

PacDrive 3 robotics

Delta robots for pick & place solutions

Catalog

October 2018



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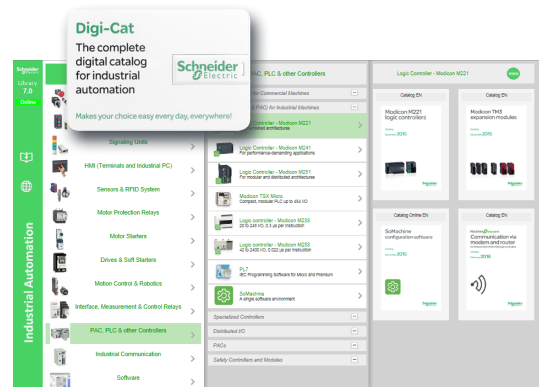
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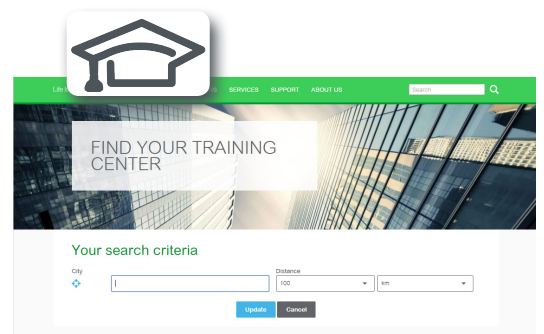
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Delta robots for pick & place solutions

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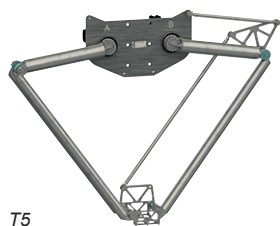
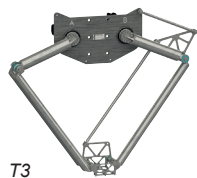
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Presentation

- The robotics hardware consists of Delta 2 (T series) and Delta 3 robots (P series). In addition to the standard product offerings, customized versions are also available upon request. This robotics solution was developed as an add-on to the PacDrive automation solution system (1) and designed to satisfy rapidly growing customer demand for robots as an integral part of machine design, for example in packaging machinery.

Delta 2 robots

- Delta 2 robots are T2, T3, and T5 series
- They are available as 2-axis robot.
- They are quick, quiet, and ready-to-use (pre-assembled, ready-to-connect mechanics).
- They have a max.mum load capacity of up to 60 kg (132 lb).
- They use conventional Lexium MH3 Motors with cabinet-mounted servo drives (1) and Lexium 62 ILM integrated drives (1).
- An optional rotational motor can be installed at the tool center point.

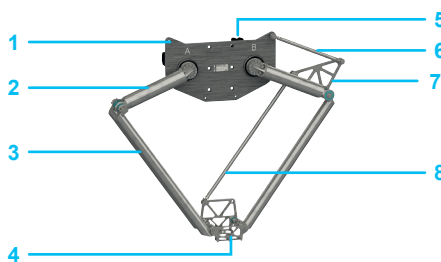
Characteristics of Delta 2 robots

- > Flexible mounting capabilities of the parallelogram arm
- > Flexible mounting by switching of the lower arms
- > Degree of protection up to IP64
- > Large work envelope
- > High precision
- > Highly dynamic response
- > Low noise level
- > Standard components for mechanisms and drives
- > Referenced ex-factory
- > Compact, angled gearboxes are also available
- > Easy-clean design

References

- > See pages 8 and 9

Description



- 1 Mounting plate
- 2 Upper arm (primary arm)
- 3 Lower arm (secondary arm)
- 4 Parallel plate: mounting place of the gripper
- 5 Motor/Gearbox
- 6 Short parallel linkage rod
- 7 Parallel linkage lever
- 8 Long parallel linkage rod

(1) Please refer to our website www.schneider-electric.com or refer to the catalogs listed below (Click to open the catalog)

DIA7ED2160306EN



DIA7ED2160308EN



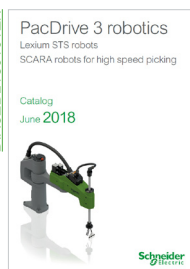
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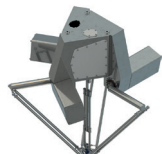


DIA3ED2180101EN

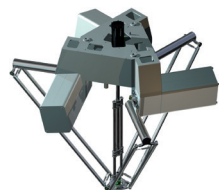




P2 Compact



P4 Standard



P4 Flat



P4 Compact



P5 Compact



P6 Compact



P6 Extended

Delta 3 robots

- Delta 3 robots are P2, P4, P5, and P6 series
- They are available as 3-axis robot (without rotational axis) or as 4-axis robot (with a rotational telescopic axis).
- They are designed for fast pick-and-place operations. They are characterized by their short cycle times and a payload capacity of up to 15 kg (33.1 lb).
- They can be used for random and/or mixed product flow picking, when combined with a vision system.
- They can be equipped with Lexium SH3 servo motors (1) and Lexium 62 ILM integrated drives (1). 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.
- The robot's mounting fixtures are located on the top (P4 Standard version), which reduces the occurrence of the robot arms colliding with the frame, even at extreme deflection.
- They are ready to use (pre-assembled and ready-to-connect mechanics) and also available as a customized version with a motor-gear unit for rotational axis as an alternative to the telescopic axis.

