

ServoFit™ / Motion Control Products



Gearhead Series



Rack and Pinion Systems



PipeDrive Motors



STOBER
Geared to a higher standard™

STOBER Drives Inc., Maysville KY

Contact:

www.stober.com

1-800-711-3588

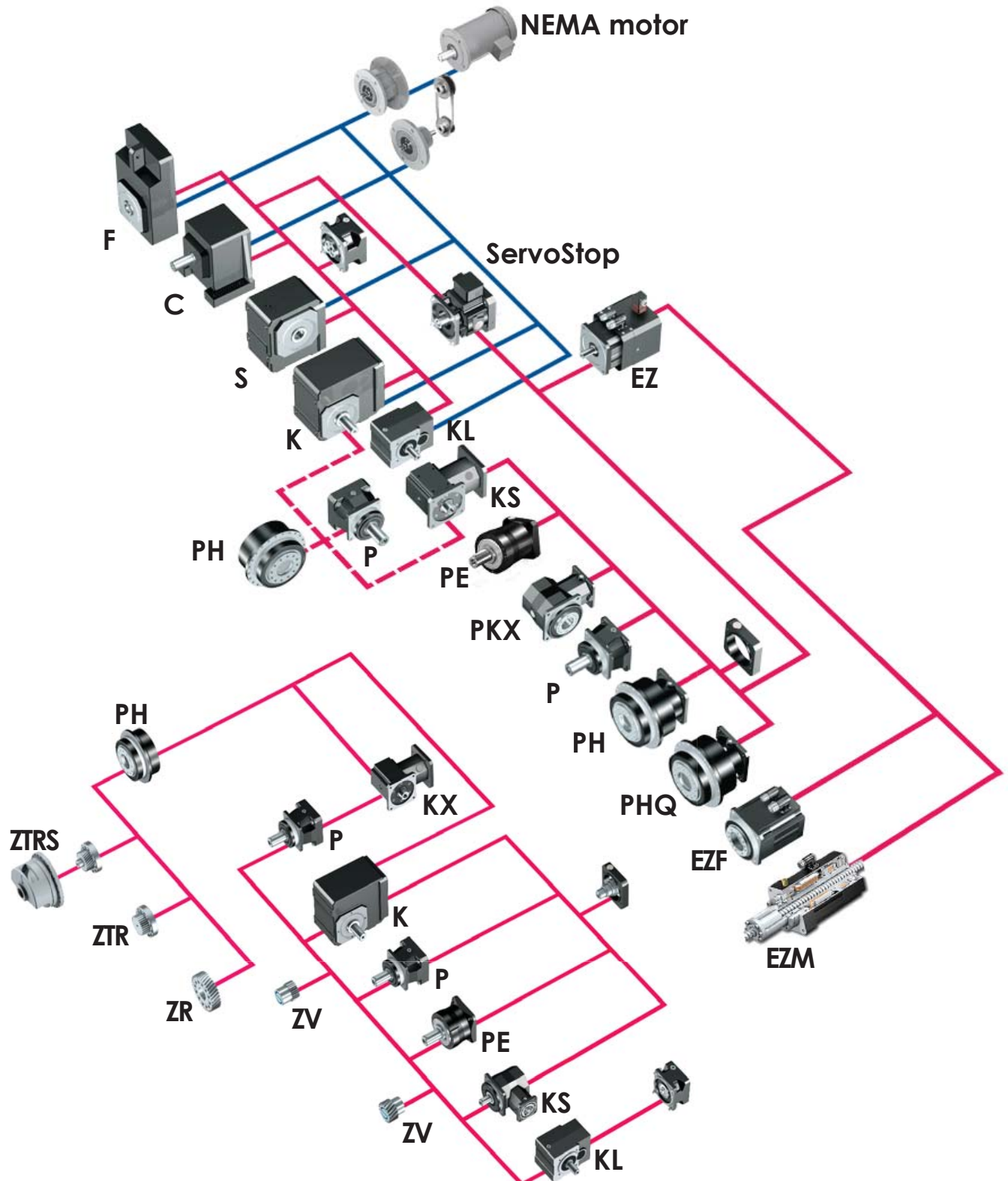
sales@stober.com



Take a virtual
tour of STOBER!



The STOBER offering of ServoFit™ gearheads will fit all your servo needs. The ServoFit™ Precision Planetary Gearheads are ideal for compact, highly dynamic applications. The ServoFit™ Modular System was designed for those applications where compact size of a planetary gearhead is not needed. With these two lines, **STOBER Drives** offers the world's largest variety of servo gearheads. The versatility and interchangeability of our components allow most products to be assembled and shipped in 1 day from our Maysville, Kentucky plant.



Unsurpassed Service Support

Our goal is to serve our clients with excellence and base every decision on our core values. Every STÖBER employee strives to deliver the gold standard of quality and service. STÖBER seeks the best in order to live up to being geared to a higher standard!

SHIPS in 1 DAY

Most sizes are available with STANDARD 1 DAY SHIPPING. (Does not apply to PA and PHA.)



SAME DAY EMERGENCY SHIPPING

24 Hours – No expedite fee
Daytime Phone: 606 759-5090
On-Call Emergency: 606 563-6035



Assembly
Timmy Saunders, MGS Team Leader
Employed at STÖBER since 1995



Manufacturing
Philip Brown, Machinist
Employed at STÖBER since 2010



Jamie Collins, Product Support Team Leader
Employed at STÖBER since 1997

3 Rings
To get competent,
"one-stop" shopping!

1 HOUR QUOTE



Rachael Jones, Customer Service Rep.
Employed at STÖBER since 2012



STÖBER Geared to a higher standard™



Delivering the World's Best Gear Solutions

STOBER Drives has been assembling products in Kentucky for over twenty years. All reducer components (gears, covers, material, etc.) are backed by a **five year warranty**. Normal wear items (oil seals, bearings, etc.) are covered for two years.



Helical and Spiral Bevel Gears

- Highest torque capacity
- Maximum efficiency
- Low noise level

5 YEAR LIMITED WARRANTY



Earl Bennington, Warehouse Team Leader
Employed at STOBER since 1992

Anita Truesdell, Picker
Employed at STOBER since 2007

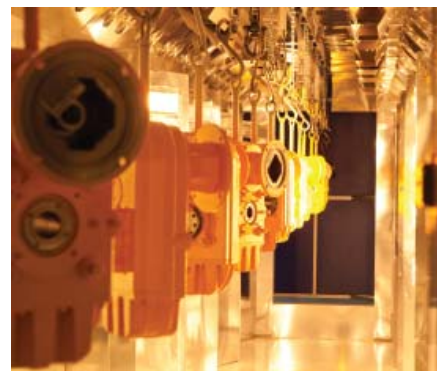
Exceptional Performance

- Low noise level
- Cool running
- High speed capacity
- High torque capacity
- Low backlash



Paint Curing Oven

Allows for one day assembly and higher paint durability



Fits Any Servo Motor

Motor plates will fit a wide selection of NEMA, IEC, or custom servo motors.

