

# Revo<sup>®</sup>

Planetary Gearhead



# Company Profile

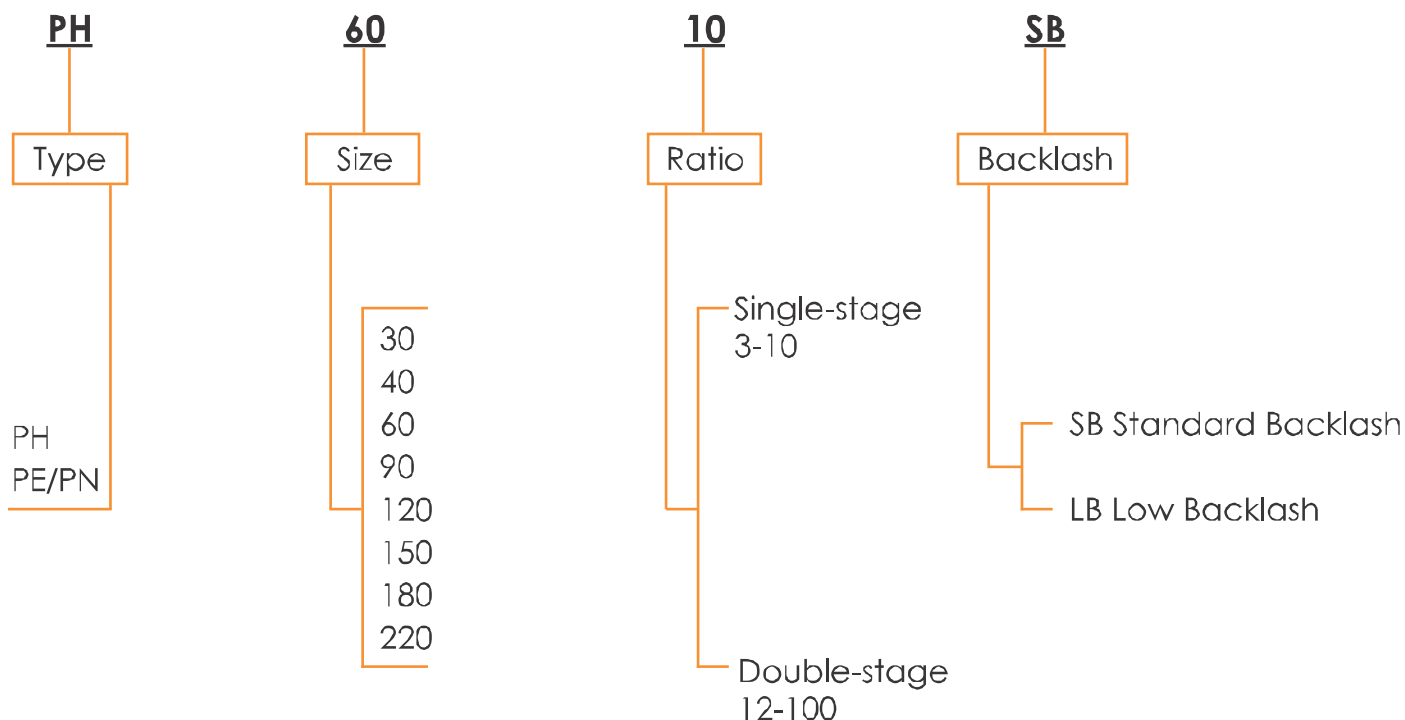
With more than 30 years of industry experience, Revo Gears is specialized in the production of high precision planetary gearheads that features helical planetary gear design. Its gear product features high torque capacity, low backlash, outstanding power transmission efficiency, quieter operation and remarkable gear reduction ratio. Planetary gearboxes are ideal drive components for dynamic Servo Motor and Step Motor applications. Now the product is widely recognized for its reliable & stable performance. Our company is committed to deliver the best-in-class product and solution to its customers through continuous improvement, innovation and trust.



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## Indication of model numbers



# PH HELICAL GEAR PLANETARY REDUCERS



Integrated Planetary Gear Assembly

One-piece Gear box body & Advanced Surface Treatment

## Product Features

PH series features helical planetary gear design that enables smoother and quieter operation, high torque capacity and low backlash.

