



Servo Gear Units

***Geared to a higher
standard™***

**In-Position
Technologies**

www.iptech1.com | (877) 478-3241 | help@iptech1.com



STÖBER

Servo Gear Units



Welcome to STOBBER!

Thank you for your interest in the servo gear reducers offered by STOBBER Drives, Inc.!

In 1934, the Stöber brothers founded a small shop in Pforzheim, Germany that made machines and repaired engines. Today, STOBBER is an international organization with offices in ten countries.

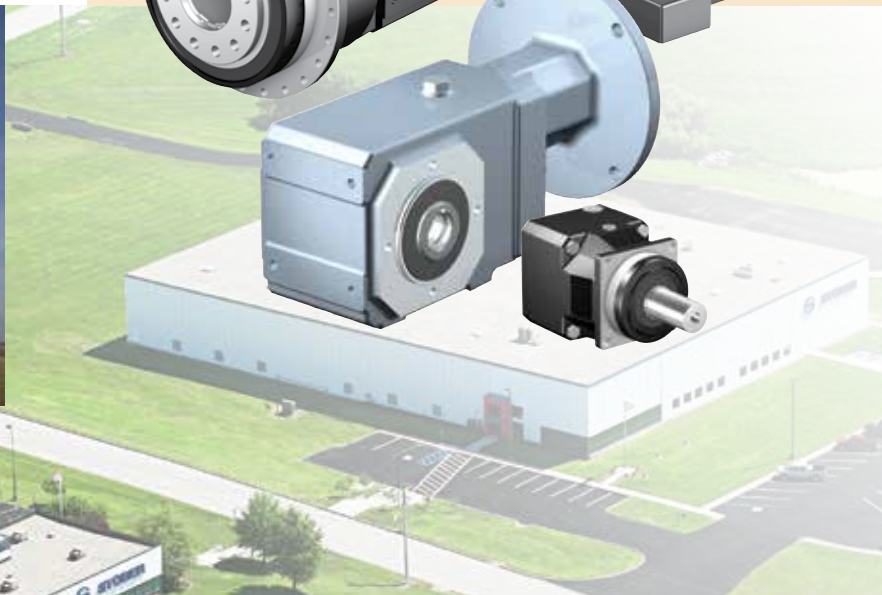
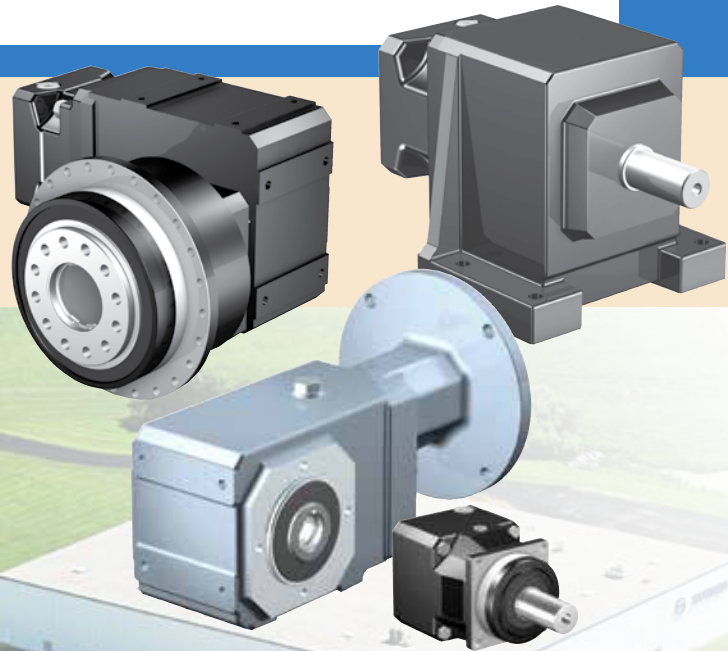
This 80 year heritage has given us expertise in servo gearing for which STOBBER is recognized worldwide as the “gold standard.” STOBBER products are of the highest quality and use only the best components.

This catalog covers our comprehensive servo gearbox products — Servo Precision Planetary and Modular Gearheads. STOBBER is recognized across the United States for its solution design, product durability, and service support. We look forward to the opportunity to work with you, and to help with your servo gearing needs.

Peter Feil, General Manager, STOBBER Drives, Inc.



STOBBER Drives Inc. was founded in 1991. Our Maysville, Kentucky campus includes 85,000 square feet of sales and service offices, assembly, manufacturing, and warehousing space for German-engineered STOBBER products for 1 day shipment nationwide.



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All manufactured components are inspected before being released to assembly. Our quality inspection team ensures every part meets tolerances and is in spec.

Unsurpassed:

STOBER products are designed and built to perform for the toughest applications. Reliability, adaptability and maintainability are our focus, and durability is truly our trademark.

Solution Designs that build quality around every requirement.

Product Durability that enhances the reliability and life of every application.

Service Support that is empowered to meet and exceed client expectations.



STOBER Serviced Industries:

- Beverage
- Food Processing
- Packaging
- Machine Tool
- Robotics
- Material Handling
- Semiconductor
- Printing
- Converting and many others...

Servo Gear Units

The Best you Can Buy...

At STÖBER, offering the best is not a buzz word — it is our passion and way of life. We offer the best product, provided by the best people and processes, and backed by the best service.

Why is STÖBER considered the industry Gold Standard? Our products are backed with superior service, outstanding quality, and the STÖBER guarantee.

- STÖBER gearheads survive in the toughest environments, providing long life under extreme conditions. Their high reliability and durability saves non-productive downtime and cost
- Our product reliability is backed by one of the best warranties in the industry
- We build and ship in 1 day saving you inventory hassle and cost
- Adapts to any servo motor

The Servo Gear Difference

A STÖBER Servo Gearhead helps optimize your total operational performance with:

- High torsional stiffness, superior accuracy
- Smoother running, better efficiency
- Leakage free, maintenance free
- Runs cool – a difference you can feel
- Runs measurably quieter – 16 times more quiet*
- Lower backlash
- The versatility and interchangeability of our components allow most products to be assembled and shipped in 1 day

* Noise Level

If a planetary is loud — something is WRONG!

STÖBER Servo planetary =
60 dB(A)

Convention spur gear planetary =
70-72 dB(A)

Bottom line: 1 conventional gearhead produces the same noise level as 16 STÖBER planetary gearheads with HeliCamber™ gearing

Striving Harder to Deliver the Best Gear Solutions

STÖBER Drives has been assembling products at our Maysville, Kentucky facility for over twenty years. Our expertise in the production and assembly of low-backlash gear units produces products that comply with the highest quality standards.

But, we don't remain satisfied with the status quo. We are continuously improving our modern machining production center including numerous recent acquisitions to improve our manufacture time and to ensure maximum quality levels.

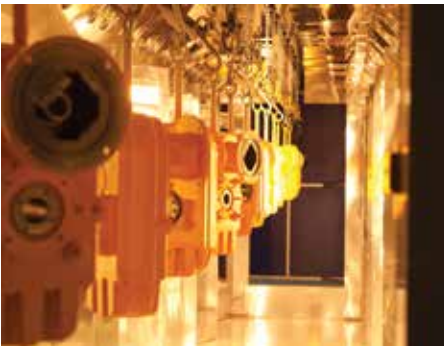
All reducer components (gears, covers, material, etc.) are backed by a five year warranty. Normal wear items (oil seals, bearings, etc.) are covered for two years.

Vision: To be recognized as the gold standard

Mission: To provide the most reliable drive solutions for demanding applications in the shortest lead-time

Values: Seeking the best; operating with integrity; serving others, growth through learning





Assembly stages of “F” Series gearheads: Paint curing oven allows for one day assembly and higher paint durability (left); units awaiting final inspection prior to shipment (right).

Service Support for a Lifetime

We stand behind every drive we sell, which is why our service support is also the gold standard in the industry:

STOBER takes pride in offering knowledgeable, factory-trained USA-based service support for our customers. When you call, you won't get a call center on the other side of the globe. Your call is answered in 3 rings or less, letting you know you've found a support system that values your time.

Our easy order method insures you maintain a single contact throughout the process. And, your service representatives are directly responsible for your account. After the sale, our products are easy to install, but if you do have a question or a problem, we provide application and installation support anywhere in the US. With over 80 years gearing & 30 years motor and electronics experience, we have the expertise to solve your most difficult problems.

Application Support Programs

- For support during normal business hours: call 800-711-3588 or email sales@stober.com
- 24/7 emergency customer service hotline: 606.563.6035
- Consultative product support team available via phone or live chat on our website
- Application Sizing Software
- Online web tools: CAD and configurator
- On-site training available
- Emergency shipments available 24/7



Key STOBER Numbers

1 day shipping

1 hour quoting

3 rings or less when you call in — we answer the phone, not an automated switchboard!

100% inspected and tested during assembly for seal pressure test and ratio verification. STOBER also observes the reducer for any abnormal noise or vibrations during testing

5 year warranty

24/7 customer service



STOBER Staff Team Members

Facing page: Earl Bennington, Warehouse Team Leader, 1992, and Anita Truesdell, Picker, 2007;

From top, left to right: Stephanie Berry, LMS Administrator, 2006; Brian Sharp, Product Management Team Leader, 2003; Rick McCall, Machinist, 2007; Lee Thomas, Industrial Engineer, 2003

The Servo Gear Unit Difference

The following outlines some of our quality standards and unique STÖBER features that set Servo gearheads apart from all others...

Food and Corrosion Resistant Duty

P PKX PK C F K/KL KSS

Lifetime lubrication; double output seals (where possible); maintenance free design; stainless output bushing, shaft, or bore — finish is USDA approved for food processing and handling; heat cured.

KSS for extreme high pressure food washdown!

- IP69K certified for extreme high pressure food washdown (sprayed at close distance at 100 bars or 1,450 PSI)
- Certified against dust and water ingress
- 304 stainless steel cast housing

Explosion Proof

P PA PH PHA PHQ PHQA
PKX PHKX C F K

ATEX is often used in process control and converting where unstable gases and dust can be found

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 ATmospheres EXplosible.

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

Large Input Planetary

P PA PE PH PHA PHQ PHQA KS

Equipping a Servo gearhead with the large input option allows a larger shaft diameter motor to be used, keeping gearhead size and cost down! This input is ideal for inertia matching.

ServoCool®

P PA PH PHA



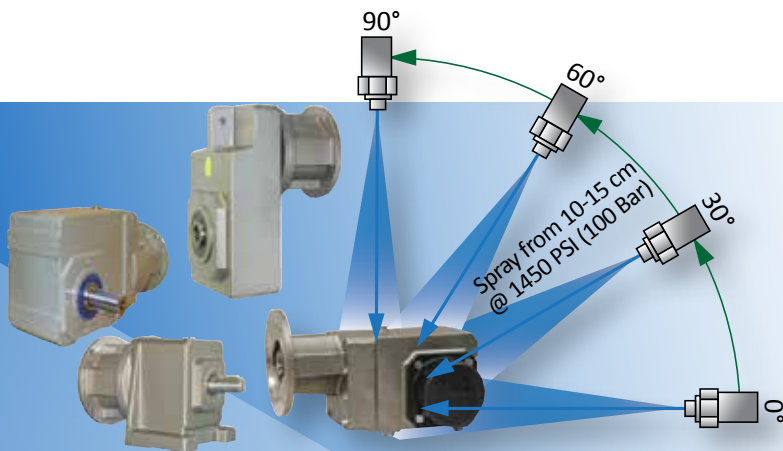
Servo gearheads with the air cooled ServoCool® option reduces the operating temperature 22°C (increases the ambient temperature limit 22°C), increases the output speed 54% and improves the servo motor rating 25%.

Servo motors are connected to Servo gearheads by using a motor adapter.

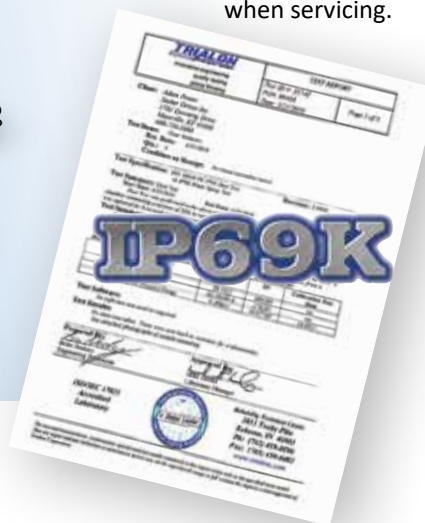
Spiral Groove Hollow Bore

F K KL KS KSS

The inside diameter on our hollow bore units feature a spiral (rifle) bore design providing an anti-seize lubricating groove. This enables the Servo gearhead to slide off freely when servicing without damage to the output shaft. With conventional smooth-surface hollow bore designs, any anti-seize lubricant applied during installation of the output shaft has no where to go except out the other end. Invariably, these designs will seize, making it necessary to cut off the output shaft when servicing.



Above: KSS Servo Gearheads are IP69K certified to withstand frequent pressure cleaning operations typical in the food industry and elsewhere. Other STÖBER products, including C, F and K Series, are optionally available with IP69K compliant protection.

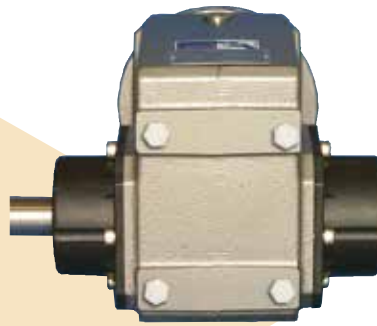


Wobble Free Bushing

F K KL KSS

The STÖBER “Wobble Free” bushing is a unique (U.S. Patent Number 5,496,127), bushing system which can be supplied on a single side or double sides. Each case size can be provided with a variety of bushing bores. The unit is selected based on torque rating, output speed or ratio, and the shaft size of the driven equipment.

- A distinct support side and a clamp side, the dual tapered cones will overcome a wide range of tolerances normally found with standard shaft materials. No shaft key necessary.
- Many unit sizes can be supplied with output covers on one or both sides which protect the seals and also cover the rotating bushing
- The reducer output bore can be changed any time by changing the bushing kit
- The quill, all bushing parts, and hardware can be supplied stainless steel to provide corrosion resistance for washdown applications



Double Sided Bushing:

This unique design allows the unit to be mounted on the shaft from either side of the reducer by reversing the clamp side and support side bushings. The clamp side is determined by the customer but is usually the easily accessible outside bushing.

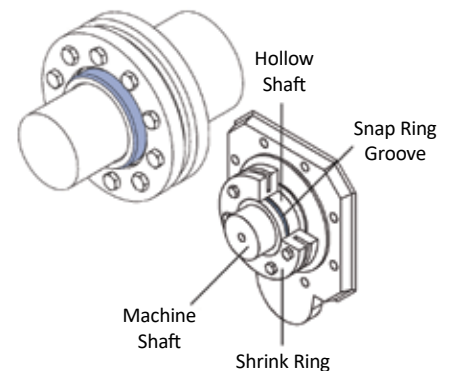
The double sided bushing is not installed into the unit at assembly, but with easy-to-follow installation instructions, the unit and bushing can be mounted on the machinery quickly – without any special tools.

Single Sided Bushing :

The single sided bushing is assembled at the time of the order. The bushing side extension must be specified by the customer before assembly. The bushing is installed into the unit for shipping and is not interchangeable once the unit is assembled.

Shrink Ring Connection

F K KL KS



F, K, KL and KS Series gearheads with a hollow bore can be connected to a finished machine drive shaft by frictional engagement through compression of a shrink ring on the hollow shaft.

This shaft-hub connection is totally free of backlash. Because of its self-centering property, it can transmit high torques and axial thrusts with great accuracy.

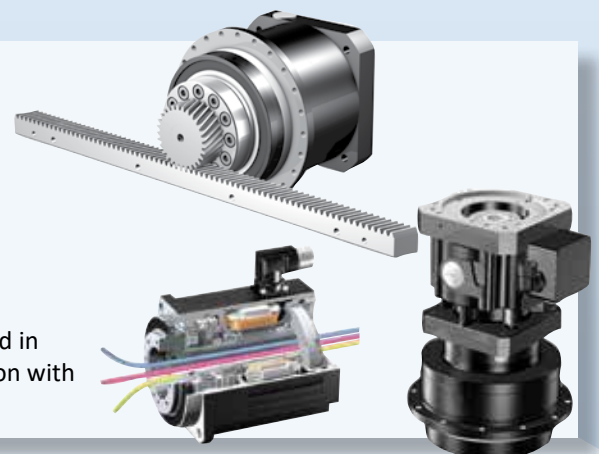
Gear units supplied with a shrink ring, are shipped with the ring installed on the hollow shaft end, ready for assembly.

See page 331 for More Servo Gearhead Compatible Products...

EZ Series Servo Motors available to fit all Servo gearheads

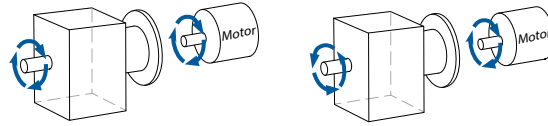
Rack and Pinion Servo gearhead systems are a ready to install engineered solution for precision automation applications requiring forces up to 122 kN (27,400 lbs.) with linear backlash as low as 7 µm

ServoStop automatic, electrically-actuated integrated holding brake used in place of a servo motor brake for dynamic safety braking, or in conjunction with the servo motor brake for redundancy in safety applications



Servo Gear Units

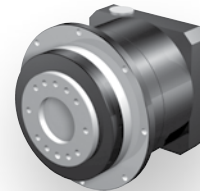
Inline & Offset Inline Gearheads



P/PA — Shaft Output *

STOBBER P Series is the cornerstone of most of our inline family of precision planetary gearheads. They are the most accurate and efficient planetary gearheads available. HeliCamber® gear technology provides minimum wear, low backlash and low noise. The PA Advanced Series takes backlash to the absolute minimum, and performance to the max.

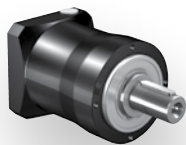
- 3:1 to 100:1
- Up to 2,000 Nm torque (nom)
- Up to 8,000 RPM input speed
- Backlash: P: <3 arc min; PA: <1 arc min



PH/PHA/PHQ/PHQA — Flange Output*

STOBBER PH family gearheads offer a rotating flange output version of the P Series. The PHA Advanced Series takes backlash to the absolute minimum, and the PHQ and PHQA feature “Quattro” power planetary gearing for extreme torque and ratio capabilities.

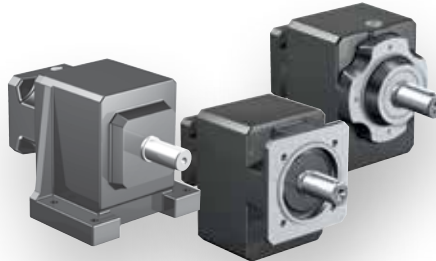
- 4:1 to 600:1
- Up to 13,000 Nm torque (nom)
- Up to 8,000 RPM input speed
- Backlash: PH/PHQ: <3 arc min; PHA/PHQA: <1 arc min



PE — Shaft Output*

STOBBER PE Series Servo Precision Planetary Gearheads are available for applications where very low backlash is not a criteria. They are an economical helical tooth planetary, comparable in quality to other STOBBER units.

- 3:1 to 100:1
- Up to 160 Nm torque (nom)
- Up to 8,000 RPM input speed
- Backlash: < 8 arc min



C — Shaft Output*

STOBBER C Series gear drives offer performance, durability, and economy for a wide range of applications. High efficiency helical gearing keeps motor size to a minimum while running almost silently.

- 2:1 to 276:1
- Up to 7,000 Nm torque (nom)
- Up to 6,500 RPM input speed
- Backlash: < 14 arc min

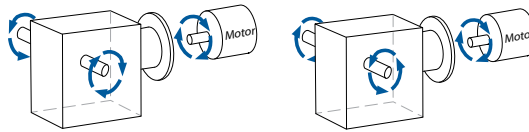
F — Versatile Outputs*

STOBBER F Series gear drives are a popular choice for applications that require high performance, efficiency, durability, and flexibility. F Series are available with a wide selection of configurations to match almost any mounting requirement.

- 4:1 to 551:1
- Up to 1,100 Nm torque (nom)
- Up to 7,000 RPM input speed
- Backlash: < 10 arc min

* See page 326 for comparison of all output options and sizes available

Right Angle Gearheads



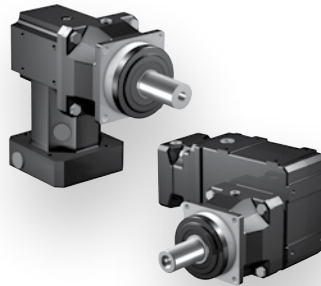
Many right angle gearheads offer output on either or both sides



K – Versatile Outputs*

STOBER K Series helical/bevel gear drives are the most popular and versatile Servo right angle gearheads. They are the optimal drive for truly demanding continuous-duty applications, offering higher efficiencies than conventional worm gear drives or planetary gearheads.

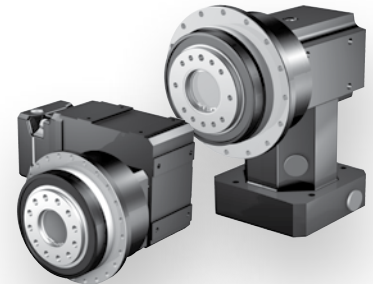
- 4:1 to 381:1
- Up to 12,000 Nm torque (nom)
- Up to 7,000 RPM input speed
- Backlash <10 arc min



PKX/PK – Shaft Output*

STOBER PKX and PK Series precision planetary gearheads combine the P Series gearhead with the low ratio “KX” right angle platform or the reduced backlash K Series platform.

- Ratios: 3:1 to 300:1;
- Up to 2,000 Nm torque (nom)
- Up to 6,000 RPM input speed
- Backlash: PKX: ≤4 arc min;
PK: ≤3.5 arc min



PHKX/PHK/PHQK – Flange Output*

STOBER PH right angle gearhead configurations offer a rotating flange output combining the P Series gearhead with the low ratio “KX” or reduced backlash K Series. The PHQK features the “Quattro” power planetary gearing for extreme torque and ratio capabilities.

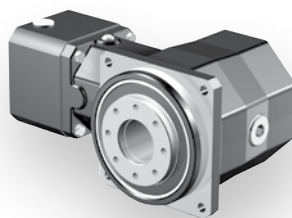
- 4:1 to 591:1
- Torque: 13,000 Nm (nom)
- Up to 7,000 RPM input speed
- Backlash <3.5 arc min



KL – Versatile Outputs*

The STOBER KL Series offers the same output and housing versatility as the K series, but is much more compact and ideal for smaller gearhead size applications.

- 4:1 to 32:1
- Up to 50 Nm torque (nom)
- Up to 6,000 RPM input speed
- Backlash: ≤20 arc min



KS – Versatile Outputs*

STOBER KS Series precision planetary gearheads use time-tested helical gearing and finish ground spiral bevel gears to provide a low backlash unit, that is smooth running, with high efficiency, high power density, and high input speed capacity..

- 6:1 to 200:1
- Up to 250 Nm torque (nom)
- Up to 6,000 RPM input speed
- Backlash: < 4 arc min



KSS – Versatile Outputs*

STOBER is proud to offer our quality-proven, high-efficiency KSS Series Helical/Bevel speed reducer in a stainless steel housing necessary for the toughest washdown applications.

- 4:1 to 70:1
- Up to 346 Nm torque (nom)
- Up to 6,000 RPM input speed
- Backlash: < 10 arc min

Servo Gear Units

Versatility

STOBER Drives offers the world's largest variety of gearheads to fit virtually all servo needs.

