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NPS/003/022 – Technical Specification for 33kV Disconnectors, Switch Disconnectors and Earth Switches

1. Purpose

This purpose of this document is to define the technical requirements of disconnectors, switch disconnectors and earth switches for use on the Northern Powergrid 33kV networks.

This document supersedes the following documents, all copies of which should be destroyed;

Document Reference	Document Title	Version	Published Date
NPS/003/022	Technical Specification for 33kV Disconnectors, Switch Disconnectors and Earth Switches	2.2	July 2019

2. Scope

The scope of this specification covers 33kV disconnectors, switch disconnectors and earthing switches for use in Northern Powergrid open terminal substations. This product type is specified in Energy Networks Association Technical Specifications (ENA TS) 41-36 and are bus-bar connected categories A and B as defined in sections 6.3.2 and 6.3.3 respectively.

Technical documents referenced within this specification refer to the latest versions of the relevant International Standards, British Standard Specifications and all relevant Energy Networks Association Technical Specifications (ENA TS) current at the time of supply.

Insulators manufactured from porcelain or composite silicon are acceptable and shall meet the requirements of Northern Powergrid specification NPS/003/015 - Technical Specification for 33kV, 66kV and 132kV Post Insulators. Composite silicon insulators shall have a material composition as described in NPS/001/006 Section 3.2.1.

This specification also includes a requirement for suppliers to provide periodic inspection and maintenance information.

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3. Technical Requirements

3.1. General

Disconnectors and switch disconnectors provide electrical isolation of systems and equipment within substation outdoor compounds designed in accordance with BS EN 61936. Units shall have an optional earth switch providing a rated means of earthing the equipment or circuit. Operation is provided manually or by means of a motorised mechanism. There is a requirement for categories A and B disconnectors as defined in sections 6.3.2 and 6.3.3 of 41-36.

Disconnectors, switch disconnectors and earth switches must comply with all relevant UK health and safety legislation.

3.2. Ratings

Clause 6.4 of ENA TS 41-36 details the rating requirements of disconnectors and are summarised in the table below.

	Category A	Category B
Rated voltage	36kV	36kV
Rated insulation level (lightning impulse withstand voltage)	170/195kV	170/195kV
Rated insulation level (1 minute power RMS power frequency)	70/80kV	70/80kV
Rated Frequency	50Hz	50Hz
Rated short-time withstand current	25kA	25kA
Rated duration of short circuit	3 sec	3 sec
Rated supply voltage of control, closing and opening devices	110V	110V
Rated supply frequency of control, closing and opening and of auxiliary circuits.	DC	DC
Switch disconnector. Rated mainly active load breaking current.	-	400A
Switch disconnector. Rated closed-loop breaking current	-	400A
Switch disconnector. Rated cable charging breaking current	-	20A
Switch disconnector. Line charging breaking current.	-	2A
Switch disconnector. Rated short circuit making current; Dependant-manual Non dependant-manual	-	3kA (7.5kA peak) 10kA (25kA peak)

3.3. Service Conditions

Normal service conditions shall meet the requirements of ENA TS 41-36 Clause 1.2 and be designed to operate normally with a minimum of 10mm of ice as required by Clause 6.2 of ENA TS 41-36. Disconnectors shall have a mechanical endurance class M0 as defined in BS EN 62271 – 102; Clause 3.4.101.1 with earthing switches class E0 as defined in section 3.4.105.1.

3.4. Mounting Arrangement

Disconnectors, switch disconnectors and earth switches are required to bus-bar connected in open compound substations. They shall be horizontally mounted three-phase units with the base fixed to support structures as shown in Figure 8 of ENA TS 41-36.

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3.5. Safety Interlocks and Indication

3.5.1. Electrical Interlocking

Where electrical interlocking inhibits operation of the disconnector it shall inhibit both electrical and mechanical operation unless the mechanical operation is purely for maintenance purposes and locked and labelled as such. Interlocking devices and padlock facilities shall be supplied in accordance with clause 6.5.11 of ENA TS 41-36.

