

# 26<sup>th</sup> World Gas Conference

1 – 5 June 2015, Paris, France



HIGH EFFICIENT CHP SINGLE 10MW GAS ENGINE  
POWER PLANT EXPERIENCE REPORT

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# CHP Brownfield Project: Volkswagen Brunswick/FRG

- **Main project parameters:**

- Prime mover:	1x 20V35/44G
- electrical power output	10,4 MWe
- thermal power output	9,15 MWth
- overall plant efficiency (net)	84.3% (0% Tolerance)

- **MAN Diesel & Turbo SE Scope:**

- engineering and planning services
- genset delivery
- mechanical component delivery
- electrical component delivery
- Installation of the equipments and interconnections
- Commissioning and start-up and testing

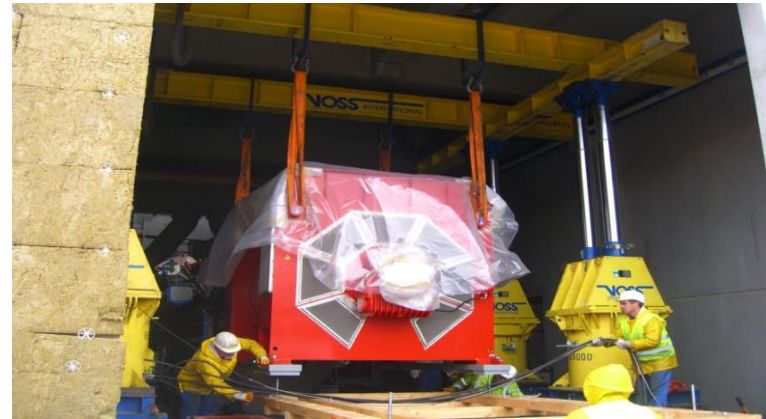


# CHP Brownfield Project: Volkswagen Brunswick/FRG

- Tailor made design solution in order to reach
  - Highest possible plant efficiency
  - Integration of big equipments into confined spaces
- Partially installed in existing buildings, partially in new building
- High noise requirements
- Emission limits TA Luft (oxidation catalyst)
- Existing temperature nets at preset temperature level puts a limit to the overall achievable plant efficiency
- Parallel execution of building works, equipment installation works and prefabrication works
- Close coordination and cooperation amongst the various parties
- HSE-Safety First



# Construction Impressions Genset Installation





# Construction Impressions Equipment Installation



# MAN Diesel& Turbo SE Gas Power Plants Summary

- **Advanced Engine Technology**

- High Efficiency/low emissions
- High operational flexibility
- Wide operating range at full power

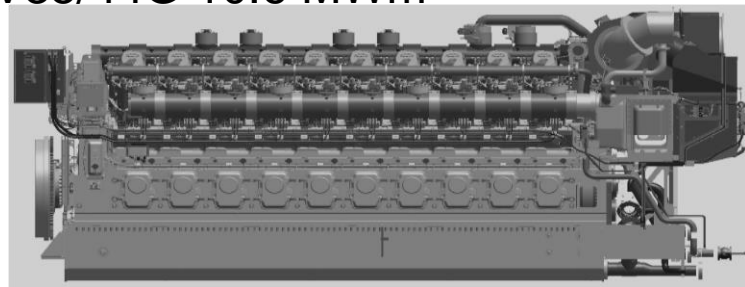
- **Power Plant Design and Construction experience**

- Engine Combined Cycle
- Emission abatement systems
- Combined Heat and Power

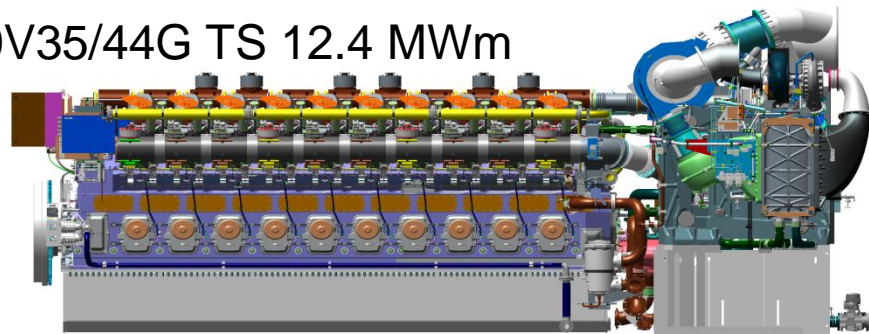
- **Global Service and Support Infrastructure**

