



# M DRIVE™ PLANETARY GEARBOXES

MOTOR+DRIVER Plus

## FEATURES

All MDrivePlus sizes, NEMA 14 to 42, are available with optional factory-mounted Planetary Gearboxes to:

- increase torque at lower speeds,
- enable better inertia matching,
- produce finer positional resolutions.

These efficient, low maintenance gearboxes come in numerous reduction ratios and stages (see table below). A NEMA Output Flange is available to allow use of a standard NEMA bolt circle in mounting the gearbox to the load.

For help calculating system inertia and output torque, go to [www.imshome.com/planetary\\_gearbox\\_selection.htm](http://www.imshome.com/planetary_gearbox_selection.htm).

## Ratios and Part Numbers

Planetary Gearbox	Ratio (Rounded)	Part Number Adder**	
		All Gearboxes <i>Except PM120 for NEMA 42</i>	PM120 Only
1-Stage	3.71:1	G1A1	G2A1
1-Stage	5.18:1	G1A2	—
1-Stage	6.75:1	G1A3	G2A3
2-Stage	13.73:1	G1A4	G2A4
2-Stage	15.88:1	G1A5	—
2-Stage	18.37:1	G1A6	—
2-Stage	19.20:1	G1A7	—
2-Stage	22.21:1	G1A8	—
2-Stage	25.01:1	G1A9	G2A9
2-Stage	26.85:1	G1B1	—
2-Stage	28.93:1	G1B2	—
2-Stage	34.98:1	G1B3	—
2-Stage	45.56:1	G1B4	G2B4
3-Stage	50.89:1	G1B5	G2B5
3-Stage	58.86:1	G1B6	—
3-Stage	68.07:1	G1B7	—
3-Stage	71.16:1	G1B8	—
3-Stage	78.72:1	G1B9	—
3-Stage	92.70:1	G1C1	G2C1
3-Stage	95.18:1	G1C2	—
3-Stage	99.51:1	G1C3	—
3-Stage	107.21:1	G1C4	—
3-Stage	115.08:1	G1C5	—
3-Stage	123.98:1	G1C6	—
3-Stage	129.62:1	G1C7	—
3-Stage	139.14:1	G1C8	—
3-Stage	149.90:1	G1C9	—
3-Stage	168.85:1	G1D1	G2D1
3-Stage	181.25:1	G1D2	—
3-Stage	195.27:1	G1D3	—
3-Stage	236.10:1	G1D4	—
3-Stage	307.55:1	G1D5	G2D5

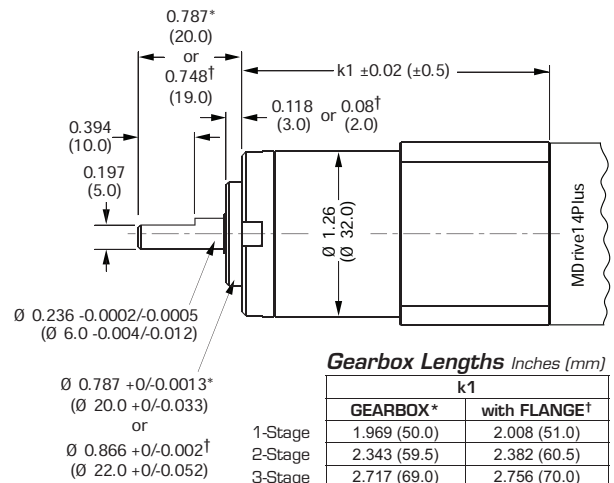
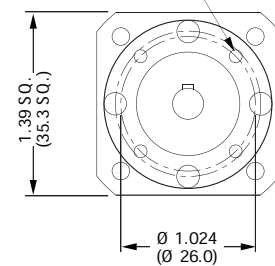
## MDrive14Plus Planetary Gearbox Parameters

