

ServoFit® PA 行星齿轮减速器

ServoFit® PA Planetary Gear Units



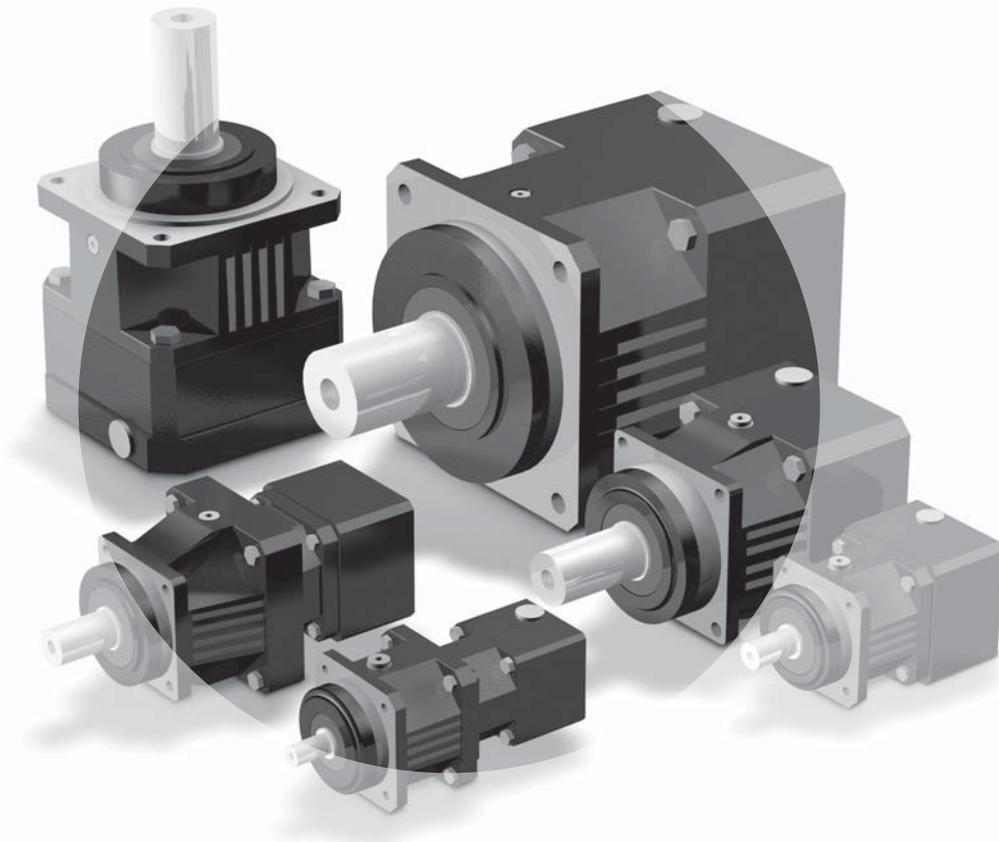
低齿隙，斜齿传动 精密行星齿轮减速器

- 加速扭矩：
50 – 1600 Nm
- 极低齿隙：1 – 3 arcmin
- 高扭转刚度及轴向刚度
- 油量恒定，
每种安装位置都适用
- 斜齿式齿轮齿条的最佳驱动
- 输入端和输出端 FKM 密封，
无冷却连续运转
- 夹紧轂的传导功能
使安装简便
- 摩擦优化
的对称输出轴承
- 先进的传动技术
- 输入端长度热补偿
- 易于连接任何伺服电机
- 可在任意位置安装电机，
安全，并且轻松
- 静音运转
- 效率：
1 级 $\geq 97\%$
2 级 $\geq 95\%$

Low backlash helical geared Precision Planetary Gear Units

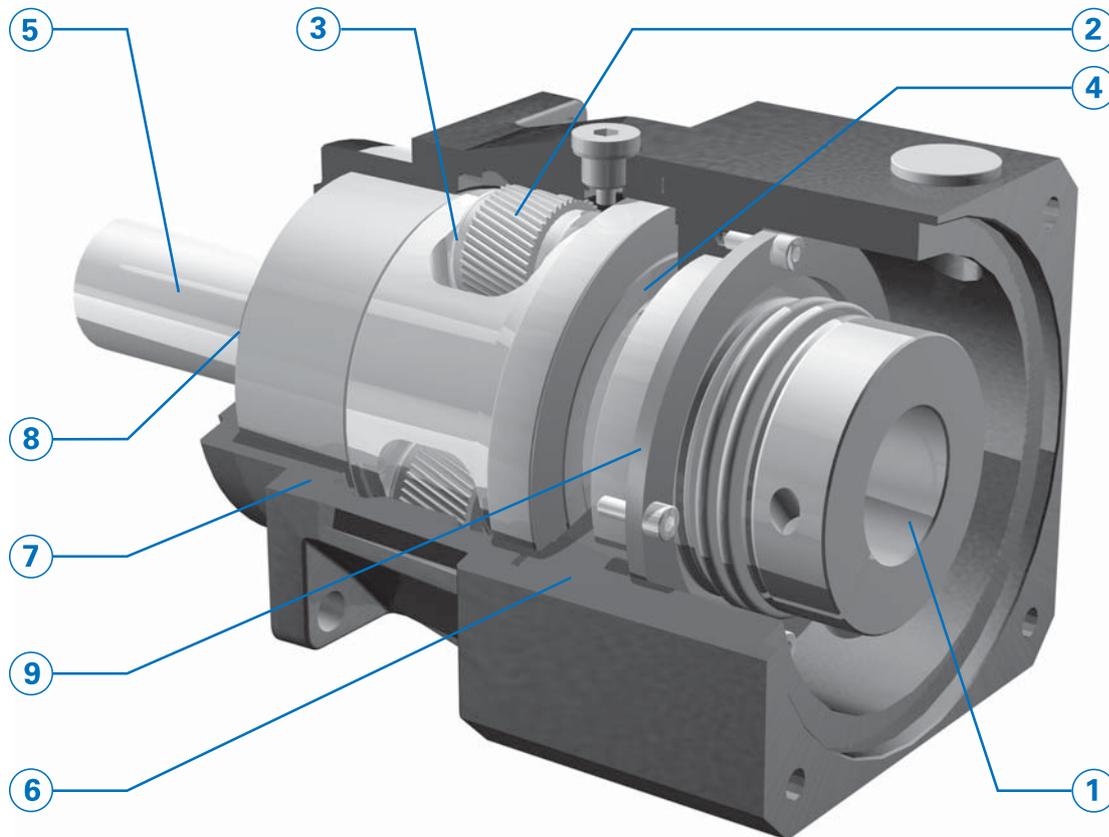
- Acceleration torque:
50 – 1600 Nm
- Lowest backlash: 1 – 3 arcmin
- high torsional and axial stiffness
- consistent oil quantity, suitable
for every mounting position
- best for helical geared rack and pinion
drives
- FKM seal at input and output,
continuous operation without cooling
- easy to assemble due to spreading func-
tion in the clamping hub
- symmetrically friction-optimized
output bearings
- advanced gear technology
- input with thermal length
compensation
- readily attaches any servo motor
- easy and secure motor attachment in
any mounting position
- quiet running
- efficiency:
1 stage $\geq 97\%$
2 stage $\geq 95\%$

ServoFit® PA



ServoFit® PA 行星齿轮减速器

ServoFit® PA Planetary Gear Units



- 经过验证的斜齿传动技术和优化后的基本几何结构，使其达到最高的运转平稳度。

手中积累的经验在过去几十年一贯付诸实践。齿轮齿的基本几何结构主要因此被优化，以确保最高的齿隙稳定性和极端安静的齿轮运转。

- 传动部件的**精度选择**确保齿隙小于一弧分。
- **主要轴承对称分布**，输出轴可容许高强度载荷并拥有巨大的侧倾刚度。已有标准版适用于**高轴向推力和径向负荷**。
- 无需特殊工具，**斯德博 FlexiAdapt® 电机适配器系统**，其综合热膨胀补偿功能让电机的安装变得轻松准确，可在几分钟内完成作业。
- **选择范围宽松的** IEC 和 NEMA 电机适配器几乎适用于所有品牌的电机。

- **Highest running smoothness achieved by proven helical gearing and optimized microgeometry.**

On-hands experience gained over the past decades has consistently been put to practice. This has resulted mainly in optimized gear tooth microgeometry, ensuring highest backlash stability and extremely quiet gear operation.

- **Precision selection** of the gearing parts ensures backlash of less than **one arc minute.**
- **Symmetrically arranged main bearings** for high load capacity and high tilting rigidity of the output shaft. Already the standard version is suitable for **high axial thrust and radial loads.**
- **The STÖBER FlexiAdapt® motor adapter system** with its integrated thermal expansion compensation feature allows easy and accurate motor installation in minutes with no special tools required.
- **Wide selection** of IEC and NEMA motor adapters for all common brands of motors.

ServoFit® PA 行星齿轮减速器

ServoFit® PA Planetary Gear Units



① FlexiAdapt® 联轴器

精准的电机安装由紧固螺栓完成。还有用于大规格电机轴直径的设计。

波纹管联轴器，其综合热膨胀补偿功能用于补偿电机轴的线性膨胀。

平衡的夹紧联轴节确保高速时也能平滑运转。

轴套用于适应用户的电机轴径。

② 高品质传动由经过表面硬化处理和精磨的太阳轮和行星轮提供。

③ 行星齿轮的轴承容许负载增加了约100%。

④ 防护等级 IP65。使用 FKM 油封在尽可能最小的轴径处密封，减小摩擦，从而防止内部热量的堆积，增加效率。无需外部冷却即可持续运转。

⑤ 最高抗扭刚度和极限抗拉强度由高抗拉材料制成的一体化行星架提供。

⑥ 铝合金制成的电机适配器特别适合低重量减速器。

⑦ 一体化箱体设计确保最高的运转精度。箱体材料：高强度锻球墨铸铁。

⑧ FKM 径向双唇油封。适用于连续运转，具有非常好的化学稳定性。

⑨ 输入轴带罩轴承以及耐高温油脂，特别适合免维护运转。

⑩ 使用高质量防水合成齿轮油保证终生润滑。

① FlexiAdapt® coupling

Accurate and precise motor installation by clamping screw. Designed for large motor shaft diameters.

The integrated thermal expansion compensation feature in the shape of a bellows coupling compensates linear expansion of the motor shaft.

Balanced clamp coupling for smooth operation, also at high speeds.

Spacer bushes to accommodate custom motor shaft diameters.

