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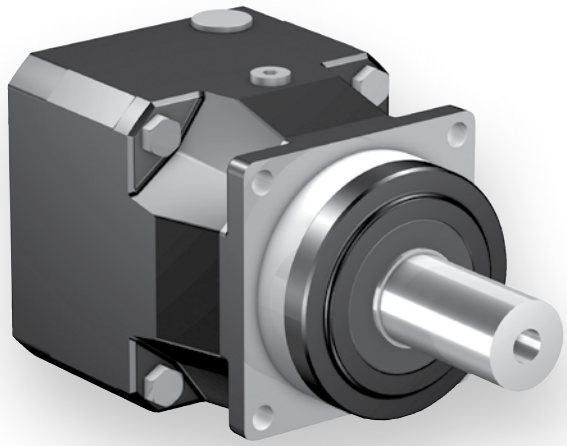
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P/PA Series: INLINE – Shaft Output



STOBER P & PA Series ServoFit® Precision Planetary Gearheads feature HeliCamber® gearing and other components which make them the most accurate and efficient planetary gearheads available. Our gear technology provides minimum wear, low backlash and low noise. Keyed, keyless, bearing options, and more are all available in one day. Every gearbox is made to order. STOBER will custom whatever you need to fit your application. Contact us today to learn more.

Features

- 3:1 to 100:1 ratios (higher ratios available. Contact STOBER.)
- Quiet running (as low as 60dB(A))
- Bearing options to suit your application needs, extending gearbox life and avoiding oversizing, (see page 18).
- 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 (see page 19), 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

Comparative Advantages

	P	PA
Precision	Better	Best
Smoothness (low velocity ripple)	Better	Best
Uniformity of motion through full temperature range	Better	Best

General Specifications

Ambient Temperature	0° C to +40°C (104° F) [Unit temperature ≤ 90° C Max.]
Backlash	≤1 arcmins, see performance overview chart, page 16
Coating	Standard Black (RAL 9005); food duty optional (P3 thru P5 only)
Degree of Protection	IP65
Direction of Rotation	Input and output rotate the SAME direction
Efficiency	1 stage 97%; 2 stage 95%
Input RPM	Up to 8,000 rpm
Installation	Requires grade 10.9 fasteners. See page 328, for more information
Lubrication	Lubricated for life – standard Mobil SHC629; option food grade Mobil SHC CIBUS 220 or synthetic Mobil SHC630
Mounting Position	Unrestricted
Warranty	5 Year Limited (2 years on normal wear items: bearings, seals, etc.)

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Overview



Selection Options *At-a-Glance*

Using the Selection Data table later in this section, select the P/PA 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	⑩
P	4	2	1	S	P	R	0030	MT	L
PA	4	2	1	S	P	D	0030	MF	LC

	Design Option	Part Number Code	Description
①	**Series**	P	Solid shaft inline style planetary
		PA	Solid shaft inline style advanced planetary
②	**Size**	2 3 4 5 7 8 9	7 sizes of gearhead (size 2 & 9 available for P Series only)
③	**Generation**	2	Version of gearhead
④	**# of Stages**	1	One stage for ratios of ≤ 10:1
		2	Two stage for ratios >10:1
⑤	**Housing**	S	Standard mounting style
⑥	**Output**	P	Shaft with key
		G	Plain shaft (no key)
⑦	**Bearings** See output bearing options page 18	 R	Ball bearing (P Series only)
		 D	Double row angular contact bearing (except P2)
		 Z	Cylindrical roller bearing (P Series only, except P2)
⑧	**Ratio**	0030	Ratios range from 3:1 to 100:1 (0030=3:1; 0160=16:1; 1000=100:1, etc.)
⑨	**Motor Adapter**	MT	For P Series only – See motor mounting plate option page 17
		MF	For PA Series only – See motor mounting plate option page 17
		AW	Input shaft (P Series only)
⑩	**Options**	L	Large Input
		C	ServoCool
		F	Food Duty (size P3 thru P5 only)

Options

ServoCool

- Used when a higher input speed is required or when improved performance and longer life is needed
- Reduces operating temperatures; helpful for applications with high ambient temperature
- Ideal for large planetary or units with small ratios

Coatings

- **Standard:** For dry areas and normal conditions. All units standard coating, unless ordered with Food Duty
- **Food Duty**: Able to withstand severe wet areas and washdown application (size P3 thru P5 only)

Large Input

- Accommodates a larger diameter motor shaft without going to a larger size gearbox

ATEX

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

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P/PA Series Performance Overview

P Series 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.

			Series-Size	P2		P/PA3		P/PA4		P/PA5		P/PA7		P/PA8		P9	
			# of Stages	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Acceleration Torque M_{2BMAX}		N		22		65		120		300		700		1600		3000	
Output Torque Nom. [1] M_{2N}		N		16		45		85		210		440		1000		2000	
Torsional Stiffness C_2		Nm/arcmin		1.9		5		11		33		55		176		350	340
Torsional Backlash [2] $\Delta\varphi$		arcmin	P Series	≤6	≤8	≤4	≤5	≤4	≤5	≤3	≤4	≤3	≤4	≤3	≤4	≤3	≤4
			PA Series	—	—	≤2	≤3	≤2	≤3	≤1	≤2	≤1	≤2	≤1	≤2	—	—
Input Speed Max. n_{1MAX}			Continuous	4500	4500	4500	4500	4000	4500	3700	4000	3300	3700	2800	3300	2500	2800
			Cyclic	8000	8000	8000	8000	7000	8000	6500	7000	6000	6500	4500	6000	4000	4500
With ServoCool Option	Continuous		P Series	—	—	—	—	4500	—	5500	4500	5000	5000	4500	4500	4000	4000
			PA Series					6000		6000	5500	5500	5500	5500	5500	—	—
	Cyclic			—	—	—	—	7000	—	6500	7000	6000	6500	6000	6000	5000	6000
Efficiency (@ nom torque)		%		97	95	97	95	97	95	97	95	97	95	97	95	97	95
Weight		kg		1.2	1.8	2.6	3.5	4.0	5.3	6.5	8.5	12	15	26	32	50	61
		lbs		3	4	6	8	9	12	14	19	27	33	57	71	110	135
Noise [3]		dB(A)		≤61	≤61	≤61	≤61	≤62	≤60	≤63	≤61	≤64	≤62	≤65	≤63	≤65	≤64

Performance by Bearing Design Option [4]

R = Ball bearing (P Series Only) D = Double row angular contact bearing Z = Cylindrical roller bearing (P Series Only)

		Series-Size	P2	P/PA3	P/PA4	P/PA5	P/PA7	P/PA8	P9
Axial Load Max. F_{2AMAX}	R	P Series N	500	1000	1500	2300	2900	4700	6000
	D	P Series N	—	1400	2250	3500	4500	7500	10,000
		PA Series N							
	Z	P Series N	—	600	1000	1600	2000	3600	5000
Radial Load Max. F_{2RMAX}	R	P Series N	1200	2500	4000	6500	8000	13,000	18,000
	D	P Series N	—	2750	4500	7000	9000	15,000	20,000
		PA Series N							
	Z	P Series N	—	3000	5000	8000	10,000	18,000	27,000
Tilting Moment Max. M_{2KMAX}	R	P Series Nm	34	88	160	338	536	897	1665
	D	P Series N	—	105	194	406	648	1140	2070
		PA Series N	—	231	439	847	1314	2655	—
	Z	P Series Nm	—	105	200	416	670	1242	2500

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

For torque at higher input speeds (M_{2NX}) solve the formula:

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

where n_1 = Actual Input Speed.

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

[4] *Options R and Z are available with P Series only. See page 18 for output bearing options. Rating based on output speed (n_2) of 100 RPM. For values at other speeds see page 19.*

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Overview



P/PA Series Motor Mounting Plate Option (Motor information required with MT or MF Motor Adapter Option)

STOBER ServoFit 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.

Maximum 10 working days for custom motor mounting plates.

