

www.mwm.net

TCG 2032

Efficiency straight down the line.

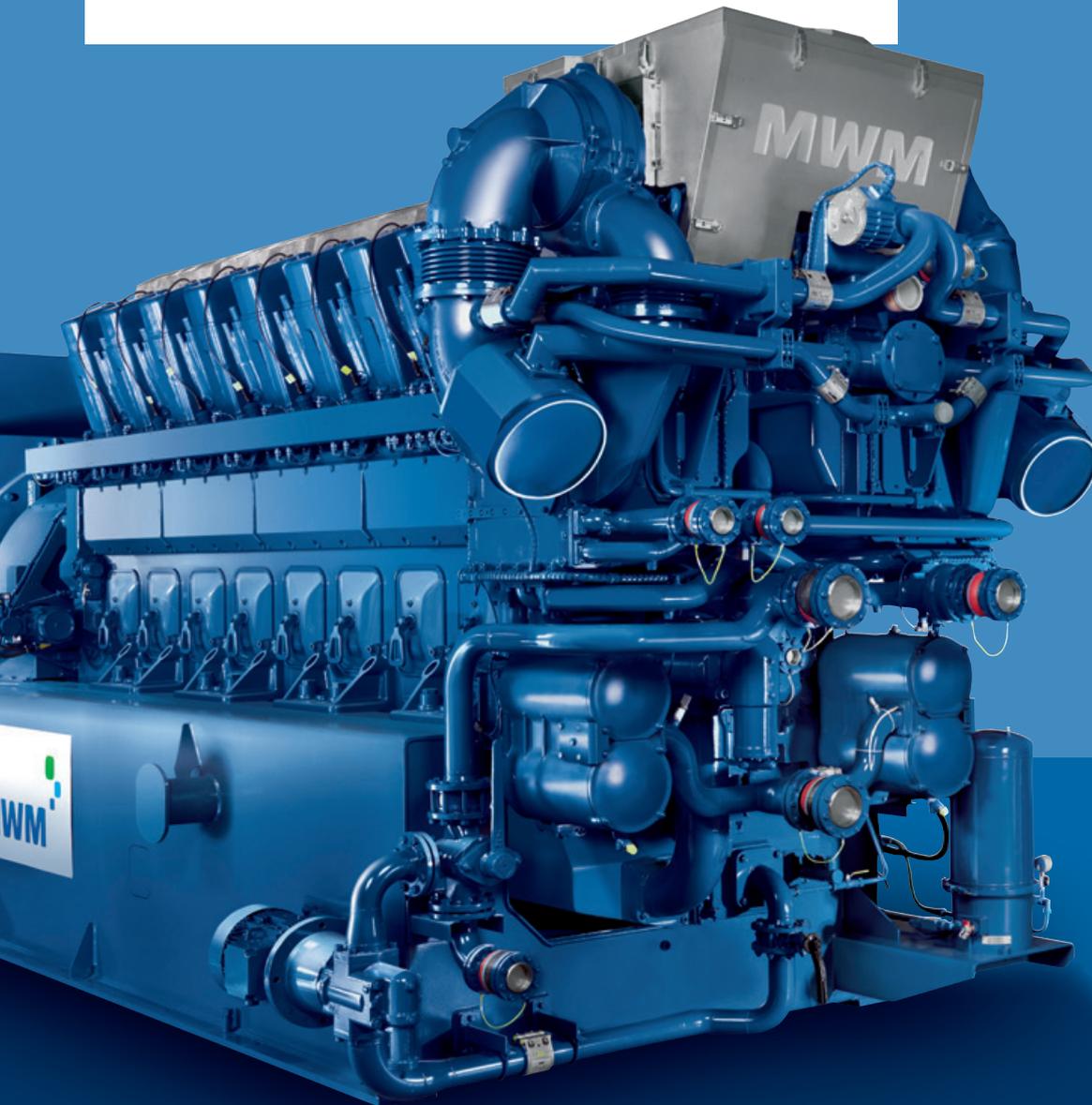


Reliability

System

Service

Profit



The TCG 2032. Top performance from MWM – used successfully worldwide.

