

# LAMPIRAN

Lampiran 1. Nameplate Tranfo

## B&D TRANSFORMER

<b>TRANSFORMER NUMBER</b> <b>YEAR OF MANUFACTURE</b> <b>STANDARD</b> <b>RATED POWER</b> <b>COOLING</b> <b>FREQUENCY</b> <b>PHASES</b> <b>CONNECTION SYMBOL</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>PX-001-FOHB</td></tr> <tr><td>CLASS</td></tr> <tr><td>IEC 60076</td></tr> <tr><td>36 / 60 MVA</td></tr> <tr><td>ONAN / ONAF</td></tr> <tr><td>50 HZ</td></tr> <tr><td>3</td></tr> <tr><td>YNyn0+d</td></tr> <tr><td>HV U 650 AC 275</td></tr> <tr><td>HVN U 95 AC 38</td></tr> <tr><td>LV U 125 AC 50</td></tr> <tr><td>LVN U 95 AC 38</td></tr> </table>	PX-001-FOHB	CLASS	IEC 60076	36 / 60 MVA	ONAN / ONAF	50 HZ	3	YNyn0+d	HV U 650 AC 275	HVN U 95 AC 38	LV U 125 AC 50	LVN U 95 AC 38	<b>SERIAL NUMBER</b> <b>MAXIMUM ALTITUDE</b> <b>TYPE OF OIL</b> <b>AMBIENT TEMP. REFERENCE</b> <b>TEMP. RISE BELOW 1000m ALTITUDE</b> <b>AVERAGE WIND. HOT SPOT</b> <b>VACUUM WITHSTAND CAPABILITY</b> <b>MASS</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>411000101</td></tr> <tr><td>1000 m</td></tr> <tr><td>UNINHIBITED NYNAS LIBRA</td></tr> <tr><td>30°C</td></tr> <tr><td>50 K</td></tr> <tr><td>55 K</td></tr> <tr><td>68 K</td></tr> <tr><td>&lt;0.133kPa</td></tr> <tr><td>&lt;0.133kPa</td></tr> <tr><td>&lt;0.133kPa</td></tr> <tr><td>22000 KG</td></tr> <tr><td>57000 KG</td></tr> <tr><td>98000 KG</td></tr> <tr><td>0.25 g</td></tr> <tr><td>40 kA</td></tr> <tr><td>25 kA</td></tr> <tr><td>25 kA</td></tr> </table>	411000101	1000 m	UNINHIBITED NYNAS LIBRA	30°C	50 K	55 K	68 K	<0.133kPa	<0.133kPa	<0.133kPa	22000 KG	57000 KG	98000 KG	0.25 g	40 kA	25 kA	25 kA
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<p><b>Notice</b> : Emergency capacity at max. hot spot temp 120°C at ambient 30°C</p>																																
<p>90 MVA 60 MVA      60 MVA 0      10 hours</p>																																
HIGH VOLTAGE-TERMINALS : 1N-1U-1V-1W																																
TAP	VOLT	AMPERE	MVA	CONNECTION TAP CHANGER																												
1	165000	209.9	60	N-12																												
2	163125	212.4	60	N-11																												
3	161250	214.8	60	N-10																												
4	159375	217.4	60	N-9																												
5	157500	219.9	60	N-8																												
6	155625	222.6	60	N-7																												
7	153750	225.3	60	N-6																												
8	151875	228.1	60	N-5																												
9	150000	230.9	60	N-4																												
10	150000	230.9	60	N-2																												
11	150000	230.9	60	N-12																												
12	148125	233.9	60	N-11																												
13	146250	236.9	60	N-10																												
14	144375	239.9	60	N-9																												
15	142500	243.1	60	N-8																												
16	140625	246.3	60	N-7																												
17	138750	249.7	60	N-6																												
18	136875	253.1	60	N-5																												
19	135000	256.6	60	N-4																												
LOW VOLTAGE-TERMINALS : 2n-2u-2v-2w																																
VOLT	AMPERE	MVA																														
22000	1574.6	60																														
TERTIARY-TERMINALS : 3u-3w																																
VOLT	AMPERE	MVA																														
10000	v3 666.67	20																														
TAP	VOLT		IMPEDANCE (%)																													
	HV	LV	36 MVA	60 MVA																												
1	165000	22000	2.72	12.33																												
9	150000	22000	2.72	12.33																												
17	135000	22000	2.72	12.33																												

Lampiran 2. Data Beban Transformator unit-2 Bulan Januari-Mei

No	Bulan	Data Beban Transformator unit-2
1.	Januari	
2.	Februari	
3.	Maret	

4. April

Handwritten data table for April 2021, titled "DATA BEBAN (TRANSFORMATOR)" and "TRAF0 No : 2 150 / 22 KV - 60 MVA B&D". The table is organized into columns for days of the week (1-7) and months (APRIL 2021). It contains numerical data for various electrical parameters such as Amp, MVA, and MVAR. The table is divided into sections for different time periods (10.00 WIB, 14.00 WIB, 18.00 WIB).

5. Mei

Handwritten data table for May 2021, titled "MEI 2021" and "TRAF0 No : 2 150 / 22 KV - 60 MVA B&D". The table is organized into columns for days of the week (1-7) and months (MEI 2021). It contains numerical data for various electrical parameters such as Amp, MVA, and MVAR. The table is divided into sections for different time periods (10.00 WIB, 14.00 WIB, 18.00 WIB).

6. Juni

Handwritten data table for June 2021, titled "JUNI 2021" and "TRAF0 No : 2 150 / 22 KV - 60 MVA B&D". The table is organized into columns for days of the week (1-7) and months (JUNI 2021). It contains numerical data for various electrical parameters such as Amp, MVA, and MVAR. The table is divided into sections for different time periods (10.00 WIB, 14.00 WIB, 18.00 WIB).

## Lampiran 3. Perhitungan Nilai Hotspot Menggunakan Excel

	A	B	C	D	E	F	G
1							
2							
3							
4							
5	Daya Akti	Daya Reakt	Daya Sem	Rasio Per	presentas	Rugi tembaga	Nilai
6	MW	MVAR	MVA	K	e	PLATE TR	d
7					pembaba		
8	37.0786	11.2071	38.74	0.646	64.6%	114.490	4.251
9	33.74	10.0733	35.21	0.587	58.7%	114.490	4.251
10	36.4563	10.675	37.99	0.633	63.3%	114.490	4.251
11	37.255	10.7545	38.78	0.646	64.6%	114.490	4.251
12	32.7563	9.14375	34.01	0.567	56.7%	114.490	4.251
13	34.2875	9.5625	35.60	0.593	59.3%	114.490	4.251
14			60.00	1.000	100.0%	114.490	4.251
15							

G	H	I	J	K	L	M	N	O

Nilai	Menentukan Temperatur ultimate minyak atas							$\Delta\theta_{ou}$
d	$\Delta\theta_{br}$	1	$k^2$	$1+(dk^2)$	1+d	=	$\wedge 0,9$	$^{\circ}C$
4.251	55	1	0.417	2.771582584	5.251	0.528	0.563	30.95
4.251	55	1	0.344	2.46393018	5.251	0.469	0.506	27.84
4.251	55	1	0.401	2.703804077	5.251	0.515	0.550	30.27
4.251	55	1	0.418	2.775328578	5.251	0.529	0.563	30.99
4.251	55	1	0.321	2.365604729	5.251	0.451	0.488	26.84
4.251	55	1	0.352	2.496063666	5.251	0.475	0.512	28.16
4.251	55	1	1.000	5.250603304	5.251	1.000	1.000	55.00

