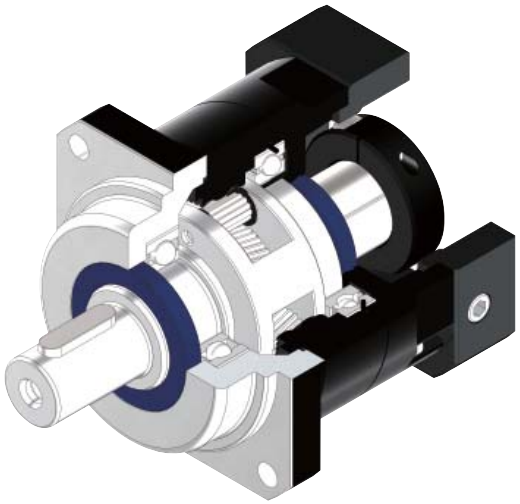
KFA Series

- 1-Stage Backlash ≦ 8 arcmin
- 2-Stage Backlash ≦ 12 arcmin



Indication of Model Numbers

KFA	–	80	–	10	Key Type	–	MOTOR

Type	Model	Ratio	Output Shaft Keyway	Motor Type
KFA	50 70 80 90 100 120	1-Stage 3, 4, 5, 7, 10 2-Stage 15, 20, 25, 30, 35, 40, 50, 70, 100	□ : 무표기 Standard (Keyway) N : 표기 Solid Output Shaft (No Keyway)	Motor Brand & Model No.

저소음
헬리컬기어 사용으로 부드럽고 조용한 운전가능

Quiet operation
Grinding spiral bevel gear & Helical gears contribute to reduce vibration and noise.

고강성과 높은 토크
uncage needle bearing 사용, 강성과 토크를 높임

High Rigidity & High Torque
High rigidity & high torque are achived by integrant needle roller bearings and one-piece constructed.

고효율
1-Stage 97%이상, 2-Stage 95%이상

High Efficiency
Efficiency for 1-Stage model exceeds 97%
2-Stage model exceeds 95%.

Features of KFA Series

KFA Series 제품 특성

Helical gear design & High precision gear machining

기어 맞물림이 평기어의 2배 이상인 Helical gear 적용으로 동작 소음을 최소화하고 고출력, 저소음,저백래시를 실현하였습니다.감속기 내부의 유성기어와 썬기어는 기어제작 용도의 크롬 몰리브덴 합금강으로 제조되었습니다.
기어의 강도는 57~60HRC이며 정밀도 향상을 위해 열처리 후 스카이빙 연마 공정을 적용하여 DIN 6 class(JIS 2급) 이내의 등급을 유지합니다.

Helical Gear Design

The speed reduction mechanism employs helical gears, which provides two times meshing rate of teeth when comparing with regular spur gears. In addition, it also features extremely smooth running, low noise, high torque output and low backlash.

High Precision Gear Machining

Manufactured from high quality Ni-Cr-Mo alloy steel (SNc㎡20), precision achined and carbunzed to hardness 57-60HRC. Precision teeth grinding sure gear accuracy reaches DIN6 class.

Full Needle Roller Bearings Design

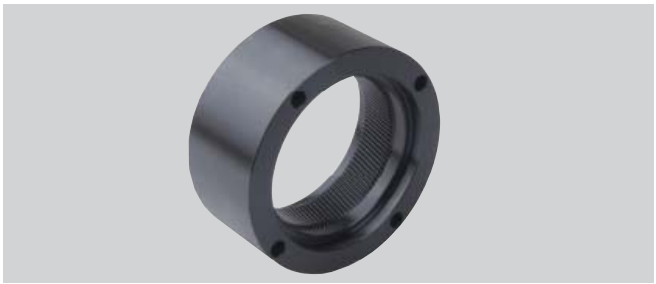
감속기의 유성기어는 구조적 강도와 출력 향상을 위하여 Full needle bearing을 적용 하였습니다.

The planetary gear transmission employs full needle roller bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.

Integrated Planetary Arm Bracket

Planetary arm bracket과 출력 Shaft는 일체형 구조로 정밀 가공되어 비틀림 강도와 정밀도를 향상시켰습니다.

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy.



One-piece Helical Gear Box body & Advanced Surface Treatment

감속기 케이스에 내치기어를 일체형으로 정밀 가공하였고, 기어 맞물림이 스퍼기어의 2배 이상인 Helical gear 적용으로 동작 소음을 최소화하여 고출력 저소음, 저백래쉬를 실현하였습니다.

The gear box and internal gear are one-piece constructed to achieve high rigidity and high torque.