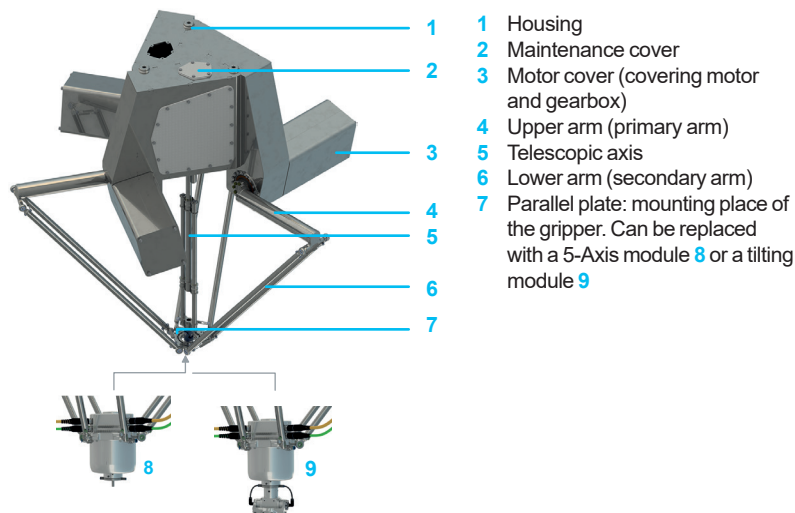
Characteristics of Delta 3 robots

- > Highly dynamic response
- > IP65 rated, sealed stainless steel design for pharmaceutical and food applications (IP69k for robots on the moving parts, version for cleanroom up to class 6 available)
- > A Lexium P-series five-axis module provides the capability to rotate the gripper with one rotational axis and to perform clamp/unclamp movements with the second rotational axis
- > A Lexium P-series tilting module is available for applications that require a product to be rotated and tilted at the same time
- > High precision
- > Optimized tube/cable mounting through the parallel plate reduces occurrence of collision with products and machine parts
- > Suitable for washdown applications (P4 only)
- > Low noise level
- > Standard components for mechanisms and drives
- > Referenced ex-factory
- > Compact design for ceiling mounting
- > Three or four degrees of freedom with or without rotational axis
- > Patented, completely welded stainless steel lower arms, no gluing, adapted for usage with cleaning fluids
- > Re-referencing without additional tool ("Homing")

References

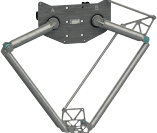
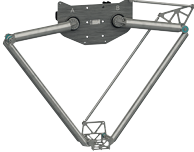
- > See pages 10 to 15.

Description



(1) Please refer to our catalogs, listed on page 2.

PacDrive 3 robotics
Delta robots for pick & place solutions
Delta 2 robots and Delta 3 robots

Robot		Delta 2 robots		
series		T2, T2 HD (1)	T3, T3 HD (1)	T5, T5 HD (1)
				
Number of axes		2-axis	2-axis	2-axis
Work envelope	Max. width	800 mm (31.5 in.)	1,000 mm (39.4 in.)	1,500 mm (59.05 in.)
	Diameter	–	–	–
	Max. height	440 mm (17.3 in.)	555 mm (21.85 in.)	615 mm (24 in.)
	Unlimited rotation	–	–	–
Rotational axis		■ Fixed: no rotational axis installed		
Position repeatability (ISO 9283)		+/- 0.05 mm (+/- 0,002 in.)	+/- 0.05 mm (+/- 0,002 in.)	+/- 0.05 mm (+/- 0,002 in.)
Cycles of inch-feet-inch path (max.)		148 cycles/min (2)	143 cycles/min (2)	134 cycles/min (2)
Max.mum velocity		5.8 m/s (19 ft/s)	6 m/s (19.7 ft/s)	6.8 m/s (22.3 ft/s)
Max.mum acceleration	for 1 kg (for 2.20 lb)	60 m/s² (197 ft/s²)	62 m/s² (203 ft/s²)	58 m/s² (190 ft/s²)
	for 1.5 kg (for 3.3 1lb)	–	–	–
	for 10 kg (for 22.04 lb)	53 m/sec² (174 ft/s²)	41 m/sec² (135 ft/s²)	48 m/sec² (157 ft/s²)
Max.mum payload capability		40 kg / 60 kg (1) 88 lb / 132 lb (1)	35 kg / 50 kg (1) 77 lb / 110 lb (1)	30 kg / 45 kg (1) 66 lb / 99 lb (1)
Variants		■ Normal, compact	■ Normal, compact	■ Normal, compact
Combined motor type		■ Lexium MH3 motors (3) ■ Lexium 62 ILM integrated drives (3) ■ Without motors: on request	■ Lexium MH3 motors (3) ■ Lexium 62 ILM integrated drives (3) ■ Without motors: on request	■ Lexium MH3 motors (3) ■ Lexium 62 ILM integrated drives (3) ■ Without motors: on request
Reference		VRKT2●●FNC00000	VRKT3●●FNC00000	VRKT5●●FNC00000
See page		8		

(1) Heavy Duty version.
(2) Depending on the application, and on payload.
(3) Please refer to our catalogs listed on page 2.

Delta 3 robots						
P2 Compact	P4 Standard	P4 Flat	P4 Compact	P5 Compact	P6 Compact	P6 Extended
						