INLINE & OFFSET INLINE GEARHEADS



Performance, Configurations and Options

		P	PA	PH	PHA	PHQ	PHQA	PE	C	F
		page 14		page 46				page 92	page 102	page 140
Input	Large Input	•	•	•	•	•	•	•		
	ServoCool	•	•	•	•					
Output <small>(see page 326 for details)</small>	Solid Shaft	•	•					•	•	•
	Hollow Bore									•
	Rotating Flange			•	•	•	•		•	•
	Shrink Ring									•
	Single Bushing									•
	Double Bushing									•
	Flange								•	•
Housing	Foot Mount								•	•
	Tapped Holes								•	•
	IP65	•	•	•	•	•	•	IP64	•	•
Protection	IP69K Washdown								Opt	Opt
	ATEX Certified	Opt	Opt	Opt	Opt	Opt	Opt		Opt	Opt
	304SS Housing									
Paint/Coatings	Standard Black	•	•	•	•	•	•	•	•	•
	Food Duty	•							•	•
	Corrosion Resistant Duty								•	•
Added Functionality	ServoStop*	•	•	•	•				•	•
	Rack and Pinion*	•	•	•				•		
Performance <small>+ Good +++ Better +++++ Best</small>	Continuous RPM	+++	+++	++	++	++	++	+++	+++	++
	Stiffness	+++	+++	++	++++	+++++	+++++	+	+	++++
	Torque Density	+++	+++	++	++++	+++++	+++++	+	+	++++
Precision <small>ArcMin Backlash</small>	1	•		Opt		Opt				
	1-3			•		•			•	
	3-5				•					
	5-10						Opt			Opt
	10-15		•				•			•
	15-20							•		
Nominal Output Torque Ranges <small>Nm</small>	0-50	•	•	•	•			•	•	•
	50-200	•	•	•	•			•	•	•
	200-1,000	•	•			•	•	•	•	•
	1,000-5,000	•	•			•	•	•	•	•
	5,000-10,000					•	•	•	•	•
	10,000-23,000					•	•			

* See page 331 for more information

RIGHT ANGLE GEARHEADS

SS304



	K	KL	PKX	PK	PHKX	PHK	PHQK	KS	KSS
	page 162		page 214		page 248			page 298	page 312
								•	
	•	•	•	•				•	•
	•	•						•	•
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	•	•						•	•
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	Opt	Opt							•
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Servo Gear Units Application-Tailored Solutions

Industry	Ideal Gearhead Applications	Recommended STÖBER Gearhead
Aerospace	<ul style="list-style-type: none"> Automated Guided Vehicles (AGV) Drilling and Riveting Machine Tool Testing and Inspection 	<ul style="list-style-type: none"> Carbon Fiber Placement Fuselage Space Tracking Systems Wing assembly
Automation	<ul style="list-style-type: none"> Assembly turn tables Linear presses Robotics auxiliary axis Palletizing 	<ul style="list-style-type: none"> Custom assembly machines Radar Pipe and wire bending
Automotive Manufacturing	<ul style="list-style-type: none"> Transfer lines Robotic auxiliary Machining Tire manufacturing Carbon fiber production 	<ul style="list-style-type: none"> Metal cutting and bending Pick and place Index tables Electronics assembly
Converting	<ul style="list-style-type: none"> Cutting Tension Control Web Lines 	<ul style="list-style-type: none"> Winding Paper Converting
Machine Tool	<ul style="list-style-type: none"> Horizontal and vertical mills Large gantry cranes Carbon fiber placement Flame, laser, water jet, and plasma cutting Back gauging 	<ul style="list-style-type: none"> Grinding X-Y tables Indexing tables Chip conveyors Bending and forming Tool changers
Material Handling	<ul style="list-style-type: none"> Pick and place Line diverter Sorting/diverting 	<ul style="list-style-type: none"> Linear transfer Palletizing
Medical	<ul style="list-style-type: none"> Imaging Radiation Centrifuge 	
Packaging	<ul style="list-style-type: none"> Continuous or intermittent filling applications 	
Plastics/Composites	<ul style="list-style-type: none"> Often used to replace hydraulic actuators in injection molding Injection molding Carbon fiber placement 	<ul style="list-style-type: none"> Extrusion lines Blow molding Thermoforming Rubber molding
Printing	<ul style="list-style-type: none"> Labels Flexographic printing 	<ul style="list-style-type: none"> Circuit Boards Sheet
Robotics	<ul style="list-style-type: none"> Delta Pick and place Telescoping arms 	<ul style="list-style-type: none"> Auxiliary axis to rotate and move robot Positioning axis
Semiconductor	<ul style="list-style-type: none"> Wafer polishing Wafer handling 	<ul style="list-style-type: none"> Circuit web printing
Valve Control	<ul style="list-style-type: none"> Ideal for handling rapid dithering positioning Ball, gate, and globe valves 	<ul style="list-style-type: none"> Throttle/governor valves Chokes Process valves ATEX explosion proof available

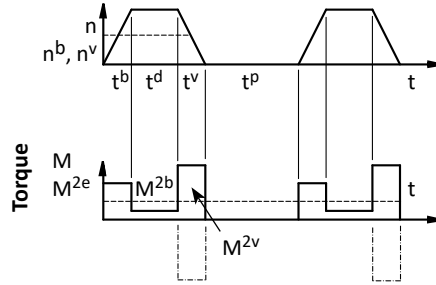
Gearhead Sizing to your Specific Application Requirements

Sizing/Selection

Use the chart on the facing page and below to determine the best series and the right size gearhead to meet your specific application requirements. In each product section of this catalog, the necessary data and a "Load/Life/Speed Calculation" section are provided to help you work through these equations..

By all means, please feel free to call or email (sales@stober.com), if you have any questions or need assistance determining the best solution for your application.

Cycle Run



$$M_{2e} = \sqrt[3]{\frac{n_{2b} \cdot t_b \cdot M_{2b}^3 + \dots + n_{2n} \cdot t_n \cdot M_{2n}^3}{n_{2b} \cdot t_b + \dots + n_{2n} \cdot t_n}}$$

Service Factor

Apply to Nominal Rating ONLY

P, PA, PE PH, PHA PHV, PHVA, PHQ, PHQA, KS	PKX, PK, PHKX, PHK, PHQK, C, F, K, KSS
--	---

Load Factor f_B

Operating Mode

Continuous	1.0	1.0
Cyclic	1.0	1.25
Cyclic-	1.0	1.4
Reversing		

Running Time Factor f_L

≤8 hours	1.0
≤16 hours	1.15
≤24 hours	1.2

Apply to Input RPM

Temperature Factor f_T

	Without Ventilation	Fan Cooled
<20°C	1.00	0.90
<30°C	1.10	1.00
<40°C	1.25	1.15

Continuous Duty: Drive is considered continuous duty if the running time ($t^r = t^b + t^d + t^v$) is 60% of the complete cycle time ($t^b + t^d + t^v + t^p$) or longer than 20 minutes.

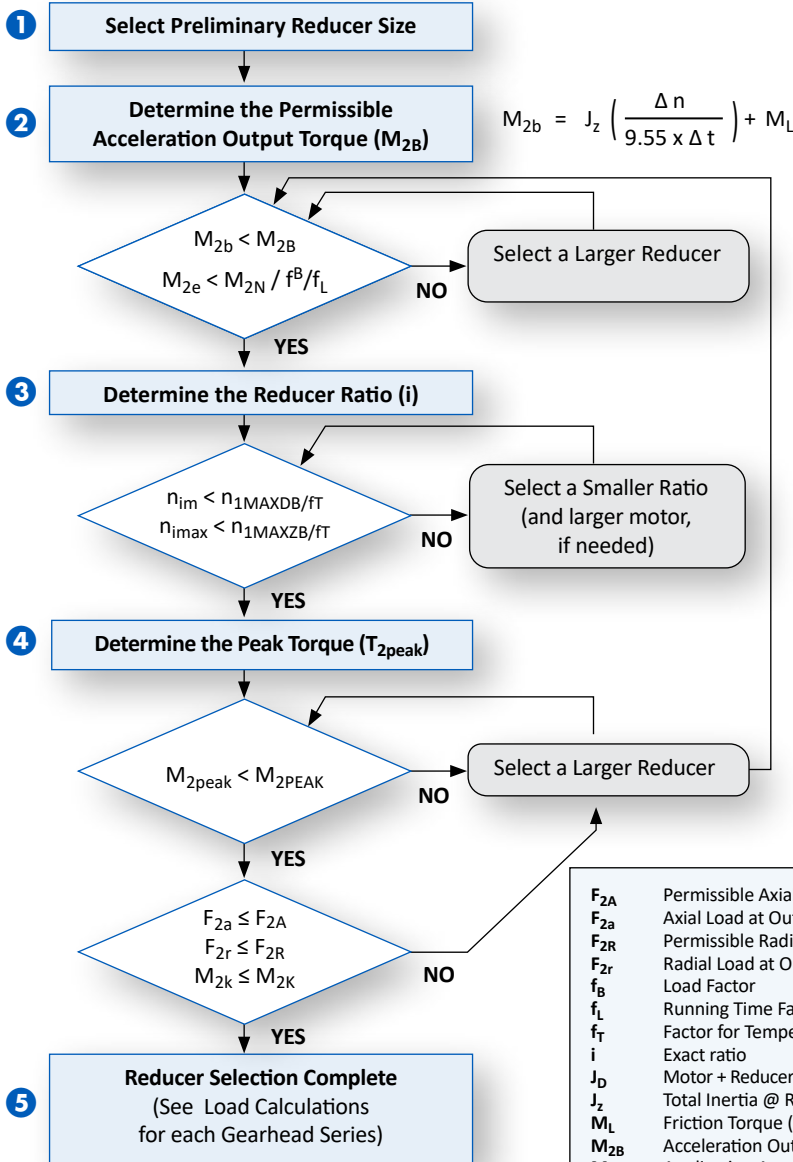
Cyclic Duty: Drive will cycle on and off.

For cyclic operation, the recommended ratio of external (application) inertia to gearhead inertia can be determined by the following equation:

$$\frac{J_z}{i^2} = 4 \cdot J_D$$

The gearhead selected, using the following equation for inertia ratio, will result in the lowest motor torque demand and the optimum drive selection:

$$\frac{J_z}{i^2} = J_D$$



F_{2A}	Permissible Axial Load	M_{2K}	Rated Tilting Torque
F_{2a}	Axial Load at Output Shaft	M_{2k}	Equivalent Tilting Load
F_{2R}	Permissible Radial load	M_{2N}	Nominal Output Torque
F_{2r}	Radial Load at Output Shaft	M_{2peak}	Peak Output Torque
f_B	Load Factor	n_{1db}	Maximum Continuous Input
f_L	Running Time Factor	n_{1zb}	Maximum Cyclic Input
f_T	Factor for Temperature	n_{im}	Maximum Continuous Speed
i	Exact ratio	n_{imax}	Maximum Cyclic Speed
J_D	Motor + Reducer Inertia @ Motor RPM	T_{2PEAK}	Peak Torque
J_z	Total Inertia @ Reducer RPM	t_r	Running Time
M_L	Friction Torque (Losses)	t_b	Acceleration Time
M_{2B}	Acceleration Output Torque	t_d	Duration Time
M_{2b}	Application Acceleration Torque	t_v	Deceleration Time
M_{2e}	Equivalent Torque (Avg RMS Torque)		

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Features

- 5:1 to 591:1 ratios (higher ratios available. Contact STÖBER.)
- Quiet running (<63dB(A))
- High load capacity and tilting rigidity through symmetrical bearing arrangement
- FKM seals for extended gearbox life
- Large motor input option to accept bigger diameter motor shafts so you don't use an oversized gearbox
- Error free motor mounting and quick changeover with toleranced pilot on motor plate
- Low no load running torque, giving you more torque for your application
- Magnetic oil filtration to remove contaminants to prevent breakdowns
- Build and ship in one day
- Assembled in the USA

STÖBER PHKX provides a right angle option with planetary gearing while the PHK/PHQK Series combine planetary and helical gearing. The PHK and PHQK provide a more compact, precise solution, and can handle higher input speeds. Every gearbox is made to order. STÖBER will custom whatever you need to fit your application. Contact us today to learn more.



SHIPS in 1 DAY!
NO EXPEDITE FEE FOR 24 HOUR SERVICE

General Specifications

Ambient Temperature	0°C to +40°C (104°F) [Unit temperature <90°C Max]
Backlash	≤3.5 (see performance overview chart, page 250 for PHKX and page 251 for PHK & PHQK)
Coating	Standard Black (RAL 790-4)
Degree of Protection	IP65
Direction of Rotation	See page 252
Efficiency	PHKX: 1 stage 96%, 2 stage 94%; PHK/PHQK: 94%
Input RPM	Up to 6,000 RPM
Installation	Requires 12.9 fasteners. See page 328, for more information
Lubrication	Lubricated for life – standard Mobil SHC629; option food grade Mobil SHC CIBUS 150
Mounting Position	Must be specified, see page 252
Warranty	5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)

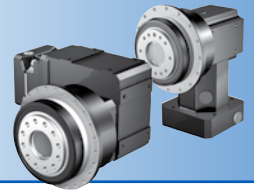
Benefits of NEW ME Motor Adapters

- Higher torques
- Higher input speeds
- More compact with square coupling housing
- More clamp ring options, so less need for adapter bushings
- Clamp ring with roll pin

Comparative Advantages

	PHKX	PHK	PHQK
Precision	Best	Better	Better
Stiffness	Better	Better	Best
Compact design	Best	Better	Better
Quiet running	Better	Best	Best
Higher ratios	Better	Best	Best
Higher input speeds	Better	Best	Best
Torque density	Better	Better	Best

Overview



Selection Options At-a-Glance

Using the **Selection Data** table later in this section, select the PHKX/PHK Series Gearhead with the appropriate performance and design options tailored to your motor choice and exact application requirements. Use the part number guide below as a reference to build a part number for the complete gearhead assembly.

Part Number Examples:

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	
PHKX	PH	3	2	1	F	0040	KX301VF	0010	MF	EL1 *
PHK	PH	5	2	1	F	0040	K102VF	0040	ME10	EL1 *
PHQK	PHQ	5	2	1	F	0055	K102VF	0040	ME10	EL1 *

Design Option	Part Number Code	Description
① Series	PH PHQ	Rotating flange output planetary Rotating flange output with Quattro power planetary
② Size	3 4 5 7 8 9 10 11 12	8 sizes of gearhead (size 3 - 4 available for PHKX Series only; size 11 and 12 available for PHQK Series only)
③ Generation	2	Version of gearhead
④ # of Stages	1 2	One stage for ratios of ≤ 10:1 Two stage for ratios >30:1 (PHKX Series only)
⑤ Housing	F	Flange output
⑧ Ratio	0030	Ratios range from 4:1 to 100:1 for PHKX; from 3:1 to 100:1 for PHK; from 5.5:1 to 6:1 for PHQK Series (0040=4:1; 0055=5.5:1; 1000=100:1, etc.)
⑨ Secondary Unit	KX301VF K102VF K523VF	KX Series right angle unit: 5 sizes, 1 stage, with output shaft (V) & flange (F) for PHKX Series K Series helical/bevel unit: 5 sizes, 2 or 3 stages, with output shaft (V) & flange (F) for PHK Series (specify side 3 or 4) K Series helical/bevel unit: 6 sizes, 1,2 or 3 stages, with output shaft (V) & flange (F) for PHQK Series
⑩ Secondary Unit Ratio	0010	PHKX Series: Ratios from 1:1 to 3:1; PHK Series: Ratios from 4:1 to 78:1; PHQK Series: Ratios from 4:1 to 99:1 (0010=1:1; 0020=2:1; 0030=3:1)
⑪ Motor Adapter	MF ME10 – ME50	MF input for PHKX Series ME 5 input sizes for PHK/PHQK Series (see also motor mounting plate option, page 255)
* Mounting Position	EL1 EL2 EL3 EL4 EL5 EL6	Required special instruction for all units, see page 252

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Special Options

ATEX

- ATmosphere EXplosible — Please contact factory for this option and allow additional time for delivery

Coating Options

- PHKX/PHK/PHQK Series are also available with a five year warranty multi-layer, industrial 316 stainless steel epoxy coating (contact factory)

ME Adapter Options — PHK/PHQK Series only

(Contact factory)

- MSS1 special input seal for longer life
- Peak Torque Booster – pinion securing element for shock loads, increasing peak torque up to 80%

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Performance is dependent on several factors including duty cycle, bearing design, gearhead size and stage configuration,

among others.

Use the chart below for preliminary evaluation, then use the following performance chart and selection information on the following pages for specific performance sizing and selection.

PHKX Performance Overview

Size/Generation/# of Stages		PH321	PH322	PH421	PH422	PH521	PH522	PH721	PH722	PH821	PH822	PH932	PH1032
Secondary Unit		KX3	KX3	KX4	KX3	KX5	KX4	KX7	KX5	KX8	KX7	KX8	KX8
Acceleration Torque M_{2BMAX}	Nm	63	65	121	130	306	320	650	700	1600	2000	4608	7500
Output Torque Nom. ¹⁾ M_{2N}	Nm	45		90		220		440		1000	1250	3000	5000
Torsional Stiffness C_2	Nm/arcmin	7.8	10	19	26	47	65	119	140	283	385	1051	1589
Torsional Backlash ²⁾ $\Delta\phi$	arcmin	≤6	≤4.5	≤5.5	≤3.5	≤5.5	≤3.5	≤5.5	≤3.5	≤5.5	≤3.5	≤4	≤3.5
Input Speed Max. n_{1MAX}	Continuous Cyclic	3500 6000		3000 4500	3500 6000	3000 4500		2100 3500	3000 4000	1300 3000	2100 3500	1300 3000	1300 3000
Efficiency (@nom torque)	%	95	92	95	92	95	92	95	92	95	92	92	92
Weight	kg lbs	3.5 8	4.0 9	5.5 12	6.3 14	12.9 28	10.9 24	23.5 52	20.9 46	56 124	51 112	92.0 203	107.4 237
Noise ³⁾	dB(A)	≤70	≤70	≤70	≤70	≤72	≤70	≤72	≤72	≤74	≤72	≤74	≤74
Axial Load Max. ⁴⁾ F_{2AMAX}	N	1650		2150		4150		6150		10,050		33,000	50,000
Tilting Moment Max. ⁴⁾ M_{2KMAX}	Nm	100		260		440		1500		3500		6500	7500

¹⁾ Ratings based on input speed (n_1) of 2000 RPM.

For torque at higher input speeds (M_{2NX}) solve the formula:
where n_1 = Actual Input Speed.

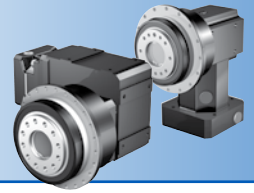
$$M_{2NX} = \frac{M_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Tested at 1.5% of nominal torque and recorded on the output side of the gearhead. For lower backlash, contact STÖBER technical support.

³⁾ Measurement at one (1) meter distance with input speed (n_1) of 2000 RPM.

⁴⁾ Rating based on output speed (n_2) of 100 RPM. For values at other speeds see page 254.

Overview



PHK Performance Overview

Size/Generation/# of Stages			PH521	PH721		PH821		PH931	PH1031
Secondary Unit			K102	K102	K202	K202	K302	K513	K613
Acceleration Torque	M_{2BMAX}	Nm	320	650	700	1480	1700	4500	7500
Output Torque Nom. ¹⁾	M_{2N}	Nm	220	440	440	1000	1100	3000	5000
Torsional Stiffness	C_2	Nm/arcmin	60	108	108.7	248.2	238.4	729.8	1209.7
Torsional Backlash ²⁾	$\Delta\phi$	arcmin	≤4	≤4		≤3.5	≤4	≤4	≤4
Input Speed Max.	n_{1MAX}	Continuous	4000	4000	4000	4000	3800	3400	3100
		Cyclic	7000	7000	6500	6500	6000	5000	4500
Efficiency (@nom torque)		%	93	93	93	93	93	92	92
Weight		kg	22.5	26.8	37.3	58.6	63.6	102.4	164.8
		lbs	50	59	82	129	140	226	363
Noise ³⁾		dB(A)	≤63	≤63	≤64	≤64	≤65	≤65	≤65
Axial Load Max. ⁴⁾	F_{2AMAX}	N	4150	6150	6150	10,050	10,050	33,000	50,000
Tilting Moment Max. ⁴⁾	M_{2KMAX}	Nm	440	1500	1500	3500	3500	7500	8800

PHQK Performance Overview

Size			PHQ5	PHQ7	PHQ8	PHQ9	PHQ10	PHQ11	PHQ12
Secondary Unit			K102	K202	K402	K513	K713	K813	K913/K914
Acceleration Torque	M_{2BMAX}	Nm	430	950	2600	5760	10,000	22,000	43,000
Output Torque Nom. ¹⁾	M_{2N}	Nm	280	650	1700	3800	6500	13,000	21,772
Torsional Stiffness	C_2	Nm/arcmin	70	135	399	771	1560	2623	4664
Torsional Backlash ²⁾	$\Delta\phi$	arcmin	≤4	≤4	≤3.5	≤4	≤4	≤4	≤4
Input Speed Max.	n_{1MAX}	Continuous	4000	4000	3600	3400	2900	2800	2600
		Cyclic	7000	6500	5500	5000	4200	4000	3800
Efficiency (@nom torque)		%	93	93	93	92	92	92	92
Weight		kg	16.5	30.4	71.1	96.7	156.6	304.6	551
		lbs	36	67	157	213	345	672	1212
Noise ³⁾		dB(A)	≤63	≤63	≤63	≤64	≤64	≤65	≤65
Axial Load Max. ⁴⁾	F_{2AMAX}	N	4150	6150	10,050	33,000	50,000	60,000	70,000
Tilting Moment Max. ⁴⁾	M_{2KMAX}	Nm	440	1500	3500	7500	8800	11,000	15,000

¹⁾ Ratings based on input speed (n_1) of 2000 RPM.

For torque at higher input speeds (M_{2NX}) solve the formula:
where n_1 = Actual Input Speed.

$$M_{2NX} = \frac{M_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Tested at 1.5% of nominal torque and recorded on the output side of the gearhead. For lower backlash, contact STÖBER technical support.

³⁾ Measurement at one (1) meter distance with input speed (n_1) of 2000 RPM.

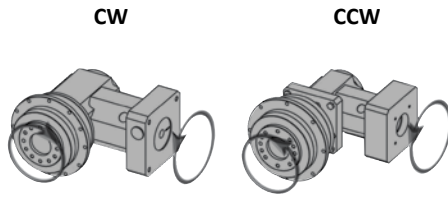
⁴⁾ Rating based on output speed (n_2) of 100 RPM. For values at other speeds see page 254.

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series Direction of Rotation

PHKX Series



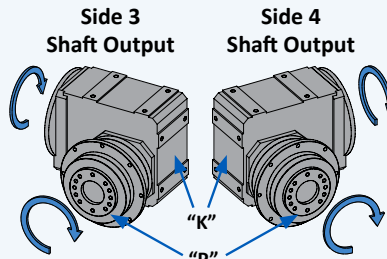
1 Stage Units
(PH7 & PH8)

2 Stage Units
(PH7 thru PH10)

1 Stage Units
(PH3 thru PH5)

2 Stage Units
(PH3 thru PH5)

PHK/PHQK Series



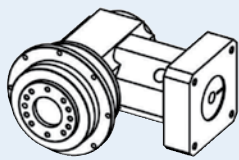
For PK units, the “P” Series planetary output unit can be mounted on either the right (Side 3) or the left (Side 4) of the “K” Series right angle secondary unit. Note CCW input direction of rotation and CW output shaft direction with both mounting configurations.

IMPORTANT: When ordering, Mounting Side 3 or Side 4 **MUST BE SPECIFIED**.

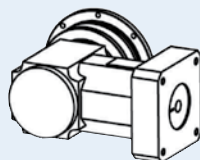
PHKX Mounting Position Options

Horizontal Positions (EL1, EL2, EL5, EL6) are interchangeable;

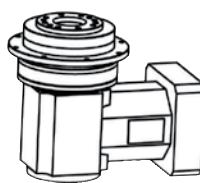
Vertical Positions (EL3 and EL4) **MUST BE SPECIFIED**



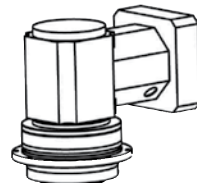
EL1



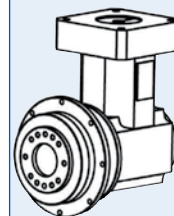
EL2



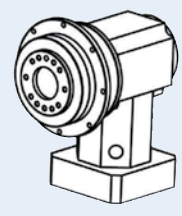
EL3



EL4



EL5



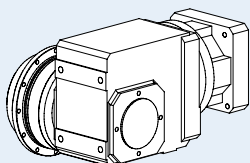
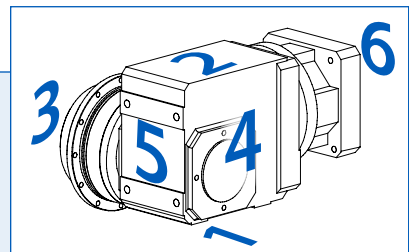
EL6

IMPORTANT: Mounting PKX in either vertical mounting position (EL3 or EL4) must be specified when ordering.

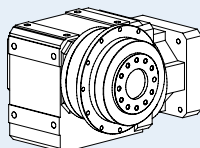
PHK/PHQK Mounting Position Options

When ordering, the Mounting Position **MUST BE SPECIFIED** using one of the Mounting Position order codes below.

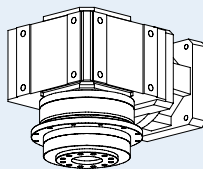
Note: the code relates to the orientation side that faces down. For example, EL1 has side 1 facing down, EL2 has side 2 facing down, etc.



