ATG SERVOBOX Planetary Reducers

Feartures of KSF Series

저소음
헬리컬기어 사용으로 부드럽고 조용한 운전가능

Quiet operation
Helical gears contribute to reduce vibration and noise.

고정밀도
Backlash ≦3 arcmin, 정밀제어에 이상적

High precision
Backlash ≦3 arcmin reaches precision alignment.

고강성과 높은 토크
uncage needle bearing 사용, 강성과 토크를 높임

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

고하중
더블 테이퍼 롤러 베어링 구조로 높은 하중에 적합

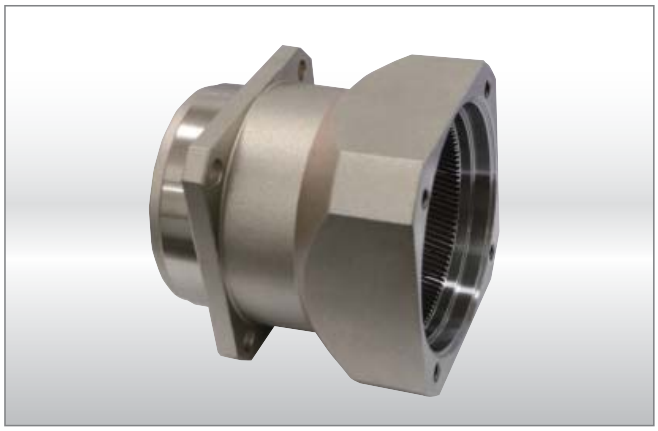
High Load-Bearing Capacity
High load-bearing capacity are achived by dual tapper bearing.

Indication of Model Numbers

KSF	–	90	–	10	Key Type	–	P1	MOTOR
Type		Model		Ratio	Output Shaft Ketway		Backlash Class	Motor Type
KSF KSF-A		62 75 100 142 180		1-Stage 3, 4, 5, 6, 7, 8, 9, 10 2-Stage 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100	□ : 무표기 Standard (Keyway) N : 표기 Solid Output Shaft (No Keyway)		1-Stage / 2-Stage Ps ≦1 / ≦3 P0 ≦3 / ≦5 P1 ≦5 / ≦7 P2 ≦7 / ≦9	Motor Brand & Model No.
KSFL KSFL-A				1-Stage 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20 2-Stage 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200			1-Stage / 2-Stage Ps ≦2 / ≦4 P0 ≦4 / ≦7 P1 ≦6 / ≦9 P2 ≦8 / ≦12	

Features of KSF Series

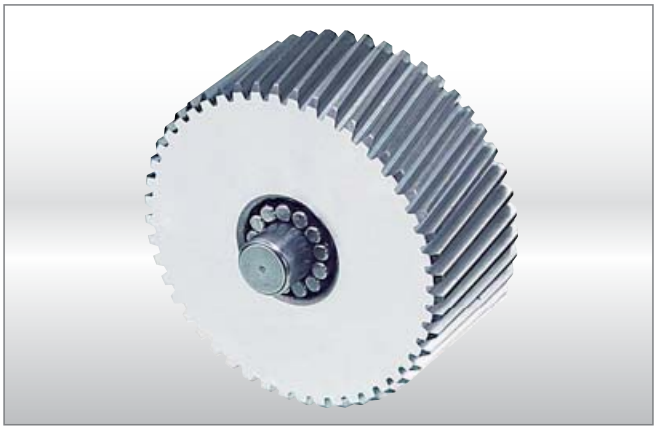
KSF Series 제품 특성



One-piece Helical Gear Box body

감속기 케이스에 내치기어를 일체형으로 정밀가공하였고, 헬리컬기어로 되어 있으며 기어의 교합율은 일반 스퍼기어의 2배 이상이며 원활한 운전과 낮은 소음으로 높은 회전출력과 낮은 백래쉬를 특징으로 합니다.

The gear box and internal gear are one-piece constructed. 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 has features of extremely smooth running, low noise, high output torque and low backlash.