Customer Required Dimensions for Properly Sized Motor Mounting Plate

d2 Motor Shaft Diameter (If an adapter bushing is required it will be supplied with the motor plate.)

b6 Pilot Diameter

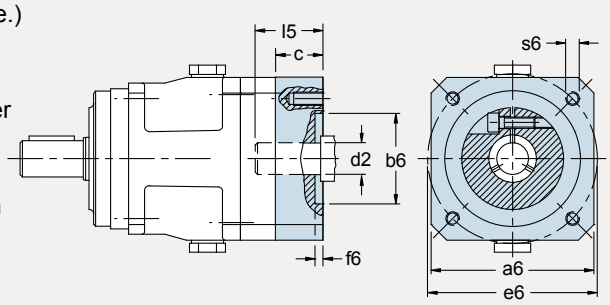
e6 Bolt Circle Diameter

s6 Bolt Diameter

l5 Motor Shaft Length

f6 Pilot Length

a6 Square Flange
(Optional – motor plate will typically be made to match this dimension.)

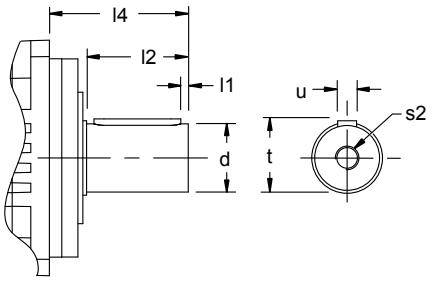


Motor Mounting Plate Dimensions — mm(Gearhead Part Number Specific)	P221 P222 P/PA322	P221...L P222...L P/PA321 P322...L P/PA422	P/PA321...L P/PA421 P/PA422...L P/PA522	P/PA421...L P/PA521 P/PA522...L P/PA722	P/PA521...L P/PA721 P/PA722...L P/PA822	P/PA721...L P/PA821 P/PA822...L P922	P821...L P921 P922...L
Maximum Allowed Motor Shaft Dia. d2	14	19	24	32	38	48	60
Minimum Allowed Motor Plate Thickness c*	15	18	21	24	25	33	43

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

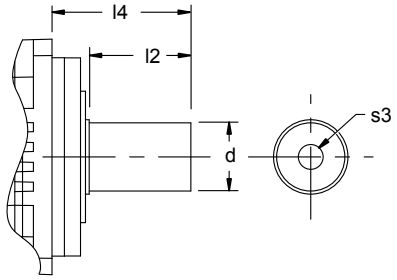
P/PA Series Output Shaft Options ("P" or "G" designated in part number, for example: P421S P 0160 MTL)

P Shaft with Key



Unit	d k6 mm		l1 mm	l2 mm	l4 mm	s2 (1)	t mm	u (2) W x H x L
P2	12	+0.012/+0.001	2	22	36	M4	13.5	A4x4x18
P/PA3	16	+0.012/+0.001	2	28	48	M5	18.0	A5x5x22
P/PA4	22	+0.015/+0.002	3	36	56	M8	24.5	A6x6x28
P/PA5	32	+0.018/+0.002	3	58	88	M12	35.0	A10x8x50
P/PA7	40	+0.018/+0.002	4	82	112	M16	43.0	A12x8x70
P/PA8	55	+0.021/+0.002	6	82	112	M20	59.0	A16x10x70
P9	75	+0.021/+0.002	7	105	143	M20	79.5	A20x12x90

G Shaft without Key



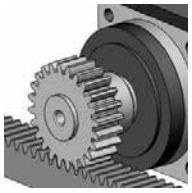
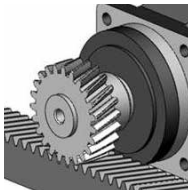
Unit	d k6 mm		l2 mm	l4 mm	s3 (1)
P2	12	+0.012/+0.001	22	36	M4
P/PA3	16	+0.012/+0.001	28	48	M5
P/PA4	22	+0.015/+0.002	36	56	M8
P/PA5	32	+0.018/+0.002	58	88	M12
P/PA7	40	+0.018/+0.002	82	112	M16
P/PA8	55	+0.021/+0.002	82	112	M20
P9	75	+0.021/+0.002	105	143	M20

(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.*

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P/PA Series Output Bearing Options

	R Ball Bearing (P Series only)	D Double Row Angular Contact Bearing	Z Cylindrical Roller Bearing (P Series only)
			
Characteristics:	• Minimal frictional torque • Good radial load capacity • Axial load approx. 35% of radial load	• Low frictional torque • Good radial bearing capacity • Axial load approx. 50% of radial load	• Very good radial load capacity • Axial load approx. 20% of radial load
Applications:	• Spur geared rack/pinion • Couplings • Belt with or without light tension	• Helical geared rack/pinion • Couplings with high axial load • Belt with or without light tension	• Prestressed belt drive • Prestressed spur rack drive • Applications with high radial loads and/or high service requirements

Permissible Output Shaft Load and Tilting Moments*

Unit	Z_2 mm	F_{2A} N	F_{2R} N	F_{2RB} N	M_{2K} Nm	M_{2KB} Nm
R Ball Bearing (P Series only)						
P2	17	500	1200	1300	34	36
P3	21	1000	2500	2500	88	88
P4	22	1500	4000	4500	160	180
P5	23	2300	6500	7000	338	364
P7	26	2900	8000	9000	536	603
P8	28	4700	13,000	18,000	897	1242
P9	40	6000	18,000	27,000	1665	2498
D Double Row Angular Contact Bearing						
P/PA3	24	1400	2750	2750	105	105
P/PA4	25	2250	4500	5000	194	215
P/PA5	29	3500	7000	8000	406	464
P/PA7	31	4500	9000	10,000	648	720
P/PA8	35	7500	15,000	18,000	1140	1368
P9	51	10,000	20,000	30,000	2070	3105
Z Cylindrical Roller Bearing (P Series only)						
P3	21	600	3000	3000	105	105
P4	22	1000	5000	5000	200	200
P5	23	1600	8000	8000	416	416
P7	26	2000	10,000	10,000	670	670
P8	28	3600	18,000	18,000	1242	1242
P9	40	5000	27,000	35,000	2500	3238

** Refer to illustration and load/life/speed definitions on page 19*

During EMERGENCY OFF operation (maximum stops per gearhead = 1000) the permissible values in the table for F_{2A}, $F2_R$, 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).

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Overview



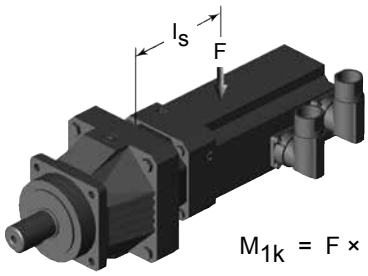
P/PA No Load Running Torque*

		Input Ratio T_R																
		One Stage						Two Stage										
Unit		3	4	5	7	8	10	15	16	20	25	28	32	35	40	50	70	100
P2	Nm	—	0.2	0.2	0.2	0.2	0.1	—	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
P/PA3	Nm	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
P/PA4	Nm	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
P/PA5	Nm	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
P/PA7	Nm	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
P/PA8	Nm	1.6	1.3	1.1	0.9	0.7	0.7	0.3	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
P9	Nm	—	2	2	2	—	1.25	—	1.25	1.25	1.25	1.25	—	1.25	1.25	1.25	1.25	1.25

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

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 "l_s" of the motor.



$$M_{1k} = F \times l_s \leq M_{1K}$$

M_{1K}	P221 P222 P/PA322	P/PA321 P/PA422	P/PA421 P/PA522	P/PA521 P/PA722	P/PA721 P/PA822	P/PA821 P922	P921
Nm	10	20	40	80	200	400	800

P/PA 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 n_2 is the desired speed:

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

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

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

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

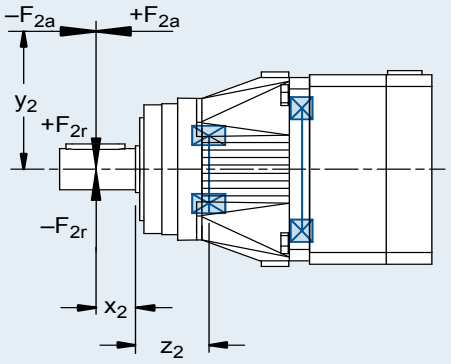
$$F_{2r} = \sqrt[3]{\frac{n_{2b1} \cdot t_{b1} \cdot F_{2rb1}{}^3 + \ldots + n_{2bn} \cdot t_{bn} \cdot F_{2rbn}{}^3}{n_{2b1} \cdot t_{b1} + \ldots + n_{2bn} \cdot t_{bn}}} \leq F_{2R}$$

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 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%

