

# HC20DTP

## DIRECT TEACH, PLUG AND PLAY HUMAN-COLLABORATIVE ROBOT

### KEY BENEFITS

Enables humans to safely work with robots

Industry leading IP67 rating and cast aluminum construction for industrial durability

Advanced pinchless geometry avoids pinch points, increasing safety

Direct teaching for quick implementation

Can reach full, 80-inch tall pallets without an elevator

Thru-arm Category 6 Ethernet cable and dual 5 mm ID air lines eliminate external utilities while offering fast, safe and easy setup of a wide variety of communication and tool options

EN ISO-9409-1 tool mounting flange and electrical connections provide quick and easy deployment

### SPECIFICATIONS

20 kg payload

1,900 mm maximum reach

1,700 mm effective reach

0.05 mm repeatability

### APPLICATIONS

Assembly

Machine Tending

Material Handling

Packaging

Palletizing

### CONTROLLER

YRC1000

YRC1000micro



- 6-axis robot designed for a wide variety of collaborative applications.
- Hand-guided teaching without a teach pendant enables easy programming for fast changeovers.
- Plug and play tool flange quickly connects a wide variety of end-of-arm tooling for fast and simple deployment.
- Power and force limiting technology is used to protect the worker from potentially harmful contact situations.
- Depending on risk assessment, the HC20DTP can operate without additional protective measures such as a safety fence, resulting in reduced cost and space requirements.
- Safety standards
  - Functional safety validated to Cat3 PLd
  - Machine safety validated to Cat3 PLe
  - Certified compliance with EN ISO 10218-1 (YRC1000micro)
  - Certified compliance with ISO/TS 15066 (YRC1000micro)
- Ideal for use in sanitary environments where wipe/wash is required. Includes IP67 rating as well as NSF H1 certified food-grade grease for food or consumer product packaging environments.\*
- Available with Smart Pendant featuring Smart Frame technology.

### THE CASE FOR COLLABORATION

#### CAPABLE – improves production rate

- Industrial-grade payload and speed for a wide variety of applications
- Easily integrated into factory automation systems using discrete I/O or fieldbus networks such as EtherNet/IP
- Built on Yaskawa legacy of quality and reliability

#### AFFORDABLE – quickly achieves ROI

- Reduced physical guarding\*\*
- Simplified, built-in networked safety I/O
- Integrated thru-arm utilities

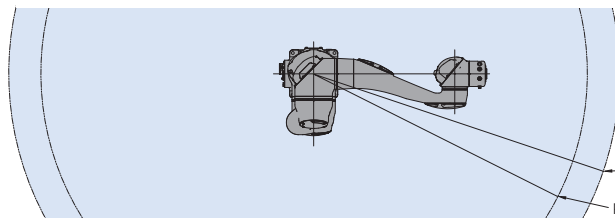
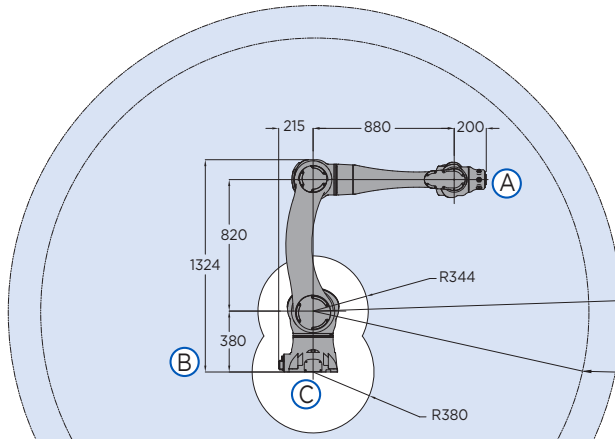
#### SAFE – reduces risk

- Advanced pinchless geometry
- Configurable power and force limiting (PFL) of all six axes of motion
- Powerful and flexible Functional Safety Unit for speed and position limiting

