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for more Doosan Robot Applications

DOOSAN

DOOSAN ROBOT SERIES

Switch on the Future
Doosan Robotics

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Doosan Robotics



DOOSAN HERITAGE

Super SAFE



- Space restriction and five workspace settings to fully protect operators**

Space Limit

Cooperation zone

Crushing Prevention Zone

Sensitivity reduction zone

Tool Orientation Limit Zone

Custom zone

Improve efficiency and ensure operator safety by setting various zones in accordance with the site application
- Outstanding product safety certified by international organizations**

Doosan collaborative robots feature industry-leading designs, which meet international criteria and boast the highest level of safety in the business. NRTL (US), CE (Europe), KCs (Korea)

Super EASY



- Easy-to-develop Robot Operation Software and Convenient Use**

From simply handling parts to services ranging from manufacturing to food and beverage, we offer a Software-Defined Robot SW Platform that even enables beginners to easily install and operate robots, allowing them to develop various robot operation functions frequently used in the field into modules
- Cockpit to quickly and easily teach robots**

Through the cockpit (Direct teaching button), direct teaching is incredibly easy as it's possible to select various teaching modes and even save coordinates with simple button operations

Super FLEXIBLE



- Doosan Mate maximizes applications and use scenarios**

With a variety of industry-leading partner products from grippers to sensors and software, Doosan Mate allows for seamless compatibility and an array of automation solutions optimized for customer needs. All products registered in Doosan Mate are compatible with Doosan robots allowing for instant installation and immediate operation
- Convenient communication connections**

Doosan collaborative robots can be connected even without a gateway, allowing for seamless integration with various types of industrial equipment and systems

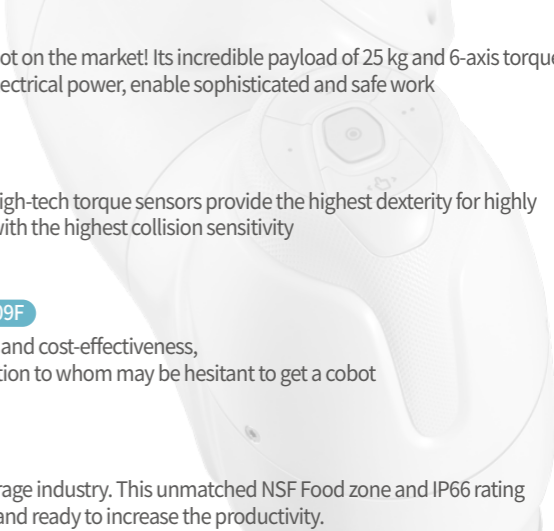
DOOSAN ROBOT LINE-UP

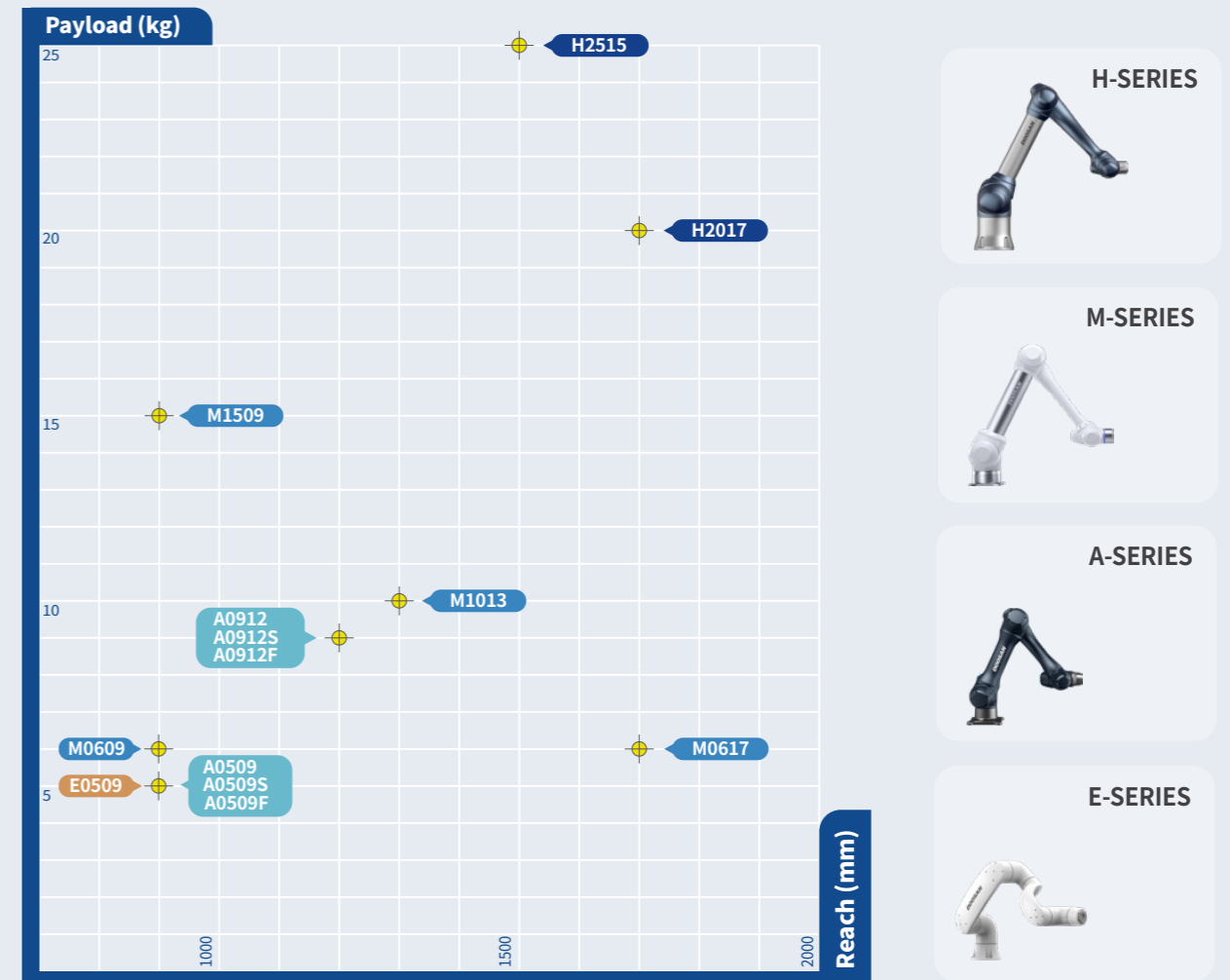
High-Power H-SERIES
H2515 · H2017
 The H-Series is the most powerful collaborative robot on the market! Its incredible payload of 25 kg and 6-axis torque sensor, along with its high performance from low electrical power, enable sophisticated and safe work