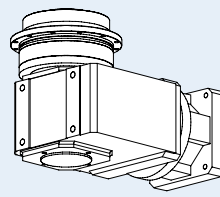
EL1



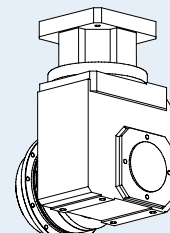
EL2



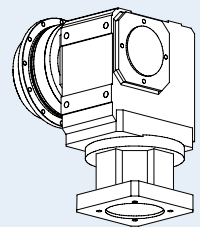
EL3



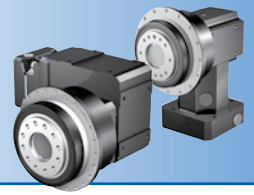
EL4



EL5



EL6



Overview

PHKX/PHK/PHQK Series Motor Mounting Plate Option

STOBER Servo Gearheads fit the motor of your choice with the appropriate motor mounting plate assembled between the motor and the gearhead.

NOTE: When ordering a gearhead:

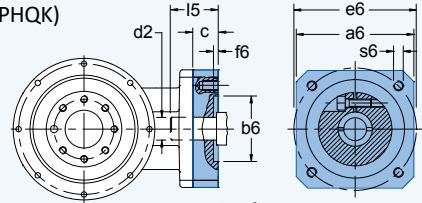
- Specify the motor manufacturer and part number
- Provide the motor drawing with dimensions, or specify the motor mounting dimensions (per the list shown at right)

For a precise dimension on a specific motor, or for general assistance, we recommend you contact STOBER Technical Support.

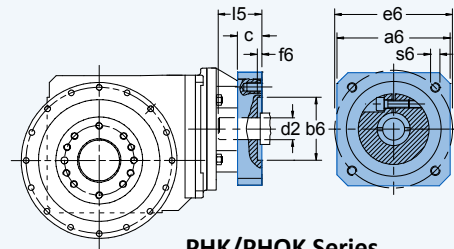
Customer Required Dimensions for Properly Sized Motor Mounting Plate

Motor information required with Motor Adapter (MF option for PHKX; ME option for PHK and PHQK)

- d2 Motor Shaft Diameter (If an adapter bushing is required it will be supplied with the motor plate.)
- b6 Pilot Diameter
- e6 Bolt Circle Diameter
- s6 Bolt Diameter
- l5 Motor Shaft Length
- f6 Pilot Length
- a6 Square Flange (Optional – motor plate will typically be made to match this dimension.)



PHKX Series



PHK/PHQK Series

PHKX Motor Mounting Plate Dimensions — mm (Gearhead Part Number Specific)

	PH321KX3 PH322KX3 PH422KX3	PH421KX4 PH522KX4	PH521KX5 PH722KX5	PH721KX7 PH822KX7	PH821KX8 PH922KX8 PH1032KX8
Maximum Allowed Motor Shaft Dia. d2	19	24	32	38	48
Minimum Allowed Motor Plate Thickness c*	18	21	24	25	33

* Note that the c motor plate thickness is determined by the motor shaft length. The minimum motor plate thickness is the value listed.

PHK/PHQK Motor Mounting Plate Dimensions — mm (Gearhead Part Number Specific)

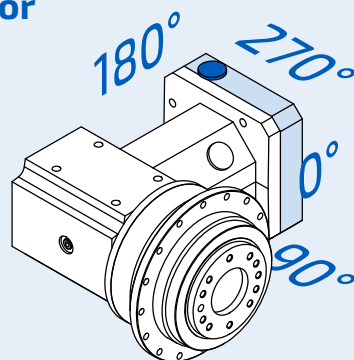
	ME10	ME20	ME30	ME40	ME50
Maximum Allowed Motor Shaft Dia. d2	19	32	38	48	60
Minimum Allowed Motor Plate Thickness c*	21	24	25	33	43

* Note that the c motor plate thickness is determined by the motor shaft length. The minimum motor plate thickness is the value listed.

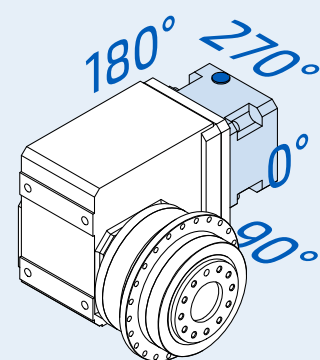
PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series Motor Mounting Plate Access Hole

Access to the clamping screw for the motor coupling is located on the 270° side of the motor mounting plate at the location shown. If necessary, the motor mounting plate can be rotated in the field, if a 0°, 90° or 180° orientation for the access hole is desirable.



PHKX Series



PHK/PHQK Series

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX Permissible Output Shaft Load and Tilting Moments*

Unit Size	Z ₂ mm	F _{2AMAX} N	F _{2R} N	F _{2RB} N	M _{2K} Nm	M _{2KB} Nm	C _{2K} Nm/arcmin
PH3	62	1650	1613	1613	100	100	53
PH4	84	2150	3095	3571	260	300	160
PH5	97	4150	4536	4897	440	475	380
PH7	88	6150	17,045	17,045	1500	1500	500
PH8	126	10,050	27,778	27,778	3500	3500	1550
PH9	155	33,000	48,387	70,968	7500	11,000	7500
PH10	171	50,000	51,462	73,099	8800	12,500	9500

PHK/PHQK Permissible Output Shaft Load and Tilting Moments*

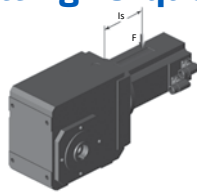
Unit Size	Z ₂ mm	F _{2AMAX} N	F _{2R} N	F _{2RB} N	M _{2K} Nm	M _{2KB} Nm	C _{2K} Nm/arcmin
PH5	97	4150	4536	4897	440	475	380
PH7	88	6150	17,045	17,045	1500	1500	500
PH8	126	10,050	27,778	27,778	3500	3500	1550
PH9	155	33,000	48,387	70,968	7500	11,000	7500
PH10	171	50,000	51,462	73,099	8800	12,500	9500
PH11	231	60,000	47,619	60,606	11,000	14,000	9500
PH12	281	70,000	53,380	71,040	15,000	20,000	14,000

* Refer to illustration and definitions below.

During EMERGENCY OFF operation (maximum stops per gearhead = 1000) the permissible values in the table for F_{2A}, F_{2R} and M_{2K} can be multiplied by a factor of 2.

Permissible Motor Tilting Torque

The permissible tilting torque of the motor attached to the gear unit is a result of the static and dynamic load "F" from the motor weight, mass acceleration, and vibration multiplied by the distance from the center of gravity "I_S" of the motor.



$$M_{1K} = F \times I_S \leq M_{1K}$$

M _{1K} Nm	PHK/PHQK (ME Motor Adapters)					PHKX (MF Motor Adapters)				
	ME10	ME20	ME30	ME40	ME50	PHKX3	PHKX4	PHKX5	PHKX7	PHKX8
	25	60	125	250	600	12	24	50	100	300

PHKX/PHK/PHQK Series Load/Life/Speed Calculations

The permissible load and tilting moment values are based on an output speed of 100 RPM. For higher speeds the following applies, where n₂ is the desired speed:

$$F_{2AX} = \frac{F_{2A}}{\sqrt[3]{\frac{n_2}{100}}}, \quad M_{2KX} = \frac{M_{2K}}{\sqrt[3]{\frac{n_2}{100}}}$$

The application output tilting moment should be determined by the following formula:

$$M_{2A} = \frac{2 \cdot F_{2a} \cdot y_2 + F_{2rb} \cdot (x_2 + z_2)}{1000} \leq M_{2KB}$$

$$M_{2ka} = \sqrt[3]{\frac{n_{2b1} \cdot t_{b1} \cdot M_{2kb1}^3 + \dots + n_{2bn} \cdot t_{bn} \cdot M_{2kbn}^3}{n_{2b1} \cdot t_{b1} + \dots + n_{2bn} \cdot t_{bn}}} \leq M_{2K}$$

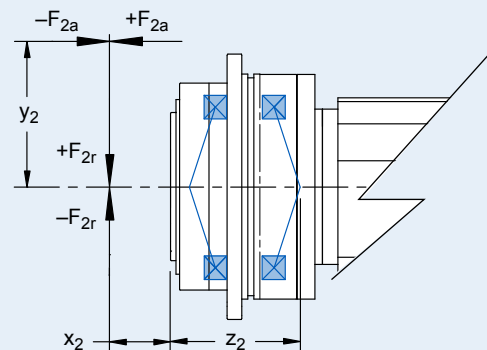
$$F_{2r} = \sqrt[3]{\frac{n_{2b1} \cdot t_{b1} \cdot F_{2rb1}^3 + \dots + n_{2bn} \cdot t_{bn} \cdot F_{2rbn}^3}{n_{2b1} \cdot t_{b1} + \dots + n_{2bn} \cdot t_{bn}}} \leq F_{2R}$$

Where:

F _{2a}	Axial Load at Output Shaft	M _{2K}	Rated Tilting Torque
F _{2A}	Permissible Axial Load	M _{2k}	Equivalent Tilting Load
F _{2r}	Radial Load at Output Shaft	M _{2KB}	Acceleration Tilting Torque
F _{2R}	Permissible Radial Load	z ₂	Distance Factor
F _{2RB}	Acceleration Permissible Radial Load		

All formulas shown are based on METRIC values

Upper case letters are permissible values. Lower case letters are for existing values.



The hours of life (L_h) of the unit can be determined by the following formula:

bearing life for duty cycle ≤ 40%

$$L_h > 10,000 \text{ hours if } M_{2k}/M_{2A} < 1.25 \text{ and } > 1$$

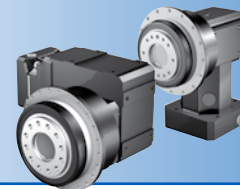
$$L_h > 20,000 \text{ hours if } M_{2k}/M_{2A} > 1.25 \text{ and } > 1.5$$

$$L_h > 30,000 \text{ hours if } M_{2k}/M_{2A} < 1.5$$

bearing life for duty cycle ≥ 40%

$$L_{TA} = L_h \left(\frac{40\%}{\text{Duty Cycle}} \right)$$

Selection Data



Exact Ratio (i)	Output Torque			Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH3KX

5.000	45	62	115	≤6	PH321F0050KX301VF0010MF	3000	2500	4500	19	1.1	7.0
7.000	45	60	130	≤5.5	PH321F0070KX301VF0010MF	3000	2500	4500	19	1.0	8.9
10.00	45	62	130	≤6	PH321F0050KX301VF0020MF	3500	3000	5500	19	0.8	7.0
14.00	45	60	130	≤5.5	PH321F0070KX301VF0020MF	3500	3000	5500	19	0.8	8.9
15.00	45	62	130	≤6	PH321F0050KX301VF0030MF	3500	3500	6000	19	0.8	7.0
20.00	30	50	100	≤5	PH321F0100KX301VF0020MF	3500	3000	5500	19	0.8	9.0
21.00	45	60	130	≤5.5	PH321F0070KX301VF0030MF	3500	3500	6000	19	0.7	8.9
30.00	30	50	100	≤5	PH321F0100KX301VF0030MF	3500	3500	6000	19	0.7	9.0
35.00	45	65	130	≤4.5	PH322F0350KX301VF0010MF	3000	2500	4500	19	1.0	14.4
40.00	45	65	130	≤4.5	PH322F0200KX301VF0020MF	3500	3000	5500	19	0.8	13.9
50.00	45	65	130	≤4.5	PH322F0250KX301VF0020MF	3500	3000	5500	19	0.8	14.2
56.00	45	60	130	≤4.5	PH322F0280KX301VF0020MF	3500	3000	5500	19	0.8	14.4
60.00	45	65	130	≤4.5	PH322F0200KX301VF0030MF	3500	3500	6000	19	0.8	13.9
70.00	45	65	130	≤4.5	PH322F0350KX301VF0020MF	3500	3000	5500	19	0.8	14.4
75.00	45	65	130	≤4.5	PH322F0250KX301VF0030MF	3500	3500	6000	19	0.7	14.2
80.00	30	50	100	≤4.5	PH322F0400KX301VF0020MF	3500	3000	5500	19	0.8	12.3
84.00	45	60	130	≤4.5	PH322F0280KX301VF0030MF	3500	3500	6000	19	0.8	14.4
100.0	45	65	130	≤4	PH322F0500KX301VF0020MF	3500	3000	5500	19	0.8	14.1
105.0	45	65	130	≤4.5	PH322F0350KX301VF0030MF	3500	3500	6000	19	0.7	14.4
120.0	30	50	100	≤4.5	PH322F0400KX301VF0030MF	3500	3500	6000	19	0.8	12.3
140.0	45	60	130	≤4	PH322F0700KX301VF0020MF	3500	3000	5500	19	0.8	14.5
150.0	45	65	130	≤4	PH322F0500KX301VF0030MF	3500	3500	6000	19	0.7	14.1
200.0	30	50	100	≤4	PH322F1000KX301VF0020MF	3500	3000	5500	19	0.8	12.4
210.0	45	60	130	≤4	PH322F0700KX301VF0030MF	3500	3500	6000	19	0.7	14.5
300.0	30	50	100	≤4	PH322F1000KX301VF0030MF	3500	3500	6000	19	0.7	12.4

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output



Exact Ratio (i)	Output Torque			Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH4KX

4.000	77	96	208	≤5.5	PH421F0040KX401VF0010MF	2500	2000	4000	24	2.8	11.3
5.000	90	120	240	≤5	PH421F0050KX401VF0010MF	2500	2000	4000	24	2.7	14.9
7.000	90	110	240	≤4.5	PH421F0070KX401VF0010MF	2500	2000	4000	24	2.5	19.0
8.000	77	96	208	≤5.5	PH421F0040KX401VF0020MF	2500	2500	5000	24	1.7	11.3
10.00	90	120	240	≤5	PH421F0050KX401VF0020MF	2500	2500	5000	24	1.7	14.9
12.00	77	96	208	≤5.5	PH421F0040KX401VF0030MF	3000	3000	5500	24	1.5	11.3
14.00	90	110	240	≤4.5	PH421F0070KX401VF0020MF	2500	2500	5000	24	1.7	19.0
15.00	90	120	240	≤5	PH421F0050KX401VF0030MF	3000	3000	5500	24	1.5	14.9
20.00	60	100	200	≤4	PH421F0100KX401VF0020MF	2500	2500	5000	24	1.6	17.4
21.00	90	110	240	≤4.5	PH421F0070KX401VF0030MF	3000	3000	5500	24	1.4	19.0
30.00	60	100	200	≤4	PH421F0100KX401VF0030MF	3000	3000	5500	24	1.4	17.4
32.00	90	130	240	≤3.5	PH422F0160KX301VF0020MF	3500	3000	5500	19	0.8	22.1
35.00	90	130	240	≤3.5	PH422F0350KX301VF0010MF	3000	2500	4500	19	1.0	26.5
40.00	90	130	240	≤3.5	PH422F0200KX301VF0020MF	3500	3000	5500	19	0.8	25.3
48.00	90	130	240	≤3.5	PH422F0160KX301VF0030MF	3500	3500	6000	19	0.8	22.1
50.00	90	130	240	≤3.5	PH422F0250KX301VF0020MF	3500	3000	5500	19	0.8	26.3
56.00	90	130	240	≤3.5	PH422F0280KX301VF0020MF	3500	3000	5500	19	0.8	23.6
60.00	90	130	240	≤3.5	PH422F0200KX301VF0030MF	3500	3500	6000	19	0.8	25.3
70.00	90	130	240	≤3.5	PH422F0350KX301VF0020MF	3500	3000	5500	19	0.8	26.5
75.00	90	130	240	≤3.5	PH422F0250KX301VF0030MF	3500	3500	6000	19	0.8	26.3
80.00	90	130	240	≤3.5	PH422F0400KX301VF0020MF	3500	3000	5500	19	0.8	23.5
84.00	90	130	240	≤3.5	PH422F0280KX301VF0030MF	3500	3500	6000	19	0.8	23.6
100.0	90	130	240	≤3	PH422F0500KX301VF0020MF	3500	3000	5500	19	0.8	26.4
105.0	90	130	240	≤3.5	PH422F0350KX301VF0030MF	3500	3500	6000	19	0.8	26.5
120.0	90	130	240	≤3.5	PH422F0400KX301VF0030MF	3500	3500	6000	19	0.7	23.5
140.0	90	110	240	≤3	PH422F0700KX301VF0020MF	3500	3000	5500	19	0.8	26.5
150.0	90	130	240	≤3	PH422F0500KX301VF0030MF	3500	3500	6000	19	0.7	26.4
200.0	60	100	200	≤3	PH422F1000KX301VF0020MF	3500	3000	5500	19	0.8	19.9
210.0	90	110	240	≤3	PH422F0700KX301VF0030MF	3500	3500	6000	19	0.7	26.5
300.0	60	100	200	≤3	PH422F1000KX301VF0030MF	3500	3500	6000	19	0.7	19.9

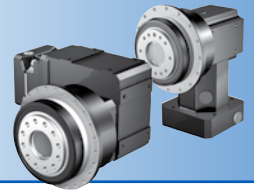
¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH5KX (continued next page)

4.000	192	242	521	≤5.5	PH521F0040KX501VF0010MF	2500	2000	3500	32	9.0	27.6
5.000	220	302	600	≤5	PH521F0050KX501VF0010MF	2500	2000	3500	32	8.4	36.5
7.000	210	270	598	≤4.5	PH521F0070KX501VF0010MF	2500	2000	3500	32	8.0	46.5
8.000	192	242	521	≤5.5	PH521F0040KX501VF0020MF	2500	2500	4500	32	5.7	27.6
10.00	220	302	600	≤5	PH521F0050KX501VF0020MF	2500	2500	4500	32	5.5	36.5
12.00	192	242	521	≤5.5	PH521F0040KX501VF0030MF	3000	3000	5000	32	4.9	27.6
14.00	210	270	598	≤4.5	PH521F0070KX501VF0020MF	2500	2500	4500	32	5.4	46.5
15.00	220	302	600	≤5	PH521F0050KX501VF0030MF	3000	3000	5000	32	4.9	36.5
20.00	140	250	500	≤4	PH521F0100KX501VF0020MF	2500	2500	4500	32	5.3	44.7
21.00	210	270	598	≤4.5	PH521F0070KX501VF0030MF	3000	3000	5000	32	4.8	46.5
30.00	140	250	500	≤4	PH521F0100KX501VF0030MF	3000	3000	5000	32	4.8	44.7

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Nom.	Exact	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH5K/PHQ5K (continued next page)

16.00	16/1	210	320	490	4.5/4.5	PH521_0040K102_0040ME10	3300	3300	5000	>14≤19	1.6	49.9
						PH521_0040K102_0040ME20				>19≤24	3.5	50.7
20.00	20/1	220	320	600	4/4	PH521_0050K102_0040ME10	3300	3300	5000	>14≤19	1.6	58.6
						PH521_0050K102_0040ME20				>19≤24	3.5	59.4
22.00	22/1	280	430	670	4/4	PHQ521_0055K102_0040ME10	3300	3300	5000	>14≤19	1.6	68.8
						PHQ521_0055K102_0040ME20				>19≤24	3.4	69.7
27.84	7600/273	220	320	600	4/4	PH521_0050K102_0056ME10	3300	3300	5000	>14≤19	1.3	59.3
						PH521_0050K102_0056ME20				>19≤24	3.2	59.7
30.00	30/1	220	320	600	4/4	PH521_0050K102_0060ME10	3300	3300	5000	>14≤19	1.1	59.4
						PH521_0050K102_0060ME20				>19≤24	3.0	59.8
30.62	8360/273	280	430	800	4/4	PHQ521_0055K102_0056ME10	3300	3300	5000	>14≤19	1.3	69.6
						PHQ521_0055K102_0056ME20				>19≤24	3.2	70.1

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH5KX (continued next page)

32.00	210	320	600	≤3.5	PH522F0160KX401VF0020MF	2500	2500	5000	24	1.7	51.8
35.00	220	320	600	≤3.5	PH522F0350KX401VF0010MF	2500	2000	4000	24	2.5	64.4
40.00	220	320	600	≤3.5	PH522F0200KX401VF0020MF	2500	2500	5000	24	1.7	60.3
48.00	210	320	600	≤3.5	PH522F0160KX401VF0030MF	3000	3000	5500	24	1.5	51.8
50.00	220	320	600	≤3.5	PH522F0250KX401VF0020MF	2500	2500	5000	24	1.7	63.4
56.00	210	320	600	≤3.5	PH522F0280KX401VF0020MF	2500	2500	5000	24	1.6	56.6
60.00	220	320	600	≤3.5	PH522F0200KX401VF0030MF	3000	3000	5500	24	1.5	60.3

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH5K/PHQ5K (continued next page)

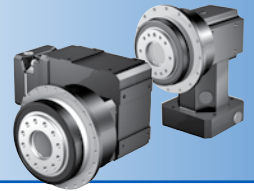
33.00	33/1	280	430	800	4/4	PHQ521_0055K102_0060ME10	3300	3300	5000	>14≤19	1.1	69.7
						PHQ521_0055K102_0060ME20				>19≤24	3.0	70.1
33.22	299/9	220	320	600	4/4	PH521_0050K102_0066ME10	3600	3600	5500	>14≤19	1.1	59.5
						PH521_0050K102_0066ME20				>19≤24	3.0	59.8
36.54	3289/90	280	430	800	4/4	PHQ521_0055K102_0066ME10	3600	3600	5500	>14≤19	1.1	69.9
						PHQ521_0055K102_0066ME20				>19≤24	3.0	70.2
41.55	1911/46	220	320	600	4/4	PH521_0050K102_0083ME10	3600	3600	5500	>14≤19	0.9	59.7
						PH521_0050K102_0083ME20				>19≤24	2.8	59.9
45.70	21,021/460	280	430	800	4/4	PHQ521_0055K102_0083ME10	3600	3600	5500	>14≤19	0.9	70.1
						PHQ521_0055K102_0083ME20				>19≤24	2.8	70.3
46.25	8740/189	220	320	600	4/4	PH521_0050K102_0092ME10	3600	3600	5500	>14≤19	1.0	59.8
						PH521_0050K102_0092ME20				>19≤24	2.9	60.0
50.87	9614/189	280	430	800	4/4	PHQ521_0055K102_0092ME10	3600	3600	5500	>14≤19	1.0	70.2
						PHQ521_0055K102_0092ME20				>19≤24	2.9	70.3
55.77	5577/100	280	430	800	4/4	PHQ521_0055K102_0100ME10	4000	4000	6000	>14≤19	0.9	70.2
						PHQ521_0055K102_0100ME20	3700	3700		>19≤24	2.7	70.4
57.83	1330/23	220	320	600	4/4	PH521_0050K102_0115ME10	3600	3600	5500	>14≤19	0.9	59.9
						PH521_0050K102_0115ME20				>19≤24	2.8	60.0

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH5KX (continued next page)

70.00	220	320	600	≤3.5	PH522F0350KX401VF0020MF	2500	2500	5000	24	1.6	64.4
75.00	220	320	600	≤3.5	PH522F0250KX401VF0030MF	3000	3000	5500	24	1.5	63.4
80.00	210	320	600	≤3.5	PH522F0400KX401VF0020MF	2500	2500	5000	24	1.6	56.3
84.00	210	320	600	≤3.5	PH522F0280KX401VF0030MF	3000	3000	5500	24	1.4	56.6
100.0	220	320	600	≤3	PH522F0500KX401VF0020MF	2500	2500	5000	24	1.6	64.1
105.0	220	320	600	≤3.5	PH522F0350KX401VF0030MF	3000	3000	5500	24	1.4	64.4
120.0	210	320	600	≤3.5	PH522F0400KX401VF0030MF	3000	3000	5500	24	1.4	56.3

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)	Output Torque			Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH5K/PHQ5K (continued next page)