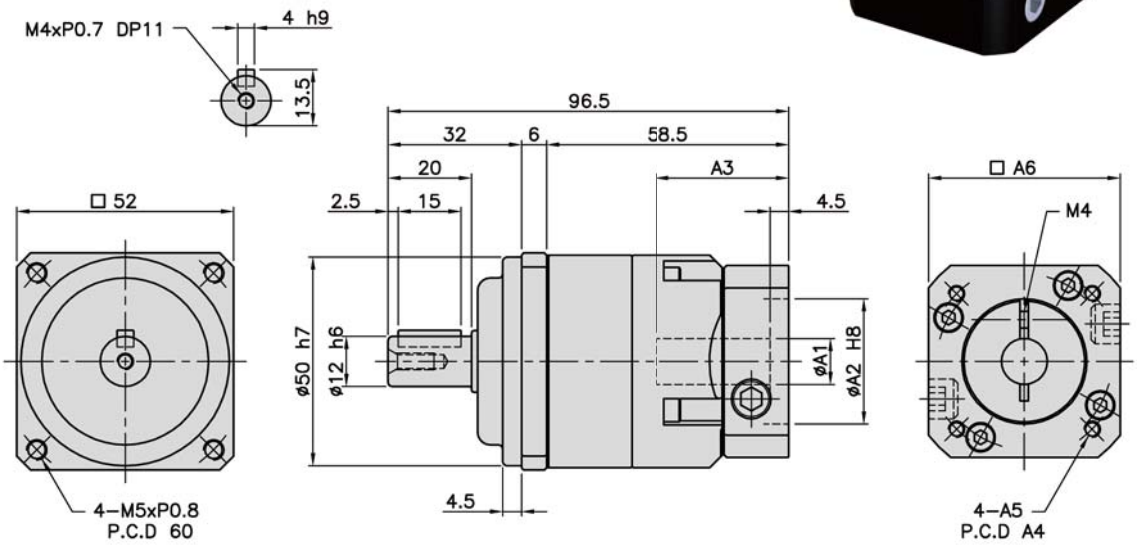
Collet Locking Mechanism

감속기의 입력축과 모터 출력축을 연결하기 위한 Collet Clamp 방식으로 역학상 확실한 체결력과 동심도를 보장하여 높은 속도에서 구동할 때에도 백래쉬가 발생하지 않고 동력을 전달합니다.

The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.

MODEL : KFA-50

RATIO : 3, 4, 5, 7, 10 (1-Stage)



Dimension of Input Flange

unit : mm

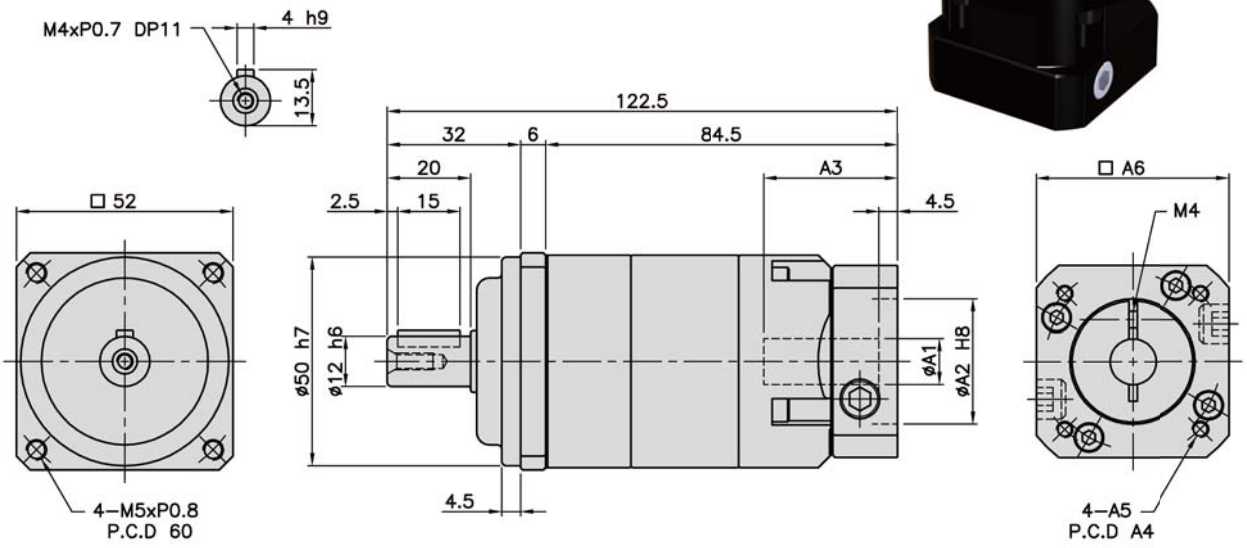
NO.	A1	A2	A3	A4	A5	A6
1		30	32	45	M3	46
2	11	30	32	46	M4	46
3	≀	40	32	63	M5	55
4	14	50	32	70	M4	60
5		50	32	70	M5	60

KFA-50-1

Ratio		Unit	3	4	5	7	10
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	19	16	16	15	14
Max. Acceleration Torque	T_{2B}	Nm	34	29	29	27	25
Mass Moments of Inertia		kg.㎠	0.03	0.03	0.03	0.03	0.03
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	3,000				
Max. Input Speed	n_{1B}	rpm	5,000				
Torsional Rigidity		Nm/arcmin	3				
Max. Radial Force	F_{2rB}	N	350				
Max. Axial Force	F_{2aB}	N	180				
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)				
Efficiency	*n*	%	≧97%				
Operating Temperature		℃	−25℃ ~ +90℃				
Lubrication			VIGO GREASE RE #0				
Protection Class			IP 65				
Mounting Position			Any				
Noise Level		dB	≦58 dB				
Weight ±2%		kg	0.64				

MODEL : KFA-50

RATIO : 15, 20, 25, 30, 35, 40, 50, 70, 100 (2-Stage)



Dimension of Input Flange

unit : mm

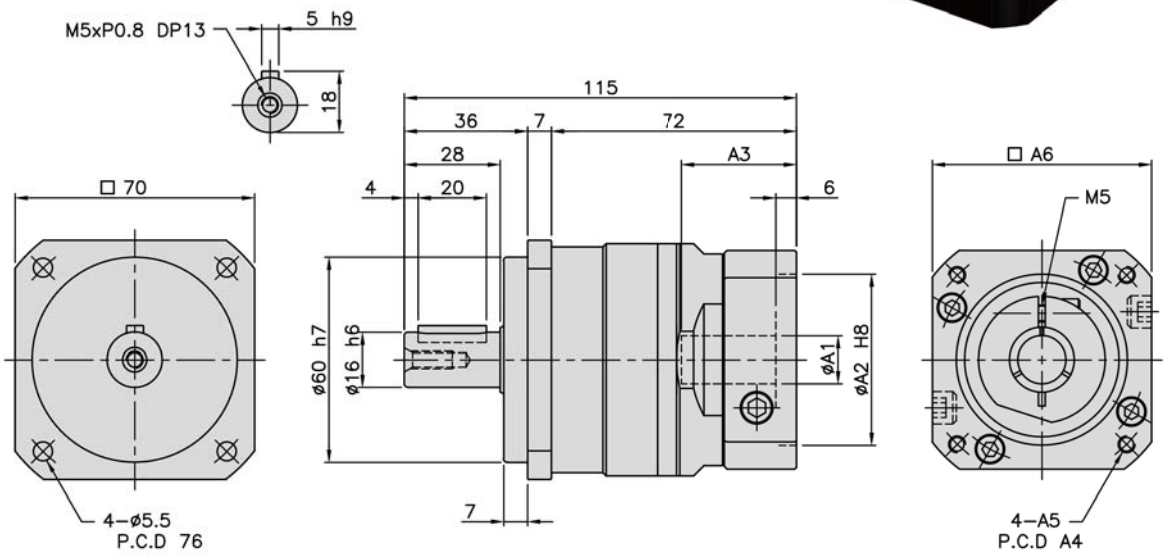
NO.	A1	A2	A3	A4	A5	A6
1		30	32	45	M3	46
2	11	30	32	46	M4	46
3	≀	40	32	63	M5	55
4	14	50	32	70	M4	60
5		50	32	70	M5	60