Masterpiece M-SERIES
M1509 · M1013 · M0617 · M0609
 M-SERIES is the highest quality premium cobot! 6 high-tech torque sensors provide the highest dexterity for highly sophisticated tasks and ensure the upmost safety with the highest collision sensitivity

Agile A-SERIES
A0912 · A0912S · A0912F · A0509 · A0509S · A0509F
 A-SERIES can go anywhere! With its superior speed and cost-effectiveness, A-SERIES promises a simple solution and a satisfaction to whom may be hesitant to get a cobot

Edge E-SERIES
E0509
 E-SERIES is the most optimal cobot in Food & Beverage industry. This unmatched NSF Food zone and IP66 rating accredited cobot is highly adaptable in any spaces and ready to increase the productivity.







High-power H-SERIES

The H-Series is the most powerful collaborative robot on the market! Its incredible payload of 25 kg and 6-axis torque sensor, along with its high performance from low electrical power, enable sophisticated and safe work

H2515	H2017
Payload 25kg	Payload 20kg
Reach 1500mm	Reach 1700mm

I KEY FEATURES

High+ Payload

H-SERIES boasts the highest payload among existing collaborative robots, allowing for efficient and organized work through the simultaneous handling of objects of various weights

High+ Reach

With a wide working radius and superior efficiency for multiple work processes and remote palletizing, the H-SERIES is perfect for many work environments

High+ Energy Efficiency

H-SERIES' built-in Gravity Compensator enables cost-effective operation for a wide range of applications with half the power consumption of comparable 6-axis articulated robots

25 kg

1700 mm

1/2

I MAIN APPLICATIONS



Palletizing

Stacking and palletizing heavy objects for logistics and automated procedures



Machine Tending

Feeding the CNC machine to load/unload objects into the pallet



Managing Heavy Objects

Stacking, transporting, and handling multiple objects simultaneously in fast-paced production scenarios like those found in logistics and fabric industries



Assembling Heavy Parts

Assembling heavy or bulky parts such as engines, shock absorbers, etc.



Assembling Automotive Bodies

Assisting automotive production line assembly for body parts like doors, lift gates, etc.



Inspection

Inspecting internal/external defects and assembly quality



Welding

Welding parts together with the precision of a skilled welder



Film Production

Can be used at professional broadcasting sites to assist safe and precise camera movements



Masterpiece M-SERIES

M-SERIES is the highest quality premium cobot!
6 high-tech torque sensors provide the highest dexterity for highly sophisticated tasks and ensure the upmost safety with the highest collision sensitivity

M1509	M1013	M0617	M0609
Payload 15kg (+2kg) Reach 900mm	Payload 10kg (+2kg) Reach 1300mm	Payload 6kg (+2kg) Reach 1700mm	Payload 6kg Reach 900mm

*Depending on the automatic acceleration adjustment, M1509 can handle up to 17 kg, M1013 up to 12 kg, and M0617 up to 8 kg

I KEY FEATURES

Master+ Safety

With six high-tech torque sensors, M-SERIES can detect subtle force changes to provide superior safety

Master+ Force Control

The high-tech torque sensor provides the highest level of force control and compliance control for safe and precise work

Master+ Setup

The Smart Setup function allows quick installation and immediate operation, as it automatically measures inclination angles, tool position and weight

6 Torque Sensors

0.2 N

12 Minutes

I MAIN APPLICATIONS



Assembling Power Tools

Reliable performance on various power tool assembly lines, including screw and nut fastening



Machine Tending

Feeding the CNC machine to load/unload objects into the pallet



Welding

Welding parts together like a skilled welder



Polishing & Deburring

Burr removal and surface polishing after processing



Palletizing

Stacking and palletizing heavy objects for logistics and automated procedures



Gluing & Bonding

Consistently spraying adhesive for gluing and bonding



Plastic Injection Support

Detaching objects from injection mold and loading them onto pallets



Press Forming

Picking up panels for loading/unloading from a press machine



Agile A-SERIES

A-SERIES can go anywhere!
With its superior speed and cost-effectiveness,
A-SERIES promises a simple solution and a satisfaction to
whom may be hesitant to get a cobot

A0912S Model with Force Sensor
Payload 9kg
Reach 1200mm

A0509S Model with Force Sensor
Payload 5kg
Reach 900mm

A0912
Payload 9kg
Reach 1200mm

A0509
Payload 5kg
Reach 900mm

A0912F Dedicated F&B Model
Payload 9kg
Reach 1200mm

A0509F Dedicated F&B Model
Payload 5kg
Reach 900mm

I KEY FEATURES

A+ Speed

2x joint speed enhances productivity, efficiency, and effectiveness

A+ Customization

The A-SERIES line features options like a cost-effective universal model, a precision force control model, and a model specifically for the food and beverage industry.

