equipped with encoder, "Lm" size should be respectively added 80mm.
(4) Unspecified dimension size for motor complies with IEC standards.

10 Combi-type Designation:

型号	L9
CR..37/CRL37	181
CR..47/CRL37 CR..67/CRL37	183
CR..77/CRL37	173
CR..87/CRL47	180
CR..97/CRL67	225
CR..107/CRL77	238.5
CR..137/CRL77	227
CR..147/CRL77	227
CR..147/CRL87	281
CR..167/CRL97	322
CR..167/CRL107	361

11 Accessory:

11.1 Oil:

Oil level (L)										
	B3	B5	B51	B8	B6/B7	B65	B75	V1	V3	V5	V6
C.31	0.52	0.25	0.36	0.45	0.36	0.22	0.36	0.38	0.36	0.6	0.36
C.41	0.7	0.35	0.45	0.6	0.45	0.38	0.45	0.51	0.45	0.8	0.45
C.61	0.8	0.4	0.51	0.7	0.5	0.42	0.6	0.6	0.5	0.9	0.5
C.71	1.6	0.8	0.7	1.6	1	0.7	1	1.2	0.9	2	1
C.81	2.5	1.3	0.9	2.7	1.6	1.2	1.6	2.2	1.5	3.1	1.8
C.91	3.45	1.8	1.25	3.7	2.2	1.8	2.2	3	2.1	4.3	2.5
C.101	6.2	3.5	2.9	7.7	4.1	3	4.1	4.5	3.6	8.5	4.1

Type / Mounting position	B3*	V6*	B8	V5	B6	B7
CRW37	0.3/1	0.9	1	1.1	0.8	1
CRW47	0.7/1.5	1.6	1.5	1.7	1.5	1.5
CRW67	1.1/2.3	2.6/3.5	2.8	3.2	1.8	2
CRW77	1.2/3	3.8/4.3	3.6	4.3	2.5	3.4
CRW87	2.3/6	6.7/8.4	7.2	7.7	6.3	6.5
CRW97	4.6/9.8	11.7/14	11.7	13.4	11.3	11.7
CRW107	6/13.7	16.3	16.9	19.2	13.2	15.9
CRW137	10/25	28	29.5	31.5	25	25
CRW147	15.4/40	46.5	48	52	39.5	41
CRW167	27/70	82	78	88	66	69

Type / Mounting position	B5/B51 B65/B75*	V3*	V1
CRL37	0.4/1	0.9	1.1
CRL47	0.7/1.5	1.6	1.7
CRL67 、CRM67	1.2/2.5	2.7/3.6	3.1
CRL77 、CRM77	1.2/2.6	3.8/4.1	4.1
CRL87 、CRM87	2.4/6	6.8/7.9	7.7
CRL97 、CRM97	5.1/10.2	11.9/14	14
CRL107 、CRM107	6.3/14.9	15.9	19.2
CRL137 、CRM137	9.5/25	27	32.5
CRL147 、CRM147	16.4/42	47	52
CRL167 、CRM167	26/70	82	88

* The large gear units and Combi-type gear units must be filled with the larger oil volume.
Note: When ambient temperature is -10 ～ +40℃ ,for CR series products, lubricant brand is VG220(ISO viscosity class), accessory code is V22.

12 Motor

12.1 Type Designation

M   5.5   + E25+E33

Accessory code ——————————————

Motor power ——————————————

Accessories and special request ——————————
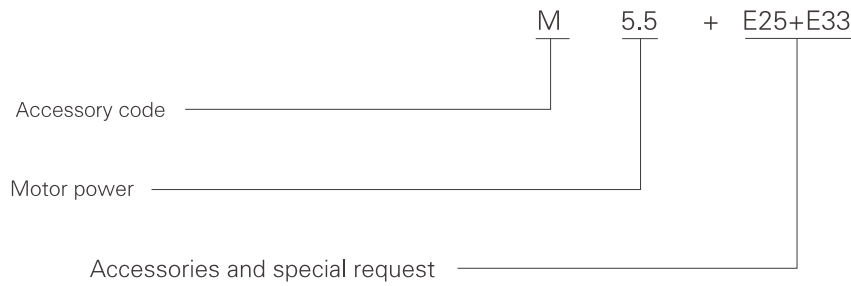
12.2 Code specification and standard allocation