KFA-50-2

Ratio		Unit	15	20	25	30	35	40	50	70	100
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	19	16	16	19	15	16	16	15	14
Max. Acceleration Torque	T_{2B}	Nm	34	29	29	34	27	29	29	27	25
Mass Moments of Inertia		kg.㎠	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque								
Rated Input Speed	n_{1N}	rpm	3,000								
Max. Input Speed	n_{1B}	rpm	5,000								
Torsional Rigidity		Nm/arcmin	3								
Max. Radial Force	F_{2rB}	N	350								
Max. Axial Force	F_{2aB}	N	180								
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)								
Efficiency	*n*	%	≧95%								
Operating Temperature		℃	−25℃ ~ +90℃								
Lubrication			VIGO GREASE RE #0								
Protection Class			IP 65								
Mounting Position			Any								
Noise Level		dB	≦60 dB								
Weight ±2%		kg	0.96								

MODEL : KFA-70

RATIO : 3, 4, 5, 7, 10 (1-Stage)



Dimension of Input Flange

unit : mm

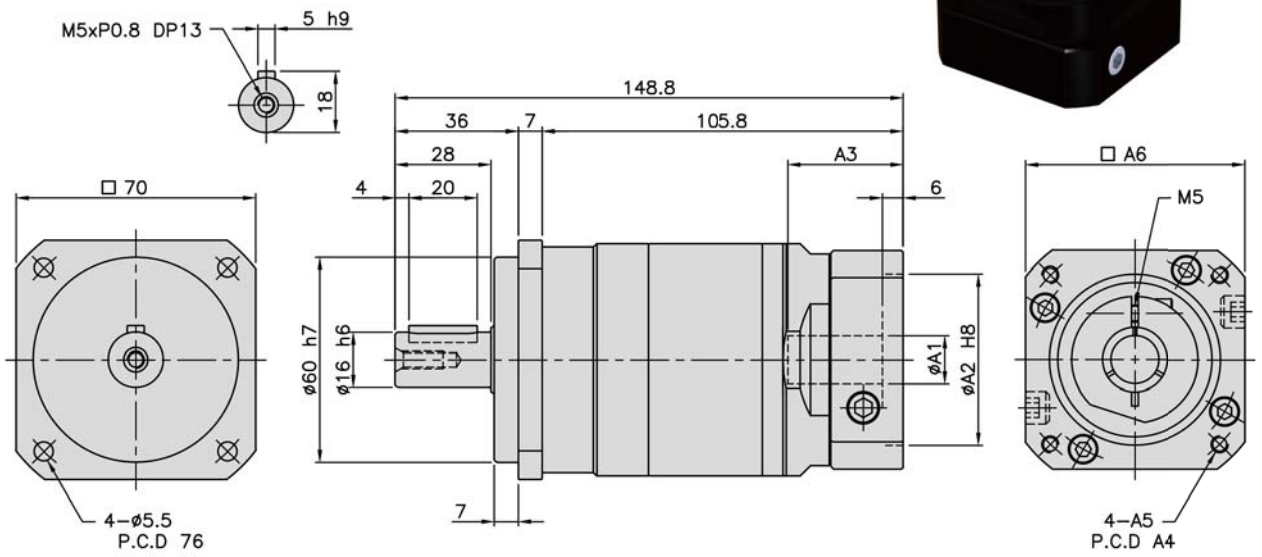
NO.	A1	A2	A3	A4	A5	A6
1	14	50	33.5	70	M5	64
2		60	33.5	75	M6	70
3		70	33.5	85	M6	80

KFA-70-1

Ratio		Unit	3	4	5	7	10
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	54	48	45	41	40
Max. Acceleration Torque	T_{2B}	Nm	97	86	81	74	72
Mass Moments of Inertia		kg.cm²	0.16	0.14	0.13	0.13	0.13
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	3,000				
Max. Input Speed	n_{1B}	rpm	5,000				
Torsional Rigidity		Nm/arcmin	5				
Max. Radial Force	F_{2rB}	N	800				
Max. Axial Force	F_{2aB}	N	400				
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)				
Efficiency	*n*	%	≧97%				
Operating Temperature		℃	−25℃ ~ +90℃				
Lubrication			VIGO GREASE RE #0				
Protection Class			IP 65				
Mounting Position			Any				
Noise Level		dB	≦58 dB				
Weight ±2%		kg	1				

MODEL : KFA-70

RATIO : 15, 20, 25, 30, 35, 40, 50, 70, 100 (2-Stage)



