

BUREAU OF INDIAN STANDARDS

Program of Work

PGD 18 : Industrial Automation Systems And Robotics

Scope: a) Standardization in the field of industrial automation systems and integration concerning discrete part manufacturing and encompassing the application of multiple technologies i.e. information systems, machines, equipment communication (Bus communication, telecommunication etc. excluded): - Process automation; - Electrical electronics equipment; - Programmable logical controllers for general application; - Sensors. b) Standardization in the field of Robotics.

Liaison: **ISO TC-184 (P): Automation systems and integration ISO TC-184 SC-1 (P): Industrial cyber and physical device control ISO TC-184 SC-4 (P): Industrial data ISO TC-184 SC-5 (P): Interoperability, integration, and architectures for enterprise systems and automation applications ISO TC-299 (P): Robotics**

Published Standards

S.No	IS No.	TITLE	Reaffirm M-Y	No. of Amds	Eqv.
1	IS/ISO 10303-1 : 2021 ISO 10303-1 : 2021 ISO 10303-1 : 2021	Industrial automation systems and integration -- Product data representation and exchange: Part 1 Overview and fundamental principles		-	Identical under single numbering
2	IS 13450 (Part 4/Sec 1) : 2020 IEC TR 60601-4-1 : 2017 IEC 60601-4-1:2017	Medical electrical equipment: Part 4 Guidance and interpretation: Section 1 Medical electrical equipment and medical electrical systems employing a degree of autonomy		-	Identical under dual numbering
3	IS 13547 (Part 1) : 2010 Reviewed In : 2020 ISO 9409-1 : 2004	Manipulating industrial robots -- Mechanical interfaces: Part 1 Plates (second revision)	February, 2020	-	Identical under dual numbering
4	IS 13547 (Part 2) : 2010 Reviewed In : 2020 ISO 9409-2 : 2002	Manipulating industrial robots -- Mechanical interfaces: Part 2 Shafts (first revision)	February, 2020	-	Identical under dual numbering
5	IS/ISO 13584-1 : 2001 ISO 13584-1 : 2001 Reviewed In : 2021 ISO 13584 : Part 1 : 2001	Industrial automation systems and integration -- Parts library: Part 1 Overview and fundamental principles	April, 2021	-	Identical under single numbering
6	IS 14530 (Part 1) : 2019 ISO 10218-1 : 2011 ISO 10218-1 : 2011	Robots and robotic devices -- Safety requirements for industrial robots: Part 1 Robots (first revision)		-	Identical under dual numbering

