ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
1.	**33 kV SWITCHGEAR**			
1.1.	**General Data**			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation			
	Type		Air-insulated, metal clad switchgear	
	Standards		IEC 62271-200	
	Installation		Indoor	
	LSC (Loss of Service Continuity) class		LSC 2B	
	IAC (Internal Arc Classified) class		IAC AFLR	
	Partition class		PM	
	Cubicles/Panels painting colour (RAL)		RAL 6019	
	Degree of mechanical protection of outer cover		IP41	
	Degree of mechanical protection of inner partitions		IP2X	
1.2.	**Rated Characteristics for Switchgear**			
	Rated voltage	kV	33	
	Rated frequency	Hz	50	
	Highest voltage for equipment	kV	36	
	Rated power frequency withstand voltage (r.m.s. value), AC (50 Hz, 1 min)	kV	70	
	Rated lightning impulse withstand voltage (peak value), LI (1,2/50 μs)	kV	170	
	Rated busbar current	A	As schedule A	
	Rated short-time (3 s) withstand current	kA	31.5	
	Rated peak withstand current	kA	80	
	Internal arc (1 s) withstand current	kA	31.5	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
1.3.	**Circuit Breakers – Vacuum type**			
1.3.1.	**General Data**			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation			
	Type		Three-pole, withdrawable vacuum type	
	Standards		IEC 62271-100	
	Number of poles	pcs	3	
	Type of operating mechanism		Motor wound-spring operating mechanism	
1.3.2.	**Rated Characteristics**			
	Rated voltage	kV	33	
	Rated frequency	Hz	50	
	Rated current for feeder cubicles/panels	A	As schedule A	
	Rated current for transformer & bus section cubicles/panels	A	As schedule A	
	Rated short-time withstand current Ik (equal short-circuit breaking current I_{SC})	kA	31.5	
	Duration of short circuit (tk)	s	≥ 3	
	DC component of the rated short circuit breaking current	%		
	Rated peak withstand current Ip (equal short circuit making current)	kA	80	
	Rated operating sequence			
	Break time	ms		
	Opening time	ms		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Closing time	ms		
	Restrike performance during capacitive current switching	Class	C2	
	Mechanical endurance (frequency of mechanical operations)	Class	M2	
	Number of trip coils	pcs	1	
	Number of close coils	pcs	1	
	Rated voltage of motor operation mechanism	V DC	110	
	Rated control and operating voltage	V DC	110	
	Rated power of motor	W		
	Rated power of trip coil	W		
	Rated power of close coil	W		
	Number of auxiliary contacts for remote signalling (NO+NC)			
1.3.3.	**Design Characteristics**			
	Material of main contacts			
	Manual charging facility		Yes	
	Circuit breaker dimensions (W×D×H)	mm		
	Phase distance (axis to axis)	mm		
	Mass of complete circuit breaker	kg		
	Mass of complete circuit breaker with trolley	kg		
1.4.	**Circuit Breakers – SF6 type**			
1.4.1.	**General Data**			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Type		Three-pole, withdrawable SF6 type	
	Standards		IEC 62271-100	
	Number of poles	pcs	3	
	Type of operating mechanism		Motor wound-spring operating mechanism	
1.4.2.	**Rated Characteristics**			
	Rated voltage	kV	33	
	Rated frequency	Hz	50	
	Rated current for capacitor bank cubicles/panels	A	As schedule A	
	Rated short-time withstand current Ik (equal short-circuit breaking current I_{SC})	kA	31.5	
	Duration of short circuit (tk)	s	≥ 3	
	DC component of the rated short circuit breaking current	%		
	Rated peak withstand current Ip (equal short circuit making current)	kA	80	
	Rated operating sequence			
	Break time	ms		
	Opening time	ms		
	Closing time	ms		
	Restrike performance during capacitive current switching	Class	C2	
	Mechanical endurance (frequency of mechanical operations)	Class	M2	
	Number of trip coils	pcs	1	
	Number of close coils	pcs	1	
	Rated voltage of motor operation mechanism	V DC	110	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Rated control and operating voltage	V DC	110	
	Rated power of motor	W		
	Rated power of trip coil	W		
	Rated power of close coil	W		
	Number of auxiliary contacts for remote signalling (NO+NC)			
1.4.3.	**Design Characteristics**			
	Material of main contacts			
	Manual charging facility		Yes	
	SF6 density monitor		Yes	
	Circuit breaker dimensions (W×D×H)	mm		
	Phase distance (axis to axis)	mm		