Dimension of Input Flange

unit : mm

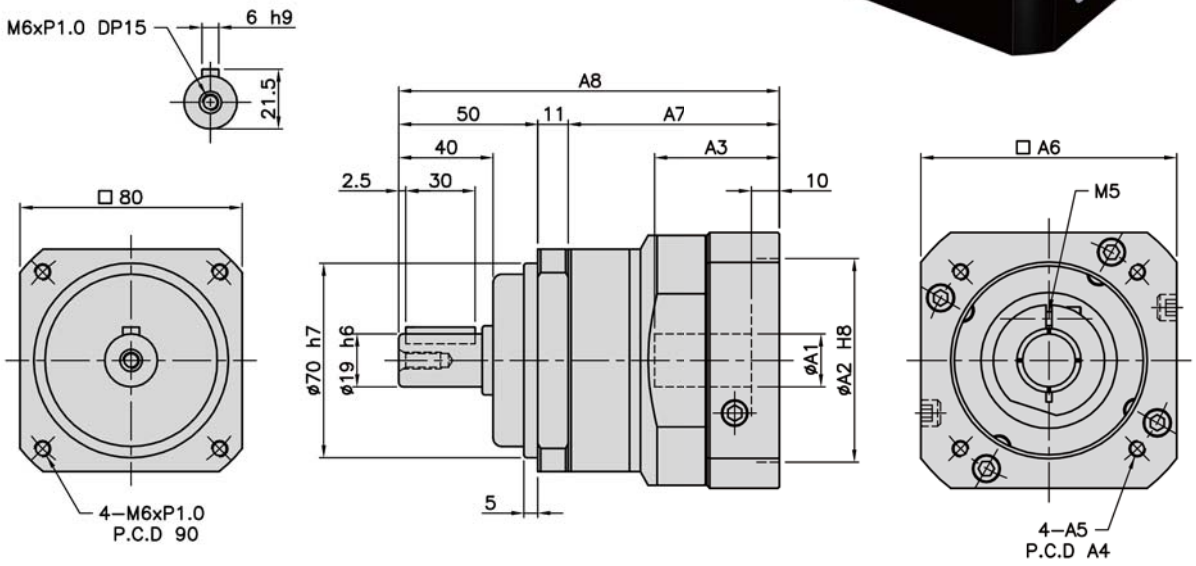
NO.	A1	A2	A3	A4	A5	A6
1	14	50	33.5	70	M5	64
2		60	33.5	75	M6	70
3		70	33.5	85	M6	80

KFA-70-2

Ratio		Unit	15	20	25	30	35	40	50	70	100
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	54	48	45	41	41	39	45	41	40
Max. Acceleration Torque	T_{2B}	Nm	97	86	81	74	74	70	81	74	72
Mass Moments of Inertia		kg.cm²	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque								
Rated Input Speed	n_{1N}	rpm	3,000								
Max. Input Speed	n_{1B}	rpm	5,000								
Torsional Rigidity		Nm/arcmin	5								
Max. Radial Force	F_{2rB}	N	800								
Max. Axial Force	F_{2aB}	N	400								
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)								
Efficiency	*n*	%	≧95%								
Operating Temperature		℃	−25℃ ~ +90℃								
Lubrication			VIGO GREASE RE #0								
Protection Class			IP 65								
Mounting Position			Any								
Noise Level		dB	≦60 dB								
Weight ±2%		kg	2.1								

MODEL : KFA-80

RATIO : 3, 4, 5, 7, 10 (1-Stage)



Dimension of Input Flange

unit : mm

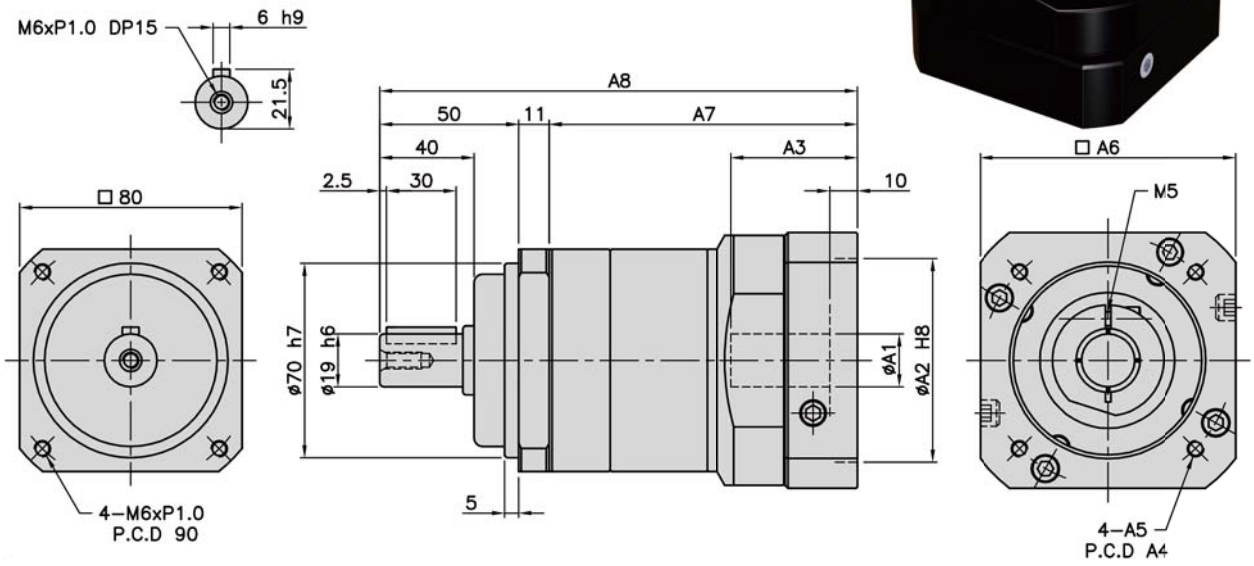
NO.	A1	A2	A3	A4	A5	A6	A7	A8
1	14 ≀ 19	50	45.5	70	M5	92	76.5	137.5
2		70	45.5	90	M6	92	76.5	137.5
3		80	45.5	100	M6	92	76.5	137.5
4		95	45.5	115	M6	110	76.5	137.5

