

Candy Accu-Gear®

- Precision Helical Planetary Gearheads
- Economy Spur Planetary Gearheads
- Precision Spiral Bevel Gearboxes
- In-Line and Right-Angle Designs
- Metric and NEMA Models



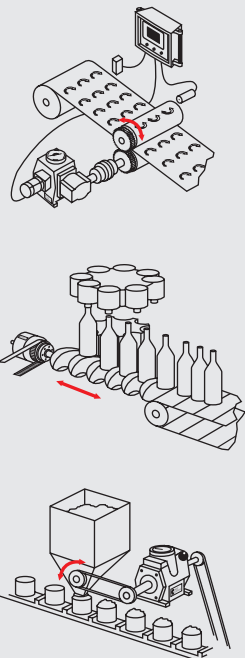
OVER 50 YEARS OF INNOVATION

Candy Controls

When Timing Is Everything

Customers all over the world are using Candy's innovative motion control products to make on-the-fly rotary position and timing adjustments for a wide variety of manufacturing applications. Candy's precision differential gearboxes, servo reducers and zero-backlash couplings play a critical role in process optimization.

Candy Mfg. Co. has a 50-year tradition of engineering excellence – instilled from the beginning by founder Bob Hendershot and continuing through the current day. Candy offers the highest quality automation products and adds value to its clients through innovation, supported by professional application engineering and excellent customer service.



Candy Coup-Link®

Complete line of Beam, Bellows, Disc, Encoder, Jaw and Oldham Couplings

- Zero-backlash, flexible-shaft couplings
- High torque, excellent response
- Accommodates misalignment and shaft endplay
- Aluminum and stainless steel options
- Inch and metric bores available from inventory



Harmonic Differential

Shaft-mounted differential gearbox features compact, high-torque design

- 1:1 shaft-mounted phase transmission
- Precise rotary position and speed trimming control
- Low backlash design, optimal accuracy and performance



Candy Differential

Foot-mounted differential gearbox featuring a modular design for ultimate flexibility

- 1:1 counter-rotating differential gearbox
- Infinite, bi-directional rotary position control
- Right-angle, shaft-reversing and control motor options



Dynamic Differential

1:1 phase shifting differential for precise rotary motion control



Candy Positioner

1:1 phase transmission with same shaft rotation, provides 400° of precise rotary adjustment



Phase Variator

1:1 phase transmission provides full 0-360° range of position control



Candy Phasing Hub

Static phase adjusting coupling with bi-directional adjustment



Candy Timing Hub

Static phase adjusting coupling for 360° of positioning of rotating machine components



Candy Switch

Cam switch providing 0-360° of dwell and timing adjustment for electrical and electronic circuits



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Product Overview						
Precision Helical Planetary Gearheads	Frame Sizes	Output Torque	Ratios 1-Stage	Ratios 2-Stage	Backlash 1-Stage (arc-min)	Backlash 2-Stage (arc-min)
 CB	9: 42mm-220mm	14 Nm-2000 Nm	3, 4, 5, 6, 7, 8, 9, 10	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	<1, <3, <5	<3, <5, <7
 CBR	9: 42mm-220mm	9 Nm-2000 Nm	3, 4, 5, 6, 7, 8, 9, 10, 14, 20	25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200	<2, <4, <6	<4, <7, <9
 CF	9: 42mm-220mm	14 Nm-2000 Nm	3, 4, 5, 6, 7, 8, 9, 10	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	<1, <3, <5	<3, <5, <7
 CFR	9: 42mm-220mm	9 Nm-2000 Nm	3, 4, 5, 6, 7, 8, 9, 10, 14, 20	25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200	<2, <4, <6	<4, <7, <9
 CE	9: 50mm-235mm	14 Nm-2000 Nm	3, 4, 5, 6, 7, 8, 9, 10	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	<8	<12
 CER	9: 50mm-235mm	9 Nm-2000 Nm	3, 4, 5, 6, 7, 8, 9, 10, 14, 20	25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200	<10	<14
 CD/CDS	7: 47mm-255mm	14 Nm-2000 Nm	4, 5, 7, 10	20, 25, 35, 40, 50, 70, 100, 16, 21, 31, 61, 91	<1, <3, <5	<3, <5, <7
 CDR	7: 47mm-255mm	14 Nm-2000 Nm	4, 5, 7, 10, 14, 20	25, 35, 40, 50, 70, 100, 140, 200	<2, <4, <6	<4, <7, <9
 CN	2: NEMA 23 & 24	40 Nm-160 Nm	5, 10	25, 50, 100	<1, <3, <5	<3, <5, <7
 CNR	2: NEMA 23 & 34	40 Nm-150 Nm	5, 10	25, 50, 100, 200	<2, <4, <6	<4, <7, <9

