Dodge® Quantis high ratios

Customer training
Dodge Quantis

Product overview

**Flexible configurations**
- In-line helical, right-angle helical-bevel, motorized shaft mount
- Foot or flange mounting (B14 & B5)
- Integral gearmotor, C-face, B5 flange or shaft input
- Solid shaft, hollow bore, taper-bushed, Q-Loc, or shrink disc output

**Broad product range**
- Output torque: 2K lb-in to 125K lb-in (225 Nm to 14K Nm)
- Gearmotors: 0.25HP to 40HP (0.18kW to 30kW)
- Flanged inputs: NEMA 56C to 360TC (IEC 71 to 250 B5)
- Hollow bores: 1” to 4.4375” (25mm to 110mm)
- Ratios: 1.50:1 to 7,500:1
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Features & benefits

The efficient, easy and available gear solution

**Reduce energy consumption**
- 98% efficient gearing
- Minimum IE3 efficient integral motors
- Inverter-capable operation

**Easy installation and removal**
- Easy-on, easy-off taper-bushed mounting
- Clamp collar or 3-piece coupled motor attachment

**Excellent availability**
- 3-day standard lead times
  - Company-owned assembly locations in U.S., Canada, Mexico, Germany, China
  - Distributor partner assembly locations

**Powerful tools**
- Online product configurator
- CAD model downloads

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## Helical & bevel gears
Highly efficient torque transmission

## Efficient motors
Inverter-ready insulation systems

## Tapered bushings
Easy-on, easy-off mounting

## Online configurator
Image-driven selections
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Product line extension

- 4 and 5-stages of gear reduction for ILH, RHB and MSM

- Configurable quotations

- Complete factory-assembly

- Interchanges with major competitors

- Broad sales opportunities in various industries and applications
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Offering summary

- Size ranges
  - ILH: 38 to 168
  - RHB: 48 to 168
  - MSM: 68 to 168

- Output options
  - Single output shaft
  - Double output shaft
  - Straight hollow bore
  - Twin taper bushed
  - Keyless hollow bore
  - Screw conveyor drive

- Flexible inputs
  - Integral gearmotor
  - Clamp collar
  - 3-piece coupled
  - Separate shaft

- Configurable protection levels
  - Standard
  - Severe duty
  - Washdown duty
  - ATEX
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Available ratios

Pre-engineered, configurable ratios up to 7,500:1

![Configurable Ratios](chart.png)
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Gearing

Quantis gear reducers feature highly-efficient helical and/or bevel gearing

Ratios offered depend upon case size and reducer style

The number of **gear stages** determines maximum ratio available

- Single-stage up to 12:1
- Two-stage up to 50:1
- Three-stage up to 350:1
- Four-stage up to 2,080:1
- Five-stage up to 7,500:1
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Selection
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Selection

The required torque selection method

Utilized for gear selection when ratios are above 300:1

- In existing applications, look at the torque rating on the installed reducer’s nameplate
- In new applications, ask the customer for the required torque

- Helpful formulas:
  
  Required torque (lb-in) = \[63,025 \times \text{Required HP}\] / RPM
  Required torque (Nm) = \[9,549 \times \text{Required kW}\] / RPM
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Selection

Why use required torque?

Using the required torque for gear selection achieves the following:

- Economical gearbox sizing
- Avoids excessive reducer service factoring

Why not use input HP for selection?

Super-slow speeds require super-low input power:

- The smallest size of commercially available motor is often 0.25HP (0.18kW)
- A high ratio reducer with proper output torque capacity for the application may have an input power rating less than 0.25HP (0.18kW) input
- A motor will only output as much power as the application demands, preventing mechanical overload of the gear reducer

High ratio gearing is selected using output torque, not input power
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Selection

Configurator

Online selection tool
- Torque-rated selections (primary method for high ratios)
- Easy, image-driven user experience
- Printable PDF dimension sheets
- CAD models via e-mail delivery
  - 2D and 3D formats available

Two ways to access
- PTPlace.com/Baldor VIP
- Online demo at: config.baldor.com
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Industry and application opportunities
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**Water / wastewater applications**

<table>
<thead>
<tr>
<th>Bar screen</th>
<th>Dewatering centrifuge</th>
<th>Clarifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typically 26K lb-in (3K Nm) output torque or less</td>
<td>Typically 53K lb-in (6K Nm) output torque or less</td>
<td>Typically 106K lb-in (12K Nm) output torque or less</td>
</tr>
<tr>
<td>– 3 to 5-stage gearing</td>
<td>– 3 or 4-stage gearing</td>
<td>– 4 or 5-stage gearing</td>
</tr>
<tr>
<td>– Removes trash from sewage entering plant</td>
<td>– Separates grit and sludge from liquid</td>
<td>– Separates sediments via settling tanks</td>
</tr>
<tr>
<td>– Torque-limiting devices often employed</td>
<td>– May require explosion-proof gearing or motors</td>
<td>– Torque-limiting devices often employed</td>
</tr>
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Water / wastewater applications

