



JABATAN KERJA RAYA MALAYSIA
CAWANGAN KEJURUTERAAN ELEKTRIK
UNIT PENSIJILAN BAHAN & STANDARD

TECHNICAL INFORMATION

11kV DRY-TYPE DISTRIBUTION TRANSFORMER

A. COMPANY INFORMATION					
COMPANY NAME :					
ADDRESS :		TELEPHONE NO :			
		FAX NO :			
		COMPANY EMAIL :			
ISO CERTIFIED COMPANY		REGISTRATION NO:		SCOPE:	
1. ISO 9001	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	.....
2. ISO 14001	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	.....
3. ISO 50001	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	.....
4. ISO	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	.....
B. PRODUCT INFORMATION					
BRAND NAME:					
MODEL : 1. 2. 3.					
4. 5. 6.					
7.					
STANDARD NO. (MS/MS IEC/IEC/etc.) :					
NAME OF ACCREDITED LABORATORY:			TEST CERTIFICATE NO.:		
			DATE OF ISSUE:		
NAME OF ACCREDITED LABORATORY:			TEST REPORT NO.:		
			DATE OF ISSUE:		
COUNTRY OF MANUFACTURE:					
NAME OF MANUFACTURER:					
FACTORY ADDRESS:					

	<i>To be Filled in</i>		<i>For Office Use</i>
	<i>by the Manufacturer</i>		
5. Standards Compliance			
5.1 General (MS 60076-1 or IEC 60076-1)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.2 Temperature Rise (IEC 60076-2)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.3 Insulation levels, dielectric tests and external clearances in air (IEC 60076-3)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.4 Short Circuit (IEC 60076-5)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.5 Sound Levels (IEC 60076-10)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.6 Dry-Type Transformers (MS 60076-11 or IEC 60076-11)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.7 Electrical insulation (MS IEC 60085 or IEC 60085)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.8 IP Code (MS IEC 60529 or IEC 60529)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.9 Partial Discharge (MS IEC 60270 or IEC 60270)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.10 Quality Management Systems (MS ISO 9001 or ISO 9001)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
5.11 Supplier's declaration of conformity (ISO/IEC 17050-1)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
6. The transformer shall be dry type cast resin type	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
7. Electrical System			
7.1 Max. three (3) phase fault level shall be 20 kA for 3 s (11kV)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
7.2 Max. three (3) phase fault level shall be 31.5 kA for 3 s (400V)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
8. Core & Core Structure			
8.1 The assembled core shall in a rigid structure, with clamping pressure of the press beams evenly distributed and adjusted to minimize the noise and vibration	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
8.2 Built using high quality, low loss, non-aging cold rolled grain oriented (CGRO) silicone steel laminations or amorphous steel and having excellent magnetic properties	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
8.2 Equipped with lifting lugs	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
9. All insulation materials used either individually or in combination with others shall be suitable for use with transformers, with an insulation system temperature of minimum 155°C (Class F)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
10. The winding insulation temperature shall be minimum 155°C (Class F) in accordance with MS IEC 60085.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
11. Windings			
9.1 HV winding shall be either enameled copper wire or copper foil.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>
9.2 LV windings shall be copper wire or copper foil.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>

12. The transformer shall be designed to carry the full short circuit current of the system 20 kA for 3 seconds Yes No
13. Provided with 2 earthing terminals and located diagonally opposite on either side of the undercarriage Yes No
14. Undercarriage
- 14.1 Equipped with four (4) bi-directional wheels Yes No
- 14.2 These wheels shall be adjustable for either transverse or longitudinal movement Yes No
15. The neutral connection shall be capable of carrying full phase rated current. Yes No
16. Any peculiarities of installation, assembly, transport and handling? Yes No

15. Technical particulars

Description		Model	Model	Model	Model	Model	Model
Rated Power (kVA)		300	500	750	1000	1250	2000
Max. Ambient Temperature (°C)							
Max. Altitude (metre a.s.l)							
No-Load Voltage Transformation Ratio							
Number of Phases							
Frequency (Hz)							
Vector Group							
Insulation Material	- HV & LV Winding						
	- Core Laminations						
	- Frame & Other Iron Parts						
Max. Current Density at Rated Load	- Primary (A/mm ²)						
	- Secondary (A/mm ²)						
Flux Density (Tesla)							
Material of Winding	- HV Winding						
	- LV Winding						
Type of Winding	- HV Winding (Copper Foil / Enamelled Copper Wire)						
	- LV Winding (Copper Foil / Copper Wire)						

