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Delta India Electronics Pvt.Ltd.
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Ahmedabad-380015 Tel: 079-40047333

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Automation for a Changing World

Delta Industrial Robots
DIR Series

www.deltaelectronicsindia.com



DIR-RH14-10

INDUSTRIAL ROBOT HANDLING APPLICATION



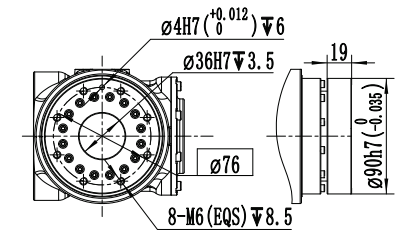
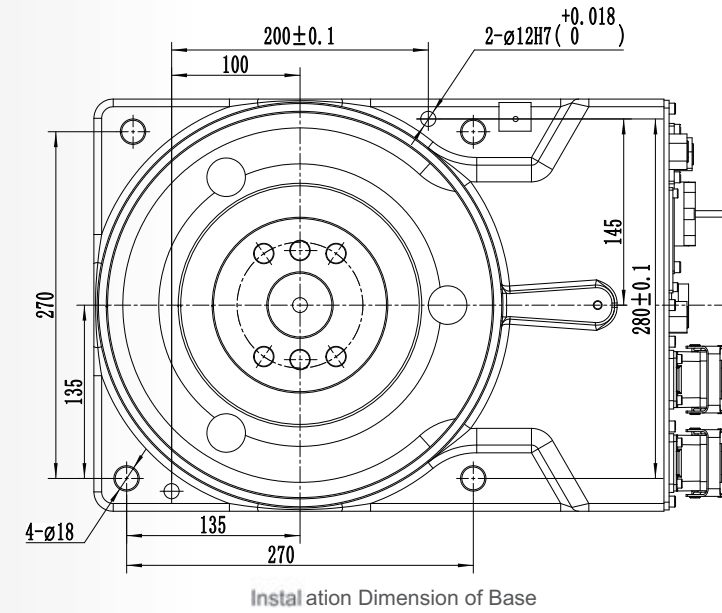
FUNCTIONAL FEATURES

- The safety emergency stop board independent of the control system is equipped with, and imported forced disconnection relay is adopted to provide double-circuit emergency stop to ensure the reliability of emergency stop.
- Built-in three-phase transformer makes 380V and 220V isolated to help the power supply more stable. Built-in three-phase filter can effectively isolate external interference and prevent internal interference output.
- The robot body adopts highly flexible special cable.
- The robot body is with dual-circuit gas pipe to meet the handling demand.
- For handling applications, the robot body structure has been optimized and the rigidity is stronger.

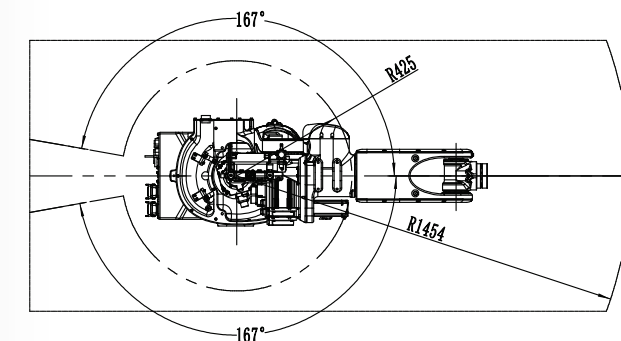
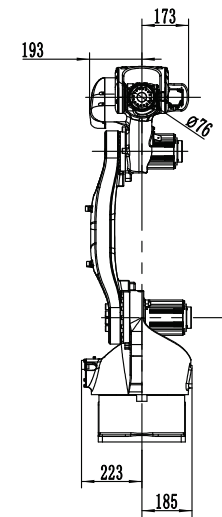
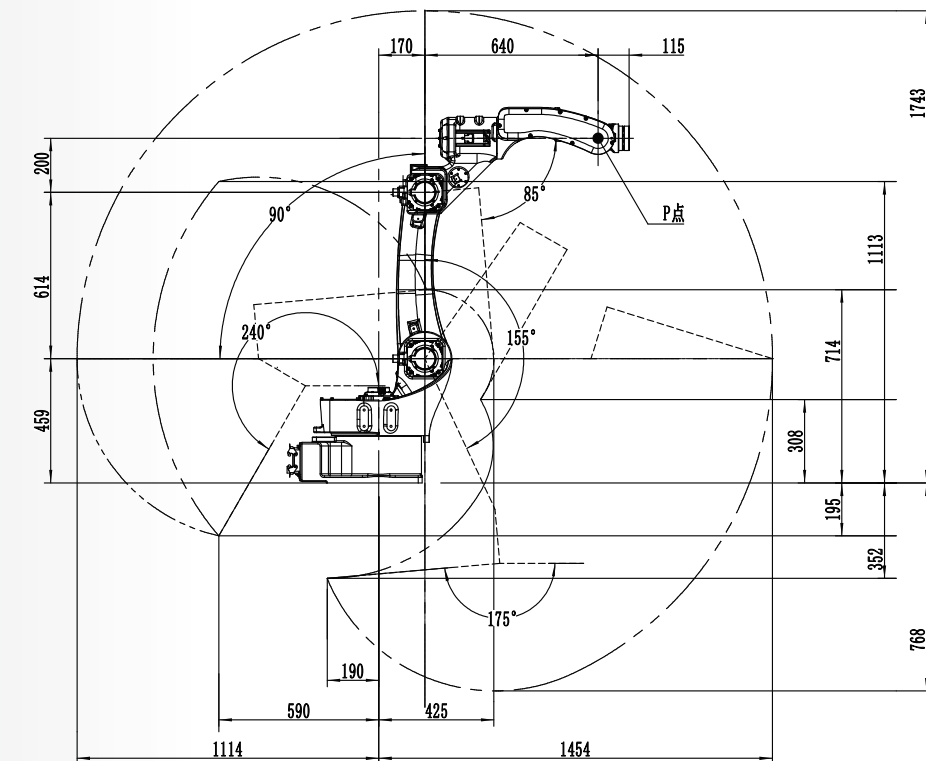
ROBOT BODY TECHNICAL PARAMETERS