Precision Energy, Bangladesh

In 2010, MWM shipped 15 TCG 2032 V16s to Precision Energy Bangladesh within just three months. The gas engines produce a constant overall output of 60 MW_{el}. All of the electric energy that has been generated is fed into the public grid. More information about this project can be found in our MWM movie “60 MW Around the World” at www.mwm.net.



AMD Dresden, Germany

MWM engines were chosen for the energy supply center of the AMD chip factory in Dresden, since our system generates electricity of supreme quality. Moreover, the waste heat is used for heat supply and cold production, thus achieving very high primary energy utilization.



Italiana Coke, Italy

MWM engines were installed for the environmentally friendly utilization of the coke oven gas generated at the coke oven plant Italiana Coke. The electricity rebate, whose amount is determined by law, gives the operator a secure income from the sale of the electricity generated at the plant, in addition to the company's core business, the production of metallurgic coke.



CITIC Guan project, China

The TCG 2032 V12 gas engines in Dongtai as well as the engines of the type TCG 2032 V16 in Xitai produce a total of 18 MW_{el} for the CITIC Guan project for the extraction of raw materials. Building the two plants at the salt lake of the Chaidam basin at an altitude of 3,000 m above sea level presented very special challenges to the project.





Strong arguments for a strong brand: MWM.

MWM has more than 140 years of experience

MWM has made a tradition out of innovation. We have been developing and building engines and gensets for a wide range of uses since 1871. Our global success is founded on having invented the most advanced four-stroke diesel engines. And, 30 years ago, we became one of the first manufacturers to revolutionize generator technology using high-performance gas engines. To this day we continue to work constantly on making our systems more efficient.

MWM understands what's really needed

Today, cost-effectiveness is crucial! MWM offers cooperation all along the line, which pays off right across the process chain. We are the complete partner to our customers: from the selection of the system layout for the project, all the way to service and repair.

MWM offers the most economical service concepts

With its worldwide service network, long service intervals and low maintenance costs, MWM Service is an important factor for lasting efficiency. Innovative offerings such as remote diagnosis, remote parameter configuration

and the generation of operating values can be provided cheaply anywhere in the world using the Internet. The new MWM Logistics Centre also means fast deliveries and low spares costs. Shortblocks can be delivered and assembled easily, so your system will be ready for operation in the shortest possible time. Another benefit is that our own training centre offers top-level, practically oriented courses for your technicians.

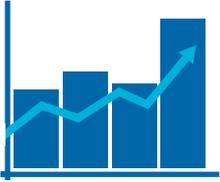
MWM thinks in terms of the complete solution

Only if all of the components in your system are selected and configured perfectly for your needs will you achieve optimum overall efficiency. We have the experience, the technology and the capacity. Our engineers can develop tailor-made complete solutions especially for you. From comprehensive cogeneration concepts for electricity, heat and cooling, to containerized solutions, to turn-key systems – MWM can develop complete concepts to suit your needs, and implement them reliably too. All in all, system engineering just the way you want it.

You can rely on MWM

Clear statements, transparent offers: we keep our promise. We are always there when you need us. Test us – on site, at your plant.

Performance. Reliability. Cost-effectiveness. For your success.



More profit

The optimized maintenance concept with cylinder units simplifies accessibility and, along with the reduction of the number of different parts, minimizes the time required for maintenance. This saves up to 20% in service costs. At the same time you profit from up to 30% less lubricating oil consumption compared to other engines.



Longer runtimes

Thanks to the extended service intervals, the TGC 2032 runs up to 200 hours longer per annum than comparable products.



Greater reliability

The particle-free combustion with chamber plugs extends the service intervals for the exhaust gas heat exchanger and reduces service costs compared to other combustion methods.



