

"P" Series

ServoFit® Precision Planetary Gearhead

Performance Specification Overview



		P221	P222	P321	P322	P421	P422	P521	P522	P721	P722	P821	P822	P921	P922
Acceleration Torque	in.lbs.	195		575		1052		2,655		6,195		14,160		26,570	
M _{2B} MAX	Nm	22		65		120		300		700		1,600		3,000	
Output Torque Nom. ¹⁾	in.lbs.	142		399		753		1,860		3,898		8,858		17,716	
M _{2N}	Nm	16		45		85		210		440		1,000		2,000	
Input Speed Max.	Continuous	4,500	4,500	4,500	4,500	4,000	4,500	3,700	4,000	3,300	3,700	2,800	3,300	2,500	2,800
n ₁ MAX	Cyclic	8,000	8,000	8,000	8,000	7,000	8,000	6,500	7,000	6,000	6,500	4,500	6,000	4,000	4,500
ServoCool															
Input Speed Max.	Continuous	—		—		4,500	—	5,500	4,500	5,000	5,000	4,500	4,500	4,000	4,000
n ₁ MAX	Cyclic	—		—		7,000	—	6,500	7,000	6,000	6,500	6,000	6,000	5,000	6,000
Torsional Backlash ²⁾															
Δφ	arcmin	≤6	≤8	≤4	≤5	≤4	≤5	≤3	≤4	≤3	≤4	≤3	≤4	≤3	≤4
Torsional Stiffness															
C ₂	in.lbs./arcmin	17		44		100		266		486		1,557		3,094	3,016
	Nm/arcmin	1.9		5		11		33		55		176		350	340
Axial Load Maximum	R	lbs.	112		225		337		518		653		1,058		1,350
F _{2AMAX} ³⁾	D	lbs.	500		1,000		1,500		2,300		2,900		4,700		6,000
	Z	lbs.	—		315		506		788		1,013		1,688		2,250
		N	—		1,400		2,250		3,500		4,500		7,500		10,000
		N	—		135		225		360		450		810		1,125
		N	—		600		1,000		1,600		2,000		3,600		5,000
Radial Load Maximum ⁴⁾	R	lbs.	270		563		900		1,463		1,800		2,925		4,050
F _{2RMAX} ³⁾	D	lbs.	1,200		2,500		4,000		6,500		8,000		13,000		18,000
	Z	lbs.	—		619		1,013		1,575		2,025		3,375		4,500
		N	—		2,750		4,500		7,000		9,000		15,000		20,000
		N	—		675		1,125		1,800		2,250		4,050		6,075
		N	—		3,000		5,000		8,000		10,000		18,000		27,000
Tilting Moment Maximum ⁴⁾	R	in.lbs.	300		779		1,416		2,991		4,774		5,938		14,735
M _{2Kmax} ³⁾	D	Nm	34		88		160		338		536		897		1,665
	Z	in.lbs.	—		929		1,717		3,593		5,735		10,089		18,320
		Nm	—		105		194		406		648		1,140		2,070
		Nm	—		929		1,770		3,682		5,929		10,992		22,125
		Nm	—		105		200		416		670		1,242		2,500
Efficiency (at Nom. Torque)															
h	%	97%	95%	97%	95%	97%	95%	97%	95%	97%	95%	97%	95%	97%	95%
Weight	pounds	3	4.0	6	8	9	12	14	19	27	33	57	71	110	135
m	kg	1.2	1.8	2.6	3.5	4.0	5.3	6.5	8.5	12	15	26	32	50	61
Noise Level															
L _{PA}	dB(A) ⁵⁾	≤61	≤61	≤61	≤61	≤62	≤60	≤63	≤61	≤64	≤62	≤65	≤63	≤65	≤64
Balance Quality		Q 2.5 (Quality Class-2.5 millimeters per second)													
Lubrication		Synthetic Oil — Lubricated for Life													
Degree of Protection		IP65 - FKM Shaft Seals													
Mounting Position		Unrestricted													
Direction of Rotation		Input and Output Rotate the SAME Direction.													
Ambient Temperature		0° C to +40°C (104° F) [Unit temperature ≤ 90° C Max.]													
Finish		Black (Standard), Washdown (White), Food and Beverage (Stainless) Options Available													
Lifetime ⁶⁾	hours	L _h > 10,000 hours if M _{2K} /M _{2A} < 1.25 and > 1.00													
L _h		L _h > 20,000 hours if M _{2K} /M _{2A} > 1.25 and < 1.50													
		L _h > 30,000 hours if M _{2K} /M _{2A} > 1.5													
Warranty		5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)													

¹⁾ Ratings based on input speed (n₁) of 2000 RPM.

For torque at higher input speeds (M_{2NX}) solve the formula, where n₁ = 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 reduced value see the PA Series.

³⁾ See Page 9 for output bearing options.

⁴⁾ Rating based on output speed (n₂) of 100 RPM. For values at other speeds see Page 8.

⁵⁾ Measurement at one (1) meter distance with input speed (n₁) of 2000 RPM.

⁶⁾ M_{2A} equals actual tilting moment of the application. See Page 8 for calculation details.

WARNING: In order to insure that the specified torque ratings are attained, it is essential to attach the gear units to the machine with a grade 10.9 fastener.

Refer to Page 302 for ServoFit Precision Planetary Gearhead Selection Procedure.



"P" Series ServoFit® Precision Planetary Gearhead Features

The "P" Series ServoFit Precision Planetary Gearheads feature HeliCamber® gearing and many other components which make them the most accurate and efficient planetary gearheads available. HeliCamber® gear technology provides minimum wear, low backlash and low noise. All units are lubricated for life with synthetic oil and sealed to IP65 standards to prevent lubricant contamination for long life.

- Some of these features are:
- Readily Attaches to Any Servo Motor (IEC, NEMA, or Customized Motor Plates*)
 - 5 Year Limited Warranty (2 years on bearings, seals, etc.)
 - Lowest Standard Backlash
 - High Torsional Stiffness
 - Advanced Gear Technology
 - 95 to 97% Efficiency
 - Quiet Running
 - Assembled in the U.S.A.

* Maximum 10 working days for custom motor plates.



NO EXPEDITE FEE FOR 24 HOUR SERVICE

Ring gear machined integral to the housing — not welded or pressed in — provides greater concentricity and eliminates speed fluctuation

The patented motor coupling is designed to allow thermal expansion of the motor shaft — ensuring long motor life by preventing thrust load on the motor bearings.

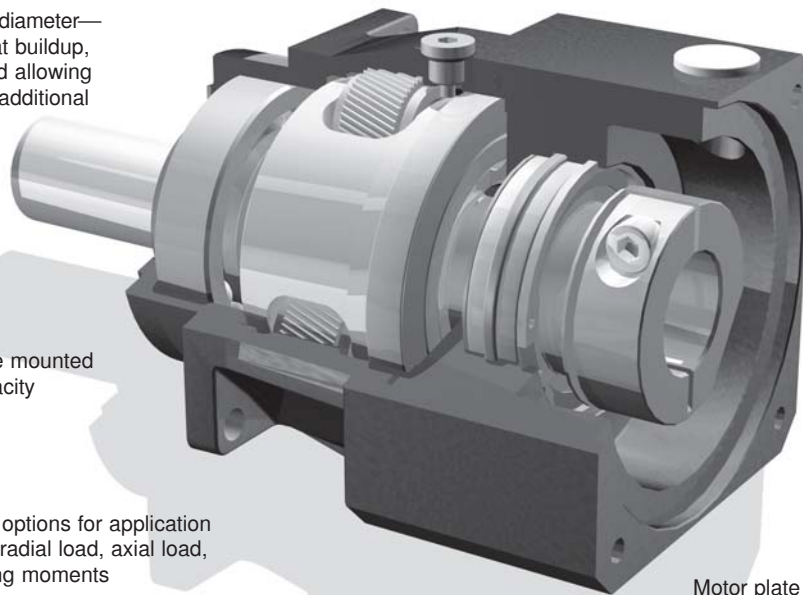
Highest running smoothness achieved by proven helical gearing and gear tooth microgeometry. Gear quality provided by case-hardened and finish-ground sun and planet gears.

The motor shaft adaption system allows installation of motor in minutes — no special tools required

Magnetic oil filtration

FKM seals — for the smallest possible diameter— reducing friction and heat buildup, increasing efficiency, and allowing continuous duty without additional cooling.

Triple-split collet — for greater concentricity and low inertia — is rated in excess of 200 percent of the gearheads input torque capacity



Adapter bushings to fit all motor shafts — no key required

Planet carrier straddle mounted for robust output capacity

Motor plate pilot toleranced to fit your motor for precise concentricity

Bearing options for application specific radial load, axial load, and tilting moments

Motor plate can easily be changed to fit your choice of motors

Highest running accuracy and precision ensured by single piece housing made from high-tensile tempered ductile iron with the additional characteristics of dissipating heat, noise dampening, and greater lubrication retention on the ring gear

"P" Series ServoFit® Precision Planetary Gearhead



Part No. Explanation

	<u>P</u>	<u>4</u>	<u>2</u>	<u>1</u>	<u>S</u>	<u>P</u>	<u>R</u>	<u>0030</u>	<u>MT</u>	<u>L</u>
	Series	Size	Generation	No. of Gear Stages	Housing	Output Option	Bearing Option	Ratio	Input	Input Option
Series	<u>P</u>									
Size		<u>4</u>								
Generation			<u>2</u>							
No. of Gear Stages				<u>1</u>						
Housing Style					<u>S</u>					
Output Shaft						<u>P</u>				
							<u>G</u>			
Bearing Option							<u>R</u>			
								<u>D</u>		
									<u>Z</u>	
Ratio								<u>0030</u>		
Motor Adapter									<u>MT</u>	
Option										<u>L</u>

Series **P** Planetary Gearhead

Size **4** 2, 3, **4**, 5, 7, 8, 9

Generation **2** First generation 1, second generation **2**, etc.