Model	DIR-RH14-10	
Arm form	Vertical multiple joints	
Degree of freedom	6 axis	
Maximum payload	10KG	
Repeated positioning accuracy	±0.08mm	
Maximum reaching distance	1454mm	
Robot body weight	170KG	
Installation mode	Ground, upside down mounting, wall mounting	
Maximum travel	axis 1	Ground/upside down mounting-167°~167°, wall mounting -30°~30°
	axis 2	-155°~90°
	axis 3	-175°~240°
	axis 4	-190°~190°
	axis 5	-105°~130°
	axis 6	-210°~210°
Maximum speed	axis 1	169°/S
	axis 2	169°/S
	axis 3	169°/S
	axis 4	301°/S
	axis 5	222°/S
	axis 6	516°/S
Allowable torque	axis 4	20N.m
	axis 5	20N.m
	axis 6	20N.m
Allowable moment of inertia	axis 4	0.63kg.m ²
	axis 5	0.63kg.m ²
	axis 6	0.33kg.m ²
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80% (No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level	Body IP54 , wrist IP67	
Advantage features	Compact structure, high speed, high precision, high expansibility and easy operation	
Application	cutting, assembly, handling, marking, grinding	

INSTALLATION INTERFACE DIAGRAM



MOTION RANGE DIAGRAM



DIR-RH18-20

INDUSTRIAL ROBOT HANDLING APPLICATION



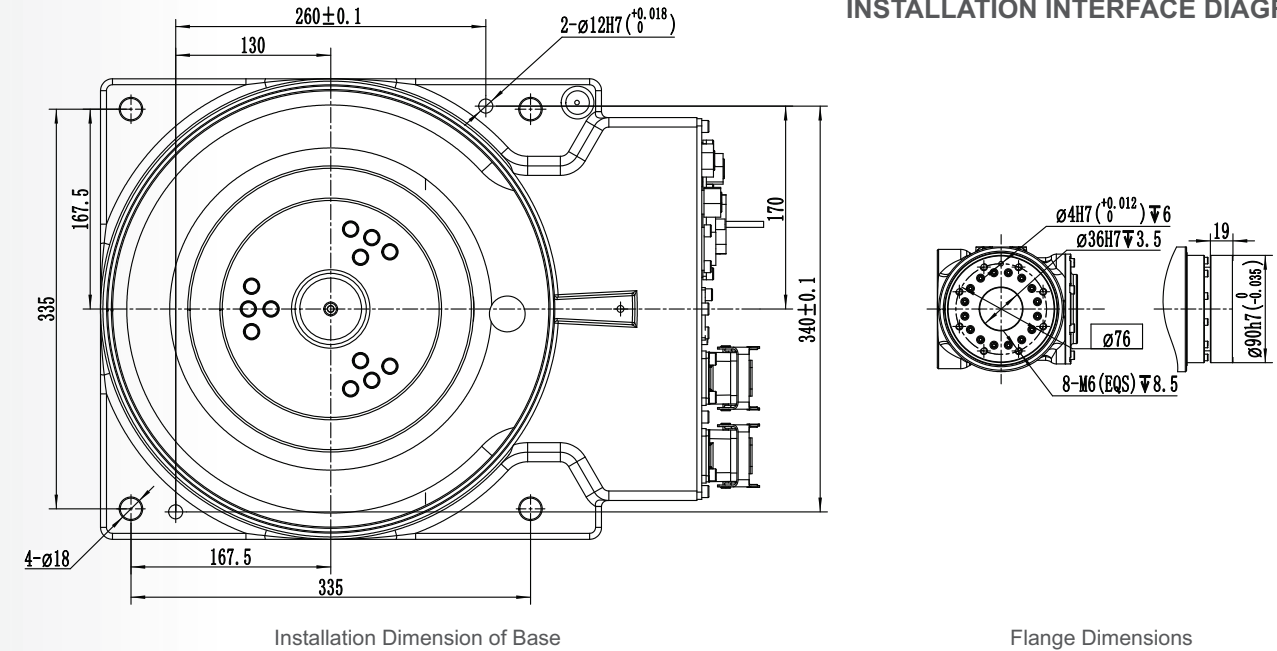
FUNCTIONAL FEATURES

- With compact design 20kg payload and about 1.8 meters arm span, it can be installed on the ground or upside down flexibly.
- With large working space and fast running speed, it is suitable for welding, spraying, loading and unloading, handling, sorting, assembling and other applications.
- The safety emergency stop board is independent of the controller, and the safety relay circuit is adopted to provide double circuit emergency stop to ensure the reliability of emergency stop.
- The robot body cables are made of special cables for highly flexible robots.
- Built-in three-phase transformer, 380V and 200V isolation, more stable power supply.
- Power supply requirements can be customized for different countries. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe and meets welding and handling requirements.

