



# N67TEVP05.00

## G-DRIVE STAGE V



Brochure main description		@1500rpm	@1800rpm
<b>Application &amp; simbol</b>		Power Generation	
Engine identification main		N67	
Engine identification rating	kW	200	230
Engine features		PG G-Drive	
Emission feature		Stage V	
Main characteristics		@1500rpm	@1800rpm
Emission certification		Stage V	
Commercial code (for order)		N67TEVP05.00	
Other Commercial code		-	
Technical code (original plant engine code, on engine block)		F4HGE615D*V001	
Technical homologation code		F4HGE615D*V	
Stand-by power (gross) [mech]	kW	200	230
Specific power	kW/l	29,8	34,3
Electric commercial power (estimation alternator power output)	kWe [kVA]	180,7 [225,9]	208 [260]
BMEP	bar	23,8	22,8
Oil consumption on mission (average)	% fuel consumption	0,3	
Cycle		diesel - 4 stroke	
Air charging system pattern		Turbocharged aftercooled	
Number of cylinder		6	
Configuration (cylinder arrangement)		in line	
Bore	mm	104	
Stroke	mm	132	
Stroke / Bore		1,27	
Displacement	l	6,7	
Unit Displacement	l	1,12	
Bore pitch	mm	120	
Valves per cylinder		4	
Cooling system type		liquid	
Direction of rotation (looking flywheel)		anti-clockwise	
Compression ratio		17 : 1	
Firing order		1 - 5 - 3 - 6 - 2 - 4	
Injection type		direct - electronic common rail	
Engine brake configuration		-	
Be10		8000 h	
<b>Cylinder Head</b>		N/A	
Single / Multiple		single	
Material		cast iron	
Head air circulation		crossflow	
Intake valve dia.	mm	33	
Exhaust valve dia.	mm	33	
<b>Camshaft</b>		N/A	
Layout		OHV	
Cam carrier		no	
Material and Heat treatment		chilled cast iron	
Valve train		mechanical tappet & push rod	



# N67TEVP05.00

## G-DRIVE STAGE V



Main characteristics		@1500rpm	@1800rpm
Drivetrain (timing system)			gear tappet
Valve actuation			tappet & push rod
Variable valve actuation system			no
Cylinder block (crankcase)			No Structural
Material of cylinder block			cast iron
Type of liners			dry
Liners replaceable; (slip fit or interference fit)			no
Bearing caps			machined cast iron
Crankcase Ventilation			yes
Oil separator			coalescent filter
<b>Crankshaft &amp; counterweights</b>			N/A
Material			forged steel
Acceptable Inertia (clutch)	kgm <sup>2</sup>		0,75
Balancing			no
<b>Turbocharger &amp; EGR system</b>			N/A
Turbocharger type			fixed geometry with wastegate valve
Turbocharger supplier			Borgwarner
Turbocharger control			WG pneumatic control
Pressure after turbocharger compressor	mbar		1750
Max turbine inlet temperature	°C		700
Temperature after turbocharger compressor	°C		N/A
Method of cooling the turbocharger			oil lubricated
Turbo protection devices			WG + software strategy
EGR type			-
EGR control strategy			-
EGR recirculation rate			-
Valve			-
Cooler			-
Control			-
Air mass measurement			-
<b>Exhaust flap</b>			N/A
Exhaust flap supplier			Pierburg
Actuation type			electronic actuator
Exhaust flap cooling			yes
<b>Switchability (1500-1800 rpm)</b>			N/A
Emission level 1500 rpm			Stage V
Emission level 1800 rpm			T4B (from end 2019)
<b>Front power take off</b>			N/A
PTO type			-
Max torque available from front of crankshaft (no side load)	Nm		400
<b>Power take off on gear train</b>			N/A
SAE A 9 teeth	Nm		-
SAE A 11 teeth	Nm		-
SAE B 13 teeth	Nm		-
SAE B (DIN 5482)	Nm		-
SAE 2B 15 teeth( ANSI B92,1)	Nm		-
<b>References values</b>			N/A
Engine dimension LxWxH (indicative values)	mm		1103 x 764 x 1164