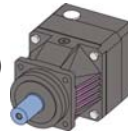
No. of Gear Stages **1** **1**, 2, (determined by the ratio)

Housing Style **S** Standard

Output Shaft **P** Shaft with Key



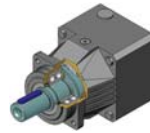
G — Plain Shaft (no key)



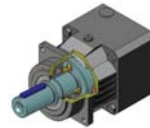
Bearing Option **R** Normal Bearing



D — Reinforced Bearing (axial)



Z — Reinforced Bearing (radial)



Ratio **0030** Approximate: 0030 = 3.00:1 (range of 3:1 up to 100:1)

Motor Adapter **MT** TriAdapt® Motor Adapter (Motor information must be specified.)

AW — Also, available with input shaft.



Option **L** Large Input



C — ServoCool (available in sizes P402 thru P922)





"P" Series ServoFit® Precision Planetary Gearhead

Motor Mounting Specifications

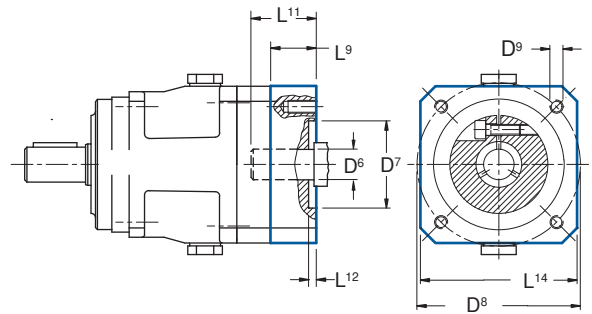
STOBER ServoFit Gearheads will fit the motor of your choice by assembling the correct motor mounting plate between the motor and the gearhead. **When ordering a gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions.** The motor plate thickness (L^9) will be determined by the motor shaft length. The minimum motor plate thickness is shown below. For a precise dimension on a specific motor, contact STOBER Technical Support.

The following dimensions are required to provide the correct motor mounting plate:

1. D^6 Motor Shaft Diameter (If an adapter bushing is required it will be supplied with the motor plate.)
2. D^7 Pilot Diameter
3. D^8 Bolt Circle Diameter
4. D^9 Bolt Diameter
5. L^{11} Motor Shaft Length
6. L^{12} Pilot Length
7. L^{14} Square Flange (Optional — motor plate will typically be made to match this dimension.)

Table No. 1

Motor Plate Dims.	Planetary Size						
	P221 P222 P322	P221L P222L P321 P322L P422	P321L P421 P422L P522	P421L P521 P522L P722	P521L P721 P722L P822	P721L P821 P822L P922	P921 P922L
D^6 Max.	14	19	24	32	38	48	60
L^9 Min.	15	18	21	24	25	33	43



Output Shaft Options

The designation "P" or "G" for the output shaft must be included as part of the unit part number.

Table No. 2

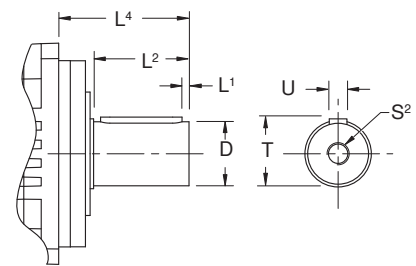
P – Shaft with Key

Unit No.	D k6 mm	L ¹ mm inches	L ² mm inches	L ⁴ mm inches	S ² (1)	T mm inches	U (2)
P2	12 +.012/+0.001	2 .08	22 .87	36 1.42	M4	13.5 .53	A4x4x18
P3	16 +.012/+0.001	2 .08	28 1.10	48 1.89	M5	18 .71	A5x5x22
P4	22 +.015/+0.002	3 .11	36 1.42	56 2.20	M8	24.5 .96	A6x6x28
P5	32 +.018/+0.002	3 .11	58 2.28	88 3.46	M12	35 1.38	A10x8x50
P7	40 +.018/+0.002	4 .16	82 3.23	112 4.41	M16	43 1.69	A12x8x70
P8	55 +.021/+0.002	6 .24	82 3.23	112 4.41	M20	59 2.32	A16x10x70
P9	75 +.021/+0.002	7 .28	105 4.13	143 5.63	M20	79.5 3.13	A20x12x90

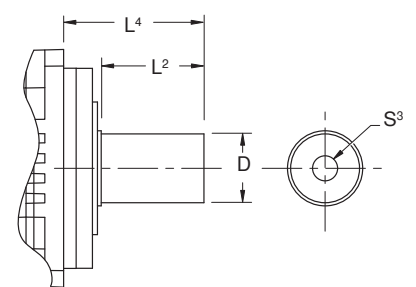
G – Shaft without Key

Unit No.	D k6 mm	L ² mm inches	L ⁴ mm inches	S ³ (1)
P2	12 +.012/+0.001	22 .87	36 1.42	R3.5x6.7
P3	16 +.012/+0.001	28 1.10	48 1.89	R4x8.5
P4	22 +.015/+0.002	36 1.42	56 2.20	R4x8.5
P5	32 +.018/+0.002	58 2.28	88 3.46	R4x8.5
P7	40 +.018/+0.002	82 3.23	112 4.41	R4x8.5
P8	55 +.021/+0.002	82 3.23	112 4.41	R5x10.6
P9	75 +.021/+0.002	105 4.13	143 5.63	M20

"P" – Shaft with Key



"G" – Shaft without Key



(1) The center hole in shafts with keys (Option "P") are machined to DIN 332 T2 shape DR.

(2) Feather keys are toleranced according to standard DIN 6885.

"P" Series ServoFit® Precision Planetary Gearhead Shaft Loads



All formulas shown are based on METRIC values.

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

The permissible load and tilting moment values are based on an output speed of 100 RPM. For higher speeds the following applies, where n_2 is the desired speed:

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

The application input 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
 - F_{2A} Permissible Axial Load
 - F_{2r} Radial Load at Output Shaft
 - F_{2R} Permissible Radial Load
 - F_{2RB} Acceleration Permissible Radial Load
 - M_{2K} Rated Tilting Torque
 - M_{2k} Equivalent Tilting Load
 - M_{2KB} Acceleration Tilting Torque
 - z_2 Distance Factor

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

bearing life for duty cycle ≤ 40%

- $L_h > 10,000$ hours if $M_{2k}/M_{2A} < 1.25$ and > 1
- $L_h > 20,000$ hours if $M_{2k}/M_{2A} > 1.25$ and > 1.5
- $L_h > 30,000$ hours if $M_{2k}/M_{2A} < 1.5$

bearing life for duty cycle ≥ 40%

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

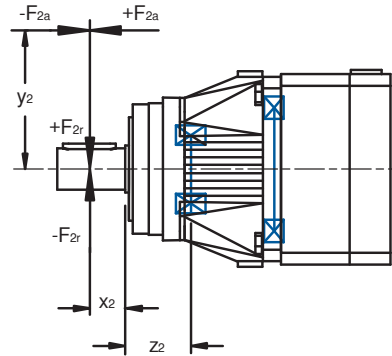


Table No. 1 Permissible Output Shaft Load and Tilting Moments

R – Output Bearing Option, Normal												
Unit No.	z_2		F_{2A}		F_{2R}		F_{2RB}		M_{2K}		M_{2KB}	
	mm	inches	N	lbs.	N	lbs.	N	lbs.	Nm	in.lbs.	Nm	in.lbs.
P2	17	.669	500	112	1,200	270	1,300	293	34	300	36	319
P3	21	.827	1,000	225	2,500	563	2,500	563	88	779	88	779
P4	22	.866	1,500	337	4,000	900	4,500	1,013	160	1,416	180	1,593
P5	23	.906	2,300	518	6,500	1,463	7,000	1,575	338	2,708	364	3,221
P7	26	1.023	2,900	653	8,000	1,800	9,000	2,025	536	4,744	603	5,337
P8	28	1.102	4,700	1,058	13,000	2,925	18,000	4,050	897	7,938	1,242	10,992
P9	40	1.575	6,000	1,350	18,000	4,050	27,000	6,075	1,665	14,735	2,498	22,107

D – Output Bearing Option, Axially Reinforced												
Unit No.	z_2		F_{2A}		F_{2R}		F_{2RB}		M_{2K}		M_{2KB}	
	mm	inches	N	lbs.	N	lbs.	N	lbs.	Nm	in.lbs.	Nm	in.lbs.
P3	24	.945	1,400	315	2,750	619	2,750	619	105	929	105	929
P4	25	.984	2,250	506	4,500	1,013	5,000	1,125	194	1,717	215	1,903
P5	29	1.142	3,500	788	7,000	1,575	8,000	1,800	406	3,593	464	4,106
P7	31	1.220	4,500	1,013	9,000	2,025	10,000	2,250	648	5,735	720	6,372
P8	35	1.378	7,500	1,688	15,000	3,375	18,000	4,050	1,140	10,089	1,368	12,107
P9	51	2.008	10,000	2,250	20,000	4,500	30,000	6,750	2,070	18,320	3,105	27,479

Z – Output Bearing Option, Radially Reinforced												
Unit No.	z_2		F_{2A}		F_{2R}		F_{2RB}		M_{2K}		M_{2KB}	
	mm	inches	N	lbs.	N	lbs.	N	lbs.	Nm	in.lbs.	Nm	in.lbs.
P3	21	.83	600	135	3,000	675	3,000	675	105	929	105	929
P4	22	.87	1,000	225	5,000	1,125	5,000	1,125	200	1,770	200	1,770
P5	23	.91	1,600	360	8,000	1,800	8,000	1,800	416	3,682	416	3,682
P7	26	1.02	2,000	450	10,000	2,250	10,000	2,250	670	5,929	670	5,929
P8	28	1.10	3,600	810	18,000	4,050	18,000	4,050	1,242	10,992	1,242	10,992
P9	40	1.58	5,000	1,125	27,000	6,075	35,000	7,875	2,500	22,125	3,238	28,656

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.