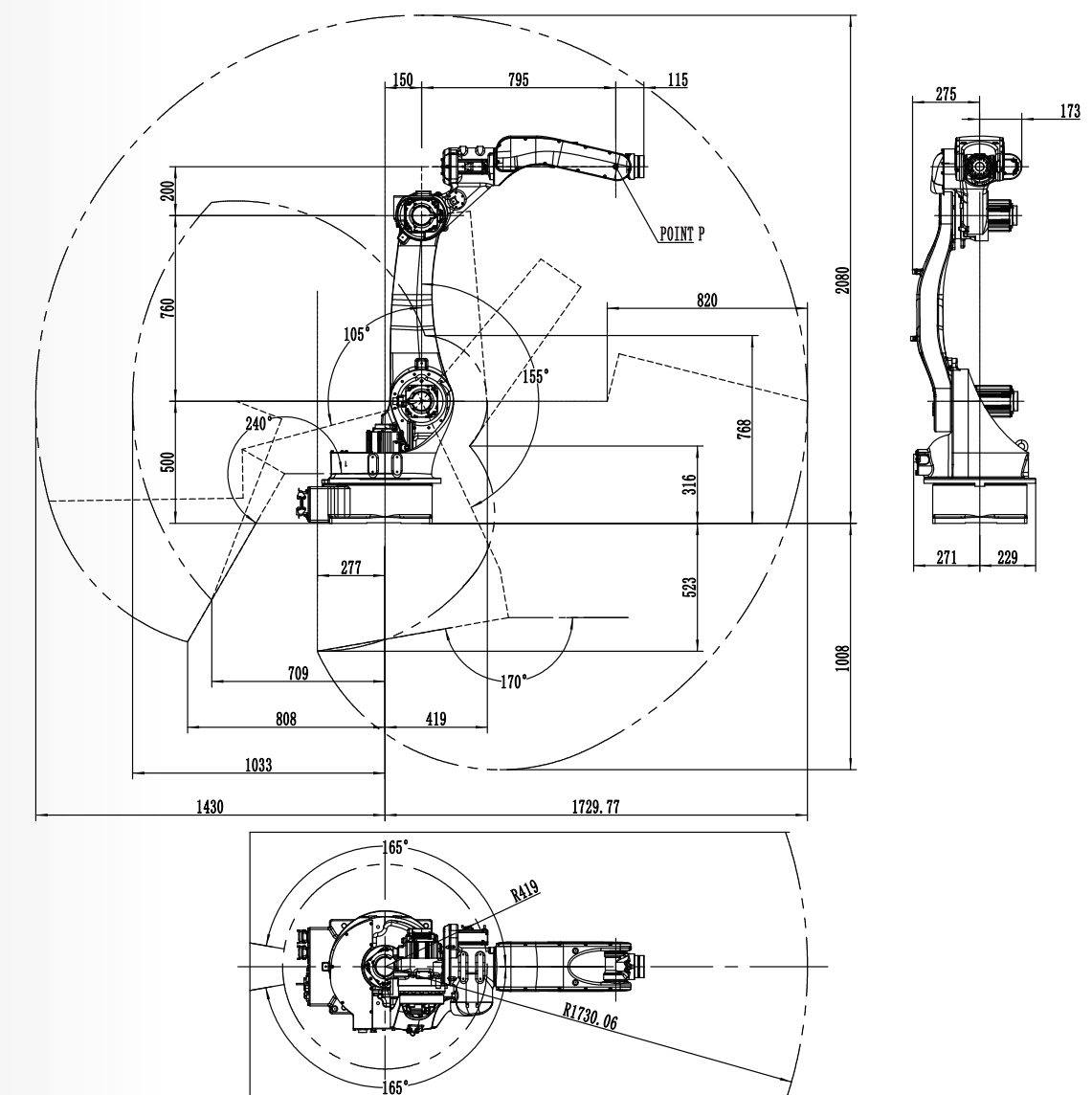
ROBOT BODY TECHNICAL PARAMETERS

Model	DIR-RH18-20	
Arm form	Vertical multiple joints	
Degree of freedom	6 axis	
Maximum payload	20KG	
Repeated positioning accuracy	±0.08mm	
Maximum reaching distance	1730mm	
Robot body weight	285KG	
Installation mode	Ground, upside down mounting, wall mounting	
Maximum travel	axis 1	Ground/upside down mounting -167°~167°, wall mounting -30°~30°
	axis 2	-155°~105°
	axis 3	-170°~240°
	axis 4	-190°~190°
	axis 5	-90°~110°
	axis 6	-210°~210°
Maximum speed	axis 1	160°/S
	axis 2	160°/S
	axis 3	169°/S
	axis 4	301°/S
	axis 5	342°/S
	axis 6	520°/S
Allowable torque	axis 4	55N.m
	axis 5	55N.m
	axis 6	30N.m
Allowable moment of inertia	axis 4	2.2kg.m ²
	axis 5	2.2kg.m ²
	axis 6	1.2kg.m ²
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80% (No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level	Body IP54, wrist IP67	
Advantage features	Compact structure, high speed, high precision, high expansibility and easy operation	
Application	cutting, assembly, handling, marking, grinding	