# N67TEVP05.00

## G-DRIVE STAGE V



Main characteristics		@1500rpm	@1800rpm
G-Drive Dimension LxWxH (indicative values)	mm	N/A	
Max permissible engine inclination	deg	25	
Engine Weight - Dry (no fluids, value purely indicative)	kg	454	
Engine Weight - Wet (with fluids, value purely indicative)	kg	469	
G-Drive Weight - Dry (no fluids, value purely indicative)	kg	610	
G-Drive Weight - Wet (with fluids, value purely indicative)	kg	N/A	
Center of gravity (FFOB or RFOB according to picture, standard engine layout)	mm	N/A	
Principal moment of inertia (reference on center of gravity ,standard engine layout)	kgm <sup>2</sup>	N/A	
Principal moment of inertia (reference matrix based on center of gravity,standard engine layout)	kgm <sup>2</sup>	N/A	
Center of gravity (FFOB or RFOB according to picture, standard IPU/G-Drive layout)	mm	X = -20,1 mm, Y = 178,4 mm, Z = -405,4	
Principal moment of inertia (reference on center of gravity ,standard IPU/G-Drive layout)	kgm <sup>2</sup>	Ix = 3,3322568e+07 kgm <sup>2</sup> , Iy = 6,4960636e+07 kgm <sup>2</sup> , Iz = 7,49486493e+07	
Principal moment of inertia (reference matrix based on center of gravity,standard IPU/G-Drive layout)	kgm <sup>2</sup>	N/A	
Mass moment of inertia - rotating components (excluding flywheel)	kgm <sup>2</sup>	0,33	
Mass moment of inertia - standard flywheel	kgm <sup>2</sup>	0,7 - 1,3	
Bending moment on the flywheel housing	Nm	Point 1: within safety factor with mass 130 kg @ max Z:380 mm Point 2: within safety factor with mass 55 kg @ max Z:750 mm Point 3: within safety factor with mass 36 kg @ max Z: 1050mm	
Flywheel housing SAE sizing		N/A	
Flywheel SAE sizing		N/A	
Bending moment on PTO	Nm	140	
Max static mounting surface load	N	N/A	
Crankshaft thrust bearing pressure limit		not available	
Intermittent load:	MPa	-	
Continuous load:	MPa	15	
Rear main bearing load	MPa	-	
Max bending moment available from front of the crankshaft:		not available	
0 deg	Nm	100	
90 deg	Nm	270	
180 deg	Nm	270	
<b>Environmental operating conditions</b>		N/A	
Max altitude for declared performances	m	1500	
Max ambient temperature for declared performances	°C	depends from inlet air temperature, max temperature is 45°	
Min guaranteed temperature for cold start w/o any aid (stand alone engine)	°C	- 15	
Min guaranteed temperature for cold start with Air Heater (stand alone engine)	°C	- 25 (with grid heater and fuel heater)	
Min guaranteed temperature for cold start with grid heater and block heater (stand alone engine)	°C	- 30 (with grid heater, fuel heater and block heater)	
Time preheating for manifold heater	s	- 3°C = 0 s ; - 30°C = 21	
Time post heating for manifold heater	s	- 3°C : 0 s ; - 20°C : 200	
Low idle continuous operation time (reccomended)	h	3	
<b>Engine performance [*]</b>		N/A	
Continuous power (gross) [mech]	kW	145	167



# N67TEVP05.00

## G-DRIVE STAGE V



Main characteristics		@1500rpm	@1800rpm
Prime power (gross) [mech]	kW	181	209
Stand-by power (gross) [mech]	kW	200	230
Fan consumption [mech]	kW	5	8,5
Continuous power (net) [mech]	kW	140	159
Prime power (net) [mech]	kW	176	201
Stand-by power (net) [mech]	kW	195	222
Typical generator output		160	184
Generator available power @ Prime power	kW	210	238
Generator available power @ Stand by	kW	230	260
<b>Power limitation according to ambient conditions</b>		N/A	
Ambient temperature above xx°C	%/5°C (xx°C)	2	
Altitude > 1000 < 3000m above sea level	%/500m	3	
Altitude > 3000m above sea level	%/500m	6	
<b>Power limitation due to safety protections</b>		N/A	
Pre-Warning: first advice of high coolant temperature[**]. Switch-on of the amber lamp	°C	102	
Warning: second advice of high coolant temperature[**]. Switch-on of the red lamp	°C	106	
Start of derating	°C	106	
Altitude level: gradual reduction of transient response by smoke map correction from	m	2000	
Fuel temperature	°C	70	
Intake manifold air temperature	°C	70	
ATS Max gas inlet temperature	°C	580	
Max allowed exhaust temperature	°C	600	
Turbine overheating protection	°C	700	
Turbine overspeed protection	rpm	-	
Oil temperature protection	°C	125	
Oil pressure protection (min engine rpm)	bar	0,5	
<b>Fuel System</b>			
Fuel density	kg/l	0,835	
Injection system type		electronic common rail	
Injection pump manufacturer		Bosch	
Injection model type		CRSN2-16	
Injection model pump		Bosch CP3.3	
Injection pressure	bar	1600	
Injector		Bosch CRIN2-16	
Injector installation (sleeve, sealing flat or conical)		vertical - no sleeve - flat seal	
Injector nozzle		8 x 400	
Engine fuel compatibility		see dedicated GOLD Book document on fluids	
Feed pump on engine		integrated in high pressure pump	
Max fuel flow supply line	l/h	280	
Nominal feed pressure	bar	0,5 - 1	
Fuel filter		single cartridge, left side	
Fuel filter clogging sensor		yes	
Max continuous allowable fuel temperature (without derating)	°C	70	
Max relative pressure at gear pump inlet	bar	0	
Min relative pressure at gear pump inlet	bar	- 0,5	



