



PREMIUM

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ALM series



ALTRA

ALTRA WORM GEARBOX

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2. SUMMARIZE

1.1 Products characteristics

ALM series worm gear units is a new - generation of product developed by our company on the basis of perfecting WJ series products with a compromise of advanced technology both at home and abroad, its main features are as follows:

1. Made of high-quality aluminum alloy, light in weight and non-rusting.
2. Large in output torque.
3. Smooth in running and low in noise, can work long time in dreadful conditions.
4. High in radiating efficiency.
5. Good looking in appearance, durable in service life and small in volume
6. Suitable for omnibearing installation.

1.2 Main materials

1. Housing : die-cast aluminum alloy (frame size : 025 to 105); cast iron (frame size : 110 to 150).
2. Worm : 20Cr, carbonize & quencher heat treatment make the hardness of gear's surface up to 56~62 HRC, retain carburization layer's thickness between 0.3 and 0.5mm after precise grinding.
3. Worm wheel : wearable stannum bronze alloy.

1.3 Surface painting

Aluminum alloy housing :

1. Shot blasting and special antiseptic treatment on the aluminum alloy surface.
2. After phosphating, paint with RAL 5010 blue or silvery white paint.

Cast iron housing:

First paint with red antirust paint, then paint with RAL 5010 blue or silvery white paint



PRODUCT STRUCTURE



ALM 025 ~ 130



ALW 030 ~ 130



ALM + ALM



ALM + ALW



PU + ALM



VARIATOR + ALM

3. MODEL ILLUMINATE

3.1 ALM / ALW - Worm geared motor and worm gear units

Gear Unit					Motor				
ALM	063	-	40	E	FA1	SS1	71B5	B3	- 7124 or 0.37 - 4 / 1
①	②		③	④	⑤	⑥	⑦	⑧	⑨

Model code	Comments
1) ALM : Hole input with flange 2) ALW : Shaft input without flange	
Central distance of worm gear units (spec)	
Speed ratio of reducer (i = 7.5; 10; 15; 20; 25; 30; 40; 50; 60; 80; 100)	
1) No mark means single extension worm shaft 2) E : Double extension worm shaft	
1) No mark means without output flange 2) FA, FB, FC, FD, FE(1/2) : Output Flange and position	
1) No mark means hole output 2) SS(1/2) : Single output shaft and position 3) DS : Double output shaft	
Normalized form of input flange (without motor)	
Installation position code	
1) No mark means without motor 2) Model motos (poles of power)	
Position diagram for motor terminal box default position 1 not to write out is ok	

3.2 PU - ALM - Worm gears with pre-stage helical units

PU	071	-	ALM	063	40	E	FA1	SS1	-	B3
①	②		③	④	⑤	⑥	⑦	⑧		⑨

Helical Pre-stage unit	Comments
Motor frame size	
Model code	
1) ALM : Hole input with flange 2) ALW : Shaft input without flange	
Central distance of worm gear units (spec)	
Speed ratio of reducer (i = 7.5; 10; 15; 20; 25; 30; 40; 50; 60; 80; 100)	
1) No mark means single extension worm shaft 2) E : Double extension worm shaft	
1) No mark means without output flange 2) FA, FB, FC, FD, FE(1/2) : output / Flange and position	
1) No mark means hole output 2) SS(1/2) : Single output shaft and position 3) DS : Double output shaft	
Installation position code	

When ordering, you should show whether the reducers are equipped with motors, otherwise reducers aren't supplied with motors



3. MODEL ILLUMINATE

3. MODEL ILLUMINATE

3.3 ALM - ALM / ALW - ALM - Combination worm gear unit

ALM **050/110** - **900** **E** **FA1** **SS1** **71B5** **B3**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Model code	Comments
1) ALM : Hole input with flange 2) ALW : Shaft input without flange	
Central distance of worm gear units (spec)	
Speed ratio of reducer	
1) No mark means single extension worm shaft 2) E : Double extension worm shaft	
1) No mark means without output flange 2) FA, FB, FC, FD, FE(1/2) : Output Flange and position	
1) No mark means hole output 2) SS(1/2) : Single output shaft and position 3) DS : Double output shaft	
Normalized form of input flange (without motor)	
Installation position code	
1) No mark means without motor 2) Model motos (poles of power)	
Position diagram for motor terminal box default position 1 not to write out is ok	

3.4 ALMV - ALM - Combination of stepless speed variator and worm gear unit

ALMV **L** **0.75** - **ALM** **063** - **40** **E** **FA1** **SS1** **B3**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Code of stepless speed variator	Comments
Aluminum alloy housing and no mark means cast iron casing	
Relevant motor power	
Code of worm gear units	
Central distance of worm gear units (spec)	
Speed ratio of worm gear units	
1) No mark means single extension worm shaft 2) E : Double extension worm shaft	
1) No mark means without output flange 2) FA, FB, FC, FD, FE(1/2) : Output Range and position	
1) No mark means hole output 2) SS(1/2) : Single output shaft and position 3) DS : Double output shaft	
Installation position code	

When ordering, you should show whether the reducers are equipped with motors, otherwise reducers aren't supplied with motors

4. RELEVANT PARAMETER

4.1 Power P

$$P_1 = \frac{P_2}{\eta} \text{ [kW]}$$

$$P_{1n} \geq P_1 \cdot f_s \text{ [kW]}$$

P_1	Input power
P_2	Output power
P_{1n}	Rated input motor power
f_s	Service factor
η	Transmission efficiency

The parameter can be found in the **ALW** gear box rating charts and represents the kW that can be safely transmitted to the gearbox, based on input speed n_1 and service factor **fs=1**.

Values of n_d are calculated for gearboxes after a sufficiently long running in period. After the running in period the surface temperature in operation reduces and finally stabilises. It may be worth highlighting that values of rated torque M_{2n} given in the catalogue take the transmission efficiency η_d into consideration.

4.2 Rotation speed n

n_1	Gear units input speed
n_2	Gear units output speed

If driven by the external gearing, 1400r/min or lower rotation speed is suggested so as to optimize the working conditions and prolong the service life.

4.3 Transmission ration i

$$i = \frac{n_1}{n_2}$$

4.4 Torque M

$$M_2 = \frac{9550 \cdot P_1 \cdot \eta}{n_2} \text{ [Nm]}$$

$$M_{2n} \geq M_2 \cdot f_s \text{ [Nm]}$$

M_2	Output torque
M_{2n}	Rated output torque
P_1	Input power
η	Transmission efficiency
f_s	Service factor

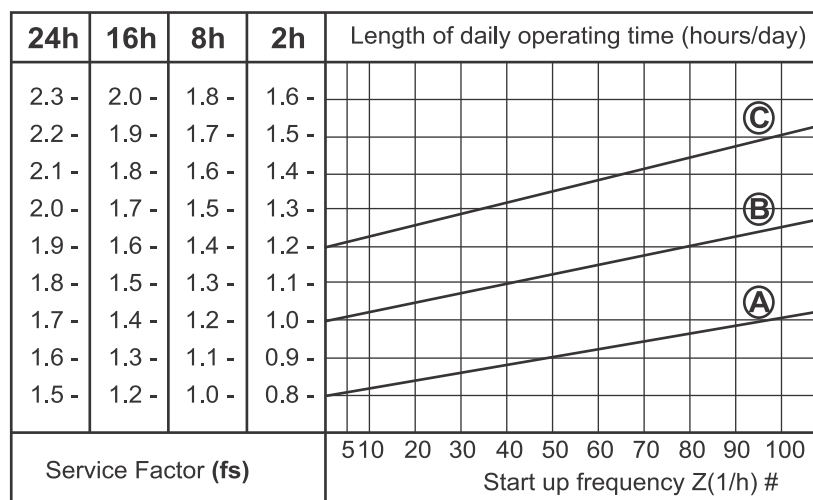


RELEVANT PARAMETER

4. RELEVANT PARAMETER

4.5 Service factor f_s

The effect of the driven machine on the gear unit is taken into account to a sufficient level of accuracy using the service factor f_s . The service factor is determined according to the daily operating time and the starting frequency Z . Three load classifications are considered depending on the mass acceleration factor. You can read off the service factor applicable to your application in following figure. The service factor selected using this diagram must be less than or equal to the service factor as given in the performance parameter table.



Starting frequency Z : The cycles include all starting and braking procedures as well as change overs from low to high speed.

4.5.1 Load classifications

Type of load:

- Ⓐ Uniform, permitted mass acceleration factor $f_a \leq 0.3$
- Ⓑ Moderate shock load, permitted mass acceleration factor $f_a \leq 3$
- Ⓒ Heavy shock load, permitted mass acceleration factor $f_a \leq 10$

load classifications:

Screw feeders for light materials, fans, assembly lines, conveyor belts for light materials, small mixers, lifts, cleaning machines, fillers, control machines.

Winding devices, woodworking machine feeders, goods lifts, balancers, threading machines, medium mixers, conveyor belts for heavy materials, winches, sliding doors, fertilizer scrapers, packing machines, concrete mixers, crane mechanisms, milling cutters, folding machines, gear pumps.

Mixers for heavy materials, shears, presses, centrifuges, rotating supports, winches and lifts for heavy materials, grinding lathes, stone mills, bucket elevators, drilling machines, hammer mills, cam presses, folding machines, turntables, tumbling barrels, vibrators, shredders.

4. RELEVANT PARAMETER

4.5.2 Mass acceleration factor

The mass acceleration factor is calculated as follows :

$$fa = \frac{Jc}{Jm}$$

fa Mass acceleration factor

Jc All external mass moments of inertia [kgm²]

Jm Mass moment of inertia on the motor end [kgm²]

If mass acceleration factors $fa > 10$, please call our Technical Service,

Service factor f_s should be adjusted as followings:

- 1) ambient temperature is 30 ~ 40°C : $f_s \times (1.1 \sim 1.2)$
- 2) ambient temperature is 40 ~ 50°C : $f_s \times (1.3 \sim 1.4)$
- 3) ambient temperature is 50 ~ 60°C : $f_s \times (1.5 \sim 1.6)$
- 4) ambient temperature >60°C, please call our Technical Service.

To keep the service life of gear units, the use factor f_s selected from the catalogue must be equal or slightly higher than the calculated use factor f_s .

4.6 Radial loads Fr

When determining the resulting radial loads, the type of transmission elements, mounted on the shaft end must be considered. Various transmission elements are corresponding with following transmission element factors f_z :

Transmission element	Transmission element factor F_z	Comments
Gears	1.00	≥ 17 teeth
	1.15	< 17 teeth
Chain Sprockets	1.00	≥ 20 teeth
	1.25	< 20 teeth
	1.40	< 13 teeth
Narrow V-belt pulleys	1.75	Influence of the tensile force
Flat belt pulleys	2.50	Influence of the tensile force
Toothed belt pulleys	2.50	Influence of the tensile force

The overhung loads exerted on the motor or gear shaft is then calculated as follow :

$$Fr = \frac{M \cdot 2000 \cdot F_z}{d_o} \text{ [N]}$$

Fr Resulting radial load [N]

M Torque on the shaft [Nm]

d_o Mean diameter of the mounted transmission element in [mm]

f_z Transmission element factor



RELEVANT PARAMETER

4. RELEVANT PARAMETER

The allowed radial load force on the shaft is calculated with the following formula :

$$F_{xL} \leq \frac{Fr_2 \cdot a}{(b+x)} \text{ [N]}$$

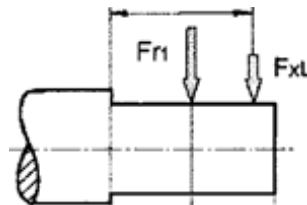
Fr₂ Permitted overhung load (x = L/2) for foot mounted gear units according to the selection tables in [N]

a, b Gear unit constant for overhung load conversion [mm]

x Distance from the shaft shoulder to the force application point in [mm]

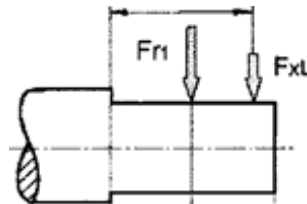
The values of a, b, Fr₂ are given in the following tables :

Output shafts radial loads



ALM	25	30	40	50	63	75	90	105	110	130	150
a	50	65	84	101	120	131	162	176	176	188	215
b	38	50	64	76	95	101	122	136	136	148	174
Fr ₂ max	1350	1830	3490	4840	6270	7380	8180	12000	12000	13500	18000

Input shafts radial loads



ALM	30	40	50	63	75	90	105	110	130	130
a	86	106	129	159	192	227	266	266	314	350
b	76	94.5	114	139	167	202	236	236	274	310
Fr ₁ max	210	350	490	700	960	1270	1700	1700	2100	2800

4.7 Selection tables comments

P_{1n} Rated power driving motor [kW].

n₂ Output speed [r/m in];

M_{2n} Rated output torque [Nm];

M_{2max} Permissible output torque [Nm];

I Gear unit ratio;

f_s Service factor;

I Gear unit ratio;

f_s Service factor;

 Gear Unit type;

 Motor type;

Page Dimension sheet page no

5. SELECTION EXAMPLE

5.1 Gear motor

Example : The input power of driver machine is 0.5KW, $n_1 = 1400\text{r/min}$, uniform, start up frequency 20(1/h), continuous running for 24 hours, the ambient temperature is $+32^\circ\text{C}$, $n_2 = 93.3\text{r/min}$, B3 mounted SO :

$$i = \frac{n_1}{n_2} = \frac{1400}{93.3} = 15$$

Check mesh table on P14, estimate when the $i = 15$, $\eta_d = 0.82$

Check and adjust the service factor, will get $f_s = 1.53 \times 1.12 = 1.714$

$$P_{1n} \geq \frac{P_2}{\eta_d} \cdot f_s = \frac{0.5}{0.82} \times 1.714 = 1.045 [\text{kW}]$$

Choose type :

ALM075 - 15 - B3 - 1.1 - 4

Count output torque

$$\begin{aligned} M_2 &= \frac{9550 \cdot P_2}{n_2} = \frac{9550 \times 0.5}{93.3} \\ &= 51.18 [\text{Nm}] \end{aligned}$$

$$M_2 = 95 \geq M_2 \cdot f_s = 51.18 \times 1.714 = 87.72 [\text{Nm}]$$

5.2 Gear Unit

Example : Required torque 300Nm on driven machine, continuous running for 8 hours, uniform load, the ambient temperature is 30°C , then choose the service factor $f_s = 1.1 \times 1.1 = 1.32$, $n_1 = 900\text{r/min}$.

$$M_{2n} \geq M_2 \cdot f_s = 300 \times 1.32 = 396 [\text{Nm}]$$

$$i = \frac{n_1}{n_2} = \frac{900}{22.5} = 40$$

Choose type :

ALW090 - 40



RELEVANT DATA

6. RELEVANT DATA

(*) If you want special key, please call our technical service

ALM	IEC motor adapters				The Hole Diameter of Input Shaft										
	IEC	P	M	N	Transmission Ratio										
					7.5	10	15	20	25	30	40	50	60	80	100
ALM025	56B14	80	65	50	9	9	9	9	9	9	9	9	9		
ALM030	56B5	120	100	80	9	9	9	9	9	9	9	9	9	9	
	56B14	80	65	50	9	9	9	9	9	9	9	9	9	9	
	63B5	140	115	95	11	11	11	11	11	11	14	11			
	63B14	90	75	60	11	11	11	11	11	11	14	11			
ALM040	56B5	120	100	80								9	9	9	9
	63B5	140	115	95	11	11	11	11	11	11	11	11	11	11	11
	63B14	90	75	60	11	11	11	11	11	11	11	11	11	11	11
	71B5	160	130	110	14	14	14	14	14	14	14				
	71B14	105	85	70	14	14	14	14	14	14	14				
ALM050	63B5	140	115	95							11	11	11	11	11
	71B5	160	130	110	14	14	14	14	14	14	14	14	14	14	
	71B14	105	85	70	14	14	14	14	14	14	14	14	14	14	
	SOBS	200	165	130	19	19	19	19	19	19					
	80B14	120	100	80	19	19	19	19	19	19					
ALM063	71B5	160	130	110	14	14	14	14	14	14	14	14	14	14	14
	71B14	105	85	70	14	14	14	14	14	14	14	14	14	14	14
	80B5	200	165	130	19	19	19	19	19	19	19	19	19	19	
	80B14	120	100	80	19	19	19	19	19	19	19	19	19	19	
	90B5	200	165	130	24	24	24	24	24	24	24				
	90B14	140	115	95	24	24	24	24	24	24	24				
ALM075	71B5	160	130	110	14	14	14	14	14	14	14	14	14	14	14
	SOB5	200	165	130	19	19	19	19	19	19	19	19	19	19	19
	80B14	120	100	80	19	19	19	19	19	19	19	19	19	19	19
	90BS	200	165	130	24	24	24	24	24	24	24	24	111		
	90B14	140	115	95	24	24	24	24	24	24	24				
	100/112B5	250	215	180	28	28	28	28	28	28					
	100/112B14	160	130	110	28	28	28	28	28	28					
ALM090	80B5	200	165	130	19	19	19	19	19	19	19	19	19	19	19
	80B14	120	100	80	19	19	19	19	19	19	19	19	19	19	19
	90B5	200	165	130	24	24	24	24	24	24	24	24	24	24	
	90B14	140	115	95	24	24	24	24	24	24	24				
	100/112B5	250	215	180	28	28	28	28	28	28					
	100/112B14	160	130	110	28	28	28	28	28	28					
ALM105	80B5	200	165	130	19	19	19	19	19	19	19	19	19	19	
	90B5	200	165	130	24	24	24	24	24	24	24	24	24	24	24
	100/112B5	250	215	180	28	28	28	28	28	28	28	28	28		
	132B5	300	265	230	38*	38*	38*	38*	38*	38*	38*				
ALM110	80B5	200	165	130	19	19	19	19	19	19	19	19	19	19	19
	90B5	200	165	130	24	24	24	24	24	24	24	24	24	24	24
	100/112B5	250	215	180	28	28	28	28	28	28	28	28	28		
	132B5	300	265	230	38*	38*	38*	38*	38*	38*	38*				
ALM130	90B5	200	165	130										24	24
	100/112B5	250	215	180				28	28	28	28	28	28	28	
	132B5	300	265	230	38*	38*	38*	38*	38*	38*	38*				
ALM150	100/112B5	250	215	180							28	28	28	28	
	132B5	300	265	230			38	38	38	38	38	38			
	160B5	350	300	250	42	42	42	42	42						

6. RELEVANT DATA

6.2 PU - ALM Combinations

	i	PU 063		PU 071		PU 080			PU 090		
		105 / 11 i = 3	105 / 14 i = 3	120 / 14 i = 3	120 / 19 i = 3	160 / 19 i = 3	160 / 24 i = 3	160 / 28 i = 3	160 / 19 i = 2.42	160 / 24 i = 2.42	160 / 28 i = 2.42
ALM040	25										
	30										
	40										
	50										
	60										
	80										
	100										
ALM050	25										
	30										
	40										
	50										
	60										
	80										
	100										
ALM063	25										
	30										
	40										
	50										
	60										
	80										
	100										
ALM075	25										
	30										
	40										
	50										
	60										
	80										
	100										
ALM090	25										
	30										
	40										
	50										
	60										
	80										
	100										
ALM105	25										
	30										
	40										
	50										
	60										
	80										
	100										
ALM110	25										
	30										
	40										
	50										
	60										
	80										
	100										
ALM130	25										
	30										
	40										
	50										
	60										
	80										
	100										

	P	D	D*	P ₁	D ₁
PU 063	105	11	14	140 (6385)	11
PU 071	120	14	19	160 (71B5)	14
PU 080	160	19	24 28	200 (80B5)	19
PU 090	160	24	19 28	200 (90B5)	24

*Only on request



RELEVANT DATA

6. RELEVANT DATA

6.3 ALM - ALM / ALW - ALM - Assignment Table of Combination Ratio

n1=1400r/min		ALM025 / 030			ALM025 / 040			ALM030 / 040			ALM030 / 050			ALM030 / 063		
i	n ₂	P ₁ [kW]	i025	i030	P ₁ [kW]	i025	i040	P ₁ [kW]	i030	i040	P ₁ [kW]	i030	i050	P ₁ [kW]	i030	i063
100	14	0.09	10	10	0.09	10	10	0.09	10	10	0.18	10	10	0.18	10	10
150	9.3	0.09	10	15	0.09	10	15	0.09	10	15	0.18	10	15	0.18	10	15
200	7.0	0.09	10	20	0.09	10	20	0.09	10	20	0.18	10	20	0.18	10	20
250	5.6	0.09	10	25	0.09	10	25	0.09	10	25	0.18	10	25	0.18	10	25
300	4.7	0.06	10	30	0.06	10	30	0.09	10	30	0.18	10	30	0.18	10	30
400	3.5	0.06	20	20	0.06	10	40	0.06	10	40	0.12	10	40	0.12	10	40
500	2.8	0.06	20	25	0.06	20	25	—	—	—	0.09	10	50	0.12	10	50
600	2.3	0.06	20	30	0.06	20	30	—	—	—	0.09	20	30	0.09	20	30
750	1.9	0.06	30	25	0.06	25	30	—	—	—	0.09	25	30	0.09	25	30
900	1.6	0.06	30	30	0.06	30	30	—	—	—	0.06	30	30	0.09	30	30
1200	1.2	0.06	40	30	0.06	40	30	—	—	—	0.06	40	30	0.06	40	30
1500	0.93	0.06	50	30	0.06	50	30	—	—	—	0.06	50	30	0.06	50	30
1800	0.78	0.06	60	30	0.06	60	30	—	—	—	—	—	—	0.06	60	30
2400	0.58	0.06	60	40	0.06	60	40	—	—	—	—	—	—	0.06	60	40
3000	0.47	0.06	60	50	0.06	60	50	—	—	—	—	—	—	0.06	60	50
4000	0.35	—	—	—	0.06	50	80	—	—	—	—	—	—	—	—	—
5000	0.28	—	—	—	0.06	50	100	—	—	—	—	—	—	—	—	—

n1=1400r/min		ALM040 / 050			ALM040 / 063			ALM040 / 075			ALM040 / 090			ALM050 / 090		
i	n ₂	P ₁ [kW]	i040	i050	P ₁ [kW]	i040	i063	P ₁ [kW]	i040	i075	P ₁ [kW]	i040	i090	P ₁ [kW]	i050	i090
100	14	0.37	10	10	0.37	10	10	0.37	10	10	0.37	10	10	0.75	10	10
150	9.3	0.25	10	15	0.37	10	15	0.37	10	15	0.37	10	15	0.75	10	15
200	7.0	0.18	10	20	0.37	10	20	0.37	10	20	0.37	10	20	0.75	10	20
250	5.6	0.12	10	25	0.25	10	25	0.37	10	25	0.37	10	25	0.75	10	25
300	4.7	0.18	10	30	0.25	10	30	0.37	10	30	0.37	10	30	0.75	10	30
400	3.5	0.12	10	40	0.25	10	40	0.37	10	40	0.37	10	40	0.55	10	40
500	2.8	0.09	10	50	0.18	10	50	0.25	10	50	0.37	10	50	0.37	10	50
600	2.3	—	—	—	0.18	20	30	0.25	20	30	0.37	20	30	0.37	20	30
750	1.9	—	—	—	0.12	25	30	0.25	25	30	0.25	25	30	0.37	25	30
900	1.6	0.06	30	30	0.12	30	30	0.18	30	30	0.25	30	30	0.25	30	30
1200	1.2	—	—	—	—	—	—	0.18	40	30	0.25	40	30	0.25	40	30
1500	0.93	—	—	—	0.09	50	30	0.12	50	30	0.18	50	30	0.18	50	30
1800	0.78	—	—	—	0.06	60	30	0.12	60	30	0.18	60	30	0.18	60	30
2400	0.58	—	—	—	0.06	60	40	0.09	60	40	0.12	60	40	0.12	60	40
3000	0.47	—	—	—	—	—	—	0.06	60	50	0.09	60	50	—	—	—
4000	0.35	—	—	—	—	—	—	0.06	80	50	0.09	80	50	—	—	—
5000	0.28	—	—	—	—	—	—	0.06	100	50	0.06	100	50	—	—	—

n1=1400r/min		ALM050 / 105 (110)			ALM063 / 105 (110)			ALM063 / 130			ALM063 / 150		
i	n ₂	P ₁ [kW]	i050	i105 i110	P ₁ [kW]	i063	i105 i110	P ₁ [kW]	i063	i130	P ₁ [kW]	i063	i150
100	14	0.75	10	10	1.5	10	10	1.5	10	10	—	—	—
150	9.3	0.75	10	15	1.5	10	15	1.5	10	15	1.5	7.5	20
200	7.0	0.75	10	20	1.5	10	20	1.5	10	20	1.5	10	20
250	5.6	0.75	10	25	1.5	10	25	1.5	10	25	1.5	10	25
300	4.7	0.75	10	30	1.5	10	30	1.5	10	30	1.5	15	20
400	3.5	0.75	10	40	0.75	10	40	1.5	10	40	1.5	10	40
500	2.8	0.75	20	25	0.75	20	25	0.75	10	50	1.5	10	50
600	2.3	0.55	20	30	0.75	20	30	0.75	20	30	1.5	15	40
750	1.9	0.55	25	30	0.55	25	30	0.75	25	30	1.1	15	50
900	1.6	0.55	30	30	0.55	30	30	0.75	30	30	0.75	30	30
1200	1.2	0.37	40	30	0.37	40	30	0.55	40	30	0.55	30	40
1500	0.93	0.37	50	30	0.37	50	30	0.37	50	30	—	—	—
1800	0.78	0.25	60	30	0.25	60	30	0.37	60	30	0.55	60	30
2400	0.58	0.25	60	40	0.25	60	40	0.25	60	40	0.37	60	40
3000	0.47	0.18	60	50	—	—	—	0.25	60	50	0.37	60	50
4000	0.35	0.12	80	50	—	—	—	0.25	80	50	0.25	80	50
5000	0.28	0.12	100	50	—	—	—	0.25	100	50	0.25	100	50

You can choose
025, 030, 040,
050, 063, 075,
090, 105, 110,
130, 150
as combination
unit to combine
according to the
fact your special
needs.

6. RELEVANT DATA

6.4 Efficiency & Irreversibility Character

Efficiency is an important parameter of reducer, Efficiency η depends on the following parameters : 1) helix angle of gearing, 2) driving speed, 3) running in of gearing, 4) The performance of oil, oil seal and bearing. The mesh data table on page 15 shows dynamic efficiency ($\eta_1 = 1400$) and static efficiency values. Remember that these values are only achieved after the unit has been run in. Torque values $Mn2$ indicated in the catalogue are calculated by considering the steady state performance of the gearboxes. The actual values mentioned above may have deflection.

6.4.1 Dynamic irreversibility

Dynamic irreversibility is achieved when the output shaft stops instantly when drive is no longer transmitted through the worm shaft. This condition requires a dynamic efficiency of $\eta_d < 0.4$ (see table on page 14).

6.4.2 Static Irreversibility

Static irreversibility is achieved when the gear reducer at a standstill, the application of a load to the output shaft can't drive the worm shaft. This condition requires a static efficiency of $\eta_s < 0.5$ (see table on page 14).

η_d	>0.6	0.5 ~ 0.6	0.4 ~ 0.5	<0.4
DYNAMIC IRREVERSIBILITY	Dynamic reversibility	Low dynamic reversibility	Good dynamic reversibility	Dynamic reversibility

η_s	>0.55	0.5 ~ 0.55	<0.5
STATIC IRREVERSIBILITY	Static reversibility	Low static reversibility	static irreversibility

 The table shows approximate irreversibility classes. Vibrations and shocks can affect a gear reducer's irreversibility. As it is virtually impossible to provide and guarantee total non reversing, we recommend the use of an external brake with sufficient capability to prevent vibrations in duced starting, where these circumstances are required. For the irreversibility conditions of a combined geared unit one must consider that the efficiency of the group is given by the product of the efficiencies of each single reducer, i.e.: $\eta_{tot} = \eta_1 \times \eta_2$



RELEVANT DATA

6. RELEVANT DATA

6.4.3 Mesh Data

	i	7.5	10	15	20	25	30	40	50	60	80	100
ALM025	Z ₁	4	3	2	2	2	1	1	1	1		
	m _n	1.18	1.23	1.27	0.98	0.79	1.29	0.99	0.8	0.67		
	Y	25°18'	19°31'	13°18'	11°2'	9°5'	6°44'	5°34'	4°34'	3°55'		
	η _d (n1=1400r/min)	0.85	0.83	0.79	0.76	0.73	0.68	0.64	0.59	0.56		
	η _s	0.71	0.67	0.6	0.56	0.52	0.45	0.41	0.36	0.33		
ALM030	Z ₁	4	3	2	2	1	1	1	1	1	1	
	m _n	1.36	1.39	1.42	1.09	1.69	1.43	1.1	0.89	0.74	0.56	
	Y	18°55'	14°25'	9°44'	7°50'	5°33'	4°54'	3°56'	3°17'	2°43'	2°7'	
	η _d (n1=1400r/min)	0.84	0.81	0.76	0.72	0.66	0.64	0.59	0.54	0.5	0.44	
	η _s	0.66	0.62	0.54	0.49	0.41	0.38	0.33	0.29	0.26	0.21	
ALM040	Z ₁	4	3	2	2	2	1	1	1	1	1	1
	m _n	1.87	1.95	2	1.54	1.26	2.04	1.55	1.27	1.06	0.8	0.65
	Y	23°54'	18°23'	12°30'	10°3'	8°45'	6°19'	5°4'	4°24'	3°42'	2°52'	2°29'
	η _d (n1=1400r/min)	0.86	0.84	0.8	0.77	0.74	0.69	0.65	0.61	0.57	0.51	0.47
	η _s	0.7	0.66	0.59	0.54	0.51	0.44	0.39	0.36	0.32	0.27	0.24
ALM050	Z ₁	4	3	2	2	2	1	1	1	1	1	1
	m _n	2.34	2.43	2.5	1.92	1.56	2.54	1.94	1.58	1.32	1	0.8
	Y	23°49'	18°19'	12°27'	10°3'	8°33'	6°18'	5°4'	4°18'	3°38'	2°52'	2°17'
	η _d (n1=1400r/min)	0.87	0.85	0.81	0.78	0.75	0.71	0.67	0.63	0.59	0.53	0.48
	η _s	0.7	0.66	0.59	0.54	0.51	0.44	0.39	0.36	0.32	0.27	0.24
ALM063	Z ₁	4	3	2	2	2	1	1	1	1	1	1
	m _n	2.96	3.08	3.17	2.44	1.98	3.23	2.47	1.99	1.68	1.27	1.02
	Y	24°31'	18°53'	12°51'	10°29'	8°45'	6°30'	5°17'	4°24'	3°49'	2°59'	2°26'
	η _d (n1=1400r/min)	0.88	0.86	0.82	0.8	0.77	0.73	0.69	0.65	0.62	0.56	0.51
	η _s	0.7	0.66	0.59	0.55	0.51	0.44	0.4	0.36	0.33	0.28	0.24
ALM075	Z ₁	4	3	2	2	2	1	1	1	1	1	1
	m _n	3.53	3.7	3.83	2.94	2.39	3.92	2.99	2.41	2.02	1.54	1.24
	Y	26°38'	20°37'	14°5'	11°19'	9°29'	7°9'	5°43'	4°46'	4°1'	3°17'	2°44'
	η _d (n1=1400r/min)	0.88	0.87	0.84	0.81	0.79	0.76	0.72	0.68	0.64	0.59	0.55
	η _s	0.71	0.68	0.61	0.57	0.53	0.47	0.41	0.37	0.34	0.29	0.26
ALM090	Z ₁	4	3	2	2	2	1	1	1	1	1	1
	m _n	4.23	4.47	4.66	3.6	2.93	4.79	3.67	2.97	2.49	1.89	1.52
	Y	29°5'	22°39'	15°33'	12°50'	10°53'	7°55'	6°30'	5°29'	4°46'	3°45'	3°6'
	η _d (n1=1400r/min)	0.89	0.88	0.85	0.83	0.81	0.78	0.74	0.71	0.68	0.63	0.59
	η _s	0.72	0.69	0.63	0.59	0.56	0.49	0.44	0.41	0.37	0.32	0.28
ALM105	Z ₁	4	3	2	2	2	1	1	1	1	1	1
	m _n	5.18	5.45	5.67	4.47	3.64	5.82	4.58	3.71	3.12	2.36	1.91
	Y	28°15'	21°57'	15°2'	14°42'	12°33'	7°39'	7°29'	6°21'	5°33'	4°27'	3°46'
	η _d (n1=1400r/min)	0.89	0.88	0.86	0.85	0.83	0.79	0.77	0.74	0.72	0.67	0.63
	η _s	0.72	0.69	0.62	0.62	0.59	0.48	0.48	0.44	0.41	0.36	0.32
ALM110	Z ₁	4	3	2	2	2	1	1	1	1	1	1
	m _n	5.18	5.45	5.67	4.47	3.64	5.82	4.58	3.71	3.12	2.36	1.91
	Y	28°15'	21°57'	15°2'	14°42'	12°33'	7°39'	7°29'	6°21'	5°33'	4°27'	3°46'
	η _d (n1=1400r/min)	0.89	0.88	0.86	0.85	0.83	0.79	0.77	0.74	0.72	0.67	0.63
	η _s	0.72	0.69	0.62	0.62	0.59	0.48	0.48	0.44	0.41	0.36	0.32
ALM130	Z ₁	4	3	2	2	2	1	1	1	1	1	1
	m _n	6.11	6.45	6.72	5.24	4.28	6.91	5.36	4.35	3.65	2.76	2.23
	Y	28°43'	22°20'	15°19'	13°47'	11°54'	7°48J	6°60'	6°1'	5°16'	4°8'	3°27'
	η _d (n1=1400r/min)	0.9	0.89	0.87	0.85	0.84	0.8	0.78	0.75	0.73	0.68	0.64
	η _s	0.72	0.69	0.63	0.61	0.58	0.49	0.46	0.43	0.4	0.34	0.3
ALM150	Z ₁	6	4	3	2	2	2	1	1	1	1	1
	m _n	5.5	6.155	5.5	6.155	5	4.193	6.155	5	4.193	3.17	2.55
	Y	32°09'	24°35'	17°27'	12°53'	11°19'	9°50'	6°32'	5°43'	4°57'	3°55'	3°14'
	η _d (n1=1400r/min)	0.91	0.9	0.88	0.86	0.84	0.83	0.78	0.76	0.73	0.68	0.64
	η _s	0.73	0.71	0.66	0.6	0.57	0.54	0.45	0.42	0.39	0.33	0.29

6. RELEVANT DATA

6.5 Prestage helical geared units (PU)

The PU Construction is modular and therefore it can be as a separate unit mounted on any type of fitted geared motor (PAM), whose the various possibilities of flange / output shafts can be found on page 11.

Fitting the pre-stage helical module on the main reduction unit is easily done as for any motor of type B.14. The prestage unit cannot be used by itself, but only coupled with another reduction unit.

6.5.1 Materials

Case in aluminium alloy.

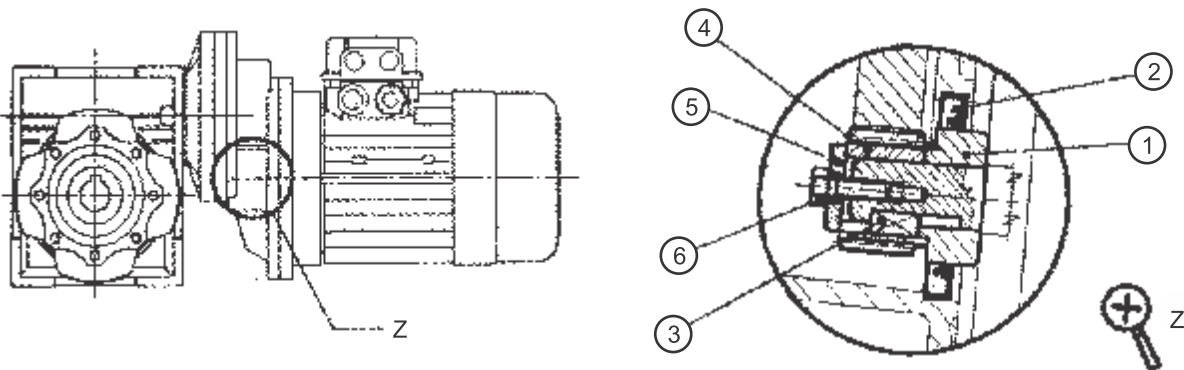
Gears : 20CrMo, machined accurately base on the accurate involute.

6.5.2. Coupling to electric motor

Correctly fitting the pinion on the electric motor shaft requires you keep to the following instructions.

- Thoroughly clean the electric motor shaft.
- Remove the motor key from its seat.
- Fit the bush ① to the drive shaft as shown in the diagram. To make this easier, you can heat the bush to approximately 70/80°C.
- Fit the new key ③ provided in place of the one removed beforehand.
- Fit the pinion ④ taking the same precautions as described in point c).
- Fit the washer ⑤ and tighten with the screw ⑥ .
- Remove the rubber cap mounted on the seat of the oil seal, taking care since the pre-stage unit is already complete with lubricant.
- Fit the oil seal ② and then the motor assembly, taking care not to damage the lip of the oil seal.

N.B. : For correct operation, with no vibration or noise, it is recommended to use good quality motors.