② *High gearing quality provided by case-hardened and finish-ground sun gear, planet gears and honed ring gear.*

③ *Load capacity of the planet gear bearings increased by about 100%.*

④ *IP65 enclosure. Sealed with a FKM radial oil seal for the smallest possible shaft diameter. Reduces friction, thus preventing internal heat build-up. Increases efficiency. Continuous duty operation possible without addition cooling.*

⑤ *Highest torsional stiffness and ultimate tensile strength provided by oversized single-piece planet carriers made of high-tensile material.*

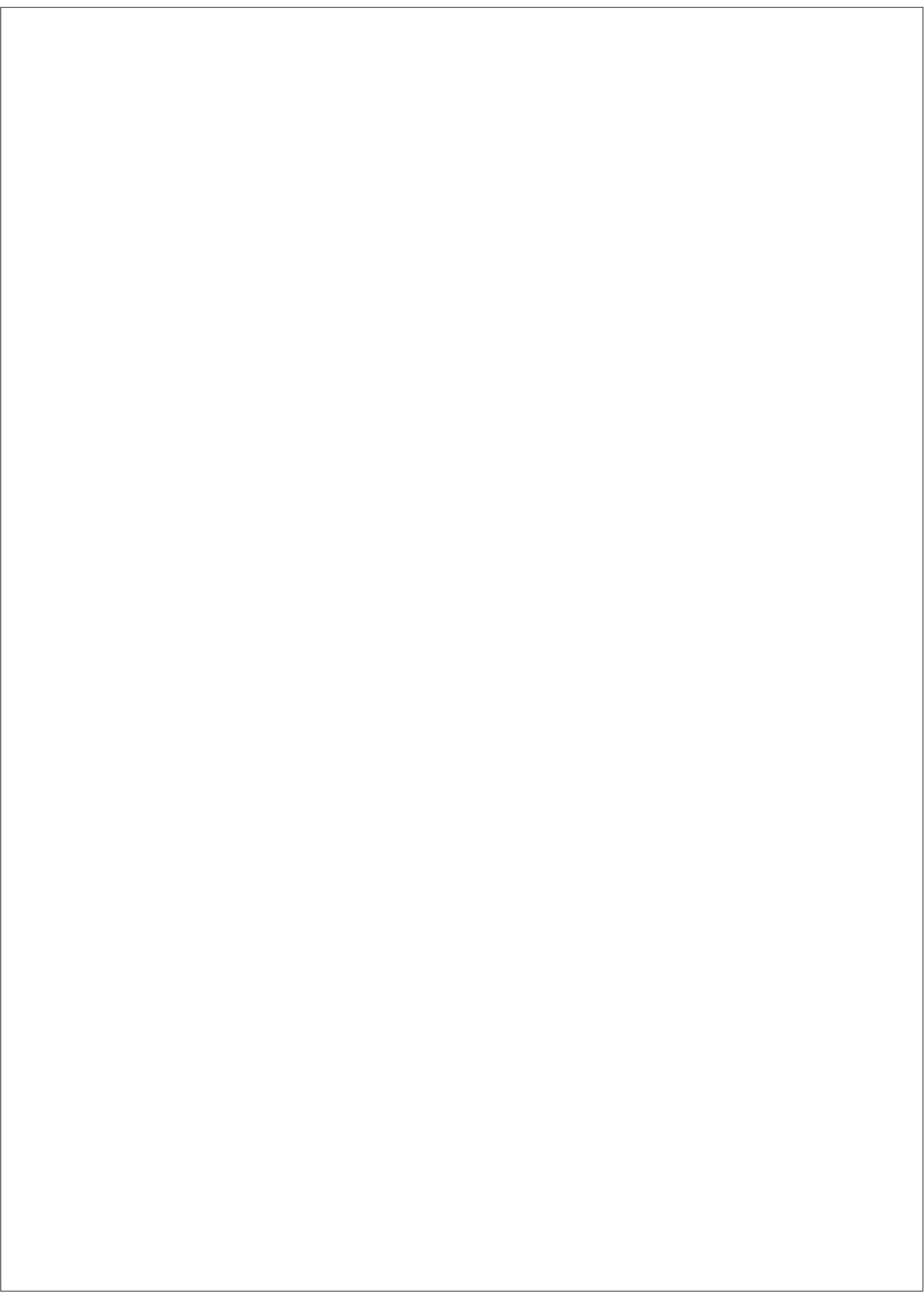
⑥ *Motor adapter made of aluminium for low gear unit weight.*

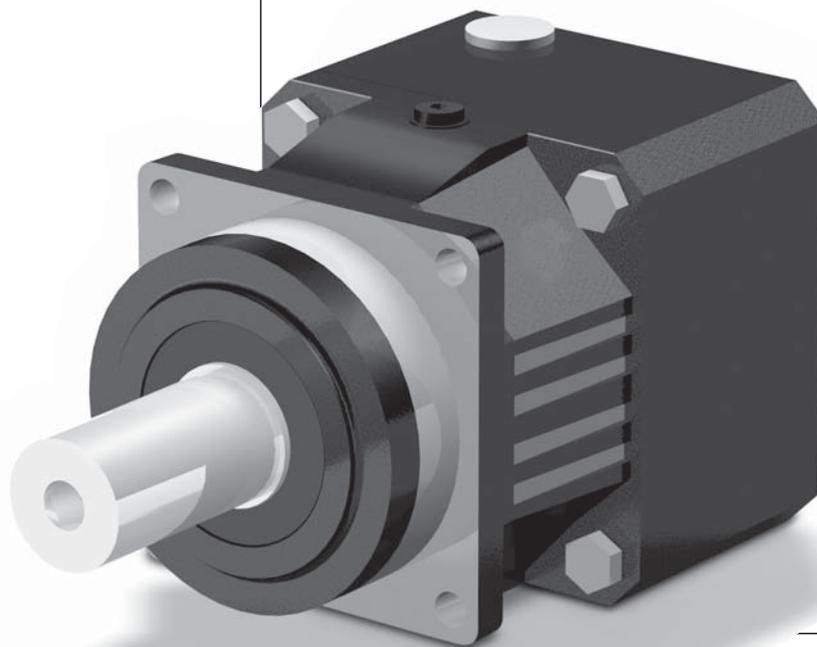
⑦ *Highest running accuracy and precision ensured by single-piece housing design. Housing material: High-tensile tempered ductile iron.*

⑧ *FKM double-lip radial oil seals. For continuous duty applications, with very good chemical resistance.*

⑨ *Input shaft bearings with shields and high-temperature grease for maintenance-free operation.*

⑩ *Lubricated for life with high-quality hydrophobic synthetic gear oil.*





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选型数据: ServoFit® P 行星齿轮减速器	PA5
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Shaft design Output shaft PA	PA3
Selection data: ServoFit® PA Planetary Gear Units	PA5
Dimension drawings: ServoFit® PA Planetary Gear Units	PA15

型号标识

Type designation



PA 4 2 1 S G D 0050 MF C
 | | | | | | | | | |
 1 2 3 4 5 6 7 8 9 10

1 减速器类型
P - 行星齿轮减速器

2 减速器规格

3 生产代号

4 齿轮级数
1 - 1 级
2 - 2 级

5 箱体结构
S - 标准设计

6 轴系设计
G - 光轴
P - 带键轴

7 轴承类型
D - 加强轴承 (轴向)

8 传动比 $i \times 10$

9 电机适配器
MF - 带有 FlexiAdapt® 联轴器的电机适配器
MFL - 带有 FlexiAdapt® 联轴器和大规格电机法兰盘的电机适配器
 按需定制 (需要客户的电机尺寸图! 还请参阅电机输出图与 PA17 页的电机连接图, 并注意最大尺寸)。
MB - 带制动的电机适配器 (可选) (见手册 ID 441904)

10 冷却模块
C - ServoCool (可选) (见手册 ID 441851)

订货数据依照以上型号标识。

更多订货细节:
 - 如果是水平安装, 输出轴的回转运行是否在 ± 20 到 ± 90 度之间?
 (也可参见 A12 页)

警告! 为确保达到标定的扭矩, 齿轮箱装配到机械上的螺栓必须是 10.9 级。

1 Gear unit type
P - Planetary gear unit

2 Gear unit size

3 Generation number

4 Stages
1 - 1 stage
2 - 2 stage

5 Housing design
S - Standard design

6 Shaft design
G - plain shaft
P - shaft with key

7 Bearing design
D - reinforced bearings (axial)

8 Transmission ratio $i \times 10$

9 Mounting series
MF - Motor adapter with FlexiAdapt® coupling
MFL - Motor adapter with FlexiAdapt® coupling and large motor plate
 Acc. to customer specs (Dimension drawing of customer motor necessary! Also see pic. motor output and motor connection from page PA17, please observe the max. dimensions).
MB - Motor adapter square with brake (option) (see brochure ID 441904)

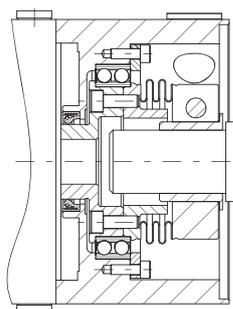
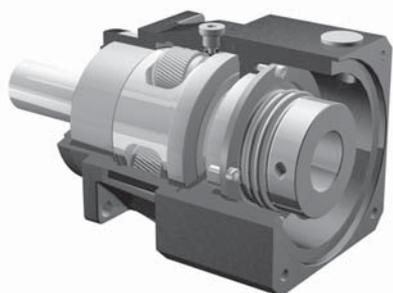
10 Ventilator module
C - ServoCool (option) (see brochure ID 441851)

Ordering data according to the type designation above.

Further ordering details:
 - reversing operation of the output shaft ± 20 to ± 90 degrees (horizontal mounting)? (also see page A12)

WARNING! In order to ensure that the specified torques are attained it is essential to attach the gear units at the machine with screws of grade 10.9.

PA421 S GD 0050 MF



FlexiAdapt® 联轴器 MF
 FlexiAdapt® coupling MF

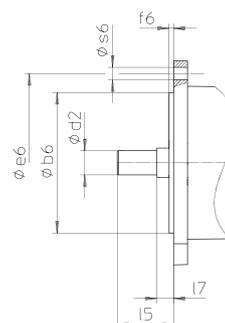


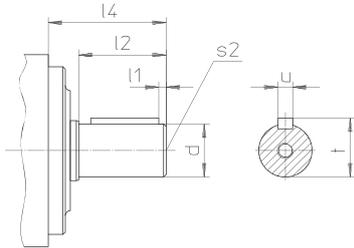
图: 电机输出端
 Picture: motor output

PA
输出轴
轴系设计

PA
Shaft design
Output shaft



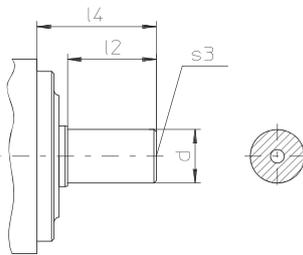
带键轴 / shaft with key



轴系设计 "P" / Shaft design "P"

Typ	ød	l1	l2	l4	s2 ¹⁾	t	u ²⁾
PA3	16k6	2	28	48	M5	18,0	A5x5x22
PA4	22k6	3	36	56	M8	24,5	A6x6x28
PA5	32k6	3	58	88	M12	35,0	A10x8x50
PA7	40k6	4	82	112	M16	43,0	A12x8x70
PA8	55k6	6	82	112	M20	59,0	A16x10x70

无键轴 / shaft without key



轴系设计 "G" / Shaft design "G"

Typ	ød	l2	l4	s3 ¹⁾
PA3	16k6	28	48	R4x8,5
PA4	22k6	36	56	R4x8,5
PA5	32k6	58	88	R4x8,5
PA7	40k6	82	112	M16
PA8	55k6	82	112	M20

1) 中心孔: 无键轴的中心孔符合 DIN 332 T1, 带键轴的符合 DIN 332 T2, DR 型。

2) 导向键: 导向键符合 DIN 6885, 宽度公差依照 h9。

1) **Centre holes:** Centre holes in shafts without key correspond to DIN 332 T1, in shafts with key to DIN 332 T2 shape DR.

2) **Feather keys:** The width tolerance of the feather key to DIN 6885 is h9 according.

