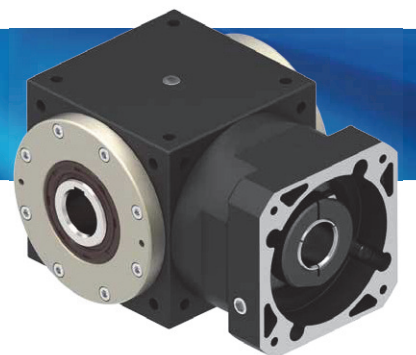


ST Series



Ordering Code

ST	90	F	N	B	5	L	P0
Series	Model	Input	Output	Bearing	Ratio	Shaft Direction	Backlash Class
ST	65	F: Input Flange	O: Hollow Output Shaft	B: Ball Bearing	1-Stage	L: Left Shaft	P0
	75	R44: Reducer	N: Single Clamping (Keyway)	(65#~210#)	1, 2, 3, 4, 5	(default)	P1
	90			(Ratio: 1~5)	-----	for output types N and S	P2
	110	1-Stage:	N1: Single Clamping (No Keyway)				
	140	R44, R62, R90, R120, R142	M: Double Clamping	T: Taper Bearing	With 1-Stage Planetary Reducer	R: Right Shaft for output type N, S and P	
	170	2-Stage:	S: Single Output Shaft (Keyway)	(75#~210#)	10 ~ 50		
	210	R62S, R90S, R120S, R142S	S1: Single Output Shaft (No Keyway)	(Ratio: 2~5)	-----		
		2-Stage (A-Type): R44A, R62A, R90A, R120A, R142A	V: Double Output Shaft (Keyway)		With 2-Stage Planetary Reducer		
			V1: Double Output Shaft (No Keyway)		75 ~ 500		
		D: Single Input Shaft (Keyway)	P: Ball Screw (75#~210#) Taper Bearing Only				
		D1: Single Input Shaft (No Keyway)					
		Y: Double Input Shaft (Keyway)					
		Y1: Double Input Shaft (No Keyway)					

ST Bevel Gear Reducer Assembly and Planetary Reducer Stage Ratios

Model	Ratio	Flange Model	Planetary Reducer Model	Ratio of 1-Stage Planetary Reducer 5, 10	Ratio of 2-Stage Planetary Reducer 25, 50, 100
65		62	44		
75	1	62	44		
90	2	90	62		
110	3	90	80		
140	4	120	90		
170	5	142	120		
210		180	142		
				Ratio of Bevel Gear Reducer Fitted with 1-Stage Planetary Reducer 10, 15, 20, 25, 30, 40, 50	Ratio of Bevel Gear Reducer Fitted with 1-Stage Planetary Reducer 75, 100, 125, 150, 200, 250, 300, 400, 500