# PH HELICAL GEAR PLANETARY REDUCERS

## Technical Data

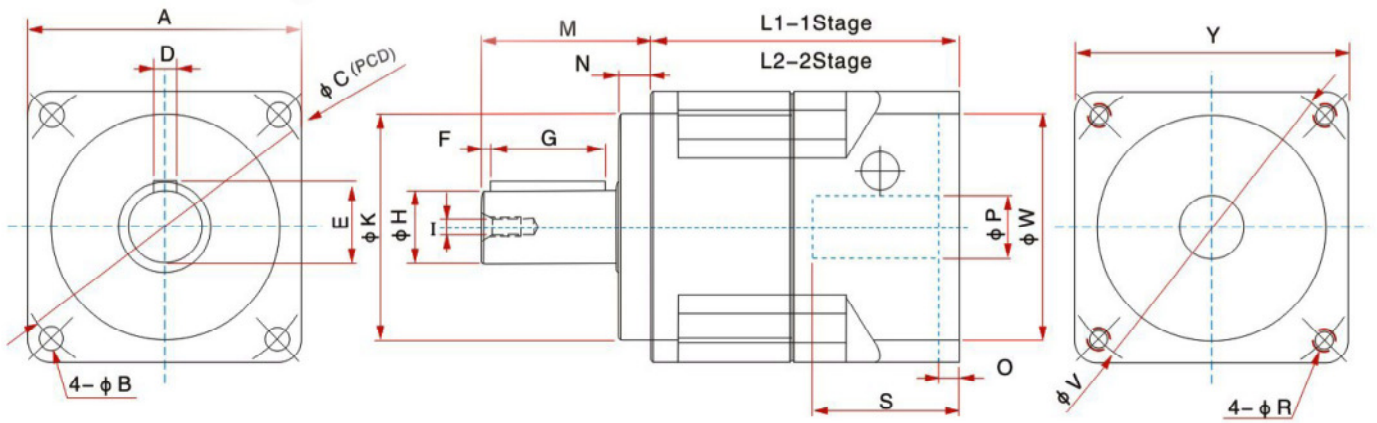
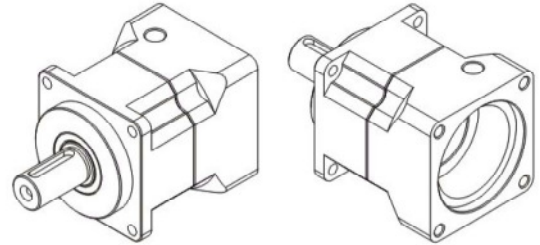
Model No.	Unit	Stage	Ratio	PH60	PH90	PH115	PH150	PH180	PH220
Rated Output Torque	Nm	1	3	59	135	335	625	1206	2020
			4	51	145	300	555	1070	1800
			5	48	160	333	619	1190	2000
			7	45	149	309	573	1110	1870
			10	43	141	294	549	1060	1778
		2	15	59	135	335	625	1206	2020
			20	51	145	300	555	1070	1800
			25	48	160	333	619	1190	2000
			30	44	151	310	585	1115	1910
			35	45	149	309	573	1110	1870
			40	44	143	298	553	1060	1820
			50	48	160	333	619	1190	2000
			70	45	149	309	573	1110	1870
			100	43	141	594	549	1060	1778
Max. Output Torque	Nm	1,2	3 ~ 100	3 times of Rated Output Torque					
Rated Input Speed	rpm	1,2	3 ~ 100	5000	4000	4000	3000	3000	2000
Max. Input Speed	rpm	1,2	3 ~ 100	10000	8000	8000	6000	6000	4000
Micro Backlash P0	arcmin	1	3 ~ 10	≤3					
		2	15 ~ 100	≤6					
Classic Backlash P1	arcmin	1	3 ~ 10	≤5					
		2	15 ~ 100	≤8					
Standard Backlash P2	arcmin	1	3 ~ 10	≤6					
		2	15 ~ 100	≤10					
Torsional Rigidity	Nm/arcmin	1,2	3 ~ 100	7	14	27	50	145	240
Max. Radial Force	N	1,2	3 ~ 100	1250	3200	6700	9300	14500	50000
Max. Axial Force	N	1,2	3 ~ 100	630	1600	3400	4650	7800	25600
Service Life	hr	1,2	3 ~ 100	20,000					
Efficiency	%	1,2	3 ~ 100	Single-Stage ≥97%, Double-Stage ≥94%					
Weight	Kg	1	3 ~ 10	1.2	3	7.1	12	28	47
		2	15 ~ 100	1.7	4.2	8.8	13.7	35	59
Operating Temp.	°C	1,2	3 ~ 100	-20°C ~ +100°C					
Degree Gearbox Protection		1,2	3 ~ 100	IP65					
Mounting Position		1,2	3 ~ 100	Any direction					
Noise Level	dB(A)	1,2	3 ~ 100	≤58	≤60	≤63	≤65	≤67	≤70

### Note:

- All of above specification are measured from gearboxes of single-stage ratio 5:1 & double-stage Ratio 25:1.
- The noise level is measured in the distance of the reducer one meter with the no-load motor at the speed of 3000 per minute.
- Revo Gears reserves the rights to modify any of above product specification without prior notification. Please refer to our company's website for latest information update.



# PH HELICAL GEAR PLANETARY REDUCERS



Unit:mm

## Dimensions

Code \ Model	PH60	PH90	PH115	PH142	PH180	PH220
A	60	90	115	142	180	220
B	5.3	7.0	9.0	11	13	16
C	70	100	130	165	215	250
D	5	6	10	12	16	20
E	18	24.5	35	43	59	79.5
F	2	3	5	5	6	7
G	25	32	40	63	70	90
H	16	22	32	40	55	75
I	M5x0.8P	M8x1.25P	M12x1.75P	M16x2P	M20x2.5P	M20x2.5P
K	50	80	110	130	160	180
L1	68	83.5	115	131.5	161	193
L2	94	116	151.5	183	223.7	274.5
M	37	48	65	97	105	138
N	7	10	12	15	20	30
Y	60,70	90,110	115,130	142,180	180,190	220,260

O, P, R, S, V, W Size may vary according to the motor flange chosen

# PE/PN HELICAL GEAR PLANETARY REDUCERS



## Product Features

- The Best combination for precise motion control products like Step Motor, Servo Motor, due to unique multi-stage gear-reduction, high-efficiency output torque precision planetary gearbox.
- Patented Inner-Gear design, prolonged life and low noise level; fully enclosure design ensure no lubricant leakage.
- High drive efficiency up to 95%, due to low wear and helical planetary gear design.
- Compatible with all NEMA Motors mounting standard, easy installation.
- Smallest dimension among products of same level; Most suitable for limited mounting space.
- Precision grade with backlash 5 arcmin; Standard grade 10 arcmin.
- All internal components are made from high-Duty alloy metal, suits for tough operating environment.
- Suitable for various applications with Precision and Standard grade Backlash.