备注

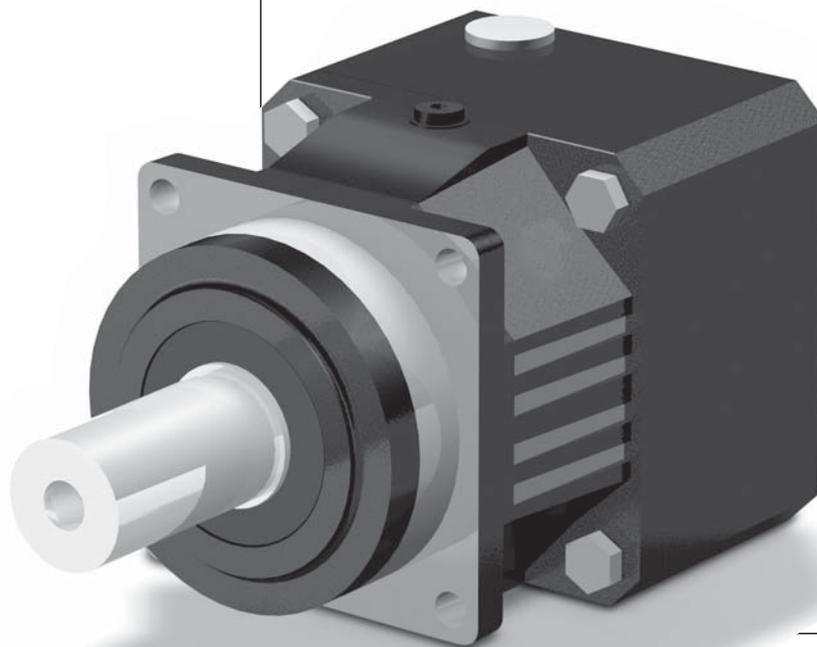
Notes



A series of horizontal dotted lines for writing notes.

选型数据：
ServoFit® PA
行星齿轮减速器

Selection data:
ServoFit® PA
Planetary Gear Units



PA

选型数据：
ServoFit® PA
行星齿轮减速器

Selection data:
ServoFit® PA
Planetary Gear Units



符号：

- i** - 减速器传动比
 - n_{1MAX}** - 最大输入转速
 - DB - 连续运转
 - ZB - 间歇运转(环境温度 20°C, 还请参阅 A10/A11 页)
 - MW_ø** - 电机轴径
 - J₁** - 质量惯性矩 (针对输入端)
 - G** - 重量
 - Δφ₂** - 齿隙
 - C₂** - 齿轮箱刚度
(针对 M_{2N} 时的输出端)
- L_{PA}** - 最大噪音水平 (n₁ = 2000 rpm)
- M_{2N}** - 额定扭矩 ¹⁾
- M_{2B}** - 最大容许加速扭矩
 - 注意：** M_{2B} 的值是基于轴系设计 “G” 的齿轮箱有效值。因此我们通常建议这种轴设计用于间歇运转。
- M_{2NOT}** - 紧急制动扭矩
(1000 次负载变化)

请注意 A10/A11 页的运转系数!

¹⁾ 所列数值适用于输入转速 n₁=1500 rpm。

产品构成的容许扭矩 M_{2N} 和所容许的转速 n_{1MAXDB} 不考虑最大热容量。

Symbols:

- i** - Gear unit ratio
 - n_{1MAX}** - Max. input speed
 - DB - Continuous operation
 - ZB - Cycle operation(at ambient temperature 20°C, also see page A10/A11)
 - MW_ø** - Motor shaft diameter
 - J₁** - Mass mom. of inertia (related to input)
 - G** - Weight
 - Δφ₂** - Backlash
 - C₂** - Gear unit rigidity
(related to output at M_{2N})
- L_{PA}** - Max. noise level (n₁ = 2000 rpm)
- M_{2N}** - Rated torque ¹⁾
- M_{2B}** - Max. perm. acceleration torque
 - Caution:** Values for M_{2B} are valid for gear units with shaft design “G”. Therefore we generally recommend this shaft design for cycle operation.
- M_{2NOT}** - Emergency-Off moment
(10³ load changes)

Please take notice of the operating factors on page A10/A11 !

¹⁾ Figures applied to input speed n₁ = 1500 rpm.

The product consisting of permissible torque M_{2N} and permissible speed n_{1MAXDB} does not consider the maximum thermal capacity.

行星齿轮减速器 PA

Planetary Gear Units PA



请注意 PA6 页的符号注释!

Please take notice of the indications on page PA6!

i	Typ	n1MAX DB [min ⁻¹]	n1MAX ZB [min ⁻¹]	MWø [mm]	J1 [10 ⁻⁴ kgm ²]	G [kg]	Δφ2 [arcmin]	C2 [Nm/arcmin]	LPA [dB(A)]	M2N [Nm]	M2B [Nm]	M2NOT [Nm]
PA321 (M2BMAX=65 Nm)												
3,000	PA321_0030 MF	3500	6000	≤11	0,68	2,1	2	4,9	62	30	50	64
3,000	PA321_0030 MF	3500	6000	>11≤14	0,69	2,1	2	5,0	62	30	50	110
3,000	PA321_0030 MF	3500	6000	>14≤19	0,69	2,1	2	5,0	62	30	50	120
3,000	PA321_0030 MFL	3500	6000	>19≤24	1,7	2,9	2	5,5	62	30	50	120
4,000	PA321_0040 MF	3700	6500	≤11	0,60	2,1	2	4,9	59	45	65	85
4,000	PA321_0040 MF	3700	6500	>11≤14	0,61	2,1	2	4,9	59	45	65	130
4,000	PA321_0040 MF	3700	6500	>14≤19	0,61	2,1	2	4,9	59	45	65	130
4,000	PA321_0040 MFL	3700	6500	>19≤24	1,7	2,9	2	5,2	59	45	65	130
5,000	PA321_0050 MF	4000	7000	≤11	0,55	2,1	2	4,8	58	45	65	110
5,000	PA321_0050 MF	4000	7000	>11≤14	0,57	2,1	2	4,9	58	45	65	130
5,000	PA321_0050 MF	4000	7000	>14≤19	0,57	2,1	2	4,9	58	45	65	130
5,000	PA321_0050 MFL	4000	7000	>19≤24	1,6	2,9	2	5,0	58	45	65	130
7,000	PA321_0070 MF	4500	8000	≤11	0,51	2,1	2	4,3	57	45	60	130
7,000	PA321_0070 MF	4500	8000	>11≤14	0,51	2,1	2	4,3	57	45	60	130
7,000	PA321_0070 MF	4500	8000	>14≤19	0,51	2,1	2	4,3	57	45	60	130
7,000	PA321_0070 MFL	4500	8000	>19≤24	1,6	2,9	2	4,4	57	45	60	130
8,000	PA321_0080 MF	4500	8000	≤11	0,50	2,1	2	4,1	56	40	50	100
8,000	PA321_0080 MF	4500	8000	>11≤14	0,50	2,1	2	4,1	56	40	50	100
8,000	PA321_0080 MF	4500	8000	>14≤19	0,50	2,1	2	4,1	56	40	50	100
8,000	PA321_0080 MFL	4500	8000	>19≤24	1,6	2,9	2	4,2	56	40	50	100
10,00	PA321_0100 MF	4500	8000	≤11	0,50	2,1	2	4,0	55	30	50	100
10,00	PA321_0100 MF	4500	8000	>11≤14	0,50	2,1	2	4,0	55	30	50	100
10,00	PA321_0100 MF	4500	8000	>14≤19	0,50	2,1	2	4,0	55	30	50	100
10,00	PA321_0100 MFL	4500	8000	>19≤24	1,6	2,9	2	4,0	55	30	50	100
PA322 (M2BMAX=65 Nm)												
12,00	PA322_0120 MF	4500	8000	≤9	0,12	2,4	3	4,2	59	30	50	120
12,00	PA322_0120 MF	4500	8000	>9≤11	0,13	2,4	3	4,2	59	30	50	120
12,00	PA322_0120 MF	4500	8000	>11≤14	0,15	2,4	3	4,2	59	30	50	120
16,00	PA322_0160 MF	4500	8000	≤9	0,11	2,4	3	4,5	59	45	65	130
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16,00	PA322_0160 MF	4500	8000	>11≤14	0,14	2,4	3	4,5	59	45	65	130
20,00	PA322_0200 MF	4500	8000	≤9	0,11	2,4	3	4,6	59	45	65	130
20,00	PA322_0200 MF	4500	8000	>9≤11	0,12	2,4	3	4,6	59	45	65	130
20,00	PA322_0200 MF	4500	8000	>11≤14	0,14	2,4	3	4,6	59	45	65	130
25,00	PA322_0250 MF	4500	8000	≤9	0,09	2,4	3	4,6	57	45	65	130
25,00	PA322_0250 MF	4500	8000	>9≤11	0,10	2,4	3	4,6	57	45	65	130
25,00	PA322_0250 MF	4500	8000	>11≤14	0,12	2,4	3	4,6	57	45	65	130
28,00	PA322_0280 MF	4500	8000	≤9	0,08	2,4	3	4,5	56	45	65	130
28,00	PA322_0280 MF	4500	8000	>9≤11	0,09	2,4	3	4,5	56	45	65	130
28,00	PA322_0280 MF	4500	8000	>11≤14	0,11	2,4	3	4,5	56	45	65	130
32,00	PA322_0320 MF	4500	8000	≤9	0,10	2,4	3	4,1	59	40	50	100
32,00	PA322_0320 MF	4500	8000	>9≤11	0,12	2,4	3	4,1	59	40	50	100
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35,00	PA322_0350 MF	4500	8000	≤9	0,08	2,4	3	4,6	56	45	65	130
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35,00	PA322_0350 MF	4500	8000	>11≤14	0,11	2,4	3	4,6	56	45	65	130
40,00	PA322_0400 MF	4500	8000	≤9	0,07	2,4	3	4,4	54	45	65	130
40,00	PA322_0400 MF	4500	8000	>9≤11	0,08	2,4	3	4,4	54	45	65	130
40,00	PA322_0400 MF	4500	8000	>11≤14	0,10	2,4	3	4,4	54	45	65	130
50,00	PA322_0500 MF	4500	8000	≤9	0,07	2,4	3	4,5	54	45	65	130
50,00	PA322_0500 MF	4500	8000	>9≤11	0,08	2,4	3	4,5	54	45	65	130
50,00	PA322_0500 MF	4500	8000	>11≤14	0,10	2,4	3	4,5	54	45	65	130
56,00	PA322_0560 MF	4500	8000	≤9	0,08	2,4	3	4,1	56	40	50	100
56,00	PA322_0560 MF	4500	8000	>9≤11	0,09	2,4	3	4,1	56	40	50	100
56,00	PA322_0560 MF	4500	8000	>11≤14	0,11	2,4	3	4,1	56	40	50	100
70,00	PA322_0700 MF	4500	8000	≤9	0,07	2,4	3	4,2	54	45	60	130
70,00	PA322_0700 MF	4500	8000	>9≤11	0,08	2,4	3	4,2	54	45	60	130
70,00	PA322_0700 MF	4500	8000	>11≤14	0,10	2,4	3	4,2	54	45	60	130
80,00	PA322_0800 MF	4500	8000	≤9	0,07	2,4	3	4,1	54	40	50	100

PA

行星齿轮减速器 PA

Planetary Gear Units PA



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Please take notice of the indications on page PA6!