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s			
0.06	186.7	2.6	7.5	503	4.2	ALM025	56B14	5614
	140	3.4	10	533	3.5			
	93.3	4.9	15	633	2.5			
	70	6.2	20	697	1.9			
	56	7.5	25	751	1.7			
	46.7	8.3	30	798	1.6			
	35	10	40	878	1.2			
	28	12	50	946	0.9			
	23.3	14	60	1006	0.7			
	186.7	2.6	7.5	683	7.0	ALM030	56B5/B14	5614
	140	3.3	10	752	5.4			
	93.3	4.7	15	861	3.9			
	70	5.9	20	948	3.1			
	56	6.8	25	1021	3.1			
	46.7	7.9	30	1085	2.5			
	35	9.7	40	1194	1.9			
	28	11	50	1286	1.5			
	23.3	12	60	1367	1.3			
	17.5	14	80	1504	0.9			
	28	13	50	2475	3.3	NMRV040	56B5	5614
	23.3	14	60	2630	2.6			
	17.5	17	80	2895	1.9			
	14	20	100	3118	1.5			
0.09	373.3	2.0	7.5	399	3.9	ALM025	56B14	5612
	280	2.6	10	439	3.4			
	186.7	3.8	15	503	2.4			
	140	4.9	20	553	1.8			
	112	5.9	25	590	1.5			
	93.3	6.7	30	633	1.3			
	70	8.5	40	697	1.1			
	56	10	50	751	0.9			
	46.7	11	60	798	0.7			
	186.7	3.9	7.5	503	2.8	ALM025	56B14	5624
	140	5.1	10	553	2.4			
	93.3	7.3	15	633	1.6			
	70	9.3	20	697	1.3			
	56	11	25	751	1.2			
	46.7	13	30	798	1.0			
	35	16	40	878	0.8			
	373.3	2.0	7.5	542	6.5	ALM030	56B5/B14	5612
	280	2.6	10	597	5.0			
	186.7	3.7	15	683	3.5			
	140	4.7	20	752	2.5			
	112	5.5	25	810	2.9			
	93.3	6.4	30	861	2.3			
	70	8.0	40	948	1.8			
	56	9.4	50	1021	1.4			
	46.7	10	60	1085	1.1			
	35	13	80	1194	0.9			
	186.7	3.9	7.5	683	4.7	ALM030	56B5/B14	5624
	140	5.0	10	752	3.6			
	93.3	7.0	15	861	2.6			
	70	8.8	20	948	2.0			

7. PERFORMANCE PARAMETER

7.1 ALM..(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
0.09	56	10	25	1021	2.1	ALM030	56B5/B14	5624
	46.7	12	30	1085	1.7			
	35	14	40	1194	1.2			
	28	17	50	1286	1.0			
	23.3	18	60	1367	0.9			
	120	6.0	7.5	792	3.5	ALM030	63B5/B14	6316
	90	8.0	10	871	2.7			
	60	11	15	997	2.0			
	45	14	20	1098	1.5			
	36	16	25	1183	1.5			
	30	18	30	1257	1.2			
	22.5	21	40	1383	1.0			
	18	25	50	1490	0.8			
	56	11	50	1964	2.8	ALM040	56B5	5612
	46.7	12	60	2087	2.3			
	35	15	80	2298	1.7			
	28	17	100	2475	1.4			
	28	19	50	2475	2.1			
	23.3	21	60	2630	1.7			
	17.5	25	80	2895	1.3			
	14	29	100	3118	1.0			
	45	15	20	2113	3.3	ALM040	56B5	5624
	36	17	25	2276	2.6			
	30	19	30	2419	2.8			
	22.5	24	40	2662	2.1			
	18	28	50	2868	1.7			
	15	32	60	3047	1.3			
	11.3	37	80	3354	0.9			
	9	42	100	3490	0.8			
	18	29	50	3936	2.8	ALM040	63B5/B14	6316
	15	32	60	4183	2.4			
	11.3	38	80	4604	1.8			
	9	43	100	4840	1.3			
0.12	373.3	2.7	7.5	399	3.0	ALM025	56B14	5622
	280	3.5	10	439	2.6			
	186.7	5.1	15	503	1.8			
	140	6.5	20	553	1.4			
	112	7.9	25	590	1.1			
	93.3	9.0	30	633	1.0			
	70	11	40	697	0.8			
	186.7	5.0	15	683	2.6	ALM030	56B5/B14	5622
	140	6.0	20	752	1.9			
	112	8.0	25	810	2.1			
	93.3	9.0	30	861	1.7			
	70	11	40	948	1.3			
	56	13	50	1021	1.0			
	46.7	14	60	1085	0.8			
	186.7	5.2	7.5	683	3.5	ALM030	63B5/B14	6314
	140	6.6	10	752	2.7			
	93.3	9.3	15	861	1.9			
	70	12	20	948	1.5			
	56	14	25	1021	1.6			
	46.7	16	30	1085	1.3			
	35	19	40	1194	0.9			
	28	22	50	1286	0.8			
	120	8.0	792	7.5	2.6	ALM030	63B5/B14	6326
	90	10	871	10	2.0			



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM..(IEC)... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s			
0.12	60	14	997	15	1.5	ALM030	63B5/B14	6326
	45	18	1098	20	1.1			
	36	21	1183	25	1.2			
	30	24	1257	30	0.9			
	22.5	29	1383	40	0.7			
	56	14	1964	50	2.1	ALM040	56B5	5622
	46.7	16	2087	60	1.7			
	35	20	2298	80	1.3			
	28	23	2475	100	1.0			
	70	13	20	1824	3.3	ALM040	63B5/B14	6314
	56	16	25	1964	2.5			
	46.7	17	30	2087	2.7			
	35	21	40	2298	1.9			
	28	25	50	2475	1.6			
	23.3	28	60	2630	1.3			
	17.5	33	80	2895	1.0			
	14	38	100	3118	0.8			
	60	15	15	1920	3.3	ALM040	63B5/B14	6326
	45	19	20	2113	2.5			
	36	23	25	2276	1.9			
	30	26	30	2419	2.1			
	22.5	32	40	2662	1.6			
	18	37	50	2868	1.2			
	15	42	60	3047	1.0			
	11.3	50	80	3354	0.7			
	28	26	50	3397	2.9	ALM050	63B5	6314
	23.3	29	60	3610	2.3			
	17.5	35	80	3973	1.9			
	14	39	100	4280	1.4			
	22.5	33	40	3654	2.7	ALM050	63B5	6326
	18	38	50	3936	2.1			
	15	43	60	4183	1.8			
	11.3	51	80	4604	1.3			
	9	57	100	4840	1.0			
0.18	373.3	4.0	7.5	542	3.2	ALM030	63B5/B14	6312
	280	5.2	10	597	2.5			
	186.7	7.4	15	683	1.8			
	140	9.5	20	752	1.3			
	112	11	25	810	1.4			
	93.3	13	30	861	1.2			
	70	16	40	948	0.9			
	186.7	7.7	7.5	683	2.3	ALM030	63B5/B14	6324
	140	10	10	752	1.8			
	93.3	14	15	861	1.3			
	70	18	20	948	1.0			
	56	20	25	1021	1.0			
	46.7	24	30	1085	0.8			
	140	10	20	1447	2.8	ALM040	63B5/B14	6312
	112	12	25	1559	2.3			
	93.3	14	30	1657	2.5			
	70	17	40	1824	1.8			
	56	21	50	1964	1.4			
	46.7	24	60	2087	1.2			
	35	29	80	2298	0.8			
	93.3	15	15	1657	2.9	ALM040	63B5/B14	6324
	70	19	20	1824	2.1			
	56	23	25	1964	1.7			

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
0.18	46.7	25	30	2087	1.8	ALM040	63B5/B14	6324
	35	32	40	2298	1.3			
	28	37	50	2475	1.0			
	23.3	42	60	2630	0.9			
	90	16	10	1677	3.0	ALM040	71B5/B14	7116
	60	23	15	1920	2.2			
	45	28	20	2113	1.6			
	36	34	25	2276	1.3			
	30	38	30	2419	1.3			
	22.5	47	40	2662	1.0			
	70	18	40	2503	3.2	ALM050	63B5	6312
	56	21	50	2696	2.5			
	46.7	24	60	2865	2.1			
	35	30	80	3153	1.5			
	28	34	100	3397	1.2			
	35	33	40	3153	2.3	ALM050	63B5	6324
	28	39	50	3397	1.9			
	23.3	43	60	3610	1.6			
	17.5	52	80	3973	1.2			
	14	59	100	4280	0.9			
	45	29	20	2900	2.8	ALM050	71B5/B14	7116
	36	35	25	3124	2.1			
	30	40	30	3320	2.4			
	22.5	49	40	3654	1.8			
	18	56	50	3936	1.4			
	15	63	60	4183	1.1			
	11.3	75	80	4604	0.9			
	22.5	50	40	4776	3.4	ALM063	71B5/B14	7116
	18	59	50	5145	2.7			
	15	66	60	5467	2.1			
	11.3	79	80	6018	1.6			
	9	90	100	6270	1.4			
	15	66	60	5467	2.1	ALM075	71B5	7116
	11.3	79	80	6018	1.6			
	9	90	100	6270	1.4			
0.25	373.3	56	7.5	542	2.3	ALM030	63B5/B14	6322
	280	7.2	10	597	1.8			
	186.7	10	15	683	1.3			
	140	13	20	752	0.9			
	112	15	25	810	1.0			
	93.3	18	30	861	0.8			
	186.7	11	15	1315	2.9	ALM040	63B5/B14	6322
	140	14	20	1447	2.0			
	112	17	25	1559	1.6			
	93.3	20	30	1657	1.7			
	70	25	40	1824	1.2			
	56	29	50	1964	1.0			
	46.7	34	60	2087	0.8			
	186.7	12	7.5	1315	3.6	ALM040	71B5/B14	7114
	140	15	10	1447	3.0			
	93.3	21	15	1657	2.1			
	70	27	20	1824	1.6			
	56	32	25	1964	1.2			
	46.7	36	30	2087	1.3			
	35	45	40	2298	1.0			



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
0.25	120	17	7.5	1524	2.6	ALM040	71B5/B14	7126
	90	22	10	1677	2.0			
	60	31	15	1920	1.4			
	45	39	20	2113	1.1			
	36	48	25	2276	0.9			
	30	53	30	2419	0.9			
	22.5	40	26	6262	0.7			
	70	25	40	2503	2.3	ALM050	63B5/B14	6322
	56	30	50	2696	1.8			
	46.7	34	60	2865	1.5			
	35	42	80	3153	1.1			
	28	48	100	3397	0.8			
	70	27	20	2503	2.7	ALM050	71B5/B14	7114
	56	32	25	2696	2.2			
	46.7	36	30	2865	2.3			
	35	46	40	3153	1.7			
	28	54	50	3397	1.4			
	23.3	60	60	3610	1.1			
	17.5	72	80	3973	0.9			
	60	32	15	2635	2.9	ALM050	71B5/B14	7126
	45	40	20	2900	1.9			
	36	48	25	3124	1.5			
	30	54	30	3320	1.7			
	22.5	67	40	3654	1.2			
	18	78	50	3936	1.0			
	15	88	60	4183	0.8			
	35	48	40	4122	3.1	ALM0S3	71B5/814	7114
	28	55	50	4440	2.4			
	23.3	63	60	4719	2.0			
	17.5	76	80	5193	1.6			
	14	87	100	5595	1.4			
	36	50	25	4084	3.0	ALM063	71B5/B14	7126
	30	57	30	4339	3.1			
	22.5	70	40	4776	2.4			
	18	81	50	5145	1.8			
	15	92	60	5467	1.5			
	11.3	110	80	6018	1.2			
	9	125	100	6270	1.0			
	23.3	68	60	5569	3.2	ALM075	71B5	7114
	17.5	80	80	6130	2.4			
	14	94	100	6603	1.9			
	18	85	50	6073	3.0	ALM075	71B5	7126
	15	99	60	6453	2.5			
	11.3	117	80	7103	1.7			
	9	133	100	7380	1.4			
0.37	373.3	8.0	7.5	1044	3.4	ALM040	71B5/B14	7112
	280	11	10	1149	2.6			
	186.7	16	15	1315	1.9			
	140	20	20	1447	1.4			
	112	25	25	1559	1.1			
	93.3	29	30	1657	1.2			
	70	37	40	1824	0.8			
	186.7	16	7.5	1315	2.5	ALM040	71B5/B14	7124
	140	21	10	1447	2.1			
	93.3	31	15	1657	1.4			
	70	40	20	1824	1.1			
	56	48	25	1964	0.8			
	46.7	54	30	2087	0.9			

7. PERFORMANCE PARAMETER

7.1 ALM..(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
0.37	112	25	25	2140	2.0	ALM050	71B5/B14	7112
	93.3	29	30	2274	2.2			
	70	37	40	2503	1.6			
	56	44	50	2696	1.2			
	46.7	50	60	2865	1.0			
	35	62	80	3153	0.7			
	140	21	10	1987	3.4	ALM050	71B5/B14	7124
	93.3	31	15	2274	2.4			
	70	39	20	2503	1.9			
	56	47	25	2696	1.5			
	46.7	54	30	2865	1.6			
	35	68	40	3153	1.1			
	28	80	50	3397	0.9			
	23.3	89	60	3610	0.8			
	120	25	7.5	2091	3.4	ALM050	80B5/B14	8016
	90	33	10	2302	2.6			
	60	47	15	2635	1.8			
	45	59	20	2900	1.3			
	36	72	25	3124	1.0			
	30	80	30	3320	1.1			
	70	38	40	3272	2.9	ALM063	71B5/B14	7112
	56	45	50	3524	2.3			
	46.7	52	60	3745	1.9			
	35	65	80	4122	1.4			
	28	74	100	4440	1.1			
	56	50	25	3524	2.7	ALM063	71B5/B14	7124
	46.7	57	30	3745	2.8			
	35	70	40	4122	2.1			
	28	82	50	4440	1.8			
	23.3	94	60	4719	1.4			
	17.5	113	80	5193	1.1			
	14	129	100	5595	0.9			
	45	60	20	3791	2.4	ALM063	80B5/B14	8016
	36	73	25	4084	1.9			
	30	82	30	4339	2.1			
	22.5	102	40	4776	1.6			
	18	120	50	5145	1.2			
	15	137	60	5467	1.0			
	11.3	167	80	6018	0.8			
	56	47	50	4160	3.5	ALM075	71B5	7112
	46.7	55	60	4421	2.9			
	35	68	80	4865	2.1			
	28	78	100	5241	1.7			
	35	74	40	4865	3.3	ALM075	71B5	7124
	28	88	50	5241	2.5			
	23.3	97	60	5569	2.1			
	17.5	119	80	6130	1.6			
	14	139	100	6603	1.3			
	36	77	25	4820	3.1	ALM075	80B5/B14	8016
	30	87	30	5122	3.3			
	22.5	108	40	5637	2.6			
	18	124	50	6073	1.8			
	15	141	60	6453	1.5			
	11.3	173	80	7103	1.2			
	9	196	100	7380	1.0			



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s			
0.37	18	136	50	6719	3.2	ALM090	80B5/B14	8016
	15	153	60	7140	2.5			
	11.3	185	80	7859	1.7			
	9	212	100	8180	1.3	ALM105	80B5	8016
	11.3	201	80	9931	2.5			
	9	232	100	10320	2.0			
0.55	11.3	201	80	9931	2.8	ALM110	80B5	8016
	9	232	100	10320	2.2			
	373.3	12	7.5	1044	2.3	ALM040	71B5/B14	7122
	280	16	10	1149	1.8			
	186.7	24	15	1315	1.3			
	140	30	20	1447	1.0			
	112	37	25	1559	0.8			
	93.3	43	30	1657	0.8			
	280	17	10	1577	3.2	ALM050	71B5/B14	7122
	186.7	24	15	18.5	2.4			
	140	31	20	1987	1.7			
	112	38	25	2140	1.4			
	93.3	43	30	2274	1.5			
	70	55	40	2503	1.1			
	56	65	50	2696	0.8			
	46.7	74	60	2865	0.7			
	186.7	24	7.5	1805	2.9	ALM050	80B5/B14	8014
	140	32	10	1987	2.3			
	93.3	46	15	2274	1.6			
	70	59	20	2503	1.2			
	56	70	25	2696	1.0			
	46.7	80	30	2865	1.1			
	120	37	7.5	2091	2.3	ALM050	80B5/B14	8026
	90	48	10	2302	1.7			
	60	69	15	2635	1.2			
	45	88	20	2900	0.9			
	36	108	25	3124	0.7			
	30	121	30	3320	0.8			
	140	32	20	2597	3.3	ALM063	71B5/B14	7122
	112	39	25	2797	2.5			
	93.3	44	30	2973	2.7			
	70	56	40	3272	1.9			
	56	68	50	3524	1.5			
	46.7	78	60	3745	1.2			
	35	96	80	4122	0.9			
	28	111	100	4440	0.7			
	93.3	47	15	2973	3.2	ALM063	80B5/B14	8014
	70	60	20	3272	2.2			
	56	72	25	3524	1.8			
	46.7	82	30	3745	1.9			
	35	104	40	4122	1.4			
	28	122	50	4440	1.1			
	23.3	140	60	4719	0.9			
	17.5	174	80	5193	0.7			
	90	50	10	3009	3.1	ALM063	80B5/B14	8026
	60	70	15	3444	2.2			
	45	90	20	3791	1.6			
	36	108	25	4084	1.3			
	30	123	30	4339	1.4			
	22.5	152	40	4776	1.1			
	18	181	50	5145	0.9			
	15	207	60	5467	0.7			

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
0.55	70	59	40	3862	3.1	ALM075	71B5	7122
	56	70	50	4160	2.3			
	46.7	81	60	4421	2.0			
	35	99	80	4865	1.3			
	28	116	100	5241	1.0			
	56	76	25	4160	2.8	ALM075	80B5/B14	8014
	46.7	87	30	4421	2.9			
	35	108	40	4865	2.0			
	28	128	50	5241	1.6			
	23.3	144	60	5569	1.4			
	17.5	177	80	6130	1.1			
	14	206	100	6603	0.9			
	45	93	20	4474	2.9	ALM075	80B5/B14	8028
	36	124	25	4820	2.1			
	30	124	30	5122	2.1			
	22.5	156	40	5637	1.5			
	18	184	50	6073	1.2			
	15	210	60	6453	1.0			
	11.3	262	80	7103	0.8			
	35	114	40	5383	3.5	ALM090	80B5/B14	8014
	28	137	50	5799	2.7			
	23.3	158	60	6163	2.2			
	17.5	189	80	6783	1.5			
	14	221	100	7306	1.2			
	36	117	25	5333	3.5	ALM090	80B5/B14	8026
	22.5	168	40	6238	2.7			
	18	196	50	6719	2.0			
	15	224	60	7140	1.6			
	11.3	275	80	7859	1.1			
	9	315	100	8180	0.9			
	17.5	201	80	8571	2.4	ALM105	80B5	8014
	14	236	100	9232	1.9			
	11.3	294	80	9931	1.8	ALM105	80B5	8026
	9	344	100	10320	1.4			
	17.5	201	80	8571	2.6	ALM110	80B5	8014
	14	236	100	9232	2.0			
	15	242	60	9023	2.8	ALM110	80B5	8026
	11.3	294	80	9931	1.9			
	9	344	100	10320	1.5			
0.75	373.3	17	7.5	1433	3.0	ALM050	80B5/B14	8012
	280	22	10	1577	2.4			
	186.7	31	15	1805	1.7			
	140	41	20	1987	1.3			
	112	49	25	2140	1.0			
	93.3	56	30	2274	1.1			
	186.7	33	7.5	1805	2.1	ALM050	80B5/B14	8024
	140	43	10	1987	1.7			
	93.3	62	15	2274	1.2			
	70	80	20	2503	0.9			
	56	99	25	2696	0.7			
	46.7	112	30	2865	0.8			
	186.7	33	15	2359	3.3	ALM063	80B5/B14	8012
	140	43	20	2597	2.3			
	112	52	25	2797	1.8			
	93.3	60	30	2973	2.0			
	70	77	40	3272	1.4			
	56	92	50	3524	1.1			
	46.7	106	60	3745	0.9			



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
0.75	140	45	10	2597	30	ALM063	80B5/B14	8024
	93.3	63	15	2973	2.2			
	70	82	20	3272	1.6			
	56	98	25	3524	1.3			
	46.7	112	30	3745	1.4			
	35	141	40	4122	1.0			
	28	171	50	4440	0.8			
	120	51	7.5	2734	2.9	ALM063	90B5/B14	90S6
	90	67	10	3009	2.3			
	60	96	15	3444	1.6			
	45	123	20	3791	1.2			
	36	147	25	4084	0.9			
	30	167	30	4339	1.0			
	22.5	210	40	4776	0.8			
	112	54	25	3302	2.9	ALM075	80B5/B14	8012
	93.3	62	30	3509	3.0			
	70	80	40	3862	2.3			
	56	96	50	4160	1.7			
	46.7	107	60	4421	1.3			
	35	135	80	4865	1.0			
	28	159	100	5241	0.8			
	93.3	66	15	3509	3.5	ALM075	80B5/B14	8024
	70	85	20	3862	2.8			
	56	101	25	4160	2.0			
	46.7	117	30	4421	2.0			
	35	147	40	4865	1.5			
	28	174	50	5241	1.2			
	23.3	196	60	5569	1.0			
	17.5	250	80	6130	0.8			
	90	68	10	3551	3.4	ALM075	90BS/B14	90S6
	60	97	15	4065	2.4			
	45	124	20	4474	1.9			
	36	149	25	4820	1.4			
	30	170	30	5122	1.5			
	22.5	213	40	5637	1.1			
	18	255	50	6073	1.0			
	15	296	60	6453	0.8			
	70	82	40	4273	3.4	ALM090	80B5/B14	8012
	56	99	50	4603	2.7			
	46.7	115	60	4891	2.1			
	35	143	80	5383	1.6			
	28	169	100	5799	1.2			
	35	156	40	5383	2.5	ALM090	80B5/B14	8024
	28	182	50	5799	1.9			
	23.3	209	60	6163	1.5			
	17.5	258	80	6783	1.1			
	14	302	100	7306	0.9			
	45	131	20	4951	3.3	ALM090	90B5/B14	90S6
	36	159	25	5333	2.6			
	30	179	30	5667	2.6			
	22.5	226	40	6238	1.8			
	18	267	50	6719	1.5			
	15	306	60	7140	1.1			
	35	152	80	6803	2.6	ALM105	80B5	8012
	28	179	100	7328	2.1			
	28	194	50	7328	3.1	ALM105	80B5	8024
	23.3	227	60	7787	2.5			

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
0.75	17.5	274	80	8571	1.8	ALM105	80B5	8024
	14	322	100	9232	1.4			
	22.5	239	40	7882	3.0	ALM105	90B5	90S6
	18	287	50	8491	2.4			
	15	325	60	9023	1.7			
	11.3	401	80	9931	1.2			
	9	470	100	10320	0.9			
	35	152	80	6803	2.6	ALM110	80B5	8012
1.1	28	179	100	7328	2.1			
	28	194	50	7328	3.4	ALM110	80B5	8024
	23.3	227	60	7787	2.7			
	17.5	274	80	8571	1.9			
	14	322	100	9232	1.5			
	22.5	239	40	7882	3.3	ALM110	90B5	90S6
	18	287	50	8491	2.6			
	15	325	60	9023	1.9			
	11.3	401	80	9931	1.3			
	9	470	100	10320	1.0			
	11.3	401	80	12989	2.1	ALM130	90B5	90S6
	9	470	100	13500	1.7			
	373.3	25	7.5	1433	2.1	ALM050	80B5/B14	8022
	280	33	10	1577	1.7			
	186.7	48	15	1805	1.2			
	140	62	20	1987	0.9			
	93.3	87	30	2274	0.7			
	280	33	10	2061	3.0	ALM063	80B5/B14	8022
	186.7	46	15	2359	2.1			
	140	60	20	2597	1.6			
	112	72	25	2797	1.2			
	93.3	82	30	2973	1.4			
	70	104	40	3272	1.0			
	120	75	7.5	2734	2.0	ALM063	90B5/B14	90L6
	90	98	10	3009	1.6			
	60	140	15	3444	1.1			
	45	180	20	3791	0.8			
	30	249	30	4339	0.7			
	186.7	50	7.5	2359	2.6	ALM063	90B5/B14	90S4
	140	65	10	2597	2.0			
	93.3	92	15	2973	1.5			
	70	120	20	3272	1.1			
	56	144	25	3524	0.9			
	46.7	164	30	3745	1.0			
	186.7	50	15	2785	3.3	ALM075	80B5/B14	8022
	140	65	20	3065	2.7			
	112	77	25	3302	2.0			
	93.3	89	30	3509	1.9			
	70	114	40	3862	1.4			
	56	137	50	4160	1.1			
	46.7	158	60	4421	0.9			
	35	201	80	4865	0.7			
	120	77	7.5	3227	2.8	ALM075	90B5/B14	90L6
	90	98	10	3551	2.3			
	60	142	15	4065	1.7			
	45	182	20	4474	1.3			
	36	219	25	4820	1.0			
	30	249	30	5122	1.0			
	22.5	322	40	5637	0.9			



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM..(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
1.1	140	66	10	3065	3.0	ALM075	90B5/B14	90S4
	93.3	95	15	3509	2.1			
	70	122	20	3862	1.7			
	56	148	25	4160	1.3			
	46.7	171	30	4421	1.3			
	35	216	40	4865	1.0			
	28	263	50	5241	0.9			
	23.3	297	60	5569	0.7			
	112	81	25	3653	3.1	ALM090	80B5/B14	8022
	93.3	93	30	3882	3.3			
	70	120	40	4273	2.3			
	56	145	50	4603	1.8			
	46.7	169	60	4891	1.5			
	35	210	80	5383	1.1			
	28	248	100	5799	0.8			
	60	149	15	4498	3.1	ALM090	90B5/B14	90L6
	45	192	20	4951	2.2			
	36	228	25	5333	1.6			
	30	263	30	5667	1.8			
	22.5	331	40	6238	1.2			
	18	391	50	6719	1.0			
	15	448	60	7140	0.8			
	70	128	20	4273	3.1	ALM090	90B5/B14	90S4
	56	156	25	4603	2.4			
	46.7	178	30	4891	2.4			
	35	222	40	5383	1.8			
	28	266	50	5799	1.3			
	23.3	306	60	6163	1.0			
	17.5	384	80	6783	0.7			
	56	150	50	5816	3.0	ALM105	80B5	8022
	46.7	176	60	6181	2.4			
	35	222	80	6803	1.7			
	28	263	100	7328	1.3			
	36	239	25	6739	3.0	ALM105	90B5	90L6
	30	270	30	7161	3.1			
	22.5	345	40	7882	2.0			
	18	414	50	8491	1.6			
	15	476	60	9023	1.3			
	11.3	588	80	9931	0.9			
	9	689	100	10320	0.7			
	35	237	40	6803	2.8	ALM105	90B6	90S4
	28	278	50	7328	2.0			
	23.3	324	60	7787	1.8			
	17.5	402	80	8571	1.1			
	14	473	100	9232	1.0			
	56	150	50	5816	3.3	ALM110	80B5	8022
	46.7	176	60	6181	2.7			
	35	222	80	6803	1.8			
	28	263	100	7328	1.4			
	36	239	25	6739	3.2	ALM110	90B5	90L6
	30	270	30	7161	3.1			
	22.5	345	40	7882	2.3			
	18	414	50	8491	1.8			
	15	476	60	9023	1.4			
	11.3	588	80	9931	1.0			
	9	689	100	10320	0.7			

7. PERFORMANCE PARAMETER

7.1 ALM..(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
1.1	35	237	40	6803	3.0	ALM110	90B5	90S4
	28	278	50	7328	2.4			
	23.3	324	60	7787	1.9			
	17.5	402	80	8571	1.3			
	14	473	100	9232	1.0			
	11.3	588	80	12989	1.5	ALM130	90B5	90L6
	9	689	100	13500	1.1			
	17.5	408	80	11210	2.1	ALM130	90B5	90S4
	14	480	100	12076	1.5			
1.5	373.3	34	7.5	1433	1.5	ALM050	80B5/B14	80C2
	280	45	10	1577	1.2			
	186.7	65	15	1805	0.9			
	186.7	68	7.5	2359	1.9	ALM063	90B5/B14	90L4
	140	88	10	2597	1.5			
	93.3	126	15	2973	1.1			
	70	164	20	3272	0.8			
	373.3	35	7.5	1873	2.7	ALM063	90B5/B14	90S2
	280	45	10	2061	2.2			
	186.7	66	15	2359	1.6	ALM063	9QB5/B14	90S2
	140	86	20	2597	1.2			
	112	105	25	2797	0.9			
	93.3	120	30	2973	1.0			
	70	156	40	3272	0.7			
	120	103	7.5	3227	2.1	ALM075	100B5/B14	100L6
	90	134	10	3551	1.7			
	60	193	15	4065	1.2			
	45	255	20	4474	1.1			
	36	311	25	4820	0.8			
	30	354	30	5122	0.8			
	280	45	10	2433	3.2	ALM075	90B5/B14	90S2
	186.7	66	15	2785	2.3			
	140	86	20	3065	1.9			
	112	105	25	3302	1.4			
	93.3	121	30	3509	1.4			
	70	156	40	3862	1.1			
	56	187	50	4160	1.3			
	46.7	215	60	4421	1.1			
	186.7	68	7.5	2785	2.7	ALM075	90B5/B14	90L4
	140	89	10	3065	2.2			
	93.3	129	15	3509	1.6			
	70	166	20	3862	1.3			
	56	202	25	4160	1.0			
	46.7	233	30	4421	1.0			
	35	299	0.8	4865	0.8			
	90	137	10	3929	2.7	ALM090	100B5/B14	100L6
	60	198	15	4498	2.1			
	45	258	20	4951	1.5			
	36	310	25	5333	1.2			
	30	358	30	5667	1.3			
	22.5	459	40	6238	1.0			
	93.3	134	15	3882	3.0	ALM090	90B5/B14	90L4
	70	170	20	4273	2.1			
	56	207	25	4603	1.6			
	46.7	239	30	4891	1.7			
	35	303	40	5383	1.2			
	28	363	50	5799	0.9			
	23.3	417	60	6163	0.8			



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
1.5	140	90	20	3391	2.9	ALM090	90B5/B14	90S2
	112	110	25	3653	2.3			
	93.3	127	30	3882	2.4			
	70	164	40	4273	1.7			
	56	197	50	4603	1.3			
	46.7	227	60	4891	1.1			
	35	287	80	5383	0.8			
	45	264	20	6256	2.4	ALM105	100B5	100L6
	36	322	25	6739	2.0			
	30	363	30	7161	2.0			
	22.5	471	40	7882	1.5			
	18	565	50	8491	1.2			
	15	649	60	9023	1.0			
	56	218	25	5816	2.8	ALM105	90B5	90L4
	46.7	246	30	6181	2.7			
	35	315	40	6803	1.7			
	28	379	50	7328	1.5			
	23.3	442	60	7787	1.2			
	17.5	548	80	8571	0.9			
	14	655	100	9232	0.7			
	70	170	40	5399	2.8	ALM105	90B5	90S2
	56	205	50	5816	2.2			
	46.7	236	60	6181	1.6			
	35	299	80	6803	1.2			
	28	358	100	7328	1.0			
	45	264	20	6256	2.7	ALM110	100B5	100L6
	36	322	25	6739	2.4			
	30	363	30	7161	2.3			
	22.5	471	40	7882	1.7			
	18	565	50	8491	1.3			
	15	649	60	9023	1.1			
	56	218	25	5816	3.1	ALM110	90B5	90L4
	46.7	246	30	6181	3.0			
	35	315	40	6803	2.2			
	28	379	50	7328	1.7			
	23.3	442	60	7787	1.4			
	17.5	548	80	8571	0.9			
	14	655	100	9232	0.7	ALM110	90B5	90S2
	70	170	40	5399	3.1			
	56	205	50	5816	2.4			
	46.7	236	60	6181	2.0			
	35	299	80	6803	1.3			
	28	358	100	7328	1.0	ALM130	100B5	100L6
	36	330	25	8814	3.2			
	30	377	30	9366	3.1			
	22.5	471	40	10309	2.3			
	18	565	50	11105	1.9			
	15	659	60	11801	1.4			
	11.3	802	80	12989	1.1			
	9	955	100	13500	0.8			
	17.5	557	80	11210	1.5	ALM130	90B5	90L4
	14	655	100	12076	1.1	ALM150	100/112B5	100L6
	18	589	50	15182	2.7			
	15	678	60	16133	2.1			
	11.3	841	80	17757	1.5			
	9	971	100	18000	1.2			

7. PERFORMANCE PARAMETER

7.1 ALM..(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
2.2	373.3	51	7.5	1873	1.8	ALM063	90B5/B14 90L2
	280	66	10	2061	1.5		
	186.7	97	15	2359	1.1		
	140	128	20	2597	0.8		
	186.7	99	15	2785	1.9	ALM075	100B5/B14 100LA4
	140	131	10	3065	1.5		
	93.3	189	15	3509	1.1		
	70	249	20	3862	0.9		
	56	304	25	4160	0.7		
	46.7	347	30	4421	0.7		
	120	154	7.5	3227	1.4	ALM075	112B5/B14 112M6
	90	201	10	3551	1.1		
	60	291	15	4065	0.9		
	45	374	20	4474	0.7		
	373.3	50	7.5	2210	2.6	ALM075	90B5/B14 90L2
	280	66	10	2433	2.2		
	186.7	97	15	2785	1.5		
	140	126	20	3065	1.3		
	112	154	25	3302	1.0		
	93.3	178	30	3509	1.0		
	70	234	40	3862	0.8		
	186.7	100	7.5	3081	2.9	ALM090	100B5/B14 100LA4
	140	132	10	3391	2.3		
	93.3	191	15	3882	1.9		
	70	249	20	4273	1.4		
	56	304	25	4603	1.1		
	46.7	351	30	4891	1.2		
	30	456	40	5383	0.9		
	120	154	7.5	3570	2.2	ALM090	112B5/B14 112M6
	90	201	10	3929	1.8		
	60	291	15	4498	1.4		
	45	378	20	4951	1.0		
	36	467	25	5333	0.9		
	45	532	30	5667	0.9		
	280	68	10	2692	3.5	ALM090	90B5/B14 90L2
	186.7	100	15	3081	2.7		
	140	129	20	3391	2.0		
	112	159	25	3653	1.6		
	93.3	185	30	3882	1.7		
	70	237	40	4273	1.2		
	56	289	50	4603	0.9		
	93.3	196	15	49.5	3.0	ALM105	100B5 100LA4
	70	255	20	5399	2.0		
	56	311	5	5816	1.7		
	46.7	356	30	6181	1.6		
	35	462	40	6803	1.2		
	28	555	50	7328	1.1		
	23.3	648	60	7787	0.9		
	90	203	10	4965	3.1	ALM105	112B5 112M6
	60	294	15	5684	2.2		
	45	388	20	6256	1.6		
	36	473	25	6739	1.4		
	30	532	30	7161	1.4		
	22.5	701	40	7882	1.1		
	18	841	50	8491	0.9		
	15	967	60	9023	0.7		



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
2.2	112	161	25	4616	2.7	ALM105	90B5	90L2
	93.3	187	30	4905	2.6			
	70	243	40	5399	1.9			
	56	296	50	5816	1.5			
	46.7	347	60	6181	1.2			
	35	444	80	6803	0.9			
	28	525	100	7328	0.7	ALM110	100B5	100LA4
	93.3	196	15	49.5	3.3			
	70	255	20	5399	2.2			
	56	311	25	5816	2.2			
	46.7	356	30	6181	2.0			
	35	462	40	6803	1.5			
	28	555	50	7328	1.2			
	23.3	648	60	7787	1.0	ALM110	112B5	112M6
	90	203	10	4965	3.5			
	60	294	15	5684	2.6			
	45	388	20	6256	1.9			
	36	473	25	6739	1.6			
	30	532	30	7161	1.6			
	22.5	701	40	7882	1.1			
	18	841	50	8491	0.9	ALM110	90B5	90L2
	15	967	60	9023	0.7			
	112	161	25	4616	3.1			
	93.3	187	30	4905	3.0			
	70	243	40	5399	2.2			
	56	296	50	5816	1.7			
	46.7	347	60	6181	1.4			
	35	444	80	6803	0.9	ALM130	100B6	100LA4
	28	525	100	7328	0.7			
	56	319	25	7607	2.9			
	46.7	365	30	8084	2.9			
	35	468	40	8897	2.2			
	28	563	50	9584	1.7			
	23.3	657	60	10185	1.4	ALM130	112B5	112M6
	17.5	816	80	11210	1.0			
	14	976	100	12076	0.8			
	36	473	25	8814	2.2			
	30	539	30	9366	2.2			
	22.5	691	40	10309	1.8			
	18	829	50	11105	1.3	ALM130	90B5	90L2
	15	966	60	11801	1.0			
	11.3	1214	80	12989	0.7			
	35	444	80	8897	1.3			
	28	525	100	9584	1.0			
	28	578	50	13103	2.4	ALM150	100B5	100LA
	23.3	667	60	13924	1.9			
	17.5	829	80	15325	1.4			
	14	976	100	16508	1.0			
	18	864	50	15182	1.9			
	15	995	60	16133	1.4	ALM150	112B5	112M6
	11.3	1233	80	17757	1.1			
	9	1425	100	18000	0.8			
3.0	373.3	68	7.5	2210	1.9	ALM075	100B5/B14	100L2
	280	90	10	2433	1.6			
	186.7	135	15	2785	1.2			
	140	176	20	3065	1.0			
	112	215	25	3302	0.7			
	93.3	249	30	3509	0.7			

7. PERFORMANCE PARAMETER

7.1 ALM..(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
3.0	186.7	135	7.5	2785	1.4	ALM075	100B5/B14	100LB4
	140	178	10	3065	1.1			
	93.3	258	15	3509	0.8			
	373.3	70	7.5	2446	3.0	ALM090	100B5/B14	100L2
	280	92	10	2692	2.6			
	186.7	137	15	3081	2.0			
	140	180	20	3391	1.4			
	112	220	25	3653	1.1			
	93.3	255	30	3882	1.2			
	70	328	40	4273	0.8			
	186.7	137	7.5	3081	2.1	ALM090	1G0B5/B14	100LB4
	140	180	10	3391	1.7			
	93.3	261	15	3882	1.4			
	70	340	20	4273	1.0			
	56	414	25	4603	0.8			
	46.7	479	30	4891	0.9			
	140	182	20	4285	2.5	ALM105	100B5	100L2
	112	225	25	4616	2.0			
	93.3	258	30	4905	1.9			
	70	340	40	5399	1.5			
	56	409	50	5816	1.2			
	46.7	479	60	6181	1.0			
	140	182	10	4285	3.0	ALM105	100B5	100LB4
	93.3	264	15	4905	2.0			
	70	348	20	5399	1.5			
	56	425	25	5816	1.3			
	46.7	485	30	6181	1.2			
	35	630	40	6803	1.0			
	28	757	50	7328	0.8			
	120	210	7.5	4511	2.7	ALM105	132B5	132S6
	90	277	10	4965	2.2			
	60	401	15	5684	1.6			
	45	528	20	6256	1.2			
	36	653	25	6739	1.2			
	30	736	30	7161	1.1			
	22.5	955	40	7882	0.8			
	140	182	20	4285	2.7	ALM110	100B5	100L2
	112	225	25	4616	2.2			
	93.3	258	30	4905	2.1			
	70	340	40	5399	1.6			
	56	409	50	5816	1.2			
	46.7	479	60	6181	1.0			
	140	182	10	4285	3.3	ALM110	100B5	100LB4
	93.3	264	15	4905	2.5			
	70	348	20	5399	1.9			
	56	425	25	5816	1.6			
	46.7	485	30	6181	1.5			
	35	630	40	6803	1.1			
	28	757	50	7328	0.9			
	120	210	7.5	4511	3.1	ALM110	132B5	132S6
	90	277	10	4965	2.6			
	60	401	15	5684	1.9			
	45	528	20	6256	1.4			
	36	653	25	6739	1.2			
	30	736	30	7161	1.1			
	22.5	955	40	7882	0.8			



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
3.0	56	430	25	7607	2.2	ALM130	100B5	100LB4
	46.7	491	30	8084	2.1			
	35	638	40	8897	1.6			
	28	767	50	9584	1.3			
	23.3	896	60	10185	1.0			
	17.5	1113	80	11210	0.8			
	90	277	10	6494	3.5	ALM130	132B5	132S6
	60	406	15	7434	2.6			
	45	528	20	8182	2.0			
	36	645	25	8814	1.6			
	30	735	30	9366	1.6			
	22.5	942	40	10309	1.2			
	28	788	50	13103	1.8	ALM160	100B5	100LB4
	23.3	909	60	13924	1.4			
	17.5	1130	80	15325	1.0			
	14	1331	100	16508	0.8			
	45	541	20	11186	2.8	ALM150	132B5	132S6
	36	669	25	12050	2.1			
	30	783	30	12805	1.8			
	22.5	968	40	14094	1.9			
	18	1178	50	15182	1.4			
	15	1357	60	16133	1.1			
4.0	373.3	91	7.5	2210	1.4	ALM075	112B5/B14	112M2
	280	120	10	2433	1.2			
	186.7	180	15	2785	0.9			
	140	235	20	3065	0.7			
	186.7	180	7.5	2785	1.0	ALM075	112B5/B14	112M4
	140	237	10	3065	0.8			
	373.3	93	7.5	2446	2.3	ALM090	112B5/B14	112M2
	280	123	10	2692	1.9			
	186.7	182	15	3081	1.5			
	140	240	20	3391	1.1			
	112	293	25	3653	0.9			
	93.3	340	30	3882	0.9			
	186.7	182	7.5	3081	1.6	ALM090	112B5	112M4
	140	240	10	3391	1.3			
	93.3	348	15	3882	1.0			
	70	453	20	4273	0.8			
	186.7	184	7.5	3893	2.8	ALM105	112B5	112M4
	140	240	10	4285	2.0			
	93.3	352	15	4905	1.5			
	70	464	20	5399	1.1			
	56	566	25	5816	1.0			
	46.7	647	30	6181	1.0			
	35	863	40	6803	0.8			
	120	280	7.5	4511	2.0	ALM105	132B5	132MA6
	90	369	10	4965	1.7			
	60	535	15	5684	1.2			
	56	580	25	5816	1.2			
	46.7	655	30	6181	1.1			
	35	863	40	6803	0.8			
	186.7	184	7.5	3893	3.0	ALM110	112B5	112M4
	140	240	10	4285	2.5			
	93.3	352	15	4905	1.9			
	70	464	20	5399	1.4			
	56	566	25	5816	1.2			

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
4.0	46.7	647	30	6181	1.1	ALM110	112B5	112M4
	35	863	40	6803	0.8			
	120	280	7.5	4511	2.3	ALM110	132B5	132MA6
	90	369	10	4965	1.9			
	60	535	15	5684	1.4			
	56	580	25	5816	1.2			
	46.7	655	30	6181	1.1			
	35	863	40	6803	0.8			
	56	573	25	7607	1.6	ALM130	112B5	112M4
	46.7	655	30	8084	1.6			
	35	851	40	8897	1.2			
	28	1023	50	9584	1.0			
	23.3	1195	60	10185	0.8			
	120	283	7.5	5901	3.1	ALM130	132B5	132MA6
	90	369	10	6494	2.6			
	60	541	15	7434	2.0			
	45	705	20	8182	1.5			
	36	860	25	8814	1.2			
	30	1006	30	9366	1.2			
	22.5	1291	40	10309	0.9			
	28	1051	50	13103	1.3	ALM150	112B5	112M4
	23.3	1212	60	13924	1.0			
	17.5	1507	80	15325	0.8			
	45	722	20	11186	2.1	ALM150	132B5	132MA6
	36	892	25	12050	1.5			
	30	1045	30	12805	1.3			
	22.5	1291	40	14094	1.4			
	18	1571	50	15182	1.0			
	15	1809	60	16133	0.8			
5.5	186.7	250	7.5	3893	1.9	ALM105	132B5	132S4
	140	330	10	4285	1.6			
	93.3	484	15	4905	1.2			
	70	638	20	5399	0.9			
	56	798	25	5816	0.9			
	46.7	901	30	6181	0.8			
	186.7	250	7.5	3893	2.2	ALM110	132B5	132S4
	140	330	10	4285	1.8			
	93.3	484	15	4905	1.4			
	70	638	20	5399	1.0			
	56	798	25	5816	0.9			
	46.7	901	30	6181	0.8			
	140	334	10	5605	2.5	ALM130	132B5	132S4
	93.3	490	15	6416	1.9			
	70	638	20	7062	1.4			
	56	788	25	7607	1.2			
	46.7	900	30	8084	1.2			
	35	1171	40	8897	0.9			
	70	653	20	9654	2.0	ALM150	132B5	132S4
	56	798	25	10400	1.5			
	46.7	946	30	11051	1.3			
	35	1186	40	12163	1.3			
	28	1445	50	13103	1.0			
	23.3	1667	60	13924	0.8			
	186.7	341	7.5	3893	1.4	ALM105	132B5	132M4
	140	450	10	4285	1.2			
	93.3	660	15	4905	0.9			
	70	880	20	5399	0.7			



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.1 ALM...(IEC)... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s			
7.5	186.7	341	7.5	3893	1.6	ALM11G	132B5	132M4
	140	450	10	4285	1.3			
	93.3	660	15	4905	1.0			
	70	880	20	5399	0.7			
	186.7	345	7.5	5092	2.2	ALM130	132B5	132M4
	140	455	10	5605	1.8			
	93.3	668	15	6416	1.4			
	70	870	20	7062	1.0			
	56	1074	25	7607	0.9			
	46.7	1228	30	8084	0.8			
	35	1596	40	8897	0.7			
	70	891	20	9654	1.5	ALM150	132B5	132M4
	56	1088	25	10400	1.1			
	46.7	1290	30	11051	0.9			
	35	1617	40	12163	1.0			
	28	1971	50	13103	0.7			
11	186.7	512	7.5	6962	2.3	ALM150	160B5	160M4
	140	676	10	7663	1.8			
	93.3	991	15	8771	1.3			
	70	1306	20	9654	1.0			
	56	1595	25	10400	0.8			
15	186.7	699	7.5	6962	1.7	ALM150	160B5	160L4
	140	921	10	7663	1.3			
	93.3	1351	15	8771	0.9			
	70	1781	20	9654	0.7			

