



## 2011 ServoFit™ Products



**STÖBER**  
Geared to a higher standard™

## STOBER Drives Inc., Maysville KY

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**STOBER**



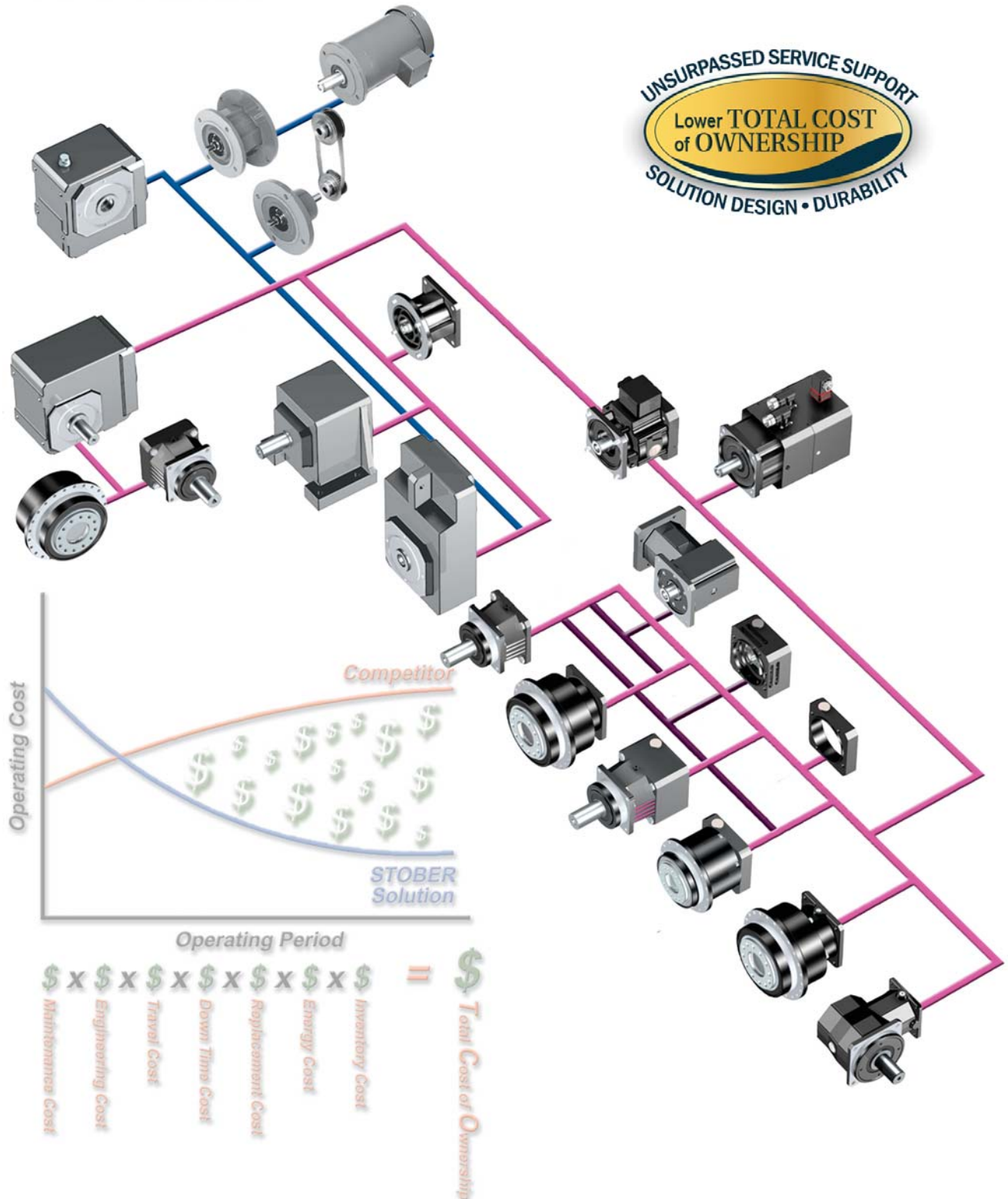
# Total Cost of Ownership

The total cost of owning any product is more than the original price that is paid.

In the event of a breakdown or other catastrophe, many factors will add to the price of using a product that is less reliable or of lower quality than a drive from STÖBER.

The versatility and interchangeability of our components allow most products to be shipped in 1 day.