Engineered Lubricant

- Wide temperature range
- Enhanced oxidation stability
- Optimum corrosion protection
- Superior wear protection



Wayne Dugan, Planetary Team Leader
Employed at STOBER since 2003

ServoFit® Gearheads

InLine Gearheads

C Series

- Backlash – ≤ 20 arc/mins
- Ratios – 2:1 to 276:1*
- Input RPM – up to 4,500
- Output Torque up to 7,200 Nm
- Available:
 - Inch or Metric Output
 - Washdown Food Duty



F Series

- Backlash:
 - Standard ≤ 11 arc/mins
 - Reduced ≤ 7 arc/mins
- Ratios – 4:1 to 540:1*
- Input RPM – up to 4,500
- Output Torque up to 1,100 Nm
- Available:
 - Inch or Metric Output
 - Solid, Hollow, Single and Double Bushing
 - Beverage and Food Duty



P(A) Series

- **P** – Backlash – ≤ 3 arc/mins
- **PA** – Backlash – ≤ 1 arc/mins
- Ratios – 3:1 to 100:1
- Input RPM – up to 8,000
- **P** – Output Torque up to 3,000 Nm
- **PA** – Output Torque up to 1,600 Nm
- Available:
 - Washdown Food Duty



PH(A) Series

- **PH** – Backlash – ≤ 3 arc/mins
- **PHA** – Backlash – ≤ 1 arc/mins
- Ratios – 4:1 to 121.0:1
- Input RPM – up to 8,000
- Output Torque up to 7,500 Nm



PHQ(A) Series

- **PHQ** – Backlash – ≤ 3 arc/mins
- **PHQA** – Backlash – ≤ 1 arc/mins
- Ratios – 18:1 to 600:1
- Input RPM – up to 7,000
- **PHQ** – Output Torque up to 22,000 Nm
- **PHQA** – Output Torque up to 10,000 Nm



PE Series

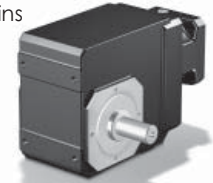
- Backlash – ≤ 13 arc/mins
- Ratios – 5:1 to 100:1
- Input RPM – up to 8,000
- Output Torque up to 310 Nm



Hollow and Right Angle Gearheads

K / KL Series

- **K** – Standard Backlash – ≤ 12 arc/mins
Reduced – ≤ 6 arc/mins
- **KL** – Standard Backlash – ≤ 16 arc/mins
- **K** – Ratios – 4:1 to 381:1*
- **KL** – Ratios – 4:1 to 32:1
- Input RPM – up to 4,500
- **K** – Output Torque up to 13,200 Nm
- **KL** – Output Torque up to 50 Nm
- Available:
 - Inch or Metric Output
 - Solid, Hollow, Single, and Double Bushing
 - Beverage and Food Duty



KS Series

- Backlash – ≤ 4 arc/mins
- Ratios – 6:1 to 200:1
- Input RPM – up to 6,000
- Output Torque up to 400 Nm



KSS Series

- Backlash – ≤ 12 arc/mins
- Ratios – 4:1 to 178:1
- Input RPM – up to 6,000
- Output Torque up to 350 Nm
- Available:
 - Inch or Metric Output
 - Solid, Hollow, Single and Double Bushing



PKX Series

- Backlash – ≤ 4 arc/mins
- Ratios – 3:1 to 300:1
- Input RPM – up to 6,000
- Output Torque up to 3,000 Nm
- Available:
 - Washdown Food Duty



PK Series

- Backlash – ≤ 3.5 arc/mins
- Ratios – 12:1 to 561:1
- Input RPM – up to 6,000
- Output Torque up to 2,700 Nm
- Available:
 - Washdown Food Duty



PHKX Series

- Backlash – ≤ 3.5 arc/mins
- Ratios – 4:1 to 300:1
- Input RPM – up to 6,000
- Output Torque up to 7,500 Nm



PHK Series

- Backlash – ≤ 3.5 arc/mins
- Ratios – 16:1 to 561:1
- Input RPM – up to 6,000
- Output Torque up to 7,500 Nm



PHQK Series

- Backlash: ≤ 3.5 arc/mins
- Ratios – 22:1 to 591:1*
- Input RPM – up to 5,500
- Output Torque up to 13,000 Nm

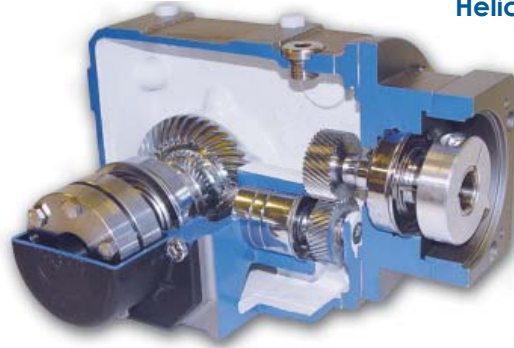
* Ratios standard in one housing. Higher ratios available in compound units.

Beverage and Food Duty

- Lubricated for Life – Double Output Seals (where possible)
- Maintenance Free – No Breather
- Stainless Output Bushing, Shaft, or Bore
- **5 Year Warranty**
- Multilayer Industrial 316 Stainless Steel Epoxy Coating (also available with White Epoxy (BISC approved))
- Heat cured



"K" Series Right Angle Helical/Bevel

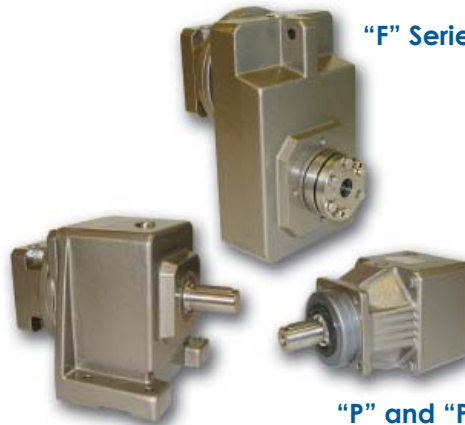


Outside Closed Cover Cap – protects seals from high pressure washing
Inside Split Cover Cap – enables easy assembly onto the shaft