63.61	1463/23	280	430	800	4/4	PHQ521_0055K102_0115ME10	3600	3600	5500	>14≤19	0.9	70.3
						PHQ521_0055K102_0115ME20				>19≤24	2.8	70.4
69.40	4719/68	280	430	800	4/4	PHQ521_0055K102_0125ME10	4000	4000	6000	>14≤19	0.8	70.3
						PHQ521_0055K102_0125ME20				>19≤24	2.7	70.4
70.57	494/7	220	320	600	4/4	PH521_0050K102_0140ME10	4000	4000	6000	>14≤19	0.8	60.0
						PH521_0050K102_0140ME20				>19≤24	2.7	
77.63	2717/35	280	430	800	4/4	PHQ521_0055K102_0140ME10	4000	4000	6000	>14≤19	0.8	70.3
						PHQ521_0055K102_0140ME20				>19≤24	2.7	70.4
87.82	10,450/119	220	320	600	4/4	PH521_0050K102_0175ME10	4000	4000	6000	>14≤19	0.8	60.0
						PH521_0050K102_0175ME20				>19≤24	2.7	
91.93	1287/14	280	430	800	4/4	PHQ521_0055K102_0165ME10	4000	4000	7000	>14≤19	0.7	70.4
						PHQ521_0055K102_0165ME20				>19≤24	2.6	
96.60	11,495/119	280	430	800	4/4	PHQ521_0055K102_0175ME10	4000	4000	6000	>14≤19	0.8	70.4
						PHQ521_0055K102_0175ME20				>19≤24	2.7	
110.8	4433/40	280	430	800	4/4	PHQ521_0055K102_0200ME10	4000	4000	7000	>14≤19	0.7	70.4
						PHQ521_0055K102_0200ME20				>19≤24	2.6	
116.3	5700/49	220	320	600	4/4	PH521_0050K102_0230ME10	4000	4000	7000	>14≤19	0.7	60.0
						PH521_0050K102_0230ME20				>19≤24	2.6	60.1

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH5KX (continued from previous page)

140.0	210	270	598	≤3	PH522F0700KX401VF0020MF	2500	2500	5000	24	1.6	64.7
150.0	220	320	600	≤3	PH522F0500KX401VF0030MF	3000	3000	5500	24	1.4	64.1
200.0	140	250	500	≤3	PH522F1000KX401VF0020MF	2500	2500	5000	24	1.6	51.6
210.0	210	270	598	≤3	PH522F0700KX401VF0030MF	3000	3000	5500	24	1.4	64.7
300.0	140	250	500	≤3	PH522F1000KX401VF0030MF	3000	3000	5500	24	1.4	51.6

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)		Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
Nom.	Exact	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH5K/PHQ5K (continued from previous page)

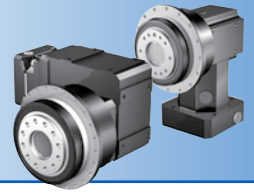
128.0	6270/49	280	430	800	4/4	PHQ521_0055K102_0230ME10	4000	4000	7000	>14≤19	0.7	70.4
						PHQ521_0055K102_0230ME20	3700	3700	6000	>19≤24	2.6	70.5
138.7	13,871/100	280	430	800	4/4	PHQ521_0055K102_0250ME10	4000	4000	7000	>14≤19	0.7	70.4
						PHQ521_0055K102_0250ME20	3700	3700	6000	>19≤24	2.6	70.5
140.2	2945/21	220	320	600	4/4	PH521_0050K102_0280ME10	4000	4000	7000	>14≤19	0.7	60.1
						PH521_0050K102_0280ME20	3700	3700	6000	>19≤24	2.6	
154.3	6479/42	280	430	800	4/4	PHQ521_0055K102_0280ME10	4000	4000	7000	>14≤19	0.7	70.4
						PHQ521_0055K102_0280ME20	3700	3700	6000	>19≤24	2.6	70.5
175.5	3686/21	220	320	600	4/4	PH521_0050K102_0350ME10	4000	4000	7000	>14≤19	0.7	60.1
						PH521_0050K102_0350ME20	3700	3700	6000	>19≤24	2.6	
185.4	51,909/280	280	430	800	4/4	PHQ521_0055K102_0340ME10	4000	4000	7000	>14≤19	0.6	70.4
193.1	20,273/105	280	430	800	4/4	PHQ521_0055K102_0350ME10	4000	4000	7000	>14≤19	0.7	70.5
						PHQ521_0055K102_0350ME20	3700	3700	6000	>19≤24	2.6	
221.7	4433/20	280	390	700	4/4	PHQ521_0055K102_0400ME10	4000	4000	7000	>14≤19	0.6	70.5
234.6	11,495/49	220	320	600	4/4	PH521_0050K102_0470ME10	4000	4000	7000	>14≤19	0.6	60.1
258.0	25,289/98	280	430	800	4/4	PHQ521_0055K102_0470ME10	4000	4000	7000	>14≤19	0.6	70.5
276.7	55,341/200	260	320	570	4/4	PHQ521_0055K102_0500ME10	4000	4000	7000	>14≤19	0.6	70.5
280.5	5890/21	220	320	600	4/4	PH521_0050K102_0560ME10	4000	4000	7000	>14≤19	0.6	60.1
308.5	6479/21	280	430	800	4/4	PHQ521_0055K102_0560ME10	4000	4000	7000	>14≤19	0.6	70.5
385.2	26,961/70	280	430	800	4/4	PHQ521_0055K102_0700ME10	4000	4000	7000	>14≤19	0.6	70.5

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH7KX (continued next page)

4.000	384	480	917	≤5.5	PH721F0040KX701VF0010MF	1800	1600	3000	38	29.5	83.4
5.000	440	600	1146	≤5	PH721F0050KX701VF0010MF	1800	1600	3000	38	27.7	103.7
7.000	440	650	1241	≤4.5	PH721F0070KX701VF0010MF	1800	1600	3000	38	26.3	119.1
8.000	384	480	1042	≤5.5	PH721F0040KX701VF0020MF	1800	1800	3500	38	15.9	83.4
10.00	440	600	1302	≤5	PH721F0050KX701VF0020MF	1800	1800	3500	38	15.4	103.7
12.00	384	480	1042	≤5.5	PH721F0040KX701VF0030MF	2100	2100	4000	38	12.9	83.4
14.00	440	650	1241	≤4.5	PH721F0070KX701VF0020MF	1800	1800	3500	38	15.1	119.1
15.00	440	600	1302	≤5	PH721F0050KX701VF0030MF	2100	2100	4000	38	12.7	103.7
20.00	300	500	1000	≤4	PH721F0100KX701VF0020MF	1800	1800	3500	38	14.9	104.2
21.00	440	650	1241	≤4.5	PH721F0070KX701VF0030MF	2100	2100	4000	38	12.6	119.1

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Nom.	Exact	Output Torque			Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH7K/PHQ7K (continued next page)

16.00	16/1	360	360	490	4.5/4.5	PH721_0040K202_0040ME10	3000	3000	4500	>14≤19	3.3	83.8
		440	670	1210		PH721_0040K202_0040ME20				>24≤32	6.7	87.5
						PH721_0040K202_0040ME30				>32≤38	12.0	88.0
20.00	20/1		450	610	4/4	PH721_0050K202_0040ME10	3000	3000	4500	>14≤19	3.2	104.0
		440	700	1400		PH721_0050K202_0040ME20				>24≤32	6.6	107.6
						PH721_0050K202_0040ME30				>32≤38	11.9	108.1
22.00	22/1	490	490	670	4/4	PHQ721_0055K202_0040ME10	3000	3000	4500	>14≤19	3.2	129.8
		610	920	1670		PHQ721_0055K202_0040ME20				>24≤32	6.6	134.3
						PHQ721_0055K202_0040ME30				>32≤38	11.9	135.0
24.00	24/1	540	540	730	4/4	PHQ721_0055K202_0044ME10	3000	3000	4500	>14≤19	2.8	130.7
		630	950	1700		PHQ721_0055K202_0044ME20				>24≤32	6.2	134.6
						PHQ721_0055K202_0044ME30				>32≤38	11.6	135.1
25.89	10,535/407	440	700	1400	4/4	PH721_0050K202_0052ME20	3000	3000	4500	>24≤32	5.8	108.1
						PH721_0050K202_0052ME30				>32≤38	11.1	108.4

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Part Number* (Gearhead + Input)		Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4				

PH7KX (continued next page)

30.00	300	500	1000	≤4	PH721F0100KX701VF0030MF	2100	2100	4000	38	12.5	104.2
32.00	440	700	1367	≤3.5	PH722F0160KX501VF0020MF	2500	2500	4500	32	5.6	111.4
35.00	440	700	1400	≤3.5	PH722F0350KX501VF0010MF	2500	2000	3500	32	7.8	138.8

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)		Output Torque				Backlash arcmin	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Part Number* (Gearhead Right Angle Unit + Input)		Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6				

PH7K/PHQ7K (continued next page)

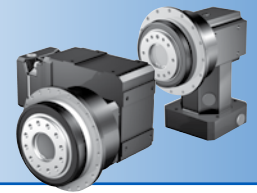
28.00	28/1	440	630	850	4/4	PH721_0070K102_0040ME10	3300	3300	5000	>14≤19	1.6	105.6
						PH721_0070K102_0040ME20				>19≤24	3.5	106.9
28.47	2107/74	650	950	1700	4/4	PHQ721_0055K202_0052ME20	3000	3000	4500	>24≤32	5.8	134.9
						PHQ721_0055K202_0052ME30				>32≤38	11.1	135.3
30.00	30/1	440	670	910	4/4	PH721_0050K202_0060ME10	3000	3000	4500	>14≤19	2.4	106.6
			700	1400		PH721_0050K202_0060ME20				>24≤32	5.8	108.2
						PH721_0050K202_0060ME30				>32≤38	11.1	108.5
33.00	33/1	650	740	1000	4/4	PHQ721_0055K202_0060ME10	3000	3000	4500	>14≤19	2.4	133.1
			950	1700		PHQ721_0055K202_0060ME20				>24≤32	5.8	135.2
						PHQ721_0055K202_0060ME30				>32≤38	11.1	135.4
33.42	11,395/341	440	700	1010	4/4	PH721_0050K202_0067ME10	3500	3500	5000	>14≤19	1.8	107.0
				1400		PH721_0050K202_0067ME20				>24≤32	5.2	108.3
						PH721_0050K202_0067ME30				>32≤38	10.5	108.5
36.76	2279/62	650	820	1110	4/4	PHQ721_0055K202_0067ME10	3500	3500	5000	>14≤19	1.8	133.6
			950	1700		PHQ721_0055K202_0067ME20				>24≤32	5.2	135.3
						PHQ721_0055K202_0067ME30				>32≤38	10.5	135.5

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH7KX (continued next page)

40.00	440	700	1400	≤3.5	PH722F0200KX501VF0020MF	2500	2500	4500	32	5.5	129.5
48.00	440	700	1367	≤3.5	PH722F0160KX501VF0030MF	3000	3000	5000	32	4.9	111.4

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH7K/PHQ7K (continued next page)

38.98	1520/39	440	650	1180	4/4	PH721_0070K102_0056ME10	3300	3300	5000	>14≤19	1.3	106.8
						PH721_0070K102_0056ME20				>19≤24	3.2	107.4
39.15	23,177/592	650	950	1700	4/4	PHQ721_0055K202_0071ME20	3000	3000	4500	>24≤32	5.4	135.4
						PHQ721_0055K202_0071ME30				>32≤38	10.7	135.6
40.00	40/1	300	500	1000	3.5/3.5	PH721_0100K102_0040ME10	3300	3300	5000	>14≤19	1.5	98.8
						PH721_0100K102_0040ME20				>19≤24	3.4	99.3
41.99	12,470/297	440	700	1270	4/4	PH721_0050K202_0084ME10	3500	3500	5000	>14≤19	1.4	107.7
				1400		PH721_0050K202_0084ME20				>24≤32	4.8	108.5
						PH721_0050K202_0084ME30				>32≤38	10.2	108.6
42.00	42/1	440	650	1240	4/4	PH721_0070K102_0060ME10	3300	3300	5000	>14≤19	1.1	107.0
						PH721_0070K102_0060ME20				>19≤24	3.0	107.5
45.95	11,395/248	440	700	1390	4/4	PH721_0050K202_0092ME10	3500	3500	5000	>14≤19	1.6	107.8
				1400		PH721_0050K202_0092ME20				>24≤32	5.0	108.5
						PH721_0050K202_0092ME30				>32≤38	10.3	108.6
46.18	1247/27	650	950	1700	4/4	PHQ721_0055K202_0084ME10	3500	3500	5000	>14≤19	1.4	134.4
						PHQ721_0055K202_0084ME20				>24≤32	4.8	135.5
						PHQ721_0055K202_0084ME30				>32≤38	10.2	135.6
46.51	2093/45	440	650	1240	4/4	PH721_0070K102_0066ME10	3600	3600	5500	>14≤19	1.1	107.2
						PH721_0070K102_0066ME20				>19≤24	3.0	107.6

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH7KX (continued next page)

50.00	440	700	1400	≤3.5	PH722F0250KX501VF0020MF	2500	2500	4500	32	5.4	135.4
56.00	440	700	1367	≤3.5	PH722F0280KX501VF0020MF	2500	2500	4500	32	5.4	122.4

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH7K/PHQ7K (continued next page)

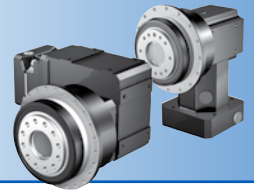
50.55	25,069/496	650	950	1530	4/4	PHQ721_0055K202_0092ME10	3500	3500	5000	>14≤19	1.6	134.6		
				1700		PHQ721_0055K202_0092ME20				>24≤32			5.0	135.5
						PHQ721_0055K202_0092ME30				>32≤38			10.3	135.7
55.40	2881/52	650	950	1680	4/4	PHQ721_0055K202_0100ME10	3900	3900	5500	>14≤19	1.2	134.8		
				1700		PHQ721_0055K202_0100ME20	3700	3700		>24≤32			4.6	135.6
						PHQ721_0055K202_0100ME30	3500	3500		5000			>32≤38	10.0
55.68	15,200/273	300	500	1000	3.5/3.5	PH721_0100K102_0056ME10	3300	3300	5000	>14≤19	1.3	99.3		
						PH721_0100K102_0056ME20				>19≤24			3.2	99.6
57.73	6235/108	440	700	1400	4/4	PH721_0050K202_0115ME10	3500	3500	5000	>14≤19	1.3	108.2		
						PH721_0050K202_0115ME20				>24≤32			4.7	108.6
						PH721_0050K202_0115ME30				>32≤38			10.0	108.7
58.16	13,377/230	440	650	1240	4/4	PH721_0070K102_0083ME10	3600	3600	5500	>14≤19	0.9	107.5		
						PH721_0070K102_0083ME20				>19≤24			2.8	107.8

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH7KX (continued next page)

60.00	440	700	1400	≤3.5	PH722F0200KX501VF0030MF	3000	3000	5000	32	4.9	129.5
70.00	440	700	1400	≤3.5	PH722F0350KX501VF0020MF	2500	2500	4500	32	5.4	138.8
75.00	440	700	1400	≤3.5	PH722F0250KX501VF0030MF	3000	3000	5000	32	4.9	135.4

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH7K/PHQ7K (continued next page)

60.00	60/1	300	500	1000	3.5/3.5	PH721_0100K102_0060ME10	3300	3300	5000	>14≤19	1.1	99.3		
						PH721_0100K102_0060ME20				>19≤24			3.0	99.6
63.50	13,717/216	650	950	1700	4/4	PHQ721_0055K202_0115ME10	3500	3500	5000	>14≤19	1.3	135.1		
						PHQ721_0055K202_0115ME20				>24≤32			4.7	135.6
						PHQ721_0055K202_0115ME30				>32≤38			10.0	135.7
64.74	1748/27	440	650	1240	4/4	PH721_0070K102_0092ME10	3600	3600	5500	>14≤19	1.0	107.6		
						PH721_0070K102_0092ME20				>19≤24			2.9	107.8
66.44	598/9	300	500	1000	3.5/3.5	PH721_0100K102_0066ME10	3600	3600	5500	>14≤19	1.0	99.4		
						PH721_0100K102_0066ME20				>19≤24			2.9	99.6
69.26	14,405/208	440	700	1400	4/4	PH721_0050K202_0140ME10	3900	3900	5500	>14≤19	1.1	108.4		
						PH721_0050K202_0140ME20	3700	3700		>24≤32			4.6	
						PH721_0050K202_0140ME30	3500	3500	5000	>32≤38			9.9	108.7
69.88	559/8	650	950	1700	4/4	PHQ721_0055K202_0125ME10	3900	3900	5500	>14≤19	1.1	135.2		
						PHQ721_0055K202_0125ME20	3700	3700		>24≤32			4.5	
						PHQ721_0055K202_0125ME30	3500	3500	5000	>32≤38			9.8	135.7
70.98	3549/50	440	650	1240	4/4	PH721_0070K102_0100ME10	4000	4000	6000	>14≤19	0.9	107.7		
						PH721_0070K102_0100ME20	3700	3700		>19≤24			2.8	107.9
76.18	31,691/416	650	950	1700	4/4	PHQ721_0055K202_0140ME10	3900	3900	5500	>14≤19	1.1	135.3		
						PHQ721_0055K202_0140ME20	3700	3700		>24≤32			4.5	135.7
						PHQ721_0055K202_0140ME30	3500	3500	5000	>32≤38			9.9	135.8

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH7KX (continued next page)

Exact Ratio (i)	Nominal ¹⁾ M _{2N} Nm	Acceleration M _{2B} Nm	Peak ²⁾ M _{2PEAK} Nm	Backlash arcmin	Part Number* (Gearhead + Input)	Continuous EL 1,2,5,6	Cyclic EL 3,4	All	Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
80.00	440	700	1367	≤3.5	PH722F0400KX501VF0020MF	2500	2500	4500	32	5.3	122.5
84.00	440	700	1367	≤3.5	PH722F0280KX501VF0030MF	3000	3000	5000	32	4.8	122.4
100.0	440	700	1400	≤3	PH722F0500KX501VF0020MF	2500	2500	4500	32	5.3	138.9

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH7K/PHQ7K (continued next page)

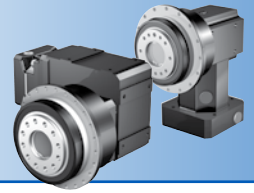
Exact Ratio (i)	Nominal ¹⁾ M _{2N} Nm	Acceleration M _{2B} Nm	Peak ²⁾ M _{2PEAK} Nm	Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Continuous EL 1,2,3,4	Cyclic EL 5,6	All	Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm	
80.96	1862/23	440	650	1240	4/4	PH721_0070K102_0115ME10	3600	3600	5500	>14≤19	0.9	107.7
						PH721_0070K102_0115ME20				>19≤24	2.8	107.9
83.09	1911/23	300	500	1000	3.5/3.5	PH721_0100K102_0083ME10	3600	3600	5500	>14≤19	0.9	99.6
						PH721_0100K102_0083ME20				>19≤24	2.8	99.7
87.35	2795/32	440	700	1400	4/4	PH721_0050K202_0175ME10	3900	3900	5500	>14≤19	1.0	108.5
						PH721_0050K202_0175ME20	3700	3700		>24≤32	4.4	
						PH721_0050K202_0175ME30	3500	3500		5000	>32≤38	
88.33	3003/34	440	650	1240	4/4	PH721_0070K102_0125ME10	4000	4000	6000	>14≤19	0.8	107.8
						PH721_0070K102_0125ME20	3700	3700		>19≤24	2.7	107.9
92.49	17,480/189	300	500	1000	3.5/3.5	PH721_0100K102_0092ME10	3600	3600	5500	>14≤19	1.0	99.6
						PH721_0100K102_0092ME20				>19≤24	2.9	99.7
92.72	2967/32	650	950	1700	4/4	PHQ721_0055K202_0170ME10	4000	4000	6500	>14≤19	0.9	135.5
						PHQ721_0055K202_0170ME20	3700	3700	6000	>24≤32	4.3	135.7
						PHQ721_0055K202_0170ME30	3500	3500	5000	>32≤38	9.6	135.8
96.08	6149/64	650	950	1700	4/4	PHQ721_0055K202_0175ME10	3900	3900	5500	>14≤19	1.0	135.5
						PHQ721_0055K202_0175ME20	3700	3700		>24≤32	4.4	135.7
						PHQ721_0055K202_0175ME30	3500	3500		5000	>32≤38	9.7
98.80	494/5	440	650	1240	4/4	PH721_0070K102_0140ME10	4000	4000	6000	>14≤19	0.8	107.8
						PH721_0070K102_0140ME20	3700	3700		>19≤24	2.7	107.9

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH7KX (continued from previous page)

105.0	440	700	1400	≤3.5	PH722F0350KX501VF0030MF	3000	3000	5000	32	4.8	138.8
120.0	440	700	1367	≤3.5	PH722F0400KX501VF0030MF	3000	3000	5000	32	4.8	122.5
140.0	440	650	1241	≤3	PH722F0700KX501VF0020MF	2500	2500	4500	32	5.3	139.8

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)		Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			
Nom.	Exact				arcmin							

PH7K/PHQ7K (continued next page)

111.8	559/5	650	950	1700	4/4	PHQ721_0055K202_0200ME10	4000	4000	6500	>14≤19	0.8	135.6
						PHQ721_0055K202_0200ME20	3700	3700	6000	>19≤24	2.7	135.7
115.7	2660/23	300	500	1000	3.5/3.5	PH721_0100K102_0115ME10	3600	3600	5500	>14≤19	0.9	99.7
						PH721_0100K102_0115ME20				>19≤24	2.8	
115.9	14,835/128	440	700	1400	4/4	PH721_0050K202_0230ME10	4000	4000	6500	>14≤19	0.9	108.6
						PH721_0050K202_0230ME20	3700	3700	6000	>24≤32	4.3	108.7
						PH721_0050K202_0230ME30	3500	3500	5000	>32≤38	9.6	
117.0	117/1	440	650	1240	4/4	PH721_0070K102_0165ME10	4000	4000	7000	>14≤19	0.7	107.9
						PH721_0070K102_0165ME20	3700	3700	6000	>19≤24	2.6	108.0
122.9	2090/17	440	650	1240	4/4	PH721_0070K102_0175ME10	4000	4000	6000	>14≤19	0.8	107.9
						PH721_0070K102_0175ME20	3700	3700		>19≤24	2.7	108.0
127.5	32,637/256	650	950	1700	4/4	PHQ721_0055K202_0230ME10	4000	4000	6500	>14≤19	0.9	135.6
						PHQ721_0055K202_0230ME20	3700	3700	6000	>24≤32	4.3	135.8
						PHQ721_0055K202_0230ME30	3500	3500	5000	>32≤38	9.6	
138.2	1935/14	650	950	1700	4/4	PHQ721_0055K202_0250ME10	4000	4000	6500	>14≤19	0.8	135.7
						PHQ721_0055K202_0250ME20	3700	3700	6000	>19≤24	2.7	135.8
139.8	559/4	440	700	1400	4/4	PH721_0050K202_0280ME10	4000	4000	6500	>14≤19	0.8	108.7
						PH721_0050K202_0280ME20	3700	3700	6000	>19≤24	2.7	
141.1	2821/20	440	650	1240	4/4	PH721_0070K102_0200ME10	4000	4000	7000	>14≤19	0.7	107.9
						PH721_0070K102_0200ME20	3700	3700	6000	>19≤24	2.6	108.0

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PKX/PK Series: RIGHT ANGLE – Shaft Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Right Angle Unity + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH7KX (continued from previous page)

150.0	440	700	1400	≤3	PH722F0500KX501VF0030MF	3000	3000	5000	32	4.8	138.9
200.0	300	500	1000	≤3	PH722F1000KX501VF0020MF	2500	2500	4500	32	5.3	111.3
210.0	440	650	1241	≤3	PH722F0700KX501VF0030MF	3000	3000	5000	32	4.8	139.8

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

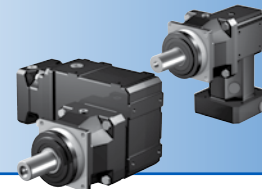
PH7K/PHQ7K (continued next page)

153.7	6149/40	650	950	1700	4/4	PHQ721_0055K202_0280ME10	4000	4000	6500	>14≤19	0.8	135.7
						PHQ721_0055K202_0280ME20	3700	3700	6000	>19≤24	2.7	135.8
162.9	1140/7	440	650	1240	4/4	PH721_0070K102_0230ME10	4000	4000	7000	>14≤19	0.7	108.0
						PH721_0070K102_0230ME20	3700	3700	6000	>19≤24	2.6	
172.8	9675/56	440	700	1400	4/4	PH721_0050K202_0350ME10	4000	4000	6500	>14≤19	0.8	108.7
						PH721_0050K202_0350ME20	3700	3700	6000	>19≤24	2.7	
176.5	8827/50	440	650	1240	4/4	PH721_0070K102_0250ME10	4000	4000	7000	>14≤19	0.7	108.0
						PH721_0070K102_0250ME20	3700	3700	6000	>19≤24	2.6	
184.9	1849/10	650	950	1700	4/4	PHQ721_0055K202_0340ME10	4000	4000	6500	>14≤19	0.7	135.7
						PHQ721_0055K202_0340ME20	3700	3700	6000	>19≤24	2.6	135.8
190.0	21,285/112	650	950	1700	4/4	PHQ721_0055K202_0350ME10	4000	4000	6500	>14≤19	0.8	135.7
						PHQ721_0055K202_0350ME20	3700	3700	6000	>19≤24	2.7	135.8
196.3	589/3	440	650	1240	4/4	PH721_0070K102_0280ME10	4000	4000	7000	>14≤19	0.7	108.0
						PH721_0070K102_0280ME20	3700	3700	6000	>19≤24	2.6	
222.2	1333/6	610	730	1150	4/4	PHQ721_0055K202_0400ME10	4000	4000	6500	>14≤19	0.7	135.7
231.1	1849/8	440	700	1400	4/4	PH721_0050K202_0460ME10	4000	4000	6500	>14≤19	0.7	108.7
						PH721_0050K202_0460ME20	3700	3700	6000	>19≤24	2.6	
232.7	11,400/49	300	500	1000	3.5/3.5	PH721_0100K102_0230ME10	4000	4000	7000	>14≤19	0.7	99.8
						PH721_0100K102_0230ME20	3700	3700	6000	>19≤24	2.6	
235.9	4719/20	440	590	1060	4/4	PH721_0070K102_0340ME10	4000	4000	7000	>14≤19	0.6	108.0
245.7	3686/15	440	650	1240	4/4	PH721_0070K102_0350ME10	4000	4000	7000	>14≤19	0.7	108.0
						PH721_0070K102_0350ME20	3700	3700	6000	>19≤24	2.6	