3-/4-axis	3-/4-axis	3-/4-axis	3-/4-axis	3-/4-axis	3-/4-axis	3-/4-axis
–	–	–	–	–	–	–
800 mm (31.5 in.)	1,200 mm (47.24 in.)	1,200 mm (47.2 in.)	1,200 mm (47.2 in.)	1,400 mm (55.11 in.)	1,600 mm (62.9 in.)	1,600 mm (62.9 in.)
230 mm (9 in.)	350 mm (13.78 in.)	350 mm (13.78 in.)	350 mm (13.78 in.)	400 mm (15.7 in.)	450 mm (17.7 in.)	520 mm (20.5 in.)
Yes	Yes	Yes	Yes	Yes	Yes	Yes
■ Fixed: no rotational axis installed ■ Optional rotational axis: - 3-axis without rotational axis - 4-axis with rotational telescopic axis						
+/- 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.)	+/- 0.1 mm (+/- 0.004 in.)	+/- 0.1 mm (+/- 0.004 in.)
250 cycles/min (2)	208 cycles/min (2)	208 cycles/min (2)	208 cycles/min (2)	205 cycles/min (2)	180 cycles/min (2)	180 cycles/min (2)
10 m/sec (33 ft/s)	10 m/sec (33 ft/s)	10 m/sec (33 ft/s)	10 m/sec (33 ft/s)	10 m/sec (33 ft/s)	10 m/sec (33 ft/s)	10 m/sec (33 ft/s)
120 m/sec² (394 ft/s²)	100 m/sec² (328 ft/s²)	100 m/sec² (328 ft/s²)	100 m/sec² (328 ft/s²)	90 m/sec² (295 ft/s²)	80 m/sec² (262 ft/s²)	80 m/sec² (262 ft/s²)
90 m/sec² (295 ft/s²)	75 m/sec² (246 ft/s²)	75 m/sec² (246 ft/s²)	75 m/sec² (246 ft/s²)	70 m/sec² (230 ft/s²)	60 m/sec² (197 ft/s²)	60 m/sec² (197 ft/s²)
–	–	–	–	–	–	–
Up to 15 kg up to 33.1 lb	Up to 15 kg up to 33.1 lb	Up to 15 kg up to 33.1 lb	Up to 15 kg up to 33.1 lb	Up to 15 kg up to 33.1 lb	Up to 15 kg up to 33.1 lb	Up to 15 kg up to 33.1 lb
■ Normal, compact	■ Standard housing, washdown ■ Standard housing, not washdown ■ Cleanroom, washdown	■ Flat housing, not washdown ■ Flat housing, washdown	■ Normal, compact	■ Normal, compact	■ Normal, compact	■ Normal, compact
■ Lexium SH3 motors (3) ■ Lexium 62 ILM integrated drives (4)	■ Lexium SH3 motors (3) ■ Lexium 62 ILM integrated drives (3) ■ Motors and drives ■ Motors and gearboxes ■ Without motors and gearboxes: on request	■ Lexium SH3 motors (3) ■ Lexium 62 ILM integrated drives (3) ■ Without motors ■ Motors and gearboxes ■ Without motors and gearboxes: on request	■ Lexium SH3 motors (3) ■ Lexium 62 ILM integrated drives (4) ■ Motors and gearboxes ■ Without motors and gearboxes: on request	■ Lexium SH3 motors (3) ■ Lexium 62 ILM integrated drives (3)	■ Lexium SH3 motors (3) ■ Lexium 62 ILM integrated drives on request ■ Motors and gearboxes ■ Without motors and gearboxes: on request	■ Lexium SH3 motors (3) ■ Lexium 62 ILM integrated drives on request ■ Motors and gearboxes ■ Without motors and gearboxes: on request
VRKP2●●NC00000	VRKP4●●WD00000 VRKP4●●CW00000 VRKP4●●NO00000	VRKP4●●WF00000 VRKP4●●NF00000	VRKP4●●NC00000	VRKP5S0●NC00000 VRKP5L0●NC00000	VRKP6S0●NC00000 VRKP6L0●NC00000	VRKP6S0●NC00E00
10						

Product reference structure for Delta 2 robots (T series)

		VRK	T●	●●	●	●●	00	000
Robot kinematics								
VRK								
Robot serie								
T2	2-axis Delta 2 robot 800 mm (3.15 in.)							
T3	2-axis Delta 2 robot 1,000 mm (39.4 in.)							
T5	2-axis Delta 2 robot 1,500 mm (59.05 in.)							
Sub series								
L0	ILM motors (T2, T3, T5)							
M0	MH3 motors (T2, T3, T5)							
M1	MH3 motors heavy duty (T2, T3, T5)							
WM	Without motor (T2, T3, T5)							
YY	Replacement equipment set							
Option								
R	Rotational axis installed							
F	Fixed, no rotational axis installed							
C	Customized version							
Y	Replacement equipment (Replacement equipment for customized edition = C)							
Variant								
NC	Normal, Compact (T2, T3, T5)							
YY	Replacement equipment							
Revision								
00	S00 (T2, T3, T5)							
Miscellaneous								
000	Without options							

PacDrive 3 robotics

Delta robots for pick & place solutions

Delta 3 robots (P series)

Product reference structure for Delta 3 robots (P series)							
	VRK	P●	●●	●	●●	00	●00
Robot kinematics							
VRK							
Robot series							
P2	3-/4-axis Delta 3 robot 800 mm (31.5 in.)						
P4	3-/4-axis Delta 3 robot 1,200 mm (47.2 in.)						
P5	3-/4-axis Delta 3 robot 1,400 mm (55.11 in.)						
P6	3-/4-axis Delta 3 robot 1,600 mm (62.9 in.)						
Sub series							
S0	SH3 motors (P2, P4, P5, P6)						
S4	SH3 motors, 4-times same motor, also on rotational axis (P4 standard)						
L0	ILM motors (P2, P4, P5, P6)						
WM	Without motors (P4)						
YY	Replacement equipment set						
Option							
R	Rotational axis installed						
F	Fixed, no rotational axis installed						
C	Customized version or customized hardware bundle						
Y	Replacement equipment (Replacement equipment for customized edition = C)						
Variant							
WD	Standard housing, washdown (P4)						
NF	Flat housing, not washdown (P4)						
NO	Standard housing, not washdown (P4)						
WF	Flat housing, washdown (P4)						
CW	Cleanroom, washdown (P4)						
NC	Normal, Compact (P2, P4, P5, P6)						
01	Customized version 01						
YY	Replacement equipment						
Revision							
●●	Reserved to identify revisions of mechanics						
Miscellaneous							
●●●	Reserved for options; e.g. replacement equipment number						
E00	Extended working space (P6)						

PacDrive 3 robotics

Delta robots for pick & place solutions

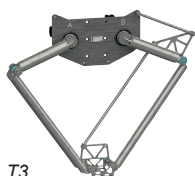
Delta 2 robots, motors and integrated servo motors for Delta 2 robots