- Service
- Operation
- Training

20V35/44G 10.6 MWm

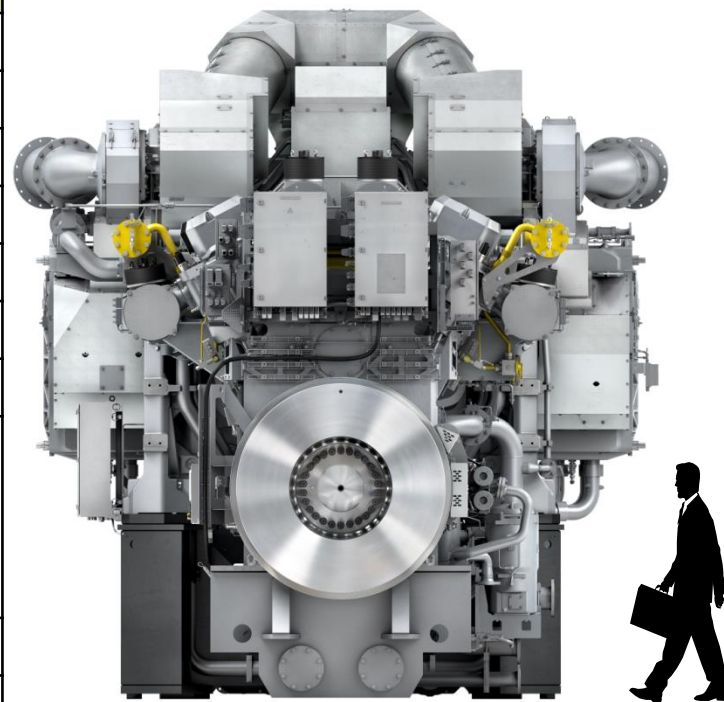


20V35/44G TS 12.4 MWm



# The Gas Engine 20V 35/44G TS

Specification	Dimension	50 Hz	60 Hz
Bore / Stroke	mm	350 / 440	
Swept Volume	litre/cyl.	42,3	
V - angle	°	55	
Speed	min <sup>-1</sup>	750	720
Cyl. Output	kW <sub>m</sub> /cyl.	620	590
BMEP	bar	23,4	
Power Output	kW <sub>m</sub>	12.400	11.800
<b>Efficiency</b> TA-Luft, MN = 80, 100 % Load, cos φ = 0,9 ISO-Conditions (25 °C, 1 bar), with attached pumps, η <sub>Alternator</sub> 97,5%	% <sub>el</sub>	48,8	
Height	mm	5.200	
Width	mm	5.200	
Length	mm	12.000	
Dry weight	tons	135	

