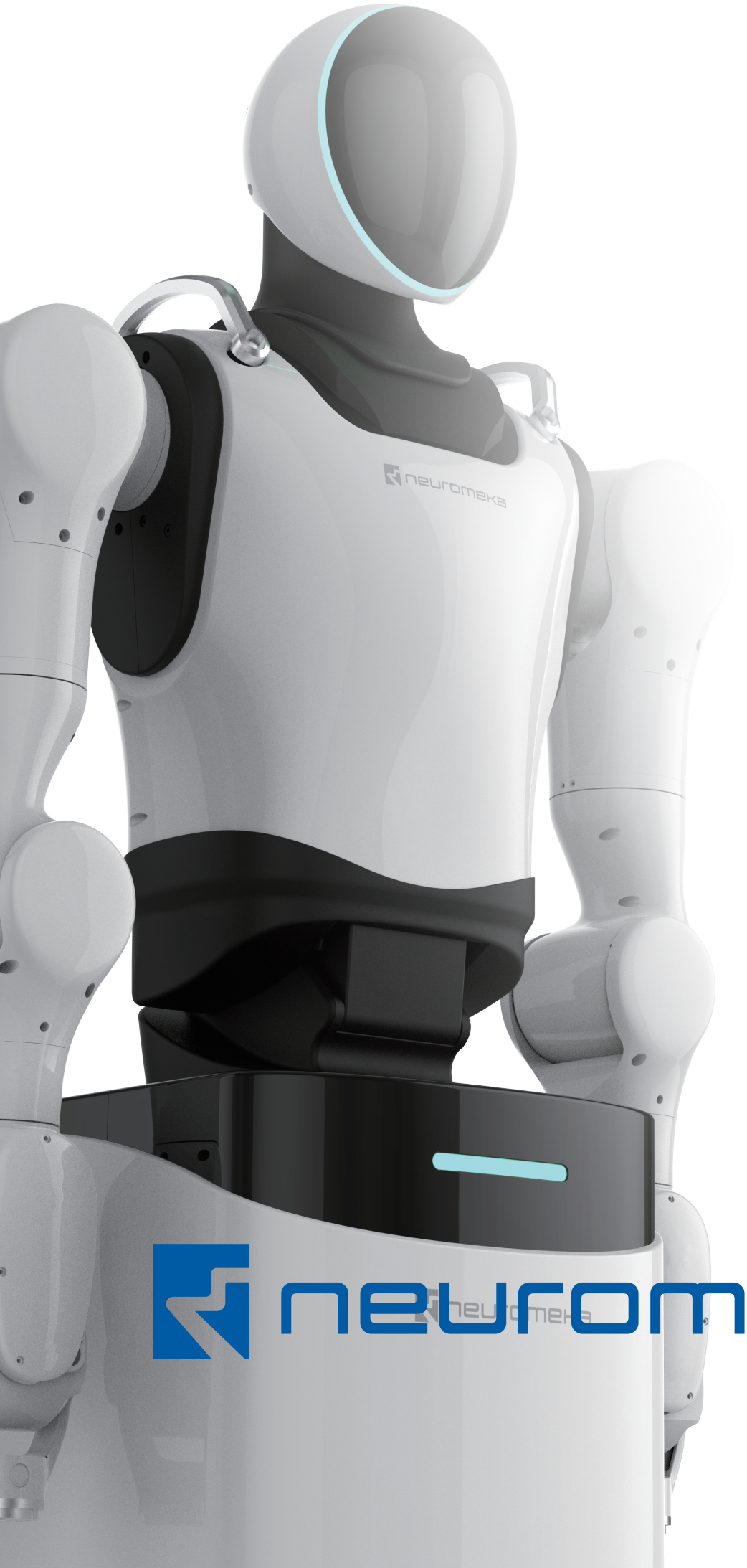
English



neuromeka

V20260413

Neuromeka is leading the next generation of intelligent automation through Physical AI.

Neuromeka is South Korea's leading robotics company, pioneering the era of 'Physical AI' by bringing artificial intelligence from the cyber world into physical reality. We go beyond robots that simply work alongside people.

Expanding from collaborative robots to industrial and mobile robots, and now to humanoid platforms, we have developed a full range of products across robot hardware to parts and AI platforms using our own technology. We provide next-generation task intelligence that senses, judges, and moves autonomously, powered by advanced control technology, AI-based safety, visual instruction, imitation learning, AI collision avoidance, and more.

We are also building a Robot as a Service (RaaS)-based platform so that even those without Typo - specialized robot expertise can easily adopt automation. Neuromeka uses its unique Physical AI technology to break down the boundaries between humans and industry, creating safer and more flexible automation environments.

HISTORY

2013
- 02 Neurometka Co., Ltd. was founded in Namyangju.

2014
- 01 Certified as a venture company and established an affiliated research institute.
- 07 Relocated headquarters to Seongsu-dong, Seoul.

2016
- 10 Released the Indy-RP robot.

2017
- 03 Launched the Indy3, Indy5, and Indy10 models.
- 09 Launched the Indy7 model.
- 12 Received the Technology Award from the Korean Robotics Society.
- Selected as one of the "Top 100 Technologies and Innovators Leading Korea" (for manufacturing collaborative robots)
- Awarded "Robot Company of the Year" in the industrial robotics category.

2018
- 06 Established the Cobot Intelligence (CI) Lab in collaboration with POSTECH.
- 12 Won "Robot Company of the Year" in the industrial robotics category for the second consecutive year.

2019
- 07 Established a subsidiary in Vietnam.
- 09 Released the Indy12 model.
- Released the IndyEye vision solution.
- 10 Launched the IndyCARE service.
- 12 Won "Robot Company of the Year" in the industrial robotics category for the third consecutive year.
- Received the Korea Shared Growth Grand Prize.

2020
- 07 Selected as a preliminary unicorn company by the Ministry of SMEs and Startups.
- Received the IR52 Jang Young Sil Award for Indy7.
- Obtained ISO 9001 certification.
- 12 Achieved New Excellent Product (NEP) certification.
- Won "Robot Company of the Year" in the industrial robotics category for the fourth consecutive year.
- Established a subsidiary in China.
- Designated as a promising export small business.

2021
- 06 Recognized as an outstanding corporate-affiliated research institute by the Ministry of Science.
- 10 Designated as an innovative product (Fast Track 3).
- 12 Received a commendation from the Minister of Trade, Industry, and Energy (for contributions to industrial technology promotion).
- Won "Robot Company of the Year" in the industrial robotics category for the fifth consecutive year.

2022
- 04 Selected as a "Design Innovation Promising Company" by the Ministry of Trade, Industry, and Energy.
- 11 Listed on the KOSDAQ stock exchange.
- Released the autonomous mobile robot, Moby.
- 12 Won "Robot Company of the Year" in the industrial robotics category for the sixth consecutive year.

2023
- 02 Established a subsidiary in the United States.
- 05 Relocated manufacturing plant to Pohang.
- 09 Obtained NSF certification for the Indy7 collaborative robot.
- Secured ISO certifications (14001, 45001, 9001).
- 10 Released the NURI series.
- 11 Established the Daegu branch.
- 12 Won "Robot Company of the Year" in the industrial robotics category for the seventh consecutive year.

2024
- 04 Signed an MOU with POSCO Holdings to establish a joint research lab.
- 06 Secured a welding robot supply contract with HD Hyundai Samho.
- 08 Selected as a KOSDAQ Rising Star.
- 10 Launched Indy-K, developed entirely with Korean technology.
- Established POSCO-Neurometka Joint Robotics Research Lab
- Won the iF Design Award (Moby Software)
- 12 Won "Robot Company of the Year" in the industrial robotics category for the eighth consecutive year.

2025
- 04 AI-Powered Second-Generation Collaborative Robot Development.
- 09 Established Cheonan Branch Office
- Unveiled humanoid platform lineup (ZEN, NAMI, EIR, RAXIS)
- 10 Launched OPTi3, the world's lightest 3 kg payload collaborative robot.
- Launched NeuroDrive, Korea's first fully domestically developed smart actuator
- 11 2025 RoboWorld Awards (OPTi3)
- 12 Awarded 2025 Robot Company of the Year (Industrial Robots category)

2026
- 01 Physical AI Humanoid Platform 'EIR' Unveiled at CES 2026

AI HUMANOID PLATFORM

Humanoid AI HUMANOID PLATFORM

Field-specialized next-generation humanoid platform

Neuromeka's humanoid platform is a next-generation robotic system designed for rapid deployment in real industrial and medical environments. Combining dexterous manipulation, precision motion control, and advanced AI capabilities, it performs complex physical tasks through its Physical Skill Foundation and realizes vision-language-action intelligence through Vision-Language-Action (VLA) models. With an integrated data pipeline and teleoperation system, the platform continuously learns from field data, allowing it to adapt to new tasks and serve as a capable partner.