7	IS 14530 (Part 2) : 2019 ISO 10218-2 : 2011 ISO 10218-2 : 2011	Robots and robotic devices -- Safety requirements for industrial robots: Part 2 Robot systems and integration (first revision)		-	Identical under dual numbering
8	IS 14531 : 2005 ISO 9946 Reviewed In : 2020 ISO 9946 : 1999	Manipulating industrial robots -- Presentation of characteristics (first revision)	February, 2020	-	Identical under dual numbering
9	IS 14533 : 2005 ISO 9283 Reviewed In : 2020 ISO 9283 : 1998	Manipulating industrial robots -- Performance criteria and related test methods (first revision)	February, 2020	-	Identical under dual numbering
10	IS 14662 : 2024 ISO 8373 : 2021 ISO 8373 : 2021	Robotics Vocabulary		-	Identical under dual numbering
11	IS 14663 : 2018 ISO 9787 : 2013 Reviewed In : 2023 ISO 9787 : 1990	Robots and robotic devices -- Coordinate systems and motion nomenclatures (first revision)	January, 2023	-	Identical under dual numbering
12	IS 14776 (Part 1) : 2000 ISO/TR 10314-1 Reviewed In : 2020 ISO/TR 10314-1 : 1990	Industrial automation -- Shop floor production: Part 1 Reference model for standardization and a methodology for identification of requirements	February, 2020	-	Identical under dual numbering
13	IS 14776 (Part 2) : 2000 ISO/TR 10314-2 Reviewed In : 2020 ISO/TR 10314-2 : 1991	Industrial automation -- Shop floor production: Part 2 Application of the reference model for standardization and methodology	February, 2020	-	Identical under dual numbering
14	IS 15034 : 2001 ISO/TR 13309 Reviewed In : 2023 ISO-R 13309:1995	Manipulating industrial robots - Informative guide on test equipment and metrology methods of operation for robot performance evaluation in accordance with is 14533:1998	January, 2023	-	Identical under dual numbering
15	IS 15291 : 2024 ISO 11593 : 2022 ISO 11593 : 2022	Robots for industrial environments – Automatic end effector exchange systems – Vocabulary (First Revision)		-	Identical under dual numbering
16	IS 15292 : 2003 ISO 15187 Reviewed In : 2013 ISO 15187:2000	Manipulating industrial robots - Graphical user interfaces for programming and operation of robots (Gui - R)		-	Identical under dual numbering
17	IS 15296 : 2017 ISO 11161 Reviewed In : 2022 ISO 11161	Industrial Automation Systems - Safety of Integrated Manufacturing Systems - Basic Requirements	January, 2022	-	Identical under dual numbering
18	IS/ISO 15531-1 : 2004 ISO 15531-1 : 2004 Reviewed In : 2023 ISO 15531-1 : 2004	Industrial Automation Systems and Integration- Industrial Manufacturing Management Data Part 1 General Overview	January, 2023	-	Identical under dual numbering
19	IS/ISO 15531-31 : 2004 ISO 15531-31 : 2004 Reviewed In : 2023 IS 15531 : Part 31 :	Industrial? automation? systems?and integration? - ?Industrial manufacturing? management data: Part 31 resource information model	January, 2023	-	Identical under single numbering

	2004				
20	IS/ISO 15531-32 : 2005 Reviewed In : 2023 ISO 15531 : Part 32 : 2005	Industrial automation systems and integration - Industrial manufacturing management data : resources usage management: Part 32 conceptual model for resources usage management data	January, 2023	-	Identical under single numbering
21	IS/ISO 15531-42 : 2005 Reviewed In : 2023 ISO 15531 : Part 42 : 2005	Industrial automation systems and integration - Industrial manufacturing management data: Part 42 time model	January, 2023	-	Identical under single numbering
22	IS/ISO 15531-43 : 2006 Reviewed In : 2023 ISO 15531 : Part 43 : 2006	Industrial Automation Systems and Integration Industrial Manufacturing Management Data Part 43 Manufacturing Flow Management Data : Data Model for Flow Monitoring and Manufacturing Data Exchange	January, 2023	-	Identical under single numbering
23	IS 15571 : 2005 ISO/TR 11065 Reviewed In : 2023 ISO/TR 11065 : 1992	Industrial automation glossary	January, 2023	-	Identical under dual numbering
24	IS 16492 : 2017 ISO 14539 : 2000 Reviewed In : 2021 ISO 14539 : 2000	Manipulating industrial robots - Object handling with grasp - Type grippers - Vocabulary and presentation of characteristics	April, 2021	-	Identical under dual numbering
25	IS 16530 (Part 1) : 2016 ISO 16100-1 : 2009 Reviewed In : 2021 ISO 16100-1 : 2009	Industrial automation systems and integration - Manufacturing software capability profiling for interoperability: Part 1 framework	April, 2021	-	Identical under dual numbering
26	IS 16530 (Part 2) : 2016 ISO 16100 - 2 : 2003 Reviewed In : 2021 ISO 16100-2 : 2003	Industrial automation systems and integration - Manufacturing software capability profiling for interoperability part 2 profiling methodology	April, 2021	-	Identical under dual numbering
27	IS 16530 (Part 3) : 2017 ISO 16100-3 : 2005 Reviewed In : 2021 ISO 16100-3 : 2005	Industrial automation systems and integration - Manufacturing software capability profiling for interoperability: Part 3 interface services, protocols and capability templates	April, 2021	-	Identical under dual numbering
28	IS 16530 (Part 4) : 2016 ISO 16100 4 : 2006 Reviewed In : 2021 ISO 16100-4 : 2006	Industrial automation systems and integration - Manufacturing software capability profiling for interoperability: Part 4 conformance test methods, criteria and reports	April, 2021	-	Identical under dual numbering
29	IS 16608 : 2018 ISO 13482 ISO 13482 : 2014	Robots and robotic devices - Safety requirements for personal care robots		-	Identical under dual numbering
30	IS 17192 (Part 1) : 2019 ISO 18646-1 : 2016 Reviewed In : 2023 ISO 18646-1	Robotics " Performance Criteria and Related Test Methods for Service Robots Part 1 Locomotion for Wheeled Robots	August, 2023	-	Identical under dual numbering