Input / Output Type Selection

Input Type

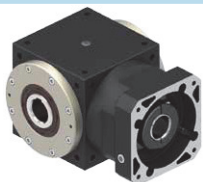
F: Flange Input

R: Reducer Input

D: Single Input Shaft

Y: Double Input Shaft

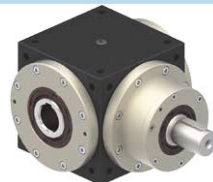
O
Hollow
Output
Shaft



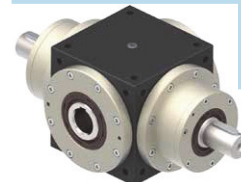
FO



RO



DO



YO

N^l
Single
Clamping



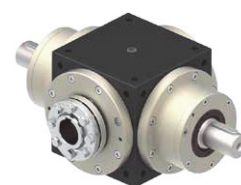
FN



RN



DN

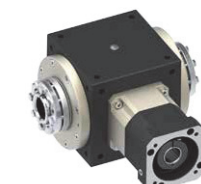


YN

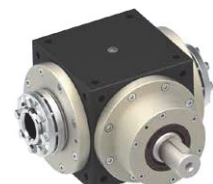
M
Double
Clamping



FM



RM

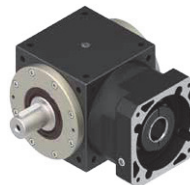


DM

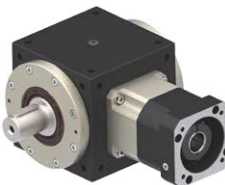


YM

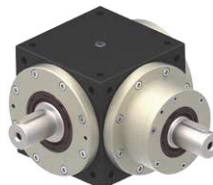
S^l
Single
Output Shaft



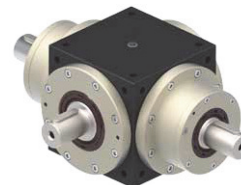
FS



RS

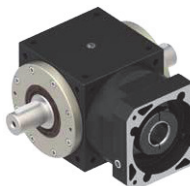


DS

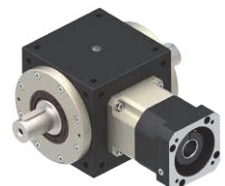


YS

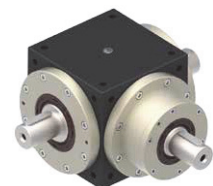
V
Double
Output Shaft



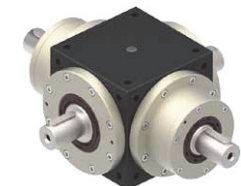
FV



RV



DV



YV

P²
Ball Screw



FP



RP



DP



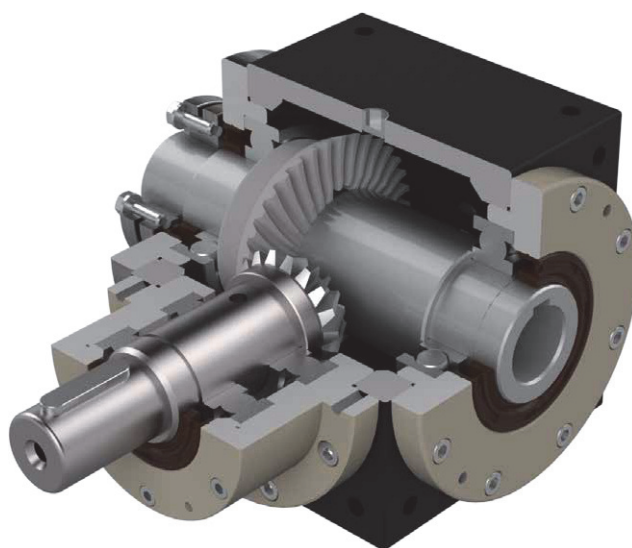
YP

Output Type

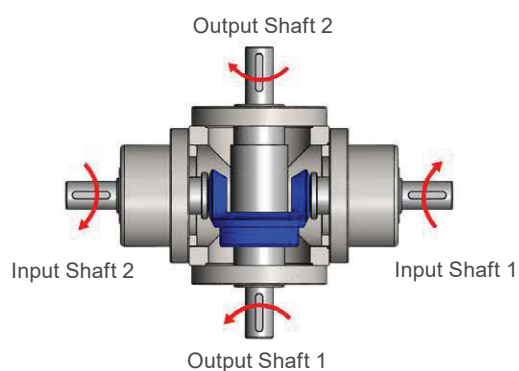
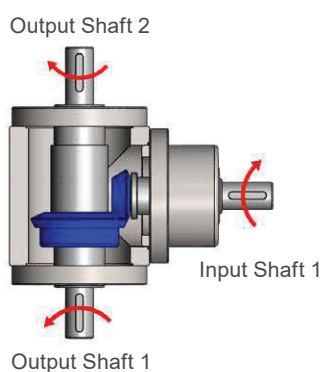
1. Select L or R shaft direction for N and S output types. Default direction is L (if unspecified)
2. Only R shaft direction is available for P output type.

ST Series Output Rotation Direction

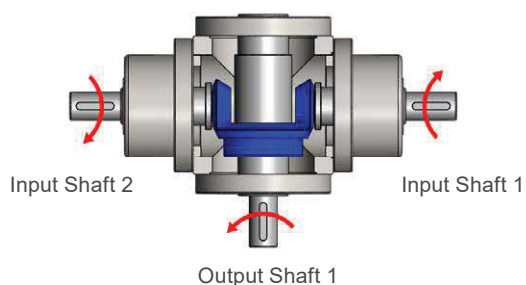
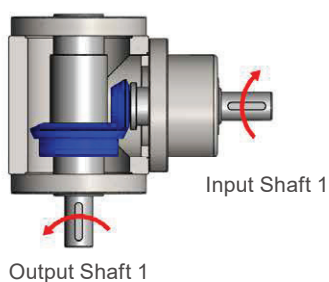
ST



