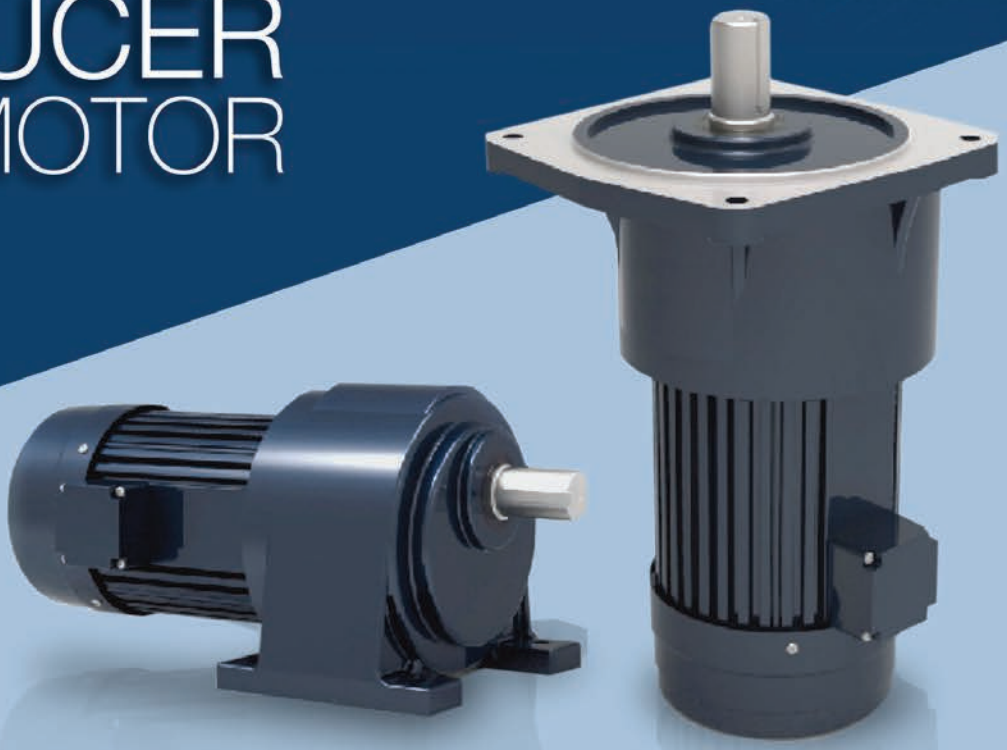
NORCE

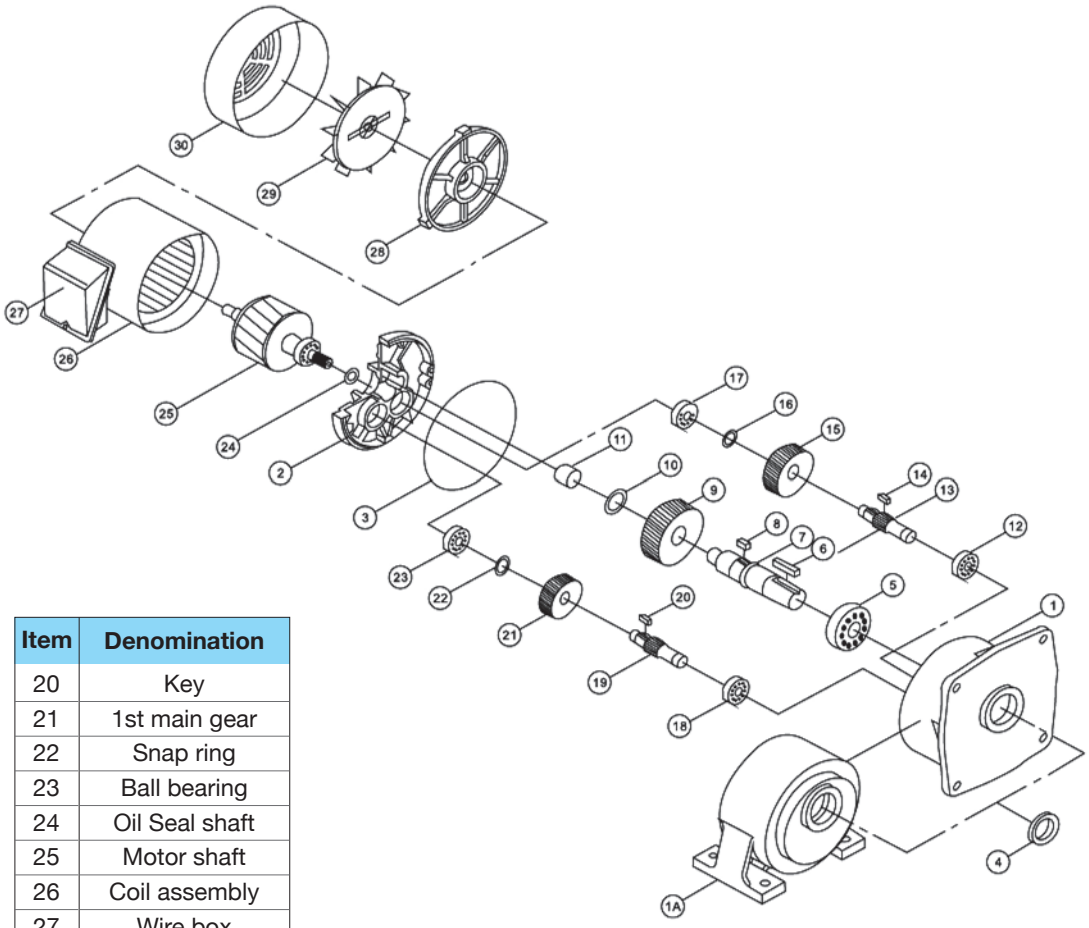
TRANSMISSION

GEAR REDUCER MOTOR



www.bangkokgear.com

PRODUCT STRUCTURE



Item	Denomination
1	Housing
2	Housing cover
3	O-ring
4	Oil seal
5	Ball bearing
6	Key
7	Output shaft
8	Key
9	3rd main gear
10	Snap ring
11	Oilles bearing
12	Ball bearing
13	3rd pinion gear
14	Key
15	2d main gear
16	Snap ring
17	Ball bearing
18	Ball bearing
19	2nd main gear

Item	Denomination
20	Key
21	1st main gear
22	Snap ring
23	Ball bearing
24	Oil Seal shaft
25	Motor shaft
26	Coil assembly
27	Wire box
28	Rear cover motor
29	Fan
30	Fan cover

Operation and Installation of Gear Reducer

Check before use

• Check whether the machine type, model, horsepower, shaft direction, reduction ratio, rotation direction and the number of rotations of the input shaft and output shaft are in compliance.

• Pay attention to check the oil filling, make sure there is oil, and keep the oil amount more than half of the oil area.

Place

• It must be installed on a sturdy bottom on weekdays.

• The installation environment must be dry and well ventilated. The ambient temperature is -10°C~+50 °C. Please indicate the abnormally high or low temperature.

Connection method

• When the coupler is used to connect the input or output shaft, it must be fixed firmly and the two shafts must be parallel.

• All fittings should be lightly mounted on the shaft, do not use a hammer, and avoid bearing damage caused by over-tight fitting.

• Pulleys, sprockets or gears should be assembled as close to the bearings as possible to reduce bending stress. Use the appropriate size (within 6 times the diameter of the output shaft) to connect the output shaft with the pulley, pulley, etc. Please use the H7 tolerance to avoid abnormal noise and damage.

• Appropriate lubrication oil can be added to the ZH and ZV type input holes to avoid excessive of the hole and abnormal noise.

• The shaft surface can be coated with anti-rust paint to avoid rust.

Motor

• When the power supply voltage fluctuates more than 10%, the motor may be burnt, and the output shaft torque will be reduced or abnormal.

• There is risk of burnout if the motor is overloaded.

• Incorrect Wiring of the motor can cause the motor to burn out.

• Excessive humidity will cause the brake motor to corrode and lose its braking function.

• When used with frequency converter, please use frequency conversion special motor if it is usually used for low frequency.

• Please install a protection switch on the power supply line to reduce motor burnout.

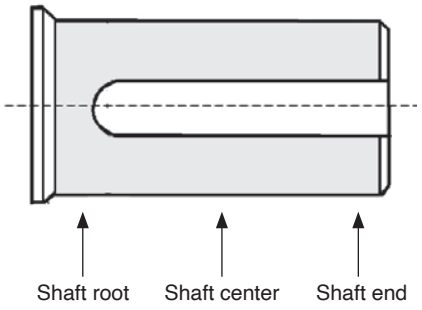
Overload output capability (O.H.L.)

The Overload output capacity means that load is suspended on the mandrel. If the reducer shaft and the machine operate, if the key strip and convenyor belt are used the need for exceeding the load must be checked.

O.H.L.=TxK1xK2/R (kg.m)

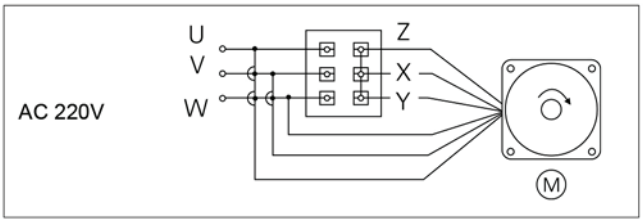
T : reducer shaft conection torque (kg.m)
R : The key strip for the installlation of the reducer shaft, Pulley, gear, etc. pitch circle radius (m)
k1 : Coefficient of connection method (Table 5)
k2 : Coefficient of load position (Table 6)

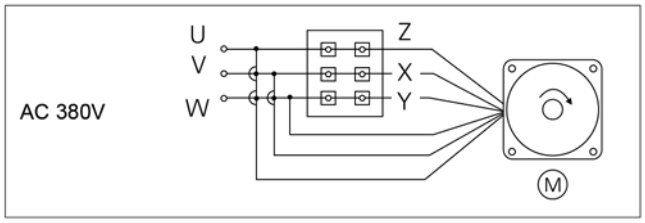
The above-mentioned O.H.L. performance indicates the allowable amount of load, please operate according to less than the allowable amount of O.H.L



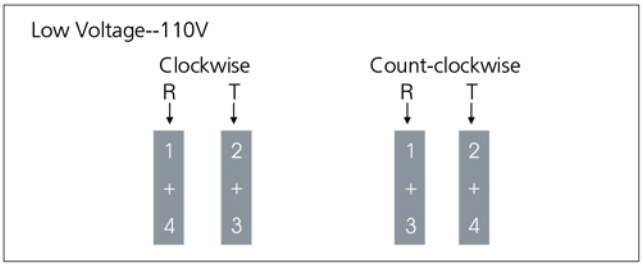
Coefficient k1	Table 5	Coefficient k2	Table 6
connection method	K1	Location	K2
chain, gear belt	1.00	Shaft root	0.75
gear	1.25	Shaft center	1.00
V-Shaped conveyor belt	1.50	Shaft end	1.50
Flat conveyor belt	2.50		

