

# Robot arm Technical specification



## Specification

Payload	3 kg (6.6 lbs)	5 kg (11 lbs)	12.5 kg (27.5 lbs)	16 kg (35.3 lbs)	20 kg (44.1 lbs) 25 kg (55.1 lbs) with boundary conditions according to manual	30 kg (66.1 lbs) 35 kg (77.1 lbs) with boundary conditions according to manual
Reach	500 mm (19.7 in)	850 mm (33.5 in)	1300 mm (51.2 in)	900 mm (35.4 in)	1750 mm (68.9 in)	1300 mm (51.2 in)
Degrees of freedom	< 6 rotating joints >			< 6 rotating joints >		
Programming	< 12 inch touchscreen with PolyScope graphical user interface >			< 12 inch touchscreen with PolyScope graphical user interface >		

## Performance

Power consumption																			
Maximum power	300 W	570 W 200 W			615 W	585 W 350 W			750 W	300 W 300 W									
Moderate operating settings	100 W	200 W			350 W	350 W			750 W	300 W 300 W									
Operating temperature range	< Ambient temperature: 0-50 °C (32-122 °F) >																		
Safety functions	< 17 configurable safety functions >																		
In compliance with	< EN ISO 13849-1 (PLd category 3) EN ISO 10218-1 >																		
Force sensing, tool flange/torque sensor																			
Range	Force, x-y-z 30.0 N	Torque, x-y-z 10.0 Nm	Force, x-y-z 50.0 N	Torque, x-y-z 10.0 Nm	Force, x-y-z 100.0 N	Torque, x-y-z 10.0 Nm	Force, x-y-z 160.0 N	Torque, x-y-z 10.0 Nm	Force, x-y-z 200.0 N	Torque, x-y-z 20.0 Nm	Force, x-y-z 200.0 N								
Precision	2.0 N	0.1 Nm	3.5 N	0.2 Nm	5.0 N	0.2 Nm	5.0 N	0.2 Nm	5.5 N	0.2 Nm	5.5 N								
Accuracy	3.5 N	0.1 Nm	4.0 N	0.3 Nm	5.5 N	0.5 Nm	5.5 N	0.5 Nm	0.1 N	1.0 Nm	0.1 N								

## Movement

Maximum TCP speed	3 m/s	4 m/s	4 m/s	3 m/s	5 m/s	4 m/s
Pose repeatability per ISO 9283	± 0.03 mm	± 0.03 mm	± 0.05 mm	± 0.05 mm	± 0.1 mm	± 0.1 mm
Axis Movement						
Base	Working range ± 360°	Maximum speed ± 180°/s	Working range ± 360°	Maximum speed ± 180°/s	Working range ± 360°	Maximum speed ± 120°/s
Shoulder	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 120°/s
Elbow	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 180°/s
Wrist 1	± 360°	± 360°/s	± 360°	± 180°/s	± 360°	± 180°/s
Wrist 2	± 360°	± 360°/s	± 360°	± 180°/s	± 360°	± 180°/s
Wrist 3	Infinite	± 360°/s	± 360°	± 180°/s	± 360°	± 180°/s

## Features

IP classification	IP54 water protection	IP65 water protection	IP65 water protection				
Cleanroom classification	Class 6 at 20%*	Class 4 at 20%*	Class 5 at ≤ 40%*	Class 5 at ≤ 40%*	Class 6 at 80%*	Class 4 at ≤ 80%*	Class 4 at ≤ 80%*
ISO 14644-1	Class 7 at ≥ 40%*	Class 5 at ≥ 40%*	Class 6 at 80%*	Class 6 at 80%*			
*Velocity and payload							
Noise	< 60 dB(A)	< 65 dB(A)					
Arm mounting	Any orientation						
I/O Ports							
Digital in	2	2	2	2	2	2	2
Digital out	2	2	2	2	2	2	2
Analog in	2	2	2	2	2	2	2
Tool I/O power supply voltage	12/24 V						
Tool I/O power supply	600 mA	1.5 A (Dual pin)	2 A (Dual pin)	2 A (Dual pin)	2 A (Dual pin)	2 A (Dual pin)	1 A (Single pin)
		1 A (Single pin)					

## Physical

Footprint	Ø 128 mm	Ø 149 mm	Ø 190 mm	Ø 190mm	Ø 245 mm	Ø 245 mm
Materials	< Aluminium, Plastic, Steel >					< Aluminium, Plastic, Steel >
Tool flange interface	< M8 8-pin female, EN ISO-9409-1-50-4-M6 >					< M8 8-pin female, EN ISO-9409-1-80-6-M8 >
Std. cable length (robot arm)	< 6 m (236 in) >					< 6 m (236 in) >
Weight including cable	11.2 kg (24.7 lbs)	20.6 kg (45.4 lbs)	33.5 kg (73.9 lbs)	33.1 kg (73 lbs)	64 kg (141.1 lbs)	63.5 kg (139.9 lbs)
Humidity	< ≤ 90% RH (non-condensing) >					< ≤ 90% RH (non-condensing) >