The permissible load values given are valid with the load applied to the center of the output shaft (x_2).



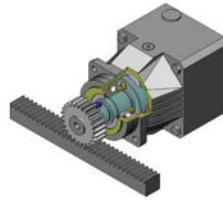
"P" Series ServoFit® Precision Planetary Gearhead Shaft Loads

Output Bearing Options

"R" – Deep Groove Ball Bearing

Characteristics:

Minimal frictional torque
Good Radial load capacity
Axial load approx. 35% of radial load



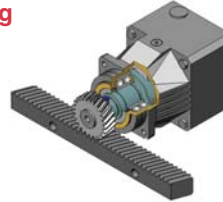
Applications:

Spur geared rack/pinion
Couplings
Belt with or without light tension

"D" – Double Row Angular Contact Ball Bearing

Characteristics:

Low frictional torque
Good radial bearing capacity
Axial load approx. 50% of radial load



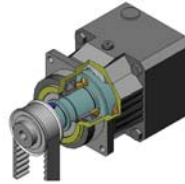
Applications:

Helical geared rack/pinion
Couplings with high axial load
Belt with or without light tension

"Z" – Cylindrical Roller Bearing

Characteristics:

Very good radial load capacity
Axial load approx. 20% of radial load



Applications:

Prestressed belt drive
Prestressed spur rack drive
Applications with high radial loads
and/or high service requirements

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 "Is" of the motor.

$$M_{1k} = F \times I_s \leq M_{1k}$$

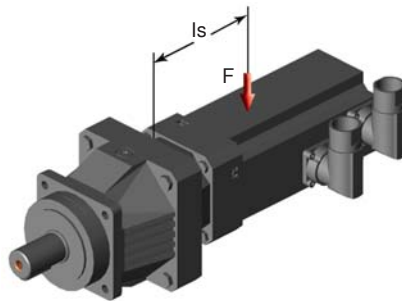


Table No. 2

M_{1k}

Unit Type with MT	Nm	inlbs.
P221, P222, P322	10	88.5
P321, P422	20	177
P421, P522	40	354
P521, P722	80	708
P721, P822	200	1,770
P821, P922	400	3,540
P921	800	7,080

No Load Running Torque

Table No. 3

"P" Series Input – T_R

Unit No.	Ratio																
	3	4	5	7	8	10	15	16	20	25	28	32	35	40	50	70	100
P2 in.lbs.	—	1.8	1.8	1.8	1.8	.9	—	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
Nm.		.2	.2	.2	.2	.1		.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
P3 in.lbs.	2.7	1.8	1.8	1.8	1.8	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
Nm.	.3	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
P4 in.lbs.	3.5	2.7	2.7	1.8	1.8	1.8	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
Nm.	.4	.3	.3	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
P5 in.lbs.	7.0	5.3	4.4	3.5	2.7	2.7	2.7	2.7	2.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Nm.	.8	.6	.5	.4	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2
P7 in.lbs.	8.0	6.2	5.3	4.4	3.5	3.5	2.7	2.7	2.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Nm.	.9	.7	.6	.5	.4	.4	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2
P8 in.lbs.	14.2	11.5	9.7	8.0	6.2	6.2	5.3	5.3	4.4	4.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Nm.	1.6	1.3	1.1	.9	.7	.7	.3	.6	.5	.5	.4	.4	.4	.4	.4	.4	.4
P9 in.lbs.	—	17.7	17.7	17.7	—	11	—	11	11	11	11	—	11	11	11	11	11
Nm.		2	2	2		1.25		1.25	1.25	1.25	1.25		1.25	1.25	1.25	1.25	1.25

The torque is measured with the input at 2000 RPM and an ambient temperature of 20° C.



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number (Gearhead + Input)	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Input ¹⁾ Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₁)			in.lbs.	Nm	Nominal ²⁾ M _{2N}		Acceleration M _{2B}		Peak ³⁾ M _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

P221 with Motor Mounting Plate

P221S_0040 MT	4.000	4,500	8,000	14	0.14	16.2	1.8	142	16	195	22	390	44
P221S_0040 MTL	4.000	4,500	8,000	19	0.61	16.8	1.9	142	16	195	22	390	44
P221S_0050 MT	5.000	4,500	8,000	14	0.12	16.4	1.9	142	16	195	22	390	44
P221S_0050 MTL	5.000	4,500	8,000	19	0.59	16.8	1.9	142	16	195	22	390	44
P221S_0070 MT	7.000	4,500	8,000	14	0.11	15.7	1.8	142	16	195	22	390	44
P221S_0070 MTL	7.000	4,500	8,000	19	0.57	15.9	1.8	142	16	195	22	390	44
P221S_0080 MT	8.000	4,500	8,000	14	0.10	14.9	1.7	124	14	159	18	319	36
P221S_0080 MTL	8.000	4,500	8,000	19	0.57	15.1	1.7	124	14	159	18	319	36
P221S_0100 MT	10.00	4,500	8,000	14	0.10	14.1	1.6	106	12	159	18	319	36
P221S_0100 MTL	10.00	4,500	8,000	19	0.56	14.2	1.6	106	12	159	18	319	36

P222 with Motor Mounting Plate

P222S_0160 MT	16.00	4,500	8,000	14	0.14	15.8	1.8	142	16	195	22	390	44
P222S_0160 MTL	16.00	4,500	8,000	19	0.61	15.8	1.8	142	16	195	22	390	44
P222S_0200 MT	20.00	4,500	8,000	14	0.14	16.2	1.8	142	16	195	22	390	44
P222S_0200 MTL	20.00	4,500	8,000	19	0.61	16.2	1.8	142	16	195	22	390	44
P222S_0250 MT	25.00	4,500	8,000	14	0.12	16.2	1.8	142	16	195	22	390	44
P222S_0250 MTL	25.00	4,500	8,000	19	0.59	16.2	1.8	142	16	195	22	390	44
P222S_0280 MT	28.00	4,500	8,000	14	0.11	15.8	1.8	142	16	195	22	390	44
P222S_0280 MTL	28.00	4,500	8,000	19	0.57	15.8	1.8	142	16	195	22	390	44
P222S_0320 MT	32.00	4,500	8,000	14	0.13	14.8	1.7	124	14	159	18	319	36
P222S_0320 MTL	32.00	4,500	8,000	19	0.60	14.9	1.7	124	14	159	18	319	36
P222S_0350 MT	35.00	4,500	8,000	14	0.11	16.1	1.8	142	16	195	22	390	44
P222S_0350 MTL	35.00	4,500	8,000	19	0.57	16.1	1.8	142	16	195	22	390	44
P222S_0400 MT	40.00	4,500	8,000	14	0.10	15.7	1.8	142	16	195	22	390	44
P222S_0400 MTL	40.00	4,500	8,000	19	0.56	15.7	1.8	142	16	195	22	390	44
P222S_0500 MT	50.00	4,500	8,000	14	0.10	16.1	1.8	142	16	195	22	390	44
P222S_0500 MTL	50.00	4,500	8,000	19	0.56	16.1	1.8	142	16	195	22	390	44
P222S_0700 MT	70.00	4,500	8,000	14	0.10	15.6	1.8	142	16	195	22	390	44
P222S_0700 MTL	70.00	4,500	8,000	19	0.56	15.6	1.8	142	16	195	22	390	44
P222S_1000 MT	100.0	4,500	8,000	14	0.10	14.0	1.6	106	12	159	18	319	36
P222S_1000 MTL	100.0	4,500	8,000	19	0.56	14.0	1.6	106	12	159	18	319	36

¹⁾ Inertia based on maximum input. For lower inertia using smaller diameter input, contact STOBER.

²⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (M_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$M_{2NX} = \frac{M_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

³⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



P

Part Number (Gearhead + Input)	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Input ¹⁾ Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₁)			Nominal ²⁾ M _{2N}		Acceleration M _{2B}		Peak ³⁾ M _{2PEAK}			
						in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		

P321 with Motor Mounting Plate

P321S_0030 MT	3.000	3,500	6,000	19	0.77	50.5	5.7	266	30	443	50	1,083	122
P321S_0030 MTL	3.000	3,500	6,000	24	1.45	50.5	5.7	266	30	443	50	1,083	122
P321S_0040 MT	4.000	3,700	6,500	19	0.69	46.9	5.3	399	45	576	65	1,152	130
P321S_0040 MTL	4.000	3,700	6,500	24	1.37	46.9	5.3	399	45	576	65	1,152	130
P321S_0050 MT	5.000	4,000	7,000	19	0.64	45.2	5.1	399	45	576	65	1,152	130
P321S_0050 MTL	5.000	4,000	7,000	24	1.32	45.2	5.1	399	45	576	65	1,152	130
P321S_0070 MT	7.000	4,500	8,000	19	0.59	39.0	4.4	399	45	531	60	1,152	130
P321S_0070 MTL	7.000	4,500	8,000	24	1.26	39.0	4.4	399	45	531	60	1,152	130
P321S_0080 MT	8.000	4,500	8,000	19	0.58	37.2	4.2	354	40	443	50	886	100
P321S_0080 MTL	8.000	4,500	8,000	24	1.25	37.2	4.2	354	40	443	50	886	100
P321S_0100 MT	10.00	4,500	8,000	19	0.57	35.4	4.0	266	30	443	50	886	100
P321S_0100 MTL	10.00	4,500	8,000	24	1.24	35.4	4.0	266	30	443	50	886	100

P322 with Motor Mounting Plate

P322S_0150 MT	15.00	4,500	8,000	14	0.14	39.7	4.5	266	30	443	50	1,082	122
P322S_0150 MTL	15.00	4,500	8,000	19	0.46	39.7	4.5	266	30	443	50	1,082	122
P322S_0160 MT	16.00	4,500	8,000	14	0.14	39.7	4.5	399	45	576	65	1,152	130
P322S_0160 MTL	16.00	4,500	8,000	19	0.61	40.0	4.5	399	45	576	65	1,152	130
P322S_0200 MT	20.00	4,500	8,000	14	0.14	40.6	4.6	399	45	576	65	1,152	130
P322S_0200 MTL	20.00	4,500	8,000	19	0.61	40.8	4.6	399	45	576	65	1,152	130
P322S_0250 MT	25.00	4,500	8,000	14	0.12	40.7	4.6	399	45	576	65	1,152	130
P322S_0250 MTL	25.00	4,500	8,000	19	0.59	40.8	4.6	399	45	576	65	1,152	130
P322S_0280 MT	28.00	4,500	8,000	14	0.11	39.5	4.5	399	45	576	65	1,152	130
P322S_0280 MTL	28.00	4,500	8,000	19	0.57	39.6	4.5	399	45	576	65	1,152	130
P322S_0320 MT	32.00	4,500	8,000	14	0.14	35.9	4.1	354	40	443	50	886	100
P322S_0320 MTL	32.00	4,500	8,000	19	0.61	36.0	4.1	354	40	443	50	886	100
P322S_0350 MT	35.00	4,500	8,000	14	0.11	40.5	4.6	399	45	576	65	1,152	130
P322S_0350 MTL	35.00	4,500	8,000	19	0.57	40.6	4.6	399	45	576	65	1,152	130
P322S_0400 MT	40.00	4,500	8,000	14	0.10	38.8	4.4	399	45	576	65	1,152	130
P322S_0400 MTL	40.00	4,500	8,000	19	0.56	38.9	4.4	399	45	576	65	1,152	130
P322S_0500 MT	50.00	4,500	8,000	14	0.10	40.0	4.5	399	45	576	65	1,152	130
P322S_0500 MTL	50.00	4,500	8,000	19	0.56	40.1	4.5	399	45	576	65	1,152	130
P322S_0700 MT	70.00	4,500	8,000	14	0.10	36.9	4.2	399	45	531	60	1,152	130
P322S_0700 MTL	70.00	4,500	8,000	19	0.56	36.9	4.2	399	45	531	60	1,152	130
P322S_1000 MT	100.0	4,500	8,000	14	0.10	34.6	3.9	266	30	443	50	886	100
P322S_1000 MTL	100.0	4,500	8,000	19	0.56	34.6	3.9	266	30	443	50	886	100

Index of Symbols: **MT** — Motor adapter with TriAdapt® coupling; **MF** — Motor adapter with FlexiAdapt® coupling; **L** — Large Input; **C** — ServoCool

See Page 6 for Options and Part Number Configuration.



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number (Gearhead + Input)	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Input ¹⁾ Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic			Nominal ²⁾		Acceleration		Peak ³⁾			
						M _{2N}	M _{2B}	M _{2N}	M _{2B}	M _{2PEAK}	M _{2PEAK}		
						in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

P421 with Motor Mounting Plate

P421S_0030 MT	3.000	3,000	5,500	24	1.94	110.7	12.5	443	50	886	100	2,126	240
P421S_0030 MTC	3.000	3,500	6,000	24	2.66	98.3	11.1	443	50	886	100	1,289	146
P421S_0030 MTL	3.000	3,000	5,500	32	4.16	110.7	12.5	443	50	886	100	2,126	240
P421S_0040 MT	4.000	3,300	6,000	24	1.54	106.3	12.0	753	85	1,063	120	2,126	240
P421S_0040 MTC	4.000	3,800	6,000	24	2.27	99.5	11.2	753	85	1,063	120	1,718	194
P421S_0040 MTL	4.000	3,300	6,000	32	3.77	106.3	12.0	753	85	1,063	120	2,126	240
P421S_0050 MT	5.000	3,700	6,500	24	1.44	103.6	11.7	753	85	1,063	120	2,126	240
P421S_0050 MTC	5.000	4,200	6,500	24	2.16	99.4	11.2	753	85	1,063	120	2,126	240
P421S_0050 MTL	5.000	3,700	6,500	32	3.66	103.6	11.7	753	85	1,063	120	2,126	240
P421S_0070 MT	7.000	4,000	7,000	24	1.31	89.5	10.1	753	85	974	110	2,126	240
P421S_0070 MTC	7.000	4,500	7,000	24	2.05	87.8	9.9	753	85	974	110	2,126	240
P421S_0070 MTL	7.000	4,000	7,000	32	3.57	89.5	10.1	753	85	974	110	2,126	240
P421S_0080 MT	8.000	4,000	7,000	24	1.29	84.2	9.5	709	80	886	100	1,772	200
P421S_0080 MTC	8.000	4,500	7,000	24	2.03	83.0	9.4	709	80	886	100	1,772	200
P421S_0080 MTL	8.000	4,000	7,000	32	3.55	84.2	9.5	709	80	886	100	1,772	200
P421S_0100 MT	10.00	4,000	7,000	24	1.27	79.7	9.0	531	60	886	100	1,772	200
P421S_0100 MTC	10.00	4,500	7,000	24	2.01	79.1	8.9	531	60	886	100	1,772	200
P421S_0100 MTL	10.00	4,000	7,000	32	3.53	79.7	9.0	531	60	886	100	1,772	200

P422 with Motor Mounting Plate

P422S_0150 MT	15.00	3,700	6,500	19	.52	92.2	10.4	443	50	885	100	2,124	240
P422S_0150 MTL	15.00	3,700	6,500	24	1.07	92.2	10.4	443	50	885	100	2,124	240
P422S_0160 MT	16.00	3,700	6,500	19	0.71	93.1	10.5	753	85	1,063	120	2,126	240
P422S_0160 MTL	16.00	3,700	6,500	24	1.39	93.1	10.5	753	85	1,063	120	2,126	240
P422S_0200 MT	20.00	3,700	6,500	19	0.70	95.2	10.8	753	85	1,063	120	2,126	240
P422S_0200 MTL	20.00	3,700	6,500	24	1.38	95.2	10.8	753	85	1,063	120	2,126	240
P422S_0250 MT	25.00	4,000	7,000	19	0.65	94.9	10.7	753	85	1,063	120	2,126	240
P422S_0250 MTL	25.00	4,000	7,000	24	1.33	94.9	10.7	753	85	1,063	120	2,126	240
P422S_0280 MT	28.00	4,500	8,000	19	0.60	90.8	10.3	753	85	1,063	120	2,126	240
P422S_0280 MTL	28.00	4,500	8,000	24	1.27	90.8	10.3	753	85	1,063	120	2,126	240
P422S_0320 MT	32.00	3,700	6,500	19	0.69	81.9	9.2	709	80	886	100	1,772	200
P422S_0320 MTL	32.00	3,700	6,500	24	1.37	81.9	9.2	709	80	886	100	1,772	200
P422S_0350 MT	35.00	4,500	8,000	19	0.60	93.7	10.6	753	85	1,063	120	2,126	240
P422S_0350 MTL	35.00	4,500	8,000	24	1.27	93.7	10.6	753	85	1,063	120	2,126	240
P422S_0400 MT	40.00	4,500	8,000	19	0.58	89.5	10.1	753	85	1,063	120	2,126	240
P422S_0400 MTL	40.00	4,500	8,000	24	1.25	89.5	10.1	753	85	1,063	120	2,126	240
P422S_0500 MT	50.00	4,500	8,000	19	0.58	92.8	10.5	753	85	1,063	120	2,126	240
P422S_0500 MTL	50.00	4,500	8,000	24	1.25	92.8	10.5	753	85	1,063	120	2,126	240
P422S_0700 MT	70.00	4,500	8,000	19	0.58	85.1	9.6	753	85	974	110	2,126	240
P422S_0700 MTL	70.00	4,500	8,000	24	1.25	85.1	9.6	753	85	974	110	2,126	240
P422S_1000 MT	100.0	4,500	8,000	19	0.58	78.0	8.8	531	60	886	100	1,772	200
P422S_1000 MTL	100.0	4,500	8,000	24	1.25	78.0	8.8	531	60	886	100	1,772	200

¹⁾ Inertia based on maximum input. For lower inertia using smaller diameter input, contact STOBER.

²⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (M_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$M_{2NX} = \frac{M_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

³⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"P" Series

ServoFit® Precision Planetary Gearhead

Selection Data



Part Number (Gearhead + Input)	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft ØD ⁶ mm	Input ¹⁾ Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n _i)	Cyclic RPM			in.lbs.	Nm	Nominal ²⁾ M _{2N}		Acceleration M _{2B}		Peak ³⁾ M _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

P521 with Motor Mounting Plate

P521S_0030 MT	3.000	2,500	4,500	32	4.76	321.5	36.3	1,063	120	1,772	200	3,686	416
P521S_0030 MTC	3.000	3,500	6,000	32	6.98	262.7	29.7	1,063	120	1,772	200	2,294	259
P521S_0030 MTL	3.000	2,500	4,500	38	7.79	321.5	36.3	1,063	120	1,772	200	3,686	416
P521S_0040 MT	4.000	3,000	5,000	32	4.55	284.3	32.1	1,860	210	2,657	300	4,915	555
P521S_0040 MTC	4.000	4,000	6,000	32	6.77	255.8	28.9	1,860	210	2,447	276	3,059	345
P521S_0040 MTL	4.000	3,000	5,000	38	7.57	284.3	32.1	1,860	210	2,657	300	4,915	555
P521S_0050 MT	5.000	3,500	6,000	32	4.14	275.5	31.1	1,860	210	2,657	300	5,315	600
P521S_0050 MTC	5.000	4,500	6,000	32	6.36	257.7	29.1	1,860	210	2,657	300	3,824	432
P521S_0050 MTL	5.000	3,500	6,000	38	7.16	275.5	31.1	1,860	210	2,657	300	5,315	600
P521S_0070 MT	7.000	3,700	6,500	32	3.74	248.0	28.0	1,860	210	2,392	270	5,315	600
P521S_0070 MTC	7.000	4,500	6,500	32	5.98	240.4	27.1	1,860	210	2,392	270	5,315	600
P521S_0070 MTL	7.000	3,700	6,500	38	6.79	248.0	28.0	1,860	210	2,392	270	5,315	600
P521S_0080 MT	8.000	3,700	6,500	32	3.67	230.3	26.0	1,772	200	2,215	250	4,429	500
P521S_0080 MTC	8.000	5,000	6,500	32	5.91	225.2	25.4	1,772	200	2,215	250	4,429	500
P521S_0080 MTL	8.000	3,700	6,500	38	6.72	230.3	26.0	1,772	200	2,215	250	4,429	500
P521S_0100 MT	10.00	3,700	6,500	32	3.61	221.5	25.0	1,240	140	2,215	250	4,429	500
P521S_0100 MTC	10.00	5,500	6,500	32	5.85	218.4	24.7	1,240	140	2,215	250	4,429	500
P521S_0100 MTL	10.00	3,700	6,500	38	6.66	221.5	25.0	1,240	140	2,215	250	4,429	500

P522 with Motor Mounting Plate Continued Next Page

P522S_0150MT	15.00	3,300	6,000	24	1.22	241.5	27.3	1,062	120	1,770	200	3,683	416
P522S_0150MTC	15.00	3,800	6,000	24	2.29	241.5	27.3	1,062	120	1,770	200	3,683	416
P522S_0150MTL	15.00	3,300	6,000	32	3.13	241.5	27.3	1,062	120	1,770	200	3,683	416
P522S_0160 MT	16.00	3,300	6,000	24	1.59	243.6	27.5	1,860	210	2,657	300	4,915	555
P522S_0160 MTC	16.00	3,800	6,000	24	2.32	241.3	27.2	1,860	210	2,657	300	4,915	555
P522S_0160 MTL	16.00	3,300	6,000	32	3.82	243.6	27.5	1,860	210	2,657	300	4,915	555
P522S_0200 MT	20.00	3,300	6,000	24	1.57	249.6	28.2	1,860	210	2,657	300	5,315	600
P522S_0200 MTC	20.00	3,800	6,000	24	2.29	248.0	28.0	1,860	210	2,657	300	5,315	600
P522S_0200 MTL	20.00	3,300	6,000	32	3.79	249.6	28.2	1,860	210	2,657	300	5,315	600
P522S_0250 MT	25.00	3,700	6,500	24	1.46	249.0	28.1	1,860	210	2,657	300	5,315	600
P522S_0250 MTC	25.00	4,200	6,500	24	2.18	248.0	28.0	1,860	210	2,657	300	5,315	600
P522S_0250 MTL	25.00	3,700	6,500	32	3.68	249.0	28.1	1,860	210	2,657	300	5,315	600
P522S_0280 MT	28.00	4,000	7,000	24	1.34	237.2	26.8	1,860	210	2,657	300	4,915	555
P522S_0280 MTC	28.00	4,500	7,000	24	2.08	236.5	26.7	1,860	210	2,657	300	4,915	555
P522S_0280 MTL	28.00	4,000	7,000	32	3.60	237.2	26.8	1,860	210	2,657	300	4,915	555
P522S_0320 MT	32.00	3,300	6,000	24	1.54	222.8	25.1	1,772	200	2,215	250	4,429	500
P522S_0320 MTC	32.00	3,800	6,000	24	2.27	222.3	25.1	1,772	200	2,215	250	4,429	500
P522S_0320 MTL	32.00	3,300	6,000	32	3.76	222.8	25.1	1,772	200	2,215	250	4,429	500
P522S_0350 MT	35.00	4,000	7,000	24	1.33	245.3	27.7	1,860	210	2,657	300	5,315	600
P522S_0350 MTC	35.00	4,500	7,000	24	2.07	244.8	27.6	1,860	210	2,657	300	5,315	600
P522S_0350 MTL	35.00	4,000	7,000	32	3.59	245.3	27.7	1,860	210	2,657	300	5,315	600
P522S_0400 MT	40.00	4,000	7,000	24	1.28	232.5	26.2	1,860	210	2,657	300	4,915	555
P522S_0400 MTC	40.00	4,500	7,000	24	2.03	232.2	26.2	1,860	210	2,657	300	4,915	555
P522S_0400 MTL	40.00	4,000	7,000	32	3.55	232.5	26.2	1,860	210	2,657	300	4,915	555
P522S_0500 MT	50.00	4,000	7,000	24	1.28	242.0	27.3	1,860	210	2,657	300	5,315	600
P522S_0500 MTC	50.00	4,500	7,000	24	2.02	241.8	27.3	1,860	210	2,657	300	5,315	600
P522S_0500 MTL	50.00	4,000	7,000	32	3.54	242.0	27.3	1,860	210	2,657	300	5,315	600

Index of Symbols: MT — Motor adapter with TriAdapt® coupling; MF — Motor adapter with FlexiAdapt® coupling; L — Large Input; C — ServoCool

See Page 6 for Options and Part Number Configuration.



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number (Gearhead + Input)	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Input ¹⁾ Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₂)			Nominal ²⁾		Acceleration		Peak ³⁾			
						M _{2N}	M _{2B}	M _{2B}	M _{2PEAK}	M _{2PEAK}	M _{2PEAK}		
						in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

P522 with Motor Mounting Plate Continued

P522S_0700 MT	70.00	4,000	7,000	24	1.27	233.2	26.3	1,860	210	2,392	270	5,315	600
P522S_0700 MTC	70.00	4,500	7,000	24	2.02	233.1	26.3	1,860	210	2,392	270	5,315	600
P522S_0700 MTL	70.00	4,000	7,000	32	3.54	233.2	26.3	1,860	210	2,392	270	5,315	600
P522S_1000 MT	100.0	4,000	7,000	24	1.27	215.5	24.3	1,240	140	2,215	250	4,429	500
P522S_1000 MTC	100.0	4,500	7,000	24	2.02	215.4	24.3	1,240	140	2,215	250	4,429	500
P522S_1000 MTL	100.0	4,000	7,000	32	3.54	215.5	24.3	1,240	140	2,215	250	4,429	500

P721 with Motor Mounting Plate

P721S_0030 MT	3.000	2,200	3,700	38	14.81	571.3	64.5	2,480	280	4,429	500	9,177	1,036
P721S_0030 MTC	3.000	3,000	6,000	38	26.04	484.5	54.7	2,480	280	4,429	500	9,177	1,036
P721S_0030 MTL	3.000	2,200	3,700	48	32.66	571.3	64.5	2,480	280	4,429	500	9,177	1,036
P721S_0040 MT	4.000	2,500	4,500	38	10.09	531.5	60.0	3,898	440	6,201	700	12,235	1,381
P721S_0040 MTC	4.000	3,300	6,000	38	21.33	485.9	54.9	3,898	440	6,201	700	12,235	1,381
P721S_0040 MTL	4.000	2,500	4,500	48	27.94	531.5	60.0	3,898	440	6,201	700	12,235	1,381
P721S_0050 MT	5.000	3,000	5,500	38	8.55	509.3	57.5	3,898	440	6,201	700	12,401	1,400
P721S_0050 MTC	5.000	3,800	6,000	38	19.79	481.6	54.4	3,898	440	6,201	700	12,401	1,400
P721S_0050 MTL	5.000	3,000	5,500	48	26.40	509.3	57.5	3,898	440	6,201	700	12,401	1,400
P721S_0070 MT	7.000	3,300	6,000	38	7.55	487.2	55.0	3,898	440	5,758	650	11,127	1,256
P721S_0070 MTC	7.000	4,500	6,000	38	18.46	470.7	53.1	3,898	440	5,758	650	11,127	1,256
P721S_0070 MTL	7.000	3,300	6,000	48	25.86	487.2	55.0	3,898	440	5,758	650	11,127	1,256
P721S_0080 MT	8.000	3,300	6,000	38	7.29	469.5	53.0	3,543	400	4,429	500	8,858	1,000
P721S_0080 MTC	8.000	5,000	6,000	38	18.20	457.6	51.7	3,543	400	4,429	500	8,858	1,000
P721S_0080 MTL	8.000	3,300	6,000	48	25.60	469.5	53.0	3,543	400	4,429	500	8,858	1,000
P721S_0100 MT	10.00	3,300	6,000	38	7.05	438.5	49.5	2,657	300	4,429	500	8,858	1,000
P721S_0100 MTC	10.00	5,000	6,000	38	17.95	431.8	48.7	2,657	300	4,429	500	8,858	1,000
P721S_0100 MTL	10.00	3,300	6,000	48	25.35	438.5	49.5	2,657	300	4,429	500	8,858	1,000