i	Typ	n1MAX DB [min ⁻¹]	n1MAX ZB [min ⁻¹]	MWø [mm]	J1 [10 ⁻⁴ kgm ²]	G [kg]	Δφ2 [arcmin]	C2 [Nm/arcmin]	LPA [dB(A)]	M2N [Nm]	M2B [Nm]	M2NOT [Nm]
PA322 (M2BMAX=65 Nm)												
80,00	PA322_0800 MF	4500	8000	>9≤11	0,08	2,4	3	4,1	54	40	50	100
80,00	PA322_0800 MF	4500	8000	>11≤14	0,10	2,4	3	4,1	54	40	50	100
100,0	PA322_1000 MF	4500	8000	≤9	0,07	2,4	3	3,9	54	30	50	100
100,0	PA322_1000 MF	4500	8000	>9≤11	0,08	2,4	3	3,9	54	30	50	100
100,0	PA322_1000 MF	4500	8000	>11≤14	0,10	2,4	3	3,9	54	30	50	100
PA421 (M2BMAX=120 Nm)												
3,000	PA421_0030 MF	3000	5500	≤14	2,3	4,0	2	11	63	50	100	150
3,000	PA421_0030 MF	3000	5500	>14≤19	2,4	4,0	2	11	63	50	100	200
3,000	PA421_0030 MF	3000	5500	>19≤24	2,3	4,0	2	11	63	50	100	240
3,000	PA421_0030 MFL	3000	5500	>24≤32	5,4	4,7	2	12	63	50	100	240
4,000	PA421_0040 MF	3300	6000	≤14	1,9	4,0	2	11	60	85	120	190
4,000	PA421_0040 MF	3300	6000	>14≤19	2,0	4,0	2	11	60	85	120	240
4,000	PA421_0040 MF	3300	6000	>19≤24	1,9	4,0	2	11	60	85	120	240
4,000	PA421_0040 MFL	3300	6000	>24≤32	5,0	4,7	2	12	60	85	120	240
5,000	PA421_0050 MF	3700	6500	≤14	1,8	4,0	2	11	59	85	120	240
5,000	PA421_0050 MF	3700	6500	>14≤19	1,9	4,0	2	11	59	85	120	240
5,000	PA421_0050 MF	3700	6500	>19≤24	1,8	4,0	2	11	59	85	120	240
5,000	PA421_0050 MFL	3700	6500	>24≤32	4,9	4,7	2	11	59	85	120	240
7,000	PA421_0070 MF	4000	7000	≤14	1,7	4,0	2	9,9	58	85	110	240
7,000	PA421_0070 MF	4000	7000	>14≤19	1,7	4,0	2	9,9	58	85	110	240
7,000	PA421_0070 MF	4000	7000	>19≤24	1,6	4,0	2	9,9	58	85	110	240
7,000	PA421_0070 MFL	4000	7000	>24≤32	4,8	4,7	2	10,0	58	85	110	240
8,000	PA421_0080 MF	4000	7000	≤14	1,7	4,0	2	9,4	57	80	100	200
8,000	PA421_0080 MF	4000	7000	>14≤19	1,7	4,0	2	9,4	57	80	100	200
8,000	PA421_0080 MF	4000	7000	>19≤24	1,6	4,0	2	9,4	57	80	100	200
8,000	PA421_0080 MFL	4000	7000	>24≤32	4,8	4,7	2	9,4	57	80	100	200
10,00	PA421_0100 MF	4000	7000	≤14	1,7	4,0	2	8,9	56	60	100	200
10,00	PA421_0100 MF	4000	7000	>14≤19	1,7	4,0	2	8,9	56	60	100	200
10,00	PA421_0100 MF	4000	7000	>19≤24	1,6	4,0	2	8,9	56	60	100	200
10,00	PA421_0100 MFL	4000	7000	>24≤32	4,7	4,7	2	9,0	56	60	100	200
PA422 (M2BMAX=120 Nm)												
12,00	PA422_0120 MF	3700	6500	≤11	0,64	5,2	3	9,7	60	50	100	240
12,00	PA422_0120 MF	3700	6500	>11≤14	0,65	5,2	3	9,8	60	50	100	240
12,00	PA422_0120 MF	3700	6500	>14≤19	0,65	5,2	3	9,8	60	50	100	240
12,00	PA422_0120 MFL	3700	6500	>19≤24	1,7	5,9	3	9,9	60	50	100	240
16,00	PA422_0160 MF	3700	6500	≤11	0,62	5,2	3	10	60	85	120	240
16,00	PA422_0160 MF	3700	6500	>11≤14	0,63	5,2	3	10	60	85	120	240
16,00	PA422_0160 MF	3700	6500	>14≤19	0,63	5,2	3	10	60	85	120	240
16,00	PA422_0160 MFL	3700	6500	>19≤24	1,7	5,9	3	10	60	85	120	240
20,00	PA422_0200 MF	3700	6500	≤11	0,61	5,2	3	11	60	85	120	240
20,00	PA422_0200 MF	3700	6500	>11≤14	0,62	5,2	3	11	60	85	120	240
20,00	PA422_0200 MF	3700	6500	>14≤19	0,62	5,2	3	11	60	85	120	240
20,00	PA422_0200 MFL	3700	6500	>19≤24	1,7	5,9	3	11	60	85	120	240
25,00	PA422_0250 MF	4000	7000	≤11	0,56	5,2	3	11	58	85	120	240
25,00	PA422_0250 MF	4000	7000	>11≤14	0,57	5,2	3	11	58	85	120	240
25,00	PA422_0250 MF	4000	7000	>14≤19	0,57	5,2	3	11	58	85	120	240
25,00	PA422_0250 MFL	4000	7000	>19≤24	1,6	5,9	3	11	58	85	120	240
28,00	PA422_0280 MF	4500	8000	≤11	0,52	5,2	3	10	57	85	120	240
28,00	PA422_0280 MF	4500	8000	>11≤14	0,52	5,2	3	10	57	85	120	240
28,00	PA422_0280 MF	4500	8000	>14≤19	0,52	5,2	3	10	57	85	120	240
28,00	PA422_0280 MFL	4500	8000	>19≤24	1,6	5,9	3	10	57	85	120	240
32,00	PA422_0320 MF	3700	6500	≤11	0,60	5,2	3	9,2	60	80	100	200
32,00	PA422_0320 MF	3700	6500	>11≤14	0,62	5,2	3	9,2	60	80	100	200
32,00	PA422_0320 MF	3700	6500	>14≤19	0,62	5,2	3	9,2	60	80	100	200
32,00	PA422_0320 MFL	3700	6500	>19≤24	1,7	5,9	3	9,2	60	80	100	200
35,00	PA422_0350 MF	4500	8000	≤11	0,52	5,2	3	11	57	85	120	240

行星齿轮减速器 PA

Planetary Gear Units PA



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i	Typ	n1MAX DB [min ⁻¹]	n1MAX ZB [min ⁻¹]	MWø [mm]	J1 [10 ⁻⁴ kgm ²]	G [kg]	Δφ2 [arcmin]	C2 [Nm/arcmin]	LPA [dB(A)]	M2N [Nm]	M2B [Nm]	M2NOT [Nm]
PA422 (M2BMAX=120 Nm)												
35,00	PA422_0350 MF	4500	8000	>11≤14	0,52	5,2	3	11	57	85	120	240
35,00	PA422_0350 MFL	4500	8000	>14≤19	0,52	5,2	3	11	57	85	120	240
35,00	PA422_0350 MF	4500	8000	>19≤24	1,6	5,9	3	11	57	85	120	240
40,00	PA422_0400 MF	4500	8000	≤11	0,50	5,2	3	10	55	85	120	240
40,00	PA422_0400 MF	4500	8000	>11≤14	0,50	5,2	3	10	55	85	120	240
40,00	PA422_0400 MF	4500	8000	>14≤19	0,50	5,2	3	10	55	85	120	240
40,00	PA422_0400 MFL	4500	8000	>19≤24	1,6	5,9	3	10	55	85	120	240
50,00	PA422_0500 MF	4500	8000	≤11	0,50	5,2	3	10	55	85	120	240
50,00	PA422_0500 MF	4500	8000	>11≤14	0,50	5,2	3	10	55	85	120	240
50,00	PA422_0500 MF	4500	8000	>14≤19	0,50	5,2	3	10	55	85	120	240
50,00	PA422_0500 MFL	4500	8000	>19≤24	1,6	5,9	3	10	55	85	120	240
56,00	PA422_0560 MF	3700	6500	≤11	0,52	5,2	3	9,2	57	80	100	200
56,00	PA422_0560 MF	3700	6500	>11≤14	0,52	5,2	3	9,2	57	80	100	200
56,00	PA422_0560 MF	3700	6500	>14≤19	0,52	5,2	3	9,2	57	80	100	200
56,00	PA422_0560 MFL	3700	6500	>19≤24	1,6	5,9	3	9,2	57	80	100	200
70,00	PA422_0700 MF	4500	8000	≤11	0,50	5,2	3	9,6	55	85	110	240
70,00	PA422_0700 MF	4500	8000	>11≤14	0,50	5,2	3	9,6	55	85	110	240
70,00	PA422_0700 MF	4500	8000	>14≤19	0,50	5,2	3	9,6	55	85	110	240
70,00	PA422_0700 MFL	4500	8000	>19≤24	1,6	5,9	3	9,6	55	85	110	240
80,00	PA422_0800 MF	3700	6500	≤11	0,50	5,2	3	9,2	55	80	100	200
80,00	PA422_0800 MF	3700	6500	>11≤14	0,50	5,2	3	9,2	55	80	100	200
80,00	PA422_0800 MF	3700	6500	>14≤19	0,50	5,2	3	9,2	55	80	100	200
80,00	PA422_0800 MFL	3700	6500	>19≤24	1,6	5,9	3	9,2	55	80	100	200
100,0	PA422_1000 MF	4500	8000	≤11	0,50	5,2	3	8,8	55	60	100	200
100,0	PA422_1000 MF	4500	8000	>11≤14	0,50	5,2	3	8,8	55	60	100	200
100,0	PA422_1000 MF	4500	8000	>14≤19	0,50	5,2	3	8,8	55	60	100	200
100,0	PA422_1000 MFL	4500	8000	>19≤24	1,6	5,9	3	8,8	55	60	100	200
PA521 (M2BMAX=300 Nm)												
3,000	PA521_0030 MF	2500	4500	≤19	7,6	6,5	1	30	64	120	200	260
3,000	PA521_0030 MF	2500	4500	>19≤24	7,7	6,5	1	31	64	120	200	460
3,000	PA521_0030 MF	2500	4500	>24≤32	7,6	6,5	1	31	64	120	200	460
3,000	PA521_0030 MF	2500	4500	>32≤35	7,6	6,5	1	31	64	120	200	460
3,000	PA521_0030 MFL	2500	4500	>32≤38	14	8,2	1	33	64	120	200	460
4,000	PA521_0040 MF	3000	5000	≤19	5,9	6,5	1	29	61	210	280	350
4,000	PA521_0040 MF	3000	5000	>19≤24	5,9	6,5	1	29	61	210	300	600
4,000	PA521_0040 MF	3000	5000	>24≤32	5,8	6,5	1	29	61	210	300	600
4,000	PA521_0040 MF	3000	5000	>32≤35	5,8	6,5	1	29	61	210	300	600
4,000	PA521_0040 MFL	3000	5000	>32≤38	13	8,2	1	31	61	210	300	600
5,000	PA521_0050 MF	3500	6000	≤19	5,4	6,5	1	29	60	210	300	430
5,000	PA521_0050 MF	3500	6000	>19≤24	5,5	6,5	1	29	60	210	300	600
5,000	PA521_0050 MF	3500	6000	>24≤32	5,4	6,5	1	29	60	210	300	600
5,000	PA521_0050 MF	3500	6000	>32≤35	5,4	6,5	1	29	60	210	300	600
5,000	PA521_0050 MFL	3500	6000	>32≤38	12	8,2	1	30	60	210	300	600
7,000	PA521_0070 MF	3700	6500	≤19	5,1	6,5	1	27	59	210	270	600
7,000	PA521_0070 MF	3700	6500	>19≤24	5,1	6,5	1	27	59	210	270	600
7,000	PA521_0070 MF	3700	6500	>24≤32	5,0	6,5	1	27	59	210	270	600
7,000	PA521_0070 MF	3700	6500	>32≤35	5,0	6,5	1	27	59	210	270	600
7,000	PA521_0070 MFL	3700	6500	>32≤38	12	8,2	1	28	59	210	270	600
8,000	PA521_0080 MF	3700	6500	≤19	5,0	6,5	1	25	58	200	250	500
8,000	PA521_0080 MF	3700	6500	>19≤24	5,0	6,5	1	25	58	200	250	500
8,000	PA521_0080 MF	3700	6500	>24≤32	4,9	6,5	1	25	58	200	250	500
8,000	PA521_0080 MF	3700	6500	>32≤35	4,9	6,5	1	25	58	200	250	500
8,000	PA521_0080 MFL	3700	6500	>32≤38	12	8,2	1	26	58	200	250	500
10,00	PA521_0100 MF	3700	6500	≤19	4,9	6,5	1	25	57	140	250	500
10,00	PA521_0100 MF	3700	6500	>19≤24	4,9	6,5	1	25	57	140	250	500
10,00	PA521_0100 MF	3700	6500	>24≤32	4,8	6,5	1	25	57	140	250	500
10,00	PA521_0100 MF	3700	6500	>32≤35	4,8	6,5	1	25	57	140	250	500
10,00	PA521_0100 MFL	3700	6500	>32≤38	12	8,2	1	25	57	140	250	500

