

MWM 2032 V16

COMPLETE POWER PLANT



COMPLETE POWER PLANT OF 16 MEGAWATT

The entire power plant is owned by GAS POWER HOLLAND

- 4 pieces MWM 2032V16
- Year of manufacturing 2011
- Running hours:

#1 at 18607 operating hours

#2 at 12261 operating hours

#3 at 17068 operating hours

#4 at 19206 operating hours

Scope:

- o Generator sets
- o Control panels
- o Gasline
- o Pumps
- o Heat exchanger
- o Transformers
- o Break panels
- o Silince

FULL SET OF DOCUMENTATION AND MAINTENANCE HISTORY IS AVAILABLE.

Mura Energy-Phase 1 (MWM: 136906 / 1369067)

Technical data
4300 kWel; 11000 V, 50 Hz; Acc. to gas analysis

MWM
Energy. Efficiency. Environment.
A Scania Company

Design conditions

Comb. air temperature / rel. humidity	[°C] / [%]	30 / 80
Altitude	[m]	100
Exhaust temp. after heat exchanger	[°C]	120
NO _x Emission (tolerance - 8%)	[ppm] @ 5% O ₂	500

GenSet:

Engine	Genset	
Speed	TCG3023V16	
Configuration / number of cylinders	[16V]	1600
Bore / Stroke / Displacement	[-]	4 / 16
Compression ratio	[mm]/[mm]/[dm ³]	300 / 320 / 222
Mean piston speed	[-]	12.0
Mean lube oil consumption at full load	[m/s]	10.7
Engine-management system	[g/kWh]	0.3
	[-]	TEM EVO

Generator	Maratti MJH 800 MC6	
Voltage / voltage range / cos phi	[V] / [%] / [-]	11000 / ±10 / 1
Speed / frequency	[rpm] / [Hz]	1000 / 50

Fuel gas data: *

Methane number	[-]	90
Lower calorific value	[MJ/m ³]	3.47
Gas density	[kg/m ³]	0.81
Gas composition		
Analysis: CO ₂	[Vol%]	2.88
H ₂	[Vol%]	0.07
O ₂	[Vol%]	0.30
H ₂	[Vol%]	0.08
CO	[Vol%]	0.00
CH ₄	[Vol%]	87.50
C ₂ H ₆	[Vol%]	0.00
C ₃ H ₈	[Vol%]	0.00
C ₄ H ₁₀	[Vol%]	0.00
C ₅ H ₁₂	[Vol%]	0.00
C ₆ H ₁₄	[Vol%]	0.00
C ₇ H ₁₆	[Vol%]	0.00
C ₈ H ₁₈	[Vol%]	0.00
C ₉ H ₂₀	[Vol%]	0.00
C ₁₀ H ₂₂	[Vol%]	0.00
H ₂ S	[Vol%]	0.00

Energy balance

Load:	[kW]	100	75	50
Electrical power ICGP acc. ISO 8528-1	[kW]	4300	3225	2150
Engine jacket water heat	[kW ± 8%]	1491	1103	708
Intercooler LT heat	[kW ± 8%]	411	295	194
Lube oil heat	[kW ± 8%]	478	359	244
Exhaust heat with temp. after heat exchanger	[kW ± 8%]	2345	1742	1482
Exhaust temperature	[°C]	456	482	512
Exhaust mass flow, wet	[kg/h]	23168	17708	13428
Combustion mass air flow	[kg/h]	22039	17048	12004
Radiation heat engine / generator	[kW ± 8%]	212 / 95	207 / 92	203 / 72
Fuel consumption	[kg/h]	9591	7081	4521
Electrical / thermal efficiency	[%]	43.0 / 43.6	42.0 / 44.8	38.2 / 47.1
Total efficiency	[%]	37.1	36.8	30.0

System parameters **

Ventilation air flow (comb. air incl.) with ΔT = 15K	[kg/h]	118800
Combustion air temperature minimum / design	[°C]	0 / 35
Exhaust back pressure from / to	[mbar]	30 / 50
Maximum pressure loss in front of air cleaner	[mbar]	5
Zero-pressure gas control unit selectable from / to *	[mbar]	20 / 200
Pre-pressure gas control unit selectable from / to *	[bar]	0.5 / 10
Air bottle, volume / pressure	[dm ³] / [bar]	2000 / 30
Starter motor	[dm ³] / [bar]	800 / 16
Lube oil content engine / base frame	[dm ³]	1850 / -
Dry weight engine / genset	[kg]	24860 / 51200