INSTALLATION INTERFACE DIAGRAM



MOTION RANGE DIAGRAM



DIR-RW14-10

INDUSTRIAL ROBOT WELDING APPLICATION

FUNCTIONAL FEATURES

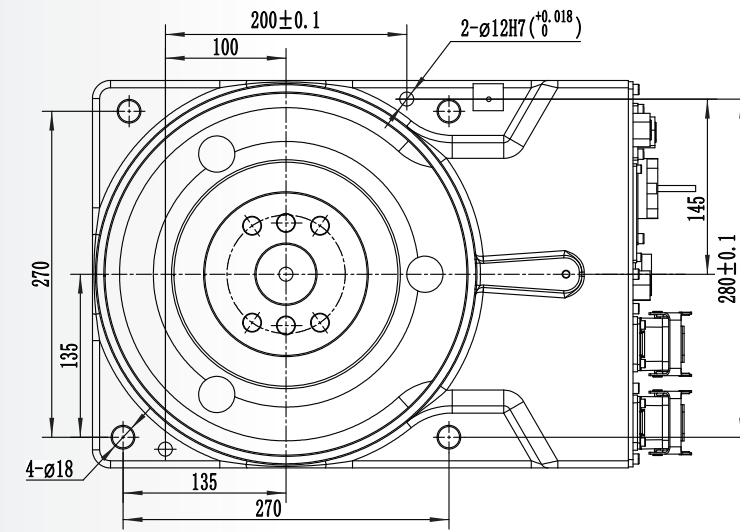
- The arm span is 1.4 meters. The design is highly compact and can be flexibly installed on the ground or upside down.
- With large working space, fast running speed and high repeated positioning accuracy, it is suitable for wide range of welding applications.
- The safety emergency stop board independent of the control system is equipped with, and the safety relay circuit is adopted to provide double-circuit emergency stop to ensure the reliability of emergency stop.
- The robot body adopts highly flexible special cable.
- Built-in three-phase transformer makes 380V and 220V isolated to help the power supply more stable. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe to meet the welding demand.
- The inner diameter of 6-axis middle hole is 44mm, it can meet the installation requirements of water-cooling torch and bellows torch.
- Highly flexible welding cable is built-in.

ROBOT BODY TECHNICAL PARAMETERS

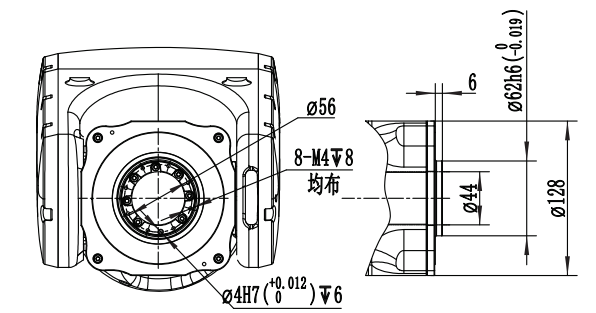
Model	DIR-RH14-10	
Arm form	Vertical multiple joints	
Degree of freedom	6 axis	
Maximum payload	10KG	
Repeated positioning accuracy	±0.08mm	
Maximum reaching distance	1454mm	
Robot body weight	170KG	
Installation mode	Ground, upside down mounting, wall mounting	
Maximum travel	axis 1	Ground/upside down mounting-167°~167°, wall mounting -30°~30°
	axis 2	-155°~90°
	axis 3	-175°~240°
	axis 4	-190°~190°
	axis 5	-105°~130°
	axis 6	-210°~210°
Maximum speed	axis 1	169°/S
	axis 2	169°/S
	axis 3	169°/S
	axis 4	301°/S
	axis 5	220°/S
	axis 6	743°/S
Allowable torque	axis 4	20N.m
	axis 5	20N.m
	axis 6	11N.m
Allowable moment of inertia	axis 4	0.5kg.m ²
	axis 5	0.5kg.m ²
	axis 6	0.16kg.m ²
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80% (No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level	Body IP54 , wrist IP67	
Advantage features	Compact structure, high speed, high precision, high expansibility and easy operation	
Application	Welding, cutting, assembly, handling, marking, rinding	



INSTALLATION INTERFACE DIAGRAM

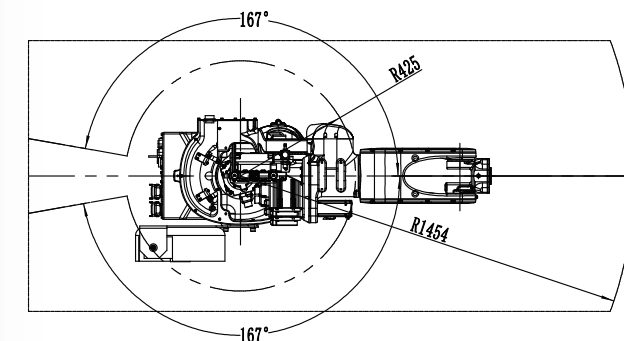
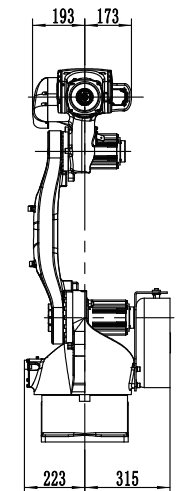
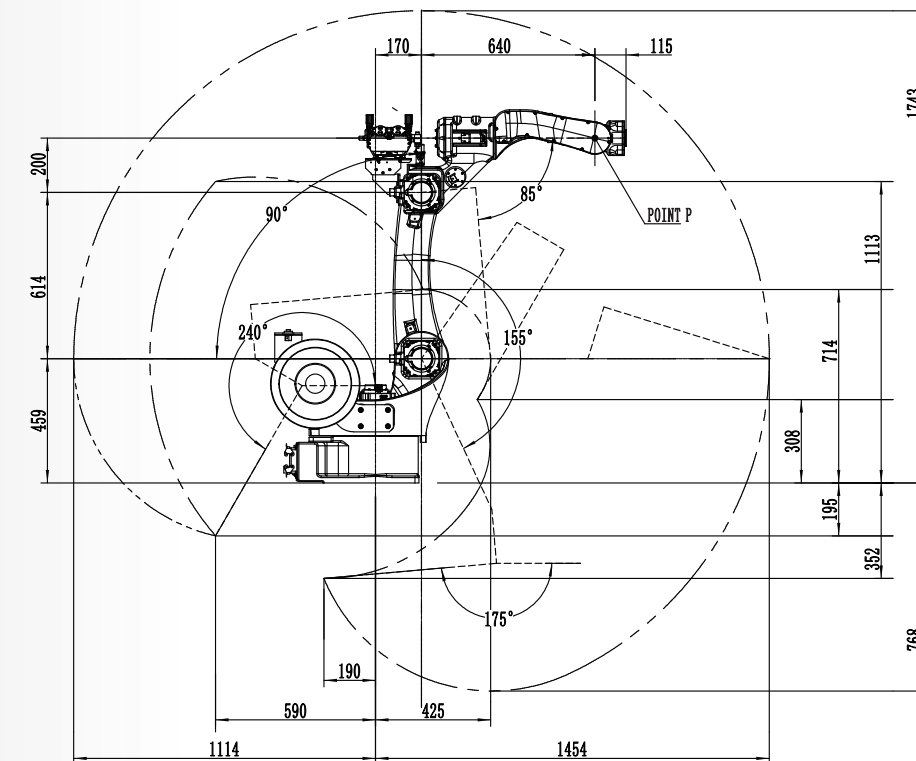