行星齿轮减速器 PA

Planetary Gear Units PA



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Please take notice of the indications on page PA6!

i	Typ	n1MAX DB [min ⁻¹]	n1MAX ZB [min ⁻¹]	MWø [mm]	J1 [10 ⁻⁴ kgm ²]	G [kg]	Δφ2 [arcmin]	C2 [Nm/arcmin]	LPA [dB(A)]	M2N [Nm]	M2B [Nm]	M2NOT [Nm]
PA522 (M2BMAX=300 Nm)												
12,00	PA522_0120 MF	3300	6000	≤14	2,0	8,5	2	27	61	120	200	460
12,00	PA522_0120 MF	3300	6000	>14≤19	2,0	8,5	2	27	61	120	200	460
12,00	PA522_0120 MF	3300	6000	>19≤24	1,9	8,5	2	27	61	120	200	460
12,00	PA522_0120 MFL	3300	6000	>24≤32	5,1	9,2	2	27	61	120	200	460
16,00	PA522_0160 MF	3300	6000	≤14	2,0	8,5	2	27	61	210	300	600
16,00	PA522_0160 MF	3300	6000	>14≤19	2,0	8,5	2	27	61	210	300	600
16,00	PA522_0160 MF	3300	6000	>19≤24	1,9	8,5	2	27	61	210	300	600
16,00	PA522_0160 MFL	3300	6000	>24≤32	5,0	9,2	2	27	61	210	300	600
20,00	PA522_0200 MF	3300	6000	≤14	2,0	8,5	2	28	61	210	300	600
20,00	PA522_0200 MF	3300	6000	>14≤19	2,0	8,5	2	28	61	210	300	600
20,00	PA522_0200 MF	3300	6000	>19≤24	1,9	8,5	2	28	61	210	300	600
20,00	PA522_0200 MFL	3300	6000	>24≤32	5,0	9,2	2	28	61	210	300	600
25,00	PA522_0250 MF	3700	6500	≤14	1,8	8,5	2	28	59	210	300	600
25,00	PA522_0250 MF	3700	6500	>14≤19	1,9	8,5	2	28	59	210	300	600
25,00	PA522_0250 MF	3700	6500	>19≤24	1,8	8,5	2	28	59	210	300	600
25,00	PA522_0250 MFL	3700	6500	>24≤32	4,9	9,2	2	28	59	210	300	600
28,00	PA522_0280 MF	4000	7000	≤14	1,7	8,5	2	27	58	210	300	600
28,00	PA522_0280 MF	4000	7000	>14≤19	1,7	8,5	2	27	58	210	300	600
28,00	PA522_0280 MF	4000	7000	>19≤24	1,6	8,5	2	27	58	210	300	600
28,00	PA522_0280 MFL	4000	7000	>24≤32	4,8	9,2	2	27	58	210	300	600
32,00	PA522_0320 MF	3300	6000	≤14	1,9	8,5	2	25	61	200	250	500
32,00	PA522_0320 MF	3300	6000	>14≤19	2,0	8,5	2	25	61	200	250	500
32,00	PA522_0320 MF	3300	6000	>19≤24	1,9	8,5	2	25	61	200	250	500
32,00	PA522_0320 MFL	3300	6000	>24≤32	5,0	9,2	2	25	61	200	250	500
35,00	PA522_0350 MF	4000	7000	≤14	1,7	8,5	2	28	58	210	300	600
35,00	PA522_0350 MF	4000	7000	>14≤19	1,7	8,5	2	28	58	210	300	600
35,00	PA522_0350 MF	4000	7000	>19≤24	1,6	8,5	2	28	58	210	300	600
35,00	PA522_0350 MFL	4000	7000	>24≤32	4,8	9,2	2	28	58	210	300	600
40,00	PA522_0400 MF	4000	7000	≤14	1,7	8,5	2	26	56	210	300	600
40,00	PA522_0400 MF	4000	7000	>14≤19	1,7	8,5	2	26	56	210	300	600
40,00	PA522_0400 MF	4000	7000	>19≤24	1,6	8,5	2	26	56	210	300	600
40,00	PA522_0400 MFL	4000	7000	>24≤32	4,8	9,2	2	26	56	210	300	600
50,00	PA522_0500 MF	4000	7000	≤14	1,7	8,5	2	27	56	210	300	600
50,00	PA522_0500 MF	4000	7000	>14≤19	1,7	8,5	2	27	56	210	300	600
50,00	PA522_0500 MF	4000	7000	>19≤24	1,6	8,5	2	27	56	210	300	600
50,00	PA522_0500 MFL	4000	7000	>24≤32	4,8	9,2	2	27	56	210	300	600
56,00	PA522_0560 MF	3300	6000	≤14	1,7	8,5	2	25	58	200	250	500
56,00	PA522_0560 MF	3300	6000	>14≤19	1,7	8,5	2	25	58	200	250	500
56,00	PA522_0560 MF	3300	6000	>19≤24	1,6	8,5	2	25	58	200	250	500
56,00	PA522_0560 MFL	3300	6000	>24≤32	4,8	9,2	2	25	58	200	250	500
70,00	PA522_0700 MF	4000	7000	≤14	1,7	8,5	2	26	56	210	270	600
70,00	PA522_0700 MF	4000	7000	>14≤19	1,7	8,5	2	26	56	210	270	600
70,00	PA522_0700 MF	4000	7000	>19≤24	1,6	8,5	2	26	56	210	270	600
70,00	PA522_0700 MFL	4000	7000	>24≤32	4,7	9,2	2	26	56	210	270	600
80,00	PA522_0800 MF	3300	6000	≤14	1,7	8,5	2	25	56	200	250	500
80,00	PA522_0800 MF	3300	6000	>14≤19	1,7	8,5	2	25	56	200	250	500
80,00	PA522_0800 MF	3300	6000	>19≤24	1,6	8,5	2	25	56	200	250	500
80,00	PA522_0800 MFL	3300	6000	>24≤32	4,7	9,2	2	25	56	200	250	500
100,0	PA522_1000 MF	4000	7000	≤14	1,7	8,5	2	24	56	140	250	500
100,0	PA522_1000 MF	4000	7000	>14≤19	1,7	8,5	2	24	56	140	250	500
100,0	PA522_1000 MF	4000	7000	>19≤24	1,6	8,5	2	24	56	140	250	500
100,0	PA522_1000 MFL	4000	7000	>24≤32	4,7	9,2	2	24	56	140	250	500

行星齿轮减速器 PA

Planetary Gear Units PA



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Please take notice of the indications on page PA6!

i	Typ	n1MAX DB [min ⁻¹]	n1MAX ZB [min ⁻¹]	MWø [mm]	J1 [10 ⁻⁴ kgm ²]	G [kg]	Δφ2 [arcmin]	C2 [Nm/arcmin]	LPA [dB(A)]	M2N [Nm]	M2B [Nm]	M2NOT [Nm]
PA721 (M2BMAX=700 Nm)												
3,000	PA721_0030 MF	2200	3700	≤24	20	12,0	1	53	65	280	430	540
3,000	PA721_0030 MFL	2200	3700	>24≤32	20	12,0	1	55	65	280	500	1010
3,000	PA721_0030 MF	2200	3700	>32≤38	20	12,0	1	55	65	280	500	1040
3,000	PA721_0030 MFL	2200	3700	>38≤48	39	15,8	1	59	65	280	500	1040
4,000	PA721_0040 MF	2500	4500	≤24	15	12,0	1	54	62	440	570	720
4,000	PA721_0040 MFL	2500	4500	>24≤32	16	12,0	1	55	62	440	700	1350
4,000	PA721_0040 MF	2500	4500	>32≤38	16	12,0	1	55	62	440	700	1380
4,000	PA721_0040 MFL	2500	4500	>38≤48	34	15,8	1	57	62	440	700	1380
5,000	PA721_0050 MF	3000	5500	≤24	14	12,0	1	54	61	440	700	900
5,000	PA721_0050 MFL	3000	5500	>24≤32	14	12,0	1	54	61	440	700	1400
5,000	PA721_0050 MF	3000	5500	>32≤38	14	12,0	1	54	61	440	700	1400
5,000	PA721_0050 MFL	3000	5500	>38≤48	33	15,8	1	56	61	440	700	1400
7,000	PA721_0070 MF	3300	6000	≤24	13	12,0	1	53	60	440	650	1250
7,000	PA721_0070 MFL	3300	6000	>24≤32	13	12,0	1	53	60	440	650	1250
7,000	PA721_0070 MF	3300	6000	>32≤38	13	12,0	1	53	60	440	650	1250
7,000	PA721_0070 MFL	3300	6000	>38≤48	32	15,8	1	54	60	440	650	1250
8,000	PA721_0080 MF	3300	6000	≤24	12	12,0	1	52	59	400	500	1000
8,000	PA721_0080 MFL	3300	6000	>24≤32	12	12,0	1	52	59	400	500	1000
8,000	PA721_0080 MF	3300	6000	>32≤38	12	12,0	1	52	59	400	500	1000
8,000	PA721_0080 MFL	3300	6000	>38≤48	32	15,8	1	52	59	400	500	1000
10,00	PA721_0100 MF	3300	6000	≤24	12	12,0	1	49	58	300	500	1000
10,00	PA721_0100 MFL	3300	6000	>24≤32	12	12,0	1	49	58	300	500	1000
10,00	PA721_0100 MF	3300	6000	>32≤38	12	12,0	1	49	58	300	500	1000
10,00	PA721_0100 MFL	3300	6000	>38≤48	31	15,8	1	49	58	300	500	1000
PA722 (M2BMAX=700 Nm)												
12,00	PA722_0120 MF	3000	5000	≤19	6,2	15,0	2	52	62	280	500	1000
12,00	PA722_0120 MFL	3000	5000	>19≤24	6,3	15,0	2	52	62	280	500	1040
12,00	PA722_0120 MF	3000	5000	>24≤32	6,2	15,0	2	52	62	280	500	1040
12,00	PA722_0120 MF	3000	5000	>32≤35	6,2	15,0	2	52	62	280	500	1040
12,00	PA722_0120 MFL	3000	5000	>32≤38	13	16,7	2	52	62	280	500	1040
16,00	PA722_0160 MF	3000	5000	≤19	5,9	15,0	2	53	62	440	700	1340
16,00	PA722_0160 MFL	3000	5000	>19≤24	6,0	15,0	2	53	62	440	700	1380
16,00	PA722_0160 MF	3000	5000	>24≤32	5,9	15,0	2	53	62	440	700	1380
16,00	PA722_0160 MF	3000	5000	>32≤35	5,9	15,0	2	53	62	440	700	1380
16,00	PA722_0160 MFL	3000	5000	>32≤38	13	16,7	2	53	62	440	700	1380
20,00	PA722_0200 MF	3000	5000	≤19	5,8	15,0	2	53	62	440	700	1400
20,00	PA722_0200 MFL	3000	5000	>19≤24	5,9	15,0	2	53	62	440	700	1400
20,00	PA722_0200 MF	3000	5000	>24≤32	5,8	15,0	2	53	62	440	700	1400
20,00	PA722_0200 MF	3000	5000	>32≤35	5,8	15,0	2	53	62	440	700	1400
20,00	PA722_0200 MFL	3000	5000	>32≤38	13	16,7	2	53	62	440	700	1400
25,00	PA722_0250 MF	3500	6000	≤19	5,5	15,0	2	53	60	440	700	1400
25,00	PA722_0250 MFL	3500	6000	>19≤24	5,5	15,0	2	53	60	440	700	1400
25,00	PA722_0250 MF	3500	6000	>24≤32	5,4	15,0	2	53	60	440	700	1400
25,00	PA722_0250 MF	3500	6000	>32≤35	5,4	15,0	2	53	60	440	700	1400
25,00	PA722_0250 MFL	3500	6000	>32≤38	12	16,7	2	53	60	440	700	1400
28,00	PA722_0280 MF	3700	6500	≤19	5,2	15,0	2	53	59	440	700	1380
28,00	PA722_0280 MFL	3700	6500	>19≤24	5,2	15,0	2	53	59	440	700	1380
28,00	PA722_0280 MF	3700	6500	>24≤32	5,1	15,0	2	53	59	440	700	1380
28,00	PA722_0280 MF	3700	6500	>32≤35	5,1	15,0	2	53	59	440	700	1380
28,00	PA722_0280 MFL	3700	6500	>32≤38	12	16,7	2	53	59	440	700	1380
32,00	PA722_0320 MF	3000	5000	≤19	5,8	15,0	2	52	62	400	500	1000
32,00	PA722_0320 MFL	3000	5000	>19≤24	5,8	15,0	2	52	62	400	500	1000
32,00	PA722_0320 MF	3000	5000	>24≤32	5,7	15,0	2	52	62	400	500	1000
32,00	PA722_0320 MF	3000	5000	>32≤35	5,7	15,0	2	52	62	400	500	1000
32,00	PA722_0320 MFL	3000	5000	>32≤38	13	16,7	2	52	62	400	500	1000
35,00	PA722_0350 MF	3700	6500	≤19	5,1	15,0	2	53	59	440	700	1400
35,00	PA722_0350 MFL	3700	6500	>19≤24	5,1	15,0	2	53	59	440	700	1400
35,00	PA722_0350 MF	3700	6500	>24≤32	5,0	15,0	2	53	59	440	700	1400
35,00	PA722_0350 MF	3700	6500	>32≤35	5,0	15,0	2	53	59	440	700	1400

