

Robotic solutions



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PacDrive Delta 2 robot

Presentation

These robotics solutions were developed as an add-on to PacDrive. They were designed to satisfy rapidly growing customer demand for robots as an integral part of machine design, for example in packaging machinery.

The robotics hardware consists of PacDrive Delta 2, PacDrive Delta 3, and Cartesian robots.

In addition to the standard product offerings, customized versions are also available upon request.

PacDrive Delta 2 robots

- The PacDrive Delta 2 robot is quick, quiet, and reliable. It has a maximum load capacity of 25 kg (55 lbs).
- The D2S types use conventional Lexium SH3 servo motors with cabinet-mounted servo drives.
- The ready-to-use D2 robots are also available with an optional rotational axis.
- Flexible integration into the automation system is possible using the Lexium 62 ILM servo modules with integrated servo drive. Though mechanically identical, the D2I types offer the benefits of the Lexium 62 ILM integrated drives technology.
- The Lexium 62 ILM integrated drives significantly reduce cabinet space and cabling, leaving only a shared power supply inside the cabinet. The Lexium 62 ILM integrated drives are connected via a single cable from the cabinet to machine-mounted distribution boxes and single, quick-connect cables to each drive.

Advantages of PacDrive Delta 2 robots

- > High payload capacity
- > Large work envelope
- > High precision
- > Highly dynamic response
- > Low noise level
- > Standard components for mechanisms and drives
- > Pre-assembled and ready to connect
- > Referenced ex-factory
- > Low maintenance while at the same time offering high load capacity
- > Compact, angled gearboxes are also available
- > Degree of protection up to IP55
- > Easy-clean design

References

- > See page 6/7



PacDrive Delta 3 robot type P4



PacDrive Delta3 robot type P4 Flat



PacDrive Delta 3 robot type P2, P4, P6 Compact

Presentation (continued)

PacDrive Delta 3 robots

- PacDrive Delta 3 robots are designed for fast pick-and-place operations. They stand out with their short cycle times and an exceptional payload capacity of up to 15 kg (33.1 lb).
- Combined with a vision system, PacDrive Delta 3 robots can also be used for random and/or mixed product flow picking.
- The robot's mounting fixtures located on the top (P4 Standard version), which reduces the risk of the robot arms colliding with the frame, even at extreme deflection.
- The PacDrive Delta 3 robots can be equipped with Lexium SH3 servo motors, or with Lexium 62 ILM integrated drives.
- The PacDrive Delta 3 robots are also available with an optional rotational axis.
- Lexium 62 ILM integrated drives are connected via a single cable from the cabinet to machine-mounted distribution boxes and single, quick-connect cables to each servo.



Advantages of PacDrive Delta 3 robots

- > 3 types available for optimum footprint
- > Highly dynamic response
- > IP65 rated, sealed stainless steel design for pharmaceutical and food applications (IP69k for all robots on the moving parts, Version with cleanroom up to class 6 available)
- > High precision
- > Optimized tube/cable mounting through the parallel plate reduces risk of collision with products and machine parts
- > Suitable for washdown applications (P4 only)
- > Available with Lexium 62 ILM integrated drives for non-washdown applications
- > Low noise level
- > Standard components for mechanisms and drives
- > Pre-assembled and ready to connect
- > Referenced ex-factory
- > Low maintenance while at the same time offering high load capacity
- > Compact design for ceiling mounting
- > Three or four degrees of freedom
- > Choice between Lexium SH3 servo motors and Lexium 62 ILM integrated drives
- > Patented, completely welded stainless steel lower arms, no gluing, no issues with cleaning fluids
- > Re-referencing without additional tool ("Homing")

References

- > See pages 6/10 to 6/12

PacDrive 3 automation solution
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PacDrive Delta robots

Robot type	PacDrive Delta 2 robots		PacDrive Delta 3 robots			
	D2 (1000 mm / 39.4 in.)	P2 Compact (800 mm / 31.5 in.)	P4 Standard (1200 mm / 47.2 in.)	P4 Flat (1200 mm / 47.2 in.)	P4 Compact (1200 mm / 47.2 in.)	P6 Compact (1600 mm / 62.9 in.) P6 Extended (1600 mm / 62.9 in.)
Number of axes	2-3-axis	3-4 axis	3-4 axis	3-4 axis	3-4 axis	3-4 axis
						
