

## Generator Data

Project : Wanakbori

Identification (Refer to Single Line Diagram) .....

Type of Generator: mark as appropriate

- Turbo Generator
- Salient-Pole Generator

Rated Power	941.176	MVA
	988.235	MVA VWO output
Rated Frequency	50	Hz
Rated Voltage	27	kV
Minimum Service Voltage	25.65	kV
Maximum Service Voltage	28.35	kV
Rated Power Factor	0.85	Lag

Reactance Values (**Saturated**):

- Synchronuos Reactance, Direct Axis	1.818	pu	Saturated
- Transient Reactance, Direct Axis	0.233	pu	Saturated
- Subtransient Reactance, Direct Axis	0.15 ±7.5%	pu	Saturated
- Synchronuos Reactance, Quadrature Axis	2.103	pu	Unsaturated
- Transient Reactance, Quadrature Axis	0.641	pu	Unsaturated
- Subtransient Reactance, Quadrature Axis	0.155	pu	Saturated
- Negative Sequence Reactance	0.169	pu	Saturated
- Zero Sequence Reactance	0.0895	pu	Saturated

Resistance Values:

- Stator Resistance	0.001078	pu	ohm at 20deg C
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Time Constants (**Saturated**):

- Transient Short-Circuit Time Constant, Direct Axis	0.831	s
- Subtransient Short-Circuit Time Constant, Direct Axis	0.031	s
- Transient Short-Circuit Time Constant, Quadrature Axis	0.519	s
- Subtransient Short-Circuit Time Constant, Quadrature Axis	0.081	s
- Armature Time Constant	0.27	s

Exciter:

- Field Current which produces the Rated Voltage on the Air Gap Line	108	A	Field current at generator rated output and power factor.
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Mechanical Data:

- Speed	3000	rpm
- Moment of Inertia of Turbine/Generator/Exciter	.....	kgm2

Method of Grounding of Generator Star Point:

mark as appropriate

- Generator Star Point Ungrounded
- Generator Star Point Grounded via Resistance
- Generator Star Point Grounded via Restistance Connected to Secondary of Transformer or Voltage Transformer

- Generator Star Point Grounding Resistance	0.442 ohms	Ohm	NGR Value
- Grounding Transformer/Voltage Transformer:			
- Voltage on HV-Side	21	kV	NGT primay kV
- Voltage on LV-Side	0.5kV	kV	NGT secondary kV

## Step-up Transformer Data

### Two-Winding Transformer

Identification (Refer to Single Line Diagram)

Group Connection

Voltage Regulation:

- No Voltage Regulation
- Voltage Regulation on HV-Side:
  - On-Load Tap Changer
  - Off-Load Tap Changer

Rated Power

Reference Power \*)

Rated Frequency

Rated Voltage on HV-Side

Nominal Voltage on HV-Side (Nominal Tap)

Maximum Voltage on HV-Side (Maximum Tap)

Minimum Voltage on HV-Side (Minimum Tap)

Rated Voltage on LV-Side

\*) power on which pu values are based

Losses:

- Short-Circuit Losses (Referred to the Reference Power)

Impedance Values:

- Short-Circuit Impedance:

- Nominal Tap
- Maximum Tap
- Minimum Tap

Resistance Values:

- Ohmic Voltage Drop:

- Nominal Tap
- Maximum Tap
- Minimum Tap

**Project : Wanakbori**

**Generator Transformer**

**Bank of three** single phase two winding transformer.

..... --

**YNd11** --

mark as appropriate

**NA**

**Off circuit tap changer**

**322**

MVA 3 nos. single phase banks of 322 MVA each

MVA

**50**

Hz

**420**

kV

**420**

kV

**462**

kV

**378**

kV

**27**

kV

kW

**GT X/R = 50**

**0.2**

pu

pu

pu

pu

pu

pu

## Unit Transformer Data

Project : Wanakbori

### Two-Winding Transformer

Identification (Refer to Single Line Diagram)

Unit Transformer (UT) --

Group Connection

Dyn1 --

Voltage Regulation:

mark as appropriate

- No Voltage Regulation
- Voltage Regulation on HV-Side:
  - On-Load Tap Changer
  - Off-Load Tap Changer

On Load Tap Changer +10% to -12.5%  
NA

Rated Power

70 MVA

Reference Power \*)

MVA

Rated Frequency

50 Hz

Rated Voltage on HV-Side

27 kV

Nominal Voltage on HV-Side (Nominal Tap)

27 kV

Maximum Voltage on HV-Side (Maximum Tap)

29.7 kV

Minimum Voltage on HV-Side (Minimum Tap)

23.625 kV

Rated Voltage on LV-Side

11.5 kV

\*) power on which pu values are based

Losses:

X/R=34.1

- Short-Circuit Losses (Referred to the Reference Power)

kW

Impedance Values:

- Short-Circuit Impedance:

- Nominal Tap

0.15 pu

- Maximum Tap

pu

- Minimum Tap

pu

Resistance Values:

- Ohmic Voltage Drop:

- Nominal Tap

pu

- Maximum Tap

pu

- Minimum Tap

pu

Motor Load Connected to Secondary Side:

(UT-8A)

- Rated Voltage of Motor Connected to Secondary Side

11kV kV

- Total Motor Load

46 MVA APPROX

- Ratio of Starting Current to Rated Current

6 --

- X/R-Ratio

9 --

Motor Load Connected to Secondary Side:

(UT-8B)

- Rated Voltage of Motor Connected to Secondary Side

11kV kV

- Total Motor Load

23 MVA APPROX

- Ratio of Starting Current to Rated Current

6 --

- X/R-Ratio

9 --

## HV-System Data

Rated Voltage of HV-System	400	kV
Maximum Service Voltage of HV-System	420	kV
Minimum Service Voltage of HV-System	380	kV
Rated Frequency	50	Hz

Method of Neutral-Point Connection of HV-System:	mark as appropriate	
- <input type="checkbox"/> Isolated Neutral-Point		
- <input type="checkbox"/> Neutral-Point Grounded via Arc-Suppression Coil		
- <input type="checkbox"/> Neutral-Point Grounded via Resistance	.....	Ohm
- <input type="checkbox"/> Neutral Point Grounded via Reactance	.....	Ohm
- <input checked="" type="checkbox"/> Solidly Grounded Neutral-Point	Yes	

**Total** Short-Circuit Current at HV-Substation (with Contribution of All Generators and All Outgoing Lines):

- Maximum Three-Phase Short-Circuit Power		GVA
- Maximum Three-Phase Short-Circuit Current	40	kA
- X1/R1-Ratio	14	--
- X0/X1-Ratio	.....	--
- R0/R1-Ratio	.....	--