| Series	Motor type	Standard configuration parameter	Power
M	(IE1) Standard efficiency various frequency speed–adjusting three–phase asynchronous motor	1.Continuous working system(S1). 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V (" Y" conection for power less than 4kW," △ " connection for power more than 5.5kW) 5.Rated frequency:50Hz. （Frequency range:30–70Hz) 6.Cooling method:IC411.	0.12–90kW
MH	(IE2) High efficiency various frequency speed–adjusting three–phase asynchronous motor	1.Continuous working system(S1). 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:380V (" Y" conection for power less than 3kW," △ " connection for power more than 4kW) 5.Rated frequency:50Hz. 6.Cooling method:IC411.	0.75–45kW
MP	(IE3) Premium efficiency various frequency speed–adjusting three–phase asynchronous motor	1.Continuous working system(S1). 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:380V (" Y" conection for power less than 3kW," △ " connection for power more than 4kW) 5.Rated frequency:50Hz. 6.Cooling method:IC411.	0.75–45kW
ME	Three phase asynchronous electric motor with electro magnetic brake	1.Continuous working system(S1). 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V (" Y" conection for power less than 4kW," △ " connection for power more than 5.5kW) 5.Rated frequency:50Hz. 6.Forpower less than 4kW,brake rated voltage is DC103V,rectifier externam connection voltage is AC230V. For power more than 5.5kW,brake rated voltage is DC180V,rectifier external connection voltage is AC400V; 7.Cooling method:IC411.	0.12–90kW
MEE	Double–brake various frequency speed–adjusting three–phase asynchronous motor	1.Intermittent cycle dut(S3). 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V (" Y" conection for power less than 4kW," △ " connection for power more than 5.5kW) 5.Reference frrequency:50Hz 6.Forpower less than 4kW,brake rated voltage is DC103V,rectifier externam connection voltage is AC230V. For power more than 5.5kW,brake rated voltage is DC180V,rectifier external connection voltage is AC400V; 7.Cooling method:IC410	1.5–30kW
MV	Three phase asynchronous electric motor with variable frequency adjustable speed	1.Continuous working system(S1). 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V (" Y" conection for power less than 4kW," △ " connection for power more than 5.5kW) 5.Reference frrequency:50Hz （Frequency range:30–70Hz) 6.Cooling method:IC416(Forced cooling with axial–flow fan)	0.12–90kW

| Series	Motor type	Standard configuration parameter	Power
MVE	Various frequency speed-adjusting electromagenetic brake three-phase asynchronous motor	1.Continuous working system(S1). 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V (" Y" conection for power less than 4kW," △" connection for power more than 5.5kW) 5.Reference frrequency:50Hz（Frequency range:5-100Hz) 6.Forpower less than 4kW,brake rated voltage is DC103V,rectifier externam connection voltage is AC230V. For power more than 5.5kW,brake rated voltage is DC180V,rectifier external connection voltage is AC400V; 7.Cooling method:IC416(Forced cooling with axial-flow fan)	0.12-90kW
YZ	Common three-phase asynchronous motor for metallurgy and hosting industries	1.Intermittent cycle dut(S3) 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V(" △" connection) 5.Rated frequency:50Hz. 6.Cooling method:IC411.	2.2-30kW
YZE	Electromagnetic brake three-phase asynchronous motor for metallurgy and hoisting industries	1.Intermittent cycle dut(S3) 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V(" △" connection) 5.Rated frequency:50Hz. 6.Brake rated voltage DC180V,rectifier external connection voltage AC400V. 7.Cooling method:IC411.	2.2-30kW
YZP	Three-phase asynchronous motor for metallurgy and hoisting industries	1.Intermittent cycle dut(S3) 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V(" △" connection) 5.Reference frequency:50Hz（Frequency range:5-100Hz) 6.Cooling method:IC416(Forced cooling with axial-flow fan)	2.2-90kW
YZPE	Three-phase asynchronous motor for metallurgy and hoisting industries	1.Intermittent cycle dut(S3) 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V(" △" connection) 5.Reference frequency:50Hz（Frequency range:5-50Hz) 6.Brake rated voltage DC180V,rectifier external connection voltage AC400V. 7.Cooling method:IC416(Forced cooling with axial-flow fan)	2.2-90kW
YPG	Various frequency speed-adjusting electromangetic brake three-phase asynchronous motor for roller table	1.Intermittent cycle dut(S3) 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:400V(" △" connection) 5.Reference frequency:50Hz	2.2-90kW
YB	Explosion proof three phase asynchronous electric motor	1.Continuous working system(S1). 2.Class F insulation. 3.IP55 protecton degree. 4.Rated voltage:380V(" Y" conection for power less than 3kW," △" connection for power more than 4kW) 5.Rated frequency:50Hz. 6.Explosion proof class:d II BT4 7.Cooling method:IC411.	0.18-90kW

