

JIS

JAPANESE INDUSTRIAL STANDARD

Glossary of Terms for Industrial Robots

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Glossary of Terms for Industrial Robots

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1. Scope

This Japanese Industrial Standard specifies main terms used for industrial robots, their readings and meanings.

2. Classification

The terms shall be classified as follows:

- (1) Classification of industrial robots
 - (a) General classification
 - (b) Classification through control
 - (c) Classification through action mechanism
- (2) Basic terms concerning mechanisms and functions
- (3) Basic terms concerning performance and characteristics
- (4) Terms concerning tasks
- (5) Terms concerning operation and control
- (6) Terms concerning intelligence and language
- (7) Terms concerning safety and reliability

Applicable Standards:

- JIS B 0181-Glossary of Terms for Numerically Controlled Machine Tools
JIS Z 8115-Glossary of Terms Used in Reliability
JIS Z 8116-Glossary of Terms Used in Automatic Control (General)



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3. Numbers, Terms, Readings and Meanings

The numbers, terms, readings and meanings shall be as follows.

Further, the equivalent English are shown for reference.

(1) Classification of Industrial Robots(a) General Classification

No.	Term	Meaning	Equivalent English (for reference)
1110	SŌJŪ ROBOTTO	A robot which is capable to conduct the task by man's direct operation of a part or all of the tasks to be conducted by robot.	operating robot
1120	SHĪKENSU ROBOTTO	A robot which conducts the each step of action in sequence according to the preset information (of sequence, conditions, positions, etc.)	sequence control robot
1130	PUREI BAKKU ROBOTTO	A robot which is capable to conduct the task according to the information of sequence, conditions, positions and others which man teaches by moving the robot.	playback robot
1140	SŪCHI SEIGYO ROBOTTO	A robot which is capable of conducting the task according to the information of sequence, conditions, positions and others taught by numerical values, language etc. without moving robot.	numerically controlled (NC) robot
1150	CHINŌ ROBOTTO	A robot which is capable of determining its action by artificial intelligence. Remark: Artificial intelligence designates the artificially realized cognitive, learning, abstract-thinking, environment adapting etc. abilities.	intelligent robot

No.	Term	Meaning	Equivalent English (for reference)
1151	KANKAKU SEIGYO ROBOTTO	A robot which controls its action with using sensory information.	sensory controlled robot
1152	TEKIŌ SEIGYO ROBOTTO	A robot which has adaptive control function. Remark: The adaptive control function designates the control function which changes the characteristics of control responding to the changes of environment and the like to meet the required conditions.	adaptive controlled robot
1153	GAKUSHŪ SEIGYO ROBOTTO	A robot which has learning control function. Remark: The learning control function designates the control function which reflects its working experiences and the like to conduct adequate actions.	learning controlled robot

(b) Classification Through Control

No.	Term	Meaning	Equivalent English (for reference)
1121	SĀBO SEIGYO ROBOTTO	A robot which is controlled by servo mechanism. Remark: There are position servo, force servo, software servo etc.	servo-controlled robot
1212	NONSĀBO SEIGYO ROBOTTO	A robot which is controlled by means of other than servo mechanism.	nonservo-controlled robot
1221	SHĪPI SEIGYO ROBOTTO	A robot whose motion is controlled by CP control. Remark: CP control designates the control in which the total trajectory or total path is indicated.	continuous path (CP) controlled robot

No.	Term	Meaning	Equivalent English (for reference)
1222	PĪTĪPĪ SEIGYO ROBOTTO	A robot whose motion is controlled by PTP control. Remark: PTP control designates the control in which the passing points on the path are indicated at intervals.	point-to-point (PTP) controlled robot

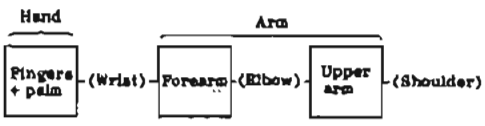
(c) Classification Through Action Mechanism

No.	Term	Meaning	Equivalent English (for reference)
1301	CHOKKAKU ZAHYŌ ROBOTTO	A robot whose action mechanism is in the form of rectangular coordinate system in the main.	rectangular robot, Cartesian robot
1302	ENTŌ ZAHYŌ ROBOTTO	A robot whose action mechanism is in the form of cylindrical coordinate system in the main.	cylindrical robot
1303	KYOKU ZAHYŌ ROBOTTO	A robot whose action mechanism is in the form of polar coordinate system in the main.	polar robot, spherical robot
1304	KANSETSU ROBOTTO	A robot whose action mechanism is constructed with articulated joints in the main.	articulated robot

(2) Basic Terms Concerning Mechanisms and Functions

No.	Term	Meaning	Equivalent English (for reference)
2001	MANIPYURĒTA	Mechanism which has functions similar to the human upper limb and moves objects spacially.	manipulator
2002	MANYUARU MANIPYURĒTA	Manipulator operated directly by man.	manual manipulator
2003	MANIPYURĒ- TINGU ROBOTTO	A robot which has functions similar to human upper limb.	manipulating robot