	Mass of complete circuit breaker	kg		
	Mass of complete circuit breaker with trolley	kg		
1.5.	**Current Transformers**			
1.5.1.	**General Data**			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation			
	Type		Epoxy resin	
	Standards		IEC 61869-1&2	
1.5.2.	**Rated Characteristics**			
	Rated voltage	kV	33	
	Rated frequency	Hz	50	
	Rated continuous thermal current / Rated extended primary current	%Ir	120	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Rated secondary current	A	1	
	Rated short-time (3 s) thermal current	kA	31.5	
	Rated dynamic current	kA	80	
	Dielectric loss factor (tanδ)			
	Rated characteristics of CTs for Feeder cubicles		AS SCH A	
	Rated characteristics of CTs for Capacitor banks cubicles		AS SCH A	
	Rated characteristics of CTs for Transformer cubicles:		AS SCH A	
	Rated characteristics of CTs for Bus section cubicles		AS SCH A	
	Rated characteristics of CTs for Reactor cubicles		AS SCH A	
1.5.3.	**Design Characteristics**			
	Insulation material			
	Mass of complete current transformer	kg		
1.6.	**Voltage Transformers**			
1.6.1.	**General Data**			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Epoxy resin	
	Serial number			
	Standards		IEC 61869-1&3	
1.6.2.	**Rated Characteristics**			
	Rated voltage	kV	33	
	Rated frequency	Hz	50	
	Rated power frequency withstand voltage (r.m.s. value), AC (50 Hz, 1 min)	kV	70	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Rated lightning impulse withstand voltage (peak value), LI (1,2/50 µs)	kV	170	
	Rated voltage factor/Rated time	p.u. / s	1.9 / 30 1.2 / continuous	
	Rated characteristics of VTs for Feeder cubicles:		AS SCH A	
	- Type		Fixed, without primary fuses	
	Rated characteristics of VTs for Capacitor cubicles:		AS SCH A	
	- Type		Fixed, without primary fuses	
	Rated characteristics of VTs for Transformer cubicles:		AS SCH A	
	- Type		Withdrawable, primary fused	
	Rated characteristics of VTs for Bus-Section cubicles:		AS SCH A	
	- Type		Withdrawable, primary fused	
1.6.3.	**Design Characteristics**			
	Insulation material			
	Mass of complete voltage transformer	kg		
1.7.	**Busbars and Insulators**			
1.7.1.	**Busbars**			
	Conductor material			
	Phase conductor cross section	mm^2		
	Phase conductor total dimensions	mm×mm		
	Phase conductor moment of inertia			
	Mass of phase conductor	kg/m		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Resistance at 20 °C	mΩ/mm		
	Resistance coefficient	10^{-3}/°C		
	Phase conductor maximum permissible temperature:			
	- Continuous current	°C		
	- Short-circuit current, 1 s	°C		
	Modulus of elasticity	N/mm^2		
	Coefficient of linear expansion	10^{-5}/°C		
	Tee-off connection from main BB to other compartments			
1.7.2.	**Insulators**			
	Material			
	Maximal diameter of insulator	mm		
	Total insulator height	mm		
	Total creepage distance	mm		
	Insulator mass	kg		
	Permissible mechanical loads:			
	- Bending	N		
	- Extension	N		
	- Compression	N		
	- Torsion	Nm		
1.8.	**Protection Unit**		NA	
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number for feeder control and protection Unit			
	Serial number for transformer control and protection Unit			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Standards			
	Power supply	V DC	110	
	Communication		IEC 61850	
1.9.	**Cubicles Design Characteristics**			
	Phase distance (axis to axis)	mm		
	Minimum air distance:			
	- between conductors	mm		
	- between conductors and earth	mm		
	Anticondensation heater:			
	- number per cubicle/panel	pcs		
	- power supply voltage	V	230	
	- frequency	Hz	50	
	- capacity	W		
	Internal lighting:			
	- number per cubicle/panel	pcs		
	- power supply voltage	V	230	
	- frequency	Hz	50	
	- capacity	W		
	Cubicle outer steel sheet thickness	mm		
	Dimensions of Feeder Cubicle/Panel:			
	- width	mm		
	- depth	mm		
	- height	mm		
	Dimensions of Capacitor Bank Cubicle/Panel:			
	- width	mm		
	- depth	mm		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	- height	mm		
	Dimensions of Transformer Cubicle/Panel:			
	- width	mm		
	- depth	mm		
	- height	mm		
	Dimensions of Bus section Cubicle/Panel:			
	- width	mm		
	- depth	mm		
	- height	mm		
	Masses:			
	- Feeder Cubicle/Panel	kg		