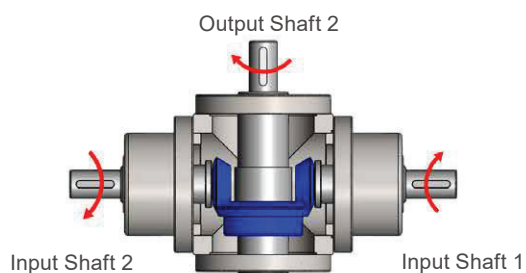
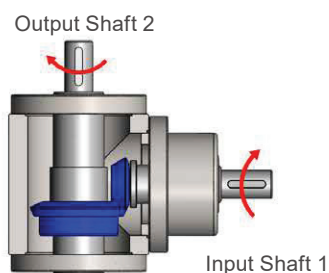
Shaft Direction



Shaft Direction

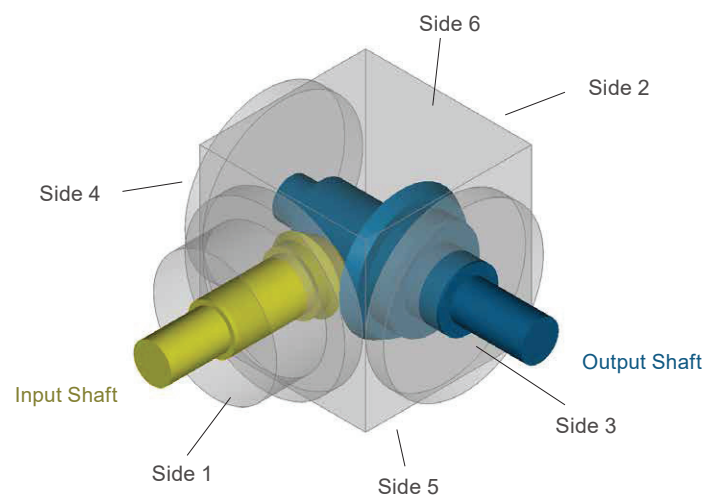


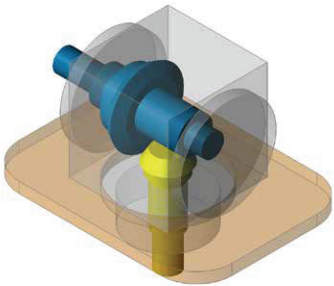
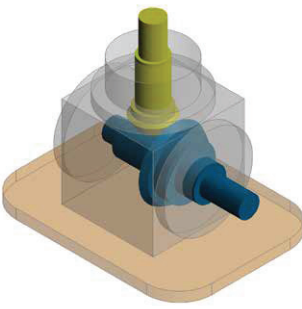
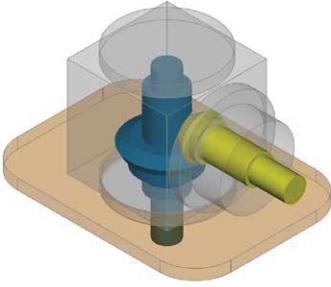
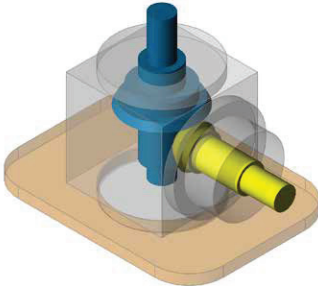
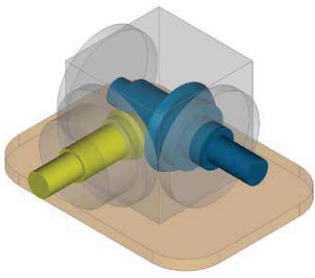
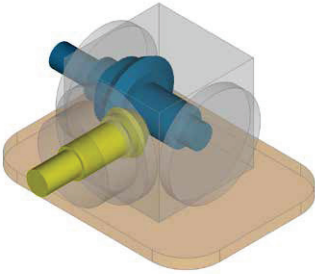
Shaft Direction



