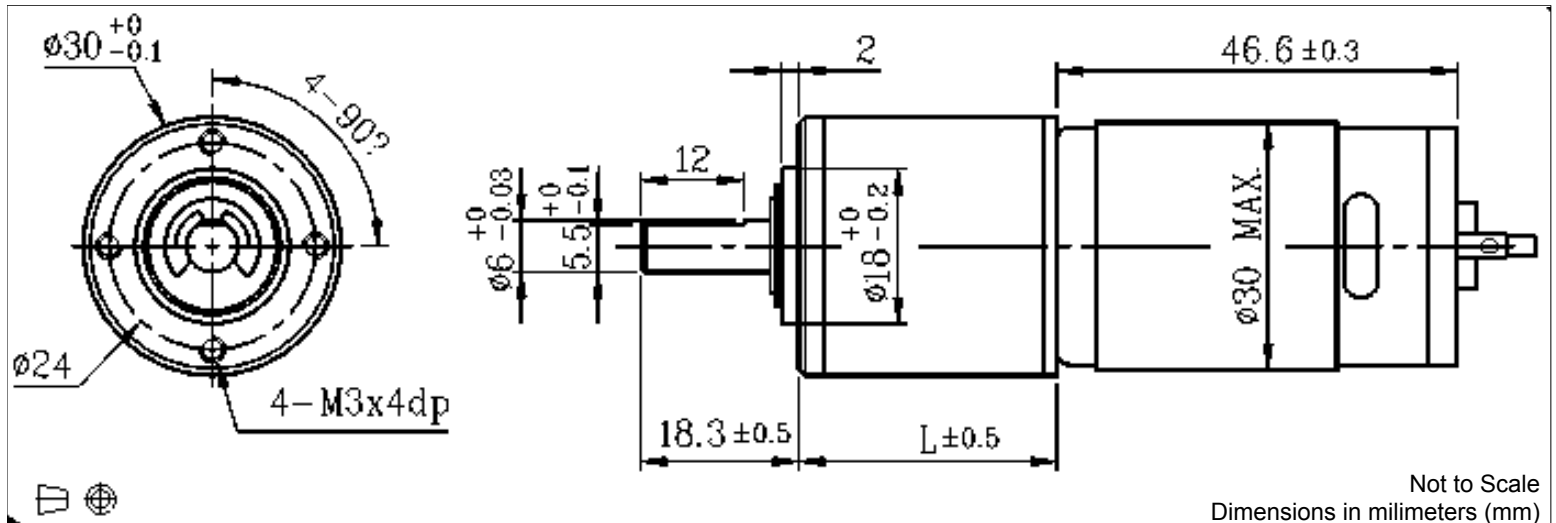


# Planetary Gearmotor - 30 mm Ø



Sleeve Bearing - 15 Watt Plus Output Power

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque Nm	Continuous Torque Nm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
3.7:1	12.0	80 %	1,942 rpm	0.225 Amp	0.24 Nm	0.03 Nm	23.6 mm	189.0	Same	A300004GM00
5.2:1	12.0	80 %	1,389 rpm	0.225 Amp	0.33 Nm	0.04 Nm	23.6 mm	189.0	Same	A300005GM00
13.7:1	12.0	70 %	524 rpm	0.225 Amp	0.78 Nm	0.11 Nm	30.0 mm	202.0	Same	A300014GM00
19.2:1	12.0	70 %	375 rpm	0.225 Amp	1.08 Nm	0.15 Nm	30.0 mm	231.0	Same	A300019GM00
26.9:1	12.0	70 %	268 rpm	0.225 Amp	1.52 Nm	0.21 Nm	30.0 mm	202.0	Same	A300027GM00
35.0:1	12.0	70 %	206 rpm	0.225 Amp	1.97 Nm	0.26 Nm	30.0 mm	202.0	Same	A300035GM00
50.9:1	12.0	60 %	141 rpm	0.225 Amp	2.46 Nm	0.33 Nm	36.4 mm	217.0	Same	A300051GM00
71.2:1	12.0	60 %	101 rpm	0.225 Amp	3.44 Nm	0.46 Nm	36.4 mm	217.0	Same	A300071GM00
99.5:1	12.0	60 %	72 rpm	0.225 Amp	4.81 Nm	0.65 Nm	36.4 mm	217.0	Same	A300100GM00
139.1:1	12.0	60 %	52 rpm	0.225 Amp	6.73 Nm	0.78 Nm	36.4 mm	217.0	Same	A300139GM00
188.6:1	12.0	50 %	38 rpm	0.225 Amp	7.60 Nm	0.98 Nm	42.8 mm	232.0	Same	A300189GM00
263.7:1	12.0	50 %	27 rpm	0.225 Amp	10.63 Nm	0.98 Nm	42.8 mm	232.0	Same	A300264GM00

Radial Load Rating	≤ 29.4 N	Radial Play	≤ 0.05 mm	Max Temperature Oper.	60°C
Radial Load Distance	10 mm	Axial Play	≤ 0.30 mm	Min Temperature Oper.	-10°C
Axial Load	≤ 24.5 N	Backlash	≤ 2.5 °	Relative Humidity Oper.	20% to 85%
Press Fit Force - Max	≤ 98.1 N	<b>Options</b>	Bearing	Sleeve	
<b>CAUTION. Stall Torque is a theoretical calculation- NOT a rating/maximum value. Continuous Torque is the lesser of the Gearbox Continuous Torque Rating or the Motor's Continuous Torque Rating at gearbox output shaft.</b>		Magnetic Encoders. Leads. Connectors. Pinion/Gear Mounting. Lubricants. Motor Windings. Gear material. Corless Motors. Bearings.			