Delta 2 robots

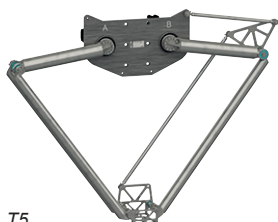
series	Number of axes	Work envelope (operating travel)	Max. load	Option	Associated motor or servo motor	Variant	Clean-room	Reference	Weight kg/lb
T2 Compact	2	800 mm (31.50 in.)	40 kg (88 lb)	Fixed axis	MH3 motor	—	—	VRKT2M0FNC00000	56.000/ 123.00
					Lexium 62 ILM — integrated drive	—	—	VRKT2L0FNC00000	64.000/ 141.00
			60 kg (132 lb)	Fixed axis	MH3 motor heavy duty	—	—	VRKT2M1FNC00000	60.000/ 132.27
T3 Compact	2	1,000 mm (39.4 in.)	35 kg (77 lb)	Fixed axis	MH3 motor	—	—	VRKT3M0FNC00000	60.000/ 132.28
					Lexium 62 ILM — integrated drive	—	—	VRKT3L0FNC00000	64.000/ 141.00
			50 kg (110 lb)	Fixed axis	MH3 motor heavy duty	—	—	VRKT3M1FNC00000	64.000/ 141.00
T5 Compact	2	1,500 mm (59.05 in.)	30 kg (66 lb)	Fixed axis	MH3 motor	—	—	VRKT5M0FNC00000	60.000/ 132.28
					Lexium 62 ILM — integrated drive	—	—	VRKT5L0FNC00000	65.000/ 143.30
			45 kg (99 lb)	Fixed axis	MH3 motor heavy duty	—	—	VRKT5M1FNC00000	65.000/ 143.30



T2



T3



T5

Motors for Delta 2 robots

Designation	Description	For use with robot-series	Reference	Weight kg/lb
Lexium MH3 motors with rotatable right-angled connectors	- Continuous stall torque: 6 N.m (115...480 V 3-phase) - Nominal speed: - 1,000 rpm (115 V) - 2,000 rpm (230 V) - 4,000 rpm (400 V) - 5,000 rpm (480 V) - With holding brake - Multiturn SinCos Hiperface	VRKT2M0FNC00000, VRKT3M0FNC00000, VRKT5M0FNC00000	MH31002P02F2200	6.400/14.11
	- Continuous stall torque: 9 N.m (115...480 V 3-phase) - Nominal speed: - 2,500 rpm (230 V) - 1,000 rpm (115 V) - 4,000 rpm (400 V) - 5,000 rpm (480 V) - With holding brake - Multiturn SinCos Hiperface	VRKT2M1FNC00000, VRKT3M1FNC00000, VRKT5M1FNC00000	MH31003P02F2200	8.150/17.97



MH3100●P02F2200

Integrated servo motors for Delta 2 robots

Designation	Description	For use with robot-series	Reference	Weight kg/lb
Integrated servo motor (Lexium 62 ILM integrated drive)	- Continuous stall torque: 5.8 N.m - Nominal speed: 3,000 rpm - With holding brake - Absolute multiturn SinCos Hiperface	VRKT2L0FNC00000, VRKT3L0FNC00000, VRKT5L0FNC00000	ILM1003P02F0000	8.900/19.62

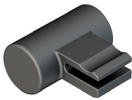
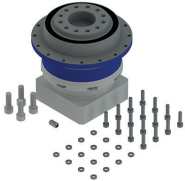
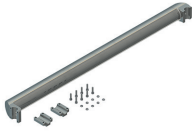
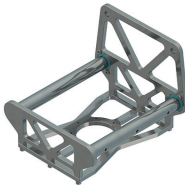
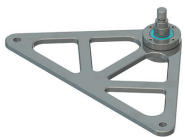
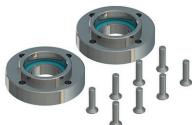


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PacDrive 3 robotics

Delta robots for pick & place solutions

Replacement equipments for Delta 2 robots

Replacement equipments for Delta 2 robots				
Designation	Description	For use with robot-series	Reference	Weight kg/lb
 VRKTXYYYYY00001	1x calibration tool	T2, T3, T5	VRKTXYYYYY00001	0.125/ 0.275
 VRKT•YYYYY00002	1x upper arm (primary arm) complete 1x indexing bolt gearing 11x screw upper arm (primary arm)	T2	VRKT2YYYYY00002	–
		T3	VRKT3YYYYY00002	3.600/ 7.936
		T5	VRKT5YYYYY00002	3.600/ 7.936
 VRKTXYYYYY00003	1x gearbox main axis 16x screw gearbox/mounting plate 4x screw motor/gearbox 1x indexing bolt gearbox	T2, T3, T5	VRKTXYYYYY00003	6.325/ 13.944
 VRKT•YYYYY00004	1x lower arm (secondary arm) complete 2x half shell 8x screw half shell	T2	VRKT2YYYYY00004	–
		T3	VRKT3YYYYY00004	2.550/ 5.621
		T5	VRKT5YYYYY00004	2.550/ 5.621
 VRKTXYYYYY00005	1x parallel plate complete	T2, T3, T5	VRKTXYYYYY00005	3.035/ 6.801
 VRKTXYYYYY00006	2x shaft complete with mounted bearings	T2, T3, T5	VRKTXYYYYY00006	1.075/ 2.369
 VRKT•YYYYY00007	1x linkage rod complete	T2	VRKT2YYYYY00007	–
 VRKT•YYYYY00008		T3	VRKT3YYYYY00007	0.865/ 1.906
		T5	VRKT5YYYYY00007	0.865/ 1.906
 VRKTXYYYYY00009	1x linkage rod complete	T2	VRKT2YYYYY00008	–
 VRKTXYYYYY00010		T3	VRKT3YYYYY00008	0.629/ 1.386
		T5	VRKT5YYYYY00008	0.629/ 1.386
 VRKTXYYYYY00011	1x lever with shaft and bearings	T2, T3, T5	VRKTXYYYYY00009	1.363/ 3.004
 VRKTXYYYYY00012	2x shell with mounted bearings 8x screw for shell	T2, T3, T5	VRKTXYYYYY00010	0.425/ 0.936
	11x screw upper arm (primary arm)	T2, T3, T5	VRKTXYYYYY00011	1.760/ 3.880
	2x mounting shaft lower arm (secondary arm) 1x distance ring	T2, T3, T5	VRKTXYYYYY00012	0.103/ 0.227