Work envelope	<ul style="list-style-type: none"> Width 360 mm (14.17 in.) Height 1000 mm (39.37 in.) Unlimited rotation 	<ul style="list-style-type: none"> Diameter 800 mm (31.5 in.) Height 230 mm (9.06 in.) Unlimited rotation 	<ul style="list-style-type: none"> Diameter 1200 mm (47.24 in.) Height 225 mm (8.86 in.) Unlimited rotation 	<ul style="list-style-type: none"> Diameter 1200 mm (47.2 in.) Height 225 mm (8.86 in.) Unlimited rotation 	<ul style="list-style-type: none"> Diameter 1200 mm (47.2 in.) Height 225 mm (8.86 in.) Unlimited rotation 	<ul style="list-style-type: none"> P6 compact, P6 Extended: diameter 1600 mm (62.9 in.) P6 compact: height 275 mm (10.83 in.) P6 Extended: height 400 mm in Z stroke (15.74 in.) Unlimited rotation
Rotational axis	<ul style="list-style-type: none"> Fixed (no rotational axis installed) Optional rotational axis 	<ul style="list-style-type: none"> Fixed (no rotational axis installed) Optional rotational axis 	<ul style="list-style-type: none"> Fixed (no rotational axis installed) Optional rotational axis 	<ul style="list-style-type: none"> Fixed (no rotational axis installed) Optional rotational axis 	<ul style="list-style-type: none"> Fixed (no rotational axis installed) Optional rotational axis 	<ul style="list-style-type: none"> Fixed (no rotational axis installed) Optional rotational axis
Repetitive accuracy	< 0.3 mm (< 0.01 in.)	+/- 0.1 mm (+/-0.004 in.)	+/- 0.1 mm (+/-0.004 in.)	+/- 0.1 mm (+/-0.004 in.)	+/- 0.1 mm (+/-0.004 in.)	+/- 0.1 mm (+/-0.004 in.)
Maximum cycle	50 cycle/minute (1)	301 cycle/minute (1)	230 cycle/minute (1)	230 cycle/minute (1)	230 cycle/minute (1)	160 cycle/minute (1)
Maximum speed	4 m/sec	10 m/sec	10 m/sec	10 m/sec	10 m/sec	10 m/sec
Maximum acceleration	18 m/sec ² max	<ul style="list-style-type: none"> 120 m/sec² at 1kg (at 2.20 lb) 90 m/sec² at 1.5 kg (at 3.31 lb) 	<ul style="list-style-type: none"> 100 m/sec² at 1kg (at 2.20 lb) 75 m/sec² at 1.5 kg (at 3.31 lb) 	<ul style="list-style-type: none"> 100 m/sec² at 1kg (at 2.20 lb) 75 m/sec² at 1.5 kg (at 3.31 lb) 	<ul style="list-style-type: none"> 100 m/sec² at 1kg (at 2.20 lb) 75 m/sec² at 1.5 kg (at 3.31 lb) 	<ul style="list-style-type: none"> 80 m/sec² at 1kg (at 2.20 lb) 60 m/sec² at 1.5 kg (at 3.31 lb)
Maximum payload capability	Up to 30 kg (66.14 lb)	Up to 15 kg (33.1 lb)	Up to 15 kg (33.1 lb)	Up to 15 kg (33.1 lb)	Up to 15 kg (33.1 lb)	Up to 15 kg (33.1 lb)
Variants	Normal – non-washdown (IP55)	Normal – washdown, non-hygienic (IP65, IP69K moving parts)	<ul style="list-style-type: none"> Washdown (IP65, IP69K moving parts) Normal – non-washdown (IP65, IP69K moving parts) Cleanroom Class 6 	<ul style="list-style-type: none"> Washdown (IP65, IP69K moving parts) Normal – non-washdown (IP65, IP69K moving parts) 	<ul style="list-style-type: none"> Washdown (IP65, IP69K moving parts) Normal – non-washdown (IP65, IP69K moving parts) 	Normal – washdown, non-hygienic (IP65, IP69K moving parts)
Combined motor type	<ul style="list-style-type: none"> Lexium SH3 motors Lexium 62 ILM Without motor 	<ul style="list-style-type: none"> Lexium SH3 motors Lexium 62 ILM 	<ul style="list-style-type: none"> Lexium SH3 motors Lexium 62 ILM integrated drive Motor and drive 	<ul style="list-style-type: none"> Lexium SH3 motors Lexium 62 ILM integrated drive Without motor 	<ul style="list-style-type: none"> Lexium SH3 motors Lexium 62 ILM integrated drive 	<ul style="list-style-type: none"> Lexium SH3 motors Lexium 62 ILM integrated drive on request
Reference	VRKD2●●●●●00000	VRKP2●●●NC00000	VRKP4●●●●●00000	VRKP4●●●●●F00000	VRKP4●●●●●NC00000	VRKP6●●●●●NC00●●0
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(1) Depending on the application, and on payload.

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PacDrive Delta 2 and PacDrive Delta 3 robots: Product reference structure

	Type (root)			Model					Options						
	1	2	3	1	2	3	4	5	6	7	8	9	10	11	12
	V	R	K	P	4	S	0	R	N	O	0	0	0	0	0
Robot Kinematics															
VRK															
Robot Type/Product Type															
P2									3-4 axis Delta 3 robot 800 mm (31.5 in.)						
P4									3-4 axis Delta 3 robot 1200 mm (47.2 in.)						
P6									3-4 axis Delta 3 robot 1600 mm (62.9 in.)						
D2									2-3-axis Delta 2 robot						
CP									Customer Project						
Subtype															
S0									SH motor						
L0									ILM motor						
WM									Without motor (P4)						
YY									Spare part set						
HB									Hardware Bundle						
Option															
R									Rotational axis installed						
F									Fixed, no rotational axis installed						
C									Customized version or customized hardware bundle						
Y									Spare part						
Variant															
WD									Washdown IP 65 (P4)						
NF									Normal, non-washdown, flat (P4)						
NO									Normal, non-washdown (P4)						
WF									Washdown, flat (P4)						
CW									Cleanroom, class 6 conforming to ISO14644-1 (P4)						
NC									Normal, Compact (P2, P4 and P6 with SH motors; with Lexium 62 ILM motors on request)						
01									Customized version 01 (=> Option=C)						
YY									Spare part						
P4									Customized bundle for P4 robot scope						
Version															
									to identify mechanism version						
00									S00 (P4; D2)						
Miscellaneous															
									for options; e.g. spare part number						
000									Customized hardware bundle subtype/enumeration						

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