# PE/PN HELICAL GEAR PLANETARY REDUCERS

## Technical Data

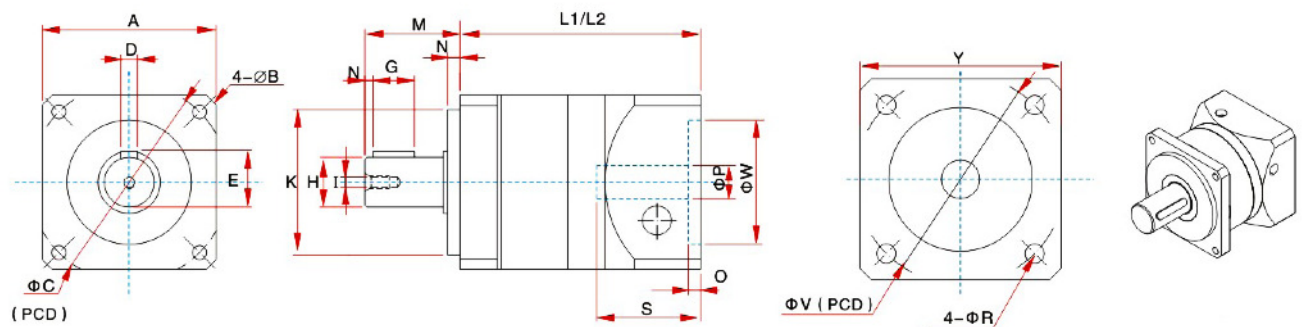
Model No.	Unit	Stage	Ratio	PE-030	PE-040	PE-060	PE-090	PE-120	PE-150
				PN-030	PN-040	PN-060	PN-090	PN-120	PN-150
Rated Output Torque	Nm	1	4,5	6	14	40	110	235	450
			3,7		16	50	125	265	480
			9,10	4	11	35	90	200	390
		2	12,15	3.5	16	50	125	265	480
			20,25		14	45	110	235	450
			30,40,50,70		15	40	105	210	430
			100		11	35	90	200	390
Max. Output Torque	Nm	1,2	3 ~ 100	2.5 times of Rated Output Torque					
Rated Input Speed	rpm	1,2	3 ~ 100	5000	4000	4000	3000	3000	3000
Max. Input Speed	rpm	1,2	3 ~ 100	8000	6000	6000	5000	4500	6000
Micro Backlash P0	arcmin	1	3 ~ 10	≤6					
		2	12 ~ 100	≤10					
Classic Backlash P1		1	3 ~ 10	≤10					
		2	12 ~ 100	≤12					
Torsional Rigidity	Nm/arcmin	1,2	3 ~ 100	0.8	2.5	5	13	28	48
Ratio		1	3 ~ 10	10	3,4,5,7,9,10	3,4,5,6,7,8,9,10		3,4,5,7,10	
		2	12 ~ 100	12 ~ 100					
Max. Radial Force	N	1,2	3 ~ 100	80	340	800	2100	5000	9000
Max. Axial Force	N	1,2	3 ~ 100	50	300	600	1200	2600	4460
Service Life	hr	1,2	3 ~ 100	20,000					
Efficiency	%	1,2	3 ~ 100	Single-Stage ≥95%, Double-Stage ≥92%					
Weight	Kg	1	3 ~ 10	0.3	0.4	1.1	2.9	6.4	18
		2	12 ~ 100	0.4	0.6	1.6	4.1	8.1	22
Operating Temp.	°C	1,2	3 ~ 100	-20°C ~ +100°C					
Degree Gearbox Protection		1,2	3 ~ 100	IP65					
Mounting Position		1,2	3 ~ 100	Any direction					
Noise Level	dB(A)	1,2	3 ~ 100	≤52	≤56	≤60	≤63	≤65	≤65
Moment of inertia	Kg.cm <sup>2</sup>	1	4,5	0.04	0.12	0.14	0.50	1.80	7.50
			3,7	0.06	0.13	0.16	0.80	2.50	12.00
			10	0.02	0.1	0.13	0.40	1.20	4.70
		2	15	0.02	0.03	0.03	0.75	2.80	12.00
			20,25	0.01	0.03	0.03	0.45	1.50	6.30
			30,40,50,70	0.01	0.03	0.03	0.40	1.40	5.30
			100	0.01	0.03	0.03	0.45	1.50	6.30

### Note:

1. All of above specification are measured from gearboxes of single-stage ratio 5:1 & double-stage Ratio 25:1.
2. The noise level is measured in the distance of the reducer one meter with the no-load motor at the speed of 3000 per minute.
3. Revo Gears reserves the rights to modify any of above product specification without prior notification. Please refer to our company's website for the latest information update.



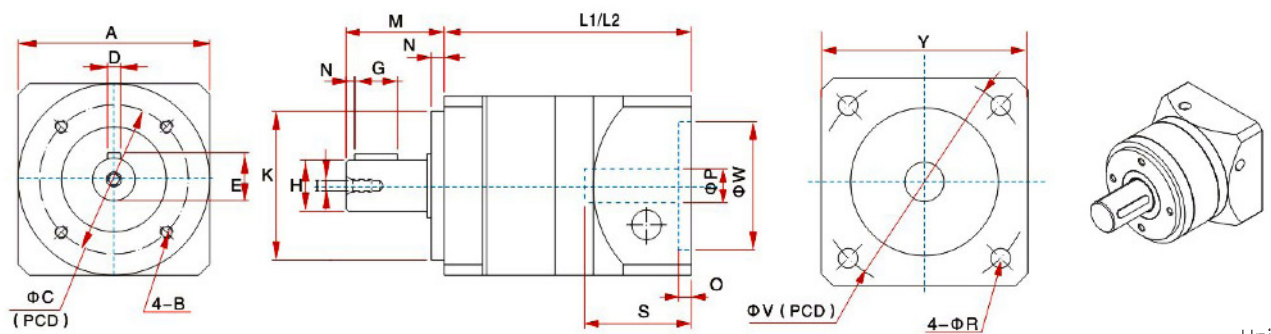
# PE/PN HELICAL GEAR PLANETARY REDUCERS



Unit:mm

## DIMENSIONS

Size	A	B	C	D	E	G	H	I	K	L1	L2	M	N	Y
Model No.														
PE-030	32	2.2	36	3	11.2	10	8	M3x0.5P	20	46	61	17	2	32
PE-040	42	3.2	48	4	13.5	10	12	M3x0.5P	35	56	72	23	3	42
PE-060	60	5.3	70	4	15.7	15	14,16	M5x0.8P	50	78	102	28	3	60
PE-090	90	7.0	105	6	22.5	25	20	M6x1.5P	80	97	127.5	45	5	90
PE-120	120	9.0	140	8	28.3	30	25,32	M12x1.75P	110	122.5	156	57	5	120
PE-150	150	11.0	165	12	43	50	40	M16x2P	130	163	213	82	5	150



Unit:mm

## DIMENSIONS

Size	A	B	C	D	E	G	H	I	K	L1	L2	M	N	Y
Model No.														
PN-030	32	M2*5	28	3	11.2	10	8	M3x0.5P	20	46	61	17	2	32
PN-040	42	M4*6	34	4	13.5	10	12	M3x0.5P	25	57	73	22	2	42
PN-060	60	M5*8	52	4	15.7	15	14,16	M5x0.8P	40	78	102	28	3	60
PN-090	90	M6*10	70	6	22.5	25	20	M6x1.5P	60	97	128	43	5	90
PN-120	120	M10*16	100	8	28.3	30	25,32	M12x1.75P	80	121	154	56	5	120
PN-150	150	M10*16	140	12	43	50	40	M16x2P	120	165	218	82	5	150