	Permitted Output Torque (oz-in/Nm)	Gearbox Efficiency	Maximum Backlash	Output Side with Ball Bearing			
				Max Load (lb-force/N)		Weight (oz/g)	
				Radial	Axial	Gearbox	with Flange
<b>1-STAGE</b>	106/0.75	0.80	1.5°	9.0/40	2.2/10	5.7/162	5.9/168
<b>2-STAGE</b>	318/2.25	0.75	2.0°	15.7/70	4.5/20	7.5/213	7.8/221
<b>3-STAGE</b>	637/4.50	0.70	2.5°	22.0/100	6.7/30	9.3/264	9.6/273

Dimensions in Inches (mm)

\*Gearbox without Flange  
†Gearbox with Flange

M3 x 0.157 (4.0) Deep



Gearbox Lengths Inches (mm)

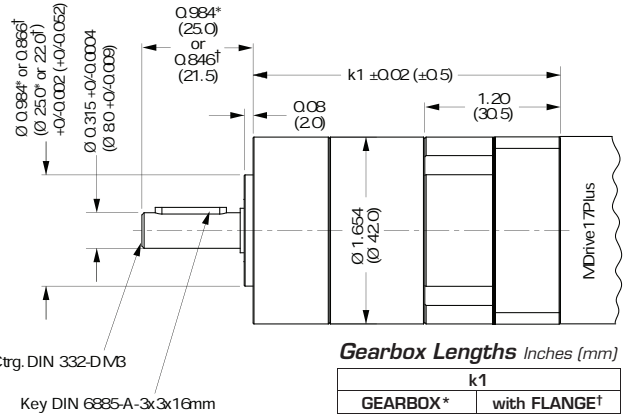
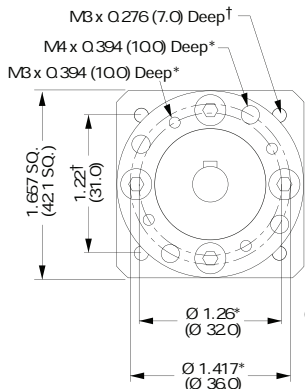
	k1	
	GEARBOX*	with FLANGE†
1-Stage	1.969 (50.0)	2.008 (51.0)
2-Stage	2.343 (59.5)	2.382 (60.5)
3-Stage	2.717 (69.0)	2.756 (70.0)

## MDrive17Plus Planetary Gearbox Parameters

	Permitted Output Torque (oz-in/Nm)	Gearbox Efficiency	Maximum Backlash	Output Side with Ball Bearing			
				Max Load (lb-force/N)		Weight (oz/g)	
				Radial	Axial	Gearbox	with Flange
<b>1-STAGE</b>	425/3.0	0.80	0.80°	36/160	11/50	14.3/406	14.8/420
<b>2-STAGE</b>	1062/7.5	0.75	0.85°	52/230	18/80	17.9/508	18.5/525
<b>3-STAGE</b>	2124/15.0	0.70	0.90°	67.5/300	25/110	18.5/525	22.2/630

Dimensions in Inches (mm)

\*Gearbox without Flange  
†Gearbox with Flange



Gearbox Lengths Inches (mm)

	k1	
	GEARBOX*	with FLANGE†
1-Stage	2.736 (69.5)	2.858 (72.6)
2-Stage	3.248 (82.5)	3.37 (85.6)
3-Stage	3.76 (95.5)	3.882 (98.6)

\*\*Order optional planetary gearbox by adding -G plus 3 characters to the end of an MDrivePlus part number.