# N67TEVP05.00

## G-DRIVE STAGE V



### Fuel System

Max back flow relative pressure	bar	0,2
Max back flow restriction	bar	0,2
Max heat rejection to return fuel	kW	0,65
Max fuel flow return line	kg/h	455
Min fuel tank venting requirement	m <sup>3</sup> /h	0,4
Prefilter / Water separator micron size	µm	30

### Air Intake System

		@1500rpm	@1800rpm
Aftercooling system type		air to air	
Interstage cooling type		-	
RoA (Temperature raise between ambient and inlet to engine)	°C	≤ 25	
Filter air intake temperature (warm air ricirculatuion)	°C	≤ 5	
Max intake manifold temperature	°C	50	
Compressor inlet pressure (with new air filter)	hPa	≥ - 45	
Compressor inlet pressure (with dirty air filter)	hPa	≥ - 65	
Air filter type		-	
Loads on turbocharger on compressor intake	kg	2,5	
Loads on turbocharger on compressor outlet	kg	2,5	
Charge air flow (max)	kg/h	818	960

### Exhaust System

		@1500rpm	@1800rpm
Max back pressure (after exhaust flap) @ rated power with clean system	hPa	250	
Max mechanical load on turbine flange	kg	0	
Max ambient temperature for exhaust flap actuator	°C	105	
Max exhaust temperature After Treatment System	°C	550	
Max exhaust flow rate	kg/h	996	
Energy to exhaust	kW	156,3	179,8

### After Treatment System

After Treatment System	DOC + SCRof + CUC		
POC	-		
DPF	Yes		
DOC	Yes		
SCR	Yes		
Urea Dosing System	Yes		
AdBlue mixer	yes		
ATS sensors	temperature, delta pressure, humidity, NOx		
DPF regeneration strategy	active and passive		

### Lubrication System

Oil sump capacity, max level	l	14,7
Oil sump capacity, min level	l	8,8
Oil system capacity including filter	l	16
Oil pump type		gear pump
Oil pump drive arrangement		driven by gear
Min oil pump flow	l/min	~ 12
Max oil pump flow (@rated speed)	l/min	~ 50
Min oil pressure @ low idle (engine oil temp at 120°C)	kPa (bar)	60 (0,6)



# N67TEVP05.00

## G-DRIVE STAGE V



### Lubrication System

Min oil pressure @ rated speed (engine oil temp at 120°C)	kPa (bar)	350 (3,5)
Max oil pressure @ rated speed (engine oil temp at 120°C)	kPa (bar)	350 (3,5)
Max oil temperature @ full load (in main gallery)	°C	< 120
Max oil pressure peak on cold engine	bar	15
Oil cooler type		water cooled
Transducer for indicating oil temperature and pressure		signal from ECU
Max engine angularity - longitudinal / transversal (std oil pan)	deg	< 35° (depends on the oil pan)
Allowed engine gradability during installation on vehicle	deg	+/- 4°
Oil servicing intervals	h	see dedicated GOLD Book document on fluids
Oil filter type		single cartridge, right side
Oil filter capacity	l	1
Max oil content admitted in blow by gas (after filter)	g/h	0,3
Oil for cold condition mission (T° ambient < -25°C)		see dedicated GOLD Book document on fluids