# ROTARY STAGE



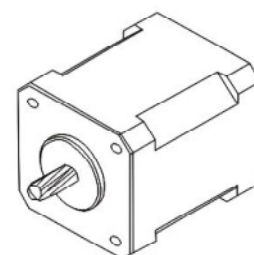
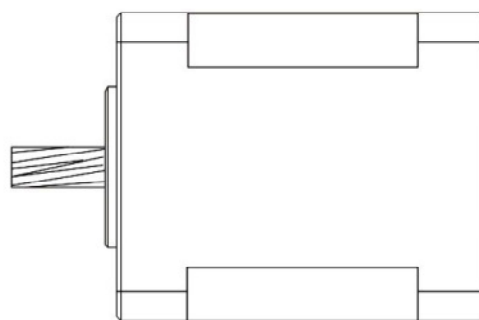
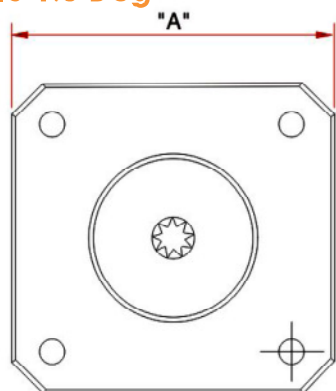
## Technical Data

Model No.		HR60	HR85	HR130	HR200
Motor Type		Step Motor	Step Motor & Drives		
Bearings		Deep groove Ball Bearing	Cross-Roller Bearing		
Permissible Torque	N.m	0.9	2.8	12	50
Permissible Speed	r/mln	200			
Ratio		1:18			
Repetitive Positioning Accuracy	Sec	±15			
Lost Motion	min	3			
Angular Transmission Error	min	6			
Permissible Thrust Load	N	100	500	2000	4000
Permissible Moment Load	N.m	2	10	50	100
Deviation of Platform Surface	mm	±0.02	±0.015		
Deviation of Platform Inner (Outer) Diameter	mm	±0.02	±0.015		
Parallelism of Platform	mm	±0.02	±0.03		
Weight	Kg	0.6	1.2	2.7	9.6

## Step Motor Specifications

Model No.		HR60	HR85	HR130	HR200	
Square Flange Size	mm	28	42	56	86	
Rated Voltage	V/phase	3.2	4.6	2.15	2.2	2.95
Rated Current	A/phase	0.95	0.67	1.68	2	4.5
Winding Resistance	/phase	3.4	6.8	1.28	1.1	0.65
Inductance 20%	mH/phase	1.2	4.9	2.2	1.98	6.7
Holding Torque	N.m	0.073	0.093	0.52	0.7	4.5
Rotor Inertia	g.cm <sup>2</sup>	12	77	200	1600	
Motor Length	mm	45	48	56	78	
No. of Leads		6	4	4	6	4