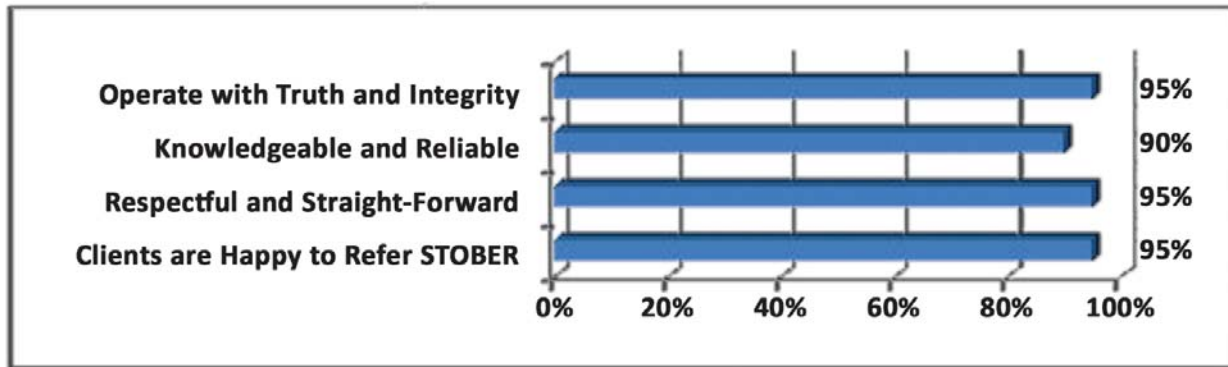
[www.stober.com](http://www.stober.com)



# Unsurpassed Service Support

Our goal is to serve our clients with excellence and base every decision on our core values. Our clients tell us that we deliver measurably stronger results and serve them with truth, integrity, and respect. A survey of STOBER clients revealed the following results.

## Best Service



## SHIPS in 1 DAY

Most sizes are available with STANDARD 1 DAY DELIVERY.  
(Does not apply to PA and PHA.)  
Custom motor plates – 10 days maximum.

## SAME DAY EMERGENCY SHIPPING

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



**STOBER** Geared to a higher standard™

# Delivering the World's Best Gear Solutions

The STOBER offering of ServoFit™ gearheads will enable you to fit all your servo needs. The ServoFit™ Precision Planetary Gearheads are for compact, highly dynamic applications. The ServoFit™ Modular System was designed for those applications where the compact size of a planetary gearhead is not needed. With these two lines, STOBER Drives offers the world's largest variety of servo gearheads.

Full warranty on all reducer components: gears, covers, material and workmanship, etc. Normal wear items (oil seals, bearings, etc.) are covered for 2 years.

**5 YEAR LIMITED WARRANTY**

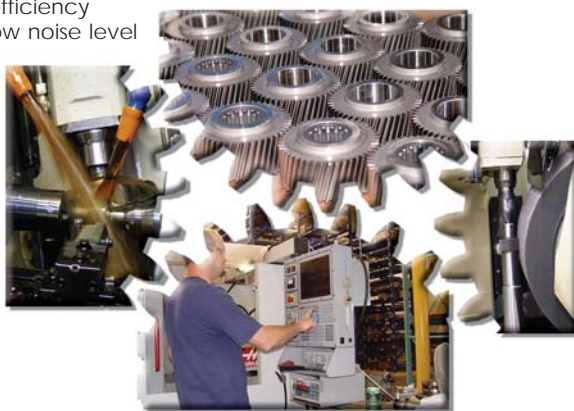


## Fits Any Servo Motor

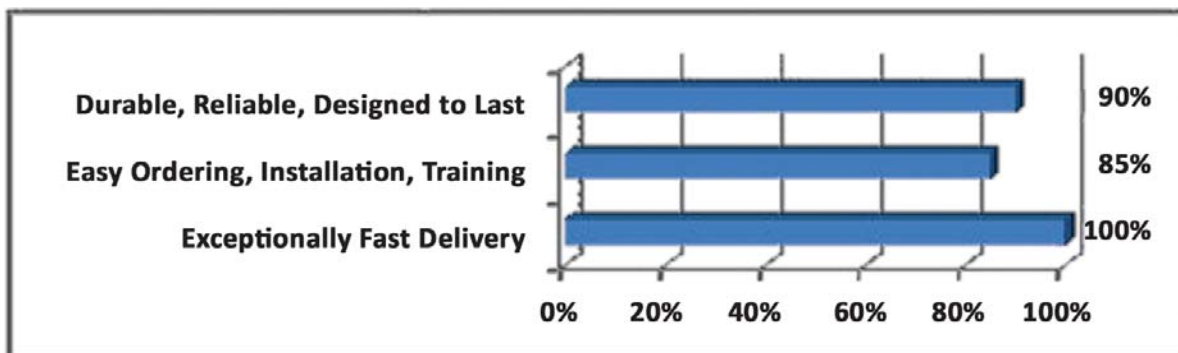
Motor plates will fit a wide selection of NEMA, IEC, or custom servo motors.