EIR

NAMI

DUAL ARM

	EIR	NAMI	DUAL ARM
Dimensions	W 650 mm x L 710 mm x H 1638 mm	W 660 mm x L 860 mm x H 1608 mm	W 1375 mm x L 600 mm x H 1620 mm
Weight	200 kg	230 kg	200 kg
DOF	18 (7 DOF/Each Arm)	18 (7 DOF/Each Arm)	12 (6 DOF/Each Arm)
Payload	5 kg/arm	5 kg/arm	5 kg/arm
Repeatability	0.1 mm	0.1 mm	0.03 mm
Computing Power	Intel Core Ultra 9 ARL-275HX/ RTX 5070 Ti 12G / DDR5 32G	-	-
Robot Control	STEP3+	STEP3+	STEP3+
Communication Interfaces	Ethernet, Wi-Fi, DI, DO / ARM - RS485	Ethernet, Wi-Fi, DI, DO / ARM - RS485	Ethernet, Wi-Fi / ARM - RS485, DIO, AI
Power	100 - 240V AC, 19A MAX, 50/60Hz	Lithium-ion (48VDC 3.6kW) Wired charging	100 - 240V AC, 19A MAX, 50/60Hz
Working Temperature	0 - 40°C	0 - 40°C	0°C - 45°C
Working Humidity	5 % - 85 %	5 % - 85 %	5 % - 85 %
HEAD camera	Depth camera (D435i)	Depth camera (D435i)	-
Safety Feature	EMS	Lower Bumper Switch (4 units) EMS (3 units) Depth Camera (2 units)	EMS
Drive Type	4-Caster	AMR (MOBY200)	4-Caster

	MOBY200	
Weight / Payload	120 kg / 200 kg	
Dimensions	W 660 mm x L 860 mm x H 298 mm	
Guidance System	2D LiDAR	

Traveling	Navigation		SLAM
	Speed		Default. 1.0 m/s (Max. 1.2 m/s)
	Drive Type		Differential Drive / 4-Caster / Polyurethane
	Drive Wheel	Diameter	150 mm
		Width	36 mm
		Power	2 * 400 W
Power	Battery		Lithium-ion / 48 VDC 1850 Wh
	Charging		Contact Charging (20 A)
Safety Features			LiDAR (2 units) / Lower Bumper Switch (4 units) / EMS / Depth Camera (2 or 4 unit options)

INDY

EASY · SAFE · CONNECTED

Easy, safe, and always connected
A global leader in collaborative robots

Collaborative Robot

Our flagship collaborative robot that is easy, safe, and connectable from anywhere

Indy is Neuromeka's flagship collaborative robot model, featuring a smooth curved design and an innovative sensorless collision detection algorithm to ensure worker safety. It supports intuitive direct teaching via impedance control, and online/offline programming through a tablet-based teach pendant app.

Available in two payloads: Indy7 and Indy12. Gripper, vision sensors, and various standard tools can be added via wrist-mounted expansion ports.

Certification

NEP NEW EXCELLENT PRODUCT

NSF Indy7-K Indy7 / Indy7Pro Indy12 / Indy12Pro

CE Indy7V3 Indy12V3

RECOGNIZED MET US Indy7V3

KC Indy7V3/ Indy7Pro Indy12V3/ Indy12Pro

KCs Indy7V3 Indy12V3

Award

iR52 장영실상

GOOD DESIGN 산업통상자원부산정

reddot design award winner 2018

	Indy7 V3
DOF	6 (all revolute)
Payload	7 kg
Joint Motion Range	J1, J2, J4, J5, J6: ± 360 deg | J3: ± 170 deg
Maximum Joint Speed	J1, J2, J3: 150 deg/s | J4, J5, J6: 180 deg/s
Maximum Tool Speed	1 m/s
Reach(Maximum)	1210 mm
IP Rating	IP54
Workspace	800 mm
Repeatability	0.1 mm
Weight	34 kg

	Indy12 V3
DOF	6 (all revolute)
Payload	12 kg
Joint Motion Range	J1, J2, J4, J5, J6: ± 360 deg | J3: ± 170 deg
Maximum Joint Speed	J1, J2: 120 deg/s | J3, J4, J5, J6: 150 deg/s
Maximum Tool Speed	1 m/s
Reach(Maximum)	1700 mm
IP Rating	IP54
Workspace	1200 mm
Repeatability	0.1 mm
Weight	57 kg

	Indy7 Pro (with IndyEye)
DOF	6(all revolute)
Payload	7 kg
Joint Motion Range	J1, J2, J4, J5, J6: ± 360 deg | J3: ± 170 deg
Maximum Joint Speed	J1, J2, J3: 150 deg/s | J4, J5, J6: 180 deg/s
Maximum Tool Speed	1 m/s
Reach(Maximum)	1210 mm
IP Rating	IP54
Workspace	800 mm
Repeatability	0.1 mm
Weight	34 kg

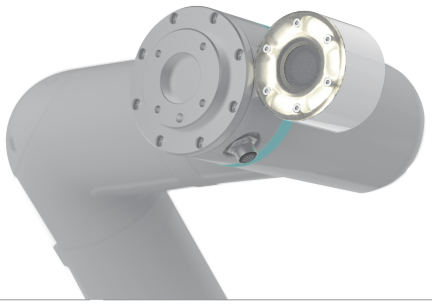
	Indy12 Pro (with IndyEye)
DOF	6(all revolute)
Payload	12 kg
Joint Motion Range	J1, J2, J4, J5, J6: ± 360 deg | J3: ± 170 deg
Maximum Joint Speed	J1, J2: 120 deg/s | J3, J4, J5, J6: 150 deg/s
Maximum Tool Speed	1 m/s
Reach(Maximum)	1700 mm
IP Rating	IP54
Workspace	1200 mm
Repeatability	0.1 mm
Weight	57 kg

Vision Solution

The optimal vision solution for collaborative robots, delivering the ideal balance of performance and affordability.

IndyEye is an integrated robot vision solution included in the IndyPro model. It automatically calibrates and aligns the vision and robot coordinate systems without requiring additional setup. This allows precise position-based operations during robot motion, including conveyor tracking applications. IndyEye improves object detection accuracy even in challenging environments with irregular shapes or low lighting conditions, helping increase overall operational efficiency.

	IndyEye
Sensor	IMX900 (Sony / Japan)
Sensor Type	CMOS, global shutter
Pixel Size	2.25 µm
Sensor Size	1/3.1 inch
Resolution	1600(H) × 1200(V)
Frame Rate	30 fps
Mono / Color	RGB Bayer
Data Interface	AHD to USB 3.0, Connector
Power Supply	USB3.0 power supply
Lens Resolution	5 MP, 2.2 µm (F/2.3), 6 MP, 2.1 µm (F/2.6)



ISP	NVS2675/ Nextchip(Korea)
Field of View	100°@ 6.2 mm image circle
Image Circle	8.0 mm as designed, 8.4 mm maximum
Distortion	-1 % TV @ 6.2 image circle

OPTi

COMPACT · SYMMETRIC · PORTABLE

A welding-specialized collaborative robot
optimized for any site, moving easily,
in any direction, anywhere.

Collaborative Robot

A welding-focused collaborative robot designed
for flexible deployment and efficient mobility

OPTi

OPTi is Neuromeka's welding-specialized collaborative robot series, engineered for precision, portability, and ease of use in welding applications. Its compact design and symmetrical structure allow efficient operation in tight workspaces, while minimizing unnecessary movement and optimizing welding add space after period. The OPTi series is available in two models: OPTi3 and OPTi5. The OPTi3 features an ultra-lightweight design weighing less than 11 kg, combined with an ergonomic structure for easy transportation and quick setup. An optional 5-axis open structure further reduces overall weight while improving accessibility and maneuverability.

Built specifically for welding environments, OPTi incorporates welding-friendly materials and finishes to reduce contamination and discoloration. A dedicated tool mounting interface at the robot end allows for quick and secure torch installation and replacement.

With a design optimized for welding performance, mobility, and productivity, the OPTi series helps manufacturers deploy robotic welding automation faster and more efficiently.