\* Rotational Sense of Gearbox Output Shaft to Motor Shaft

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Commutation Type:  
 Metal Graphite

RoHS Compliant

B - April 2011

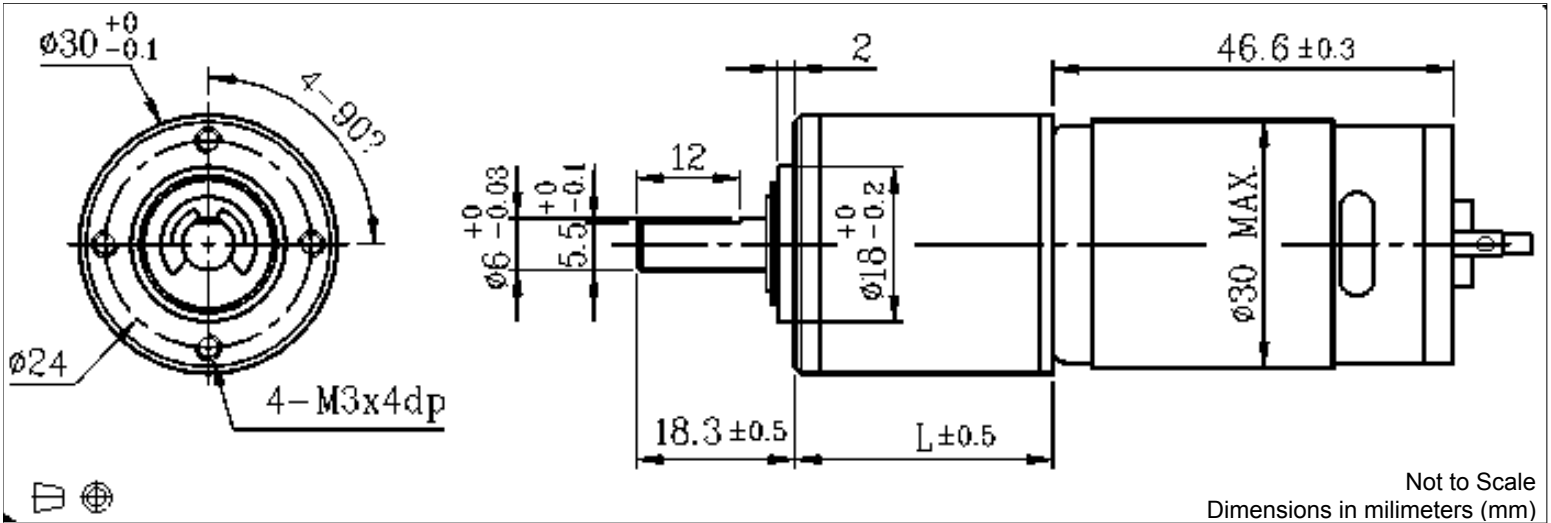
Specifications Subject to change without notice

# Planetary Gearmotor - 30 mm Ø



Sleeve Bearing - 15 Watt Plus Output Power

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque Nm	Continuous Torque Nm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
515.6:1	12.0	50 %	14 rpm	0.225 Amp	20.78 Nm	0.98 Nm	42.8 mm	232.0	Same	A300516GM00
721.0:1	12.0	50 %	10 rpm	0.225 Amp	29.06 Nm	0.98 Nm	42.8 mm	232.0	Same	A300721GM00
939.2:1	12.0	50 %	8 rpm	0.225 Amp	37.86 Nm	0.98 Nm	42.8 mm	232.0	Same	A300939GM00

Radial Load Rating	≤ 29.4 N	Radial Play	≤ 0.05 mm	Max Temperature Oper.	60°C
Radial Load Distance	10 mm	Axial Play	≤ 0.30 mm	Min Temperature Oper.	-10°C
Axial Load	≤ 24.5 N	Backlash	≤ 2.5 °	Relative Humidity Oper.	20% to 85%
Press Fit Force - Max	≤ 98.1 N			<b>Options</b>	Bearing Sleeve

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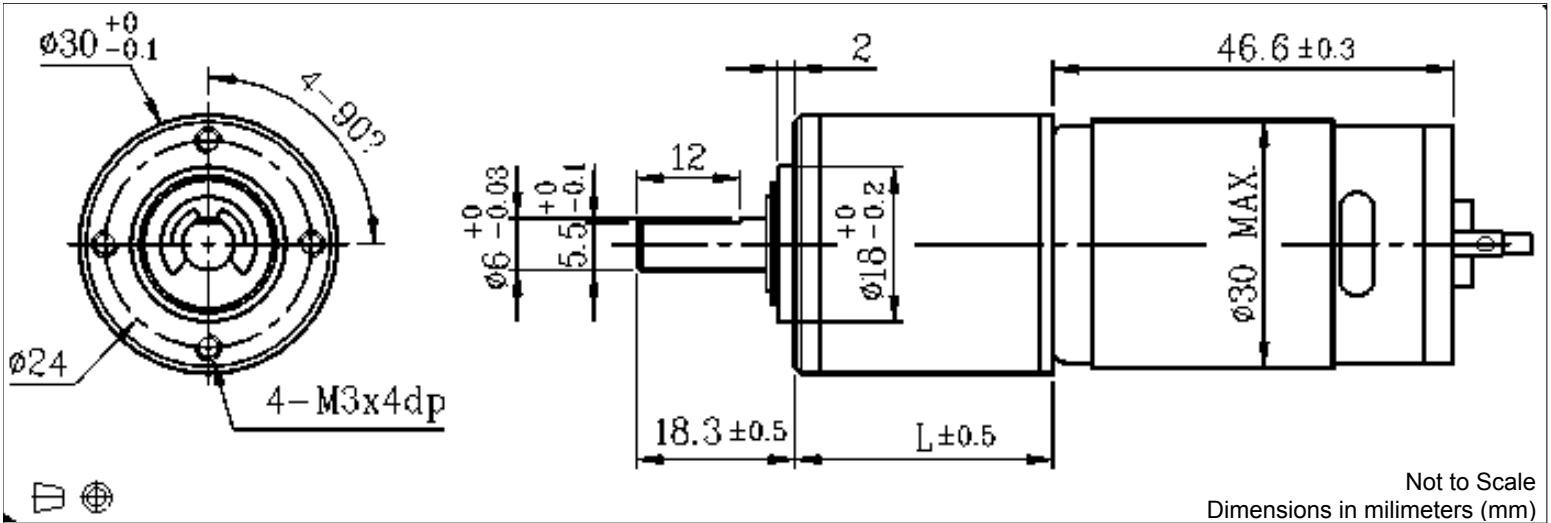
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# Planetary Gearmotor - 30 mm Ø