7. PERFORMANCE PARAMETER

7.2 PU - ALM... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s		
0.09	12.0	48	75	3283	1.3	PU063 - ALM040	6316
	10.0	52	90	3488	1.4		
	7.5	63	120	3490	1.1		
	6.0	73	150	3490	0.9		
	5.0	80	180	3490	0.7		
	12.0	48	75	4506	2.4	PU063 - ALM050	6316
	10.0	53	90	4788	2.8		
	7.5	64	120	4840	2.0		
	6.0	74	150	4840	1.7		
	5.0	82	180	4840	1.3		
	3.8	95	240	4840	0.9		
	3.0	107	300	4840	0.8		
	18.7	42	75	2833	1.2	PU063 - ALM040	6314
	15.6	46	90	3011	1.2		
	11.7	57	120	3314	0.9		
	9.3	66	150	3490	0.7		
	7.8	74	180	3490	0.6		
0.12	18.7	42	75	3889	2.2	PU063 - ALMQ50	6314
	15.6	47	90	4132	2.4		
	11.7	58	120	4548	1.8		
	9.3	68	150	4840	1.3		
	7.8	75	180	4840	1.1		
	5.8	88	240	4840	0.8		
	5.8	92	240	6270	1.5	PU063 - ALM063	6314
	4.7	103	300	6270	1.2		
	18.7	64	75	2833	0.8	PU063 - ALM040	6324
	15.6	70	90	3011	0.8		
	11.7	85	120	3314	0.6		
	18.7	64	75	3889	1.4	PU063 - ALM050	6324
	15.6	71	90	4132	1.5		
	11.7	87	120	4548	1.1		
	9.3	101	150	4840	0.9		
	7.8	113	180	4840	0.7		
	5.8	133	240	4840	0.6		
	9.3	103	150	6270	1.7	PU063 - ALM063	6324
	7.8	117	180	6270	1.4		
	5.8	139	240	6270	1.0		
	4.7	155	300	6270	0.8		
	12.0	95	75	4506	1.2	PU071 - ALM050	7116
	10.0	105	90	4788	1.4		
	7.5	126	120	4840	1.0		
	6.0	148	150	4840	0.8		
	12.0	97	75	5889	2.2	PU071 - ALM063	7116
	10.0	107	90	6259	2.4		
	7.5	131	120	6270	1.8		
	6.0	152	150	6270	1.4		
	5.0	168	180	6270	1.2		
	3.8	197	240	6270	0.9		
	3.0	218	300	6270	0.7		
	5.0	179	180	7380	1.7	PU071 - ALM075	7116
	3.8	211	240	7380	1.2		
	3.0	235	300	7380	1.0		
0.25	18.7	88	75	3889	1.0	PU071 - ALM050	7114
	15.6	98	90	4132	1.1		
	11.7	121	120	4548	0.8		



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.2 PU - ALM... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
0.25	18.7	91	75	5083	1.8	PU071 - ALM063	7114
	15.6	100	90	5401	2.0		
	11.7	125	120	5945	1.5		
	9.3	143	150	6270	1.2		
	7.8	163	180	6270	1.0	PU071 - ALM063	7114
	5.8	192	240	6270	0.7		
	4.7	215	300	6270	0.6		
	12.0	135	75	5889	1.6	PU071 - ALM063	7126
	10.0	148	90	6259	1.8		
	7.5	181	120	6270	1.3		
	6.0	211	150	6270	1.0		
	9.3	151	150	7380	1.7	PU071 - ALM075	7114
	7.8	172	180	7380	1.4		
	5.8	201	240	7380	1.1		
	4.7	230	300	7380	0.9		
	12.0	139	75	6952	2.4	PU071 - ALM075	7126
	10.0	155	90	7380	2.5		
	7.5	191	120	7380	1.9		
	6.0	219	150	7380	1.5		
	5.0	248	180	7380	1.2	PU071 - ALM090	7126
	5.0	263	180	8180	1.9		
	3.8	318	240	8180	1.4		
	3.0	358	300	8180	1.1		
	18.7	134	75	5083	1.2	PU071 - ALM063	7124
	15.6	148	90	5401	1.4		
	11.7	185	120	5945	1.0		
	9.3	212	150	6270	0.8		
0.37	18.7	138	75	6000	1.8	PUQ71 - ALM075	7124
	15.6	154	90	6375	1.9		
	11.7	191	120	7017	1.5		
	9.3	223	150	7380	1.1		
	7.8	254	180	7380	0.9		
	12.0	206	75	6952	1.6	PU080 - ALM075	8016
	10.0	230	90	7380	1.7		
	7.5	283	120	7380	1.3		
	6.0	324	150	7380	1.0		
	7.8	268	180	8180	1.5	PU 071 - ALM090	7124
	5.8	321	240	8180	1.1		
	4.7	371	300	8180	0.9		
	6.0	347	150	8180	1.6	PU080 - ALM090	8016
	5.0	389	180	8180	1.3		
	3.8	471	240	8180	1.0		
	3.8	509	240	10320	1.5	PU080 - ALM105	8016
	3.0	577	300	10320	1.2		
	3.8	509	240	10320	1.6	PU080 - ALM110	8016
	3.0	577	300	10320	1.3		
0.55	18.7	205	75	6000	1.2	PU080 - ALM075	8014
	15.6	230	90	6375	1.3		
	11.7	284	120	7017	1.0		
	9.3	332	150	7380	0.8		
	12.0	306	75	6952	1.1	PU080 - ALM075	8026
	10.0	341	90	7380	1.1		
	15.6	240	90	7054	2.3	PU080 - ALM090	8014
	11.7	297	120	7764	1.6		
	9.3	355	150	8180	1.3		
	7.8	398	180	8180	1.0		

7. PERFORMANCE PARAMETER

7.2 PU - ALM... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
	10.0	357	90	8174	2.0	PU080 - ALM090	8026
	7.5	441	120	8180	1.4		
	6.0	516	150	8180	1.1		
	5.0	578	180	8180	0.9		
	7.8	425	180	10320	1.7	PU080 - ALM105	8014
	5.8	513	240	10320	1.2		
	4.7	597	300	10320	1.0		
	7.5	462	120	10320	2.2	PU080 - ALM105	8026
	6.0	552	150	10320	1.8		
	5.0	620	180	10320	1.5		
	3.8	756	240	10320	1.0		
	7.8	425	180	10320	1.8	PU080 - ALM110	8014
	5.8	513	240	10320	1.3		
	4.7	597	300	10320	1.0		
	7.5	462	120	10320	2.6	PU080 - ALM110	8026
	6.0	552	150	10320	2.0		
	5.0	620	180	10320	1.6		
	3.8	756	240	10320	1.1		
	3.8	756	240	13500	1.6	PU080 - ALM130	8026
	3.0	858	300	13500	1.3		
0.75	18.7	280	75	6000	0.9	PU080 - ALM075	8024
	15.6	313	90	6375	1.0		
	15.6	327	90	7054	1.7	PU080 - ALM090	8024
	11.7	405	120	7764	1.2		
	9.3	483	150	8180	0.9		
	7.8	543	180	8180	0.7		
	11.7	430	120	9811	1.9	PU080 - ALM105	8024
	9.3	506	150	10320	1.6		
	7.8	580	180	10320	1.2		
	5.8	700	240	10320	0.9		
	12.4	393	73	9614	2.8	PU090 - ALM105	90S6
	9.3	508	96.8	10320	2.0		
	7.4	607	121	10320	1.6		
	6.2	682	145.2	10320	1.3		
	4.6	832	193.6	10320	0.9		
	11.7	430	120	9811	2.2	PU080 - ALM110	8024
	9.3	506	150	10320	1.7		
	7.8	580	180	10320	1.3		
	5.8	700	240	10320	0.9		
	12.4	393	73	9614	3.2	PU090 - ALM110	90S6
	9.3	508	96.8	10320	2.3		
	7.4	607	121	10320	1.8		
	6.2	682	145.2	10320	1.5		
	4.6	832	193.6	10320	1.0		
	5.8	712	240	13500	1.4	PU080 - ALM130	8024
	4.7	813	300	13500	1.1		
	12.4	399	73	12575	4.4	PU090 - ALM130	90S6
	9.3	508	96.8	13500	3.2		
	7.4	607	121	13500	2.6		
	6.2	682	145.2	13500	2.1		
	4.6	832	193.6	13500	1.5		
	3.7	944	242	13500	1.2		
1.1	12.4	576	73	9614	1.9	PU090 - ALM105	90L6
	9.3	746	96.8	10320	1.4		
	7.4	890	121	10320	1.1		
	6.2	1000	145.2	10320	0.9		



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.2 PU - ALM... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
1.5	19.3	392	73	8298	2.2	PU090 - ALM105	90S4
	14.5	508	96.8	9133	1.6		
	11.6	599	121	9838	1.3		
	9.6	686	145.2	10320	1.0		
	7.2	828	193.6	10320	0.8		
	12.4	576	73	9614	2.2	PU090 - ALM110	90L6
	9.3	746	96.8	10320	1.6		
	7.4	890	121	10320	1.2		
	6.2	1000	145.2	10320	1.0		
	19.3	392	73	8298	2.5	PU090 - ALM110	90S4
	14.5	508	96.8	9133	1.8		
	11.6	599	121	9838	1.5	PU090 - ALM110	90S4
	9.6	686	145.2	10320	1.1		
	7.2	828	193.6	10320	0.8		
	12.4	585	73	12575	3.0	PU090-ALM130	90L6
	9.3	746	96.8	13500	2.2		
	7.4	890	121	13500	1.7		
	6.2	1000	145.2	13500	1.4		
	4.6	1220	193.6	13500	1.0		
	19.3	398	73	10853	3.5	PU090 - ALM130	90S4
	14.5	508	96.8	11945	2.6		
	11.6	608	121	12868	2.0		
	9.6	686	145.2	13500	1.6		
	7.2	843	193.6	13500	1.2		
	5.8	962	242	13500	0.9		
	19.3	535	73	8298	1.6	PU090 - ALM105	90L4
	14.5	693	96.8	9133	1.2		
	11.6	817	121	9838	1.0		
	9.6	936	145.2	10320	0.8		
	19.3	535	73	8298	1.9	PU090 - ALM110	90L4
	14.5	693	96.8	9133	1.3		
	11.6	817	121	9838	1.1		
	9.6	936	145.2	10320	0.8		
	19.3	542	73	10853	2.6	PU090 - ALM130	90L4
	14.5	693	96.8	11945	1.9		
	11.6	830	121	12868	1.5		
	9.6	936	145.2	13500	1.1		
	7.2	1149	194	13500	0.8		
2.2	38.6	398	73	6586	1.8	PU090 - ALM106	90L2
	28.9	516	96.8	7249	1.3		
	23.1	617	121	7809	1.1		
	38.6	398	73	6586	2.1	PU090 - ALM110	90L2
	28.9	516	96.8	7249	1.5		
	23.1	617	121	7809	1.2		
	38.6	409	73	8614	2.9	PU090 - ALM130	90L2
	28.9	545	96.8	9481	2.0		
	23.1	654	121	10213	1.6		
	19.3	752	145.2	10853	1.3		

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
0.06	14.0	25	100	1620	1.3	ALM025/030	5614
	9.3	33	150	1830	0.9		
	7.0	41	200	1830	0.7		
	5.6	45	250	1830	0.8		
	4.7	56	300	3490	1.2	ALM025/040	5614
	3.5	69	400	3490	0.9		
	2.8	94	500	3490	0.7		
	2.3	100	600	3490	0.6		
	1.9	115	750	3490	0.5		
	1.6	125	900	3490	0.5		
	1.2	153	1200	3490	0.4		
	0.9	185	1500	3490	0.3		
	0.8	198	1800	3490	0.3		
	0.6	247	2400	3490	0.2		
	0.5	280	3000	3490	0.2		
	0.4	295	4000	3490	0.1		
	0.3	348	5000	3490	0.1		
	14.0	26	100	2769	2.7	ALM030/040	5614
	9.3	37	150	3169	1.9		
	7.0	47	200	3488	1.4		
	5.6	55	250	3490	1.1		
	4.7	60	300	3490	1.2		
	3.5	72	400	3490	0.9	ALM030/050	5614
	7.0	47	200	4788	2.6		
	5.6	55	250	4840	2.0		
	4.7	61	300	4840	2.4		
	3.5	73	400	4840	1.7		
	2.8	85	500	4840	1.4		
	2.3	109	600	4840	1.3		
	1.9	127	750	4840	1.1		
	1.6	146	900	4840	1.0		
	1.2	177	1200	4840	0.8		
	0.9	206	1500	4840	0.7	ALM030/063	5614
	3.5	76	400	6270	3.4		
	2.8	88	500	6270	2.7		
	2.3	111	600	6270	2.4		
	1.9	129	750	6270	2.1		
	1.6	148	900	6270	1.8		
	1.2	180	1200	6270	1.5		
	0.9	210	1500	6270	1.3		
	0.8	234	1800	6270	1.2		
	0.6	286	2400	6270	0.9		
	0.5	332	3000	6270	0.7	ALM040/050	5614
	2.8	102	500	3800	1.3		
	1.6	159	900	4350	0.9	ALM040/063	5614
	0.9	236	1500	6270	1.1		
	0.8	265	1800	6270	1.0		
	0.6	325	2400	6270	0.8	ALM040/075	5614
	0.9	248	1500	7380	1.8		
	0.8	278	1800	7380	1.6		
	0.6	267	2400	7380	1.1		
	0.5	305	3000	7380	0.8		
	0.4	360	4000	7380	0.7		
	0.3	409	5000	7380	0.5		

PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s		
0.06	0.9	259	1500	8180	2.7	ALM040/090	5614
	0.8	291	1800	8180	2.4		
	0.6	359	2400	8180	1.7		
	0.5	329	3000	8180	1.4		
	0.4	393	4000	8180	1.3		
	0.3	430	5000	8180	1.0		
0.09	28.0	18	100	1286	1.6	ALM025/030	5612
	18.7	25	150	1472	1.1		
	14.0	31	200	1620	0.9		
	14.0	37	100	1620	0.8	ALM025/030	5624
	9.3	50	150	1830	0.6		
	7.0	61	200	1830	0.5		
	5.6	68	250	1830	0.5		
	4.7	77	300	1830	0.4		
	3.5	106	400	1830	0.3		
	2.8	117	500	1830	0.3		
	2.3	135	600	1830	0.2		
	1.9	149	750	1830	0.2		
	1.6	167	900	1830	0.2		
	1.2	201	1200	1830	0.1		
	0.9	231	1500	1830	0.1		
	0.8	264	1800	1830	0.1		
	0.6	311	2400	1830	0.1		
	0.5	347	3000	1830	0.1		
	14.0	39	100	2769	1.8	ALM025/040	5612
	9.3	54	150	3488	1.2		
	7.0	70	200	3488	0.9		
	5.6	83	250	3490	0.7		
	9.3	43	300	3490	1.6		
	7.0	52	400	3490	1.2		
	5.6	71	500	3490	0.8		
	14.0	39	100	2769	1.8	ALM030/040	5624
	9.3	56	150	3169	1.3		
	7.0	70	200	3488	0.9		
	5.6	83	250	3490	0.7		
	4.7	82	300	3490	0.8		
	14.0	40	100	3800	3.4	ALM030/050	5624
	9.3	56	150	4350	2.4		
	7.0	70	200	4788	1.7		
	5.6	83	250	4840	1.3		
	4.7	92	300	4840	1.6		
	3.5	103	400	4840	1.2		
	2.8	120	500	4840	1.0		
	2.3	146	600	4840	0.9		
	1.9	158	750	4840	0.8		
	1.6	177	900	4840	0.7		
	5.6	85	250	6270	2.7	ALM030/063	5624
	4.7	88	300	6270	2.9		
	3.5	114	400	6270	2.2		
	2.8	132	500	6270	1.8		
	2.3	166	600	6270	1.6		
	1.9	194	750	6270	1.4		
	1.6	188	900	6270	1.0		
	1.2	222	1200	6270	0.9		
	0.9	259	1500	6270	0.7		
	0.8	351	1800	6270	0.8		

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s		
0.9	2.8	153	500	3800	0.9	ALM040/050	6624
	0.9	354	1500	6270	0.8	ALM040/063	5624
	0.9	305	1500	7380	1.1	ALM040/075	5624
	0.8	331	1800	7380	1.0		
	0.6	400	2400	7380	0.7		
	0.5	494	3000	8180	0.9	ALM040/090	5624
0.12	0.4	589	4000	8180	0.8		
	14.0	52	100	2769	1.4	ALM030/040	6314
	9.3	74	150	3169	1.0		
	14.0	54	100	3800	2.6	ALM030/050	6314
	9.3	74	150	4350	1.8		
	7.0	94	200	4788	1.3		
	5.6	110	250	4840	1.0		
	4.7	112	300	4840	1.2		
	3.5	138	400	4840	0.9		
	2.8	160	500	4840	0.7		
	14.0	54	100	4967	2.8	ALM030/063	6314
	9.3	75	150	5686	2.8		
	7.0	95	200	6259	2.7		
	5.6	114	250	6270	2.0		
	4.7	117	300	6270	2.2		
	3.5	152	400	6270	1.7		
	2.8	168	500	6270	1.3		
	2.3	199	600	6270	1.1		
	1.9	217	750	6270	0.9		
	1.6	297	900	6270	0.9		
	1.2	360	1200	6270	0.8		
	14.0	55	100	3800	2.5	ALM040/050	6314
	9.3	76	150	4350	1.8		
	7.0	96	200	4788	1.2		
	5.6	113	250	4840	1.0		
	4.7	125	300	4840	1.2		
	3.5	150	400	4840	0.8		
	9.3	77	150	5686	3.4	ALM040/063	6314
	7.0	97	200	6259	2.6		
	5.6	117	250	6270	2.0		
	4.7	127	300	6270	2.1		
	3.5	156	400	6270	1.6		
	2.8	217	500	6270	1.1		
	2.3	237	600	6270	1.1		
	1.9	285	750	6270	1.0		
	1.6	319	900	6270	0.8		
	5.6	120	250	7380	3.2	ALM040/075	6314
	4.7	134	300	7380	3.3		
	3.5	164	400	7380	2.5		
	2.8	188	500	7380	2.0		
	2.3	248	600	7380	1.8		
	1.9	299	750	7380	1.5		
	1.6	335	900	7380	1.3		
	1.2	415	1200	7380	1.1		
	0.9	495	1500	7380	0.9		
	0.8	556	1800	7380	0.8		
	2.8	202	500	8180	2.8	ALM040/090	6314
	2.3	260	600	8180	2.7		
	1.9	313	750	8180	2.2		
	1.6	350	900	8180	2.0		

PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s		
0.12	1.2	434	1200	8180	1.6	ALM040/090	6314
	0.9	518	1500	8180	1.4		
	0.8	470	1800	8180	0.9		
	0.6	593	2400	8180	0.9		
	1.2	448	1200	8180	1.6	ALM050/090	6314
	0.9	527	1500	8180	1.3		
	0.8	592	1800	8180	1.2		
	0.6	731	2400	8180	0.8		
	1.2	448	1200	10320	2.8	ALM050/105	6314
	0.9	527	1500	10320	2.4		
	0.8	592	1800	10320	2.1		
	0.6	766	2400	10320	1.5		
	0.5	731	3000	10320	1.1		
	0.4	884	4000	10320	1.0		
	0.3	1023	5000	10320	0.8		
	1.2	448	1200	10320	2.8	ALM050/110	6314
	0.9	527	1500	10320	2.4		
	0.8	592	1800	10320	2.1		
	0.6	766	2400	10320	1.5		
	0.5	731	3000	10320	1.2		
	0.4	884	4000	10320	1.0		
	0.3	1023	5000	10320	0.8		
0.18	14.0	78	100	2769	0.9	ALM030/040	6324
	14.0	81	100	3800	1.7	ALM030/050	6324
	9.3	112	150	4350	1.2		
	7.0	141	200	4788	0.9		
	4.7	183	300	4840	0.8		
	14.0	81	100	4967	1.9	ALM030/063	6324
	9.3	113	150	5686	1.9		
	7.0	143	200	6259	1.8		
	5.6	171	250	6270	1.4		
	4.7	175	300	6270	1.5		
	3.5	216	400	6270	1.0		
	2.8	252	500	6270	0.8		
	2.3	333	600	6270	0.8		
	14.0	82	100	3800	1.7	ALM04 0/050	6324
	9.3	114	150	4350	1.2		
	7.0	144	200	4788	0.8		
	4.7	188	300	4840	0.8		
	14.0	82	100	4967	3.1	ALM040/063	6324
	9.3	116	150	5686	2.2		
	7.0	146	200	6259	1.7		
	5.6	175	250	6270	1.3		
	4.7	191	300	6270	1.4		
	3.5	234	400	6270	1.1		
	2.8	325	500	6270	0.7		
	2.3	355	600	6270	0.8		
	7.0	150	200	7380	2.8	ALM040/075	6324
	5.6	180	250	7380	2.1		
	4.7	200	300	7380	2.2		
	3.5	246	400	7380	1.7		
	2.8	282	500	7380	1.3		
	2.3	336	600	7380	1.1		
	1.9	371	750	7380	0.9		
	1.6	419	900	7380	0.8		
	1.2	622	1200	7380	0.7		

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
0.18	5.6	188	250	8180	3.0	ALM040/090	6324
	4.7	210	300	8180	3.3		
	3.5	259	400	8180	2.4		
	2.8	303	500	8180	1.9		
	2.3	390	600	8180	1.8		
	1.9	469	750	8180	1.5		
	1.6	526	900	8180	1.3		
	1.2	544	1200	8180	1.0		
	0.9	647	1500	8180	0.8		
	0.8	874	1800	8180	0.8		
	1.2	671	1200	8180	1.0	ALM050/090	6324
	0.9	790	1500	8180	0.9		
	0.8	888	1800	8180	0.8		
	1.2	671	1200	10320	1.9	ALM050/105	6324
	0.9	790	1500	10320	1.6		
	0.8	727	1800	10320	1.3		
	0.6	948	2400	10320	0.9		
	0.5	1370	3000	10320	0.8		
	1.2	671	1200	10320	1.9	ALM050/110	6324
	0.9	790	1500	10320	1.6		
	0.8	727	1800	10320	1.5		
	0.6	948	2400	10320	1.1		
	0.5	1370	3000	10320	0.8		
	7.0	150	400	6270	1.4	ALM030/063	6322
	5.6	175	500	6270	1.2		
0.25	14.0	115	100	3800	1.2	ALM040/050	7114
	9.3	159	150	4350	0.9		
	14.0	115	100	4967	2.2	ALM040/063	7114
	9.3	161	150	5686	1.6		
	7.0	203	200	6259	1.2		
	5.6	243	250	6270	1.0		
	4.7	265	300	6270	1.0		
	3.5	325	400	6270	0.8		
	14.0	116	100	5863	3.0	ALM040/075	7114
	9.3	165	150	6712	2.6		
	7.0	209	200	7380	2.0		
	5.6	250	250	7380	1.5		
	4.7	278	300	7380	1.6		
	3.5	321	400	7380	1.1		
	2.8	375	500	7380	0.8		
	2.3	517	600	7380	0.9		
	1.9	622	750	7380	0.7		
	14.0	119	100	6487	3.0	ALM040/090	7114
	9.3	170	150	7426	3.0		
	7.0	217	200	8174	2.8		
	5.6	261	250	8180	2.2		
	4.7	291	300	8180	2.4		
	3.5	359	400	8180	1.7		
	2.8	420	500	8180	1.3		
	2.3	488	600	8180	1.2		
	1.9	553	750	8180	0.9		
	1.6	612	900	8180	0.8		
	1.2	905	1200	8180	0.8		
	7.0	223	200	8174	2.7	ALM050/090	7114
	5.6	267	250	8180	2.1		
	4.7	298	300	8180	2.3		

PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s		
0.25	3.5	368	400	8180	1.7	ALM050/090	7114
	2.8	491	500	8180	1.2		
	2.3	548	600	8180	1.3		
	1.9	660	750	8180	1.1		
	1.6	751	900	8180	0.9		
	1.2	932	1200	8180	0.8		
	3.5	386	400	10320	3.1	ALM050/105	7114
	2.8	512	500	10320	2.3		
	2.3	548	600	10320	2.3		
	1.9	660	750	10320	1.9		
	1.6	751	900	10320	1.7		
	1.2	776	1200	10320	1.1		
	0.9	924	1500	10320	1.0		
	0.8	1010	1800	10320	0.9		
	0.6	1596	2400	10320	0.7		
	3.5	386	400	10320	3.1	ALM050/110	7114
	2.8	512	500	10320	2.3		
	2.3	548	600	10320	2.3		
	1.9	660	750	10320	1.9		
	1.6	751	900	10320	1.7		
	1.2	776	1200	10320	1.3		
	0.9	924	1500	10320	1.2		
	0.8	1010	1800	10320	1.1		
	0.6	1596	2400	10320	0.7		
	3.5	386	400	10320	2.7	ALM063/105	7114
	2.8	524	500	10320	1.9		
	2.3	562	600	10320	2.0		
	1.9	677	750	10320	1.7		
	1.6	771	900	10320	1.4		
	1.2	973	1200	10320	1.1		
	0.9	1148	1500	10320	1.0		
	0.8	1296	1800	10320	0.9		
	0.6	1676	2400	10320	0.6		
	3.5	386	400	10320	3.1	ALM063/110	7114
	2.8	524	500	10320	2.2		
	2.3	562	600	10320	2.3		
	1.9	677	750	10320	1.9		
	1.6	771	900	10320	1.6		
	1.2	973	1200	10320	1.3		
	0.9	1148	1500	10320	1.1		
	0.8	1296	1800	10320	1.0		
	0.6	1676	2400	10320	0.7		
	2.8	460	500	13500	3.4	ALM063/130	7114
	2.3	571	600	13500	3.1		
	1.9	687	750	13500	2.6		
	1.6	783	900	13500	2.2		
	1.2	988	1200	13500	1.8		
	0.9	1165	1500	13500	1.5		
	0.8	1315	1800	13500	1.3		
	0.6	1358	2400	13500	1.0		
	0.5	1626	3000	13500	0.8		
	0.4	1910	4000	13500	0.6		
	0.3	2132	5000	13500	0.5		
	1.9	666	750	18000	3.5	ALM063/150	7114
	1.6	840	900	18000	2.5		
	1.2	1013	1200	18000	2.6		
	0.8	1412	1800	18000	1.5		

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
0.25	0.6	1702	2400	18000	1.6	ALM063/150	7114
	0.5	1998	3000	18000	1.2		
	0.4	2453	4000	18000	0.9		
	0.3	2749	5000	18000	0.8		
0.37	9.3	182	300	6270	1.3	ALM030/063	7112
	7.0	222	400	6270	1.0		
	14.0	169	100	3800	0.8	ALM040/050	7124
	14.0	169	100	4967	1.5		
	9.3	238	150	5686	1.1	ALM040/063	7124
	7.0	300	200	6259	0.8		
	14.0	172	100	5863	2.1	ALM040/075	7124
	9.3	245	150	6712	1.7		
	7.0	309	200	7380	1.4		
	5.6	370	250	7380	1.0		
	4.7	383	300	7380	1.0		
	3.5	474	400	7380	0.7		
	14.0	176	100	6487	2.1	ALM040/090	7124
	9.3	251	150	7426	2.1		
	7.0	322	200	8174	1.9		
	5.6	386	250	8180	1.5		
	4.7	406	300	8180	1.5		
	3.5	505	400	8180	1.2		
	2.8	593	500	8180	0.9		
	2.3	722	600	8180	0.8		
	2.3	722	600	8180	0.8		
	14.0	180	100	6487	3.3	ALM050/090	7124
	9.3	257	150	7426	2.6		
	7.0	329	200	8174	1.9		
	5.6	395	250	8180	1.4		
	4.7	441	300	8180	1.6		
	3.5	545	400	8180	1.1		
	2.8	727	500	8180	0.8		
	2.3	812	600	8180	0.9		
	1.9	977	750	8180	0.7		
	7.0	338	200	10320	3.4	ALM050/105	7124
	5.6	412	250	10320	2.8		
	4.7	441	300	10320	2.9		
	3.5	571	400	10320	2.1		
	2.8	757	500	10320	1.5		
	2.3	812	600	10320	1.6		
	1.9	837	750	10320	1.2		
	1.6	928	900	10320	1.0		
	1.2	1148	1200	10320	0.7		
	0.9	1623	1500	10320	0.8		
	7.0	338	200	10320	3.4	ALM050/110	7124
	5.6	412	250	10320	2.8		
	4.7	441	300	10320	2.9		
	3.5	571	400	10320	2.1		
	2.8	757	500	10320	1.5		
	2.3	812	600	10320	1.6		
	1.9	837	750	10320	1.2		
	1.6	928	900	10320	1.0		
	1.2	1148	1200	10320	0.7		
	0.9	1623	1500	10320	0.8		
	7.0	338	200	10320	3.0	ALM063/105	7124
	5.6	412	250	10320	2.5		

PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s		
0.37	4.7	441	300	10320	2.6	ALM063/105	7124
	3.5	571	400	10320	1.8		
	2.8	776	500	10320	1.3		
	2.3	832	600	10320	1.3		
	1.9	1002	750	10320	1.1		
	1.6	1141	900	10320	1.0		
	1.2	1441	1200	10320	0.8		
	0.9	1699	1500	10320	0.6		
	7.0	338	200	10320	3.4	ALM063/110	7124
	5.6	412	250	10320	2.8		
	4.7	441	300	10320	2.9		
	3.5	571	400	10320	2.1		
	2.8	776	500	10320	1.5		
	2.3	832	600	10320	1.5		
	1.9	1002	750	10320	1.3		
	1.6	1141	900	10320	1.1		
	1.2	1441	1200	10320	0.9		
	0.9	1699	1500	10320	0.7		
	3.5	571	400	13500	2.9	ALM063/130	7124
	2.8	681	500	13500	2.3		
	2.3	844	600	13500	2.1		
	1.9	1017	750	13500	1.7		
	1.6	1158	900	13500	1.5		
	1.2	1462	1200	13500	1.2		
	0.9	1725	1500	13500	1.0		
	0.8	1946	1800	13500	0.9		
	2.8	681	500	18000	3.4	ALM063/150	7124
	2.3	840	600	18000	3.2		
	1.9	986	750	18000	2.4		
	1.6	1244	900	18000	1.7		
	1.2	1499	1200	18000	1.8		
	0.8	2089	1800	18000	1.0		
	0.6	2519	2400	18000	1.1		
	0.5	2958	3000	18000	0.8		
0.55	9.3	305	300	8180	2.0	ALM040/090	7122
	7.0	375	400	8180	1.5		
	5.6	441	500	8180	1.2		
	14.0	268	100	6487	2.2	ALM050/090	8014
	9.3	382	150	7426	1.7		
	7.0	490	200	8174	1.2		
	5.6	588	250	8180	1.0		
	4.7	656	300	8180	1.1		
	3.5	809	400	8180	0.8		
	14.0	268	100	8198	2.4	ALM050/105	8014
	9.3	387	150	9384	2.4		
	7.0	503	200	10320	2.3		
	5.6	612	250	10320	1.9		
	4.7	615	300	10320	1.7		
	3.5	810	400	10320	1.2		
	2.8	938	500	10320	1.0		
	2.3	1096	600	10320	0.9		
	1.9	1244	750	10320	0.8		
	1.6	1651	900	10320	0.8		
	14.0	268	100	8198	2.4	ALM050/110	8014
	9.3	387	150	9384	2.4		
	7.0	503	200	10320	2.3		
	5.6	612	250	10320	1.9		

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
0.55	4.7	615	300	10320	1.7	ALM050/110	8014
	3.5	810	400	10320	1.2		
	2.8	938	500	10320	1.0		
	2.3	1096	600	10320	0.9		
	1.9	1244	750	10320	0.8		
	1.6	1651	900	10320	0.8		
	9.3	387	150	9384	2.7	ALM063/105	8014
	7.0	503	200	10320	2.0		
	5.6	612	250	10320	1.7		
	4.7	656	300	10320	1.7		
	3.5	849	400	10320	1.2		
	2.8	1154	500	10320	0.9		
	2.3	1237	600	10320	0.9		
	1.9	1489	750	10320	0.7		
	1.6	1697	900	10320	0.6		
	9.3	387	150	9384	3.1	ALM063/110	8014
	7.0	503	200	10320	2.3		
	5.6	612	250	10320	1.9		
	4.7	656	300	10320	1.9		
	3.5	849	400	10320	1.4		
	2.8	1154	500	10320	1.0		
	2.3	1237	600	10320	1.0		
	1.9	1489	750	10320	0.8		
	1.6	1697	900	10320	0.7		
	7.0	503	200	13500	3.2	ALM063/130	8014
	5.6	612	250	13500	2.5		
	4.7	666	300	13500	2.6	ALM063/130	8014
	3.5	849	400	13500	1.9		
	2.8	957	500	13500	1.6		
	1.9	1382	750	13500	1.2		
	1.2	2057	1200	13500	0.8		
	5.6	612	250	18000	3.3	ALM063/150	8014
	4.7	728	300	18000	3.2		
	3.5	862	400	18000	3.1		
	2.8	1012	500	18000	2.3		
	2.3	1248	600	18000	2.1		
	1.9	1465	750	18000	1.6		
	1.6	1849	900	18000	1.1		
	1.2	2229	1200	18000	1.2		
	0.6	3744	2400	18000	0.7		
0.75	7.0	512	400	8180	1.1	ALM040/090	8012
	5.6	601	500	8180	0.9		
	14.0	365	100	6487	1.6	ALM050/090	8024
	9.3	521	150	7426	1.3		
	7.0	668	200	8174	0.9		
	5.6	801	250	8180	0.7		
	4.7	895	300	8180	0.8		
	9.3	424	300	10320	2.5	ALM050/105	8012
	7.0	553	400	10320	1.8		
	5.6	640	500	10320	1.5		
	14.0	365	100	8198	1.8	ALM050/105	8024
	9.3	527	150	9384	1.8		
	7.0	685	200	10320	1.7		
	5.6	835	250	10320	1.4		
	4.7	838	300	10320	1.3		
	3.5	1105	400	10320	0.9		
	2.8	1535	500	10320	0.8		
	2.3	1645	600	10320	0.8		

PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P_{1n}	n_2 [r/min]	M_{n2} [Nm]	i	F_{r2} [N]	F_s		
0.75	9.3	424	300	10320	2.8	ALM050/110	8012
	7.0	553	400	10320	2.1		
	5.6	640	500	10320	1.6		
	14.0	365	100	8198	1.8	ALM050/110	8024
	9.3	527	150	9384	1.8		
	7.0	685	200	10320	1.7		
	5.6	835	250	10320	1.4		
	4.7	838	300	10320	1.3		
	3.5	1105	400	10320	0.9		
	2.8	1535	500	10320	0.8		
	2.3	1645	600	10320	0.8		
	14.0	365	100	8198	2.6	ALM063/105	8024
	9.3	527	150	9384	2.0		
	7.0	685	200	10320	1.5		
	5.6	835	250	10320	1.2		
	4.7	895	300	10320	1.2		
	3.5	1157	400	10320	0.9		
	2.8	1573	500	10320	0.6		
	2.3	1686	600	10320	0.7		
	14.0	365	100	8198	3.0	ALM063/110	8024
	9.3	527	150	9384	2.3		
	7.0	685	200	10320	1.7		
	5.6	835	250	10320	1.4		
	4.7	895	300	10320	1.4		
	3.5	1157	400	10320	1.0		
	2.8	1573	500	10320	0.7		
	2.3	1686	600	10320	0.8		
	14.0	369	100	10722	3.0	ALM063/130	8024
	9.3	521	150	12274	3.0		
	7.0	685	200	13500	2.3		
	5.6	835	250	13500	1.8		
	4.7	908	300	13500	1.9	ALM063/130	8024
	3.5	1157	400	13500	1.4		
	2.8	1305	500	13500	1.1		
	2.3	1557	600	13500	1.0		
	1.9	1772	750	13500	0.9		
	1.6	2014	900	13500	0.8	ALM063/150	8024
	7.0	685	200	18000	3.0		
	5.6	835	250	18000	2.5		
	4.7	993	300	18000	2.3		
	3.5	1175	400	18000	2.3		
	2.8	1380	500	18000	1.7		
	2.3	1702	600	18000	1.6		
	1.9	1998	750	18000	1.2		
	1.6	2521	900	18000	0.8		
	1.2	3039	1200	18000	0.9		
1.1	9.3	621	300	10320	1.7	ALM050/105	8022
	7.0	810	400	10320	1.2		
	5.6	938	500	10320	1.0		
	9.3	621	300	10320	1.9	ALM050/110	8022
	7.0	810	400	10320	1.4		
	5.6	938	500	10320	1.1		
	14.0	535	100	8198	1.8	ALM063/105	90S4
	9.3	774	150	9384	1.3		
	7.0	1005	200	10320	1.0		
	5.6	1224	250	10320	0.9		
	4.7	1312	300	10320	0.9		

7. PERFORMANCE PARAMETER

7.3 ALM... / ALM... Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i	F _{r2} [N]	F _s		
1.1	14.0	535	100	8198	2.1	ALM063/110	90S4
	9.3	774	150	9384	1.5		
	7.0	1005	200	10320	1.1		
	5.6	1224	250	10320	1.0		
	4.7	1312	300	10320	1.0		
	14.0	542	100	10722	2.1	ALM063/130	90S4
	9.3	764	150	12274	2.1		
	7.0	1005	200	13500	1.6		
	5.6	1224	250	13500	1.2		
	4.7	1274	300	13500	1.3		
	3.5	1621	400	13500	1.0		
	2.8	1913	500	13500	0.8		
	2.3	2510	600	13500	0.7		
	9.3	771	150	18000	2.6	ALM063/150	90S4
	7.0	1005	200	18000	2.1		
	5.6	1224	250	18000	1.7		
	4.7	1456	300	18000	1.6		
	3.5	1723	400	18000	1.5		
	2.8	2024	500	18000	1.2		
	2.3	2496	600	18000	1.1		
	1.9	2931	750	18000	0.8		
1.5	9.3	847	300	10320	1.2	ALM050/105	90S2
	7.0	1105	400	10320	0.9		
	5.6	1279	500	10320	0.7		
	9.3	847	300	10320	1.4	ALM050/110	90S2
	7.0	1105	400	10320	1.0		
	5.6	1279	500	10320	0.8		
	14.0	730	100	8198	1.3	ALM063/105	90L4
	9.3	1055	150	9384	1.0		
	7.0	1371	200	10320	0.7		
	5.6	1669	250	10320	0.6		
	4.7	1789	300	10320	0.6		
	14.0	730	100	8198	1.5	ALM063/110	90L4
	9.3	1055	150	9384	1.1		
	7.0	1371	200	10320	0.8		
	5.6	1669	250	10320	0.7		
	4.7	1789	300	10320	0.7		
	9.3	878	300	13500	1.9	ALM063/130	90S2
	7.0	1105	400	13500	1.4		
	5.6	1305	500	13500	1.1		
	14.0	739	100	10722	1.5	ALM063/130	90L4
	9.3	1042	150	12274	1.5		
	7.0	1371	200	13500	1.2		
	5.6	1669	250	13500	0.9		
	4.7	1737	300	13500	1.0		
	3.5	2210	400	13500	0.7		
	9.3	1052	150	18000	1.9	ALM063/150	90L4
	7.0	1371	200	18000	1.5		
	5.6	1669	250	18000	1.2		
	4.7	1985	300	18000	1.2		
	3.5	2350	400	18000	1.1		
	2.8	2760	500	18000	0.8		
	2.3	3404	600	18000	0.8		

PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.4 ALW... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
13	2800	7.5	0.58	373.3	542	125	ALW030
13	2800	10	0.45	280	597	140	
13	2800	15	0.32	186.7	683	140	
12	2800	20	0.23	140	752	146	
16	2800	25	0.26	112	810	210	
15	2800	30	0.21	93.3	861	210	
14	2800	40	0.16	70	948	127	
13	2800	50	0.12	56	1021	128	
12	2800	60	0.10	46.7	1085	126	
11	2800	80	0.08	35	1194	130	
28	2800	7.5	1.2	373.3	1044	233	ALW040
29	2800	10	1.0	280	1149	272	
31	2800	15	0.72	186.7	1315	291	
29	2800	20	0.52	140	1447	204	
28	2800	25	0.42	112	1559	236	
34	2800	30	0.44	93.3	1657	350	
31	2800	40	0.32	70	1824	350	
30	2800	50	0.26	56	1964	350	
28	2800	60	0.21	46.7	2087	350	
25	2800	80	0.16	35	2298	350	
23	2800	100	0.12	28	2475	350	
52	2800	7.5	2.3	373.3	1433	324	ALW050
54	2800	10	1.8	280	1577	378	
57	2800	15	1.3	186.7	1805	399	
53	2800	20	0.95	140	1987	417	
51	2800	25	0.75	112	2140	482	
64	2800	30	0.81	93.3	2274	490	
59	2800	40	0.59	70	2503	490	
53	2800	50	0.45	56	2696	490	
50	2800	60	0.37	46.7	2865	490	
45	2800	80	0.27	35	3153	490	
40	2800	100	0.21	28	3397	490	
93	2800	7.5	4.0	373.3	1873	395	ALW063
97	2800	10	3.2	280	2061	463	
103	2800	15	2.3	186.7	2359	492	
100	2800	20	1.7	140	2597	538	
92	2800	25	1.3	112	2797	593	
120	2800	30	1.5	93.3	2973	700	
108	2800	40	1.1	70	3272	700	
100	2800	50	0.81	56	3524	700	
95	2800	60	0.67	46.7	3745	700	
85	2800	80	0.49	35	4122	700	
74	2800	100	0.37	28	4440	700	
130	2800	7.5	5.7	373.3	2210	560	ALW075
145	2800	10	4.8	280	2433	703	
150	2800	15	3.4	186.7	2785	727	
160	2800	20	2.8	140	3065	872	
150	2800	25	2.1	112	3302	980	
170	2800	30	2.1	93.3	3509	980	
165	2800	40	1.6	70	3862	980	
150	2800	50	1.2	56	4160	980	
145	2800	60	1.0	46.7	4421	980	
130	2800	80	0.72	35	4865	980	
120	2800	100	0.57	28	5241	980	