## Helical Gears

- Highest torque capacity
- Maximum efficiency
- Maintains low noise level



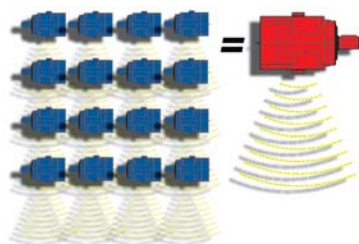
## Best Product



## Exceptional Performance

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

1 conventional planetary gearhead produces the same noise level as 16 STOBER planetary gearheads with HeliCamber™ gearing technology.



## High Quality Lubricant

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





# ServoFit® Gearheads

## P Series

- Backlash –  $\leq 3$  arc/mins
- Ratios – 3:1 to 100:1
- Input RPM – up to 8,000
- Noise Level – as low as 61 dB(A)\*\*
- Output Torque up to 3,000 Nm
- Available:
  - Washdown Food Duty



## PA Series

- Backlash –  $\leq 1$  arc/mins
- Ratios – 3:1 to 100:1
- Input RPM – up to 8,000
- Noise Level – as low as 61 dB(A)\*\*
- Output Torque up to 1,600 Nm
- Available:
  - Washdown Food Duty

## PKX Series

- Backlash –  $\leq 4$  arc/mins
- Ratios – 3:1 to 300:1
- Input RPM – up to 6,000
- Noise Level – as low as 70 dB(A)\*\*
- Output Torque up to 3,000 Nm
- Available:
  - Washdown Food Duty



## PK Series

- Backlash –  $\leq 3.5$  arc/mins
- Ratios – 12:1 to 561:1
- Input RPM – up to 6,000
- Noise Level – as low as 63 dB(A)\*\*
- Output Torque up to 2,700 Nm
- Available:
  - Washdown Food Duty



## PH Series

- Backlash –  $\leq 3$  arc/mins
- Ratios – 4:1 to 121.0:1
- Input RPM – up to 8,000
- Noise Level – as low as 61 dB(A)\*\*
- Output Torque up to 7,500 Nm



## PHA Series

- Backlash –  $\leq 1$  arc/mins
- Ratios – 4:1 to 121.0:1
- Input RPM – up to 8,000
- Noise Level – as low as 61 dB(A)\*\*
- Output Torque up to 7,500 Nm

## PHQ Series

- Backlash –  $\leq 3$  arc/mins
- Ratios – 18:1 to 600:1
- Input RPM – up to 7,000
- Noise Level – as low as 62 dB(A)\*\*
- Output Torque up to 22,000 Nm



## PHQA Series

- Backlash –  $\leq 1$  arc/mins
- Ratios – 18:1 to 600:1
- Input RPM – up to 7,000
- Noise Level – as low as 62 dB(A)\*\*
- Output Torque up to 10,000 Nm

## PHKX Series

- Backlash –  $\leq 3.5$  arc/mins
- Ratios – 4:1 to 300:1
- Input RPM – up to 6,000
- Noise Level – as low as 70 dB(A)\*\*
- Output Torque up to 7,500 Nm



## PHK Series

- Backlash –  $\leq 3.5$  arc/mins
- Ratios – 16:1 to 561:1
- Input RPM – up to 6,000
- Noise Level – as low as 63 dB(A)\*\*
- Output Torque up to 7,500 Nm



## KS Series

- Backlash –  $\leq 4$  arc/mins
- Ratios – 6:1 to 200:1
- Input RPM – up to 6,000
- Noise Level – as low as 62 dB(A)\*\*
- Output Torque up to 400 Nm



## PE Series

- Backlash –  $\leq 15$  arc/mins
- Ratios – 5:1 to 100:1
- Input RPM – up to 8,000
- Noise Level – as low as 60 dB(A)\*\*
- Output Torque up to 210 Nm



## C Series

- Backlash –  $\leq 20$  arc/mins
- Ratios – 2:1 to 276:1\*
- Input RPM – up to 4,500
- Noise Level – as low as 53 dB(A)\*\*
- Output Torque up to 7,200 Nm
- Available:
  - Inch or Metric Output
  - Beverage and Food Duty



## F Series

- Backlash:
  - Standard  $\leq 11$  arc/mins
  - Reduced  $\leq 7$  arc/mins
- Ratios – 4:1 to 540:1\*
- Input RPM – up to 4,500
- Noise Level – as low as 53 dB(A)\*\*
- Output Torque up to 1,100 Nm
- Available:
  - Inch or Metric Output
  - Solid, Hollow, Single and Double Bushing
  - Beverage and Food Duty



## K Series

- Backlash:
  - Standard  $\leq 12$  arc/mins
  - Reduced  $\leq 6$  arc/mins
- Ratios – 4:1 to 381:1\*
- Input RPM – up to 4,500
- Noise Level – as low as 53 dB(A)\*\*
- Output Torque up to 13,200 Nm
- Available:
  - Inch or Metric Output
  - Solid, Hollow, Single and Double Bushing
  - Beverage and Food Duty



\* Ratios standard in one housing. Higher ratios available in compound units.  
 \*\*dB(A) rating measured at 1 meter distance with 3000 RPM input.