Sleeve Bearing - 15 Watt Plus Output Power

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque Nm	Continuous Torque Nm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
3.7:1	24.0	80 %	1,941 rpm	0.120 Amp	0.24 Nm	0.04 Nm	23.6 mm	189.0	Same	A300004GM20
5.2:1	24.0	80 %	1,388 rpm	0.120 Amp	0.34 Nm	0.05 Nm	23.6 mm	189.0	Same	A300005GM20
13.7:1	24.0	70 %	524 rpm	0.120 Amp	0.78 Nm	0.12 Nm	30.0 mm	202.0	Same	A300014GM20
19.2:1	24.0	70 %	375 rpm	0.120 Amp	1.09 Nm	0.17 Nm	30.0 mm	231.0	Same	A300019GM20
26.9:1	24.0	70 %	268 rpm	0.120 Amp	1.53 Nm	0.24 Nm	30.0 mm	202.0	Same	A300027GM20
35.0:1	24.0	70 %	206 rpm	0.120 Amp	1.99 Nm	0.30 Nm	30.0 mm	202.0	Same	A300035GM20
50.9:1	24.0	60 %	141 rpm	0.120 Amp	2.49 Nm	0.39 Nm	36.4 mm	217.0	Same	A300051GM20
71.2:1	24.0	60 %	101 rpm	0.120 Amp	3.48 Nm	0.54 Nm	36.4 mm	217.0	Same	A300071GM20
99.5:1	24.0	60 %	72 rpm	0.120 Amp	4.86 Nm	0.76 Nm	36.4 mm	217.0	Same	A300100GM20
139.1:1	24.0	60 %	52 rpm	0.120 Amp	6.80 Nm	0.78 Nm	36.4 mm	217.0	Same	A300139GM20
188.6:1	24.0	50 %	38 rpm	0.120 Amp	7.68 Nm	0.98 Nm	42.8 mm	232.0	Same	A300189GM20
263.7:1	24.0	50 %	27 rpm	0.120 Amp	10.74 Nm	0.98 Nm	42.8 mm	232.0	Same	A300264GM20

Radial Load Rating	≤ 29.4 N	Radial Play	≤ 0.05 mm	Max Temperature Oper.	60°C
Radial Load Distance	10 mm	Axial Play	≤ 0.30 mm	Min Temperature Oper.	-10°C
Axial Load	≤ 24.5 N	Backlash	≤ 2.5 °	Relative Humidity Oper.	20% to 85%
Press Fit Force - Max	≤ 98.1 N	<b>Options</b>	Bearing	Sleeve	

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Commutation Type:  
 Metal Graphite

RoHS Compliant

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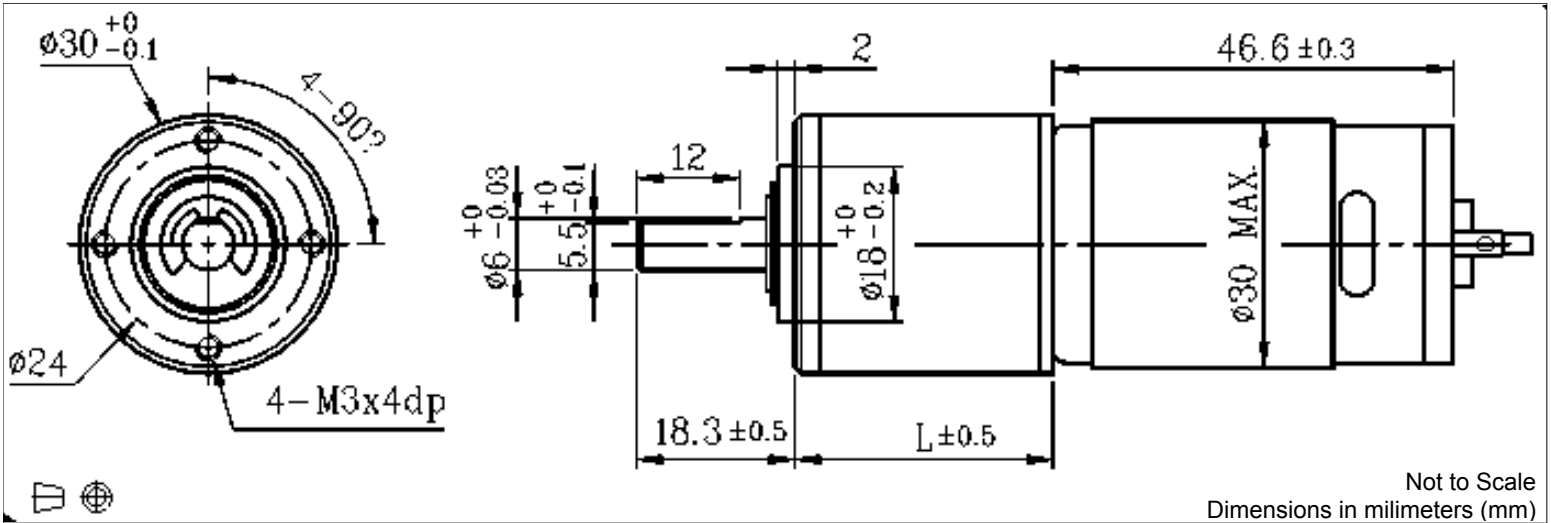
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# Planetary Gearmotor - 30 mm Ø



