

# AMAZON

## S-WAY NP AS440S46T/P CNG MAIN PRODUCT FEATURES

Iveco Customer Centre

Ulm, Germany

IVECO PRODUCT HEAVY  
JULY 2021

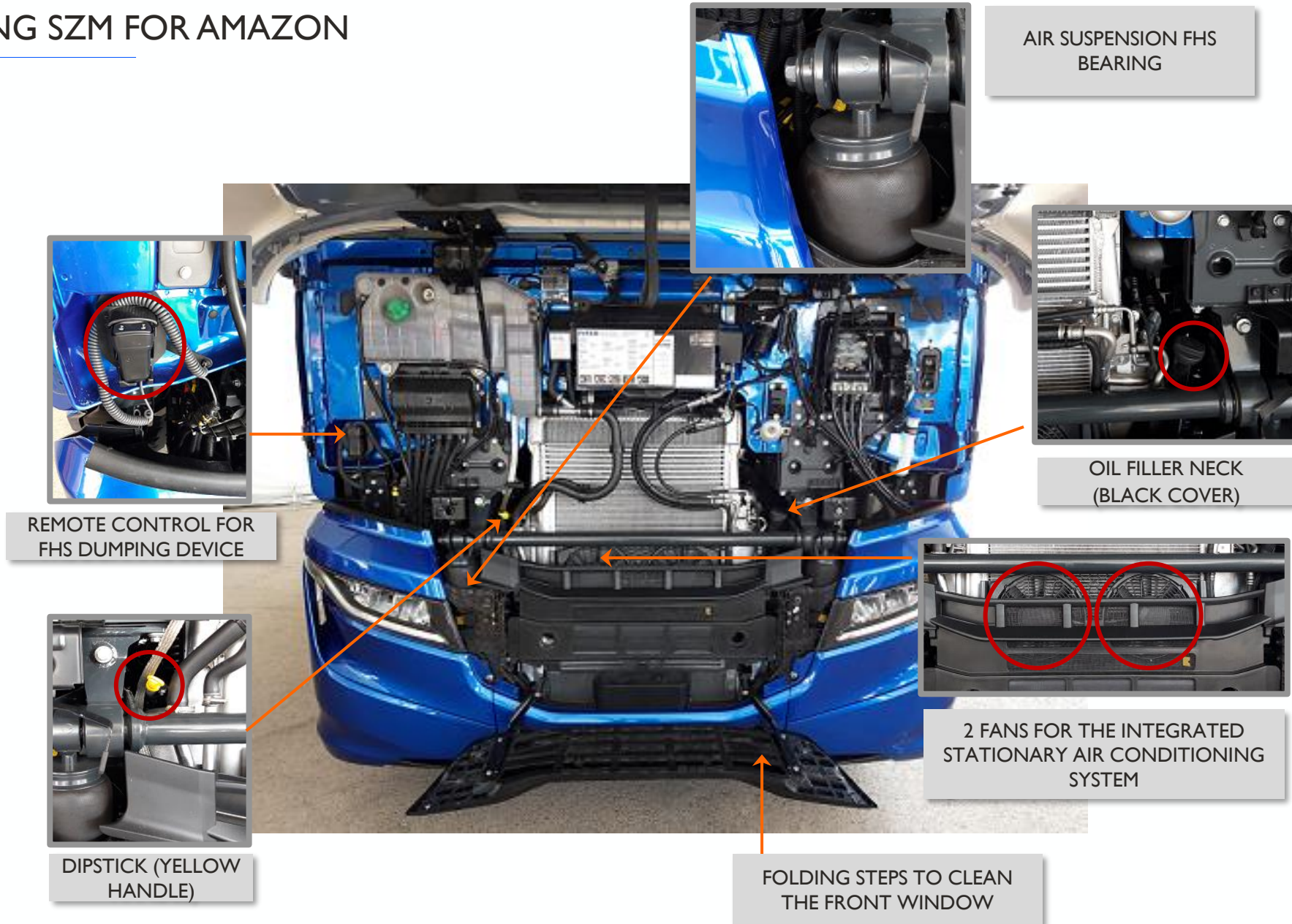
IVECO • GROUP

# IVECO



# FRONT FLAP

4X2 CNG SZM FOR AMAZON



AIR SUSPENSION FHS BEARING

OIL FILLER NECK (BLACK COVER)

2 FANS FOR THE INTEGRATED STATIONARY AIR CONDITIONING SYSTEM

FOLDING STEPS TO CLEAN THE FRONT WINDOW

REMOTE CONTROL FOR FHS DUMPING DEVICE

DIPSTICK (YELLOW HANDLE)