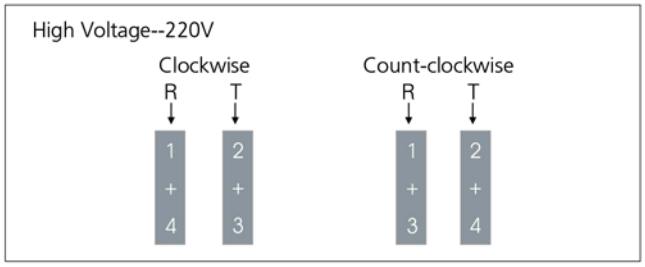
Three-phase gear reduction motor wiring diagram





Single-phase gear reduction motor wiring diagram





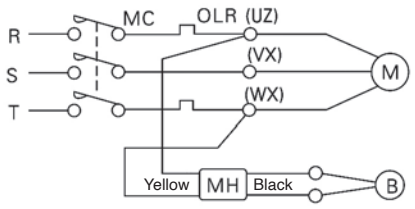
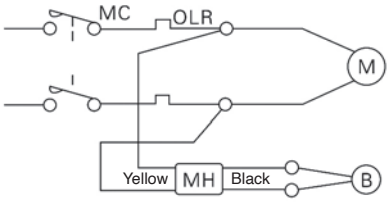
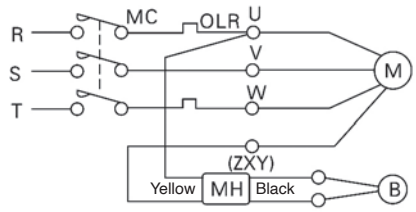
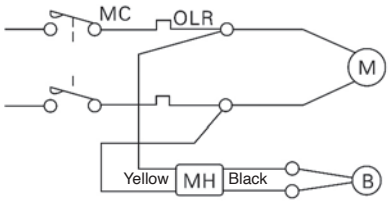
Specialty

Action when power off.....No excitation brake, automatic brake action when power is off.
Easy wiring.....The rectifier is installed on the motor casing and connected to the AC power supply.
Small and lightweight..... The length of the motor increased by the installation of the brake is very small, the volume is small, and the weight is light.
Long life.....The material of the brake pad has good were resistance, the braking action is correct, and the adjustment is convenient.

Brake specification standard

The output Voltage	Three-phase brake gear reduction motor	Single-phase brake gear reduction motor
Input voltage	AC200/208/220V - 50/60Hz	AC100/100/ - 50/60Hz
The output voltage	DC90/108V	DC90/108V
Ambient temperature	-10°C ~ +50°C	
Installation withstand voltage	AC1500V	

Wiring diagram

The output Voltage	Three-phase brake gear reduction motor	Single-phase brake gear reduction motor
Wiring diagram	 AC 200/208V/220V	 AC 100/110V
Wiring diagram	 AC 380/415V/440V	 AC 200/220V

M ----------Motor B ----------Brake
MH----------Rectifer
MC----------Electromagnetic contactor
CLR----------OLR overload relay

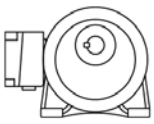
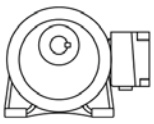
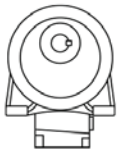
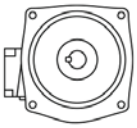
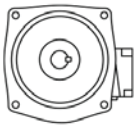
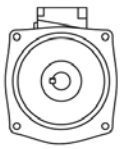
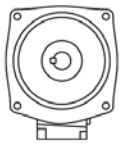
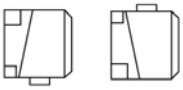
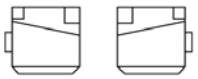
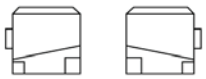
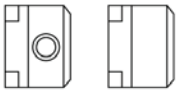
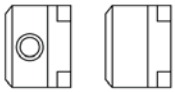
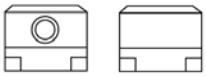
Note : The brake motor is connected to the inverter, the brake coil may have poor pull-in, and the brake coil can be directly connected to the mains marked on the nameplate.

Technical data

ZH - 22 - 200 - 100 - SZ - B - G1 - LB

Base Type	Output Shaft Dia meter	Horsepower Capacity Watt	Reduction Ratio (Gear ratio)	Motor Type	Brake Type	According to the output shaft Wire Box Orientation	Inlet diretion
ZH : (Horizontal) ZV : (Vertical)	18, 22, 28 32, 40, 50	1/8HP=0.1kW 1/4HP= 0.2kW 1/2HP=0.4kW 1HP=0.75kW 2HP=1500W 3HP= 2200W 5HP=3700W	1 : 100 (By 100 mean 1 : 100)	A : (Single phase) AV : (Single phase) S : (Three phase) L : DC Motor C : (Special) Z : Frame Reduction Model F : Flange trimming Q1 : 110V Forced fan Q2 : 220V Forced fan	B : DC 90V Power off brake Brake unit YB : Hand Release Brake DB : DC 24V pass Electric brake	G1 : Left diretion Left : (Sandard) G2 : Right Diretion Right G3 : Upward Upper G4 : Downward Lower	T : Top D : Down F : Forward B : Back L : Left R : Right

Terminal box direction

	G1 - Left Side	G2 - Right Side	G3 - Upper Side	G4 - Lower Side
ZH Type				
ZV Type				
Wire inlef Direction	 LD LT	 RD RT	 TL TR	 DL DR
	 LF LB	 RF RB	 TF TB	 DF DB

Model Description

Horizontal

Vertical

Horizontal with brake

Vertical with brake

Motor specification

		Three-phase geared motor	Single-phase geared motor
Three phase geared motor	Gear	All built-in gears are made of high-precision machining and carburized and quenched.	
	Material	Aluminium alloy die-casting (shaft diameter 18,22,28) Cast iron forming (32,40,50)	
	Lubricating	The body is filled with high-grade lubricating oil when it is shipped, and does not required refueling and maintenance.	
Motor	Power supply	220/380V	110/220V
	Frequency	50/60Hz	50/60Hz
	Cooling method	Fully closed external fan.	
	Start method	Full pressure direct start.	
	Shell material	Advanced Aluminum Alloy.	
	Insuation class	Class F and B insulation.	
	Protection class	The aluminum shell junction box is IP54, and the iron box junction box is TP20.	
Brake	Way of action	Non-excited brake (Power off brake)	
	Voltage	DC90-110V with AC 220V, AC110V rectifier	
General environment	Temperature	10 °C -+ 40 °C	
	Humidity	Below 90% (non condensing)	
	Place	Indoor, below 1000 meters above sea leval.	

3 Phase/4 Poles Full Load Ampere

Capacity	50Hz-4P			60Hz-4P		
	220V	380V	RPM	220V	380V	RPM
100W	0.60	0.40	1400	0.60	0.40	1700
200W	1.15	0.67	1400	1.10	0.63	1700
400W	2.13	1.24	1400	1.90	1.10	1700
750W	3.66	2.13	1410	3.40	1.96	1710
1500W	6.58	3.82	1410	6.10	3.53	1710
2200W	8.94	5.18	1430	8.70	5.03	1725
3700W	13.85	8.03	1440	13.5	7.81	1725

1 Phase/4 Poles Full Lode Ampere

Capacity	50Hz-4P			60Hz-4P		
	110V	220V	RPM	110V	220V	RPM
100W	2.2	1.1	1400	2.0	1.0	1700
200W	4.0	2.0	1400	3.6	1.8	1700
400W	7.6	3.8	1420	6.6	3.3	1730
750W	14.2	7.10	1420	12.9	6.4	1730
1500W	20.0	10.0	1420	18.0	9.0	1730

1 Phase Motor Capacitor

Capacity	Running Capacitor (wendian type)	Starting Capacitor (Centrifugal Switch Type)	Runing Capacitor+Starting Capacitor (Centrifugal Switch Type)
100W	10μf - 350V	-	-
200W	16μf - 350V	125μf - 160V	-
400W	30μf - 350V	200μf - 160V	30μf - 350V + 200μf - 160V
750W	35μf - 350V	300μf - 160V	35μf - 350V + 300μf - 160V
1500W	50μf - 350V	400μf - 160V	50μf - 350V + 400μf - 160V

Output Torque

(Normal Duty Type)

kg-m

Ratio	Output R.P.M.		Output Torque													
			0.1kW		0.2kW		0.4kW		0.75kW		1.5kW		2.2kW		3.7kW	
			Hz													
	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60
3	500	600	0.19	0.16	0.37	0.31	0.70	0.60	1.30	1.10	2.60	2.20	3.80	3.20	6.00	5.50
5	300	360	0.31	0.26	0.62	0.52	1.20	1.00	2.20	1.90	4.50	3.80	6.72	5.60	11.00	10.00
10	150	180	0.62	0.52	1.24	1.04	2.40	2.00	4.50	3.80	9.10	7.60	13.70	11.20	22.00	20.00
15	100	120	0.91	0.76	1.80	1.50	3.60	3.00	6.80	5.70	13.50	11.30	20.10	16.80	32.60	29.80
20	75	90	1.20	1.00	2.40	2.00	4.80	4.00	9.00	7.50	18.10	15.10	26.80	22.40	43.60	36.00
25	60	72	1.40	1.20	3.00	2.50	6.00	5.00	11.20	9.40	22.60	18.90	33.60	28.00	53.90	49.53
30	50	60	1.80	1.50	3.60	3.00	7.20	6.00	13.50	11.30	27.10	22.60	40.30	33.60	64.70	58.80
40	37	45	2.20	1.90	4.60	3.90	9.30	7.80	17.50	14.60	34.90	29.10	52.00	43.40	86.30	78.40
45	33	40	2.70	2.20	5.40	4.40	10.90	9.10	20.60	17.00	41.10	34.00	59.80	49.60	98.50	81.70
50	30	36	2.80	2.40	5.70	4.80	11.60	9.70	21.90	18.30	43.60	36.40	65.10	54.30	107.00	97.00
60	25	30	3.40	2.90	6.90	5.80	13.90	11.60	26.20	21.90	52.40	43.70	78.10	65.10	127.00	115.00
70	21	25	4.30	3.60	8.00	6.80	16.20	13.50	31.50	26.30	62.40	52.00	92.50	77.10		
80	19	23	4.80	4.00	9.20	7.70	18.40	15.40	35.50	29.60	70.80	59.00	105.00	87.50		
90	17	20	5.20	4.40	10.30	8.60	20.70	17.30	39.30	32.80	77.10	64.30	113.00	94.30		
100	15	18	5.80	4.90	11.50	9.60	23.00	19.20	43.20	36.00	83.70	69.80	126.00	105.00		
120	12	15	6.90	5.80	13.80	11.50	27.70	23.10	51.80	43.20	101.00	83.70				
140	11	13	8.00	6.70	16.00	13.40	32.00	26.70	59.70	49.80	116.00	96.80				
160	g	11	9.10	7.60	18.30	15.30	36.30	30.30	68.00	56.70	132.00	110.00				
180	8	10	10.30	8.60	20.70	17.30	40.80	34.00	76.80	64.00	148.00	123.00				
200	7	9	11.60	9.70	22.90	19.10	43.20	36.00	82.80	69.00						

