

Boston Gear

Boston Gear offers the industry's largest line up of reliable speed reducers, gearing and other quality drivetrain components.

With more than 125 years of frontline experience, Boston Gear is recognized globally as a premier resource for extremely reliable, high-performance power transmission components. Boston Gear offers the industry's most comprehensive product array featuring more than 30,000 standard products combined with the ability to custom engineer unique solutions when required. Product lines include standard enclosed gear drives, custom speed reducers, AC/DC motors, DC drives and Centric brand overload clutches and torque limiters.

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**Micron True Planetary® Gearheads
shipped within 24 hours!**



**Need it fast? Go to the page 10 of
this catalog for details.**

Micron TRUE Planetary® Gearheads

Product Overview

AquaTRUE™

Features

- Precision: 13 arc-minutes
- Frame Sizes: 60 mm, 80 mm, 120 mm and 160 mm
- Torque Capacity: up to 876 Nm
- Ratio Availability: 3:1 thru 100:1
- Radial Load Capacity: up to 3730 N



XTRUE™

Features

- Precision: 13 arc-minutes
- Frame Sizes: 40 mm, 50 mm, 60 mm, 70 mm, 80 mm, 90 mm, 120 mm and 160 mm
- Torque Capacity: up to 876 Nm
- Ratio Availability: 3:1 thru 100:1
- Radial Load Capacity: up to 3730 N



NemaTRUE™

Features

- Precision: 13 arc-minutes
- Frame Sizes: 23 (2.3in), 34 (3.4in), 42(4.2in), 60mm, 90mm and 115mm
- Torque Capacity: up to 180 Nm
- Ratio Availability: 3:1 thru 100:1
- Radial Load Capacity: up to 3730 N



NemaTRUE 90™ Right Angle

Features

- Precision: 13 arc-minutes
- Frame Sizes: 23 (2.3in), 34 (3.4in) and 42(4.2in)
- Torque Capacity: up to 255 Nm
- Ratio Availability: 1:1 thru 500:1
- Radial Load Capacity: up to 2900 N



DuraTRUE™

Features

- Precision: 8 arc-minutes
- Frame Sizes: 60 mm, 90 mm, 115 mm and 142 mm
- Torque Capacity: up to 834 Nm
- Ratio Availability: 3:1 thru 100:1
- Radial Load Capacity: up to 11150 N



DuraTRUE 90 Right Angle

Features

- Precision: 8 arc-minutes
- Frame Sizes: 60 mm, 90 mm, 115 mm and 142 mm
- Torque Capacity: up to 842 Nm
- Ratio Availability: 1:1 thru 500:1
- Radial Load Capacity: up to 11150 N



DuraTRUE 90 Hollow Shaft

Features

- Precision: 8 arc-minutes
- Frame Sizes: 90 mm, 115 mm and 142 mm
- Torque Capacity: up to 865 Nm
- Ratio Availability: 1:1 thru 500:1
- Radial Load Capacity: up to 11150 N



Product Overview

DuraTRUE 90 Dual Shaft

Features

- Precision: 8 arc-minutes
- Frame Sizes: 60 mm, 90 mm, 115 mm and 142 mm
- Torque Capacity: up to 865 Nm
- Ratio Availability: 1:1 thru 500:1
- Radial Load Capacity: up to 11150 N



ValueTRUE™

Features

- Precision: 4 arc-minutes
- Frame Sizes: 60 mm, 75 mm, 90 mm, 100 mm, 115 mm, 140 mm, 180 mm and 220 mm
- Torque Capacity: up to 2969 Nm
- Ratio Availability: 4:1 thru 100:1
- Radial Load Capacity: up to 37910 N



ValueTRUE 90 Right Angle

Features

- Precision: 4 arc-minutes
- Frame Sizes: 60 mm, 75 mm, 90 mm, 100 mm, 115 mm, 140 mm and 180 mm
- Torque Capacity: up to 2800 Nm
- Ratio Availability: 1:1 thru 50:1
- Radial Load Capacity: up to 37910 N



UltraTRUE™

Features

- Precision: 4 arc-minutes
- Frame Sizes: 60 mm, 75 mm, 90 mm, 100 mm, 115 mm, 140 mm, 180 mm and 220 mm
- Torque Capacity: up to 3300 Nm
- Ratio Availability: 4:1 thru 100:1
- Radial Load Capacity: up to 37910 N



UltraTRUE 90 Right Angle

Features

- Precision: 4 arc-minutes
- Frame Sizes: 60 mm, 75 mm, 90 mm, 100 mm, 115 mm, 140 mm and 180 mm
- Torque Capacity: up to 3111 Nm
- Ratio Availability: 1:1 thru 50:1
- Radial Load Capacity: up to 37910 N



EverTRUE™ Continuous Duty

Features

- Precision: 4 arc-minutes
- Frame Sizes: 100 mm, 140 mm and 180 mm
- Torque Capacity: up to 1010 Nm
- Ratio Availability: 4:1 thru 100:1
- Radial Load Capacity: up to 44600 N



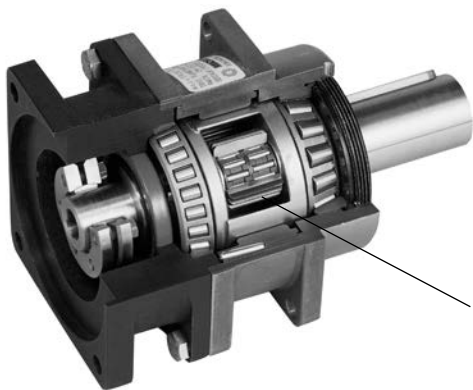
Micron **TRUE Planetary**® Gearheads

True Planetary Gearhead offer...

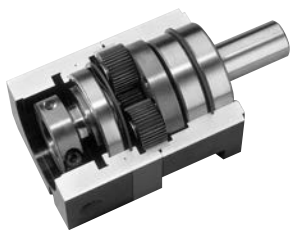
- High Torque-to-Size Ratio - allows compact design
- Low Backlash - eliminates positioning errors due to lost motion
- Inertia Matching - keeps servo system stable and in control
- High Rigidity - optimizes system response
- Self Relubrication - eliminates costly maintenance and downtime
- High Radial Load Capacity - mount pulleys and pinions directly on the output shaft



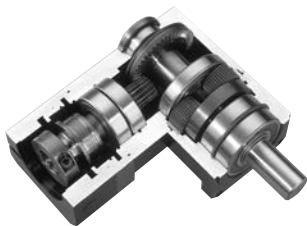
UltraTRUE™ output cage assembly



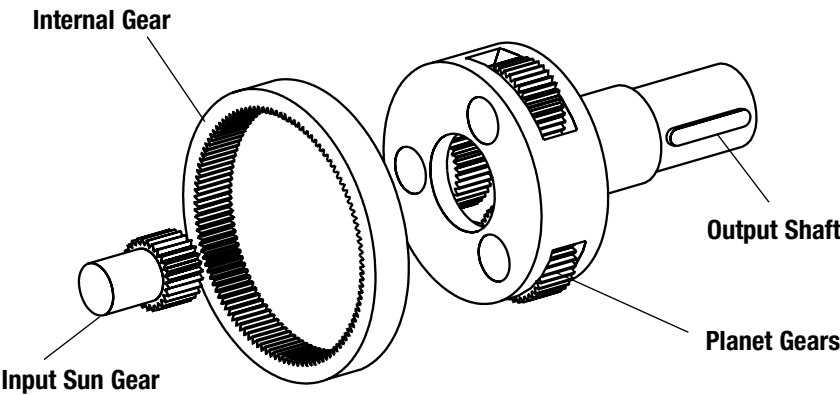
Planetary Gearing



DuraTRUE™ in-line planetary gearhead



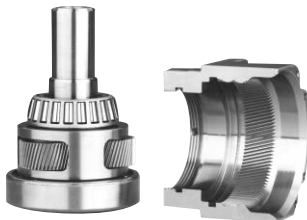
DuraTRUE 90 right angle planetary gearhead



Gearhead	True Planetary gearing
AquaTRUE™	•
XTRUE™	•
NemaTRUE™	•
NemaTRUE 90	•
DuraTRUE	•
DuraTRUE 90	•
UltraTRUE	•
UltraTRUE 90	•
ValueTRUE™	•
ValueTRUE 90	•
EverTRUE™	•

Helical Crowned True Planetary Gearing offers...