A+ ROI

10% faster work speed on average and competitive pricing means quicker ROI

×2 Axis Speed

3 Options

10%

I MAIN APPLICATIONS

A0509S · A0912S



Machine Tending

Feeding the CNC machine to load/unload objects into the pallet



Polishing & Deburring

Burr removal and surface polishing after processing



Assembly

Traditional assembly tasks like screw driving and gear assembling



Service

Safely and repeatedly performs pre-defined tasks in accordance with user needs in service industries like medical and food and beverage

Dedicated F&B Model

A0509F · A0912F

A0509 · A0912



Air Blowing

Spiral and multi-angle composite spray motions for exterior cleaning of finished products



Pick & Place

Simple loading/unloading objects between tasks



Inspection

Inspecting internal/external defects and assembly quality



Gluing & Bonding

Consistently spraying adhesive for gluing and bonding



Edge E-SERIES

E-SERIES is the most optimal cobot in Food & Beverage industry
This unmatched NSF Food zone and IP66 rating accredited cobot is highly adaptable in any spaces and ready to increase the productivity

E0509

Payload 5kg
Reach 900mm



KEY FEATURES

Edge+ Sanitation

With NSF certifications and IP66 accreditation, E-SERIES ensures maximum hygiene and sanitation

Edge+ Portability

With all-in-one packaging just 2/3rds smaller than existing cobots, Edge is easy to transport and install in any area

Edge+ ROI

E-SERIES is a cost-effective automation solution, ensuring rapid ROI in as few as 14 months for coffee applications

NSF

2/3 rds smaller packaging

14 months ROI

MAIN APPLICATIONS

F&B



Coffee

Makes up to three cups of espresso in 15 seconds by pouring water into a dripper just like a barista



Ice cream

Scoops ice cream and delivers it right to customers



Deep Frying

Easily fries food in 170° C, 224° F oil



Noodles

Boils and cooks a variety of noodle dishes such as rice noodles and udon with consistent quality



DOOSAN ROBOT APPLICATION

Manufacturing

Pick & Place
Simple loading/unloading objects between tasks

Press Forming
Picking up panels for loading/unloading from a press machine

Polishing & Deburring
Burr removal and surface polishing after processing

Assembly
Traditional assembly tasks like screw driving and gear assembling

Gluing & Bonding
Consistently spraying adhesive for gluing and bonding

Air Blowing
Spiral and multi-angle composite spray motions for exterior cleaning of finished products

Packaging & Palletizing
Stacking and palletizing heavy objects for logistics and automated procedures

Inspection
Inspecting internal/external defects and assembly quality

Machine Tending
Feeding the CNC machine to load/unload objects into the pallet

Welding
Welding parts together with the precision of a skilled welder

Plastic Injection Support
Detaching objects from injection mold and loading them onto pallets

Managing Heavy Objects
Stacking, transporting, and handling multiple objects simultaneously in fast-paced production scenarios like those found in logistics and fabric industries

Assembling Heavy Parts
Assembling heavy or bulky parts such as engines, shock absorbers, etc.

Assembling Automotive Bodies
Assisting automotive production line assembly for body parts like doors, lift gates, etc.

Food & Beverage

Deep Frying
Easily fries food in 170° C, 224° F oil

Coffee
Makes up to three cups of espresso in 15 seconds by pouring water into a dripper just like a barista

Ice cream
Scoops ice cream and delivers it right to customers

Noodle
Boils and cooks a variety of noodle dishes such as rice noodles and udon with consistent quality



Others

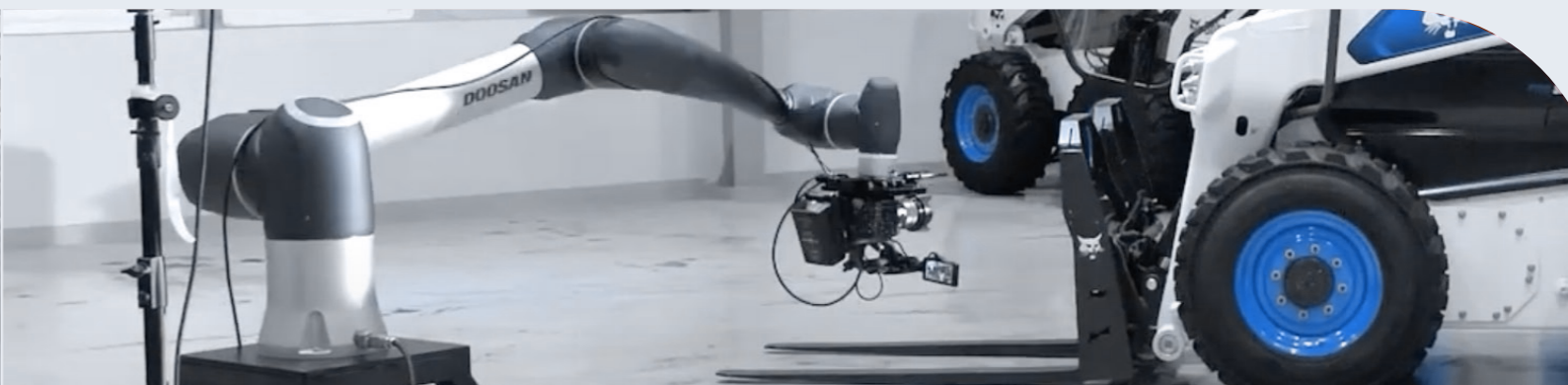
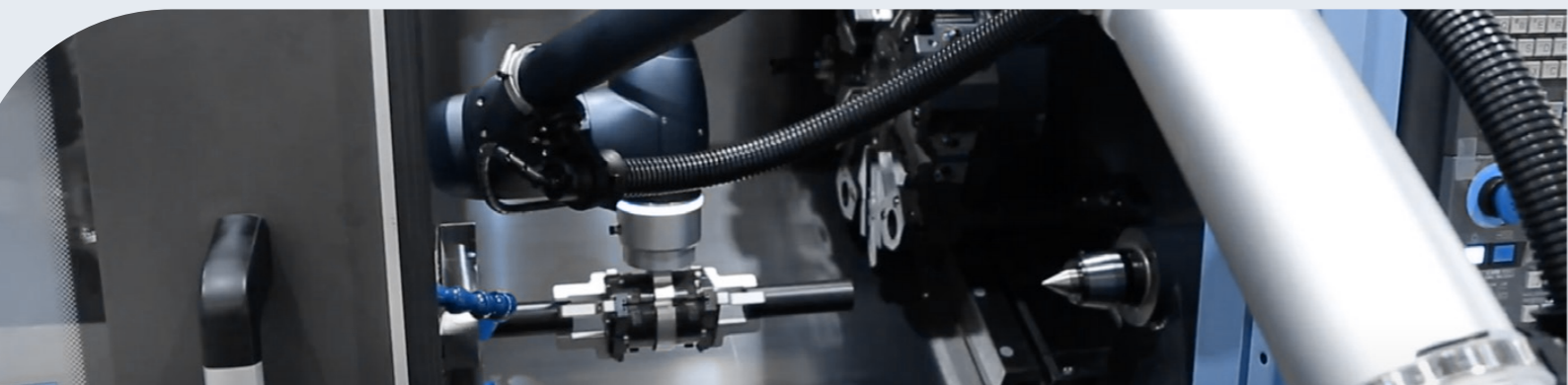
Charging Electric Vehicles
Connecting the plug to the charging terminal of an electric vehicle