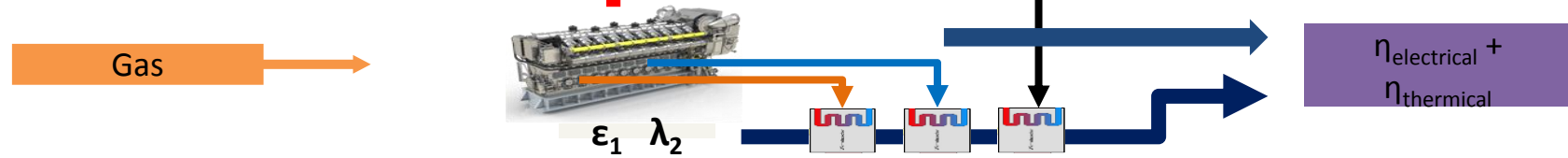


# Modular Approach for all types of applications

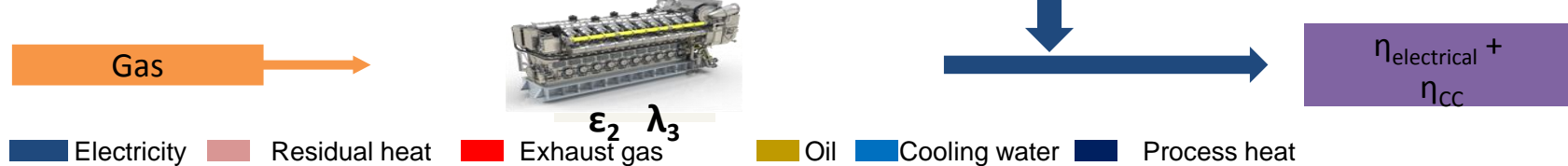
## Single Cycle



## Combined Heat & Power



## Combined Cycle



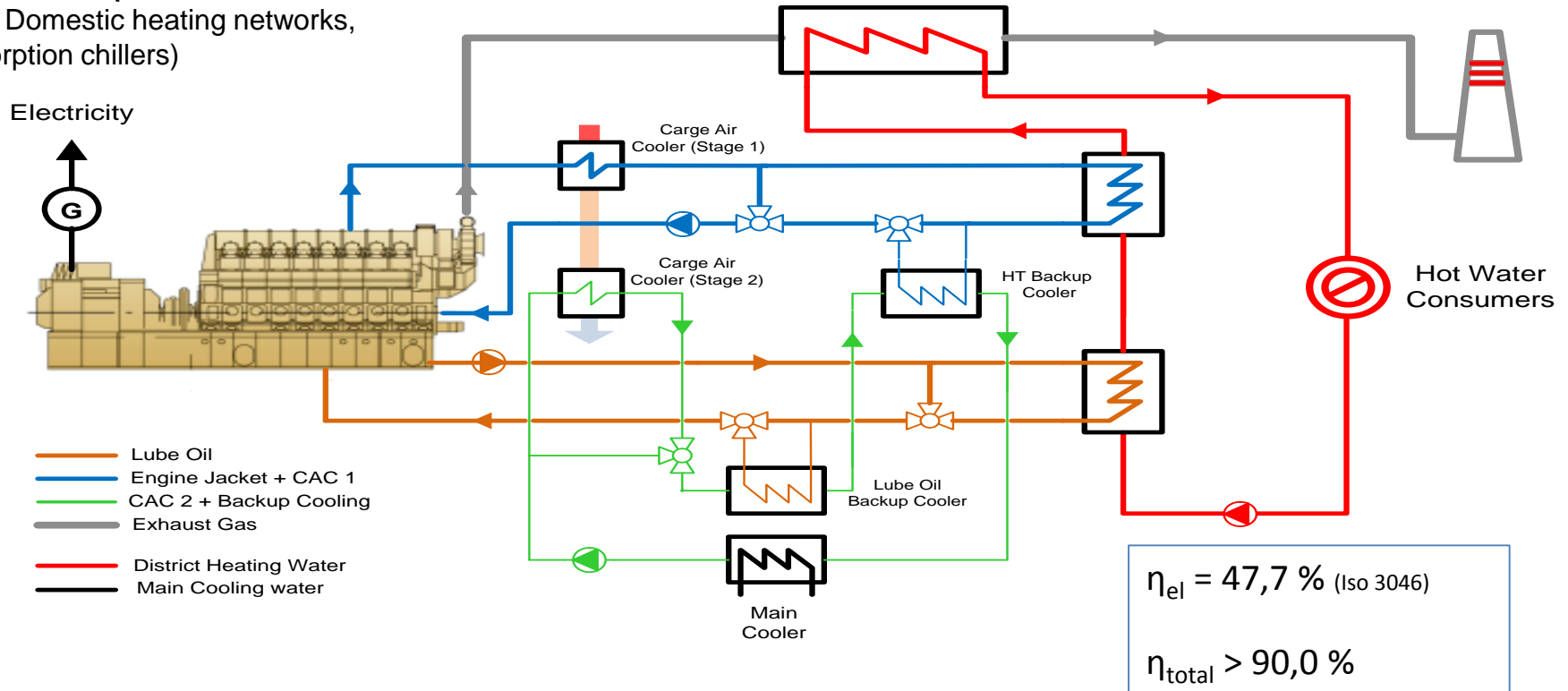
Optimize the engine for maximum efficiency