### Cooling system

		@1500rpm	@1800rpm
Type (water to water or air to water)		water to water	
Recommended coolant		see dedicated GOLD Book document on fluids	
Min radiator cap pressure	kPa	0,7	
Warnnig setting first threshold	°C	102	
Max additional restriction (cooling system)	Pa	N/A	
Air to boil (prime power, open genset configuration). For further information see GB document	°C	@1500rpm:60	@1800rpm:60
Air flow (prime power, open genset configuration)	m³/s	4,142	4,78
Air to boil (stand by, open genset configuration). For further information see GB document	°C	@1500rpm:60	@1800rpm:60
Air flow (stand by, open genset configuration)	m³/s	4,212	5,181
EGR Cooler water flow (for ΔT=6°C)	l/s	-	
LP-CAC water flow (for ΔT=6°C)	l/s	-	
<b>Fan</b>		N/A	
Diameter	mm	685	
Number of blades		12	
Drive ratio		1,4	
Speed		2115 (@50Hz) / 2538 (@60Hz)	
Air flow		3,8 (m3/s) @50Hz / 4,8 (m3/s) @60Hz	
Power consumption		4,8 (kWm) @50Hz / 8,3 (kWm) @60Hz	
<b>Radiator</b>		N/A	
Core dimensions LxWxh	mm	758 x 308 x 1163	
Dry weight	kg	N/A	
Radiator coolant capacity	l	13	
Optimum coolant temperature range @engine out (50% glycol)	°C	83 ÷ 99	
Engine Water pump Type		centrifugal pump	
Engine water pump drive		driven by belt	
Coolant capacity (engine only)	l	12,6	
Coolant capacity (radiator & hoses)	l	15	
Thermostat type		wax type	
Thermostat position		on cylinder head	
Thermostat opening / fully open temperature	°C	80 ÷ 90	



# N67TEVP05.00

## G-DRIVE STAGE V



Cooling system		@1500rpm	@1800rpm
Recommended coolant circuit pressurization range (relative)	hPa	N/A	
Coolant engine pressure outlet – inlet (delta pressure, open thermostat, high idle conditions)	hPa	< 0,2	
Coolant engine pressure outlet – inlet (only with remote thermostat, ex. retarder)	hPa	-	
Min coolant pressure (no pressure cap and thermostat closed)	hPa	1	
Coolant water pump inlet pressure (water temperature 60-100°C)	hPa	0,5	
Coolant flow to radiator @rated speed	l/h	190	
Min coolant expansion space (% total cooling system capacity)	%	Expansion Tank volume (and max level) must consider also coolant thermal expansion to avoid coolant loss in high temperature conditions. This can be checked in ATB Power Test	
Max coolant flow to accessories @ rated speed from cab heater	l/min	1200	
Engine out coolant to ambient @rated speed	delta °C	not available	
Engine out coolant to ambient @torque speed	delta °C	not available	
Charge air cooler outlet to ambient @max rpm - CAC dT	delta °C	25	
Pump water flow	l/min	154	185

### Electrical, Electronic and Control Systems

System voltage	V	12 - 24	
Engine control unit		Bosch MD1 CE101	
ECU software		P1603 V45.1	
ECU Vehicle connection		with or w/o interface box	
ECU operating range	°C	- 30 ÷ + 95 °C	
Temperature of ECU case for <5' after power up	°C	+ 85	
ECU rated continuous temperature	°C	+ 80	
ECU communication protocol		SAE J1939 or FPT	
Min power supply for ECU operation	V	9	
Max power supply for ECU operation	V	32	
Battery wire connection resistance value @20°C (from battery to ECU)	mΩ	≤ 80	
Diagnostic connector type		on board	
Min cranking speed TDC @-30°C	rpm	75	
Average cranking speed	rpm	115	
N° tooth pinion/crown gear		10 / 125	
Min battery voltage	V	9(12V System) - 16(24V System)	
Mean battery voltage	V	11(12V System) - 18,4(24V System)	
Min battery current	Ah	130 (24V)	
Mean battery current	Ah	500 (24V)	
Max starting circuit resistance ( to starter)	mΩ	< 70	

### Cold starting

Without air preheating	°C	- 15
With air preheating (if available)	°C	- 25

### Emission gaseus and particulales

NOx (Oxides of nitrogen) [NRSC]	g/kWh	see homologation certificate
HC (Hydrocarbons) [NRSC]	g/kWh	see homologation certificate
NOX+HC [NRSC]	g/kWh	see homologation certificate