ALL Stainless Steel Hardware



"F" Series Offset Helical

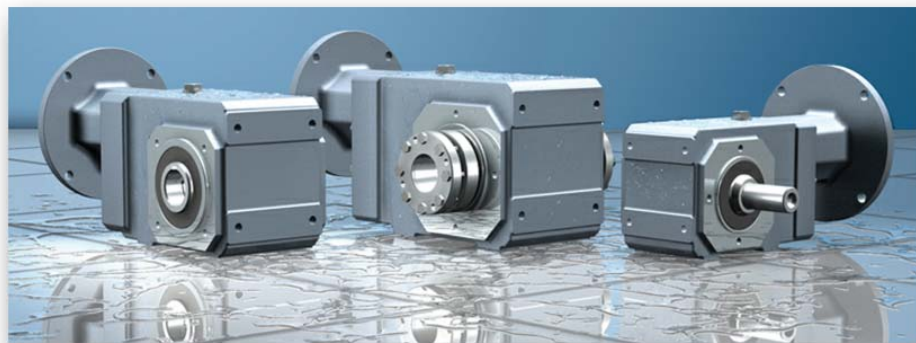


"P" and "PKX" Series Planetary

"C" Series Concentric Helical

"KSS" Series Stainless Steel Helical Bevel

STOBER series **"KSS"** certified against dust and water ingress.



Silver Bullet AM™ is a registered trademark of Burke Industrial Coatings.

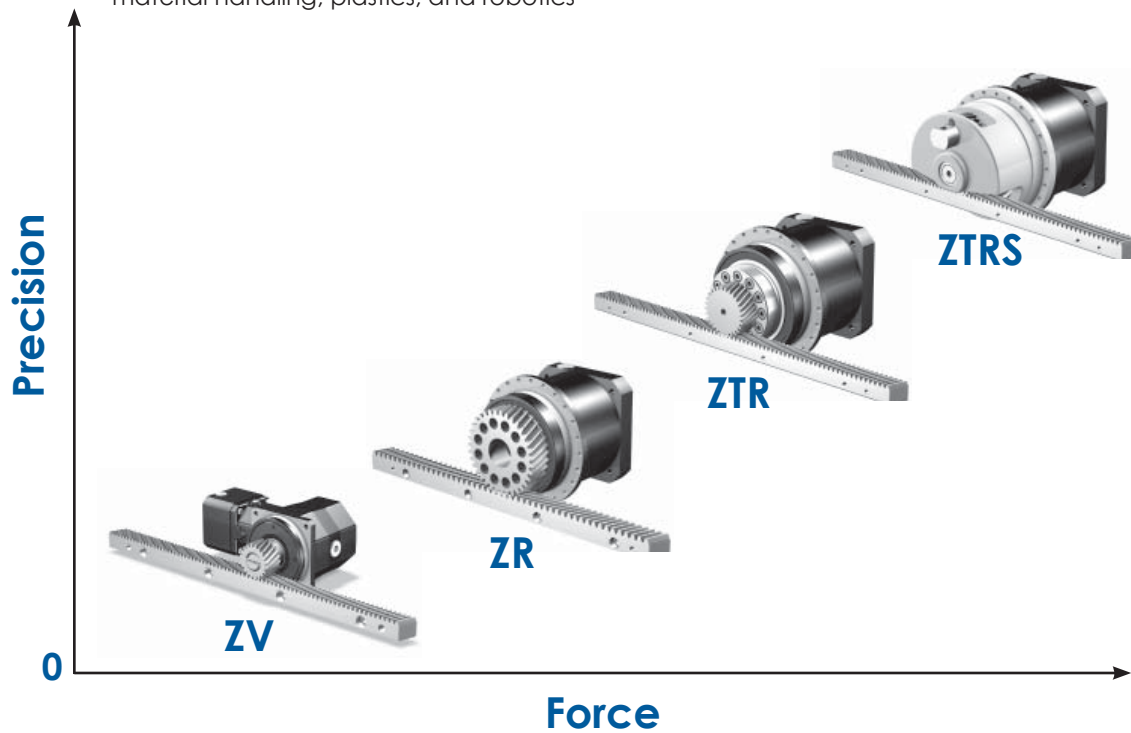
Rack and Pinion Drives

In Partnership with **ATLANTA**



Rack and Pinion Features

- Gear unit and rack optimally mated together as a system
- Ready to install drive solutions
- Easy selection and calculations done by STOBER
- Optimize inertia mismatch by changing the gear ratio or pinion tooth count
- Forces up to 122 kN or 27,400 lbs.
- Precision linear backlash as low as 7 μm
- Gearing size ranges from Mod. 2 – 10
- Ideal for automation, automotive manufacturing, building materials, machine tool, material handling, plastics, and robotics



Solutions are available for **both** helical and straight racks.



The mounting bracket allows for easy installation and tooth engagement of the rack.



STOBER Geared to a higher standard™



Application Support

- 24 Hour Service Hotline: 606 563-6035
- Over 75 years gearing experience & 30 years motor and electronic experience
- Consultative product support team
- Email product support at tecsupport@stober.com
- ServoSoft Application Sizing Software
- CAD Drawings from the Web
- See web site (www.stober.com) for full information



Brian Sharp, Product Support Technician
Employed at STOBER since 2003

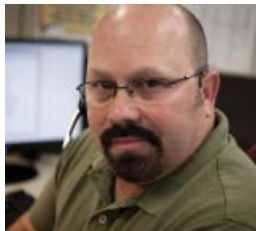
Tiffany Fryman, Customer Service Rep.
Employed at STOBER since 2012



Tim Anderson, Application Engineer
Employed at STOBER since 2011



James Banks, Application Engineer
Employed at STOBER since 2011



Donnie Black, Customer Service Rep.
Employed at STOBER since 2011

Dean Malott, Electrical Engineer
Employed at STOBER since 2009



Application Drawings

Drawings are available in a format to suit your application. We can provide eDrawings, 2D, 3D, CAD drawings with six views, or certified faxable prints.