Certification

CE OPTi5 KC OPTi5 KCs OPTi5

	OPTi3
DOF	6(all revolute)
Payload	3 kg
Joint Motion Range	J1: ±360 deg, J2: ±150 deg, J3: ±150 deg, J4: ±360 deg, J5: ±130 deg, J6: ±360 deg
Maximum Joint Speed	J1, J2: 175 deg/s | j3: 180 deg/s | J4, j5, J6: 220 deg/s
Maximum Tool Speed	1 m/s
Reach(Maximum)	940 mm
IP Rating	IP54
Workspace	630 mm
Repeatability	0.1 mm
Weight	10.9 kg(TBD)

	OPTi5
DOF	6(all revolute)
Payload	5 kg
Joint Motion Range	J1: ±360 deg, J2: ±160 deg, J3: ±160 deg, J4: ±360 deg, J5: ±180 deg, J6: ±360 deg
Maximum Joint Speed	J1, J2, J3: 150 deg/s | J4, J5, J6: 180 deg/s
Maximum Tool Speed	1 m/s
Reach(Maximum)	1350 mm
IP Rating	IP54
Workspace	900 mm
Repeatability	0.1 mm
Weight	34 kg

NURI

Designed to meet every payload requirement.

The leader in building a robust and secure
collaborative robot ecosystem.

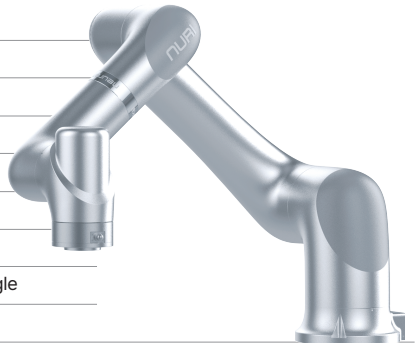
Collaborative Robot

High-payload collaborative robot series

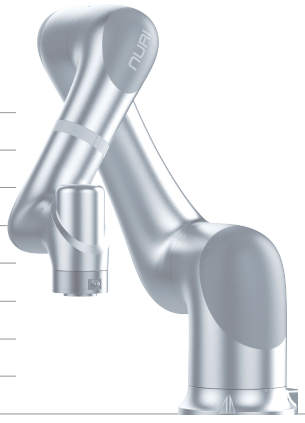
The NURI C Series is the high-payload flagship lineup of the NURI series, designed for demanding industrial automation applications. With an IP67-rated dust and water-resistant design, it can operate reliably in wet and challenging environments. All models are equipped with joint torque sensors on every axis, allowing for more sensitive collision detection and improved safety during operation.
Available in 7, 12, 18, and 20 kg payload models, the NURI C Series delivers industrial-grade repeatability and path accuracy, making it suitable for a wide range of manufacturing automation applications.

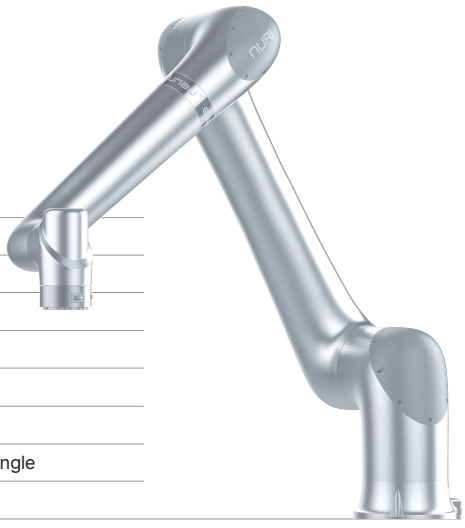
Certification

NURI20C



	NURI7c	NURI12c
Payload / DOF	7 kg / 6	12 kg / 6
Reach(Maximum)	1220 mm	1710 mm
Weight (w/ built-in control cabinet)	25 kg	41 kg
Repeatability	0.02 mm	0.03 mm
IP Rating	IP67	IP67
Workspace	850 mm	1300 mm
Mounting Method	Mount at any angle	Mount at any angle
Maximum Tool Speed	≤3.2 m/s	≤3.0 m/s
Maximum Joint Speed	J1, J2: 180 deg/s | J3: 234 deg/s | J4, J5, J6: 240 deg/s	J1, J2: 120 deg/s | J3: 180 deg/s | J4: 234 deg/s | J5, J6: 240 deg/s
Joint Motion Range	±360 deg for all joints	±360 deg for all joints
Operating Temperature	0 °C - 45 °C	0 °C - 45 °C
Adjustable Range of Cartesian Stiffness	0 - 3000 N/m | 0 - 300 Nm/rad	0 - 3000 N/m | 0 - 300 Nm/rad
Power Supply	90-264 VAC, 47-63 Hz / 48 VDC	90-264 VAC, 47-63 Hz / 48 VDC
Force Sensing (tool flange)	Force x-y-z | Torque x-y-z	Force x-y-z | Torque x-y-z
Relative Accuracy of Force Control	0.5 N | 0.1 Nm	0.5 N | 0.1 Nm





	NURI18c	NURI20c
Payload / DOF	18 kg / 6	20 kg / 6
Reach(Maximum)	1340 mm	2160 mm
Weight (w/ built-in control cabinet)	38 kg	71 kg
Repeatability	0.03 mm	0.1 mm
IP Rating	IP67	IP67
Workspace	925 mm	1650 mm
Mounting Method	Mount at any angle	Mount at any angle
Maximum Tool Speed	≤3.0 m/s	≤3.5 m/s
Maximum Joint Speed	J1, J2: 120 deg/s | J3, J4, J5, J6: 180 deg/s	J1, J2, J3: 120 deg/s | J4 : 180 deg/s | J5, J6: 234 deg/s
Joint Motion Range	±360 deg for all joints	J1, J2, J4, J5, J6: ±360 deg | J3: ±170 deg
Operating Temperature	0 °C - 45 °C	0 °C - 45 °C
Adjustable Range of Cartesian Stiffness	0 - 3000 N/m | 0 - 300 Nm/rad	0 - 3000 N/m | 0 - 300 Nm/rad
Power Supply	90-264 VAC, 47-63 Hz / 48 VDC	90-264 VAC, 47-63 Hz / 48 VDC
Force Sensing (tool flange)	Force x-y-z | Torque x-y-z	Force x-y-z | Torque x-y-z
Relative Accuracy of Force Control	0.5 N | 0.1 Nm	0.5 N | 0.1 Nm

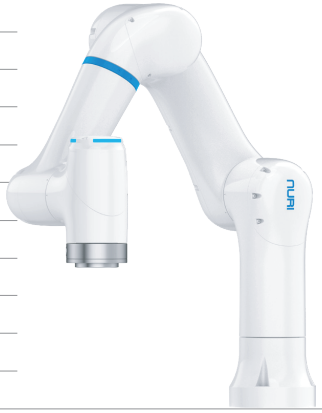
Collaborative Robot

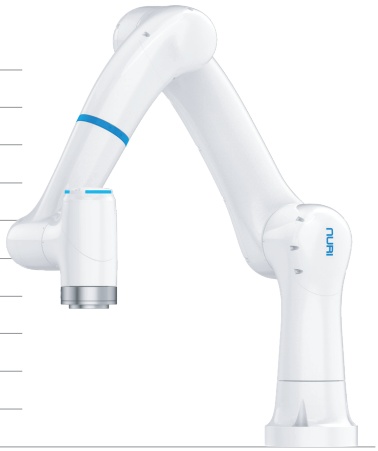
Low-payload collaborative robot series

NURIS

The 'NURI S Series' is the low-payload flagship of the NURI series, designed for coffee and F&B automation. Despite being compact, it has Joint Torque Sensors on all axes for more sensitive collision response, and is rated IP54 for automation. Available in 3 / 5 kg payload models. It has the same repeatability and path accuracy as industrial robots, making it suitable for education and F&B automation.