3.5.2. Key Operated Interlocking

Key interlocks locking off motor drive mechanisms shall also interrupt the motor operating circuit in accordance with clause 6.5.11 of ENA TS 41-36.

3.5.3. Indication

The disconnectors shall clearly indicate either an “ON” or “OFF” position when the unit is in the closed or open position.

3.6. Insulators

The support insulators shall provide minimum creepage levels of 25mm/kV as detailed for BS EN 60815 class 3. They may be of either cylindrical post type or the pedestal post type.

Insulators manufactured from porcelain or composite silicon are acceptable and shall meet the requirements of Northern Powergrid specification NPS/003/015 - Technical Specification for 33kV, 66kV and 132kV Post Insulators. Composite silicon insulators shall have a material composition as described in NPS/001/006 Section 3.2.1.

3.7. Contacts

The main fixed and moving contacts shall be self-aligning and shall be manufactured from a suitable high conductivity material.

Where spring loaded devices are used to maintain main contact pressure, they shall be manufactured from corrosion resistant materials which are compatible with the contact. Where separate springs are used, these should not form part of the current carrying circuit. Shrouds may be used as necessary to maintain spring action under ice conditions but they must not act as a trap for moisture or inhibit free air circulation.

The minimum isolating distance across an open switch shall be 430mm with the gap clearly visible from ground level.

3.8. Rating Plate

Each unit shall be supplied with a rating plate for containing the information detailed in BS EN 62271-102 Table 4. A plate shall also be provided that is attached to the operating mechanism or can be fixed to the supporting structure.

3.9. Testing

All units shall have been subjected to the type tests detailed in Clause 6.6 of ENA TS 41-36 and the routine tests in Clause 6.7 of ENA TS 41-36.

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4. References

The products described within this specification shall comply with all current versions of the relevant International Standards, British Standard Specifications and all relevant Energy Networks Association Technical Specifications (ENATS) current at the time of supply.

4.1. External Documentation

Reference	Title
BS EN 61936-1	Power Installations Exceeding 1 kV a.c
BS EN 62271-102	High-voltage Switchgear and Control gear – Alternating Current Disconnectors and Earth Switches
ENA TS 41-36	Distribution Switchgear For Service Up To 36kV (Cable and Overhead Conductor Connected)
ENA TS 41-37 Parts 1 and 4	Switchgear for use on 66kV to 132kV Distribution Systems

4.2. Internal Documentation

Reference	Title
NPS/001/006	Technical Specification for Insulators for Overhead Lines Up to And Including 132kV

4.3. Amendments from Previous Version

Reference	Description
3.0 Technical Requirements	External documentation references updated
4.1 External Documentation	Updated and year of issue removed
Appendix 4 - Self-certification declaration of conformance	External documentation references updated

5. Definitions

Term	Definition
None	

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6. Authority for Issue

6.1. CDS Assurance

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

		Date
Liz Beat	Governance Administrator	06/03/2024

6.2. Author

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

Review Period - This document should be reviewed within the following time period;

Standard CDS review of 3 years?	Non Standard Review Period & Reason	
Yes	Period:	Reason:
Should this document be displayed on the Northern Powergrid external website?		Yes
		Date
Steve Salkeld	Policy and Standards Engineer	06/03/2024

6.3. Technical Assurance

I sign to confirm that I am satisfied with all aspects of the content and preparation of this document and submit it for approval and authorisation.

		Date
Ged Hammel	Senior Policy and Standards Engineer	07/03/2024

6.4. Authorisation

Authorisation is granted for publication of this document.