Full Needle Roller Bearings Design

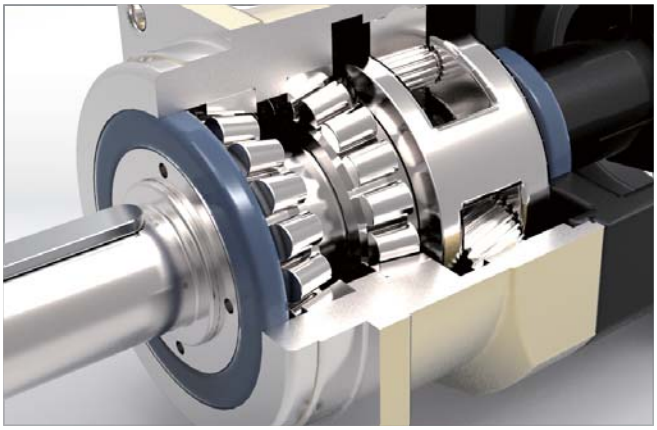
Planetary 변속기어는 접촉면 증가를 위한 Retainer없는 Full Needle Bearing 구조입니다.
구조적 강도와 출력 회전력을 상승시킨 것입니다.

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

Collet Locking Mechanism

감속기의 입력축과 모터 출력축을 연결하기 위한 Collet Clamp 방식으로 이는 역학상 확실한 체결력과 동심도를 보장하며 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.



Double Taper Roller Bearing

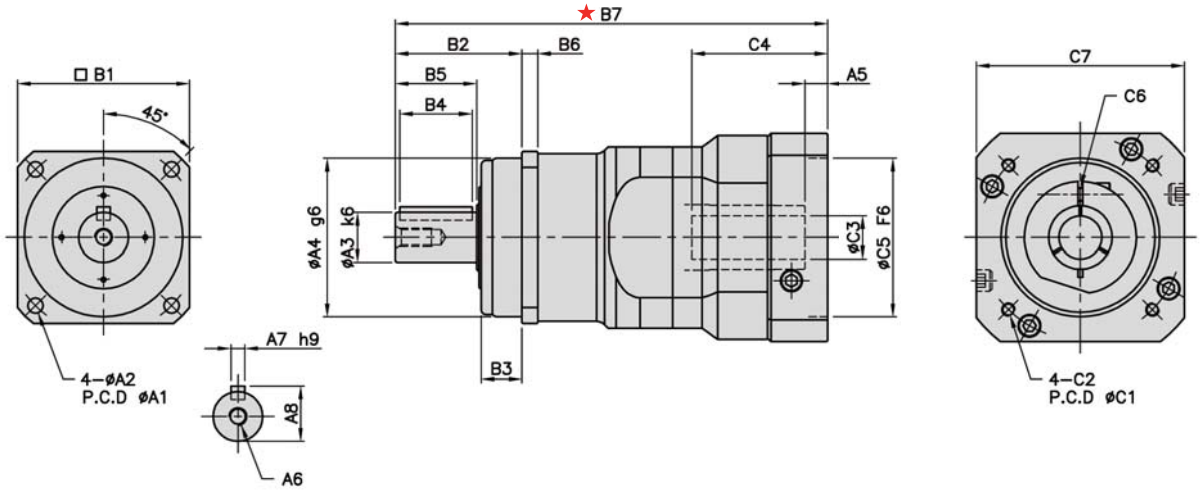
더블 테이퍼 롤러 베어링 설계로 높은 축 하중과 레이디얼 하중을 견딜 수 있고, 하나의 베어링 설계보다 구조적 강도를 높임

Double tapered roller bearing design Which can withstand high radial load and axial load Structural strength better than a single bearing design.