Hygienic Scientific Applications
Sprays disinfectant, handles UV lamps and works in tandem with autonomous driving robots

Film Production
Can be used at professional broadcasting sites to assist safe and precise camera movements

Construction Perforation
Combats labor shortages by automating repetitive and precise perforation processes

Medical Treatment
Assists advanced medical applications such as surgical assistance, rehabilitation, and support



Technical Specification		High-Power H-SERIES		Masterpiece M-SERIES				Agile A-SERIES						Edge E-SERIES
Manipulator	Model	H2515	H2017	M1509	M1013	M0617	M0609	A0912S	A0509S	A0912	A0509	A0912F	A0509F	E0509
	Payload	25 kg (55.1 lb)	20 kg (44 lb)	15 kg (33 lb)	10 kg (22 lb)	6 kg (13.2 lb)	6 kg (13.2 lb)	9 kg (19.8 lb)	5 kg (11 lb)	9 kg (19.8 lb)	5 kg (11 lb)	9 kg (19.8 lb)	5 kg (11 lb)	5 kg (11 lb)
	Reach	1,500 mm (59 inch)	1,700 mm (66.9 inch)	900 mm (35.4 inch)	1,300 mm (51.1 inch)	1,700 mm (66.9 inch)	900 mm (35.4 inch)	1,203 mm (47.2 inch)	903 mm (35.4 inch)	1,200 mm (47.2 inch)	900 mm (35.4 inch)	1,200 mm (47.2 inch)	900 mm (35.4 inch)	900 mm (35.4 inch)
	Weight	77 kg (169.8 lb)	79 kg (174.2 lb)	33 kg (72.8 lb)	34 kg (75 lb)	35.5 kg (78.3 lb)	27.5 kg (60.6 lb)	31 kg (68.3 lb)	21 kg (46.2 lb)	31 kg (68.3 lb)	21 kg (46.2 lb)	31 kg (68.3 lb)	21 kg (46.2 lb)	22.5 kg (49.6 lb)
	Repeatability	±0.1 mm	±0.1 mm	±0.03 mm	±0.05 mm	±0.1 mm	±0.03 mm	±0.05 mm	±0.03 mm	±0.05 mm	±0.03 mm	±0.05 mm	±0.03 mm	±0.05 mm
	Power Consumption (Typical)	290W		390W			370W	440W	370W	440W	370W	440W	370W	210W
	Mount Position	Floor		Any Orientation										
	Degree of Freedom	6												
	Tool Speed	Over 1 m/s												
	Temperature	0 ~ 45 °C												
	Noise	< 65 dB												< 60 dB
	Protection Rating	IP54												IP66
Joint Movement (Range : ° Max Speed : °/s)														
	J1	±360° 100°/s		±360° 150°/s	±360° 120°/s	±360° 100°/s	±360° 150°/s	±360° 180°/s			±360° 120°/s			
	J2	±125° 80°/s		±360° 150°/s	±360° 120°/s	±360° 100°/s	±360° 150°/s	±360° 180°/s			±360° 120°/s			
	J3	±160° 100°/s		±150° 180°/s	±160° 180°/s	±165° 150°/s	±150° 180°/s	±160° 180°/s			±155° 150°/s			
	J4	±360° 180°/s		±360° 225°/s	±360° 225°/s	±360° 225°/s	±360° 225°/s	±360° 360°/s			±360° 225°/s			
	J5	±360° 180°/s		±360° 225°/s	±360° 225°/s	±360° 225°/s	±360° 225°/s	±360° 360°/s			±155° 225°/s			
	J6	±360° 180°/s		±360° 225°/s	±360° 225°/s	±360° 225°/s	±360° 225°/s	±360° 360°/s			±360° 225°/s			
Other Features														
	Flange Interfaces	D-in 6, D-out 6, DC 24V (Max.3A) by two connectors (X1, X2)						D-in 2, D-out 2, RS-485(Pseudo), DC 24V (Max.3A) by one connector (X1)						
	Force & Compliance Control	Yes by built-in Joint Torque Sensors in each joint						Yes by built-in 6-axis force sensor at flange		X, Y, Z direction only by current control				
	Other Options	Cockpit Advanced Features (SW)												Cable Holder (Fits both 4Φ and 6Φ)
Certification	Robot Safety	KCs, CE, NRTL, EN ISO 10218-1, EN ISO 13849-1 PLe Cat.4 for emergency stop, PLd Cat.3 for other safety functions												
	Food Safety	N/A										NSF Splash Zone	NSF Food Zone Non contact	