	NURI3s	NURI5s
Payload / DOF	3 kg / 6	5 kg / 6
Reach(Maximum)	1000 mm	1230 mm
Weight (w/ built-in control cabinet)	14 kg	17 kg
Repeatability	0.03 mm	0.03 mm
IP Rating	IP54	IP54
Workspace	590 mm	800 mm
Mounting Method	Mount at any angle	Mount at any angle
Maximum Tool Speed	≤1.5 m/s	≤2.0 m/s
Maximum Joint Speed	180 deg/s for all joints	180 deg/s for all joints
Operating Temperature	0 °C - 45 °C	0 °C - 45 °C
Adjustable Range of Cartesian Stiffness	0 - 3000 N/m | 0 - 300 Nm/rad	0 - 3000 N/m | 0 - 300 Nm/rad
Joint Motion Range	J1, J4, J5, J6: ±360 deg | J2: -155 deg to +140 deg | J3: -175 deg to +135 deg	J1, J4, J5, J6: ±360 deg | J2: -160 deg to +150 deg | J3: -170 deg to +140 deg
Power Supply	90-264 VAC, 47-63 Hz / 48 VDC	48 VDC
Force Sensing (tool flange)	Force x-y-z | Torque x-y-z	Force x-y-z | Torque x-y-z
Relative Accuracy of Force Control	0.5 N | 0.1 Nm	0.1 N | 0.02 Nm





High-Payload Collaborative Robot

Designed for logistics automation and heavy-duty handling applications

NURI30

The NURI30 is a 6-axis collaborative robot designed to handle payloads up to 30 kg, making it ideal for heavy-duty applications such as palletizing, material handling, and logistics automation. With a 1,800 mm working radius and ±360° joint rotation range, it provides the reach and flexibility needed to handle large boxes and heavy products with stability.
Featuring 0.1 mm repeatability and tool speeds of up to 2.5 m/s, the NURI30 delivers both precision and high-speed performance. Built-in safety functions, including advanced collision detection, help protect operators and equipment while allowing efficient automation in demanding industrial environments.

	NURI30
Payload / DOF	30 kg / 6
Reach(Maximum)	1,990 mm
Weight (w/ built-in control cabinet)	About 93 kg
Repeatability	0.1 mm
IP Rating	IP54
Workspace	1,800 mm
Joint Motion Range	J1, J4, J5, J6: ±360 deg | J2: -190 deg /+10 deg | J3: ±160 deg
Maximum Tool Speed	2.5 m/s
Maximum Joint Speed	J1, J2 120 deg/s | J3 150 deg/s | J4, J5, J6 180 deg/s

moby

Autonomous Mobile Robot

Expanding the workspace of collaborative robots.

KOREA ONLY

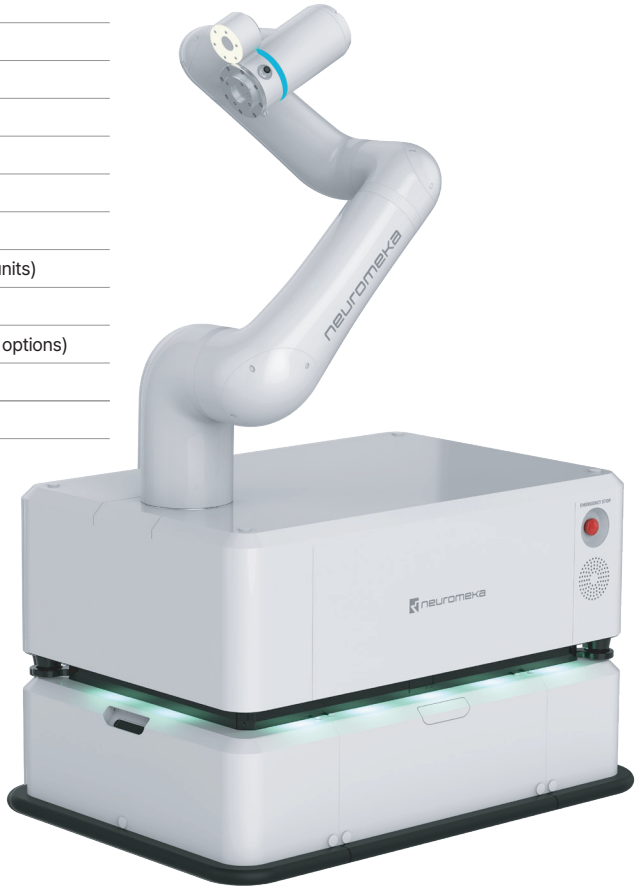
Autonomous Mobile Robot

Expanding the working range of collaborative robots
with flexible mobile automation

moby

Moby is Neuromeka's Autonomous Mobile Robot (AMR) platform designed to extend the mobility and workspace of the Indy collaborative robot. By mounting Indy on Moby, the system significantly expands the robot's working range, allowing flexible deployment across larger and more dynamic environments. Moby supports integration with a variety of sensors through its modular sensor interface, and its interchangeable work pallets allow it to adapt to different tasks. This allows a wide range of applications, including material delivery, patrol, and guided transport. Equipped with four dual-degree-of-freedom steering modules, Moby delivers highly stable straight-line motion and precise omnidirectional movement with minimal slip. LiDAR and 3D sensing systems provide reliable obstacle detection and accurate navigation to target locations.

			Moby-RP (V3.3)
Weight			180 kg (210 kg with Indy Included)
Payload			40 kg
Dimensions			660 mm x 960 mm x 600 mm
Guidance System			2D LiDAR
Traveling	Navigation		SLAM
	Speed		Max. 1.0 m/s
	Drive Type		Quad Drive
	Drive Wheel	Diameter	200 mm
		Width	50 mm
		Power	350 W
		Payload per Wheel	75 kg
		Wheel Material	Rubber tire
		Voltage	48 VDC
	Steering	Power	400 W
		Gear Ratio	1 : 70
		Working Range	360 deg
Power	Battery Type		Lithium-Ion
	Battery Specs		48 VDC 4624 Wh
Optional Features	Safety Features		LiDAR (2 units)
			Lower Bumper Switch (4 units)
			Emergency Stop (EMS)
			Depth Camera (2 or 4 unit options)
	Wireless Charger		2500 W
	Compatible Collaborative Robot		Indy7 (7 kg Payload)



KOREA ONLY

Smart Farm Greenhouse Agricultural AMR

An autonomous greenhouse robot
for crop monitoring and smart farm operations

Moby-Agri

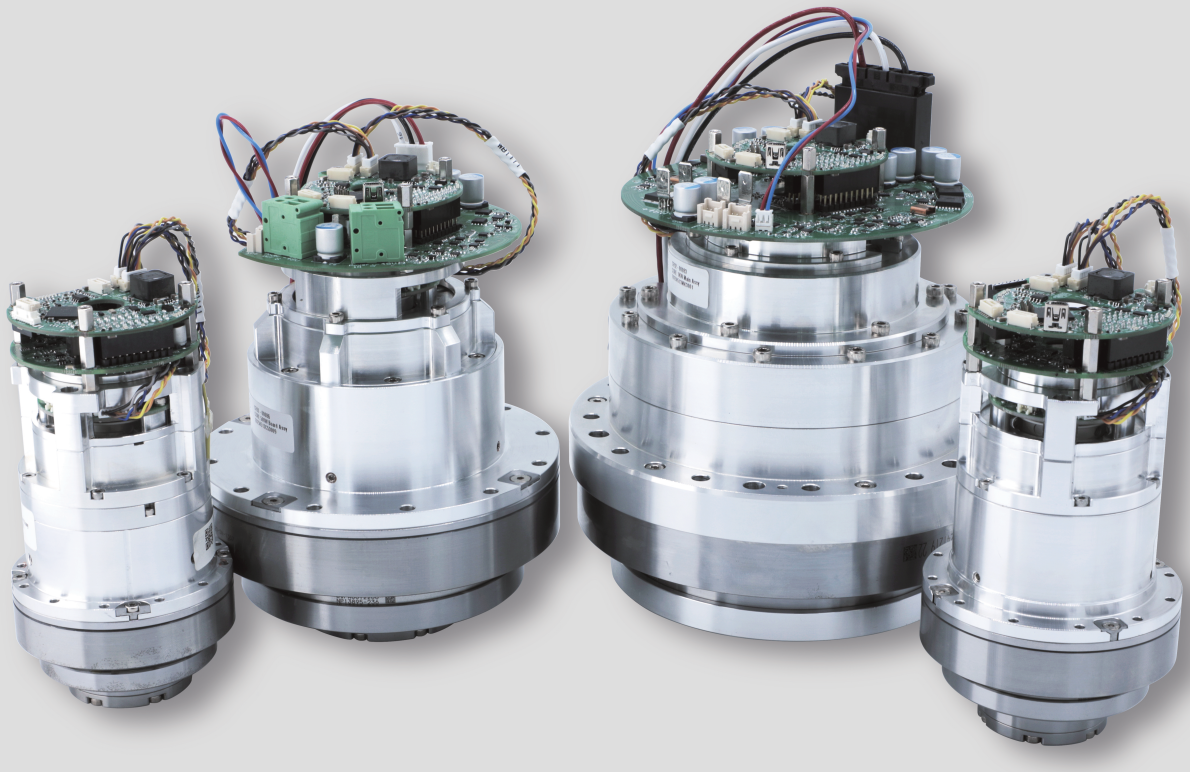
Moby-Agri is Neuromeka's agricultural Autonomous Mobile Robot (AMR) designed for autonomous crop management in smart greenhouse environments. It allows comprehensive data collection across the entire interior of a greenhouse of up to 9,900 m², a scale that traditionally relied on localized, fixed IoT sensors. This broader coverage helps improve yield performance for greenhouse crops such as tomatoes and paprika.