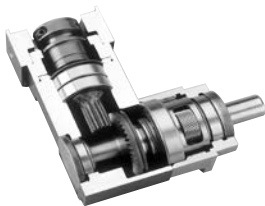
- High Torque Capacity
- Low Backlash
- Smooth Operation
- Greater Load Sharing
- Whisper Quiet



Output housing and helical internal gear are machined from a single piece of high strength steel



UltraTRUE in-line planetary gearhead



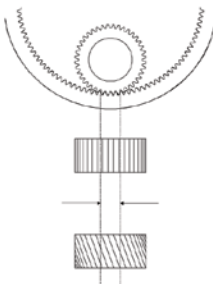
UltraTRUE 90 right angle planetary gearhead

Helical gears are known for their quiet and smooth operation along with their ability to transmit higher loads than spur gears. Both of these features of helical gearing result from the improved contact ratio (effective teeth in mesh) over spur gears. Crowning is a modification to the gear tooth profile, which optimizes gear mesh alignment. It also enhances distribution of loading on the tooth flank, thereby reducing high stress regions which can result in surface pitting.

Planetary gearheads are often selected for high-precision motion control applications, which require a high torque-to-volume ratio, high torsional stiffness and low backlash. Until now, these attributes have been sufficient to meet the requirements of the market. Thomson has designed a high-torque, whisper-quiet helical gearhead to meet the recent improvements in servo motor technology.

Thomson engineers accomplished this by combining the positive attributes of gear crowning and helical gearing with the planetary construction to create the smoothest operating gearhead on the market.

Spur vs. Helical Gearing

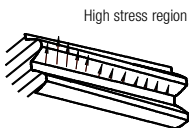


Typical contact ratio is 1.5 for spur gearing.

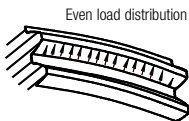
Contact ratio for equivalent helical gear is 3.3, more than double the contact ratio.

The contact ratio is defined as the number of teeth in mesh at any given time. The higher the contact ratio, the higher the torque rating of the gearing. **Helical gearing has more than 2X the contact ratio of spur gearing.**

Crowned vs. Non-crowned



Non-Crowned



Crowned

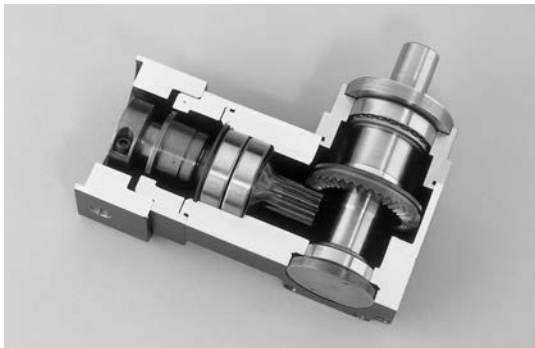
Crowning optimizes the gear mesh alignment within a gear train to increase the torque capacity and reduce noise. It also enhances load distribution on the tooth flank to reduce high stress regions.

Gearhead	Helical Crowned True Planetary gearing
AquaTRUE	
XTRUE	
NemaTRUE	
NemaTRUE 90	
DuraTRUE	
DuraTRUE 90	
UltraTRUE	•
UltraTRUE 90	•
ValueTRUE	•
ValueTRUE 90	•
EverTRUE	

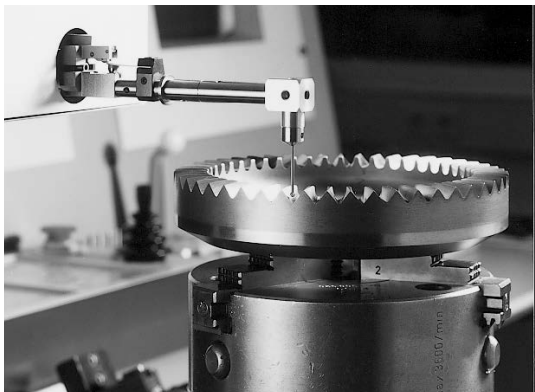
Micron TRUE Planetary® Gearheads

PowerTRUE™ Right Angle Gearheads offer...

- Lower backlash accomplished through single-axis mesh adjustment
- A compact right-angle design utilizing a high-tech face gear
- Whisper-quiet operation due to high contact ratio
- Mesh ratios from 1:1 to 5:1
- 98% efficiency



PowerTRUE Gear



Computerized mapping of gear tooth profile



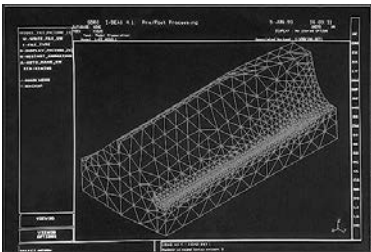
CNC machining of a PowerTRUE right-angle gear

PowerTRUE right angle gearset



Right-angle gear meshes are typically limited to ratios from 1:1 to 3:1 when using standard bevel gears. Compared to these designs, the PowerTRUE 90 gear increases the ratio range to 5:1.

The key to higher torque density is a unique tooth design, created by complex machining made practical with advanced CNC equipment and software. In the design, multiple teeth in the face gear simultaneously mesh with a standard involute pinion. The continuous tooth engagement yields a high contact ratio between the gear and the pinion, boosting torques to new levels and efficiency to 98%.