ATG SERVOBOX
Planetary Reducers

MODEL : KSF

1-Stage
RATIO : 3, 4, 5, 6, 7, 8, 9, 10



unit : mm

Code	Model	62	75	100	142	180
A	A1	68	85	120	165	215
	A2	5.5	6.8	9	11	13
	A3	16	22	32	40	55
	A4	60	70	90	130	160
	A5	6	9.2	10.5	10	11.5, 13.5
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	6	10	12	16
	A8	18	24.5	35	43	59
B	B1	62	76	106	142	180
	B2	48	56	88	112	112
	B3	18	18	27	27	26
	B4	20	32	50	70	70
	B5	28	36	58	82	82
	B6	6	7	10	12	15
	B7	139.5, 147.5	191	242.5	306	360, 362
C	C1	70, 75, 90	90, 100, 115, 145	115, 145, 165	145, 165, 215	200, 215, 265
	C2	M4, M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12
	C3	14, (19)	19, (24)	28, (32)	35, (38)	38, 42, 48, 55
	C4	33.5, 41.5	59.2	67.5	84.5	114.5, 116.5
	C5	50, 60, 70	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230
	C6	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	64, 70, 80	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250

* ( ) 안은 주문형입니다. * A5, ★은 적용 모터에 따라 달라질 수 있습니다.

High Precision Planetary Reducer

Model No.		Unit	Ratio	62	75	100	142	180
Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	59	165	298	625	1,206
			4	51	146	267	555	1,069
			5	48	155	296	618	1,189
			6	45	150	278	583	1,118
			7	45	142	275	573	1,108
			8	44	141	265	553	1,070
			9	44	140	247	551	1,060
			10	43	136	262	549	1,059
Max. Acceleration Torque	T_{2B}	Nm	3 ~ 10	1.8 Times of Rated Output Torque				
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3 ~ 10	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	3 ~ 10	3,000	3,000	3,000	3,000	3,000
Max. Input Speed	n_{1B}	rpm	3 ~ 10	6,000	6,000	5,000	5,000	4,000
Backlash Ps	j_t	arcmin	3 ~ 10	≦1	≦1	≦1	≦1	≦1
Backlash P0	j_t	arcmin	3 ~ 10	≦3	≦3	≦3	≦3	≦3
Backlash P1	j_t	arcmin	3 ~ 10	≦5	≦5	≦5	≦5	≦5
Backlash P2	j_t	arcmin	3 ~ 10	≦7	≦7	≦7	≦7	≦7
Torsional Rigidity		Nm/arcmin	3 ~ 10	8	15	27	60	150
Max. Radial Force	F_{2rB}	N	3 ~ 10	2,240	4,150	8,760	12,750	17,860
Max. Axial Force	F_{2aB}	N	3 ~ 10	1,920	3,780	7,500	10,840	15,180
Service Life	L_H	hr	3 ~ 10	S5 Cycle Operation: 〉20,000 (S1 Continuous Operation: 〉10,000 hrs)				
Efficiency	η	%	3 ~ 10	≧97%				
Operating Temperature		℃	3 ~ 10	−25°C ~ +90°C				
Lubrication			3 ~ 10	VIGO GREASE RE #0				
Protection Class			3 ~ 10	IP65				
Mounting Position			3 ~ 10	Any				
Noise Level		dB	3 ~ 10	≦58	≦60	≦63	≦65	≦67
Weight ±3%		kg	3 ~ 10	1.7	4.5	8.3	16.7	34.3

■ Mass Moments of Inertia (kg.㎠)

Ratio	62	75	100	142	180
3	0.15	0.60	3.21	9.18	28.82
4	0.14	0.51	2.80	7.51	23.56
5	0.13	0.45	2.71	7.40	23.74
6	0.13	0.45	2.65	7.15	22.65
7	0.12	0.42	2.54	7.15	22.40
8	0.12	0.42	2.51	7.01	22.35
9	0.12	0.42	2.51	7.01	22.35
10	0.12	0.42	2.51	7.01	22.35

* 연속운전 사용시 본사와 상담 후 선정바랍니다 .