# What's New @ STOBER?

Stainless Steel Right Angle Helical/Bevel, "KSS" Series to fit servo motors. Options include solid shaft, hollow output, and shrink ring or wobble free bushings.



**ZTRS** – STOBER and Atlanta partner on a high efficiency rack and pinion drive with an innovative pinion bearing for high linear force applications.

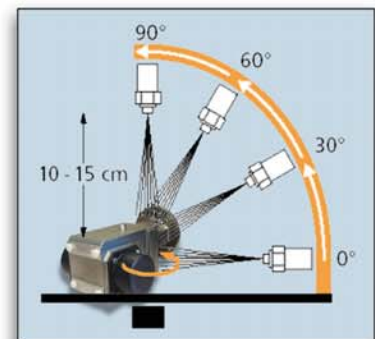


Smaller "K" Series Helical/Bevel "KL" Units – ideal for packaging and linear drives



*K102 shown for comparison*  
**KL202** Servo unit  
**KL102** Servo unit

## IP69K Certified



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

Additional sizes of "PHQ" four planet units, increases torque capacity availability up to 194,000 in. lbs. (22,000 Nm) for the largest servo offering in the industry.



**RPS** – STOBER partners with Nexen for a linear drive system with zero backlash, high positional accuracy and speed, low maintenance and long life.

Runs without lubrication and direct mounts to the STOBER PH.

Curved rack available.



**PY** – flanged hollow geared motor



**EZF** – flanged hollow motor

## Flanged hollow shaft motor

features a large internal hollow shaft (28 to 42 mm) that allows feeding of supply lines, including not only power cables, hydraulic pipes and pneumatic hoses, but also shafts and laser beams.

- 2 sizes – 5 and 7
- Extremely compact

For more information on any of these products, call Technical Support or e-mail [techsupport@stober.com](mailto:techsupport@stober.com).

# Beverage and Food Duty

- Lubricated for Life – Double Output Seals (where possible)
- Maintenance Free – No Breather
- Stainless Output Bushing, Shaft, or Bore
  - Output Covers Included with Double Bushings
  - Output Covers Optional with Single Bushing and Quills
- 5 Year Warranty
- Multilayer Industrial 316 Stainless Steel Epoxy Coating (also available with White Epoxy (BISC approved))



ALL Stainless Steel Hardware

## "K" Series Right Angle Helical/Bevel

Double Sealed Output –with a dual lip outer seal and a single lip inner seal

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



### OUTPUT OPTIONS:

- Patented (U.S. Patent Number 5,496,127) Stainless Steel Double Sided Bushing Mounted into Stainless Steel Output Quill – easily mounts onto standard cold finished, ground, or stainless shafting.
- Single side output shaft
- Hollow output

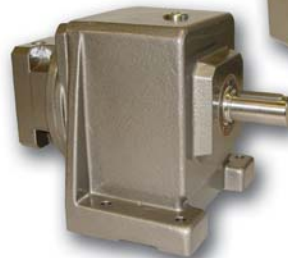
## "F" Series Offset Helical

Hollow Output Bushing  
Solid Shaft Output



## "C" Series Concentric Helical

Solid Shaft

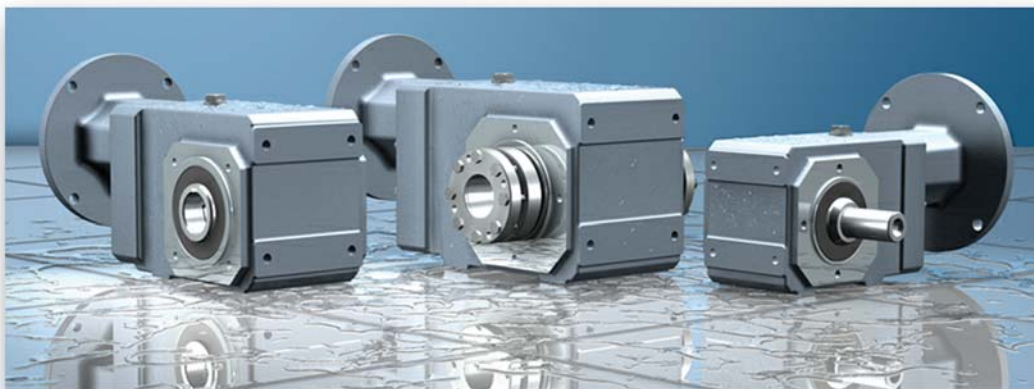


## "P" and "PKX" Series Planetary

Sizes 3 thru 5



## "KSS" Series Stainless Steel Helical Bevel



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



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# ServoStop – Motor Adapter with Integrated Brake