Advanced software enables stress analysis of PowerTRUE tooth profile

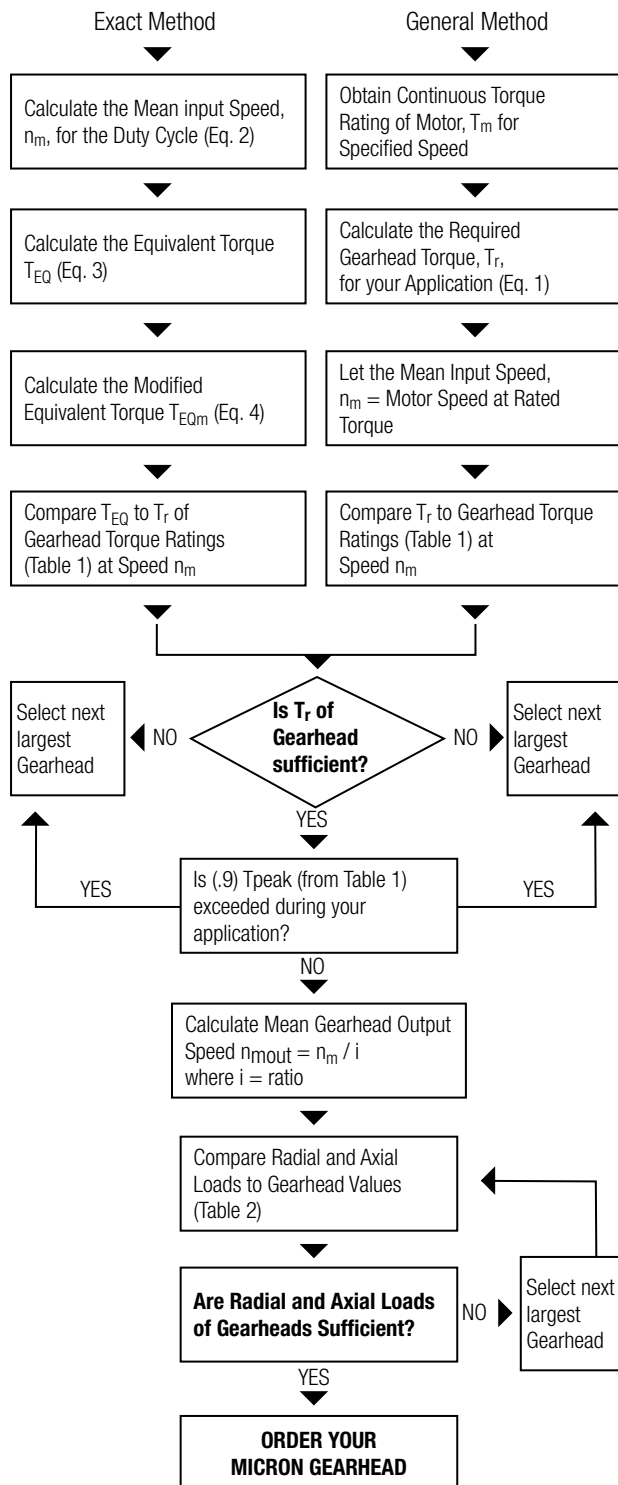
Gearhead	PowerTRUE gearing
AquaTRUE™	
XTRUE™	
NemaTRUE™	
NemaTRUE 90	●
DuraTRUE™	
DuraTRUE 90	●
UltraTRUE™	
UltraTRUE 90	●
ValueTRUE™	
ValueTRUE 90	●
EverTRUE™	

Sizing and Selection

Step 1: Select the required precision class and gearhead configuration (in-line or right angle).

Step 2: Select the proper gearhead using exact or general method.

For continuous duty applications, please contact Applications Engineering.



General Method:

Required Gearhead Torque(T_r)

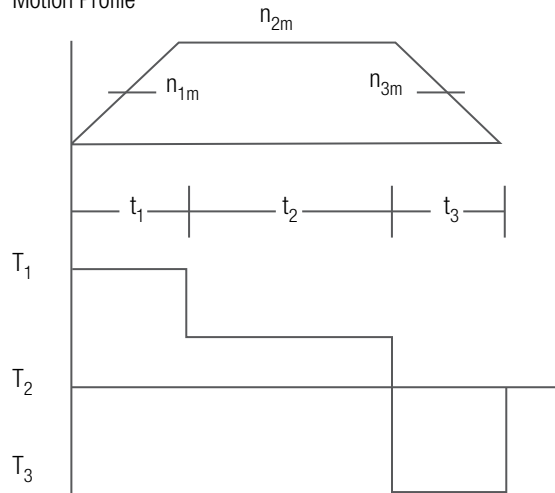
$$(1) T_r = T_M \cdot i \cdot e$$

where: T_M = continuous torque of motor
 i = Gearhead ratio
 e = efficiency of Gearhead

* Since many motors are capable of exceeding their continuous torque rating for extended lengths of time, the value for T_M will only provide a starting point for Gearhead selection. Only use the general method if the continuous motor rating is not exceeded in the application.

Exact Method

Motion Profile



t_n = time period n

n_{nm} = mean speed during time period t_n

T_n = torque during time period t_n

Mean input speed (n_m)

$$(2) n_m = \frac{n_{1m}t_1 + n_{2m}t_2 + n_{3m}t_3 + \dots + n_{nm}t_n}{t_t}$$

where $t_t = t_1 + t_2 + t_3 + \dots + t_n$

Equivalent torque (T_{EQ})

$$(3) T_{EQ} = \sqrt[8.7]{T_1^{8.7} \frac{n_{1m}t_1}{n_m t_t} + T_2^{8.7} \frac{n_{2m}t_2}{n_m t_t} + T_3^{8.7} \frac{n_{3m}t_3}{n_m t_t} + \dots + T_n^{8.7} \frac{n_{nm}t_n}{n_m t_t}}$$

Modified equivalent torque (T_{EQm})

$$(4) T_{EQm} = (T_{EQ})/Q$$

where Q is:

Q	# of cycles/hr
1,0	>0
0,9	>1000
0,7	>2500
0,5	>5000

For applications > 10,000 cycles/hour or for continuous duty operation, please contact application engineering.

Micron TRUE Planetary® Gearheads

Sizing and Selection

Micron® Quick Selection Guide



Product Line	UltraTRUE™	ValueTRUE™	
Prefix	UT/UTR	VT/VTR	
Maximum Backlash (for the product life) ⁽¹⁾	[arc/min]	4/5	4/5
Lower Backlash Option	N	N	
Price Relationship	1.2 ×	0.7 ×	
In-line Frame Sizes / Right Angle Frame Sizes	[mm]	60 - 220 / 60 - 142	60 - 220 / 60 - 142
In-line Ratio Availability / Right Angle Ratio Availability ⁽²⁾		4:1 - 100:1 / 1:1 - 50:1	4:1 - 100:1 / 1:1 - 50:1
Double and Triple Stage Available ⁽³⁾	Y	Y	
Torque Capacity Relationship	2.8 ×	2.6 ×	
True Planetary Gearing / Helical Crowned Gearing	Y / Y	Y / Y	
Expected Noise Level ⁽¹¹⁾	[db]	66	66
Modification Costs	Very Low	Low	
Lubricated for Life	Y	Y	
Efficiency	[%]	95	95
Dual and Hollow Shafts Available	N	N	
Housing Material	Stainless and Aluminum	Stainless and Aluminum	
3D CAD Models on Micron Motioneering	Y	Y	
One Piece Output Shaft/Carrier / Internal Gear Machined into Housing	Y / Y	Y / Y	
Maximum input speed ⁽⁶⁾	[RPM]	6000	6000
ROHS Compliant ⁽⁷⁾	Y	Y	
REACH Compliant ⁽⁷⁾	Y	Y	
Case Hardened Gears (HRC60)	Y	Y	
Gearhead Express ⁽⁵⁾	Y	Y	
Low Temperature Grease Available / Food Grade Grease Available	Y / Y	Y / Y	
NSF Certified ⁽⁸⁾	N	N	
RediMount Compliant	Y	Y	
Direct Competitor Replacement ⁽⁹⁾	Y	Y	
Standard Output IP Protection Level ⁽¹⁰⁾	IP65	IP65	

(1) Backlash is measured at the output shaft, with the input fixed, using 2 % of the rated torque in both directions.

(2) Other ratios available, contact customer support for more information.