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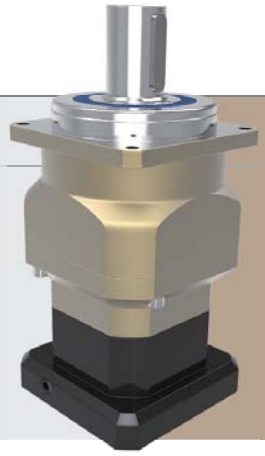
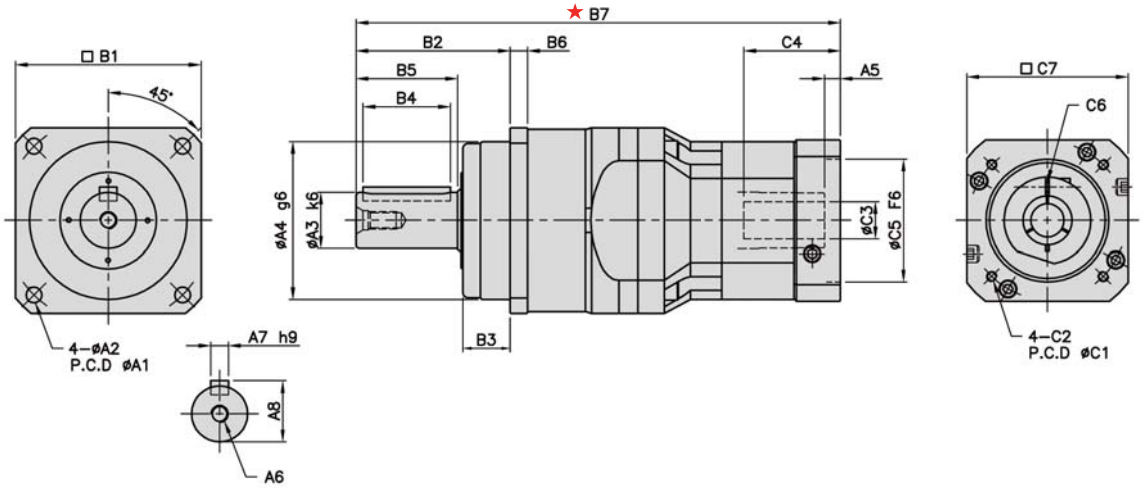
Planetary Reducers



MODEL : KSF

2-Stage
RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit : mm

Code	Model	62	75	100	142	180
A	A1	68	85	120	165	215
	A2	5.5	6.8	9	11	13
	A3	16	22	32	40	55
	A4	60	70	90	130	160
	A5	5	6	9	10	10
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	6	10	12	16
	A8	18	24.5	35	43	59
B	B1	62	76	106	142	180
	B2	48	56	88	112	112
	B3	18	18	27	27	26
	B4	20	32	50	70	70
	B5	28	36	58	82	82
	B6	6	7	10	12	15
	B7	164	198.8, 206.8	278	344	395
C	C1	46, 60, 63	70, 75, 90	90, 100, 115, 145	115, 145, 165	145, 165, 215
	C2	M3, M4, M5	M4, M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12
	C3	8, (11)	14, (19)	19, (24)	28, (32)	35, (38)
	C4	26	33.5, 41.5	59	67	84.5
	C5	30, 40, 50	50, 60, 70	70, 80, 95, 110	95, 110, 130	110, 130, 180
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
	C7	46, 55	64, 70, 80	92, 110, 130	122, 130, 150	146, 150, 190

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High Precision Planetary Reducer