Filter Press

- Typically 53K lb-in (6K Nm) output torque or less
- 3 to 4-stage gearing
- Separates water from sludge or grit
- Corrosion-resistant and water protection features

Screw conveyor

- Typically 26K lb-in (3K Nm) output torque or less
- 2 or 3-stage gearing
- Convey sludge, sediment and grit for waste removal
- Optional screw conveyor adapter and drive shaft
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### Meat processing applications

<table>
<thead>
<tr>
<th>Bleed chain</th>
<th>Processing conveyors</th>
<th>Storage / freezer</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Bleed chain" /></td>
<td><img src="image2.png" alt="Processing conveyors" /></td>
<td><img src="image3.png" alt="Storage / freezer" /></td>
</tr>
<tr>
<td>Typically 26K lb-in (3K Nm) output torque or less</td>
<td>Typically 9K lb-in (1K Nm) output torque or less</td>
<td>Typically 26K lb-in (3K Nm) output torque or less</td>
</tr>
<tr>
<td>– 3 to 5-stage gearing</td>
<td>– 2 to 4-stage gearing</td>
<td>– 3 to 5-stage gearing</td>
</tr>
<tr>
<td>– Transports large carcasses for dissection</td>
<td>– Slow speeds for additional processing and inspection</td>
<td>– Transports large carcasses for cold storage</td>
</tr>
<tr>
<td>– Overhead location exposed to moisture, light sprays</td>
<td>– Heavy washdown with exposure to chemicals</td>
<td>– Low-temperature capable gearing and motors</td>
</tr>
</tbody>
</table>
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Thermal processing applications

- **Heat treatment**
  - Typically 9K lb-in (1K Nm) output torque or less
  - 4 to 5-stage gearing
  - Slow speed conveying through high heat
  - May be exposed to high ambient temperatures

- **Baking and drying**
  - Typically 4K lb-in (500 Nm) output torque or less
  - 3 to 4-stage gearing
  - Used for edible foods or even bricks
  - Severe duty protection requirements common

- **Cooling / hydrocooling**
  - Typically 4K lb-in (500 Nm) output torque or less
  - 3 to 5-stage gearing
  - Common for fresh fruit or vegetable processing
  - May require washdown features
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**Miscellaneous conveyors**

<table>
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<tr>
<th>Radial stackers</th>
<th>Drag conveyors</th>
<th>Assembly lines</th>
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- Typically 53K lb-in (6K Nm) output torque or less
- 3 to 4-stage gearing
- Gearing drives the wheels that move the conveyor
- Holding brake may be required on the motor

- Typically 106K lb-in (12K Nm) output torque or less
- 3 to 4-stage gearing
- Slow driving speeds and high friction loads
- Severe duty protection requirements common

- Typically 106K lb-in (12K Nm) output torque or less
- 3 to 5-stage gearing
- Common in assembly lines for transportation
- Braking or variable speed motor requirements
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Nomenclature

High Ratio Examples

- 4-stage reduction, size 68, ILH, C-face, foot mount, 1206.65:1 ratio:
  HB684CN56C / **1206.65**-A1-SI-1.625 X 3.15

- 5-stage reduction, size 148, RHB, integral motor, hollow bore, 6177.95:1 ratio:
  BF1485GH71C4 / **6177.95**-A1-HI-3.625 X 13.78-B14-335mm-AB
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CAD models

Two ways to access

- Download from ABB website
- Configure unit in Quantis Configurator and input e-mail address for drawing delivery
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Assembly and build centers

AC – Assembly centers serve global customers
BC – Build centers serve regional customers

All locations offer shipments in 3 days or less
What we commit to
Striving for a superior customer experience

**Excellent delivery performance**
- Fast and accurate quotations
- On-time deliveries and short lead times
- High quality products
- Professional issue resolution

**Fast and flexible service response**
- Simple, fast and responsive warranty process based on trust
- Life cycle services to ensure maximum availability
- Comprehensive global service network
- Dedicated support around the globe

**Online tools accessible 24/7/365**
- Selection, modification and dimensioning tools that provide full documentation
- Online ordering of products, services and spare parts with progress tracking tools

We aim to make it easy to do business with us – both pre and post order