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

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque			Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1)		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}							
	Nm	Nm	Nm	arcmin		Cont.	Cyclic	mm	kgcm²	Nm
P2										
4.00	16	22	44	≤6	**P221S_0040 MT**	4500	8000	14	0.14	1.8
					P221S_0040 MTL			19	0.61	1.9
5.00	16	22	44	≤6	**P221S_0050 MT**	4500	8000	14	0.12	1.9
					P221S_0050 MTL			19	0.59	
7.00	16	22	44	≤6	**P221S_0070 MT**	4500	8000	14	0.11	1.8
					P221S_0070 MTL			19	0.57	
8.00	14	18	36	≤6	**P221S_0080 MT**	4500	8000	14	0.10	1.7
					P221S_0080 MTL			19	0.57	
10.00	12	18	36	≤6	**P221S_0100 MT**	4500	8000	14	0.10	1.6
					P221S_0100 MTL			19	0.56	
16.00	16	22	44	≤8	**P222S_0160 MT**	4500	8000	14	0.14	1.8
					P222S_0160 MTL			19	0.61	
20.00	16	22	44	≤8	**P222S_0200 MT**	4500	8000	14	0.14	1.8
					P222S_0200 MTL			19	0.61	
25.00	16	22	44	≤8	**P222S_0250 MT**	4500	8000	14	0.12	1.8
					P222S_0250 MTL			19	0.59	
28.00	16	22	44	≤8	**P222S_0280 MT**	4500	8000	14	0.11	1.8
					P222S_0280 MTL			19	0.57	
32.00	14	18	36	≤8	**P222S_0320 MT**	4500	8000	14	0.13	1.7
					P222S_0320 MTL			19	0.60	
35.00	16	22	44	≤8	**P222S_0350 MT**	4500	8000	14	0.11	1.8
					P222S_0350 MTL			19	0.57	
40.00	16	22	44	≤8	**P222S_0400 MT**	4500	8000	14	0.10	1.8
					P222S_0400 MTL			19	0.56	
50.00	16	22	44	≤8	**P222S_0500 MT**	4500	8000	14	0.10	1.8
					P222S_0500 MTL			19	0.56	
70.00	16	22	44	≤8	**P222S_0700 MT**	4500	8000	14	0.10	1.8
					P222S_0700 MTL			19	0.56	
100.0	12	18	36	≤8	**P222S_1000 MT**	4500	8000	14	0.10	1.6
					P222S_1000 MTL			19	0.56	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA3	**(continued next page)**									
3.000	30	50	122	≤4	P321S_0030 MT	3500	6000	19	0.77	5.7
					P321S_0030 MTL			24	1.45	
			64	≤2	PA321S_0030 MF			<11	0.68	4.9
			108					>11<14	0.69	5.0
			122					>14<19		
					PA321S_0030 MFL			>19<24	1.77	5.5
4.000	45	65	130	≤4	P321S_0040 MT	3700	6500	19	0.69	5.3
					P321S_0040 MTL			24	1.37	
			85	≤2	PA321S_0040 MF			<11	0.60	4.9
			130					>11<19	0.61	
					PA321S_0040 MFL			>19<24	1.69	5.2
5.000	45	65	130	≤4	P321S_0050 MT	4000	7000	19	0.64	5.1
					P321S_0050 MTL			24	1.32	
			107	≤2	PA321S_0050 MF			<11	0.55	4.8
			130					>11<19	0.57	4.9
					PA321S_0050 MFL			>19<24	1.64	5.0
7.000	45	60	130	≤4	P321S_0070 MT	4500	8000	19	0.59	4.4
					P321S_0070 MTL			24	1.26	
				≤2	PA321S_0070 MF			<11	0.51	4.3
								>11<19		
					PA321S_0070 MFL			>19<24	1.57	4.4
8.000	40	50	100	≤4	P321S_0080 MT	4500	8000	19	0.58	4.2
					P321S_0080 MTL			24	1.25	
				≤2	PA321S_0080 MF			<11	0.50	4.1
								>11<19		
					PA321S_0080 MFL			>19<24	1.56	4.2
10.00	30	50	100	≤4	P321S_0100 MT	4500	8000	19	0.57	4.0
					P321S_0100 MTL			24	1.24	
				≤2	PA321S_0100 MF			<11	0.50	
								>11<19		
					PA321S_0100 MFL			>19<24	1.56	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*

* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1)		Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin		Cont.	Cyclic	mm	kgcm²	Nm
P/PA3	**(continued next page)**									
12.00	30	50	122	≤3	**PA322S_0120 MF**	4500	8000	<9	0.12	4.2
								>9<11	0.13	
								>11<14	0.15	
15.00	30	50	122	≤5	**P322S_0150 MT**	4500	8000	14	0.14	4.5
					P322S_0150 MTL			19	0.46	
16.00	45	65	130	≤5	**P322S_0160 MT**	4500	8000	14	0.14	4.5
					P322S_0160 MTL			19	0.61	
				≤3	**PA322S_0160 MF**			<9	0.11	
								>9<11	0.12	
								>11<14	0.14	
20.00	45	65	130	≤5	**P322S_0200 MT**	4500	8000	14	0.14	4.6
					P322S_0200 MTL			19	0.61	
				≤3	**PA322S_0200 MF**			<9	0.11	
								>9<11	0.12	
								>11<14	0.14	
25.00	45	65	130	≤5	**P322S_0250 MT**	4500	8000	14	0.12	4.6
					P322S_0250 MTL			19	0.59	
				≤3	**PA322S_0250 MF**			<9	0.09	
								>9<11	0.10	
								>11<14	0.12	
28.00	45	65	130	≤5	**P322S_0280 MT**	4500	8000	14	0.11	4.5
					P322S_0280 MTL			19	0.57	
				≤3	**PA322S_0280 MF**			<9	0.08	
								>9<11	0.09	
								>11<14	0.11	
32.00	40	50	100	≤5	**P322S_0320 MT**	4500	8000	14	0.14	4.1
					P322S_0320 MTL			19	0.61	
				≤3	**PA322S_0320 MF**			<9	0.10	
								>9<11	0.12	
								>11<14	0.14	
35.00	45	65	130	≤5	**P322S_0350 MT**	4500	8000	14	0.11	4.6
					P322S_0350 MTL			19	0.57	
				≤3	**PA322S_0350 MF**			<9	0.08	
								>9<11	0.09	
								>11<14	0.11	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA3 (continued from previous page)

40.00	45	65	130	≤5	P322S_0400 MT	4500	8000	14	0.10	4.4
					P322S_0400 MTL			19	0.56	
				≤3	PA322S_0400 MF			<9	0.07	
								>9<11	0.08	
								>11<14	0.10	
50.00	45	65	130	≤5	P322S_0500 MT	4500	8000	14	0.10	4.5
					P322S_0500 MTL			19	0.56	
				≤3	PA322S_0500 MF			<9	0.07	
								>9<11	0.08	
								>11<14	0.10	
70.00	45	60	130	≤5	P322S_0700 MT	4500	8000	14	0.10	4.2
					P322S_0700 MTL			19	0.56	
				≤3	PA322S_0700 MF			<9	0.07	
								>9<11	0.08	
								>11<14	0.10	
100.0	30	50	100	≤5	P322S_1000 MT	4500	8000	14	0.10	3.9
					P322S_1000 MTL			19	0.56	
				≤3	PA322S_1000 MF			<9	0.07	
								>9<11	0.08	
								>11<14	0.10	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.

** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA4 (continued next page)

3.000	50	100	240	≤4	P421S_0030 MT	3000	5500	24	1.94	12.5
					P421S_0030 MTC	3500	6000		2.66	11.1
					P421S_0030 MTL	3000	5500	32	4.16	12.5
			146	≤2	PA421S_0030 MF	3000	5500	<14	2.33	11.1
			198					>14<19	2.35	11.4
			240					>19<24	2.25	
			146		PA421S_0030 MFC	4500	6000	<14	2.66	11.1
			198					>14<19	2.51	11.4
			240					>19<24	2.40	
					PA421S_0030 MFL	3000	5500	>24<32	5.46	11.8
					PA421S_0030 MFLC	4500	6000		5.89	
4.000	85	120	240	≤4	P421S_0040 MT	3300	6000	24	1.54	12.0
					P421S_0040 MTC	3800			2.27	11.2
					P421S_0040 MTL	3300		32	3.77	12.0
			194	≤2	PA421S_0040 MF	3300		<14	1.93	11.2
			240					>14<19	1.96	11.4
								>19<24	1.86	
			194		PA421S_0040 MFC	5000		<14	2.27	11.2
			240					>14<19	2.11	11.4
								>19<24	2.01	
					PA421S_0040 MFL	3300		>24<32	5.07	11.6
					PA421S_0040 MFLC	5000			5.50	
5.000	85	120	240	≤4	P421S_0050 MT	3700	6500	24	1.44	11.7
					P421S_0050 MTC	4200			2.16	11.2
					P421S_0050 MTL	3700		32	3.66	11.7
				≤2	PA421S_0050 MF	3700		<14	1.83	11.2
								>14<19	1.85	11.3
								>19<24	1.75	
					PA421S_0050 MFC	5000		<14	2.16	11.2
								>14<19	2.01	11.3
								>19<24	1.90	
					PA421S_0050 MFL	3700		>24<32	4.96	11.5
					PA421S_0050 MFLC	5000			5.39	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA4 (continued from previous page)

7.000	85	110	240	≤4	P421S_0070 MT	4000	7000	24	1.31	10.1
					P421S_0070 MTC	4500			2.05	9.9
					P421S_0070 MTL	4000		32	3.57	10.1
				≤2	PA421S_0070 MF	4000		<14	1.72	9.9
								>14<19		
								>19<24	1.62	
					PA421S_0070 MFC	5500		<14	2.05	
								>14<19	1.88	10.0
								>19<24	1.77	9.9
					PA421S_0070 MFL	4000		>24<32	4.78	10.0
					PA421S_0070 MFLC	5500			5.21	
8.000	80	100	200	≤4	P421S_0080 MT	4000	7000	24	1.29	9.5
					P421S_0080 MTC	4500			2.03	9.4
					P421S_0080 MTL	4000		32	3.55	9.5
				≤2	PA421S_0080 MF	4000		<14	1.70	9.4
								>14<19		
								>19<24	1.60	
					PA421S_0080 MFC	5500		<14	2.03	
								>14<19	1.86	
								>19<24	1.75	
					PA421S_0080 MFL	4000		>24<32	4.76	
					PA421S_0080 MFLC	5500			5.19	
10.00	60	100	200	≤4	P421S_0100 MT	4000	7000	24	1.27	9.0
					P421S_0100 MTC	4500			2.01	8.9
					P421S_0100 MTL	4000		32	3.53	9.0
				≤2	PA421S_0100 MF	4000		<14	1.68	8.9
								>14<19		
								>19<24	1.58	
					PA421S_0100 MFC	6000		<14	2.01	
								>14<19	1.84	
								>19<24	1.73	
					PA421S_0100 MFL	4000		>24<32	4.74	9.0
					PA421S_0100 MFLC	6000			5.17	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA4	**(continued next page)**									
12.00	50	100	240	≤3	**PA422S_0120 MF**	3700	6500	<11	0.64	9.7
								>11<19	0.65	9.8
					PA422S_0120 MFL			>19<24	1.73	9.9
					PA422S_0120 MFLC	4500			1.88	9.8
15.00	50	100	240	≤5	**P422S_0150 MT**	3700	6500	19	0.52	10.4
					P422S_0150 MTL	3700		24	1.07	
16.00	85	120	240	≤5	**P422S_0160 MT**	3700	6500	19	0.71	10.5
					P422S_0160 MTL			24	1.39	
				≤3	**PA422S_0160 MF**	3700		<11	0.62	10.4
								>11<19	0.63	
					PA422S_0160 MFL			>19<24	1.70	10.5
					PA422S_0160 MFLC	5000			1.86	
20.00	85	120	240	≤5	**P422S_0200 MT**	3700	6500	19	0.70	10.8
					P422S_0200 MTL			24	1.38	
				≤3	**PA422S_0200 MF**	3700		<11	0.61	10.7
								>11<19	0.62	
					PA422S_0200 MFL			>19<24	1.70	
					PA422S_0200 MFLC	5000			1.85	
25.00	85	120	240	≤5	**P422S_0250 MT**	4000	7000	19	0.65	10.7
					P422S_0250 MTL			24	1.33	
				≤3	**PA422S_0250 MF**	4000		<11	0.56	
								>11<19	0.57	
					PA422S_0250 MFL			>19<24	1.65	
					PA422S_0250 MFLC	5000			1.80	
28.00	85	120	240	≤5	**P422S_0280 MT**	4500	8000	19	0.60	10.3
					P422S_0280 MTL			24	1.27	
				≤3	**PA422S_0280 MF**	4500		<11	0.52	10.2
								>11<19		
					PA422S_0280 MFL			>19<24	1.58	
					PA422S_0280 MFLC	5500			1.74	
32.00	80	100	200	≤5	**P422S_0320 MT**	3700	6500	19	0.69	9.2
					P422S_0320 MTL			24	1.37	
				≤3	**PA422S_0320 MF**	3700		<11	0.60	
								>11<19	0.62	
					PA422S_0320 MFL			>19<24	1.69	
					PA422S_0320 MFLC	5000			1.84	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA4 (continued from previous page)

35.00	85	120	240	≤5	P422S_0350 MT	4500	8000	19	0.60	10.6
					P422S_0350 MTL			24	1.27	
				≤3	PA422S_0350 MF	4500		<11	0.52	
								>11<19		
					PA422S_0350 MFL			>19<24	1.58	
					PA422S_0350 MFLC	5500			1.73	
40.00	85	120	240	≤5	P422S_0400 MT	4500	8000	19	0.58	10.1
					P422S_0400 MTL			24	1.25	
				≤3	PA422S_0400 MF	4500		<11	0.50	
								>11<19		
					PA422S_0400 MFL			>19<24	1.56	
					PA422S_0400 MFLC	5500			1.71	
50.00	85	120	240	≤5	P422S_0500 MT	4500	8000	19	0.58	10.5
					P422S_0500 MTL			24	1.25	
				≤3	PA422S_0500 MF	4500		<11	0.50	
								>11<19		
					PA422S_0500 MFL			>19<24	1.56	
					PA422S_0500 MFLC	5500			1.71	
70.00	85	110	240	≤5	P422S_0700 MT	4500	8000	19	0.58	9.6
					P422S_0700 MTL			24	1.25	
				≤3	PA422S_0700 MF	4500		<11	0.50	
								>11<19		
					PA422S_0700 MFL			>19<24	1.56	
					PA422S_0700 MFLC	5500			1.71	
100.0	60	100	200	≤5	P422S_1000 MT	4500	8000	19	0.58	8.8
					P422S_1000 MTL			24	1.25	
				≤3	PA422S_1000 MF	4500		<11	0.50	
								>11<19		
					PA422S_1000 MFL			>19<24	1.56	
					PA422S_1000 MFLC	5500			1.71	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA5 (continued next page)

3.000	120	200	416	≤3	P521S_0030 MT	2500	4500	32	4.76	36.3
					P521S_0030 MTC	3500	6000		6.98	29.7
					P521S_0030 MTL	2500	4500	38	7.79	36.3
			259	≤1	PA521S_0030 MF	2500	4500	<19	6.07	29.7
			416					>19<24	6.14	30.7
								>24<35	6.04	
			259		PA521S_0030 MFC	4000	6000	<19	6.98	29.7
			416					>19<24	6.59	30.7
								>24<32	6.47	
					PA521S_0030 MFL	2500	4500	>32<38	13.23	33.0
					PA521S_0030 MFLC	4000	6000		16.02	
4.000	210	300	555	≤3	P521S_0040 MT	3000	5000	32	4.55	32.1
		276			P521S_0040 MTC	4000	6000		6.77	28.9
		300			P521S_0040 MTL	3000	5000	38	7.57	32.1
		276	345	≤1	PA521S_0040 MF	3000	5000	<19	5.85	28.9
			555					>19<24	5.93	29.4
								>24<35	5.83	
			345		PA521S_0040 MFC	4500	6000	<19	6.77	28.9
			555					>19<24	6.38	29.4
								>24<32	6.26	
					PA521S_0040 MFL	3000	5000	>32<38	13.02	30.6
					PA521S_0040 MFLC	4500	6000		15.81	
5.000	210	300	600	≤3	P521S_0050 MT	3500	6000	32	4.14	31.1
					P521S_0050 MTC	4500			6.36	29.1
					P521S_0050 MTL	3500		38	7.16	31.1
			432	≤1	PA521S_0050 MF	3500		<19	5.44	29.1
			600					>19<24	5.52	29.4
								>24<35	5.42	
			432		PA521S_0050 MFC	5000		<19	6.36	29.1
			600					>19<24	5.97	29.4
								>24<32	5.85	
					PA521S_0050 MFL	3500		>32<38	12.61	30.2
					PA521S_0050 MFLC	5000			15.40	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA5 (continued from previous page)