**Emission gaseus and particulales**

CO (Carbon monoxide) [NRSC]	g/kWh	see homologation certificate
PM (Particlutes) [NRSC]	g/kWh	see homologation certificate
CO2 (Carbon Dioxide) [NRSC]	g/kWh	see homologation certificate
NOx (Oxides of nitrogen) [NRTC]	g/kWh	see homologation certificate
HC (Hydrocarbons) [NRTC]	g/kWh	see homologation certificate
NOX+HC [NRTC]	g/kWh	see homologation certificate
CO (Carbon monoxide) [NRTC]	g/kWh	see homologation certificate
PM (Particlutes) [NRTC]	g/kWh	see homologation certificate
CO2 (Carbon Dioxide) [NRTC]	g/kWh	see homologation certificate

**Maintenance**

Oil drain interval		see dedicated GOLD Book document on fluids
Oil filter change		see dedicated GOLD Book document on fluids
Oil refilling time		daily check to evaluate oil refill necessity
Approved engine oil specifications		see dedicated GOLD Book document on fluids
CCV filter change		1200 h
Fuel filter change		600 h
Fuel pre-filter change		600 h
Belt replacement		1200 h
Valve lash check /adjustment		2400 h
AdBlue filter Change		see dedicated GOLD Book document
DPF filter service		see dedicated GOLD Book document
Coolant change		see dedicated GOLD Book document on fluids

**Engine Noise**

		@1500rpm	@1800rpm
Overall sound pressure (engine only)	dBA		93
Overall sound pressure (with accessories only)	dBA		N/A
Exahust noise (w/o Muffler)	dBA		N/A
Noise spectrum (octave analysis performed at the position of maximum noise) - diagram	Table dB-Hz		N/A
A-weight sound power level LW function of power (value calculated respecting standard ISO 3744 and 3746. For further information see GB document)			N/A
0% (no load)	dBA	108,2	113,3
75% (partial load)	dBA	108,5	113,4
100% (full load)	dBA	108,6	113,3
110% (overload)	dBA	108,6	113,3

**Step Load (for further information see GB document)**

		@1500rpm	@1800rpm
G1 (% of PrP)	%	-	-
G2 (% of PrP)	%	-	-
G3 (% of PrP)	%	-	-
G1 (% of PrP) [open flap]	%	-	60
G2 (% of PrP)[open flap]	%	50	55
G3 (% of PrP)[open flap]	%	45	50
G1 (% of PrP) [ closed flap]	%	N/A	N/A
G2 (% of PrP) [closed flap ]	%	N/A	N/A
G3 (% of PrP) [closed flap]	%	N/A	N/A
Removal load (G1)	%	-	-
Removal load (G2)	%	-	-





# N67TEVP05.00

## G-DRIVE STAGE V



Step Load (for further information see GB document)		@1500rpm	@1800rpm
Removal load (G3)	%	-	-
Emergency (xxx)	%	-	-
Emergency (xxx)	%	-	-
Emergency (xxx)	%	-	-

Maximum Rating Performance Data		@1500rpm	@1800rpm
Torque	Nm	1273	1220
Ambient Temperature	°C	N/A	
EGR Rate	%	-	-
Fuel Flow	g/s	11,1	13,0
Fuel consumption (BSFC) (prime power)	(kg/h) [g/kWh]	(35,8) [199]	(42,2) [204]
Fuel consumption (BSFC) (stand by)	(kg/h) [g/kWh]	(39,8) [199,4]	(47) [204,1]
Fuel consumption (BSFC) (80% prime power)	(kg/h) [g/kWh]	(28,5) [197]	(33) [198]
Fuel consumption (BSFC) (50% prime power)	(kg/h) [g/kWh]	(17,9) [198]	(21) [201]
Fuel consumption (BSFC) (25% prime power)	(kg/h) [g/kWh]	(9,5) [211]	(11,5) [220]
AdBlue consumption (prime power)	% of fuel cons	10,2	9,9
AdBlue consumption (stand by)	% of fuel cons	9,2	8,9
AdBlue consumption (80% prime power)	% of fuel cons	10,3	10,2
AdBlue consumption (50% prime power)	% of fuel cons	10,2	10
AdBlue consumption (25% prime power)	% of fuel cons	9,6	9,2
Exhaust Gas Flow	kg/h	858	1007

