



**GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS**

**PARTICULAR SPECIFICATION  
OF**

**3300/3100 HP WDG3A CLASS BG DIESEL-ELECTRIC  
LOCOMOTIVE**

**WITH EXTENDED DB, APU AND CCB**

**PARTICULAR SPECIFICATION  
NO. MP- 0.0800.93 (Rev.- 00)  
DECEMBER- 2009**

**RESEARCH DESIGN & STANDARDS ORGANISATION  
MANAK NAGAR, LUCKNOW-226 011.**

SNo	Item	3300HP	3100HP
1.	<b>General Data:</b> General arrangement as per RDSO Drawing No. SKDL-4727, SKDL- 4728		
1.1	Horse Power		
	- Installed power under standard conditions	3300 HP	3100HP
	- Installed power under site conditions	3152 HP	2900HP
	- Power input to traction under site conditions	2950 HP	2750HP
1.2	Gauge	1676 mm	1676 mm
1.3	Axle-load	20.5 T	20.5 T
1.4	Axle arrangement	Co-Co	Co-Co
1.5	Weight in working order	123 T	123 T
1.6	Wheel base	3800 mm	3800 mm
1.7	Minimum curve radius	174 M	174 M
1.8	Locomotive speed		
	- Maximum speed	100 kmph	100 kmph
	- Gear Ratio	18:74	18:74
1.9	Locomotive tractive force		
	- Maximum starting tractive force	38610 Kg	37884Kg
	- Continuous tractive force in (Kg)	25950 Kg	31920Kg
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1.10	Max. brake effort/Shoel	4833 Kg	4833 Kg
1.11	Height of coupler center above rail level	1090 $\pm$ 5 <sup>15</sup> mm	1090 $\pm$ 5 <sup>15</sup> mm
1.12	Max. overall dimension		
	- Length	17350 mm over buffer beam	17850 mm over buffer beam
	- Width (Over Cab)	2965 mm	2965 mm
	- Height (Max.)	4265 mm	4265 mm
1.13	Wheel diameter		
	- New	1092 mm	1092 mm
	- Condemning	1016	1016
1.14	Fuel capacity	6000 litres	6000 litres
1.15	Sand capacity	RDSO Drg. NO.- SK.VL-598	RDSO Drg. NO.- SK.VL-598
2.	<b>Service conditions</b>		
2.1	Ambient conditions		
	- Ambient temperature	47°C (Occasionally 52°C)	47°C (Occasionally 52°C)
	- Max. altitude	600 M from sea level	600 M from sea level
	- Max. relative humidity	Upto 100%	Upto 100%
3.	<b>Diesel Engine</b>		
	Data as per UIC 623	16-251E Alco	
4.	<b>Electrical Transmission</b>		
4.1	<b>Main Alternator</b>		
	- Model	BHEL 10102EV	TA 10102 CW
	- Rated High Voltage	1075 V	1100V
	- Low Voltage	593 V	525V
	- Rated current	3600 A	3700A
	- Rated speed	1050 RPM	

	- Excitation control	Microprocessor control	Type E Suitable for BHEL TA10102 CW
	- Insulation grade Stator / Rotor	Class H	Class H
	- Cooling mode	Self- Ventilated	Self- Ventilated
<b>4.2</b>	<b>Traction Motor</b>		
	- Model	BHEL TM 5002	BHEL 4906AZ
<b>4.3</b>	<b>Starting Generator / Auxiliary Motor</b>		
	- Model	BHEL AG 3101 AY-1	BHEL AG 2702 AZ-1
	- Continuous rating	75V,160A at 950-2380 rpm as AG	75V,160A at 950 rpm as AG
	- HP	17HP	
	- Ventilation	Self- Ventilated	Self- Ventilated
	- Operating rpm	760-2380 rpm Corresponding to idle and 8 <sup>th</sup> notch	760-2380 rpm Corresponding to idle and 8 <sup>th</sup> notch
	- Insulation grade Rotor / Stator	Armature- Class F Field -Class H	Armature- Class F Field -Class H

<b>4.4</b>	<b>Exciter</b>		
	- Model	BHEL AG 3101AY	BHEL AG 2702 AZ-1
	- Rated capacity	80V,260A at 2380rpm	90V,2200A at 2400 rpm As Exciter
	- Power	30HP	
	- Cooling mode	Self- Ventilated	Self- Ventilated
	- Insulation grade Rotor / Stator	Armature- Class F Field -Class H	Armature- Class F Field -Class H
<b>4.5</b>	<b>Insulation grade of electrical system</b>		
<b>4.6</b>	<b>Battery</b>		
	- Model	EXIDE (Lead Acid 4HMFG 31KP)	EXIDE (Lead Acid 4HMFG 31KP)
	- Rated capacity	450AH (10Hr)	450AH (10Hr)
	- Number of cell	32	32
	- Rated voltage	64	64
<b>5.</b>	<b>Operation control and regulation</b>	Adequate control equipment	Adequate control equipment
<b>6.</b>	<b>Pneumatic equipment</b>		
	- Type of brake equipment	CCB-II IR	R.D.S.O. SPEC. NO.-MP.0.01.00.24 REV.-01, FEB-2008
	- Type of Compressor	KCW623/LG3CDB	R.D.S.O. SPEC. NO.-MP.0.07.00.13 REV.-01, JUNE-2009
	- Compressor drive mode	From engine shaft through coupling	From engine shaft through coupling
	- Max. exhaust pressure (air delivery pressure)	10 kg/cm <sup>2</sup>	10 kg/cm <sup>2</sup>

	- Displacement FAD at 1000rpm	5700	5700
	- Main reservoir capacity	2 RES of 350 litre each	2 RES of 350 litre each
6.1	<b>Blowers (Front)</b>	Centrifugal multi-vane (DIDW)	MP.0.2400.11 Rev. 02
	<b>Blowers (Rear)</b>	Centrifugal multi-vane (SWSI)	MP.0.2400.08 Rev.01
7.1	<b>Auxiliary Power Unit</b>	R.D.S.O. SPEC. NO.- MP.0.24.00.62 REV.-01, Sep.-2009	R.D.S.O. SPEC. NO.- MP.0.24.00.62 REV.-01, Sep.-2009
8.1	<b>Extended DB</b>	R.D.S.O. SPEC. NO.- MP.MOD.EC.05.26.09 Date 16.09.2009	R.D.S.O. SPEC. NO.- MP.MOD.EC.05.26.09 Date 16.09.2009
9.1	<b>Roof Mounted DBR</b>	DLW Spec No.- DEL/SPN/217 EMD Drg. No.- 10631909, RDSO Spec. No.-MP.0.04.	DLW Spec No.- DEL/SPN/217 EMD Drg. No.- 10631909, RDSO Spec. No.-MP.0.04.