

7TH AXIS SOLUTIONS

Systems for UR Cobots

- Seamless integration with URCap software
- Increases work area of robot productivity
- Solutions for all sizes of UR cobots
- Standard travels up to 5,500 mm



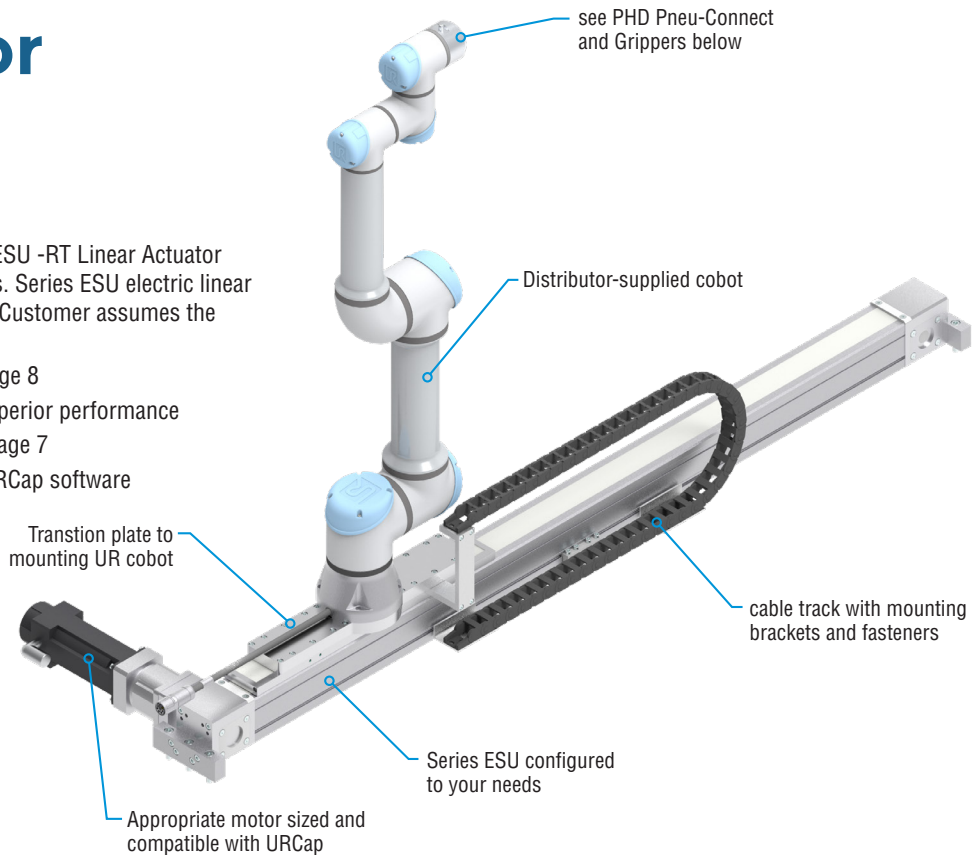
UNIVERSAL ROBOTS
UR+ Partner



Systems for UR Cobots

DESCRIPTION

- Torque limiting servo-driven Series ESU -RT Linear Actuator can provide fault in case of collisions. Series ESU electric linear is not collaborative rated from PHD. Customer assumes the responsibility of risk assessment.
- Integrate EOAT PneuConnect, see page 8
- Optimized system is designed for superior performance
- Kits available for other cobots, see page 7
- Easy to set up and program using URCap software