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)



Selection Data

Exact Ratio (i)	Output Torque			Backlash arcmin	Part Number* (Gearhead + Right Angle Unity + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal M _{2N} ¹⁾	Acceleration M _{2B}	Peak M _{2PEAK} ²⁾			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH7KX (continued from previous page)

300.0	300	500	1000	≤3	PH722F1000KX501VF0030MF	3000	3000	5000	32	4.8	111.3
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¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque			Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia J ₁ ³⁾ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal M _{2N} ¹⁾	Acceleration M _{2B}	Peak M _{2PEAK} ²⁾			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH7K/PHQ7K (continued from previous page)

254.2	20,339/80	650	950	1700	4/4	PHQ721_0055K202_0460ME10	4000	4000	6500	>14≤19	0.7	135.8
						PHQ721_0055K202_0460ME20	3700	3700	6000	>19≤24	2.6	
277.7	6665/24	440	700	1400	4/4	PH721_0050K202_0560ME10	4000	4000	6500	>14≤19	0.7	108.7
		510	610	1100		PHQ721_0055K202_0500ME10				>14≤19	0.6	135.8
280.5	5890/21	300	500	1000	3.5/3.5	PH721_0100K102_0280ME10	4000	4000	7000	>14≤19	0.7	99.8
						PH721_0100K102_0280ME20	3700	3700	6000	>19≤24	2.6	
282.1	2821/10	410	500	900	4/4	PH721_0070K102_0400ME10	4000	4000	7000	>14≤19	0.6	108.0
305.5	14,663/48	650	950	1580	4/4	PHQ721_0055K202_0560ME10	4000	4000	6500	>14≤19	0.7	135.8
328.4	2299/7	440	650	1240	4/4	PH721_0070K102_0470ME10	4000	4000	7000	>14≤19	0.6	108.0
351.1	7372/21	300	500	1000	3.5/3.5	PH721_0100K102_0350ME10	4000	4000	7000	>14≤19	0.7	99.8
						PH721_0100K102_0350ME20	3700	3700	6000	>19≤24	2.6	
352.2	35,217/100	340	400	730	4/4	PH721_0070K102_0500ME10	4000	4000	7000	>14≤19	0.6	108.0
381.8	73,315/192	650	840	1520	4/4	PHQ721_0055K202_0690ME10	4000	4000	6500	>14≤19	0.6	135.8
392.7	1178/3	440	650	1240	4/4	PH721_0070K102_0560ME10	4000	4000	7000	>14≤19	0.6	108.0
469.2	22,990/49	300	500	1000	3.5/3.5	PH721_0100K102_0470ME10	4000	4000	7000	>14≤19	0.6	99.8
490.2	2451/5	440	560	1010	4/4	PH721_0070K102_0700ME10	4000	4000	7000	>14≤19	0.6	108.0
561.0	11,780/21	300	500	1000	3.5/3.5	PH721_0100K102_0560ME10	4000	4000	7000	>14≤19	0.6	99.8

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PKX/PK Series: RIGHT ANGLE – Shaft Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH8KX (continued next page)

4.000	768	1056	1750	≤5.5	PH821F0040KX801VF0010MF	1000	750	2000	48	101.4	174.1
5.000	960	1320	2188	≤5	PH821F0050KX801VF0010MF	1000	750	2000	48	92.4	225.6
7.000	1000	1600	2772	≤4.5	PH821F0070KX801VF0010MF	1000	750	2000	48	85.0	288.2
8.000	768	1056	2083	≤5.5	PH821F0040KX801VF0020MF	1100	1100	2500	48	54.9	174.1
10.00	960	1320	2604	≤5	PH821F0050KX801VF0020MF	1100	1100	2500	48	52.7	225.6
12.00	768	1056	2083	≤5.5	PH821F0040KX801VF0030MF	1300	1300	3000	48	45.9	174.1
14.00	1000	1600	2772	≤4.5	PH821F0070KX801VF0020MF	1100	1100	2500	48	50.8	288.2
15.00	960	1320	2604	≤5	PH821F0050KX801VF0030MF	1300	1300	3000	48	44.9	225.6
20.00	800	1200	2400	≤4	PH821F0100KX801VF0020MF	1100	1100	2500	48	49.9	261.7
21.00	1000	1600	2772	≤4.5	PH821F0070KX801VF0030MF	1300	1300	3000	48	44.1	288.2

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)		Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH8K/PHQ8K (continued next page)

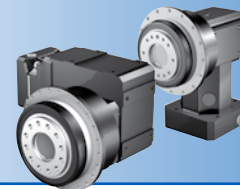
16.00	16/1	780	900	1210	4/4	PH821_0040K302_0040ME20	2700	2700	4000	>24≤32	10.5	181.1
			1170	2310		PH821_0040K302_0040ME30				>32≤38	16.0	184.3
20.00	20/1	980	1120	1520	4/4	PH821_0050K302_0040ME20	2700	2700	4000	>24≤32	9.9	233.0
			1470	2870		PH821_0050K302_0040ME30				>32≤38	15.4	236.4
22.00	22/1	1610	2420	4000	3.5/3.5	PHQ821_0055K402_0040ME30	2600	2600	3800	>32≤38	20.0	394.7
						PHQ821_0055K402_0040ME40				>38≤48	41.9	394.1
24.00	24/1	1660	2490	4000	3.5/3.5	PHQ821_0055K402_0044ME30	2600	2600	3800	>32≤38	18.6	395.5
						PHQ821_0055K402_0044ME40				>38≤48	40.5	395.0
26.88	215/8	1080	1500	2040	4/4	PH821_0050K302_0054ME20	2700	2700	4000	>24≤32	7.7	235.4
						PH821_0050K302_0054ME30				>32≤38	13.1	236.7
28.00	28/1	630	630	850	3.5/3.5	PH821_0070K202_0040ME10	3000	3000	4500	>14≤19	3.5	235.8
						PH821_0070K202_0040ME20				>24≤32	6.9	245.2
						PH821_0070K202_0040ME30				>32≤38	12.2	246.5

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH8KX (continued next page)

30.00	800	1200	2400	≤4	PH821F0100KX801VF0030MF	1300	1300	3000	48	43.7	261.7
32.00	1100	1860	3145	≤3.5	PH822F0160KX701VF0020MF	1800	1800	3500	38	15.9	380.9
35.00	1250	2000	3200	≤3.5	PH822F0350KX701VF0010MF	1800	1600	3000	38	26.1	431.5

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH8K/PHQ8K (continued next page)

29.82	1849/62	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0054ME30	2600	2600	3800	>32≤38	16.0	396.9	
				3200		PHQ821_0055K402_0054ME40				>38≤48	37.9		
30.00	30/1	1100	1680	2270	4/4	PH821_0050K302_0060ME20	2700	2700	4000	>24≤32	7.9	236.0	
				3200		PH821_0050K302_0060ME30				>32≤38	13.4		237.6
30.55	336/11	680	680	930	3.5/3.5	PH821_0070K202_0044ME10	3000	3000	4500	>14≤19	3.1	237.7	
						PH821_0070K202_0044ME20				>24≤32	6.5		245.7
						PH821_0070K202_0044ME30				>32≤38	11.8		
33.00	33/1	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0060ME30	2600	2600	3800	>32≤38	16.7	397.4	
						PHQ821_0055K402_0060ME40				>38≤48	38.6		
36.24	14,749/407	850	1280	2750	3.5/3.5	PH821_0070K202_0052ME20	3000	3000	4500	>24≤32	5.9	246.4	
						PH821_0070K202_0052ME30				>32≤38	11.3		247.2
36.95	2365/64	1700	2070	2800	3.5/3.5	PHQ821_0055K402_0067ME20	3000	3000	4500	>24≤32	8.6	395.0	
			2600	4000		PHQ821_0055K402_0067ME30				>32≤38	14.0		397.8
						PHQ821_0055K402_0067ME40				>38≤48	35.9		
36.96	2365/64	1100	1700	2800	4/4	PH821_0050K302_0074ME20	2700	2700	4000	>24≤32	6.9	236.9	
						PH821_0050K302_0074ME30				>32≤38	12.3		237.6

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH8KX (continued next page)

40.00	1250	2000	3200	≤3.5	PH822F0200KX701VF0020MF	1800	1800	3500	38	15.7	409.9
48.00	1100	1860	3145	≤3.5	PH822F0160KX701VF0030MF	2100	2100	4000	38	12.9	380.9
50.00	1250	2000	3200	≤3.5	PH822F0250KX701VF0020MF	1800	1800	3500	38	15.4	447.9

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Reducer Ratio (i)	Output Torque			Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
			Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous	Cyclic				
			Nm	Nm	Nm					EL 1,2,3,4			

PH8K/PHQ8K (continued next page)

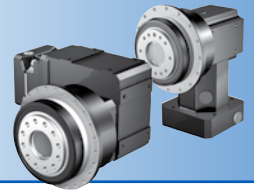
40.00	40/1	800	900	1210	3.5/3.5	PH821_0100K202_0040ME10	3000	3000	4500	>14≤19	3.3	238.2	
			1200	2400		PH821_0100K202_0040ME20				>24≤32	6.7	242.8	
						PH821_0100K202_0040ME30				>32≤38	12.0	243.4	
41.01	20,339/496	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0075ME30	2600	2600	3800	>32≤38	14.8	398.2	
						PHQ821_0055K402_0075ME40				>38≤48	36.6	398.0	
42.00	42/1	900	940	1270	3.5/3.5	PH821_0070K202_0060ME10	3000	3000	4500	>14≤19	2.5	242.6	
			1340	2770		PH821_0070K202_0060ME20				>24≤32	5.9	246.9	
						PH821_0070K202_0060ME30				>32≤38	11.2	247.5	
46.07	645/14	1700	2570	3490	3.5/3.5	PHQ821_0055K402_0084ME20	3000	3000	4500	>24≤32	7.2	396.6	
			2600	4000		PHQ821_0055K402_0084ME30				>32≤38	12.7	398.5	
						PHQ821_0055K402_0084ME40				>38≤48	34.6	398.3	
46.34	5375/116	1100	3200	2870	4/4	PH821_0050K302_0093ME20	3200	3200	4500	>24≤32	6.1	237.5	
										PH821_0050K302_0093ME30	>32≤38	11.4	237.9
46.78	15,953/341	930	1050	1420	3.5/3.5	PH821_0070K202_0067ME10	3500	3500	5000	>14≤19	1.9	243.7	
			1390	2770		PH821_0070K202_0067ME20				>24≤32	5.3	247.2	
						PH821_0070K202_0067ME30				>32≤38	10.6	247.6	
49.83	14,749/296	950	1420	2770	3.5/3.5	PH821_0070K202_0071ME20	3000	3000	4500	>24≤32	5.5	247.3	
						PH821_0070K202_0071ME30				>32≤38	10.8	247.7	
50.81	26,015/512	1700	3850	4000	3.5/3.5	PHQ821_0055K402_0092ME20	3000	3000	4500	>24≤32	7.8	397.2	
										PHQ821_0055K402_0092ME30	>32≤38	13.2	398.7
										PHQ821_0055K402_0092ME40	>38≤48	35.1	398.6

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH8KX (continued next page)

56.00	1100	2000	3145	≤3.5	PH822F0280KX701VF0020MF	1800	1800	3500	38	15.1	410.8
60.00	1250	2000	3200	≤3.5	PH822F0200KX701VF0030MF	2100	2100	4000	38	12.9	409.9

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH8K/PHQ8K (continued next page)

51.77	21,070/407	800	1200	2400	3.5/3.5	PH821_0100K202_0052ME20	3000	3000	4500	>24≤32	5.8	243.4
						PH821_0100K202_0052ME30				>32≤38	11.1	243.7
55.54	1333/24	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0100ME20	3400	3400	5000	>24≤32	6.4	397.6
						PHQ821_0055K402_0100ME30				>32≤38	11.9	398.8
						PHQ821_0055K402_0100ME40				3000	3000	4500
58.05	1161/20	1100	1300	1760	4/4	PH821_0050K302_0115ME10	3200	3200	4500	>14≤19	2.1	235.7
			1700	3200		PH821_0050K302_0115ME20				>24≤32	5.5	237.9
						PH821_0050K302_0115ME30				>32≤38	10.8	238.1
58.78	17,458/297	1000	1310	1780	3.5/3.5	PH821_0070K202_0084ME10	3500	3500	5000	>14≤19	1.5	245.3
			1480	2770		PH821_0070K202_0084ME20				>24≤32	4.9	247.6
						PH821_0070K202_0084ME30				>32≤38	10.2	247.9
60.00	60/1	800	1200	1820	3.5/3.5	PH821_0100K202_0060ME10	3000	3000	4500	>14≤19	2.4	241.5
				2400		PH821_0100K202_0060ME20				>24≤32	5.8	243.6
						PH821_0100K202_0060ME30				>32≤38	11.1	243.9
63.35	7095/112	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0115ME20	3000	3000	4500	>24≤32	6.7	398.0
			2600			PHQ821_0055K402_0115ME30				>32≤38	12.2	399.0
						PHQ821_0055K402_0115ME40				>38≤48	34.1	398.9
64.33	15,953/248	1000	1440	1950	3.5/3.5	PH821_0070K202_0092ME10	3500	3500	5000	>14≤19	1.6	245.8
			1480	2770		PH821_0070K202_0092ME20				>24≤32	5.0	247.7
						PH821_0070K202_0092ME30				>32≤38	10.4	247.9

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH8KX (continued next page)

70.00	1250	2000	3200	≤3.5	PH822F0350KX701VF0020MF	1800	1800	3500	38	15.0	431.5
75.00	1250	2000	3200	≤3.5	PH822F0250KX701VF0030MF	2100	2100	4000	38	12.7	447.9
80.00	1100	1920	3145	≤3.5	PH822F0400KX701VF0020MF	1800	1800	3500	38	14.9	406.5
84.00	1100	2000	3145	≤3.5	PH822F0280KX701VF0030MF	2100	2100	4000	38	12.6	410.8

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)		Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			
Nom.	Exact	Nm	Nm	Nm	arcmin								

PH8K/PHQ8K (continued next page)

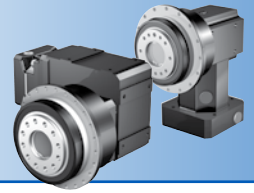
66.83	22,790/341	800	1200	2030	3.5/3.5	PH821_0100K202_0067ME10	3500	3500	5000	>14≤19	1.8	242.0				
				2400		PH821_0100K202_0067ME20				>24≤32			5.2	243.7		
						PH821_0100K202_0067ME30				>32≤38					10.5	243.9
69.62	1462/21	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0125ME20	3400	3400	5000	>24≤32	5.7	398.3				
						PHQ821_0055K402_0125ME30				>32≤38			11.2	399.1		
						PHQ821_0055K402_0125ME40				3000					3000	4500
69.68	7525/108	1100	1560	4/4	PH821_0050K302_0140ME10	3500	3500	5000	>14≤19	1.7	236.6					
			1700		2870				PH821_0050K302_0140ME20			>24≤32	5.1	238.1		
									PH821_0050K302_0140ME30			>32≤38			10.5	238.3
70.51	20,167/286	1000	1480	2140	3.5/3.5	PH821_0070K202_0100ME10	3900	3900	5500	>14≤19	1.3	246.2				
				2770		PH821_0070K202_0100ME20				3700			3700	>24≤32	4.7	247.8
						PH821_0070K202_0100ME30				3500			3500	5000		
76.37	14,663/192	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0140ME20	3400	3400	5000	>24≤32	6.1	398.5				
						PHQ821_0055K402_0140ME30				>32≤38			11.5	399.2		
						PHQ821_0055K402_0140ME40				3000					3000	4500
80.82	8729/108	1000	1480	2450	3.5/3.5	PH821_0070K202_0115ME10	3500	3500	5000	>14≤19	1.3	246.7				
				2770		PH821_0070K202_0115ME20				>24≤32			4.8	247.9		
						PH821_0070K202_0115ME30				>32≤38					10.1	248.1
83.97	24,940/297	800	1200	2400	3.5/3.5	PH821_0100K202_0084ME10	3500	3500	5000	>14≤19	1.5	242.8				
						PH821_0100K202_0084ME20				>24≤32			4.9	243.9		
						PH821_0100K202_0084ME30				>32≤38					10.2	244.0

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH8KX (continued next page)

100.0	1250	2000	3200	≤3	PH822F0500KX701VF0020MF	1800	1800	3500	38	14.9	428.5
105.0	1250	2000	3200	≤3.5	PH822F0350KX701VF0030MF	2100	2100	4000	38	12.6	431.5

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Reducer Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
			Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
			Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH8K/PHQ8K (continued next page)

86.47	7955/92	1100	1700	2620	4/4	PH821_0050K302_0175ME10	3500	3500	5000	>14≤19	1.4	237.3	
				2870		PH821_0050K302_0175ME20				>24≤32	4.8	238.2	
				3200		PH821_0050K302_0175ME30				>32≤38	10.2	238.3	
88.94	3913/44	1000	1480	2700	3.5/3.5	PH821_0070K202_0125ME10	3900	3900	5500	>14≤19	1.1	247.0	
				2770		PH821_0070K202_0125ME20	3700	3700		>24≤32	4.5	248.0	
						PH821_0070K202_0125ME30	3500	3500		5000	>32≤38	9.8	248.1
91.90	11,395/124	800	1200	2400	3.5/3.5	PH821_0100K202_0092ME10	3500	3500	5000	>14≤19	1.6	243.1	
						PH821_0100K202_0092ME20				>24≤32	5.0	244.0	
						PH821_0100K202_0092ME30				>32≤38	10.3	244.1	
93.16	559/6	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0170ME20	3600	3600	5500	>24≤32	5.1	398.9	
						PHQ821_0055K402_0170ME30	3500	3500		5000	>32≤38	10.5	399.3
						PHQ821_0055K402_0170ME40	3000	3000		4500	>38≤48	32.4	
95.73	8041/84	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0175ME20	3400	3400	5000	>24≤32	5.5	398.9	
						PHQ821_0055K402_0175ME30				>32≤38	10.9	399.3	
						PHQ821_0055K402_0175ME40				3000	3000		4500
96.96	20,167/208	1000	1480	2770	3.5/3.5	PH821_0070K202_0140ME10	3900	3900	5500	>14≤19	1.2	247.2	
						PH821_0070K202_0140ME20	3700	3700		>24≤32	4.6	248.0	
						PH821_0070K202_0140ME30	3500	3500		5000	>32≤38	9.9	248.1
111.1	1333/12	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0200ME20	3600	3600	5500	>24≤32	4.8	399.1	
						PHQ821_0055K402_0200ME30	3500	3500		5000	>32≤38	10.1	399.3

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH8KX (continued next page)

120.0	1100	1920	3145	≤3.5	PH822F0400KX701VF0030MF	2100	2100	4000	38	12.5	406.5
140.0	1000	1600	2772	≤3	PH822F0700KX701VF0020MF	1800	1800	3500	38	14.9	417.0

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)		Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
Nom.	Exact	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH8K/PHQ8K (continued next page)

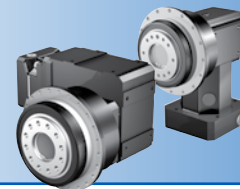
115.5	6235/54	800	1200	2400	3.5/3.5	PH821_0100K202_0115ME10	3500	3500	5000	>14≤19	1.3	243.5
						PH821_0100K202_0115ME20				>24≤32	4.7	244.1
						PH821_0100K202_0115ME30				>32≤38	10.0	
116.5	2795/24	1100	1700	3200	4/4	PH821_0050K302_0230ME10	3800	3800	6000	>14≤19	1.1	237.8
						PH821_0050K302_0230ME20	3700	3700	6000	>24≤32	4.5	238.4
						PH821_0050K302_0230ME30	3500	3500	5000	>32≤38	9.9	
118.0	20,769/176	1000	1480	2770	3.5/3.5	PH821_0070K202_0170ME10	4000	4000	6500	>14≤19	0.9	247.5
						PH821_0070K202_0170ME20	3700	3700	6000	>24≤32	4.3	248.1
						PH821_0070K202_0170ME30	3500	3500	5000	>32≤38	9.6	248.2
122.3	3913/32	1000	1480	2770	3.5/3.5	PH821_0070K202_0175ME10	3900	3900	5500	>14≤19	1.0	247.6
						PH821_0070K202_0175ME20	3700	3700	5500	>24≤32	4.4	248.1
						PH821_0070K202_0175ME30	3500	3500	5000	>32≤38	9.7	248.2
128.1	6149/48	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0230ME20	3600	3600	5500	>24≤32	4.9	399.2
						PHQ821_0055K402_0230ME30	3500	3500	5000	>32≤38	10.4	399.5
						PHQ821_0055K402_0230ME40	3000	3000	4500	>38≤48	32.3	399.4
138.5	14,405/104	800	1200	2400	3.5/3.5	PH821_0100K202_0140ME10	3900	3900	5500	>14≤19	1.2	243.7
						PH821_0100K202_0140ME20	3700	3700	5500	>24≤32	4.6	244.1
						PH821_0100K202_0140ME30	3500	3500	5000	>32≤38	9.9	244.2
139.0	4171/30	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0250ME20	3600	3600	5500	>24≤32	4.6	399.3
						PHQ821_0055K402_0250ME30	3500	3500	5000	>32≤38	9.9	399.4
139.4	17,845/128	1100	1700	2870	4/4	PH821_0050K302_0280ME10	3800	3800	6000	>14≤19	1.0	238.0
						PH821_0050K302_0280ME20	3700	3700	6000	>24≤32	4.4	238.4
						PH821_0050K302_0280ME30	3500	3500	5000	>32≤38	9.7	238.5

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal M _{2N} ¹⁾	Acceleration M _{2B}	Peak M _{2PEAK} ²⁾			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH8KX (continued next page)

150.0	1250	2000	3200	≤3	PH822F0500KX701VF0030MF	2100	2100	4000	38	12.5	428.5
200.0	800	1200	2400	≤3	PH822F1000KX701VF0020MF	1800	1800	3500	38	14.8	303.5
210.0	1000	1600	2772	≤3	PH822F0700KX701VF0030MF	2100	2100	4000	38	12.5	417.0

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal M _{2N} ¹⁾	Acceleration M _{2B}	Peak M _{2PEAK} ²⁾			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH8K/PHQ8K (continued next page)