kg-m=9.8 x N-m

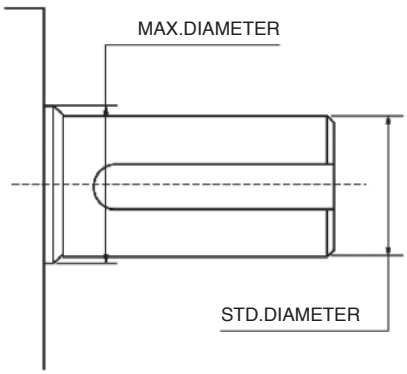
Overhung Load

kg-m

Ratio	Output R.P.M.		Output Torque													
			0.1kW		0.2kW		0.4kW		0.75kW		1.5kW		2.2kW		3.7kW	
	Hz															
	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60
3	500	600	30	25	30	25	54	45	60	50	145	130	165	150	200	180
5	300	360	36	30	36	30	78	70	85	75	165	150	210	180	270	225
10	150	180	70	60	70	60	150	130	180	180	280	250	430	360	570	550
15	100	120	110	90	110	100	175	160	165	160	355	348	490	450	780	750
20	75	90	150	125	135	125	190	170	175	170	369	365	540	500	850	830
25	60	72	155	140	150	140	210	180	185	180	450	430	650	630	1100	1050
30	50	60	160	150	170	165	235	220	415	400	480	450	690	650	1200	1100
40	38	45	160	160	180	180	270	260	430	420	580	550	710	670	1280	1200
45	33	40	170	170	180	180	335	328	440	430	590	570	820	780	1300	1250
50	30	36	170	170	180	180	350	335	450	440	600	580	850	820	1400	1350
60	25	30	180	180	180	180	350	350	450	450	630	610	900	900	1100	1400
70	21	25	180	180	180	180	350	350	460	460	670	650	1100	1100		
80	18	22	180	180	180	180	350	350	460	460	680	680	1100	1100		
90	16	20	180	180	180	180	350	350	500	500	850	850	1200	1200		
100	15	18	200	200	180	250	380	380	590	590	900	900	1200	1200		
120	12	15	200	200	320	320	390	390	640	640	920	920				
140	11	13	200	200	320	320	400	400	679	679	920	920				
150	10	12	220	220	330	330	420	420	679	679	950	950				
160	9	11	220	220	330	330	420	420	700	700	950	950				
180	8	10	240	240	350	350	430	430	720	720	980	980				
200	7	9	240	240	350	350	430	430	720	720						
1/250-1/1800			300	300	480	480	720	720	1400	1400						

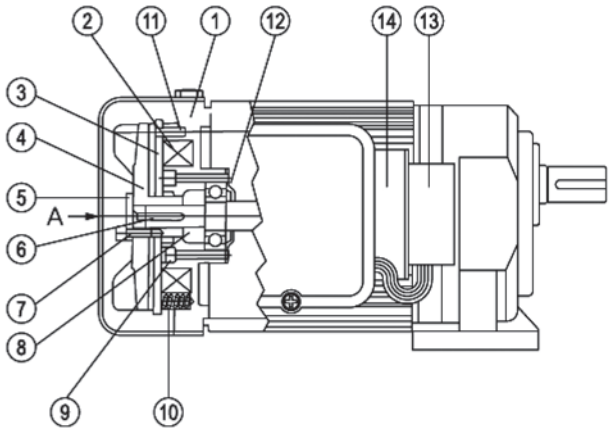
kg-m=9.8 x N-m

Available Max Output Shaft Diameter



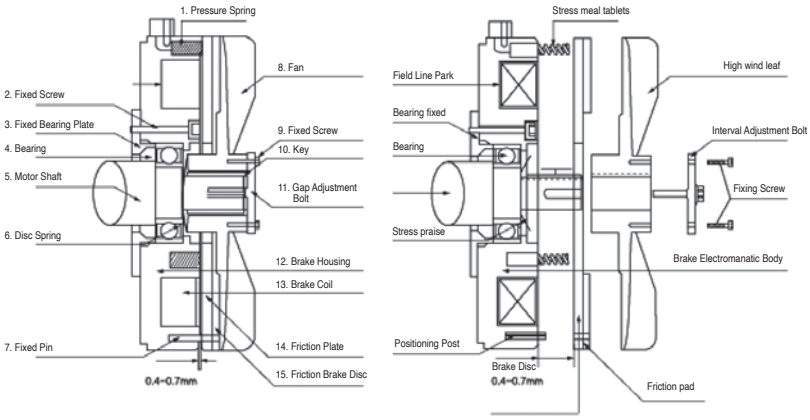
STD Output Shaft	Max Available Diameter
ϕ 18	ϕ 20
ϕ 22	ϕ 25
ϕ 28	ϕ 30
ϕ 32	ϕ 35
ϕ 40	ϕ 45
ϕ 45	ϕ 45
ϕ 50	ϕ 55

Brake assembly drawing



1. BRAKE SUBJECT
2. BRAKE ACTUATING COIL
3. BRAKE PAD
4. COOLING WIND LEAF
5. ADJUSTING BOLT
6. SINGLE ROUND KEY
7. FIXED SCREW
8. GASKET
9. TELESCOPIC SCREW
10. COMPRESSION SPRING
11. SPRING PIN
12. BEARING COVER
13. RECTIFIER
14. RECTIFIER PLATE

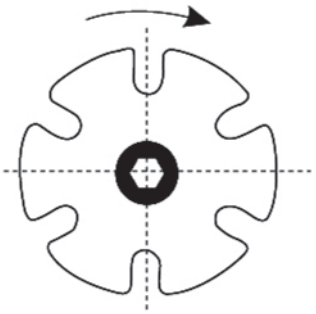
(Brake unit Section diagram)



Electromagnetic Pressure Plate

1. PRESSURE SPRING
2. FIXED SCREW
3. FIXED BEARING PLATE
4. BEARING
5. MOTOR SHAFT
6. DISC SPRING
7. FIXED PIN
8. FAN
9. FIXED SCREW
10. KEY
11. GAP ADJUSTMENT BOLT
12. BRAKE HOUSING
13. BRAKE COIL
14. FRICTION PLATE
15. FRICTION BRAKE DISC

(AD Just Brake Clearance)



1. Please remove two pieces fixed screws in advance.
2. Every single position ad justment, brake clearance will reduce 0.07-0.10mm.

Reasons for brake clearance adjustment :

1. Whenever the braking action is incorrect for a period of time.
2. The brake clearance needs to be adjusted at least once a year.
3. According to the frequency of use, you can decide the number of times to adjust the gap.
4. Please use the thickness gauge to adjust the brake clearance between 0.3-0.5 mm.

Gap adjustment method :

1. Open the motor air cover and remove the two fixing screws on the adjusting bolts.
2. Rotate the adjusting bolt to adjust the brake clearance.
   Clockwise ---narrow the gap, Counterclockwise---enlarge the gap,
   adjust about 0.2 mm per equal distance.
3. After adjusting the gap with the thickness gauge, put four or six holes on the adjusting bolt Among them, the two diagonal holes are fixed and the fixing screws are locked to complete the adjustment of the gap. The adjustment method and the required gap thickness shall prevail.

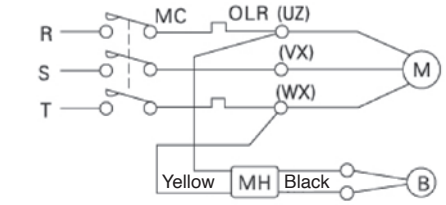
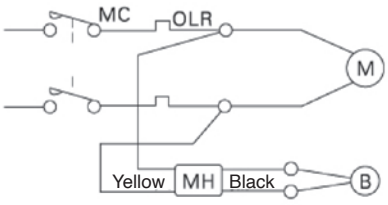
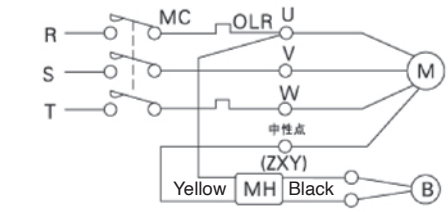
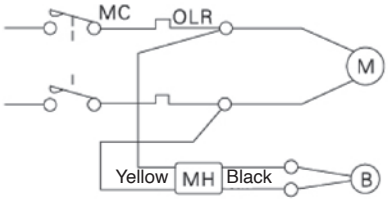
Brake Features

Action when power off	No exciting braking, automatic braking action when the power is cut off.
Easy wiring	The rectifier is installed on the motor casing and connected to the AC Power Supply.
Small and lightweight	The length of the motor increased by the installation of the brake is very small, the volume is small, and the weight is light.
Long life	The material of the brake pad has good wear resistance, the braking action is correct, and the adjustment is convenient.

Brake Specification Standard

Adaptor moter	Three-phase brake gear reduction motor	Single-phase brake gear reduction motor
Input voltage	AC200/208/220V-50/60Hz	100/100V-50/60Hz
The output voltage	DC90/108V	DC90/108V
Ambient temperature	-10 °C ~+ 40 °C	-10 °C ~+ 40 °C
Insulation with stand voltage	AC1500V	AC1500V

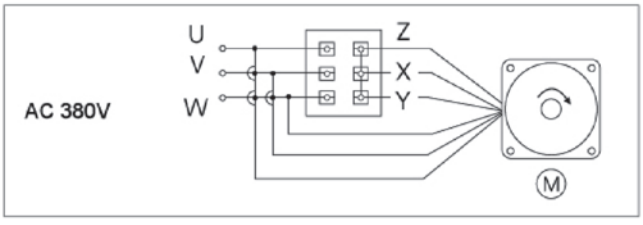
Wirig diagram

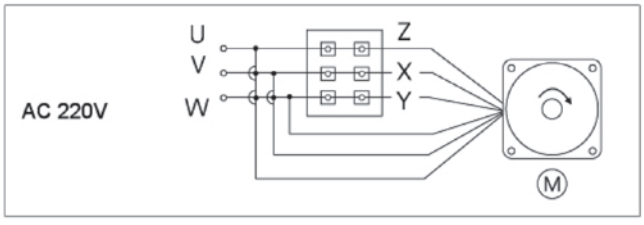
Adaptor moter	Three-phase brake gear reduction motor	Single-phase brake gear reduction motor
Wiring diagram	 AC 200/208V/220V	 AC 100/110V
Wiring diagram	 AC 380/415V/440V	 AC 200/220V

M-----Motor B-----Brake MC-----Manatic Contactor
MH-----Rectifier OLR-----Overload relay

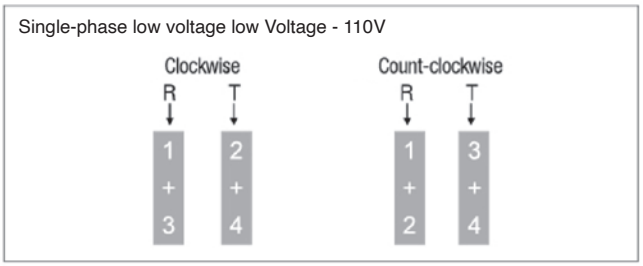
Note : The brake motor is connected to the inverter, and the coil of the car may have poor pull-in. The brake coil can be directly marked with the mains on the nameplate.