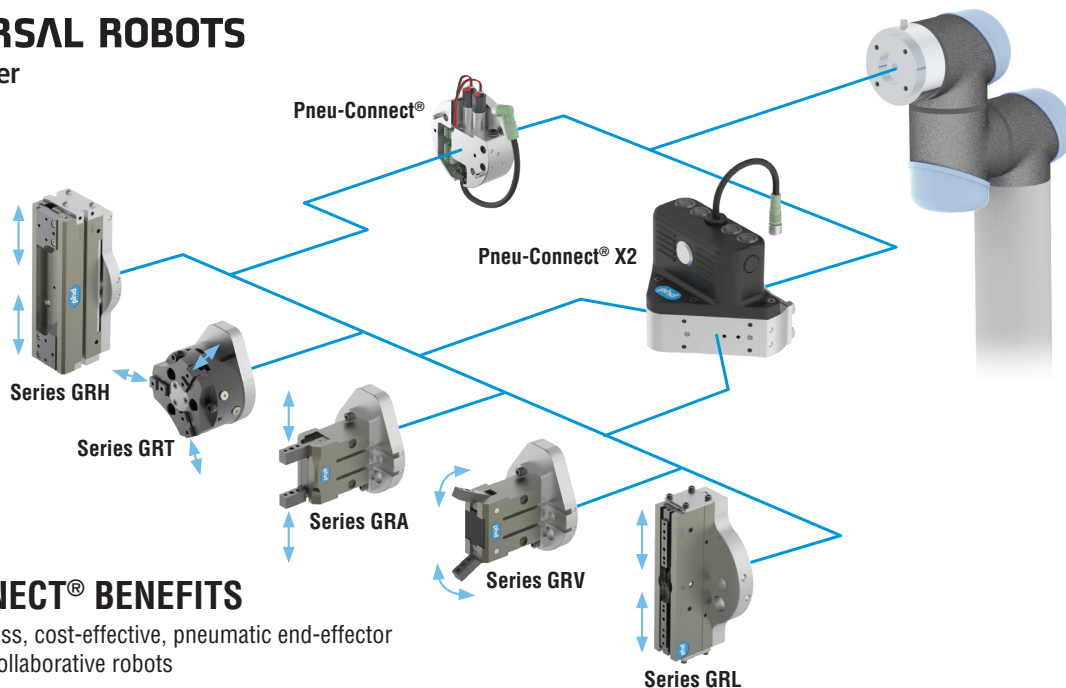


URCap is included with system



UNIVERSAL ROBOTS

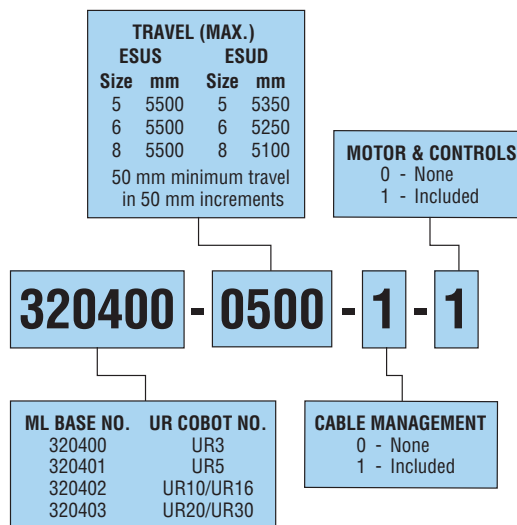
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PNEU-CONNECT® BENEFITS

- Provides seamless, cost-effective, pneumatic end-effector integration for collaborative robots
- Couples directly to the robot arm tool port enabling pneumatic gripping capability
- Incorporated MAC® valves
- URCap software is included for intuitive, easy setup of Pneu-Connect system (see page 8)
- Pneu-Connect X2 design features the Freedrive button that interfaces with the UR for easy position programming

ORDERING DATA: 7th Axis Solutions



DESCRIPTION	UNIVERSAL ROBOTS					
	UR3	UR5	UR10	UR16	UR20	UR30
PHD BASE	ML320400	ML320401	ML320402		ML320403	
PHD ACTUATOR	ESUS55	ESUD56	ESUD58		Dual ESUS56	
MAX. TRAVEL (mm)	5,500	5,250	5,100		5,100	

SPECIFICATIONS	UNIVERSAL ROBOTS					
	UR3	UR5	UR10	UR16	UR20	UR30
REACH (mm)	500	850	1300	900	1750	1300
UR WEIGHT (kg)	11	18.4	28.9	33.1	64	63.5
TOTAL MASS (kg)	14	23.4	39	50	84	95
MAX ACCEL (mm/s ²)	1350	1350	1350	1350	1350	1350
MAX VELOCITY (mm/s)*	300	300	300	300	300	300

SPECIFICATIONS	GEARBOX RATIO 1:1					
	UR3	UR5	UR10	UR16	UR20	UR30
MOTOR TORQUE RMS (Nm)	2.17	4.01	7.32	8.09	9.79	10.37
MOTOR RMS VELOCITY (rpm)	143	119	90	90	119	119
MOTOR TORQUE PEAK (Nm)	2.99	5.58	10.32	11.42	13.80	14.64
MOTOR PEAK VELOCITY (rpm)	203	169	126	126	169	169
REFLECTED INERTIA (kg*cm ²)	149.17	404.60	1195.44	1414.56	1202.74	1326.02

SPECIFICATIONS	GEARBOX RATIO 5:1					
	UR3	UR5	UR10	UR16	UR20	UR30
MOTOR TORQUE RMS (Nm)	0.43	0.80	1.46	1.62	1.96	2.07
MOTOR RMS VELOCITY (rpm)	714	594	450	450	594	594
MOTOR TORQUE PEAK (Nm)	0.60	1.12	2.06	2.28	2.76	2.93
MOTOR PEAK VELOCITY (rpm)	1014	846	630	630	846	846
REFLECTED INERTIA (kg*cm ²)	5.97	16.18	47.82	56.58	48.11	53.04
HARMONIC DRIVE GEARBOX PART NO.	HPN-14A-5-D-J8-AKM3X-AN	HPN-20A-5-D-J8-AKM4X-AN	HPN-32A-5-D-J8-AKM5X-AN		HPN-20A-5-D-J8-AKM4X-AN	

*These values do not include the inertia of a gearbox itself.