7. PERFORMANCE PARAMETER

7.4 ALW... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
210	2800	7.5	9.0	373.3	2446	715	ALW090
235	2800	10	7.7	280	2692	900	
270	2800	15	6.0	186.7	3081	1034	
260	2800	20	4.4	140	3391	1120	
250	2800	25	3.4	112	3653	1270	
310	2800	30	3.7	93.3	3882	1270	
275	2800	40	2.6	70	4273	1270	
265	2800	50	2.0	56	4603	1270	
245	2800	60	1.6	46.7	4891	1270	
225	2800	80	1.2	35	5383	1270	
200	2800	100	0.9	28	5799	1270	
340	2800	7.5	14.6	373.3	3090	950	ALW105
380	2800	10	12.4	280	3401	1194	
425	2800	15	9.4	186.7	3893	1337	
420	2800	20	7.1	140	4285	1485	
440	2800	25	6.0	112	4616	1700	
480	2800	30	5.6	93.3	4905	1700	
460	2800	40	4.2	70	5399	1700	
450	2800	50	3.3	56	5816	1700	
430	2800	60	2.7	46.7	6181	1700	
380	2800	80	1.9	35	6803	1700	
350	2800	100	1.5	28	7328	1700	
391	2800	7.5	16.8	373.3	3090	950	ALW110
437	2800	10	14.2	280	3401	1194	
489	2800	15	10.9	186.7	3893	1337	
483	2800	20	8.1	140	4285	1485	
506	2800	25	6.9	112	4616	1700	
552	2800	30	6.5	93.3	4905	1700	
529	2800	40	4.8	70	5399	1700	
495	2800	50	3.7	56	5816	1700	
473	2800	60	3.0	46.7	6181	1700	
399	2800	80	2.0	35	6803	1700	
368	2800	100	1.5	28	7328	1700	
520	2800	7.5	22.3	373.3	4042	1190	ALW130
580	2800	10	18.9	280	4449	1493	
670	2800	15	14.7	186.7	5092	1725	
660	2800	20	11.0	140	5605	1912	
670	2800	25	9.1	112	6038	2100	
770	2800	30	9.0	93.3	6416	2100	
730	2800	40	6.5	70	7062	2100	
700	2800	50	5.1	56	7607	2100	
640	2800	60	4.0	46.7	8084	2100	
590	2800	80	2.9	35	8897	2100	
520	2800	100	2.2	28	9584	2100	
840	2800	7.5	35.7	373.3	5526	1550	ALW150
890	2800	10	28.4	280	6082	1848	
910	2800	15	19.8	186.7	6962	1889	
980	2800	20	16.0	140	7663	2289	
890	2800	25	11.9	112	8254	2494	
920	2800	30	10.3	93.3	8771	2800	
1200	2800	40	10.5	70	9654	2800	
1100	2800	50	8.0	56	10400	2800	
990	2800	60	6.1	46.7	11051	2800	
920	2800	80	4.5	35	12163	2800	
810	2800	100	3.3	28	13103	2800	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.4 ALW... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
18	1400	7.5	0.4	186.7	683	150	ALW030
18	1400	10	0.3	140	752	169	
18	1400	15	0.2	93.3	861	169	
18	1400	20	0.2	70	948	190	
21	1400	25	0.2	56	1021	210	
20	1400	30	0	2	46.7	1085	
18	1400	40	0.1	35	1194	210	
17	1400	50	0.1	28	1286	210	
16	1400	60	0.1	23.3	1367	210	
13	1400	80	0.1	17.5	1504	210	
40	1400	7.5	0.9	186.7	1315	294	ALW040
40	1400	10	0.7	140	1447	331	
40	1400	15	0.5	93.3	1657	331	
39	1400	20	0.4	70	1824	350	
38	1400	25	0.3	56	1964	350	
45	1400	30	0.3	46.7	2087	350	
41	1400	40	0.2	35	2298	350	
39	1400	50	0.2	28	2475	350	
36	1400	60	0.2	23.3	2630	350	
33	1400	80	0.1	17.5	2895	350	ALW050
29	1400	100	0.1	14	3118	350	
71	1400	7.5	1.6	186.7	1805	401	
72	1400	10	1.2	140	1987	490	
74	1400	15	0.9	93.3	2274	490	
73	1400	20	0.7	70	2503	490	
70	1400	25	0.5	56	2696	490	
84	1400	30	0.6	46.7	2865	490	
76	1400	40	0.4	35	3153	490	
73	1400	50	0.3	28	3397	490	ALW063
68	1400	60	0.3	23.3	3610	490	
65	1400	80	0.2	17.5	3973	490	
55	1400	100	0.2	14	4280	490	
128	1400	7.5	2.8	186.7	2359	500	
130	1400	10	2.2	140	2597	571	
140	1400	15	1.7	93.3	2973	615	
135	1400	20	1.2	70	3272	667	
130	1400	25	1.0	56	3524	700	
160	1400	30	1.1	46.7	3745	700	ALW075
145	1400	40	0.8	35	4122	700	
135	1400	50	0.6	28	4440	700	
130	1400	60	0.5	23.3	4719	700	
122	1400	80	0.4	17.5	5193	700	
118	1400	100	0.3	14	5595	700	
185	1400	7.5	4.1	186.7	2785	700	
195	1400	10	3.3	140	3065	830	
200	1400	15	2.3	93.3	3509	851	
210	1400	20	1.9	70	3862	980	ALW075
200	1400	25	1.5	56	4160	980	
230	1400	30	1.5	46.7	4421	980	
220	1400	40	1.1	35	4865	980	
210	1400	50	0.9	28	5241	980	
200	1400	60	0.8	23.3	5569	980	
190	1400	80	0.6	17.5	6130	980	
180	1400	100	0.5	14	6603	980	

7. PERFORMANCE PARAMETER

7.4 ALW... Performance Parameter

M _{n2} [Nm]	n ₁ [r/min]	i	P _{1n} [kW]	n ₂ [r/min]	F _{r2} [N]	F _{r1} [N]	
290	1400	7.5	6.4	186.7	3081	900	ALW09089
310	1400	10	5.2	140	3391	1082	
360	1400	15	4.1	93.3	3882	1257	
355	1400	20	3.1	70	4273	1270	
340	1400	25	2.5	56	4603	1270	
410	1400	30	2.6	46.7	4891	1270	
360	1400	40	1.8	35	5383	1270	
340	1400	50	1.4	28	5799	1270	
320	1400	60	1.1	23.3	6163	1270	
285	1400	80	0.8	17.5	6783	1270	
270	1400	100	0.7	14	7306	1270	
480	1400	7.5	10.5	186.7	3893	1200	ALW105
520	1400	10	8.7	140	4285	1463	
570	1400	15	6.5	93.3	4905	1604	
560	1400	20	4.8	70	5399	1700	
590	1400	25	4.2	56	5816	1700	
630	1400	30	3.9	46.7	6181	1700	
610	1400	40	2.9	35	6803	1700	
600	1400	50	2.4	28	7328	1700	
560	1400	60	1.9	23.3	7787	1700	
490	1400	80	1.3	17.5	8571	1700	
460	1400	100	1.1	14	9232	1700	
552	1400	7.5	12.1	186.7	3893	1200	ALW110
598	1400	10	10.0	140	4285	1463	
656	1400	15	7.5	93.3	4905	1604	
644	1400	20	5.6	70	5399	1700	
679	1400	25	4.8	56	5816	1700	
725	1400	30	4.5	46.7	6181	1700	
702	1400	40	3.3	35	6803	1700	
660	1400	50	2.6	28	7328	1700	
616	1400	60	2.1	23.3	7787	1700	
515	1400	80	1.4	17.5	8571	1700	
483	1400	100	1.1	14	9232	1700	
750	1400	7.5	16.3	186.7	5092	1500	ALW13089
820	1400	10	13.5	140	5605	1845	
920	1400	15	10.3	93.3	6416	2070	
910	1400	20	7.8	70	7062	2100	
930	1400	25	6.5	56	7607	2100	
1040	1400	30	6.4	46.7	8084	2100	
1050	1400	40	4.9	35	8897	2100	
980	1400	50	3.8	28	9584	2100	
900	1400	60	3.0	23.3	10185	2100	
840	1400	80	2.3	17.5	11210	2100	
740	1400	100	1.7	14	12076	2100	
1200	1400	7.5	25.8	186.7	6962	1950	ALW15089
1240	1400	10	20.2	140	7663	2267	
1250	1400	15	13.9	93.3	8771	2285	
1300	1400	20	11.0	70	9654	2674	
1200	1400	25	8.3	56	10400	2800	
1200	1400	30	7.0	46.7	11051	2800	
1550	1400	40	7.2	35	12163	2800	
1400	1400	50	5.3	28	13103	2800	
1260	1400	60	4.2	23.3	13924	2800	
1150	1400	80	3.1	17.5	15325	2800	
1000	1400	100	2.3	14	16508	2800	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.4 ALW... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
20	900	7.5	0.30	120	792	175	ALW030
20	900	10	0.24	90	871	197	
20	900	15	0.17	60	997	197	
20	900	20	0.13	45	1098	210	
23	900	25	0.14	36	1183	210	
21	900	30	0.11	30	1257	210	
20	900	40	0.09	22.5	1383	210	
18	900	50	0.07	18	1490	210	
17	900	60	0.06	15	1583	210	
15	900	80	0.04	11.3	1743	210	
44	900	7.5	0.66	120	1524	319	ALW040
44	900	10	0.51	90	1677	350	
45	900	15	0.36	60	1920	350	
44	900	20	0.28	45	2113	350	
43	900	25	0.23	36	2276	350	
49	900	30	0.23	30	2419	350	
45	900	40	0.17	22.5	2662	350	
42	900	50	0.14	18	2868	350	
39	900	60	0.11	15	3047	350	
35	900	80	0.09	11.3	3354	350	ALW050
32	900	100	0.07	9	3490	350	
84	900	7.5	1.2	120	2091	448	
84	900	10	0.95	90	2302	490	
84	900	15	0.67	60	2635	490	
77	900	20	0.48	45	2900	490	
75	900	25	0.39	36	3124	490	
90	900	30	0.42	30	3320	490	
82	900	40	0.31	22.5	3654	490	
77	900	50	0.25	18	3936	490	ALW063
72	900	60	0.21	15	4183	490	
68	900	80	0.16	11.3	4604	490	
56	900	100	0.12	9	4840	490	
151	900	7.5	2.2	120	2734	580	
153	900	10	1.7	90	3009	661	
155	900	15	1.2	60	3444	670	
148	900	20	0.91	45	3791	700	
137	900	25	0.70	36	4084	700	
175	900	30	0.79	30	4339	700	ALW075
160	900	40	0.58	22.5	4776	700	
145	900	50	0.45	18	5145	700	
138	900	60	0.37	15	5467	700	
128	900	80	0.29	11.3	6018	700	
124	900	100	0.25	9	6270	700	
215	900	7.5	3.1	120	3227	810	
230	900	10	2.6	90	3551	975	
235	900	15	1.8	60	4065	980	
235	900	20	1.4	45	4474	980	ALW075
215	900	25	1.1	36	4820	980	
260	900	30	1.2	30	5122	980	
240	900	40	0.84	22.5	5637	980	
220	900	50	0.66	18	6073	980	
210	900	60	0.55	15	6453	980	
200	900	80	0.43	11.3	7103	980	ALW075
190	900	100	0.36	9	7380	980	

7. PERFORMANCE PARAMETER

7.4 ALW... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
340	900	7.5	4.9	120	3570	1040	ALW090
370	900	10	4.1	90	3929	1270	
420	900	15	3.2	60	4498	1270	
390	900	20	2.3	45	4951	1270	
370	900	25	1.8	36	5333	1270	
460	900	30	1.9	30	5667	1270	
410	900	40	1.4	22.5	6238	1270	
390	900	50	1.1	18	6719	1270	
350	900	60	0.86	15	7140	1270	
315	900	80	0.63	11.3	7859	1270	
280	900	100	0.49	9	8180	1270	
565	900	7.5	8.1	120	4511	1390	ALW105
620	900	10	6.7	90	4965	1700	
660	900	15	4.9	60	5684	1700	
630	900	20	3.6	45	6256	1700	
660	900	25	3.1	36	6739	1700	
730	900	30	3.0	30	7161	1700	
690	900	40	2.2	22.5	7882	1700	
680	900	50	1.8	18	8491	1700	
620	900	60	1.4	15	9023	1700	
540	900	80	1.0	11.3	9931	1700	
490	900	100	0.78	9	10320	1700	
650	900	7.5	9.3	120	4511	1390	ALW110
713	900	10	7.7	90	4965	1700	
759	900	15	5.7	60	5684	1700	
725	900	20	4.1	45	6256	1700	
759	900	25	3.5	36	6739	1700	
840	900	30	3.5	30	7161	1700	
794	900	40	2.5	22.5	7882	1700	
748	900	50	2.0	18	8491	1700	
682	900	60	1.6	15	9023	1700	
567	900	80	1.1	11.3	9931	1700	
515	900	100	0.82	9	10320	1700	
880	900	7.5	12.4	120	5901	1740	ALW130
960	900	10	10.4	90	6494	2100	
1060	900	15	7.8	60	7434	2100	
1040	900	20	5.9	45	8182	2100	
1050	900	25	4.9	36	8814	2100	
1170	900	30	4.8	30	9366	2100	
1100	900	40	3.5	22.5	10309	2100	
1050	900	50	2.8	18	11105	2100	
940	900	60	2.1	15	11801	2100	
860	900	80	1.6	11.3	12989	2100	
780	900	100	1.2	9	13500	2100	
1400	900	7.5	19.6	120	8067	2270	ALW150
1480	900	10	15.7	90	8878	2700	
1450	900	15	10.5	60	10163	2645	
1500	900	20	8.3	45	11186	2800	
1380	900	25	6.2	36	12050	2800	
1400	900	30	5.4	30	12805	2800	
1800	900	40	5.6	22.5	14094	2800	
1600	900	50	4.1	18	15182	2800	
1440	900	60	3.2	15	16133	2800	
1300	900	80	2.3	11.3	17757	2800	
1150	900	100	1.8	9	18000	2800	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.4 ALW... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
24	500	7.5	0.21	66.7	963	210	ALW030
24	500	10	0.16	50	1060	210	
24	500	15	0.12	33.3	1213	210	
23	500	20	0.09	25	1336	210	
29	500	25	0.1	20	1439	210	
26	500	30	0.08	16.7	1529	210	
23	500	40	0.06	12.5	1683	210	
21	500	50	0.05	10	1813	210	
19	500	60	0.04	8.3	1830	210	
17	500	80	0.03	6.3	1830	210	
54	500	7.5	0.45	66.7	1853	350	ALW040
54	500	10	0.35	50	2040	350	
55	500	15	0.26	33.3	2335	350	
52	500	20	0.19	25	2570	350	
49	500	25	0.15	20	2769	350	
58	500	30	0.16	16.7	2942	350	
53	500	40	0.12	12.5	3238	350	
49	500	50	0.1	10	3488	350	
46	500	60	0.08	8.3	3490	350	
40	500	80	0.06	6.3	3490	350	
36	500	100	0.05	5	3490	350	
103	500	7.5	0.87	66.7	2544	490	ALW050
103	500	10	0.67	50	2800	490	
103	500	15	0.47	33.3	3205	490	
93	500	20	0.33	25	3528	490	
91	500	25	0.27	20	3800	490	
108	500	30	0.3	16.7	4038	490	
98	500	40	0.22	12.5	4445	490	
91	500	50	0.17	10	4788	490	
83	500	60	0.14	8.3	4840	490	
75	500	80	0.11	6.3	4840	490	
65	500	100	0.09	5	4840	490	
184	500	7.5	1.5	66.7	3325	700	ALW063
185	500	10	1.2	50	3660	700	
187	500	15	0.85	33.3	4190	700	
178	500	20	0.63	25	4611	700	
164	500	25	0.48	20	4967	700	
200	500	30	0.53	16.7	5279	700	
185	500	40	0.4	12.5	5810	700	
173	500	50	0.32	10	6259	700	
160	500	60	0.26	8.3	6270	700	
137	500	80	0.19	6.3	6270	700	
128	500	100	0.16	5	6270	700	
260	500	7.5	2.2	66.7	3925	980	ALW075
270	500	10	1.7	50	4320	980	
280	500	15	1.3	33.3	4945	980	
285	500	20	0.99	25	5443	980	
255	500	25	0.74	20	5863	980	
300	500	30	0.77	16.7	6231	980	
280	500	40	0.58	12.5	6858	980	
250	500	50	0.44	10	7380	980	
240	500	60	0.38	8.3	7380	980	
215	500	80	0.28	6.3	7380	980	
210	500	100	0.24	5	7380	980	

7. PERFORMANCE PARAMETER

7.4 ALW... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
410	500	7.5	3.3	66.7	4343	1270	ALW090
435	500	10	2.7	50	4780	1270	
490	500	15	2.1	33.3	5472	1270	
470	500	20	1.6	25	6022	1270	
440	500	25	1.2	20	6487	1270	
550	500	30	1.4	16.7	6894	1270	
480	500	40	0.94	12.5	7588	1270	
450	500	50	0.75	10	8174	1270	
400	500	60	0.58	8.3	8180	1270	
365	500	80	0.45	6.3	8180	1270	
330	500	100	0.35	5	8180	1270	
690	500	7.5	5.6	66.7	5488	1700	ALW105
740	500	10	4.6	50	6040	1700	
790	500	15	3.4	33.3	6914	1700	
750	500	20	2.5	25	7610	1700	
790	500	25	2.1	20	8198	1700	
870	500	30	2.1	16.7	8711	1700	
810	500	40	1.5	12.5	9588	1700	
800	500	50	1.3	10	10320	1700	
710	500	60	0.96	8.3	10320	1700	
630	500	80	0.72	6.3	10320	1700	
570	500	100	0.55	5	10320	1700	
794	500	7.5	6.4	66.7	5488	1700	ALW110
851	500	10	5.2	50	6040	1700	
909	500	15	3.9	33.3	6914	1700	
863	500	20	2.8	25	7610	1700	
909	500	25	2.4	20	8198	1700	
1000	500	30	2.4	16.7	8711	1700	
932	500	40	1.7	12.5	9588	1700	
880	500	50	1.4	10	10320	1700	
781	500	60	1.1	8.3	10320	1700	
662	500	80	0.75	6.3	10320	1700	
599	500	100	0.58	5	10320	1700	
1080	500	7.5	8.7	66.7	7178	2100	ALW130
1160	500	10	7.1	50	7900	2100	
1300	500	15	5.5	33.3	9043	2100	
1230	500	20	4.0	25	9953	2100	
1200	500	25	3.2	20	10722	2100	
1400	500	30	3.4	16.7	11394	2100	
1300	500	40	2.4	12.5	12540	2100	
1220	500	50	1.9	10	13500	2100	
1070	500	60	1.5	8.3	13500	2100	
970	500	80	1.1	6.3	13500	2100	
860	500	100	0.83	5	13500	2100	
1700	500	7.5	13.5	66.7	9812	2800	ALW150
1780	500	10	10.7	50	10800	2800	
1730	500	15	7.2	33.3	12363	2800	
1820	500	20	5.8	25	13607	2800	
1630	500	25	4.3	20	14658	2800	
1670	500	30	3.7	16.7	15576	2800	
2120	500	40	3.4	12.5	17144	2800	
1870	500	50	2.8	10	18000	2800	
1680	500	60	2.3	8.3	18000	2800	
1530	500	80	1.7	6.3	18000	2800	
1350	500	100	1.29	5	18000	2800	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
71	2800	100	0.31	28.0	2769	140	ALW030/040
72	2800	150	0.22	18.7	3169	140	
65	2800	200	0.16	14.0	3488	140	
61	2800	250	0.13	11.2	3490	140	
73	2800	300	0.14	9.3	3490	140	
65	2800	400	0.10	7.0	3490	140	
61	2800	500	0.07	5.6	3490	146	
73	2800	600	0.08	4.7	3490	146	
73	2800	750	0.06	3.7	3490	210	
73	2800	900	0.06	3.1	3490	210	
73	2800	1200	0.05	2.3	3490	127	
73	2800	1500	0.04	1.9	3490	128	
73	2800	1800	0.03	1.6	3490	126	
65	2800	2400	0.03	1.2	3490	126	
60	2800	3000	0.02	0.9	3490	126	
48	2800	4000	0.01	0.7	3490	128	
43	2800	5000	0.01	0.6	3490	128	
103	2800	100	0.44	28.0	3800	140	ALW030/050
135	2800	150	0.42	18.7	4350	140	
120	2800	200	0.30	14.0	4788	140	
110	2800	250	0.23	11.2	4840	140	
145	2800	300	0.27	9.3	4840	140	
124	2800	400	0.20	7.0	4840	140	
120	2800	500	0.16	5.6	4840	140	
145	2800	600	0.15	4.7	4840	146	
145	2800	750	0.13	3.7	4840	210	
145	2800	900	0.11	3.1	4840	210	
145	2800	1200	0.09	2.3	4840	127	
145	2800	1500	0.07	1.9	4840	128	
145	2800	1800	0.07	1.6	4840	126	
124	2800	2400	0.05	1.2	4840	126	
120	2800	3000	0.04	0.9	4840	126	
82	2800	4000	0.02	0.7	4840	128	
79	2800	5000	0.02	0.6	4840	128	
103	2800	100	0.44	28.0	4967	140	ALW030/063
144	2800	150	0.44	18.7	5686	140	
182	2800	200	0.44	14.0	6259	140	
218	2800	250	0.44	11.2	6270	140	
255	2800	300	0.51	9.3	6270	125	
255	2800	400	0.39	7.0	6270	140	
236	2800	500	0.31	5.6	6270	140	
220	2800	600	0.22	4.7	6270	146	
271	2800	750	0.23	3.7	6270	210	
271	2800	900	0.20	3.1	6270	210	
256	2800	1200	0.15	2.3	6270	127	
238	2800	1500	0.12	1.9	6270	128	
220	2800	1800	0.10	1.6	6270	126	
255	2800	2400	0.09	1.2	6270	126	
236	2800	3000	0.08	0.9	6270	126	
236	2800	4000	0.06	0.7	6270	130	
150	2800	5000	0.04	0.6	6270	128	

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
137	2800	100	0.58	28.0	3800	272	ALW040/050
135	2800	150	0.41	18.7	4350	272	
120	2800	200	0.29	14.0	4788	272	
110	2800	250	0.23	11.2	4840	272	
145	2800	300	0.27	9.3	4840	272	
124	2800	400	0.19	7.0	4840	272	
137	2800	500	0.15	5.6	3800	350	
145	2800	600	0.14	4.7	4840	204	
145	2800	750	0.12	3.7	4840	236	
135	2800	900	0.09	3.1	4350	350	
145	2800	1200	0.08	2.3	4840	350	
145	2800	1500	0.07	1.9	4840	350	
145	2800	1800	0.06	1.6	4840	350	
124	2800	2400	0.04	1.2	4840	350	
120	2800	3000	0.04	0.9	4840	350	
120	2800	4000	0.03	0.7	4840	350	
120	2800	5000	0.03	0.6	4840	350	
229	2800	100	0.97	28.0	4967	272	ALW040/063
260	2800	150	0.78	18.7	5686	272	
253	2800	200	0.60	14.0	6259	272	
231	2800	250	0.46	11.2	6270	272	
271	2800	300	0.49	9.3	6270	272	
255	2800	400	0.38	7.0	6270	272	
231	2800	500	0.24	5.6	6270	204	
271	2800	600	0.26	4.7	6270	204	
271	2800	750	0.22	3.7	6270	236	
271	2800	900	0.19	3.1	6270	350	
271	2800	1200	0.15	2.3	6270	350	
271	2800	1500	0.13	1.9	6270	350	
271	2800	1800	0.11	1.6	6270	350	
255	2800	2400	0.08	1.2	6270	350	
236	2800	3000	0.07	0.9	6270	350	
236	2800	4000	0.06	0.7	6270	350	
700	2800	300	1.15	9.3	8180	378	ALW050/090
610	2800	400	0.81	7.0	8180	378	
570	2800	500	0.56	5.6	8180	417	
700	2800	600	0.62	4.7	8180	417	
700	2800	750	0.50	3.7	8180	482	
700	2800	900	0.44	3.1	8180	490	
700	2800	1200	0.34	2.3	8180	490	
700	2800	1500	0.29	1.9	8180	490	
700	2800	1800	0.25	1.6	8180	490	
610	2800	2400	0.18	1.2	8180	490	
560	2800	3000	0.14	0.9	8180	490	
560	2800	4000	0.11	0.7	8180	490	
560	2800	5000	0.10	0.6	8180	490	
390	2800	100	1.57	28.0	8198	378	ALW050/105
563	2800	150	1.57	18.7	9384	378	
732	2800	200	1.57	14.0	10320	378	
891	2800	250	1.57	11.2	10320	378	
955	2800	300	1.57	9.3	10320	378	
1043	2800	400	1.32	7.0	10320	378	
875	2800	500	0.83	5.6	10320	417	
937	2800	600	0.83	4.7	10320	417	
902	2800	750	0.65	3.7	10320	482	
1113	2800	900	0.70	3.1	10320	490	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
1044	2800	1200	0.51	2.3	10320	490	ALW050/105
937	2800	1500	0.39	1.9	10320	490	
884	2800	1800	0.32	1.6	10320	490	
1043	2800	2400	0.29	1.2	10320	490	
1034	2800	3000	0.24	0.9	10320	490	
1034	2800	4000	0.19	0.7	10320	490	
1034	2800	5000	0.17	0.6	10320	490	
443	2800	100	1.78	28.0	8198	378	ALW050/110
640	2800	150	1.78	18.7	9384	378	
832	2800	200	1.78	14.0	10320	378	
1013	2800	250	1.78	11.2	10320	378	
1085	2800	300	1.78	9.3	10320	378	
1185	2800	400	1.50	7.0	10320	378	
994	2800	500	0.94	5.6	10320	417	
1065	2800	600	0.94	4.7	10320	417	
1025	2800	750	0.74	3.7	10320	482	
1265	2800	900	0.80	3.1	10320	490	
1186	2800	1200	0.58	2.3	10320	490	
1065	2800	1500	0.44	1.9	10320	490	
1005	2800	1800	0.36	1.6	10320	490	
1185	2800	2400	0.33	1.2	10320	490	
1100	2800	3000	0.26	0.9	10320	490	
1100	2800	4000	0.21	0.7	10320	490	
1100	2800	5000	0.18	0.6	10320	490	
717	2800	100	2.88	28.0	8198	471	ALW063/105
1037	2800	150	2.88	18.7	9384	471	
1002	2800	200	2.15	14.0	10320	471	
1032	2800	250	1.81	11.2	10320	471	
1113	2800	300	1.82	9.3	10320	471	
1043	2800	400	1.32	7.0	10320	471	
1032	2800	500	0.95	5.6	10320	556	
1113	2800	600	0.96	4.7	10320	556	
1113	2800	750	0.78	3.7	10320	613	
1113	2800	900	0.69	3.1	10320	700	
1113	2800	1200	0.54	2.3	10320	700	
1113	2800	1500	0.45	1.9	10320	700	
1113	2800	1800	0.40	1.6	10320	700	
1043	2800	2400	0.30	1.2	10320	700	
1034	2800	3000	0.24	0.9	10320	700	
1034	2800	4000	0.19	0.7	10320	700	
1034	2800	5000	0.17	0.6	10320	700	
815	2800	100	3.27	28.0	8198	471	ALW063/110
1178	2800	150	3.27	18.7	9384	471	
1139	2800	200	2.44	14.0	10320	471	
1173	2800	250	2.06	11.2	10320	471	
1265	2800	300	2.07	9.3	10320	471	
1185	2800	400	1.50	7.0	10320	471	
1173	2800	500	1.08	5.6	10320	556	
1265	2800	600	1.09	4.7	10320	556	
1265	2800	750	0.89	3.7	10320	613	
1265	2800	900	0.78	3.1	10320	700	
1265	2800	1200	0.61	2.3	10320	700	
1265	2800	1500	0.51	1.9	10320	700	
1265	2800	1800	0.45	1.6	10320	700	

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
1185	2800	2400	0.32	1.2	10320	700	ALW063/110
1100	2800	3000	0.25	0.9	10320	700	
1100	2800	4000	0.20	0.7	10320	700	
1100	2800	5000	0.18	0.6	10320	700	
825	2800	100	3.27	28.0	10722	471	ALW063/130
1163	2800	150	3.27	18.7	12274	471	
1531	2800	200	3.27	14.0	13500	471	
1530	2800	250	2.69	11.2	13500	471	
1760	2800	300	2.84	9.3	13500	471	
1650	2800	400	2.09	7.0	13500	471	
1550	2800	500	1.65	5.6	13500	471	
1760	2800	600	1.49	4.7	13500	556	
1760	2800	750	1.22	3.7	13500	613	
1760	2800	900	1.07	3.1	13500	700	
1760	2800	1200	0.83	2.3	13500	700	
1760	2800	1500	0.70	1.9	13500	700	
1760	2800	1800	0.61	1.6	13500	700	
1650	2800	2400	0.45	1.2	13500	700	
1550	2800	3000	0.35	0.9	13500	700	
1550	2800	4000	0.28	0.7	13500	700	
1550	2800	5000	0.25	0.6	13500	700	
1444	2800	150	4.03	18.7	18000	395	ALW063/150
1531	2800	200	3.27	14.0	18000	471	
1864	2800	250	3.27	11.2	18000	471	
1678	2800	300	2.45	9.3	18000	516	
2624	2800	400	3.27	7.0	18000	471	
2330	2800	500	2.48	5.6	18000	471	
2670	2800	600	2.27	4.7	18000	516	
2330	2800	750	1.69	3.7	18000	516	
2100	2800	900	1.19	3.1	18000	700	
2670	2800	1200	1.25	2.3	18000	700	
2100	2800	1800	0.68	1.6	18000	700	
2610	2800	2400	0.70	1.2	18000	700	
2330	2800	3000	0.53	0.9	18000	700	
2330	2800	4000	0.43	0.7	18000	700	
2330	2800	5000	0.37	0.6	18000	700	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
71	1400	100	0.16	14.0	2769	169	ALW030/040
72	1400	150	0.12	9.3	3169	169	
65	1400	200	0.08	7.0	3488	169	
61	1400	250	0.07	5.6	3490	169	
73	1400	300	0.07	4.7	3490	210	
65	1400	400	0.06	3.5	3490	210	
61	1400	500	0.04	2.8	3490	210	
73	1400	600	0.05	2.3	3490	210	
73	1400	750	0.04	1.9	3490	210	
73	1400	900	0.04	1.6	3490	210	
65	1400	1200	0.03	1.2	3490	210	
73	1400	1500	0.03	0.9	3490	210	
73	1400	1800	0.02	0.8	3490	210	
65	1400	2400	0.02	0.6	3490	210	
60	1400	3200	0.01	0.5	3490	210	
48	1400	4000	0.01	0.4	3490	210	
43	1400	5000	0.01	0.3	3490	210	
137	1400	100	0.31	14.0	3800	169	ALW030/050
135	1400	150	0.22	9.3	4350	169	
120	1400	200	0.15	7.0	4788	169	
110	1400	250	0.12	5.6	4840	169	
145	1400	300	0.14	4.7	4840	169	
124	1400	400	0.01	3.5	4840	169	
120	1400	500	0.08	2.8	4840	169	
145	1400	600	0.08	2.3	4840	180	
145	1400	750	0.07	1.9	4840	210	
145	1400	900	0.06	1.6	4840	210	
145	1400	1200	0.05	1.2	4840	210	
145	1400	1500	0.04	0.9	4840	210	
145	1400	1800	0.04	0.8	4840	210	
124	1400	2400	0.03	0.6	4840	210	
120	1400	3000	0.02	0.5	4840	210	
82	1400	4000	0.01	0.4	4840	210	
79	1400	5000	0.01	0.3	4840	210	
137	1400	100	0.03	14.0	3800	344	ALW040/050
135	1400	150	0.21	9.3	4350	344	
120	1400	200	0.15	7.0	4788	344	
110	1400	250	0.12	5.6	4840	344	
145	1400	300	0.14	4.7	4840	344	
124	1400	400	0.01	3.5	4840	344	
137	1400	500	0.08	2.8	3800	350	
145	1400	600	0.07	2.3	4840	350	
145	1400	750	0.06	1.9	4840	350	
135	1400	900	0.05	1.6	4350	350	
145	1400	1200	0.04	1.2	4840	350	
145	1400	1500	0.04	0.9	4840	350	
145	1400	1800	0.03	0.8	4840	350	
124	1400	2400	0.02	0.6	4840	350	
120	1400	3000	0.02	0.5	4840	350	
120	1400	4000	0.02	0.4	4840	350	
120	1400	5000	0.01	0.3	4840	350	
150	1400	100	0.34	14.0	4967	169	ALW030/063
211	1400	150	0.34	9.3	5686	169	
253	1400	200	0.32	7.0	6259	169	
231	1400	250	0.24	5.6	6270	169	
255	1400	300	0.26	4.7	6270	150	

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
255	1400	400	0.20	3.5	6270	169	ALW030/063
236	1400	500	0.16	2.8	6270	169	
271	1400	600	0.15	2.3	6270	180	
271	1400	750	0.13	1.9	6270	210	
271	1400	900	0.11	1.6	6270	210	
271	1400	1200	0.09	1.2	6270	210	
271	1400	1500	0.08	0.9	6270	210	
271	1400	1800	0.07	0.8	6270	210	
255	1400	2400	0.05	0.6	6270	210	
236	1400	3000	0.04	0.5	6270	210	
236	1400	4000	0.04	0.4	6270	210	
150	1400	5000	0.02	0.3	6270	210	
257	1400	100	0.56	14.0	4967	344	ALW040/063
260	1400	150	0.40	9.3	5686	344	
253	1400	200	0.31	7.0	6259	344	
231	1400	250	0.24	5.6	6270	344	
271	1400	300	0.26	4.7	6270	344	
255	1400	400	0.20	3.5	6270	344	
231	1400	500	0.13	2.8	6270	350	
271	1400	600	0.14	2.3	6270	350	
271	1400	750	0.11	1.9	6270	350	
271	1400	900	0.10	1.6	6270	350	
271	1400	1200	0.08	1.2	6270	350	
271	1400	1500	0.07	0.9	6270	350	
271	1400	1800	0.06	0.8	6270	350	
255	1400	2400	0.05	0.6	6270	350	
236	1400	3000	0.04	0.5	6270	350	
236	1400	4000	0.03	0.4	6270	350	
390	1400	300	0.38	4.7	7380	350	ALW040/075
360	1400	400	0.28	3.5	7380	350	
320	1400	500	0.21	2.8	7380	350	
390	1400	600	0.21	2.3	7380	350	
390	1400	750	0.19	1.9	7380	350	
390	1400	900	0.17	1.6	7380	350	
360	1400	1200	0.13	1.2	7380	350	
390	1400	1500	0.12	0.9	7380	350	
390	1400	1800	0.11	0.8	7380	350	
360	1400	2400	0.08	0.6	7380	350	
320	1400	3000	0.06	0.5	7380	350	
250	1400	4000	0.04	0.4	7380	350	
230	1400	5000	0.03	0.3	7380	350	
610	1400	300	0.56	4.7	8180	350	ALW040/090
610	1400	400	0.45	3.5	8180	350	
560	1400	500	0.35	2.8	8180	350	
610	1400	600	0.31	2.3	8180	350	
560	1400	750	0.25	1.9	8180	350	
505	1400	900	0.21	1.6	8180	350	
610	1400	1200	0.20	1.2	8180	350	
560	1400	1500	0.16	0.9	8180	350	
505	1400	1800	0.13	0.8	8180	350	
610	1400	2400	0.12	0.6	8180	350	
560	1400	3000	0.10	0.5	8180	350	
460	1400	4000	0.07	0.4	8180	350	
410	1400	5000	0.05	0.3	8180	350	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
700	1400	300	0.59	4.7	8180	490	ALW050/090
610	1400	400	0.41	3.5	8180	490	
570	1400	500	0.29	2.8	8180	490	
700	1400	600	0.32	2.3	8180	490	
700	1400	750	0.27	1.9	8180	490	
700	1400	900	0.23	1.6	8180	490	
700	1400	1200	0.19	1.2	8180	490	
700	1400	1500	0.16	0.9	8180	490	
700	1400	1800	0.14	0.8	8180	490	
610	1400	2400	0.10	0.6	8180	490	
560	1400	3000	0.08	0.5	8180	490	
560	1400	4000	0.07	0.4	8180	490	
560	1400	5000	0.06	0.3	8180	490	
570	1400	100	1.17	14.0	8198	490	ALW050/105
824	1400	150	1.17	9.3	9384	490	
1002	1400	200	1.10	7.0	10320	490	
1032	1400	250	0.92	5.6	10320	490	
1113	1400	300	0.93	4.7	10320	490	
1043	1400	400	0.68	3.5	10320	490	
1032	1400	500	0.50	2.8	10320	490	
1113	1400	600	0.51	2.3	10320	490	
1113	1400	750	0.42	1.9	10320	490	
1113	1400	900	0.37	1.6	10320	490	
1113	1400	1200	0.30	1.2	10320	490	
1113	1400	1500	0.26	0.9	10320	490	
1113	1400	1800	0.23	0.8	10320	490	
1043	1400	2400	0.17	0.6	10320	490	
1034	1400	3000	0.13	0.5	10320	490	
1034	1400	4000	0.11	0.4	10320	490	
1034	1400	5000	0.09	0.3	10320	490	
648	1400	100	1.33	14.0	8198	490	ALW050/110
936	1400	150	1.33	9.3	9384	490	
1139	1400	200	1.25	7.0	10320	490	
1173	1400	250	1.05	5.6	10320	490	
1265	1400	300	1.06	4.7	10320	490	
1185	1400	400	0.77	3.5	10320	490	
1173	1400	500	0.57	2.8	10320	490	
1265	1400	600	0.58	2.3	10320	490	
1265	1400	750	0.48	1.9	10320	490	
1265	1400	900	0.42	1.6	10320	490	
1265	1400	1200	0.34	1.2	10320	490	
1265	1400	1500	0.29	0.9	10320	490	
1265	1400	1800	0.26	0.8	10320	490	
1185	1400	2400	0.19	0.6	10320	490	
1100	1400	3000	0.14	0.5	10320	490	
1100	1400	4000	0.12	0.4	10320	490	
1100	1400	5000	0.10	0.3	10320	490	
977	1400	100	2.01	14.0	8198	595	ALW063/105
1052	1400	150	1.50	9.3	9384	595	
1002	1400	200	1.10	7.0	10320	595	
1032	1400	250	0.92	5.6	10320	595	
1113	1400	300	0.93	4.7	10320	595	
1043	1400	400	0.68	3.5	10320	595	
1032	1400	500	0.49	2.8	10320	700	
1113	1400	600	0.49	2.3	10320	700	
1113	1400	750	0.41	1.9	10320	700	