PA

行星齿轮减速器 PA

Planetary Gear Units PA



请注意 PA6 页的符号注释!

Please take notice of the indications on page PA6!

i	Typ	n1MAX DB [min ⁻¹]	n1MAX ZB [min ⁻¹]	MWø [mm]	J1 [10 ⁻⁴ kgm ²]	G [kg]	Δφ2 [arcmin]	C2 [Nm/arcmin]	LPA [dB(A)]	M2N [Nm]	M2B [Nm]	M2NOT [Nm]
PA722 (M2BMAX=700 Nm)												
35,00	PA722_0350 MFL	3700	6500	>32≤38	12	16,7	2	53	59	440	700	1400
40,00	PA722_0400 MF	3700	6500	≤19	5,0	15,0	2	52	57	440	700	1380
40,00	PA722_0400 MF	3700	6500	>19≤24	5,0	15,0	2	52	57	440	700	1380
40,00	PA722_0400 MF	3700	6500	>24≤32	4,9	15,0	2	52	57	440	700	1380
40,00	PA722_0400 MF	3700	6500	>32≤35	4,9	15,0	2	52	57	440	700	1380
40,00	PA722_0400 MFL	3700	6500	>32≤38	12	16,7	2	52	57	440	700	1380
50,00	PA722_0500 MF	3700	6500	≤19	5,0	15,0	2	53	57	440	700	1400
50,00	PA722_0500 MF	3700	6500	>19≤24	5,0	15,0	2	53	57	440	700	1400
50,00	PA722_0500 MF	3700	6500	>24≤32	4,9	15,0	2	53	57	440	700	1400
50,00	PA722_0500 MF	3700	6500	>32≤35	4,9	15,0	2	53	57	440	700	1400
50,00	PA722_0500 MFL	3700	6500	>32≤38	12	16,7	2	53	57	440	700	1400
56,00	PA722_0560 MF	3000	5000	≤19	5,1	15,0	2	52	59	400	500	1000
56,00	PA722_0560 MF	3000	5000	>19≤24	5,1	15,0	2	52	59	400	500	1000
56,00	PA722_0560 MF	3000	5000	>24≤32	5,0	15,0	2	52	59	400	500	1000
56,00	PA722_0560 MF	3000	5000	>32≤35	5,0	15,0	2	52	59	400	500	1000
56,00	PA722_0560 MFL	3000	5000	>32≤38	12	16,7	2	52	59	400	500	1000
70,00	PA722_0700 MF	3700	6500	≤19	5,0	15,0	2	53	57	440	650	1250
70,00	PA722_0700 MF	3700	6500	>19≤24	5,0	15,0	2	53	57	440	650	1250
70,00	PA722_0700 MF	3700	6500	>24≤32	4,9	15,0	2	53	57	440	650	1250
70,00	PA722_0700 MF	3700	6500	>32≤35	4,9	15,0	2	53	57	440	650	1250
70,00	PA722_0700 MFL	3700	6500	>32≤38	12	16,7	2	53	57	440	650	1250
80,00	PA722_0800 MF	3000	5000	≤19	5,0	15,0	2	52	57	400	500	1000
80,00	PA722_0800 MF	3000	5000	>19≤24	5,0	15,0	2	52	57	400	500	1000
80,00	PA722_0800 MF	3000	5000	>24≤32	4,9	15,0	2	52	57	400	500	1000
80,00	PA722_0800 MF	3000	5000	>32≤35	4,9	15,0	2	52	57	400	500	1000
80,00	PA722_0800 MFL	3000	5000	>32≤38	12	16,7	2	52	57	400	500	1000
100,0	PA722_1000 MF	3700	6500	≤19	5,0	15,0	2	49	57	300	500	1000
100,0	PA722_1000 MF	3700	6500	>19≤24	5,0	15,0	2	49	57	300	500	1000
100,0	PA722_1000 MF	3700	6500	>24≤32	4,9	15,0	2	49	57	300	500	1000
100,0	PA722_1000 MF	3700	6500	>32≤35	4,9	15,0	2	49	57	300	500	1000
100,0	PA722_1000 MFL	3700	6500	>32≤38	12	16,7	2	49	57	300	500	1000
PA821 (M2BMAX=1600 Nm)												
3,000	PA821_0030 MF	1800	3000	≤32	72	26,0	1	159	66	800	960	1200
3,000	PA821_0030 MF	1800	3000	>32≤38	72	26,0	1	165	66	800	1200	1750
3,000	PA821_0030 MF	1800	3000	>38≤48	71	26,0	1	165	66	800	1200	1760
4,000	PA821_0040 MF	2200	3500	≤32	48	26,0	1	170	63	800	1290	1610
4,000	PA821_0040 MF	2200	3500	>32≤38	48	26,0	1	175	63	800	1600	2330
4,000	PA821_0040 MF	2200	3500	>38≤48	47	26,0	1	175	63	800	1600	2330
5,000	PA821_0050 MF	2500	4000	≤32	41	26,0	1	173	62	1000	1600	2010
5,000	PA821_0050 MF	2500	4000	>32≤38	41	26,0	1	176	62	1000	1600	2900
5,000	PA821_0050 MF	2500	4000	>38≤48	40	26,0	1	176	62	1000	1600	2900
7,000	PA821_0070 MF	2800	4500	≤32	36	26,0	1	167	61	1000	1400	2800
7,000	PA821_0070 MF	2800	4500	>32≤38	36	26,0	1	167	61	1000	1400	2800
7,000	PA821_0070 MF	2800	4500	>38≤48	36	26,0	1	167	61	1000	1400	2800
8,000	PA821_0080 MF	2800	4500	≤32	35	26,0	1	160	60	800	1200	2400
8,000	PA821_0080 MF	2800	4500	>32≤38	35	26,0	1	160	60	800	1200	2400
8,000	PA821_0080 MF	2800	4500	>38≤48	34	26,0	1	160	60	800	1200	2400
10,00	PA821_0100 MF	2800	4500	≤32	34	26,0	1	149	59	700	1200	2400
10,00	PA821_0100 MF	2800	4500	>32≤38	34	26,0	1	149	59	700	1200	2400
10,00	PA821_0100 MF	2800	4500	>38≤48	33	26,0	1	149	59	700	1200	2400

行星齿轮减速器 PA

Planetary Gear Units PA



请注意 PA6 页的符号注释!

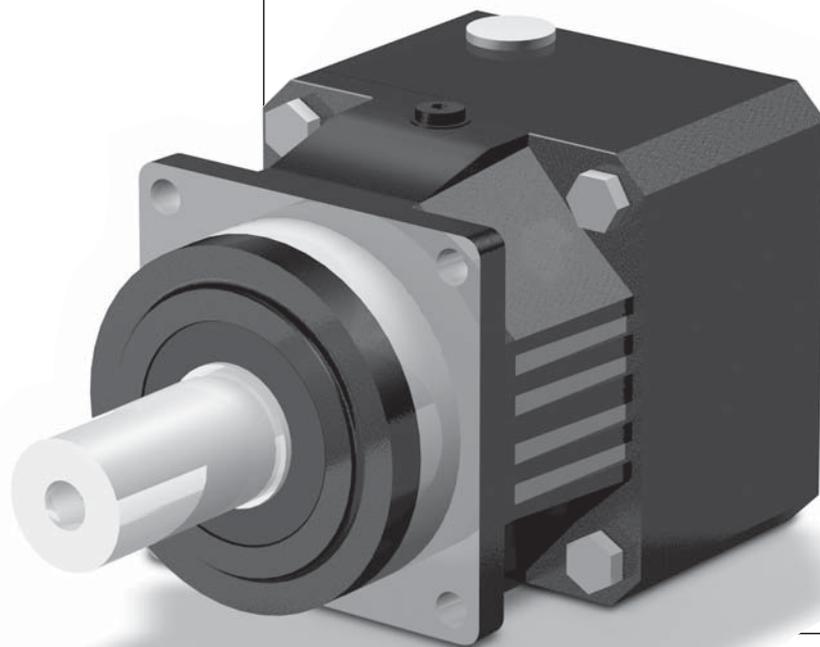
Please take notice of the indications on page PA6!