Economy Spur Planetary Gearheads	Frame Sizes	Output Torque	Ratios 1-Stage	Ratios 2-Stage	Backlash 1-Stage (arc-min)	Backlash 2-Stage (arc-min)
 CPE/CPG	12: 40mm - 160mm	9 Nm - 423 Nm	3, 4, 5, 7, 10	15, 16, 20, 25, 30, 35, 40, 50, 70, 100	<6, <8	<8, <10
 CPN/CPB	9: NEMA 23, 34, 42, 56, 75 Metric 60, 90, 115, 142mm	9 Nm - 423 Nm	3, 4, 5, 7, 10	15, 16, 20, 25, 30, 35, 40, 50, 70, 100	<6, <8	<8, <10

Precision Spiral Bevel Gearboxes	Frame Sizes	Output Torque	Ratios 1-Stage	Ratios 2-Stage	Ratios 3-Stage	Backlash 1-Stage (arc-min)	Backlash 2-Stage (arc-min)	Backlash 3-Stage (arc-min)
 CT	9: 65mm - 280mm	12 Nm - 3200 Nm	1, 1.5, 2, 3, 4, 5 Bevel Only	–	–	<6	–	–
 CT-F	9: 65mm - 280mm	12 Nm - 3200 Nm	1,1.5, 2, 3, 4, 5	7, 10, 15, 20, 25, 35, 50	70, 100, 125, 150, 200, 250, 350, 500	<6	<8	<10

Introduction

Candy Accu-Gear® Advantage

Precision Helical Planetary Gearheads

This series features helical planetary gear technology that provides maximum gear-to-gear tooth contact for high-torque, low-backlash applications. Up to three different precision classes are available, with the highest class achieving less than 1 arc minute backlash. In-line and right-angle units are available with motor adaptor housings to accommodate virtually any type of metric or NEMA motor.

- 33% more tooth contact with helical gear technology
- Low backlash with up to 3 precision classes available
- Ratios from 3:1 up to 100:1
- Metric and NEMA models for virtually any type of motor
- IP65 rated for washdown duty applications
- Stainless steel model available
- Drop-in units for a number of competitors
- 5-year product warranty

Economy Spur Planetary Gearheads

The Economy Series offers the right design for those in-line applications that require the efficiency and torque capacity of a planetary gearhead, but not the accuracy and cost associated with the Precision Helical Series. The Economy Series features a straight spur planetary design while maintaining many of the unique design features offered in the Precision Helical Series. These in-line gearheads will mount to virtually any type of metric or NEMA motor.

- In-line design offers precision at a lower cost
- High-efficiency, high-torque planetary gear technology
- Low-backlash design, from <6 arc minutes
- Ratios from 3:1 up to 100:1
- Metric and NEMA models for virtually any type of motor
- Drop-in units for a number of competitors
- 2-year product warranty

Precision Spiral Bevel Gearboxes

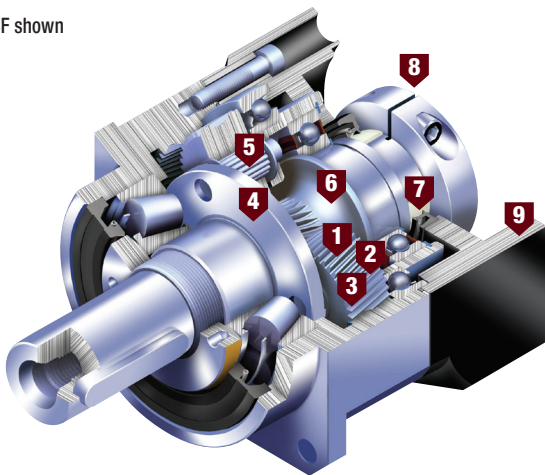
These right-angle gearboxes feature precision, ground spiral bevel gear sets for applications that require accuracy and repeatability. This series is available in combination with planetary stages to achieve ratios up to 500:1. Motor adaptor housings are also available to mount a variety of metric and NEMA motors.