Controller	Compatibility	H-SERIES · M-SERIES			A-SERIES		E-SERIES		ALL SERIES							
	Model	CS-01 (AC)	CS-01P (AC)	CS-02 (DC)	CS-03 (AC)	CS-04 (DC)	CS-05 (AC)	CS-06 (DC)	CS-11 (AC)	CS-12 (DC)	CS-11P (AC)	CS-12P (DC)				
	Dimensions	525(W) x 287(D) x 390(H) mm		577(W) x 241(D) x 422(H) mm	462(W) x 218(D) x 295(H) mm		482(W) x 214(D) x 375(H) mm		440(W) x 400(D) x 91.2(H) mm		455(W) x 185(D) x 225.5(H) mm		455(W) x 185(D) x 225.5(H) mm	606(W) x 306.9(D) x 446(H) mm	606(W) x 306.9(D) x 446(H) mm	
	Weight	13 kg		17 kg	12 kg		13 kg		9 kg		9.8 kg		9.6 kg	21.7 kg	21.5 kg	
	Protection Rating	IP 30		IP 54	IP 20		IP 40		IP 20		Not Rated		IP 54			
	Power Supply	100~240 VAC , 50~60Hz			20-60 VDC		100~240 VAC , 50~60Hz	20-60 VDC	100~240 VAC , 50~60Hz	20-60 VDC	100~240 VAC, 50~60 Hz		22~60 VDC	100~240 VAC, 50~60 Hz		22~60 VDC
	Cable Length	6 m (default) , 3 m (option)			3 m (default), 6 m (option)		6 m									
	Communications	ModbusTCP (Master(Client)/Slave(Server)), ModbusRTU (Master(Client)), PROFINET IO (Device), EtherNet/IP (Adapter), TCP/IP, RS-232/RS-422/RS-485 using USB to Serial converter (not included)							ModbusTCP (Master(Client)/Slave(Server)), ModbusRTU (Master(Client)), PROFINET IO (Device), EtherNet/IP (Adapter), TCP/IP, RS-232/RS-422/RS-485 using USB to Serial converter (not included)							
	Interfaces	D-in 16, D-out 16, A-in 2, A-out 2, External Encoder, DC 24V 2A														
	Programming	Built-in Teach Pendant (IP40, 10.1 inch display, 0.8kg, 4.5m/2.5m cable) DART-Platform for Windows (free PC software, MS Surface compatible) DART-Studio (DRL, Simulator), App Builder				Optional Teach Pendant (IP40, 11.1 inch display, 0.8kg, 4.5m cable) DART-Platform for Windows (free PC software, MS Surface compatible) DART-Studio (DRL, Simulator), App Builder			DART-Platform for Windows (free PC software, MS Surface compatible) DART-Studio (DRL, Simulator), App Builder			Built-in Teach Pendant (IP40, 10.1 inch display, 0.8kg, 4.5m cable) DART-Suite Ecosystem DART-Platform for Windows (free PC software, MS Surface compatible), Mac (M1, M2), Android (Tablet) DART-Studio (DRL, Simulator)				
	Other Options	N/A				Smart Pendant, Emergency Button				N/A						

DART-Suite

DART-Suite is an ecosystem of robot that simplifies the development, deployment and operation of module of Robots made by Doosan through 4 components



Components of DART-Suite

DART-IDE

Web-based integrated development tool enabling the development of robot modules to be installed and driven on the platform

DART-SDK

Tool Kit for software development including DART-API, and User Component

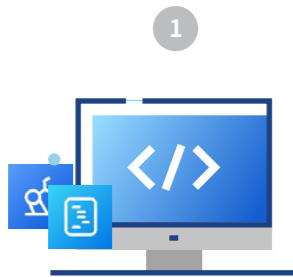
DART-Store

Online store for upload, distribution and sales of robot modules developed by DART-IDE

DART-Platform 3

Robot drive software allowing the execution of modules developed with IDE

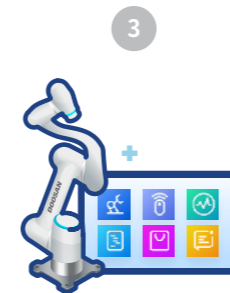
Main Features of DART-Suite



Provides DART-IDE supporting **No-Code Functions** that enables quick and easy development of robot operation software without any expertise on programming



Provides DART-Store, a web module market for **uploading/downloading developed robot functions**



Provides DART-Platform3 allowing quick and easy robot operation through **module development and installation**, which is similar to smartphone applications in concept



Provides Developer Site and Forum, both of which are **technical support services** allowing module development 24/7

DART-Suite | Main Features

I DART-IDE

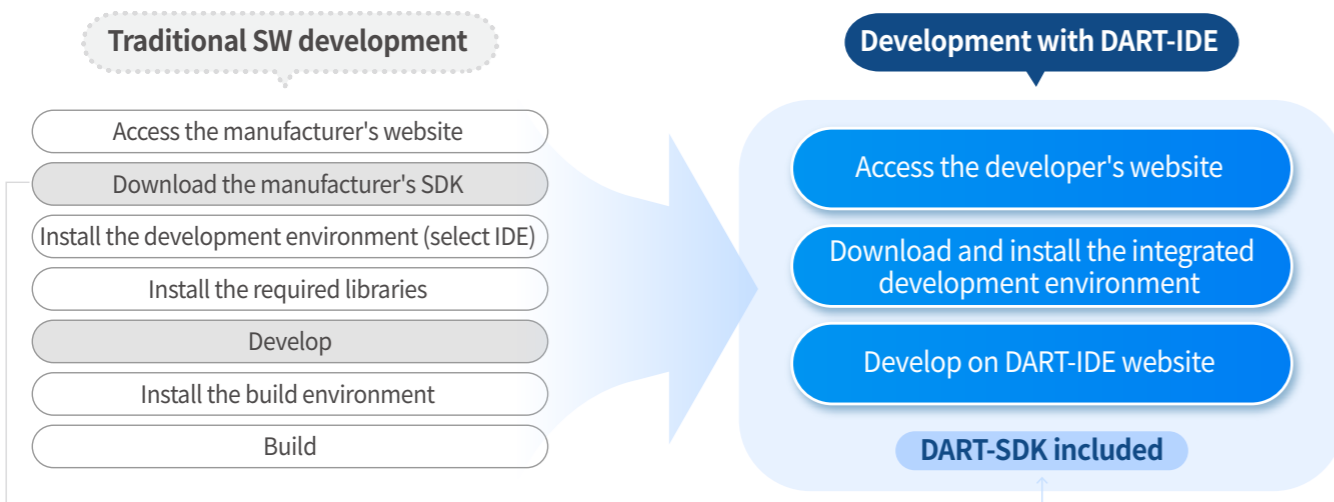
Web-based Integrated Development Environment allowing Development of Main Screen Modules, User UI Components, and User Commands