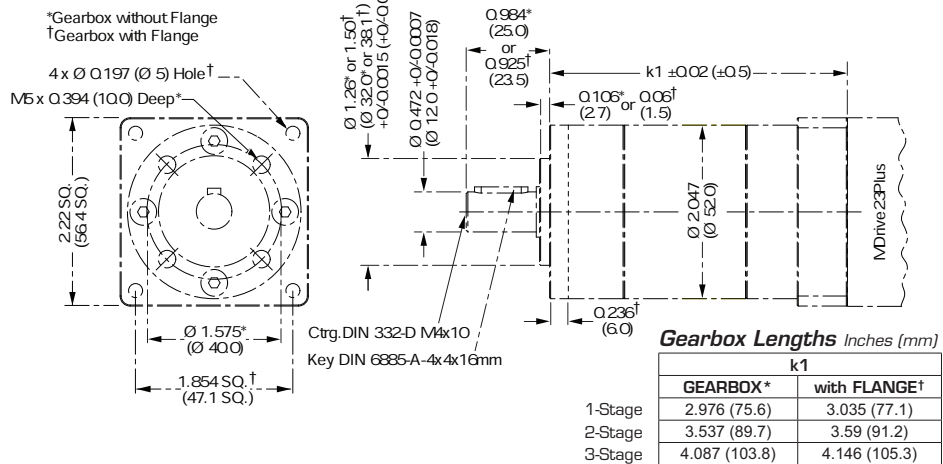
# M DRIVE™ PLANETARY GEARBOXES

MOTOR+DRIVER Plus

## MDrive23Plus Planetary Gearbox Parameters

	Permitted Output Torque (oz-in/Nm)	Gearbox Efficiency	Maximum Backlash	Output Side with Ball Bearing			
				Max Load (lb-force/N)		Weight (oz/g)	
				Radial	Axial	Gearbox	with Flange
<b>1-STAGE</b>	566/4.0	0.80	0.70°	45/200	13/60	25.0/711	25.9/735
<b>2-STAGE</b>	1699/12.0	0.75	0.75°	72/320	22/100	32.2/914	33.3/945
<b>3-STAGE</b>	3540/25.0	0.70	0.80°	101/450	34/150	39.4/1117	40.7/1155

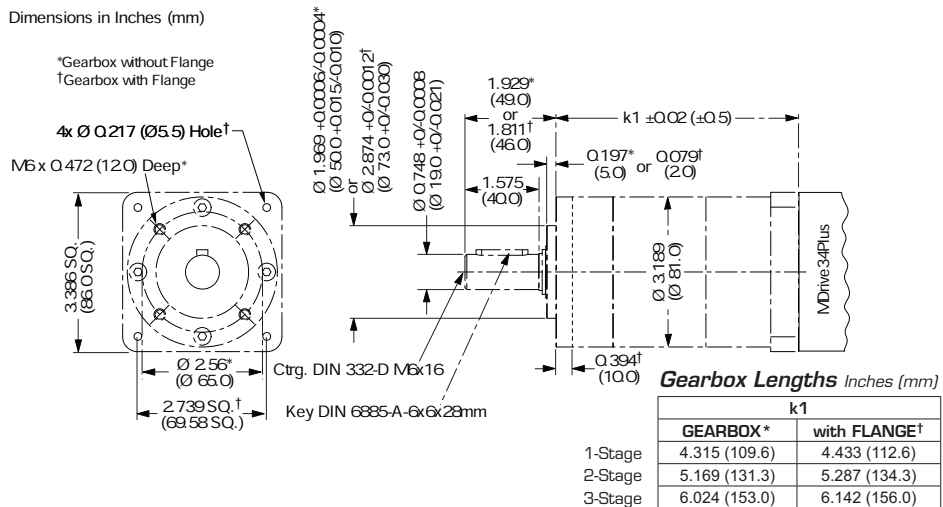
Dimensions in Inches (mm)



## MDrive34Plus & MDrive34AC Plus Planetary Gearbox Parameters

	Permitted Output Torque (oz-in/Nm)	Gearbox Efficiency	Maximum Backlash	Output Side with Ball Bearing			
				Max Load (lb-force/N)		Weight (oz/g)	
				Radial	Axial	Gearbox	with Flange
<b>1-STAGE</b>	2832/20.0	0.80	1.0°	90/400	18/80	64.4/1827	66.7/1890
<b>2-STAGE</b>	8496/60.0	0.75	1.5°	135/600	27/120	89.5/2538	92.6/2625
<b>3-STAGE</b>	16992/120.0	0.70	2.0°	225/1000	45/200	114.6/3248	118.5/3360

Dimensions in Inches (mm)