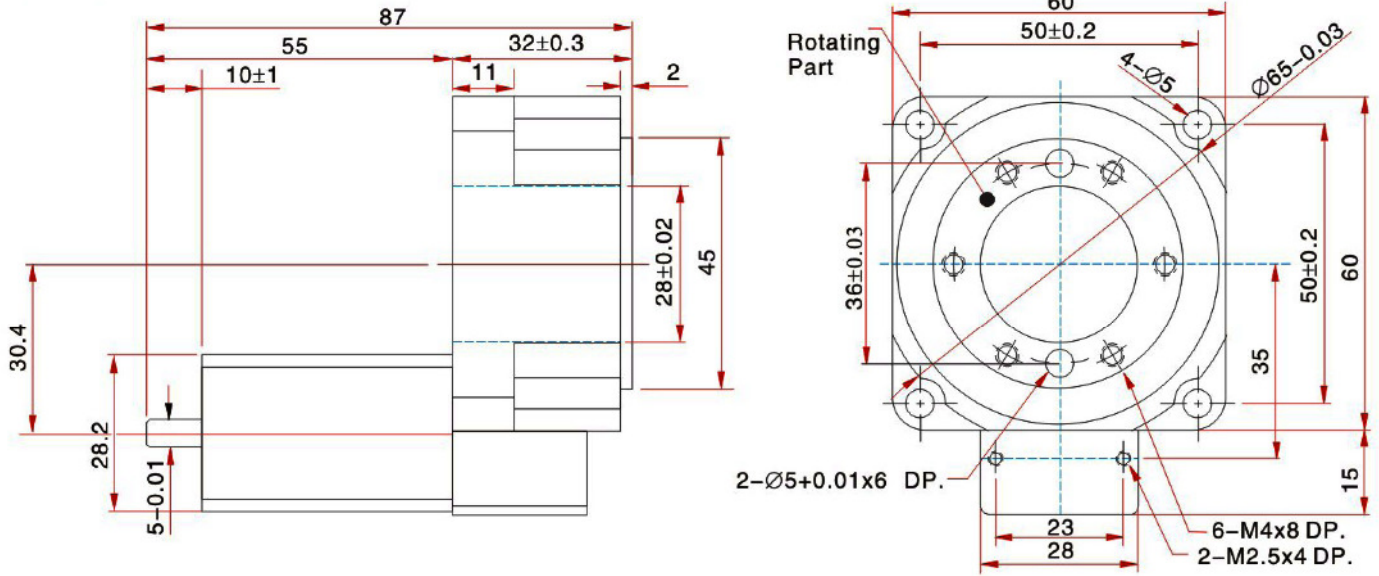
## Step Angle 1.8 Deg



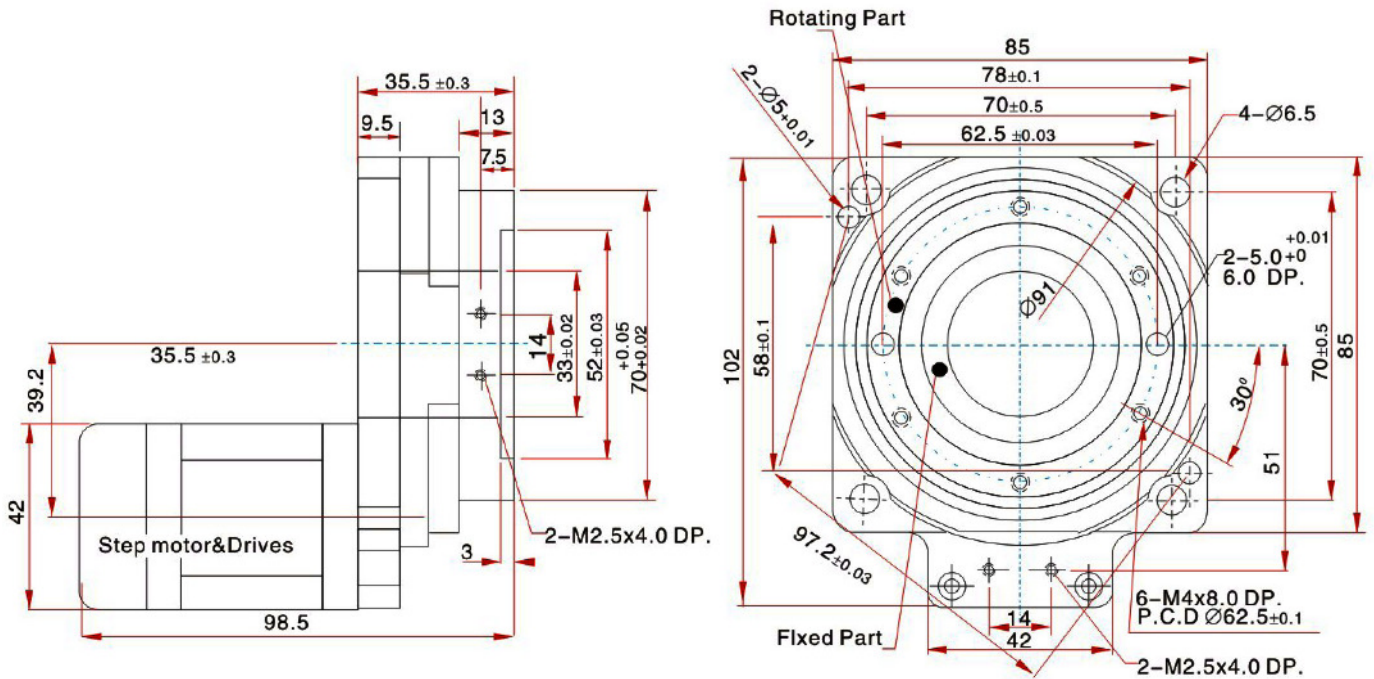
# ROTARY STAGE

## Rotary stage dimensions

(Unit: mm)  
Model: HR60



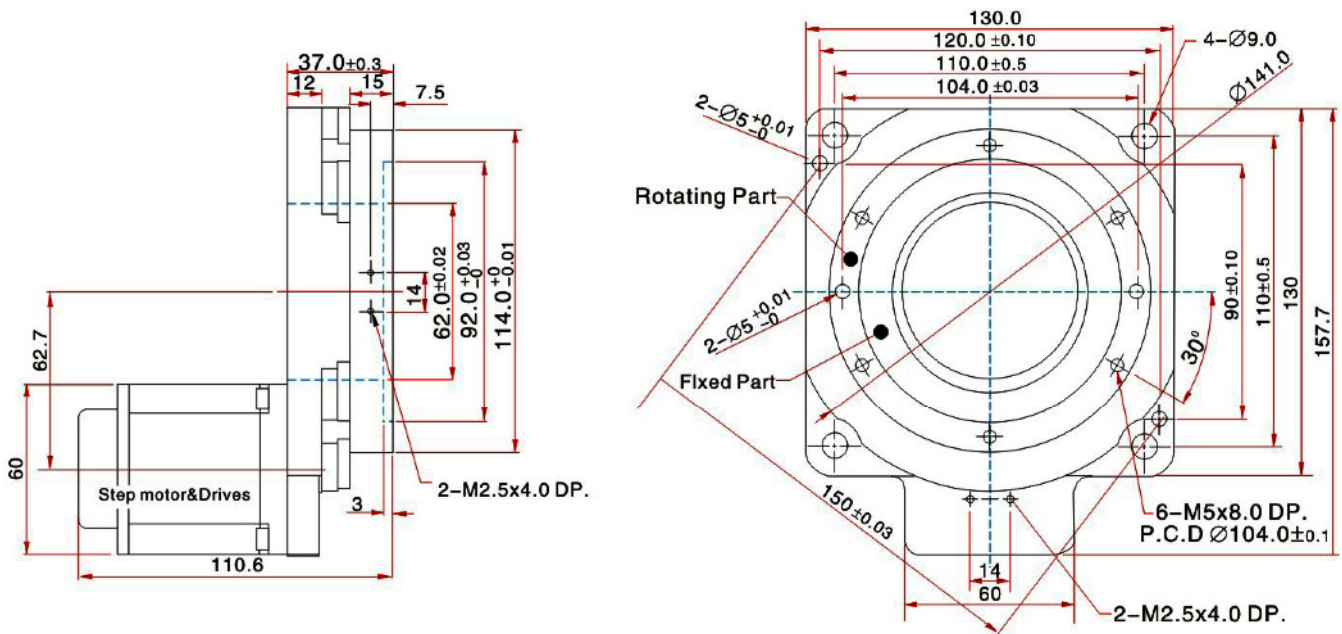
(Unit: mm)  
Model: HR85



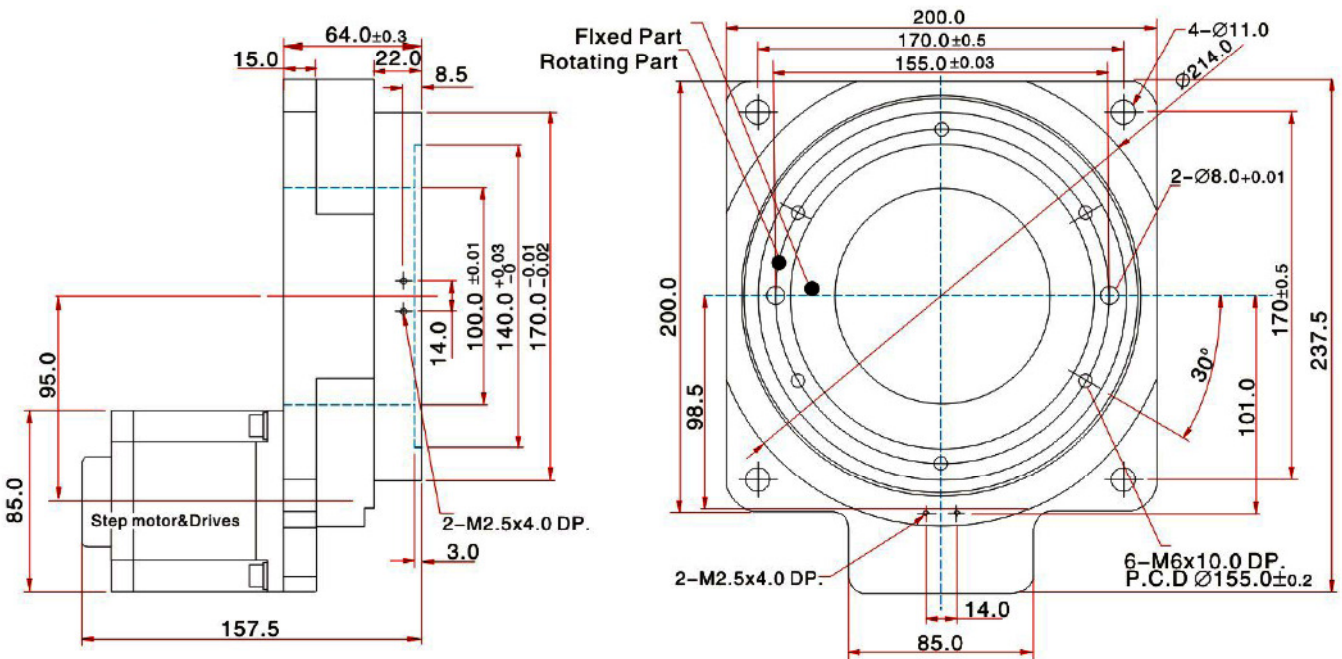
# ROTARY STAGE

## Rotary stage dimensions

(Unit: mm)  
Model: HR130



(Unit: mm)  
Model: HR200



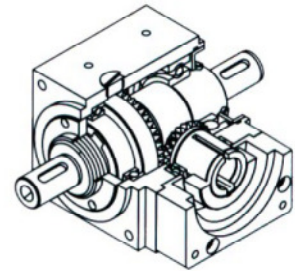
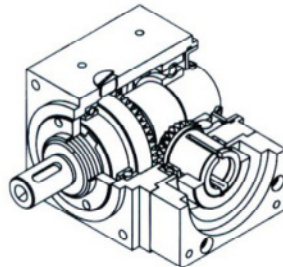
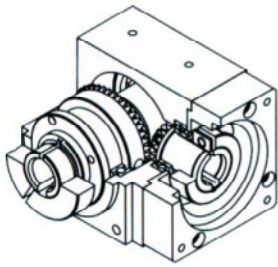


# RA RIGHT – ANGLE REDUCERS

## Product characteristics

Easy mount to any motor & gear head.

- Designed for mounting in any orientation
- Adjustable backlash. Minimum 3 arc-minutes
- 6 Frame Sizes With multiple exact ratios
- Available for NEMA and servo Mounting
- High Quality Spun Gear Head
- Gear Ratio Available for 1:2 1:5