Sleeve Bearing - 15 Watt Plus Output Power

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Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque Nm	Continuous Torque Nm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
515.6:1	24.0	50 %	14 rpm	0.120 Amp	21.00 Nm	0.98 Nm	42.8 mm	232.0	Same	A300516GM20
721.0:1	24.0	50 %	10 rpm	0.120 Amp	29.36 Nm	0.98 Nm	42.8 mm	232.0	Same	A300721GM20
939.2:1	24.0	50 %	8 rpm	0.120 Amp	38.24 Nm	0.98 Nm	42.8 mm	232.0	Same	A300939GM20

Radial Load Rating	≤ 29.4 N	Radial Play	≤ 0.05 mm	Max Temperature Oper.	60°C
Radial Load Distance	10 mm	Axial Play	≤ 0.30 mm	Min Temperature Oper.	-10°C
Axial Load	≤ 24.5 N	Backlash	≤ 2.5 °	Relative Humidity Oper.	20% to 85%
Press Fit Force - Max	≤ 98.1 N	<b>Options</b>	Bearing	Sleeve	

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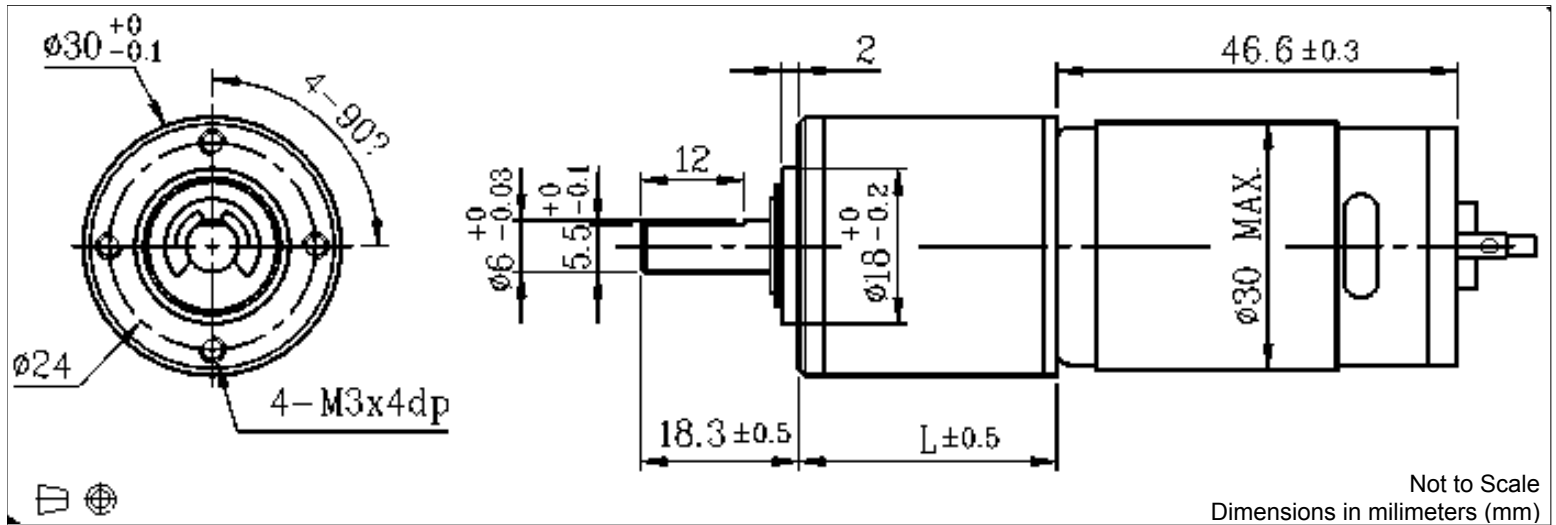
Specifications Subject to change without notice

# Planetary Gearmotor - 30 mm Ø



Ball Bearing - 15 Watt Plus Output Power

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque Nm	Continuous Torque Nm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
3.7:1	12.0	80 %	1,942 rpm	0.225 Amp	0.24 Nm	0.03 Nm	23.6 mm	188.0	Same	A300004GM10
5.2:1	12.0	80 %	1,389 rpm	0.225 Amp	0.33 Nm	0.04 Nm	23.6 mm	188.0	Same	A300005GM10
13.7:1	12.0	70 %	524 rpm	0.225 Amp	0.78 Nm	0.11 Nm	30.0 mm	201.0	Same	A300014GM10
19.2:1	12.0	70 %	375 rpm	0.225 Amp	1.08 Nm	0.15 Nm	30.0 mm	230.0	Same	A300019GM10
26.9:1	12.0	70 %	268 rpm	0.225 Amp	1.52 Nm	0.21 Nm	30.0 mm	201.0	Same	A300027GM10
35.0:1	12.0	70 %	206 rpm	0.225 Amp	1.97 Nm	0.21 Nm	30.0 mm	201.0	Same	A300027GM10
50.9:1	12.0	60 %	141 rpm	0.225 Amp	2.46 Nm	0.33 Nm	36.4 mm	216.0	Same	A300051GM10
71.2:1	12.0	60 %	101 rpm	0.225 Amp	3.44 Nm	0.46 Nm	36.4 mm	216.0	Same	A300071GM10
99.5:1	12.0	60 %	72 rpm	0.225 Amp	4.81 Nm	0.65 Nm	36.4 mm	216.0	Same	A300100GM10
139.1:1	12.0	60 %	52 rpm	0.225 Amp	6.73 Nm	0.78 Nm	36.4 mm	216.0	Same	A300139GM10
188.6:1	12.0	50 %	38 rpm	0.225 Amp	7.60 Nm	0.98 Nm	42.8 mm	231.0	Same	A300189GM10
263.7:1	12.0	50 %	27 rpm	0.225 Amp	10.63 Nm	0.98 Nm	42.8 mm	231.0	Same	A300264GM10