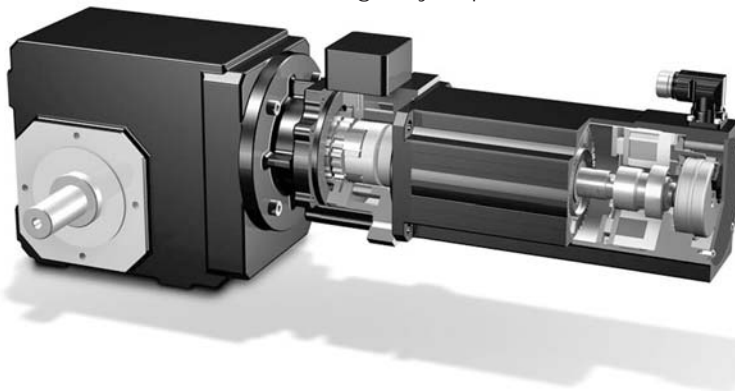
## Available with the following units:

- ServoFit Precision Planetary Gearheads – P, PA, PH, and PHA
- Right Angle Planetary Gearheads – PK and PHK
- ServoFit Modular System Gearheads – C, F, and K
- See [www.stober.com](http://www.stober.com) for more information.

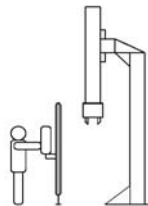
- Saves braking at EMERGENCY STOP and power cut
- High durability even at EMERGENCY STOP
- Motor horizontal is recommended but if vertical, mount with motor up.
- Prevents accidental sliding or falling of vertical axis with gravity load absolutely reliable
- Compactness due to integration into gear reducer
- Plug-in coupling allows easy dismounting of servo motor in every position even with brake engaged
- Available with electrical or manual wear control for added safety.
- Manual hand release available
- Fits all standard servo motors
- IP54 Rated
- CSA Approved



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

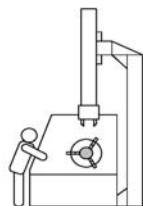


## Higher safety for vertical applications per EN ISO 13849



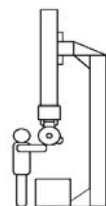
### Category 1

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

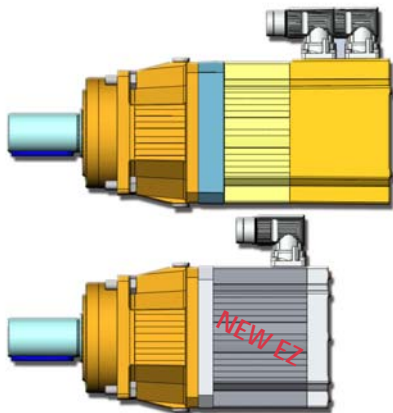
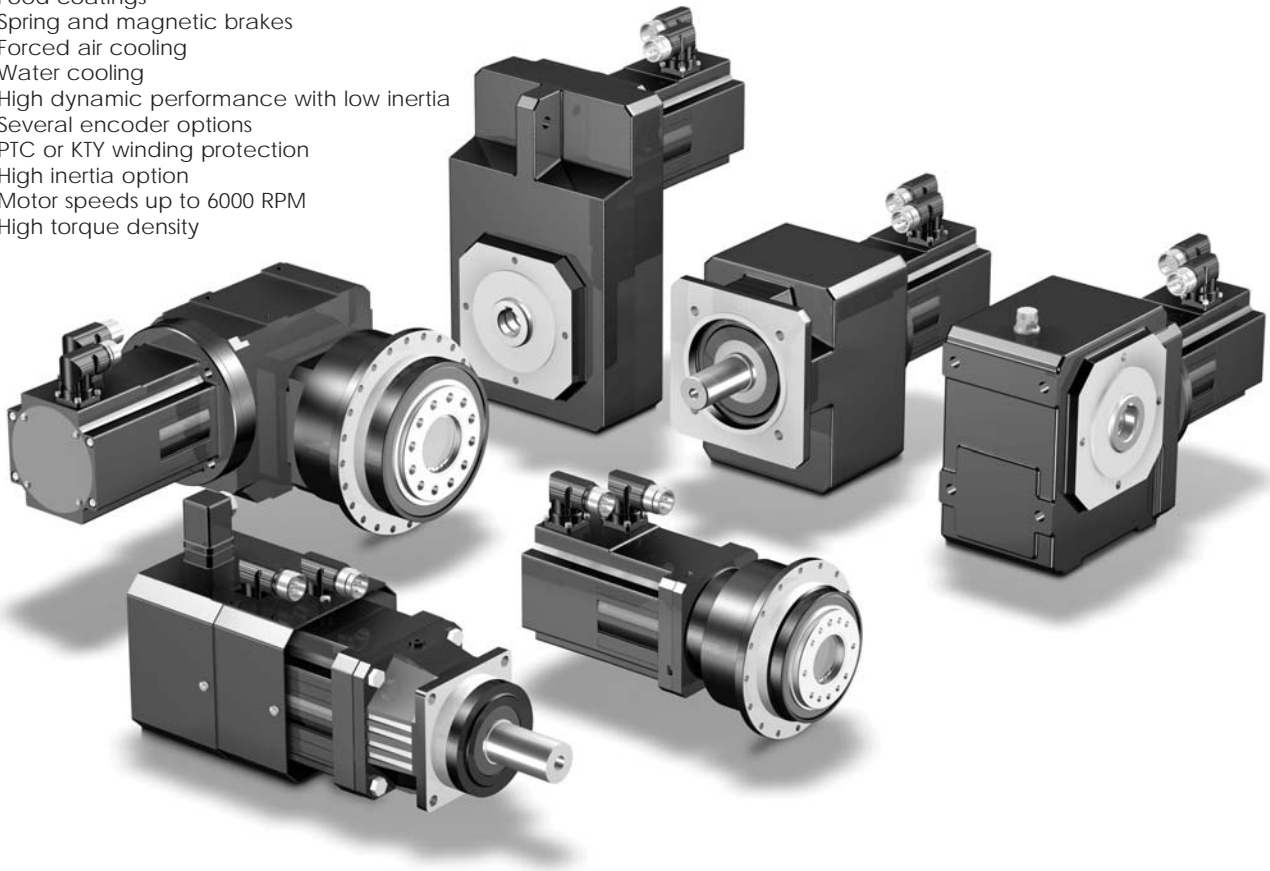
Axis is located within hazardous area. Person under the axis cannot be avoided. Redundant protection required.