# Safety valves on the CNG tanks

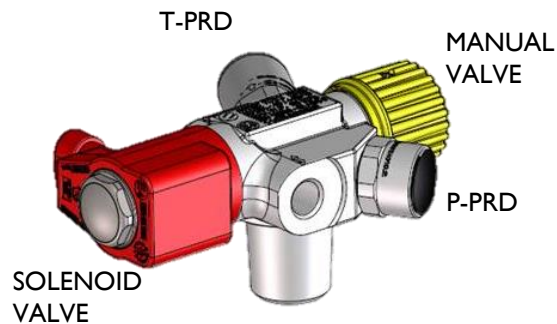
4x2 CNG SZM for Amazon

All valves on the CNG tanks of the current IVECO S-WAY NP series are equipped with

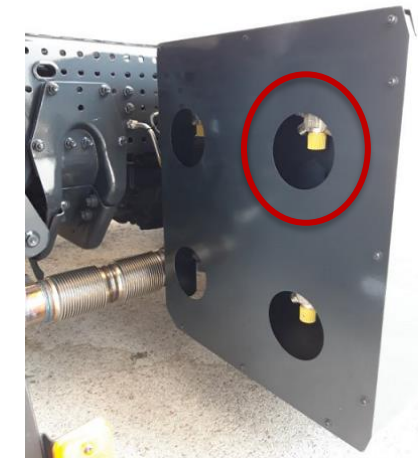
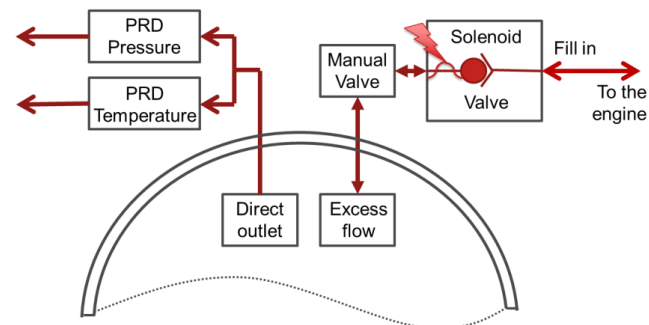
- T-PRD (temperature-triggered safety valve) is a safety device to prevent the tanks from exploding. In case of a fire, the fuse trips at approx. 110°C and blows off the gas in a controlled manner.
- P-PRD (pressure-triggered safety valve) is a safety valve that opens at approx. 34,000 KPa (340 bar) and blows off the gas in a controlled manner.



CNG tank safety valve (MARK 137)



Functional diagram

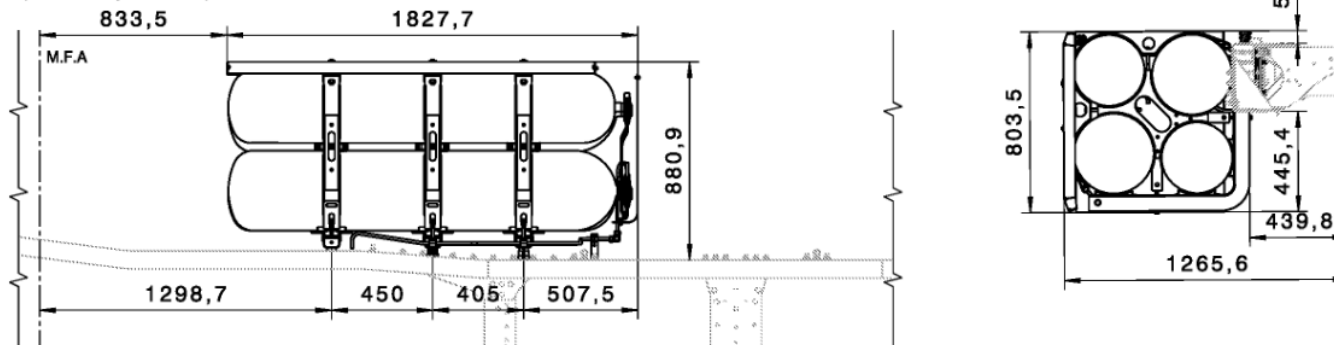


# CNG Tanks

## 4x2 CNG SZM for Amazon

- The 2x115L+2x148L CNG Tank packages on the right / left side protrude 55mm beyond the side members of the frame
- The vehicle is equipped from the factory with a crossbar behind the FHS to protect the CNG tank
- Minimum fifth wheel coupling height: 190mm
- The vehicles are configured with a 100+185mm fifth wheel coupling