(3) Double stage now available on AquaTRUE product line, triple stage available on all product lines upon request.

(4) Lower backlash, high precision available (8/9 arc-min).

(5) Gearhead express not available in frame sizes larger than 140 mm or dual and hollow shafts.

(6) Speeds greater than 6000 RPM need to be reviewed by application engineering.

(7) Micron products are currently compliant to ROHS 3 and REACH 209 SVHC with updated certifications planned after each change. Please ask for ROHS and REACH compliance documentation at time of order.

10 Reasons to Choose Micron Gearheads

1 RediMount™ – Fast and Error-Free Motor Mounting

The unique RediMount system will mount any Micron gearhead to any motor in just three simple steps in less than five minutes!

2 Easy Sizing and Selection with Micron Motioneering

Micron Motioneering is the most accurate and user-friendly gearhead sizing and design tool on the market. Try it at www.micronmotioneering.com.

3 Superior Technology

All Micron gears are case-hardened to HRC60 for longer life. Our UltraTRUE and ValueTRUE models have a higher helix angle (15°) than our competitors' helical gearheads, resulting in less backlash, smoother and quieter operation, and longer life.

4 Fast Deliveries


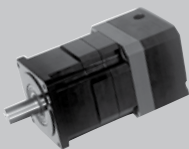

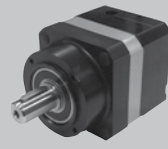

Micron offers 1 – 2-week standard lead times on all standard catalog products. For quicker shipping, use our 24-hour "Gearhead Express" delivery service, which is available for all models for just a 10% premium!

Easy sizing and selection with
www.MicronMotioneering.com

24-hour deliveries with
Micron Gearhead Express™

Micron TRUE Planetary® Gearheads

Sizing and Selection

				
EverTRUE™	DuraTRUE™	NemaTRUE™	XTRUE™	AquaTRUE™
ET	DT/DTR	NT/NTR	XT, XTA	AQT
4/5	8/9	13/15	13/15	13/15
N	N	Y ⁽⁸⁾	Y ⁽⁸⁾	Y ⁽⁸⁾
1.5 ×	1.0 ×	0.5 ×	0.4 ×	1.5 ×
100 - 180	60 - 142 / 60 - 142	60 - 115 (23 - 42) / 60 - 115 (23 - 42)	40 - 160	60 - 160
4:1 - 100:1 / -	3:1 - 100:1 / 1:1 - 500:1	3:1 - 100:1 / 1:1 - 500:1	3:1 - 100:1 / -	3:1 - 100:1 / -
Y	Y	Y	Y	Y
2.8 ×	1.0 ×	0.7 ×	1.1 ×	1.1 ×
Y / N	Y / N	Y / N	Y / N	Y / N
68	68	68	68	68
Low	Very Low	Very Low	Low	Low
Y	Y	Y	Y	Y
95	93	93	93	93
N	Y	N	N	N
Stainless and Aluminum	Anodized Aluminum	Anodized Aluminum	Anodized Aluminum	100 % Stainless
Y	Y	Y	Y	Y
Y / Y	Y / N	Y / N	Y / N	Y / N
6000	6000	6000	6000	6000
Y	Y	Y	Y	Y
Y	Y	Y	Y	Y
Y	Y	Y	Y	Y
Y	Y	Y	Y	N
Y / Y	Y / Y	Y / Y	Y / Y	Y / Y
N	N	N	N	Y
Y	Y	Y	Y	N
Y	Y	Y	Y	Y
IP65	IP54	IP54	IP54	IP69K

(8) The AquaTRUE is certified to NSF/ANSO STD 169.

(9) Micron has dimensional drop in replacements for most competitive gearheads. Please visit www.micronmotionengineering.com to use our quick and easy competitive replacement tool.

(10) IP65 and IP67 improved protection levels available for all product lines and RediMounts

(11) Gearhead noise will vary depending on the ratio being used, the input speed and other application characteristics

5 Lubricated For Life

Micron gearheads require no maintenance and are grease filled. Unlike oil-filled units, they can be mounted in any orientation and will never leak.

6 Easy Customization

We welcome modification requests as well as "white paper" custom opportunities. The modular design of our products allows modifications to be easily implemented with small impacts to price and delivery.

7 Unmatched Product Breadth

Micron has the largest selection of planetary gearheads in the world with more than 3000 size and ratio combinations.

8 Unmatched Quality

All Micron gearheads are tested through our state-of-the-art end-of-line tester, making our outgoing quality the best in the market.

9 Commitment to New Product Development

Micron was first to launch an all-stainless steel, IP69K gearhead for the food and beverage market. The AquaTRUE is designed for the most harsh and corrosive environments.

10 Made in the USA

All Micron Gearheads are manufactured in the USA, making us able to respond to emergencies quickly and reducing downtime for our customers.

Micron TRUE Planetary® Gearheads

Micron MOTIONEERING®

The web-based sizing tool for Micron TRUE Planetary Gearheads

Have Micron MOTIONEERING do the application engineering work for you!

**A way to optimize your machine design, save time and, ultimately, help you build a better machine, faster.
Easy to use and it's free at www.MicronMOTIONEERING.com**

Micron MOTIONEERING has three different modes of functionality:

1. Select By Requirements

Enter your application requirements in just a few easy steps to find the right gearhead for your application in the “Select by Requirements” section.

2. Select by Competitor Gearhead

Need a replacement for your current gearhead? Use our handy matrix to find the perfect drop-in replacement in only seconds.

3. Select by Model Number

Search by product line, model number, frame size and ratio in the “Select by Model Number” section. Micron MOTIONEERING quickly provides a complete part number, pricing and delivery information. 3D models are also available for immediate download.

- Don't know your RediMount? Choose from hundreds of the most popular motors on the market today or enter in your motor dimensions manually.
- Not sure if your motor fits on a specific gearhead? The tool will let you know if you have chosen a combination that is outside of the standard guidelines.

The image displays two screenshots of the Micron MOTIONEERING website interface. The top screenshot shows the main navigation bar with links like Home, My Account, Overview, Help / Support, About, Newsroom, Partners, and Contact Us. Below the navigation bar, there's a section titled "MicronMOTIONEERING®: True Planetary Gearheads" with a brief description of the product. The main content area is divided into two columns: "Select by Requirements" and "Select by Model Number". The "Select by Requirements" column has a "Find a Gearhead" button and a "Need to replace a competitor's gearhead?" link. The "Select by Model Number" column has a "View only Gearhead Express" link and a grid of product images with labels like DuraTRUE, EverTRUE, NemaTRUE, UltraTRUE, ValueTRUE, AquaTRUE, and XTRUE. The bottom screenshot shows the "Select Gearhead" form. It has a "Product Requirements" section with a "Select Gearhead" button. The form fields include "Gearhead Model" (ValueTRUE), "Gearhead Type" (Inline), "Frame Size" (VT115 (115 mm)), and "Ratio" (10:1). There's a "Save and Continue" button at the bottom right.

Do you need to cross over a competitor's product?

The Micron MOTIONEERING tool features a competitive replacement function that allows you to accurately, quickly and easily cross over all major competitor gearheads.