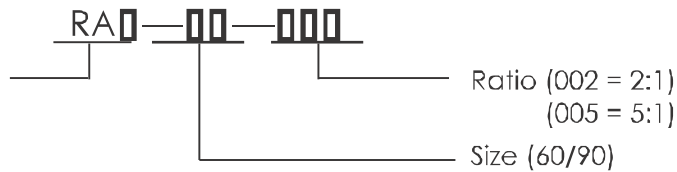
RAS Hollow Shaft

RAS Single end Shaft

RAD Double Shaft

## Ordering Code

RAH- Single End Shaft  
 RAS- Hollow Shaft  
 RAD- Double End Shaft



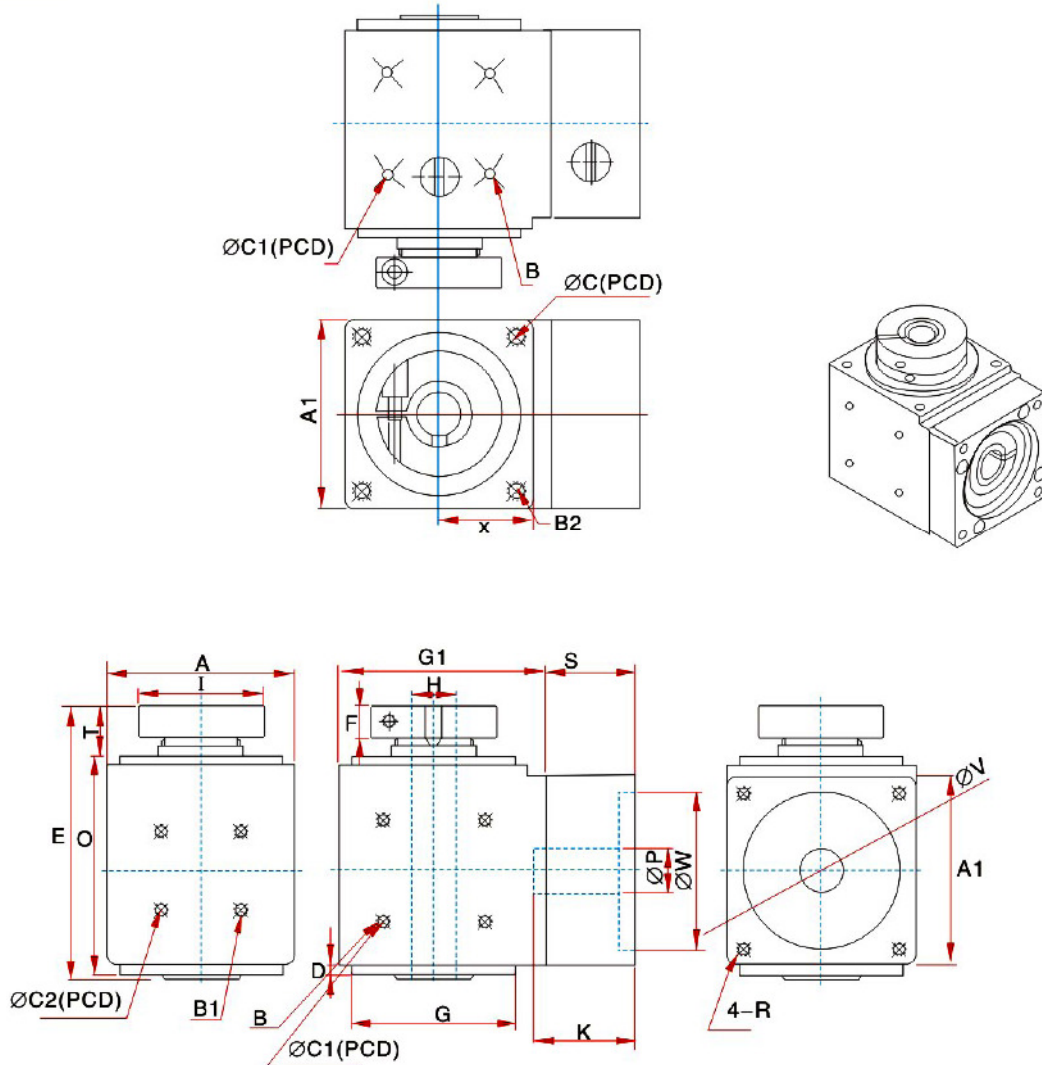
## Technical Data

Model No	Unit	RA□-060	RA□-090
Square Flange Size	mm	□60	□90
Rated Output Torque	Nm	30	60
Max. Output Torque	Nm	2.5 times rated output torque	
Rated Input Speed	RPM	1000	1000
Max. Input Speed	RPM	2000	2000
Moment of Inertia	Kg-cm <sup>2</sup>	0.06	0.40
Max. Radial Force	N	500	1200
Max. Axial Force		200	500
Torsional Rigidity	Nm/arcmin	1.5	5
Ratio		2:1, 5:1	2:1, 5:1



# RA RIGHT-ANGLE REDUCERS

RAH



Unit: mm

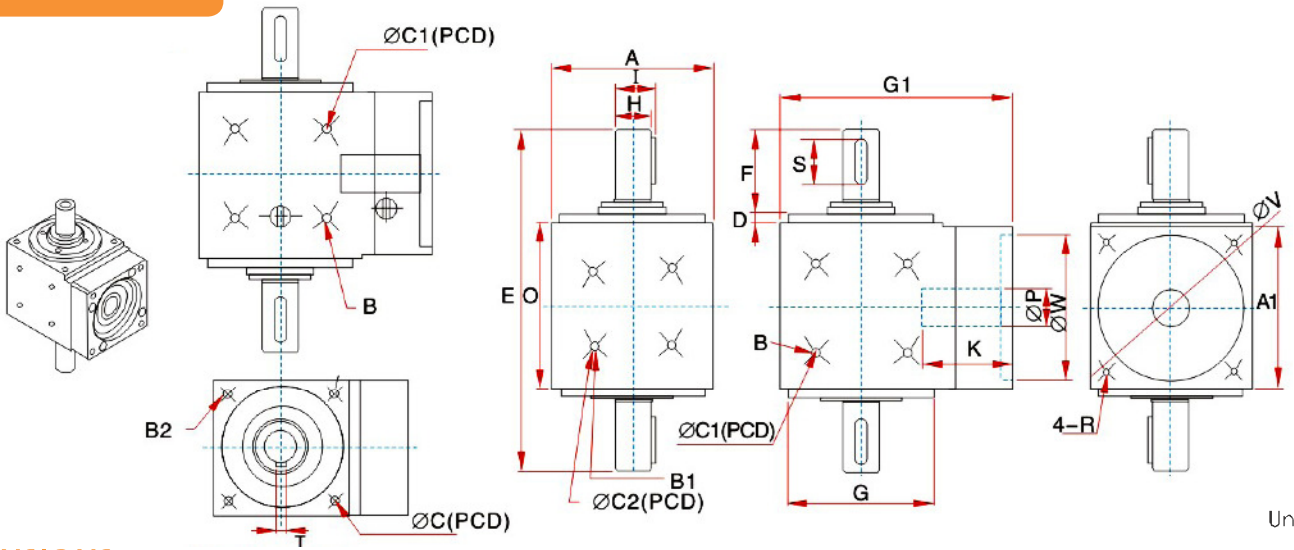
## DIMENSIONS

Size	A	A1	B	B1	B2	C	C1	C2	D	E	F	G	G1	H	I	K	O	S	T	X
Model No.																				
RAH60-02	60	60	4-M4	4-M4	4-M5	70	46	36	3.5	88	10	52	66	14	32	32	70	17	17	30
RAH60-05	60	60	4-M4	4-M4	4-M5	70	46	36	3.5	88	10	52	66	14	32	32	70	17	17	30
RAH90-02	90	90	4-M5	4-M5	4-M6	100	70	60	5	125	14	80	97	20	48	50	100	31.7	27	45
RAH90-05	90	90	4-M5	4-M5	4-M6	100	70	60	5	125	14	80	97	20	48	50	100	31.7	27	45