P722 with Motor Mounting Plate Continued Next Page

P722S_0150 MT	15.00	3,000	5,000	32	3.04	470.4	53.1	2,478	280	4,429	500	9,168	1,036
P722S_0150 MTC	15.00	4,000	6,000	32	5.56	470.4	53.1	2,478	280	4,429	500	9,168	1,036
P722S_0150 MTL	15.00	3,000	5,000	38	6.76	470.4	53.1	2,478	280	4,429	500	9,168	1,036
P722S_0160 MT	16.00	3,000	5,000	32	4.63	475.9	53.7	3,898	440	6,201	700	12,235	1,381
P722S_0160 MTC	16.00	4,000	6,000	32	6.85	470.4	53.1	3,898	440	6,201	700	11,868	1,340
P722S_0160 MTL	16.00	3,000	5,000	38	7.66	475.9	53.7	3,898	440	6,201	700	12,235	1,381
P722S_0200 MT	20.00	3,000	5,000	32	4.54	475.3	53.7	3,898	440	6,201	700	12,401	1,400
P722S_0200 MTC	20.00	4,000	6,000	32	6.76	471.8	53.3	3,898	440	6,201	700	12,401	1,400
P722S_0200 MTL	20.00	3,000	5,000	38	7.57	475.3	53.7	3,898	440	6,201	700	12,401	1,400
P722S_0250 MT	25.00	3,500	6,000	32	4.14	474.3	53.5	3,898	440	6,201	700	12,401	1,400
P722S_0250 MTC	25.00	4,500	6,000	32	6.36	472.0	53.3	3,898	440	6,201	700	12,401	1,400
P722S_0250 MTL	25.00	3,500	6,000	38	7.17	474.3	53.5	3,898	440	6,201	700	12,401	1,400
P722S_0280 MT	28.00	3,700	6,500	32	3.83	468.7	52.9	3,898	440	6,201	700	12,235	1,381
P722S_0280 MTC	28.00	4,500	6,500	32	6.07	466.9	52.7	3,898	440	6,201	700	12,235	1,381
P722S_0280 MTL	28.00	3,700	6,500	38	6.88	468.7	52.9	3,898	440	6,201	700	12,235	1,381
P722S_0320 MT	32.00	3,000	5,000	32	4.46	457.7	51.7	3,543	400	4,429	500	8,858	1,000
P722S_0320 MTC	32.00	4,000	5,000	32	6.68	456.4	51.5	3,543	400	4,429	500	8,858	1,000
P722S_0320 MTL	32.00	3,000	5,000	38	7.49	457.7	51.7	3,543	400	4,429	500	8,858	1,000

¹⁾ Inertia based on maximum input. For lower inertia using smaller diameter input, contact STOBER.

²⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (M_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$M_{2NX} = \frac{M_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

³⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



P

Part Number (Gearhead + Input)	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Input ¹⁾ Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n _i)	Cyclic RPM (n _i)			in.lbs. Nm	in.lbs. Nm	Nominal ²⁾ M _{2N}		Acceleration M _{2B}		Peak ³⁾ M _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

P722 with Motor Mounting Plate *Continued*

P722S_0350 MT	35.00	3,700	6,500	32	3.80	470.7	53.1	3,898	440	6,201	700	12,401	1,400
P722S_0350 MTC	35.00	4,500	6,500	32	6.04	469.5	53.0	3,898	440	6,201	700	12,401	1,400
P722S_0350 MTL	35.00	3,700	6,500	38	6.85	470.7	53.1	3,898	440	6,201	700	12,401	1,400
P722S_0400 MT	40.00	3,700	6,500	32	3.65	462.2	52.2	3,898	440	6,201	700	12,235	1,381
P722S_0400 MTC	40.00	5,000	6,500	32	5.90	461.3	52.1	3,898	440	6,201	700	12,235	1,381
P722S_0400 MTL	40.00	3,700	6,500	38	6.70	462.2	52.2	3,898	440	6,201	700	12,235	1,381
P722S_0500 MT	50.00	3,700	6,500	32	3.64	466.4	52.7	3,898	440	6,201	700	12,401	1,400
P722S_0500 MTC	50.00	5,000	6,500	32	5.88	465.9	52.6	3,898	440	6,201	700	12,401	1,400
P722S_0500 MTL	50.00	3,700	6,500	38	6.69	466.4	52.7	3,898	440	6,201	700	12,401	1,400
P722S_0700 MT	70.00	3,700	6,500	32	3.63	466.3	52.6	3,898	440	5,758	650	11,127	1,256
P722S_0700 MTC	70.00	5,000	6,500	32	5.87	466.0	52.6	3,898	440	5,758	650	11,127	1,256
P722S_0700 MTL	70.00	3,700	6,500	38	6.68	466.3	52.6	3,898	440	5,758	650	11,127	1,256
P722S_1000 MT	100.0	3,700	6,500	32	3.62	430.0	48.5	2,657	300	4,429	500	8,858	1,000
P722S_1000 MTC	100.0	5,000	6,500	32	5.86	429.8	48.5	2,657	300	4,429	500	8,858	1,000
P722S_1000 MTL	100.0	3,700	6,500	38	6.67	430.0	48.5	2,657	300	4,429	500	8,858	1,000

P821 with Motor Mounting Plate

P821S_0030 MT	3.000	1,800	3,000	48	65.03	1,948.8	220.0	7,086	800	10,630	1,200	17,064	1,926
P821S_0030 MTC	3.000	2,500	4,500	48	86.28	1,464.9	165.4	7,086	800	10,630	1,200	15,518	1,752
P821S_0030 MTL	3.000	1,800	3,000	60	92.59	1,787.0	201.7	7,086	800	10,630	1,200	17,064	1,926
P821S_0040 MT	4.000	2,200	3,500	48	41.18	1,815.9	205.0	7,086	800	14,173	1,600	22,752	2,569
P821S_0040 MTC	4.000	3,000	5,000	48	62.44	1,547.9	174.7	7,086	800	14,173	1,600	20,690	2,336
P821S_0040 MTL	4.000	2,200	3,500	60	68.75	1,733.6	195.7	7,086	800	14,173	1,600	22,752	2,569
P821S_0050 MT	5.000	2,500	4,000	48	34.36	1,718.5	194.0	8,858	1,000	14,173	1,600	28,346	3,200
P821S_0050 MTC	5.000	3,500	6,000	48	55.62	1,555.4	175.6	8,858	1,000	14,173	1,600	25,863	2,920
P821S_0050 MTL	5.000	2,500	4,000	60	57.31	1,670.4	188.6	8,858	1,000	14,173	1,600	28,346	3,200
P821S_0070 MT	7.000	2,800	4,500	48	29.23	1,563.4	176.5	8,858	1,000	12,401	1,400	24,900	2,811
P821S_0070 MTC	7.000	4,000	6,000	48	50.96	1,478.9	167.0	8,858	1,000	12,401	1,400	24,900	2,811
P821S_0070 MTL	7.000	2,800	4,500	60	57.24	1,542.9	174.2	8,858	1,000	12,401	1,400	24,900	2,811
P821S_0080 MT	8.000	2,800	4,500	48	27.99	1,472.2	166.2	7,086	800	10,630	1,200	21,259	2,400
P821S_0080 MTC	8.000	4,500	6,000	48	49.72	1,413.9	159.6	7,086	800	10,630	1,200	21,259	2,400
P821S_0080 MTL	8.000	2,800	4,500	60	56.00	1,458.2	164.6	7,086	800	10,630	1,200	21,259	2,400
P821S_0100 MT	10.00	2,800	4,500	48	26.82	1,355.3	153.0	6,201	700	10,630	1,200	21,259	2,400
P821S_0100 MTC	10.00	4,500	6,000	48	48.55	1,323.1	149.4	6,201	700	10,630	1,200	21,259	2,400
P821S_0100 MTL	10.00	2,800	4,500	60	54.84	1,347.6	152.1	6,201	700	10,630	1,200	21,259	2,400

P822 with Motor Mounting Plate *Continued Next Page*

P822S_0150 MT	15.00	2,500	4,500	38	8.65	1,470.7	166.2	7,086	800	10,620	1,200	17,049	1,926
P822S_0150 MTC	15.00	3,300	6,000	38	11.85	1,470.7	166.2	7,086	800	10,620	1,200	17,049	1,926
P822S_0150 MTL	15.00	2,500	4,500	48	26.63	1,470.7	166.2	7,086	800	10,620	1,200	17,049	1,926
P822S_0160 MT	16.00	2,500	4,500	38	10.65	1,496.4	168.9	7,086	800	14,173	1,600	28,346	3,200
P822S_0160 MTC	16.00	3,300	6,000	38	21.89	1,472.1	166.2	7,086	800	14,173	1,600	28,346	3,200
P822S_0160 MTL	16.00	2,500	4,500	48	28.50	1,496.4	168.9	7,086	800	14,173	1,600	28,346	3,200
P822S_0200 MT	20.00	2,500	4,500	38	10.22	1,521.7	171.8	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0200 MTC	20.00	3,300	6,000	38	21.46	1,505.5	170.0	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0200 MTL	20.00	2,500	4,500	48	28.07	1,521.7	171.8	8,858	1,000	14,173	1,600	28,346	3,200

Index of Symbols: **MT** — Motor adapter with TriAdapt® coupling; **MF** — Motor adapter with FlexiAdapt® coupling; **L** — Large Input; **C** — ServoCool

See Page 6 for Options and Part Number Configuration.