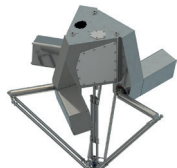
PacDrive 3 robotics

Delta robots for pick & place solutions

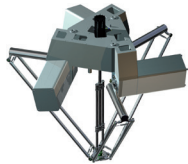
Delta 3 robots



P2 Compact



P4 Standard



P4 Flat



P4 Compact



P5 Compact



P6 Compact



P6 Extended

Delta 3 robots									
series	Number of axes	Work envelope (operating travel)	Max. load	Option	Associated motor or servo motor	Variant	Clean-room	Reference	Weight kg/lb
P2 Compact	3...4	800 mm (31.50 in.)	15 kg (33.1 lb)	Fixed axis	SH3 motor	—	—	VRKP2S0FNC00000	47.000/103.62
					Lexium 62 ILM integrated drive	—	—	VRKP2L0FNC00000	55.000/121.25
				Rotational axis	SH3 motor	—	—	VRKP2S0RNC00000	52.000/114.64
					Lexium 62 ILM integrated drive	—	—	VRKP2L0RNC00000	65.000/143.30
P4 Standard	3...4	1,200 mm (47.24 in.)	15 kg (33.1 lb)	Fixed axis	SH3 motor	Washdown	—	VRKP4S0FWD00000	105.000/231.49
					SH3 motor	Washdown	Yes	VRKP4S0FCW00000	105.000/231.49
					Lexium 62 ILM integrated drive	Not washdown	—	VRKP4L0FNO00000	107.000/235.89
					Lexium 62 ILM integrated drive	Washdown	—	VRKP4L0FWD00000	120,000/264.55
				Rotational axis	SH3 motor	Washdown	—	VRKP4S0RWD00000	110.000/242.51
					SH3 motor	Washdown	Yes	VRKP4S0RCW00000	110.000/242.51
					Lexium 62 ILM integrated drive	Not washdown	—	VRKP4L0RNO00000	113.000/249.12
					Lexium 62 ILM integrated drive	Washdown	—	VRKP4L0RWD00000	120,000/264.55
P4 Flat	3...4	1,200 mm (47.24 in.)	15 kg (33.1 lb)	Fixed axis	SH3 motor	Washdown	—	VRKP4S0FWF00000	89.000/196.21
					Lexium 62 ILM integrated drive	Not washdown	—	VRKP4L0FNF00000	116.000/255.74
				Rotational axis	SH3 motor	Washdown	—	VRKP4S0RWF00000	94.000/207.23
					Lexium 62 ILM integrated drive	Not washdown	—	VRKP4L0RNF00000	125.000/275.58
					Without motor	Not washdown	—	VRKP4WMRNF00000	100.000/200.46
P4 Compact	3...4	1,200 mm (47.24 in.)	15 kg (33.1 lb)	Fixed axis	SH3 motor	—	—	VRKP4S0FNC00000	51.000/112.44
					Lexium 62 ILM integrated drive	—	—	VRKP4L0FNC00000	55.000/121.25
				Rotational axis	SH3 motor	—	—	VRKP4S0RNC00000	56.000/123.46
					Lexium 62 ILM integrated drive	—	—	VRKP4L0RNC00000	60.000/132.28
P5 Compact	3...4	1,400 mm (55.11 in.)	15 kg (33.1 lb)	Fixed axis	SH3 motor	—	—	VRKP5S0FNC00000	80.000/176.00
					Lexium 62 ILM integrated drive	—	—	VRKP5L0FNC00000	80.000/176.00
				Rotational axis	SH3 motor	—	—	VRKP5S0RNC00000	80.000/176.00
					Lexium 62 ILM integrated drive	—	—	VRKP5L0RNC00000	80.000/176.00
P6 Compact	3...4	1,600 mm (62.9 in.)	15 kg (33.1 lb)	Fixed axis	SH3 motor	—	—	VRKP6S0FNC00000	60.000/132.28
					Lexium 62 ILM integrated drive	—	—	VRKP6L0FNC00000	80.000/176.00
				Rotational axis	SH3 motor	—	—	VRKP6S0RNC00000	65.000/143.30
					Lexium 62 ILM integrated drive	—	—	VRKP6L0RNC00000	80.000/176.00
P6 Extended	3...4	1,600 mm (62.9 in.)	15 kg (33.1 lb)	Fixed axis	SH3 motor	—	—	VRKP6S0FNC00E00	80.000/176.00
				Rotational axis	SH3 motor	—	—	VRKP6S0RNC00E00	80.000/176.00



SH3070●P02F2000

Motors for Delta 3 robots				
Designation	Description	For use with robot-series	Reference	Weight kg/lb
Lexium SH3 motors with rotatable right-angled connector	For rotational axis ■ Continuous stall torque 2.2 N.m (115...480 V 3-phase) ■ Nominal speed - 6,000 rpm (400 V 3-phase) - 1,500 rpm (115 V 3-phase) - 3,000 rpm (230 V 3-phase) - 7,200 rpm (480 V 3-phase) ■ Absolute multiturn SinCos Hiperface ■ With holding brake	P2, P4, P5, P6, P6 Extended	SH30702P02F2000	3.000/ 6.61
	For main axis ■ Continuous stall torque 3.1 N.m (115...480 V 3-phase) ■ Nominal speed - 6,000 rpm (400 V 3-phase) - 1,500 rpm (115 V 3-phase) - 3,000 rpm (230 V 3-phase) - 7,200 rpm (480 V 3-phase) ■ Absolute multiturn SinCos Hiperface ■ With holding brake	P2, P4, P5, P6, P6 Extended	SH30703P02F2000	3.800/ 8.38



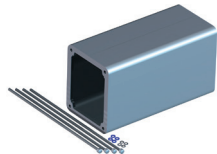
ILM070●P02F0000

Servo motors for Delta 3 robots				
Designation	Description	For use with robot-series	Reference	Weight kg/lb
Integrated servo motors (Lexium 62 ILM integrated drive)	For rotational axis ■ Continuous stall torque: 1.7 N.m ■ Nominal speed 6,000 rpm ■ Absolute multiturn SinCos Hiperface ■ With holding brake	P2, P4, P5, P6, P6 Extended	ILM0702P02F0000	3.700/ 8.16
	For main axis ■ Continuous stall torque: 2.2 N.m ■ Nominal speed 6,000 rpm ■ Absolute multiturn SinCos Hiperface ■ With holding brake	P2, P4, P5, P6, P6 Extended	ILM0703P02F0000	4.700/ 10.36