- ✓ Custom modules can be developed/created using DART-IDE web services
*Supports PCs, tablets and the latest version of Chrome browser
- ✓ The module development framework uses React and Typescript and provides robot simulators with basic functions
- ✓ Both project files and generated module files are stored on the device being used, not on the server
- ✓ Provides Visual Scripting environment allowing application development with Drag & Drop to provide No Code or Low Code environment

I DART-SDK

Breaks away from the traditional development approach of downloading Software Development Kit (SDK) for SW development

- ✓ SW development is available simply by accessing the website
- ✓ Complicated installation procedures for build are simplified with the use of DART-Services program



I DART-Store

Online store for upload, distribution and sales of robot modules developed by DART-IDE

- ✓ User accounts can be created without any charge, and registered modules can be distributed with or without charge
*We additionally charge small amount of commission, in addition to paying fees for paid distribution. No additional costs imposed for free distribution
- ✓ Provides functions for module browse, purchase, and install modules for users, as well as functions for module registration/management and promotion for developers

I DART-Platform 3

Robot drive software allowing the execution of modules developed with IDE

- ✓ Developed modules or modules downloaded from DART-Store can be run
- ✓ Fast response speed ensures user experiences without any buffering
- ✓ 3D simulator functions
- ✓ Provides a multi-platform applicable to various OS and devices
*Linux, Windows, Mac and Android supported
- ✓ Has a module structure similar to smartphone apps, providing a user-friendly environment for general users

I DART-Developers & Forum

DART-Developers

Provides introductions for DART-Suite services and development manual using IDE

Forum

Community for DART-Suite developers to communicate each other

I DART-OTA

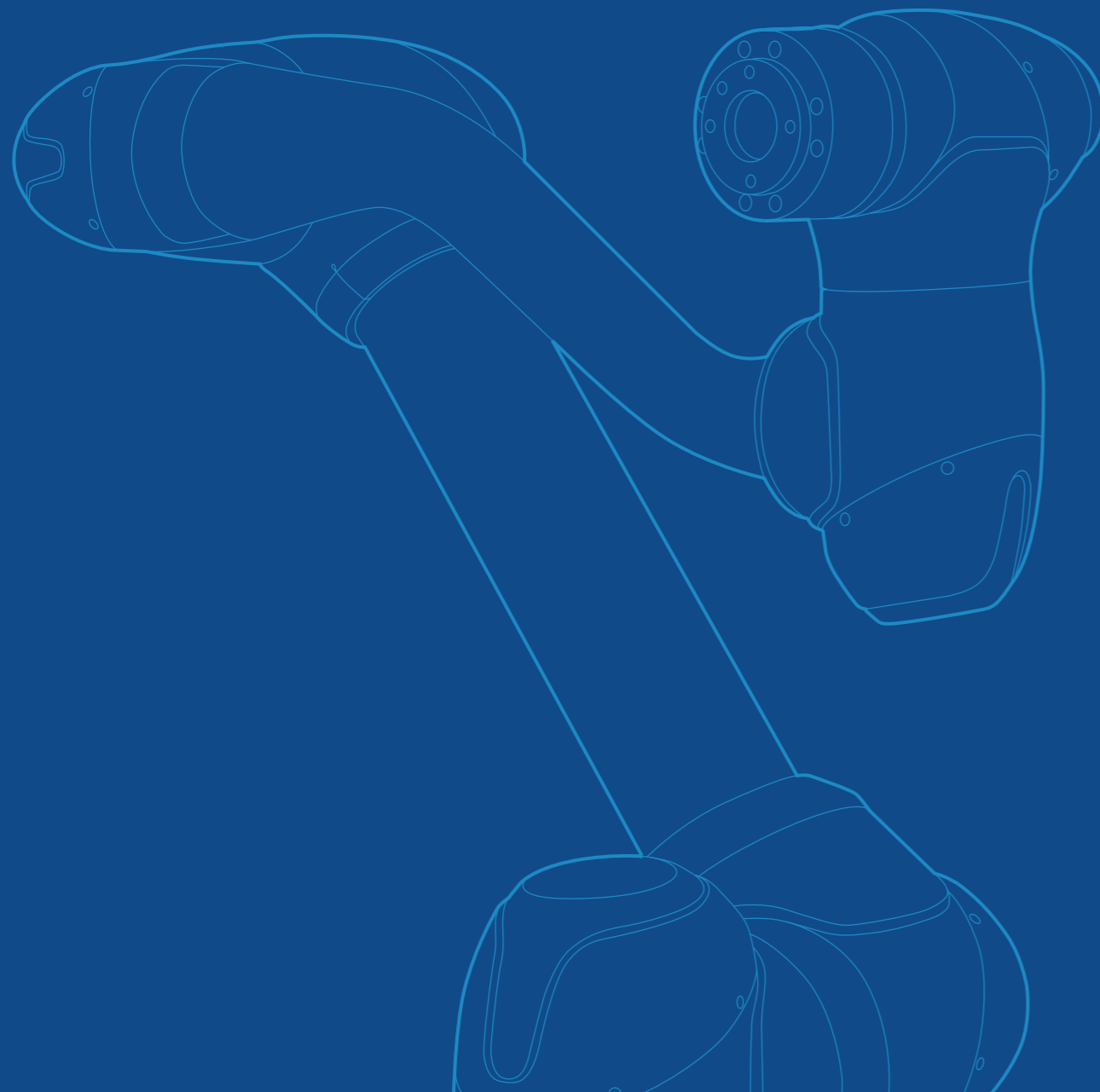
Coming soon

DART-OTA

Services allowing users to update multiple robots remotely at once and to manage using Cloud server. Like robot applications, remote updates up to the OS level are possible to manage security risks. And, the log data from the corresponding robot is transmitted remotely and used for convenient cause analysis when error occur

Doosan Robot Value Adding

Various features and functions can be added to maximize the performance and production efficiency of collaborative robots



VALUE ADDING | 01 Operation Option

DART-Platform

Applicable to all SERIES

DART-Platform is a software that can be installed and run not only through the provided Teach Pendant, but also on any desktop or tablet with Windows OS, Android, or Mac OS installed. It also allows robot operation and programming in the same way as Teach Pendant.