- High-torque, low-backlash right-angle gearboxes
- Backlash from <6 arc minutes
- Flexible design accommodates multiple shaft options
- Stainless steel housing and shafts
- Metric and NEMA motor adaptors for virtually any type of motor
- Ratios from 1:1 up to 500:1 with planetary stages
- 2-year product warranty

Design Highlights

Precision Helical Planetary Gearheads

CF shown



1

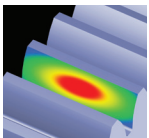
Helical Gear Technology

Helical gears provide 33% more gear contact compared to spur gears, while the helix angle provides for a smooth mesh reducing both noise and backlash.



Design Note

Right angle sections incorporate precision helical bevel gears supported by double row bearings. CF and CD use tapered roller bearings on output as shown. CB, CN and CE incorporate ball bearings.



2

HeliTopo Technology

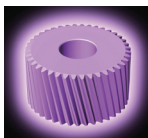
High performance is achieved by easing off the tooth profile and crowning the lead edge of each gear tooth. The result is superior gear mesh alignment and tooth contact.



6

Nyogel Lubrication

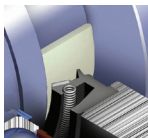
Each unit is factory lubricated with a Nyogel 792D synthetic grease and sealed to IP65 standards. Food grade grease is available upon request.



3

Plasma Nitride Heat Treating

This process provides a consistent tooth surface hardness of 840Hv for superior wear resistance and a core hardness of 30 HRc for durability.



7

High-Tech Sealing System

This patented system reduces break-away torque and heat via a special coating on all sealing surfaces. The coating achieves a hardness of 3700Hv and is then ground to reduce wear and erosion. This technology prevents leaks and results in a service life greater than 20,000 hours.



4

One-Piece Planet Carrier with Extended Bearing Design

This patented design places the sun gear bearing directly into the planet carrier, minimizing gear misalignment resulting in greater accuracy. This design also provides maximum radial load capacity, increasing design reliability and stiffness.



8

Dynamically Balanced Clamping System

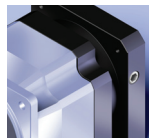
The design features a triple split collet that provides a backlash free connection with 100% concentricity. This balanced design ensures smooth operation at high speeds.



5

Integral Needle Roller Bearings

Each planet gear rotates on uncaged needle roller bearings optimizing contact points to increase design stiffness and torque capacity.



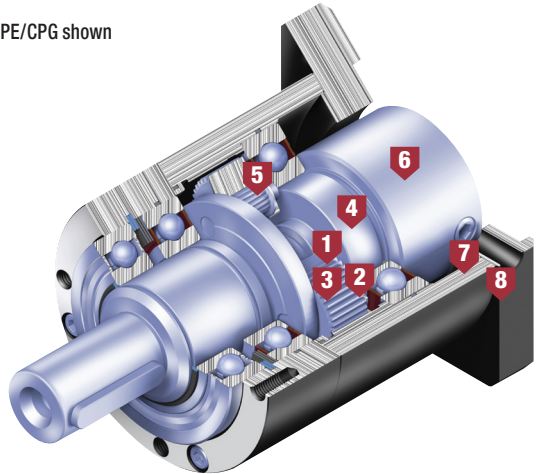
9

Multiple Housing Options

These units are designed for assembly in a variety of NEMA and metric housings to provide dimensional drop-ins to several competitive units where higher quality and lower cost is required.

Economy Spur Planetary Gearheads

CPE/CPG shown



1

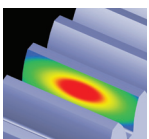
Planetary Gear Technology

Planetary gear design provides greater tooth contact, torque capacity, efficiency and accuracy compared to conventional gearing.



Design Note CPE/CPG Series

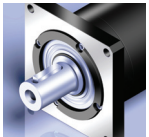
Precision machined aluminum housings with round, metric output flange designed to drop into a number of competitive units.