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number (Gearhead + Input)	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Input ¹⁾ Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic			Nominal ²⁾		Acceleration		Peak ³⁾			
						M _{2N}	M _{2B}	M _{2N}	M _{2B}	M _{2PEAK}			

P822 with Motor Mounting Plate *Continued*

P822S_0250 MT	25.00	3,000	5,500	38	8.83	1,514.1	170.9	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0250 MTC	25.00	3,800	6,000	38	20.07	1,503.8	169.8	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0250 MTL	25.00	3,000	5,500	48	26.68	1,514.1	170.9	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0280 MT	28.00	3,300	6,000	38	7.81	1,472.8	166.3	7,086	800	14,173	1,600	28,346	3,200
P822S_0280 MTC	28.00	4,300	6,000	38	18.71	1,463.1	165.2	7,086	800	14,173	1,600	28,346	3,200
P822S_0280 MTL	28.00	3,300	6,000	48	26.11	1,472.8	166.3	7,086	800	14,173	1,600	28,346	3,200
P822S_0320 MT	32.00	2,500	4,500	38	9.85	1,411.1	159.3	7,086	800	10,630	1,200	21,259	2,400
P822S_0320 MTC	32.00	3,300	6,000	38	21.09	1,405.7	158.7	7,086	800	10,630	1,200	21,259	2,400
P822S_0320 MTL	32.00	2,500	4,500	48	27.70	1,411.1	159.3	7,086	800	10,630	1,200	21,259	2,400
P822S_0350 MT	35.00	3,300	6,000	38	7.67	1,506.0	170.0	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0350 MTC	35.00	4,300	6,000	38	18.58	1,499.5	169.3	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0350 MTL	35.00	3,300	6,000	48	25.97	1,506.0	170.0	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0400 MT	40.00	3,300	6,000	38	7.17	1,442.5	162.8	7,086	800	14,173	1,600	28,346	3,200
P822S_0400 MTC	40.00	4,500	6,000	38	18.08	1,437.9	162.3	7,086	800	14,173	1,600	28,346	3,200
P822S_0400 MTL	40.00	3,300	6,000	48	25.47	1,442.5	162.8	7,086	800	14,173	1,600	28,346	3,200
P822S_0500 MT	50.00	3,300	6,000	38	7.10	1,485.6	167.7	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0500 MTC	50.00	4,500	6,000	38	18.01	1,482.5	167.4	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0500 MTL	50.00	3,300	6,000	48	25.40	1,485.6	167.7	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0700 MT	70.00	3,300	6,000	38	7.06	1,457.4	164.5	8,858	1,000	12,401	1,400	24,900	2,811
P822S_0700 MTC	70.00	4,500	6,000	38	17.96	1,455.9	164.4	8,858	1,000	12,401	1,400	24,900	2,811
P822S_0700 MTL	70.00	3,300	6,000	48	25.36	1,457.4	164.5	8,858	1,000	12,401	1,400	24,900	2,811
P822S_1000 MT	100.0	3,300	6,000	38	7.03	1,314.6	148.4	6,201	700	10,630	1,200	21,259	2,400
P822S_1000 MTC	100.0	4,500	6,000	38	17.94	1,314.0	148.3	6,201	700	10,630	1,200	21,259	2,400
P822S_1000 MTL	100.0	3,300	6,000	48	25.33	1,314.6	148.4	6,201	700	10,630	1,200	21,259	2,400

¹⁾ Inertia based on maximum input. For lower inertia using smaller diameter input, contact STOBER.

²⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (M_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$M_{2NX} = \frac{M_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

³⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number (Gearhead + Input)	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Input ¹⁾ Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin		Output Torque					
		Continuous RPM (n _i)	Cyclic			C ₂		Nominal ²⁾		Acceleration		Peak ³⁾	
						in.lbs.	Nm	M _{2N}	Nm	M _{2B}	Nm	M _{2PEAK}	Nm
P921 with Motor Mounting Plate													
P921S_0040 MT	4.000	2,000	3,000	60	98.17	3,093.9	349.3	17,716	2,000	26,574	3,000	48,117	5,432
P921S_0040 MTC	4.000	3,000	4,500	60	105.81	3,093.9	349.3	17,716	2,000	26,574	3,000	51,554	5,820
P921S_0050 MT	5.000	2,200	3,500	60	80.39	3,027.4	341.8	17,716	2,000	26,574	3,000	53,148	6,000
P921S_0050 MTC	5.000	3,500	5,000	60	88.03	3,027.4	341.8	17,716	2,000	26,574	3,000	53,148	6,000
P921S_0070 MT	7.000	2,500	4,000	60	67.08	2,852.0	322.0	17,716	2,000	23,917	2,700	47,833	5,400
P921S_0070 MTC	7.000	4,000	5,000	60	74.72	2,852.0	322.0	17,716	2,000	23,917	2,700	47,833	5,400
P921S_0100 MT	10.00	2,500	4,000	60	59.46	2,281.1	257.5	12,401	1,400	17,716	2,000	35,432	4,000
P921S_0100 MTC	10.00	4,000	5,000	60	67.09	2,281.1	257.5	12,401	1,400	17,716	2,000	35,432	4,000

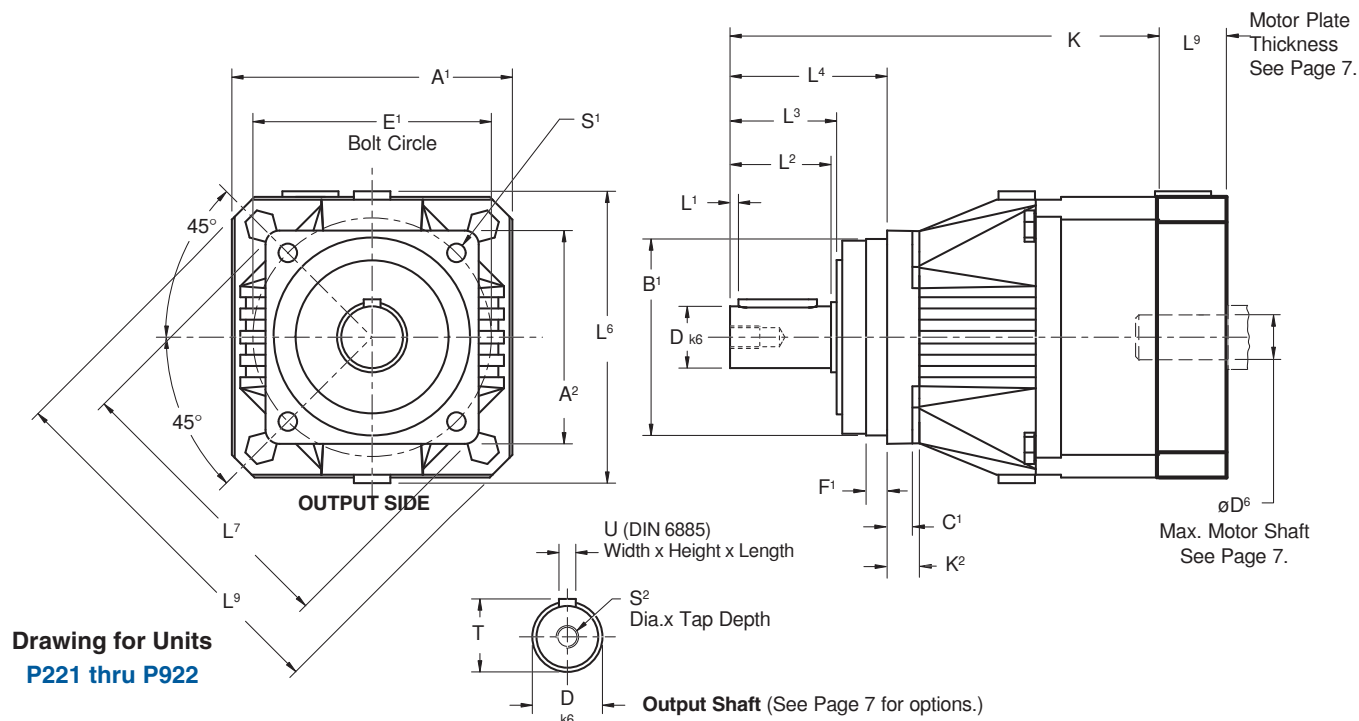
P922 with Motor Mounting Plate													
P922S_0160 MT	16.00	2,200	3,500	48	42.16	3,016.6	340.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0160 MTC	16.00	3,000	5,000	48	63.41	2,963.3	334.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0160 MTL	16.00	2,200	3,500	60	69.72	3,001.8	338.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0200 MT	20.00	2,200	3,500	48	41.04	2,979.6	336.4	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0200 MTC	20.00	3,000	5,000	48	62.30	2,946.1	332.6	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0200 MTL	20.00	2,200	3,500	60	68.61	2,970.3	335.3	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0250 MT	25.00	2,500	4,000	48	34.78	2,968.5	335.1	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0250 MTC	25.00	3,500	6,000	48	56.04	2,947.2	332.7	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0250 MTL	25.00	2,500	4,000	60	62.35	2,962.7	334.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0280 MT	28.00	2,800	4,500	48	29.81	2,966.8	334.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0280 MTC	28.00	3,750	5,000	48	51.54	2,946.8	332.7	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0280 MTL	28.00	2,800	4,500	60	57.82	2,962.1	334.4	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0350 MT	35.00	2,800	4,500	48	29.45	2,948.3	332.8	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0350 MTC	35.00	3,750	6,000	48	51.18	2,935.7	331.4	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0350 MTL	35.00	2,800	4,500	60	57.46	2,945.4	332.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0400 MT	40.00	2,800	4,500	48	26.78	2,913.7	328.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0400 MTC	40.00	4,000	6,000	48	48.51	2,904.3	327.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0400 MTL	40.00	2,800	4,500	60	54.79	2,911.5	328.7	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0500 MT	50.00	2,800	4,500	48	26.60	2,914.6	329.0	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0500 MTC	50.00	4,000	6,000	48	48.33	2,908.5	328.3	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0500 MTL	50.00	2,800	4,500	60	54.61	2,913.1	328.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0700 MT	70.00	2,800	4,500	48	26.47	2,799.9	316.1	17,716	2,000	23,917	2,700	47,833	5,400
P922S_0700 MTC	70.00	4,000	6,000	48	48.20	2,797.0	315.8	17,716	2,000	23,917	2,700	47,833	5,400
P922S_0700 MTL	70.00	2,800	4,500	60	54.48	2,799.2	316.0	17,716	2,000	23,917	2,700	47,833	5,400
P922S_1000 MT	100.0	2,800	4,500	48	26.39	2,264.6	255.7	12,401	1,400	17,716	2,000	35,432	4,000
P922S_1000 MTC	100.0	4,000	6,000	48	48.12	2,263.7	255.6	12,401	1,400	17,716	2,000	35,432	4,000
P922S_1000 MTL	100.0	2,800	4,500	60	54.40	2,264.4	255.6	12,401	1,400	17,716	2,000	35,432	4,000

