Manufacturing Compliances Mapping

Category	Compliance / Standard	Description / Purpose	Region
Quality & Standards	ISO 9001	Quality Management Systems	Global
	ISO/TS 16949 (IATF 16949)	Automotive industry quality standards	Global
	ISO 13485	Quality in medical device manufacturing	Global
	ISO 22000	Food safety management	Global
	AS9100	Aerospace manufacturing quality	Global
	BIS Certification	ISI mark, Hallmark (Product quality & safety)	India
Environmental & Sustainability	ISO 14001	Environmental management system	Global
	ISO 50001	Energy management	Global
	RoHS	Restriction of Hazardous Substances	EU
	REACH	Chemical registration & safety compliance	EU
	EPA Regulations	Environmental protection norms	US
	CPCB / SPCB	Air, water, waste management compliance	India
	E-Waste Management Rules	E-waste recycling & disposal compliance	India

	Plastic Waste Management Rules	Plastic disposal & recycling compliance	India
Health & Safety	ISO 45001	Occupational health & safety	Global
	OSHA	Workplace safety compliance	US
	Factories Act, 1948	Worker safety, working hours, welfare measures	India
	Explosives Act, 1884	Handling & use of hazardous substances	India
	Indian Boilers Act, 1923	Boiler safety compliance	India
Product-Specific	CE Marking	EU product safety certification	EU
	UL Certification	Product safety certification	US
	FCC	Electronics manufacturing compliance	US
	FSSAI	Food safety compliance	India
	CDSCO	Drugs & medical device compliance	India
	CMVR	Automotive manufacturing rules	India
	Textile Rules (BIS Standards)	Eco-labels & textile quality standards	India
Trade & Export-Import	DGFT	Export-import compliances	India
	WTO Standards	International trade standards	Global
	Customs Act, 1962	Import-export duties & clearance	India
Labour & Social Responsibility	ILO Conventions	Labour rights & standards	Global
	Labour Codes	Wages, Safety,	India

		Social Security, IR	
	SA 8000	Fair labor practices	Global
	CSR Rules (Companies Act, 2013)	Corporate Social Responsibility compliance	India
Data & Technology	ISO 27001	Information security management	Global
	GDPR	Data protection & privacy compliance	EU
	IT Act, 2000	Cybersecurity & digital compliance	India

Customer Type	Examples	What They Care About
B2B	Car OEMs, Electronics brands, Pharma giants	Quality, cost, compliance, reliability
B2C	End consumers (cars, food, clothes, electronics)	Safety, brand trust, eco-friendly products
Government	Defense, public health, infrastructure	Strict compliance, large volume, security
Export/Global	EU, US, Asia importers	International certifications & trade laws

Sector	Unique Cybersecurity Use Case	AI-Powered Solution
Automotive & Transportation	Connected cars & EV charging stations vulnerable to **remote hacking** (e.g., hijacking vehicles, stealing data).	AI-driven **anomaly detection models** monitor vehicle communication (CAN bus, V2X) in real time and auto-block malicious commands.
Electronics & Electrical	Intellectual property (chip designs, IoT firmware) at risk of **cyber-espionage**.	AI-based **threat intelligence engines** detect unusual data exfiltration patterns and block insider/external IP theft attempts.
Chemical & Pharmaceutical	Ransomware targeting **production plants** & theft of drug formulae (IP theft).	AI-enabled **predictive analytics** detects suspicious file access patterns, and **autonomous response** isolates infected systems instantly.
Food & Beverages	Hackers tampering with **IoT-based supply chain sensors** to fake temperature/hygiene logs.	AI-powered **sensor data validation** (ML anomaly detection) spots false readings and triggers automated alerts.
Textiles & Apparel	Global fashion supply chain exposed to **counterfeit trade & phishing** attacks on export orders.	AI-driven **document verification + NLP-based fraud detection** for invoices, supplier contracts, and trade documents.
Metals & Mining	**SCADA/ICS attacks** disrupting mining equipment & production lines.	AI-enhanced **industrial control system monitoring** predicts abnormal machine behavior and stops cyber-physical sabotage.
Energy & Petroleum	**State-sponsored cyberattacks** on oil rigs, pipelines, and refineries.	AI-based **threat hunting platforms** that correlate logs + OT/IT network traffic to detect advanced persistent threats (APTs).
Construction Materials	**Insider threats** (designs, formulas for cement, glass, ceramics leaked to competitors).	AI-enabled **UEBA (User & Entity Behavior Analytics)** tracks unusual employee/system behavior and prevents insider data theft.
Aerospace & Defense	Highly targeted **cyber-espionage** for defense blueprints & aircraft systems.	AI-powered **Zero-Trust security** + **deepfake detection models** to prevent social engineering and protect classified designs.
Healthcare & Medical Devices	**IoMT (Internet of Medical Things)** hacking — e.g., tampering with medical devices or stealing patient trial data.	AI-based **real-time intrusion detection** for IoMT, plus **federated learning** to secure sensitive patient/device data without centralizing.

Sector-Wise Compliances and Export-Import Focus

Sector	Global Compliances / Standards	India-Specific Compliances / Authorities	Global Export–Import Compliances	India-Specific Export–Import Compliances
Automotive & Transportation	IATF 16949, ISO 26262, UNECE, WTO trade rules, Customs Tariffs	BIS, ARAI, MoRTH, DGFT, AIS Standards	WTO trade rules, UNECE Vehicle Standards, Customs Tariffs	DGFT Policy, BIS certification (vehicles/parts), AIS
Electronics & Electrical	ISO 9001, IEC, RoHS, WEEE, ITA (WTO)	BIS (E&IT Goods), MeitY, DGFT, Customs EDI	RoHS, WEEE (EU), ITA (WTO)	DGFT import licensing, BIS CRS, Customs EDI
Chemical & Pharmaceutical	GMP, FDA (US), EMA (EU), REACH, ISO 45001, PIC, GHS	CDSCO, BIS, MoEFCC, Pharmexcil, DGFT SCOMET	REACH (EU), FDA (US), PIC, GHS	CDSCO export NOC, DGFT SCOMET licensing, BIS imports
Food & Beverages	HACCP, ISO 22000, Codex, GFSI, WTO-SPS	FSSAI, BIS, APEDA, Plant Quarantine, Customs	Codex Alimentarius, WTO-SPS, HACCP	FSSAI NOC, APEDA certification, Plant Quarantine, Customs
Textiles & Apparel	OEKO-TEX, ISO 9001, Fair Trade, REACH, WTO Textile Agreements	BIS, AEPC, Ministry of Textiles, DGFT duty schemes	WTO Textile Agreements, OEKO-TEX, Fair Trade	AEPC compliance, DGFT duty drawback, Customs exemptions
Metals & Mining Products	ISO 14001, ISO 45001, ASTM, WTO Anti-Dumping, IMO cargo rules	IBM, BIS, MoM, DGFT licensing	WTO Anti-Dumping, IMO hazardous cargo regs	IBM permits, DGFT licensing, BIS standards
Energy & Petroleum	API, ISO 50001, OHSAS 18001, IEA, IMO MARPOL, WTO norms	PNGRB, MoPNG, BIS, DGFT	IMO MARPOL, WTO norms	DGFT crude import, PNGRB clearance, BIS fuel certification
Construction Materials	ISO 9001, ISO 14001, ASTM, LEED,	BIS, CPWD, MoHUA, DGFT,	WTO norms, ASTM standards for exports	BIS imports, DGFT cement policy,

	WTO building product trade	Customs tariffs		Customs tariff compliance
Aerospace & Defense	AS9100, ITAR, EAR, NATO AQAP, ISO 27001, Wassenaar Arrangement	HAL, DRDO, DGCA, MoD, BIS, DGFT SCOMET	ITAR (US), EAR, Wassenaar Arrangement	SCOMET (DGFT), MoD export, DRDO/DGCA certification
Healthcare & Medical Devices	ISO 13485, FDA 21 CFR Part 11, CE Marking, WHO PQS	CDSCO, BIS, MoHFW, DGFT import/export license	CE Marking, FDA, WHO PQS	CDSCO license, DGFT medical device policy, BIS imports