Radial Load Rating	≤ 34.3 N	Radial Play	≤ 0.04 mm	Max Temperature Oper.	60°C
Radial Load Distance	10 mm	Axial Play	≤ 0.30 mm	Min Temperature Oper.	-10°C
Axial Load	≤ 24.5 N	Backlash	≤ 2.5 °	Relative Humidity Oper.	20% to 85%
Press Fit Force - Max	≤ 98.1 N	<b>Options</b>	Bearing	Ball	
<b>CAUTION. Stall Torque is a theoretical calculation- NOT a rating/maximum value. Continuous Torque is the lesser of the Gearbox Continuous Torque Rating or the Motor's Continuous Torque Rating at gearbox output shaft.</b>		Magnetic Encoders. Leads. Connectors. Pinion/Gear Mounting. Lubricants. Motor Windings. Gear material. Corless Motors. Bearings.			

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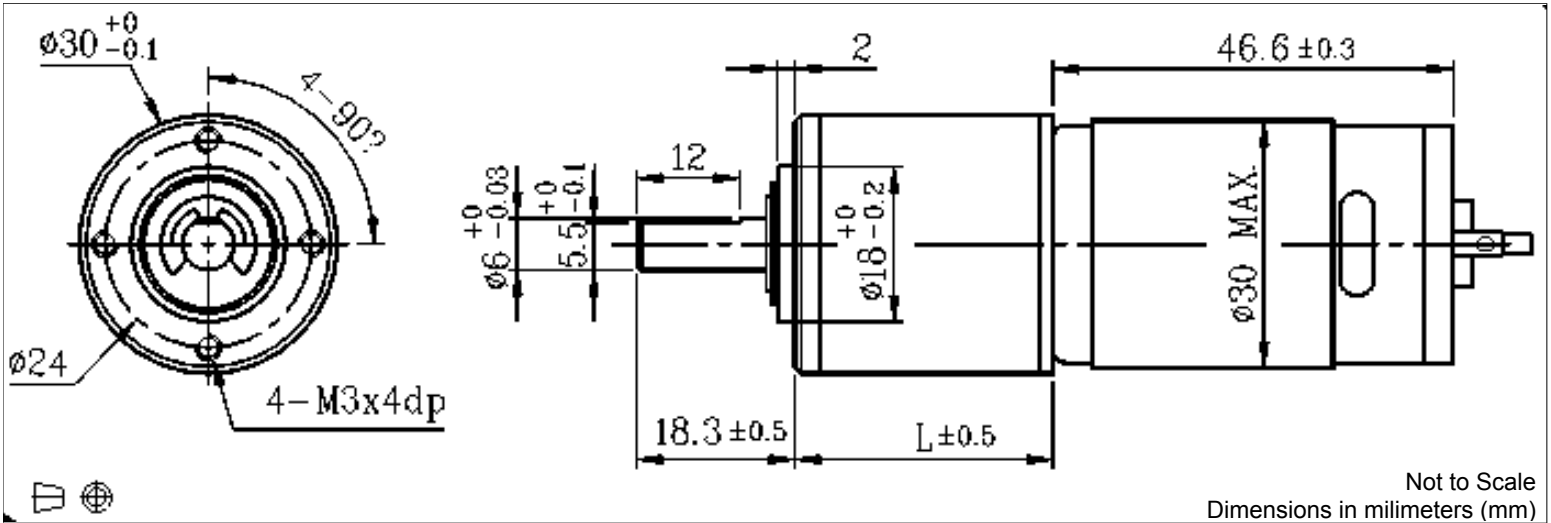
Specifications Subject to change without notice

# Planetary Gearmotor - 30 mm Ø



Ball Bearing - 15 Watt Plus Output Power

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque Nm	Continuous Torque Nm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
515.6:1	12.0	50 %	14 rpm	0.225 Amp	20.78 Nm	0.98 Nm	42.8 mm	231.0	Same	A300516GM10
721.0:1	12.0	50 %	10 rpm	0.225 Amp	29.06 Nm	0.98 Nm	42.8 mm	231.0	Same	A300721GM10
939.2:1	12.0	50 %	8 rpm	0.225 Amp	37.86 Nm	0.98 Nm	42.8 mm	231.0	Same	A300939GM10

Radial Load Rating	≤ 34.3 N	Radial Play	≤ 0.04 mm	Max Temperature Oper.	60°C
Radial Load Distance	10 mm	Axial Play	≤ 0.30 mm	Min Temperature Oper.	-10°C
Axial Load	≤ 24.5 N	Backlash	≤ 2.5 °	Relative Humidity Oper.	20% to 85%
Press Fit Force - Max	≤ 98.1 N	<b>Options</b>	Bearing	Ball	