Index of Symbols: **MT** — Motor adapter with TriAdapt® coupling; **MF** — Motor adapter with FlexiAdapt® coupling; **L** — Large Input; **C** — ServoCool

See Page 6 for Options and Part Number Configuration.



"P" Series ServoFit® Precision Planetary Gearhead Dimensional Data



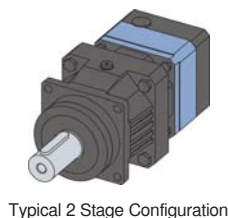
**Drawing for Units
P221 thru P922**

Table No. 1 "P" Series – Precision Planetary Gearhead Dimensions (mm)

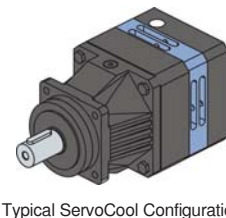
Unit	A ¹	A ²	B ¹	h ₆	C ¹	D _{k6}	E ¹	F ¹	K ²	L ¹	L ²	L ³	L ⁴	L ⁶	L ⁷	L ⁸	S ¹	S ²	T	U
P221/P222	55	55	50	+0.00/-0.019	6	12 +0.012/+0.001	63	7	—	2	22	24	36	62	74	80	5.5	M4x10	13.5	A4x4x18
P321/P322	72	72	60	+0.00/-0.019	7	16 +0.012/+0.001	75	7.5	—	2	28	30	48	79	92	92	5.5	M5x12.5	18	A5x5x22
P421/P422	98	76	70	+0.00/-0.019	9	22 +0.015/+0.002	85	7.5	12	3	36	38	56	98	103.3	130	6.6	M8x19	24.5	A6x6x28
P521/P522	115	101	90	+0.00/-0.022	10	32 +0.018/+0.002	120	15	14	3	58	60	88	121	139	149	9	M12x28	35	A10x8x50
P721/P722	145	145	130	+0.00/-0.025	15	40 +0.018/+0.002	165	3.5	—	4	82	85	112	145	—	190	11	M16x36	43	A12x8x70
P821/P822	190	190	160	+0.00/-0.025	15	55 +0.021/+0.002	215	10	—	6	82	85	112	190	—	250	13.5	M20x42	59	A16x10x70
P921/P922	225	212	180	+0.00/-0.025	17	75 +0.021/+0.002	250	10	22	7	105	109	143	225	285	300	17.5	M20x42	79.5	A20x12x90

Table No. 2

	K Dimension (mm)		
	Standard	ServoCool	
P221	94.5	—	—
P222	126.5	—	—
P321	135	—	—
P322	158.5	—	—
P421	153	P421_C	176.5
P422	200.5	—	—
P521	193	P521_C	221
P522	242.5	P522_C	266
P721	242	P721_C	272
P722	294	P722_C	322
P821	283	P821_C	331
P822	350.5	P822_C	380.5
P921	353	P921_C	418
P922	441	P922_C	489



Typical 2 Stage Configuration



Typical ServoCool Configuration

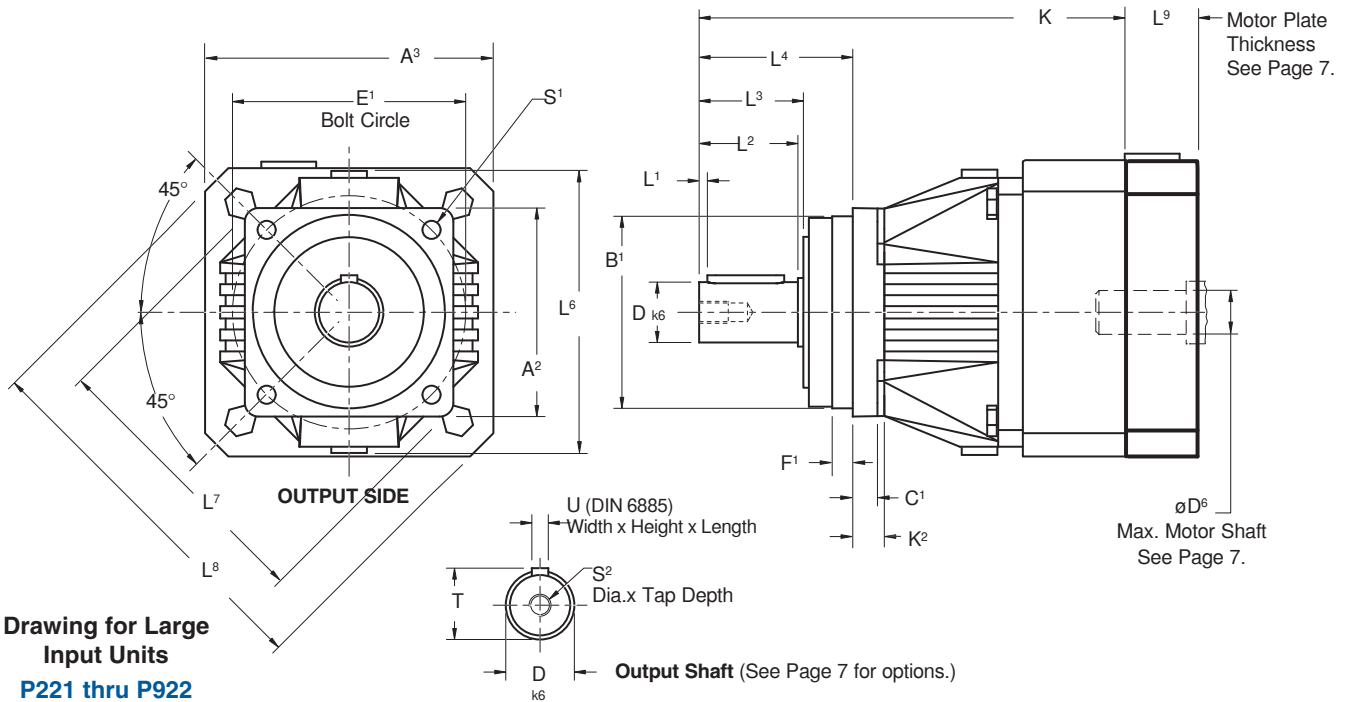
Part No. Example
P421SPR0030MTC



"P" Series – Large Input ServoFit® Precision Planetary Gearhead Dimensional Data



P



Drawing for Large Input Units
P221 thru P922

Table No. 1 "P" Series – Large Input – Precision Planetary Gearhead Dimensions (mm)

Unit	A²	B¹	h6	C¹	D	k6	E¹	F¹	K²	L¹	L²	L³	L⁴	L⁶	L⁷	S¹	S²	T	U
P221/P222_L	55	50	+0.000/-0.019	6	12	+0.012/+0.001	63	7	—	2	22	24	36	92	74	5.5	M4x10	13.5	A4x4x18
P321/P322_L	72	60	+0.000/-0.019	7	16	+0.012/+0.001	75	7.5	—	2	28	30	48	130	92	5.5	M5x12.5	18	A5x5x22
P421/P422_L	76	70	+0.000/-0.019	9	22	+0.015/+0.002	85	7.5	12	3	36	38	56	149	103.3	6.6	M8x19	24.5	A6x6x28
P521/P522_L	101	90	+0.000/-0.022	10	32	+0.018/+0.002	120	15	14	3	58	60	88	190	139	9	M12x28	35	A10x8x50
P721/P722_L	145	130	+0.000/-0.025	15	40	+0.018/+0.002	165	3.5	—	4	82	85	112	250	—	11	M16x36	43	A12x8x70
P821/P822_L	190	160	+0.000/-0.025	15	55	+0.021/+0.002	215	10	—	6	82	85	112	190	—	13.5	M20x42	59	A16x10x70
P922_L	212	180	+0.000/-0.025	17	75	+0.021/+0.002	250	10	22	7	105	109	143	225	285	17.5	M20x42	79.5	A20x12x90



Typical 2 Stage Configuration
Large Input

Part No. Example
P421SPR0030MTL

Table No. 2

Unit	A³	K	L⁸
P221_L	75	111	100
P222_L	75	143	100
P321_L	100	138.3	130
P322_L	75	175	100
P421_L	115	161.5	149
P422_L	100	203.8	130
P521_L	145	207	190
P522_L	115	251	149
P721_L	190	259	250
P722_L	145	308	190
P821_L	225	291	300
P822_L	190	367.5	250
P922_L	225	449	300

See Page 6 for Options and Part Number Configuration.