Gearhead Sizing and Selection

Follow these easy steps for sizing and selection:

- Select orientation (in-line or right angle).
- Select backlash requirement.
- Select from all of the ratios available for that combination.
- Select operation type whether cyclical or continuous duty.
- Select a specific torque and speed requirement or build an entire motion profile.
- If needed, you may account for radial and axial loads on the output shaft.
- The tool will calculate your T_{eq} (equivalent torque) and display only solutions that will work in your application.
- If you do not know your RediMount, you can choose from a list of the most popular motors on the market today or enter your motor dimensions manually.
- Double check your configuration on the “Review

Page.” Click any parameter to quickly edit if needed then view solutions to reveal a list available solutions, sorted by Gearhead Express Eligibility. You can also sort by any of the listed columns.

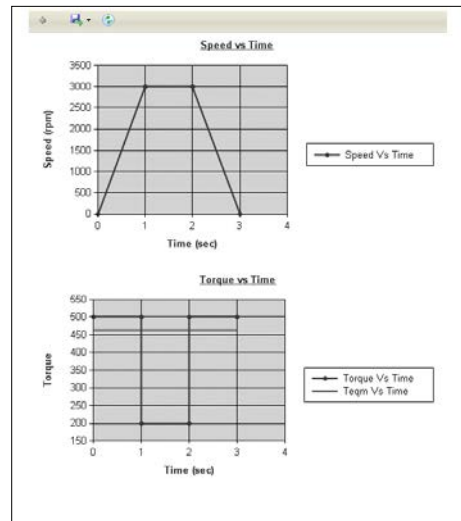
- The torque safety factor will also be listed for each solution to help maximize the gearhead life.
- The final output delivers pricing, a printable summary of the design solution, and the ability to save it for future use.
- Also available are 3D models of your unique solution in neutral file formats or native CAD files for all major software packages (25+ formats available).



Use the Micron MOTIONEERING tool to help you build your motion profile.

Get started with Micron MOTIONEERING today!

- The Micron MOTIONEERING tool is very easy to use and is the fastest way to accurately size and select your next gearhead.
- Save money by seeing all the possible choices.
- Automatic calculations ensure the correct solution to fit your requirements.
- It does all of the work for you and gives you the correct solution to fit your requirements.



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MicronMOTIONEERING®: True Planetary Gearheads

1 Specify Requirements 2 Select Gearhead

10 Solutions meet your requirements

View only Gearhead Express®
See all gearheads in 24 hours

	Product Number	U.S. List Price*	Lead Time	Gearhead Express Eligible	Torque Safety Factor	Frame Size	Max Backlash (arc-min)	Rated Torque (lb-in)	Transmitted Torque (lb-in)
1	7022-005-0-0P022-107	2,928.7	2 weeks	Yes	22.28	220	4	12275	3962
2	7022-005-0-0P022-107	10,011.53	2 weeks	Yes	2.22	160	13	2221	446.9
3	7022-005-0-0P022-107	1832.37	1 week	Yes	8.37	140	6	2571	407
4	7022-005-0-0P022-107	2,977.83	1 week	Yes	2.12	142	8	2119	463.1
5	7022-005-0-0P022-107	3,041.83	1 week	Yes	7.88	160	4	7881	1117
6	7022-005-0-0P022-107	2,140.71	1 week	Yes	2.97	140	6	3088	432
7	7022-005-0-0P022-107	2,855.47	2 weeks	Yes	2.38	142	6	2261	497
8	7022-005-0-0P022-107	4765.1	1 week	Yes	8.87	160	6	8888	1308
9	7022-005-0-0P022-107	3,176.85	2 weeks	Yes	8.22	280	4	16421	1491
10	7022-005-0-0P022-107	4,507.28	2 weeks	Yes	12.04	220	4	12038	3285

* Note: For any assistance please contact TCI's Assistance Center at 1-848-633-2549 or Thomson@micronmotion.com

Lock Configuration

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Micron TRUE Planetary® Gearheads

RediMount™ Motor Mounting System

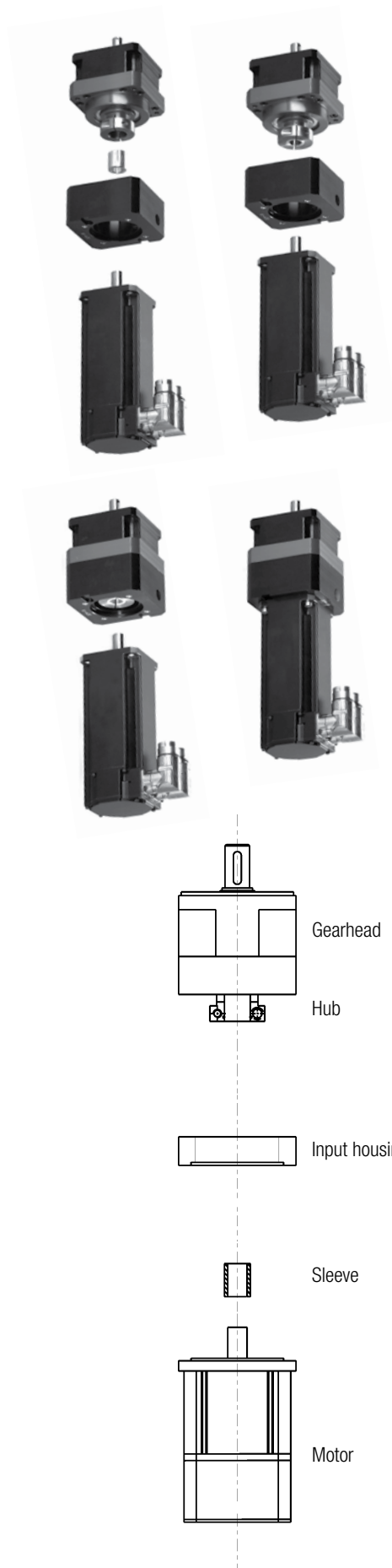
Mounting Instructions

1. Slide the provided sleeve into the hub and align the slot in the bushing with the slot in the hub.
2. Set the motor on a work surface or hold fixture with the output shaft facing straight up. If there is a key on the motor, remove it and align the keyway with the slot in the hub. Slide the gearhead down onto the motor shaft.
3. Rotate the hub to align the input housing access holes with the hub clamping bolts.
4. Using a torque wrench, tighten the hub bolts to the pre-torque value indicated in the table.
5. Bolt the motor to the gearhead with the bolts provided.
6. Gradually tighten the hub bolts in three steps, increasing the torque each time until reaching the final tightening torque in the table.
7. Incorrectly mounted motor and gearbox void the warranty

Hub Bolt Tightening Torques

Gearhead Model	Gearhead Frame Size	Pre-Tightening Torque		Final Tightening Torque	
		in.-lb.	[Nm]	in.-lb.	[Nm]
AquaTRUE™	060	2	0.2	39	4.4
	080	4	0.4	76	8.5
	120	16	1.8	316	36
	160	32	3.6	636	72
NemaTRUE™ NemaTRUE 90	23/60	2	0.2	39	4.4
	34/90	4	0.4	76	8.5
	42/115	16	1.8	316	36.0
DuraTRUE™ DuraTRUE 90	060	2	0.2	39	4.4
	090	4	0.4	76	8.5
	115	16	1.8	316	36.0
	142	32	3.6	636	72.0
UltraTRUE™ UltraTRUE 90 ValueTRUE™ ValueTRUE90 EverTRUE™	006	2	0.2	39	4.4
	075/090	4	0.4	76	8.5
	010/115	16	1.8	316	36.0
	014	32	3.6	636	72.0
	018/022	55	6.3	1104	125.0
XTRUE™ (XT/XTA)	040/050	0.5	0.05	9.6	1.09
	060/070	2	0.2	39	4.4
	080/090	4	0.4	76	8.5
	120	16	1.8	316	36
	160	32	3.6	636	72

Gearhead must be mounted in vertical orientation.



