

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)	30 kg (66.1 lbs)
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	615 W	585 W	750 W	750 W							
Moderate operating settings	100 W	200 W	350 W	350 W	300 W	300 W							
Operating temperature range	< Ambient temperature: 0-50 °C (32-122 °F) >					< Ambient temperature: 0-50 °C (32-122 °F) >							
Safety functions	< 17 configurable safety functions >					< 17 configurable safety functions >							
In compliance with	< EN ISO 13849-1 (PLd category 3) EN ISO 10218-1 >					< EN ISO 13849-1 (PLd category 3) EN ISO 10218-1 >							
Force sensing, tool flange/torque sensor	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z
Range	30.0 N	10.0 Nm	50.0 N	10.0 Nm	100.0 N	10.0 Nm	160.0 N	10.0 Nm	200.0 N	20.0 Nm	200.0 N	20.0 Nm	20.0 Nm
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	0.2 Nm	0.2 Nm
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	10.0 N	0.1 Nm	10.0 N	0.1 Nm	0.1 Nm

Movement

Typical TCP speed	1 m/s	1 m/s	1 m/s	1 m/s	2 m/s	2 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	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed
Base	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 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	IP54 water protection	IP54 water protection	IP54 water protection	IP65 water protection	IP65 water protection
Cleanroom classification ISO 14644-1	Class 6 at 20%* Class 7 at >= 40%*	Class 4 at 20%* Class 5 at >= 40%*	Class 5 at <=40%* Class 6 at 80%*	Class 5 at <=40%* Class 6 at 80%*		
Noise	< 60 dB(A)	< 65 dB(A)	< 65 dB(A)	< 65 dB(A)	< 65 dB(A)	< 65 dB(A)
Arm mounting	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation
I/O Ports						
Digital in	2	2	2	2	2	2
Digital out	2	2	2	2	2	2
Analog in	2	2	2	2	2	2
Tool I/O power supply voltage	12/24 V	12/24 V	12/24 V	12/24 V	12/24 V	12/24 V
Tool I/O power supply	600 mA	1.5 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)

Physical

Footprint	Ø 128 mm	Ø 149 mm	Ø 190 mm	Ø 190 mm	Ø 245 mm	Ø 245 mm
Materials	< Aluminium, Plastic, Steel >			< Aluminium, Plastic, Steel >		
Tool flange connector type	< M8 M8 8-pin (male), EN ISO-9409-1-50-4-M6 >			< M8 M8 8-pin (male), EN ISO-9409-1-50-4-M6 >		M8 M8 8-pin (female) EN ISO-9409-1-80-6-M8
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 5.2

CB 5.5

OEM 5.2

OEM 5.5

Features

Robot types	UR3e, UR5e, UR10e, UR16e	UR3e, UR5e, UR10e, UR16e, UR20, UR30	UR3e, UR5e, UR10e, UR16e	UR3e, UR5e, UR10e, UR16e, UR20, UR30
Software compatibility	PolyScope 5	PolyScope 5.12 and above PolyScope X	PolyScope 5	PolyScope 5.12 and above PolyScope X
IP classification	IP44 water protection	IP44 water protection	IP20 water protection	IP20 water protection
ISO 14644-1 class cleanroom	6	6	6	6
Operating temperature range	0-50 °C (32-122 °F)	0-50 °C (32-122 °F)	0-50 °C (32-122 °F)	0-50 °C (32-122 °F)

I/O Ports

Digital In	16	16	16	16
Digital Out	16	16	16	16
Analog In	2	2	2	2
Analog Out	2	2	2	2
Quadrature Digital Inputs	4	4	4	4

I/O power supply	24V, 2A	24V, 2A	24V, 2A	24V, 2A
Communication	500 Hz Control frequency Modbus TCP USB 2.0, USB 3.0 Ethernet/IP USB 2.0, USB 3.0 PROFINET ROS/ROS 2 driver (optional, m open source) Euromap-67 (optional) SPI AN-146 (optional) Injection Moulding Machine Interface (IMMI, optional)	500 Hz Control frequency Modbus TCP USB 2.0, USB 3.0 Ethernet/IP USB 2.0, USB 3.0 PROFINET ROS/ROS 2 driver (optional, m open source) Euromap-67 (optional) SPI AN-146 (optional) Injection Moulding Machine Interface (IMMI, optional)	500 Hz Control frequency Modbus TCP USB 2.0, USB 3.0 Ethernet/IP USB 2.0, USB 3.0 PROFINET ROS/ROS 2 driver (optional, m open source) Euromap-67 (optional) SPI AN-146 (optional) Injection Moulding Machine Interface (IMMI, optional)	500 Hz Control frequency Modbus TCP USB 2.0, USB 3.0 Ethernet/IP USB 2.0, USB 3.0 PROFINET ROS/ROS 2 driver (optional, m open source) Euromap-67 (optional) SPI AN-146 (optional) Injection Moulding Machine Interface (IMMI, optional)
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

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 (9.5 lbs)	AC model: 4.7 kg (10.4 lbs) DC model: 4.3 kg (9.5 lbs)
Power supply output	UR3e: 600 W UR5e, UR10e, UR16e: 1500 W	UR3e: 600 W UR5e, UR10e, UR16e, UR20, UR30: 1500 W	UR3e: 600 W UR5e, UR10e, UR16e: 1500 W	UR3e: 600 W UR5e, UR10e, UR16e, UR20, UR30: 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), UR20 and UR30 (standard)
IP classification	IP54 water protection	IP54 water protection
Incl. in certifications	EN ISO 10218-1 EN ISO 13849-1	EN ISO 10218-1 EN ISO 13849-1
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)