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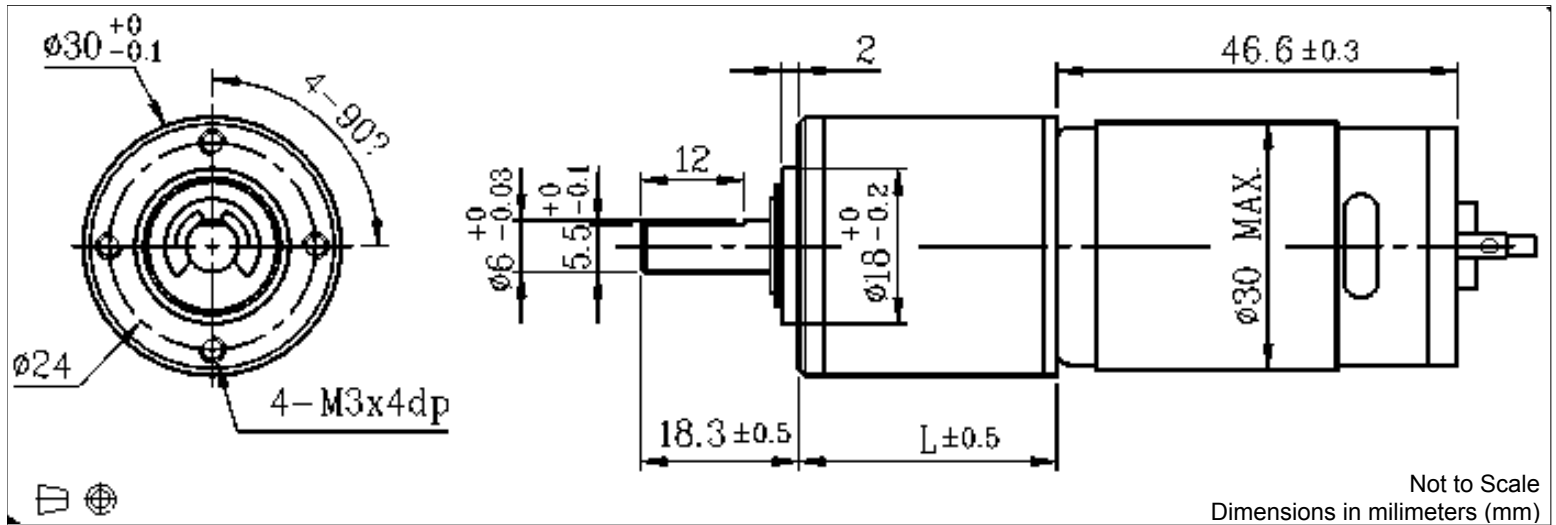
Specifications Subject to change without notice

# Planetary Gearmotor - 30 mm Ø



Ball Bearing - 15 Watt Plus Output Power

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque Nm	Continuous Torque Nm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
3.7:1	24.0	80 %	1,941 rpm	0.120 Amp	0.24 Nm	0.04 Nm	23.6 mm	188.0	Same	A300004GM30
5.2:1	24.0	80 %	1,388 rpm	0.120 Amp	0.34 Nm	0.05 Nm	23.6 mm	188.0	Same	A300005GM30
13.7:1	24.0	70 %	524 rpm	0.120 Amp	0.78 Nm	0.12 Nm	30.0 mm	201.0	Same	A300014GM30
19.2:1	24.0	70 %	375 rpm	0.120 Amp	1.09 Nm	0.17 Nm	30.0 mm	230.0	Same	A300019GM30
26.9:1	24.0	70 %	268 rpm	0.120 Amp	1.53 Nm	0.24 Nm	30.0 mm	201.0	Same	A300027GM30
35.0:1	24.0	70 %	206 rpm	0.120 Amp	1.99 Nm	0.24 Nm	30.0 mm	201.0	Same	A300027GM30
50.9:1	24.0	60 %	141 rpm	0.120 Amp	2.49 Nm	0.39 Nm	36.4 mm	216.0	Same	A300051GM30
71.2:1	24.0	60 %	101 rpm	0.120 Amp	3.48 Nm	0.54 Nm	36.4 mm	216.0	Same	A300071GM30
99.5:1	24.0	60 %	72 rpm	0.120 Amp	4.86 Nm	0.76 Nm	36.4 mm	216.0	Same	A300100GM30
139.1:1	24.0	60 %	52 rpm	0.120 Amp	6.80 Nm	0.78 Nm	36.4 mm	216.0	Same	A300139GM30
188.6:1	24.0	50 %	38 rpm	0.120 Amp	7.68 Nm	0.98 Nm	42.8 mm	231.0	Same	A300189GM30
263.7:1	24.0	50 %	27 rpm	0.120 Amp	10.74 Nm	0.98 Nm	42.8 mm	231.0	Same	A300264GM30