True Planetary Gearheads

Ready for Immediate Delivery	
Precision	13 arc-minutes
Frame Sizes	60 mm, 80 mm, 120 mm and 160 mm
Torque Capacity	up to 876 Nm
Ratio Availability	3:1 thru 100:1
Radial load capacity	up to 3730 N
Mounting System	RediMount™

1 Silicone Gasket to Seal Motor-Gearhead Interface

2 Round and Square Motor Mounts

3 1pc Housing - No External Seams

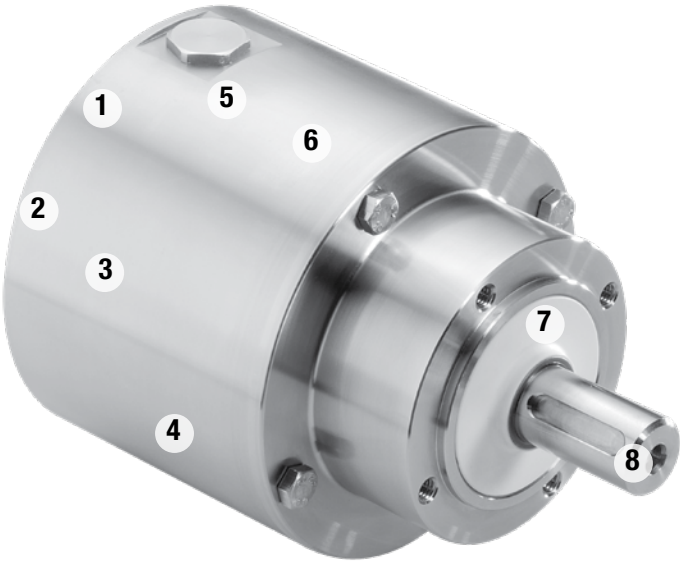
4 Permanent Product Label
(Laser Etched)

5 Tested for IP66, IP67 and IP69K Protection
Throughout

6 300 Series Stainless Steel Housing

7 Contact Lip Seal for Maximum Protection

8 Stainless Steel Output Shaft



AquaTRUE™

A revolutionary, corrosion resistant and watertight gearhead for the most demanding applications.

Introduction

Micron's AquaTRUE gearhead combines the high performance and torque capacity of Micron's TRUE Planetary gearheads with features specifically designed to meet the strict requirements of applications such as food and beverage handling, packaging and dispensing. The AquaTRUE's IP66/IP67 and IP69K protection is able to handle caustic cleaning chemicals as well as high pressure washdown. Until now, manufacturers have been unable to use gearheads in many applications involving harsh environments because there was not a product available that met those needs. The AquaTRUE is engineered to be placed anywhere in the application's design, regardless of environmental factors. This eliminates the cost of additional components such as enclosers, shielding or mechanical transmissions.

The gearhead's 304 stainless steel housing eliminates the concern for rust or any type of corrosion. The AquaTRUE has a laser etched permanent product label and a smooth, round external housing that is designed without any external seams or corners for bacteria to collect. This makes the AquaTRUE very easy to clean and a perfect fit in any washdown environment.

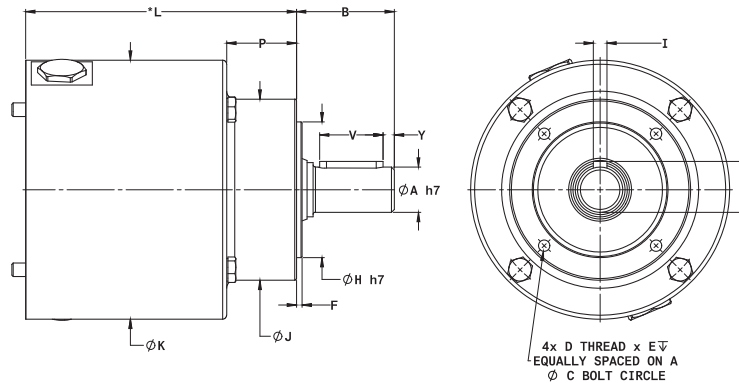
- Frame Sizes: 60, 80, 120 and 160 mm
- Precision: 13 arc-min max
- Torque Capacity: up to 876 Nm
- Ratio Availability: 3:1 to 10:1 (single stage), 15:1 to 100:1 (double stage)

Features and Benefits

- Round housing
- No external seams
- 300 Series stainless steel
- IP66/IP67 and IP69K protection on both the input and output
- NSF/ANSI 169 certification
- No corners or areas for bacteria to collect
- No areas of ingress
- Corrosion resistance
- Can handle high-pressure washdown



True Planetary Gearheads



* 'L' Dimension will change depending on motor being used.
Note: Mounting adapters available for both round and square motors.

Dimensions

Part Number	A Output Shaft Diameter mm [in.]	B Output Shaft Length mm [in.]	Y Shaft End Distance mm [in.]	V Keyway Length mm [in.]	R Keyway Height mm [in.]	I Key Width mm [in.]	H Pilot Diameter mm [in.]	J Body Diameter mm [in.]
AQT060	14 [0.55]	36.8 [1.45]	2.5 [0.10]	25 [0.98]	16 [0.63]	5 [0.20]	43 [1.69]	60 [2.36]
AQT080	20 [0.79]	43.2 [1.70]	4.0 [0.16]	28 [1.10]	22.5 [0.89]	6 [0.24]	60 [2.36]	80 [3.15]
AQT120	25 [0.98]	58.4 [2.30]	5 [0.20]	40 [1.57]	28 [1.10]	8 [0.31]	80 [3.15]	110.5 [4.36]
AQT160	40 [1.57]	90.3 [3.56]	8.0 [0.32]	65 [2.55]	43 [1.69]	12 [0.47]	105 [4.13]	140 [5.50]

Part Number	F Pilot Length mm [in.]	D Output Housing Thread	E Thread Depth mm [in.]	K Input Body Diameter mm [in.]	* L Standard Length mm [in.]		C Bolt Circle mm [in.]	P Output Body Length mm [in.]
					ratio 3:1 - 10:1	ratio 15:1 - 100:1		
AQT060	2.5 [0.098]	M5x0.8-6H	8.1 [0.32]	92 [3.62]	91.7 [3.61]	109 [4.29]	52 [2.05]	38.5 [1.51]
AQT080	2.5 [0.098]	M6x1.0-6H	10.1 [0.40]	114.5 [4.51]	119.7 [4.71]	142.7 [5.62]	70 [2.76]	30.8 [1.21]
AQT120	4.0 [0.157]	M10x1.5-6H	16 [0.63]	150 [5.9]	148.2 [5.83]	179.3 [7.06]	95 [3.74]	56.1 [2.21]
AQT160	5.0 [0.197]	M12x1.75-6H	21.6 [0.85]	188.7 [7.43]	195.8 [7.71]	243.8 [9.60]	124 [4.88]	76 [2.99]