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M _{n2} [Nm]	n ₁ [r/min]	i	P _{in} [kW]	n ₂ [r/min]	F _{r2} [N]	F _{r1} [N]	
1113	1400	900	0.36	1.6	10320	700	ALW063/105
1113	1400	1200	0.28	1.2	10320	700	
1113	1400	1500	0.25	0.9	10320	700	
1113	1400	1800	0.21	0.8	10320	700	
1043	1400	2400	0.16	0.6	10320	700	
1034	1400	3000	0.13	0.5	10320	700	
1034	1400	4000	0.10	0.4	10320	700	
1034	1400	5000	0.09	0.3	10320	700	
1110	1400	100	2.28	14.0	8198	595	ALW063/110
1196	1400	150	1.70	9.3	9384	595	
1139	1400	200	1.25	7.0	10320	595	
1173	1400	250	1.05	5.6	10320	595	
1265	1400	300	1.06	4.7	10320	595	
1185	1400	400	0.77	3.5	10320	595	
1173	1400	500	0.56	2.8	10320	700	
1265	1400	600	0.56	2.3	10320	700	
1265	1400	750	0.47	1.9	10320	700	
1265	1400	900	0.41	1.6	10320	700	
1265	1400	1200	0.32	1.2	10320	700	
1265	1400	1500	0.28	0.9	10320	700	
1265	1400	1800	0.24	0.8	10320	700	
1185	1400	2400	0.18	0.6	10320	700	
1100	1400	3000	0.14	0.5	10320	700	
1100	1400	4000	0.11	0.4	10320	700	
1100	1400	5000	0.10	0.3	10320	700	
1123	1400	100	2.28	14.0	10722	595	ALW063/130
1584	1400	150	2.28	9.3	12274	595	
1600	1400	200	1.75	7.0	13500	595	
1530	1400	250	1.37	5.6	13500	595	
1760	1400	300	1.45	4.7	13500	595	
1650	1400	400	1.07	3.5	13500	595	
1550	1400	500	0.84	2.8	13500	595	
1760	1400	600	0.77	2.3	13500	700	
1760	1400	750	0.64	1.9	13500	700	
1760	1400	900	0.56	1.6	13500	700	
1760	1400	1200	0.45	1.2	13500	700	
1760	1400	1500	0.38	0.9	13500	700	
1760	1400	1800	0.33	0.8	13500	700	
1650	1400	2400	0.25	0.6	13500	700	
1550	1400	3000	0.19	0.5	13500	700	
1550	1400	4000	0.16	0.4	13500	700	
1550	1400	5000	0.14	0.3	13500	700	
1971	1400	150	2.81	9.3	18000	500	ALW063/150
2084	1400	200	2.28	7.0	18000	595	
2050	1400	250	1.84	5.6	18000	595	
2312	1400	300	1.75	4.7	18000	660	
2670	1400	400	1.70	3.5	18000	595	
2330	1400	500	1.27	2.8	18000	595	
2670	1400	600	1.18	2.3	18000	660	
2330	1400	750	0.87	1.9	18000	660	
2100	1400	900	0.62	1.6	18000	700	
2670	1400	1200	0.66	1.2	18000	700	
2100	1400	1800	0.37	0.8	18000	700	
2670	1400	2400	0.39	0.6	18000	700	
2330	1400	3000	0.29	0.5	18000	700	
2330	1400	4000	0.24	0.4	18000	700	
2330	1400	5000	0.21	0.3	18000	700	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
71	900	100	0.11	9.0	2769	197	ALW030/040
72	900	150	0.08	6.0	3169	197	
65	900	200	0.05	4.5	3488	197	
61	900	250	0.04	3.6	3490	197	
73	900	300	0.05	3.0	3490	197	
65	900	400	0.04	2.3	3490	197	
61	900	500	0.02	1.8	3490	210	
73	900	600	0.03	1.5	3490	210	
73	900	750	0.02	1.2	3490	210	
73	900	900	0.02	1.0	3490	210	
73	900	1200	0.02	0.8	3490	210	
73	900	1500	0.01	0.6	3490	210	
73	900	1800	0.01	0.5	3490	210	
65	900	2400	0.01	0.4	3490	210	
60	900	3000	0.01	0.3	3490	210	
48	900	4000	0.01	0.2	3490	210	
43	900	5000	0.00	0.2	3490	210	
137	900	100	0.20	9.0	3800	197	ALW030/050
135	900	150	0.14	6.0	4350	197	
120	900	200	0.10	4.5	4788	197	
110	900	250	0.08	3.6	4840	197	
145	900	300	0.09	3.0	4840	197	
124	900	400	0.07	2.3	4840	197	
120	900	500	0.06	1.8	4840	197	
145	900	600	0.05	1.5	4840	210	
145	900	750	0.05	1.2	4840	210	
145	900	900	0.04	1.0	4840	210	
145	900	1200	0.03	0.8	4840	210	
145	900	1500	0.03	0.6	4840	210	
145	900	1800	0.03	0.5	4840	210	
124	900	2400	0.02	0.4	4840	210	
120	900	3000	0.02	0.3	4840	210	
82	900	4000	0.01	0.2	4840	210	
79	900	5000	0.01	0.2	4840	210	
166	900	100	0.24	9.0	4967	197	ALW030/063
233	900	150	0.24	6.0	5686	197	
253	900	200	0.21	4.5	6259	197	
231	900	250	0.16	3.6	6270	197	
255	900	300	0.17	3.0	6270	175	
255	900	400	0.13	2.3	6270	197	
236	900	500	0.11	1.8	6270	197	
271	900	600	0.10	1.5	6270	210	
271	900	750	0.09	1.2	6270	210	
271	900	900	0.08	1.0	6270	210	
271	900	1200	0.06	0.8	6270	210	
271	900	1500	0.05	0.6	6270	210	
271	900	1800	0.05	0.5	6270	210	
255	900	2400	0.04	0.4	6270	210	
236	900	3000	0.03	0.3	6270	210	
236	900	4000	0.03	0.2	6270	210	
150	900	5000	0.01	0.2	6270	210	

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
137	900	100	0.20	9.0	3800	350	ALW040/050
135	900	150	0.14	6.0	4350	350	
120	900	200	0.10	4.5	4788	350	
110	900	250	0.08	3.6	4840	350	
145	900	300	0.09	3.0	4840	350	
124	900	400	0.07	2.3	4840	350	
137	900	500	0.06	1.8	3800	350	
145	900	600	0.05	1.5	4840	350	
145	900	750	0.04	1.2	4840	350	
135	900	900	0.04	1.0	4350	350	
145	900	1200	0.03	0.8	4840	350	
145	900	1500	0.03	0.6	4840	350	
145	900	1800	0.02	0.5	4840	350	
124	900	2400	0.02	0.4	4840	350	
120	900	3000	0.01	0.3	4840	350	
120	900	4000	0.01	0.2	4840	350	
120	900	5000	0.01	0.2	4840	350	
257	900	100	0.37	9.0	4967	350	ALW040/063
260	900	150	0.27	6.0	5686	350	
253	900	200	0.21	4.5	6259	350	
231	900	250	0.16	3.6	6270	350	
271	900	300	0.17	3.0	6270	350	
255	900	400	0.13	2.3	6270	350	
231	900	500	0.09	1.8	6270	350	
271	900	600	0.09	1.5	6270	350	
271	900	750	0.08	1.2	6270	350	
271	900	900	0.07	1.0	6270	350	
271	900	1200	0.06	0.8	6270	350	
271	900	1500	0.05	0.6	6270	350	
271	900	1800	0.04	0.5	6270	350	
255	900	2400	0.03	0.4	6270	350	
236	900	3000	0.03	0.3	6270	350	
236	900	4000	0.02	0.2	6270	350	
700	900	300	0.39	3.0	8180	490	ALW050/090
610	900	400	0.27	2.3	8180	490	
570	900	500	0.19	1.8	8180	490	
700	900	600	0.21	1.5	8180	490	
700	900	750	0.18	1.2	8180	490	
700	900	900	0.16	1.0	8180	490	
700	900	1200	0.13	0.8	8180	490	
700	900	1500	0.11	0.6	8180	490	
700	900	1800	0.10	0.5	8180	490	
610	900	2400	0.07	0.4	8180	490	
560	900	3000	0.05	0.3	8180	490	
560	900	4000	0.05	0.2	8180	490	
560	900	5000	0.04	0.2	8180	490	
664	900	100	0.90	9.0	8198	490	ALW050/105
959	900	150	0.90	6.0	9384	490	
1002	900	200	0.72	4.5	10320	490	
1032	900	250	0.61	3.6	10320	490	
1113	900	300	0.62	3.0	10320	490	
1043	900	400	0.45	2.3	10320	490	
1032	900	500	0.33	1.8	10320	490	
1113	900	600	0.34	1.5	10320	490	
1113	900	750	0.28	1.2	10320	490	
1113	900	900	0.26	1.0	10320	490	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
1113	900	1200	0.20	0.8	10320	490	ALW050/105
1113	900	1500	0.18	0.6	10320	490	
1113	900	1800	0.16	0.5	10320	490	
1043	900	2400	0.11	0.4	10320	490	
1034	900	3000	0.09	0.3	10320	490	
1034	900	4000	0.08	0.2	10320	490	
1034	900	5000	0.07	0.2	10320	490	
754	900	100	1.02	9.0	8198	490	ALW050/110
1090	900	150	1.02	6.0	9384	490	
1139	900	200	0.82	4.5	10320	490	
1173	900	250	0.69	3.6	10320	490	
1265	900	300	0.70	3.0	10320	490	
1185	900	400	0.51	2.3	10320	490	
1173	900	500	0.38	1.8	10320	490	
1265	900	600	0.39	1.5	10320	490	
1265	900	750	0.32	1.2	10320	490	
1265	900	900	0.29	1.0	10320	490	
1265	900	1200	0.23	0.8	10320	490	
1265	900	1500	0.20	0.6	10320	490	
1265	900	1800	0.18	0.5	10320	490	
1185	900	2400	0.13	0.4	10320	490	
1100	900	3000	0.10	0.3	10320	490	
1100	900	4000	0.08	0.2	10320	490	
1100	900	5000	0.07	0.2	10320	490	
992	900	100	1.34	9.0	8198	661	ALW063/105
1052	900	150	0.99	6.0	9384	661	
1002	900	200	0.72	4.5	10320	661	
1032	900	250	0.61	3.6	10320	661	
1113	900	300	0.62	3.0	10320	661	
1043	900	400	0.45	2.3	10320	661	
1032	900	500	0.33	1.8	10320	700	
1113	900	600	0.33	1.5	10320	700	
1113	900	750	0.27	1.2	10320	700	
1113	900	900	0.25	1.0	10320	700	
1113	900	1200	0.19	0.8	10320	700	
1113	900	1500	0.17	0.6	10320	700	
1113	900	1800	0.15	0.5	10320	700	
1043	900	2400	0.11	0.4	10320	700	
1034	900	3000	0.08	0.3	10320	700	
1034	900	4000	0.08	0.2	10320	700	
1034	900	5000	0.07	0.2	10320	700	
1127	900	100	1.52	9.0	8198	661	ALW063/110
1196	900	150	1.12	6.0	9384	661	
1139	900	200	0.82	4.5	10320	661	
1173	900	250	0.69	3.6	10320	661	
1265	900	300	0.70	3.0	10320	661	
1185	900	400	0.51	2.3	10320	661	
1173	900	500	0.38	1.8	10320	700	
1265	900	600	0.38	1.5	10320	700	
1265	900	750	0.31	1.2	10320	700	
1265	900	900	0.28	1.0	10320	700	
1265	900	1200	0.22	0.8	10320	700	
1265	900	1500	0.19	0.6	10320	700	
1265	900	1800	0.17	0.5	10320	700	

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
1185	900	2400	0.12	0.4	10320	700	ALW063/110
1100	900	3000	0.09	0.3	10320	700	
1100	900	4000	0.08	0.2	10320	700	
1100	900	5000	0.07	0.2	10320	700	
1270	900	100	1.70	9.0	10722	661	ALW063/130
1700	900	150	1.61	6.0	12274	661	
1600	900	200	1.15	4.5	13500	661	
1530	900	250	0.90	3.6	13500	661	
1760	900	300	0.96	3.0	13500	661	
1650	900	400	0.70	2.3	13500	661	
1550	900	500	0.55	1.8	13500	661	
1760	900	600	0.52	1.5	13500	700	
1760	900	750	0.43	1.2	13500	700	
1760	900	900	0.38	1.0	13500	700	
1760	900	1200	0.31	0.8	13500	700	
1760	900	1500	0.26	0.6	13500	700	
1760	900	1800	0.23	0.5	13500	700	
1650	900	2400	0.17	0.4	13500	700	
1550	900	3000	0.13	0.3	13500	700	
1550	900	4000	0.11	0.2	13500	700	
1550	900	5000	0.10	0.2	13500	700	
2325	900	150	2.16	6.0	18000	580	ALW063/150
2340	900	200	1.68	4.5	18000	661	
2050	900	250	1.21	3.6	18000	661	
2340	900	300	1.16	3.0	18000	700	
2670	900	400	1.12	2.3	18000	661	
2330	900	500	0.83	1.8	18000	661	
2670	900	600	0.77	1.5	18000	700	
2330	900	750	0.58	1.2	18000	700	
2100	900	900	0.42	1.0	18000	700	
2670	900	1200	0.45	0.8	18000	700	
2100	900	1800	0.26	0.5	18000	700	
2670	900	2400	0.27	0.4	18000	700	
2330	900	3000	0.20	0.3	18000	700	
2330	900	4000	0.17	0.2	18000	700	
2330	900	5000	0.15	0.2	18000	700	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
71	500	100	0.06	5.0	2769	210	ALW030/040
72	500	150	0.04	3.3	3169	210	
65	500	200	0.03	2.5	3488	210	
61	500	250	0.03	2.0	3490	210	
73	500	300	0.03	1.7	3490	210	
65	500	400	0.02	1.3	3490	210	
61	500	500	0.01	1.0	3490	210	
73	500	600	0.02	0.8	3490	210	
73	500	750	0.01	0.7	3490	210	
73	500	900	0.01	0.6	3490	210	
73	500	1200	0.01	0.4	3490	210	
73	500	1500	0.01	0.3	3490	210	
73	500	1800	0.01	0.3	3490	210	
65	500	2400	0.01	0.2	3490	210	
60	500	3000	0.00	0.2	3490	210	
48	500	4000	0.00	0.1	3490	210	
43	500	5000	0.00	0.1	3490	210	
137	500	100	0.12	5.0	3800	210	ALW030/050
135	500	150	0.08	3.3	4350	210	
120	500	200	0.06	2.5	4788	210	
110	500	250	0.05	2.0	4840	210	
145	500	300	0.05	1.7	4840	210	
124	500	400	0.04	1.3	4840	210	
120	500	500	0.03	1.0	4840	210	
145	500	600	0.03	0.8	4840	210	
145	500	750	0.03	0.7	4840	210	
145	500	900	0.02	0.6	4840	210	
145	500	1200	0.02	0.4	4840	210	
145	500	1500	0.02	0.3	4840	210	
145	500	1800	0.02	0.3	4840	210	
124	500	2400	0.01	0.2	4840	210	
120	500	3000	0.01	0.2	4840	210	
82	500	4000	0.01	0.1	4840	210	
79	500	5000	0.00	0.1	4840	210	ALW040/050
137	500	100	0.11	5.0	3800	350	
135	500	150	0.08	3.3	4350	350	
120	500	200	0.06	2.5	4788	350	
110	500	250	0.04	2.0	4840	350	
145	500	300	0.05	1.7	4840	350	
124	500	400	0.04	1.3	4840	350	
137	500	500	0.03	1.0	3800	350	
145	500	600	0.03	0.8	4840	350	
145	500	750	0.02	0.7	4840	350	
135	500	900	0.02	0.6	4350	350	
145	500	1200	0.02	0.4	4840	350	
145	500	1500	0.02	0.3	4840	350	
145	500	1800	0.01	0.3	4840	350	
124	500	2400	0.01	0.2	4840	350	
120	500	3000	0.01	0.2	4840	350	
120	500	4000	0.01	0.1	4840	350	
120	500	5000	0.01	0.1	4840	350	
198	500	100	0.17	5.0	4967	210	ALW030/063
260	500	150	0.16	3.3	5686	210	
253	500	200	0.12	2.5	6259	210	
231	500	250	0.09	2.0	6270	210	
255	500	300	0.10	1.7	6270	210	

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
255	500	400	0.08	1.3	6270	210	ALW030/063
236	500	500	0.06	1.0	6270	210	
271	500	600	0.06	0.8	6270	210	
271	500	750	0.05	0.7	6270	210	
271	500	900	0.04	0.6	6270	210	
271	500	1200	0.04	0.4	6270	210	
271	500	1500	0.03	0.3	6270	210	
271	500	1800	0.03	0.3	6270	210	
255	500	2400	0.02	0.2	6270	210	
236	500	3000	0.02	0.2	6270	210	
236	500	4000	0.02	0.1	6270	210	
150	500	5000	0.01	0.1	6270	210	
257	500	100	0.21	5.0	4967	350	ALW040/063
260	500	150	0.15	3.3	5686	350	
253	500	200	0.12	2.5	6259	350	
231	500	250	0.09	2.0	6270	350	
271	500	300	0.10	1.7	6270	350	
255	500	400	0.07	1.3	6270	350	
231	500	500	0.05	1.0	6270	350	
271	500	600	0.05	0.8	6270	350	
271	500	750	0.04	0.7	6270	350	
271	500	900	0.04	0.6	6270	350	
271	500	1200	0.03	0.4	6270	350	
271	500	1500	0.03	0.3	6270	350	
271	500	1800	0.03	0.3	6270	350	
255	500	2400	0.02	0.2	6270	350	
236	500	3000	0.02	0.2	6270	350	
236	500	4000	0.01	0.1	6270	350	
700	500	300	0.22	1.7	8180	490	ALW050/090
610	500	400	0.16	1.3	8180	490	
570	500	500	0.11	1.0	8180	490	
700	500	600	0.12	0.8	8180	490	
700	500	750	0.10	0.7	8180	490	
700	500	900	0.09	0.6	8180	490	
700	500	1200	0.08	0.4	8180	490	
700	500	1500	0.07	0.3	8180	490	
700	500	1800	0.06	0.3	8180	490	
610	500	2400	0.04	0.2	8180	490	
560	500	3000	0.03	0.2	8180	490	
560	500	4000	0.03	0.1	8180	490	
560	500	5000	0.02	0.1	8180	490	
816	500	100	0.63	5.0	8198	490	ALW050/105
1052	500	150	0.56	3.3	9384	490	
1002	500	200	0.41	2.5	10320	490	
1032	500	250	0.35	2.0	10320	490	
1113	500	300	0.35	1.7	10320	490	
1043	500	400	0.26	1.3	10320	490	
1032	500	500	0.19	1.0	10320	490	
1113	500	600	0.19	0.8	10320	490	
1113	500	750	0.17	0.7	10320	490	
1113	500	900	0.15	0.6	10320	490	
1113	500	1200	0.12	0.4	10320	490	
1113	500	1500	0.11	0.3	10320	490	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
1113	500	1800	0.10	0.3	10320	490	ALW050/105
1043	500	2400	0.07	0.2	10320	490	
1034	500	3000	0.06	0.2	10320	490	
1034	500	4000	0.05	0.1	10320	490	
1034	500	5000	0.05	0.1	10320	490	
927	500	100	0.72	5.0	8198	490	ALW050/110
1196	500	150	0.64	3.3	9384	490	
1139	500	200	0.47	2.5	10320	490	
1173	500	250	0.40	2.0	10320	490	
1265	500	300	0.40	1.7	10320	490	
1185	500	400	0.29	1.3	10320	490	
1173	500	500	0.22	1.0	10320	490	
1265	500	600	0.22	0.8	10320	490	
1265	500	750	0.19	0.7	10320	490	
1265	500	900	0.17	0.6	10320	490	
1265	500	1200	0.14	0.4	10320	490	
1265	500	1500	0.12	0.3	10320	490	
1265	500	1800	0.11	0.3	10320	490	
1185	500	2400	0.08	0.2	10320	490	
1100	500	3000	0.06	0.2	10320	490	
1100	500	4000	0.05	0.1	10320	490	
1100	500	5000	0.05	0.1	10320	490	
992	500	100	0.77	5.0	8198	700	ALW063/105
1052	500	150	0.56	3.3	9384	700	
1002	500	200	0.41	2.5	10320	700	
1032	500	250	0.35	2.0	10320	700	
1113	500	300	0.35	1.7	10320	700	
1043	500	400	0.26	1.3	10320	700	
1032	500	500	0.19	1.0	10320	700	
1113	500	600	0.19	0.8	10320	700	
1113	500	750	0.16	0.7	10320	700	
1113	500	900	0.15	0.6	10320	700	
1113	500	1200	0.11	0.4	10320	700	
1113	500	1500	0.11	0.3	10320	700	
1113	500	1800	0.09	0.3	10320	700	
1043	500	2400	0.06	0.2	10320	700	
1034	500	3000	0.06	0.2	10320	700	
1034	500	4000	0.05	0.1	10320	700	
1034	500	5000	0.04	0.1	10320	700	
1127	500	100	0.88	5.0	8198	700	ALW063/110
1196	500	150	0.64	3.3	9384	700	
1139	500	200	0.47	2.5	10320	700	
1173	500	250	0.40	2.0	10320	700	
1265	500	300	0.40	1.7	10320	700	
1185	500	400	0.29	1.3	10320	700	
1173	500	500	0.22	1.0	10320	700	
1265	500	600	0.22	0.8	10320	700	
1265	500	750	0.18	0.7	10320	700	
1265	500	900	0.17	0.6	10320	700	
1265	500	1200	0.13	0.4	10320	700	
1265	500	1500	0.12	0.3	10320	700	
1265	500	1800	0.10	0.3	10320	700	
1185	500	2400	0.07	0.2	10320	700	
1100	500	3000	0.06	0.2	10320	700	
1100	500	4000	0.05	0.1	10320	700	
1100	500	5000	0.04	0.1	10320	700	

7. PERFORMANCE PARAMETER

7.5 ALW... / ALM... Performance Parameter

M_{n2} [Nm]	n_1 [r/min]	i	P_{in} [kW]	n_2 [r/min]	F_{r2} [N]	F_{r1} [N]	
1530	500	100	1.18	5.0	10722	700	ALW063/130
1700	500	150	0.93	3.3	12274	700	
1600	500	200	0.66	2.5	13500	700	
1530	500	250	0.52	2.0	13500	700	
1760	500	300	0.55	1.7	13500	700	
1650	500	400	0.41	1.3	13500	700	
1550	500	500	0.32	1.0	13500	700	
1760	500	600	0.30	0.8	13500	700	
1760	500	750	0.25	0.7	13500	700	
1760	500	900	0.23	0.6	13500	700	
1760	500	1200	0.18	0.4	13500	700	
1760	500	1500	0.16	0.3	13500	700	
1760	500	1800	0.14	0.3	13500	700	
1650	500	2400	0.10	0.2	13500	700	
1550	500	3000	0.08	0.2	13500	700	
1550	500	4000	0.07	0.1	13500	700	
1550	500	5000	0.06	0.1	13500	700	
2340	500	150	1.23	3.3	18000	700	ALW063/150
2340	500	200	0.97	2.5	18000	700	
2050	500	250	0.70	2.0	18000	700	
2340	500	300	0.68	1.7	18000	700	
2670	500	400	0.65	1.3	18000	700	
2330	500	500	0.48	1.0	18000	700	
2670	500	600	0.45	0.8	18000	700	
2330	500	750	0.34	0.7	18000	700	
2100	500	900	0.25	0.6	18000	700	
2670	500	1200	0.27	0.4	18000	700	
2100	500	1800	0.15	0.3	18000	700	
2670	500	2400	0.16	0.2	18000	700	
2330	500	3000	0.12	0.2	18000	700	
2330	500	4000	0.10	0.1	18000	700	
2330	500	5000	0.09	0.1	18000	700	



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.6 ALMV... - ALM... (n₁=1400r/min) / Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i		
0.18	117 ~ 22.5	9 ~ 18	12 ~ 61.5	ALMV0.18 - ALM040	6324
	88 ~ 17	12 ~ 23	16 ~ 82		
	58.7 ~ 11.3	17 ~ 32	24 ~ 123		
	44 ~ 8.5	22 ~ 40	32 ~ 164		
	35.2 ~ 6.8	27 ~ 47	40 ~ 205		
	29.3 ~ 5.7	30 ~ 51	48 ~ 246		
	22 ~ 4.3	37 ~ 62	64 ~ 328		
	17.6 ~ 3.4	43 ~ 60	80 ~ 410		
	22 ~ 4.3	38 ~ 63	64 ~ 328	ALMV0.18 - ALM050	6324
	17.6 ~ 3.4	44 ~ 73	80 ~ 410		
	14.7 ~ 2.8	50 ~ 80	96 ~ 492		
	11 ~ 2.1	59 ~ 82	128 ~ 656		
	8.8 ~ 1.7	66 ~ 79	160 ~ 820		
0.37	133 ~ 26.7	19 ~ 36	10.5 ~ 52.5	ALMV0.37 - ALM050	7124
	100 ~ 20	25 ~ 47	14 ~ 70		
	66.7 ~ 13.3	36 ~ 65	21 ~ 105		
	50 ~ 10	46 ~ 82	28 ~ 140		
	40 ~ 8	55 ~ 97	35 ~ 175		
	33.3 ~ 6.7	61 ~ 107	42 ~ 210		
	25 ~ 5	76 ~ 124	56 ~ 280		
	20 ~ 4	89 ~ 120	70 ~ 350		
	25 ~ 5	79 ~ 134	56 ~ 280	ALMV0.37 - ALM063	7124
	20 ~ 4	92 ~ 155	70 ~ 350		
	16.7 ~ 3.3	104 ~ 173	84 ~ 420		
	12.5 ~ 2.5	125 ~ 173	112 ~ 560		
	10 ~ 2	139 ~ 150	140 ~ 700		
0.55	133 ~ 26.7	26 ~ 49	10.5 ~ 52.5	ALMV0.55 - ALM063	8014
	100 ~ 20	34 ~ 63	14 ~ 70		
	66.7 ~ 13.3	48 ~ 88	21 ~ 105		
	50 ~ 10	62 ~ 112	28 ~ 140		
	40 ~ 8	75 ~ 133	35 ~ 175		
	33.3 ~ 6.7	81 ~ 146	42 ~ 210		
	25 ~ 5	105 ~ 179	56 ~ 280		
	20 ~ 4	123 ~ 207	70 ~ 350		
	20 ~ 4	129 ~ 216	70 ~ 350	ALMV0.55 - ALM075	8014
	16.7 ~ 3.3	146 ~ 242	84 ~ 420		
	12.5 ~ 2.5	176 ~ 250	112 ~ 560		
	12.5 ~ 2.5	189 ~ 309	112 ~ 560	ALMV0.55 - ALM090	8014
	10 ~ 2	218 ~ 350	140 ~ 700		

7. PERFORMANCE PARAMETER

7.6 ALMV... - ALM... (n₁=1400r/min) / Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i		
0.75	133 ~ 26.7	39 ~ 73	10.5 ~ 52.5	ALMV0.75 - ALM063	8024
	100 ~ 20	51 ~ 94	14 ~ 70		
	66.7 ~ 13.3	72 ~ 132	21 ~ 105		
	50 ~ 10	92 ~ 168	28 ~ 140		
	40 ~ 8	112 ~ 199	35 ~ 175		
	33.3 ~ 6.7	126 ~ 219	42 ~ 210		
	25 ~ 5	156 ~ 232	56 ~ 280		
	20 ~ 4	185 ~ 310	70 ~ 350		
	20 ~ 4	192 ~ 320	70 ~ 350	ALMV0.75 - ALM075	8024
	16.7 ~ 3.3	219 ~ 300	84 ~ 420		
	16.7 ~ 3.3	230 ~ 389	84 ~ 420	ALMV0.75 - ALM090	8024
	12.5 ~ 2.5	265 ~ 428	112 ~ 560		
	10 ~ 2	303 ~ 410	140 ~ 700		
	12.5 ~ 2.5	302 ~ 503	112 ~ 560	ALMV0.75 - ALM105	8024
	10 ~ 2	348 ~ 575	140 ~ 700		
	12.5 ~ 2.5	302 ~ 503	112 ~ 560	ALMV0.75 - ALM110	8024
	10 ~ 2	348 ~ 575	140 ~ 700		
1.1	133 ~ 26.7	59 ~ 111	10.5 ~ 52.5	AL1.1 - ALM075	90S4
	100 ~ 20	77 ~ 144	14 ~ 70		
	66.7 ~ 13.3	110 ~ 203	21 ~ 105		
	50 ~ 10	142 ~ 258	28 ~ 140		
	40 ~ 8	172 ~ 308	35 ~ 175		
	33.3 ~ 6.7	195 ~ 340	42 ~ 210		
	25 ~ 5	245 ~ 360	56 ~ 280		
	100 ~ 20	78 ~ 146	14 ~ 70	AL1.1 - ALM090	90S4
	66.7 ~ 13.3	113 ~ 208	21 ~ 105		
	50 ~ 10	146 ~ 266	28 ~ 140		
	40 ~ 8	177 ~ 320	35 ~ 175		
	33.3 ~ 6.7	202 ~ 356	42 ~ 210		
	25 ~ 5	256 ~ 442	56 ~ 280		
	20 ~ 4	304 ~ 517	70 ~ 350		
	20 ~ 4	320 ~ 550	70 ~ 350	AL1.1 - ALM105	90S4
	16.7 ~ 3.3	368 ~ 625	84 ~ 420		
	12.5 ~ 2.5	455 ~ 754	112 ~ 560		
	10 ~ 2	522 ~ 710	140 ~ 700		
	20 ~ 4	320 ~ 550	70 ~ 350	AL1.1 - ALM110	90S4
	16.7 ~ 3.3	368 ~ 625	84 ~ 420		
	12.5 ~ 2.5	455 ~ 754	112 ~ 560		
	10 ~ 2	522 ~ 710	140 ~ 700		
	16.7 ~ 3.3	373 ~ 623	84 ~ 420	AL1.1 - ALM130	90S4
	12.5 ~ 2.5	460 ~ 749	112 ~ 560		
	10 ~ 2	531 ~ 868	140 ~ 700		



PERFORMANCE PARAMETER

7. PERFORMANCE PARAMETER

7.6 ALMV... - ALM... (n₁=1400r/min) / Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i		
1.5	133 ~ 26.7	78 ~ 148	10.5 ~ 52.5	AL1.5 - ALM075	90L4
	100 ~ 20	102 ~ 192	14 ~ 70		
	66.7 ~ 13.3	147 ~ 270	21 ~ 105		
	50 ~ 10	190 ~ 344	28 ~ 140		
	40 ~ 8	229 ~ 330	35 ~ 175		
	33.3 ~ 6.7	260 ~ 390	42 ~ 210		
	25 ~ 5	327 ~ 360	56 ~ 280		
	133 ~ 26.7	77 ~ 150	10.5 ~ 52.5	AL1.5 - ALM090	90L4
	100 ~ 20	104 ~ 195	14 ~ 70		
	66.7 ~ 13.3	150 ~ 277	21 ~ 105		
	50 ~ 10	194 ~ 355	28 ~ 140		
	40 ~ 8	236 ~ 427	35 ~ 175		
	33.3 ~ 6.7	270 ~ 474	42 ~ 210		
	25 ~ 5	341 ~ 589	56 ~ 280		
	20 ~ 4	406 ~ 560	70 ~ 350		
	20 ~ 4	426 ~ 733	70 ~ 350	AL1.5 - ALM105	90L4
	16.7 ~ 3.3	490 ~ 833	84 ~ 420		
	20 ~ 4	426 ~ 733	70 ~ 350	AL1.5 - ALM110	90L4
	16.7 ~ 3.3	490 ~ 833	84 ~ 420		
	16.7 ~ 3.3	498 ~ 831	84 ~ 420	AL1.5 - ALM130	90L4
	12.5 ~ 2.5	614 ~ 999	112 ~ 560		
2.2	10 ~ 2	696 ~ 1100	140 ~ 700	AL2.2 - ALM105	100LA4
	133 ~ 26.7	120 ~ 226	10.5 ~ 52.5		
	100 ~ 20	157 ~ 294	14 ~ 70		
	66.7 ~ 13.3	228 ~ 418	21 ~ 105		
	50 ~ 10	298 ~ 549	28 ~ 140		
	40 ~ 8	364 ~ 664	35 ~ 175		
	33.3 ~ 6.7	413 ~ 717	42 ~ 210		
	25 ~ 5	533 ~ 931	56 ~ 280	AL2.2 - ALM110	100LA4
	133 ~ 26.7	120 ~ 226	10.5 ~ 52.5		
	100 ~ 20	157 ~ 294	14 ~ 70		
	66.7 ~ 13.3	228 ~ 418	21 ~ 105		
	50 ~ 10	298 ~ 549	28 ~ 140		
	40 ~ 8	364 ~ 664	35 ~ 175		
	33.3 ~ 6.7	413 ~ 717	42 ~ 210		
	25 ~ 5	533 ~ 931	56 ~ 280	AL2.2 - ALM130	100LA4
	25 ~ 5	542 ~ 932	56 ~ 280		
	20 ~ 4	648 ~ 1097	70 ~ 350		
	16.7 ~ 3.3	746 ~ 1246	84 ~ 420		
	12.5 ~ 2.5	921 ~ 1499	112 ~ 560		
	10 ~ 2	1040 ~ 1690	140 ~ 700		

7. PERFORMANCE PARAMETER

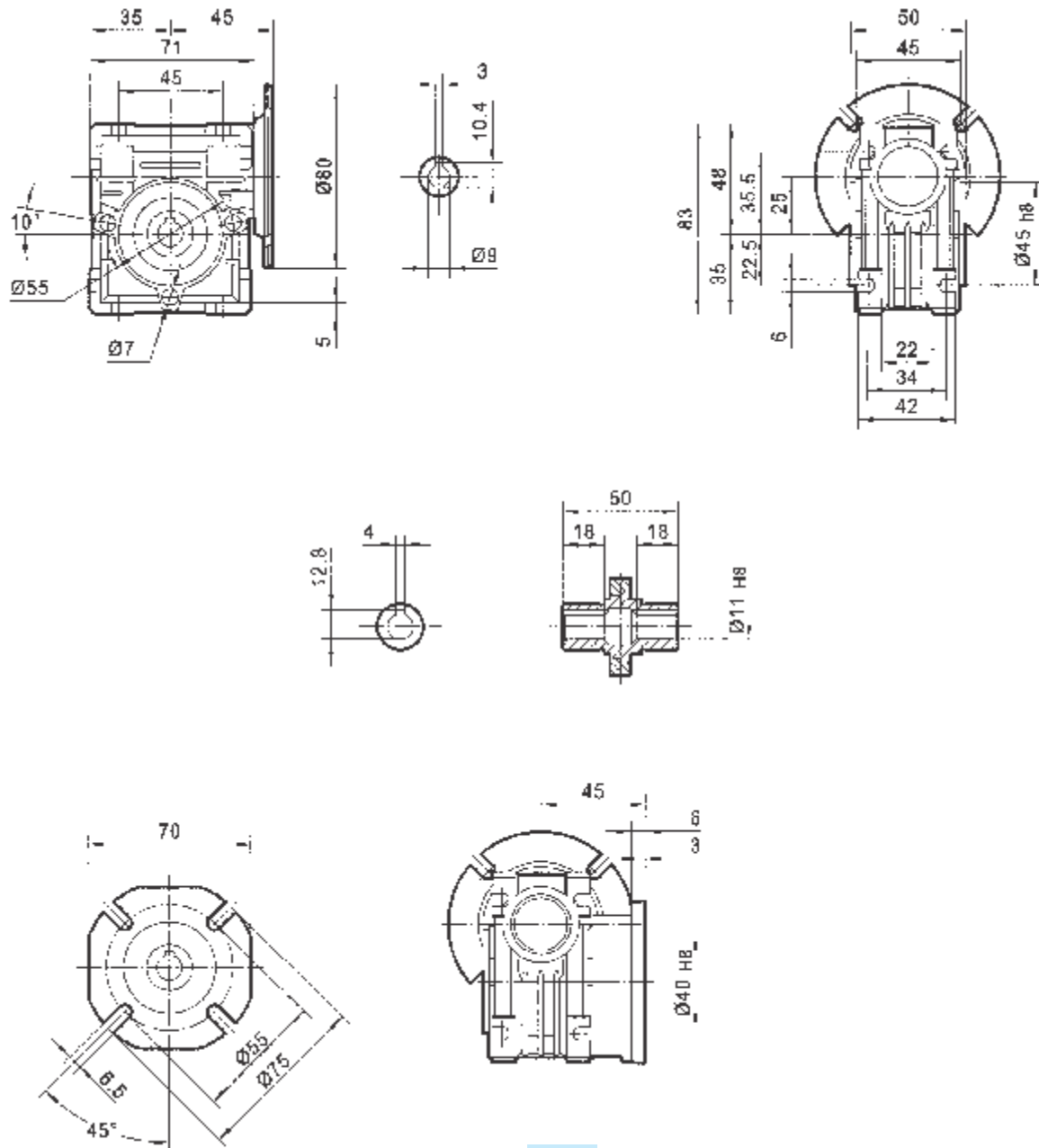
7.6 ALMV... - ALM... (n₁=1400r/min) / Performance Parameter

P _{1n}	n ₂ [r/min]	M _{n2} [Nm]	i		
3.0	133 ~ 26.7	160 ~ 302	10.5 ~ 52.5	AL3.0 - ALM105	100LB4
	100 ~ 20	210 ~ 392	14 ~ 70		
	66.7 ~ 13.3	304 ~ 558	21 ~ 105		
	50 ~ 10	398 ~ 732	28 ~ 140		
	40 ~ 8	485 ~ 885	35 ~ 175		
	33.3 ~ 6.7	547 ~ 956	42 ~ 210		
	25 ~ 5	711 ~ 1030	56 ~ 280		
	133 ~ 26.7	160 ~ 302	10.5 ~ 52.5	AL3.0 - ALM110	100LB4
	100 ~ 20	210 ~ 392	14 ~ 70		
	66.7 ~ 13.3	304 ~ 558	21 ~ 105		
	50 ~ 10	398 ~ 732	28 ~ 140		
	40 ~ 8	485 ~ 885	35 ~ 175		
	33.3 ~ 6.7	547 ~ 956	42 ~ 210		
	25 ~ 5	711 ~ 1030	56 ~ 280		
	133 ~ 26.7	160 ~ 301	10.5 ~ 52.5	AL3.0 - ALM130	100LB4
	100 ~ 20	211 ~ 395	14 ~ 70		
	66.7 ~ 13.3	307 ~ 563	21 ~ 105		
	50 ~ 10	402 ~ 733	28 ~ 140		
	40 ~ 8	490 ~ 885	35 ~ 175		
	33.3 ~ 6.7	562 ~ 973	42 ~ 210		
	25 ~ 5	720 ~ 1242	56 ~ 280		
	20 ~ 4	864 ~ 1463	70 ~ 350		
4.0	133 ~ 26.7	213 ~ 402	10.5 ~ 52.5	AL4.0 - ALM105	112M4
	100 ~ 20	279 ~ 523	14 ~ 70		
	66.7 ~ 13.3	405 ~ 744	21 ~ 105		
	50 ~ 10	530 ~ 975	28 ~ 140		
	40 ~ 8	647 ~ 1020	35 ~ 175	AL4.0 - ALM110	112M4
	133 ~ 26.7	213 ~ 402	10.5 ~ 52.5		
	100 ~ 20	279 ~ 523	14 ~ 70		
	66.7 ~ 13.3	405 ~ 744	21 ~ 105		
	50 ~ 10	530 ~ 975	28 ~ 140		
	40 ~ 8	647 ~ 1020	35 ~ 175	AL4.0 - ALM130	112M4
	133 ~ 26.7	214 ~ 401	10.5 ~ 52.5		
	100 ~ 20	281 ~ 527	14 ~ 70		
	66.7 ~ 13.3	410 ~ 751	21 ~ 105		
	50 ~ 10	536 ~ 978	28 ~ 140		
	40 ~ 8	653 ~ 1180	35 ~ 175		
	33.3 ~ 6.7	749 ~ 1298	42 ~ 210		
	25 ~ 5	960 ~ 1650	56 ~ 280		

ALM... / OUTLINE DIMENSION SHEET

8.1 ALM... / Outline Dimension

ALM - WORM GEAR UNITS - ALM025

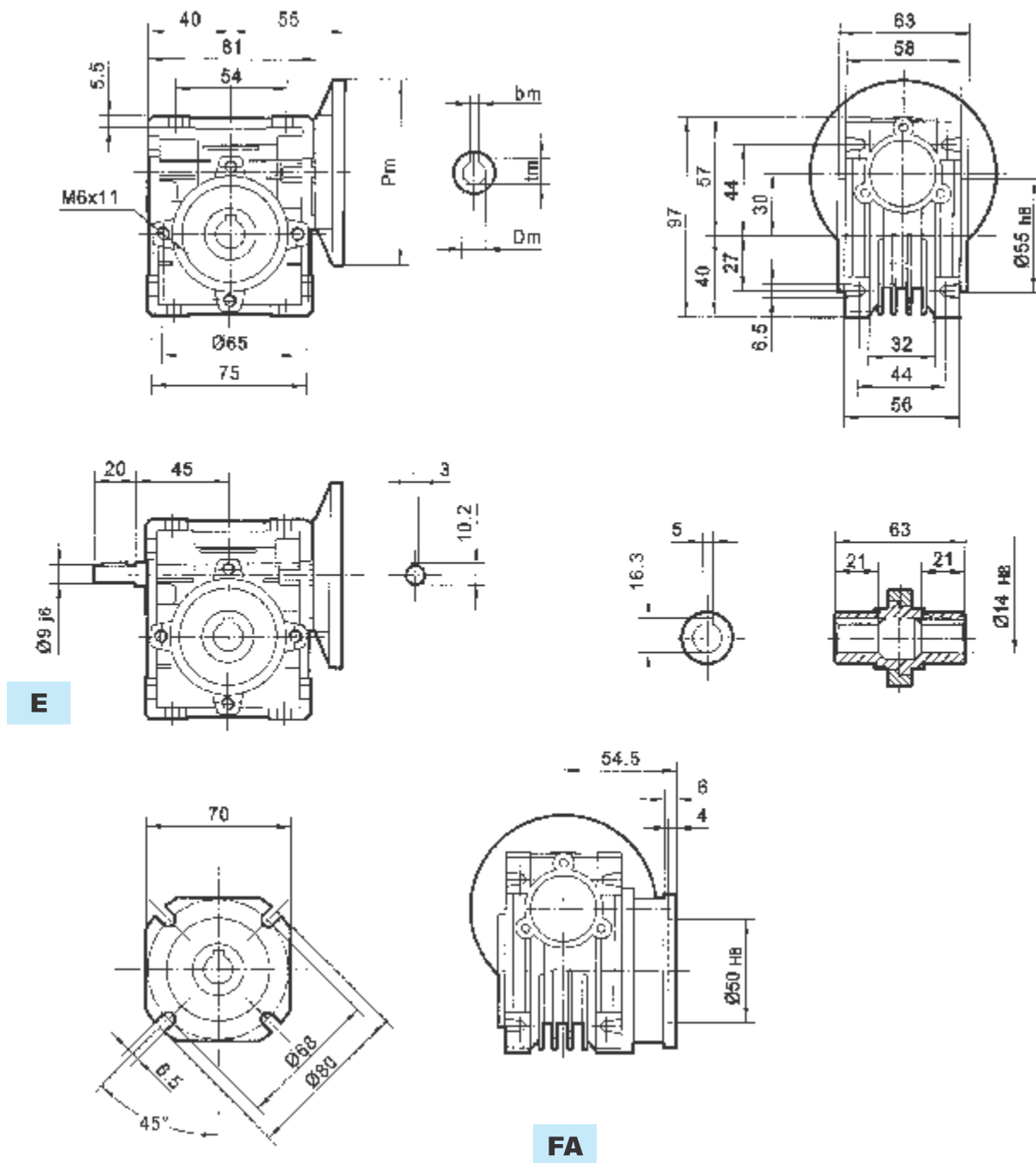


FA

Weight without motor ≈ 0.7 kg

8.1 ALM... / Outline Dimension

ALM030



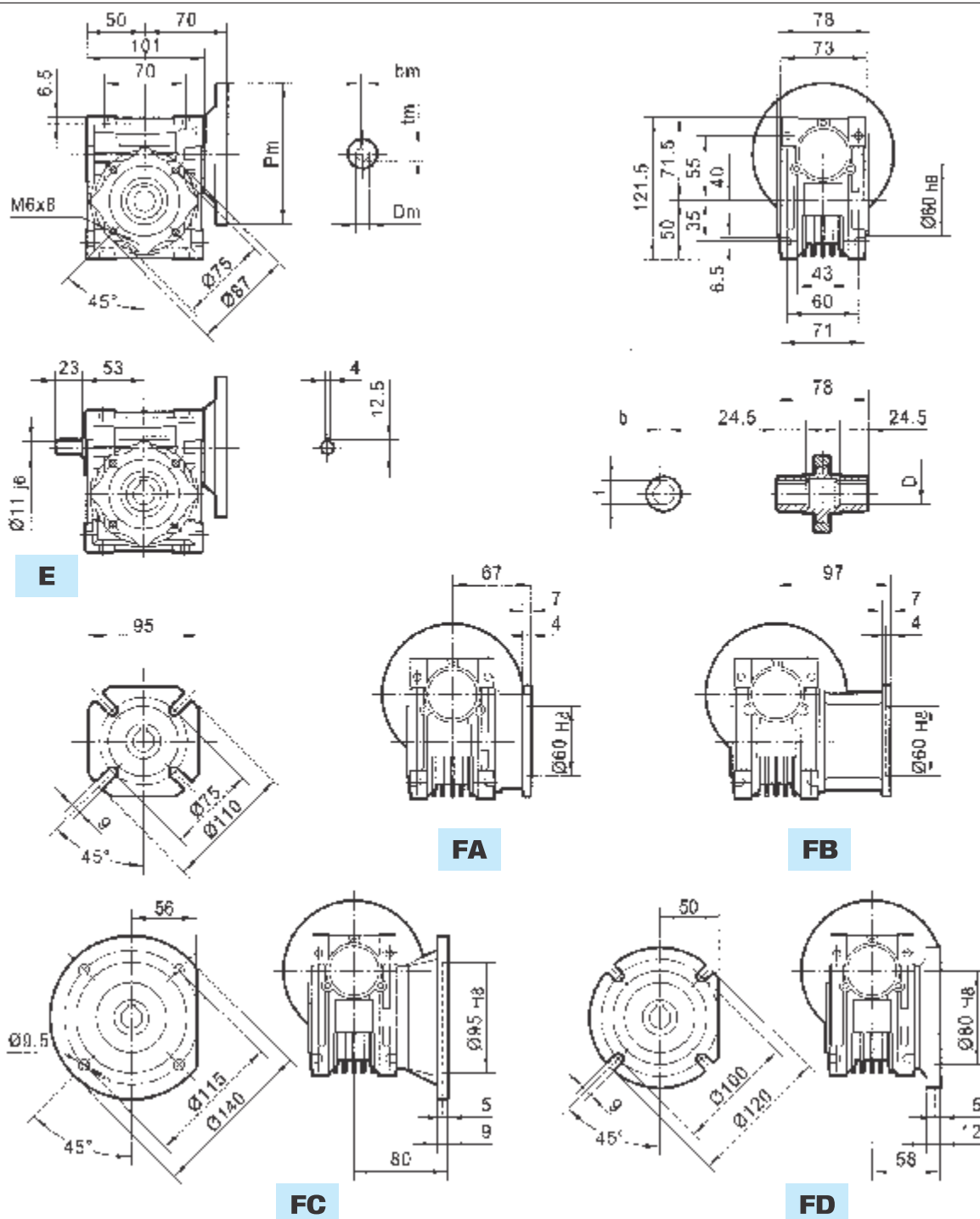
IEC	D _{Es}	b	t	P	M	N	S	T
56B5	9	3	10.4	120	100	80	7	4
56B14	9	3	10.4	80	65	50	5.5	4
63B5	11	4	12.8	140	115	95	9.4	4
63B14	11	4	12.8	90	75	60	5.5	4