	- Capacitor Bank Cubicle/Panel:	kg		
	- Transformer Cubicle/Panel:	kg		
	- Bus section Cubicle/Panel:	kg		
	Reactor Cubicle/Panel:	kg		
	Minimum free space around switchgear necessary for operation and overhauls (maintenance):			
	- front side	mm		
	- rear side	mm		
	- lateral side	mm		
2.	**33 kV CONTROL, PROTECTION & METERING EQUIPMENT**			
2.1	**Control & Protection Panel for 33 kV Cable Feeder Cubicle**			
	General Data			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Type		Free-standing type	
	Serial number			
	Standards			
	Installation		indoor	
	Panels painting colour (RAL)		RAL 6019	
	Degree of mechanical protection		IP41	
	Main Protection Relay – Cable Differential Protection			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Back-up Protection Relay			
	Manufacturer			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Trip Circuit Supervision Device			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	LED signalization		Yes	
	Number of auxiliary contacts			
	Tripping Relays			
	Manufacturer			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Number of auxiliary contacts	No		
	Contacts data:			
	- voltage	V		
	- current carrying capacity, continual	A		
	- breaking capacity at 110 V DC	A		
	- trip time	ms		
	Synchro-check relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Multi-function digital Meter			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation by the manufacturer			
	Type			
	Standards			
	Supply voltage	V		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Auxiliary voltage	V DC	110	
	Transducers for Supervisory Indications			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Panel Design Characteristics			
	Mimic diagram		Yes	
	Annunciator		Yes	
	Lockable control selector switch (“*Remote/Supervisory*”)		Yes	
	Lockable selector switch (“*Off/Synchro*”)		Yes	
	Synchronising socket		NO	
	Anti-condensation heater		Yes	
	Internal lighting		Yes	
	Type of indication lamps		LED	
	Panel steel sheet thickness	mm		
	Dimensions and masses of the Control and Protection panel:			
	- width	mm		
	- depth	mm		
	- height	mm		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	- weight	kg		
2.2	**Control & Protection Panel for 33 kV Capacitor Bank Cubicle for Each type 20MVAR and 10MVAR**			
	General Data			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Free-standing type	
	Serial number			
	Standards			
	Installation		indoor	
	Panels painting colour (RAL)		RAL 6019	
	Degree of mechanical protection		IP41	
	Main Protection Relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Back-up Protection Relay – Unbalance Current Protection Relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Trip Circuit Supervision Device			
	Manufacturer			
	Place of Manufacture			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	LED signalization		Yes	
	Number of auxiliary contacts	No		
	Tripping Relays			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Number of auxiliary contacts	No		
	Contacts data:			
	- voltage	V		
	- current carrying capacity, continual	A		
	- breaking capacity at 110 V DC	A		
	- trip time	ms		
	Reactive Power Control Unit			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	External voltmeter		Yes	
	cosφ meter		Yes	
	Multi-function digital Meter			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation by the manufacturer			
	Type			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Auxiliary voltage	V DC	110	
	Transducers for Supervisory Indications			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Panel Design Characteristics			
	Mimic diagram		Yes	
	Annunciator		Yes	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Lockable control selector switch (“*Remote/Supervisory*”)		Yes	
	Lockable selector switch (“*Automatic/Manual*”)		Yes	
	Operation counter with reset button		Yes	
	Ammeter with suitable scale for current unbalance		Yes	
	Anti-condensation heater		Yes	
	Internal lighting		Yes	
	Type of indication lamps		LED	
	Panel steel sheet thickness	mm		
	Dimensions and masses of the Control and Protection panel:			
	- width	mm		
	- depth	mm		
	- height	mm		
	- weight	kg		
2.3	**Control & Protection Panel for 33 kV Reactor Cubicle**			