7.000	210	270	600	≤3	P521S_0070 MT	3700	6500	32	3.74	28.0
					P521S_0070 MTC	4500			5.98	27.1
					P521S_0070 MTL	3700		38	6.79	28.0
				≤1	PA521S_0070 MF	3700		<19	5.07	27.1
								>19<24		
								>24<35	4.97	
					PA521S_0070 MFC	5000		<19	5.98	
								>19<24	5.52	
								>24<32	5.40	
					PA521S_0070 MFL	3700		>32<38	11.90	27.5
					PA521S_0070 MFLC	5000			14.69	
8.000	200	250	500	≤3	P521S_0080 MT	3700	6500	32	3.67	26.0
					P521S_0080 MTC	5000			5.91	25.4
					P521S_0080 MTL	3700		38	6.72	26.0
				≤1	PA521S_0080 MF	3700		<19	5.00	25.4
								>19<24		
								>24<35	4.90	
					PA521S_0080 MFC	5500		<19	5.91	
								>19<24	5.45	
								>24<32	5.33	
					PA521S_0080 MFL	3700		>32<38	11.83	25.7
					PA521S_0080 MFLC	5500			14.63	
10.00	140	250	500	≤3	P521S_0100 MT	3700	6500	32	3.61	25.0
					P521S_0100 MTC	5500			5.85	24.7
					P521S_0100 MTL	3700		38	6.66	25.0
				≤1	PA521S_0100 MF	3700		<19	4.94	24.7
								>19<24		
								>24<35	4.84	
					PA521S_0100 MFC	6000		<19	5.85	
								>19<24	5.39	
								>24<32	5.27	
					PA521S_0100 MFL	3700		>32<38	11.77	24.8
					PA521S_0100 MFLC	6000			14.56	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA5 **(continued next page)**										
12.00	120	200	416	≤2	**PA522S_0120 MF**	3300	6000	<14	2.00	26.7
								>14<19	2.02	26.8
								>19<24	1.92	
					PA522S_0120 MFC	4500		<14	2.33	26.7
								>14<19	2.18	26.8
								>19<24	2.07	26.8
					PA522S_0120 MFL	3300		>24<32	5.13	26.9
					PA522S_0120 MFLC	4500			5.56	
15.00	120	200	416	≤4	**P522S_0150MT**	3300	6000	24	1.22	27.3
					P522S_0150MTC	3800			2.29	
					P522S_0150MTL	3300		32	3.13	
16.00	210	300	555	≤4	**P522S_0160 MT**	3300	6000	24	1.59	27.5
					P522S_0160 MTC	3800			2.32	27.2
					P522S_0160 MTL	3300		32	3.82	27.5
				≤2	**PA522S_0160 MF**	3300		<14	1.98	27.2
								>14<19	2.01	27.3
								>19<24	1.91	
					PA522S_0160 MFC	5000		<14	2.32	27.2
								>14<19	2.16	27.3
								>19<24	2.06	
					PA522S_0160 MFL	3300		>24<32	5.12	27.4
					PA522S_0160 MFLC	5000			5.55	
20.00	210	300	600	≤4	**P522S_0200 MT**	3300	6000	24	1.57	28.2
					P522S_0200 MTC	3800			2.29	28.0
					P522S_0200 MTL	3300		32	3.79	28.2
				≤2	**PA522S_0200 MF**	3300		<14	1.96	28.0
								>14<19	1.98	
								>19<24	1.88	
					PA522S_0200 MFC	5000		<14	2.29	
								>14<19	2.14	
								>19<24	2.03	
					PA522S_0200 MFL	3300		>24<32	5.09	28.1
					PA522S_0200 MFLC	5000			5.52	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA5 **(continued next page)**										
25.00	210	300	600	≤4	**P522S_0250 MT**	3700	6500	24	1.46	28.1
					P522S_0250 MTC	4200			2.18	28.0
					P522S_0250 MTL	3700		32	3.68	28.1
				≤2	**PA522S_0250 MF**	3700		<14	1.85	28.0
								>14<19	1.87	
								>19<24	1.77	
					PA522S_0250 MFC	5000		<14	2.18	
								>14<19	2.03	
								>19<24	1.92	
					PA522S_0250 MFL	3700		>24<32	4.98	28.1
					PA522S_0250 MFLC	5000			5.41	
28.00	210	300	555	≤4	**P522S_0280 MT**	4000	7000	24	1.34	26.8
					P522S_0280 MTC	4500			2.08	26.7
					P522S_0280 MTL	4000		32	3.60	26.8
				≤2	**PA522S_0280 MF**	4000		<14	1.75	26.7
								>14<19	1.75	
								>19<24	1.65	
					PA522S_0280 MFC	5500		<14	2.08	
								>14<19	1.90	
								>19<24	1.80	
					PA522S_0280 MFL	4000		>24<32	4.81	
					PA522S_0280 MFLC	5500			5.24	
32.00	200	250	500	≤4	**P522S_0320 MT**	3300	6000	24	1.54	25.1
					P522S_0320 MTC	3800			2.27	
					P522S_0320 MTL	3300		32	3.76	
				≤2	**PA522S_0320 MF**	3300		<14	1.93	
								>14<19	1.95	
								>19<24	1.85	
					PA522S_0320 MFC	5000		<14	2.27	
								>14<19	2.11	
								>19<24	2.01	
					PA522S_0320 MFL	3300		>24<32	5.06	
					PA522S_0320 MFLC	5000			5.49	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.

** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA5	**(continued next page)**									
35.00	210	300	600	≤4	P522S_0350 MT	4000	7000	24	1.33	27.7
					P522S_0350 MTC	4500			2.07	27.6
					P522S_0350 MTL	4000		32	3.59	27.7
				≤2	PA522S_0350 MF	4000		<14	1.74	27.6
								>14<19		
								>19<24	1.64	
					PA522S_0350 MFC	5500		<14	2.07	
								>14<19	1.90	
								>19<24	1.79	
					PA522S_0350 MFL	4000		>24<32	4.80	27.7
					PA522S_0350 MFLC	5500			5.23	
40.00	210	300	555	≤4	P522S_0400 MT	4000	7000	24	1.28	26.2
					P522S_0400 MTC	4500			2.03	
					P522S_0400 MTL	4000		32	3.55	
				≤2	PA522S_0400 MF	4000		<14	1.69	
								>14<19		
								>19<24	1.59	
					PA522S_0400 MFC	5500		<14	2.03	
								>14<19	1.85	
								>19<24	1.75	
					PA522S_0400 MFL	4000		>24<32	4.75	
					PA522S_0400 MFLC	5500			5.18	
50.00	210	300	600	≤4	P522S_0500 MT	4000	7000	24	1.28	27.3
					P522S_0500 MTC	4500			2.02	
					P522S_0500 MTL	4000		32	3.54	
				≤2	PA522S_0500 MF	4000		<14	1.69	
								>14<19		
								>19<24	1.59	
					PA522S_0500 MFC	5500		<14	2.02	
								>14<19	1.85	
								>19<24	1.74	
					PA522S_0500 MFL	4000		>24<32	4.75	
					PA522S_0500 MFLC	5500			5.18	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA5 (continued from previous page)										
70.00	210	270	600	≤4	**P522S_0700 MT**	4000	7000	24	1.27	26.3
					P522S_0700 MTC	4500			2.02	
					P522S_0700 MTL	4000		32	3.54	
				≤2	**PA522S_0700 MF**	4000		<14	1.69	
								>14<19		
								>19<24	1.59	
					PA522S_0700 MFC	5500		<14	2.02	
								>14<19	1.84	
								>19<24	1.74	
					PA522S_0700 MFL	4000		>24<32	4.75	
					PA522S_0700 MFLC	5500			5.18	
100.0	140	250	500	≤4	**P522S_1000 MT**	4000	7000	24	1.27	24.3
					P522S_1000 MTC	4500			2.02	
					P522S_1000 MTL	4000		32	3.54	
				≤2	**PA522S_1000 MF**	4000		<14	1.69	
								>14<19		
								>19<24	1.59	
					PA522S_1000 MFC	5500		<14	2.02	
								>14<19	1.84	
								>19<24	1.74	
					PA522S_1000 MFL	4000		>24<32	4.75	
					PA522S_1000 MFLC	5500			5.18	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.

** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA7	**(continued next page)**									
3.000	280	500	1036	≤3	**P721S_0030 MT**	2200	3700	38	14.81	64.5
					P721S_0030 MTC	3000	6000		26.04	54.7
					P721S_0030 MTL	2200	3700	48	32.66	64.5
		431	538	≤1	**PA721S_0030 MF**	2200	3700	<24	19.91	52.7
		500	1010					>24<32	20.25	54.7
			1036					>32<38		
			757		**PA721S_0030 MFC**	3400	6000	<24	22.67	
			1010					>24<32	21.45	
			1036					>32<38	23.04	
					PA721S_0030 MFL	2200	3700	>38<48	22.26	58.8
					PA721S_0030 MFLC	3400	6000		38.12	
4.000	440	700	1381	≤3	**P721S_0040 MT**	2500	4500	38	10.09	60.0
					P721S_0040 MTC	3300	6000		21.33	54.9
					P721S_0040 MTL	2500	4500	48	27.94	60.0
		574	718	≤1	**PA721S_0040 MF**	2500	4500	<24	15.20	53.7
		700	1346					>24<38	15.53	54.9
			1381					>32<38		
			1009		**PA721S_0040 MFC**	3600	6000	<24	17.95	
			1346					>24<32	16.73	
			1381					>32<38	18.33	
					PA721S_0040 MFL	2500	4500	>38<48	17.55	57.1
					PA721S_0040 MFLC	3600	6000		33.41	
5.000	440	700	1400	≤3	**P721S_0050 MT**	3000	5500	38	8.55	57.5
					P721S_0050 MTC	3800	6000		19.79	54.4
					P721S_0050 MTL	3000	5500	48	26.40	57.5
			897	≤1	**PA721S_0050 MF**	3000	5500	<24	13.66	53.6
			1400					>24<38	14.00	54.4
			1261		**PA721S_0050 MFC**	4200	6000	<24	16.41	
			1400					>24<32	15.20	
								>32<38	16.79	
					PA721S_0050 MFL	3000	5500	>38<48	16.01	55.8
					PA721S_0050 MFLC	4200	6000		31.87	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N} Nm	Output Torque: Acceleration M_{2B} Nm	Output Torque: Peak [2] M_{2PEAK} Nm	Backlash arcmin	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6 mm	Input Inertia [3] J_1 kgcm²	Torsional Stiffness C_2 (per arcmin) Nm
P/PA7	**(continued from previous page)**									
7.000	440	650	1256	≤3	**P721S_0070 MT**	3300	6000	38	7.55	55.0
					P721S_0070 MTC	4500			18.46	53.1
					P721S_0070 MTL	3300		48	25.86	55.0
				≤1	**PA721S_0070 MF**	3300		<24	12.66	53.1
								>24<38		
					PA721S_0070 MFC	4700		<24	15.08	
								>24<32	13.87	
								>32<38	15.46	
					PA721S_0070 MFL	3300		>38<48	15.03	54.0
					PA721S_0070 MFLC	4700			30.89	
8.000	400	500	1000	≤3	**P721S_0080 MT**	3300	6000	38	7.29	53.0
					P721S_0080 MTC	5000			18.20	51.7
					P721S_0080 MTL	3300		48	25.60	53.0
				≤1	**PA721S_0080 MF**	3300		<24	12.40	51.7
						3300		>24<38		
					PA721S_0080 MFC	5000		<24	14.82	
								>24<32	13.60	
								>32<38	15.20	
					PA721S_0080 MFL	3300		>38<48	14.77	52.3
					PA721S_0080 MFLC	5000			30.63	
10.00	300	500	1000	≤3	**P721S_0100 MT**	3300	6000	38	7.05	49.5
					P721S_0100 MTC	5000			17.95	48.7
					P721S_0100 MTL	3300		48	25.35	49.5
				≤1	**PA721S_0100 MF**	3300		<24	12.15	48.7
								>24<38		
					PA721S_0100 MFC	5500		<24	14.57	
								>24<32	13.36	
								>32<38	14.95	
					PA721S_0100 MFL	3300		>38<48	14.52	49.1
					PA721S_0100 MFLC	5500			30.38	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA7	**(continued next page)**									
12.00	280	500	1005	≤2	**PA722S_0120 MF**	3000	5000	<19	6.24	51.7
			1036					>19<24	6.31	51.9
								>24<35	6.21	
			1005		**PA722S_0120 MFC**	4000	6000	<19	7.15	51.7
			1036					>19<24	6.76	51.9
								>24<32	6.64	
					PA722S_0120 MFL	3000	5000	>32<38	13.40	52.3
					PA722S_0120 MFLC	4000	6000		16.19	
15.00	280	500	1036	≤4	**P722S_0150 MT**	3000	5000	32	3.04	53.1
					P722S_0150 MTC	4000	6000		5.56	
					P722S_0150 MTL	3000	5000	38	6.76	
16.00	440	700	1381	≤4	**P722S_0160 MT**	3000	5000	32	4.63	53.7
					P722S_0160 MTC	4000	6000		6.85	53.1
					P722S_0160 MTL	3000	5000	38	7.66	53.7
			1340	≤2	**PA722S_0160 MF**	3000	5000	<19	5.94	53.1
			1381					>19<24	6.01	53.2
								>24<35	5.91	
			1340		**PA722S_0160 MFC**	4500	6000	<19	6.85	53.1
			1381					>19<24	6.46	53.2
								>24<32	6.34	
					PA722S_0160 MFL	3000	5000	>32<38	13.10	53.4
					PA722S_0160 MFLC	4500	6000		15.90	
20.00	440	700	1400	≤4	**P722S_0200 MT**	3000	5000	32	4.54	53.7
					P722S_0200 MTC	4000	6000		6.76	53.3
					P722S_0200 MTL	3000	5000	38	7.57	53.7
				≤2	**PA722S_0200 MF**	3000	5000	<19	5.85	53.3
								>19<24	5.92	
								>24<35	5.82	
					PA722S_0200 MFC	4500	6000	<19	6.76	
								>19<24	6.37	
								>24<32	6.25	
					PA722S_0200 MFL	3000	5000	>32<38	13.01	53.5
					PA722S_0200 MFLC	4500	6000		15.80	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA7	**(continued next page)**									
25.00	440	700	1400	≤4	**P722S_0250 MT**	3500	6000	32	4.14	53.5
					P722S_0250 MTC	4500			6.36	53.3
					P722S_0250 MTL	3500		38	7.17	53.5
				≤2	**PA722S_0250 MF**	3500		<19	5.45	53.3
								>19<24	5.52	
								>24<35	5.42	
					PA722S_0250 MFC	5000		<19	6.36	
								>19<24	5.97	
								>24<32	5.85	
					PA722S_0250 MFL	3500		>32<38	12.62	53.4
					PA722S_0250 MFLC	5000			15.41	
28.00	440	700	1381	≤4	**P722S_0280 MT**	3700	6500	32	3.83	52.9
					P722S_0280 MTC	4500			6.07	52.7
					P722S_0280 MTL	3700		38	6.88	52.9
				≤2	**PA722S_0280 MF**	3700		<19	5.16	52.7
								>19<24		
								>24<35	5.06	
					PA722S_0280 MFC	5000		<19	6.07	
								>19<24	5.61	
								>24<32	5.49	
					PA722S_0280 MFL	3700		>32<38	11.99	52.8
					PA722S_0280 MFLC	5000			14.79	
32.00	400	500	1000	≤4	**P722S_0320 MT**	3000	5000	32	4.46	51.7
					P722S_0320 MTC	4000			6.68	51.5
					P722S_0320 MTL	3000		38	7.49	51.7
				≤2	**PA722S_0320 MF**	3000		<19	5.77	51.5
								>19<24	5.84	
								>24<35	5.74	
					PA722S_0320 MFC	4500		<19	6.68	
								>19<24	6.29	
								>24<32	6.17	
					PA722S_0320 MFL	3000		>32<38	12.93	51.6
					PA722S_0320 MFLC	4500			15.72	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*

* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA7 (continued next page)