Design air handling system data		@1500rpm	@1800rpm
EGR flow	kg/h	-	-
EGR pressure	kPa	-	-
Boost pressure (compressor outlet)	kPa	-	-
Pressure drop on charge air cooling system	kPa	-	-
Max temperature after HP-Compressor	°C	-	-
Boost temperature (includes EGR effect)	°C	-	-
ATS back pressure	kPa	-	-
Exhaust Gas Temp between HP-TC	°C	-	-
Max Exhaust Gas Temp (after TC)	°C	-	-
Max admitted back pressure after SCR	kPa	-	-
Max admitted back pressure after TC	kPa	-	-
Power engine coolant without EGR & CAC (prime power)	kW [kcal/kWh]	-	-
Power engine coolant without EGR & CAC (stand by)	kW [kcal/kWh]	-	-
Power high Temperature EGR Cooler (engine water) (prime power)	kW [kcal/kWh]	-	-
Power high Temperature EGR Cooler (engine water) (stand by)	kW [kcal/kWh]	-	-
Power to coolant due to EGR LP-Circuit (prime power)	kW [kcal/kWh]	-	-
Power to coolant due to EGR LP-Circuit ( stand by)	kW [kcal/kWh]	-	-
Total Power to coolant (prime power)	kW [kcal/kWh]	76	85
Total Power to coolant (stand by)	kW [kcal/kWh]	84,7	94,7
Total pump water flow	l/s	2,57	3,08
Radiator Coolant Flow (5% less if continuous deaerating system, coolant according to FPT norms)	l/min	-	-
EGR Cooler water flow (for ΔT=6°C)	l/s	-	-
LP-CAC water flow (for ΔT=6°C)	l/s	-	-



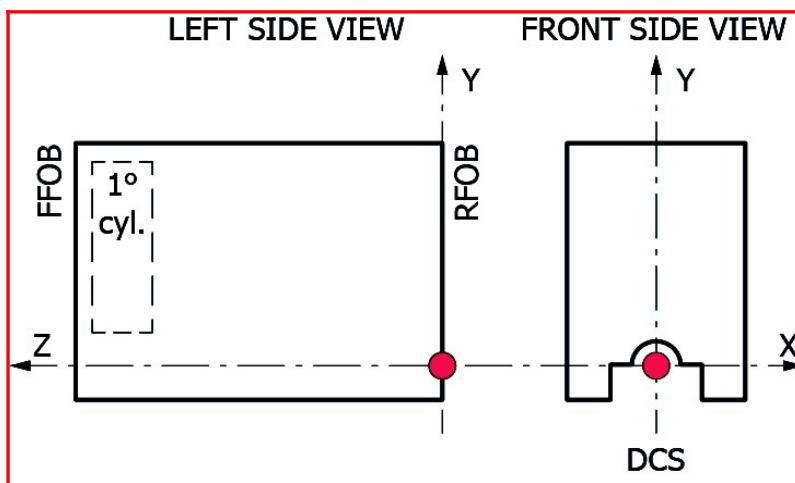
# N67TEVP05.00

## G-DRIVE STAGE V

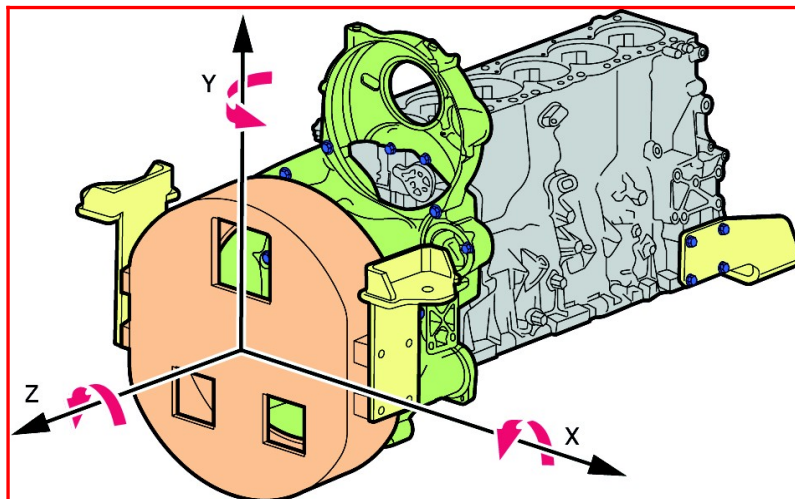


Design air handling system data		@1500rpm	@1800rpm
Power in CAC (air to air) (prime power)	kW [kcal/kWh]	24,5	28,2
Power in CAC (air to air) (stand by power)	kW [kcal/kWh]	27,2	31,3
Power Radiated	kW	14,4	16,6
Charge Air Flow	g/s	N/A	
[*] Power at flywheel according dir. 97/68 EC (w/o fan), after 50 hours of run-in, tolerance $\pm 5\%$ , fuel EN 590; Test according ISO 3046/1, turbo air inlet temperature 25°C, atmospheric pressure 100 kPa, humidity 30 %			N/A
[**] according to temperature sensor tolerance			N/A