- A separate PC is required for installation and use of the DART platform
- Various Multi-Platforms Supported (Linux, Windows, Mac, Android)



Smart Pendant

Option one for E·A-SERIES

Smart Pendant is a simple interface featuring familiar function buttons including Home Position, Servo ON/OFF and Start/Stop for intuitive use

- If Smart Pendant is installed, a separate PC is required to run the DART-Platform



Teach Pendant

Standard for M·H-SERIES, Optional for A-SERIES

The Doosan Teach Pendant allows for PC-like interfacing with the inclusion of the DART-Platform. It is capable of configuring various applications from simple programming to advanced control algorithms

- TP-01(Hand Guide), TP-02(3 position enable switch)
- Teach Pendant Soft Cover (Optional)



VALUE ADDING | 02 Controller Option

H · M-SERIES Controller

Specification

Models	CS-01 (AC)	CS-01P (AC) Hardened IP
Dimension	525(W) X 287(D) X 390(H) mm	577(W) X 241(D) X 422(H) mm
Weight	13 kg	17 kg
Material	Plastic	Zinc Plated Steel
Protection Rating	IP30	IP54

*Water and dust protection ratings for electrical enclosures



Specification

Models	CS-02 (DC)
Dimension	462(W) X 218(D) X 295(H) mm
Weight	12 kg
Material	Zinc Plated Steel
Protection Rating	IP20

A-SERIES Controller

Specification

Models	CS-03 (AC) CS-04 (DC)
Dimension	482(W) X 214(D) X 375(H) mm
Weight	13 kg
Material	Zinc Plated Steel
Protection Rating	IP40



E-SERIES Controller

Specification

Models	CS-05 (AC) CS-06 (DC)
Dimension	440(W) X 400(D) X 91.2(H) mm
Weight	9 kg
Material	Zinc Plated Steel
Protection Rating	IP20

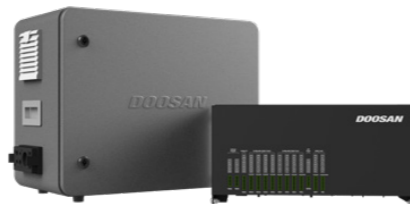


Integrated Controller

Specification

Models	CS-11 (AC)	CS-12 (DC)	CS-11P (AC)	CS-12P (DC)
Dimension	455(W) X 185(D) X 225.5(H) mm		606(W) X 306.9(D) X 446(H) mm	
Weight	9.8 kg	9.6 kg	21.7 kg	21.5 kg
Material	Zinc Plated Steel		Zinc Plated Steel	
Protection Rating	Not Rated	Not Rated	IP54	IP54
Compatible Robot Models	H-SERIES / M-SERIES / A-SERIES / E-SERIES			

*A part of appearance may be changed for improving performance



VALUE ADDING | 03 Accessories

Mobile Base

Mobile Base organizes and integrates the robot, controller and Teach Pendant allowing flexible portability. Other devices such as pallet and laser scanners can also be installed and multiple storage compartments allow for convenient tool stowing and usage

Specification

Dimension	850(W) X 600(D) X 825(H) mm
Weight	166 kg
Material	Top Plate - Stainless Steel
Compatible Robot Models	M-SERIES / A-SERIES / H-SERIES*

*Additional fixing work is required to apply the H-SERIES
*Some specifications may be changed to improve performance



Dress Pack

Dress Pack easily organizes various cables used for end-of-arm tooling to allow for efficient operation. Integrated conduit brackets and holders ensure convenient organization and easily attach/detach for relocation on the robot

Specification

Model	M0609 / M1013 / M1509	M0617
Configuration	A0509 / A0509s / A0912 / A0912s	H2017 / H2515
Conduit	1EA (3M)	1EA (3M)
Dress Kit	3 EA	4 EA
Color	Black, White	
Conduit Size	Φ23, Φ29	



Robot Jacket

Robot Jacket protects robots from contamination by liquids used during cutter support work and more. PU coating forms a two-stage water barrier that ensures the robot will maintain optimum operating conditions

Specification

	Full Cover Jacket					Head Cover Jacket
Dimension	M0609 A0509 A0509s	M1509	M1013 A0912 A0912s	M0617	H2017 H2515	
	1560 mm	1840 mm	2100 mm	2240 mm	3240 mm	305 mm
Material	Spandex & Carbon Fiber					
Color	Navy					
Thickness	0.55 ± 0.02mm					
Protected Range	Liquid such as water and paint (85°C ± 5°C)					



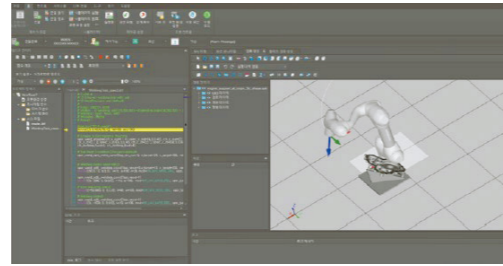
Head cover jacket

VALUE ADDING | 04 Software

DART-Studio

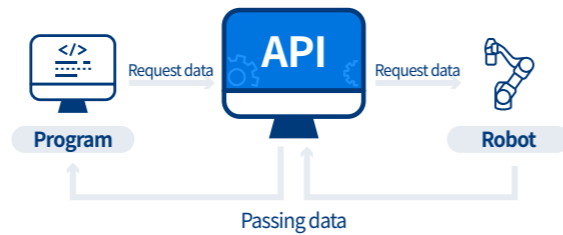
The simulation and offline programming features in DART-Studio provide fast and varied robot programming on a PC