Cooling system

Glycol content engine jacket water / intercooler	[% Vol.]	0 / 0
Water volume engine jacket / intercooler	[dm ³]	570 / 51
KVS / Cv value engine jacket water / intercooler	[m ³ /h]	63 / 62
Jacket water coolant temperature in / out	[°C]	78 / 90
Intercooler coolant temperature in / out	[°C]	36 / 44
Intercooler water flow rate from / to	[m ³ /h]	100 / 125
Engine jacket water flow rate from / to	[m ³ /h]	110 / 65
Water flow rate engine jacket water / intercooler	[dm ³]	1.4 / 1.1
Water pressure loss engine jacket water / intercooler	[°C] / [m ³ /h]	80 / 125
Lube oil temp. engine inlet tank / lube oil flow rate		

→ intercooler 51

[To be filled: "Sound at ground level"]																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Frequency band [Hz]	20	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	25000	31500	40000	50000	63000	80000	100000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
A-weighting curve [dB]	30.3	30.3	33.4	36.8	40.0	43.8	47.9	52.3	57.0	62.1	67.5	73.2	79.2	85.5	92.1	99.0	106.1	113.4	120.9	128.6	136.5	144.7	153.1	161.7	170.5	179.5	188.7	198.1	207.7	217.5	227.5	237.7	248.1	258.7	269.5	280.5	291.7	303.1	314.7	326.5	338.5	350.7	363.1	375.7	388.5	401.5	414.7	428.1	441.7	455.5	469.5	483.7	498.1	512.7	527.5	542.5	557.7	573.1	588.7	604.5	620.5	636.7	653.1	669.7	686.5	703.5	720.7	738.1	755.7	773.5	791.5	809.7	828.1	846.7	865.5	884.5	903.7	923.1	942.7	962.5	982.5	1002.7	1023.1	1043.7	1064.5	1085.5	1106.7	1128.1	1149.7	1171.5	1193.5	1215.7	1238.1	1260.7	1283.5	1306.5	1329.7	1353.1	1376.7	1400.5	1424.5	1448.7	1473.1	1497.7	1522.5	1547.5	1572.7	1598.1	1623.7	1649.5	1675.5	1701.7	1728.1	1754.7	1781.5	1808.5	1835.7	1863.1	1890.7	1918.5	1946.5	1974.7	2003.1	2031.7	2060.5	2089.5	2118.7	2148.1	2177.7	2207.5	2237.5	2267.7	2298.1	2328.7	2359.5	2390.5	2421.7	2453.1	2484.7	2516.5	2548.5	2580.7	2613.1	2645.7	2678.5	2711.5	2744.7	2778.1	2811.7	2845.5	2879.5	2913.7	2948.1	2982.7	3017.5	3052.5	3087.7	3123.1	3158.7	3194.5	3230.5	3266.7	3303.1	3339.7	3376.5	3413.5	3450.7	3488.1	3525.7	3563.5	3601.5	3639.7	3678.1	3716.7	3755.5	3794.5	3833.7	3873.1	3912.7	3952.5	3992.5	4032.7	4073.1	4113.7	4154.5	4195.5	4236.7	4278.1	4319.7	4361.5	4403.5	4445.7	4488.1	4530.7	4573.5	4616.5	4659.7	4703.1	4746.7	4790.5	4834.5	4878.7	4923.1	4967.7	5012.5	5057.5	5102.7	5148.1	5193.7	5239.5	5285.5	5331.7	5378.1	5424.7	5471.5	5518.5	5565.7	5613.1	5660.7	5708.5	5756.5	5804.7	5853.1	5901.7	5950.5	6000.0	6049.5	6099.0	6148.5	6198.0	6247.5	6297.0	6346.5	6396.0	6445.5	6495.0	6544.5	6594.0	6643.5	6693.0	6742.5	6792.0	6841.5	6891.0	6940.5	6990.0	7039.5	7089.0	7138.5	7188.0	7237.5	7287.0	7336.5	7386.0	7435.5	7485.0	7534.5	7584.0	7633.5	7683.0	7732.5	7782.0	7831.5	7881.0	7930.5	7980.0	8029.5	8079.0	8128.5	8178.0	8227.5	8277.0	8326.5	8376.0	8425.5	8475.0	8524.5	8574.0	8623.5	8673.0	8722.5	8772.0	8821.5	8871.0	8920.5	8970.0	9019.5	9069.0	9118.5	9168.0	9217.5	9267.0	9316.5	9366.0	9415.5	9465.0	9514.5	