PacDrive 3 robotics

Delta robots for pick & place solutions

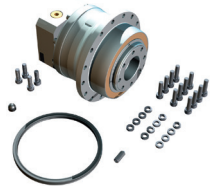
Replacement equipments for Delta 3 robots



VRKP4YYYYY00001



VRKP•YYYYY00002



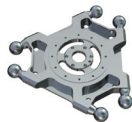
VRKP4YYYYY00003



VRKP•YYYYY00004



VRKP4YYYYY00005



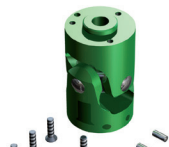
VRKP4YYYYY00006



VRKP•YYYYY00007



VRKP4YYYYY00008



VRKP4YYYYY00009



VRKP•YYYYY00010



VRKP4YYYYY00011

Replacement equipments for Delta 3 robots

Designation	Description	For use with robot-series	Reference	Weight kg/lb
Motor cover with fasteners, without seal	1x motor cover VRKP4•••WD 4x threaded rod 4x sealing washer 4x anti-loss washer	VRKP4•••WD, VRKP4•••CW, VRKP4•••WF	VRKP4YYYYY00001	—
Upper arm (primary arm) with ball pins and indexing bolt	1x upper arm complete 1x indexing bolt gearing 7x titanium screw upper arm	P2	VRKP2YYYYY00002	2.360/ 5.202
		P4	VRKP4YYYYY00002	
		P5	VRKP5YYYYY00002	
		P6, P6 Extended	VRKP6YYYYY00002	
Gearbox with fasteners and indexing bolt	1x gearbox main axis 16x screw gearbox to housing 4x screw motor to gearbox 1x indexing bolt gearbox 1x X-ring 1x PE-cap for motor	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00003	—
Two lower arms (secondary arms) with rolls, sockets, and 4 springs	2x lower arm, complete 4x helical extension	P2	VRKP2YYYYY00004	1.750/ 3.858
		P4	VRKP4YYYYY00004	
		P5	VRKP5YYYYY00004	
		P6	VRKP6YYYYY00004	
		P6 Extended	VRKP6YYYYY00E04	
Parallel plate with bearing and ball pins	1x parallel plate with bearing and ball pins	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00005	—
Parallel plate with ball pins	1x parallel plate with ball pins	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00006	—
Telescopic axis mounted with universal joints	1x telescopic axis	P2	VRKP2YYYYY00007	1.950/ 4.299
		P4	VRKP4YYYYY00007	
		P5	VRKP5YYYYY00007	
		P6	VRKP6YYYYY00007	
		P6 Extended	VRKP6YYYYY00E07	
Upper universal joint with fasteners	1x upper universal joint 1x clamping screw for upper universal joint	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00008	—
Lower universal joint with fasteners and indexing bolt	1x lower universal joint 6x countersunk screw for universal joint 1x straight pin for universal joint	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00009	—
Guiding tubes, set of three for telescopic axis	2x lower tube 16 1x upper tube 20	P2	VRKP2YYYYY00010	1.250/ 2.755
		P4	VRKP4YYYYY00010	
		P5	VRKP5YYYYY00010	
		P6	VRKP6YYYYY00010	
		P6 Extended	VRKP6YYYYY00E10	
Various fasteners	1x clamping cone, large 1x clamping sleeve, large 1x washer, large 4x washer, small 4x clamping cone, small 4x clamping sleeve, small 1x cover for universal joint 5x clamping screw 1x screw for universal joint, large 1x screw for universal joint, small 6x countersunk screw for universal joint 2x straight pin for universal joint	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00011	—

PacDrive 3 robotics

Delta robots for pick & place solutions

Replacement equipments for Delta 3 robots



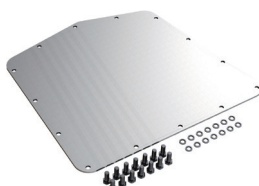
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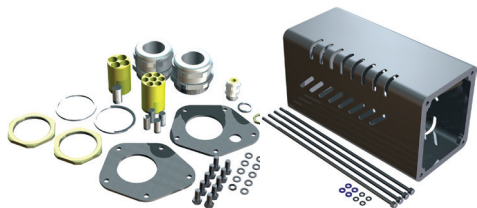
VRKP4YYYYY00013



VRKP4YYYYY00014



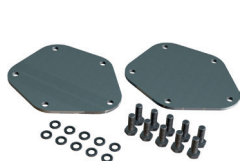
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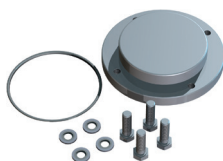
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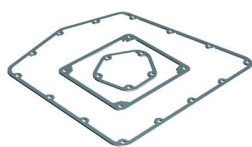
VRKP4YYYYY00017



VRKP4YYYYY00018



VRKP4YYYYY00019



VRKP4YYYYY00020



VRKP4YYYYY00021



VRKP4YYYYY00022



VRKP4YYYYY00023

Replacement equipments for Delta 3 robots (continued)