# ServoFit Geared Motors

STÖBER ED and EZ geared servo motors are set-up for connection to a variety of popular servo drives. They are a compact, highly-dynamic, electronically commutated, permanent magnet brushless motor. ED comes in 6 sizes: 2, 3, 4, 5, 7, and 8 while EZ has 3 sizes: 4, 5, and 7.

Options include:

- Washdown
- Food coatings
- Spring and magnetic brakes
- Forced air cooling
- Water cooling
- High dynamic performance with low inertia
- Several encoder options
- PTC or KTY winding protection
- High inertia option
- Motor speeds up to 6000 RPM
- High torque density



*EZ vs Conventional Servo Motor shown  
with "P" Series Precision Planetary*

## EZ Servo Motor

This new development from STÖBER provides the best performance for demanding solutions.

With a new structural design of all motor components and with a large number of enhancements, a balance between powerful torque, high dynamic performance, and precise constant speed has been achieved.

The design also makes it possible to reduce the length to almost half that of a conventional servo motor.

Call Technical Support for more information or e-mail [techsupport@stober.com](mailto:techsupport@stober.com).



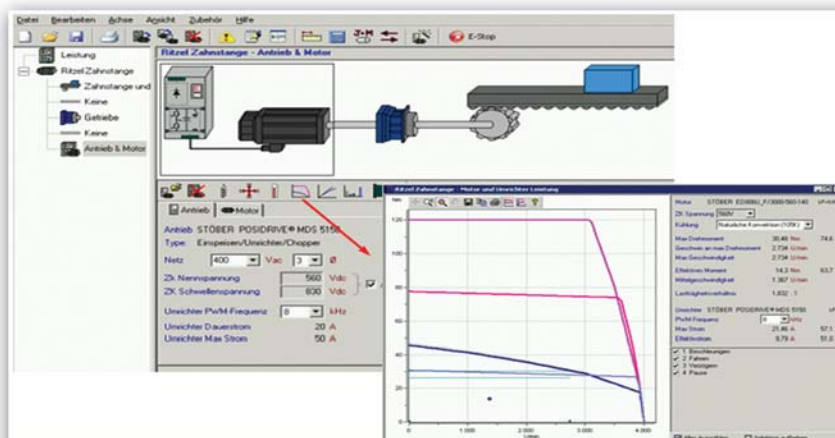
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# Application Support – Software

## SERVOsoft<sup>®</sup> and Rockwell Motion Analyzer

STOBER's **SERVOsoft<sup>®</sup>** (downloadable online software) enable users to size linear and rotary applications.

- Extremely accurate
- Ratio analysis tool chooses optimal ratio and sizes for peak and nominal torques and speed
- Charts reducer performance data
- Motion Profile calculates velocity, radial and axial loads, etc.
- Data base for all STOBER servo products



SERVOsoft<sup>®</sup> is a registered trademark of ControlEng Corporation.