L shaft direction is default, R shaft direction is optional

ST Series Installation Orientation

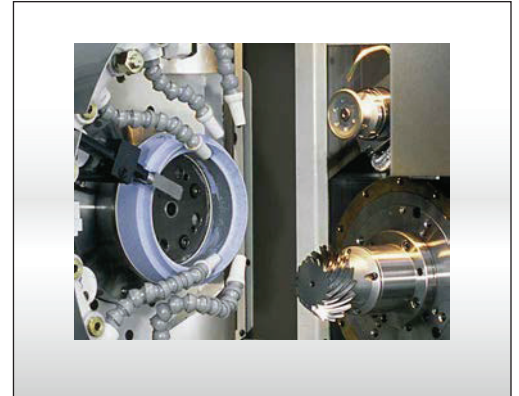
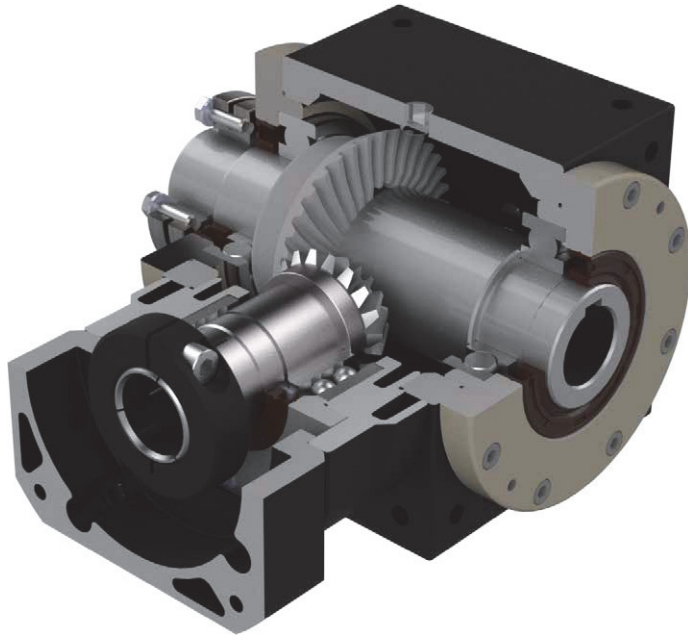


	
Side 1	Side 2
	
Side 3	Side 4 [Note 1]
	
Side 5	Side 6

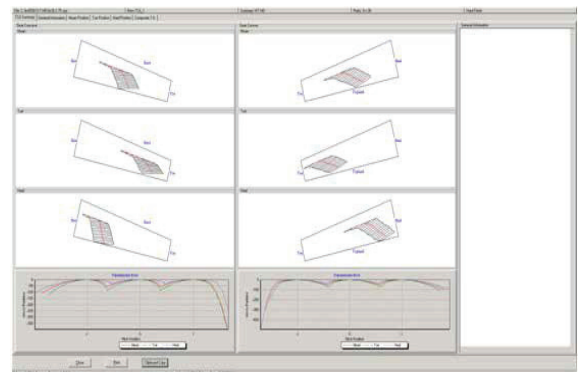
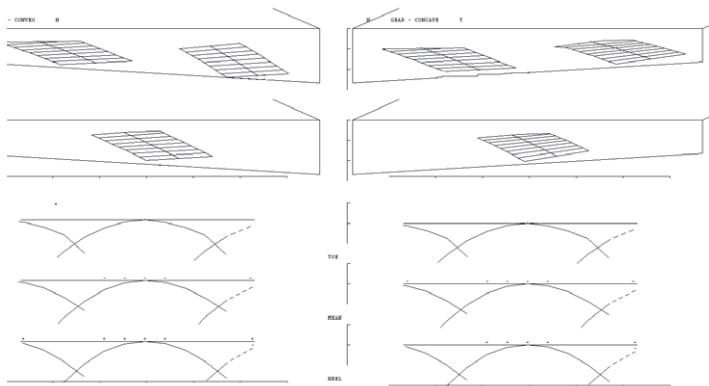
[Note 1] Avoid side 4 installation if possible

Features of ST Series

ST



- High precision ground and carburized spiral bevel gears meet AGMA12 standards



Optimized Design and CAE Analysis

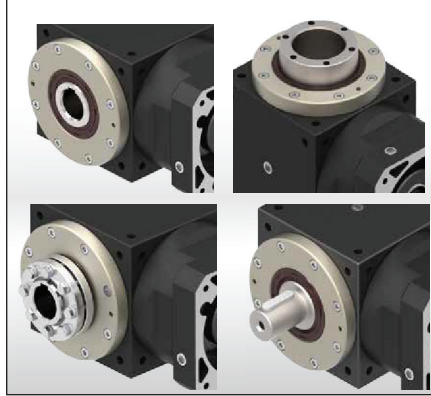
- Our engineers use Gleason's software modeling to manufacture spiral bevel gears with ideal teeth contact profile to achieve highest possible output torque and efficiency.
- 3D-CAE analysis and design software is used to maximize operating life by evaluating whole reducer and individual teeth for optimal meshing and strength.