		Date
Paul Black	Head of System Engineering	20/03/2024

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Appendix 1 - Specified Electrical Ratings

	ENATS 41-36 sub clause	33kV disconnecter	33kV switch- disconnecter
Particulars of system			
Voltage		33kV	33kV
Frequency		50Hz	50Hz
Number of phases		3	3
Neutral earthing		Solid	Solid
Switch characteristics			
Number of poles		3	3
Switch-disconnector category A-B	6.3	A	B
Indoor, outdoor	1.2	Outdoor	Outdoor
Rated voltage	1.4.1	36kV	36kV
Rated insulation level (lightning impulse withstand voltage)	1.4.2	170kV	170kV
Rated insulation level (1 minute power RMS power frequency)	1.4.2	70kV	70kV
Rated Frequency	1.4.3	50Hz	50Hz
Disconnecter / Switch-disconnector rated normal current	1.4.4	800A	800A
Rated short-time withstand current	1.4.5	20kA	20kA
Rated duration of short circuit	1.4.7	3 sec	3 sec
Rated supply voltage of control, closing and opening devices	1.4.8	110V	110V
Rated supply frequency of control, closing and opening and of auxiliary circuits.	1.4.9	DC	DC
Switch disconnector. Rated mainly active load breaking current.	6.4.101		400A
Switch disconnector. Rated closed-loop breaking current	6.4.102		400A
Switch disconnector. Rated cable charging breaking current	6.4.104		20A
Switch disconnector. Transformer off-load	6.4.103		Manufacturer to state
Switch disconnector. Line charging breaking current.	6.4.105		2A
Switch disconnector. Rated short circuit making current Dependant-manual Non dependant-manual	6.2		3kA/7.5kA (Peak) 10kA/25kA (Peak)
Mechanism type		Integral direct motor drive / Manual low level	Integral direct motor drive / Manual low level
Mech. box heater		110v AC	110v AC
No. of auxiliary contacts		8 NO, 8 NC	8 NO, 8 NC
Support insulators pollution class IEC 60815		Class III	Class III
Support insulators		Ceramic or composite	Ceramic or composite
Ice load		10 mm	10 mm

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Appendix 2 – Project Specific Technical Requirements

Information	Enquirer to indicate requirement as appropriate
Rated Voltage. See Appendix 1.	36kV
Normal rated current. See Appendix 1.	800A
Bus-transfer and associated electrical interlocking.	Yes / No
Rated induced current switching of earth switch see Section 3.2 and Appendix 1.	Class A / Class B
X/R (DC time constant) of network	$X/R < 37$ / $X/R \Rightarrow 37$
Disconnecter operating mechanism: Motor or manual	Motor / Manual
Earth switch operating mechanism: Motor or manual	Motor / Manual
Key interlocks	State requirement
Electrical Interlocking	State any special requirements requirement:

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Appendix 3 - Technical Schedule to be completed by the Manufacturer

Disconnecter	Type/Comment
Manufacturer	
Manufacturer's Designation	
Type (e.g. RCP, ROP, Pantograph etc)	
ENA Notice of Conformity	
Number of poles	
Class: Indoor, outdoor	
Rated voltage	
Rated insulation level (lightning impulse withstand voltage) see table 1a BS EN 60694	
Rated Frequency	
Rated normal current	
Rated short-time withstand current	
Rated duration of short circuit	
Classification of mechanical operations Class M0-1000 or M1-2000	
Rated mechanical terminal load	
Rated bus transfer switching	
Rated values of electrical endurance	
Disconnecter Mechanism	
Manufacturer's Designation	
Mechanism type: Dependent manual/dependent power	
Rated supply voltage of closing and opening devices and control circuits	
Rated supply voltage of control circuits	
Motor rating (W)	
Operating time of opening and closing (s)	
Motor protection	
Manual operation: method of interlock with motor mechanism	
Manual operation: method of interlock with substation electrical interlock circuits.	
No of auxiliary contacts	
Key Interlock type	
Key Interlock: Method of interlock with motor control circuits.	
Electrical Interlocking	
Padlocking facilities	
Mechanism Degree of Protection	
Surface preparation	
Mechanism box heater voltage	
Disconnecter Weights	
Mass of disconnector (minus mechanism) (kg)	
Mass of Mechanism (kg)	
Disconnecter Drawings	
Disconnecter General Arrangement	
Operating mechanism layout	
Control Schematic	
Earth Switch	