2

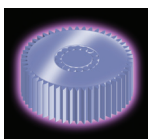
HeliTopo Technology

High performance is achieved by easing off the tooth profile and crowning the lead edge of each gear tooth. The result is superior gear mesh alignment and tooth contact.



Design Note CPN/CPB Series

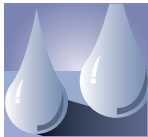
These units feature a square output flange integral with the aluminum housing designed to drop into a number of competitive units. Metric and NEMA dimensions are available.



3

Plasma Nitride Heat Treating

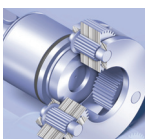
This process provides a consistent tooth surface hardness of 900Hv for superior wear resistance and a core hardness of 30 HRc for durability.



6

Lubrication

This series incorporates an AC-D multi-temperature grease for extreme applications. The lubrication maintains the integrity of the gearhead and its performance providing a low-to-no maintenance IP64 rating. Food grade grease is available upon request.



4

One-Piece Planet Carrier

This one-piece design allows the planet gears to be supported from both sides enhancing alignment and increasing system overhung load capacity, reliability and stiffness.



7

Housing Construction

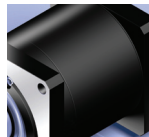
The Economy Spur housing is precision manufactured from anodized aluminum for superior heat dissipation and corrosion resistance.



5

Integral Needle Roller Bearings

Each planet gear rotates on uncaged needle roller bearings optimizing contact points to increase design stiffness and torque capacity.



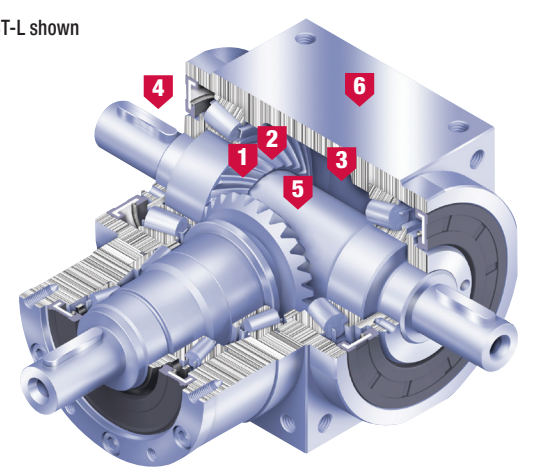
8

Multiple Housing Packaging Options

These units are designed for assembly in a variety of NEMA and metric housings to provide dimensional drop-ins to several competitive units where higher quality and lower cost is required.

Precision Spiral Bevel Gearboxes

CT-L shown



1

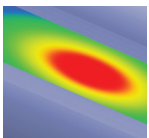
Precision Spiral Bevel Gears

High-precision, ground spiral bevel gear sets incorporate helical geometry for smooth, accurate and repeatable rotation. Gears exceed in DIN 5.



Design Note Right Angle Gearbox Models

CT-L Input shaft with T output design
CT-L1 Input shaft with one right angle shaft
CT-H Input shaft with hollow key right angle
CT-C Input shaft with hollow and shrink disc



2

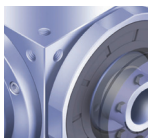
Heat Treating

Gears are carburized to provide a consistent tooth hardness for superior wear resistance and durability.



Design Note Right Angle Gearhead Models

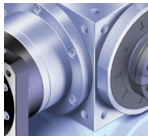
CT-FL Motor mount with T output design
CT-FL1 Motor mount with single right angle shaft
CT-FH Motor mount with hollow key right angle
CT-FC Motor mount with hollow and shrink disc



3

Single-Piece Stainless Steel Housing

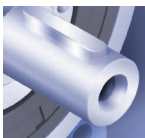
This housing is designed for maximum rigidity and corrosion resistance and offers multiple precision-machined surfaces for ease of installation.



6

Flexible Packaging

Design flexibility offers a number of options including: single shaft left or right, through shaft, hollow shaft, adaptors to accommodate most metric and NEMA motors, and multiple planetary stages to achieve ratios up to 500:1.



4

Stainless Steel Input/Output Shafts

Multiple input and output configurations are available to meet a wide variety of applications.



5

Lubricated For Life

The precision right angle gearboxes incorporate Nyogel 792D synthetic grease and are lubricated for life. Food grade grease is available upon request.