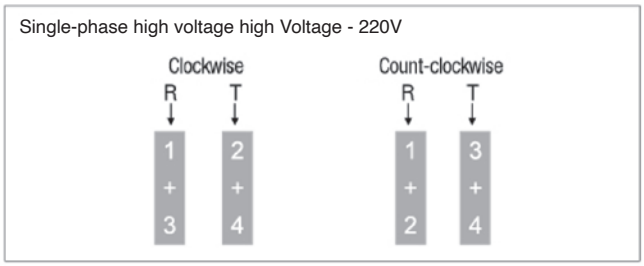
Three-phase gear reduction motor wiring diagram





Single-phase gear reduction motor wiring diagram





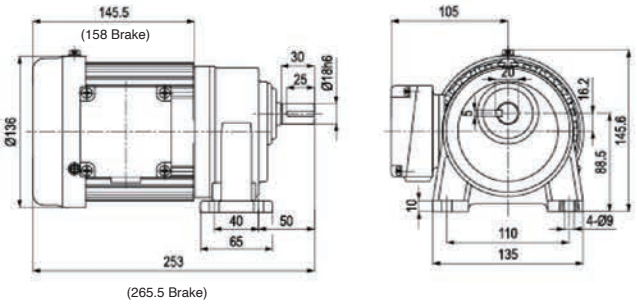
0.1kW

ZH. Horizontal Type With Aluminium Plate
3 Phase (Brake) Gear Motor

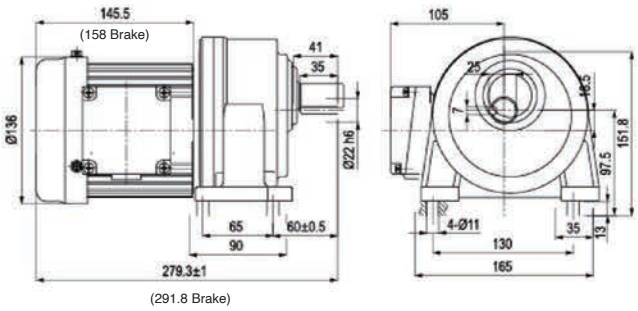
Dimensions chart

ZH-18-100-3~60

ZH-18-100-70~200



ZH-22-100-60~200



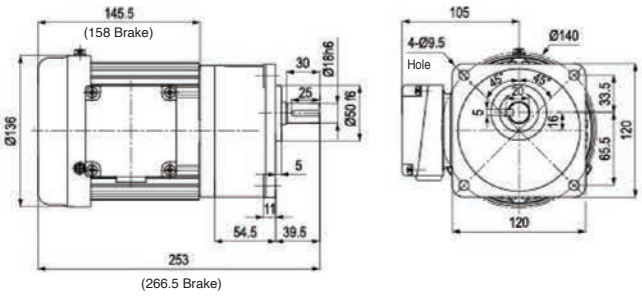
0.1kW

ZV. Vertical Type With Aluminium Plate
3 Phase (Brake) Gear Motor

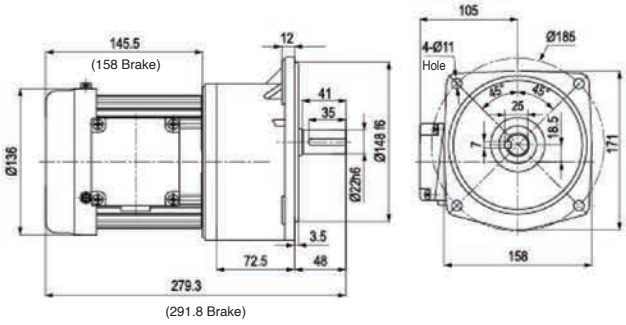
Dimensions chart

ZV-18-100-3~60

ZV-18-100-70~200



ZV-22-100-60~200



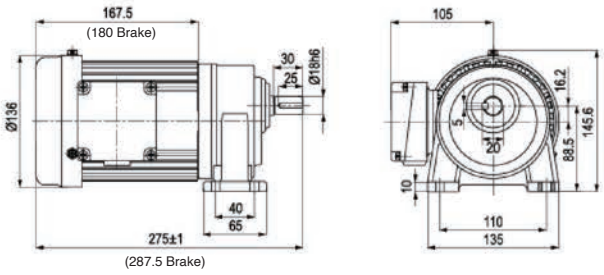
Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

0.2kW

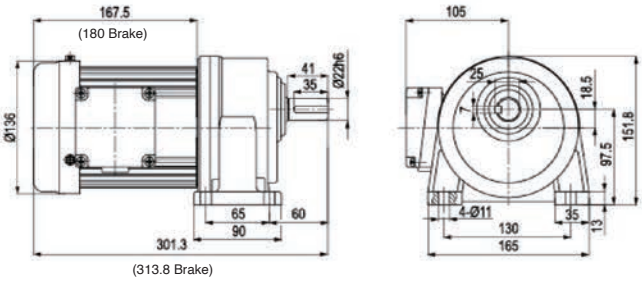
ZH. Horizontal Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

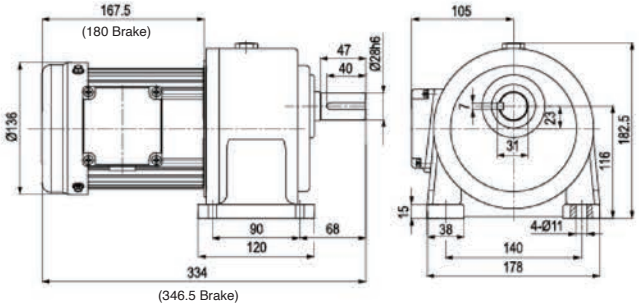
ZH-18-200-3~10
ZH-18-200-15~90



ZH-22-200-15~90
ZH-22-200-100~200



ZH-28-200-100~200



Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

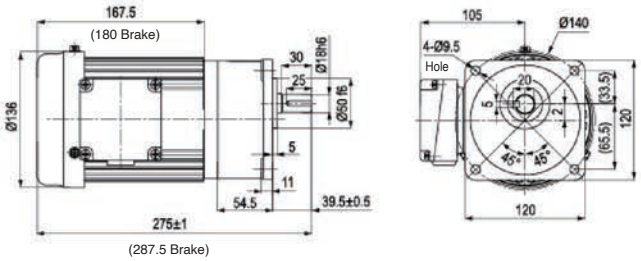
0.2kW

ZV. Vertical Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

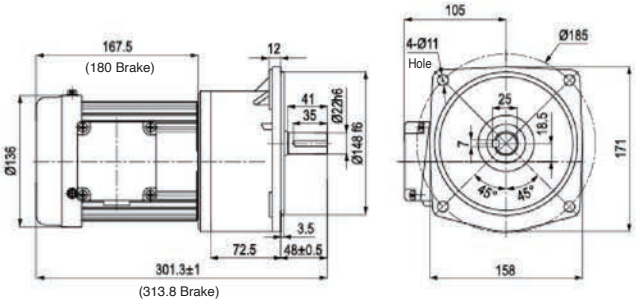
ZV-18-200-3~10

ZV-18-200-15~90

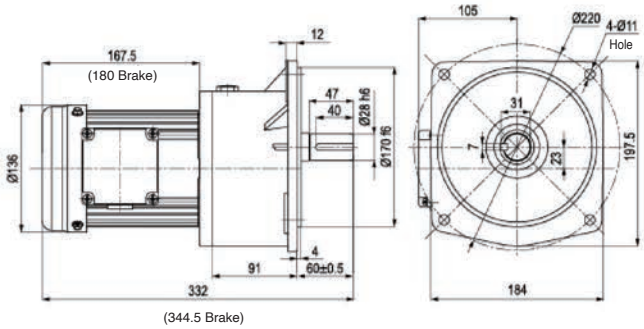


ZV-22-200-15~90

ZV-22-200-100~200



ZV-28-200-100~200



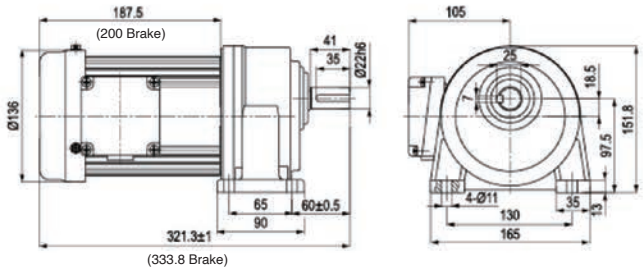
Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

0.4kW

ZH. Horizontal Type With Aluminium Plate
3 Phase (Brake) Gear Motor

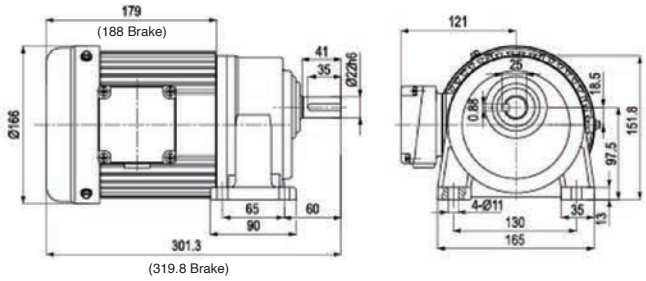
Dimensions chart

ZH-22-400-3~10
ZH-22-400-15~90



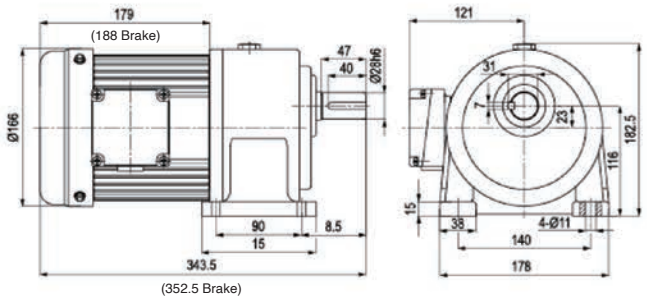
(333.8 Brake)

ZH-22-400-3~10
ZH-22-400-15~90



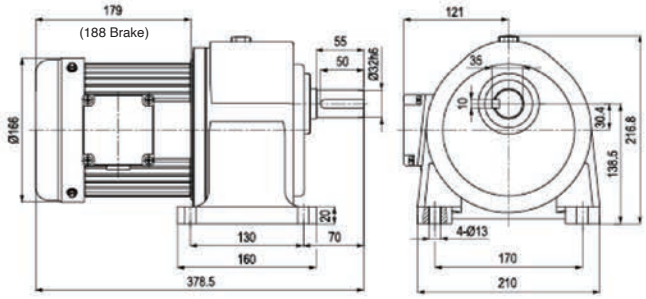
(319.8 Brake)

ZH-28-400-15~90
ZH-28-400-100~200



(352.5 Brake)

ZH-32-400-100~200



(387.5 Brake)

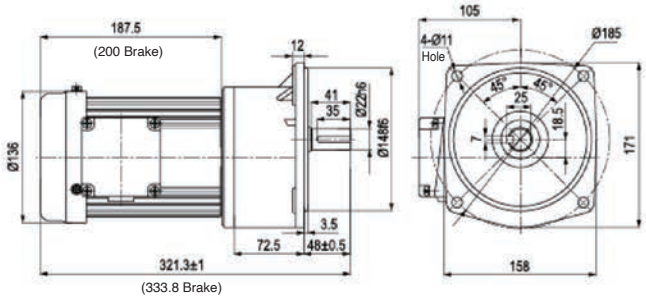
Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