The robot is built on a differential-drive autonomous robot and is also equipped with rail-compatible wheels, allowing it to operate both on the ground and on installed greenhouse rail systems. It can automatically detect, mount, and dismount rails as needed.

Using LiDAR and 3D sensing, Moby-Agri navigates safely and precisely to target locations while avoiding obstacles. It also features a 2-degree-of-freedom (rotation and lift) camera system for crop monitoring, allowing observation and measurement at heights exceeding 3 meters.

			Moby-Agri
Dimensions (Weight)		600 Type	1400 mm x 805 mm x 491 mm (254 kg)
		650 Type	1400 mm x 855 mm x 491 mm (255 kg)
Guidance System			2D LiDAR
Traveling	Navigation System		SLAM
	Driving Type		Differential Drive
	GRD Drive Wheel	Diameter	235 mm
		Width	75 mm
		Speed	Max. 1.0 m/s
		Wheel Material	Rubber
	Rail Drive Wheel	Diameter	135 mm
		Width	80 mm
		Speed	Max. 0.4 m/s
		Wheel Material	PTEMG / Hardness: 95 deg ± 2 deg
	Caster	Diameter	127 mm
		Width	40 mm x 2
		Hardness	95 Shore A
		Payload per Unit	150 kg
		Wheel Material	Polyurethane
Vision Camera Lifting	Type		Lifting
	Stroke	Lifting	Min: 2000 mm, Max: 4100 mm
	Accuracy		Lifting ±5 mm
	Speed		Max: 200 mm/s
Dimensions			1400 mm x 1900 mm x 450 mm
Power	Type		Lithium-Ion
	Driving Time		Max: 10 hours
	Battery		48 VDC 9250 Wh
Safety Features			LiDAR (2 units)
			Distance Detection and Image Recognition Depth Camera
			Bumper Switch (2 units)
			Emergency Stop Switch (EMS)

COMPONENTS & ACCESSORIES



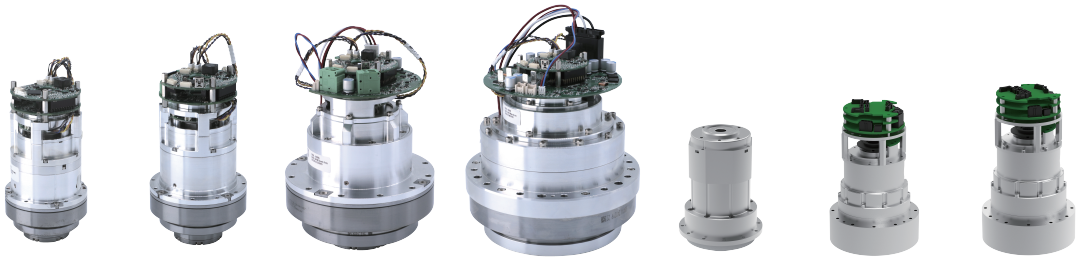
Smart Actuator

An integrated drive module for custom robot design

CORE

Neuromeka's smart actuator CORE is a joint drive module that integrates a frameless motor, harmonic drive reducer, magnetic brake, multi-turn absolute encoder, EtherCAT slave board, and motor driver into a compact hollow-shaft structure.

By routing power and EtherCAT communication cables through the hollow shaft, CORE allows cleaner, more streamlined robot designs with reduced external cabling and improved integration flexibility.



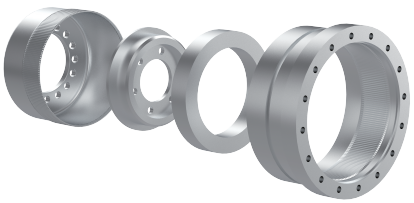
		CORE100	CORE200	CORE500	CORE1000	CORE70 NEW	CORE100 NEW	CORE200 NEW
Rated	Power	**130 W**	**207 W**	**437 W**	**1115 W**	**68.8 W**	**110 W**	**207 W**
	Voltage	48 V	48 V	48 V	48 V	48 V	48 V	48 V
	Current	4.87 A(rms)	6.0 A(rms)	11.1 A(rms)	23.3 A(rms)	2.3 A(rms)	3.47 A(rms)	6.0 A(rms)
	Output Torque	28 Nm	47 Nm	116 Nm	357 Nm	12 Nm	25 Nm	47 Nm
	Output Speed	180 deg/s	150 deg/s	150 deg/s	114 deg/s	180 deg/s	180 deg/s	150 deg/s
Size		ø80 x 170 mm	ø90 x 176 mm	ø142 x 194 mm	ø178 x 220 mm	ø75 x 100 mm	ø90 x 110 mm	ø90 x 120 mm
Weight		1.7 kg	2.16 kg	5.5 kg	9.4 kg	0.7 kg	1.1 kg	1.4 kg

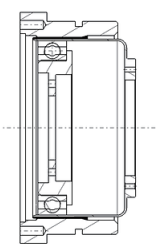
Harmonic Reducer

Neuro Drive(ND)

Neuromeka's harmonic reducers are core drive components developed and manufactured in-house, designed to deliver precise and reliable motion control for robot joints.

Beyond standard product offerings, Neuromeka provides customized development and external production support tailored to each robot's characteristics and load requirements. With carefully engineered reduction ratios and optimized service life, Neuro Drive delivers reliable performance across a wide range of robotic applications.



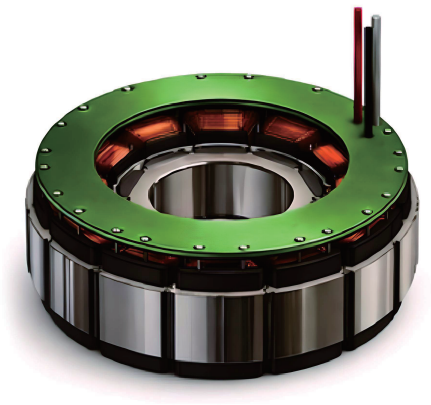


		ND20
Reduction Ratio		101.5
Rated Torque (at 2,000 rpm)	Nm	52
	kgfm	5.3
Permissible Peak Torque (at Start/Stop)	Nm	113
	kgfm	11.5
Permissible Maximum Average Load Torque	Nm	64
	kgfm	6.5
Permissible Momentary Maximum Torque	Nm	191
	kgfm	20
Permissible Maximum Input Speed (rpm)	Oil Lubrication	10,000
	Grease Lubrication	6,500
Permissible Average Input Speed (rpm)	Oil Lubrication	6,500
	Grease Lubrication	3,500

Robot Motor

Neuro Motor(NM)

Neuromeka's robot motors provide stable torque output and proven performance across diverse industrial environments. Neuromeka designs and manufactures them in-house from design through to actual robot application, realizing structures and control characteristics optimized for robot drive. We go beyond standard product sales to flexibly respond to custom motor development per customer specifications, as well as external development and production.



HIGH TORQUE & STABILITY

Through precise electromagnetic design and structural optimization, we provide stable torque output and excellent speed response. Consistent performance is maintained even in industrial environments with significant load fluctuations, improving robot drive reliability.

IN-HOUSE DESIGN & MANUFACTURING

Neuromeka manages all processes from design to production in-house, allowing for optimized motor specifications for robot applications. Quality control and supply stability are maintained while providing flexible support for custom development and mass production projects.

ROBOT-READY DESIGN

Designed with actual robot joints and drive environments in mind, it can be applied across a wide range of platforms, from collaborative robots to industrial robots and humanoids. It provides scalability for deployment across diverse robot platforms based on torque, speed, and durability requirements.