KOLLMORGEN HYBRID SMART FEEDBACK CABLES

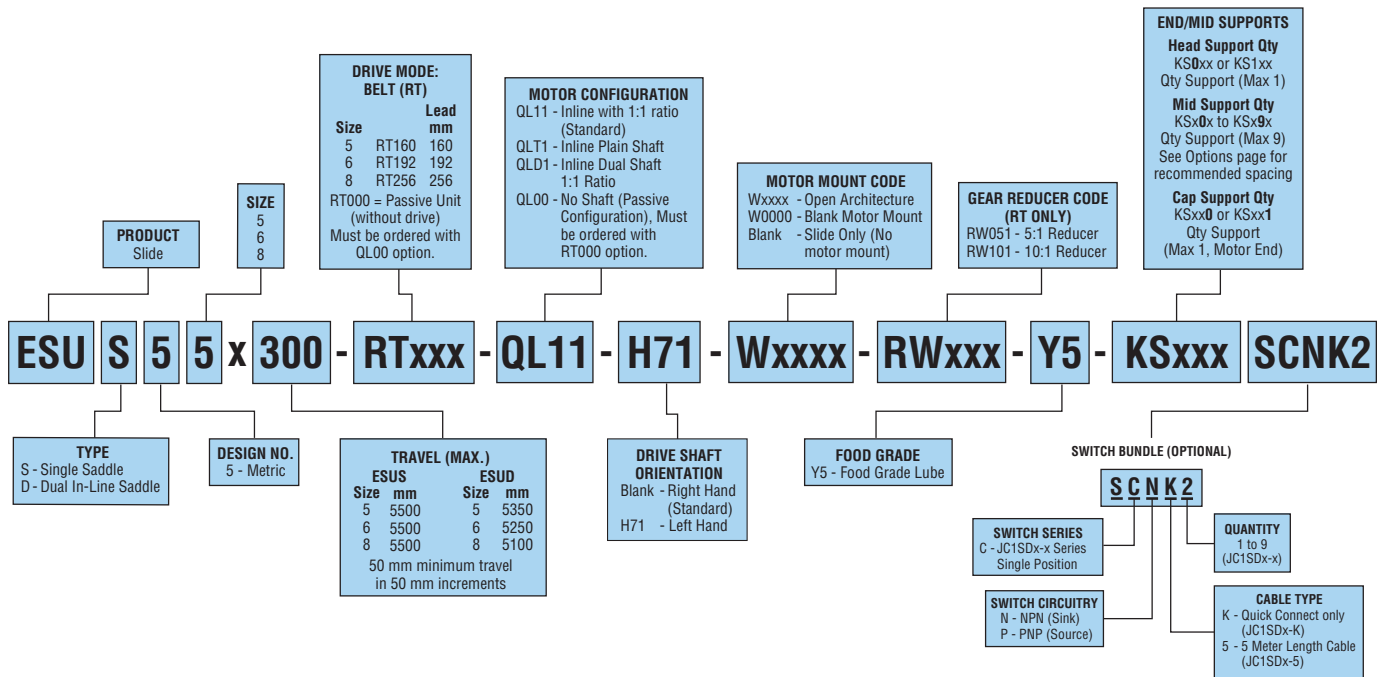
SERIES ESU-RT SIZE	KOLLMORGEN MOTOR PART NO.	KOLLMORGEN CONTROLLER	
		PART NO.	DESCRIPTION
5	AKM-33H-AN9NCA00	AKD-P00606-NBxx-0000	AKD Motor Controller 6 Amp 120v/240v
6	AKM-44J-AN9NCA00	AKD-P01206-NBxx-0000	AKD Motor Controller 12 Amp 120v/240v
8	AKM-54N-AN9NCA00	AKD-P02406-NBxx-0000	AKD Motor Controller 24 Amp 120v/240v

LENGTH	CCJ SERIES	
	12 AMP 120/240V	20 AMP 120/240V
1 meter	CCJ-1A2-015-001-00	CCJ-1A2-025-001-00
3 meter	CCJ-1A2-015-003-00	CCJ-1A2-025-003-00
6 meter	CCJ-1A2-015-006-00	CCJ-1A2-025-006-00
9 meter	CCJ-1A2-015-009-00	CCJ-1A2-025-009-00
12 meter	CCJ-1A2-015-012-00	CCJ-1A2-025-012-00
24 meter	CCJ-1A2-015-024-00	CCJ-1A2-025-024-00