# MDRIVE™ PLANETARY GEARBOXES

MOTOR+DRIVER Plus

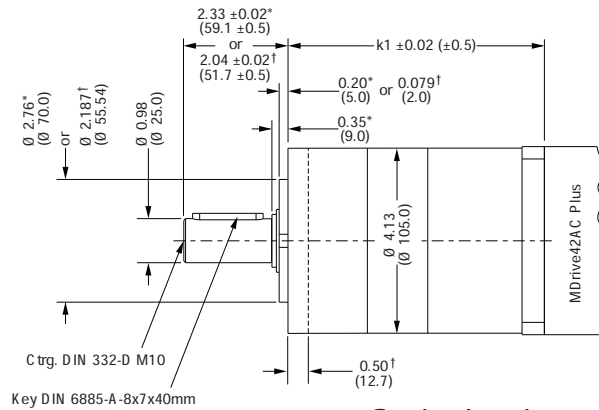
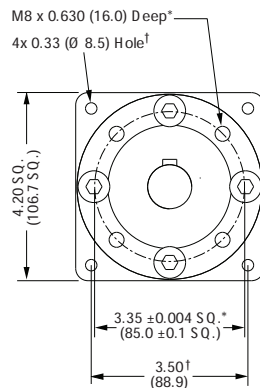
## MDrive42AC Plus Planetary Gearbox Parameters

		Permitted Output Torque (oz-in/Nm)	Gearbox Efficiency	Maximum Backlash	Output Side with Ball Bearing			
					Max Load (lb-force/N)		Weight (lb/kg)	
					Radial	Axial	Gearbox	with Flange
PM105	1-STAGE	4956/35.0	0.80	1.0°	135/600	27/120	9.7/4.4	10.0/4.5
	2-STAGE	14869/105.0	0.75	1.5°	202/900	40/180	13.2/6.0	13.6/6.2
	3-STAGE	27614/195.0	0.70	2.0°	337/1500	67/300	16.8/7.6	17.3/7.8
PM120	1-STAGE	7080/50.0	0.80	0.55°	135/600	27/120	12.3/5.6	12.7/5.8
	2-STAGE	21242/150.0	0.75	0.60°	202/900	40/180	17.6/8.0	18.1/8.2
	3-STAGE	42484/300.0	0.70	0.65°	337/1500	67/300	22.9/10.4	23.5/10.7

Dimensions in Inches (mm)

### PM105 Model

\*Gearbox without F flange  
†Gearbox with F flange

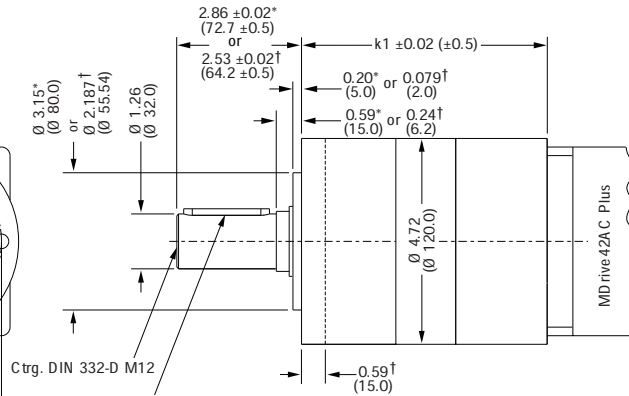
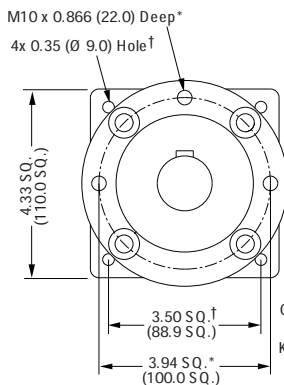


#### Gearbox Lengths Inches (mm)

	k1	
	GEARBOX*	with FLANGE†
1-Stage	5.73 (145.5)	5.90 (149.9)
2-Stage	7.07 (179.6)	7.13 (181.0)
3-Stage	8.41 (213.7)	8.35 (212.0)

### PM120 Model

\*Gearbox without F flange  
†Gearbox with F flange



#### Gearbox Lengths Inches (mm)

	k1	
	GEARBOX*	with FLANGE†
1-Stage	6.23 (158.2)	6.58 (167.2)
2-Stage	7.57 (192.4)	7.93 (201.4)
3-Stage	8.92 (226.6)	9.28 (235.6)