Weight without motor ≈ 1.2 kg


ALM... / OUTLINE DIMENSION SHEET

8.1 ALM... / Outline Dimension

ALM040

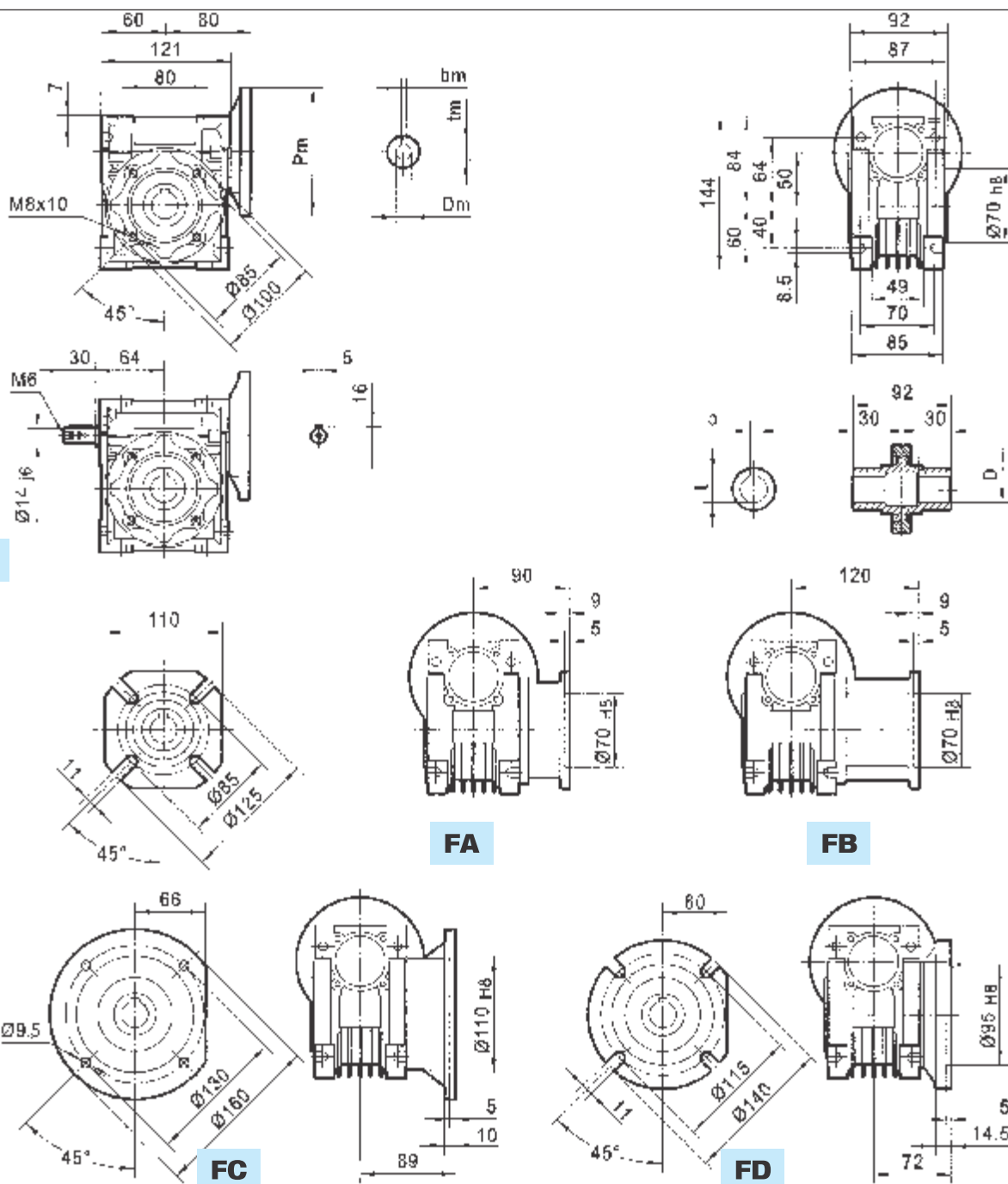


IEC	D _{ES}	b	t	P	M	N	S	T	D1 H8	b1	t1
56B5	9	3	10.4	120	100	80	7	4	13	6	20.8
63BS	11	4	12.8	140	115	95	9	4	19*	6*	21.8*
63B14	11	4	12.8	90	75	60	5.5	4	*Only on request		
71B5	14	5	16.3	160	130	110	9	4			
71B14	14	5	16.3	105	85	70	7	4			

Weight without motor ≈ 2.3 kg

8.1 ALM... / Outline Dimension

ALM050

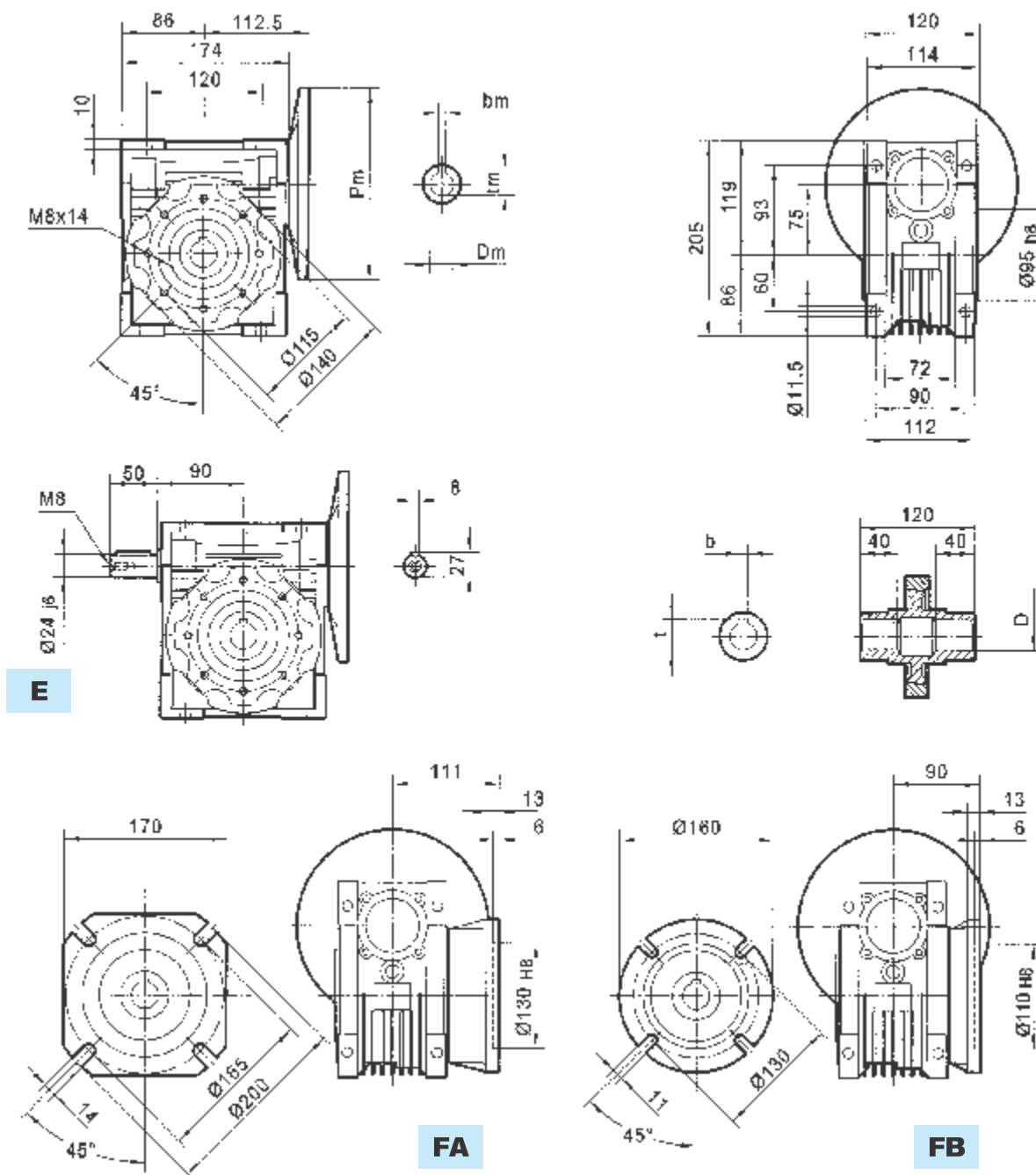


IEC	D _{ES}	b	t	P	M	N	S	T	D1 H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	25	8	28.3
71B5	14	5	16.3	160	130	110	9	4	24*	8*	27.3*
71B14	14	5	16.3	105	85	70	7	4	*Only on request		
80B5	19	6	21.8	200	165	130	11	4			
80B14	19	6	21.8	120	100	80	7	4			

Weight without motor ≈ 3.5 kg

ALM075

8.1 ALM... / Outline Dimension



IEC	D _{Es}	b	t	P	M	N	S	T	D1 H8	b1	t1
71B5	14	5	16.3	160	130	110	9	4	25	8	31.3
80B5	19	6	21.8	200	165	130	11	4	28*	10*	38.3*
80B14	19	6	21.8	120	100	80	7	4	*Only on request		
90B5	24	8	27.3	200	165	130	11	4			
90B14	24	8	27.3	140	115	95	9	4			
100/112B5	28	8	31.3	250	215	180	13.5	4.5			
100/112B14	28	8	31.3	160	130	110	9	4.5			

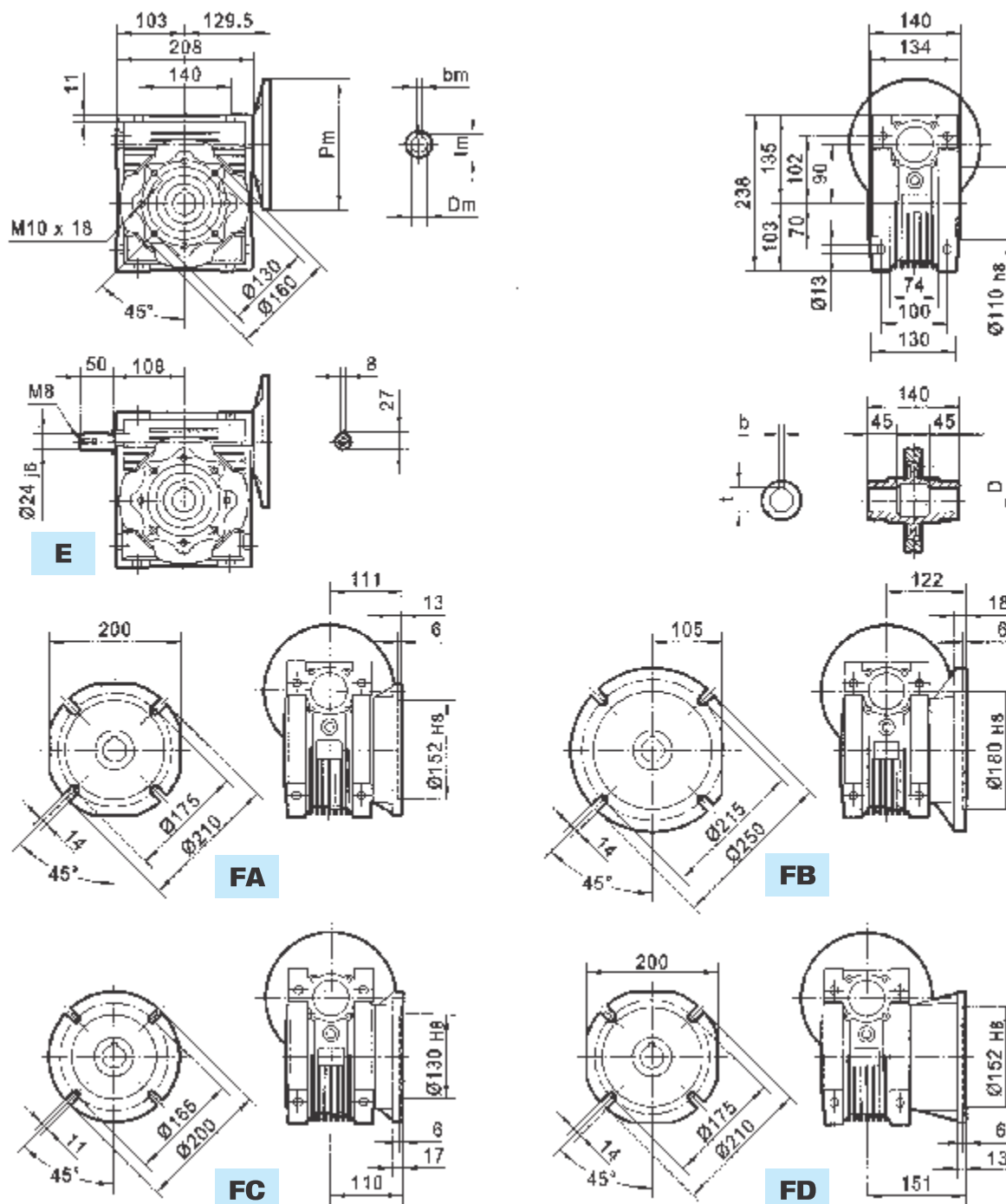
Weight without motor ≈ 9 kg



ALM... / OUTLINE DIMENSION SHEET

8.1 ALM... / Outline Dimension

ALM090

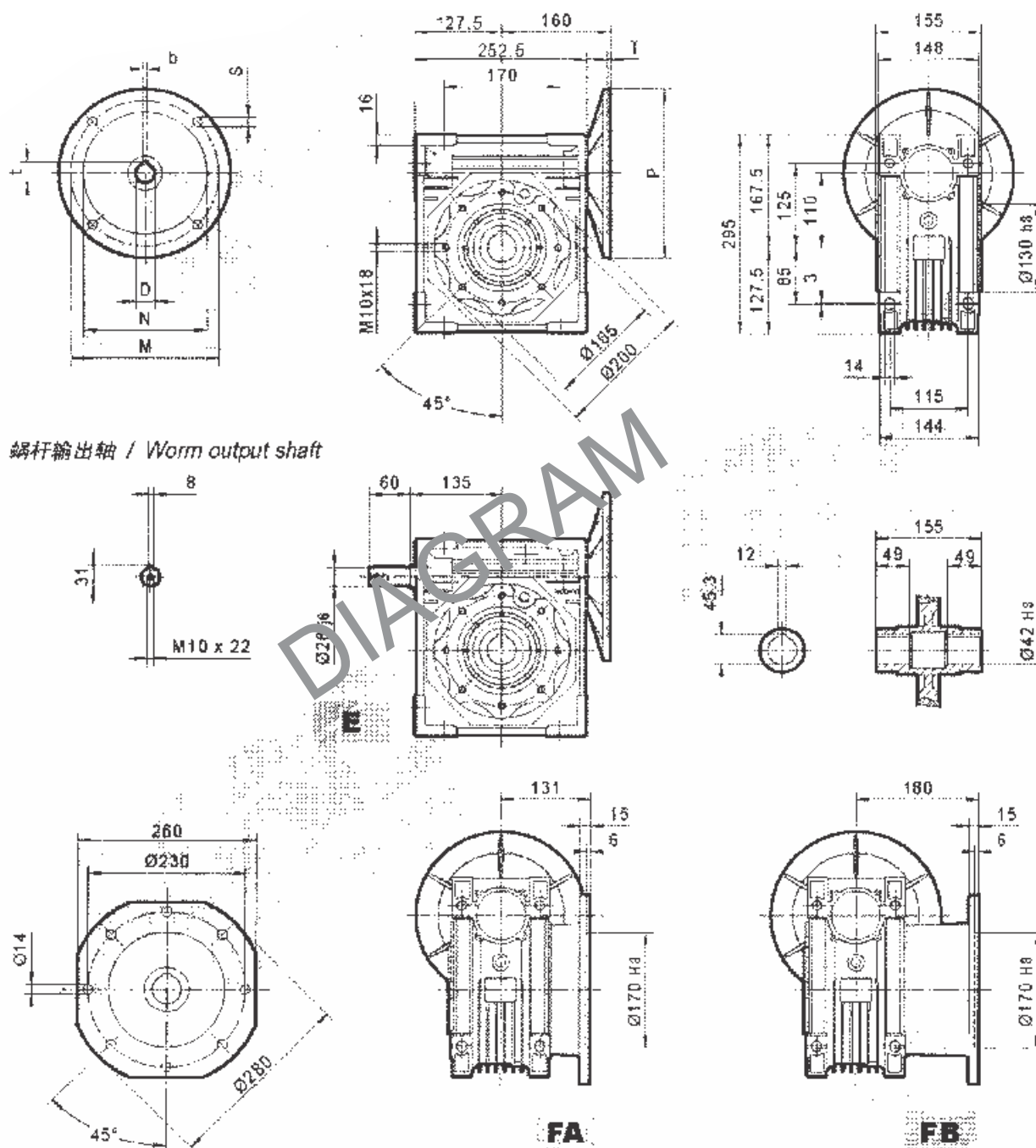


IEC	D _{ES}	b	t	P	M	N	S	T	D1 H8	b1	t1
80B5	19	6	21.8	200	165	130	11	4	35	10	38.3
80B14	19	6	21.8	120	100	80	7	4	38*	10*	41.3*
90B5	24	8	27.3	200	165	130	11	4	*Only on request		
90B14	24	8	27.3	140	115	95	9	4			
100/112B5	28	8	31.3	250	215	180	13.5	4.5			
100/112B14	28	8	31.3	160	130	110	9	4.5			

Weight without motor ≈ 13 kg

8.1 ALM... / Outline Dimension

ALM0105



IEC	D _{ES}	b	t	P	M	N	S	T
80B5	19	6	21.8	200	165	130	11	4
90B5	24	8	27.3	200	165	130	11	4
100B5	28	8	31.3	250	215	180	14	4.5
112B5	28	8	31.3	250	215	180	14	4.5
132B5	38	10	41.3	300	265	230	14	4.5

Weight without motor ≈ 21 kg

8.1 ALM... / Outline Dimension

ALM110

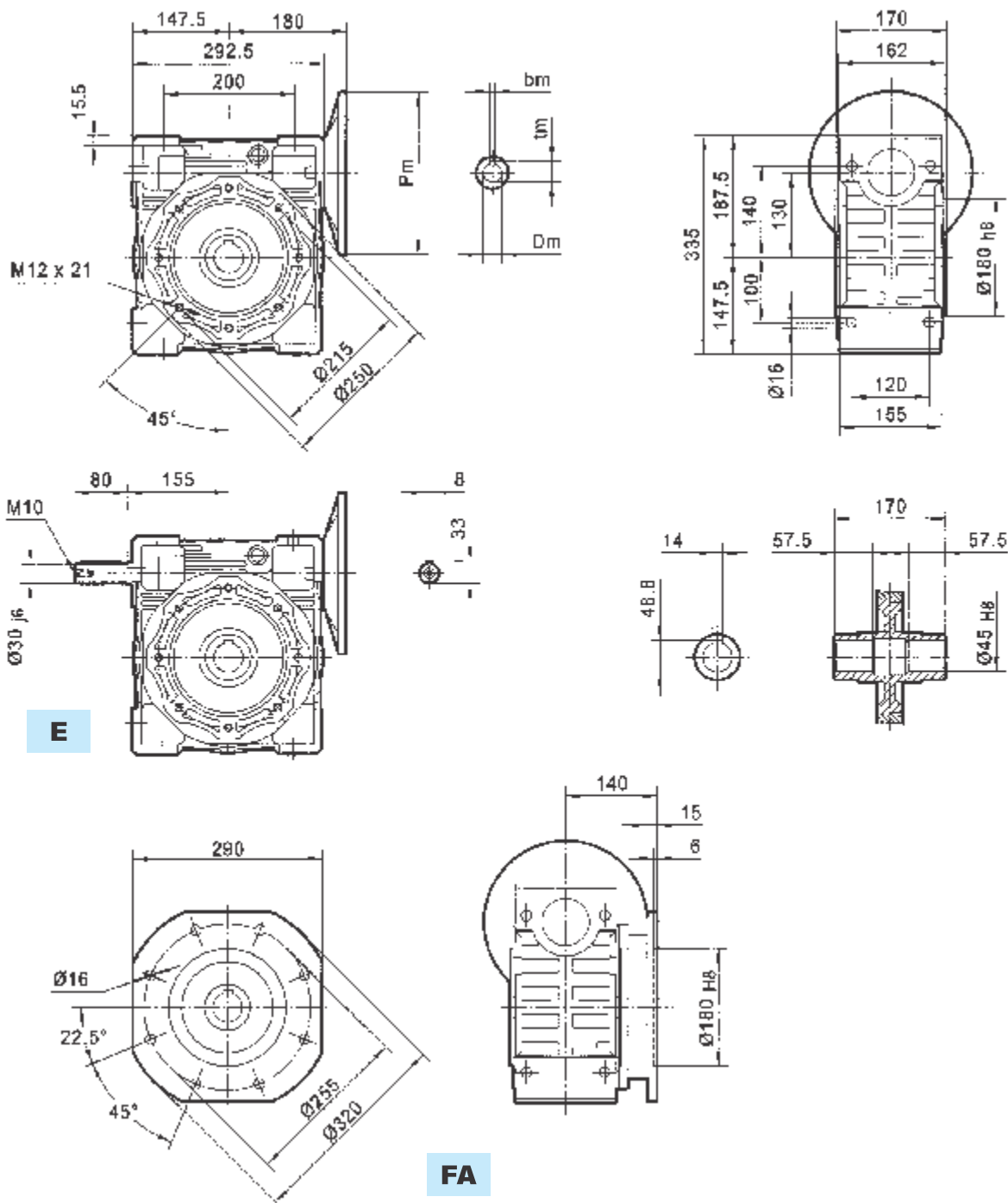


IEC	D _{E8}	b	t	P	M	N	S	T
80B5	19	6	21.8	200	165	130	11	4
90B5	24	8	27.3	200	165	130	11	4
100B5	28	8	31.3	250	215	180	14	4.5
112B5	28	8	31.3	250	215	180	14	4.5
132B5	38	10	41.3	300	265	230	14	4.5

Weight without motor ≈ 35 kg

8.1 ALM... / Outline Dimension

ALM0130



IEC	D _{ES}	b	t	P	M	N	S	T
90B5	24	8	27.3	200	165	130	11	4
100B5	28	8	31.3	250	215	180	14	4.5
112B5	28	8	31.3	250	215	180	14	4.5
132B5	38	10	41.3	300	265	230	14	4.5

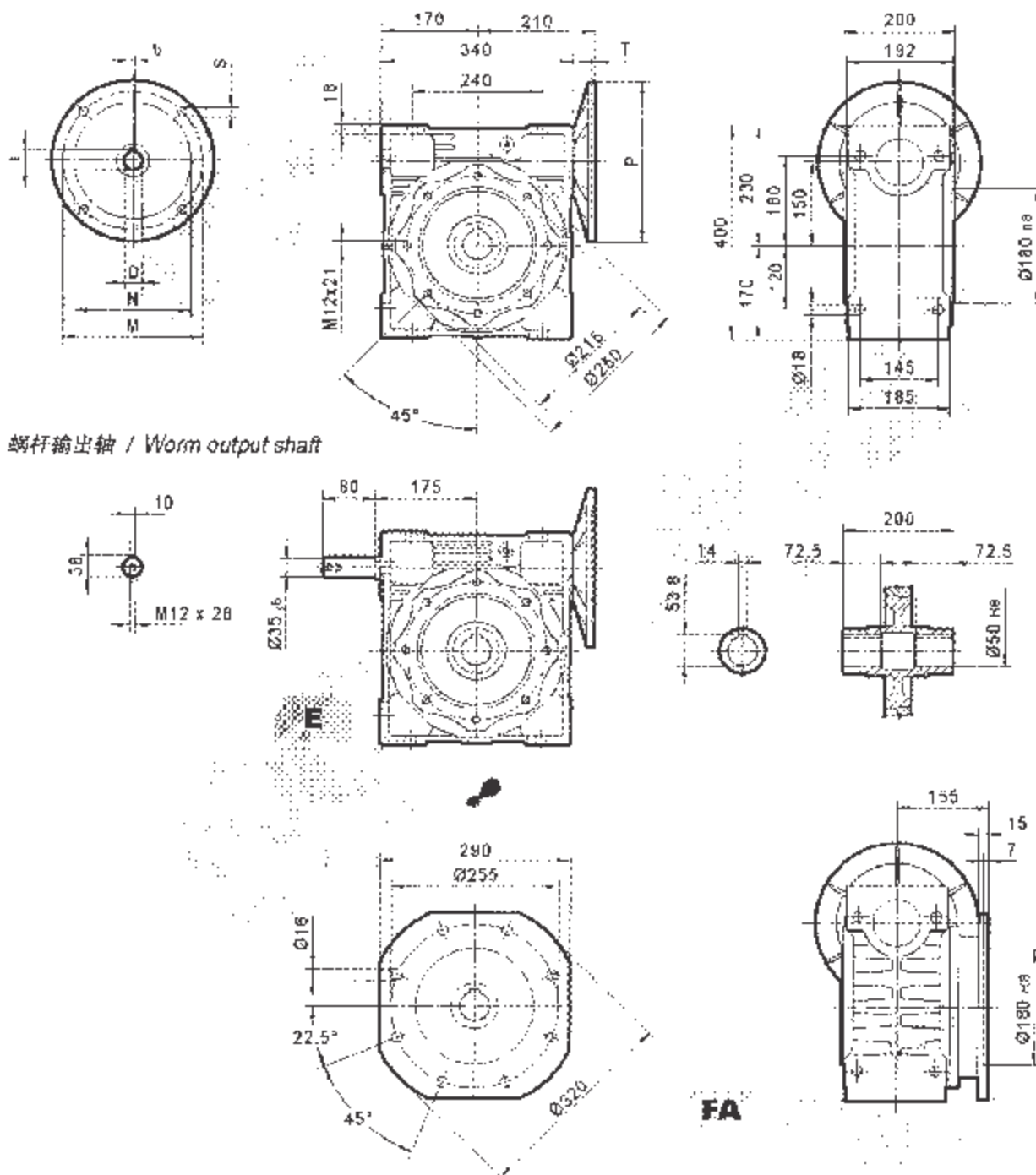
Weight without motor ≈ 21 kg



ALM... / OUTLINE DIMENSION SHEET

8.1 ALM... / Outline Dimension

ALM150

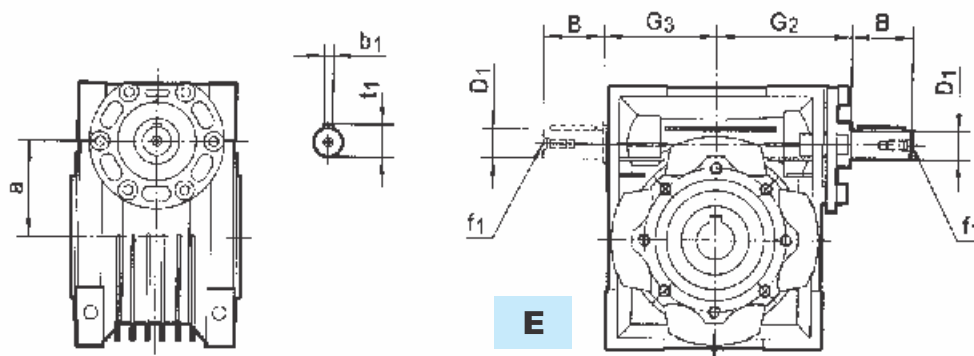


IEC	D _{ES}	b	t	P	M	N	S	T
160B5	42	12	45.3	350	300	250	19	7
132B5	38	10	41.3	265	265	230	14	6
100/112B5	28	8	31.3	215	215	180	14	6

Weight without motor ≈ 84 kg

ALW... WORM GEAR UNITS

8.2 ALW... / Outline Dimension



ALW	30	40	50	63	75	90	105	110	130	150
B	20	23	30	40	50	50	60	60	80	80
D_j⁶	9	11	14	19	24	24	28	28	30	35
G₂	51	60	74	90	105	125	142	142	162	195
G₃	45	53	64	75	90	108	135	135	155	175
a	30	40	50	63	75	90	110	110	130	150
b₂	3	4	5	6	8	8	8	8	8	10
f₂	-	-	M6	M6	M8	M8	M10	M10	M10	M12
t₂	10.2	12.5	16	21.5	27	27	31	31	33	38

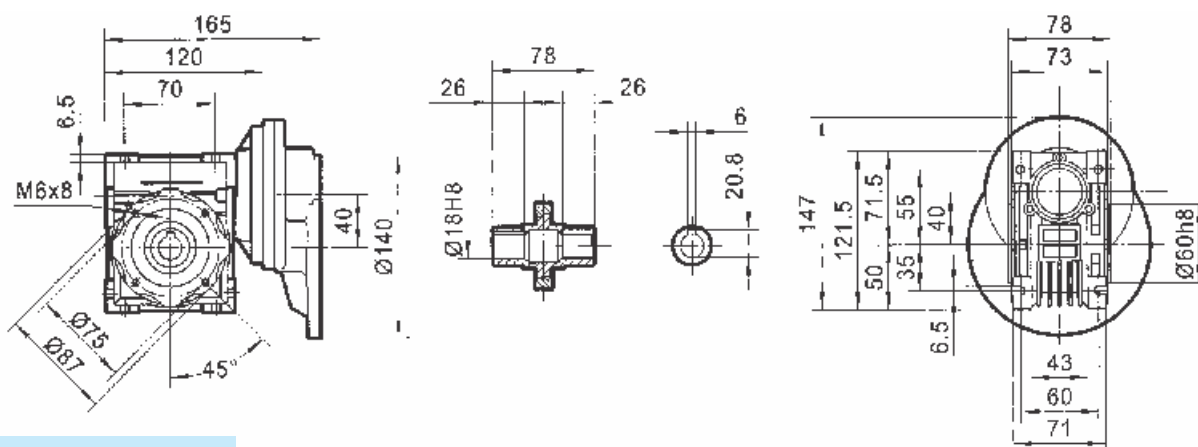


ALM... / OUTLINE DIMENSION SHEET

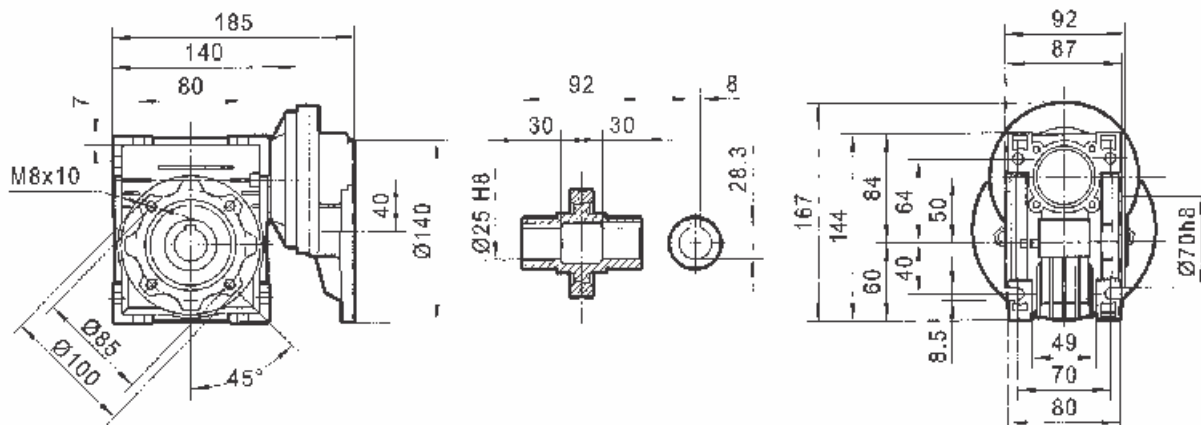
8.3 PU - ALM... / Outline Dimension

- For the dimensions of the output flanges, please refer to pages 78-88
- For the dimensions of the hollow shafts, please refer to pages 78-88
- For the dimensions of the double extension warm shafts, please refer to page 101.