12.3Attachment and special requirements code table

Code	Instruction	Specified Applicable occasions
E01	Rainproof cover	0.12kW~90kW
E02	rainhat	0.12kW~90kW
E10	Brake with manual release	0.12kW~90kW（ME/MVE)
E11	Bolt release	0.12kW~90kW（ME/MVE)
E13	Microswitch	2.2kW~90kW（ME/MVE)
E25*	Incremental encoder power source voltage DC5–30V protection level IP54,pulsh 1024 Push–Pull output	0.12kW~90kW（MV/MVE)
E30	PTC thermistors （120℃ ~ 135℃）	0.12kW~90kW
E32	Temperature sensor PT100	0.12kW~90kW
E33	Heating belt	0.12kW~90kW
E34	Thermal switch	0.12kW~90kW
E35	Insulation class H	0.12kW~90kW
E37	Dustproof anti salt fog mildew Three proofing requirements，Already contains a rainhat and heating belt	0.12kW~90kW
E38	Protection grade IP56	0.12kW~90kW
E60	Fan single–phase voltage 220V	0.12kW~90kW（MV/MVE)
E62	AC400V /Brake external voltage: AC400V	0.12kW~4kW（ME/MVE)
E70	Cable entry C	0.12kW~90kW
E71	Cable entry B	0.12kW~7.5kW
E72	Cable entry D	0.12kW~7.5kW

*M / ME / YZ / YZE Please consult if you need encoder.
*Please consult if you have other special requirements.
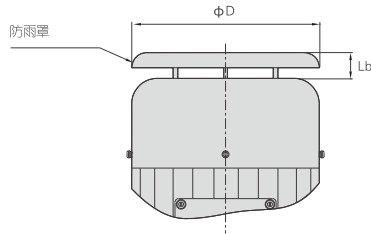
Rain proof cover:

	H71	H80	H90	H100	H112	H132	H160	H180	H200	H225	H250	H280
Lb	22	22	27	32	32	32	62	62	62	62	62	62
D	147	170	178	199	227	279	339	382	420	467	513	567
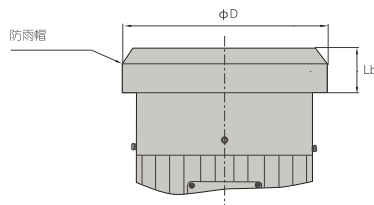
Rain proof cover:

	H71	H80	H90	H100	H112	H132	H160	H180	H200	H225	H250	H280
Lb	35	35	40	50	50	50	80	80	80	80	80	80
D	178	199	227	227	279	339	382	420	467	513	567	624

12.4 Terminal box and wiring outlet hole position:
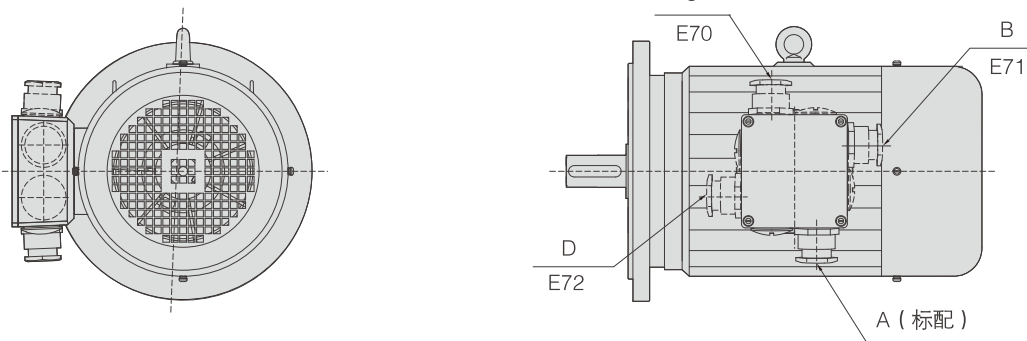
Note：In general, No.1 position wiring outlet hole for terminal box shall be supplied,as shown in the drawing. (when the motor combined with gear unit)

## 12.5 Other specific motor on request.

12.6 Customers provided motor:

1)To buy the product with adapter flange of B5 standard size, customers can provide motors by themselves.