Radial Load Rating	≤ 34.3 N	Radial Play	≤ 0.04 mm	Max Temperature Oper.	60°C
Radial Load Distance	10 mm	Axial Play	≤ 0.30 mm	Min Temperature Oper.	-10°C
Axial Load	≤ 24.5 N	Backlash	≤ 2.5 °	Relative Humidity Oper.	20% to 85%
Press Fit Force - Max	≤ 98.1 N	<b>Options</b>	Bearing	Ball	
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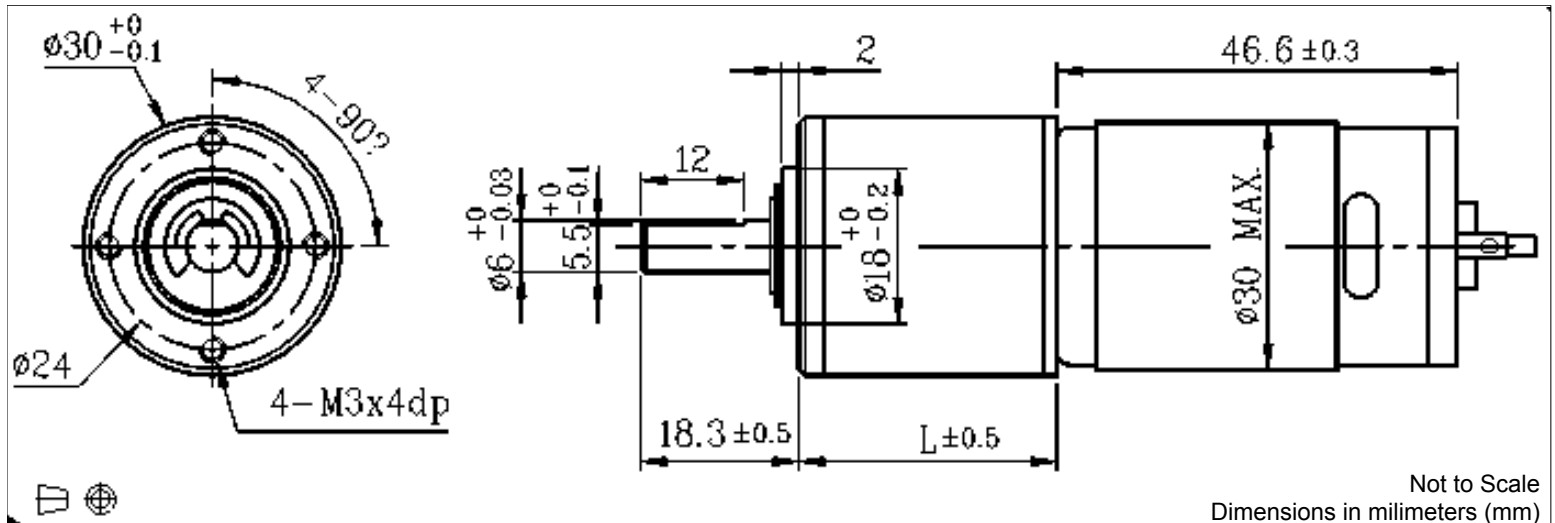
Specifications Subject to change without notice

# Planetary Gearmotor - 30 mm Ø



Ball Bearing - 15 Watt Plus Output Power

Global Motion Products



Not to Scale  
Dimensions in millimeters (mm)

Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque Nm	Continuous Torque Nm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
515.6:1	24.0	50 %	14 rpm	0.120 Amp	21.00 Nm	0.98 Nm	42.8 mm	231.0	Same	A300516GM30
721.0:1	24.0	50 %	10 rpm	0.120 Amp	29.36 Nm	0.98 Nm	42.8 mm	231.0	Same	A300721GM30
939.2:1	24.0	50 %	8 rpm	0.120 Amp	38.24 Nm	0.98 Nm	42.8 mm	231.0	Same	A300939GM30

Radial Load Rating	≤ 34.3 N	Radial Play	≤ 0.04 mm	Max Temperature Oper.	60°C
Radial Load Distance	10 mm	Axial Play	≤ 0.30 mm	Min Temperature Oper.	-10°C
Axial Load	≤ 24.5 N	Backlash	≤ 2.5 °	Relative Humidity Oper.	20% to 85%
Press Fit Force - Max	≤ 98.1 N			<b>Options</b>	Bearing Ball

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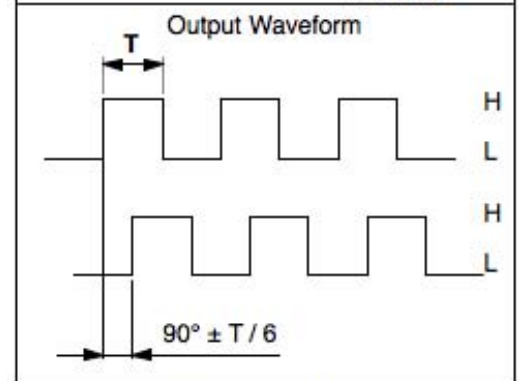
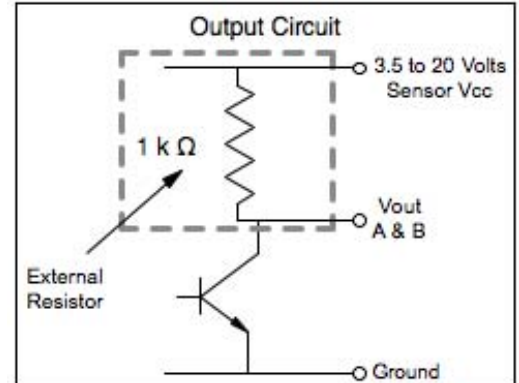
# Magnetic Encoders - Integrated

## Low Cost - Single & Quadrature Channels



Global Motion Products

Supply Voltage - Max	20.0 Volt
Supply Voltage - Min	3.5 Volt
Supply Voltage - Symbol	Vcc
Output Saturation Voltage - Max	700 mVolts
Output Saturation Voltage - Ref	300 mVolts
Output Saturation Voltage - Symbol	Vce(sat)
Output Saturation Voltage - Test Conditions	Vcc = 14 Volts; Ic = 20mA
Output Leakage Current - Max	10.0 µAmp
Output Leakage Current - Ref	< 0.1 µAmp
Output Leakage Current - Symbol	Icex
Output Leakage Current - Test Conditions	Vce = 14 Volts; Vcc = 14 V
Supply Current - Max	10 mAmp
Supply Current - Ref	5 mAmp
Supply Current - Symbol	Ice
Supply Current - Test Conditions	Vcc = 20 Volts, Output Open
Output Rise Time - Max	1.5 µSec
Output Rise Time - Ref	0.3 µSec
Output Rise Time - Symbol	tr
Output Rise Time - Test Condition	Vce = 14 Volts; RI = 820 Ω; CI = 20pF
Output Fall Time - Max	1.5 µSec
Output Fall Time - Ref	0.3 µSec
Output Fall Time - Symbol	tf
Output Fall Time - Test Conditions	Vce = 14 Volts; RI = 820 Ω; CI = 20pF
Max Temperature - Operating	60°C
Min Temperature - Operating	-10°C
Relative Humidity - Operating	20% to 85% RH