Installation Dimension of Base



Flange Dimensions

MOTION RANGE DIAGRAM



DIR-RW18-20

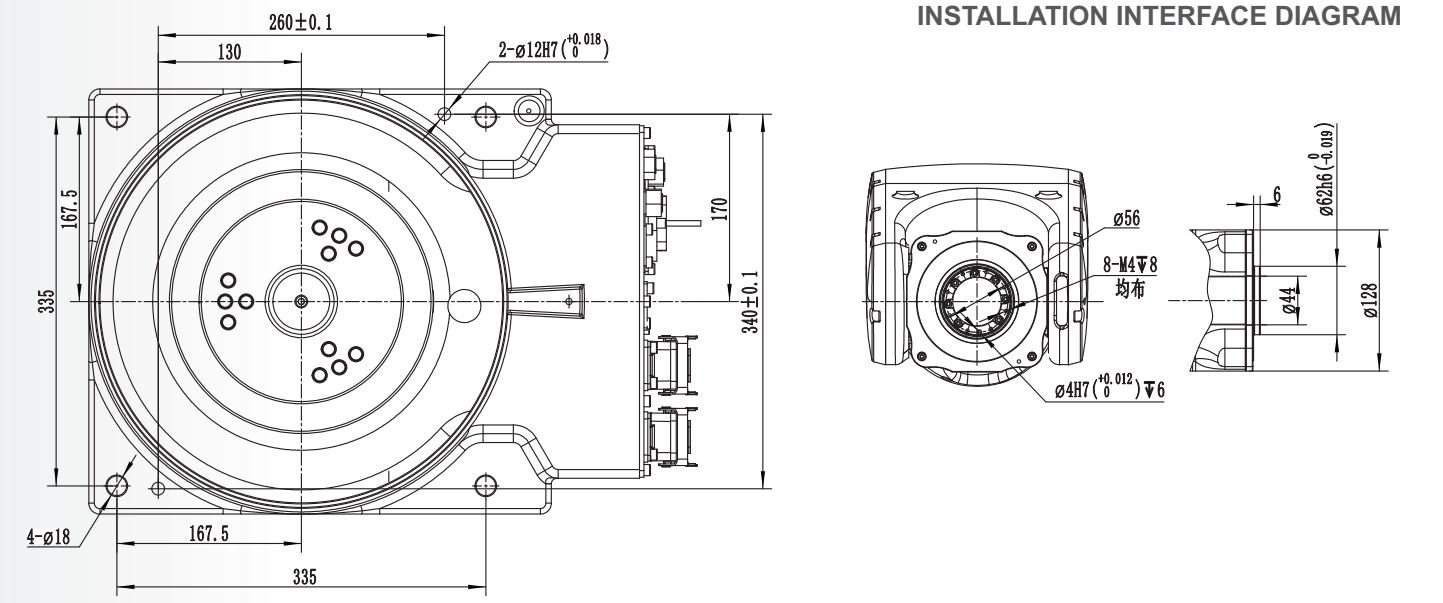
INDUSTRIAL ROBOT WELDING APPLICATION

FUNCTIONAL FEATURES

- The arm span is nearly 1.8 meters. The design is highly compact and can be flexibly installed on the ground or upside down.
- With large working space, fast running speed and high repeated positioning accuracy, it is suitable for wide range of welding applications.
- The safety emergency stop board independent of the control system is equipped with, and the safety relay circuit is adopted to provide double-circuit emergency stop to ensure the reliability of emergency stop.
- The robot body adopts highly flexible special cable.
- Built-in three-phase transformer makes 380V and 220V isolated to help the power supply more stable. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe to meet the welding demand.
- The inner diameter of 6-axis middle hole is 44mm, it can meet the installation requirements of water-cooling torch and bellows torch.
- Highly flexible welding cable is built-in.