142.3	7826/55	1000	1480	2770	3.5/3.5	PH821_0070K202_0200ME10	4000	4000	6500	>14≤19	0.8	247.8
						PH821_0070K202_0200ME20	3700	3700	6000	>19≤24	2.7	248.0
152.7	14,663/96	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0280ME20	3600	3600	5500	>19≤24	3.2	399.1
						PHQ821_0055K402_0280ME20				>24≤32	4.7	399.3
						PHQ821_0055K402_0280ME30	3500	3500	5000	>32≤38	10.0	399.4
162.3	20,769/128	1000	1480	2770	3.5/3.5	PH821_0070K202_0230ME10	4000	4000	6500	>14≤19	0.9	247.9
						PH821_0070K202_0230ME20	3700	3700	6000	>24≤32	4.3	248.2
						PH821_0070K202_0230ME30	3500	3500	5000	>32≤38	9.6	
173.7	4515/26	1101	1700	2870	4/4	PH821_0050K302_0350ME10	3800	3800	6000	>14≤19	0.9	238.2
						PH821_0050K302_0350ME20	3700	3700		>19≤24	2.8	238.4
174.7	2795/16	800	1200	2400	3.5/3.5	PH821_0100K202_0175ME10	3900	3900	5500	>14≤19	1.0	243.9
						PH821_0100K202_0175ME20	3700	3700		>24≤32	4.4	244.2
						PH821_0100K202_0175ME30	3500	3500	5000	>32≤38	9.7	
175.9	1935/11	1000	1480	2770	3.5/3.5	PH821_0070K202_0250ME10	4000	4000	6500	>14≤19	0.8	247.9
						PH821_0070K202_0250ME20	3700	3700	6000	>19≤24	2.7	248.1
185.2	2408/13	1700	2460	4000	3.5/3.5	PHQ821_0055K402_0340ME20	3600	3600	5500	>19≤24	2.8	399.2
191.2	45,881/240	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0350ME20	3600	3600	5500	>24≤32	4.5	399.4
						PHQ821_0055K402_0350ME30	3500	3500	5000	>32≤38	9.8	399.5
195.7	3913/20	1000	1480	2770	3.5/3.5	PH821_0070K202_0280ME10	4000	4000	6500	>14≤19	0.8	248.0
						PH821_0070K202_0280ME20	3700	3700	6000	>19≤24	2.7	248.2
222.8	2451/11	1630	1950	3530	3.5/3.5	PHQ821_0055K402_0410ME20	3600	3600	5500	>19≤24	2.8	399.3

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH8KX (continued from previous page)

300.0	800	1200	2400	≤3	PH822F1000KX701VF0030MF	2100	2100	4000	38	12.5	303.5
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¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

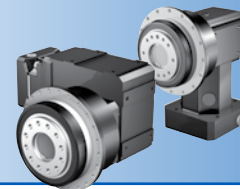
PH8K/PHQ8K (continued next page)


231.1	1849/8	1100	1700	3200	4/4	PH821_0050K302_0460ME10	3800	3800	6000	>14≤19	0.8	238.3
						PH821_0050K302_0460ME20	3700	3700		>19≤24	2.7	238.4
231.8	14,835/64	800	1200	2400	3.5/3.5	PH821_0100K202_0230ME10	4000	4000	6500	>14≤19	0.9	244.1
						PH821_0100K202_0230ME20	3700	3700	6000	>24≤32	4.3	244.2
						PH821_0100K202_0230ME30	3500	3500	5000	>32≤38	9.6	
235.3	12,943/55	1000	1240	2250	3.5/3.5	PH821_0070K202_0340ME10	4000	4000	6500	>14≤19	0.7	248.1
						PH821_0070K202_0340ME20	3700	3700	6000	>19≤24	2.6	248.2
241.9	1935/8	1000	1480	2770	3.5/3.5	PH821_0070K202_0350ME10	4000	4000	6500	>14≤19	0.8	248.1
						PH821_0070K202_0350ME20	3700	3700	6000	>19≤24	2.7	248.2
254.7	3311/13	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0460ME20	3600	3600	5500	>19≤24	2.8	399.4
277.3	5547/20	1420	1710	3090	3.5/3.5	PHQ821_0055K402_0500ME20	3600	3600	5500	>19≤24	2.7	399.4
278.5	12,255/44	1100	1530	2760	4/4	PH821_0050K302_0560ME10	3800	3800	6000	>14≤19	0.8	238.4
						PH821_0050K302_0560ME20	3700	3700		>19≤24	2.6	238.5
279.5	559/2	800	1200	2400	3.5/3.5	PH821_0100K202_0280ME10	4000	4000	6500	>14≤19	0.8	244.1
						PH821_0100K202_0280ME20	3700	3700	6000	>19≤24	2.7	244.2
282.8	9331/33	780	930	1460	3.5/3.5	PH821_0070K202_0400ME10	4000	4000	6500	>14≤19	0.7	248.1
306.4	2451/8	1700	2600	4000	3.5/3.5	PHQ821_0055K402_0560ME20	3600	3600	5500	>19≤24	2.7	399.5

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)



 Reducer Ratio (i)		Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous	Cyclic				
Nom.	Exact	Nm	Nm	Nm	arcmin	EL 1,2,3,4	EL 5,6	All	mm	kgcm ²	Nm	

PH8K/PHQ8K (continued from previous page)

323.6	12,943/40	1000	1480	2770	3.5/3.5	PH821_0070K202_0460ME10	4000	4000	6500	>14≤19	0.7	248.2
						PH821_0070K202_0460ME20	3700	3700	6000	>19≤24	2.6	
345.5	9675/28	800	1200	2400	3.5/3.5	PH821_0100K202_0350ME10	4000	4000	6500	>14≤19	0.8	244.2
						PH821_0100K202_0350ME20	3700	3700	6000	>19≤24	2.7	
353.4	46,655/132	650	780	1400	3.5/3.5	PH821_0070K202_0500ME10	4000	4000	6500	>14≤19	0.6	248.2
381.4	61,017/160	1700	2350	4000	3.5/3.5	PHQ821_0055K402_0690ME20	3600	3600	5500	>19≤24	2.7	399.5
388.8	9331/24	1000	1280	2010	3.5/3.5	PH821_0070K202_0560ME10	4000	4000	6500	>14≤19	0.7	248.2
462.3	1849/4	800	1200	2400	3.5/3.5	PH821_0100K202_0460ME10	4000	4000	6500	>14≤19	0.7	244.2
462.3	1849/4	800	1200	2400	3.5/3.5	PH821_0100K202_0460ME20	3700	3700	6000	>19≤24	2.6	244.2
486.0	46,655/96	890	1070	1930	3.5/3.5	PH821_0070K202_0690ME10	4000	4000	6500	>14≤19	0.6	248.2
555.4	6665/12	800	1200	2400	3.5/3.5	PH821_0100K202_0560ME10	4000	4000	6500	>14≤19	0.7	244.2

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH9KX (continued next page)

12.00	2232	3069	5419	≤4	PH932F0120KX801VF0010MF	1000	750	2000	48	127.5	787.6
16.00	2976	4092	7226	≤3.5	PH932F0160KX801VF0010MF	1000	750	2000	48	97.4	921.1
18.00	3000	4500	8129	≤3.5	PH932F0180KX801VF0010MF	1000	750	2000	48	121.4	920.1
20.00	3000	5000	9032	≤3.5	PH932F0200KX801VF0010MF	1000	750	2000	48	89.8	991.4
24.00	2232	3069	6452	≤4	PH932F0120KX801VF0020MF	1100	1100	2500	48	61.5	787.6
30.00	3000	4500	9000	≤3.5	PH932F0300KX801VF0010MF	1000	750	2000	48	87.6	1030.1
32.00	2976	4092	8602	≤3.5	PH932F0160KX801VF0020MF	1100	1100	2500	48	53.9	921.1
36.00	3000	4500	9000	≤3.5	PH932F0180KX801VF0020MF	1100	1100	2500	48	59.9	920.1
40.00	3000	5000	10,000	≤3.5	PH932F0200KX801VF0020MF	1100	1100	2500	48	52.0	991.4
42.00	3000	4500	9000	≤3	PH932F0420KX801VF0010MF	1000	750	2000	48	82.6	1054.9
48.00	3000	4500	9000	≤3.5	PH932F0240KX801VF0020MF	1100	1100	2500	48	53.1	995.0
54.00	3000	4500	9000	≤3.5	PH932F0180KX801VF0030MF	1300	1300	3000	48	48.1	920.1

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH9K/PHQ9K (continued next page)

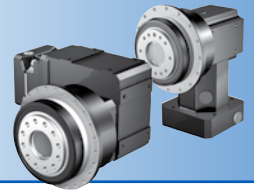
32.54	17,081/525	2758	3840	6480	4.5/4.5	PH931_0040K513_0081ME30	1900	1900	3200	>32≤38	24.9	520.8
						PH931_0040K513_0081ME40				>38≤48		
40.60	203/5	2884	3840	7500	4.5/4.5	PH931_0040K513_0100ME30	1900	1900	3200	>32≤38	20.6	522.2
						PH931_0040K513_0100ME40				>38≤48		
44.08	1102/25	3800	5760	8780	4/4	PHQ931_0060K513_0073ME30	1900	1900	3200	>32≤38	26.2	766.6
						PHQ931_0060K513_0073ME40				>38≤48		
48.80	17,081/350	3000	4500	9000	4/4	PH931_0060K513_0081ME30	1900	1900	3200	>32≤38	24.2	726.6
						PH931_0060K513_0081ME40				>38≤48		
		3800	5760	9720		PHQ931_0060K513_0081ME30				>32≤38	24.3	767.4
						PHQ931_0060K513_0081ME40				>38≤48		
55.01	8526/155	3800	5760	10,960	4/4	PHQ931_0060K513_0092ME30	1900	1900	3200	>32≤38	21.5	768.2
						PHQ931_0060K513_0092ME40				>38≤48		

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH9KX (continued next page)

60.00	3000	4500	9000	≤3.5	PH932F0300KX801VF0020MF	1100	1100	2500	48	51.5	1030.1
72.00	3000	4500	9000	≤3.5	PH932F0240KX801VF0030MF	1300	1300	3000	48	45.1	995.0
80.00	2688	4608	9216	≤3.5	PH932F0400KX801VF0020MF	1100	1100	2500	48	49.6	1012.3
84.00	3000	4500	9000	≤3	PH932F0420KX801VF0020MF	1100	1100	2500	48	50.2	1054.9
90.00	3000	4500	9000	≤3.5	PH932F0300KX801VF0030MF	1300	1300	3000	48	44.4	1030.1
96.00	3000	4500	9000	≤3	PH932F0480KX801VF0020MF	1100	1100	2500	48	50.0	1051.2

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH9K/PHQ9K (continued next page)

60.90	609/10	3000	4500	9000	4/4	PH931_0060K513_0100ME30	1900	1900	3200	>32≤38	20.2	727.8
						PH931_0060K513_0100ME40				>38≤48	42.1	727.5
		3800	5760	11,250	4/4	PHQ931_0060K513_0100ME30				>32≤38	20.3	768.7
						PHQ931_0060K513_0100ME40				>38≤48	42.1	768.4
69.41	10,759/155	3800	5760	11,250	4/4	PHQ931_0060K513_0115ME30	2300	2300	3600	>32≤38	17.8	769.3
						PHQ931_0060K513_0115ME40				>38≤48	39.7	769.1
76.85	1537/20	3000	4500	9000	4/4	PH931_0060K513_0130ME30	2300	2300	3600	>32≤38	17.0	728.6
						PH931_0060K513_0130ME40				>38≤48	38.9	728.4
		3800	5760	11,250		PHQ931_0060K513_0130ME30				>32≤38	17.1	769.6
						PHQ931_0060K513_0130ME40				>38≤48	38.9	769.4
87.22	11,774/135	3800	4803	6510	4/4	PHQ931_0060K513_0145ME20	2300	2300	3600	>24≤32	9.9	768.1
			5760	11,250		PHQ931_0060K513_0145ME30				>32≤38	15.4	770.0
						PHQ931_0060K513_0145ME40				>38≤48	37.3	769.8
96.56	26,071/270	3000	4500	7210	4/4	PH931_0060K513_0160ME20	2300	2300	3600	>24≤32	9.4	727.7
				9000		PH931_0060K513_0160ME30				>32≤38	14.9	729.1
		3800	5317	7210		PH931_0060K513_0160ME40				>38≤48	36.8	729.0
						PHQ931_0060K513_0160ME20				>24≤32	9.5	768.6
		5760	11,250	PHQ931_0060K513_0160ME30		>32≤38				14.9	770.2	
				PHQ931_0060K513_0160ME40		>38≤48				36.8	770.1	

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH9KX (continued from previous page)

120.0	3000	4500	9000	≤3	PH932F0600KX801VF0020MF	1100	1100	2500	48	49.5	1040.0
126.0	3000	4500	9000	≤3	PH932F0420KX801VF0030MF	1300	1300	3000	48	43.8	1054.9
144.0	3000	4500	9000	≤3	PH932F0480KX801VF0030MF	1300	1300	3000	48	43.7	1051.2
180.0	3000	4500	9000	≤3	PH932F0600KX801VF0030MF	1300	1300	3000	48	43.5	1040.0

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH9K/PHQ9K (continued next page)

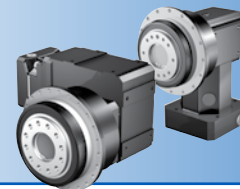
104.9	6293/60	3800	5760	7830	4/4	PHQ931_0060K513_0175ME20	2800	2800	4200	>24≤32	8.5	769.0		
				11,250		PHQ931_0060K513_0175ME30				>32≤38			14.0	770.3
						PHQ931_0060K513_0175ME40				>38≤48			35.9	770.2
116.1	27,869/240	3000	4500	8670	4/4	PH931_0060K513_0195ME20	2800	2800	4200	>24≤32	8.2	728.4		
				9000		PH931_0060K513_0195ME30				>32≤38			13.7	729.3
						PH931_0060K513_0195ME40				>38≤48			35.5	
		3800	5760	8670		PHQ931_0060K513_0195ME20				>24≤32	8.2	769.4		
				11,250		PHQ931_0060K513_0195ME30				>32≤38	13.7	770.5		
						PHQ931_0060K513_0195ME40				>38≤48	35.6			
132.0	2639/20	3800	5760	9160	4/4	PHQ931_0060K513_0220ME20	2800	2800	4200	>24≤32	7.2	769.8		
				11,250		PHQ931_0060K513_0220ME30				>32≤38			12.7	770.6
						PHQ931_0060K513_0220ME40				>38≤48			34.6	
146.1	11,687/80	3800	5760	10140	4/4	PHQ931_0060K513_0240ME20	2800	2800	4200	>24≤32	7.0	770.0		
				11,250		PHQ931_0060K513_0240ME30				>32≤38			12.5	770.7
						PHQ931_0060K513_0240ME40				>38≤48			34.4	
		3000	4500	9000		PH931_0060K513_0240ME20				>24≤32	7.0	728.9		
						PH931_0060K513_0240ME30				>32≤38	12.5	729.6		
						PH931_0060K513_0240ME40				>38≤48	34.4	729.5		
175.1	14,007/80	3800	5760	10350	4/4	PHQ931_0060K513_0290ME20	3400	3400	5000	>24≤32	6.1	770.4		
				11,250		PHQ931_0060K513_0290ME30				>32≤38			11.6	770.9
						PHQ931_0060K513_0290ME40				>38≤48			33.5	770.8

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Reducer Ratio (i)		Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal M _{2N} ¹⁾	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous	Cyclic				
Nom.	Exact	Nm	Nm	Nm	arcmin		EL 1,2,3,4	EL 5,6	All	mm	kgcm ²	Nm

PH9K/PHQ9K (continued from previous page)

193.8	62,031/320	3000	4500	9000	4/4	PH931_0060K513_0320ME20	3400	3400	5000	>24≤32	6.0	729.4	
						PH931_0060K513_0320ME30				>32≤38			11.4
						PH931_0060K513_0320ME40				>38≤48			
		3800	5760	11,250		PHQ931_0060K513_0320ME20	3400	3400	5000	>24≤32	6.0	770.5	
						PHQ931_0060K513_0320ME30				>32≤38			11.5
						PHQ931_0060K513_0320ME40				>38≤48			
208.8	1044/5	3800	5760	11,130	4/4	PHQ931_0060K513_0350ME20	3400	3400	5000	>24≤32	5.6	770.6	
						PHQ931_0060K513_0350ME30				>32≤38			10.9
231.2	8091/35	3000	4500	9000	4/4	PH931_0060K513_0390ME20	3400	3400	5000	>24≤32	5.5	729.5	
						PH931_0060K513_0390ME30				>32≤38			10.8
		3800	5760	11,250		PHQ931_0060K513_0390ME20				>24≤32	5.5	770.7	
						PHQ931_0060K513_0390ME30				>32≤38			10.8
261.0	261/1	3800	5760	11,250	4/4	PHQ931_0060K513_0440ME20	3400	3400	5000	>24≤32	5.1	770.8	
						PHQ931_0060K513_0440ME30				>32≤38			10.4
289.0	8091/28	3000	4500	9000	4/4	PH931_0060K513_0480ME20	3400	3400	5000	>24≤32	5.0	729.7	
						PH931_0060K513_0480ME30				>32≤38			10.4
		3800	5760	11,250		PHQ931_0060K513_0480ME20				>24≤32	5.1	770.9	
						PHQ931_0060K513_0480ME30				>32≤38			10.4
349.8	22,736/65	3800	5760	11,250	4/4	PHQ931_0060K513_0580ME20	3400	3400	5000	>24≤32	4.7	771.0	
						PHQ931_0060K513_0580ME30				>32≤38			10.0
387.3	25,172/65	3000	4500	9000	4/4	PH931_0060K513_0650ME20	3400	3400	5000	>24≤32	4.7	729.8	
						PH931_0060K513_0650ME30				>32≤38			10.0
		3800	5760	11,250		PHQ931_0060K513_0650ME20				>24≤32	4.7	771.0	
						PHQ931_0060K513_0650ME30				>32≤38			10.0
420.5	841/2	3800	5671	7980	4/4	PHQ931_0060K513_0700ME20	3400	3400	5000	>19≤24	3.0	770.9	
465.6	26,071/56	3000	4500	8840	4/4	PH931_0060K513_0780ME20	3400	3400	5000	>19≤24	3.0	729.7	
		3800	5760			PHQ931_0060K513_0780ME20				>19≤24			3.0
523.7	26,187/50	3800	4764	8230	4/4	PHQ931_0060K513_0870ME20	3400	3400	5000	>19≤24	2.8	771.0	
579.9	115,971/200	3800	5276	9120	4/4	PHQ931_0060K513_0970ME20	3400	3400	5000	>19≤24	2.8	771.0	

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH10KX (continued next page)

18.00	3348	4604	8129	≤3.5	PH1032F0180KX801VF0010MF	1000	750	2000	48	124.6	1301.9
24.00	4464	6138	10,839	≤3.5	PH1032F0240KX801VF0010MF	1000	750	2000	48	95.8	1457.2
30.00	5000	7500	13,548	≤3.5	PH1032F0300KX801VF0010MF	1000	750	2000	48	88.7	1533.6
36.00	3348	4604	9677	≤3.5	PH1032F0180KX801VF0020MF	1100	1100	2500	48	60.7	1301.9
42.00	5000	7500	15,000	≤3	PH1032F0420KX801VF0010MF	1000	750	2000	48	83.2	1589.4
48.00	4464	6138	12,903	≤3.5	PH1032F0240KX801VF0020MF	1100	1100	2500	48	53.5	1457.2
54.00	3348	4604	9677	≤3.5	PH1032F0180KX801VF0030MF	1300	1300	3000	48	48.5	1301.9
60.00	5000	7500	15,000	≤3.5	PH1032F0300KX801VF0020MF	1100	1100	2500	48	51.8	1533.6

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH10K/PHQ10K (continued next page)

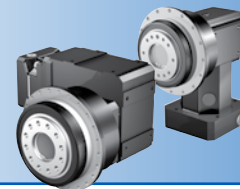
45.38	59,535/1312	6500	10,000	16,950	4/4	PHQ1031_0060K713_0076ME40	1700	1700	2700	>38≤48	92.5	1545.0	
						PHQ1031_0060K713_0076ME50				>55≤60		120.4	1550.9
48.64	255,285/5248	5000	7143	9690	4/4	PH1031_0060K613_0081ME30	1800	1800	3000	>32≤38	37.4	1200.6	
			7500			PH1031_0060K613_0081ME40				>38≤48		60.0	1201.6
						PH1031_0060K613_0081ME50				>55≤60		87.9	1204.7
50.24	263,655/5248	6500	10,000	18,760	4/4	PHQ1031_0060K713_0084ME40	1700	1700	2700	>38≤48	88.1	1547.9	
						PHQ1031_0060K713_0084ME50				>55≤60		116.0	1552.6
55.13	441/8	6500	10,000	20,000	4/4	PHQ1031_0060K713_0092ME40	1700	1700	2700	>38≤48	77.3	1550.0	
						PHQ1031_0060K713_0092ME50				>55≤60		105.2	1554.0
61.03	1953/32	6500	10,000	20,000	4/4	PHQ1031_0060K713_0100ME40	1700	1700	2700	>38≤48	74.3	1552.0	
						PHQ1031_0060K713_0100ME50				>55≤60		102.2	1555.2

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH10KX (continued next page)

72.00	4464	6138	12,903	≤3.5	PH1032F0240KX801VF0030MF	1300	1300	3000	48	45.3	1457.2
84.00	5000	7500	15,000	≤3	PH1032F0420KX801VF0020MF	1100	1100	2500	48	50.4	1589.4
90.00	5000	7500	15,000	≤3.5	PH1032F0300KX801VF0030MF	1300	1300	3000	48	44.5	1533.6
96.00	4608	6912	13,824	≤3	PH1032F0480KX801VF0020MF	1100	1100	2500	48	50.1	1581.0

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)		Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
Nom.	Exact	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
		Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH10K/PHQ10K (continued next page)

70.69	70,119/992	6500	10,000	14,080	4/4	PHQ1031_0060K713_0120ME30	2000	2000	3200	>32≤38	40.7	1553.3
				20,000		PHQ1031_0060K713_0120ME40				>38≤48	63.3	1554.2
						PHQ1031_0060K713_0120ME50				>55≤60	91.3	1556.6
75.77	9699/128	5000	7500	15,000	4/4	PH1031_0060K613_0125ME30	2200	2200	3500	>32≤38	24.0	1206.0
						PH1031_0060K613_0125ME40				>38≤48	45.9	1205.5
						PH1031_0060K613_0125ME50				≤60	74.9	1206.9
78.26	10,017/128	6500	10,000	15,590	4/4	PHQ1031_0060K713_0130ME30	2000	2000	3200	>32≤38	38.9	1554.7
				20,000		PHQ1031_0060K713_0130ME40				>38≤48	61.5	1555.4
						PHQ1031_0060K713_0130ME50				>55≤60	89.5	1557.3
88.81	1421/16	6500	10,000	17,640	4/4	PHQ1031_0060K713_0150ME30	2000	2000	3200	>32≤38	32.0	1556.0
				20,000		PHQ1031_0060K713_0150ME40				>38≤48	54.6	1556.5
						PHQ1031_0060K713_0150ME50				>55≤60	82.6	1558.1
95.21	54,839/576	5000	7500	15,000	4/4	PH1031_0060K613_0160ME30	2200	2200	3500	>32≤38	19.9	1207.4
						PH1031_0060K613_0160ME40				>38≤48	41.8	1207.1
						PH1031_0060K613_0160ME50				≤60	70.8	1208.0

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output



Exact Ratio (i)	Output Torque				Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
	Nm	Nm	Nm					EL 1,2,5,6	EL 3,4			

PH10KX (continued next page)

120.0	4032	6912	13,824	≤3	PH1032F0600KX801VF0020MF	1100	1100	2500	48	49.6	1555.7
126.0	5000	7500	15,000	≤3	PH1032F0420KX801VF0030MF	1300	1300	3000	48	43.9	1589.4
144.0	4608	6912	13,824	≤3	PH1032F0480KX801VF0030MF	1300	1300	3000	48	43.8	1581.0

¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.