	General Data			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Free-standing type	
	Serial number			
	Standards			
	Installation		indoor	
	Panels painting colour (RAL)		RAL 6019	
	Degree of mechanical protection		IP41	
	Main Protection Relay – Cable Differential Protection			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Back-up Protection Relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Trip Circuit Supervision Device			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	LED signalization		Yes	
	Number of auxiliary contacts			
	Tripping Relays			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Number of auxiliary contacts	No		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Contacts data:			
	- voltage	V		
	- current carrying capacity, continual	A		
	- breaking capacity at 110 V DC	A		
	- trip time	ms		
	Multi-function digital Meter			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation by the manufacturer			
	Type			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Auxiliary voltage	V DC	110	
	Transducers for Supervisory Indications			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Panel Design Characteristics			
	Mimic diagram		Yes	
	Annunciator		Yes	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Lockable control selector switch (“*Remote/Supervisory*”)		Yes	
	Lockable selector switch (“*Off/Synchro*”)		NO	
	Synchronising socket		NO	
	Anti-condensation heater		Yes	
	Internal lighting		Yes	
	Type of indication lamps		LED	
	Panel steel sheet thickness	mm		
	Dimensions and masses of the Control and Protection panel:			
	- width	mm		
	- depth	mm		
	- height	mm		
	- weight	kg		
2.4	**Control & Protection Panel for 33 kV Transformer Cubicle**			
	General Data			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Free-standing type	
	Serial number			
	Standards			
	Installation		indoor	
	Panels painting colour (RAL)		RAL 6019	
	Degree of mechanical protection		IP41	
	Main Protection Relay			
	Manufacturer			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Back-up Protection Relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Trip Circuit Supervision Device			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	LED signalization		Yes	
	Number of auxiliary contacts	No		
	Tripping Relays			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Number of auxiliary contacts	No		
	Contacts data:			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	- voltage	V		
	- current carrying capacity, continual	A		
	- breaking capacity at 110 V DC	A		
	- trip time	ms		
	Multi-function digital Meter			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation by the manufacturer			
	Type			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Auxiliary voltage	V DC	110	
	Transducers for Supervisory Indications			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Panel Design Characteristics			
	Mimic diagram		Yes	
	Annunciator		Yes	
	Lockable control selector switch (“*Remote/Supervisory*”)		Yes	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Lockable selector switch (“*Off/Synchro*”)		Yes	
	Synchronising socket		NO	
	Anti-condensation heater		Yes	
	Internal lighting		Yes	
	Type of indication lamps		LED	
	Panel steel sheet thickness	mm		
	Dimensions and masses of the Control and Protection panel:			
	- width	mm		
	- depth	mm		
	- height	mm		
	- weight	kg		
2.5	**Control & Protection Panel for 33 kV Bus Section Cubicle**			
	General Data			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Free-standing type	
	Serial number			
	Standards			
	Installation		indoor	
	Panels painting colour (RAL)		RAL 6019	
	Degree of mechanical protection		IP41	
	Protection Relay			
	Manufacturer			
	Place of Manufacture			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Standby Earth Fault Protection Relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Trip Circuit Supervision Device			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	LED signalization		Yes	
	Number of auxiliary contacts			
	Tripping Relays			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Number of auxiliary contacts	No		
	Contacts data:			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	- voltage	V		
	- current carrying capacity, continual	A		
	- breaking capacity at 110 V DC	A		
	- trip time	ms		
	Synchro-check relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Multi-function digital Meter			
	Manufacturer & Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type designation by the manufacturer			
	Type			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Consumption at rated voltage	W		
	Auxiliary voltage	V DC	110	
	Auxiliary voltage	V DC	110	
	Transducers for Supervisory Indications			
	Manufacturer			
	Place of Manufacture			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Panel Design Characteristics			
	Mimic diagram		Yes	
	Annunciator		Yes	
	Lockable control selector switch (“*Remote/Supervisory*”)		Yes	
	Lockable selector switch (“*Off/Synchro*”)		Yes	
	Synchronising socket		NO	
	Anti-condensation heater		Yes	
	Internal lighting		Yes	
	Type of indication lamps		LED	
	Panel steel sheet thickness	mm		
	Dimensions and masses of the Control and Protection panel:			
	- width	mm		
	- depth	mm		
	- height	mm		
	- weight	kg		
2.6	**33 kV High Impedance Busbar Protection Panel**			
	General Data			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Free-standing type	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Serial number			
	Standards			
	Installation		indoor	
	Panels painting colour (RAL)		RAL 6019	
	Degree of mechanical protection		IP41	
	High Impedance Busbar Protection Relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Tripping Relays			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Number of auxiliary contacts	No		
	Contacts data:			
	- voltage	V		
	- current carrying capacity, continual	A		
	- breaking capacity at 110 V DC	A		
	- trip time	ms		
	Transducers for Supervisory Indications		NO	
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Panel Design Characteristics			
	Annunciator		Yes	
	Anti-condensation heater		Yes	
	Internal lighting		Yes	
	Type of indication lamps		LED	
	Panel steel sheet thickness	mm		
	Dimensions and masses of the Control and Protection panel:			
	- width	mm		
	- depth	mm		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	- height	mm		
	- weight	kg		
2.7	**33 kV Load Shedding Protection Panel**		N/A	
	General Data			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Free-standing type	
	Serial number			
	Standards			
	Installation		indoor	
	Panels painting colour (RAL)		RAL 6019	
	Degree of mechanical protection		IP41	
	Load Shedding Protection Relay			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption	W		
	Number and type of current analogue inputs	No		
	Number and type of voltage analogue inputs	No		
	Number of RTD inputs	No		
	Number of mA inputs	No		

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Number and type of binary inputs (110 V DC)	No		
	Number and type of binary outputs (110 V DC)	No		
	Number of Ethernet ports for IEC 61850 communication	No		
	Protection functions (to specify)			
	Software (to specify)			
	Tripping Relays			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			
	Supply voltage	V		
	Consumption at rated voltage	W		
	Number of auxiliary contacts	No		
	Contacts data:			
	- voltage	V		
	- current carrying capacity, continual	A		
	- breaking capacity at 110 V DC	A		
	- trip time	ms		
	Transducers for Supervisory Indications		NO	
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Panel Design Characteristics			
	Annunciator		Yes	
	Anti-condensation heater		Yes	
	Internal lighting		Yes	
	Type of indication lamps		LED	
	Panel steel sheet thickness	mm		
	Dimensions and masses of the Control and Protection panel:			
	- width	mm		
	- depth	mm		
	- height	mm		
	- weight	kg		
3.	**33 kV CAPACITOR BANKS**			
3.1.	**General Data**			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type			
	Serial number			
	Standards		IEC 60871	
	Installation			
	Configuration		Ungrounded double star (Y-Y)	
3.2.	**Rated Characteristics**			
	Rated system voltage	kV	33	
	Capacitor bank operating voltage	kV	34	
	Rated frequency	Hz	50	
	Highest voltage for equipment	kV	36	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Rated reactive output/power of the capacitor bank at 35 kV and 45 °C	MVAr	10	