Features of ST Series



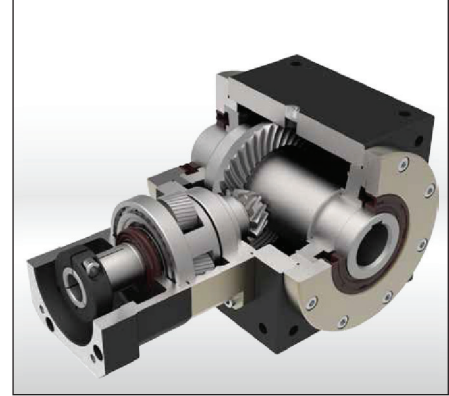
Low Backlash

- Gleason high precision CNC grinding machines are used to grinding the spiral bevel gears. Torsional backlash up to 2 arc-min, depending on model.



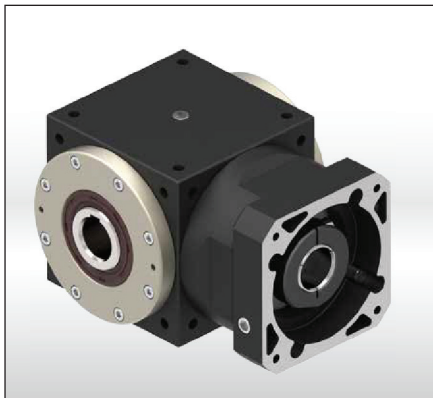
Mounting Position

- Multiple output configurations to match application requirements and to simplify installation. Suitable for mounting in any orientation. Gearhead and input shaft options for reliable coupling to most motor brands and models.



More High Gear Ratio

- High precision ground and carburized spiral bevel gear, combined with high precision planetary stage permit exact ratios from 1:1 up to 500:1.



Maintenance-free design

- Greased and sealed for long, maintenance-free service life.

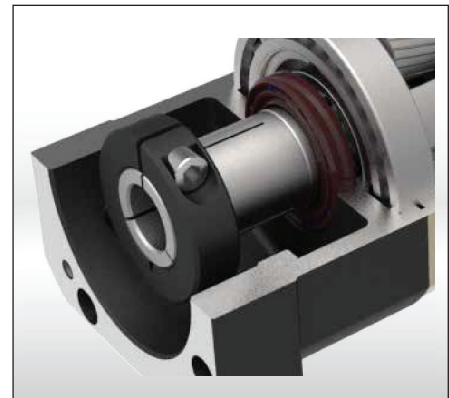
Gearhead construction

- The gearhead style direct motor shaft coupling ensures high rigidity, improves servo stability, and maximizes protection from contamination and corrosion.



High torque density

- The compact structure and advanced design ensure that high torque, speed and reduction ratios can be achieved within a small-size and low-weight body.



Collet Locking Mechanism

- Dynamically balanced, backlash-free locking collet securely couples motor shaft to the gearbox input, permitting transmission of full motor torque and speed to the gearbox input stage.