* MF = Motor Adapter with FlexiAdapt® coupling



Nom.	Exact	Output Torque				Backlash arcmin	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶ mm	Input Inertia ³⁾ J ₁ kgcm ²	Torsional Stiffness C ₂ (per arcmin) Nm
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}	Continuous			Cyclic					
		Nm	Nm	Nm					EL 1,2,3,4	EL 5,6			

PH10K/PHQ10K (continued next page)

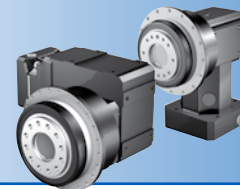
98.33	6293/64	6500	10,000	19,530	4/4	PHQ1031_0060K713_0165ME30	2000	2000	3200	>32≤38	30.9	1556.9
				20,000		PHQ1031_0060K713_0165ME40				>38≤48		1557.3
						PHQ1031_0060K713_0165ME50				>55≤60		1558.5
109.7	80,703/736	6500	10,000	20,000	4/4	PHQ1031_0060K713_0185ME30	2400	2400	3600	>32≤38	26.5	1557.6
						PHQ1031_0060K713_0185ME40				>38≤48		1557.9
						PHQ1031_0060K713_0185ME50				>55≤60		1559.0
114.0	51,057/448	5000	6275	8510	4/4	PH1031_0060K613_0190ME20	2600	2600	4000	>24≤32	11.8	1205.4
			7500	15,000		PH1031_0060K613_0190ME30				>32≤38		1208.1
						PH1031_0060K613_0190ME40				>38≤48		1207.9
						PH1031_0060K613_0190ME50				≤60		1208.5
121.4	357,399/2944	6500	10,000	20,000	4/4	PHQ1031_0060K713_0200ME30	2400	2400	3600	>32≤38	25.7	1558.2
						PHQ1031_0060K713_0200ME40				>38≤48		1558.4
						PHQ1031_0060K713_0200ME50				>55≤60		1559.3
136.4	43,659/320	6500	10,000	20,000	4/4	PHQ1031_0060K713_0230ME30	2400	2400	3600	>32≤38	21.7	1558.7
						PHQ1031_0060K713_0230ME40				>38≤48		1558.9
						PHQ1031_0060K713_0230ME50				>55≤60		1559.5
144.0	73,749/512	5000	7500	15,000	4/4	PH1031_0060K613_0240ME30	2600	2600	4000	>32≤38	15.1	1208.8
						PH1031_0060K613_0240ME40				>38≤48		1208.6
						PH1031_0060K613_0240ME50				≤60		1209.0

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,5,6	EL 3,4	All			

PH10KX (continued from previous page)

180.0	4032	6912	13,824	≤3	PH1032F0600KX801VF0030MF	1300	1300	3000	48	43.5	1555.7
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¹⁾ Based on input speed of 2000 RPM. See page 250 for details on torque calculations.
²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)
³⁾ Inertia based on maximum input. For lower inertia, using smaller diameter input, contact STÖBER.
 * MF = Motor Adapter with FlexiAdapt® coupling

Reducer Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
	Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous		Cyclic			
	Nm	Nm	Nm			EL 1,2,3,4	EL 5,6	All			

PH10K/PHQ10K (continued next page)

151.1	193,347/1280	6500	10,000	20,000	4/4	PHQ1031_0060K713_0250ME30	2400	2400	3600	>32≤38	21.2	1559.0					
						PHQ1031_0060K713_0250ME40				>38≤48			43.8	1559.2			
						PHQ1031_0060K713_0250ME50				>55≤60			71.8	1559.7			
175.7	22,491/128	6500	10,000	20,000	4/4	PHQ1031_0060K713_0290ME30	2900	2900	4200	>32≤38	17.7	1559.5					
						PHQ1031_0060K713_0290ME40				>38≤48			40.3	1559.6			
						PHQ1031_0060K713_0290ME50				2500			2500	4000	>55≤60	68.2	1560.0
191.1	391,437/2048	5000	7500	12,520	4/4	PH1031_0060K613_0320ME20	3100	3100	4500	>24≤32	7.7	1208.2					
						PH1031_0060K613_0320ME30				>32≤38			13.2	1209.2			
						PH1031_0060K613_0320ME40				3000			3000		>38≤48	35.0	1209.1
						PH1031_0060K613_0320ME50				2500			2500	4000	≤60	64.1	1209.4
194.5	99,603/512	6500	10,000	20,000	4/4	PHQ1031_0060K713_0320ME30	2900	2900	4200	>32≤38	17.4	1559.7					
						PHQ1031_0060K713_0320ME40				>38≤48			40.0	1559.8			
						PHQ1031_0060K713_0320ME50				2500			2500	4000	>55≤60	67.9	1560.1
212.6	1701/8	6500	10,000	20,000	4/4	PHQ1031_0060K713_0350ME30	2900	2900	4200	>32≤38	15.5	1559.8					
						PHQ1031_0060K713_0350ME40				>38≤48			37.4	1559.7			
						PHQ1031_0060K713_0350ME50				2500			2500	4000	≤60	66.5	1560.0
229.9	470,859/2048	5000	7500	13,590	4/4	PH1031_0060K613_0380ME20	3100	3100	4500	>24≤32	6.7	1208.7					
						PH1031_0060K613_0380ME30				>32≤38			12.2	1209.4			
						PH1031_0060K613_0380ME40				3000			3000		>38≤48	34.1	1209.3
						PH1031_0060K613_0380ME50				2500			2500	4000	≤60	63.1	1209.5
235.4	7533/32	6500	10,000	20,000	4/4	PHQ1031_0060K713_0390ME30	2900	2900	4200	>32≤38	15.3	1560.0					
						PHQ1031_0060K713_0390ME40				>38≤48			37.2	1559.9			
						PHQ1031_0060K713_0390ME50				2500			2500	4000	≤60	66.3	1560.1

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.
²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)
 * Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output



Reducer Ratio (i)		Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal M _{2N} ¹⁾	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous	Cyclic				
Nom.	Exact	Nm	Nm	Nm	arcmin		EL 1,2,3,4	EL 5,6	All	mm	kgcm ²	Nm

PH10K/PHQ10K (continued from previous page)

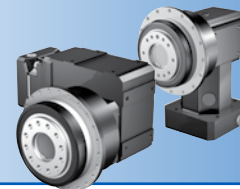
270.3	112,455/416	6500	10,000	20,000	4/4	PHQ1031_0060K713_0450ME30	2900	2900	4200	>32≤38	13.6	1560.1	
						PHQ1031_0060K713_0450ME40				>38≤48			35.5
						PHQ1031_0060K713_0450ME50				≤60			64.5
286.4	119,133/416	5000	7500	14,340	4/4	PH1031_0060K613_0480ME20	3100	3100	4500	>24≤32	5.9	1209.1	
						PH1031_0060K613_0480ME30				>32≤38			11.2
299.3	498,015/1664	6500	10,000	20,000	4/4	PHQ1031_0060K713_0500ME30	2900	2900	4200	>32≤38	13.5	1560.2	
						PHQ1031_0060K713_0500ME40				>38≤48			35.3
						PHQ1031_0060K713_0500ME50				≤60			64.4
351.4	22,491/64	6500	10,000	20,000	4/4	PHQ1031_0060K713_0590ME30	2900	2900	4200	>32≤38	12.1	1560.3	
						PHQ1031_0060K713_0590ME40				>38≤48			34.0
						PHQ1031_0060K713_0590ME50				≤60			63.0
382.3	391,437/1024	5000	7500	15,000	4/4	PH1031_0060K613_0640ME20	3100	3100	4500	>24≤32	5.2	1209.4	
						PH1031_0060K613_0640ME30				>32≤38			10.5
389.1	99,603/256	6500	10,000	20,000	4/4	PHQ1031_0060K713_0650ME30	2900	2900	4200	>32≤38	12.0	1560.4	
						PHQ1031_0060K713_0650ME40				>38≤48			33.9
						PHQ1031_0060K713_0650ME50				≤60			63.0
427.2	13,671/32	6500	10,000	17,790	4/4	PHQ1031_0060K713_0710ME30	2900	2900	4200	>32≤38	11.2	1560.3	
456.8	380,091/832	5000	7500	15,000	4/4	PH1031_0060K613_0760ME20	3100	3100	4500	>24≤32	4.9	1209.5	
						PH1031_0060K613_0760ME30				>32≤38			10.2
473.0	60,543/128	6500	10,000	19,700	4/4	PHQ1031_0060K713_0790ME30	2900	2900	4200	>32≤38	11.1	1560.4	
534.0	68,355/128	6500	10,000	18,790	4/4	PHQ1031_0060K713_0890ME30	2900	2900	4200	>32≤38	10.6	1560.4	
591.2	302,715/512	6500	10,000	20,000	4/4	PHQ1031_0060K713_0990ME30	2900	2900	4200	>32≤38	10.5	1560.5	

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Reducer Ratio (i)		Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous	Cyclic	EL 1,2,3,4			
Nom.	Exact	Nm	Nm	Nm	arcmin					mm	kgcm ²	Nm

PHQ11K (continued next page)

44.67	3127/70	12,299	12,299	16,680	4/4	PHQ1131_0060K813_0074ME40	1600	1600	2600	>38≤48	178.1	2578.2
						PHQ1131_0060K813_0074ME50				>55≤60	206.0	2594.9
49.46	96,937/1960	13,000	13,617	18,470	4/4	PHQ1131_0060K813_0082ME40	1600	1600	2600	>38≤48	164.0	2586.4
						PHQ1131_0060K813_0082ME50				>55≤60	191.9	2600.1
55.70	11,977/215	13,000	15,337	20,800	4/4	PHQ1131_0060K813_0093ME40	1600	1600	2600	>38≤48	135.7	2594.1
						PHQ1131_0060K813_0093ME50				>55≤60	163.6	2605.0
61.67	53,041/860	13,000	16,981	23,030	4/4	PHQ1131_0060K813_0105ME40	1600	1600	2600	>38≤48	126.6	2599.4
						PHQ1131_0060K813_0105ME50				>55≤60	154.6	2608.3
89.05	28,497/320	13,000	22,000	33,260	4/4	PHQ1131_0060K813_0150ME40	1900	1900	3000	>38≤48	82.9	2611.8
						PHQ1131_0060K813_0150ME50				>55≤60	110.9	2616.1
98.59	126,201/1280	13,000	22,000	36,820	4/4	PHQ1131_0060K813_0165ME40	1900	1900	3000	>38≤48	79.4	2613.9
						PHQ1131_0060K813_0165ME50				>55≤60	107.3	2617.4
104.0	30,149/290	13,000	15,266	20,710	4/4	PHQ1131_0060K813_0175ME30	2300	2300	3500	>32≤38	50.3	2613.8
			22,000	38,820		PHQ1131_0060K813_0175ME40				>38≤48	72.8	2614.8
						PHQ1131_0060K813_0175ME50				>55≤60	100.8	2618.0
115.1	133,517/1160	13,000	16,901	22,920	4/4	PHQ1131_0060K813_0190ME30	2300	2300	3500	>32≤38	47.6	2615.5
			22,000	42,980		PHQ1131_0060K813_0190ME40				>38≤48	70.2	2616.4
						PHQ1131_0060K813_0190ME50				>55≤60	98.2	2619.0
138.3	31,801/230	13,000	18,054	24,480	4/4	PHQ1131_0060K813_0230ME30	2300	2300	3500	>32≤38	36.3	2617.9
			22,000	44,000		PHQ1131_0060K813_0230ME40				>38≤48	58.9	2618.5
						PHQ1131_0060K813_0230ME50				>55≤60	86.8	2620.3
153.1	140,833/920	13,000	19,988	27,110	4/4	PHQ1131_0060K813_0260ME30	2300	2300	3500	>32≤38	34.9	2618.9
			22,000	44,000		PHQ1131_0060K813_0260ME40				>38≤48	57.4	2619.4
						PHQ1131_0060K813_0260ME50				>55≤60	85.4	2620.9
175.5	7021/40	13,000	21,599	29,300	4/4	PHQ1131_0060K813_0290ME30	2800	2800	4000	>32≤38	27.8	2619.9
			22,000	44,000		PHQ1131_0060K813_0290ME40				>38≤48	50.4	2620.3
						PHQ1131_0060K813_0290ME50	2500	2500	>55≤60	78.3	2621.4	
194.3	31,093/160	13,000	22,000	32,440	4/4	PHQ1131_0060K813_0320ME30	2800	2800	4000	>32≤38	26.9	2620.6
						PHQ1131_0060K813_0320ME40				>38≤48	49.5	2620.9
			44,000	30,370		PHQ1131_0060K813_0320ME50	2500	2500	>55≤60	77.4	2621.8	
44,000	30,370	PHQ1131_0060K813_0360ME30			2800	2800	4000	>32≤38	22.5	2621.1		
		PHQ1131_0060K813_0360ME40	>38≤48	45.1				2621.3				
216.8	8673/40	13,000	22,000	44,000	4/4	PHQ1131_0060K813_0360ME50	2500	2500	>55≤60	73.1	2622.1	

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output



Reducer Ratio (i)		Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal M _{2N} ¹⁾	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous	Cyclic				
Nom.	Exact	Nm	Nm	Nm	arcmin		EL 1,2,3,4	EL 5,6	All	mm	kgcm ²	Nm

PHQ11K (continued from previous page)

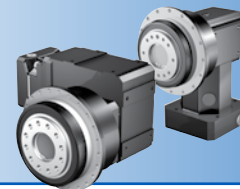
240.1	38,409/160	13,000	22000	33,620	4/4	PHQ1131_0060K813_0400ME30	2800	2800	4000	>32≤38	21.9	2621.5		
				44,000		PHQ1131_0060K813_0400ME40				>38≤48			44.5	2621.7
						PHQ1131_0060K813_0400ME50				>55≤60			72.5	2622.3
265.5	531/2	13,000	22,000	34,120	4/4	PHQ1131_0060K813_0440ME30	2800	2800	4000	>32≤38	18.8	2621.8		
						PHQ1131_0060K813_0440ME40				>38≤48			40.7	2621.6
						PHQ1131_0060K813_0440ME50				≤60			69.7	2622.2
293.9	16,461/56	13,000	22,000	37,780	4/4	PHQ1131_0060K813_0490ME30	2800	2800	4000	>32≤38	18.4	2622.1		
						PHQ1131_0060K813_0490ME40				>38≤48			40.3	2622.0
						PHQ1131_0060K813_0490ME50				≤60			69.3	2622.4
354.5	42,539/120	13,000	22,000	39,940	4/4	PHQ1131_0060K813_0590ME30	2800	2800	4000	>32≤38	15.2	2622.5		
						PHQ1131_0060K813_0590ME40				>38≤48			37.1	2622.4
						PHQ1131_0060K813_0590ME50				≤60			66.1	2622.7
392.5	188,387/480	13,000	22,000	44,000	4/4	PHQ1131_0060K813_0650ME30	2800	2800	4000	>32≤38	15.0	2622.6		
						PHQ1131_0060K813_0650ME40				>38≤48			36.9	2622.5
						PHQ1131_0060K813_0650ME50				≤60			65.9	2622.8
430.2	10,325/24	13,000	22,000	43,810	4/4	PHQ1131_0060K813_0720ME30	2800	2800	4000	>32≤38	13.5	2622.7		
						PHQ1131_0060K813_0720ME40				>38≤48			35.4	2622.9
						PHQ1131_0060K813_0720ME50				≤60			64.5	2622.9
476.3	45,725/96	13,000	22,000	44,000	4/4	PHQ1131_0060K813_0790ME30	2800	2800	4000	>32≤38	13.4	2622.8		
						PHQ1131_0060K813_0790ME40				>38≤48			35.3	2623.0
						PHQ1131_0060K813_0790ME50				≤60			64.3	2623.0
526.6	21,063/40	13,000	15,197	20,610	4/4	PHQ1131_0060K813_0880ME30	2800	2800	4000	>32≤38	12.1	2622.7		
583.0	93,279/160	13,000	16,825	22,820	4/4	PHQ1131_0060K813_0970ME30	2800	2800	4000	>32≤38	12.0	2622.8		

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

Selection Data



Reducer Ratio (i)		Output Torque			Backlash	Part Number* (Gearhead Right Angle Unit + Input)	Maximum Input Speed RPM (n1)			Motor Shaft Max Ø D ⁶	Input Inertia ³⁾ J ₁	Torsional Stiffness C ₂ (per arcmin)
		Nominal ¹⁾ M _{2N}	Acceleration M _{2B}	Peak ²⁾ M _{2PEAK}			Continuous	Cyclic	EL 1,2,3,4			
Nom.	Exact	Nm	Nm	Nm	arcmin					mm	kgcm ²	Nm

PHQ12K

75.15	221,247/2944	20,691	20,691	28,060	4/4	PHQ1231_0060K913_0125ME40	1800	1800	2800	>38≤48	195.8	4614.0
						PHQ1231_0060K913_0125ME50				>55≤60	223.7	4632.9
114.4	915/8	21,772	31,491	42,710	4/4	PHQ1231_0060K913_0190ME40	2200	2200	3300	>38≤48	119.7	4642.7
						PHQ1231_0060K913_0190ME50				>55≤60	147.6	4651.0
143.7	266,631/1856	21,772	39,553	53,650	4/4	PHQ1231_0060K913_0240ME40	2200	2200	3300	>38≤48	94.3	4650.7
						PHQ1231_0060K913_0240ME50				>55≤60	122.2	4656.0
192.7	141,825/736	21,772	43,000	71,960	4/4	PHQ1231_0060K913_0320ME40	2600	2600	3800	>38≤48	72.2	4657.0
						PHQ1231_0060K913_0320ME50				>55≤60	100.1	4659.9
228.3	584,319/2560	21,772	43,000	78,170	4/4	PHQ1231_0060K913_0380ME40	2600	2600	3800	>38≤48	62.6	4659.2
						PHQ1231_0060K913_0380ME50				>55≤60	90.6	4661.3
293.6	300,669/1024	21,772	43,000	80,000	4/4	PHQ1231_0060K913_0490ME40	2600	2600	3800	>38≤48	52.5	4661.4
						PHQ1231_0060K913_0490ME50				>55≤60	80.4	4662.6
378.4	629,703/1664	21,772	43,000	80,000	4/4	PHQ1231_0060K913_0630ME40	2600	2600	3800	>38≤48	45.4	4662.7
						PHQ1231_0060K913_0630ME50				>55≤60	73.4	4663.5
450.0	187,209/416	21,772	39,294	53,300	4/4	PHQ1231_0060K913_0750ME40	2600	2600	3800	>38≤48	41.2	4662.9
						PHQ1231_0060K913_0750ME50				>55≤60	70.2	4663.5
554.1	7,199,037/12,992	21,772	39,555	53,650	4/4	PHQ1231_0060K914_0920ME40	2600	2600	3800	>38≤48	37.2	4663.6
562.7	4,177,219/7424	16,485	16,742	22,710	4/4	PHQ1231_0060K914_0940ME30	2600	2600	3800	>32≤38	13.9	4663.2
572.5	293,105/512	21,772	37,158	57,590	4/4	PHQ1231_0060K913_0950ME40	2600	2600	3800	>38≤48	37.8	4663.6
						PHQ1231_0060K913_0950ME50				>55≤60	66.8	4664.0
743.3	3,829,275/5152	21,772	43,000	71,960	4/4	PHQ1231_0060K914_1240ME40	2600	2600	3800	>38≤48	35.7	4664.1
754.7	2,221,925/2944	21,772	22,457	30,460	4/4	PHQ1231_0060K914_1260ME30	2600	2600	3800	>32≤38	12.5	4663.9
880.4	15,776,613/17,920	21,772	43,000	78,180	4/4	PHQ1231_0060K914_1470ME40	2600	2600	3800	>38≤48	35.1	4664.3
894.0	9,154,331/10,240	21,772	26,501	35,940	4/4	PHQ1231_0060K914_1490ME30	2600	2600	3800	>32≤38	11.8	4664.1
1132.5	8,118,063/7168	21,772	43,000	80,000	4/4	PHQ1231_0060K914_1890ME40	2600	2600	3800	>38≤48	34.4	4664.5
1150.0	4,710,481/4096	21,772	29,227	39,640	4/4	PHQ1231_0060K914_1920ME30	2600	2600	3800	>32≤38	11.2	4664.4
1459.7	17,001,981/11,648	21,772	43,000	80,000	4/4	PHQ1231_0060K914_2430ME40	2600	2600	3800	>38≤48	33.9	4664.6
1482.2	9,865,347/6656	21,772	33,023	44,790	4/4	PHQ1231_0060K914_2470ME30	2600	2600	3800	>32≤38	10.7	4664.5
1762.6	2,932,941/1664	21,772	39,291	53,290	4/4	PHQ1231_0060K914_2940ME30	2600	2600	3800	>32≤38	10.5	4664.6
2242.2	13,775,935/6144	21,772	37,158	57,590	4/4	PHQ1231_0060K914_3740ME30	2600	2600	3800	>32≤38	10.3	4664.6

¹⁾ Based on input speed of 2000 RPM. See page 251 for details on torque calculations.

²⁾ Maximum momentary torque for emergency stops or heavy shock load. (Admissible stops per life of gearhead = 1,000 stops maximum.)

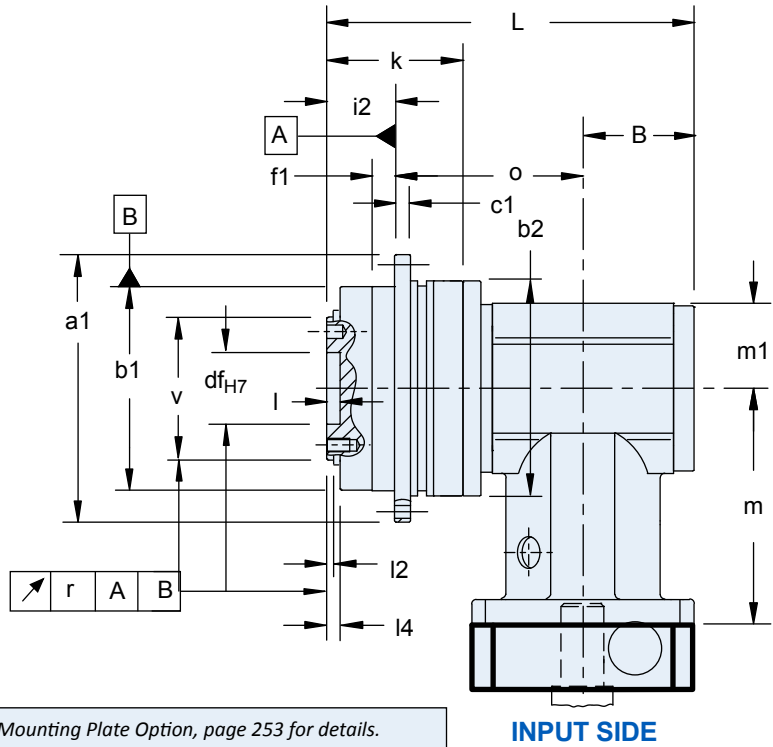
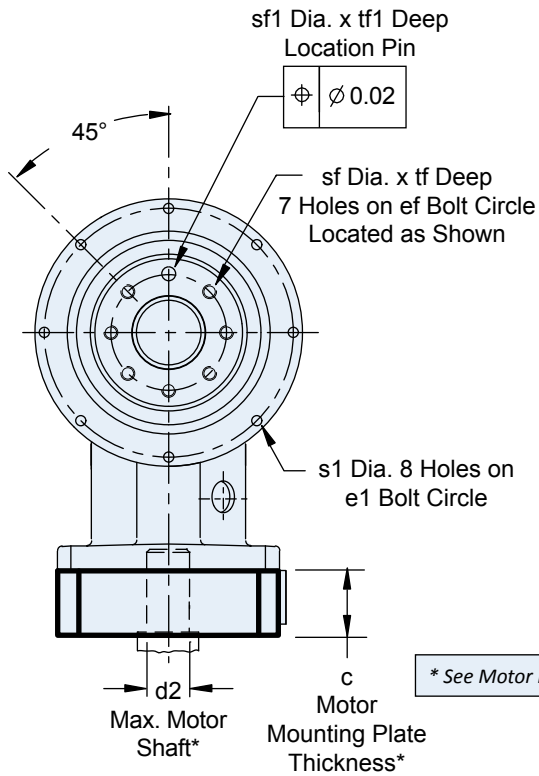
* Motor shaft adapter code (shaft diameter max - mm): ME10 (19), ME20 (32), ME30 (38), ME40 (48), ME50 (60)

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

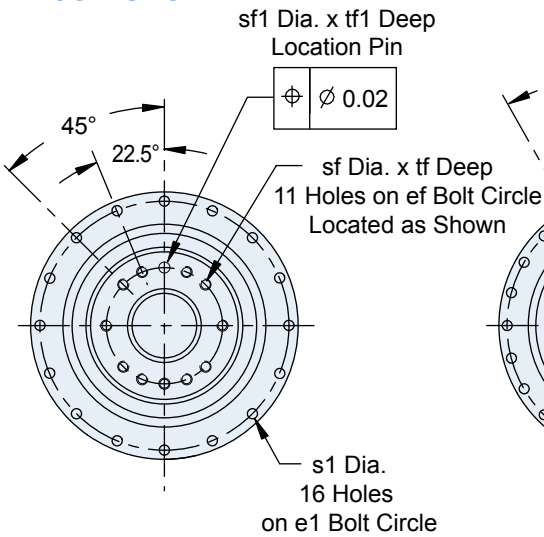
PHKX Series Dimensions – All Units

PHKX3/PHKX4 OUTPUT SIDE

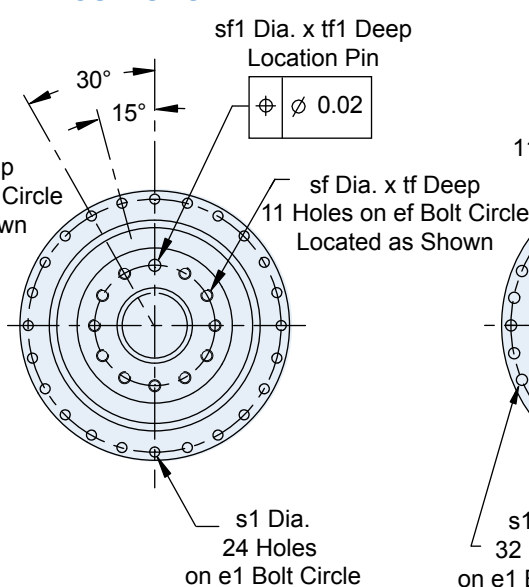


* See Motor Mounting Plate Option, page 253 for details.