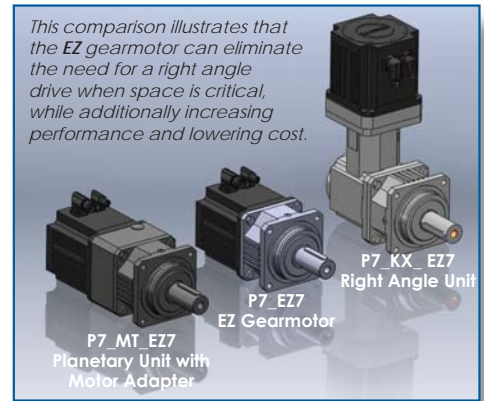
- 1) To download scale drawings, from the Home Page of our web site (www.stober.com), select *CAD Drawings* from the menu.
- 2) Select the product group ServoFit Gearheads .
- 3) Select the Series in the product group, in this case "right angle planetary gear unit" and the 4) size from the list.
- 5) Select the configuration from the options, 6) the format you desire, and touch the file icon to place your drawing in the download center.
- 7) Go to the download center to retrieve the file or multiple files you have selected.

Call or e-mail Technical Support for additional information or assistance.

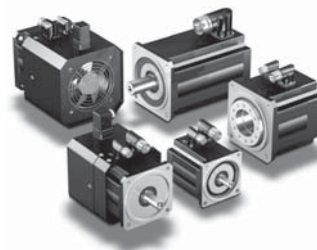
STOBER is also featured on Rockwell's Motion Analyzer.

STOBER Servo Motors

- **Compact** – motor mounts directly to the gearbox, eliminating a motor coupling, coupling housing, adapter or additional input seals and bearings.
- **Dynamic** – direct mounting reduces inertia up to 75%
- **Geared Motor Advantages** – smoother running for optimal performance, dynamic, minimal torque/speed ripple, UL/CE/CSA approved.
- Optional Magnetic **Brake**
- **High Inertia and Low Inertia** – provides motor specifications to fit unique applications
- **Water or Forced Air Cooling:** for higher rated power (approximately 35% torque increase) or at high ambient temperature. A fan can be added in the field.



Water Cooling



Air Cooling



3rd Party Drives Compatibility

- Rockwell Automation Technologies
- Bosch
- Siemens
- Kollmorgen
- Control Techniques
- B&R
- Many more

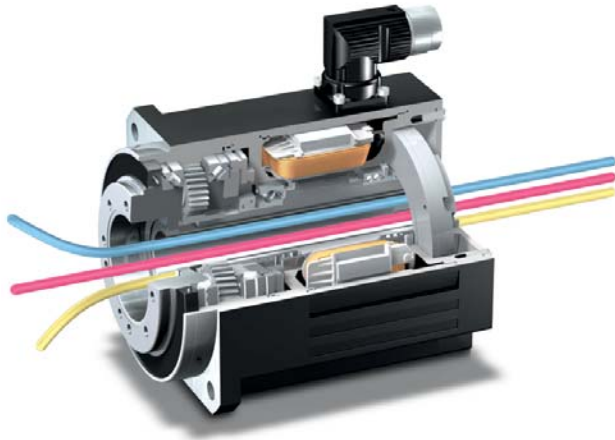
Orthocyclically Wound Motor Coil

The industrial implementation of the tooth winding using orthocyclic linear winding technology makes it possible to manufacture the stator windings with the highest possible copper fill factor.

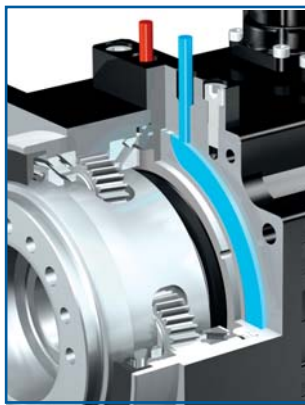
The winding technology increases the motor power output by approximately 80%. For this reason it is possible to shorten the length of the motor by almost half without reducing the power output.



Hollow Servo Motor – PipeDrive PY and EZF



The hollow servo motor is a balanced motor with powerful torque, high dynamic performance, and precise constant speed running.



Optional cooling channel

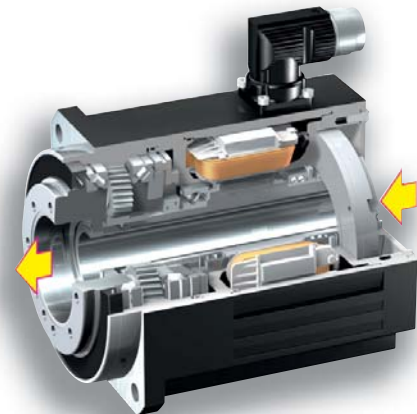
*The flange between the motor and gear unit can be supplied with a liquid or air cooling feature **increasing the torque and speed capacity** of the unit through heat dissipation.*

Higher continuous and rated torques can be used.



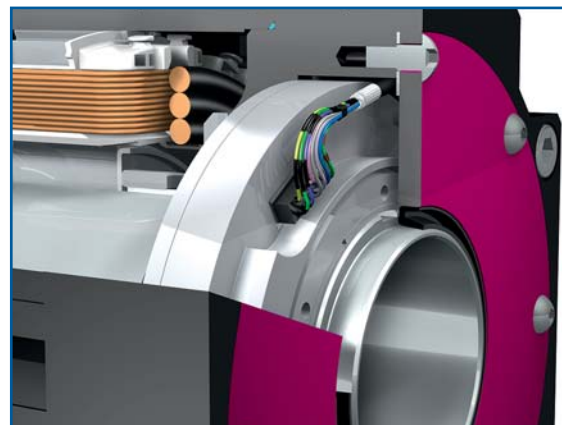
Features

- Generously designed flange mount hollow bore
- Allows for media (power cables, pipes, hoses, etc.) to pass through the motor
- Direct, central path through the complete drive simplifies typical designs
- Compact due to the orthocyclic linear tooth winding
- Generates powerful torque and high stiffness with a low total weight, making it well suited for applications where the motor is also moved
- Easy connectivity with flange output or bolt on adapter
- Ideal for industrial robots, machinery, machine tools, automatic assembly machines, converting and printing, handling equipment, and laser machine tools

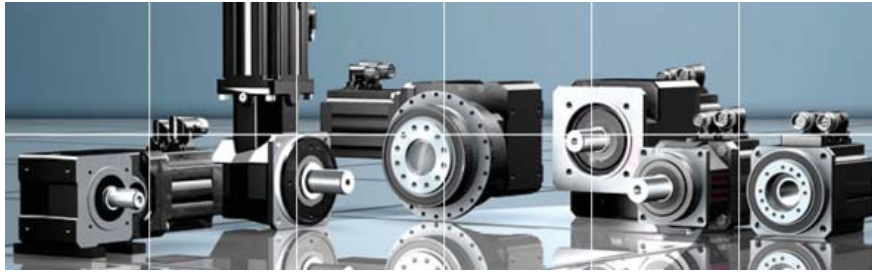


PipeDrive servo geared motor (PY) with flange mount hollow bore and EnDat® inductive absolute encoder as a digital feedback system.