0.4kW

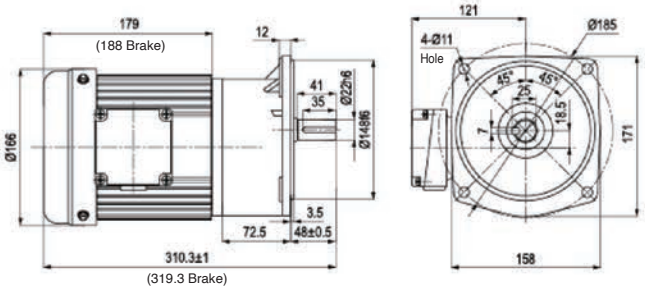
ZV. Vertical Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

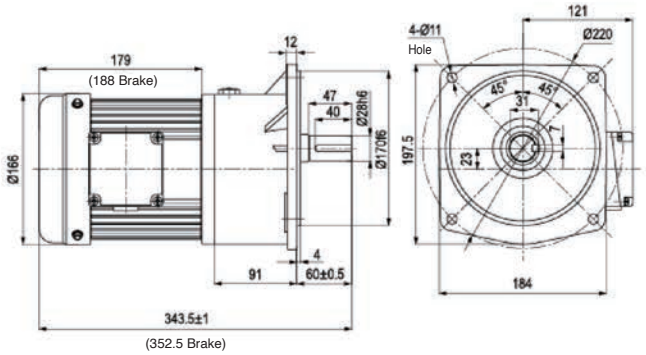
ZV-22-400-3~10
ZV-22-400-15~90



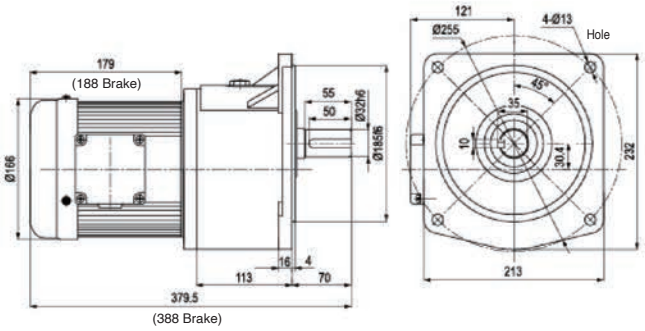
ZV-22-400-3~10
ZV-22-400-15~90



ZV-28-400-15~90
ZV-28-400-100~200



ZV-32-400-100~200



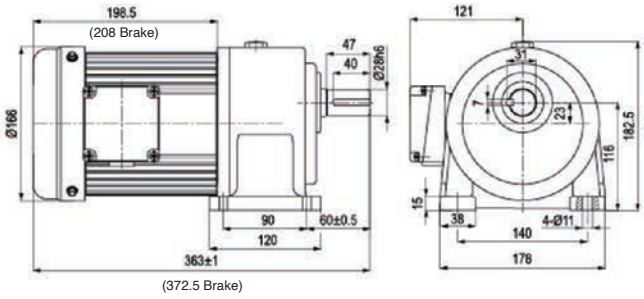
Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

0.75kW

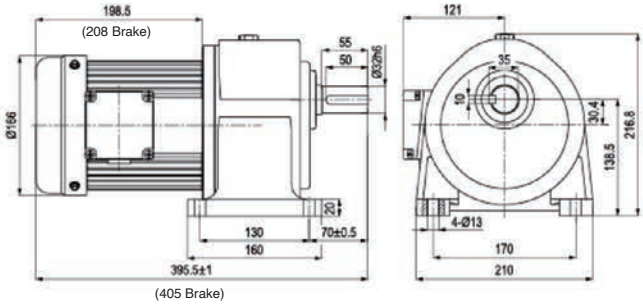
ZH. Horizontal Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

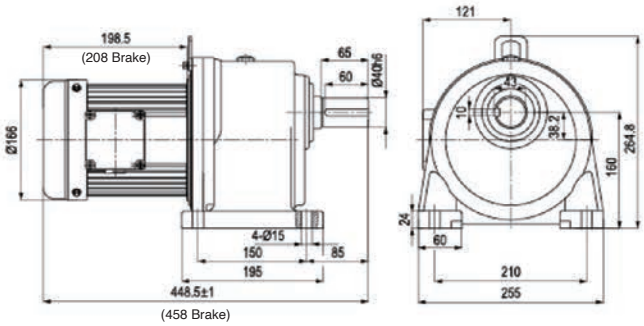
ZH-28-750-3~25
ZH-28-750-30~120



ZH-32-750-30~120
ZH-32-750-130~200



ZH-40-750-130~200



Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

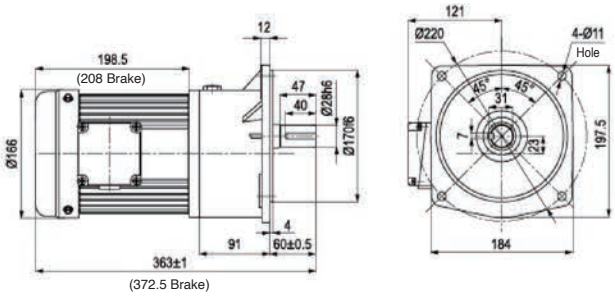
0.75kW

ZV. Vertical Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

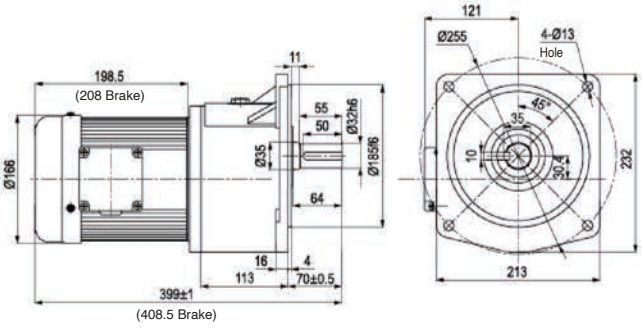
ZV-28-750-3~25

ZV-28-750-30~120

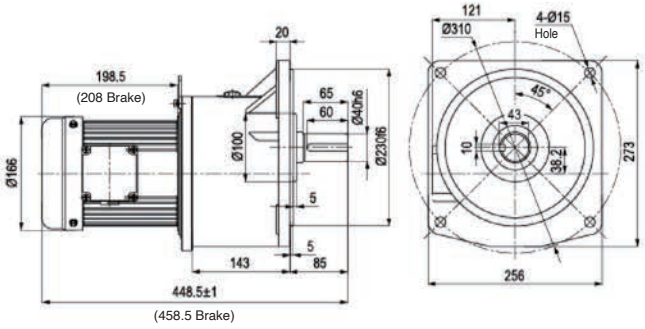


ZV-32-750-30~120

ZV-32-750-130~200



ZV-40-750-130~200



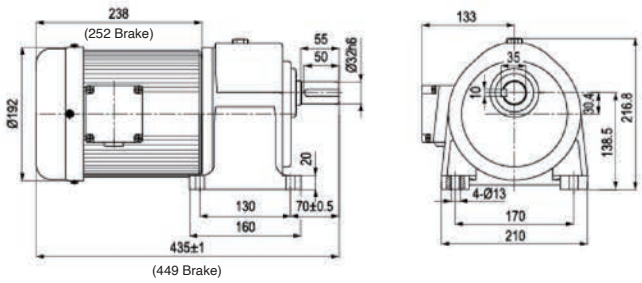
Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

1.5kW

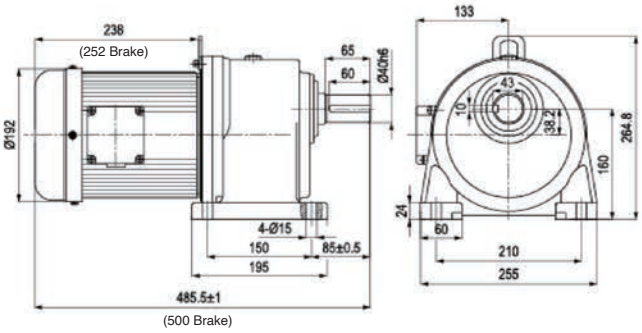
ZH. Horizontal Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

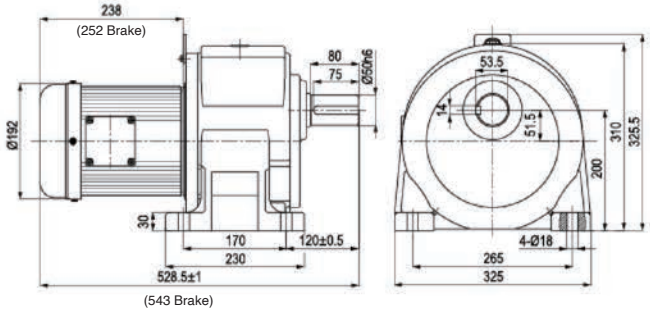
ZH-32-1500-3~30
ZH-32-1500-40~100



ZH-40-1500-35~100
ZH-40-1500-110~200



ZH-50-1500-110~200



Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

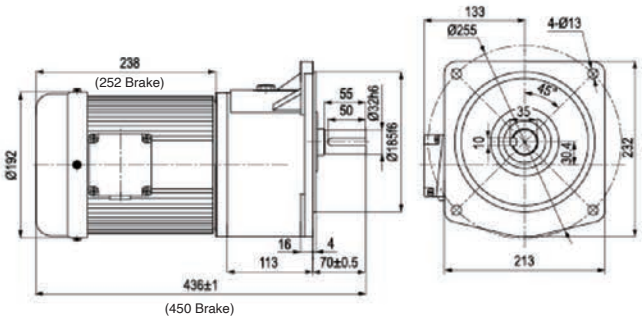
1.5kW

ZV. Verticle Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

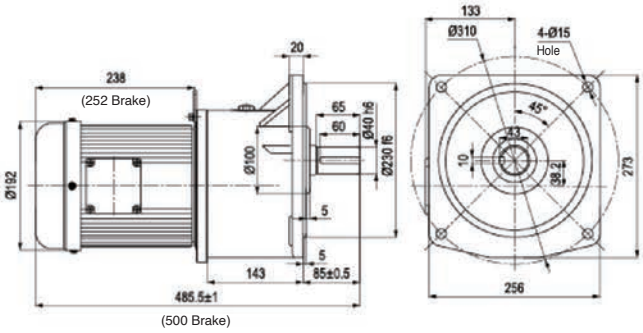
ZV-32-1500-3~30

ZV-32-1500-40~100

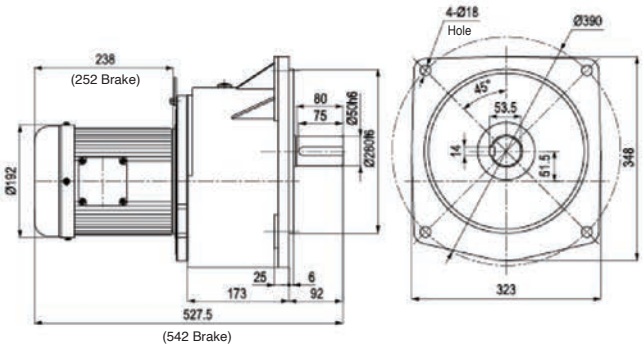


ZV-40-1500-35~100

ZV-40-1500-110~200



ZV-50-1500-110~200



Note : The reduced frame type is for light load and is used in occasions without large inertia. for improper design, do not use unless necessary.