Specifications

Part Number	Stages	Backlash (arc-min)	Efficiency	Weight		Ratio Availability
				kg	[lbs.]	
AQT060	1	13	93%	2.4	[5.4]	3:1, 4:1, 5:1, 7:1; 10:1
	2	15	88%	3.3	[7.3]	15:1, 20:1, 25:1, 30:1, 40:1, 50:1; 70:1; 100:1
AQT080	1	13	93%	5.7	[12.7]	3:1, 4:1, 5:1, 7:1; 8:1; 10:1
	2	15	88%	7.2	[15.9]	15:1, 20:1, 25:1, 30:1, 40:1, 50:1; 70:1; 80:1; 100:1
AQT120	1	13	93%	12.0	[26.5]	3:1, 4:1, 5:1, 7:1; 10:1
	2	15	88%	15.4	[33.9]	15:1, 20:1, 25:1, 30:1, 40:1, 50:1; 70:1; 100:1
AQT160	1	13	93%	24.8	[53.8]	3:1, 4:1, 5:1, 7:1; 10:1
	2	15	88%	31.2	[68.8]	15:1, 20:1, 25:1, 30:1, 40:1, 50:1; 70:1; 100:1

T_r = Rated output torque at rated speed for specific hours of life.
 T_{peak} = Allowable momentary peak torque for emergency stop or heavy shock loading.
 J = Mass moment of inertia reflected to the input shaft (including pinion assembly).
 Specifications subject to change without notice.

Micron TRUE Planetary® Gearheads

AquaTRUE™

True Planetary Gearheads

Performance Specifications

Part Number		Ratio	20,000 Hour Life				T Peak Nm [in.-lb.]	J kg-cm2 [in.-lb. sec2*10-4]		Torsional Stiffness Nm/arc-min [in.-lb./arc-min]	
			Tr (1000 rpm) Nm [in.-lb.]	Tr (2000 rpm) Nm [in.-lb.]	Tr (3000 rpm) Nm [in.-lb.]	Tr (4000 rpm) Nm [in.-lb.]					
AQT060	AQT060-003	3:1	16 [139]	13 [112]	12 [102]	11 [93]	55 [483]	0.572 [5.066]		1.49 [13.17]	
	AQT060-004	4:1	20 [177]	17 [149]	15 [130]	14 [121]	46 [409]	0.457 [4.047]		1.47 [12.97]	
	AQT060-005	5:1	18 [158]	15 [130]	13 [112]	12 [102]	48 [427]	0.408 [3.615]		1.45 [12.79]	
	AQT060-007	7:1	17 [149]	14 [121]	12 [102]	11 [93]	43 [381]	0.367 [3.245]		1.40 [12.41]	
	AQT060-010	10:1	16 [139]	15 [130]	14 [121]	13 [112]	47 [418]	0.347 [3.068]		1.36 [12.07]	
	AQT060-015	15:1	26 [232]	21 [186]	19 [167]	17 [149]	55 [483]	0.387 [3.424]		1.49 [13.14]	
	AQT060-020	20:1	27 [242]	25 [223]	22 [195]	21 [186]	48 [427]	0.385 [3.408]		1.47 [13.00]	
	AQT060-025	25:1	25 [223]	23 [204]	20 [177]	19 [167]	55 [483]	0.384 [3.400]		1.45 [12.85]	
	AQT060-030	30:1	29 [260]	26 [232]	23 [204]	21 [186]	55 [483]	0.340 [3.006]		1.49 [13.18]	
	AQT060-040	40:1	28 [251]	27 [242]	27 [242]	25 [223]	48 [427]	0.339 [3.002]		1.47 [13.04]	
AQT080	AQT060-050	50:1	26 [232]	25 [223]	25 [223]	23 [204]	55 [483]	0.339 [3.001]		1.46 [12.88]	
	AQT060-070	70:1	25 [223]	24 [214]	24 [214]	22 [195]	48 [427]	0.339 [2.999]		1.38 [12.23]	
	AQT060-100	100:1	21 [186]	20 [177]	19 [167]	18 [158]	43 [381]	0.339 [2.998]		1.29 [11.41]	
	AQT080-003	3:1	59 [520]	48 [427]	43 [381]	39 [344]	165 [1459]	2.433 [21.5]		6.21 [54.96]	
	AQT080-004	4:1	70 [623]	58 [511]	53 [465]	48 [427]	165 [1459]	1.929 [17.1]		6.19 [54.81]	
	AQT080-005	5:1	65 [576]	53 [465]	47 [418]	43 [381]	165 [1459]	1.692 [15.0]		6.12 [54.18]	
	AQT080-007	7:1	63 [558]	50 [446]	45 [400]	40 [353]	165 [1459]	1.472 [13.0]		5.70 [50.41]	
	AQT080-008	8:1	62 [549]	49 [434]	45 [398]	42 [372]	165 [1460]	1.426 [12.6]		5.53 [48.98]	
	AQT080-010	10:1	54 [474]	48 [427]	45 [400]	43 [381]	165 [1459]	1.387 [12.3]		5.83 [51.62]	
	AQT080-015	15:1	90 [799]	78 [688]	69 [613]	63 [558]	175 [1552]	1.605 [14.2]		6.18 [54.70]	
AQT120	AQT080-020	20:1	92 [818]	88 [781]	81 [716]	75 [660]	175 [1552]	1.598 [14.1]		6.18 [54.67]	
	AQT080-025	25:1	87 [771]	83 [734]	76 [669]	69 [613]	175 [1552]	1.594 [14.1]		6.11 [54.10]	
	AQT080-030	30:1	100 [883]	90 [799]	85 [753]	78 [688]	175 [1552]	1.367 [12.1]		6.18 [54.68]	
	AQT080-040	40:1	96 [846]	92 [818]	90 [799]	88 [781]	175 [1552]	1.365 [12.1]		6.18 [54.67]	
	AQT080-050	50:1	90 [799]	87 [771]	85 [753]	83 [734]	175 [1552]	1.364 [12.1]		6.11 [54.10]	
	AQT080-070	70:1	88 [781]	85 [753]	83 [734]	82 [725]	175 [1552]	1.363 [12.1]		5.37 [48.28]	
	AQT080-080	80:1	84 [743]	80 [708]	78 [690]	74 [655]	175 [1549]	1.363 [12.1]		5.33 [47.21]	
	AQT080-100	100:1	72 [641]	67 [595]	63 [558]	61 [539]	175 [1552]	1.363 [12.1]		5.58 [49.34]	
	AQT120-003	3:1	90 [799]	74 [650]	65 [576]	59 [520]	298 [2639]	9.014 [79.8]		13.58 [120.15]	
	AQT120-004	4:1	107 [948]	89 [790]	79 [697]	74 [650]	298 [2639]	7.286 [64.5]		13.49 [119.36]	
AQT160	AQT120-005	5:1	99 [873]	81 [716]	71 [632]	65 [576]	298 [2639]	6.484 [57.4]		13.37 [118.32]	
	AQT120-007	7:1	97 [855]	79 [697]	68 [604]	63 [558]	298 [2639]	5.746 [50.9]		12.96 [114.65]	
	AQT120-010	10:1	87 [771]	79 [697]	74 [650]	69 [613]	298 [2639]	5.376 [47.6]		12.12 [107.27]	
	AQT120-015	15:1	146 [1292]	119 [1050]	105 [929]	96 [846]	298 [2639]	6.161 [54.5]		13.40 [118.60]	
	AQT120-020	20:1	169 [1496]	139 [1227]	124 [1097]	114 [1013]	298 [2639]	6.137 [54.3]		13.32 [117.90]	
	AQT120-025	25:1	161 [1422]	130 [1152]	116 [1022]	106 [939]	298 [2639]	6.199 [54.9]		13.38 [118.36]	
	AQT120-030	30:1	180 [1589]	146 [1292]	129 [1143]	119 [1050]	298 [2639]	5.298 [46.9]		13.39 [115.53]	
	AQT120-040	40:1	187 [1654]	169 [1496]	150 [1329]	139 [1227]	298 [2639]	5.292 [46.8]		13.47 [119.22]	
	AQT120-050	50:1	179 [1580]	161 [1422]	142 [1254]	130 [1152]	298 [2639]	5.289 [46.8]		13.40 [118.57]	
	AQT120-070	70:1	176 [1561]	159 [1403]	140 [1236]	128 [1134]	298 [2639]	5.274 [46.7]		13.00 [115.05]	
AQT160	AQT120-100	100:1	120 [1059]	109 [966]	104 [920]	100 [883]	298 [2639]	5.281 [46.7]		12.22 [108.18]	
	AQT160-003	3:1	317 [2806]	257 [2277]	228 [2016]	209 [1849]	876 [7750]	36.396 [322.13]		46.71 [413.39]	
	AQT160-004	4:1	371 [3280]	305 [2695]	272 [2407]	251 [2221]	876 [7750]	26.642 [235.80]		46.16 [408.73]	
	AQT160-005	5:1	350 [3094]	284 [2509]	251 [2221]	230 [2035]	876 [7750]	22.246 [196.89]		45.43 [402.08]	
	AQT160-007	7:1	344 [3048]	278 [2463]	246 [2174]	225 [1989]	876 [7750]	18.551 [164.19]		43.44 [384.46]	
	AQT160-010	10:1	222 [1961]	198 [1756]	185 [1635]	175 [1552]	876 [7750]	16.606 [146.97]		40.98 [362.68]	
	AQT160-015	15:1	508 [4498]	417 [3689]	370 [3271]	339 [3001]	876 [7750]	19.892 [176.06]		45.19 [399.89]	
	AQT160-020	20:1	513 [4544]	481 [4256]	428 [3791]	395 [3494]	876 [7750]	19.721 [174.55]		46.39 [410.38]	
	AQT160-025	25:1	492 [4358]	460 [4070]	407 [3605]	374 [3308]	876 [7750]	19.632 [173.75]		45.62 [403.72]	
	AQT160-030	30:1	562 [4971]	508 [4498]	455 [4024]	417 [3689]	876 [7750]	15.971 [141.36]		46.82 [413.83]	
AQT160	AQT160-040	40:1	536 [4739]	513 [4544]	500 [4423]	481 [4256]	876 [7750]	15.971 [141.36]		46.37 [410.36]	
	AQT160-050	50:1	515 [4553]	492 [4358]	479 [4237]	460 [4070]	876 [7750]	15.971 [141.35]		45.60 [403.59]	
	AQT160-070	70:1	509 [4507]	487 [4312]	474 [4191]	455 [4024]	876 [7750]	15.952 [141.18]		45.53 [385.27]	
	AQT160-100	100:1	306 [2704]	279 [2472]	265 [2342]	254 [2249]	876 [7750]	15.941 [141.09]		40.95 [362.45]	