9564.0	9613.5	9663.0	9712.5	9762.0	9811.5	9861.0	9910.5	9960.0	10009.5	10059.0	10108.5	10158.0	10207.5	10257.0	10306.5	10356.0	10405.5	10455.0	10504.5	10554.0	10603.5	10653.0	10702.5	10752.0	10801.5	10851.0	10900.5	10950.0	11000.0	11049.5	11099.0	11148.5	11198.0	11247.5	11297.0	11346.5	11396.0	11445.5	11495.0	11544.5	11594.0	11643.5	11693.0	11742.5	11792.0	11841.5	11891.0	11940.5	11990.0	12039.5	12089.0	12138.5	12188.0	12237.5	12287.0	12336.5	12386.0	12435.5	12485.0	12534.5	12584.0	12633.5	12683.0	12732.5	12782.0	12831.5	12881.0	12930.5	12980.0	13029.5	13079.0	13128.5	13178.0	13227.5	13277.0	13326.5	13376.0	13425.5	13475.0	13524.5	13574.0	13623.5	13673.0	13722.5	13772.0	13821.5	13871.0	13920.5	13970.0	14019.5	14069.0	14118.5	14168.0	14217.5	14267.0	14316.5	14366.0	14415.5	14465.0	14514.5	14564.0	14613.5	14663.0	14712.5	14762.0	14811.5	14861.0	14910.5	14960.0	15009.5	15059.0	15108.5	15158.0	15207.5	15257.0	15306.5	15356.0	15405.5	15455.0	15504.5	15554.0	15603.5	15653.0	15702.5	15752.0	15801.5	15851.0	15900.5	15950.0	16000.0	16049.5	16099.0	16148.5	16198.0	16247.5	16297.0	16346.5	16396.0	16445.5	16495.0	16544.5	16594.0	16643.5	16693.0	16742.5	16792.0	16841.5	16891.0	16940.5	16990.0	17039.5	17089.0	17138.5	17188.0	17237.5	17287.0	17336.5	17386.0	17435.5	17485.0	17534.5	17584.0	17633.5	17683.0	17732.5	17782.0	17831.5	17881.0	17930.5	17980.0	18029.5	18079.0	18128.5	18178.0	18227.5	18277.0	18326.5	18376.0	18425.5	18475.0	18524.5	18574.0	18623.5	18673.0	18722.5	18772.0	18821.5	18871.0	18920.5	18970.0	19019.5	19069.0	19118.5	19168.0	19217.5	19267.0	19316.5	19366.0	19415.5	19465.0	19514.5	19564.0	19613.5	19663.0	19712.5	19762.0	19811.5	19861.0	19910.5	19960.0	20009.5	20059.0	20108.5	20158.0	20207.5	20257.0	20306.5	20356.0	20405.5	20455.0	20504.5	20554.0	20603.5	20653.0	20702.5	20752.0	20801.5	20851.0	20900.5	20950.0	21000.0	21049.5	21099.0	21148.5	21198.0	21247.5	21297.0	21346.5	21396.0	21445.5	21495.0	21544.5	21594.0	21643.5	21693.0	21742.5	21792.0	21841.5	21891.0	21940.5	21990.0	22039.5	22089.0	22138.5	22188.0	22237.5	22287.0	22336.5	22386.0	22435.5	22485.0	22534.5	22584.0	22633.5	22683.0	22732.5	22782.0	22831.5	22881.0	22930.5	22980.0	23029.5	23079.0	23128.5	23178.0	23227.5	23277.0	23326.5	23376.0	23425.5	23475.0	23524.5	23574.0	23623.5	23673.0	23722.5	23772.0	23821.5	23871.0	23920.5	23970.0	24019.5	24069.0	24118.5	24168.0	24217.5	24267.0	24316.5	24366.0	24415.5	24465.0	24514.5	24564.0	24613.5	24663.0	24712.5	24762.0	24811.5	24861.0	24910.5	24960.0	25009.5	25059.0	25108.5	25158.0	25207.5	25257.0	25306.5	25356.0	25405.5	25455.0	25504.5	25554.0	25603.5	25653.0	25702.5	25752.0	25801.5	25851.0	25900.5	25950.0	26000.0	26049.5	26099.0	26148.5	26198.0	26247.5	26297.0	26346.5	26396.0	26445.5	26495.0	26544.5	26594.0	26643.5	26693.0	26742.5	26792.0	26841.5	26891.0	26940.5	26990.0	27039.5	27089.0	27138.5	27188.0	27237.5	27287.0	27336.5	27386.0	27435.5	27485.0	27534.5	27584.0	27633.5	27683.0	27732.5	