KFA-80-1

Ratio		Unit	3	4	5	7	10
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	112	110	108	105	100
Max. Acceleration Torque	T_{2B}	Nm	202	198	194	189	180
Mass Moments of Inertia		kg.cm²	0.48	0.38	0.38	0.38	0.35
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	3,000				
Max. Input Speed	n_{1B}	rpm	5,000				
Torsional Rigidity		Nm/arcmin	12				
Max. Radial Force	F_{2rB}	N	1,200				
Max. Axial Force	F_{2aB}	N	600				
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)				
Efficiency	*n*	%	≧97%				
Operating Temperature		℃	−25℃ ~ +90℃				
Lubrication			VIGO GREASE RE #0				
Protection Class			IP 65				
Mounting Position			Any				
Noise Level		dB	≦60 dB				
Weight ±2%		kg	1.6				

MODEL : KFA-80

RATIO : 15, 20, 25, 30, 35, 40, 50, 70, 100 (2-Stage)



Dimension of Input Flange

unit : mm

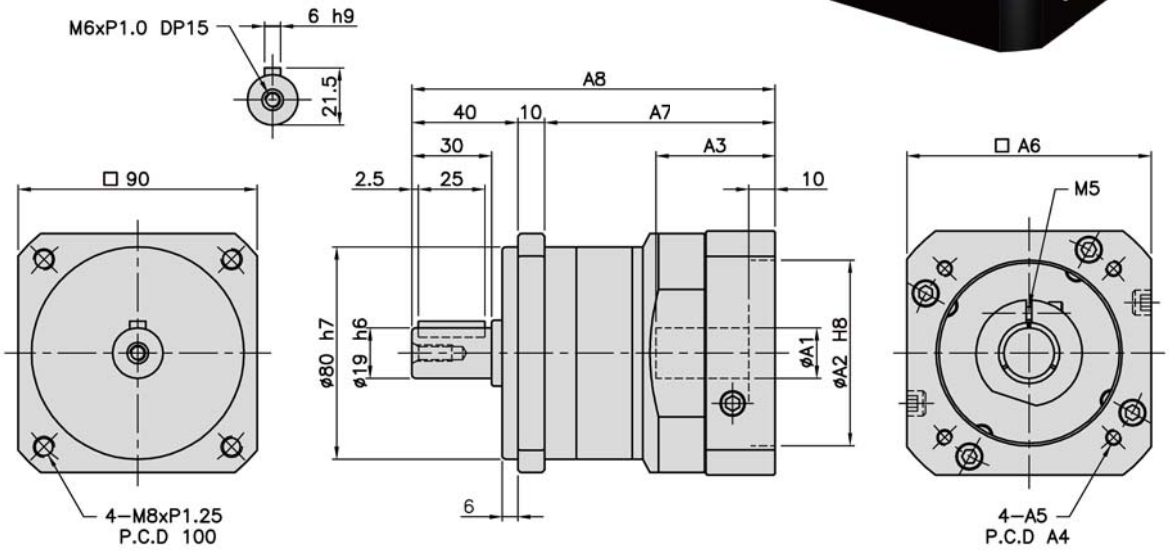
NO.	A1	A2	A3	A4	A5	A6	A7	A8
1	14 ≀ 19	50	45.5	70	M5	92	111.5	172.5
2		70	45.5	90	M6	92	111.5	172.5
3		80	45.5	100	M6	92	111.5	172.5
4		95	45.5	115	M6	110	111.5	172.5

KFA-80-2

Ratio		Unit	15	20	25	30	35	40	50	70	100
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	112	110	108	112	105	110	108	105	100
Max. Acceleration Torque	T_{2B}	Nm	202	198	194	202	189	198	194	189	180
Mass Moments of Inertia		kg.cm²	0.41	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque								
Rated Input Speed	n_{1N}	rpm	3,000								
Max. Input Speed	n_{1B}	rpm	5,000								
Torsional Rigidity		Nm/arcmin	12								
Max. Radial Force	F_{2rB}	N	1,200								
Max. Axial Force	F_{2aB}	N	600								
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)								
Efficiency	*n*	%	≧95%								
Operating Temperature		℃	−25℃ ~ +90℃								
Lubrication			VIGO GREASE RE #0								
Protection Class			IP 65								
Mounting Position			Any								
Noise Level		dB	≦62 dB								
Weight ±2%		kg	2.8								

MODEL : KFA-90

RATIO : 3, 4, 5, 7, 10 (1-Stage)



Dimension of Input Flange

unit : mm

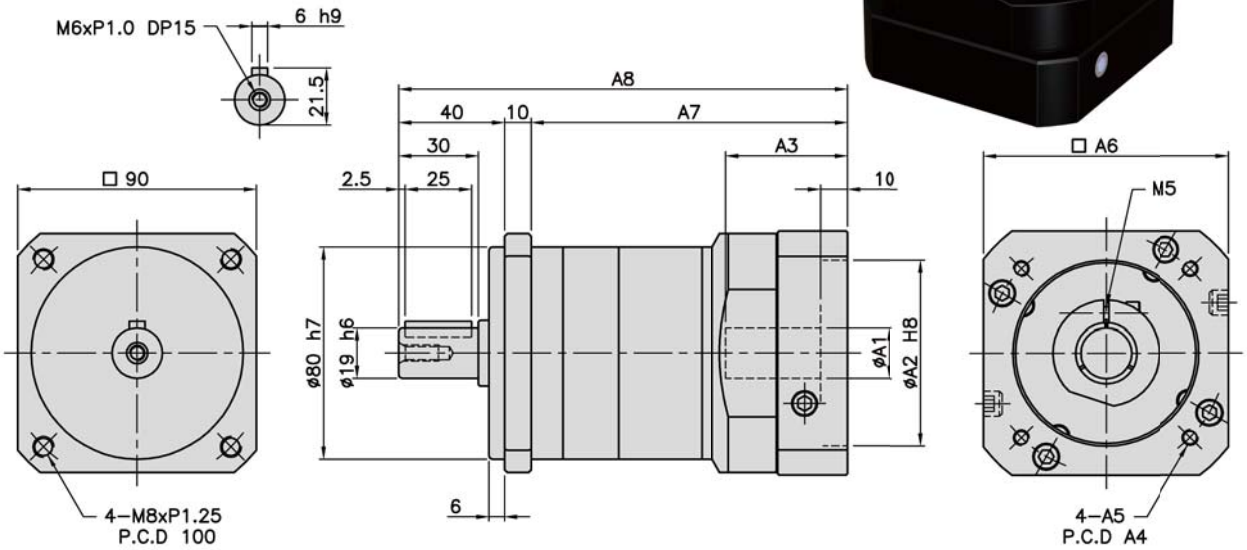
NO.	A1	A2	A3	A4	A5	A6	A7	A8
1	14 ~ 19	70	45.5	90	M6	92	87.5	137.5
2		80	45.5	100	M6	92	87.5	137.5
3		95	45.5	115	M6	110	87.5	137.5
4		110	45.5	145	M8	130	87.5	137.5