31	IS 17192 (Part 2) : 2020 ISO 18646-2 : 2019 ISO 18646-2:2019	Robotics â€™ Performance Criteria and Related Test Methods for Service Robots Part 2 Navigation		-	Identical under dual numbering
32	IS 17192 (Part 4) : 2023 ISO 18646-4 : 2021 ISO 18646-4 : 2021	Robotics Performance criteria and related test methods for service robots Part 4: Lower-back support robots		-	Identical under dual numbering
33	IS 17193 : 2019 ISO/TS 15066 ; 2016 Reviewed In : 2023 ISO/TS 15066 : 2016	Robots and Robotic Devices â€™ Collaborative Robots	August, 2023	-	Identical under dual numbering
34	IS 17437 : 2020 ISO 19649 : 2017 ISO 19649:2017	Mobile Robots â€™ Vocabulary		-	Identical under single numbering
35	IS 17691 (Part 1) : 2021 ISO/TR 20218-1:2018 ISO/TR 20218-1:2018	ROBOTICS SAFETY DESIGN FOR INDUSTRIAL ROBOT SYSTEMS PART 1: END-EFFECTORS		-	Identical under single numbering
36	IS 17691 (Part 2) : 2021 ISO/TR 20218-2:2017 ISO/TR 20218-2:2017	ROBOTICS SAFETY DESIGN FOR INDUSTRIAL ROBOT SYSTEMS PART 2: MANUAL LOADUNLOAD STATIONS		-	Identical under single numbering
37	IS 17885 (Part 1) : 2022 ISO 23247-1 : 2021 ISO 23247-1 : 2021	Automation systems and integration Digital twin framework for manufacturing Part 1: Overview and general principles		-	Identical under dual numbering
38	IS 17885 (Part 2) : 2022 ISO 23247-2 : 2021 ISO 23247-2 : 2021	Automation systems and integration Digital twin framework for manufacturing Part 2: Reference architecture		-	Identical under dual numbering
39	IS 17885 (Part 3) : 2022 ISO 23247-3 : 2021 ISO 23247-3 : 2021	Automation systems and integration Digital twin framework for manufacturing Part 3: Digital representation of manufacturing elements		-	Identical under dual numbering
40	IS 17885 (Part 4) : 2022 ISO 23247-4 : 2021 ISO 23247-4 : 2021	Automation systems and integration Digital twin framework for manufacturing Part 4 : Information exchange		-	Identical under dual numbering
41	IS/ISO 20140-1 : 2019 ISO 20140-1 : 2019 ISO 20140-1 : 2019	Automation systems and integration Evaluating energy efficiency and other factors of manufacturing systems that influence the environment Part 1: Overview and general principles		-	Identical under single numbering
42	IS/ISO 20140-2 : 2018 ISO 20140-2 : 2018 Reviewed In : 2023 ISO 20140-2 : 2018	Automation systems and integration Evaluating energy efficiency and other factors of manufacturing systems that influence the environment Part 2: Environmental performance evaluation process	May, 2023	-	Identical under single numbering