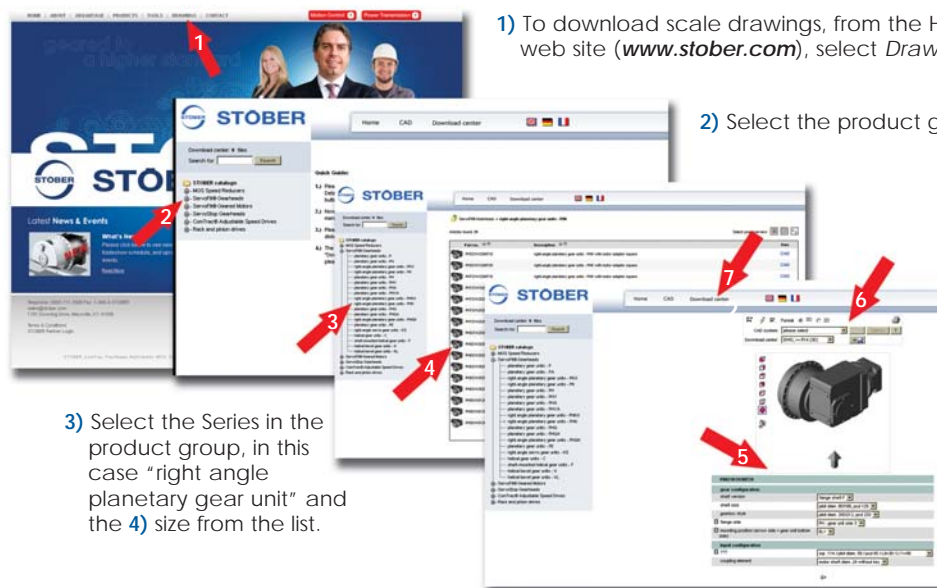
### Sizing for 11 Different Types of Drive Mechanisms

- Rotary Axis
- Belt & Pulley
- Conveyor
- Dual Conveyor
- Ball Screw
- Rack & Pinion
- Dual Rack & Pinion
- Feed Roll
- Winder (center driven)
- Winder (surface driven)
- Slider Crank



# Application Support – 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.



3) Select the Series in the product group, in this case "right angle planetary gear unit" and the 4) size from the list.

1) To download scale drawings, from the Home Page of our web site ([www.stober.com](http://www.stober.com)), select *Drawings* from the menu.

2) Select the product group ServoFit Gearheads .

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.

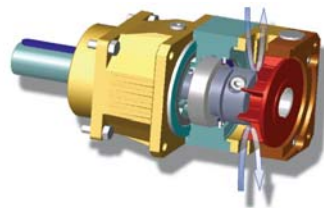
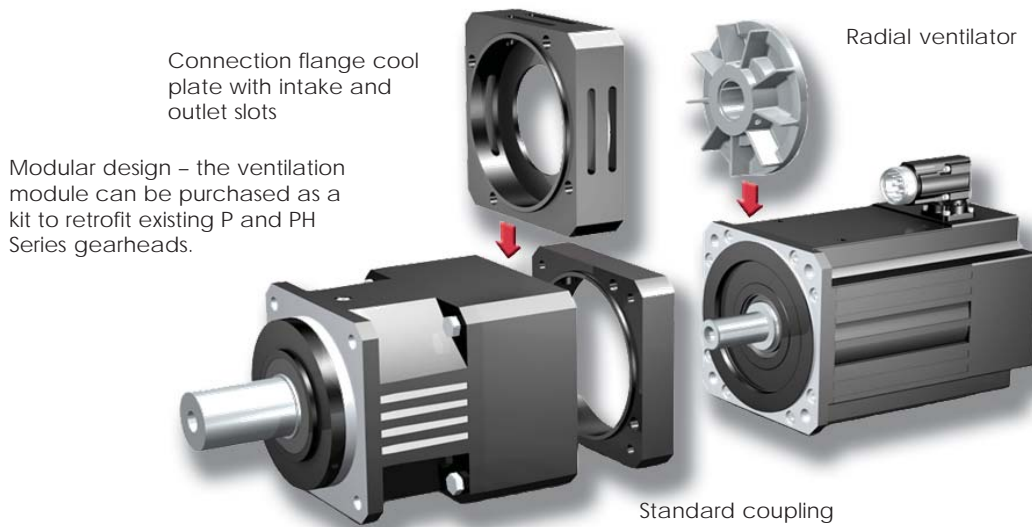
7) Go to the download center to retrieve the file or multiple files you have selected.

Call Technical Support for additional information or e-mail [techsupport@stober.com](mailto:techsupport@stober.com) with your request.