KFA-90-1

Ratio		Unit	3	4	5	7	10
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	112	110	108	105	100
Max. Acceleration Torque	T_{2B}	Nm	202	198	194	189	180
Mass Moments of Inertia		kg.㎠	0.48	0.38	0.38	0.38	0.35
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	3,000				
Max. Input Speed	n_{1B}	rpm	5,000				
Torsional Rigidity		Nm/arcmin	12				
Max. Radial Force	F_{2rB}	N	1,200				
Max. Axial Force	F_{2aB}	N	600				
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)				
Efficiency	*n*	%	≧97%				
Operating Temperature		℃	−25℃ ~ +90℃				
Lubrication			VIGO GREASE RE #0				
Protection Class			IP 65				
Mounting Position			Any				
Noise Level		dB	≦60 dB				
Weight ±2%		kg	1.96				

MODEL : KFA-90

RATIO : 15, 20, 25, 30, 35, 40, 50, 70, 100 (2-Stage)



Dimension of Input Flange

unit : mm

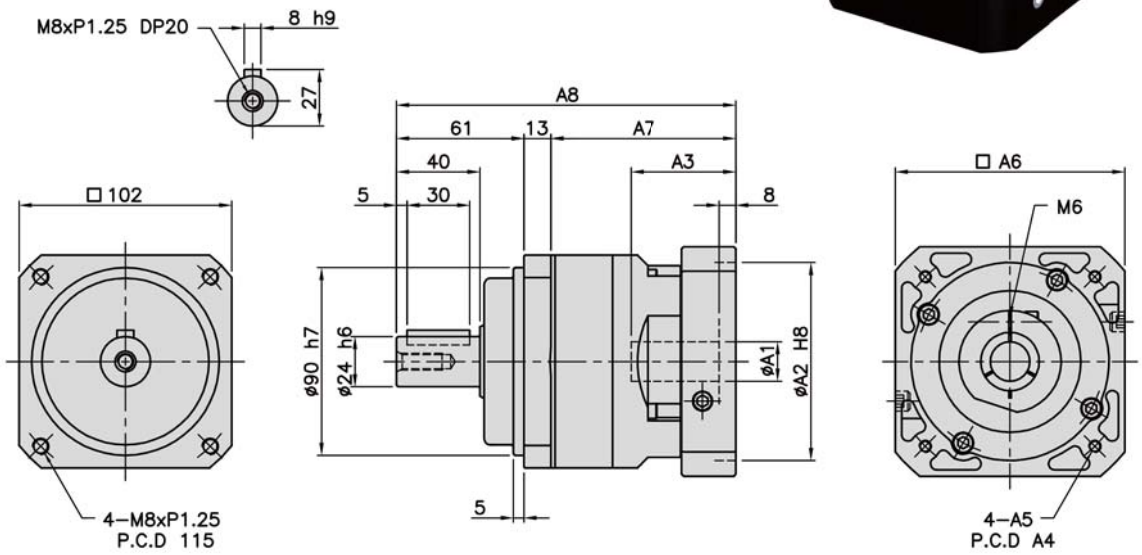
NO.	A1	A2	A3	A4	A5	A6	A7	A8
1	14 ≀ 19	70	45.5	90	M6	92	122.5	172.5
2		80	45.5	100	M6	92	122.5	172.5
3		95	45.5	115	M6	110	122.5	172.5
4		110	45.5	145	M8	130	122.5	172.5

KFA-90-2

Ratio		Unit	15	20	25	30	35	40	50	70	100
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	112	110	108	112	105	110	108	105	100
Max. Acceleration Torque	T_{2B}	Nm	202	198	194	202	189	198	194	189	180
Mass Moments of Inertia		kg.cm²	0.41	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque								
Rated Input Speed	n_{1N}	rpm	3,000								
Max. Input Speed	n_{1B}	rpm	5,000								
Torsional Rigidity		Nm/arcmin	12								
Max. Radial Force	F_{2rB}	N	1,200								
Max. Axial Force	F_{2aB}	N	600								
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: 10,000 hrs)								
Efficiency	*n*	%	≧95%								
Operating Temperature		℃	−25℃ ~ +90℃								
Lubrication			VIGO GREASE RE #0								
Protection Class			IP 65								
Mounting Position			Any								
Noise Level		dB	≦62 dB								
Weight ±2%		kg	3.06								

MODEL : KFA-100

RATIO : 3, 4, 5, 7, 10 (1-Stage)