27782.0	27831.5	27881.0	27930.5	27980.0	28029.5	28079.0	28128.5	28178.0	28227.5	28277.0	28326.5	28376.0	28425.5	28475.0	28524.5	28574.0	28623.5	28673.0	28722.5	28772.0	28821.5	28871.0	28920.5	28970.0	29019.5	29069.0	29118.5	29168.0	29217.5	29267.0	29316.5	29366.0	29415.5	29465.0	29514.5	29564.0	29613.5	29663.0	29712.5	29762.0	29811.5	29861.0	29910.5	29960.0	30009.5	30059.0	30108.5	30158.0	30207.5	30257.0	30306.5	30356.0	30405.5	30455.0	30504.5	30554.0	30603.5	30653.0	30702.5	30752.0	30801.5	30851.0	30900.5	30950.0	31000.0	31049.5	31099.0	31148.5	31198.0	31247.5	31297.0	31346.5	31396.0	31445.5	31495.0	31544.5	31594.0	31643.5	31693.0	31742.5	31792.0	31841.5	31891.0	31940.5	31990.0	32039.5	32089.0	32138.5	32188.0	32237.5	32287.0	32336.5	32386.0	32435.5	32485.0	32534.5	32584.0	32633.5	32683.0	32732.5	32782.0	32831.5	32881.0	32930.5	32980.0	33029.5	33079.0	33128.5	33178.0	33227.5	33277.0	33326.5	33376.0	33425.5	33475.0	33524.5	33574.0	33623.5	33673.0	33722.5	33772.0	33821.5	33871.0	33920.5	33970.0	34019.5	34069.0	34118.5	34168.0	34217.5	34267.0	34316.5	34366.0	34415.5	34465.0	34514.5	34564.0	34613.5	34663.0	34712.5	34762.0	34811.5	34861.0	34910.5	34960.0	35009.5	35059.0	35108.5	35158.0	35207.5	35257.0	35306.5	35356.0	35405.5	35455.0	35504.5	35554.0	35603.5	35653.0	35702.5	35752.0	35801.5	35851.0	35900.5	35950.0	36000.0	36049.5	36099.0	36148.5	36198.0	36247.5	36297.0	36346.5	36396.0	36445.5	36495.0	36544.5	36594.0	36643.5	36693.0	36742.5	36792.0	36841.5	36891.0	36940.5	36990.0	37039.5	37089.0	37138.5	37188.0	37237.5	37287.0	37336.5	37386.0	37435.5	37485.0	37534.5	37584.0	37633.5	37683.0	37732.5	37782.0	37831.5	37881.0	37930.5	37980.0	38029.5	38079.0	38128.5	38178.0	38227.5	38277.0	38326.5	38376.0	38425.5	38475.0	38524.5	38574.0	38623.5	38673.0	38722.5	38772.0	38821.5	38871.0	38920.5	38970.0	39019.5	39069.0	39118.5	39168.0	39217.5	39267.0	39316.5	39366.0	39415.5	39465.0	39514.5	39564.0	39613.5	39663.0	39712.5	39762.0	39811.5	39861.0	39910.5	39960.0	40009.5	40059.0	40108.5	40158.0	40207.5	40257.0	40306.5	40356.0	40405.5	40455.0	40504.5	40554.0	40603.5	40653.0	40702.5	40752.0	40801.5	40851.0	40900.5	40950.0	41000.0	41049.5	41099.0	41148.5	41198.0	41247.5	41297.0	41346.5	41396.0	41445.5	41495.0	41544.5	41594.0	41643.5	41693.0	41742.5	41792.0	41841.5	41891.0	41940.5	41990.0	42039.5	42089.0	42138.5	42188.0	42237.5	42287.0	42336.5	42386.0	42435.5	42485.0	42534.5	42584.0	42633.5	42683.0	42732.5	42782.0	42831.5	42881.0	42930.5	42980.0	43029.5	43079.0	43128.5	43178.0	43227.5	43277.0	43326.5	43376.0	43425.5	43475.0	43524.5	43574.0	43623.5	43673.0	43722.5	43772.0	43821.5	43871.0	43920.5	43970.0	44019.5	44069.0	44118.5	44168.0	44217.5	44267.0	44316.5	44366.0	44415.5	44465.0	44514.5	44564.0	44613.5	44663.0	44712.5	44762.0	44811.5	44861.0	44910.5	44960.0	45009.5	45059.0	45108.5	45158.0	45207.5	45257.0	45306.5	45356.0	45405.5	45455.0	45504.5	45554.0	45603.5	45653.0	45702.5	45752.0	45801.5	45851.0	45900.5	4