T_r = Rated output torque at rated speed for specific hours of life.

T_{peak} = Allowable momentary peak torque for emergency stop or heavy shock loading.

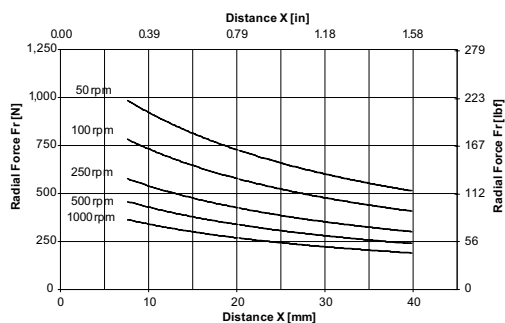
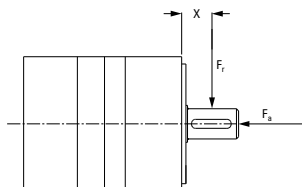
J = Mass moment of inertia reflected to the input shaft (including pinion assembly).

Specifications subject to change without notice.

True Planetary Gearheads

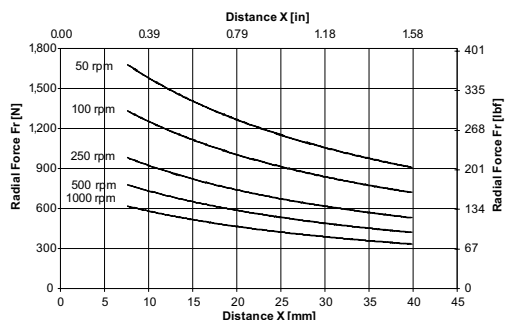
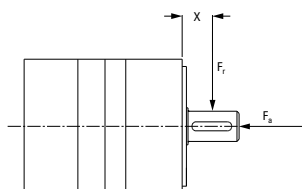
Radial and Axial Load Ratings

AQT060



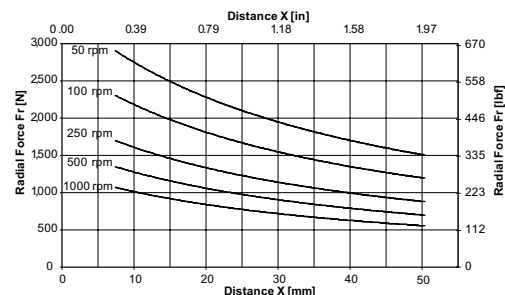
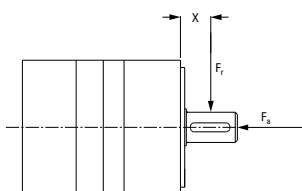
Speed rpm	Axial Load, F_a N [lb.]
50	2542 [571]
100	2017 [454]
250	1486 [334]
500	1180 [265]
1000	936 [211]

AQT080



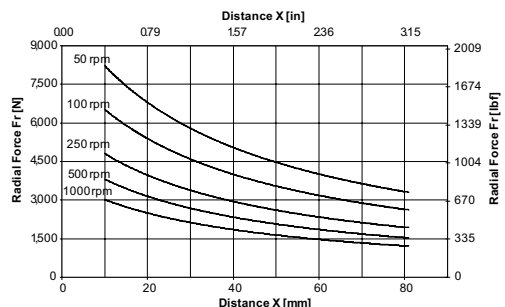
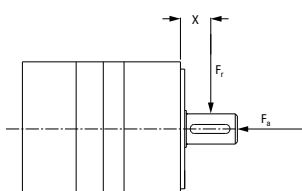
Speed rpm	Axial Load, F_a N [lb.]
50	3780 [850]
100	3000 [675]
250	2211 [497]
500	1755 [394]
1000	1393 [313]

AQT120



Speed rpm	Axial Load, F_a N [lb.]
50	6894 [1550]
100	5471 [1230]
250	4034 [907]
500	3203 [720]
1000	2540 [571]

AQT160



Speed rpm	Axial Load, F_a N [lb.]
50	14,122 [3175]
100	11,209 [2520]
250	8260 [1857]
500	6556 [1474]
1000	5204 [1170]

These graphs display the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed.