Standards to which all Electrical and Mechanical Equipment supplied to DLS must comply

Document Issue Record

Revision Number	Issue Date	Revision Notes
5	01/09/2016	
6	26/10/2018	Up issued to reference 'Current Edition' of BS7671 – The IET Wiring Regulations
7	10/09/2021	Changed references from EU directives to UK legislation.

1. UKCA MARKING

- Electrical and Mechanical systems shall be UKCA compliant and marked therefore designs, drawings and documentation must meet the requirements detailed in the standards with respect to the UK legislation as a minimum. The latest version of the standards including latest amendments listed below must be used.

  It is a legal requirement that equipment must comply with the relevant UK legislation listed below. Note; other legislation may apply and the list below is for guidance only.

- **Supply of Machinery (Safety) Regulations 2008**

  Type A designated standard:

  BS EN ISO 12100 Safety of Machinery – General principles for design – Risk assessment and risk reduction.

  Type B designated standards applied as appropriate but to include:

  BS EN 60204-1:2006 Safety of machinery – Electrical equipment of machines - Part 1: General Requirements.

  BS EN ISO 13849-1 – Safety related parts of control systems. Part 1: General principles for design.

  BS EN ISO 13849-2 – Safety related parts of control systems. Part 2: Verification.

  Type C designated standards are to be applied as appropriate.

  A list of designated standards for the Supply of Machinery (Safety) Regulations 2008 can be found at: Designated standards: machinery - GOV.UK (www.gov.uk)

- **Electrical Equipment (Safety) Regulations 2016**

  Diamond will presume conformity provided one of the following designated U.K. standards is followed.

  BS EN 60204-1:2006 Safety of machinery – Electrical equipment of machines - Part 1: General Requirements.

  Or

  BS EN 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements.

  (Note: BS EN 61010-1 must not be used for machinery).

  Please consult with Diamond if another designated standard is proposed to be used for compliance.

  A list of designated standards for the Electrical Equipment (Safety) Regulations 2016 can be found at: Designated standards: low voltage - GOV.UK (www.gov.uk)

- **Electromagnetic Compatibility Regulations 2016**

  For equipment to be used on beamlines or laboratories:

  BS EN 61326 series of standards. Electrical equipment for measurement, control and laboratory use - EMC requirements.

  Also refer to Annex H of BS EN 60204-1 Measures to reduce the effects of electromagnetic influences.

  Otherwise the following designated standards apply as a minimum:

  BS EN 61000-6-2:2005 Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments.

  BS EN 61000-6-4:2007 Electromagnetic compatibility (EMC). Generic standards. Emission standard for industrial environments.

  BS EN 61000-3-2:2006 Electromagnetic compatibility (EMC). Limits for harmonic current emissions (equipment input current up to 16A per phase).

  Please consult with Diamond if another designated standard is proposed to be used for compliance.

  A list of designated standards for the Electromagnetic Compatibility Regulations 2016 can be found at: Designated standards: EMC - GOV.UK (www.gov.uk)

- **Pressure Equipment (Safety) Regulations 2016**

A list of designated standards for the Pressure Equipment (Safety) Regulations 2016 can be found at: Designated standards: pressure equipment - GOV.UK (www.gov.uk)

- **Simple Pressure Vessels (Safety) Regulations 2016**

  BS EN 286-1 Simple unfired pressure vessels designed to contain air or Nitrogen. Pressure vessels for general purpose. This is not a designated standard but should be used for the design of simple pressure vessels.

  The following designated standards apply:

  BS EN 10207 Steels for simple pressure vessels - Technical delivery requirements for plates, strips and bars

  BS EN ISO 15614-1 Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys.

  BS EN ISO 15614-2 Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 2: Arc welding of aluminium and its alloys.

  Please consult with Diamond if another designated standard is proposed to be used for compliance.

  A list of designated standards for the Simple Pressure Vessels (Safety) Regulations 2016 can be found at: Designated standards: simple pressure vessels - GOV.UK (www.gov.uk)

2. OTHER U.K. STANDARDS / REGULATIONS

Supplied equipment may need to conform to the following U.K. standards and regulations, especially if installation of the equipment is required as part of the equipment supply.

- The Health and Safety at Work etc. Act, 1974
- Construction (Design and Management) Regulations 2015
- The Electricity at Work Regulations, 1989
- The IEE Wiring Regulations - BS-7671: **** (Current edition in effect + applicable amendments).
- The Control of Substances Hazardous to Health Regulations, 2002
- The Provision and Use of Work Equipment Regulations, 1998 plus The Health and Safety (Miscellaneous Amendments) Regulations 2002.
- The Pressure System Safety Regulations, 2000.

3. DIAMOND STANDARDS

The following Diamond standards must be applied where appropriate:

- TDI-EENG-DSGN-0002. Beamline systems, electrical & control interfacing.
- TDI-EENG-DSGN-0003. Electrical & control, Machine wiring standard.
- TDI-EENG-DSGN-0004. Electrical & control, Control Panel standard.
- MENG-GEN-STD-0001. Drawing & format requirements.

4. IMPORTANT INFORMATION

The following information should be noted as general information

- Cables and wiring must be Low Smoke Zero Halogen. See TDI-EENG-DSGN-0003 for details.

This document is not exhaustive, and does not remove the obligation on suppliers to comply with any and all applicable statutory instruments. It is the supplier's responsibility to ensure such compliance.

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