i	Typ	n1MAX DB [min-1]	n1MAX ZB [min-1]	MWø [mm]	J1 [10 ⁻⁴ kgm ²]	G [kg]	Δφ2 [arcmin]	C2 [Nm/arcmin]	LPA [dB(A)]	M2N [Nm]	M2B [Nm]	M2NOT [Nm]
PA822 (M2BMAX=1600 Nm)												
12,00	PA822_0120 MF	2500	4500	≤24	17	32,0	2	151	63	800	1200	2090
12,00	PA822_0120 MF	2500	4500	>24≤32	18	32,0	2	152	63	800	1200	2400
12,00	PA822_0120 MF	2500	4500	>32≤38	18	32,0	2	152	63	800	1200	2400
12,00	PA822_0120 MFL	2500	4500	>38≤48	36	35,8	2	154	63	800	1200	2400
16,00	PA822_0160 MF	2500	4500	≤24	16	32,0	2	166	63	800	1600	2790
16,00	PA822_0160 MF	2500	4500	>24≤32	16	32,0	2	166	63	800	1600	3180
16,00	PA822_0160 MF	2500	4500	>32≤38	16	32,0	2	166	63	800	1600	3180
16,00	PA822_0160 MFL	2500	4500	>38≤48	35	35,8	2	167	63	800	1600	3180
20,00	PA822_0200 MF	2500	4500	≤24	15	32,0	2	170	63	1000	1600	3200
20,00	PA822_0200 MF	2500	4500	>24≤32	16	32,0	2	170	63	1000	1600	3200
20,00	PA822_0200 MF	2500	4500	>32≤38	16	32,0	2	170	63	1000	1600	3200
20,00	PA822_0200 MFL	2500	4500	>38≤48	34	35,8	2	171	63	1000	1600	3200
25,00	PA822_0250 MF	3000	5500	≤24	14	32,0	2	169	61	1000	1600	3200
25,00	PA822_0250 MF	3000	5500	>24≤32	14	32,0	2	170	61	1000	1600	3200
25,00	PA822_0250 MF	3000	5500	>32≤38	14	32,0	2	170	61	1000	1600	3200
25,00	PA822_0250 MFL	3000	5500	>38≤48	33	35,8	2	170	61	1000	1600	3200
28,00	PA822_0280 MF	3300	6000	≤24	13	32,0	2	165	60	800	1600	3180
28,00	PA822_0280 MF	3300	6000	>24≤32	13	32,0	2	165	60	800	1600	3180
28,00	PA822_0280 MF	3300	6000	>32≤38	13	32,0	2	165	60	800	1600	3180
28,00	PA822_0280 MFL	3300	6000	>38≤48	32	35,8	2	166	60	800	1600	3180
32,00	PA822_0320 MF	2500	4500	≤24	15	32,0	2	159	63	800	1200	2400
32,00	PA822_0320 MF	2500	4500	>24≤32	15	32,0	2	159	63	800	1200	2400
32,00	PA822_0320 MF	2500	4500	>32≤38	15	32,0	2	159	63	800	1200	2400
32,00	PA822_0320 MFL	2500	4500	>38≤48	34	35,8	2	159	63	800	1200	2400
35,00	PA822_0350 MF	3300	6000	≤24	13	32,0	2	169	60	1000	1600	3200
35,00	PA822_0350 MF	3300	6000	>24≤32	13	32,0	2	169	60	1000	1600	3200
35,00	PA822_0350 MF	3300	6000	>32≤38	13	32,0	2	169	60	1000	1600	3200
35,00	PA822_0350 MFL	3300	6000	>38≤48	32	35,8	2	170	60	1000	1600	3200
40,00	PA822_0400 MF	3300	6000	≤24	12	32,0	2	162	58	800	1600	3180
40,00	PA822_0400 MF	3300	6000	>24≤32	12	32,0	2	162	58	800	1600	3180
40,00	PA822_0400 MF	3300	6000	>32≤38	12	32,0	2	162	58	800	1600	3180
40,00	PA822_0400 MFL	3300	6000	>38≤48	31	35,8	2	163	58	800	1600	3180
50,00	PA822_0500 MF	3300	6000	≤24	12	32,0	2	167	58	1000	1600	3200
50,00	PA822_0500 MF	3300	6000	>24≤32	12	32,0	2	167	58	1000	1600	3200
50,00	PA822_0500 MF	3300	6000	>32≤38	12	32,0	2	167	58	1000	1600	3200
50,00	PA822_0500 MFL	3300	6000	>38≤48	31	35,8	2	168	58	1000	1600	3200
56,00	PA822_0560 MF	2500	4500	≤24	13	32,0	2	159	60	800	1200	2400
56,00	PA822_0560 MF	2500	4500	>24≤32	13	32,0	2	159	60	800	1200	2400
56,00	PA822_0560 MF	2500	4500	>32≤38	13	32,0	2	159	60	800	1200	2400
56,00	PA822_0560 MFL	2500	4500	>38≤48	32	35,8	2	159	60	800	1200	2400
70,00	PA822_0700 MF	3300	6000	≤24	12	32,0	2	164	58	1000	1400	2800
70,00	PA822_0700 MF	3300	6000	>24≤32	12	32,0	2	164	58	1000	1400	2800
70,00	PA822_0700 MF	3300	6000	>32≤38	12	32,0	2	164	58	1000	1400	2800
70,00	PA822_0700 MFL	3300	6000	>38≤48	31	35,8	2	164	58	1000	1400	2800
80,00	PA822_0800 MF	2500	4500	≤24	12	32,0	2	159	58	800	1200	2400
80,00	PA822_0800 MF	2500	4500	>24≤32	12	32,0	2	159	58	800	1200	2400
80,00	PA822_0800 MF	2500	4500	>32≤38	12	32,0	2	159	58	800	1200	2400
80,00	PA822_0800 MFL	2500	4500	>38≤48	31	35,8	2	159	58	800	1200	2400
100,0	PA822_1000 MF	3300	6000	≤24	12	32,0	2	148	58	700	1200	2400
100,0	PA822_1000 MF	3300	6000	>24≤32	12	32,0	2	148	58	700	1200	2400
100,0	PA822_1000 MF	3300	6000	>32≤38	12	32,0	2	148	58	700	1200	2400
100,0	PA822_1000 MFL	3300	6000	>38≤48	31	35,8	2	148	58	700	1200	2400

PA

尺寸图：
ServoFit® PA
行星齿轮减速器

Dimension drawings:
ServoFit® PA
Planetary Gear Units



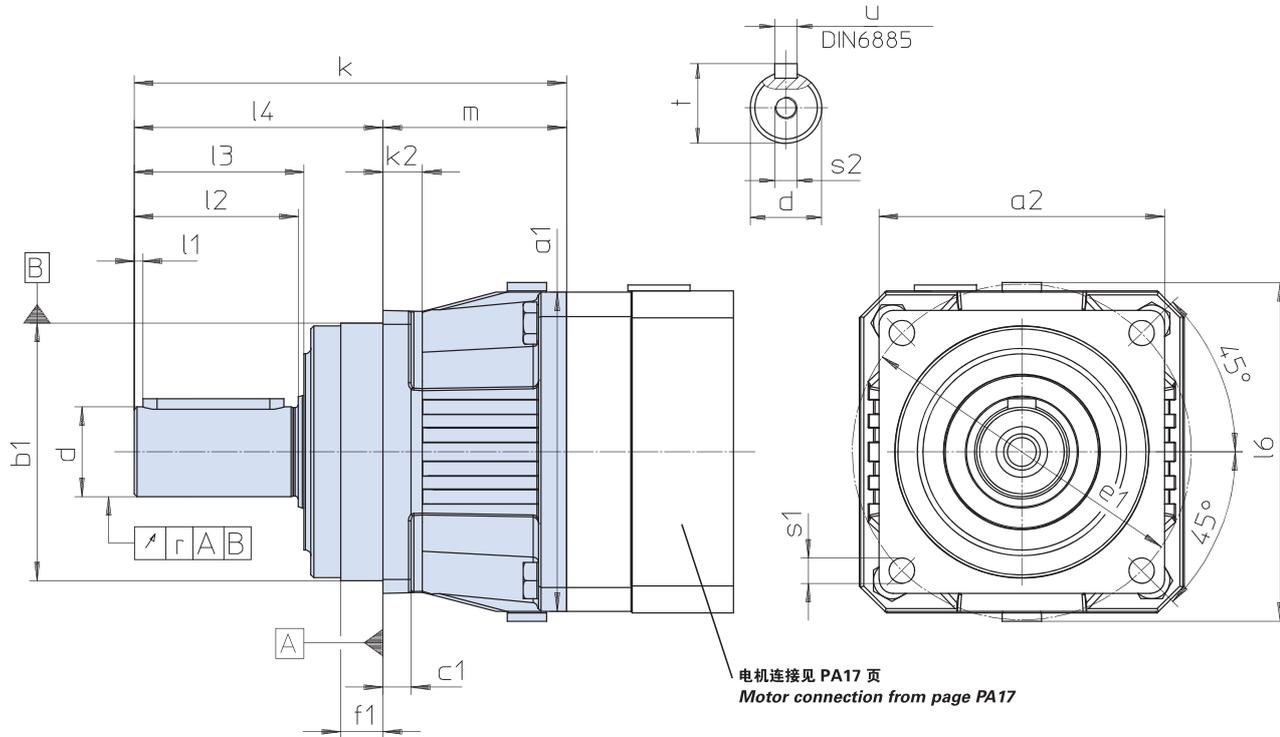
P
A

行星齿轮减速器 PA

Planetary Gear Units PA



PA3...MF - PA8...MF



不带键输出轴也可供货 (见 PA3 页)

Output shaft can also be delivered without key (see page PA3).

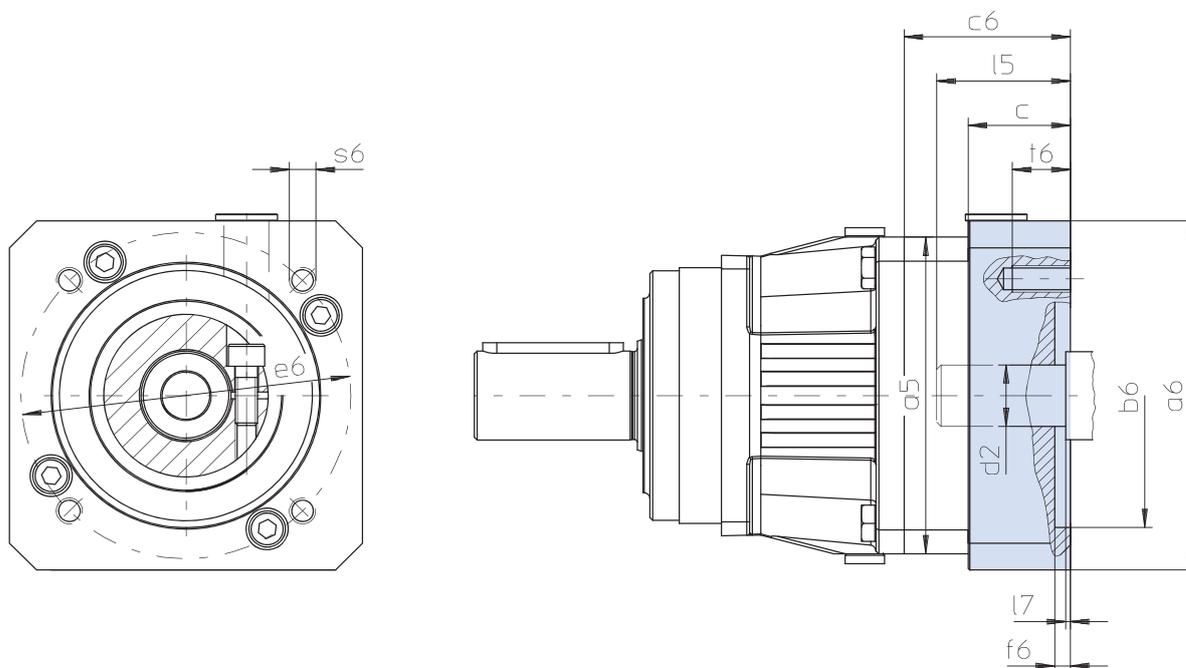
Typ	□a1	øb1	c1	ød	øe1	f1	k	k2	l1	l2	l3	l4	l6	m	r	øS1	s2	t	u
PA321	72	60h6	7	16k6	75	7,5	101,5	-	2	28	30	48	79	53,5	0,025	5,5	M5	18,0	A5x5x22
PA321	72	60h6	7	16k6	75	7,5	101,5	-	2	28	30	48	79	53,5	0,025	5,5	M5	18,0	A5x5x22
PA322	72	60h6	7	16k6	75	7,5	141,5	-	2	28	30	48	79	93,5	0,025	5,5	M5	18,0	A5x5x22
PA421	98	70h6	9	22k6	85	7,5	118,0	12	3	36	38	56	98	62,0	0,025	6,6	M8	24,5	A6x6x28
PA421	98	70h6	9	22k6	85	7,5	118,0	12	3	36	38	56	98	62,0	0,025	6,6	M8	24,5	A6x6x28
PA422	98	70h6	9	22k6	85	7,5	167,0	12	3	36	38	56	98	111,0	0,025	6,6	M8	24,5	A6x6x28
PA422	98	70h6	9	22k6	85	7,5	167,0	12	3	36	38	56	98	111,0	0,025	6,6	M8	24,5	A6x6x28
PA521	114	90h6	10	32k6	120	15,0	153,0	14	3	58	60	88	121	65,0	0,030	9,0	M12	35,0	A10x8x50
PA521	114	90h6	10	32k6	120	15,0	153,0	14	3	58	60	88	121	65,0	0,030	9,0	M12	35,0	A10x8x50
PA522	114	90h6	10	32k6	120	15,0	207,5	14	3	58	60	88	121	119,5	0,030	9,0	M12	35,0	A10x8x50
PA522	114	90h6	10	32k6	120	15,0	207,5	14	3	58	60	88	121	119,5	0,030	9,0	M12	35,0	A10x8x50
PA721	145	130h6	15	40k6	165	3,5	192,0	-	4	82	85	112	145	80,0	0,035	11,0	M16	43,0	A12x8x70
PA721	145	130h6	15	40k6	165	3,5	192,0	-	4	82	85	112	145	80,0	0,035	11,0	M16	43,0	A12x8x70
PA722	145	130h6	15	40k6	165	3,5	254,0	-	4	82	85	112	145	142,0	0,035	11,0	M16	43,0	A12x8x70
PA722	145	130h6	15	40k6	165	3,5	254,0	-	4	82	85	112	145	142,0	0,035	11,0	M16	43,0	A12x8x70
PA821	190	160h6	15	55k6	215	10,0	224,0	-	6	82	85	112	190	112,0	0,035	13,5	M20	59,0	A16x10x70
PA822	190	160h6	15	55k6	215	10,0	300,5	-	6	82	85	112	190	188,5	0,035	13,5	M20	59,0	A16x10x70
PA822	190	160h6	15	55k6	215	10,0	300,5	-	6	82	85	112	190	188,5	0,035	13,5	M20	59,0	A16x10x70