35.00	440	700	1400	≤4	P722S_0350 MT	3700	6500	32	3.80	53.1
					P722S_0350 MTC	4500			6.04	53.0
					P722S_0350 MTL	3700		38	6.85	53.1
				≤2	PA722S_0350 MF	3700		<19	5.13	53.0
								>19<24		
								>24<35	5.03	
					PA722S_0350 MFC	5000		<19	6.04	
								>19<24	5.58	
								>24<32	5.46	
					PA722S_0350 MFL	3700		>32<38	11.96	53.1
					PA722S_0350 MFLC	5000			14.75	
40.00	440	700	1381	≤4	P722S_0400 MT	3700	6500	32	3.65	52.2
					P722S_0400 MTC	5000			5.90	52.1
					P722S_0400 MTL	3700		38	6.70	52.2
				≤2	PA722S_0400 MF	3700		<19	4.98	52.1
								>19<24		
								>24<35	4.88	
					PA722S_0400 MFC	5500		<19	5.90	
								>19<24	5.43	
								>24<32	5.31	
					PA722S_0400 MFL	3700		>32<38	11.81	
					PA722S_0400 MFLC	5500			14.61	
50.00	440	700	1400	≤4	P722S_0500 MT	3700	6500	32	3.64	52.7
					P722S_0500 MTC	5000			5.88	52.6
					P722S_0500 MTL	3700		38	6.69	52.7
				≤2	PA722S_0500 MF	3700		<19	4.97	52.6
								>19<24		
								>24<35	4.87	
					PA722S_0500 MFC	5500		<19	5.88	
								>19<24	5.42	
								>24<32	5.30	
					PA722S_0500 MFL	3700		>32<38	11.80	
					PA722S_0500 MFLC	5500			14.59	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA7 (continued from previous page)

70.00	440	650	1256	≤4	P722S_0700 MT	3700	6500	32	3.63	52.6
					P722S_0700 MTC	5000		32	5.87	
					P722S_0700 MTL	3700		38	6.68	
				≤2	PA722S_0700 MF	3700		<19	4.96	
								>19<24	4.96	
								>24<35	4.86	
					PA722S_0700 MFC	5500		<19	5.87	
								>19<24	5.41	
								>24<32	5.29	
					PA722S_0700 MFL	3700		>32<38	11.79	
					PA722S_0700 MFLC	5500		>32<38	14.58	
100.0	300	500	1000	≤4	P722S_1000 MT	3700	6500	32	3.62	48.5
					P722S_1000 MTC	5000		32	5.86	
					P722S_1000 MTL	3700		38	6.67	
				≤2	PA722S_1000 MF	3700		<19	4.95	
								>19<24		
								>24<35	4.85	
					PA722S_1000 MFC	5500		<19	5.86	
								>19<24	5.40	
								>24<32	5.28	
					PA722S_1000 MFL	3700		>32<38	11.78	
					PA722S_1000 MFLC	5500		>32<38	14.58	

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA8	**(continued next page)**									
3.000	800	1200	1926	≤3	**P821S_0030 MT**	1800	3000	48	65.03	220.0
					P821S_0030 MTC	2500	4500		86.28	165.4
					P821S_0030 MTL	1800	3000	60	92.59	201.7
		964	1205	≤1	**PA821S_0030 MF**	1800	3000	<32	71.83	158.5
		1200	1752					>32<38	71.60	165.4
			1926					>38<48	70.97	
		964	1205		**PA821S_0030 MFC**	3000	4500	<32	85.94	158.5
		1200	1752					>32<38	87.71	165.4
			1926					>38<48	86.83	
4.000	800	1600	2569	≤3	**P821S_0040 MT**	2200	3500	48	41.18	205.0
					P821S_0040 MTC	3000	5000		62.44	174.7
					P821S_0040 MTL	2200	3500	60	68.75	195.7
		1285	1606	≤1	**PA821S_0040 MF**	2200	3500	<32	47.99	170.4
		1600	2336					>32<38	47.76	174.7
			2569					>38<48	47.13	
		1285	1606		**PA821S_0040 MFC**	3200	5000	<32	62.10	170.4
		1600	2336					>32<38	63.86	174.7
			2569					>38<48	62.99	
5.000	1000	1600	3200	≤3	**P821S_0050 MT**	2500	4000	48	34.36	194.0
					P821S_0050 MTC	3500	6000		55.62	175.6
					P821S_0050 MTL	2500	4000	60	57.31	188.6
			2008	≤1	**PA821S_0050 MF**	2500	4000	<32	41.16	172.7
			2920					>32<38	40.94	175.6
			3200					>38<48	40.30	
			2008		**PA821S_0050 MFC**	3750	6000	<32	55.28	172.7
			2920					>32<38	57.04	175.6
			3200					>38<48	56.16	
7.000	1000	1400	2811	≤3	**P821S_0070 MT**	2800	4500	48	29.23	176.5
					P821S_0070 MTC	4000	6000		50.96	167.0
					P821S_0070 MTL	2800	4500	60	57.24	174.2
				≤1	**PA821S_0070 MF**	2800	4500	<32	36.48	167.0
								>32<38	36.28	
								>38<48	35.64	
					PA821S_0070 MFC	4500	6000	<32	50.60	
								>32<38	52.38	
								>38<48	51.50	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA8	**(continued next page)**									
8.000	800	1200	2400	≤3	**P821S_0080 MT**	2800	4500	48	27.99	166.2
					P821S_0080 MTC	4500	6000		49.72	159.6
					P821S_0080 MTL	2800	4500	60	56.00	164.6
				≤1	**PA821S_0080 MF**	2800	4500	<32	35.25	159.6
								>32<38	35.04	
								>38<48	34.40	
					PA821S_0080 MFC	5000	6000	<32	49.36	
								>32<38	51.14	
								>38<48	50.26	
10.00	700	1200	2400	≤3	**P821S_0100 MT**	2800	4500	48	26.82	153.0
					P821S_0100 MTC	4500	6000		48.55	149.4
					P821S_0100 MTL	2800	4500	60	54.84	152.1
				≤1	**PA821S_0100 MF**	2800	4500	<32	34.08	149.4
								>32<38	33.87	
								>38<48	33.24	
					PA821S_0100 MFC	5500	6000	<32	48.19	
								>32<38	49.97	
								>38<48	49.10	
12.00	800	1200	2089	≤2	**PA822S_0120 MF**	2500	4500	<24	17.25	151.2
			2459					>24<38	17.58	152.2
					PA822S_0120 MFC	3300	5000	<24	20.00	
								>24<32	18.78	
								>32<38	20.38	
					PA822S_0120 MFL	2500	4500	>38<48	19.60	154.1
					PA822S_0120 MFLC	3300	5000		35.46	
15.00	800	1200	1926	≤4	**P822S_0150 MT**	2500	4500	38	8.65	166.2
					P822S_0150 MTC	3300	6000		11.85	
					P822S_0150 MTL	2500	4500	48	26.63	
16.00	800	1600	3200	≤4	**P822S_0160 MT**	2500	4500	38	10.65	168.9
					P822S_0160 MTC	3300	6000		21.89	166.2
					P822S_0160 MTL	2500	4500	48	28.50	168.9
			2785	≤2	**PA822S_0160 MF**	2500	4500	<24	15.76	165.5
			3200					>24<38	16.09	166.2
					PA822S_0160 MFC	3400	6000	<24	18.51	
								>24<32	17.29	
								>32<38	18.89	
					PA822S_0160 MFL	2500	4500	>38<48	18.11	167.4
					PA822S_0160 MFLC	3400	6000		33.97	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal 1) M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak 2) M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia 3) J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA8	**(continued next page)**									
20.00	1000	1600	3200	≤4	**P822S_0200 MT**	2500	4500	38	10.22	171.8
					P822S_0200 MTC	3300	6000		21.46	170.0
					P822S_0200 MTL	2500	4500	48	28.07	171.8
				≤2	**PA822S_0200 MF**	2500	4500	<24	15.33	169.5
								>24<38	15.66	170.0
					PA822S_0200 MFC	3600	6000	<24	18.08	
								>24<32	16.87	
								>32<38	18.46	
					PA822S_0200 MFL	2500	4500	>38<48	17.68	170.8
					PA822S_0200 MFLC	3600	6000		33.54	
25.00	1000	1600	3200	≤4	**P822S_0250 MT**	3000	5500	38	8.83	170.9
					P822S_0250 MTC	3800	6000		20.07	169.8
					P822S_0250 MTL	3000	5500	48	26.68	170.9
				≤2	**PA822S_0250 MF**	3000	5500	<24	13.94	169.5
								>24<38	14.28	169.8
					PA822S_0250 MFC	4000	6000	<24	16.69	
								>24<32	15.48	
								>32<38	17.07	
					PA822S_0250 MFL	3000	5500	>38<48	16.29	170.3
					PA822S_0250 MFLC	4000	6000		32.15	
28.00	800	1600	3200	≤4	**P822S_0280 MT**	3300	6000	38	7.81	166.3
					P822S_0280 MTC	4300			18.71	165.2
					P822S_0280 MTL	3300		48	26.11	166.3
				≤2	**PA822S_0280 MF**	3300		<24	12.92	165.2
								>24<38	12.92	
					PA822S_0280 MFC	4500		<24	15.34	
								>24<32	14.12	
								>32<38	15.71	
					PA822S_0280 MFL	3300		>38<48	15.29	165.7
					PA822S_0280 MFLC	4500			31.15	
32.00	800	1200	2400	≤4	**P822S_0320 MT**	2500	4500	38	9.85	159.3
					P822S_0320 MTC	3300	6000		21.09	158.7
					P822S_0320 MTL	2500	4500	48	27.70	159.3
				≤2	**PA822S_0320 MF**	2500	4500	<24	14.96	158.5
								>24<38	15.29	158.7
					PA822S_0320 MFC	3600	6000	<24	17.71	
								>24<32	16.50	
								>32<38	18.09	
					PA822S_0320 MFL	2500	4500	>38<48	17.31	159.0
					PA822S_0320 MFLC	3600	6000		33.17	