43	IS/ISO 20140-3 : 2019 ISO 20140 - 3 : 2019 ISO 20140 - 3 : 2019	Automation systems and integration Evaluating energy efficiency and other factors of manufacturing systems that influence the environment Part 3: Environmental performance evaluation data aggregation process		-	Identical under single numbering
44	IS/ISO 20140-5 : 2017 ISO 20140-5 : 2017 Reviewed In : 2023 ISO 20140-5 : 2017	Automation systems and integration Evaluating energy efficiency and other factors of manufacturing systems that influence the environment Part 5: Environmental performance evaluation data	May, 2023	-	Identical under single numbering
45	IS/ISO 20242-1 : 2005 ISO 20242-1 : 2005 Reviewed In : 2022 ISO 20242-1 : 2005	Industrial automation systems and integration - Service interface for testing applications: Part 1 overview	November, 2022	-	Identical under single numbering
46	IS/ISO 8000-1 : 2022 ISO 8000-1 : 2022 ISO 8000-1 : 2022	Data Quality Part 1: Overview		-	Identical under single numbering
47	IS/ISO 8000-2 : 2022 ISO 8000-2 : 2022 ISO 8000-2 : 2022	Data Quality Part 2: Vocabulary		-	Identical under single numbering
48	IS/ISO 8000-8 : 2015 8000-8 : 2015 8000-8 : 2015	Data Quality Part 8: Information and data quality: Concepts and measuring		-	Identical under single numbering
49	IS/ISO 8000-61 : 2016 ISO 8000-61 : 2016 ISO 8000-61 : 2016	Data Quality Part 61: Data quality management: Process reference model		-	Identical under single numbering
50	IS/ISO 8000-62 : 2018 ISO 8000-62 : 2022 ISO 8000-62 : 2022	Data Quality Part 62: Data quality management: Organizational process maturity assessment: Application of standards relating to process assessment		-	Identical under single numbering
51	IS/ISO 8000-63 : 2019 ISO 8000-63 : 2019 ISO 8000-63 : 2019	Data Quality Part 63: Data quality management: Process measurement		-	Identical under single numbering
52	IS/ISO 8000-64 : 2022 ISO 8000-64 : 2022 ISO 8000-64 : 2022	Data Quality Part 64: Data quality management: Organizational process maturity assessment: Application of the Test Process Improvement method		-	Identical under single numbering
53	IS/ISO 8000-65 : 2020 ISO 8000-65 : 2020 ISO 8000-65 : 2020	Data Quality Part 65: Data quality management: Process measurement questionnaire		-	Identical under single numbering
54	IS/ISO 8000-66 : 2021 ISO 8000-66 : 2021 ISO 8000-66 : 2021	Data Quality Part 66: Data quality management: Assessment indicators for data processing in manufacturing operations		-	Identical under single numbering
55	IS/ISO/TS 8000-82 : 2022	Data Quality Part 82: Data quality assessment: Creating data rules		-	Identical under single numbering

	ISO 8000-82 : 2022 ISO 8000-82 : 2022				
56	IS/ISO 8000-100 : 2016 ISO 8000-100 : 2016 ISO 8000-100 : 2016	Data Quality Part 100: Master data: Exchange of characteristic data: Overview		-	Identical under single numbering
57	IS/ISO 8000-110 : 2021 ISO 8000-110 : 2021 ISO 8000-110 : 2021	Data Quality Part 110: Master data: Exchange of characteristic data: Syntax semantic encoding and conformance to data specification		-	Identical under single numbering
58	IS/ISO 8000-115 : 2018 ISO 8000-115 : 2018 ISO 8000-115 : 2018	Data Quality Part 115: Master data: Exchange of quality identifiers: Syntactic semantic and resolution requirements		-	Identical under single numbering
59	IS/ISO 8000-116 : 2019 ISO 8000-116 : 2019 ISO 8000-116 : 2019	Data Quality Part 116: Master data: Exchange of quality identifiers: Application of ISISO 8000-115 to authoritative legal entity identifiers		-	Identical under single numbering
60	IS/ISO 8000-120 : 2016 ISO 8000-120 : 2016 ISO 8000-120 : 2016	Data Quality Part 120: Master data: Exchange of characteristic data: Provenance		-	Identical under single numbering
61	IS/ISO 8000-130 : 2016 ISO 8000-130 : 2016 ISO 8000-130 : 2016	Data Quality Part 130: Master data: Exchange of characteristic data: Accuracy		-	Identical under single numbering
62	IS/ISO 8000-140 : 2016 ISO 8000-140 ISO 8000-140	Data Quality: Part 140 Master data: Exchange of characteristic data: Completeness		-	Identical under single numbering
63	IS/ISO 8000-150 : 2022 ISO 8000-150 ISO 8000-150	Data Quality Part 150: Data quality management: Roles and responsibilities		-	Identical under single numbering