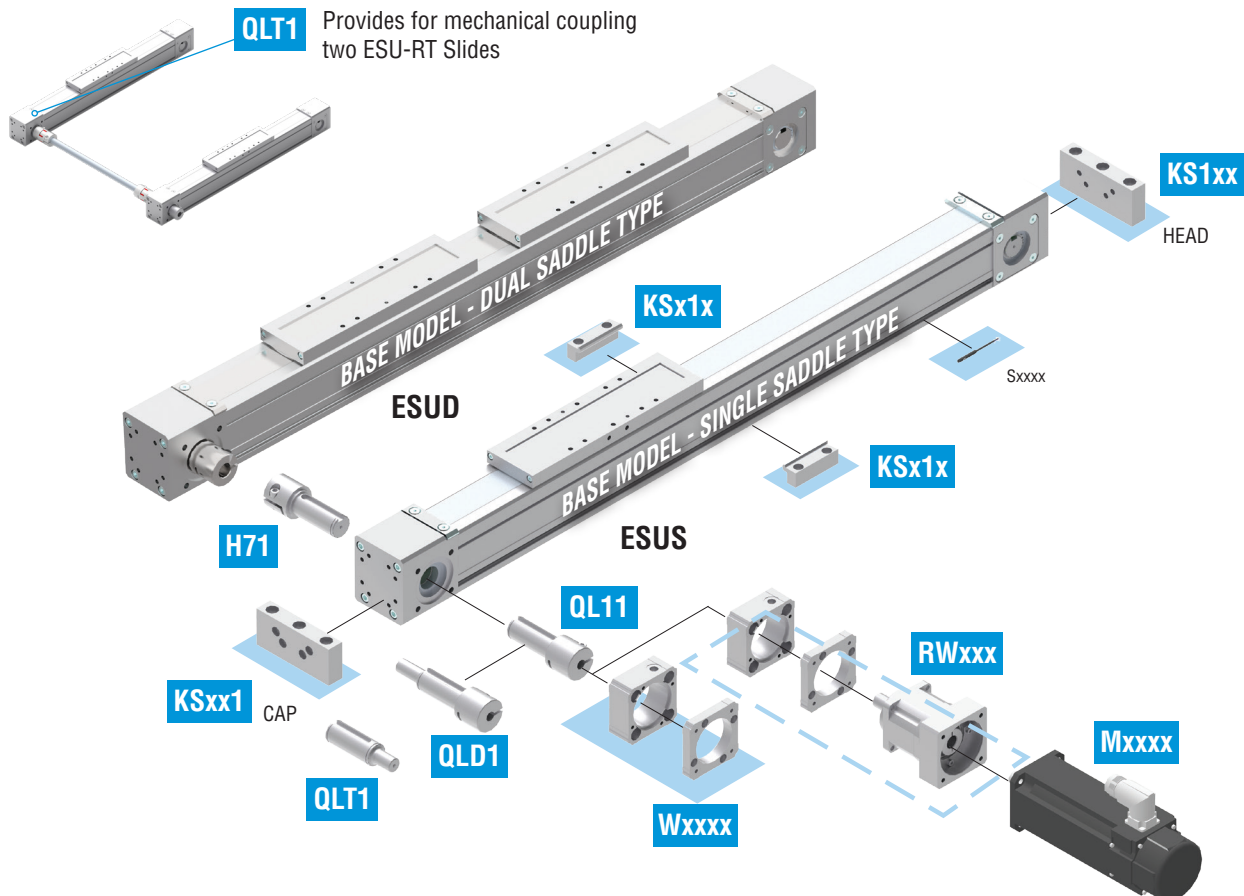
xx = Replace with letter designation for required fieldbus below:

AN = Analog - no fieldbus EI = Ethernet/IP
 EC = EtherCat PN = Profinet

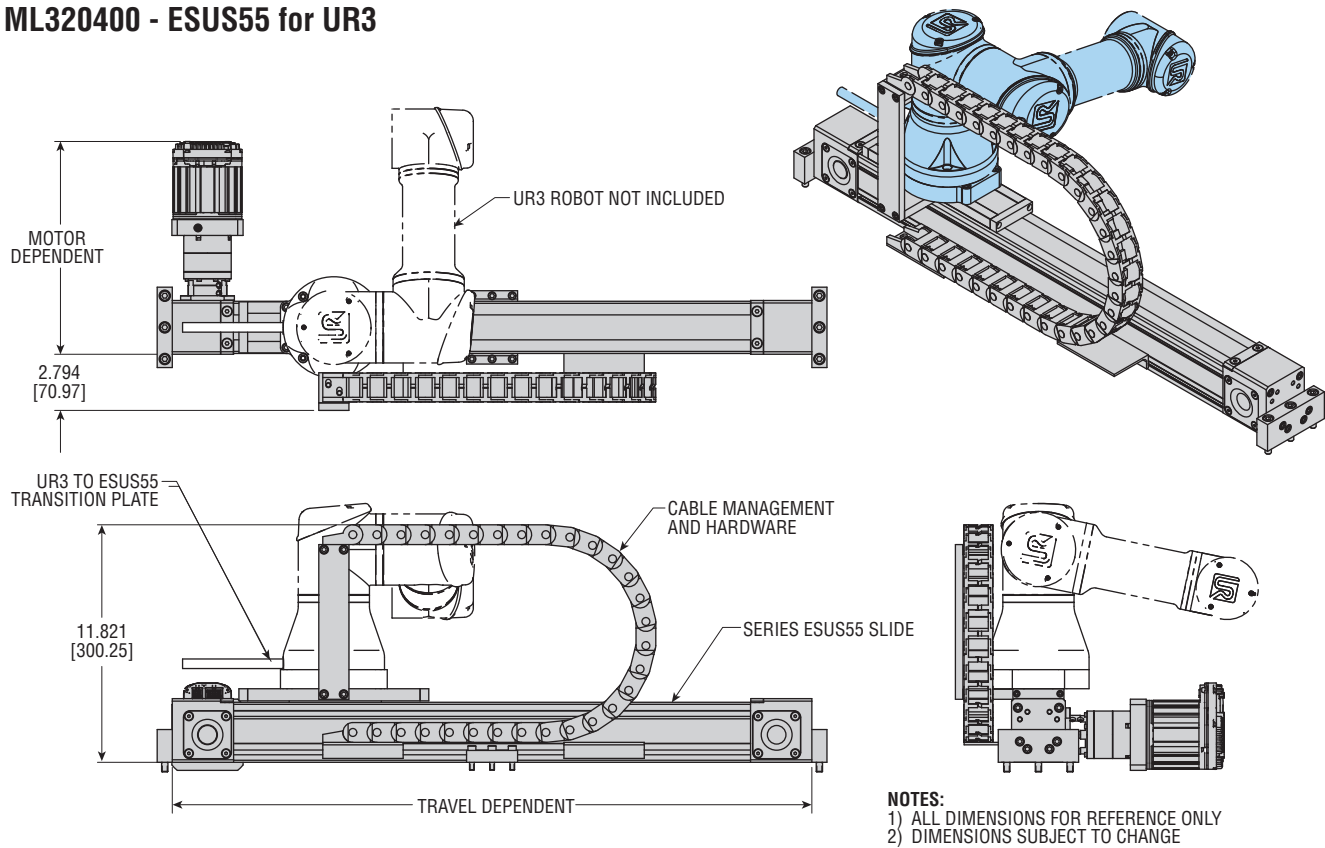
SERIES ESU -RT CONFIGURATION REFERENCE



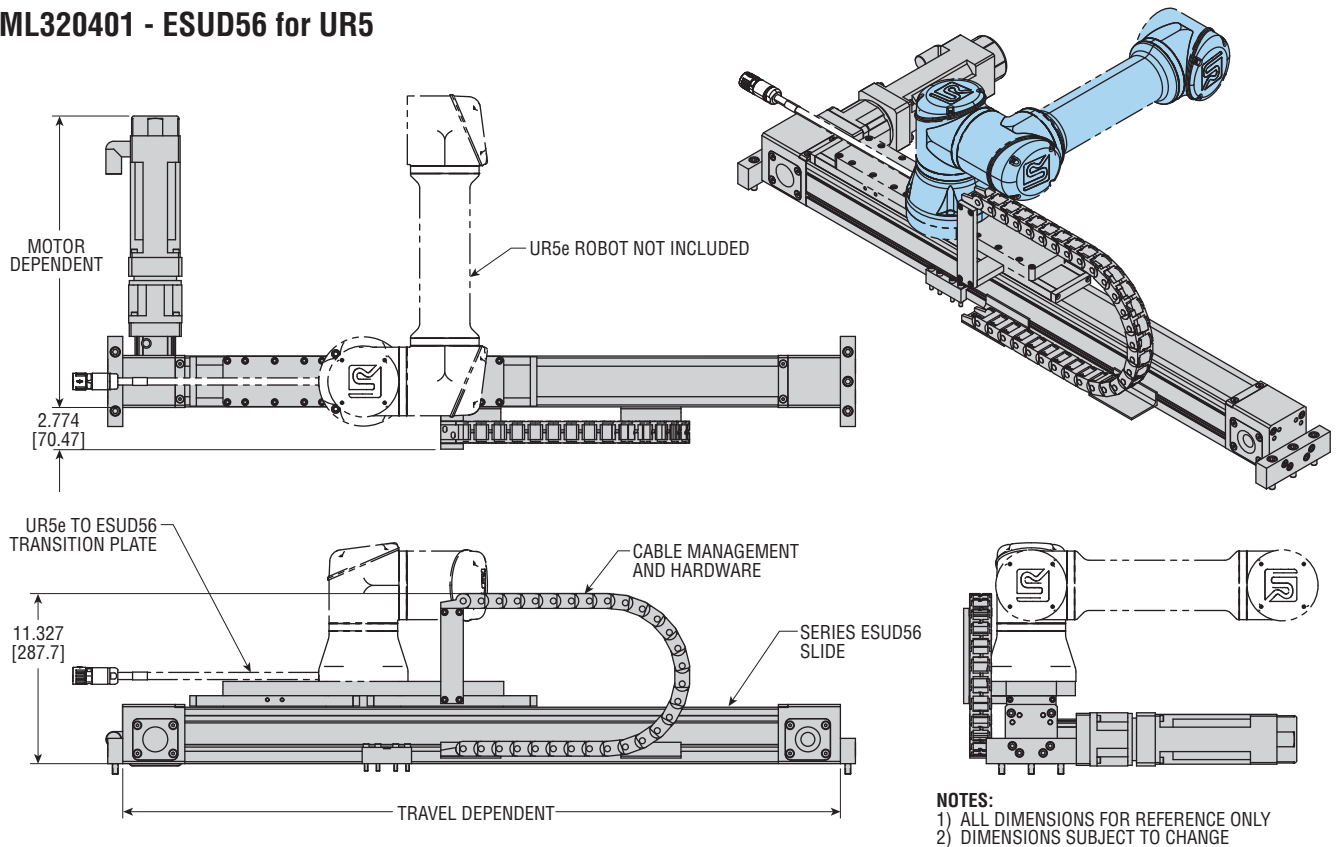