1) Based on input speed of 2000 RPM. See page 16 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 STOBER.
** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P/PA8	**(continued next page)**									
35.00	1000	1600	3200	≤4	**P822S_0350 MT**	3300	6000	38	7.67	170.0
					P822S_0350 MTC	4300			18.58	169.3
					P822S_0350 MTL	3300		48	25.97	170.0
				≤2	**PA822S_0350 MF**	3300		<24	12.78	169.3
								>24<38		
					PA822S_0350 MFC	4500		<24	15.20	
								>24<32	13.98	
								>32<38	15.58	
					PA822S_0350 MFL	3300		>38<48	15.15	169.6
					PA822S_0350 MFLC	4500			31.01	
40.00	800	1600	3200	≤4	**P822S_0400 MT**	3300	6000	38	7.17	162.8
					P822S_0400 MTC	4500			18.08	162.3
					P822S_0400 MTL	3300		48	25.47	162.8
				≤2	**PA822S_0400 MF**	3300		<24	12.28	162.3
								>24<38		
					PA822S_0400 MFC	5000		<24	14.70	
								>24<32	13.48	
								>32<38	15.08	
					PA822S_0400 MFL	3300		>38<48	14.65	162.6
					PA822S_0400 MFLC	5000			30.51	
50.00	1000	1600	3200	≤4	**P822S_0500 MT**	3300	6000	38	7.10	167.7
					P822S_0500 MTC	4500			18.01	167.4
					P822S_0500 MTL	3300		48	25.40	167.7
				≤2	**PA822S_0500 MF**	3300		<24	12.21	167.4
								>24<38		
					PA822S_0500 MFC	5000		<24	14.63	
								>24<32	13.41	
								>32<38	15.01	
					PA822S_0500 MFL	3300		>38<48	14.58	167.5
					PA822S_0500 MFLC	5000			30.44	

[1] *Based on input speed of 2000 RPM. See page 16 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 STOBER.*
* *MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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P/PA Series: INLINE – Shaft Output

Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm

P/PA8 (continued from previous page)

70.00	1000	1400	2811	≤4	P822S_0700 MT	3300	6000	38	7.06	164.5
					P822S_0700 MTC	4500			17.96	164.4
					P822S_0700 MTL	3300		48	25.36	164.5
				≤2	PA822S_0700 MF	3300		<24	12.17	164.4
								>24<38		
					PA822S_0700 MFC	5000		<24	14.58	
								>24<32	13.37	
								>32<38	14.96	
					PA822S_0700 MFL	3300		>38<48	14.54	
					PA822S_0700 MFLC	5000			30.40	
100.00	700	1200	2400	≤4	P822S_1000 MT	3300	6000	38	7.03	148.4
					P822S_1000 MTC	4500			17.94	148.3
					P822S_1000 MTL	3300		48	25.33	148.4
				≤2	PA822S_1000 MF	3300		<24	12.14	148.3
								>24<38		
					PA822S_1000 MFC	5000		<24	14.56	
								>24<32	13.34	
								>32<38	14.94	
					PA822S_1000 MFL	3300		>38<48	14.51	148.4
					PA822S_1000 MFLC	5000			30.37	148.3

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.
** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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Selection Data



Exact Ratio (i)	Output Torque: Nominal [1] M_{2N}	Output Torque: Acceleration M_{2B}	Output Torque: Peak [2] M_{2PEAK}	Backlash	Part Number* (Gearhead + Input)	Maximum Input Speed RPM (n_1): Cont.	Maximum Input Speed RPM (n_1): Cyclic	Motor Shaft Max Ø D^6	Input Inertia [3] J_1	Torsional Stiffness C_2 (per arcmin)
	Nm	Nm	Nm	arcmin				mm	kgcm²	Nm
P9										
4.000	2000	3000	5432	≤3	**P921S_0040 MT**	2000	3000	60	98.17	349.3
					P921S_0040 MTC	3000	4500		105.81	
5.000	2000	3000	6000	≤3	**P921S_0050 MT**	2200	3500	60	80.39	341.8
					P921S_0050 MTC	3500	5000		88.03	
7.000	2000	2700	5400	≤3	**P921S_0070 MT**	2500	4000	60	67.08	322.0
					P921S_0070 MTC	4000	5000		74.72	
10.00	1400	2000	4000	≤3	**P921S_0100 MT**	2500	4000	60	59.46	257.5
					P921S_0100 MTC	4000	5000		67.09	
16.00	2000	3000	6000	≤4	**P922S_0160 MT**	2200	3500	48	42.16	340.5
					P922S_0160 MTC	3000	5000	48	63.41	334.5
					P922S_0160 MTL	2200	3500	60	69.72	338.9
20.00	2000	3000	6000	≤4	**P922S_0200 MT**	2200	3500	48	41.04	336.4
					P922S_0200 MTC	3000	5000	48	62.30	332.6
					P922S_0200 MTL	2200	3500	60	68.61	335.3
25.00	2000	3000	6000	≤4	**P922S_0250 MT**	2500	4000	48	34.78	335.1
					P922S_0250 MTC	3500	6000	48	56.04	332.7
					P922S_0250 MTL	2500	4000	60	62.35	334.5
28.00	2000	3000	6000	≤4	**P922S_0280 MT**	2800	4500	48	29.81	334.9
					P922S_0280 MTC	3750	5000	48	51.54	332.7
					P922S_0280 MTL	2800	4500	60	57.82	334.4
35.00	2000	3000	6000	≤4	**P922S_0350 MT**	2800	4500	48	29.45	332.8
					P922S_0350 MTC	3750	6000	48	51.18	331.4
					P922S_0350 MTL	2800	4500	60	57.46	332.5
40.00	2000	3000	6000	≤4	**P922S_0400 MT**	2800	4500	48	26.78	328.9
					P922S_0400 MTC	4000	6000	48	48.51	327.9
					P922S_0400 MTL	2800	4500	60	54.79	328.7
50.00	2000	3000	6000	≤4	**P922S_0500 MT**	2800	4500	48	26.60	329.0
					P922S_0500 MTC	4000	6000	48	48.33	328.3
					P922S_0500 MTL	2800	4500	60	54.61	328.9
70.00	2000	2700	5400	≤4	**P922S_0700 MT**	2800	4500	48	26.47	316.1
					P922S_0700 MTC	4000	6000	48	48.20	315.8
					P922S_0700 MTL	2800	4500	60	54.48	316.0
100.0	1400	2000	4000	≤4	**P922S_1000 MT**	2800	4500	48	26.39	255.7
					P922S_1000 MTC	4000	6000	48	48.12	255.6
					P922S_1000 MTL	2800	4500	60	54.40	255.6

[1] Based on input speed of 2000 RPM. See page 16 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 STOBER.

** MF = Motor Adapter with FlexiAdapt® coupling MT = Motor Adapter L = Large Input C = ServoCool*

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