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Manufacturer	
Manufacturer's Designation	
Type (e.g. chopper, pantograph etc)	
Number of poles	
Class: Indoor, outdoor	
Rated voltage	
Rated insulation level (lightning impulse withstand voltage) see table 1a BS EN 60694	
Rated Frequency	
Rated short-time withstand current	
Rated induced current switching of Earthing	
Rated duration of short circuit	
Classification of mechanical operations Class M0-1000 or M1-2000	
Earth Switch Mechanism	
Manufacturer's Designation	
Mechanism type: Dependent manual/dependent power	
No of auxiliary contacts	
Key Interlock type	
Padlocking facilities	
Mechanism Degree of Protection	
Surface preparation	
Mechanism box heater voltage	
Earth Switch Weights	
Mass of earth (minus mechanism) (kg)	
Mass of Mechanism	
Earth Switch Drawings	
Earth Switch General Arrangement	
Operating mechanism layout	

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Appendix 4 - Self-certification declaration of conformance to ENATS 41 - 36

Bus-bar Connected Disconnectors Switch-Disconnectors.

CLAUSE BY CLAUSE CONFORMANCE WITH ENATS 41-36. Switchgear covered by ENATS 41-36 shall comply with the latest issues of the relevant International and British Standards. ENATS 41-36 is intended to amplify and/or clarify the requirements of those Standards.

This check sheet identifies the clauses in ENATS 41-36 and the clauses of the aforementioned Standards relevant to overhead conductor connected air-break switch-disconnectors. The manufacturer shall declare conformance or otherwise, clause by clause, using the following levels of conformance declaration codes.

N/A = Clause is not applicable/appropriate to the product
Cs1 = The test conforms fully with the requirements of this clause
Cs2 = The test conforms partially with the requirements of this clause
Cs3 = The test does not conform to the requirements of this clause
Cs4 = Test not performed, but alternative evidence/ technical case offered

Note - One complete set shall be completed for each variant offered.

Instructions for completion

- When Cs1 code is entered no remark is necessary
- When any other code is entered the reason for non-conformance shall be entered
- Prefix each remark with the relevant 'IEC' or 'ENATS' as appropriate

Manufacturer:

**Product
Reference:**

Ratings:

Name:

Signature:

Date:

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BS EN 62271-102, BS EN 60265:Part 1				ENATS 41-36			
Clause / Sub-clause		Requirement	Conformance code	ENATS 41- 36 Clause /Sub-clause	Requirement	Conformance code	Remarks
BS EN 62271-102	BS EN 60265: PART 1						
1	1	General		6.1	General		
				6.1	Class M0 (BS EN 62271-102)		
				6.1	Class E0 (BS EN 62271-102)		
				6.1	Ganged		
2	2	Normal and special service conditions		6.2	Normal and special service conditions		
					Class 10 ice		
3		Definitions		6.3	Definitions		
				6.3.3	Switch-disconnector (Cat B)		
4	4	Ratings		6.4	Ratings		
	4.101			6.4.101	Rated mainly active load breaking current		
	4.102			6.4..102	Rated closed-loop breaking current		
	4.103			6.4.103	Rated no-load transformer breaking current		
	4.104			6.4.104	Rated cable-charge breaking current		
	4.105			6.4.105	Rated line-charging breaking current		
4.106		Rated values of mechanical endurance for disconnectors		6.4.106	Rated values of mechanical endurance for disconnectors Class M0 – 1000 ops		