Description		Model	Model	Model	Model	Model	Model
Rated Power (kVA)		300	500	750	1000	1250	2000
Short Circuit Impedance at 120°C (%)		4			6		
Insulation Class	- HV Winding						
	- LV Winding						
Winding Construction Process	- HV Winding						
	- LV Winding						
No-Load Current <i>(Please attach the design value calculation)</i>							
Sound Pressure Level (dB(A))							
No-Load Loss (W)		400	800	1000	1200	1880	2900
Load Loss at 120 °C (W)		2800	4100	6000	7000	8200	13000
Tapping Range							
Neutral Terminal <i>(Yes / No)</i>							
Rated Short Duration Separate Source AC Withstand Voltage	- HV Winding (kV)						
	- LV Winding (kV)						
Rated Impulse Withstand Voltage	- HV Winding (kV)						

Description		Model	Model	Model	Model	Model	Model	Model
Rated Power (kVA)		300	500	750	1000	1250	1600	2000
Material of HV Terminals								
Max. Temp. Rise of each Windings	- HV Winding (°C)							
	- LV Winding (°C)							
Material of Earthing Terminals								
Size of Earthing Terminals <i>(Min. M10 Threads)</i>								
De-rating Factor if IP 23 Enclosure or Higher is to Installed								
Overload Protection <i>(i.e. Dial Type / Digital Type)</i>								
Type of cooling								
Rated Power if Air Forced (AF) to be used (%)								
Overall Dimension (Without Enclosure)	✓ Length (mm)							
	✓ Width (mm)							
	✓ Height (mm)							
Total Weight without Enclosure (kg)								
Climatic Class <i>(Please attach the test report)</i>								

Description	Model	Model	Model	Model	Model	Model	Model
Rated Power (kVA)	300	500	750	1000	1250	1600	2000
Environmental Class <i>(Please attach the test report)</i>							
Fire Behaviour Class <i>(Please attach the test report)</i>							
Life span (years)							

16. Test Equipments

No.	Test Item	Equipment Name	Brand	Type/Model	Calibration Certificate No.	Calibration Period (month)
1	Measurements of winding resistances					
2	Measurement of voltage ratio and check of phase displacement					
3	Measurement of no-load loss and current					
4	Induced AC withstand voltage test					
5	Measurement of short-circuit impedance and load loss					
6	Separate-source AC withstand voltage test					
7	Measurement of partial discharge					
8	Lightning impulse test					
9	Measurement of sound levels					
10	Temperature rise test					

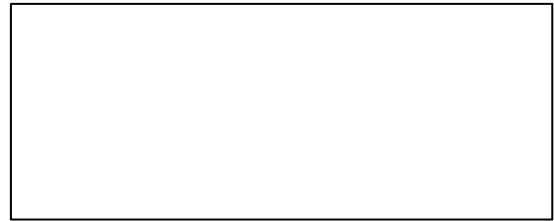
Note: All the calibration test reports must be submitted in English Language

I, hereby declare that the
(Transformer Manufacturer – Name of Person in Charge)
information given by me on behalf of the Company in this form and in any document
attached is correct, valid, complete and true.

Date:.....

Designation:.....

Signature:.....



Manufacturer's Stamp

FOR OFFICE USE

Comment:

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ANNEX A

TRANSFORMER ENCLOSURE
(To be filled in by the Supplier)

A.1 Transformer Enclosure

Description		Model	Model	Model	Model	Model	Model	Model
Rated Power (kVA)		300	500	750	1000	1250	1600	2000
Name of Enclosure Manufacturer								
Address of Enclosure Manufacturer								
Name of Painting Manufacturer								
Address of Painting Manufacturer								
Dimension	✓ Length (mm)							
	✓ Width (mm)							
	✓ Height (mm)							
Weight (kg)								
Degree of Protection (IP)								
Material		Electrogalvanised Sheet Steel and finished with epoxy oven baked						
Thickness of Frame (mm)								
Thickness of Panel, Cover and Door (mm)								
Inspection window	- size: 300 mm x 300 mm							
	- thickness: min. 3mm							
	- Material	Transparent polycarbonate						
	- Location	Two (2) numbers on every sides of the enclosure						
Assembly of enclosure		Mounted on transformer base frame						
Clearances (mm) between live parts and enclosure								

A.2 Test Equipments and Machines

No.	Equipment Name	Brand	Type/Model	Serial No.	Calibration Certificate No.	Calibration Date
1	Coating Thickness					
2	Caliper					
3	Cutting Machine				N/A	N/A
4	Bending Machine				N/A	N/A
5	Punching Machine				N/A	N/A

Note: The calibration test reports must be submitted with this application.