-A separate PC is required for installation and use of the DART-Studio



API

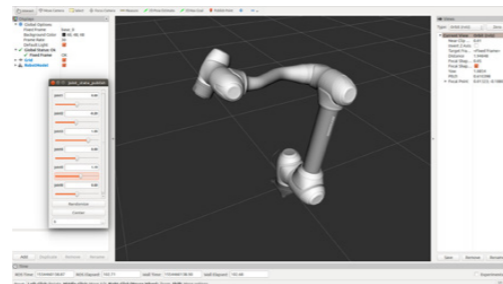
A systematic Doosan Robot Framework Library is available for robot application developers to create higher-level controllers and programs for their own purposes



ROS

ROS is an operating system for developing robot application programs. It provides various libraries and debugging tools for the implementation of necessary functions and the development environment

- ROS support for various platforms such as Windows and Amazon AWS Robomakers
- Provision of Doosan ROS package for ROS Kinetic / ROS Melodic / ROS Noetic package ROS 2 Foxy

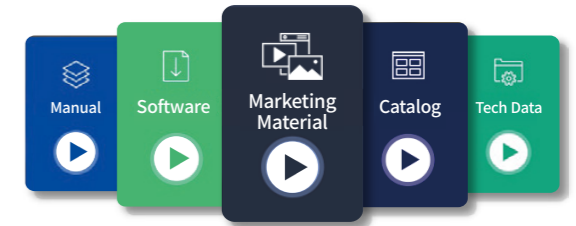


VALUE ADDING | 05 Service

Robot LAB

Resources

Doosan provides a wealth of resources including user software, product catalogs, troubleshooting guides and technical materials for creating robot systems



Training

Doosan is proud to offer training courses on system configuration and overall operations such as the installation, programming and maintenance of Doosan robots. We also provide step-by-step online learning materials from basics for beginners to advanced applications for professionals



EcoSystem

Doosan Mate

Meet our partners from end effectors to safety devices to automate your work process with Doosan's collaborative robots

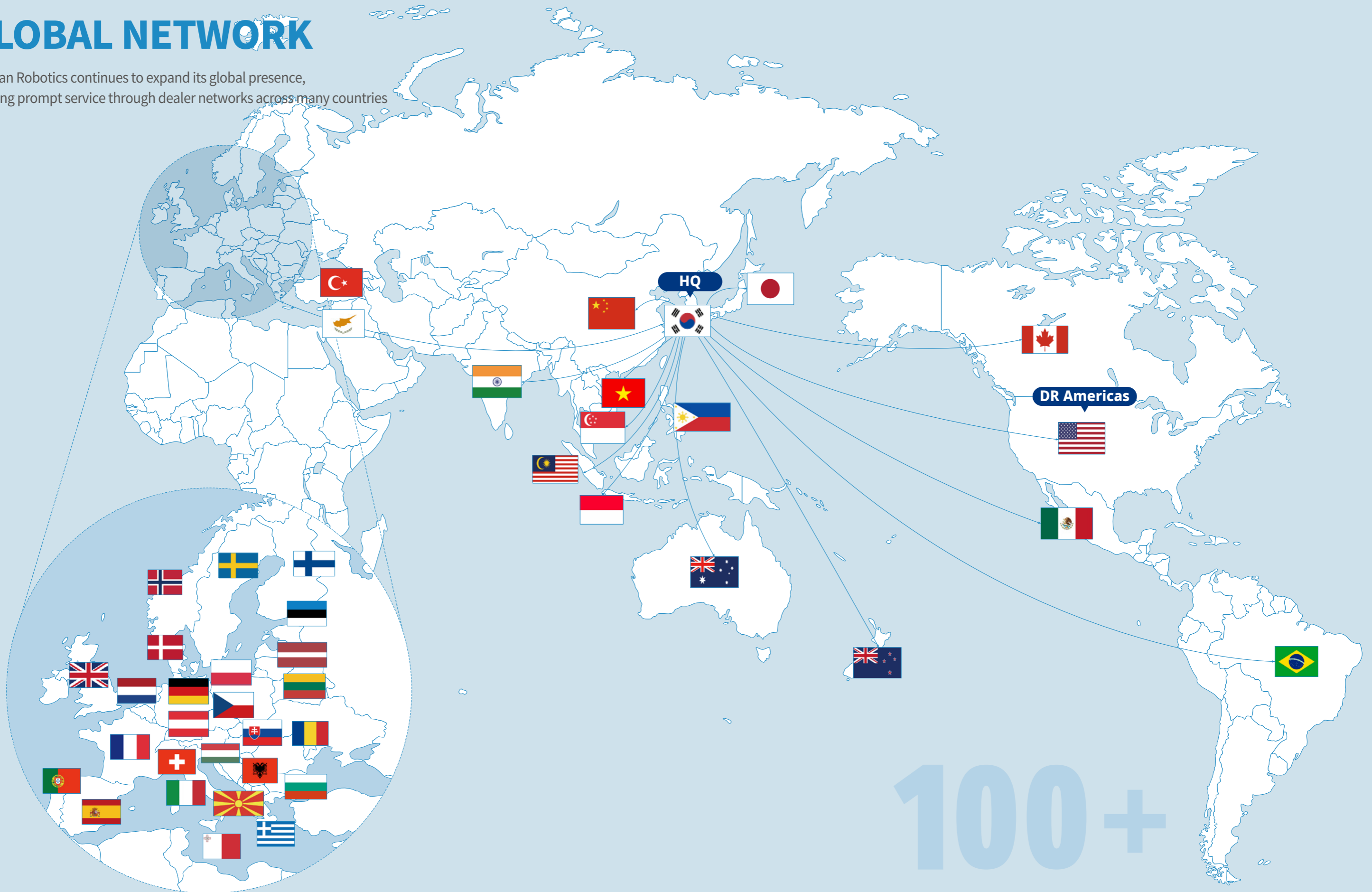


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GLOBAL NETWORK

Doosan Robotics continues to expand its global presence, offering prompt service through dealer networks across many countries



100+