### Images



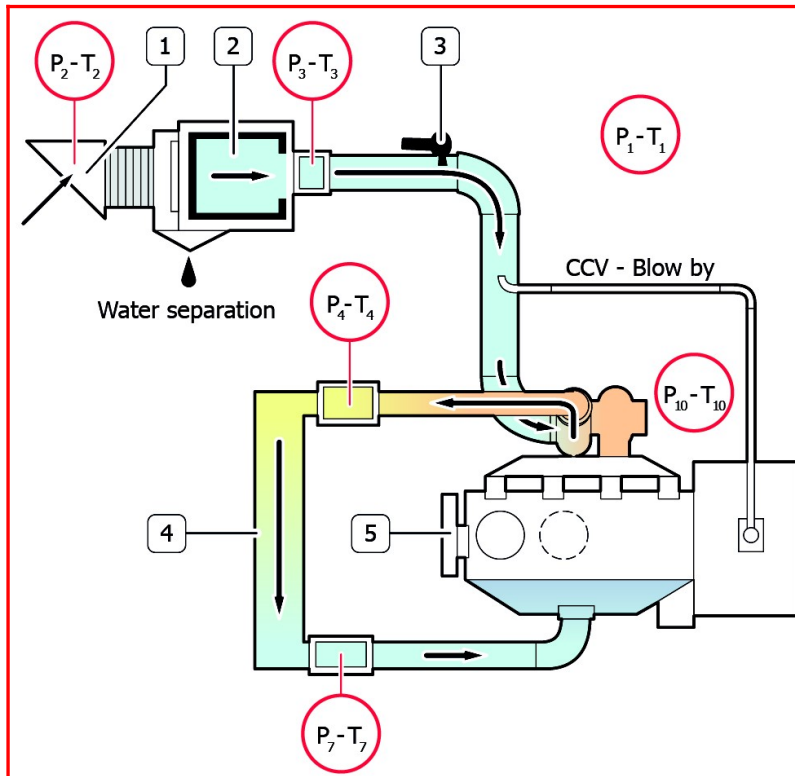
Principal Moment of Inertia



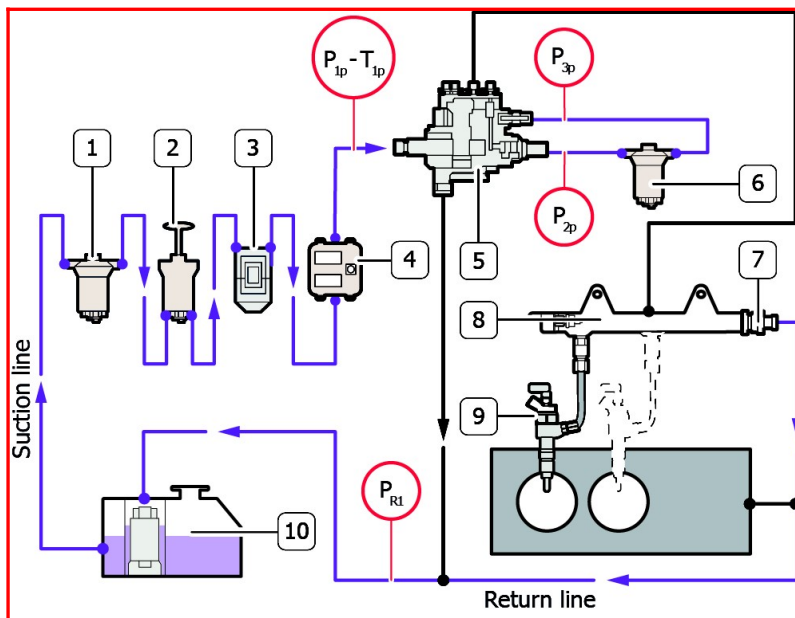
Components



**N67TEVP05.00**  
G-DRIVE STAGE V



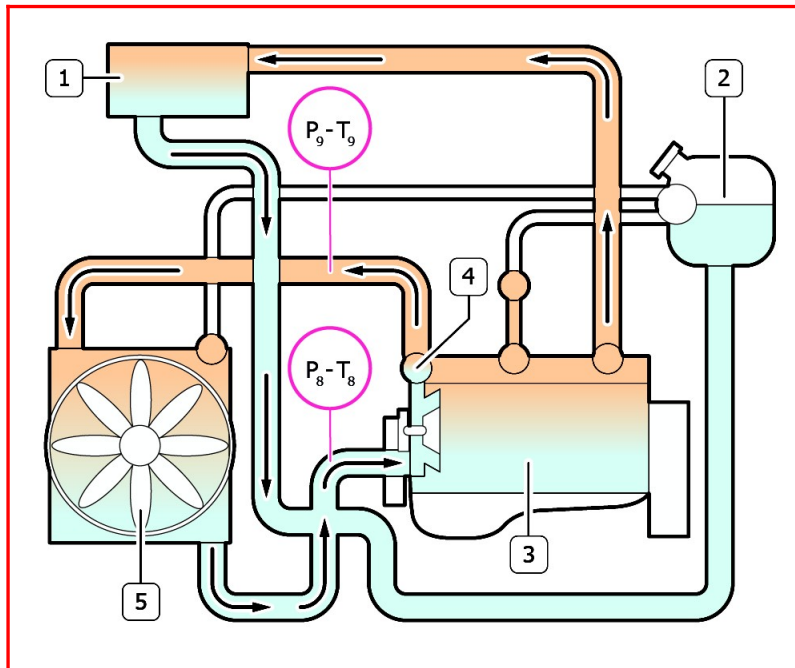
1.Snorkel 2.Air Filter 3.Humidity sensor 4.Intercooler



1.Inspection glass with strainer 2.Prime pump 3.Pre-filter with water separator 4.ECU 5.High Pressure pump 6.Fuel Filter 7.Overpressure valve 8.Common Rail 9.Injectors 10.Fuel tank



**N67TEVP05.00**  
G-DRIVE STAGE V



1.Heating element 2.Expansion tank 3.Engine 4.Thermostat 5.Radiator



**ACRONYMS LIST**

Acronyms	Description
-	Not Needed
2stTC	Two Stage Turbo (sequential)
Ag	Agricultural
ASC	Ammonia Slip Catalyst (same as CUC)
ATS	After Treatment System
BSFC	Brake Specific Fuel Consumption
CAC	Charge Air Cooler
CCDPF	Close Coupled DPF
CCV	Crankcase Ventilation
CE	Construction Equipment
CI	Cast Iron
CRS	Common Rail System
CRSN	Common Rail System NKW (Commercial vehicles)
CUC	Clean Up Catalyst for ammonia (same as ASC)
DAVNT	Dual Axis Variable Nozzle Turbine
DCS	Drawing Coordinate System
DI	Direct Injection
DOC	Diesel Oxidation Catalyst
DOHC	Double Over Head Camshaft
DPF	Diesel Particulate Filter
ECEGR	External Cooled EGR
ECU	Engine Control Unit
EEGR	External EGR
EGR	Exhaust Gas Recirculation
epWG	Electro pneumatic WG