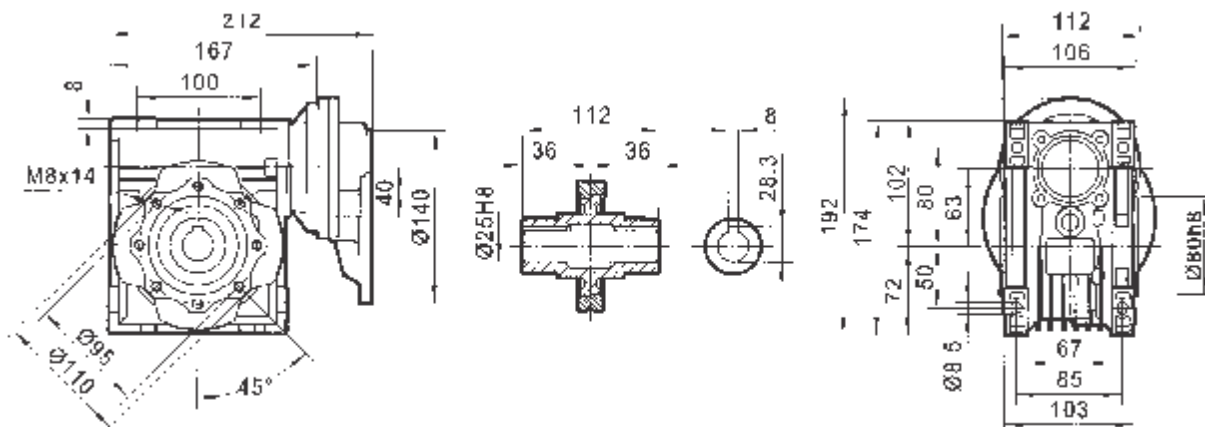
PU063 + ALM040



PU063 + ALM050

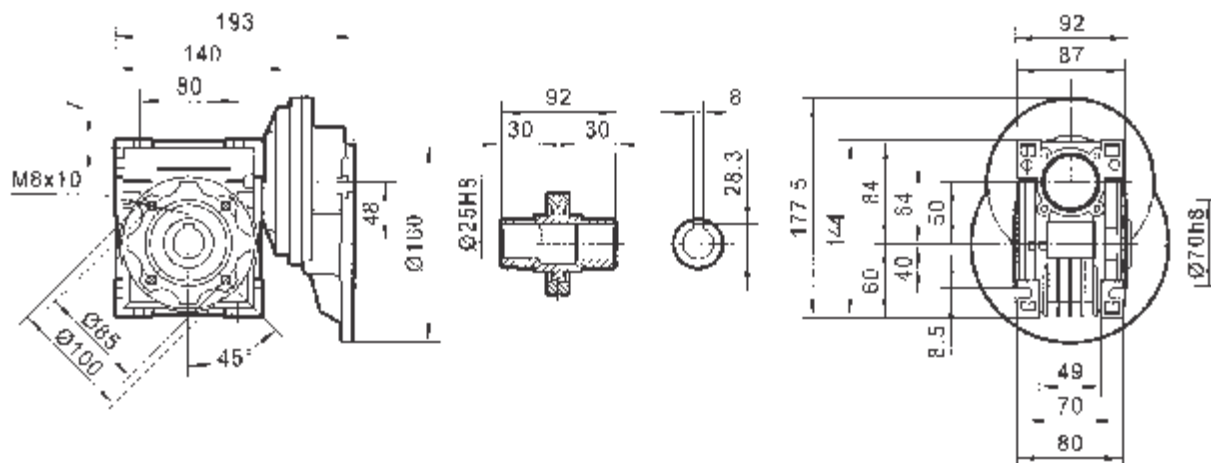


PU063 + ALM063

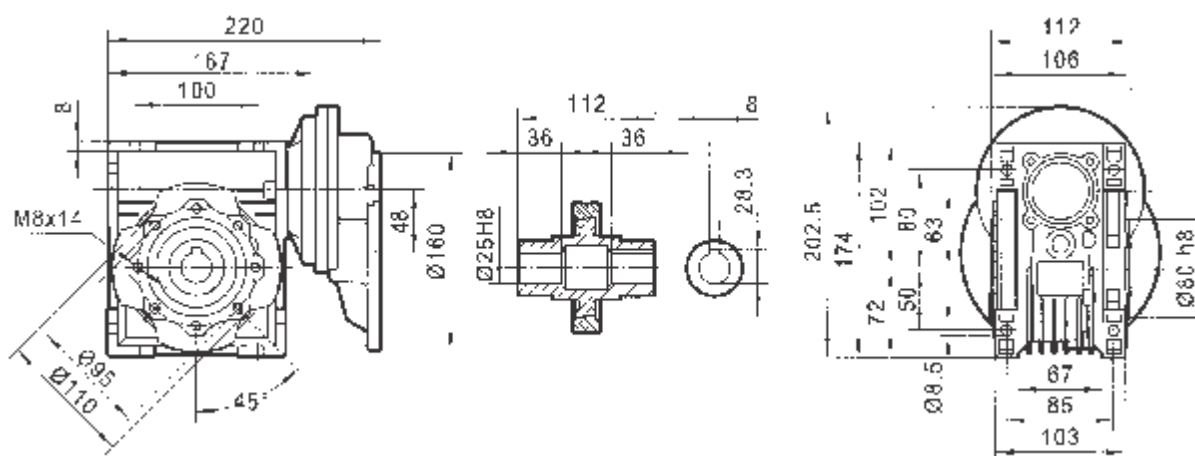


8.3 PU - ALM... / Outline Dimension

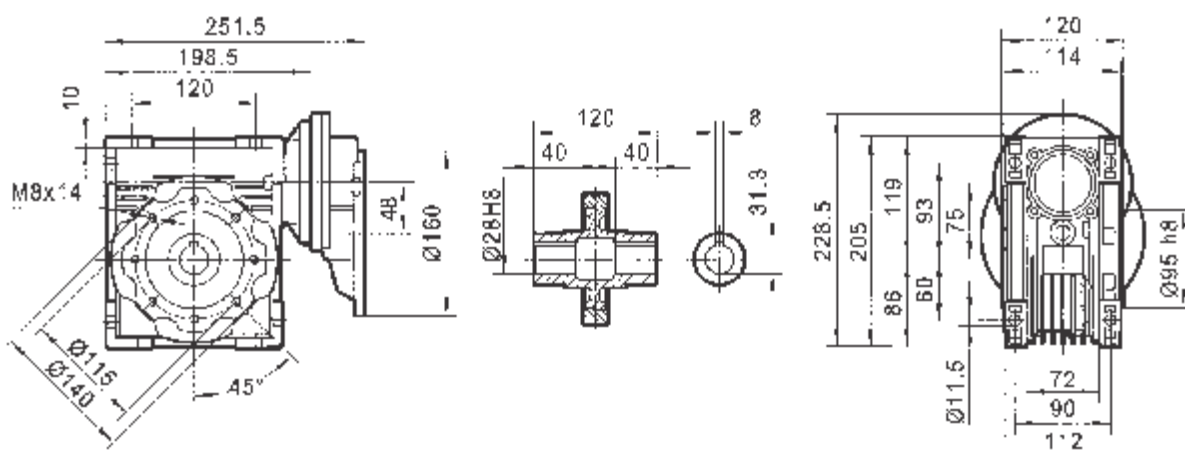
PU071+ ALM050



PU071 + ALM063



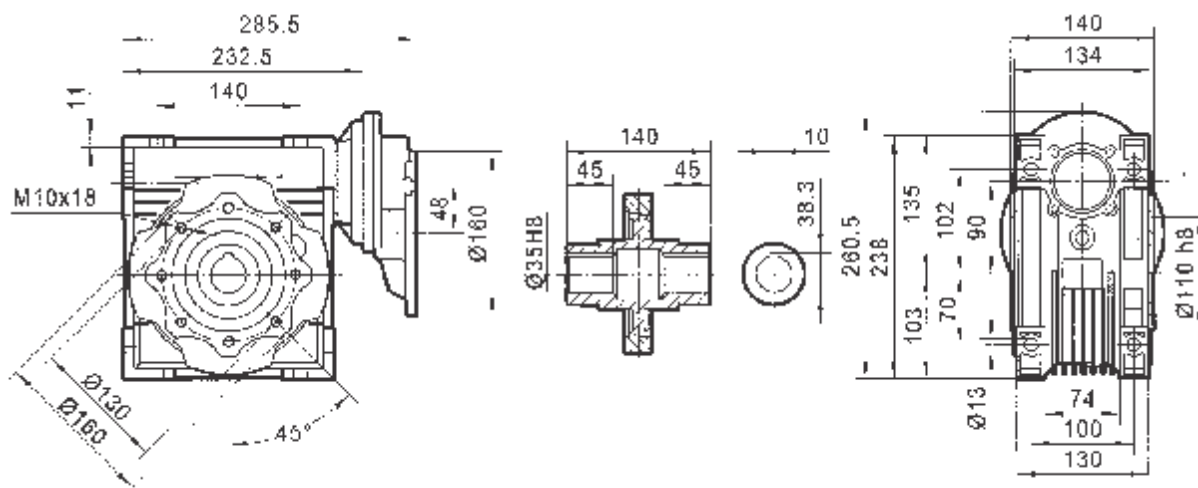
PU071 + ALM075



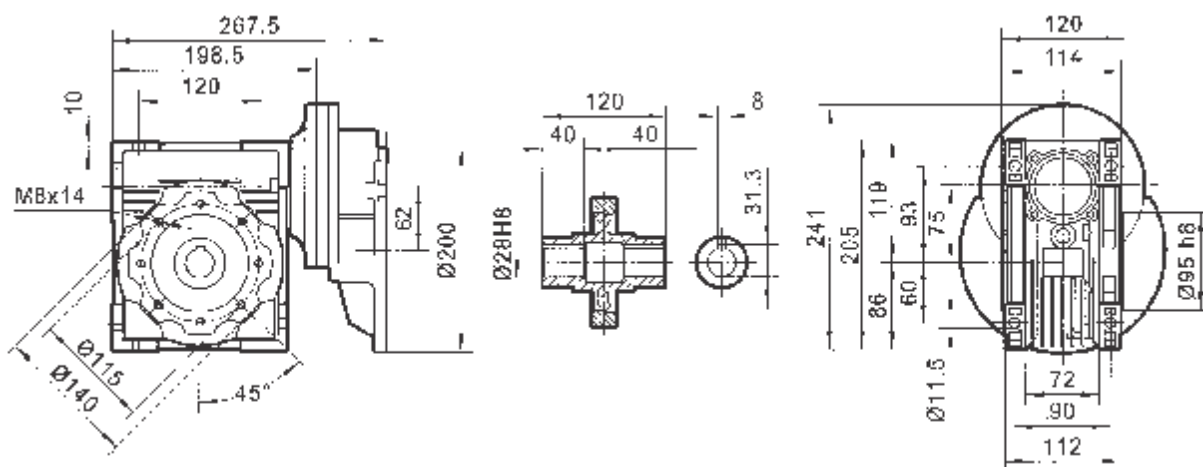
ALM... / OUTLINE DIMENSION SHEET

8.3 PU - ALM... / Outline Dimension

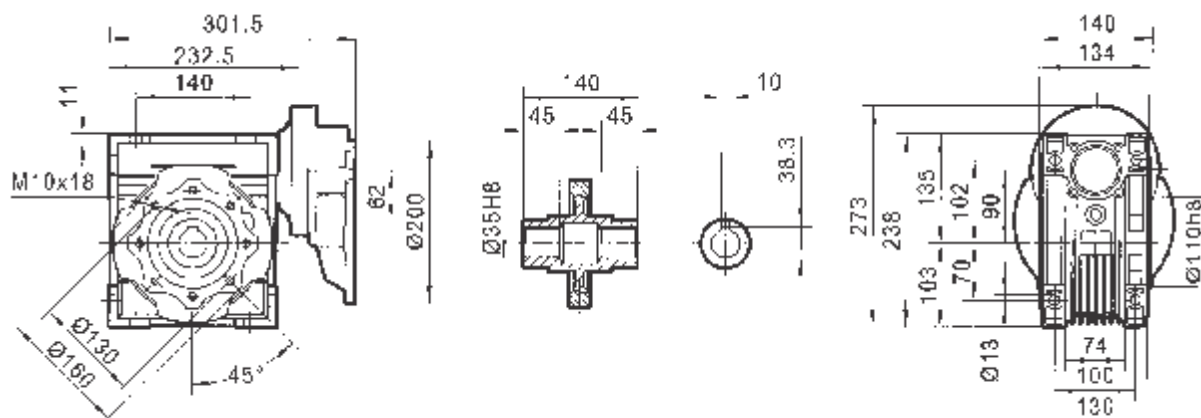
PU071 + ALM090



PU080+ ALM 075

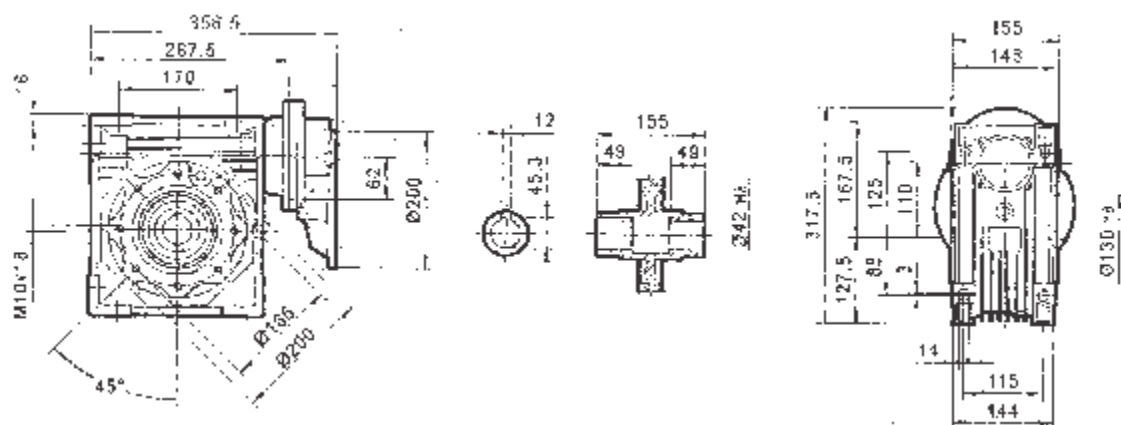


PU080 + ALM090

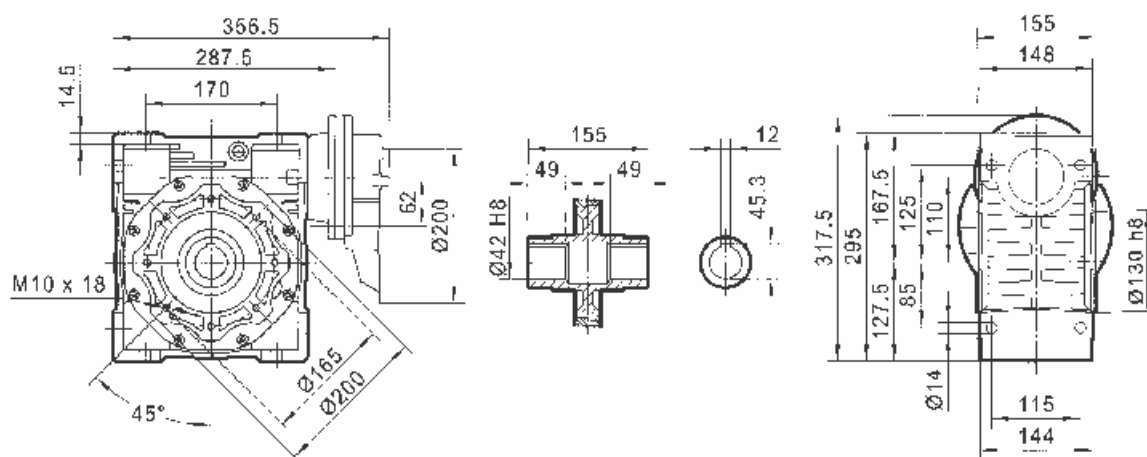


8.3 PU - ALM... / Outline Dimension

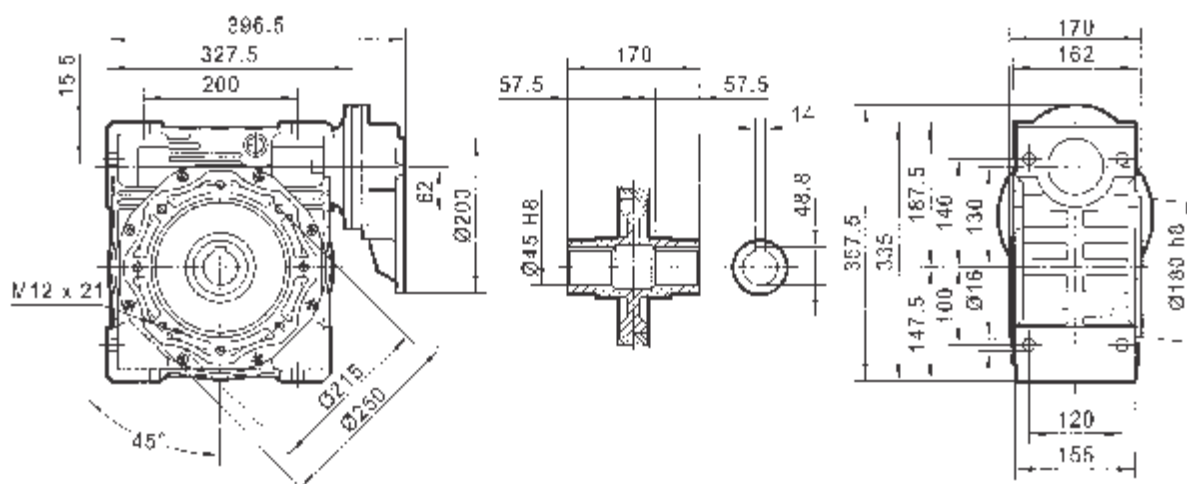
PU080+ALM105 PU090+ALM105



PU080 + ALM110 PU090+ ALM110



PU080+ ALM130 PU090+ ALM130

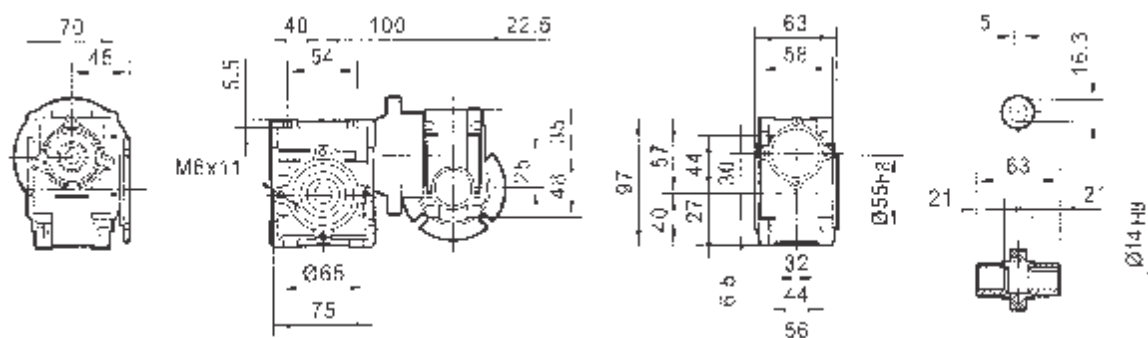


ALM... / OUTLINE DIMENSION SHEET

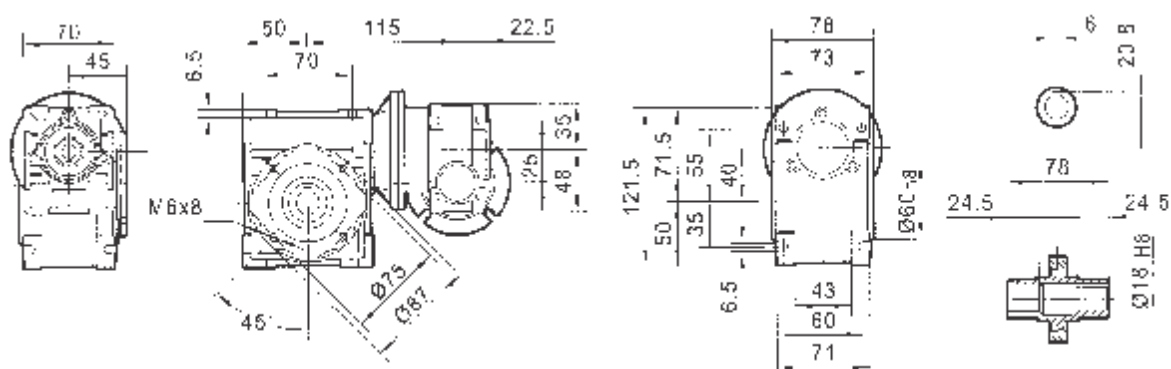
8.4 ALM / ALM... / Outline Dimension

- For the dimensions of the output flanges, please refer to pages 78-88
- For the dimensions of the hollow shafts, please refer to pages 78-88
- For the dimensions of the double extension worm shafts, please refer to page 101.

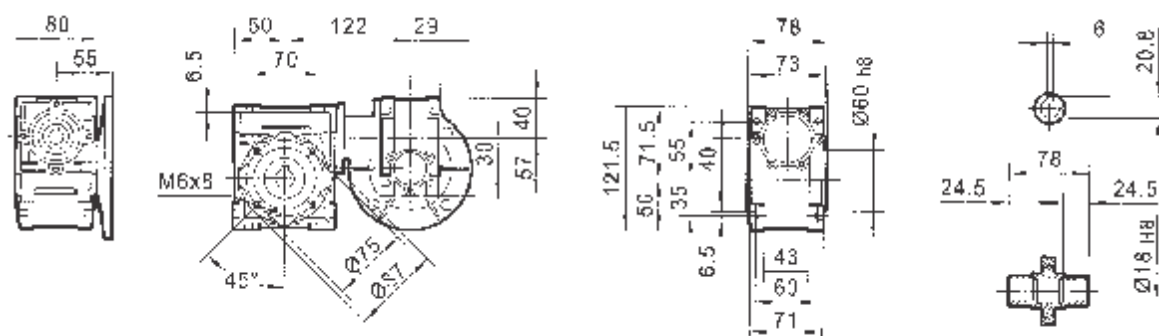
ALM - 025 / 030



ALM - 025 / 040

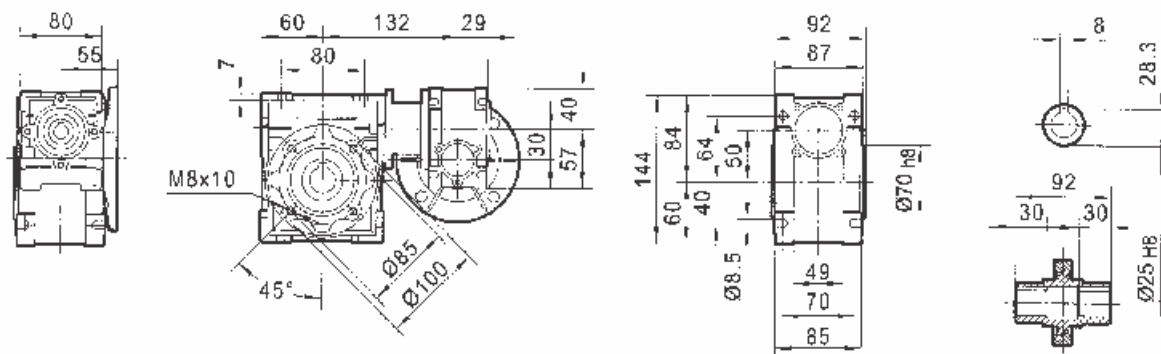


ALM - 030 / 040

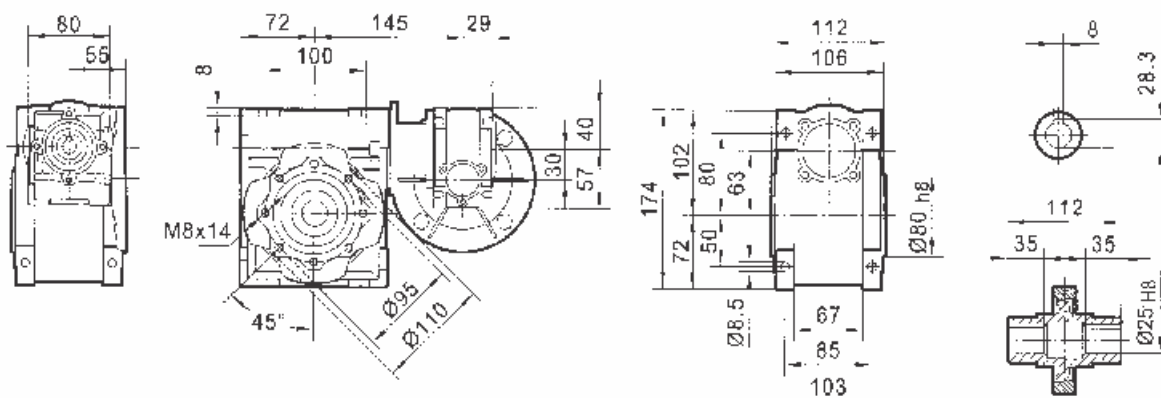


8.4 ALM / ALM... / Outline Dimension

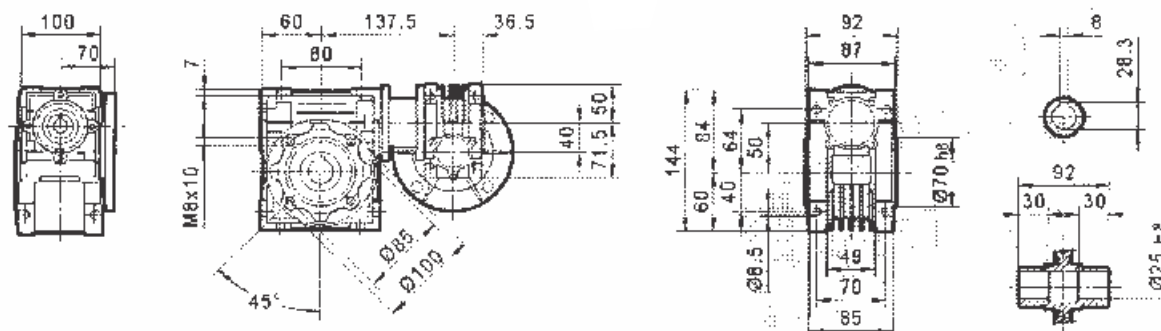
ALM - 030 / 050



ALM - 030 / 063



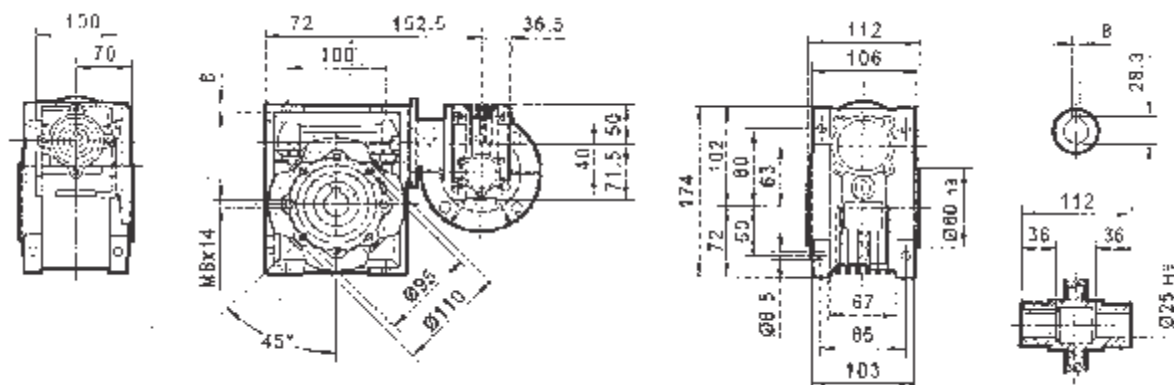
ALM - 040 / 050



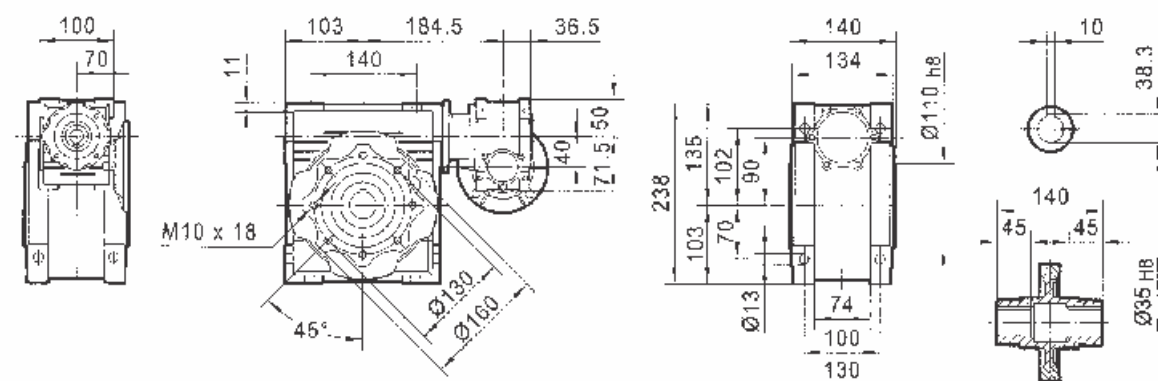
ALM... / OUTLINE DIMENSION SHEET

8.4 ALM / ALM... / Outline Dimension

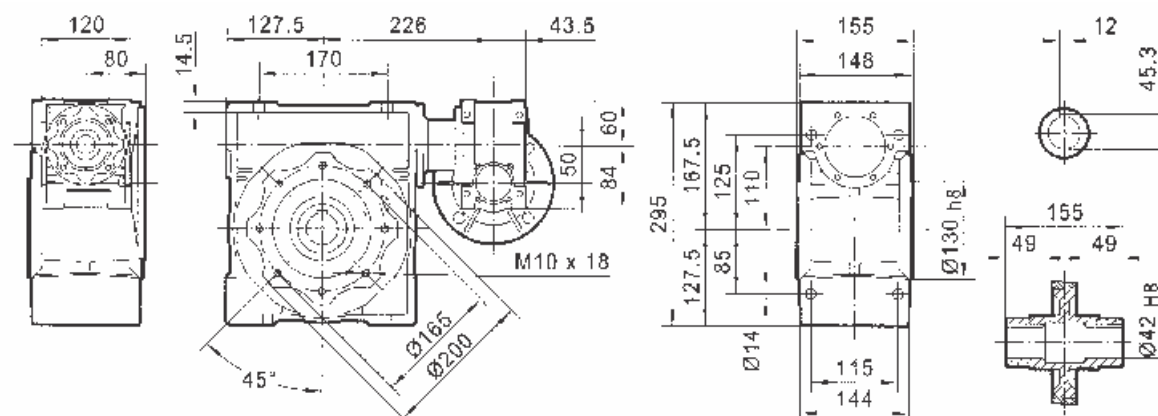
ALM - 040 / 063



ALM - 040 / 075

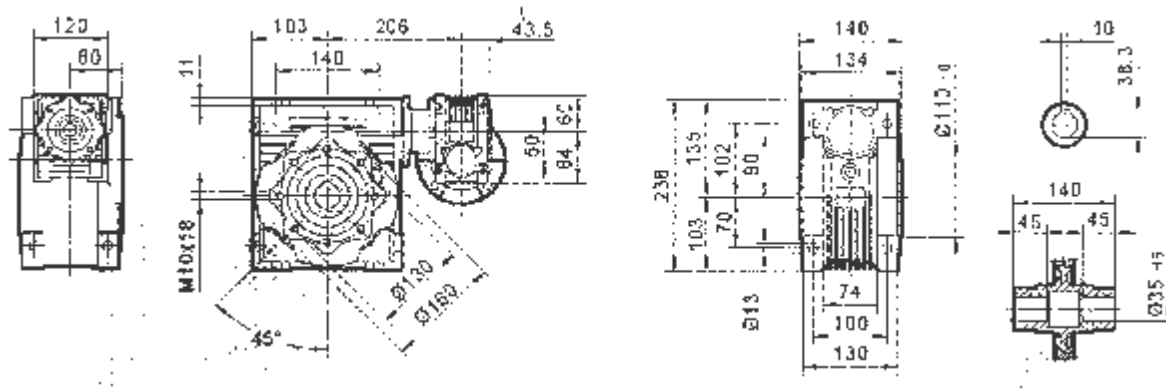


ALM - 040 / 090

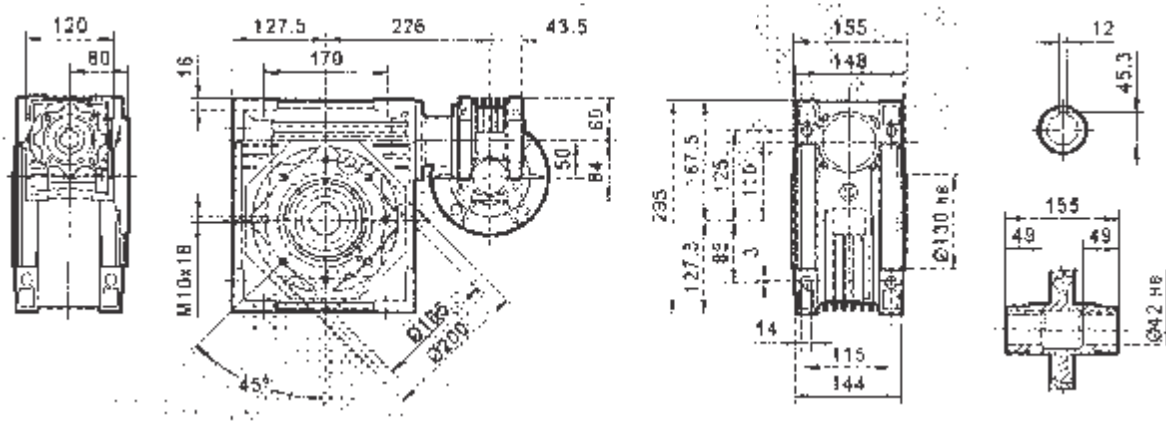


8.4 ALM / ALM... / Outline Dimension

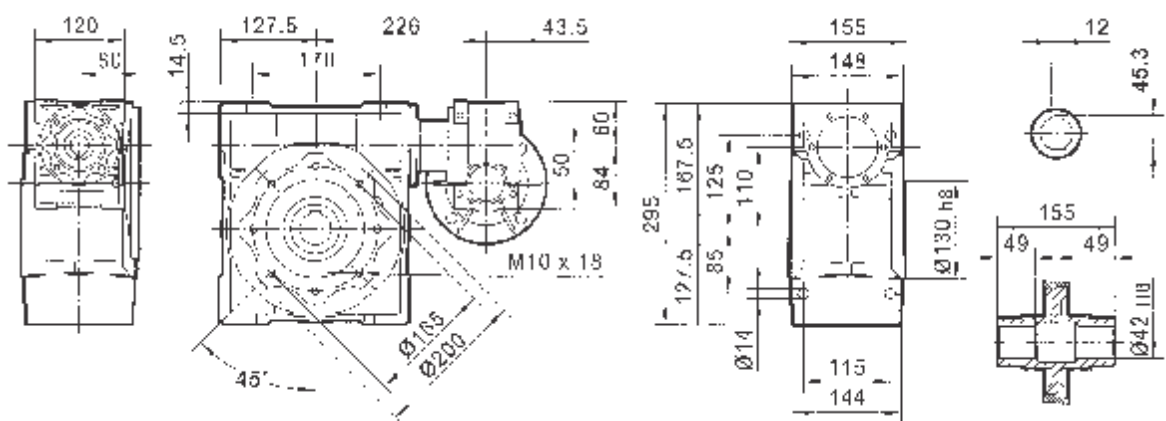
ALM - 050 / 090



ALM 050 / 105



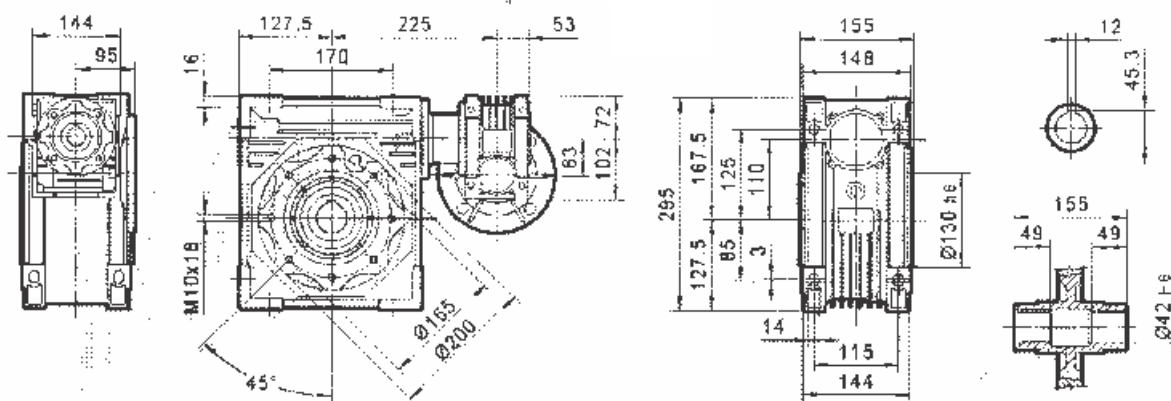
ALM 050 / 110



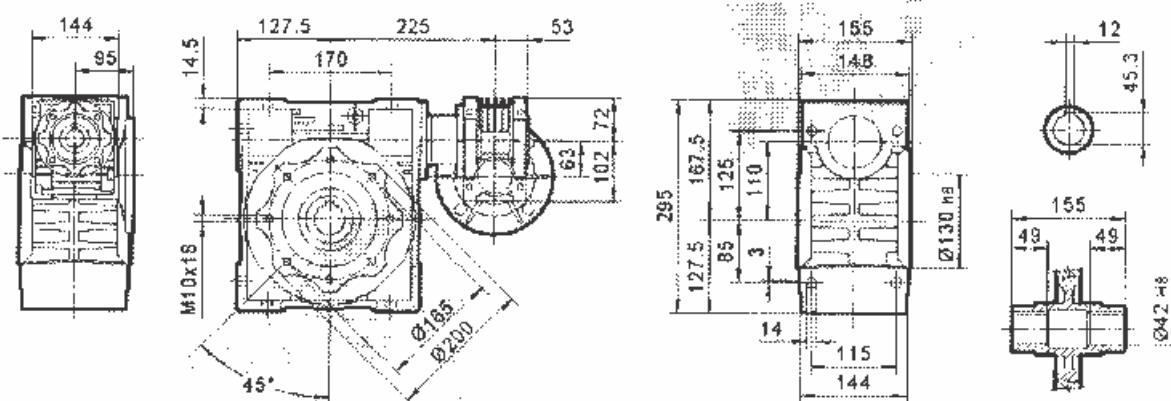
ALM... / OUTLINE DIMENSION SHEET

8.4 ALM / ALM... / Outline Dimension

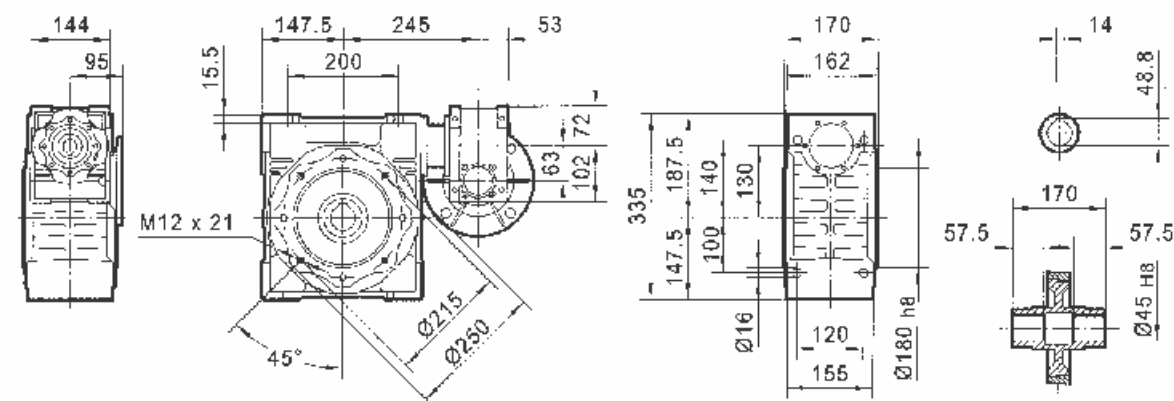
ALM - 063 / 105



ALM - 063 / 110

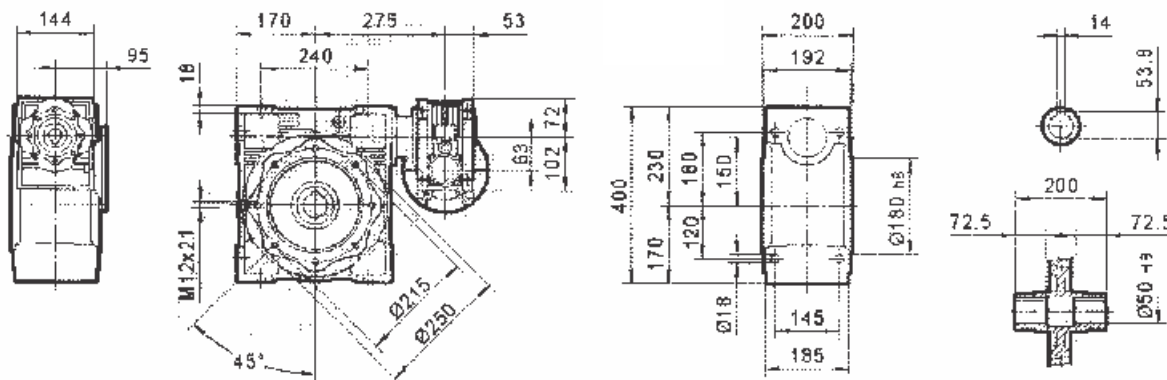


ALM - 063 / 130



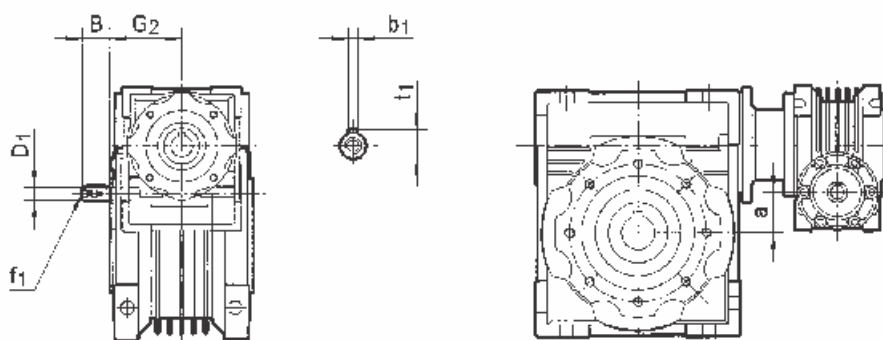
8.4 ALM / ALM... / Outline Dimension

ALM - 063 / 150



8.5 ALW / ALM... / Outline Dimension

ALW + ALW - Double Reduction Worm Gear Unit with Solid Input Shaft



ALW - ALM	B	D _{2j6}	G ₂	a	b ₂	f ₂	t ₂
030 / 040	20	9	51	10	3	-	10.2
030 / 050	20	9	51	20	3	-	10.2
301063	20	9	51	33	3	-	10.2
040/050	23	11	60	10	4	-	12.5
040 / 063	23	11	60	23	4	-	12.5
040 / 075	23	11	60	35	4	-	12.5
040 / 090	23	11	60	50	4	-	12.5
050 / 090	30	14	74	40	5	M6	16
050/105	30	14	74	60	5	M6	16
050/110	30	14	74	60	5	M6	16
063/105	40	19	90	47	6	M6	21.5
063/110	40	19	90	47	6	M6	21.5
063/130	40	19	90	67	6	M6	21.5
063/150	40	19	90	87	6	M6	21.5

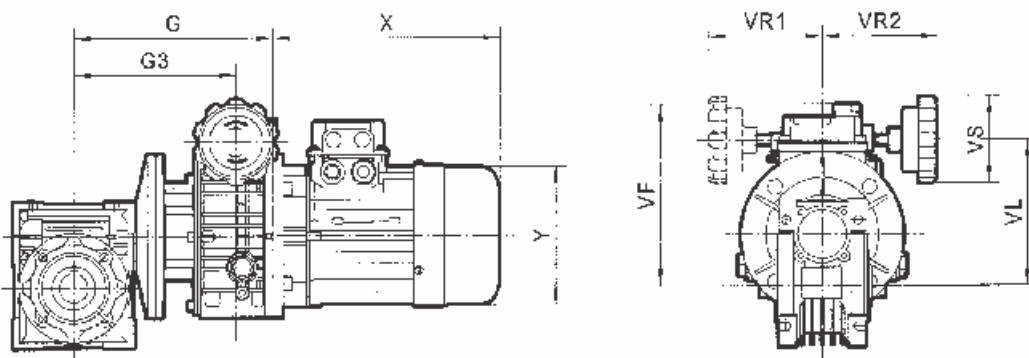
For the missing dimensions, please refer to page 78-88



ALM... / OUTLINE DIMENSION SHEET

8.6 ALMV - ALM... / Outline Dimension

ALMV - ALM Combination of Speed Variator and Worm Gear Units



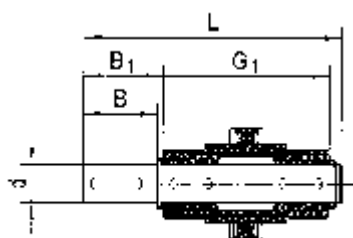
Model	G	G ₃	VF	VL	VS	VR	VR ₁	Base No. 40 n1=1400r/min	X	Y
ALMV0.18 - ALM040	183	135	151	118	85	110	110	63	200	120
ALMV0.18 - ALM050	193	145	161	128	85	110	110			
ALMV0.37 - ALM050	190	154	173	140	85	110	110			
ALMV0.37 - ALM063	205	169	186	153	85	110	110	71	227	141
ALMV0.55 - ALM063	234	181	203	170	110	120	120			
ALMV0.75 - ALM063	234	181	203	170	110	120	120			
ALMV0.37 - ALM075	223	187	198	165	85	110	110	71	227	141
ALMV0.55 - ALM075	252	198	215	182	110	120	120			
ALMV0.75 - ALM075	252	198	215	182	110	120	120			
AL1.1 - ALM075	259.5	207.5	199	177	110	150	-	90S	265	195
AL1.5 - ALM075	300.5	227.5	219	197	110	150	-	90L	290	195
ALMV0.55 - ALM090	269	215	230	197	110	120	120	80	268	160
ALMV0.75 - ALM090	269	215	230	197	110	120	120			
AL1.1 - ALM090	276.5	224.5	214	192	110	150	-	90S	265	195
AL1.5 - ALM090	317.5	244.5	234	212	110	150	-	90L	290	195
AL1.1 - ALM105	307	255	234	212	110	120	-	90S	265	195
AL1.5 - ALM105	348	275	254	232	110	150	-	90L	290	195
AL2.2 - ALM105	368	291	298	260	110	160	-	100L	320	215
AL3.0 - ALM105	368	291	298	260	110	160	-			
AL4.0 - ALM105	368	291	298	260	110	160	-			
AL1.1 - ALM110	307	255	234	212	110	120	-	90S	265	195
AL1.5 - ALM110	348	275	254	232	110	150	-	90L	290	195
AL2.2 - ALM110	368	291	298	260	110	160	-	100L	320	215
AL3.0 - ALM110	368	291	298	260	110	160	-			
AL4.0 - ALM110	368	291	298	260	110	160	-			
AL1.5 - ALM130	368	295	274	252	110	150	-	90L	290	195
AL2.2 - ALM130	388	311	318	280	110	160	-	100L	320	215
AL3.0 - ALM130	388	311	318	280	110	160	-			
AL4.0 - ALM130	388	311	318	280	110	160	-			