			NM-70	NM-100	NM-200	NM-500	NM-750	NM-1000	NM-1300	Notes
Design Voltage		V dc	48	48	48	48	48	48	48	
Diameter of stator		mm	Ø44.45	Ø63.5	Ø63.5	Ø88.9	Ø88.9	Ø127	Ø127	
Stator/Rotor Stack		mm	12.7/12.7	7.8/7.8	15.5/15.5	12.7/13.5	23/23	19.8/19.8	24.0/24.0	
Motor Length		mm	23.2	22.2	29.9	30.1	40.4	34.6	41.5	
Slots		-	12	12	12	12	12	18	18	
Number of Poles		-	10	10	10	10	10	16	16	
Rated	Torque	N·m	0.219	0.35	0.66	1.39	2.4	4.26	5.0	
	Speed	rpm	3,000	3,000	3,000	3,000	3,000	2,500	2,500	
	Power	W	68.8	110	207	437	750	1,115	1,327	
	Current	$A_{(rms)}$	2.3	3.47	6.0	11.1	19.2	23.3	32	±10%
	Current density	$A_{(rms)}/mm^2$	14.3	8.84	7.8	7.07	7.23	8.78	9.05	
Continuous Stall	Torque	N·m	0.258	0.39	0.72	1.47	2.53	4.45	5.3	
	Current	$A_{(rms)}$	2.3	3.47	6.0	11.1	19.2	23.3	32	
Peak (At Stall)	Torque	N·m	0.56	1.125	1.73	4.6	5.16	16.4	15.4	
	Current	$A_{(rms)}$	5.7	11.0	15.2	37.1	40	86.4	96	±10%
Peak	Torque	N·m	0.53	1.09	1.67	4.53	5.0	16.2	15.1	
	Current	$A_{(rms)}$	5.7	11.0	15.2	37.1	40	86.4	96	±10%
Max Speed		rpm	3,500	4,000	4,000	4,100	3,600	2,920	3,300	
Torque Sensitivity		$N·m/A_{(rms)}$	0.109	0.101	0.11	0.125	0.135	0.183	0.167	
Phase Back EMF constant		$V_{(rms)}/krpm$	3.8	4.12	4.35	4.75	4.7	6.71	5.82	±10%
Phase Resistance		mΩ	0.81	360.0	144.4	60.1	29.8	24.1	14.16	±10%
Phase Inductance		mH		1.05	0.5	0.247	0.155	0.052	9.55	±30%
Rotor Inertia		$x10^{-4}$ kg·m²	0.0356	0.0664	0.132	0.423	0.723	7.98	F	
Insulation Class		-	F	F	F	F	F	F		

Control Box and Devices CONTROLLER & DEVICES

Dedicated control box and accessories for Neuromeka collaborative robots

Neuromeka's control box integrates essential robot functions, including motion control, power supply, safety features, I/O, and communication systems. Safety devices include an emergency stop button for immediate robot shutdown, a remote robot program control button, and an IndyKey device with an integrated EMO function.

The control box is equipped with handles for easy transportation, and a separate mounting board helps protect the unit while allowing for flexible installation in various field environments.

		NC15	NC30
Size		420 mm x 290 mm x 244 mm	420mm x 290 mm x 244 mm
Weight		10 kg	12 kg
Input Power	Voltage	100-240 Va.c	100-240 Va.c
	Current	Rated 10 A (100 VAC) / 7 A (240 VAC)	Rated 20 A (100 VAC) / 15 A (240 VAC)
	Frequency	50 / 60 Hz	50 / 60 Hz
Input	Power Fuse	20 A	20 A
Output Power	Voltage	48 VAC, 24 VAC	48 VAC, 24 VAC
	Current	Rated 20 A (48 VAC, 110 VAC input) / 25 A (48 VAC, 240 VAC input)	Rated 40 A (48 VAC, 110 VAC, 240 VAC input)
	Frequency	50 / 60 Hz	50 / 60 Hz
I/O	I/O Output	Digital: Max 24 V(PNP) / 0.75 A, Analog: 0 - 10 V	Digital: Max 24 V (PNP) / 0.75 A, Analog: 0 - 10 V
	I/O Channels	Digital (PNP): DI (16) / DO (16), Analog: AI (2) / AO (2)	Digital (PNP): DI (16) / DO (16), Analog: AI (2) / AO (2)
	Safety IO	Digital (PNP): DI (4) / DO (4)	Digital (PNP): DI (4) / DO (4)
	I/O Power Supply	Max 24 V / 3 A	Max 24 V / 3 A
Communication	Protocols	Ethernet, EtherCAT, TCP / IP, Modbus TCP, USB 3.0	Ethernet, EtherCAT, TCP / IP, Modbus TCP, USB 3.0
Cable Configuration	Cable	IndyKey: 3 M	IndyKey: 5 M
		Robot Cable: 5 M	Robot Cable: 5 M
Operating Environment	Operating Temperature	0 °C to + 50 °C	0 °C to + 50 °C
	Storage Temperature	0 °C to + 50 °C	0 °C to + 50 °C
	Humidity	10 to 90% (non-condescending, operating)	10 to 90% (non-condescending, operating)

		CB 3.0
Input	Voltage	100 - 240 VAC (Operating), 110/230 VAC (Nominal)
	Frequency	Nominal 50 / 60 Hz
	Power Fuse	240 V (Rated voltage) Internal 30 A Circuit breaker
Output	Power	48 VDC, Max 1,500 W/ 3,000 W
I/O	I/O Output	Digital: Max 24 V (PNP) / 0.75 A, Analog: 0-10 V
	I/O Channels	Digital: 16 / 16, Analog: 2 / 2
	I/O Power Supply	Max 24 V / 3 A
Communication	Protocols	Ethernet, EtherCAT, TCP / IP, Modbus TCP
IP	IP Rating	IP 2X
Cable Configuration	Cable	Teach Pendant Cable: 5 m / 196.85 in
		Robot Cable: 5 m / 196.85 in
Operating Environment	Operating Temperature	0 °C to + 50 °C
	Storage Temperature	0 °C to + 50 °C
	Humidity	10 to 90 % (non-condensing, operating)

nPad

Hardware Type: Wired Teach Pendant

	nPad
Dimensions	290 mm × 190 mm × 80 mm
Weight	840 g
Connection	Wired
Display	10.1-in LCD with a resolution of 1920 x 1200
IP Rating	IP54

*NC Series models are not compatible.

IndyKey

A controller that connects to the control box to execute robot programs or cut power in emergency stop situations. The LED display allows users to check robot status and error conditions, while providing control functions including robot reset, auto/manual mode switching, motion speed adjustment, and program execution pause. Up to 20 Indy programs can be stored.

		Indykey
Electrical Specifications	Power Consumption	12 V / 0.5 A
	Components	MCU, Key, Switch, 7 Segment LED
Cable Specifications	Rated Voltage	300 V
	Rated Temperature	80 °C
	Operating Voltage	DC 12 V, 24 V
	Length	5 M
	Communication	RS485

IndyKey + Pad Coalescence

* Examples of Cradle Use

*Cradle (Sold separately)

Robot Control Box

Real-time embedded EtherCAT master robot controller

STEP provides a software framework called NRMKPlatform SDK for real-time control application development in a Hard Real-time OS environment based on Linux/Xenomai. It also provides a development environment running on MS Windows® OS, allowing engineers to develop embedded control programs without requiring extensive Linux experience.

For high-speed real-time multi-axis synchronization and distributed control, STEP adopts the open-source EtherCAT master stack EtherLab, which has been proven in various industrial systems. It provides a programming interface based on the CANopen-over-EtherCAT (CoE) protocol for standard EtherCAT-based real-time control application development. Various software tools are provided for automatic generation of basic CoE-based application code. RS485 and CAN interfaces are included as standard for connecting various devices. NRMKPlatform SDK also supports real-time CAN functionality and includes the open-source CANopen framework software CanFestival for real-time CAN-based application development.

STEP2, which provides real-time control for Neuromeka's collaborative robot Indy, supports 4 kHz model-based impedance control. The high-performance STEP3 controller is designed for advanced robotics applications, providing enhanced computing performance and expanded capabilities for complex robot control, research, and development environments.

Certification

STEP2
STEP3

STEP2Plus

	STEP2 Plus	STEP3
Platform	Fanless Braswell Industrial PC	Skylake Industrial PC
CPU	Intel® Alder Lake-N Processors IMB-1007J(N97, QC, Max Speed Up to 3.6GHz, 12W)	Intel Skylake i7-6700K(3.4 GHz)
RAM	8GB DDR5	8GB DDR4
Storage	128 g(M.2(Key M, 2242/2280) with PCIe Gen3)	128 g SSD
Ethernet	1 port	1 port
EtherCAT	1 port	1 port
GPIO	7 pin(Only 7 pins excluding GND and 3.3V out of Dsub 9 pins are available)	N/A
RS485/422	1 port	1 port
RS232	3 port	1 port
Dim	212 mm x 198 mm x 62 mm	350 mm x 265 mm x 182 mm
Optional	-	Geforce GTX 1080 Ti

Accessories

Custom tools for
collaborative robots

INDY ACCESSORIES

Neuromeka provides a range of tools and accessories required for collaborative robot applications at competitive prices. Through partnerships with established industrial robot tool manufacturers, we offer optimized solutions to meet various user needs. Available accessories include grippers for efficient workpiece handling, lightweight 6-axis force/torque (F/T) sensors for measuring robot and external forces, and mobile bases for easy robot installation and transportation.