Section: View of the B-side of the EZF 501 flange mount, hollow bore motor with EnDat® absolute encoder digital feedback system



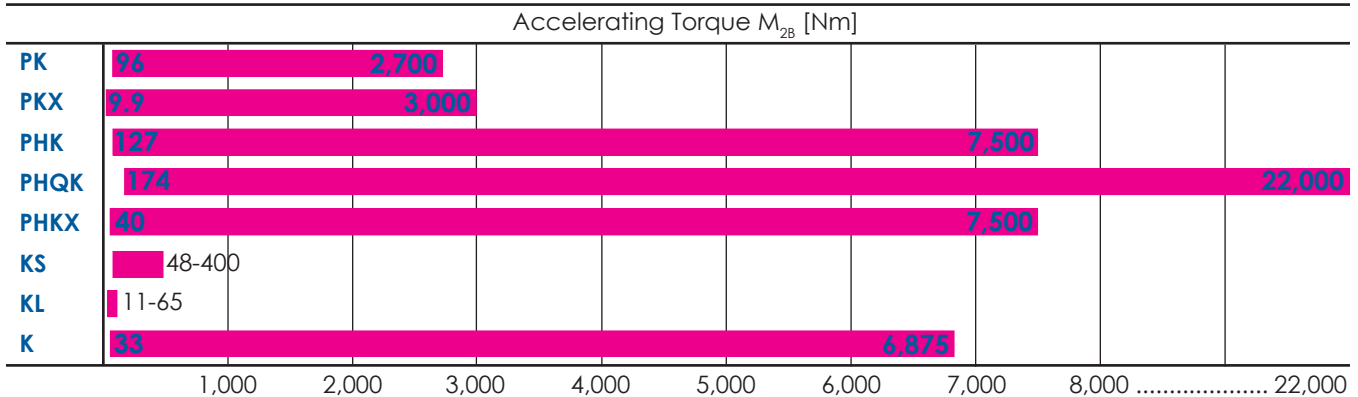
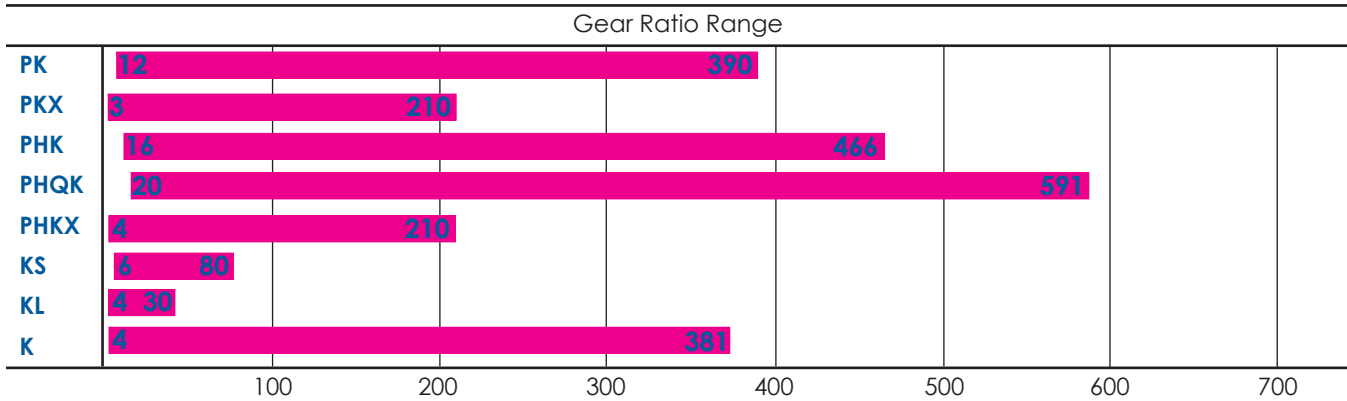
Right Angle – EZ Geared Motor



The eight gear units listed below can be combined with the super compact EZ series motors (with modifiable dynamic properties). Together, they offer a wide range of applications for servo right angle geared motors.

The PHQK right angle planetary gear unit and the extremely compact KL helical bevel gear unit widen the gear ratio range. The fully integrated servo right angle geared KS motor and the volume saving helical bevel gear unit motor KL open up new fields of application.