ROBOT BODY TECHNICAL PARAMETERS

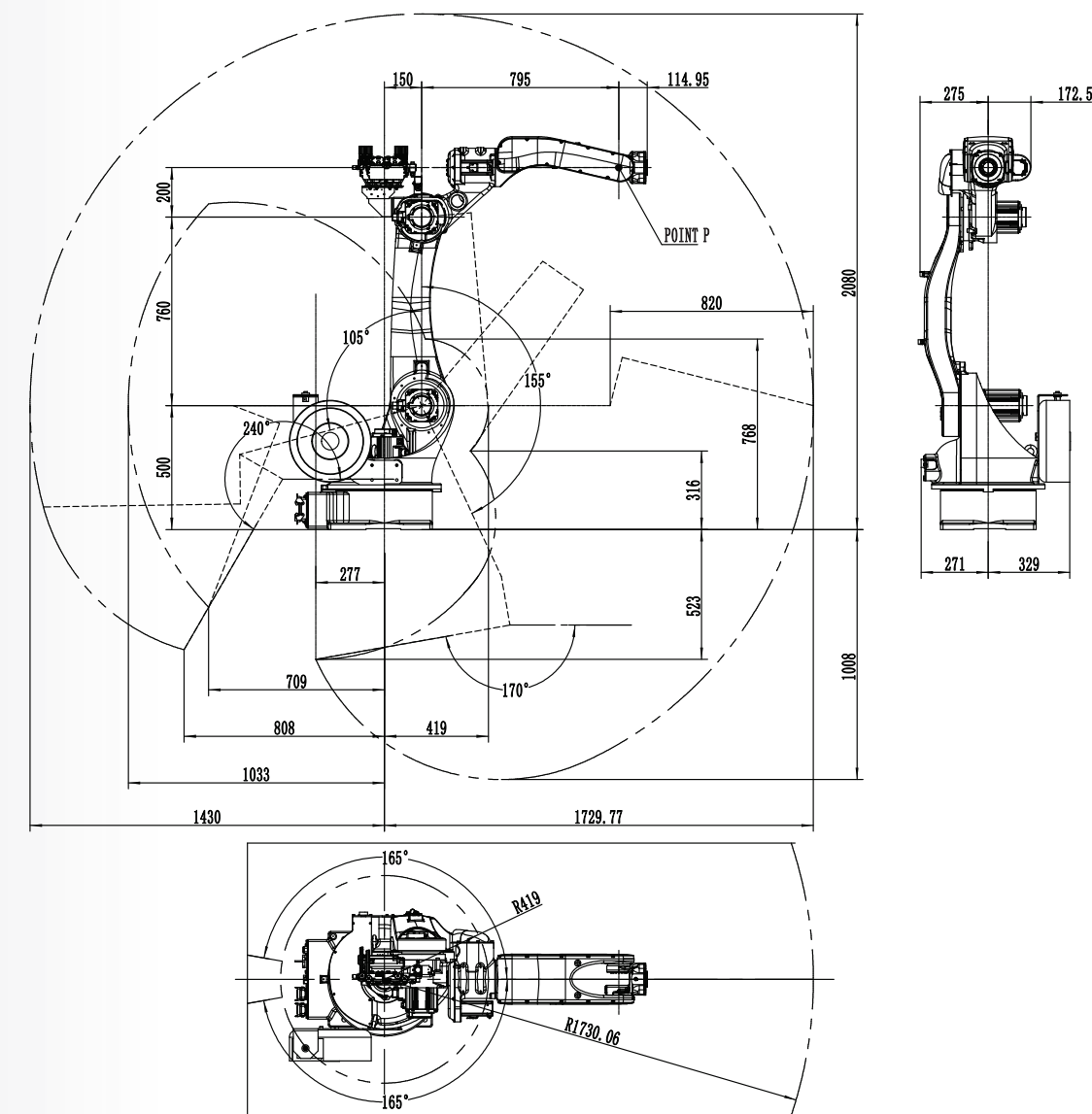
Model	DIR-RW18-20	
Arm form	Vertical multiple joints	
Degree of freedom	6 axis	
Maximum payload	20KG	
Repeated positioning accuracy	±0.08mm	
Maximum reaching distance	1730mm	
Robot body weight	285KG	
Installation mode	Ground, upside down mounting, wall mounting	
Maximum travel	axis 1	Ground/upside down mounting -167°~167°, wall mounting-30°~30°
	axis 2	-155°~105°
	axis 3	-170°~240°
	axis 4	-190°~190°
	axis 5	-90°~110°
	axis 6	-210°~210°
Maximum speed	axis 1	160°/S
	axis 2	160°/S
	axis 3	169°/S
	axis 4	301°/S
	axis 5	342°/S
	axis 6	708°/S
Allowable torque	axis 4	55N.m
	axis 5	55N.m
	axis 6	20N.m
Allowable moment of inertia	axis 4	2.1kg.m ²
	axis 5	2.1kg.m ²
	axis 6	0.9kg.m ²
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80% (No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level	Body IP54 , wrist IP67	
Advantage features	Compact structure, high speed, high precision, high expansibility and easy operation	
Application	Welding, cutting, assembly, handling, marking, grinding	