For the missing dimensions, please refer to page 78-88

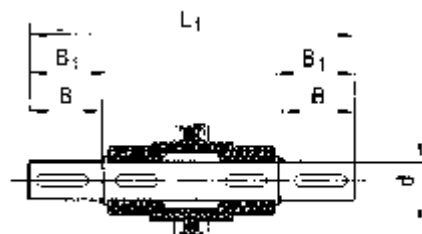
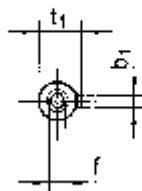


ACCESSORIES OUTLINE DIMENSION SHEET

9.1 Output Shafts



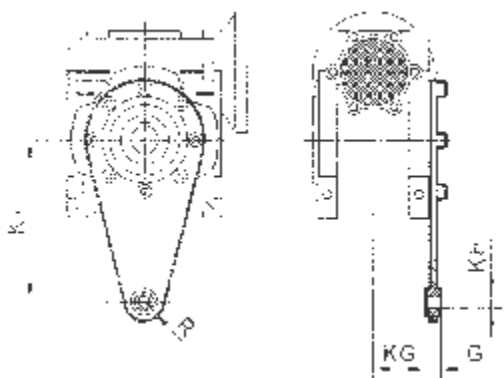
Single Output Shaft



Double Output Shaft

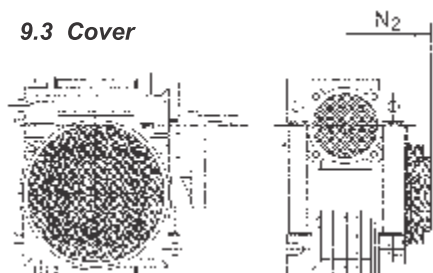
	d_{h6}	B	B ₁	G ₁	L	L ₁	f	b ₁	t ₁
ALM025	11 _{g6}	23	25.5	50	81	101	-	4	12.5
	9*	25*	30*	50	85.5*	101	-	3*	10.2*
ALM030	14	30	32.5	63	102	128	M6	5	16
ALM040	18	40	43	78	128	164	MS	6	20.5
ALM050	25	50	53.5	92	153	199	M10	8	28
ALM063	25	50	53.5	112	173	219	M10	8	28
ALM075	28	60	63.5	120	192	247	M10	8	31
ALM090	35	80	84.5	140	234	309	M12	10	38
ALM105	42	80	84.5	155	249	324	M16	12	45
ALM110	42	80	84.5	155	248	324	M16	12	45
ALM130	45	80	85	170	265	340	M16	14	48.5
ALM150	50	82	87	200	297	374	M16	14	53.5

9.2 Torque Arm



	K1	G	KG	KH	R
ALM025	70	14	17.5	8	15
ALM030	85	14	24	8	15
ALM040	100	14	31.5	10	18
ALM050	100	14	38.5	10	18
ALM063	150	14	49	10	18
ALM075	200	25	47.5	20	30
ALM090	200	25	57.5	20	30
ALM105	250	30	62	25	35
ALM110	250	30	62	25	35
ALM130	250	30	69	25	35
ALM150	250	30	84	25	35

9.3 Cover

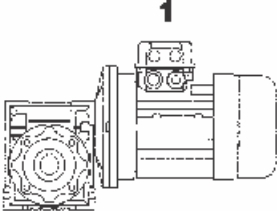
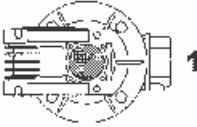
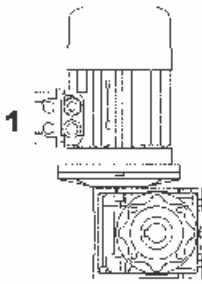
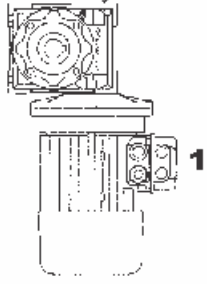
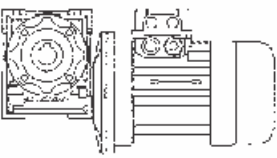
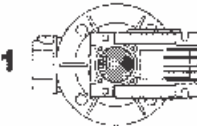


	N ₂		N ₂
ALM030	47	ALM090	94
ALM040	55	ALM105	102
ALM050	63	ALM110	102
ALM063	73	ALM130	117
ALM075	79	ALM150	113

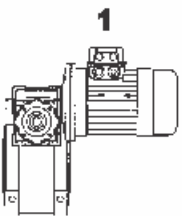
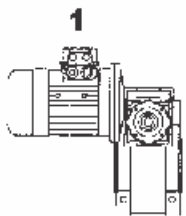
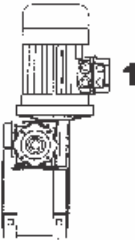
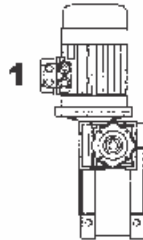
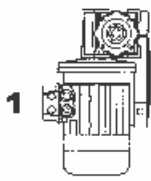
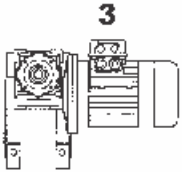
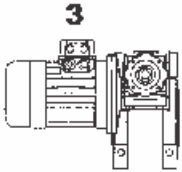


INSTALLATION POSITIONS DIAGRAM

10.1 ALM... OR ALW... / Mounting Positions

ALM...U - B3	B6	V5	V6
			
B8	B7		
			

10.2 PU... - ALM... / Mounting Positions

AS1	AS2	VS1	VS2
			
PS1	PS2	BS1	BS2
			

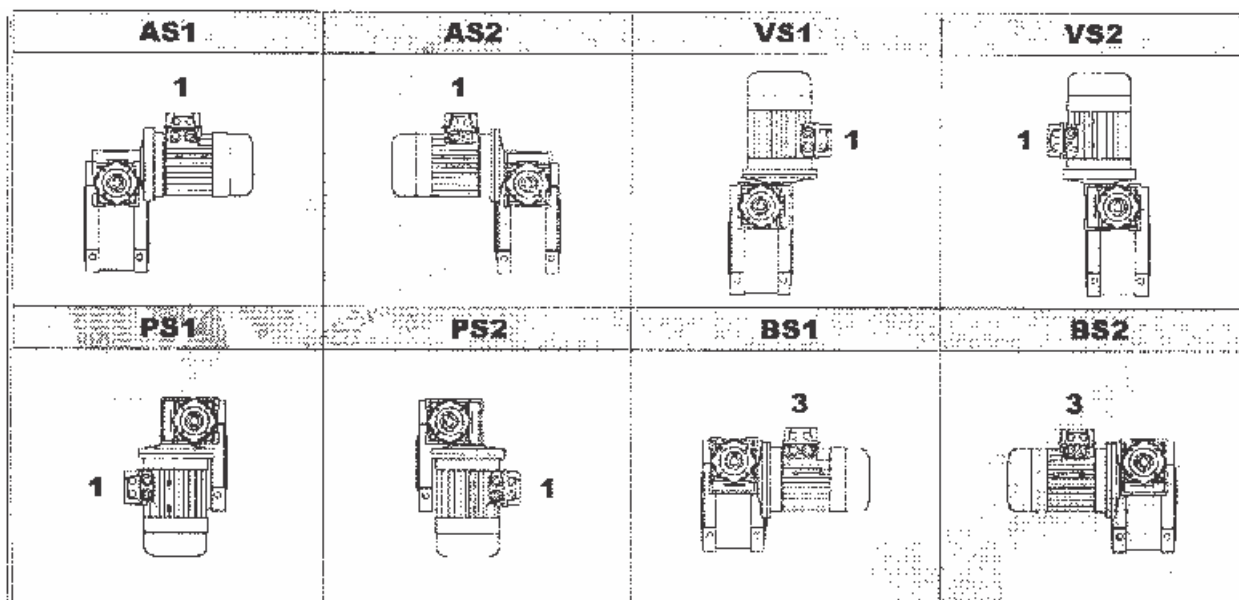
"U" version is related to sizes from **ALM025 - 075 and ALW030 - 063**.

For these sizes it is not necessary to specify mounting position.

- For vertical positions, please refer to the table on page 106.
- Unless specified otherwise the standard positions are B3.
- For positions not envisaged, it is necessary to call our Technical Service.

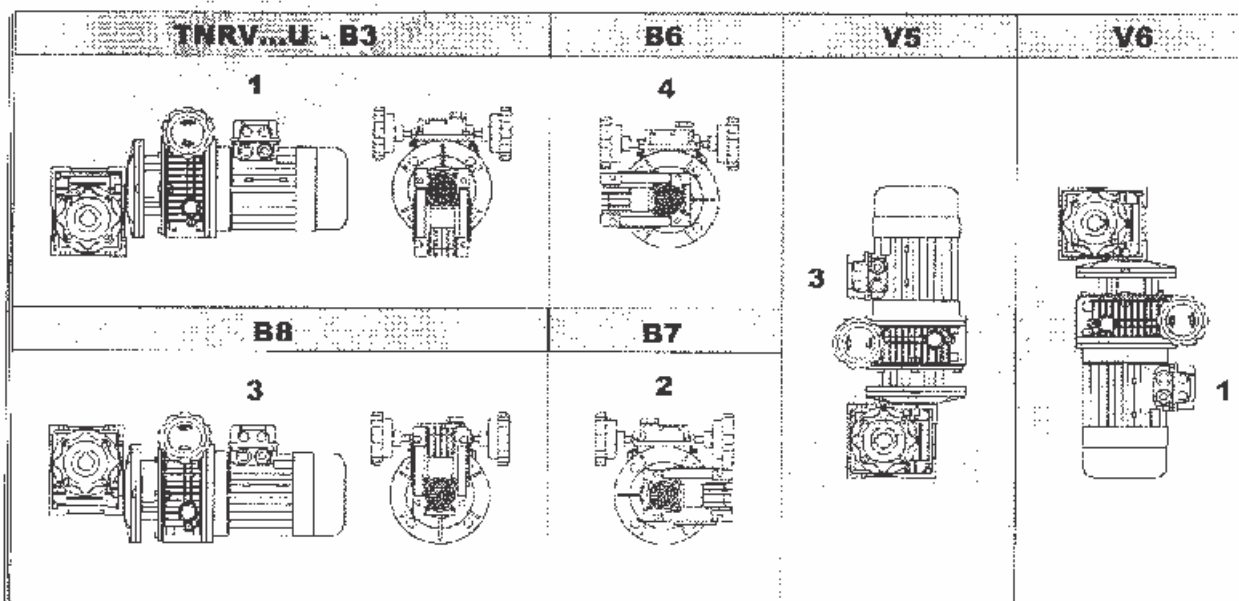
ACCESSORIES OUTLINE DIMENSION SHEET

10.3 ALM... - ALM... / ALW... - ALM... / Mounting Positions



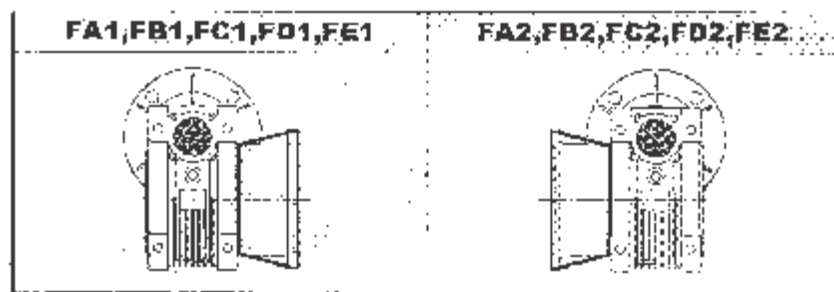
The position of the 1st reducer with respect to the 2nd gear reducer depends on the versions. Unless specified at the time of order, combination groups are supplied in version BS2. The specified mounting position refers to the 2nd gear reducer, see page 102 for the possible mounting positions.

10.4 ALMV... - ALM... / Mounting Positions



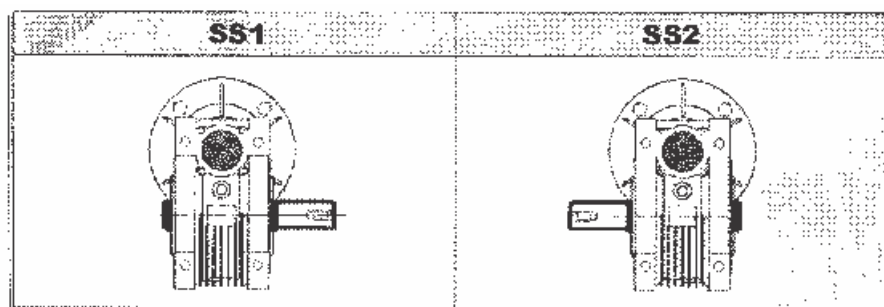
INSTALLATION POSITIONS DIAGRAM

10.5 Position Diagram for Output Flange

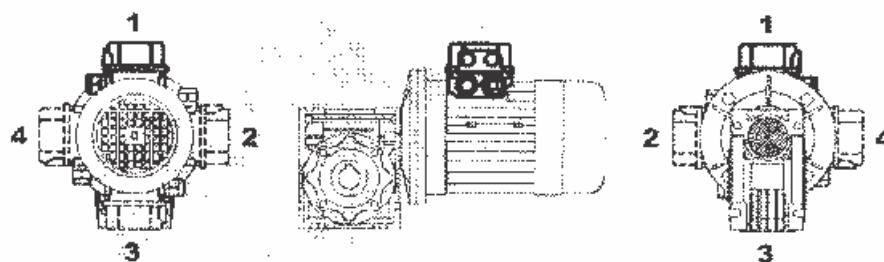


Unless specified otherwise the reduction unit is supplied with the flange in pos. F-1. referred to position B3.

10.6 Position Diagram for Single Output Shaft

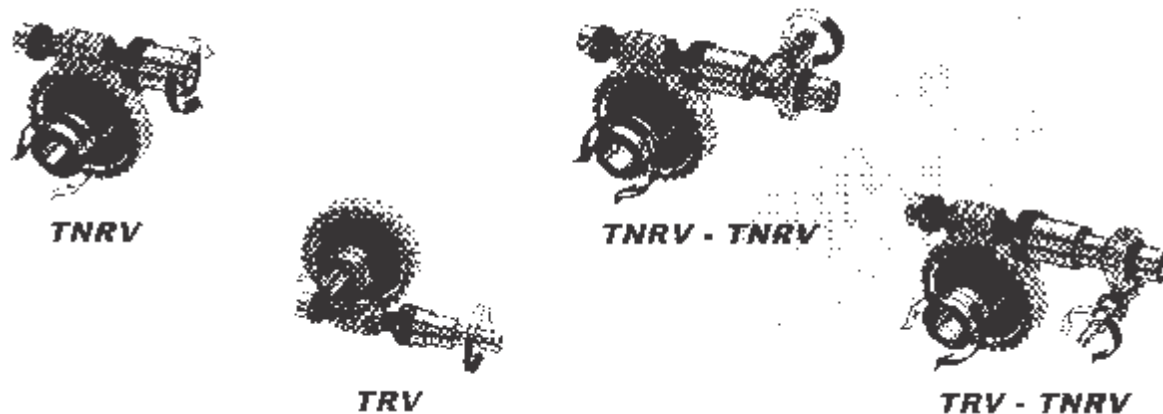


10.7 Position of Terminal Box



In the case of specific requirements, when ordering, specify the position of the terminal box as shown in the diagram.

10.8 Direction of Rotation



11.1 Note Recommendations

To install the reduction unit it is necessary to note the following recommendations:

1. Check the correct direction of rotation of the reduction unit output shaft before fitting tie unit to the machine.
2. Before mount with the prime mover and device, please check the reducer's every axial diameter, aperture, key and key slot, to be sure their dimensions are not deviation, and avoid assembling too tight or too loose, unless it will influence the reducer's performance.
3. The mounting on the machine must be stable to avoid any vibration.
4. Whenever possible, protect the reduction unit against solar radiation and bad weather.
5. In the case of particularly lengthy periods of storage (4-6 months), if the oil seal is not immersed in the lubricant inside the unit, it is recommended to change it since the rubber could stick to the shaft or may even have lost the elasticity it needs to function properly.

6. Painting must definitely not go over rubber parts and the holes on the breather plugs, if any.
7. When connect with hollow or solid shaft, please grease the joint to avoid lock or oxidation.
8. Check the correct level of the lubricant through the indicator, if there is one.
9. Starting must take place gradually, without immediately applying the maximum load.
10. Supporting unit is required when using various of reducer matched with motor directly and the weight of motor is a little bigger than common.
11. Ensure the motor cools correctly by assuring good passage of air from the fan side.
12. In the case of ambient temperatures $< -5^{\circ}\text{C}$ or $> +40^{\circ}\text{C}$ call the Technical Service.

11.2 Critical Applications

The performance given in the catalogue correspond to mounting position B3 or similar, when the first stage is not entirely immersed in oil. For other mounting positions and/or particular input speeds, refer to the tables that highlight different critical situations for each size of reduction unit. It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

1. As a speed increasing.
2. Applications with especially high inertia.
3. Use as a lifting winch.
4. Use in services that could be hazardous for people if the reduction unit fails.
5. Applications with high dynamic strain on the case of the reduction unit.

6. In places with T° under -5°C or over 40°C .
7. Use in chemically aggressive environments.
8. Use in a salty environment.
9. Use in radioactive environments.
10. Use in environments pressures other than atmospheric pressure.
11. Mounting positions not envisaged in the catalogue.

Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque that the gear reducer can support must not exceed two times the nominal torque ($f_s = 1$) stated in the performance tables. Intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

ALM	26	30	40	50	63	75	90	105	110	130	150
V5: $1500 < m < 3000$	—	—	—	—	—	B	B	B	B	B	B
$m > 3000$	B	B	B	B	B	A	A	A	A	A	A
V6	B	B	B	B	B	B	B	B	B	B	B

A Application not recommended

B Check the application and/or call our technical service



STEPLESS SPEED VARIATOR

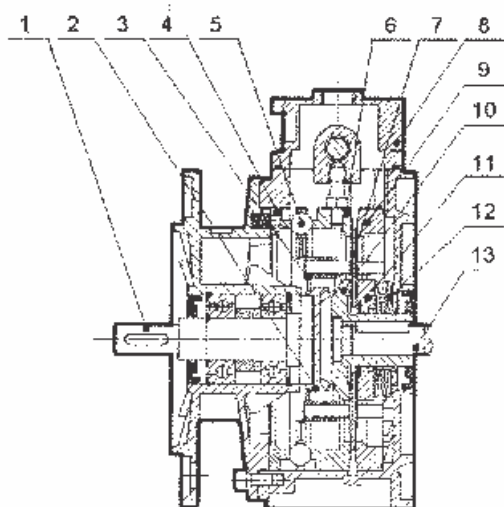
12.1 Brief Introduction to Stepless Speed Variator

The design of ALMV series stepless speed variator compromises the advanced technology both at home and abroad. The products include the following main characteristics:

1. High speed-regulating precision: up to 0.5-1 rotation.
2. Large speed -changing range: The speed ratio ranges from 1:1.4 to 1:7 freely.
3. High in strength and long in service life.
4. Convenient to regulate the speed.
5. Continuous in running, front to back in running direction, smooth in driving, stable in performance and low in noise.
6. Full in sealing and suitable for any environment.
7. Compact in structure and small in volume.
8. Made of high quality aluminium alloy diecast into forming, good looking in appearance, light in weight and it never gets rusty.
9. Good in adaptation: ALMV series stepless speed variators can be combined with all kinds of speed reducers, as to achieve low stepless speed changing.

ALMV series stepless speed variators are widely used for foodstuffs, ceramics, packing, chemicals, pharmacy, plastics, paper making, machine-tools, communications, and all kinds of automatic lines, pipelines and assembly lines which need speed regulation, It is a good companion for your production.

12.2 Structure



1. Output Shaft
2. Planet Carrier
3. Friction Bearing - Planet Disk
4. Cam Ring
5. Ball Ring
6. Adjustable Annulus Ring
7. Planet Disk
8. Control Cover
9. Fixed Annulus Ring
10. Fixed Sun Race
11. Adjustable Sun Race
12. Belleville Spring
13. Motor Shaft

12.3 Structure

AL L - 0.75 B5 B5
 ① ② ③ ④ ⑤

Comments
Code of stepless speed variator
1) L : Aluminium alloy casing 2) No mark means cast iron casing
Motor Power
1) B3 : Foot mounted model 2) B5 : Flange mounted model
Code of installation position

ALMV 0.75 C B5 B5
 ① ② ③ ④ ⑤

Comments
Code of stepless speed variator with aluminium alloy casing
Motor Power
Code of gear reducer
1) B3 : Foot mounted model 2) B5 : Flange mounted model
Code of installation position



12.4 Note Recommendations



ALM...B 3



ALM...B 5

12.5 Performance Parameter / ALMV Performance table for ALMV Series Speed Variator

($n_1=1400\text{r/min}$)

	Model	i	n_2 [r/min]	M_2 [Nm]
0.18KW	ALMV0.18	1.6 ~ 8.2	880 ~ 170	1.5 ~ 3
0.37KW	ALMV0.37	1.4 ~ 7	1000 ~ 200	3 ~ 6
0.55 KW	ALMV0.55	1.4 ~ 7	1000 ~ 200	4 ~ 8
0.75KW	ALMV0.75	1.4 ~ 7	1000 ~ 200	6 ~ 12
1.1 KW	ALMV1.1 (AL1.1)	1.4 ~ 7	1000 ~ 200	9 ~ 18
1.5KW	AL1.5	1.4 ~ 7	1000 ~ 200	12 ~ 24
2.2KW	AL2.2	1.4 ~ 7	1000 ~ 200	18 ~ 36
3.0KW	AL3.0	1.4 ~ 7	1000 ~ 200	24 ~ 48
4.0KW	AL4.0	1.4 ~ 7	1000 ~ 200	32 ~ 64
5.5KW	ALS.5	1.4 ~ 7	1000 ~ 200	45 ~ 90
7.5KW	AL7.5	1.4 ~ 7	1000 ~ 200	59 ~ 118

12.6 Performance table for stepless speed variator & gear speed reducer

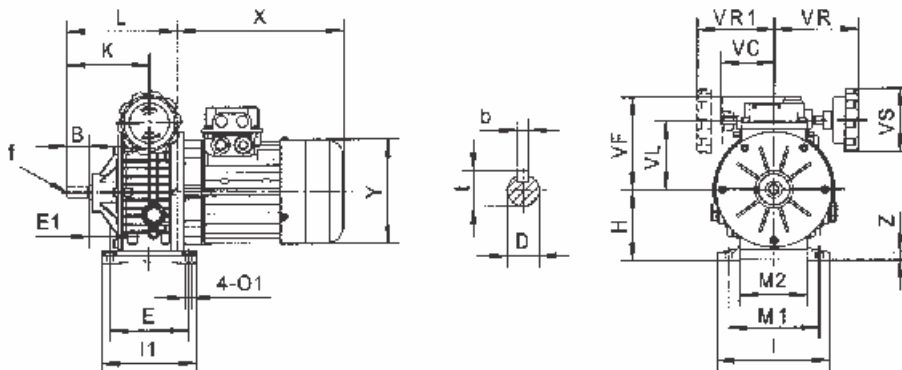
($n_1=1400\text{r/min}$)

Model	i	n_2 [r/min]	M_2 [Nm]
ALMV0.18 - CB3	5	176 ~ 34	7 ~ 15
ALMV0.37 - CB3	5	200 ~ 40	15 ~ 30
ALMV0.75 - CB3	5	200 ~ 40	30 ~ 60

STEPLESS SPEED VARIATOR

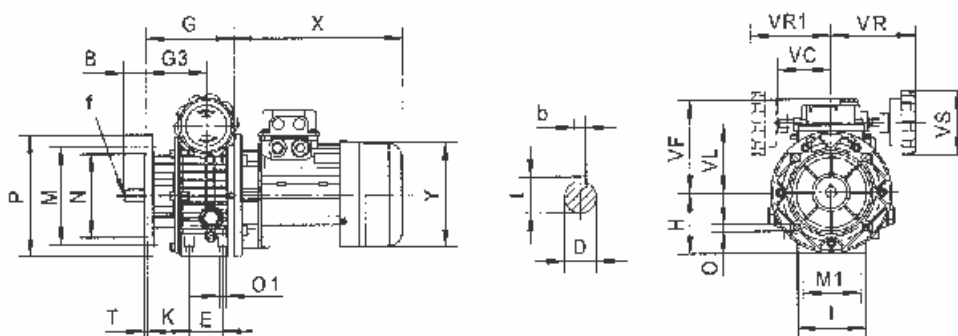
12.7 Outline Dimension Sheet

B3 / Model



	B	D _{J6}	E	E ₁	H	i	I ₁	K	L	M ₁	M2	O ₁	VC	VF	VL	VR	VR ₁	VS	b	f	t	X	Y	Z
ALMV0.18B3	23	11	105	18	80	145	120	88	136	110	71	9	71	111	78	110	110	85	4	-	12.5	200	120	10
ALMV0.37B3	30	14	104	20	93	149	125	104	140	120	96	9	71	123	90	110	110	85	5	M6	16	227	141	10
ALMV0.75B3	40	19	125	26	113	190	150	126	179	160	135	11	79	140	107	120	120	110	6	M6	21.5	268	160	15
ALMV / AL1.1B3	40	24	105	35	100	207	130	136	187	160	115	13	-	124	102	150	-	110	8	M8	27	265	195	15
AL1.5B3	50	24	115	54	123	241	150	165	238	190	143	13	-	144	122	150	-	110	8	M8	27	290	195	18
U02.2B3	60	28	230	25	150	300	270	191	268	245	190	14	-	188	150	150	-	110	8	M8	33	320	215	25
AL3.0B3	60	28	230	25	150	300	270	191	268	245	190	14	-	188	150	150	-	110	8	M8	33	320	215	25
AL4.0B3	60	28	230	25	150	300	270	191	268	248	190	14	-	188	150	150	-	110	8	M8	33	340	240	25
AL5.5B3	70	35	250	33	200	365	290	201	319	315	245	18	-	-	192	192	-	110	10	M10	38	395	275	30
AL7.5B3	70	35	250	33	200	365	290	201	319	315	245	18	-	-	192	192	-	110	10	M10	38	435	275	30

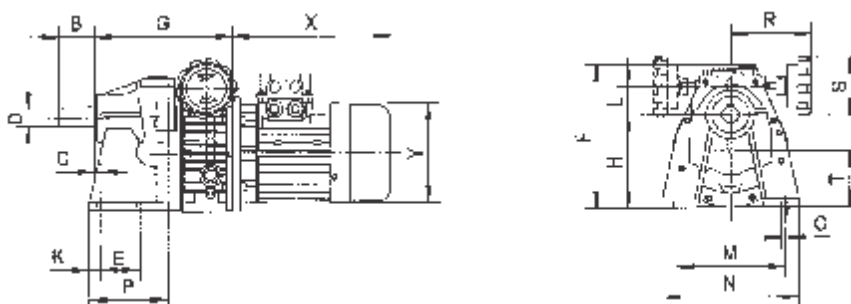
B5 / Model



	B	D _{J6}	E	G	G ₃	H	I	M	M ₁	N	O	O ₁	P	T	K	VC	VF	VL	VR	VR ₁	VS	b	f	t	X	Y
ALMV0.18B5	23	11	50	113	64.5	70	72	115	60	95	9	M6	140	3.5	46	71	111	78	110	110	85	4	-	13	200	120
ALMV0.37B5	30	14	40	110	74	80	90	130	77	110	9	M8	160	3.5	53	71	123	90	100	110	85	5	M6	16	227	141
ALMV0.75B5	40	19	58	139	85.5	100	98	165	84	130	11	M8	200	3.5	60	79	140	107	120	120	110	6	M6	22	268	160
ALMV / AL1.1B5	40	24	-	147	95	98	207	165	-	130	11	-	200	3.5	-	-	124	102	150	-	110	8	M8	27	265	195
AL1.5B5	50	24	-	188	115	126	241	165	-	130	11	-	200	3.5	-	-	144	122	150	-	110	8	M8	27	290	195
AL2.2B5	60	28	-	208	131	150	270	215	-	180	15	-	250	4	-	-	188	150	160	-	100	8	M8	33	320	215
AL3.0B5	60	28	-	208	131	150	270	215	-	180	15	-	250	4	-	-	188	150	160	-	100	8	M8	33	320	215
AL4.0B5	60	28	-	208	131	150	270	215	-	180	15	-	250	4	-	-	188	150	160	-	110	8	M8	33	340	240
AL5.5B5	70	35	-	244	131	200	-	300	-	250	19	-	350	5	-	-	-	192	194	-	110	10	M10	38	395	275
AL7.5B5	70	35	-	244	131	200	-	300	-	250	19	-	350	5	-	-	-	192	194	-	100	10	M10	38	435	275

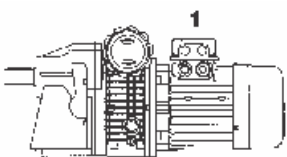
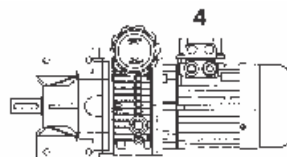
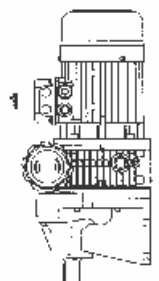
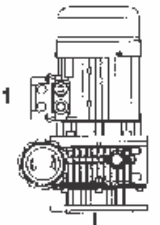
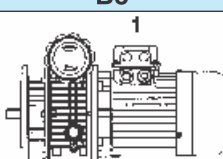
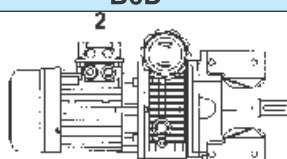
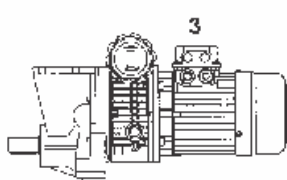
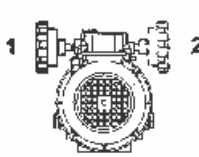
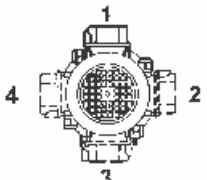
12.8 Combination outline & installation sizes for stepless speed variator & gear speed reducer with foot screws

B3 / Model



Model	B	C	D	E	F	G	H	Y	L	M	N	O	P	R	S	T	X	K
ALMV0.18 - CB3	40	18	19	45	162	189	108	120	33	115	130	9	80	110	85	66	200	16
ALMV0.37 - CB3	50	6	24	70	187	190	130	141	39	150	190	10	110	100	85	79	227	15
ALMV0.75 - CB3	60	7	28	70	228	225	160	160	46	165	210	12	130	130	110	99	268	25

12.9 Installation Positions Diagram

B3	B6S	V5	V1
			
B5	B6D	Pos. of terminal box	
			
B8	Pos. of hand wheel	Pos. of terminal box	
			
			

- For special requirements, orders must specify the position of the terminal box with reference to the diagram. Unless otherwise specified the terminal box, the position of that will be mounted as shown in the diagram for the mounting position.
- Unless specified otherwise, the standard positions are B3 or B5.
- For positions not envisaged, it is necessary to call our Technical Service.



LUBRICATION

12.10 Operation & Maintenance

1. The shapes of shaft extension are all cylindrical. It is subject to GB1569-1990 Cylindrical shaft extension. The key joint refers to GB1095-2003 Ordinary flat key.
2. The shaft lines should be kept concentric when the coupling is connected with a motor. The installation error should be no more than the tolerance value of the coupling.
3. When the output shaft is installed with the coupling or belt wheel, they should be pressed into the screw hole on shaft end. Or assembled by heating. No hammering on it!
4. The mechanical stepless speed variator is not used in such an occasion where overload or running-blockage happen to occur.
5. Speed regulation should be effected in running. Do not turn the hand wheel of speed regulation when the machine stops!
6. The limit screws of speed-regulation on two ends under the operating box are well adjusted, Please don't touch them!
7. This set is not suited to work in the environment over 40°C, especially no more than 45°C when the temperature rises. In regard to its temperature rise, please read the explanation as follows:

If a 4-pole motor is used for the speed variator, the temperature under running-idle (empty running) is 40-50°C higher than that of normal working environment. After running-in up to 60-80 hours, the temperature rise will go down gradually. From that time on, it is 20°C higher than of environment, and the temperature will keep on rising stably. The high temperature rise in running will affect normal permissive working condition, but it won't bring any bad effects to the service life of parts.

8. The liquid lubricating oil is used for the speed variator. Its trade mark is Ub-3x. Please check up the oil level before use.
9. The machine is filled with lubricating oil before leaving factory. When it starts to work up to 2000 hours for the first time, its lubricating oil should be replaced, changing the lubricating oil every 5000 hours later.
10. The lubricating oil level inside the speed variator should be kept at the height of two-third in the oil scale. Users should usually check the height of oil level. It is strictly prohibited to operate it when short of lubricating oil. The air screw nut on the operating box is screwed up for preventing from oil leakage in moving before leaving factory. It should be loosed when it starts to run. It is strictly forbidden to use it before loosening!

13.1 Lubrication

In cases of ambient temperatures not envisaged in the table, call our Technical Service.

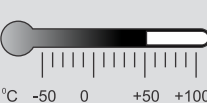
- In the case of temperatures under - 30°C or over 60°C it is necessary to use oil seals with special material.
- For operating ranges with temperatures under 0°C it is necessary to consider the following:
- The motors need to be suitable for operation at the envisaged ambient temperature.
- The power of the electric motor needs to be adequate for exceeding the higher starting torques required.
- In the case of reduction units with a cast-iron case, pay attention to impact loads since cast iron may have problems of fragility at temperatures under - 15°C.
- During the early stages of service, problems of lubrication may arise due to the high level of viscosity taken on by the oil and so it is wise to have a few minutes of rotation under no load.
- The oil needs to be changed after approximately 10,000 hours. This period depends on the type of service and the environment where the reduction unit works.
- The reduction units size ALM 025-030-040-050-063-075-090-105, VF30-44-49 are supplied complete with lubricant and can therefore be mounted in any position envisaged in the catalogue. V5/V6 for which you should call our Technical Service to assess the conditions of use.
- The reduction units size 110, 130 and 150 are supplied complete with lubricant, mineral oil, (SHELL TEVELA OIL 320).
The variator speed are supplied complete with lubricant, mineral oil (GUANGYAN Ub-3x).
- For sizes 110, 130, 150 it is necessary to specify the position, otherwise the reduction units are supplied with the quantity of oil relating to pos. B3.
- ALM series worm gearbox should mount breather plug (optional parts) under special working condition.
- PU is supplied complete with life-long lubricant synthetic oil (SHELL TEVELA OIL 320), and can therefore be mounted in all the positions.

NOTICE FOR ORDERING

1. Please refer to the sheet of performance parameter. ALM series dimensions, Mounting and operation positions diagram, make reasonable choice of model, and write down model mark to your required revolution scope, output torque and structural form on ordering (when ordering, you should show whether the reducers are equipped with motors, otherwise reducers aren't supplied with motors).
2. Please make the best choice of standard products in this catalogue, and give an additional explanation for your special requirement and motors.



13.2 Lubrication

										
ALM025 ~ 105 PU063 ~ 090 VF30 - 49	-25	+50	VG320	Tivela Oil S320	Telium VSF 320	S220	Glygoyle	Alphasyn PG320	Energol SG XP320	Synthetic Oil
ALM110 ~ 150	-5	+40	VG460	Omala Oil 460	Blasia 460	Spartan EP460	Mobilgear 634	Alpha MAX 460	Energol GR XP460	Mineral Oil
	-15	+25	VG220	Omala Oil 220	Blasia 220	Spartan EP220	Mobilgear 634	Alpha MAX 220	Energol GR XP220	
ALMV	-25	+40	VG32	A.T.F. DXRON	A.T.F. DXRON	A.T.F. DXRON	A.T.F. 220	TQ. DXRON II	Autran DX	Mineral Oil

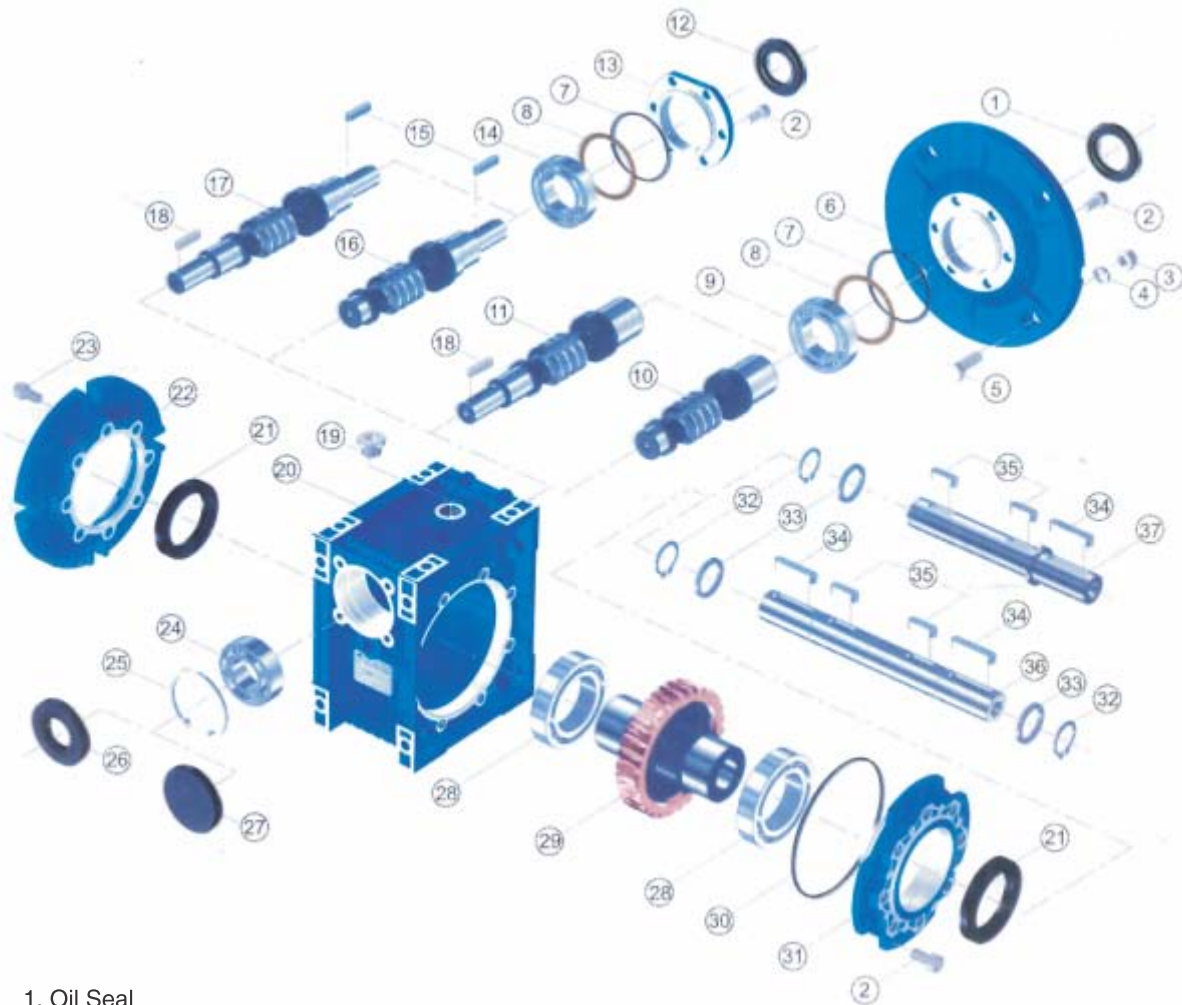
13.3 Lubrication fill quantity

	B3	B6	B7	B8	V1. V5	V3. V6
ALM 025	0.023					
ALM 030	0.05					
ALM 040	0.1					
ALM 050	0.15					
ALM 063	0.3					
ALM 075	0.5					
ALM 090	1					
ALM 105	1.6					
ALM 110	3	2.5	2.5	2.2	3	2.2
ALM 130	4,5	3.5	3.5	3.3	4.5	3.3
ALM 150	7	5.4	5.4	5.1	7	5.1
PU063	0.05					
PU071	0.07					
PU080	0.15					
PU090	0.16					
ALMV0.18	0.13				0.2	
ALMV0.37	0.15				0.25	
ALMV0.55	0.33				0.45	
ALMV0.75	0.33				0.45	
AL1.1	0.8				1	
AL1.5	0.8				1	
AL2.2	1.2				1.2	
AL3.0	1.2				1.2	
AL4.0	1.2				1.2	
	B3	B6	B7	B8	V5	V6
VF30	0.045	0.045	0.045	0.045	0.045	0.045
VF44	0.075	0.075	0.075	0.075	0.075	0.075
VF49	0.12	0.12	0.12	0.12	0.12	0.12

The fill quantity in the table is referenced, the exact value relating to the ratio and mounting positions.



EXPLODED VIEW & NAME OF PARTS



- | | |
|---------------------------------------|-------------------------|
| 1. Oil Seal | 20. Casing |
| 2. Inner Hex Screw | 21. Oil Seal |
| 3. Nut | 22. Output Flange |
| 4. Spring Washer | 23. Inner Hex Screw |
| 5. Hex Screw | 24. Bearing |
| 6. Input Flange | 25. Hole-Circlip |
| 7. O-Ring | 26. Oil Seal |
| 8. Adjust Spacer | 27. Cover |
| 9. Bearing | 28. Bearing |
| 10. Hole Input Worm | 29. Worm Wheel |
| 11. Hole Input and Shaft Output Worm | 30. O-Ring |
| 12. Oil Seal | 31. Output Cover |
| 13. Input Cover | 32. Shaft-Circlip |
| 14. Bearing | 33. Spacer |
| 15. Key | 34. Key |
| 16. Shaft Input Worm | 35. Key |
| 17. Shaft Input and Shaft Output Worm | 36. Double Output Shaft |
| 18. Key | 37. Single Output Shaft |
| 19. Oil Plug | |





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