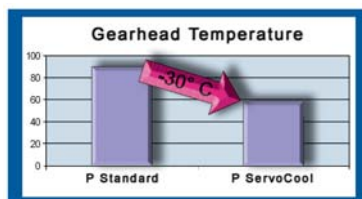


# ServoCool® Gearheads

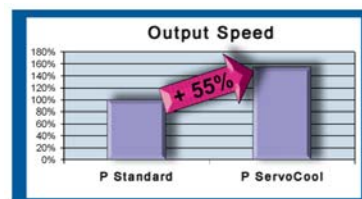
The compact design of planetary gearhead allows very little area for heat dissipation. While the STOBER Precision Planetary Gearhead has the lowest operating temperature available, even its rating in continuous applications is limited by heat, especially with large planetaries or units with small ratios. 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.



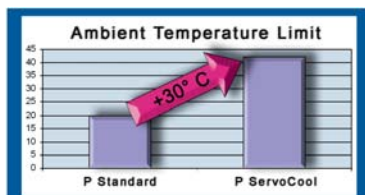
Air is accelerated outward in a radial manner and then escapes through the outlet slots. Due to the resulting negative pressure in the motor adapter, air is pulled in through the inlet slots.



According to data from lubricant suppliers, the lifespan of oil doubles, at certain temperatures, if operating temperature is reduced by 10°C. Adding the ServoCool ventilator reduces gearhead temperature 22°C – quadrupling the expected lubricant life.



- Ventilator fan mounts to motor shaft
- Forced air ventilation improves performance
- Modular design “fits” existing units
- Optional for P and PH Series



- Synthetic oil
- Lower temperature means longer life
- Lubricated for life – maintenance free solutions



- Increased motor performance
- No added motor
- No additional wiring
- More compact than external motor fan



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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**plosable.

The regulation applies to all equipment intended for use in explosive atmospheres, whether mechanical or electrical. Under ATEX, manufacturers must design and test components to prevent the risk of an explosion due to production or release of explosion atmosphere.

There are 3 different areas classified in the ATEX Directive:

- Zone 0 – Highest Risk - An atmosphere where combustible dust or flammable substances is frequently present for long periods of time.
- Zone 1 – Medium Risk - An atmosphere where combustible dust or flammable substances is likely to be present in normal operation
- Zone 2 – Least Risk - An atmosphere where combustible dust or flammable substances is unlikely to be present in normal operation but, if it does occur, will only last a short time.

The four main points to review for ATEX classification is:

1. Group Type
2. Equipment
3. Atmosphere
4. Temperature

## ATEX Classification Code

Example ATEX code (part #) **Ex-II-2-G-EEx-d-IIC-T4-Tamb**

**Ex** = ATEX mark to show suitability for explosion atmosphere

**I/II Group Type** – I = for use in mines II = for use on surfaces

**2** = Equipment category

**G/D** – G = Tested for gases D = Tested for dusts

**EEx** – Equipment has been tested under the latest European Harmonized Standard for use in Explosive atmospheres

**d** = certification EN50018

**IIC** = Apparatus Group (IIC – Hydrogen, IIA – Propane, ect)

**Temperature Class** = T1-450°C, T2 - 300°C, T3 - 200°C,  
T4 -135°C, T5 - 100°C, T6 - 85°C

**Tamb** = Ambient temperature range (-20 to +40°C)

The following STÖBER gear units are ATEX rated :

C-Series



F-Series



K-Series



KS-Series



P(A)-Series



PH(A)-Series



PKX-Series



PHKX-Series



PHQ(A)(V)-Series



There are several areas that need to be considered for a STÖBER products to be ATEX rated.

Some requirements for the gear units are: FKM seals, synthetic oil, shaft covers, 0-40°C ambient temperature, ≤1800 rpm input speed, ≥1.5 service factor on catalog nominal torque (acceleration and emergency stop catalog torque does not apply to ATEX applications), limited ratios, ≥1.5 service factor on catalog shaft loads, etc.

Always refer projects to **STÖBER Technical Support** ([techsupport@stober.com](mailto:techsupport@stober.com)). All STÖBER gear units must be assembled at the factory in Germany to be ATEX compliant.

# "MGS" – Modular Gear System – Industrial 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
- NEMA C-face or shaft input
- 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
- NEMA C-face or shaft input
- 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
- NEMA C-face or shaft input
- 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
- NEMA C-face or shaft input
- Foot mount and output flange
- Solid (single or double) and hollow output



## Application Options

- Stainless steel hardware
  - Output shafts
  - Hollow output
  - Single or double side bushings
- Coatings
  - Standard severe duty gray paint
  - White (BISC approved)
  - Stainless steel (FDA/USDA approved)

## "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**



**STOBER** Geared to a higher standard™





A graphic of several interlocking gears of different sizes, rendered in white outlines on a blue background with a fine grid pattern.

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**STÖBER**

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Form No. 3043, August 2011

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