Optimum efficiency

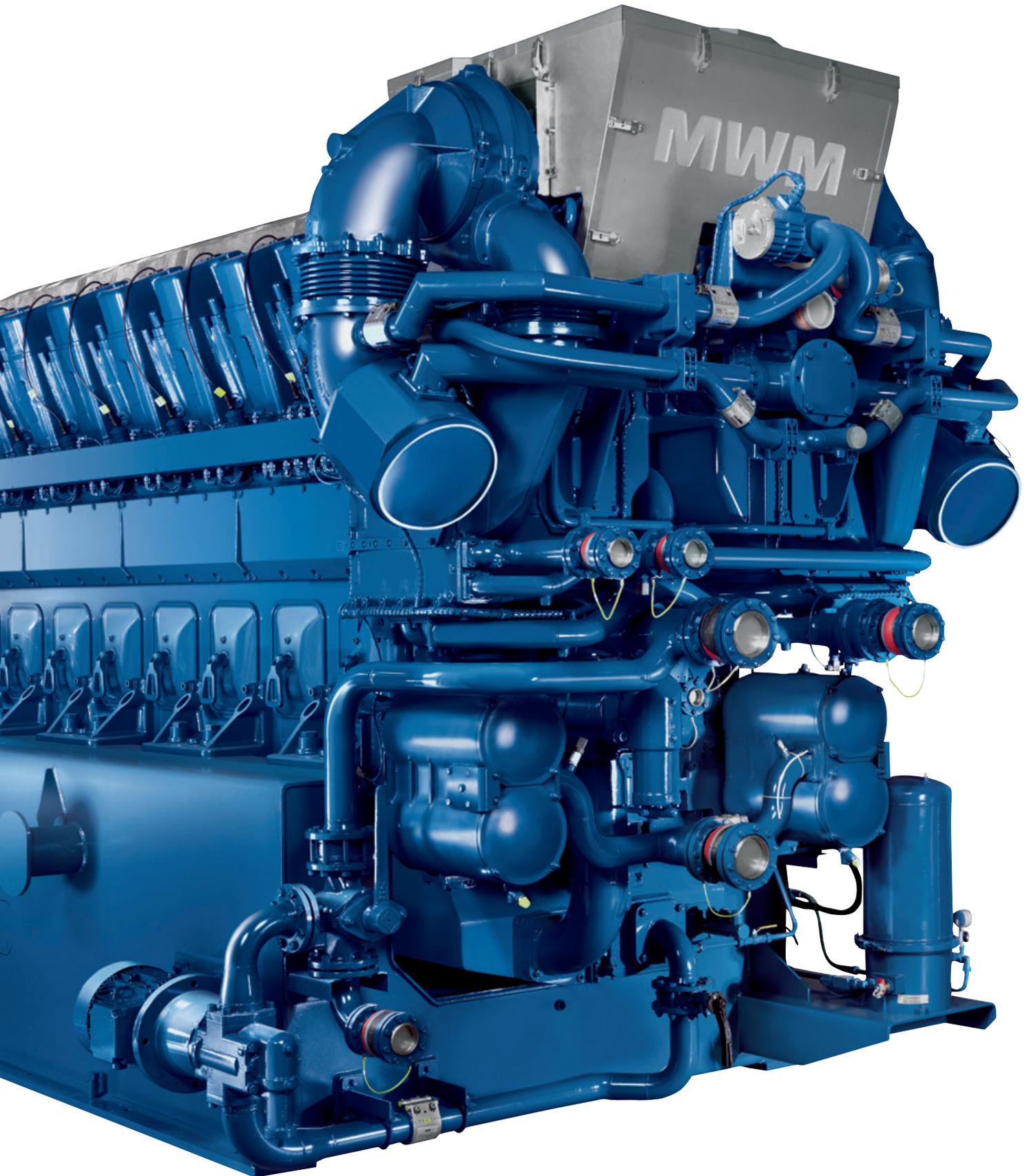
State-of-the-art technologies, such as the optimized gas mixer and TEM (Total Electronic Management), ensure efficient operation even with such difficult gases as mine gas, landfill gas, or sewage gas. This is also true when the gas composition is fluctuating – thanks to fast response times due to the temperature monitoring for each cylinder. TEM not only controls the engine, but the entire system, including heat extraction.