Installation Dimension of Base

Flange Dimensions

MOTION RANGE DIAGRAM



DIR-RW20-06

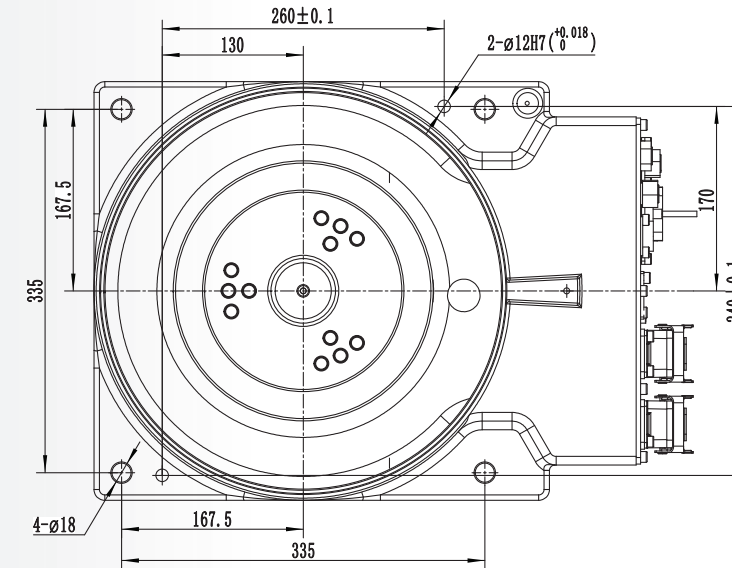
INDUSTRIAL ROBOT WELDING APPLICATION

FUNCTIONAL FEATURES

- The arm span is nearly 2.0 meters. The design is highly compact and can be flexibly installed on the ground or upside down.
- With large working space, fast running speed and high repeated positioning accuracy, it is suitable for wide range of welding applications.
- The safety emergency stop board independent of the control system is equipped with, and the safety relay circuit is adopted to provide double-circuit emergency stop to ensure the reliability of emergency stop.
- The robot body adopts highly flexible special cable.
- Built-in three-phase transformer makes 380V and 220V isolated to help the power supply more stable. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe to meet the welding demand.
- The inner diameter of 6-axis middle hole is 44mm, it can meet the installation requirements of water-cooling torch and bellows torch.
- Highly flexible welding cable is built-in.

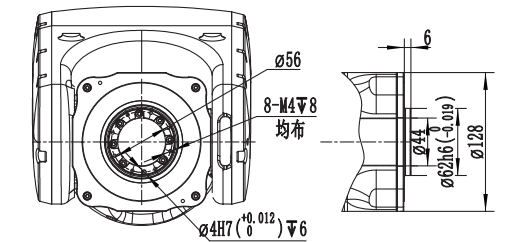
ROBOT BODY TECHNICAL PARAMETERS

Model	DIR-RW20-06	
Arm form	Vertical multiple joints	
Degree of freedom	6 axis	
Maximum payload	6KG	
Repeated positioning accuracy	±0.08mm	
Maximum reaching distance	2012mm	
Robot body weight	291KG	
Installation mode	Ground, upside down mounting, wall mounting	
Maximum travel	axis 1	Ground/upside down mounting -165°~165°, wall mounting-30°~30°
	axis 2	-155°~100°
	axis 3	-165°~245°
	axis 4	-190°~190°
	axis 5	-105°~110°
	axis 6	-210°~210°
Maximum speed	axis 1	160°/S
	axis 2	160°/S
	axis 3	169°/S
	axis 4	301°/S
	axis 5	338°/S
	axis 6	535°/S
Allowable torque	axis 4	16N.m
	axis 5	16N.m
	axis 6	13N.m
Allowable moment of inertia	axis 4	0.55kg.m ²
	axis 5	0.55kg.m ²
	axis 6	0.2kg.m ²
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80% (No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level	Body IP54 , wrist IP67	
Advantage features	Compact structure, high speed, high precision, high expansibility and easy operation	
Application	Welding, cutting, assembly, handling, marking, grinding	