Designation	Description	For use with robot-series	Reference	Weight kg/lb
Three sets of sliding sleeves	3x sliding sleeves 20 mm 6x sliding sleeves 16 mm	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00012	—
Three sets of sliding sleeves	3x sliding sleeves 20 mm 6x sliding sleeves 16 mm	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00013	—
Gearbox rotational axis with fasteners and seals	1x gearbox rotational axis 1x O-ring central motor 4x sealing ring for central motor 4x screw for central motor above 4x gearbox screw	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00014	—
Maintenance lid with fasteners	1x maintenance lid 14x maintenance lid screw 14x sealing ring for maintenance lid	VRKP4●●●WD, VRKP4●●●NO, VRKP4●●●CW	VRKP4YYYYY00015	—
Cable bushing with lids and fasteners	1x cable bushing M16 PVDF 1x counter nut M16 1x sealing ring PE M16 2x gland body M50 PVDF 2x counter nut M50 2x sealing ring PE M50 1x sealing insert 4x13 1x sealing insert 7x9 1x lock bolt 13 4x lock bolt 9 1x media lid 50 1x media lid 50/16 10x screw for media lid 10x sealing ring for screw media lid	VRKP4●●●WD, VRKP4●●●NO, VRKP4●●●CW	VRKP4YYYYY00016	—
Motor cover with fasteners, without seals	1x motor cover P4x-NO 4x screw-threaded rod 4x sealing ring for screw-threaded rod 4x anti-loss washer	VRKP4●●●NO, VRKP4●●●NF	VRKP4YYYYY00017	—
Two covers with fasteners, without seals	2x media lid blank 10x screw media lid 10x sealing ring for screw media lid	VRKP4●●●WD, VRKP4●●●NO, VRKP4●●●CW, VRKP4●●●WF, VRKP4●●●NF	VRKP4YYYYY00018	—
Closing 4 th axis lid with fasteners and seals	1x blanking cap central axis 1x O-ring central motor 4x sealing ring for central motor 4x screw for central motor below	VRKP4●●●WD, VRKP4●●●NO, VRKP4●●●CW, VRKP4●●●WF, VRKP4●●●NF	VRKP4YYYYY00019	—
One set of seals for maintenance lid, motor cover, media lid	1x seal for maintenance lid 1x seal for motor cover 1x seal for media lid	VRKP4●●●WD, VRKP4●●●NO, VRKP4●●●CW	VRKP4YYYYY00020	—
Two sets of seals for gearboxes	6x X-ring drive motor 2x O-ring central motor	VRKP4●●●WD, VRKP4●●●NO, VRKP4●●●CW, VRKP4●●●WF, VRKP4●●●NF	VRKP4YYYYY00021	—
Screw set for one upper arm (primary arm)	7x titanium screw for upper arm (primary arm)	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00022	—
Twelve helical extensions with rolls and fasteners (set for one robot)	12x helical extension 24x roll 24x screw	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00023	—

PacDrive 3 robotics

Delta robots for pick & place solutions

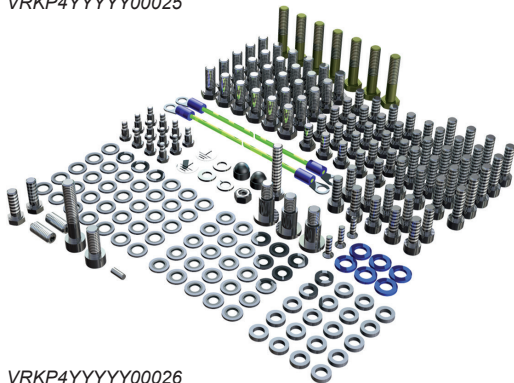
Replacement equipments for Delta 3 robots



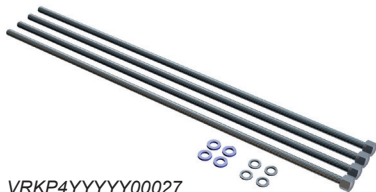
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VRKP4YYYYY00025



VRKP4YYYYY00026



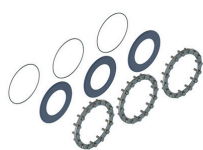
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VRKP4YYYYY00028



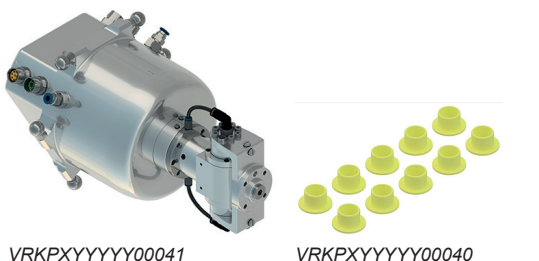
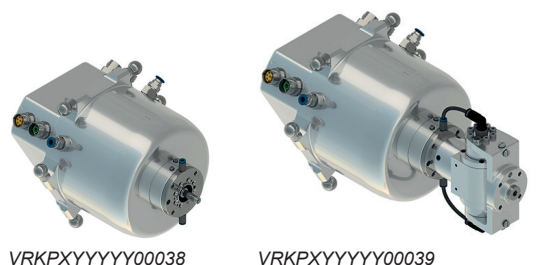
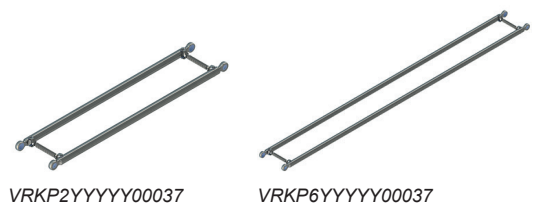
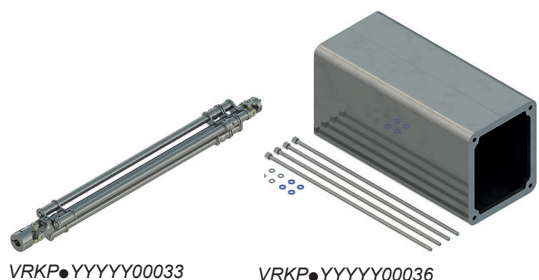
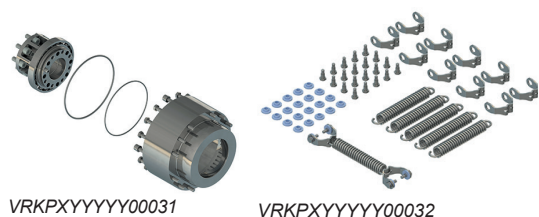
VRKP4YYYYY00029



VRKPXXXXY00030

Replacement equipments for Delta 3 robots (continued)