Dimension of Input Flange

unit : mm

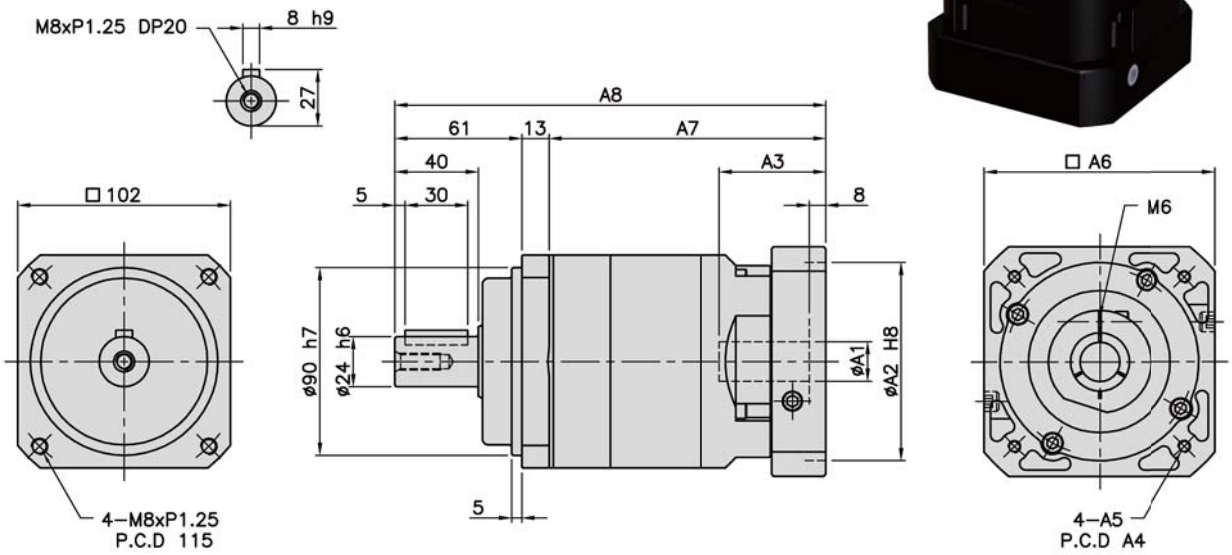
NO.	A1	A2	A3	A4	A5	A6	A7	A8
1	19 ≀ 24	70	51	90	M6	92	89.5	163.5
2		80	51	100	M6	92	89.5	163.5
3		95	51	115	M6	110	89.5	163.5
4		95	51	115	M8	110	89.5	163.5
5		110	51	145	M8	130	89.5	163.5
6		110	65.5	145	M8	130	104	178

KFA-100-1

Ratio		Unit	3	4	5	7	10
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	165	146	160	149	141
Max. Acceleration Torque	T_{2B}	Nm	297	263	288	268	254
Mass Moments of Inertia		kg.cm²	0.6	0.45	0.45	0.45	0.41
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	3,000				
Max. Input Speed	n_{1B}	rpm	5,000				
Torsional Rigidity		Nm/arcmin	14				
Max. Radial Force	F_{2rB}	N	3,200				
Max. Axial Force	F_{2aB}	N	1,600				
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)				
Efficiency	*n*	%	≧97%				
Operating Temperature		℃	−25℃ ~ +90℃				
Lubrication			VIGO GREASE RE #0				
Protection Class			IP 65				
Mounting Position			Any				
Noise Level		dB	≦ 65 dB				
Weight ±2%		kg	3.76				

MODEL : KFA-100

RATIO : 15, 20, 25, 30, 35, 40, 50, 70, 100 (2-Stage)



Dimension of Input Flange

unit : mm

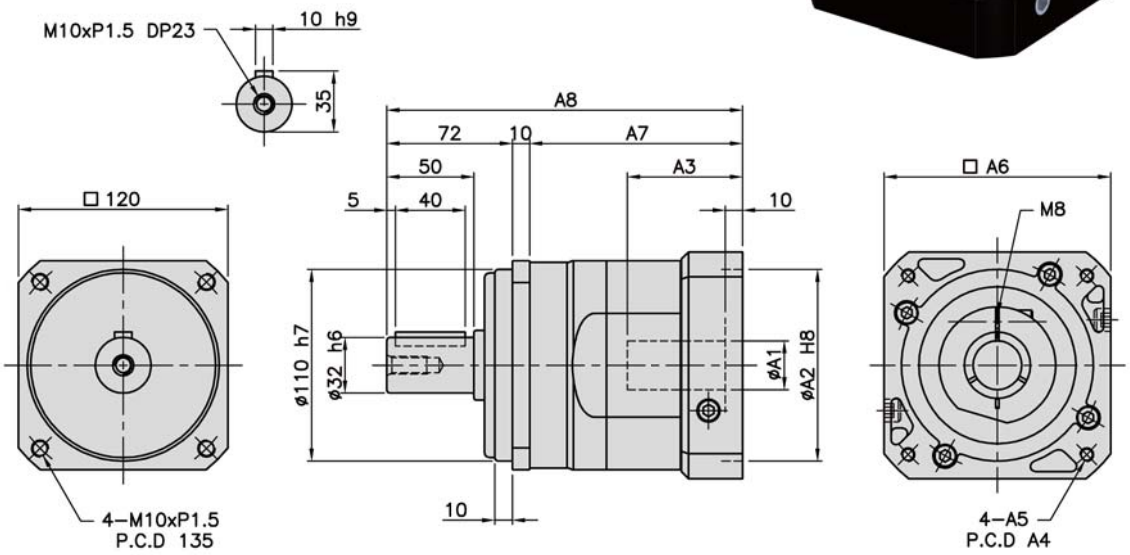
NO.	A1	A2	A3	A4	A5	A6	A7	A8
1	19 ≀ 24	70	51	90	M6	92	133	207
2		80	51	100	M6	92	133	207
3		95	51	115	M6	110	133	207
4		95	51	115	M8	110	133	207
5		110	51	145	M8	130	133	207
6		110	65.5	145	M8	130	147.5	221.5