P, R, V, W Size may vary according to the motor flange chosen

# RA RIGHT-ANGLE REDUCERS

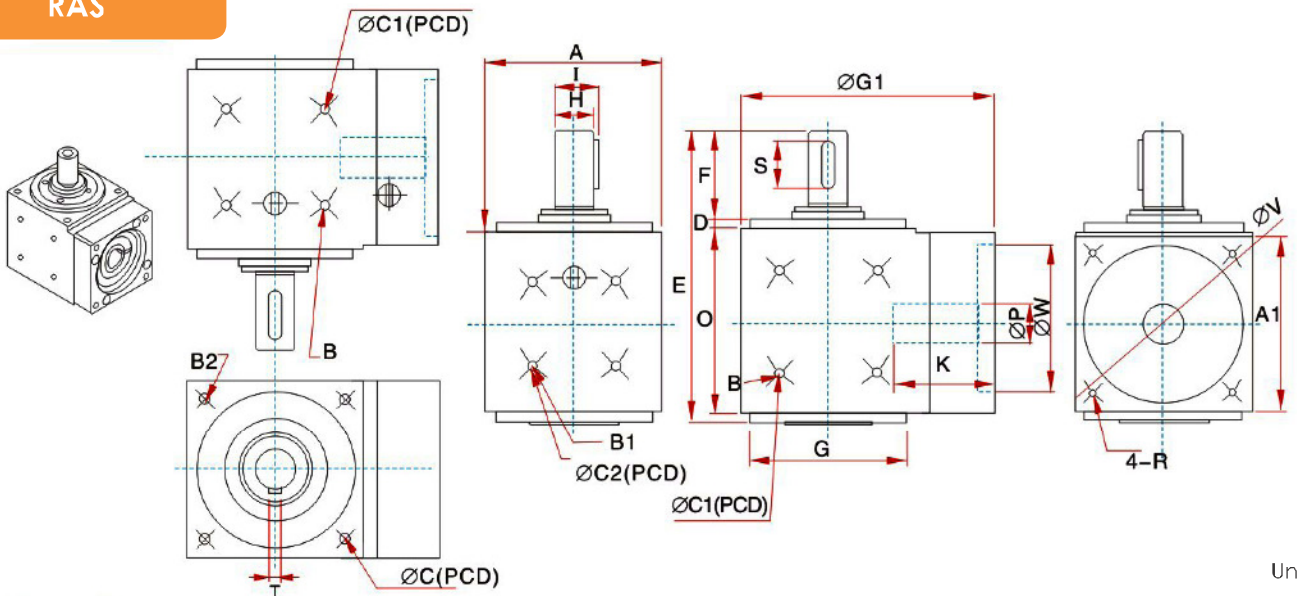
## RAD



## DIMENSIONS

Size	A	A1	B	B1	B2	C	C1	C2	D	E	F	G	G1	H	I	K	O	S	T
Model No.																			
<b>RAD60-02</b>	60	60	4-M4	4-M4	4-M5	70	46	36	3.5	125	27	52	83	14	15.5	32	63.5	15	4
<b>RAD60-05</b>	60	60	4-M4	4-M4	4-M5	70	46	36	3.5	125	27	52	83	14	15.5	32	63.5	15	4
<b>RAD90-02</b>	90	90	4-M5	4-M5	4-M6	100	70	60	5	189	46	80	128.7	20	22.5	50	92	25	6
<b>RAD90-05</b>	90	90	4-M5	4-M5	4-M6	100	70	60	5	189	46	80	128.7	20	22.5	50	92	25	6

## RAS

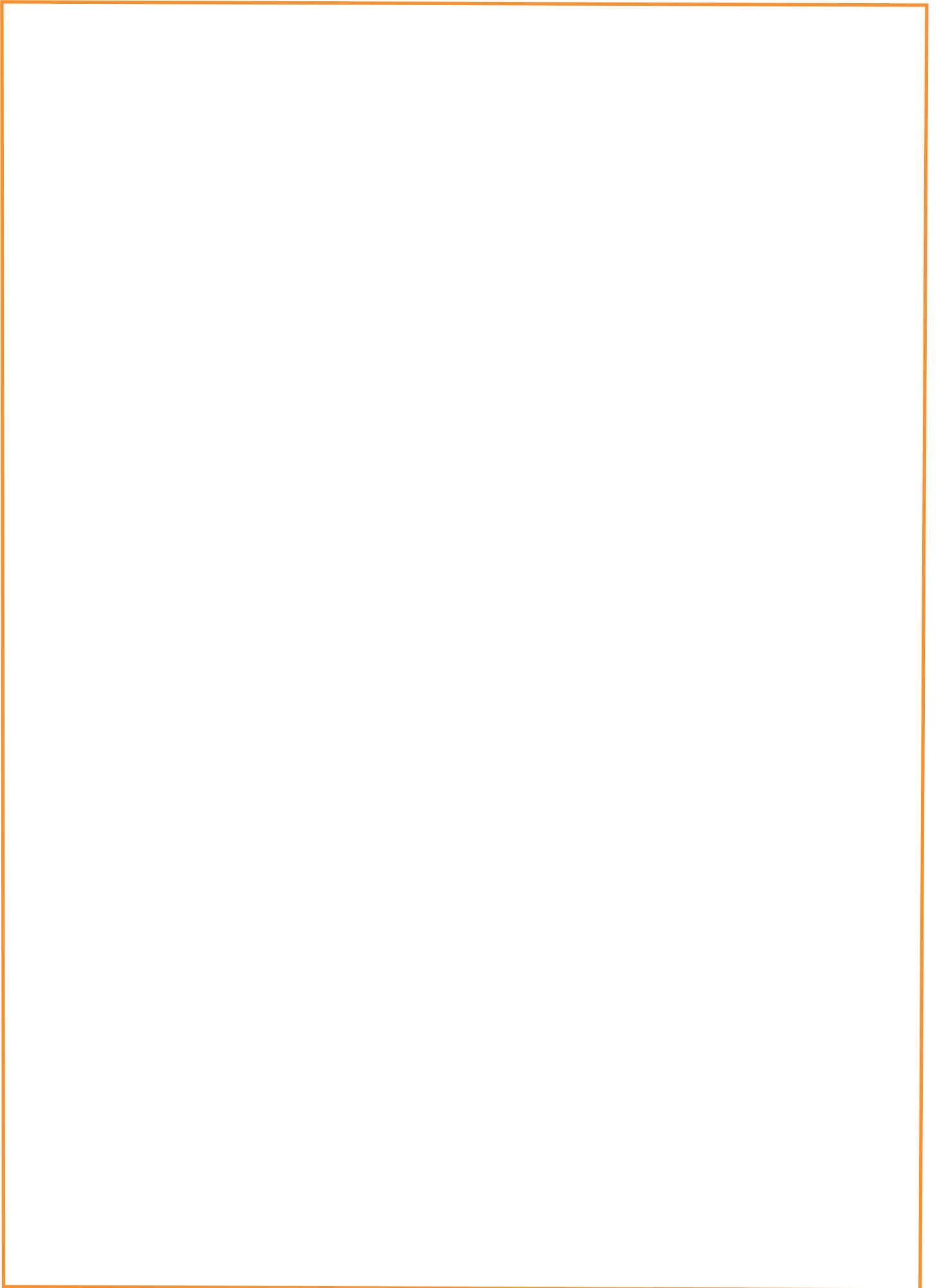


## DIMENSIONS

Size	A	A1	B	B1	B2	C	C1	C2	D	E	F	G	G1	H	I	K	O	S	T
Model No.																			
<b>RAS60-02</b>	60	60	4-M4	4-M4	4-M5	70	46	36	3.5	98	27	52	83	14	15.5	32	63.5	15	4
<b>RAS60-05</b>	60	60	4-M4	4-M4	4-M5	70	46	36	3.5	98	27	52	93.8	14	15.5	32	63.5	15	4
<b>RAS90-02</b>	90	90	4-M5	4-M5	4-M6	100	70	60	5	148	46	80	128.7	20	22.5	50	92	25	6
<b>RAS90-05</b>	90	90	4-M5	4-M5	4-M6	100	70	60	5	148	46	80	138.5	20	22.5	45	92	25	6

P, R, V, W Size may vary according to the motor flange chosen







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**Local Distributor**