Generating Set

MWM

Manufacturer	MWM	-
Serial No.	2209365	-
Year of manufacture	2015	-
Rated power	4300	kW
Rated power factor	cos phi 1.0	-
Max. site altitude of installation	698	m
Max. ambient temperature	40	°C
Rated frequency	50	Hz
Rated voltage	11000	V
Rated current	225	A
Mass	52500	kg
Performance class	G2	-
Additional power for		
Governing purposes	5	%
Fuel	MME GAS	

MWM GmbH, 68167 Mannheim, Carl-Benz-Strasse 1

AvK		Bunsenstr. 17, D-85653 Ingoisstadt, Tel.: +49 844 792 0	
Synchronous Generator / Synchroner Generator		Normen / Standards: IEC 60034-1; VDE 0530 T1; ISO 9528-3	
Machine No. 8430348 B103		Made in Germany	
Year of Manufact.	2015	Gewicht / Weight	16.5 t
Type	DIG 156 L/6	Aufstellungshöhe / Altitude	< 1000 m
Bem. Leistung / Rated Load	4300kVA, BR	Schutzart / Degree of Protection	IP 23
Bem. Spannung / Rated Voltage	11000V, AC	Kühlart / Type of cooling	IC 01
Bem. Strom / Rated Current	225 A	Nur für Wälzlager / only for roller bearings	
cos phi	1.0	Fettmenge AS / Grease quantity AS	100g
Frequenz / Frequency	50 Hz	Fettmenge BS / Grease quantity BS	60g
Strangzahl / No. of Phases	3	Fettart / Grease type	MobilESSO Unires N3
Statorwicklung / Stator Conn.	Y	Nachschmierintervall / Relubrication Interval	700h
Bem. Klasse / Duty Type	S 1	Bemerkungen / Remarks	
Bem. Drehzahl / Rated Speed	1000 rpm	Grease quantity per lubrication point	
Überdrehzahl / Overspeed	1200 rpm		
Drehrichtung / Direction of Rotation	Uhrzeigersinn / CW facing DE	Temperatur Grenzwert / Limit of temperature	
Phasenfolge / Time phase sequence	U V W		
Isol. / Ausr. Klasse / Insul. / Utl. Class	F/F	Bem. Em. Spannung / Rated Exc. Voltage	
Temperatur Grenzwert / Limit of temperature	145 °C		
Bem. Em. Spannung / Rated Exc. Voltage	40 V	Bem. Em. Strom / Rated Exc. Current	
Bem. Em. Strom / Rated Exc. Current	3.4 A		
Luftinlettemp. Gen. / Air Inlet Temp. Gen.	40 °C	Max. Umgebungstemp. / Max. Ambient Temp.	
Max. Umgebungstemp. / Max. Ambient Temp.	40 °C		
Min. Umgebungstemp. / Min. Ambient Temp.	-15 °C	Nur bei Wärmetauschern: Eintrittstemperatur des Sekundärkühlmittels / For Heat Exchangers only: Secondary Coolant inlet Temperature	













We look forward to hearing from you at your earliest convenience
Sincerely.