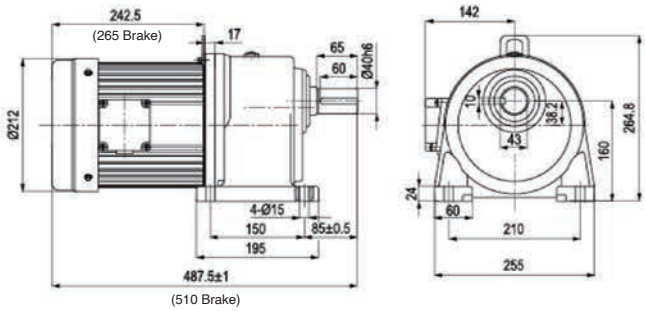
2.2kW

ZH. Horizontal Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

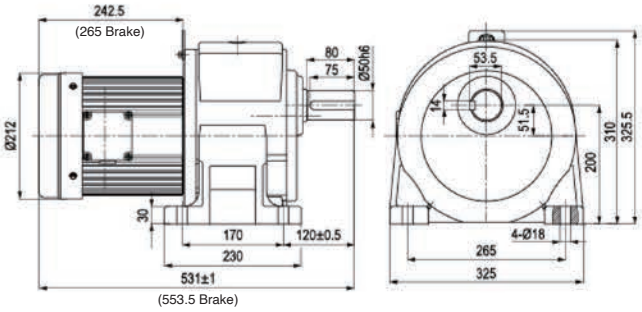
ZH-40-2200-3~40

ZH-40-2200-50~80



ZH-50-2200-50~100

ZH-50-2200-110~200



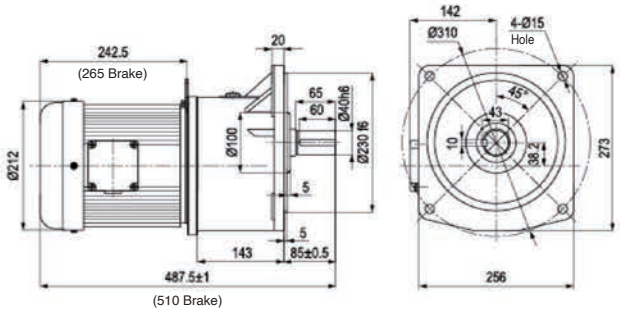
2.2kW

ZV. Vertical Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

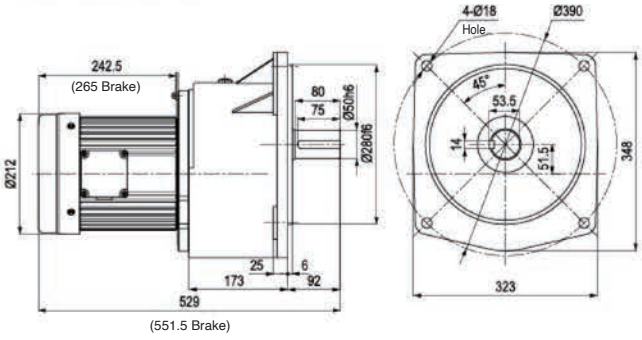
ZV-40-2200-3~40

ZV-40-2200-50~80



ZV-50-2200-50~100

ZV-50-2200-110~200



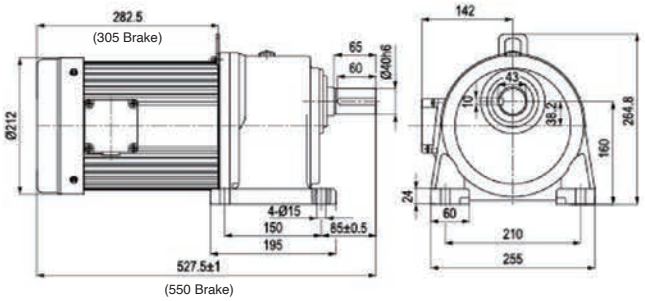
3.7kW

ZH. Horizontal Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

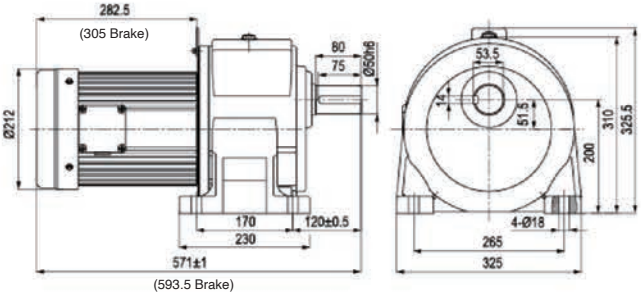
ZH-40-3700-3~10

ZH-40-15~60



ZH-50-3700-15~60

ZH-50-3700-70~200



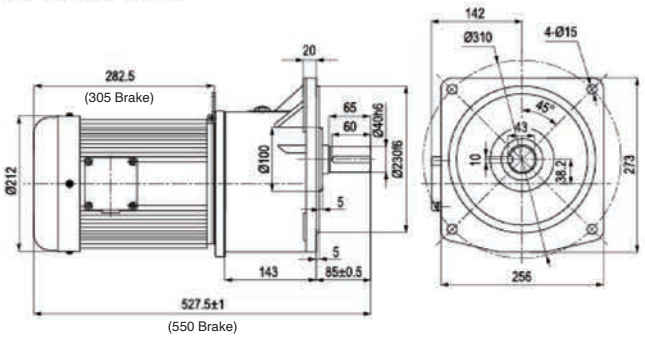
3.7kW

ZV. Vertical Type With Aluminium Plate
3 Phase (Brake) Gear Motor

Dimensions chart

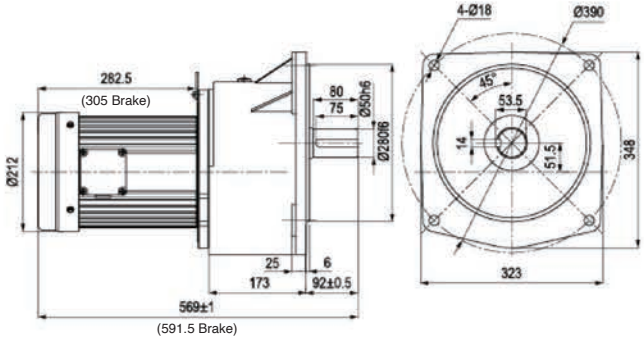
ZV-40-3700-3~10

ZV-40-3700-15~60



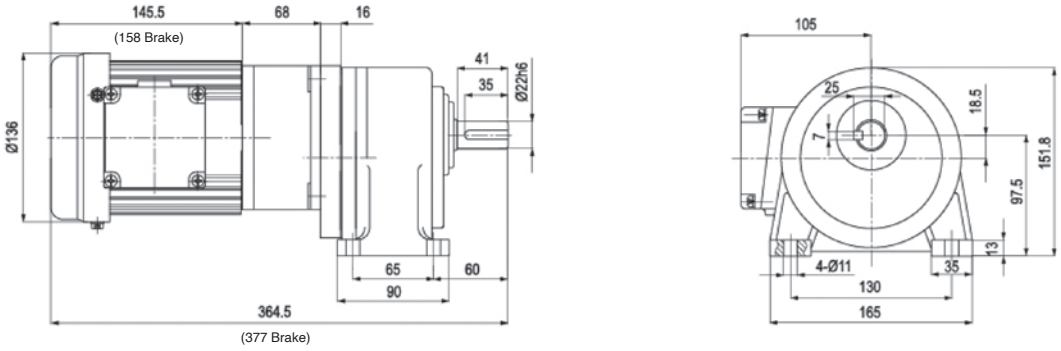
ZV-50-3700-15~60

ZV-50-3700-70~200

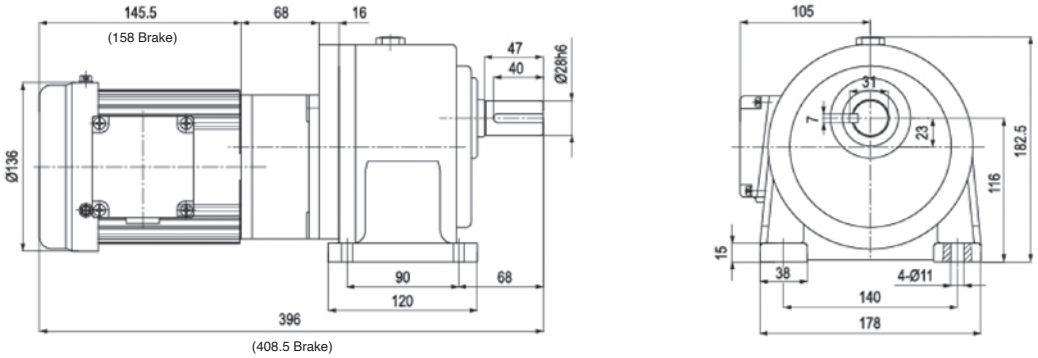


Dimensions chart

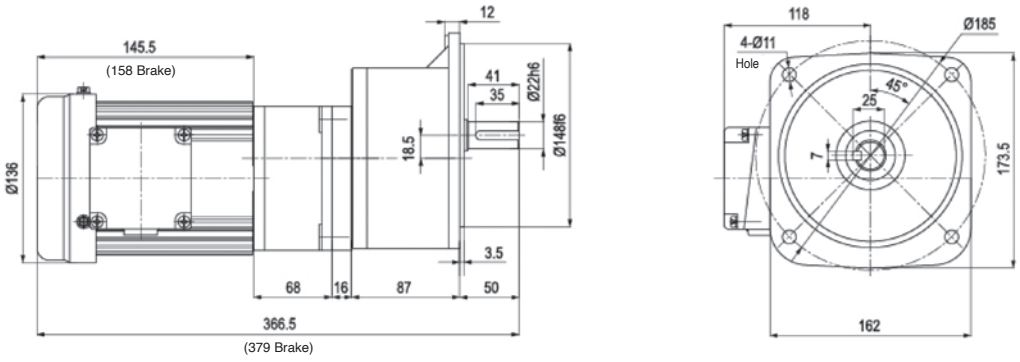
ZH22+ZV18-100-250~1800



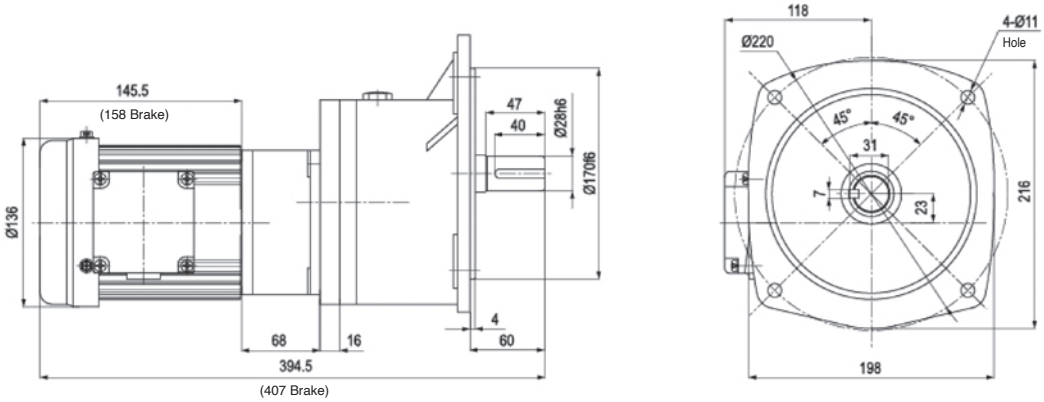
ZH28+VC18-100-250~1800



ZV22+ZV18-100-250~1800

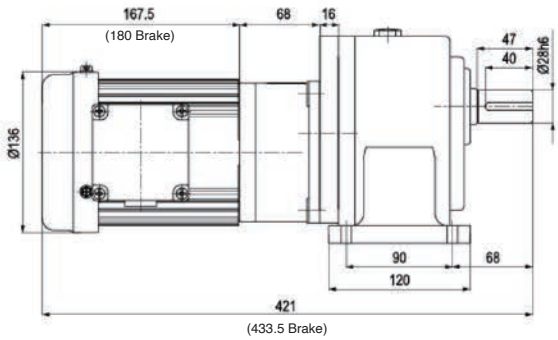


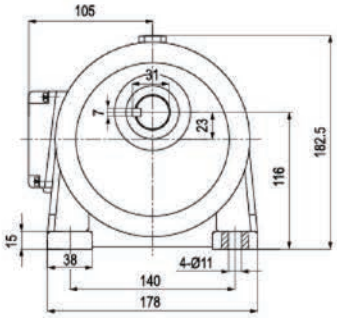
ZV28+ZV18-100-250~1800



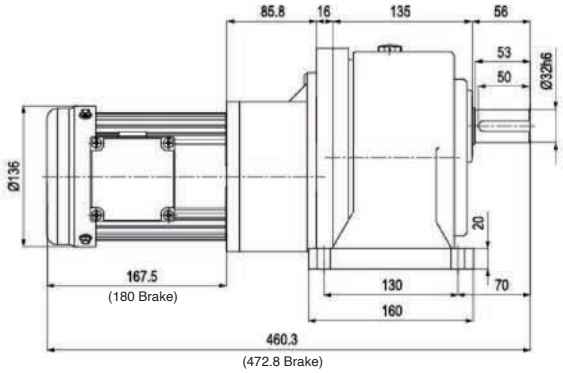
Dimensions chart

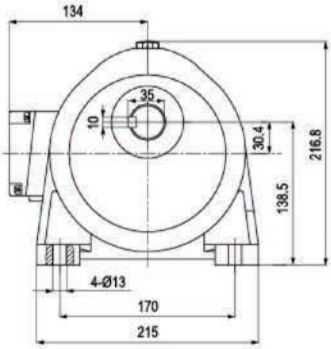
28+ 18-200-250~1800



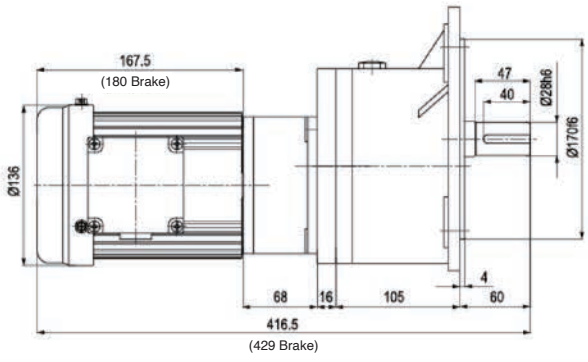


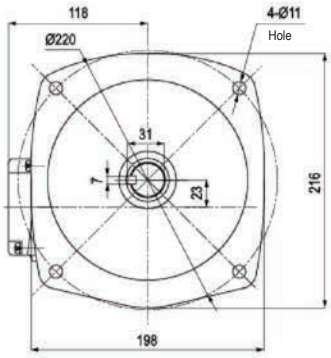
ZH32+ZV22-200-250~1800



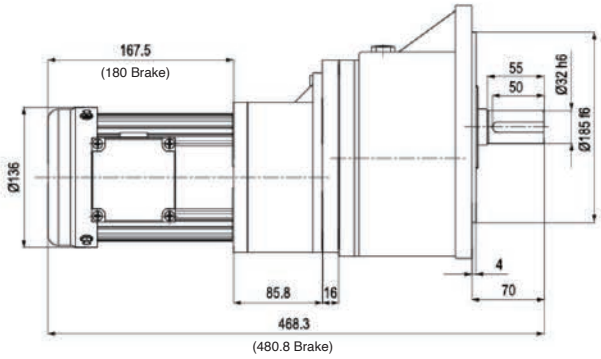


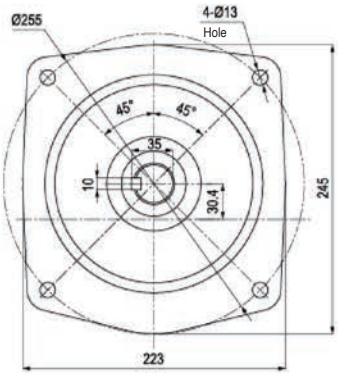
ZV28+ZV18-200-250~1800





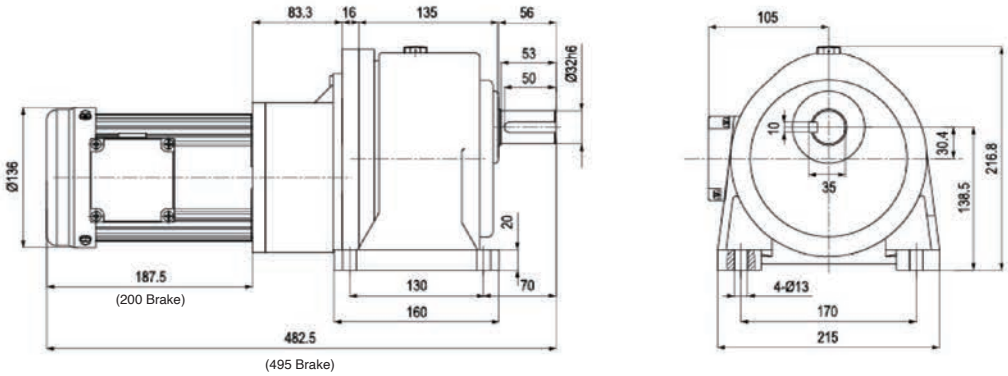
ZV32+ZV22-200-250~1800



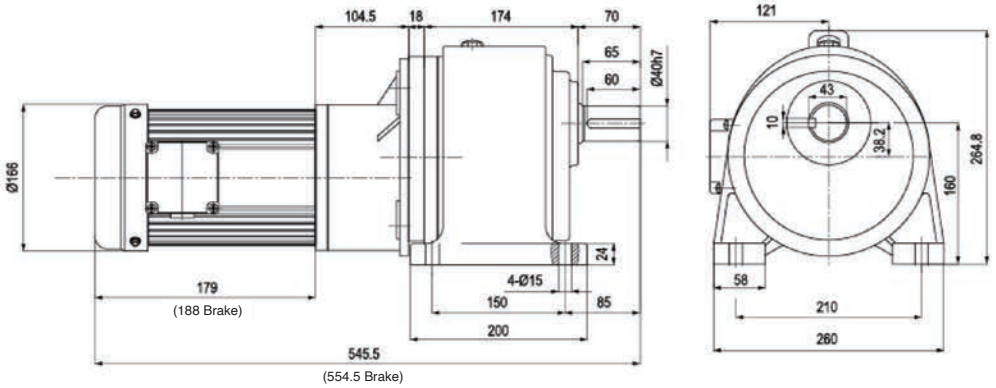


Dimensions chart

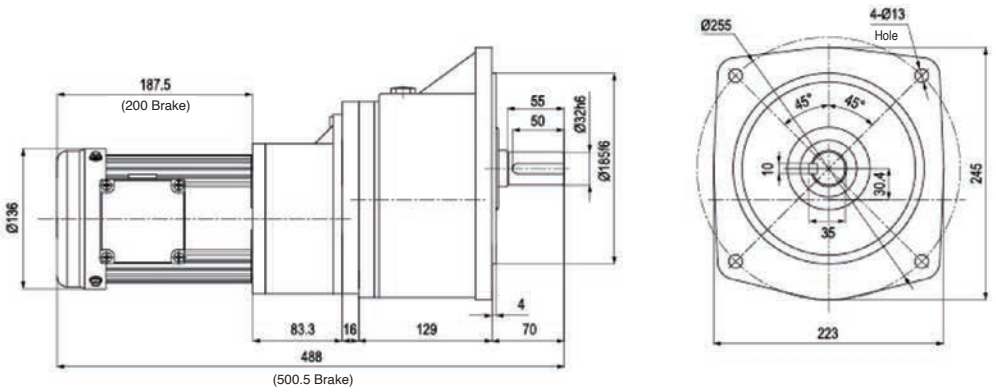
ZH32+ZV22-400-250~1800



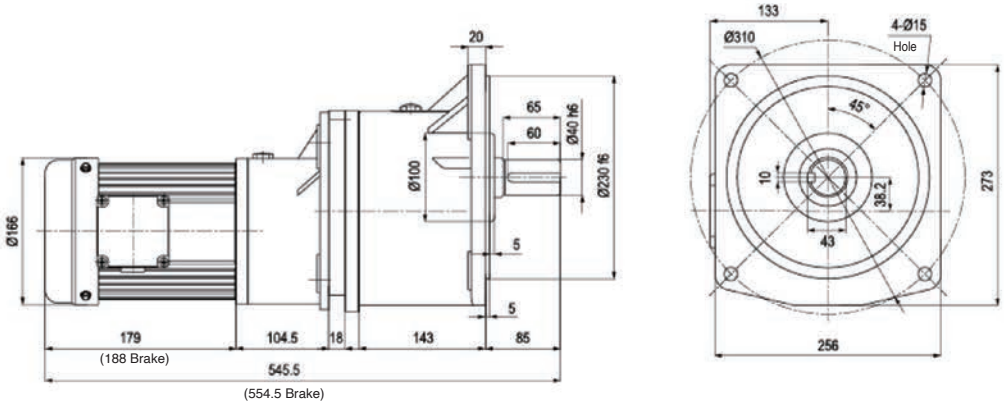
ZH40+VC28-400-250~1800



ZV32+ZV22-400-250~1800