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Clause / Sub-clause		Requirement	Conformance code	ENATS 41-36 Clause / Sub-clause	Requirement	Conformance code	Remarks
BS EN 62271-102 BS EN 60265: PART 1							
BS EN 62271-102, BS EN 60265:Part 1				ENATS 41-36			
4.107		Rated values of electrical endurance for earthing		6.4.107	Rated values of electrical endurance for earthing switches		
				6.4.107	Class E0		
4.101	4.112	Rated short-circuit making current		6.4.112	Rated short-circuit making current for air-break switch disconnectors		
				6.4.112	Table 6.2		
				6.4.112	4.101 of BS EN 62271-102 for earthing switches		
	4.113	Rated breaking and making currents for a general purpose switch		6.4.113	Rated breaking and making currents for a general purpose switch		
				6.4.113	Class E1 (BE EN 60265)		
5	5	Design and construction		6.5	Design and construction		
5.3	5.3	Earthing		6.5.3	Earthing		
				6.5.5.2	Mechanical strength		
				6.5.5.2	Prevent water accumulation		
				6.5.5.2	Mounting		
				6.5.5.2	Over toggle		
5.6	5.6	Stored energy		6.5.6	Stored energy operation		
5.7	5.7	Independent manual operation		6.5.7	Independent manual operation		
				6.5.7	Integral rods to 6.5.5.2		

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BS EN 62271-102, BS EN 60265:Part 1			ENATS 41-36			Remarks
Clause / Sub-clause	Requirement	Conformance Code	ENATS 41- 36 Clause / Sub- clause	Requirement	Conformance Code	
BS EN 62271-102	BS EN 60265: PART 1					
5.8	5.8	Operation of releases	6.5.8	Operation of releases		
5.9	5.9	Low and high-pressure interlocking and monitoring devices	6.5.9	Low and high-pressure interlocking and monitoring devices		
5.10	5.10	Nameplates	6.5.10	Nameplates and labeling		
			6.5.10	Short circuit making current current		
			6.5.10	Open/close indication		
5.11	5.11	Interlocking devices	6.5.11	Interlocking devices and padlocking facilities		
8	8	Guide to the selection of, disconnectors and earthing switches	6.8	Guide to the selection of switch-disconnectors, disconnectors and earthing switches		
9	9	Information to be given with enquiries, tenders and orders	6.9	Information to be given with enquiries, tenders and orders - schedule 6.1		
10	10	Rules for transport, storage, installation, operation and maintenance	6.10	Rules for transport, storage, installation, operation and maintenance		
11	11	Safety	6.11	Safety		
			6.5.11	Locking of high level		
			6.5.11	Earthing switch interlocks		
			6.5.11	Key interlock (36kV		
5.12	5.12	Position indication	6.5.12	Position indication		
			6.5.12	Only one visible		

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BS EN 62271-102, BS EN 60265: Part 1				ENATS 41-36			
Clause / Sub-clause		Requirement	Conformance Code	ENATS 41- 36 Clause / Sub- clause	Requirement	Conformance Code	Remarks
BS EN 62271-102	BS EN 60265: PART 1						
5.13	5.13	Degrees of protection by enclosures		6.5.13	Degrees of protection by enclosures		
5.14	5.14	Creepage distances		6.5.14	Creepage distances		
5.101		Special requirements for earthing switches					
5.102		Requirements in respect of the isolating distance of disconnectors					
5.103		Mechanical strength					
5.104		Operation of disconnectors, and earthing switches - position of the movable contact system and its indicating and signaling devices					
5.105		Maximum force required for manual operation					
5.106		Dimensional tolerances					
				6.5.201	Flexible leads and connections		
				6.5.201	Multi-strand / laminations Covered		
				6.5.201	Stress relief at connections		
				6.5.201	Supported (clearance/ear)		
				6.5.202	Surface preparation and coatings		