MOUNTING OPTIONS



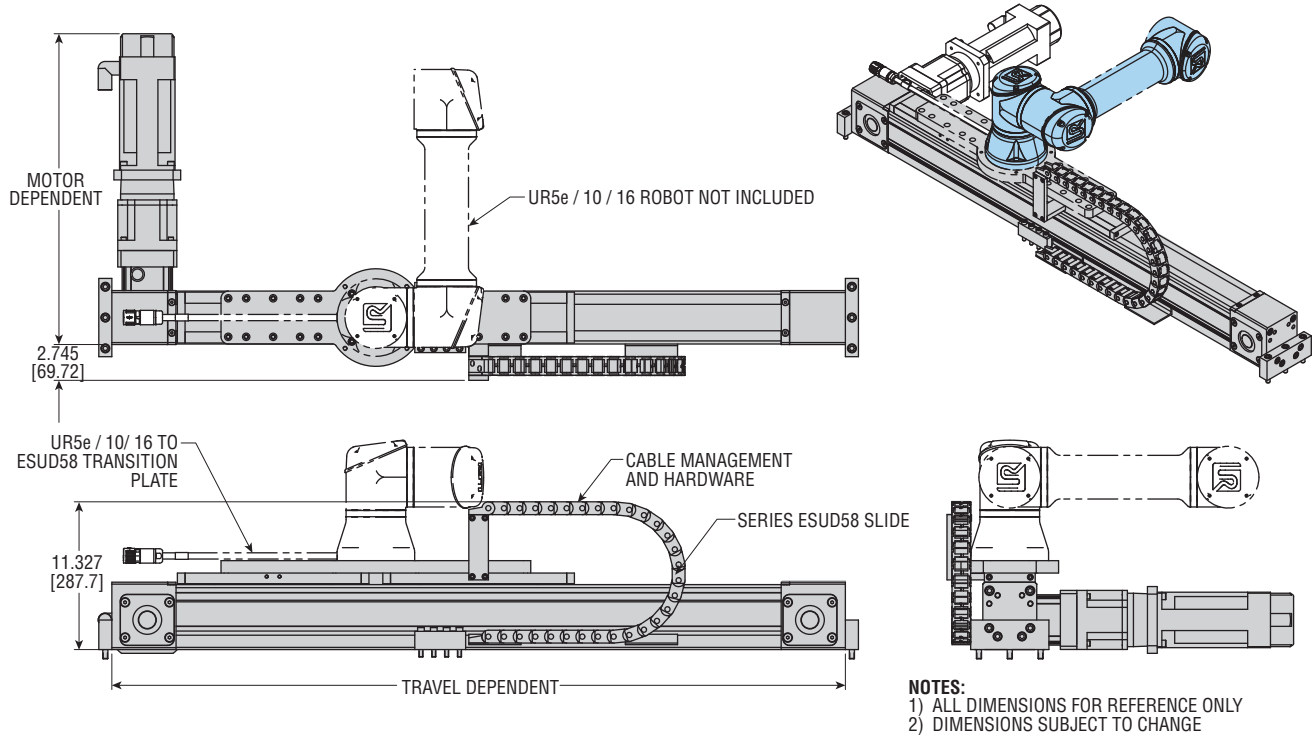
ML320400 - ESUS55 for UR3



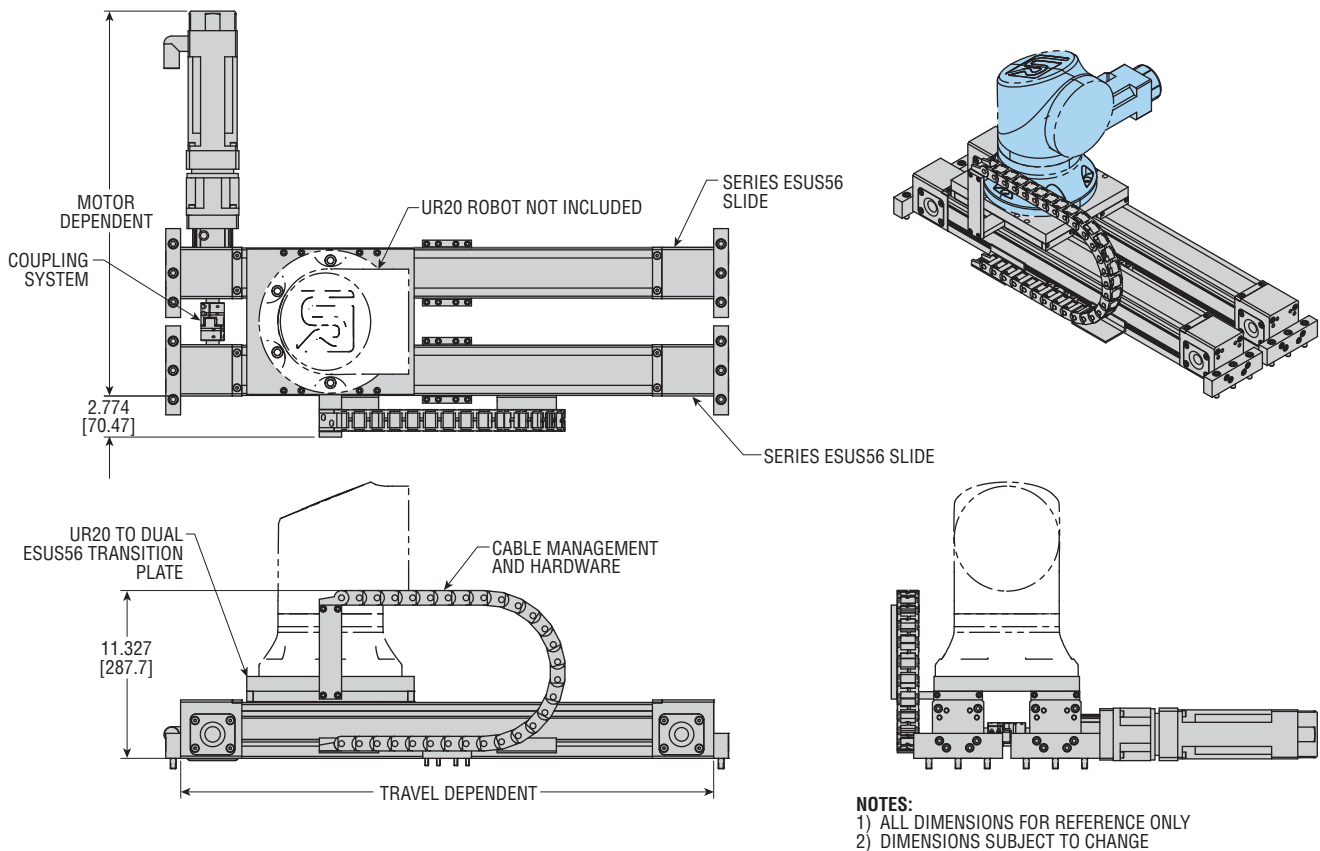
ML320401 - ESUD56 for UR5