ANNEX B

SPARE PARTS AND TOOLS
(To be filled in by the Supplier)

B.1 Recommended Spare Parts and Tools

No.	Spare Parts	Price (RM)
1		
2		
3		
4		
5		

No.	Tools	Price (RM)
1		
2		
3		
4		
5		

I, hereby declare that the
(Name)
information given by me on behalf of the Company in this form and in any document
attached is correct, valid, complete and true.

Date:.....

Designation:.....

Signature:.....

Company's Stamp

ANNEX C

(Company's Letter Head)

Manufacturer's Declaration of Conformity
(in accordance with ISO/IEC 17050-1)

No.

Issuer's Name:

Issuer's Address:

Object of the Declaration:

The object of the declaration described above is in conformity with the requirements of the following documents:

Documents No.	Title	Edition/Date of Issue
.....	Test report	.....
.....	Calibration test reports	.....
.....	Technical catalogues	.....
.....	Manufacturing process Quality Assurance (Q.A) system	.....
.....	Company profile	.....
.....	Test procedures	.....
.....	Operation and maintenance manual	.....
.....	Instruction manual	.....

Additional Information:
.....
.....
.....

Place:

Date of issue:

Name:

Function:

.....
(Signature by the issuer)

CHECK LIST FOR APPLICANT

Please enclose the following items (non-returnable) in order to expedite the process and tick (✓) accordingly.

1. UPBS/B/PP/PPP Borang 1A PPP (Dis. 2018) atau UPBS/B/PP Borang 1A (Jun 2017)
2. Test Report(s)
3. Application Letter on the Company's Letter Head
4. Borang USPM/4A (Jul. 2020 Rev.4)
5. Form 49
6. Technical Catalogue for Transformer
7. Technical Catalogue for Overload Protection
8. Copies of documents forwarded must be certified by the Company (*signed and company's stamped*)
9. Manufacturing process Quality Assurance (Q.A) system
10. Calibration certificates (*All calibration certificates must be in Bahasa Malaysia or English Language*)
11. Indoor type enclosure detail drawing complete with distance layout between enclosure and transformer for 1000 kVA transformer (*Drawing must be endorsed by transformer manufacturer*)
12. Outdoor type enclosure detail drawing complete with distance layout between enclosure and transformer for 1000 kVA transformer (*Drawing must be endorsed by transformer manufacturer*)
13. Business License from local authority for enclosure manufacturer and painting manufacturer
14. ISO certificate (*if applicable*) for enclosure manufacturer and painting manufacturer
15. Borang Akuan (UPBS/BA/PP Jun 2017)
16. Supplier's Company Profile (*For new registration only*)
17. Transformer Manufacturer's Company Profile (*For new registration only*)
18. Authorization Letter as an authorized dealer issued by the manufacturer
19. Test procedures complete with circuit diagrams
20. Track Record (*For new registration only*)
21. O & M manual
22. Instruction manual for overload protection
23. Suggested retail price
24. Name plate specimen or drawing to be fitted at enclosure
25. Name plate specimen or drawing to be fitted at transformer
26. Form 9 (*Suruhanjaya Syarikat Malaysia*) for enclosure manufacturer and painting manufacturer
27. SOCSO/EPF for enclosure manufacturer and painting manufacturer
28. Flow chart and work process for enclosure manufacturer and painting manufacturer
29. Flow chart and details work process for insulation material (*HV & LV winding, Core Laminations, Frame and Other Iron Parts*) and winding construction (*primary and secondary*)

- Note:
1. Additional documents may be requested during processing.
 2. Approval is subject to the Technical Committee of the Electrical Engineering Branch, Public Works Department Malaysia
 3. Application forms can be downloaded from the website <http://www.ictjkr.gov.my/Emal/>