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BS EN 62271-102, BS EN 60265: Part 1				ENATS 41-36			
Clause / Sub-clause		Requirement	Conformance Code	ENATS 41- 36 Clause / Sub- clause	Requirement	Conformance Code	Remarks
BS EN 62271-102 BS EN 60265: PART 1							
				6.5.203	Mounting arrangements		
				6.5.205	Contacts		
				6.5.205	Self aligning / high conductivity		
6	6	Type tests		6.6	Type tests		
				6.6	Table 6.3		
6.1	6.1	General					
6.2	6.2	Dielectric tests					
6.3	6.3	Radio interference voltage tests					
6.4	6.4	Measurement of resistance of the main circuit					
6.5	6.5	Temperature rise tests					
6.6	6.6	Short-time withstand current and peak withstand current tests					
6.7 6.8	6.7 6.8	Verification of the degree Electromagnetic compatibility (EMC) tests					
	6.101	Making and breaking tests					
6.102	6.102	Mechanical operations test					
6.103	6.103	Operation under severe ice conditions					
6.104		Operation at temperature limits					

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BS EN 62271-102, BS EN 60265: Part 1				ENATS 41-36			
Clause / Sub-clause		Requirement	Conformance Code	ENATS 41- 36 Clause / Sub- clause	Requirement	Conformance Code	Remarks
BS EN 62271-102	BS EN 60265: PART 1						
7	7	Routine tests		6.7	Routine tests		
7.1		Dielectric test on the main circuit					
7.2		Dielectric test on auxiliary and control circuits					
7.3		Measurement of the resistance of the main circuit					
7.4		Tightness					
7.5		Design and visual checks					
7.101	7.101	Mechanical operating tests					

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Appendix 4 (continued) – Self Certification Conformance Declaration

Type Tests for Disconnectors and Switch-disconnector.

Type test reports table based on ENATS 41-36 Table 6.3

*See bottom of table for conformance declaration codes

** I = Independent; M= Manufacturer; ENA= Energy Networks Association

Instructions for completion:

- Complete a separate table for each variant and rating
- ENA/SAP to complete columns 1 to 4
- Manufacturer to complete columns 5 to 10
- When test report also covers another rating insert 'See ???A unit' in the Remarks column

N.B. All tests on 630A unit unless otherwise stated

Manufacturer:

**Product
Reference:**

Ratings:

Name:

Signature:

Date:

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	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	Test Requirement	Specification and standards	Rated value	Test req'd Y or N	Conformance *	Test value	Date of test	Test station Report / Cert	Witness I, M or ENA **	Remarks
1	Dielectric	BS EN 60694. Sub-clause 6.2, BS EN 60265. Sub-clause 6.2. BS EN 62271-102. Sub-clause 6.2.								
2	Wet 1 minute Voltage Withstand test on operating rod insulated insert	Sub-clause 6.5.5.2 of ENATS 41-36								
3	Measurement of resistance of circuits	BS EN 60694. Sub-clause 6.4, BS EN 60265. Sub-clause 6.4, BS EN 62271-102. Sub-clause 6.4								
4	Temperature Rise -	BS EN 60694. Sub-clause 6.5, BS EN 60265. Sub-clause 6.5, BS EN 62271-102. Sub-clause 6.5								
5	Short-time withstand current and peak withstand current tests.(3sec short time).	BS EN 60694.Sub-clause 6.6, BS EN 60265. Sub-clause 6.6, BS EN 62271-102. Sub-clause 6.6.								
6	Verification of protection Weatherproofing for outdoor equipment. (outdoor IP3XDW minimum) Mechanical impact. (outdoor – 5J)	BS EN 60694.Sub-clause 6.7, BS EN 60265. Sub-clause 6.7, BS EN 62271-102. Sub-clause 6.7, Sub-clause 1.5.13 of ENATS 41-36								
7	EMC tests	BS EN 60694.Sub-clause 6.9, BS EN 60265. Sub-clause 6.9, BS EN 62271-102. Sub-clause 6.9								
8	Short-circuit making and breaking tests – Switch-disconnector (class E1 general purpose switch – BS EN 60265. Sub-clause 3.4.103.1).	BS EN 60265: PART 1. Sub-clauses 6.101, (TD 1 to 5, Table 5). Test values as per Tables 6.1 & 6.2 of ENATS 41-36.								