ML320402 - ESUD58 for UR10 and UR16



ML320403 - Dual ESUS56 for UR20 and UR30



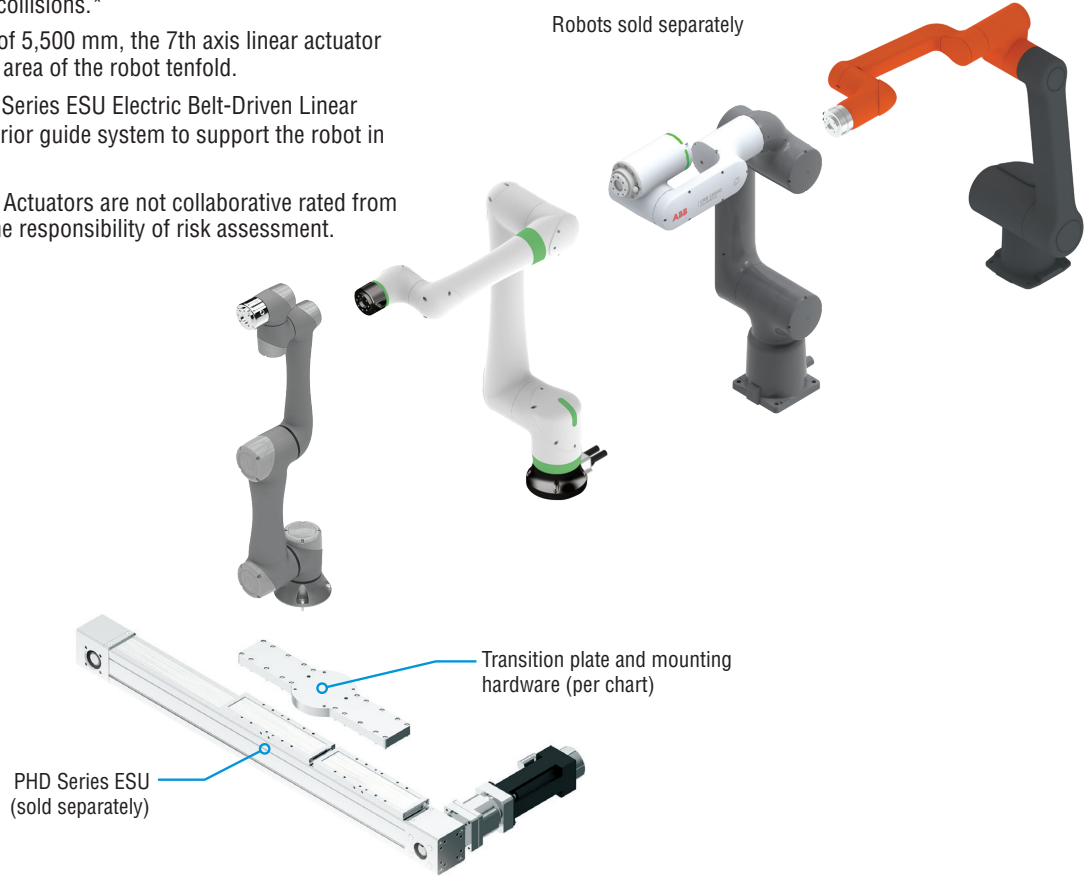
Transition Plates & Kits for a Variety of Cobot Brands