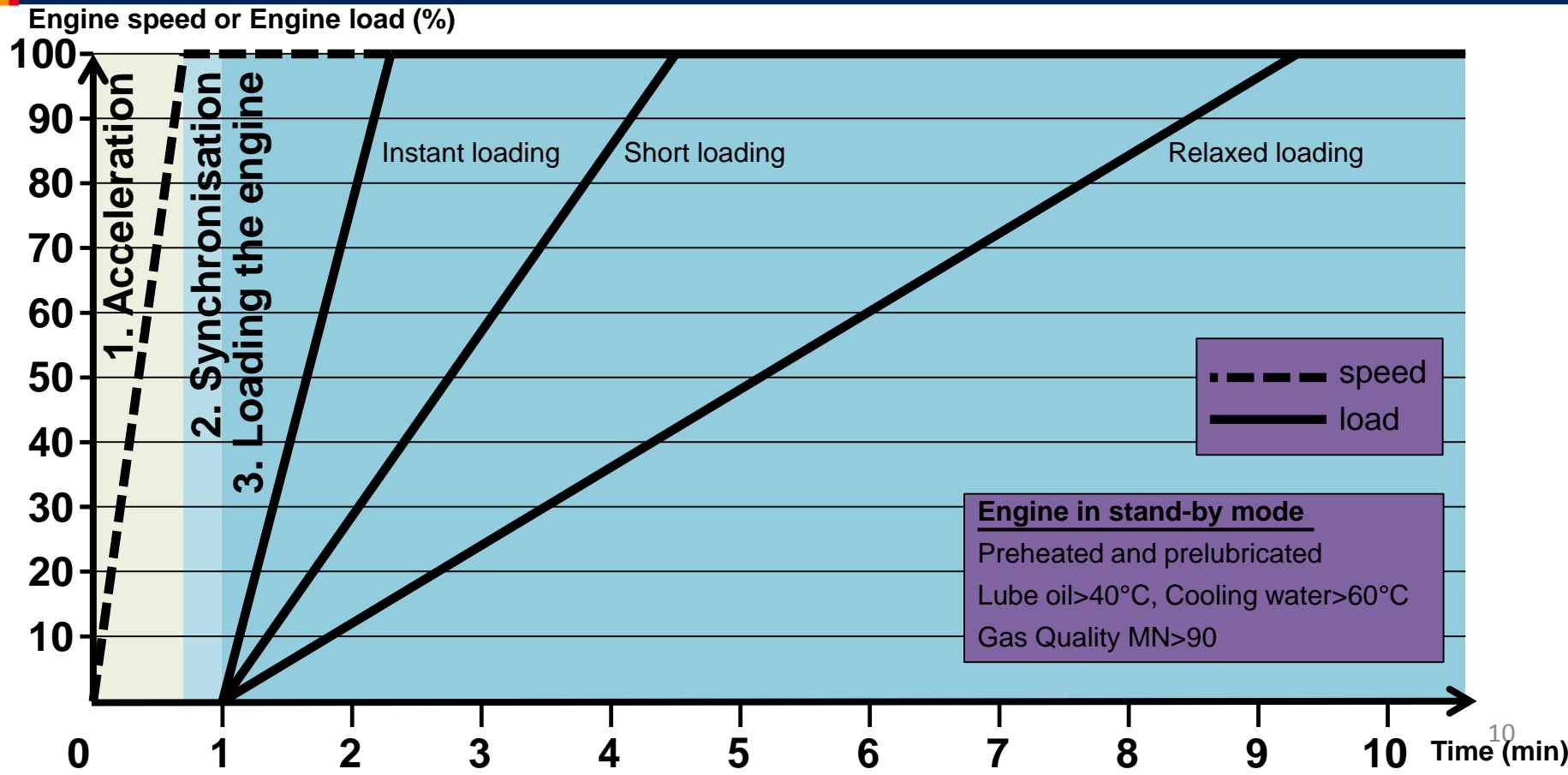
# Typical combined Heat & Power (CHP)