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	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	Test Requirement	Specification and standards	Rated value	Test req'd Y or N	Conformance *	Test value	Date of test	Test station Report / Cert	Witness I, M or ENA **	Remarks
9	Mechanical operations - Disconnecter / Switch-disconnector - 1000 operations. (Class M0 disconnector - IEC 62271-102 Sub-clause 3.4.101.1). (Class M1 general purpose switch – IEC 60265 Sub-clause 3.4.103.4).	BS EN 60265: PART 1 . Sub-clause 6.102. BS EN 62271-102. Sub-clause 6.102.								
10	Mechanical operations - Earthing switch – 1000	BS EN 62271-102. Sub-clause 6.102.								
11	Operation under severe ice conditions (10mm thickness)	BS EN 60265: PART 1 . Sub-clause 6.103. BS EN 62271-102. Sub-clause 6.103.								
12	Finish	Performance to ENATS 98-1.								
13	Process Control	ISO 9001								

N/A = Clause is not applicable/appropriate to the product

Cs1 = The test conforms fully with the requirements of this clause

Cs2 = The test conforms partially with the requirements of this clause

Cs3 = The test does not conform to the requirements of this clause

Cs4 = Test not performed, but alternative evidence/ technical case offered

Ct1 = Independent witnessed tests

Ct2 = Not fully independent witnessed tests

Ct3 = Self verified tests

Ct4 = Alternative tests / evidence offered

Ct5 = Manufacturer has underwritten that the product meets the functional and performance requirements without further testing.

Ct6 = Not tested

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Appendix 5 – Schedule of Requirements

The table below details the standard disconnecter and switch disconnectors required within Northern Powergrid.

Type
36kV, 800A Disconnector Manual Operated ENA TS 41-36 Category A, Supplied with Integral Earth Switch
36kV, 800A Disconnector Motor Operated ENA TS 41-36 Category A, Supplied with Integral Earth Switch
36kV, 800A Disconnector Manual Operated ENA TS 41-36 Category B, Supplied with Integral Earth Switch
36kV, 800A Disconnector Motor Operated ENA TS 41-36 Category B, Supplied with Integral Earth Switch

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Appendix 6 - Addendum to Supplier Requirements

Inspection and Maintenance Requirements

Suppliers shall provide details of the recommended periodic inspection and maintenance requirements to be undertaken during the lifetime of their product. Detailed inspection and maintenance instructions shall also be provided.

Post Insulators

Northern Powergrid will accept both porcelain and composite silicon post insulators for 33kV disconnectors. If both types are available please ensure that they are identified as option A and B within any schedule.

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Appendix 7 – Information Return Check List

The following information shall be provided by the supplier for review by Northern Powergrid. Additional information shall be provided if requested.

Requirement	Provided (Yes/No)
Full product descriptions and part number/reference	
Appendix 3 – completed technical schedule (for each variant offered)	
Appendix 4 – completed self certification conformance declaration against ENATS 41-37 (for each variant offered)	
Appendix 5 – completed type test self certification conformance declaration (for each variant offered)	
Appendix 6 – completed declaration for the manufacture and routine testing locations of key component parts	
Complete set of mechanical and electrical drawings for each variant (including motor drive control schematics)	
Type test evidence	
Manufacturing routine test/quality plan	
Packaging information	
Instructions/Manuals for: transportation & handling, storage, installation, commissioning, operation & maintenance, de-commissioning and disposal.	
Spares availability list and recommended stockholding	
COSHH data sheets (if not applicable please state N/A)	
ISO:9001, ISO:14001 and ISO:18001 certification and manuals	