# Control box and teach pendant

## Technical specification



**Control box** **CB 5.6**



**CB 5.5**

**OEM 5.6**

**OEM 5.5**

### Features

	Robot types	e-Series, UR Series	e-Series, UR Series	e-Series, UR Series	e-Series, UR Series
Software compatibility	PolyScope X	PolyScope 5	PolyScope X	PolyScope 5	PolyScope 5
IP classification	IP44 water protection	IP44 water protection	IP20 water protection	IP20 water protection	IP20 water protection
ISO 14644-1 class cleanroom	6	6	6	6	6
Operating temperature range	0-50 °C (32-122 °F)				
<b>I/O Ports</b>					
Digital In	16	16	16	16	16
Digital Out	16	16	16	16	16
Analog In	2	2	2	2	2
Analog Out	2	2	2	2	2
Quadrature Digital Inputs	4	4	4	4	4
I/O power supply	24V, 2A				
Industrial protocols	Modbus TCP (Client/Server) Ethernet/IP Adapter PROFINET device/PROFIsafe ROS/ROS2				
Hardware interfaces	Ethernet 1 Gb/s USB 2.0 USB 3.0 Mini DisplayPort Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)	Ethernet 1 Gb/s USB 2.0 USB 3.0 Mini DisplayPort Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)	Ethernet 1 Gb/s USB 2.0 USB 3.0 Mini DisplayPort Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)	Ethernet 1 Gb/s USB 2.0 USB 3.0 Mini DisplayPort Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)	Ethernet 1 Gb/s USB 2.0 USB 3.0 Mini DisplayPort Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)
Power Source	100-240 VAC, 47-440 Hz	100-240 VAC, 47-440 Hz	AC model: 100-240 VAC, 47-440 Hz DC model: 24 - 48 VDC	AC model: 100-240 VAC, 47-440 Hz DC model: 24 - 48 VDC	AC model: 100-240 VAC, 47-440 Hz DC model: 24 - 48 VDC

### Physical

Control box size (W x H x D)	460 mm x 449 mm x 254 mm (18.2 in x 17.6 in x 10 in)	460 mm x 449 mm x 254 mm (18.2 in x 17.6 in x 10 in)	451 mm x 168 mm x 150 mm (17.6 in x 6.6 in x 5.9 in)	451 mm x 168 mm x 150 mm (17.6 in x 6.6 in x 5.9 in)
Weight	12 kg (26.5 lbs)	12 kg (26.5 lbs)	AC model: 4.7 kg (10.4 lbs) DC model: 4.3 kg (9.48 lbs)	AC model: 4.7 kg (10.4 lbs) DC model: 4.3 kg (9.48 lbs)
Power supply output	1500 W	1500 W	1500 W	1500 W
Materials	Powdered coated steel	Powdered coated steel	Aluminium	Aluminium
Humidity	≤ 90% RH (non-condensing)	≤ 90% RH (non-condensing)	≤ 90% RH (non-condensing)	≤ 90% RH (non-condensing)



**Teach pendant**



**Standard**

**3PE**

### Features

Robot types	e-Series (standard)	e-Series (optional), UR Series (standard)
IP classification	IP54 water protection	IP54 water protection
Incl. in certifications	EN ISO 10218-1	EN ISO 10218-1
Humidity	≤ 90% RH (non-condensing)	≤ 90% RH (non-condensing)
Display resolution	1280 x 800 pixels	1280 x 800 pixels
Freedrive	1 button	2 buttons to support for ambidextrous operation

### Physical

Materials	Plastic (PC/ASA)	Plastic (PC/ASA)
Teach pendant size	300 mm x 231 mm x 50 mm (11.8 in x 9.1 in x 1.97 in)	300 mm x 231 mm x 50 mm (11.8 in x 9.1 in x 1.97 in)
Weight (including 1 m TP cable)	1.6 kg (3.5 lbs)	1.8 kg (3.961 lbs)
Cable length (Teach pendant)	4.5 m (177.17 in)	4.5 m (177.17 in)

## Long and short cable options

Our cables made of flexible materials, specialized insulation and long durability.  
Find the perfect cable that matches your application needs best.

	Material	Color	Length	Diameter	Gross weight	e-Series	UR Series
<b>Power cable</b>							
700-3xx-xx	PVC	Black	6 m (236.22 in)	country specific	0.75 kg (1.7 lbs)	●	●
<b>Standard robot cable</b>							
200145	Black	1 m (39.37 in)	12.1 mm (0.84 in)	0.4 kg (1 lbs)	○	○	
200146	Black	2 m (78.74 in)	12.1 mm (0.84 in)	0.6 kg (1.3 lbs)	○	○	
165100	Black	6 m (236.22 in)	12.1 mm (0.84 in)	2 kg (4.4 lbs)	●	-	
165101	Black	12 m (472.44 in)	12.1 mm (0.84 in)	3.25 kg (7.16 lbs)	○	-	
<b>High flex robot cable</b>							
166100	Blue	6 m (236.22 in)	13.4 mm (0.53 in)	2.3 kg (5.07 lbs)	○	-	
166101	Blue	12 m (472.44 in)	13.4 mm (0.53 in)	4.5 kg (9.92 lbs)	○	-	
200113	Blue	6 m (236.22 in)	14.6 mm (0.57 in)	2.3 kg (5.07 lbs)	-	●	
200114	Blue	12 m (472.44 in)	14.6 mm (0.57 in)	4.5 kg (9.92 lbs)	-	○	



● Standard    ○ Optional    - Not applicable