BENEFITS

- Transition plates and hardware are available for direct mounting between the electric linear actuator and the robot.
- Torque limiting features on the servo-driven linear actuator can provide faults in case of collisions.*
- With a maximum stroke of 5,500 mm, the 7th axis linear actuator can multiply the working area of the robot tenfold.
- The robust design of the Series ESU Electric Belt-Driven Linear Actuator provides a superior guide system to support the robot in various orientations.

*Series ESU Electric Linear Actuators are not collaborative rated from PHD. Customer assumes the responsibility of risk assessment.

Robots sold separately



ROBOT	ROBOT SIZE	MAX. PAYLOAD (kg)	REACH (mm)	WEIGHT (kg)	RECOMMENDED 7TH AXIS**	TRANSITION PLATE KITS	PLATE WEIGHT (kg)
TECHMAN	TM5 - 700	6	700	22.1	ESUD56	ML317814	3.38
	TM5 - 900	4	900	22.6			
	TM12	12	1300	33.3	ESUD58	ML317818	4.94
	TM14	14	1100	32.6			
FANUC CRX	CRX-10i A	10	1249	39	ESUD58	ML318926	4.87
	CRX-10i A/L		1418				
ABB	GoFa 5	5	950	28	Dual ESUS56	ML320540	4
	GoFa 12	12	1270	48		ML320541	10
	GoFa 10	10	1520	51			
HANWHA	HCR-3	3	630	13	ESUD55	ML318421	0.9
	HCR-5	5	915	21	ESUD56	ML318422	3.0
	HCR-12	12	1300	53	ESUD58	ML318423	4.6

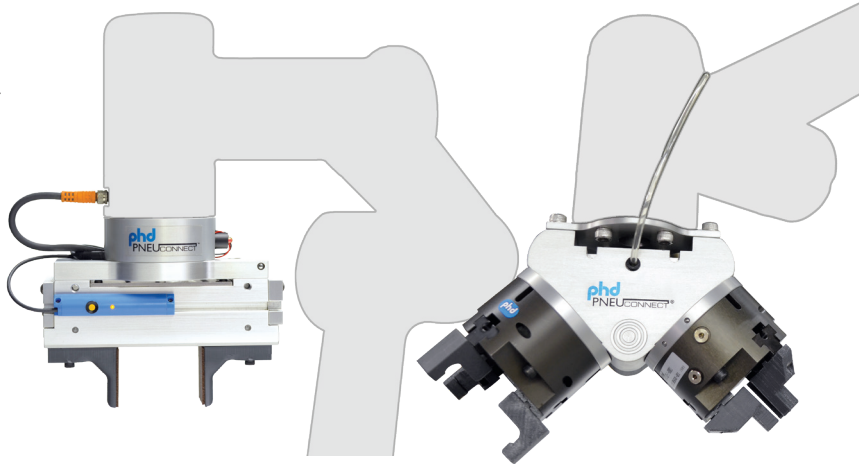
NOTES:

- 1) Cap not included
- 2) **Recommended linear actuator selected for maximum payload and reach of robot. Contact PHD Applications Engineering for other combinations.

Pneu-Connect®

Seamless Integration of PHD Grippers to Collaborative Robots

- Pneu-Connect® system easily attaches to the robot arm and features embedded directional control valves for control of an end-effector through the robot's tool port.
- Five popular PHD pneumatic gripper models for a wide variety of applications
- Pneu-Connect X2 kits provide for two grippers for maximum automation efficiency providing for a wide variety of applications.
- The power density of pneumatics allows for a superior performance to weight ratio when compared to some electric alternatives. This inherent property allows for lighter, non-payload robbing end-effectors, ideal for robotic applications. Additionally, when properly controlled, the compressibility of air provides intrinsically safe, back-drivable actuation capability.



CLICK & GRIP

Adjustable Gripper Tooling

- Fast configuration and reconfiguration
- Flexibility with interchangeable components. Segments can be added and removed allowing for endless combinations
- Lightweight polyamide plastic, ideal for cobot applications and proof of concept
- Design provides limited compliance – helpful during setups and around workers