Model No.		Unit	Ratio	62	75	100	142	180
Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	142	298	625	1,206
			20	51	126	267	555	1,069
			25	48	158	296	618	1,189
			30	45	130	278	583	1,118
			35	45	128	275	573	1,108
			40	43	123	265	553	1,070
			50	48	138	296	618	1,189
			60	45	130	278	583	1,118
			70	45	128	275	573	1,108
			80	43	123	265	553	1,070
			90	44	125	247	516	993
			100	43	121	262	549	1,059
Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 Times of Rated Output Torque				
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000
Max. Input Speed	n_{1B}	rpm	15 ~ 100	6,000	6,000	5,000	5,000	4,000
Backlash Ps	j_t	arcmin	15 ~ 100	–	≦3	≦3	≦3	≦3
Backlash P0	j_t	arcmin	15 ~ 100	≦5	≦5	≦5	≦5	≦5
Backlash P1	j_t	arcmin	15 ~ 100	≦7	≦7	≦7	≦7	≦7
Backlash P2	j_t	arcmin	15 ~ 100	≦9	≦9	≦9	≦9	≦9
Torsional Rigidity		Nm/arcmin	15 ~ 100	8	15	27	60	140
Max. Radial Force	F_{2rB}	N	15 ~ 100	2,240	4,150	8,760	12,750	17,860
Max. Axial Force	F_{2aB}	N	15 ~ 100	1,920	3,780	7,500	10,840	15,180
Service Life	L_H	hr	15 ~ 100	S5 Cycle Operation: 〉20,000 (S1 Continuous Operation: 〉10,000 hrs)				
Efficiency	n	%	15 ~ 100	≧94%				
Operating Temperature		℃	15 ~ 100	−25℃ ~ +90℃				
Lubrication			15 ~ 100	VIGO GREASE RE #0				
Protection Class			15 ~ 100	IP65				
Mounting Position			15 ~ 100	Any				
Noise Level		dB	15 ~ 100	≦58	≦60	≦63	≦65	≦67
Weight ±3%		kg	15 ~ 100	2.3	6.1	11.2	22.6	46.3

■ Mass Moments of Inertia (kg.㎠)

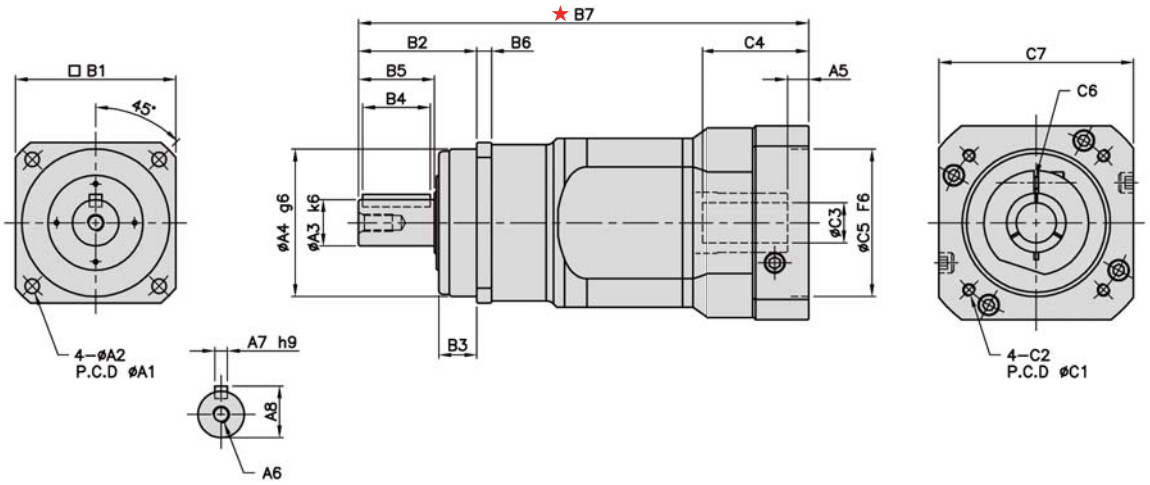
Ratio	62	75	100	142	180
15	0.03	0.13	0.47	2.63	7.30
20	0.03	0.13	0.47	2.63	7.30
25	0.03	0.13	0.47	2.63	7.10
30	0.03	0.13	0.47	2.43	7.10
35	0.03	0.13	0.47	2.43	7.10
40	0.03	0.13	0.47	2.43	6.92
50	0.03	0.13	0.44	2.43	6.92
60	0.03	0.13	0.44	2.39	6.72
70	0.03	0.13	0.44	2.39	6.72
80	0.03	0.13	0.44	2.39	6.72
90	0.03	0.13	0.44	2.39	6.72
100	0.03	0.13	0.44	2.39	6.72

* 연속운전 사용시 본사와 상담 후 선정바랍니다 .