行星齿轮减速器 PA 电机连接

Planetary Gear Units PA motor connection



PA3...MF - PA8...MF



PA

更多的电机连接尺寸可按需定制

Further motor connection dimensions on request.

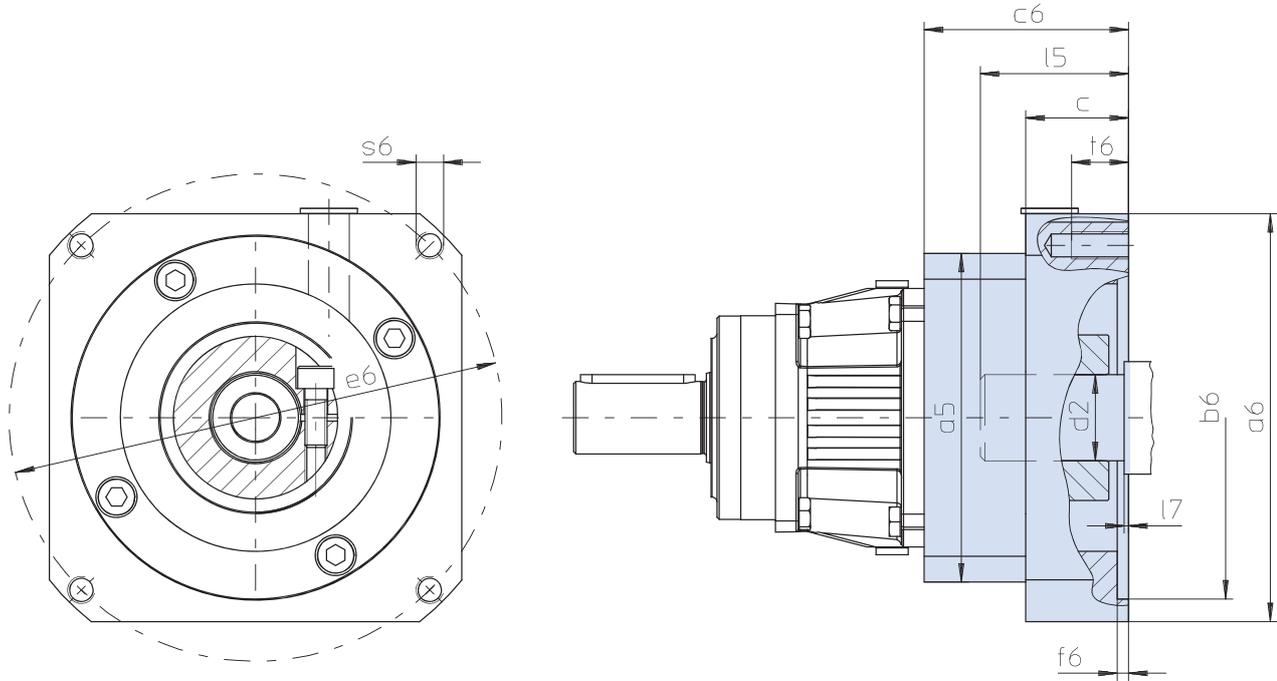
Typ	øb6	øe6	ød2max	l5max	□a5	□a6	c	c6	f6	l7max	s6	t6
PA321/PA422	40,0H7	63	19	40	75	75	18	51,5	3,0	2,5	M5	11
PA321/PA422	50,0H7	70	19	40	75	75	18	51,5	3,0	2,5	M4	9
PA321/PA422	50,0H7	95	19	40	75	80	18	51,5	3,0	2,5	M6	13
PA321/PA422	60,0H7	75	19	40	75	75	-	51,5	3,5	2,5	M5	11
PA321/PA422	60,0H7	90	19	40	75	75	18	51,5	3,5	2,5	M5	9
PA321/PA422	70,0H7	90	19	40	75	80	18	51,5	3,5	2,5	M5	9
PA321/PA422	80,0H7	100	19	40	90	90	-	51,5	3,5	2,5	M6	13
PA321/PA422	95,0H7	115	19	40	75	100	18	51,5	4,0	2,5	M8	18
PA321/PA422	95,0H7	130	19	40	75	115	18	51,5	4,0	2,5	M8	18
PA322	40,0H7	63	14	30	55	55	15	36,0	3,5	2,5	M5	10
PA322	50,0H7	70	14	30	55	60	15	36,0	3,5	2,5	M4	9
PA322	50,0H7	95	14	30	55	90	15	36,0	3,5	2,5	M6	15
PA322	60,0H7	75	14	30	55	75	15	36,0	3,5	2,5	M5	10
PA421/PA522	50,0H7	95	24	40	100	100	21	56,0	2,5	2,5	M6	13
PA421/PA522	80,0H7	100	24	40	100	100	-	56,0	4,0	2,5	M6	13
PA421/PA522	95,0H7	115	24	50	100	100	30	65,0	4,0	11,5	M6	16
PA421/PA522	95,0H7	115	24	40	100	100	-	56,0	4,0	2,5	M8	16
PA421/PA522	95,0H7	130	24	40	100	115	21	56,0	4,0	2,5	M8	16
PA421/PA522	95,0H7	130	24	50	100	115	30	65,0	4,0	11,5	M8	16
PA421/PA522	110,0H7	130	24	50	100	115	30	65,0	4,0	11,5	M8	16
PA421/PA522	110,0H7	145	24	58	100	130	38	73,0	7,0	19,5	M8	16
PA421/PA522	130,0H7	165	24	50	100	140	30	65,0	5,0	11,5	M10	20
PA521/PA722	95,0H7	115	32	50	115	115	-	64,0	4,0	2,5	M8	16
PA521/PA722	95,0H7	130	32	50	115	115	24	64,0	4,0	2,5	M8	16
PA521/PA722	110,0H7	130	32	50	115	115	-	64,0	4,0	2,5	M8	16
PA521/PA722	110,0H7	145	32	58	115	130	32	72,0	6,5	10,5	M8	16
PA521/PA722	110,0H7	145	32	68	115	130	42	84,0	7,0	21,5	M8	14
PA521/PA722	110,0H7	165	32	50	115	140	24	64,0	5,0	2,5	M10	24
PA521/PA722	130,0H7	165	32	58	115	140	32	72,0	5,0	10,5	M10	20
PA721/PA822	110,0H7	130	38	60	145	145	26	78,0	5,0	4,5	M8	14
PA721/PA822	110,0H7	165	38	60	145	145	26	78,0	5,0	4,5	M10	26
PA721/PA822	114,3H7	200	38	80	145	180	45	97,0	5,0	23,5	M12	25
PA721/PA822	130,0H7	165	38	60	145	145	26	78,0	5,0	4,5	M10	26
PA721/PA822	130,0H7	215	38	60	145	190	26	78,0	5,0	4,5	M12	26
PA721/PA822	180,0H7	215	38	80	145	190	45	97,0	5,0	23,5	M12	25
PA821	114,3H7	200	48	80	190	190	34	94,0	4,0	3,5	M12	34
PA821	130,0H7	165	48	80	190	190	34	94,0	5,0	3,5	M10	18
PA821	130,0H7	215	48	80	190	190	34	94,0	5,0	3,5	M12	34
PA821	180,0H7	215	48	80	190	190	34	94,0	5,0	3,5	M12	34
PA821	250,0H7	300	48	82	190	260	38	98,0	6,0	7,5	M16	38

行星齿轮减速器 PA 电机连接 - 大规格电机法兰盘

Planetary Gear Units PA motor con. - large motor plate



PA3...MFL - PA8...MFL



更多的电机连接尺寸可按需定制

Further motor connection dimensions on request.

Typ	øb6	øe6	ød2max	l5max	□a5	□a6	c	c6	f6	l7max	s6	t6
PA321/PA422	95,0H7	115	24	50	75	100	30	30,0	4,0	5,5	M6	16
PA321/PA422	95,0H7	115	24	40	100	100	21	55,5	4,0	2,5	M8	16
PA321/PA422	95,0H7	130	24	40	100	115	21	55,5	4,0	2,5	M8	16
PA321/PA422	95,0H7	130	24	50	100	115	30	64,5	4,0	11,5	M8	16
PA321/PA422	110,0H7	130	24	50	100	115	30	64,5	4,0	11,5	M8	16
PA321/PA422	110,0H7	145	24	58	100	130	38	72,5	7,0	19,5	M8	16
PA321/PA422	130,0H7	165	24	50	100	140	30	64,5	5,0	11,5	M10	20
PA421/PA522	110,0H7	145	32	58	115	130	32	75,5	6,5	10,5	M8	16
PA421/PA522	110,0H7	165	32	50	115	140	24	67,5	5,0	2,5	M10	24
PA421/PA522	130,0H7	165	32	58	115	140	32	75,5	5,0	10,5	M10	20
PA521/PA722	110,0H7	130	38	60	145	145	26	82,0	5,0	23,5	M8	14
PA521/PA722	110,0H7	165	38	60	145	145	26	82,0	5,0	23,5	M10	26
PA521/PA722	114,3H7	200	38	80	145	180	45	101,0	5,0	23,5	M12	25
PA521/PA722	130,0H7	165	38	60	145	145	26	82,0	5,0	23,5	M10	26
PA521/PA722	130,0H7	215	38	60	145	190	26	82,0	5,0	4,5	M12	26
PA521/PA722	180,0H7	215	38	80	145	190	45	101,0	5,0	23,5	M12	25
PA721/PA822	114,3H7	200	48	80	190	190	34	102,0	4,0	3,5	M12	34
PA721/PA822	180,0H7	215	48	80	190	190	34	102,0	5,0	3,5	M12	34
PA721/PA822	250,0H7	300	48	82	190	260	38	106,0	6,0	7,5	M16	38