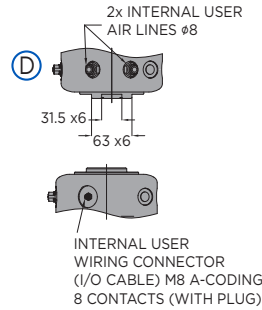
#### EASY – empowers employees

- Teach by hand guiding
- Quick fault recovery
- Simplifies basic training needs

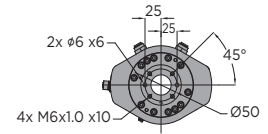
# HC20DTP ROBOT



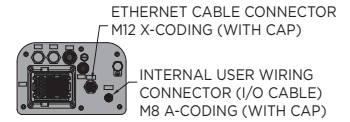
1,900 mm maximum reach, 1,700 mm effective reach.  
All dimensions are metric (mm) and for reference only.  
Request detailed drawings for all design/engineering requirements.



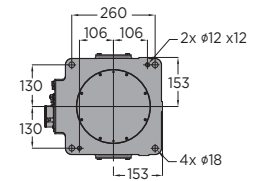
VIEW A



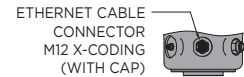
VIEW B



VIEW C



VIEW D



## SPECIFICATIONS

Axes	Maximum motion range	Maximum speed	Allowable moment	Allowable moment of inertia
	degrees	°/sec	N·m	kg·m <sup>2</sup>
S	±210	80	-	-
L	±180	80	-	-
U	+247/-67	120	-	-
R	±210	130	58.8	4
B	±180	180	58.8	4
T	±210	180	29.4	2

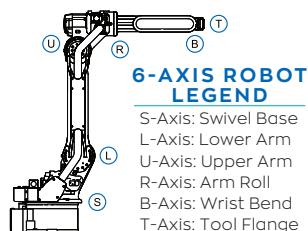
Mounting Options: Floor, Wall, Tilt or Ceiling

\* The MLX300 software option is not available for use with arc or spot welding applications. MLX300 fieldbus cards, I/O cards and vision equipment must be purchased separately from the supplier. All peripherals are programmed using a PLC.

Safety Compliance And Validation	
Safety Standard	Third Party
Functional safety validated to Cat3 PLd. EN ISO 13849:2008	TUVRheinland
Machine safety validated to Cat3 PLe. EN ISO 13849:2008	TUVRheinland
Certified compliance with EN ISO 10218-1:2011 (YRC1000micro)	TUVRheinland

## OPTIONS

- Third-party function-specific collaborative tooling and accessories
- PLC integration via MLX300 software option\*



Item	Unit	HC20DTP
Controlled axes		6
Maximum payload	kg	20
Repeatability	mm	0.05
Maximum reach	mm	1,900
Effective reach	mm	1,700
I/O Expansion		Ethernet/IP, DeviceNet, Profibus, Profinet, CC-Link and other networks available
Air Lines		2 hoses; Internal diameter: 5 mm Maximum pressure: 400kPa (4 kgf/cm <sup>2</sup> or less)
Tool Center Point (maximum linear speed)		Non-collaborative mode: 2,000 mm/s ** Collaborative mode: 1,000 mm/s ***
Internal user I/O cable		0.1 mm <sup>2</sup> x 8 conductors; Maximum allowable current is 1.5 A or less for each conductor
Ethernet Cable		Cat. 6
Power requirements YRC1000 YRC1000micro		Three-phase 380-480VAC 50/60Hz Three-phase 200-220VAC 50/60Hz
Power rating	kVA	1.5
Weight	kg	140
Effective Mass	kg	116.7
IP classification		IP67 (all axes)
Temperature Range		0° C to 40° C
Relative Humidity		20% to 80% non-condensing

\*\* Non-collaborative mode maximum speed is based on payload

\*\*\* Collaborative mode speed is user-defined based on safety assessment

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