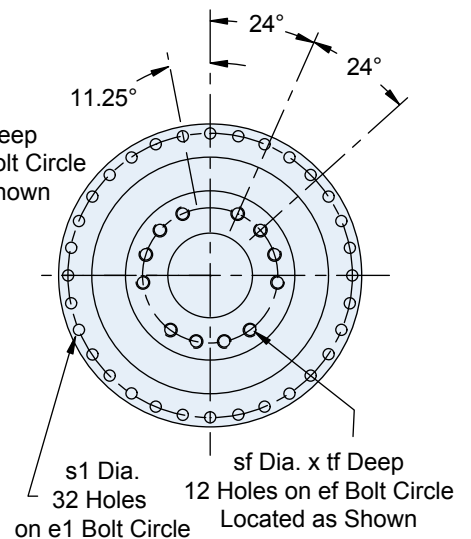
PHKX5 OUTPUT SIDE



PHKX7/PHKX8 OUTPUT SIDE



PHKX9/PHKX10 OUTPUT SIDE



Dimensional Data

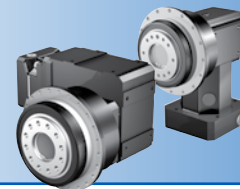


Table 1 Dimensions (mm)

Unit	a1	h7*	b1	h7*	b2	c1	df	H7*	e1	ef	f1	i2
PH3_KX	86	+0.000/-0.035	64	+0.000/-0.030	70	4	20	+0.021/-0.0	79	31.5	7	19.5
PH4_KX	118	+0.000/-0.035	90	+0.000/-0.035	95	7	31.5	+0.025/-0.0	109	50	10	30
PH5_KX	145	+0.000/-0.040	110	+0.000/-0.035	120	8	40	+0.025/-0.0	135	63	10	29
PH7_KX	179	+0.000/-0.040	140	+0.000/-0.040	152	10	50	+0.025/-0.0	168	80	12	38
PH8_KX	247	+0.000/-0.046	200	+0.000/-0.046	212	12	80	+0.030/-0.0	233	125	15	50
PH9_KX	300	–	255	+0.000/-0.052	255	18	90	+0.035/-0.0	280	140	20	66
PH10_KX	330	–	285	+0.000/-0.052	285	20	95	+0.035/-0.0	310	160	20	75

Table 2 Dimensions (mm)

Unit	l	l2	l4	r	s1	sf	sf1	H7*	tf	tf1	v	h7*
PH3_KX	4	3	3.5	0.020	4.5	M5x0.80	M5x0.80	+0.012/-0.000	7	3	40	+0.000/-0.025
PH4_KX	6	6	6	0.020	5.5	M6x1.00	M6x1.00	+0.012/-0.000	11	7	63	+0.000/-0.030
PH5_KX	6	6	6	0.020	5.5	M6x1.00	M6x1.00	+0.012/-0.000	11	7	80	+0.000/-0.030
PH7_KX	6	6	6	0.025	6.6	M8x1.25	M8x1.25	+0.015/-0.000	14	7	100	+0.000/-0.035
PH8_KX	8	8	8	0.030	9	M10x1.50	M10x1.50	+0.015/-0.000	18	10	160	+0.000/-0.040
PH9_KX	12	11	12	0.030	13.5	M16x2.00	–	–	24	–	180	+0.000/-0.046
PH10_KX	10	15	15	0.040	13.5	M20x 2.25	–	–	30	–	200	+0.000/-0.046

* h7 = existing values; H7 = permissible values

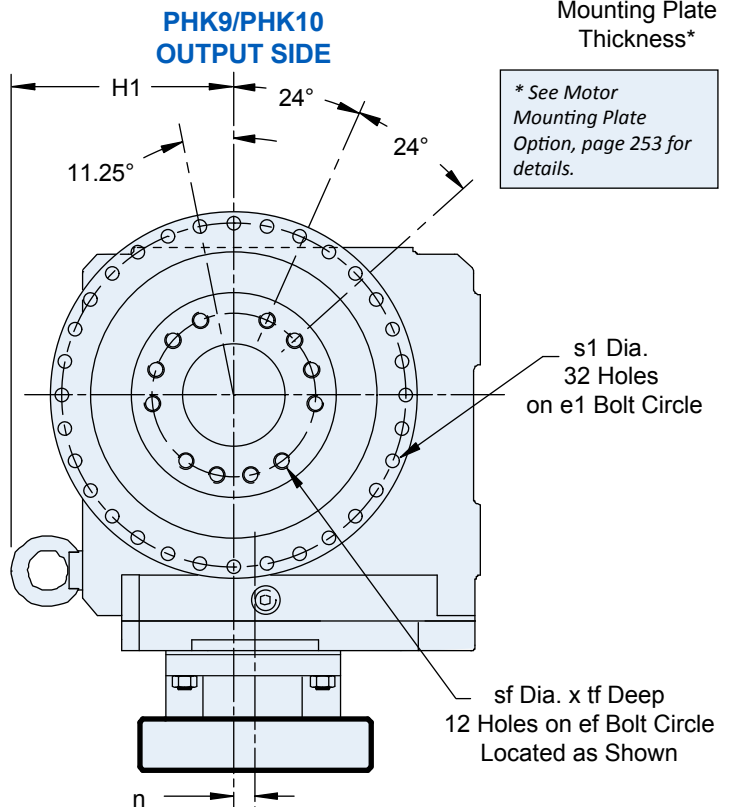
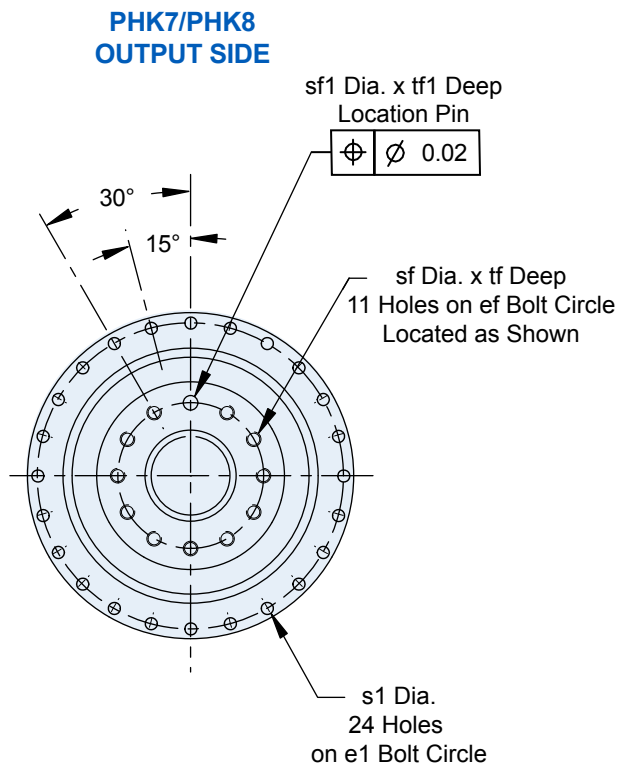
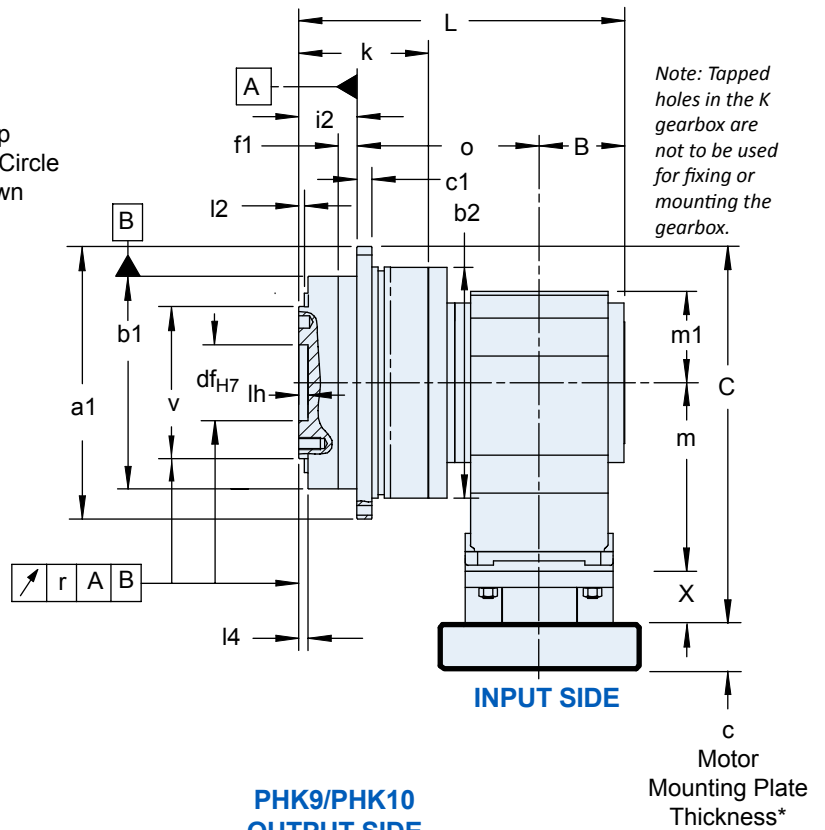
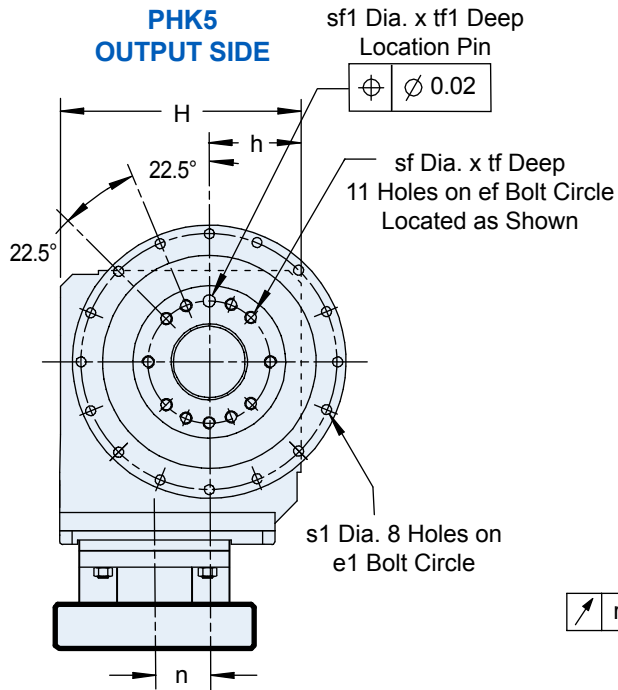
Table 3 Dimensions (mm)

Unit	B	k	L	m	m1	o
PH321_KX3	40	50	133.5	95.5	31	74
PH322_KX3	40	87	169.5	95.5	31	110
PH421_KX4	50	66	167	104	37.5	87
PH422_KX3	40	113	195.5	95.5	31	125.5
PH521_KX5	59	70	193	132	45	105
PH522_KX4	50	124.5	227.5	104	37.5	148.5
PH721_KX7	74	88	239	172.5	60	127
PH722_KX5	59	150	273	132	45	176
PH821_KX8	92	126	317.5	210	75	175.5
PH822_KX7	74	201	352	172.5	60	228
PH932_KX8	92	277.5	470.5	210	75	312.5
PH1032_KX8	92	307	500	210	75	333

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHK Series Dimensions – All Units



Dimensional Data

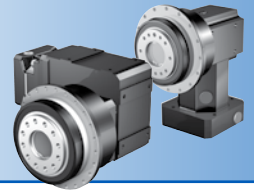


Table 1 Dimensions (mm)

Unit	a1	B	b1	h7*	b2	c1	df	H7*	ef	e1	f1	H	H1	h	i2
PH5_K1	145	56	110	+0.000/-0.035	120	8	40	+0.025/-0.0	63	135	10	160	–	60	29
PH7_K1	179	56	140	+0.000/-0.040	152	10	50	+0.025/-0.0	80	168	12	160	–	60	38
PH7_K2	179	70	140	+0.000/-0.040	152	10	50	+0.025/-0.0	80	168	12	190	–	65	38
PH8_K2	247	70	200	+0.000/-0.046	212	12	80	+0.030/-0.0	125	233	15	190	–	65	50
PH8_K3	247	76	200	+0.000/-0.046	212	12	80	+0.030/-0.0	125	233	15	213	–	75	50
PH9_K5	300	96	255	+0.000/-0.052	255	18	90	+0.035/-0.0	140	280	20	260	312	160	66
PH10_K6	330	103.5	285	+0.000/-0.052	285	20	95	+0.035/-0.0	160	310	20	310	362	190	75

Table 2 Dimensions (mm)

Unit	k	L	l2	l4	lh	m1	o	r	s1	sf	sf1	H7*	tf	tf1	v	h7*
PH5_K1	70	201	6	6	6	60	116	0.020	5.5	M6x1.00	M6x1.00	+0.012/-0.000	11	7	80	+0.000/-0.030
PH7_K1	88	214	6	6	6	60	120	0.025	6.6	M8x1.25	M8x1.25	+0.015/-0.000	14	7	100	+0.000/-0.035
PH7_K2	88	242	6	6	6	65	134	0.025	6.6	M8x1.25	M8x1.25	+0.015/-0.000	14	7	100	+0.000/-0.035
PH8_K2	126	284.5	8	8	8	65	164.5	0.030	9	M10x1.50	M10x1.50	+0.015/-0.000	18	10	160	+0.000/-0.040
PH8_K3	126	298	8	8	8	75	172	0.030	9	M10x1.50	M10x1.50	+0.015/-0.000	18	10	160	+0.000/-0.040
PH9_K5	145	358.5	11	12	12	100	196.5	0.030	13.5	M16x2.00	–	–	24	–	180	+0.000/-0.040
PH10_K6	126	393.5	15	15	10	120	215	0.040	13.5	M20x 2.25	–	–	30	–	200	+0.000/-0.046

Motor Mounting Plate

* h7 = existing values; H7 = permissible values

Table 3 Dimensions (mm)

Base Module	Motor Adapter Code															Wt. lbs.	
	ME10			ME20			ME30			ME40			ME50				
	C	m	n	C	m	n	C	m	n	C	m	n	C	m	n		
PH5_K1	236.5	124	36	240.5	128	36	–	–	–	–	–	–	–	–	–	–	43
PH7_K1	253.5	124	36	263.5	128	36	–	–	–	–	–	–	–	–	–	–	53
PH7_K2	278.5	143	46	286.5	147	46	296.5	149	46	–	–	–	–	–	–	–	69
PH8_K2	310.5	143	46	316.5	147	46	330.5	149	46	–	–	–	–	–	–	–	116
PH8_K3	332.5	163	52.5	342.5	169	52.5	352.5	169	52.5	–	–	–	–	–	–	–	134
PH9_K5	–	–	–	–	–	–	374	174	15	376	177	15	–	–	–	–	213
PH10_K6	–	–	–	401	191	18	403	193	18	405	196	18	420	210	18	–	310

Table 4 Dimensions (mm)

Motor Adapter Code	Thickness ²⁾ c Min.	Motor Shaft d2 Max. ¹⁾	X	Wt. lbs.
ME10	21	19	40	5
ME20	24	32	50	8
ME30	25	38	60	15
ME40	33	48	88	28
ME50	43	60	88.1	42

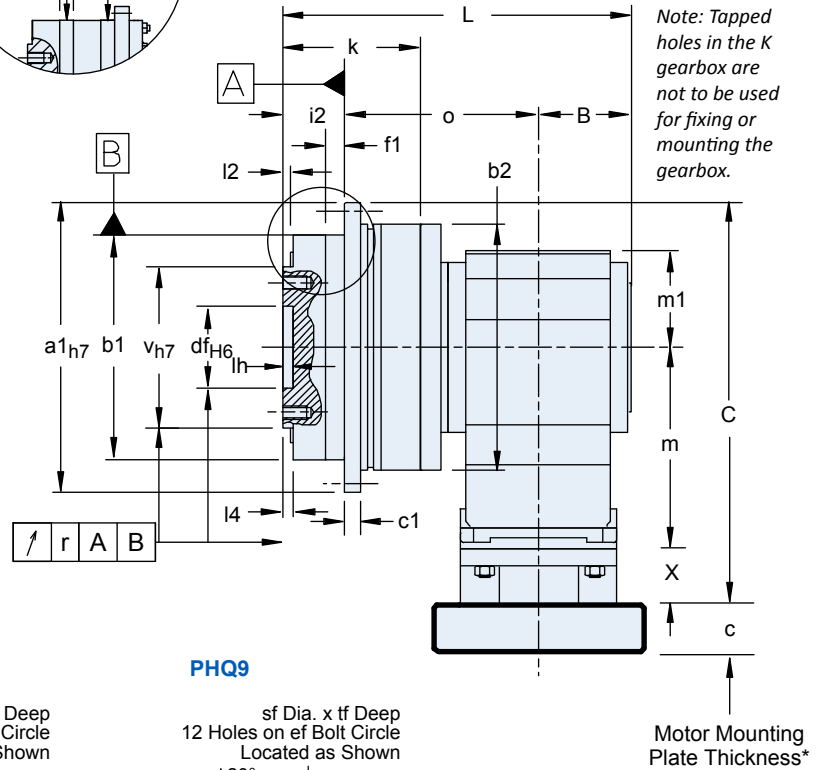
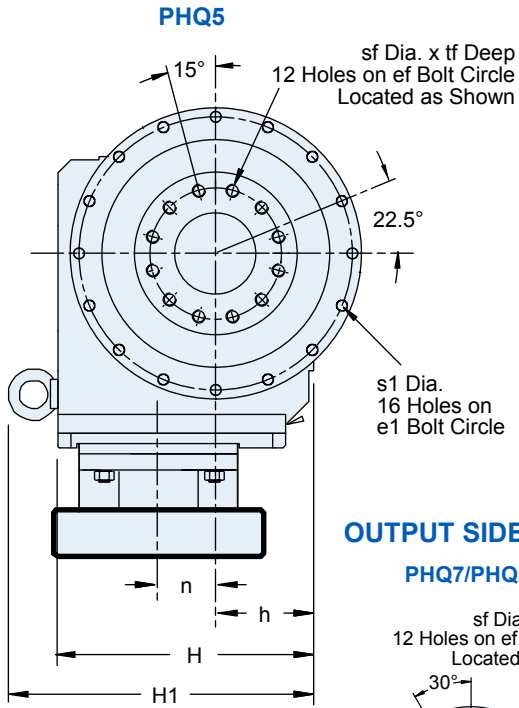
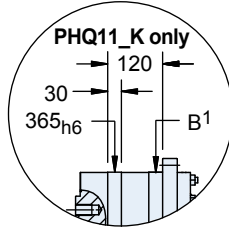
1) If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

2) Motor plate maximum thickness (L9) will vary with motor shaft length but will not be less than shown.

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

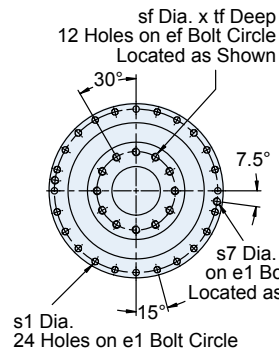
PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output

PHQK Series Dimensions – All Units

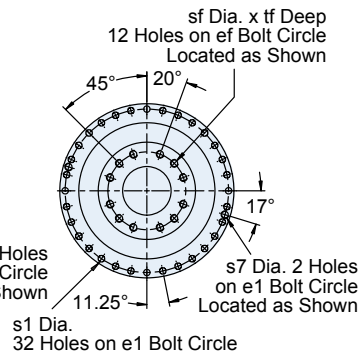


OUTPUT SIDE

PHQ7/PHQ8

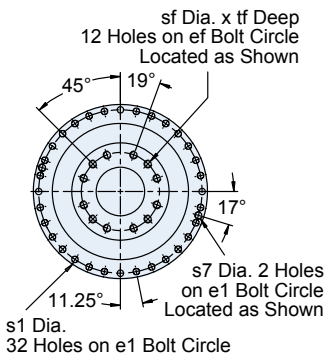


PHQ9

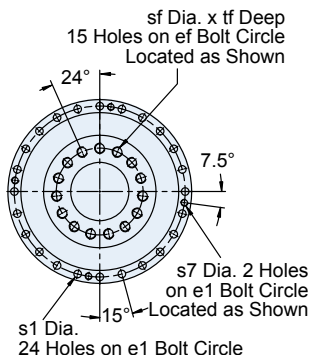


* See Motor Mounting Plate Option, page 253 for details.

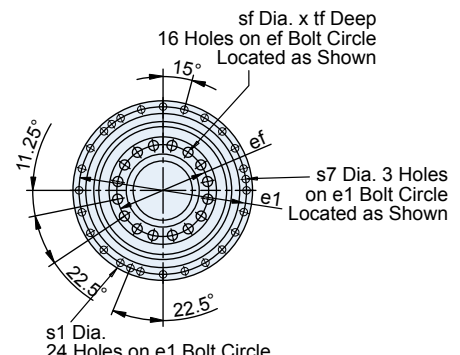
PHQ10



PHQ11



PHQ12



Dimensional Data

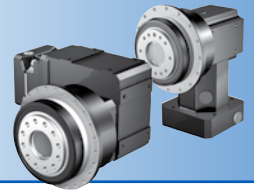


Table 1 Dimensions (mm)

Unit	a1	B	b1	b2	c1	df	ef	e1	f1	H	H1	h	i2
PHQ5_K	145	56	110 _{h7}	120	8	40	63	135	10	160	–	60	29
PHQ7_K	179	70	140 _{h7}	152	10	50	80	168	12	190	–	65	38
PHQ8_K	247	90	200 _{h7}	212	12	80	125	233	15	240	–	90	50
PHQ9_K	300	96	255 _{h7}	255	18	90	145	280	20	260	312	160	66
PHQ10_K	330	116.5	285 _{h7}	285	20	95	166	310	20	342	403	212	75
PHQ11_K	425	145	365 _{h6}	365	32	120	200	395	30	410	471	265	190
PHQ12_K	550	170	470 _{h6}	470	45	180	280	510	30	495	565	315	206.5

Table 2 Dimensions (mm)

Unit	k	L	l2	l4	lh	m1	o	r	s1	s7	sf	tf	v
PHQ5_K	70	201	6	6.5	6	60	116	0.020	5.5	–	M8x1.25	11	80
PHQ7_K	88	242	6	6.5	6	65	134	0.025	6.6	–	M10x1.50	16	100
PHQ8_K	126	327.5	8	8.5	8	90	187.5	0.030	9	M10x1.50	M12x1.75	17	160
PHQ9_K	145	358.5	11	12	12	100	196.5	0.030	13.5	M8x1.25	M20x 2.25	28	180
PHQ10_K	160	429.5	15	15	10	125	238	0.040	13.5	M10x1.50	M24x2.50	35	200
PHQ11_K	222	571.5	10	10	10	145	236.5	0.040	17.5	M16x2.00	M24x2.50	36	260
PHQ12_K	252	658.5	11	11	10	180	282	0.040	22	M16x2.00	M30	48	330

* h6, h7 = existing values

Motor Mounting Plate

Table 3 Dimensions (mm)

Base Module	Motor Adapter Code															Wt. lbs.
	ME10			ME20			ME30			ME40			ME50			
	C	m	n	C	m	n	C	m	n	C	m	n	C	m	n	
PHQ5_K	197	124	36	201	128	36	–	–	–	–	–	–	–	–	–	36
PHQ7_K	272.5	143	46	276.5	147	46	278.5	149	46	–	–	–	–	–	–	67
PHQ8_K	–	–	–	360.5	187	60	362.5	189	60	364.5	192	60	–	–	–	157
PHQ9_K	–	–	–	372	172	15	384	174	15	376	177	15	–	–	–	213
PHQ10_K	–	–	–	–	–	–	446	221	20	438	224	20	462	237	20	345
PHQ11_K	–	–	–	–	–	–	519.5	247	24	510.5	249	24	534.5	262	24	672
PHQ12_K	–	–	–	–	–	–	–	–	–	657	294	25	663.5	307	25	1212

Table 4 Dimensions (mm)

Motor Adapter Code	Thickness ²⁾ c Min.	Motor Shaft d2 Max. ¹⁾	X	Wt. lbs.
ME10	21	19	40	5
ME20	24	32	50	8
ME30	25	38	60	15
ME40	33	48	88	28
ME50	43	60	88.1	42

1) If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

2) Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

PHKX/PHK/PHQK Series: RIGHT ANGLE – Flange Output