52P-5700B PLANETARY BLDC GEARMOTORS

Nidec -All for dreams | Merkle-Korff Industries

The 52P planetary gear reducer has higher power density and larger reduction capability in a compact package over the standard parallel shaft reducer. The 5700B brushless motor offers extended life, high efficiency, and controllability for demanding applications.

52P - 5700B

GEAR REDUCER FEATURES

Housing Material: Sintered Metal
Gears: Sintered Metal & Helical Plastic Input Stage
Bearings: Dual Ball Bearing on Output Shaft
Lubrication: Synthetic Grease
Gear Ratios: See Table Below
Output speeds: 4 to 200 RPM

MOTOR FEATURES

Type: Electronically Commutated
Voltage: 12Vdc to 32Vdc
Output Power: 45 to 140 Watts with External Drive
Phase Connection: 3 Phase Wye
Slot / Poles: 12 / 8
Rotor Magnets: High Energy skewed to reduce cogging
Insulation Class: F
Rotation: Reversible
Rotor Positioning: Three Hall Effect Sensors
Bearings: Ball

INTEGRAL CONTROL FEATURES

Type: Two quadrant trapezoidal programmable
Speed Control: 0 to 5Vdc or 0 to 10Vdc
Protection: Over current and over temperature
Braking: Dynamic
Programming Options: Acceleration, velocity, current limit
Tachometer Output: 2 Channels – 6 PPR

TYPICAL APPLICATIONS

- Food Service Equipment
- Automatic Door Operators
- Medical / Laboratory Equipment
- Robotics
- Material Handling

OPTIONAL FEATURES

- Customized output shafts including dual output
- Helical first stage gear for low audible noise
- Various lead lengths, terminals and connectors
- Integral motor control
- Brakes: Electromagnetic

Gearbox	52P PLANETARY														
Gear Reduction (ratio)	20.25	28.13	36	39	50	64	91.1	126.6	175.8	225	244.14	288	312.5	400	512
Stages	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Efficiency %	81						72								
Peak Torque Capability (N.m)	7						20								
Axial Load / Radial Laod (N)	400 / 250						400 / 250								

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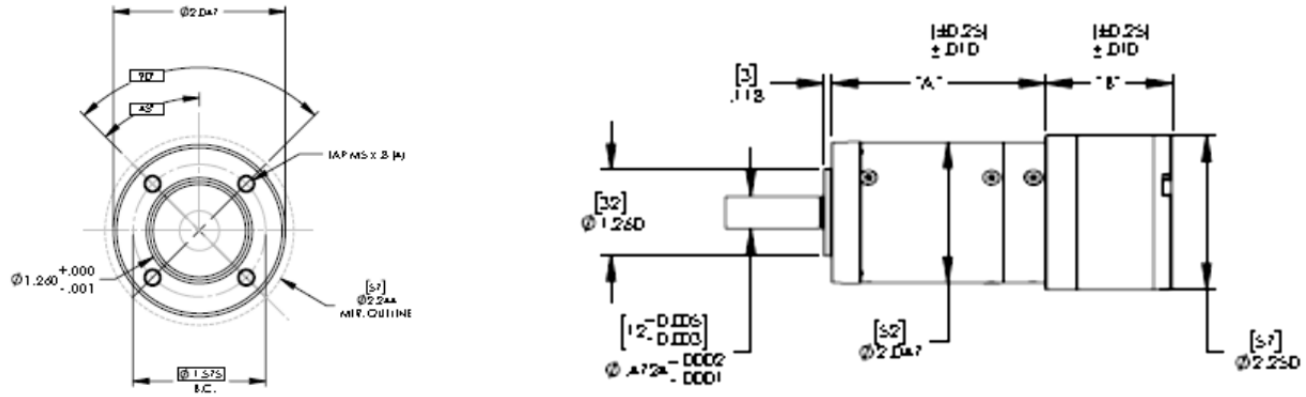