ATG SERVOBOX
Planetary Reducers

MODEL : KSF-A

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



unit : mm

Code	Model	62A	75A	100A	142A	180A
A	A1	68	85	120	165	215
	A2	5.5	6.8	9	11	13
	A3	16	22	32	40	55
	A4	60	70	90	130	160
	A5	6	8	10.5	10	11.5, 13.5
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	6	10	12	16
	A8	18	24.5	35	43	59
B	B1	62	76	106	142	180
	B2	48	56	88	112	112
	B3	18	18	27	27	26
	B4	20	32	50	70	70
	B5	28	36	58	82	82
	B6	6	7	10	12	15
	B7	173.3, 181.3	214	282.5	373	441, 443
C	C1	70, 75, 90	90, 100, 115, 145	115, 145, 165	145, 165, 215	200, 215, 265
	C2	M4, M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12
	C3	14, (19)	19, (24)	28, (32)	35, (38)	38, 42, 48, 55
	C4	33.5, 41.5	51	67.5	84.5	114.5, 116.5
	C5	50, 60, 70	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230
	C6	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	64, 70, 80	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250

* ( ) 안은 주문형입니다. * A5, ★은 적용 모터에 따라 달라질 수 있습니다.

High Precision Planetary Reducer

Model No.		Unit	Ratio	62A	75A	100A	142A	180A
Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	298	625	1,206
			20	51	146	267	555	1,069
			25	48	155	296	618	1,189
			30	45	150	278	583	1,118
			35	45	142	275	573	1,108
			40	51	146	265	555	1,069
			50	48	155	296	618	1,189
			70	45	142	275	573	1,108
			100	43	136	262	549	1,059
Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 Times of Rated Output Torque				
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 Times of Rated Output Torque				
Rated Input Speed	n_{1N}	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000
Max. Input Speed	n_{1B}	rpm	15 ~ 100	6,000	6,000	5,000	5,000	4,000
Backlash Ps	j_t	arcmin	15 ~ 100	–	≦3	≦3	≦3	≦3
Backlash P0	j_t	arcmin	15 ~ 100	≦5	≦5	≦5	≦5	≦5
Backlash P1	j_t	arcmin	15 ~ 100	≦7	≦7	≦7	≦7	≦7
Backlash P2	j_t	arcmin	15 ~ 100	≦9	≦9	≦9	≦9	≦9
Torsional Rigidity		Nm/arcmin	15 ~ 100	8	15	27	60	140
Max. Radial Force	F_{2rB}	N	15 ~ 100	2,240	4,150	8,760	12,750	17,860
Max. Axial Force	F_{2aB}	N	15 ~ 100	1,920	3,780	7,500	10,840	15,180
Service Life	L_H	hr	15 ~ 100	S5 Cycle Operation: 〉20,000 (S1 Continuous Operation: 〉10,000 hrs)				
Efficiency	η	%	15 ~ 100	≧94%				
Operating Temperature		℃	15 ~ 100	−25℃ ~ +90℃				
Lubrication			15 ~ 100	VIGO GREASE RE #0				
Protection Class			15 ~ 100	IP65				
Mounting Position			15 ~ 100	Any				
Noise Level		dB	15 ~ 100	≦58	≦60	≦63	≦65	≦67
Weight ±3%		kg	15 ~ 100	2.6	8.2	11.5	21	43

■ Mass Moments of Inertia (kg.㎠)

Ratio	62A	75A	100A	142A	180A
15	0.15	0.60	3.21	9.18	28.82
20	0.14	0.51	2.80	7.51	23.56
25	0.13	0.45	2.71	7.40	23.24
30	0.15	0.60	3.21	9.18	28.82
35	0.12	0.42	2.54	7.15	22.40
40	0.14	0.51	2.80	7.51	23.56
50	0.13	0.45	2.71	7.40	23.24
70	0.12	0.42	2.54	7.15	22.40
100	0.12	0.42	2.51	7.01	22.35

* 연속운전 사용시 본사와 상담 후 선정바랍니다 .