No.	Term	Meaning	Equivalent English (for reference)
2004	KOTEI SHĪKENSU ROBOTTO	A sequence robot whose set information may not easily be changed.	fixed sequence robot
2005	KAHEN SHĪKENSU ROBOTTO	A sequence robot whose set information can be easily changed.	variable sequence robot
2006	IDŌ ROBOTTO	A robot which has mobile function. Remark: There are those to move only and those to move in working.	mobile robot, locomotive robot
2007	ZETTAI ZAHYŌKEI	Coordinate system set independently of robot. Baseplane is usually taken as base.	world coordinate system
2008	KIKAI ZAHYŌKEI	Coordinate system peculiar to the robot determined by its structure.	base coordinate system
2009	TEKUBI ZAHYŌKEI	Coordinate system determined by taking wrist of robot as reference.	wrist coordinate system
2010	SAGYŌ ZAHYŌKEI	Coordinate system determined by the task.	task coordinate system
2011	SETCHI KIJUN-MEN	A plane on which the robot is set. Remark: In general, it is floor, wall, ceiling, etc.	baseplane
2012	KIKAI GENTEN	Peculiar reference point concerning degree of freedom of each motion.	mechanical origin
2013	SAGYŌ GENTEN	Reference point concerning the task of robot.	task origin
2014	MOJŪRU	One set of functions or construction unit of mechanism.	module
2015	JOINTO	Mechanism in which the action is realized by rectilinear motion or turning pair.	joint

No.	Term	Meaning	Equivalent English (for reference)
2016	NŌDŌ JOINTO	One kind of joints which is driven directly by an actuator.	active joint
2017	JUDŌ JOINTO	One kind of joints which is not driven directly by an actuator.	passive joint
2018	KANSETSU	A joint in which the purpose of action is realized by turning pair. Remark: In fingers, this is often called simply as SETSU.	revolute joint
2019	SHIJI HONTAI	A part attached with arms and feet.	support structure
2020	UDE	A part which has functions similar to those of human arm. Remark: 	arm, (primary axes)
2021	KANSETSU UDE	An arm of structure equipped with revolute joints.	articulated arm
2022	TEKUBI	A part at the end of arm with function to fit a hand. Remark: It has, in general, a function to determine orientation.	wrist, (secondary axes)
2023	TE	A part with function similar to human hand. Remark: This is also called as HANDO, MEKANIKARU HANDO (mechanical hand).	hand
2024	YUBI	Parts at the top end of hand with functions to pinch, clasp etc. the objects.	finger
2025	ENDO EFEKUTĀ	A part of robot which has a function to act directly on work object. Remark: MATTAN KŌKAKI. It is also called simply as KŌKAKI.	end effector

No.	Term	Meaning	Equivalent English (for reference)
2026	ASHI	A part with functions similar to those of human foot.	foot, leg
2027	SAKUJŌ NŌDŌTAI	Mechanism with many joints to conduct freely the functions of transfer or positioning.	sinuate active mechanism
2028	HOJI	A function of robot to restrict the degree of freedom of motion of the object without using fingers. Remark: As for the hold without fingers, there are support type, attraction type, etc.	hold without fingers
2029	HAAKU	A function of robot to restrict the degree of freedom of motion of the object with using fingers. Remark: There are forms of pinch, clasp and clutch.	grip, grasp
2030	HAJI	General term for hold without fingers and grip. Remark: The term hold includes grasp, attraction etc.	hold
2031	HAJI KINŌ	A function concerning hold.	holding function
2032	SAGYŌ KINŌ	A function of robot concerning working.	working function
2033	MANIPYURĒSHON KINŌ	Functions concerning spacial and temporal motions of arm, hand, etc.	manipulation function
2034	IDŌ KINŌ	Functions concerning locomotion by means of foot, wheel, etc. Remark: The running function is a kind of the locomotive functions.	locomotive function
2035	SEIGYO KINŌ	A function concerning control of robot. Remark: There are working control function, teaching function, manual operating function, etc.	control function

No.	Term	Meaning	Equivalent English (for reference)
2036	SAGYŌ SEIGYO KINŌ	A function concerning control at the time of practice of working.	working control function
2037	UNDŌ SEIGYO KINŌ	A function concerning the control of mechanical quantities such as trajectory, force, etc. among the working control functions.	motion control function
2038	DŌSA JUNJO SEIGYO KINŌ	A function concerning the control of motion sequence among the working control functions.	motion sequence control function
2039	SŌJŪ KINŌ	A function in which man operates directly.	manual operating function
2040	KYŌJI KINŌ	A function concerning the teaching of robot.	teaching function
2041	KEIRO	Spacial locus of motion of the indicated point relating to the structure of robot.	path
2042	KIDŌ	A temporal, spacial locus of motion of the indicated point relating to the structure of robot.	trajectory
2043	ICHIGIME SEIGYO	Control required to arrive at the target point determined independently of path.	positioning control
2044	KIDŌ SEIGYO	Control required to trace the indicated trajectory.	trajectory control
2045	KIDŌ SEISEI	Generation of trajectory to move along.	trajectory generation
2046	SHĪPĪ SEIGYO	Control in which the total trajectory or total path is indicated.	continuous path control
2047	PĪTĪPĪ SEIGYO	Control in which the passing points on path are indicated point-to-point.	point-to-point control