KFA-100-2

Ratio		Unit	15	20	25	30	35	40	50	70	100
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	165	146	160	165	149	146	160	149	141
Max. Acceleration Torque	T_{2B}	Nm	297	263	288	297	268	263	288	268	254
Mass Moments of Inertia		kg.㎠	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque								
Rated Input Speed	n_{1N}	rpm	3,000								
Max. Input Speed	n_{1B}	rpm	5,000								
Torsional Rigidity		Nm/arcmin	14								
Max. Radial Force	F_{2rB}	N	3,200								
Max. Axial Force	F_{2aB}	N	1,600								
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)								
Efficiency	*n*	%	≧95%								
Operating Temperature		℃	−25℃ ~ +90℃								
Lubrication			VIGO GREASE RE #0								
Protection Class			IP 65								
Mounting Position			Any								
Noise Level		dB	≦67 dB								
Weight ±2%		kg	5.92								

MODEL : KFA-120

RATIO : 3, 4, 5, 7, 10 (1-Stage)



Dimension of Input Flange

unit : mm

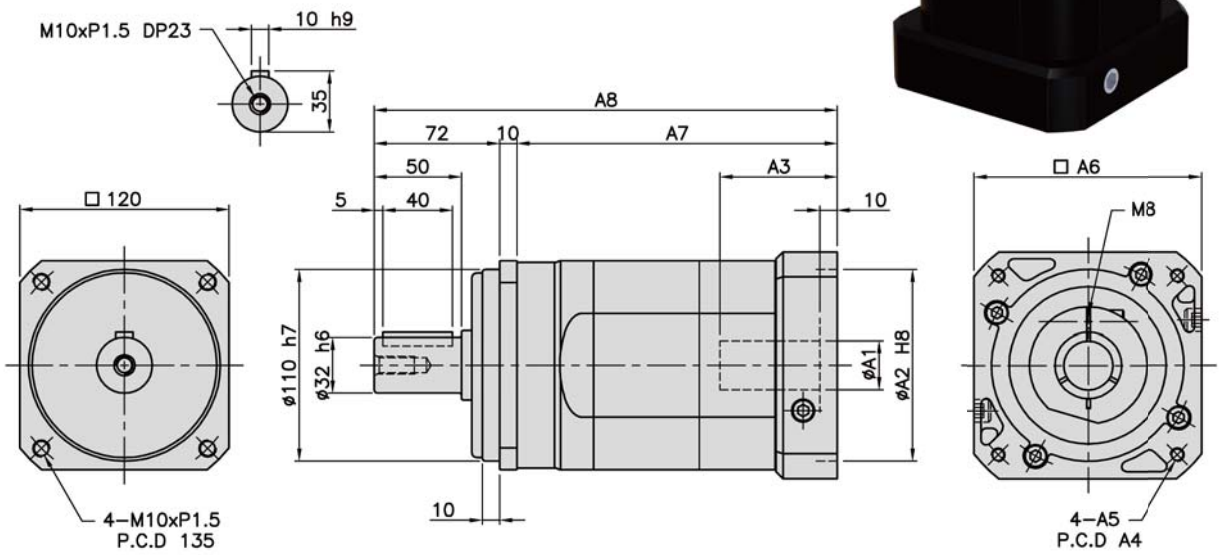
NO.	A1	A2	A3	A4	A5	A6	A7	A8
1	24 ~ 32	95	67	115	M6	122	123	205
2		95	67	115	M8	122	123	205
3		110	67	145	M8	130	123	205
4		110	77	145	M8	130	133	215
5		130	67	165	M10	150	123	205

KFA-120-1

Ratio		Unit	3	4	5	7	10
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	286	255	264	245	234
Max. Acceleration Torque	T_{2B}	Nm	515	459	475	441	421
Mass Moments of Inertia		kg.cm²	3.21	2.64	2.64	2.62	2.51
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	3,000				
Max. Input Speed	n_{1B}	rpm	5,000				
Torsional Rigidity		Nm/arcmin	23				
Max. Radial Force	F_{2rB}	N	5,220				
Max. Axial Force	F_{2aB}	N	2,600				
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)				
Efficiency	*n*	%	≧97%				
Operating Temperature		℃	−25℃ ~ +90℃				
Lubrication			VIGO GREASE RE #0				
Protection Class			IP 65				
Mounting Position			Any				
Noise Level		dB	≦67 dB				
Weight ±2%		kg	7.43				

MODEL : KFA-120

RATIO : 15, 20, 25, 30, 35, 40, 50, 70, 100 (2-Stage)



Dimension of Input Flange

unit : mm

NO.	A1	A2	A3	A4	A5	A6	A7	A8
1	24 ~ 32	95	67	115	M6	122	179	261
2		95	67	115	M8	122	179	261
3		110	67	145	M8	130	179	261
4		110	77	145	M8	130	189	271
5		130	67	165	M10	150	179	261

KFA-120-2

Ratio		Unit	15	20	25	30	35	40	50	70	100
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	286	255	264	286	245	255	264	245	234
Max. Acceleration Torque	T_{2B}	Nm	518	459	475	514	441	459	475	441	421
Mass Moments of Inertia		kg.cm²	2.64	2.64	2.64	2.64	2.64	2.64	2.51	2.51	2.51
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 Times of Rated Output Torque								
Rated Input Speed	n_{1N}	rpm	3,000								
Max. Input Speed	n_{1B}	rpm	5,000								
Torsional Rigidity		Nm/arcmin	23								
Max. Radial Force	F_{2rB}	N	5,220								
Max. Axial Force	F_{2aB}	N	2,600								
Service Life	L_H	hr	S5 Cycle Operation: >20,000 (S1 Continuous Operation: >10,000 hrs)								
Efficiency	*n*	%	≧95%								
Operating Temperature		℃	−25℃ ~ +90℃								
Lubrication			VIGO GREASE RE #0								
Protection Class			IP 65								
Mounting Position			Any								
Noise Level		dB	≦69 dB								
Weight ±2%		kg	10.3								