Full turbo power

The new high-pressure turbo charger A140 in combination with optimized gas exchange allows the engine to run at full power, even under tropical conditions.





Technical data 50 Hz

Engine type		TCG 2032 V12	TCG 2032 V16
Bore/stroke	mm	260/320	260/320
Displacement	dm ³	203.9	271.8
Speed	min ⁻¹	1000	1000
Mean piston speed	m/s	10.7	10.7
Length ¹⁾	mm	7860	9200
Width ¹⁾	mm	2660	2690
Height ¹⁾	mm	3390	3390
Dry weight engine	kg	43100	51400

Natural gas applications

$\text{NO}_x \leq 500 \text{ mg/Nm}^{3,2)}$

dry exhaust pipes

Engine type		TCG 2032 V12	TCG 2032 V16
Electrical power ³⁾	kW	3333	4300
Mean effective pressure	bar	20.0	19.4
Thermal output ⁴⁾	$\pm 8\%$ kW	3206	4164
Electrical efficiency ³⁾	%	44.1	44.1
Thermal efficiency ³⁾	%	42.4	42.7
Total efficiency ³⁾	%	86.5	86.8

Biogas applications

$\text{NO}_x \leq 500 \text{ mg/Nm}^{3,2)}$

Sewage gas (65% CH₄ / 35% CO₂)

Biogas (60% CH₄ / 32% CO₂, rest N₂)

Landfill gas (50% CH₄ / 27% CO₂, rest N₂)

minimum heating value $H_u = 5.0 \text{ kWh/Nm}^3$
dry exhaust pipes

Engine type		TCG 2032 V12	TCG 2032 V16
Electrical power ⁵⁾	kW	2830	3770
Mean effective pressure	bar	17.0	17.0
Thermal output ⁴⁾	$\pm 8\%$ kW	2734	3460
Electrical efficiency ⁵⁾	%	42.3	42.9
Thermal efficiency ⁵⁾	%	40.8	39.4
Total efficiency ⁵⁾	%	83.1	82.3

1) Transport dimensions for gensets; components set up separately must be taken into consideration.

2) NO_x -emissions: $\text{NO}_x \leq 0.5 \text{ g NO}_2/\text{Nm}^3$ dry exhaust gas at 5% O₂.

3) According to ISO 3046/1 at voltage = 11 kV, cosphi = 1 for 50 Hz, and a methane number of MN 70.

4) Cooling of the exhaust gases to 120°C for natural gas and 180°C for biogas.

5) According to ISO 3046/1 at voltage = 11 kV, cosphi = 1 for 50 Hz.

Data for special gases and dual gas operation on request.

The values given on these datasheets are for information purposes only and not binding. The information given in the offer is decisive.

Technical data 60 Hz

Engine type		TCG 2032 V12	TCG 2032 V16
Bore/stroke	mm	260/320	260/320
Displacement	dm ³	203.9	271.8
Speed	min ⁻¹	900	900
Mean piston speed	m/s	9.6	9.6
Length ¹⁾	mm	8000	9420
Width ¹⁾	mm	2660	2690
Height ¹⁾	mm	3390	3390
Dry weight engine	kg	42500	51450

Natural gas applications

NO_x ≤ 500 mg/Nm^{3 2)}

dry exhaust pipes

Engine type		TCG 2032 V12	TCG 2032 V16
Electrical power ³⁾	kW	3000	4000
Mean effective pressure	bar	18.1	18.1
Thermal output ⁴⁾	±8 % kW	2893	3884
Electrical efficiency ³⁾	%	43.7	43.7
Thermal efficiency ³⁾	%	42.1	42.4
Total efficiency ³⁾	%	85.8	86.1

Biogas applications

NO_x ≤ 500 mg/Nm^{3 2)}

Sewage gas (65 % CH₄ / 35 % CO₂)

Biogas (60 % CH₄ / 32 % CO₂, rest N₂)