ST Series Specifications

ST

1-Stage

Model / Size No.	Sym	Unit	Ratio	65	75	90	110	140	170	210
Rated Output Torque (Nominal Output Torque)	T_{2N}	Nm	1	25	45	78	150	360	585	1,300
			2	24	42	68	150	330	544	1,220
			3	18	33	54	120	270	450	1,020
			4	13	28	52	100	224	376	860
			5	12	25	40	85	196	320	740
Max. Acceleration Torque	T_{2B}	Nm	1~5	1.5 Times of Rated Output Torque						
Max. Output Torque / Emergency Stopping Torque	T_{2NOT}	Nm	1~5	3 Times of Rated Output Torque						
Rated Input Speed	n_{1N}	rpm	1~5	3,000	3,000	3,000	2,500	2,500	2,000	2,000
Max. Input Speed	n_{1B}	rpm	1~5	6,000	6,000	5,500	4,500	3,500	3,000	3,000
Backlash		arcmin	P0	-	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
			P1	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
			P2	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Max. Radial Force Ball Bearing	F_{2rB}	N	1~5	700	1,050	1,500	2,360	3,080	4,800	6,400
Max. Axial Force Ball Bearing	F_{2aB}	N	1~5	350	525	750	1,180	1,540	2,400	3,200
Max. Radial Force Taper Bearing	F_{2rB}	N	1~5	-	2,400	3,200	5,000	6,500	9,100	13,000
Max. Axial Force Taper Bearing	F_{2aB}	N	1~5	-	1,200	1,600	2,500	3,250	4,550	6,500
Service Life	L_H	hr	1~5	S5 : >30,000 (S1 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency	η	%	1~5	94% ~ 98%						
Operating Temperature		°C	1~5	-30°C ~ +100°C						
Lubrication			1~5	Synthetic Oil						
Noise Level		dB	1~5	≤ 65	≤ 67	≤ 71	≤ 73	≤ 74	≤ 75	≤ 77

Mass Moments of Inertia (kgcm²)

Ratio	65	75	90	110	140	170	210
1	0.51	1.79	4.93	12.5	36.8	85.9	287
2	0.44	0.95	2.78	7.41	15.6	39.3	123
3	0.43	0.78	2.34	6.18	10.9	28.5	84.1
4	0.43	0.72	2.18	5.71	9.19	24.5	69.9
5	0.43	0.69	2.10	5.48	8.32	22.6	62.7

ST Series Specifications

ST

2-Stage

Model / Size	Sym	Unit	Ratio	65	75	90	110	140	170	210
Rated Output Torque (Nominal output torque)	T_{2N}	Nm	10	24	42	68	150	330	544	1,220
			15	18	33	54	120	270	450	1,020
			20	13	28	48	100	224	376	860
			25	12	25	40	85	196	320	740
			30	18	33	54	120	270	450	1,020
			40	13	28	52	100	224	376	860
			50	12	25	40	85	196	320	740
Max. Acceleration Torque	T_{2B}	Nm	10~50	1.5 Times of Rated Output Torque						
Max. Output Torque / Emergency Stopping Torque	T_{2NOT}	Nm	10~50	3 Times of Rated Output Torque						
Rated Input Speed	n_{1N}	rpm	10~50	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Max. Input Speed	n_{1B}	rpm	10~50	6,000	6,000	6,000	6,000	6,000	5,000	5,000
Backlash		arcmin	P0	-	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
			P1	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
			P2	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
Max. Radial Force Ball Bearing	F_{2rB}	N	1~5	700	1,050	1,500	2,360	3,080	4,800	6,400
Max. Axial Force Ball Bearing	F_{2aB}	N	1~5	350	525	750	1,180	1,540	2,400	3,200
Max. Radial Force Taper Bearing	F_{2rB}	N	1~5	-	2,400	3,200	5,000	6,500	9,100	13,000
Max. Axial Force Taper Bearing	F_{2aB}	N	1~5	-	1,200	1,600	2,500	3,250	4,550	6,500
Service Life	L_H	hr	10~50	S5 : >30,000 (S1 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency	η	%	10~50	90% ~ 94%						
Operating Temperature		°C	10~50	-30°C ~ +100°C						
Lubrication			10~50	Synthetic Oil						
Noise Level		dB	10~50	≤ 68	≤ 69	≤ 73	≤ 74	≤ 75	≤ 76	≤ 78

Mass Moments of Inertia (kgcm²)

Ratio	65	75	90	110	140	170	210
10	0.05	0.15	0.18	0.41	0.56	3.25	8.9
15	0.05	0.15	0.18	0.41	0.56	3.25	8.9
20	0.05	0.15	0.18	0.41	0.56	3.25	8.9
25	0.05	0.15	0.18	0.41	0.56	3.25	8.9
30	0.05	0.15	0.16	0.38	0.53	3.09	8.4
40	0.05	0.15	0.16	0.38	0.53	3.09	8.4
50	0.05	0.15	0.16	0.38	0.53	3.09	8.4