	IndyHand(Robot Hand)
Type	Fully actuated robot hand(3-finger)
Weight	1.9 kg
DOF	11
Algorithm	Advanced blind grasping algorithm
Control	Torque control
Actuator	DYNAMIXEL(ROBOTIS)
Features	Flexible grip with three fingers and eleven DOF

	BASE(Mobile Base)
Weight	About 50 kg
Height	420 mm or 685 mm
Features	Axial folding mobile base

AIDIN	AFT200-KIT-NRMK c(CAN)
Weight	635 g(Sensor 236 g, Bracket 399 g)
Operating voltage	5 VDC
Max. Safe excitation voltage	12 VDC
Nominal force range	200 N
Nominal torque range	15 Nm
Resolution(Fxyz)	0.15 N
Resolution(Txyz)	0.015 Nm
Dimensions	80 mm x 56.3 mm
IP Rating	IP56
Operating temperature	10-60 °C

GIMATIC	Gripper(MPLM 1630)
Gripping Force	63 N
Stroke	2 mm x 15 mm
Jaw Closing Time	0.37 s
Power Supply	24 Vdc
Nominal Current	0.3 A
Weight	263 g
Feature	Optimized electric gripper for collaborative robots

DH-ROBOTICS	Gripper(PGE-50-26)
Gripping force (per jaw)	10 to 50 N
Stroke	26 mm
Opening/Closing Time	0.3 s
Repeat Accuracy (Position)	± 0.03 mm
Noise Emission	< 40 dB
Weight	0.4 kg
Driving Method	Precise planetary gears + Rack and pinion
Size	97 mm x 55 mm x 29 mm
Vertical Maximum Force	Fz: 150 N
Allowable Moment	Mx: 2.5 N·m, My: 2 N·m, Mz: 3 N·m
Recommended Workpiece Weight	1 kg
Communication Interface	Standard: Modbus RTU (RS485), Digital I/O Optional: TCP/IP, USB2.0, CAN2.0A, PROFINET, EtherCAT

ROBOTIQ	Gripper(2F140)
Stroke	140 mm
Grip Force	10 to 125 N
Form-Fit Grip Payload	2.5 kg
Friction Grip Payload	2.5 kg
Gripper Weight	1 kg
Closing Speed	30 to 250 mm/s
Ingress protection (IP) rating	IP40

APICOO	Gripper(SusGrip)
Power Supply	12 Vdc
Stroke	132 mm
Velocity	10 to 50 mm/s
Maximum Current	4 A
Communication Interface	Digital I/O, Modbus RTU (RS485)

Robot Software

Innovative collaborative robot control engine

INDYFRAMEWORK

IndyFramework 3.4 is a software framework designed for the efficient development of collaborative robot applications. It operates on Neuromeka's robot controller, STEP, and allows robot control at up to 8KHz(for STEP3). With a universal and robust control algorithm library that can handle the kinematic advantages and model uncertainties of multi-joint robots, as well as an innovative collision detection algorithm, it allows for the safe implementation of various robotic tasks. Additionally, it includes various system functions for building automation systems and remote maintenance capabilities, and is designed with a software structure that allows for future expansion of additional features.

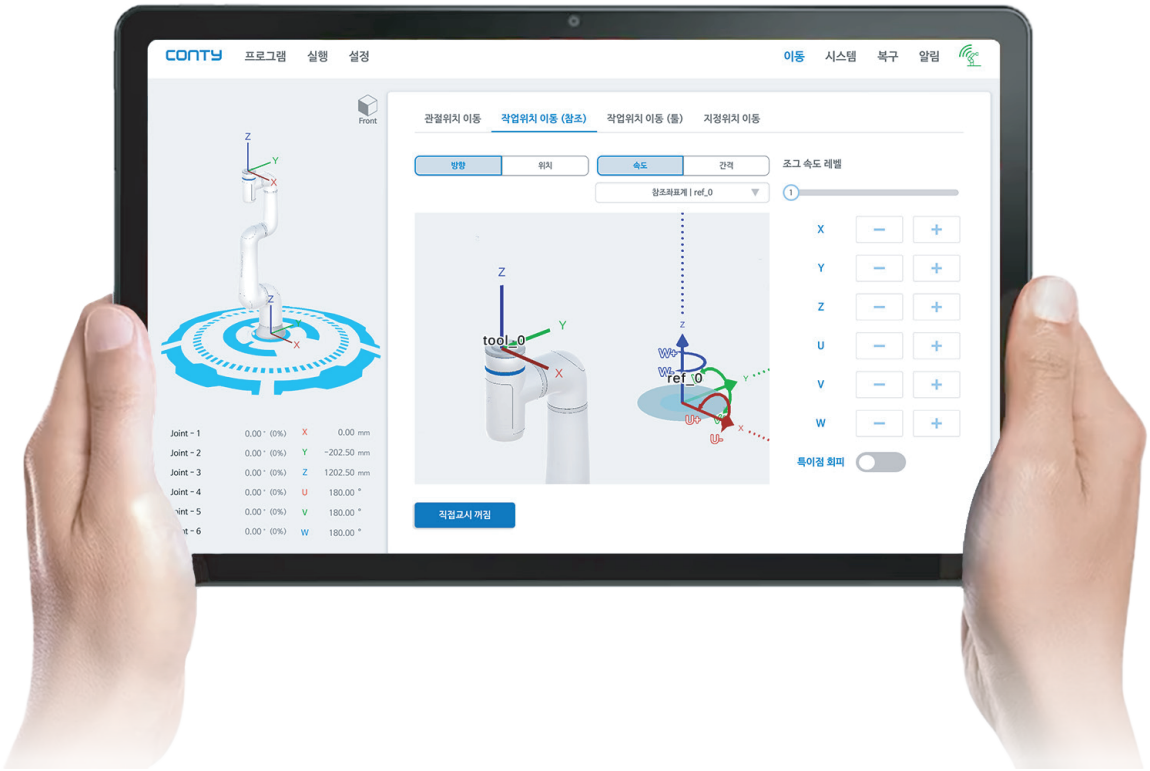
Feature	Specification
High-speed control based on a hard real-time OS	Native EtherCAT master running on the real-time OS Xenomai, optimized for STEP Maximum 8 kHz robot control cycle (4 kHz for STEP2)
Universal multi-joint robot control library	Kinematics and dynamics algorithms for efficient robot structures Robust control algorithm based on nonlinear H-infinity optimal control Stable workspace control near kinematic singularities Impedance control compliance algorithm in 3D space Various path planning and interpolation algorithms for joint and workspace
Stability and convenience for operation without fences	Power and force limiting function based on collision detection Continuous joint speed, current monitoring, and real-time limitation functionality Online programming: Joint and frame motion programming through the Android teach pendant app, CONTY Direct teaching: Program joint motion by manually moving the robot joints Constrained teaching: Provides guidance to move the robot end effector in a specific direction only when programming frame motion
Various system features for easy automation system setup	Standard modules such as electric grippers, electromagnetic grippers, vacuum suction cups, and automatic screwdrivers Fully isolated DIO (16 channels each), high-performance AIO (2 channels each) External EtherCAT node device interface through internal EtherCAT hub External PLC and controller interfaces such as TCP/IP, Modbus (SDK programming required depending on the case)
Smart remote maintenance	Remote online software updates (for CONTY, real-time robot control runtime, motor driver firmware, etc.) Automatic log file transmission for remote error diagnosis Webcam-based operational black box for remote site monitoring
Scalable robot software architecture	Expandability of control logic based on a plugin structure Python-based robot motion script programming SDK for developing robot functionality extensions

Teach Pendant App

A teach pendant app designed for intuitive collaborative robot programming

CONTY is a teach pendant app independently developed by Neuromeka for programming all Neuromeka collaborative robots. It runs on standard Android OS tablets and connects to the robot controller STEP via wired or wireless communication, allowing both online and offline programming as well as direct teaching for Neuromeka's collaborative robot Indy.

With its intuitive interface and feature-rich functionality, CONTY allows users to program collaborative robots easily and efficiently, even without extensive robotics experience.



*CONTY is compatible with standard Android OS tablets and can be used immediately after installation.