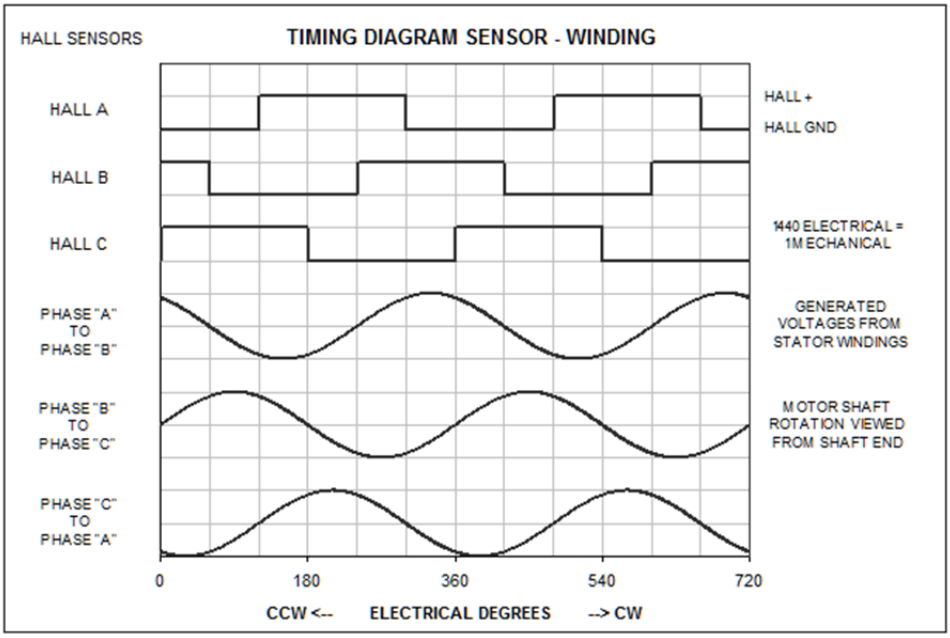
Model	Gearing Stages	Output Power (Watts) with Integral Control	Output Power (Watts) without Integral Control	Peak Torque (Lb.In)	Dimension “A”	Dimension “B”
52P-5706B	2	12	45	26.5	2.50” [63.5]	1.38” [34.3]
52P-5706B	3	12	45		3.11” [79]	1.38” [34.3]
52P -5719B	2	25	100	26.5	2.50” [63.5]	1.88” [47.8]
52P -5719B	3	25	100		3.11” [79]	1.88” [47.8]
52P -5738B	2	45	140	26.5	2.50” [63.5]	2.365” [60.1]
52P -5738B	3	45	140		3.11” [79]	2.365” [60.1]

Integral Controller: Lead Wire Color Code

Board Position	Designation	Lead Color
1	Digital I/O “A”	Gray
2	Digital I/O “B”	White/Red
3	Direction	White/Black
4	Signal Ground	Green
5	Enable Input	Orange
6	5 Vdc (output)	Yellow
7	Input Power (12-32Vdc)	Red
8	Power Ground	Black
9	Analog Input 2	Violet
10	Analog Input 1 (speed)	Blue
11	Tachometer Output “B”	Brown
12	Tachometer Output “A”	White

External Controller: Lead Wire Color Code

Board Position	Designation	Lead Color
1	Motor Phase A	Blue
2	Motor Phase B	White
3	Motor Phase C	Brown
4	Hall A	Green
5	Hall B	Orange
6	Hall C	Yellow
7	5 Vdc (Vcc)	Red
8	Ground	Black



In order to properly commutate the Merkle-Korff 2.25" BLDC motor, the following table is provided to indicate the required motor phase state for a given hall-effect state.

Direction	120° Hall Spacing			Motor Phases		
(NOTE 1)	HA	HB	HC	MA	MB	MC
CW	1	0	0	DC+	OFF	DC-
	1	1	0	OFF	DC+	DC-
	0	1	0	DC-	DC+	OFF
	0	1	1	DC-	OFF	DC+
	0	0	1	OFF	DC-	DC+
	1	1	1	DC+	DC-	OFF
CW	1	0	0	DC-	OFF	DC+
	1	0	1	DC-	DC+	OFF
	0	0	1	OFF	DC+	DC-
	0	1	1	DC+	OFF	DC-
	0	1	0	DC+	DC-	OFF
	1	1	0	OFF	DC-	DC+

NOTE 1: Direction viewed from motor shaft (gearbox output shaft rotation may not be the same)