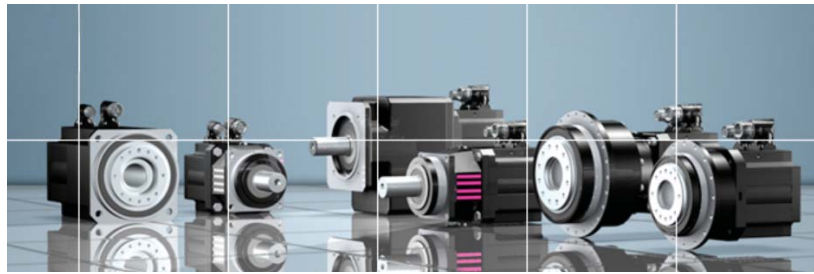
Performance Data



Right Angle Geared Motors EZ



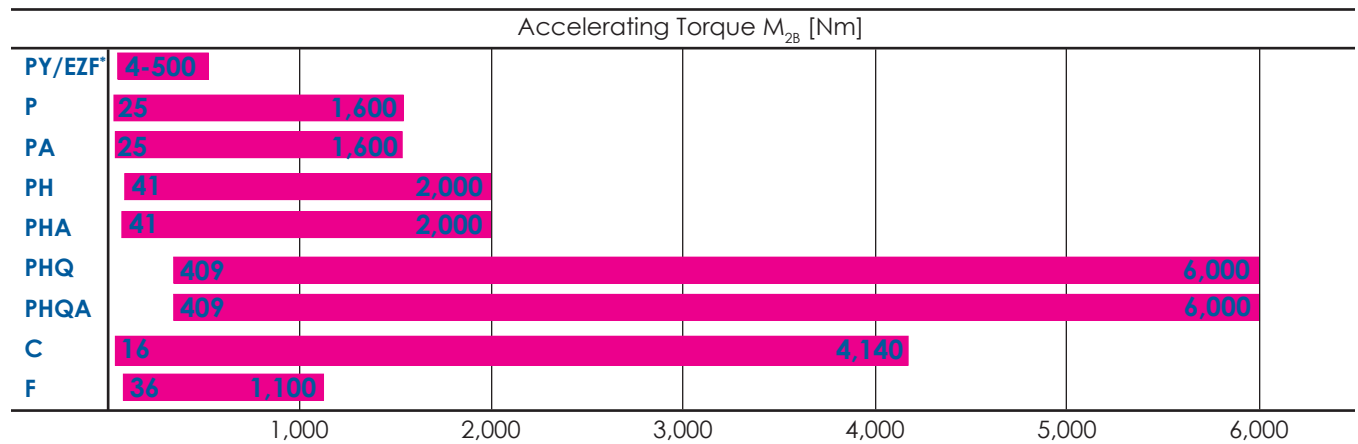
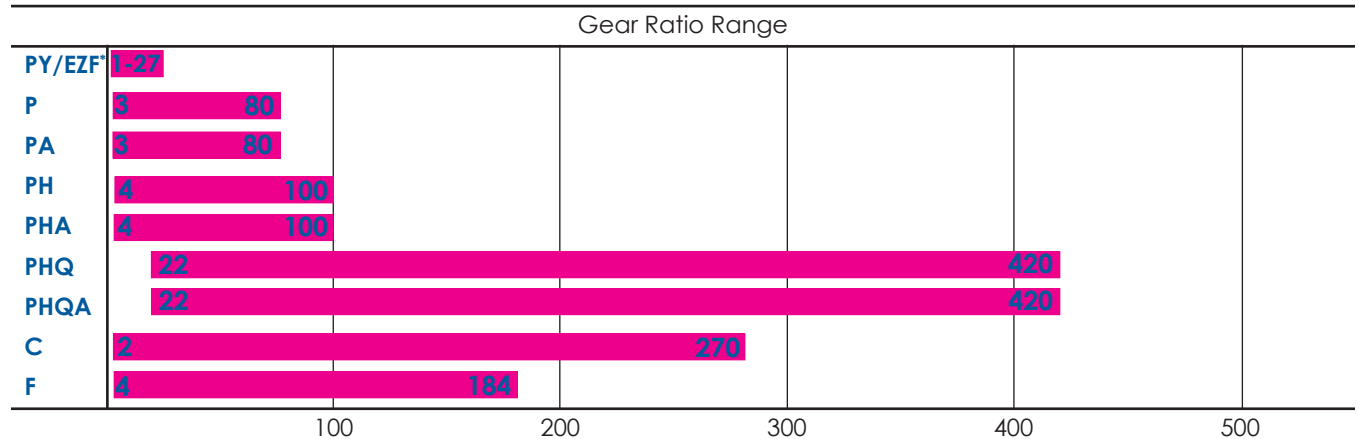
Inline – EZ Geared Motor



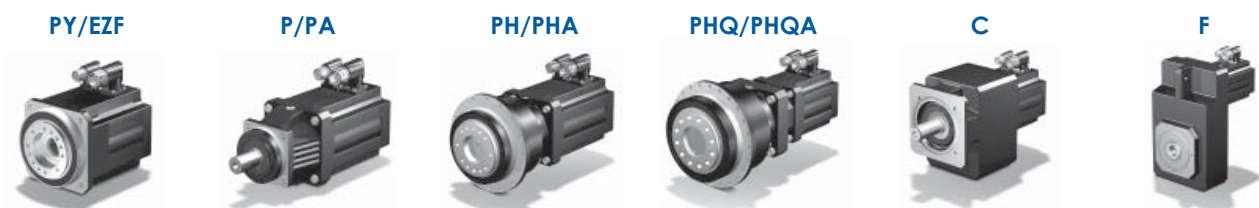
The nine gear units listed below with direct flange mounted EZ servo motors provide a particularly high level of flexibility due to their wide range of possible gear ratios and acceleration torques.

The EZ servo motor's dynamic properties are modifiable. This provides an additional opportunity for drive optimization.

Performance Data



Inline Geared Motors EZ



*Not direct mounted.

Hollow Servo Motor – PipeDrive PY and EZF

The hollow shaft motors are available in lengths specified as 1, 2, 3, and 5. This specification relates to the number of rotor segments in each case. Each additional segment adds 25 mm.

The EZF Series direct drive motor is available in 2 sizes and features torques up to 104 Nm.

The new PY Series PipeDrive geared motors is initially available in 2 sizes, 1, 2, or 3-stage, and ratios of 1:1, 3:1, 9:1, and 27:1.

Size 5, 115mm Square

Model	EZF501	EZF502	EZF503	EZF505	PY5_EZH501			PY5_EZH502		PY5_EZH503		PY5_EZH505
Length (mm)	121.5	146.5	171.5	221.5	165	189	213	190	214	215	239	265
Nom. Torque (Nm)	3.9	7	9.3	13.1	14	40	118	23	68	32	95	47
Acc Torque (Nm)	16	31	43	67	47	140	200	90	200	130	200	190
Ratio			1		3	9	27	3	9	3	9	3
Backlash (arcmin)			0		3	4	4	3	4	3	4	3
Nom. Output Speed(RPM)			3000		1000	333	111	1000	333	1000	333	1000
Max Axial Load (N)			750						4150			
Rated Radial Load (N)			2400						5029			
Hollow Bore Dia. (mm)			42						28			

Size 7, 145mm Square

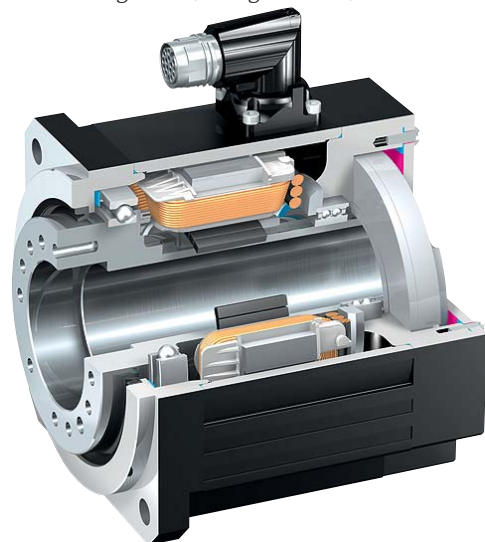
Model	EZF701	EZF702	EZF703	EZF705	PY7_EZH701			PY7_EZH702		PY7_EZH703		PY7_EZH705
Length (mm)	119	144	169	224	186	213	241	211	238	236	263	291
Nom. Torque (Nm)	6.7	11.3	15.8	20.6	24	71	208	42	123	61	178	88
Acc Torque (Nm)	20	41	65	104	58	170	500	120	350	190	500	300
Ratio			1		3	9	27	3	9	3	9	3
Backlash (arcmin)			0		3	4	4	3	4	3	4	3
Nom. Output Speed(RPM)			3000		1000	333	111	1000	333	1000	333	333
Max Axial Load (N)			1300						5000			
Rated Radial Load (N)	3700	3900	4100	4200					9070			
Hollow Bore Dia. (mm)			45						38			

PipeDrive servo geared motor type PY702 EZH701, two-stage gear unit with flange mount hollow shaft, and adapter for liquid cooling.