Standards under Development

Projects Approved		
SI. No.	Doc No.	Title
No Records Found		

Preliminary Draft Standards		
SI. No.	Doc No.	Title
No Records Found		

Drafts Standards in WC Stage		
SI. No.	Doc No.	Title
No Records Found		

Draft Standards Completed WC Stage		
SI. No.	Doc No.	Title
1	PGD 18 (24666)	Robotics Safety requirements Part 1 Industrial robots
2	PGD 18 (24668)	Robotics Safety requirements Part 2 Industrial robot applications and robot cells

Finalized Draft Indian Standard		
SI. No.	Doc No.	Title
No Records Found		

Finalized Draft Indian Standards under Print		
SI. No.	Doc No.	Title
1	PGD 18 (22176)	Data Quality Part 311 Application of Product Data Quality for Shape PDQ-S Guidance
2	PGD 18 (22178)	Data Quality Part 81 Data quality assessment Profiling
3	PGD 18 (22180)	Data Quality Part 60 Data quality management Overview
4	PGD 18 (24669) Revision of: IS 17192:2020	Robotics Performance criteria and related test methods for service robots Part 2 Navigation first revision

Total Published Standards:45	Total Standards Under development:6
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Aspect Wise Report

Product : 2

Code of Practices : 24

Methods of Test : 19

Terminology : 9

Dimensions : 0

System Standard : 0

Safety Standard : 7

Others : 2

Service Specification : 0

Process Specification : 0

Unclassified : 0

Annexure-I :List of Indian Standards Withdrawn/Superseded		
SI. No.	IS No. & Year	Title
1	IS 14530 : 1998 ISO 10210 Reviewed In : 2018 ISO 10218 : 1992	Manipulating industrial robots - Safety
2	IS 15031 : 2001 ISO/TR 11032 Reviewed In : 2018 ISO/TR 11032 : 1994	Manipulating industrial robots - Application oriented test - Spot welding
3	IS 15032 (Part 1) : 2001 ISO 6210-1 Reviewed In : 2018 ISO 6210-1 : 1991	Cylinders for robot resistance welding guns Part 1 general requirements
4	IS 15033 : 2001 ISO/TR 11062 Reviewed In : 2018 ISO~R 11062:1994	Manipulating industrial robots - Emc test methods and performance evaluation criteria - Guidelines
5	IS 15035 : 2001 ISO/TR 10562 Reviewed In : 2012	Manipulating Industrial Robots - Intermediate Code for Robots ICR

6	IS 15294 : 2003 ISO/TR 10450 Reviewed In : 2013	Industrial Automation Systems and Integration - Operating Conditions for Discrete Part Manufacturing - Equipment in Industrial Environments
7	IS 15295 : 2003 ISO 10656 Reviewed In : 2018 ISO 10656 : 1996	Electric resistance welding - Integrated transformers for welding guns
8	IS 16606 : 2017 ISO 11593 : 1996 ISO 11593 : 1996	Manipulating industrial robots - Automatic end effector exchange systems - Vocabulary and presentation of characteristics

Annexure-II :List of Indian Product Standards

Sl. No.	IS No. & Year	Title
1	IS 13547 (Part 1) : 2010 Reviewed In : 2020 ISO 9409-1 : 2004	Manipulating industrial robots -- Mechanical interfaces Part 1 Plates second revision
2	IS 13547 (Part 2) : 2010 Reviewed In : 2020 ISO 9409-2 : 2002	Manipulating industrial robots -- Mechanical interfaces Part 2 Shafts first revision