Designation	Description	For use with robot-series	Reference	Weight kg/lb
12 ball pins (set for one robot)	12x ball pins	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00024	—
12 ball sockets (set for one robot)	12x ball socket	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00025	—
Set of small parts e.g. fasteners, washers, etc. without expendable parts	12x screw 2x sticker PE 25x sealing washer central motor/ sealing washer covering screw 35x sealing washer maintenance cover/sealing washer media cover 2x washer PE 2x screw central motor 10x screw central motor/screw main motor/screw universal joint small 7x titanium screw upper arm 1x straight pin universal joint 1x clamping screw universal joint 1x screw universal joint large 3x countersunk head screw universal joint 20x screw main motor 25x covering screw 2x indexing bold gearbox 1x nut PE 1x spring ring PE 1x screw PE 30x screw maintenance cover/screw media cover/clamping screw 3x flat head screw motor cover 6x anti-loss washer 2x PE cap for motors	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00026	—
Fasteners for motor cover	4x screw for threaded rod 4x sealing ring screw for threaded rod 4x anti-loss washer	VRKP4●●●WD, VRKP4●●●NO, VRKP4●●●CW, VRKP4●●●WF, VRKP4●●●NF	VRKP4YYYYY00027	—
Fan with clamping fixtures	12x clamping fixture 3x fan 80x25 24 V 6x wire end ferrules	VRKP4●●●WD, VRKP4●●●NO, VRKP4●●●CW, VRKP4●●●WF, VRKP4●●●NF	VRKP4YYYYY00028	—
Parallel plate with bearing and ball pins	1x titanium parallel plate with bearing and ball pins	P2, P4, P5, P6, P6 Extended	VRKP4YYYYY00029	—
Set of protector caps	Protector caps to shield the gearbox sealing	P2, P4, P5, P6, P6 Extended	VRKPXXXXY00030	1.200/ 2.645



Replacement equipments for Delta 3 robots (continued)

Designation	Description	For use with robot-series	Reference	Weight/ kg/lb
Gearbox leakage protection for main axis with fasteners	1x protection box for gearbox 1x output-flange-extension 8x screw for output-flange-extension 4x screw for protection box/gearbox 12x screw for protection box/housing	P2, P4, P5, P6, P6 Extended	VRKPXXXXXX00031	4.400/ 9.700
Set of small parts e.g. springs, brackets, rolls and fasteners for one robot	6x spring 12x bracket 24x roll 24x screw	P2, P4, P5, P6, P6 Extended	VRKPXXXXXX00032	0.650/ 1.433
Triple telescopic axis mounted with universal joints (Heavy Duty)	1x telescopic axis triple	P2	VRKP2XXXXXX00033	1.550/
		P4	VRKP4XXXXXX00033	3.417
		P5	VRKP5XXXXXX00033	
		P6	VRKP6XXXXXX00033	
		P6 Extended	VRKP6XXXXXX00E33	
Motor cover extended with fasteners without sealing	1x motor cover extended 4x threaded rod 4x sealing washer 4x anti-loss washer	VRKP4●●●WD, VRKP4●●●CW, VRKP4●●●WF	VRKPXXXXXX00036	6.300/ 13.889
Single spring for lower arm (secondary arms) with rolls	1x single spring	P2	VRKP2XXXXXX00037	1.000/
		P4	VRKP4XXXXXX00037	2.204
		P5	VRKP5XXXXXX00037	
		P6	VRKP6XXXXXX00037	
		P6 Extended	VRKP6XXXXXX00E37	
5-axis module	1x 5-axis module Max. load: 1.500 kg (3.3 lb) IP54	P2, P4, P5, P6, P6 Extended	VRKPXXXXXX00038	4.000/ 8.818
Tilting module (5-axis Module)	1x tilting module Max. load: 0.250 kg (0.55 lb) IP54	P2, P4, P5, P6, P6 Extended	VRKPXXXXXX00039	4.800/ 10.582
Tilting module HD	1x tilting module for Heavy duty Max. load: 0.500 kg (1.1 lb) IP54	P2, P4, P5, P6, P6 Extended	VRKPXXXXXX00041	4.800/ 10.582
Plain bearing for titanium universal joints of triple telescopic axis		P2, P4, P5, P6, P6 Extended	VRKPXXXXXX00040	0.100/ 0.220

Cables

Designation	Use for	Length m ft	Reference	Weight kg/lb
Encoder extension cables	Use between 5-axis module VRKPXXXXXX00038 and tilting modules VRKPXXXXXX00039, VRKPXXXXXX00041	3 9.842	VW3E2100R030	0.475/ 1.047
Power extension cables	Use between 5-axis module VRKPXXXXXX00038 and tilting modules VRKPXXXXXX00039, VRKPXXXXXX00041	3 9.842	VW3E1168R030	0.590/ 1.300

I			
ILM0702P02F0000	11	VRKP4YYYYY00020	13
ILM0703P02F0000	11	VRKP4YYYYY00021	13
ILM1003P02F0000	8	VRKP4YYYYY00022	13
		VRKP4YYYYY00023	13
		VRKP4YYYYY00024	14
M		VRKP4YYYYY00025	14
MH31002P02F2200	8	VRKP4YYYYY00026	14
MH31003P02F2200	8	VRKP4YYYYY00027	14
		VRKP4YYYYY00028	14
S		VRKP4YYYYY00029	14
SH30702P02F2000	11	VRKP4YYYYY00033	15
SH30703P02F2000	11	VRKP4YYYYY00037	15
		VRKP5L0FNC00000	10
V		VRKP5L0RNC00000	10
VRKP2L0FNC00000	10	VRKP5S0FNC00000	10
VRKP2L0RNC00000	10	VRKP5S0RNC00000	10
VRKP2S0FNC00000	10	VRKP5YYYYY00002	12
VRKP2S0RNC00000	10	VRKP5YYYYY00004	12
VRKP2YYYYY00002	12	VRKP5YYYYY00007	12
VRKP2YYYYY00004	12	VRKP5YYYYY00010	12
VRKP2YYYYY00007	12	VRKP5YYYYY00033	15
VRKP2YYYYY00010	12	VRKP5YYYYY00037	15
VRKP2YYYYY00033	15	VRKP6L0FNC00000	10
VRKP2YYYYY00037	15	VRKP6L0RNC00000	10
VRKP4L0FNC00000	10	VRKP6S0FNC00000	10
VRKP4L0FNF00000	10	VRKP6S0FNC00E00	10
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VRKP4YYYYY00006	12	VRKPXYYYYY00041	15
VRKP4YYYYY00007	12	VRKT2L0FNC00000	8
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VRKP4YYYYY00009	12	VRKT2M1FNC00000	8
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		VRKT5M1FNC00000	8
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