eVGT	Electrical VGT
eWG	Electrical WG
FFOB	Front Face of Block
FGT	Fixed Geometry Turbocharger (no WG)
FIE	Fuel Injection System
HD	Heavy Duty
HLA	Hydraulic Lash Adjusters
IDI	Indirect Injection

Acronyms	Description
IEGR	Internal EGR
IPU	Industrial Power Unit
ISC	Interstage Cooling
LD	Light Duty
LDCV	Light Duty Commercial Vehicles
LH	Left Hand Side
LWR	Laser Welded Rail
MD	Medium Duty
n/a	Not Available
NA	Natural Aspirated
NS	Non Structural
OHV	Over Head Valves
OPT	Option
PCP	Peak Cylinder Pressure
PTO	Power Take Off
RFOB	Rear Face of Block
RH	Right Hand Side
S	Structural
SAPS	Sulphated Ash, Phosphorus, Sulphur
SCR	Selective Catalytic Reduction catalyst
SCRoF	SCR on filter
SOHC	Single Over Head Camshaft
STD	Standard
TC	Turbocharged
TCA	Turbocharged, Charge Air Cooled
THM	Thermal Management
UFDPF	Under Floor DPF
UQS	Urea Quality Sensor
VE	Bosch Distributor Mechanical Pump
VFT	Variable Flow Turbine
VGT	Variable Geometry Turbocharger
WG	Waste Gate Turbocharger
XPI	Extra high Pressure Injection (Scania, Cummins)

*Unit of misure according to international system of unit. Engine accessories and Options available on Option List. All data is subject to change without notice.*

**UPDATING**

Revision	Description	Date
Revision 3.0_Mar 2022		March/2022
Revision 4.0_Apr 2023		April/2023
Revision 4.1_Jun 2023		June/2023