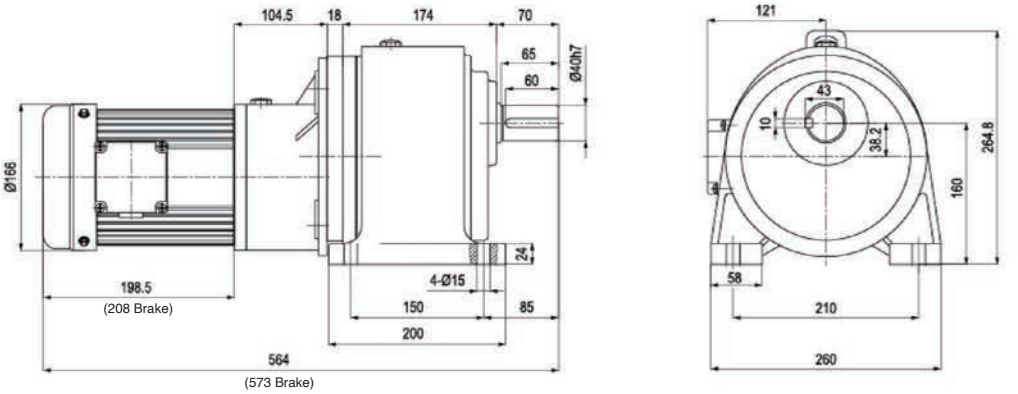


ZV40+ZV28-400-250~1800

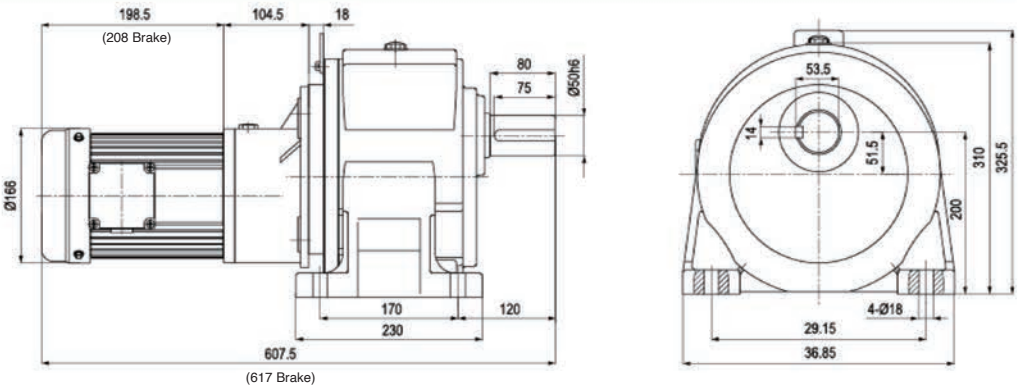


Dimensions chart

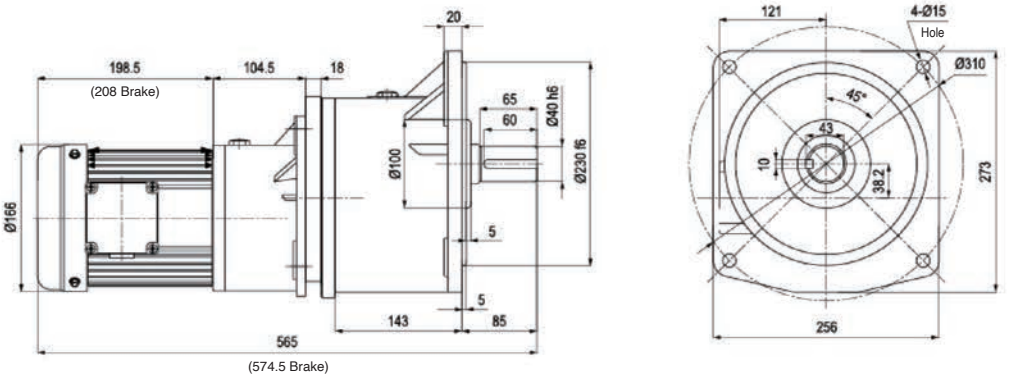
ZH40+ZV28-750-250~1800



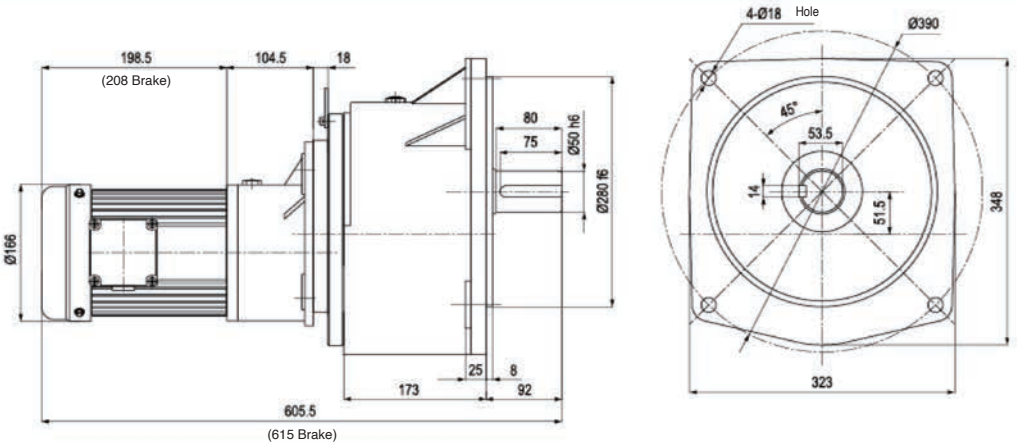
ZH50+ZV28-750-250~1800



ZV40+ZV28-750-250~1800



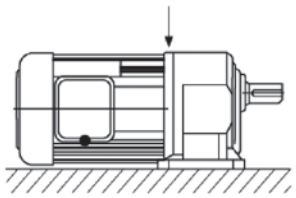
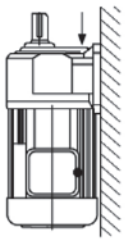
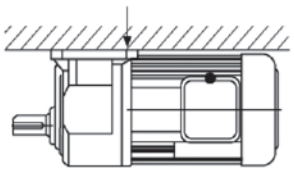
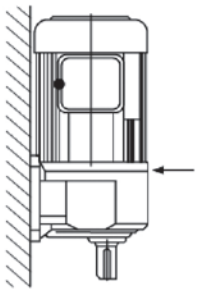
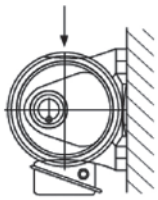
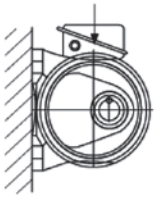
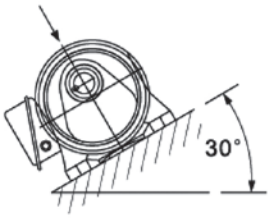
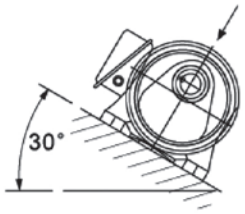
ZV50+ZV28-750-250~1800



Geared motor installation

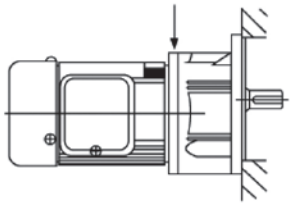
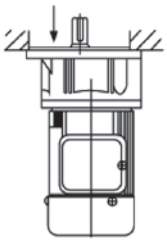
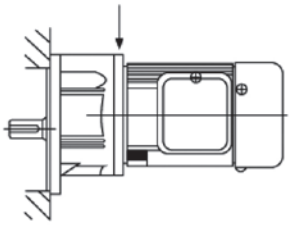
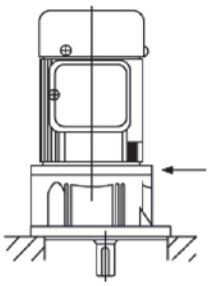
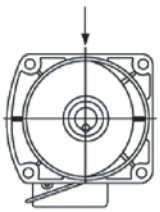
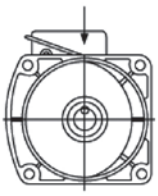
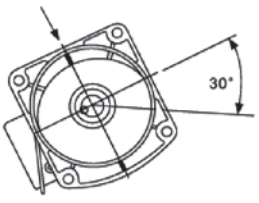
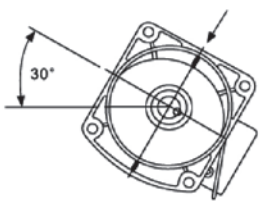
Standard installation method :

- All models of reducers manufactored by our company are applicable to the standard installation form of graphics.
- When the reducer is installed, please open the pin on the vent hole.
- Standard installation option.
- Please release the screw hole (at arrow position) before motor running.

T1 Air Hold Direction 	T2 Air Hold Direction 	T3 Air Hold Direction 	T4 
T5 Air Hold Direction 	T6 Air Hold Direction 	T7 Air Hold Direction 	T8 Air Hold Direction 

Special :

- The installation form is as shown in the figure, please inform us in particular, out company will modify the position and direction of the ventilation holes.
- Standard installation options.
- Please release the screw hole (at arrow position) before motor running.

T1 Air Hold Direction 	T2 Air Hold Direction 	T3 Air Hold Direction 	T4 
T5 Air Hold Direction 	T6 Air Hold Direction 	T7 Air Hold Direction 	T8 Air Hold Direction 

Trouble Shouting For DC Brake Unit