### Two Channel Encoder

Connector Pin	Color	Function
1	Black	- Motor
2	Red	+ Motor
3	Brown	Hall Sensor Vcc
4	Green	Hall Sensor Ground
5	Blue	Hall Sensor A Vout
6	Purple	Hall Sensor B Vout

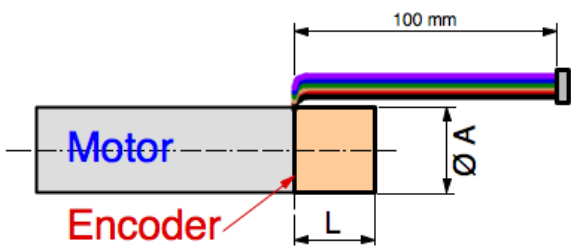
### One Channel Encoder

Connector Pin	Color	Function
1	Black	- Motor
2	Red	+ Motor
3	Brown	Hall Sensor Vcc
4	Green	Hall Sensor Ground
5	Blue	Hall Sensor A Vout
6	Purple	No Function

CONNECTOR A  
JST ZHR-6, P=1.5-6P  
26 AWG, UL 1061 Wires

CONNECTOR B  
JST PHR-6; P=2.0-6P  
24 AWG, UL 1007 Wires

CONNECTORS C - Two  
JST PHR-4; P=2.0-6P  
24 AWG, UL 1007 Wires  
Molex 09-50-3021; P= 3.96-2P  
18 AWG 18, UL 1007 Wires



#### Note:

For encoder resolution and channel options, how to order, diameter and encoder length details refer to the following pages. Resolution options vary by motor diameter, as do connector(s) and wire gauge(s).

Below 30 mm motor diameter the magnetic encoder does not have the option for a dust cap at this time. The encoder is exposed and the dimensions represent the largest dimension of the encoder. On 30 mm and larger diameter motors an OPTIONAL Dust Cap is available. Part Numbers here represent no Dust Cap.

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# Magnetic Encoders - Integrated



Low Cost - Single & Quadrature Channels

Global Motion Products

Pulses per Revolution per Track	Track Number	Dust Cap Option	Cover ØA mm	Cover or Encoder L - mm	Connector Type(s)	Compatible Gearmotor Series	Order Part Number
1	X	No	12.0	6.5	A	A12----GM--	EM120001X00
3	X	No	12.0	6.5	A	A12----GM--	EM120003X00
1	X	No	15.4	6.5	A	A16----AS--	EM160001X00
3	X	No	15.4	6.5	A	A16----AS--	EM160003X00
1	X	No	20.3	8.5	B	S20----AM--; A22----GM--; A22----HM--	EM210001X00
3	X	No	20.3	8.5	B	S20----AM--; A22----GM--; A22----HM--	EM210003X00
1	X	Yes	30.0	12.6	B	A30----GM--	EM300001X00
3	X	Yes	30.0	12.6	B	A30----GM--	EM300003X00
7	X	Yes	30.0	12.6	B	A30----GM--	EM300007X00
7	X	Yes	32.0	14.3	B	A32----GM--	EM320007X00
7	X	Yes	36.0	13.5	B	A36----GM--	EM360007X00
1	X	Yes	42.5	15.5	C	A45----A---	EM430001X00
5	X	Yes	42.5	15.5	C	A45----A---	EM430005X00
1	X	Yes	52.0	18.0	C	A52----GM--	EM520001X00
1	X	Yes	52.0	18.0	C	A52----GM--	EM520001X00
5	X	Yes	54.0	18.0	C	A54----GM--	EM540005X00
5	X	Yes	54.0	18.0	C	A54----GM--	EM540005X00
1	X & Y	No	12.0	6.5	A	A12----GM--	EM120001Y00
3	X & Y	No	12.0	6.5	A	A12----GM--	EM120003Y00
1	X & Y	No	15.4	6.5	A	A16----AS--	EM160001Y00
3	X & Y	No	15.4	6.5	A	A16----AS--	EM160003Y00
1	X & Y	No	20.3	8.5	B	S20----AM--; A22----GM--; A22----HM--	EM210001Y00
3	X & Y	No	20.3	8.5	B	S20----AM--; A22----GM--; A22----HM--	EM210003Y00
1	X & Y	Yes	30.0	12.6	B	A30----GM--	EM300001Y00
3	X & Y	Yes	30.0	12.6	B	A30----GM--	EM300003Y00
7	X & Y	Yes	30.0	12.6	B	A30----GM--	EM300007Y00
7	X & Y	Yes	32.0	14.3	B	A32----GM--	EM320007Y00
7	X & Y	Yes	36.0	13.5	B	A36----GM--	EM360007Y00
1	X & Y	Yes	42.5	15.5	C	A45----A---	EM430001Y00
5	X & Y	Yes	42.5	15.5	C	A45----A---	EM430005Y00
1	X & Y	Yes	52.0	18.0	C	A52----GM--	EM520001Y00
1	X & Y	Yes	52.0	18.0	C	A52----GM--	EM520005Y00
5	X & Y	Yes	54.0	18.0	C	A54----GM--	EM540001Y00
5	X & Y	Yes	54.0	18.0	C	A54----GM--	EM540005Y00

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