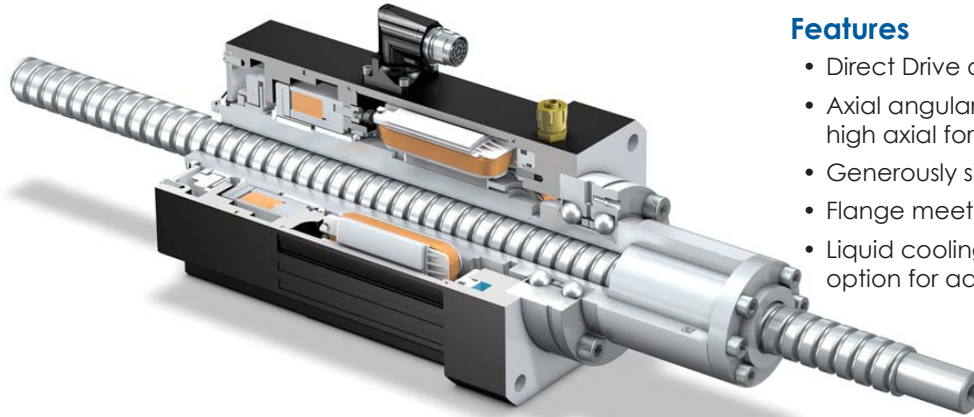
EZF – Non-geared, Flange Mount, Hollow Shaft



PipeDrive servo geared motor, type PY501 EZH501, one-stage gear unit with flange mount, hollow shaft, convection cooled.



EZM – For Direct Drive of a Spindle Nut

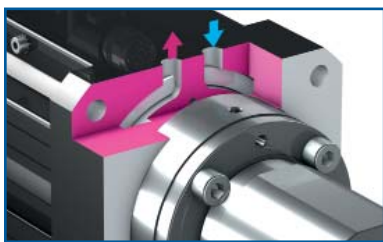


Features

- Direct Drive of a spindle nut
- Axial angular contact ball bearing absorbs high axial forces from the ball screw
- Generously sized flanged hollow shaft
- Flange meets DIN 69051-5 requirements
- Liquid cooling channel available as an option for added performance

*STOBER EZM 502 ball screw motor with liquid cooling, Brake and EnDat® single turn absolute encoder feedback system
Flanged hollow shafts for different nut designs on request.*

Cross-section: Liquid cooling channel



*From left:
STOBER ball screw motors EZM 501, EZM 501 rear view, EZM 502 with brake, EZM 701 with brake.*

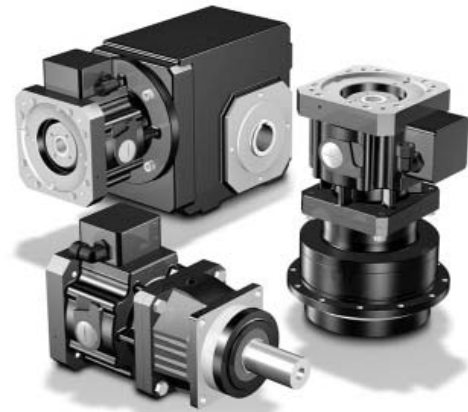
EZM Ball Screw Motors

Model	Spindle Pitch		EZM501	EZM502	EZM503	EZM701	EZM702	EZM703
	Pitch (mm/rev)	Feed Rate (v (m/s) max.)						
Mountable Ball Screw Drive				25			32	
Center Hole Dia./Bolt Circle				40/51			56/71	
Standstill Feed Force	10	0.5	2,432	4,269	6,051	4,326	7,634	11,140
F_{v0} (N)	20	1.0	1,216	2,135	3,025	2,163	3,817	5,570
Max. Feed Force	25	1.25	973	1,708	2,420	1,730	3,054	4,456
$F_{vmax} = 2 * F_{v0}$	32	1.6	760	1,334	1,891	1,352	2,386	3,481

ServoStop – Motor Adapter with Integrated Brake

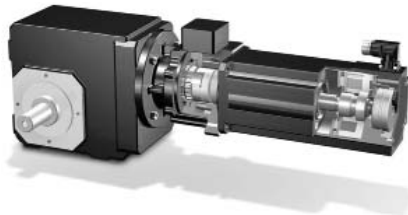
Features

- Saves braking at EMERGENCY STOP and power cut
- Prevents accidental sliding or falling of vertical axis with gravity load absolutely reliable
- Plug-in coupling allows easy dismantling of servo motor in every position even with brake engaged
- Available with electrical or manual wear control for added safety
- Fits all standard servo motors
- Manual hand release available

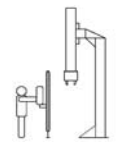


Available with P, PA, PH, PHA, PK, PHK, and C, F, and K

Motor adapter integrated brake module provides redundant braking during power failures or emergency stops in hazardous situations.



Higher safety for vertical applications per EN ISO 13849



Category 1
Axis is located in a safe position (access-protected area).



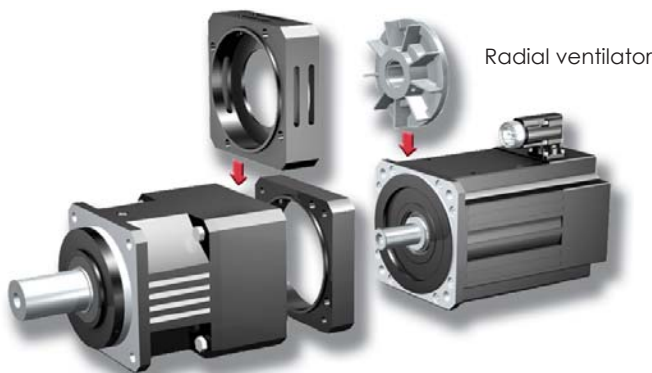
Category 2
Axis is located within hazardous area. Person under the axis is prevented.