Defective Reason	Possible Analysis	Solution Method
NO ACTION	No power inside brake	Supply power
	Brade disc woras brake	Use new brake disc
	Largeclearance	Adjust clearance
	Power supply damage	Use new power supply
	Dirty inside	Clean aprts
	Wrong voltage	Correct voltage
	Connect wire lost	Re-connect wire
	Brake disc worn out	Clean aprts
	Brake coil burned-out	Use new brake coil
OVER STOP	Brake disc worn out	Use new brake disc
	Large clearance	Adjust clearance
	Surface woil	Clean brake disc
	Over liading	Re-design brake unit
	Disc surface twist	Use new parts
	Huge momentum	System re-design
	Select wrong type	Re-select unit
	High temperature	Adjust terature

Trouble Shouting For Gearmotor

Defective Reason		Possible Analysis	Solution Method
VOISE	Knocking	Hurt gear surface	Replace gearset
	Continually	Bad bearing	Replace bearing
	Periodically	Particle inside	Check gear
	Neigh	Lack If lubricant	Fill with lubricant
	Lntermitfently	Dirty lubricant	Replace lubricant
VIBRATING	Mounting base movement	Bad surface mounting	Re-ak just mounting base
	Output shaft moving	Bearing brolen	Replace bearing
	Inside gear parts movement	Gear wouinded	Replace wounded gear
	Housing vibrating	Bad gear assembly	Re-adjust gear set
LEAKAGE	Oil seal leakage	Oil seal too harden	Replace wounded oil seal
	Housing leakage	Housing had sand hole	Replace sand hole housing
	Connect surfaxe leakage	O-ring broken broken	Replace wounded O-ring
OVER-HEATING	Bad oil seal	Oil sealtoo tight	Replace tighten oil seal
	Housing too heat	Over load running	Re-calaulate loading
	Less lubricant	Lack of lubricant	Fill with lubricant
	Motor too heat	Defective motor	Replace new motor

บริษัท กรุงเทพเกียร์ รุ่งเรืองแมคคานิค จำกัด
ที่อยู่สำนักงานใหญ่ : 333/224 ซ.เพชรเกษม 110 ถ.เพชรเกษม
แขวงหนองค้างพลู เขตหนองแขม กทม. 10160
ที่อยู่โรงงาน : 9/98 ม.3 ต.ดอนไก่ดี อ.กระทุ่มแบน จ.สมุทรสาคร 74110
โทรศัพท์ : 034-446-210 (AUTO 10 LINE)
แฟกซ์ : 034-446-211
E-mail : bangkokgear@hotmail.com
www.bangkokgear.com