Default Tablet Specification

	Included Tablet Specification		
CPU	Qualcomm® Snapdragon™ SDM680	WLAN	802.11 a/b/g/n/ac & Bluetooth® 5.1
Display	10.61"(2000 x 1200), IPS, TDDI LCD, 400 nits	Storage	128 GB UFS 2.2
OS	Android	Camera	8MP FF + 8MP AF
Memory	4 GB LPDDR4X	AC Adapter	10 W
Battery	2 Cell Li-Polymer 7700 mA/Hr		

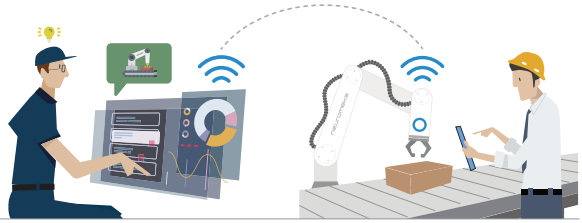
Remote Management Services

The foundation of smart factory operations through remote robot management

IndyCARE is a web-based service designed for remote management of collaborative robots. Accessible from anywhere via the internet, it provides real-time monitoring of robot status, operational data, and event logs for abnormal conditions.

Operational data includes basic robot cycle counts, individual joint temperature readings, and up to three additional user-defined input channels. A connected web camera also allows live video streaming from the robot's worksite.

IndyCARE automatically records event logs and video footage for collisions and emergency stop events, allowing detailed root cause analysis and supporting remote maintenance and customer service by engineers.



Functions	Features
Real-time robot status monitoring	Confirmation of whether operation has started Remote management via monitoring of emergency stop and abnormal situations (email alert when abnormal situation occurs)
Operational data tracking	Measurement of production volume by collecting robot operation count data Abnormal monitoring by measuring each joint's temperature Customizable data values per user preference
Worksite video streaming	Real-time transmission of field conditions to managers via cameras connected to 'IndyCARE' Visual check of collaborative robot status without going to the field
Event log collection	Collection of log files for collaborative robot status changes (collisions, emergency stops, etc.) Follow-up monitoring capability for situations missed by managers Reduction of maintenance time and costs through rapid root cause analysis of robot abnormalities

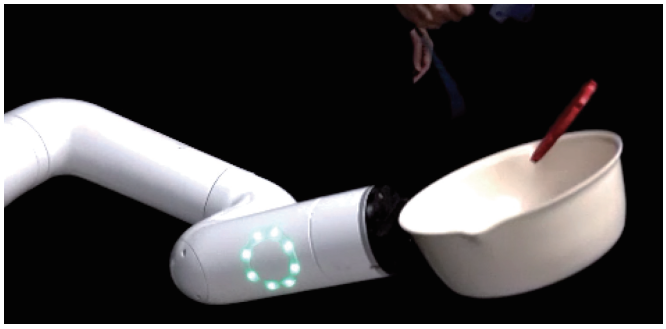
TECHNOLOGY

Robot Teaching

Direct Teaching

Neuromeka's direct teaching technology allows users to move the robot manually using a handheld device, enabling them to teach complex tasks easily. This intuitive approach simplifies task programming compared to traditional methods, significantly improving speed and accessibility. Particularly for collaborative robots, teleoperation enhances human-robot interaction, boosting efficiency and safety when teaching robots to perform intricate tasks.

User-Friendly Control	Create various task motions without complex programming.
Flexible and Efficient Tasks	Accelerates the task teaching process and handles advanced tasks that are difficult with traditional methods.
Enhanced Collaboration	Improves interaction between users and robots through real-time adjustments during the teaching process.



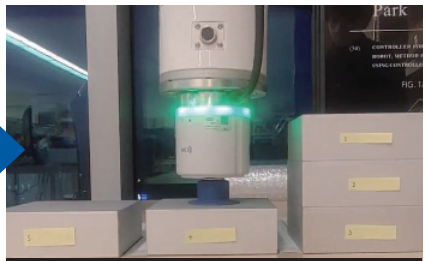
Voice Teaching

Neuromeka's voice teaching technology uses AI to enable voice commands for its collaborative robots, allowing users to give instructions using natural language. This innovative feature eliminates the need for complex programming or manual operation, making it easy for anyone to use. By offering a more intuitive and user-friendly way to interact with robots, voice teaching streamlines workflows and enhances efficiency.

AI-Based Natural Language Control	Easily operate the robot with user-friendly voice commands.
Task Instruction Without Programming	Save time and effort by instructing tasks through voice commands without complex programming.
Accessible for Everyone	Interact with the robot without needing specialized technical knowledge, enhancing accessibility.

STT(Speech to Text)

Language Processing
(LLM - Large Language Model)



Operating

Imitation Learning

Neuromeka's collaborative robot, Indy, is equipped with imitation learning technology, allowing the robot to observe and learn tasks demonstrated by the user through remote control. Once the robot has observed the demonstration, it can replicate the task. This innovative method allows users to teach robots complex and diverse tasks, expanding the potential applications of robots in both industrial and everyday settings. Imitation learning is particularly effective for non-standardized tasks that were difficult to implement using previous teaching methods, allowing robots to adapt flexibly to complex and dynamic work environments.

Intuitive Task Training	Easily operate the robot with precise movements, without the need for complex programming.
Capability for Complex Tasks	Accelerates the task training process and enables handling of advanced tasks that were challenging with traditional methods.
Flexible Adaptability to Environments	Enhances interaction between users and robots through real-time adjustments during the training process.

Control & Safety

Sensorless Compliance Control

Sensorless compliance control is an advanced technology that allows the robot to adapt to external forces without requiring expensive force/torque (F/T) sensors or joint torque sensors (JTS). By utilizing enhanced algorithms, this system allows the robot to adjust its movements in response to unexpected contact, ensuring smooth and safe operation while maintaining high safety standards.

Cost-Effective Solution

No additional sensors are required, significantly reducing hardware costs.

Enhanced Safety

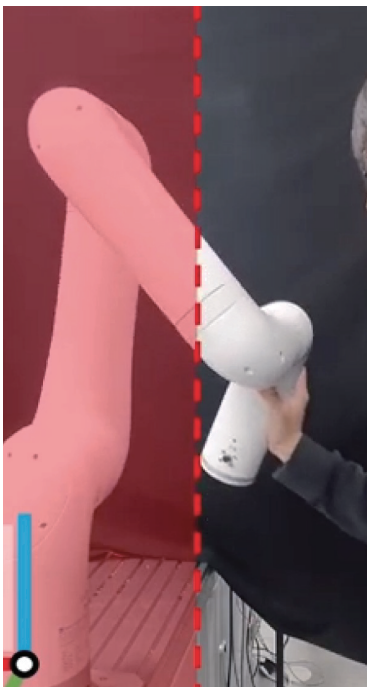
The robot intuitively responds to external forces, preventing potential damage during unexpected interactions.

Smooth Operation

Performs safe and reliable tasks in dynamic environments without compromising performance.

Safety Filter

Safety filter technology ensures that the robot operates within designated safe zones, preventing self-collisions or contact with surrounding objects during remote operation and task training. By setting virtual boundaries, the system protects the robot's structure and environment, even during fast or complex movements.



Collision Prevention

The robot prevents self-collisions and unintended contact with surrounding objects.

Enhanced Safety

Maintains strict operational boundaries to ensure safe and reliable robot movements.

Improved Reliability

Provides consistent protective features during training and operation, ensuring the robot can operate safely in dynamic environments.

Headquarters 78 Achasan-ro, Seongdong-gu, Seoul 04782, South Korea

Pohang Branch 698-2 Jukcheon-ri, Heunghae-eup, Buk-gu, Pohang, Gyeongbuk 37948, South Korea

Daegu Branch 402 Robot Innovation Center, 75 Nowon-ro, Buk-gu, Daegu 41496, South Korea

U.S. Office 1501 Panther Loop, Building 4B, Pflugerville, TX 78660, USA

Vietnam Office Room 03-07, Level 3, Tower 1, OneHub Saigon, Plot C1-2, D1 Street, Saigon Hi-Tech Park, Tan Phu Ward, District 9, Ho Chi Minh City, Vietnam

China JV No.5-72 Yunhan RD,Shuitu Hi-tech industrial Zone,Chongqing,P.R,China

KRC Hangzhou 5th Floor, Building 2, Jiqiren Xiaozhen, No. 389 Hongxing Road, Xiaoshan District Economic Development Zone, Hangzhou, Zhejiang, China

neuromeka

Website www.neuromeka.com

Main Phone 1661-0773

Fax 070-4032-3327

Sales sales@neuromeka.com

Marketing/PR pr@neuromeka.com

Technical Support technical-support@neuromeka.com

Online Manual http://docs.neuromeka.com

GitHub http://github.com/neuromeka-robotics