	Rated current of the capacitor bank	A		
	Temperature category according to IEC 60871	Class	-10/D	
	Number of capacitor elements per capacitor unit:			
	- total number of capacitor elements	No		
	- number of capacitor elements connected in parallel	No		
	- number of capacitor elements connected in series	No		
	Number of capacitor units in each phase of the capacitor bank:			
	- total number of capacitor units in each phase	No		
	- number of capacitor units connected in parallel in each phase	No		
	- number of capacitor units connected in series in each phase	No		
	Total number of capacitor units per capacitor bank	No		
	Rated capacitance:			
	- of each capacitor element	µF		
	- of each capacitor unit	µF		
	- of single-phase of capacitor bank	µF		
	Permitted residual voltage of the capacitor unit	V	75	
	Maximum discharge time to specified residual voltage	min	10	
	Losses in capacitor unit determined according to IEC 60871 at dielectric temperatures of:			
	- 20 °C	W/kWAr		
	- 75 °C	W/kWAr		
	Capacitor units internally fused		Yes	
	Discharge resistor		Yes	
3.3	**Design and Construction**			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Capacitor element dielectric material			
	Dimensions and weights of capacitor units:			
	- width	mm		
	- depth	mm		
	- height	mm		
	- weight	kg		
	Dimensions of assembled capacitor bank:			
	- width	mm		
	- depth	mm		
	- height	mm		
	Material of the capacitor unit racks			
3.4	**Series (Current Limiting) Reactors**			
3.4.1	**General Data**			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Dry type	
	Serial number			
	Standards		IEC 60076-6	
	Installation			
3.4.2	**Rated Characteristics**			
	Rated system voltage	kV	33	
	Rated frequency	Hz	50	
	Highest voltage for equipment	kV	36	
	Rated power frequency withstand voltage (r.m.s. value), AC (50 Hz, 1 min)	kV	70	

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Rated lightning impulse withstand voltage (peak value), LI (1.2/50 µs)	kV	170	
	Rated current	A		
	Rated short-time (3 s) thermal current	kA	31.5	
	Rated inductance	mH		
	Winding resistance at 75°C	Ω/phase		
	Total loss at 75 ºC and rated current	kW		
	Maximum noise level	dB		
3.4.3	**Design and Construction**			
	Type of core			
	Type of winding			
	Type of cooling			
	Winding conductor material			
	Winding insulation material			
	Weights and dimensions:			
	- total weight	kg		
	- height	mm		
	- reactor diameter	mm		
	- weight or reactor arranged for transport	kg		
3.5	**Surge Arrester**			
3.5.1	**General Data**			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			
	Type		Metal oxide, gapless	
	Serial number			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Standards		IEC 60099-4	
	Installation			
3.5.2	**Rated Characteristics**			
	Rated system voltage	kV	33	
	Rated frequency	Hz	50	
	Highest voltage for equipment	kV	36	
	Rated power frequency withstand voltage (r.m.s. value), AC (50 Hz, 1 min)	kV	70	
	Rated lightning impulse withstand voltage (peak value), LI (1.2/50 μs)	kV	170	
	Rated arrester voltage (Ur)	kV		
	Rated continuous operating voltage (Uc)	kV		
	Rated discharge current (8/20 μs)	kA_{peak}		
	Line discharge class (IEC 60099-4)			
	Maximum residual voltages at 10 kA, 8/20 μs	kV		
3.5.3	**Design and Construction**			
	Insulation material			
	Weights and dimensions:			
	- weight	kg		
	- height	mm		
	- arrester diameter	mm		
3.6.	**Current Transformer for Unbalance Detection**			
3.6.1.	**General Data**			
	Manufacturer			
	Place of Manufacture			
	Place of Factory Inspection and Testing			

ITEM	DESCRIPTION	UNIT	DATA	
			Required	Offered
	Type		Epoxy resin	
	Serial number			
	Standards		IEC 61869-1&2	
	Installation			
3.6.2.	**Rated Characteristics**			
	Rated system voltage	kV	33	
	Rated frequency	Hz	50	
	Highest voltage for equipment	kV	36	
	Rated power frequency withstand voltage (r.m.s. value), AC (50 Hz, 1 min)	kV	70	
	Rated lightning impulse withstand voltage (peak value), LI (1,2/50 µs)	kV	170	
	Rated short-time (3 s) thermal current	kA	31.5	
	Rated dynamic current	kA	80	
	Rated transformation ratio	A/A		
	Accuracy class			
	Rated output	VA		
3.6.3.	**Design Characteristics**			
	Insulation material			
	Mass of complete current transformer	kg		