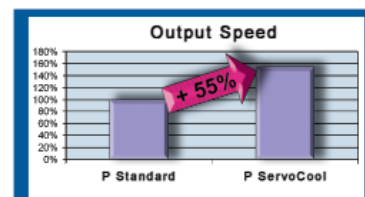
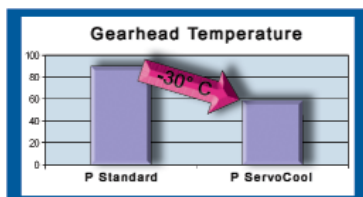
Category 3
Axis is located within hazardous area. Person under the axis cannot be avoided. Redundent protection required.

ServoCool® Gearheads

The compact design of planetary gearhead allows very little area for heat dissipation. The ServoCool planetary gearhead is made possible by adding a ventilation module to the existing ServoFit Precision Planetary Gearhead. These units are currently available in P and PH Series.



- Forced air ventilation improves performance
- Modular design "fits" existing units
- Lower temperature means longer life
- Increased motor performance
- No additional wiring
- More compact than external motor fan



Application Examples

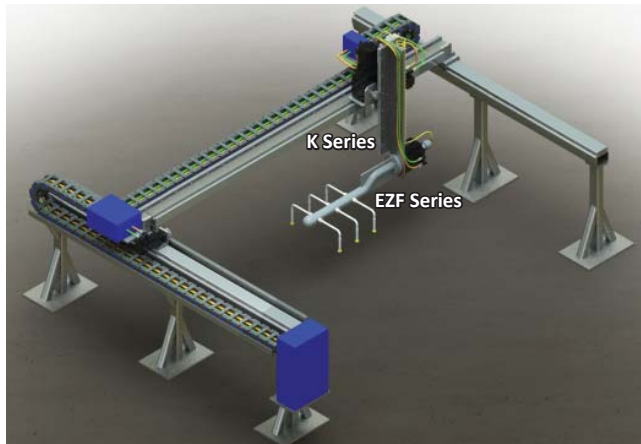
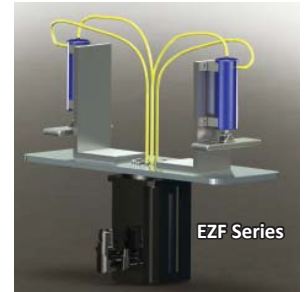


Using STOBER's hollow bore F series:

- Replaces auxiliary components such as chains and belts
- Eliminates assembly and purchasing expenses
- Reduces cost, machine maintenance, and size

STOBER's PipeDrive EZF series is ideal for turntables because:

- The hollow bore allows media and energy lines to pass through the motor
- Compact design
- Hollow brake incorporated into the motor keeps the load from moving



STOBER has several products are ideal for material handling or pick and place needs.

See more application examples!



Explosion Proof

ATEX certified motors are often used to replace hydraulic actuators when speed accuracy and maintenance are considerations.

ATEX is a directive consisting of two European directives describing equipment or work environment allowed in an environment with an explosive atmosphere. ATEX derives its name from the **AT**mospheres **EX**plosible.



The following STOBER gear units are ATEX rated :



Please consult our product support team for assistance selecting an ATEX gearbox.

NEMA Compatible Products



Series "C" Concentric/Helical Speed Reducers

- 1/6 to 165 HP
- Output torques to 62,000 in. lbs.
- Output speeds from 875 to 6.3 RPM
- Ratios from 2:1 to 276:1
- Foot or flange mounting

Series "F" Offset/Helical Speed Reducers

- 1/6 to 33 HP
- Output torques to 9,743 in. lbs.
- Output speeds from 406 to 3 RPM
- Ratios from 4.3:1 to 552:1
- Output flange
- Solid, hollow, and wobble free bushing output



Series "K" – Right Angle Helical/Bevel Speed Reducers

- 1/6 to 165 HP
- Output torques to 106,296 in. lbs.
- Output speeds from 437 to 4.5 RPM
- Ratios from 4:1 to 381:1
- Foot mount and output flange
- Solid (single or double), hollow, and wobble free bushing (single or double side) output

Series "S" – Right Angle Helical/Worm Speed Reducers

- 1/6 to 8 HP
- Output torques to 7,086 in. lbs.
- Output speeds from 318 to 2.5 RPM
- Ratios from 9.2:1 to 683:1
- Foot mount and output flange
- Solid (single or double) and hollow output



"KSS" Stainless Steel Reducer



Additional Product Offering

- ComTrac® Adjustable Speed Drives
- Food and Beverage Duty Speed Reducers
- Stainless Steel Right Angle Helical Bevel Reducers

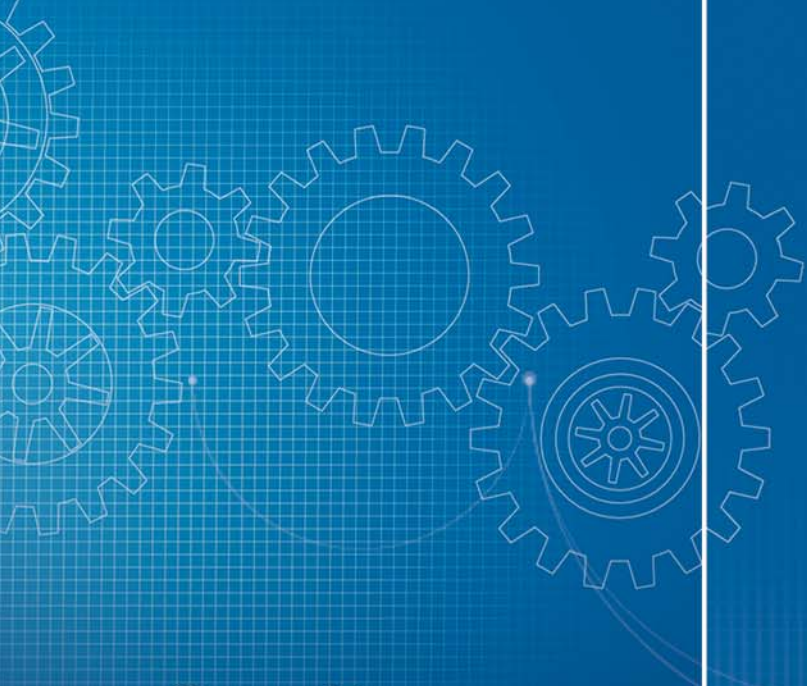
5 YEAR WARRANTY
Available





Branches around the world!

- Austria
- China
- France
- Germany
- Italy
- Japan
- Singapore
- Switzerland
- United Kingdom
- United States



Geared to
a higher standard™



STÖBER

1781 Downing Drive
Maysville, KY 41056

(800) 711-3588

Fax (606) 759-5045
e-mail: sales@stober.com
www.stober.com

Form No. 3043, Version 23

STOBER