2)To directly connected motor with C/CR/F/K/S series products,we provide dimension drawing,and customers buy the motor by themselves,then we assemble them.
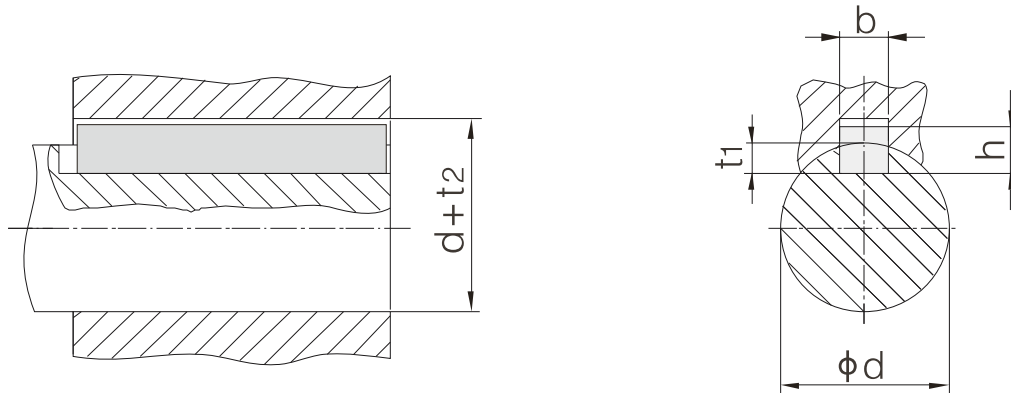
13 Shaft end central hole:

Shaft end C Type screw central hole
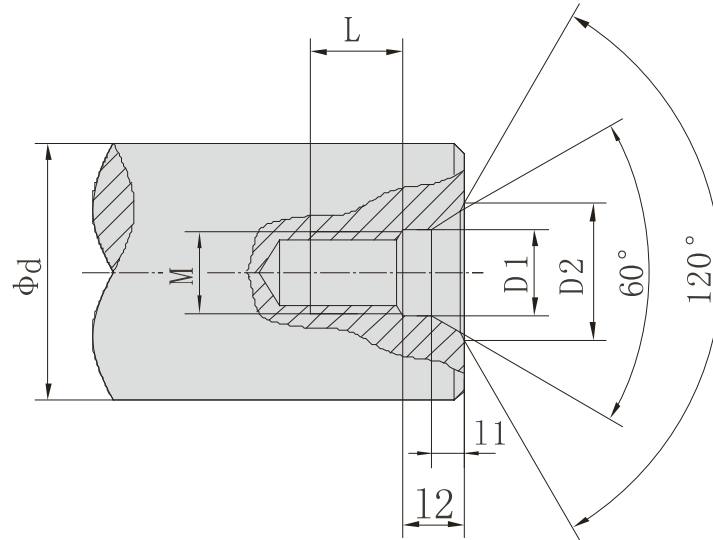
d	M	L	l2	l1	D1	D2
7 < d ≤ 10	M3	10	2.6	1.8	3.2	5.8
10 < d ≤ 13	M4	10	3.2	2.1	4.3	7.4
13 < d ≤ 16	M5	10	4	2.4	5.3	8.8
16 < d ≤ 21	M6	12	5	2.8	6.4	10.5
21 < d ≤ 24	M8	12	6	3.3	8.4	13.2
24 < d ≤ 30	M10	15	7.5	3.8	10.5	16.3
30 < d ≤ 38	M12	20	9.5	4.4	13	19.8
38 < d ≤ 50	M16	25	12	5.2	17	25.3
50 < d ≤ 85	M20	30	15	6.4	21	31.3
85 < d ≤ 130	M24	35	18	8	25	38
130 < d ≤ 225	M30	45	18	11	31	48

14 Dimension of parallel key and keyway:

d	b	h	t1	d + t 2
8 < d ≤ 10	3	3	1.8	d + 1.4
10 < d ≤ 12	4	4	2.5	d + 1.8
12 < d ≤ 17	5	5	3	d + 2.3
17 < d ≤ 22	6	6	3.5	d + 2.8
22 < d ≤ 30	8	7	4	d + 3.3
30 < d ≤ 38	10	8	5	d + 3.3
38 < d ≤ 44	12	8	5	d + 3.3
44 < d ≤ 50	14	9	5.5	d + 3.8
50 < d ≤ 58	16	10	6	d + 4.3
58 < d ≤ 65	18	11	7	d + 4.4
65 < d ≤ 75	20	12	7.5	d + 4.9
75 < d ≤ 85	22	14	9	d + 5.4
85 < d ≤ 95	25	14	9	d + 5.4
95 < d ≤ 110	28	16	10	d + 6.4
110 < d ≤ 130	32	18	11	d + 7.4
130 < d ≤ 150	36	20	12	d + 8.4
150 < d ≤ 170	40	22	13	d + 9.4
170 < d ≤ 200	45	25	15	d + 10.4
200 < d ≤ 230	50	28	17	d + 11.4
230 < d ≤ 260	56	32	20	d + 12.4