Landfill gas (50 % CH₄ / 27 % CO₂, rest N₂)

minimum heating value H_u = 5.0 kWh/Nm³
dry exhaust pipes

Engine type		TCG 2032 V12	TCG 2032 V16
Electrical power ⁵⁾	kW	2530	3370
Mean effective pressure	bar	17.0	17.0
Thermal output ⁴⁾	±8 % kW	2416	3018
Electrical efficiency ⁵⁾	%	42.2	43.1
Thermal efficiency ⁵⁾	%	40.3	38.6
Total efficiency ⁵⁾	%	82.5	81.7

1) Transport dimensions for gensets; components set up separately must be taken into consideration.

2) NO_x-emissions: NO_x ≤ 0.5 g NO_x/Nm³ dry exhaust gas at 5% O₂.

3) According to ISO 3046/1 at voltage = 4,16 kV, cosphi = 1 for 60 Hz, and a methane number of MN 80.

4) Cooling of the exhaust gases to 120°C for natural gas and 180°C for biogas.

5) According to ISO 3046/1 at voltage = 4,16 kV, cosphi = 1 for 60 Hz.

Data for special gases and dual gas operation on request.

The values given on these datasheets are for information purposes only and not binding. The information given in the offer is decisive.

MWM GmbH
Carl-Benz-Straße 1
DE-68167 Mannheim
T +49 621 384-0
F +49 621 384-8800
info@mwm.net

MWM Energy Australia Pty. Ltd.
21 McDonalds Lane
AU-3170 Mulgrave, Victoria
T +61 3 9262-3000
F +61 3 9262-3033
info-energy-australia@mwm.net

MWM Benelux B.V.
Soerweg 13
NL-3088 GR Rotterdam
T +31 10 2992-666
F +31 10 2992-677
info-benelux@mwm.net

MWM Energy Hungaria Kft.
Ezred u.1-3
HU-1044 Budapest
T +43 5242 21300
F +43 5242 21300-600
info-hungaria@mwm.net

MWM Austria GmbH
Münchner Straße 22
AT-6130 Schwaz
T +43 5242 21300
F +43 5242 21300-600
info-austria@mwm.net

MWM Energy España S.A.
Avda de los Artesanos, 50
ES-28950 Tres Cantos/Madrid
T +34 91 80745-00
F +34 91 80745-07
mwm.energy-espana@mwm.net

MWM Latin America Soluções
Energéticas Ltda.
Av. Dr. José Bonifácio C. Nogueira
214 sala 418
BR-CEP 13091-611 Campinas/SP
T +55 19 3396-5777
info-latin-america@mwm.net

MWM France SAS
Péripark Gennevilliers
99/101 Avenue Louis Roche Bât E5
FR-92230 Gennevilliers
T +33 14790 7780
F +33 14790 7781
info-france@mwm.net

MWM of America, Inc.
1750 Breckinridge Parkway
Suite 500
US-Duluth, GA 30096
T +1 770 279 6720
F +1 770 279 6719
info-america@mwm.net

MWM Korea
Representation office
#1706 Mapo Sinyoung Gwell
461 Kong-Duk-Dong
KR-121-805 Mapo-Ku Seoul
T +82 2 2123 9831/2
F +82 2 2123 9833
info.mwmap@mwm.net

MWM (Beijing) Co., Ltd.
Room 2-02, CITIC Building,
Tower A
No. 19 Jianguomen Wai Street,
Chaoyang District
CN-Beijing, 100004
T +86 10 6528 5116
F +86 10 6528 9316
info-mwm-beijing@mwm.net

MWM Moscow
Representation office
Bldg. 1, 5/2, 1st Kazachiy per.
RU-119017 Moscow
T +7 495 234 4941
info-moscow@mwm.net

MWM Asia-Pacific Pte. Ltd.
11 Kian Teck Road
SG-628768 Singapore
T +65 6268 5311
F +65 6266 3039
info-asia-pacific@mwm.net



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A Caterpillar Company

Performance