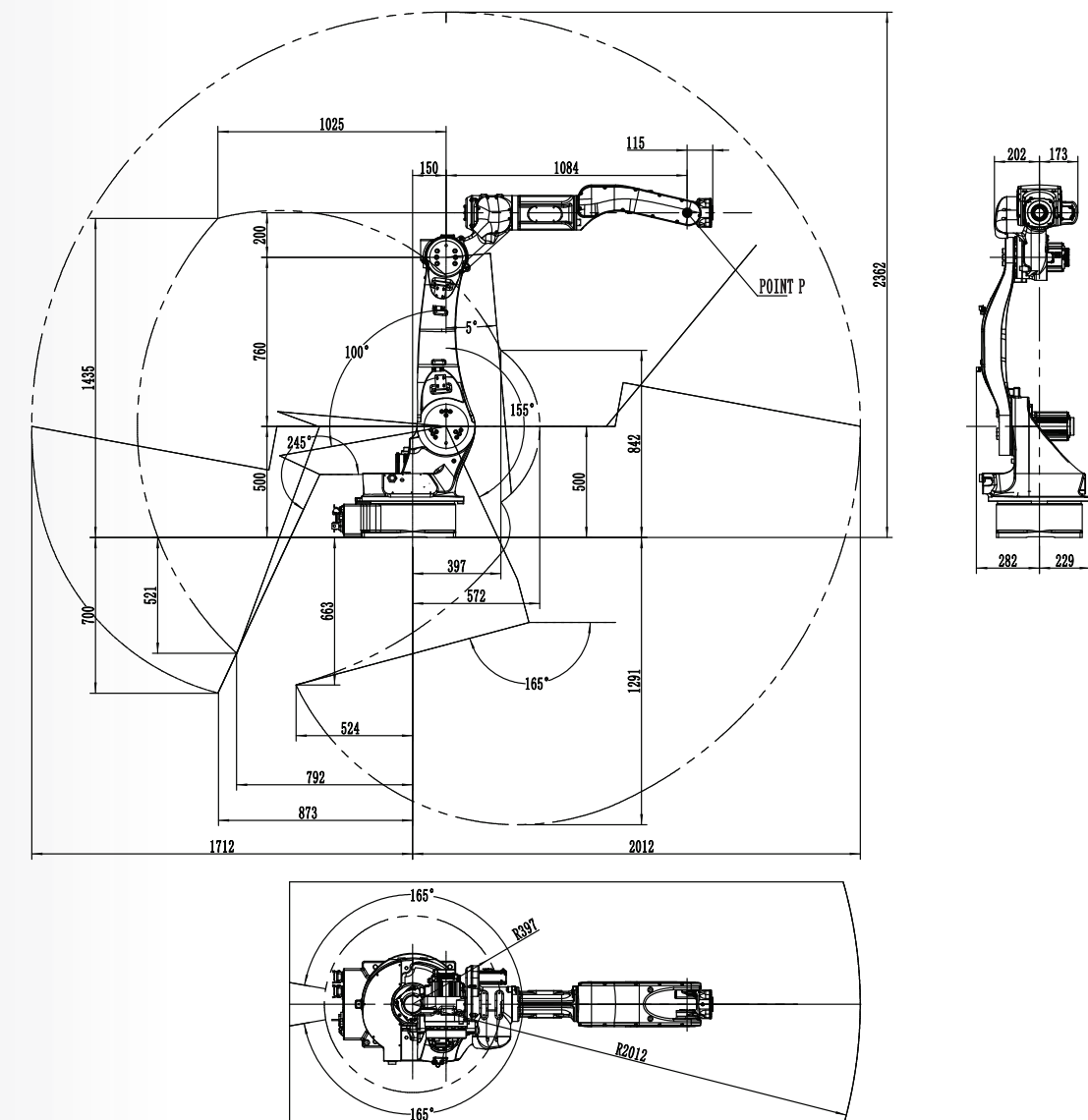
Installation Dimension of Base

INSTALLATION INTERFACE DIAGRAM



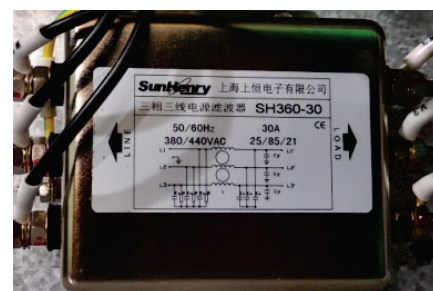
Flange Dimensions

MOTION RANGE DIAGRAM

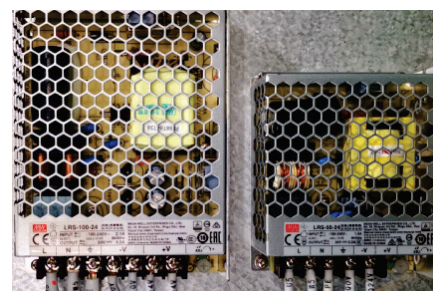


DIR-4

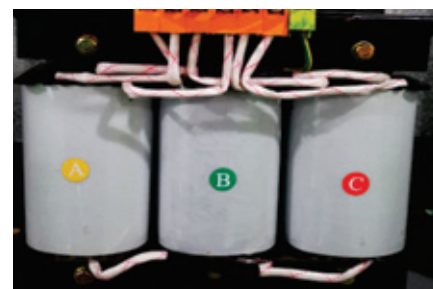
INDUSTRIAL ROBOT ELECTRICAL CABINET



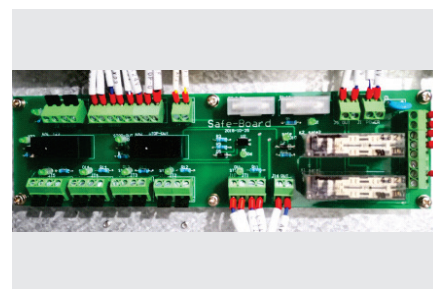
Three-phase three-wire power filter



Double switching power supply



Three-phase dry-type servo isolation transformer



Built-in safety circuit

CABINET TECHNICAL INDEX

Teaching pendant	8-inch TFT-LCD, button + touch screen, mode selection switch, safety switch, emergency stop button
User memory	200M
Axis quantity that can be controlled	6ed+ 2 axes, 6 robot body axes + 2 external axes
Interface	Digital I/O interface, EtherCAT, 22 input / output(expandable COM)
	4-way 0~10V analog output, 12-bit accuracy(expandable COM)
	Two-way encoder signal interface(position tracking)
	Ethernet communication interface
	Double USB interface
Operation mode	Teaching, reproduction, remote
Moving function	Point-to-point, straight line, circle
Command system	Motion, logic, process, operation
Coordinate system	Joint coordinates, rectangular coordinates, user coordinates, tool coordinates, and base coordinates
Abnormal detection function	Abnormal stop, abnormal servo, abnormal user coordinates, abnormal tool coordinates, safety maintenance, abnormal arc, etc.
Robot safety	External emergency stop, anti-collision and safety bolt interface; MC safety circuit, servo soften, etc.
Reserved specific interface	arc welding interface, workstation interface
Software package	With options of welding, handling, palletizing, painting, and spraying applications
Others	Built-in PLC, regenerative braking, encoder interface (supporting synchronous belt), arc tracking and accessories (optional), vision software (optional), laser tracking software(optional), etc.
Connecting cable	3m
Power supply	Three phase 380V AC 50-60HZ
Dimension	550mm × 785mm × 410mm
Weight	90KG

CABINET DIMENSIONAL DRAWING