Hot water production  
(e.g. Domestic heating networks,  
absorption chillers)

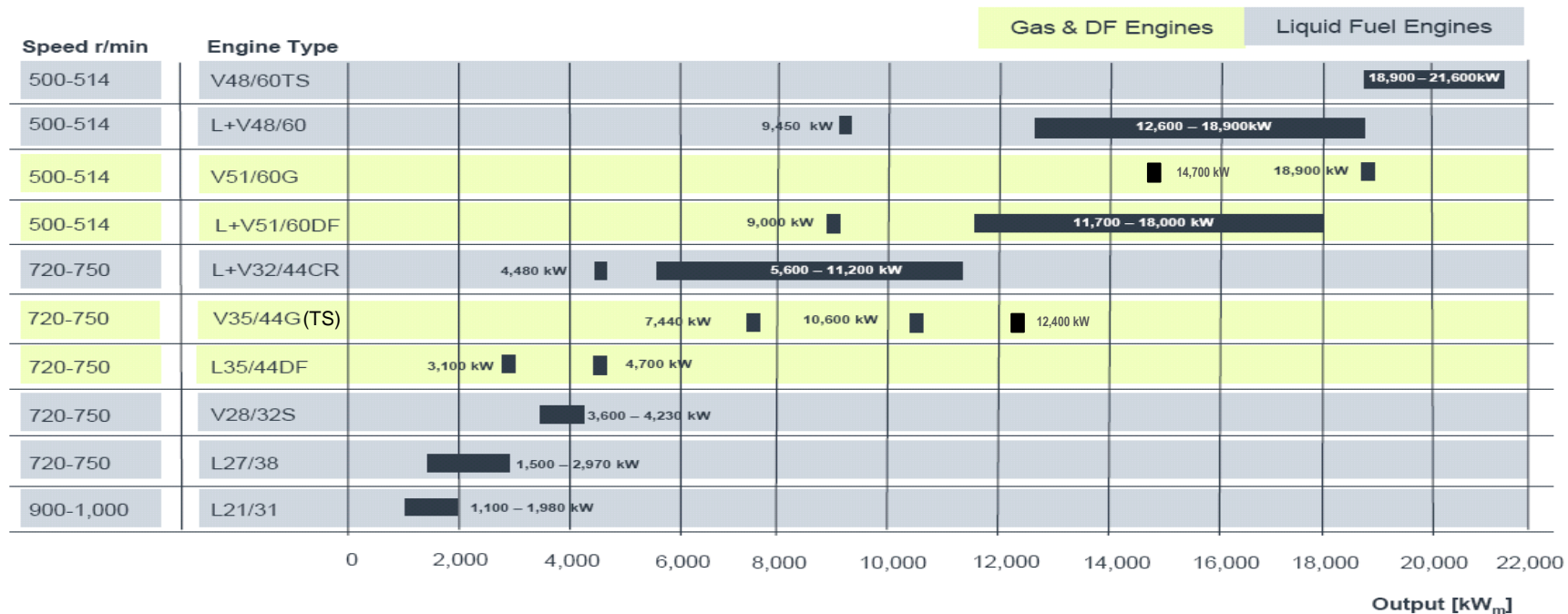
Total plant efficiency can exceed 90%



# 20V35/44G Highly Flexible Operational Behaviour



# 4-Stroke Engine Portfolio MAN Diesel&Turbo SE



# Disclaimer

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This data serves informational purposes only and is especially not guaranteed in any way. Depending on the subsequent specific individual projects, the relevant data may be subject to changes and will be assessed and determined individually for each project. This will depend on the particular characteristics of each individual project, especially specific site and operational conditions.