**2x115L CNG + 2x148L CNG**  
(CNG simple cover)



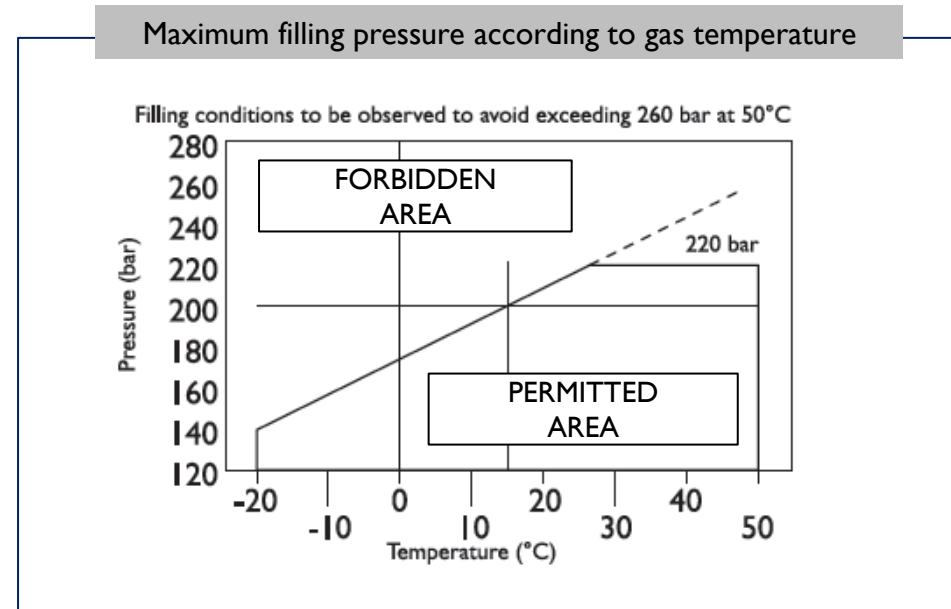
## 4x2 CNG artics for Amazon

### DESIGN PRESSURE IN THE CNG SYSTEM

- Working pressure: 200 bar
- Working range: 20 ÷ 200 bar. The minimum pressure of the CNG is 20 bar (below this, there is a risk of engine malfunction)
- CNG tank blow pressure: 450 bar
- Reserve: the warning light switches on at approx. 40bar
- The level of fuel in the tank is directly proportional to the pressure. 200 bar means full tanks, 100 bar corresponds to half tanks. At 20 bar the CNG tanks have to be considered as empty.

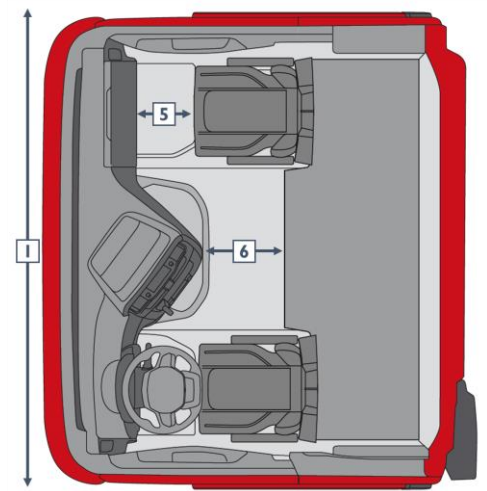
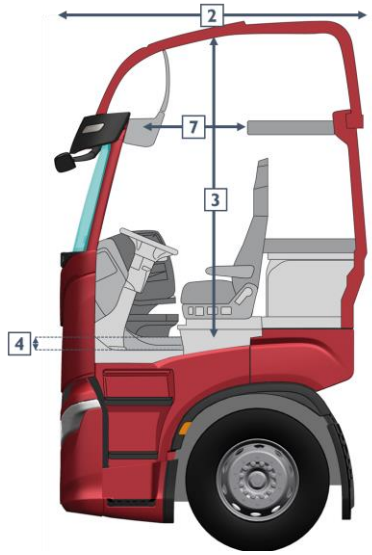
### REFILLING

- Maximum filling temperature: 50° C
- Maximum filling pressure 220 bar
- Filling must be carried out at temperatures and pressure levels such that, as a result of possible subsequent heating to 50 ° C, pressure will not exceed 260 bar
- The maximum pressure immediately after filling may not exceed 260 bar under any temperature conditions.



# Driver's cab

4x2 CNG SZM for Amazon



		1	2	3	4	5	6	7		
FSH	Roof	Width (mm)	Length (mm)	Interior height (mm)	Height of engine tunnel (mm)	Passenger footwell (mm)	Engine tunnel footwell (mm)	Upper space (mm)	Steps	Couchettes/ Beds
AS	High	2,500	2,250	2,150	95	430	500	785	3	1/2
	Low			1,700						1

# Interior

## 4x2 CNG SZM for Amazon

### LOWER COUCH

I-PIECE COUCHETTE FOR AS FHS



Mattress width 800/700mm, thickness 140mm

2 hardness levels: HARD (Standard) and SOFT

### UPPER COUCHETTE

SMART



Cot that can be used for luggage storage

Mattress width 600mm, thickness 80mm

Belt retractor

### REFRIGERATOR / FREEZER

COOLER

INSULATED PARTITION

FREEZER COMPARTMENT

OPERATING PANEL

TOP DOOR



TOP FRIDGE (opt 72970)

DESCRIPTION	VOLUME	CONTROL MODULE	INTERIOR LIGHT	INSULATED DIVIDER / FREEZER
TOP FRIDGE	50 litre	■	■	■



# Stationary air conditioner

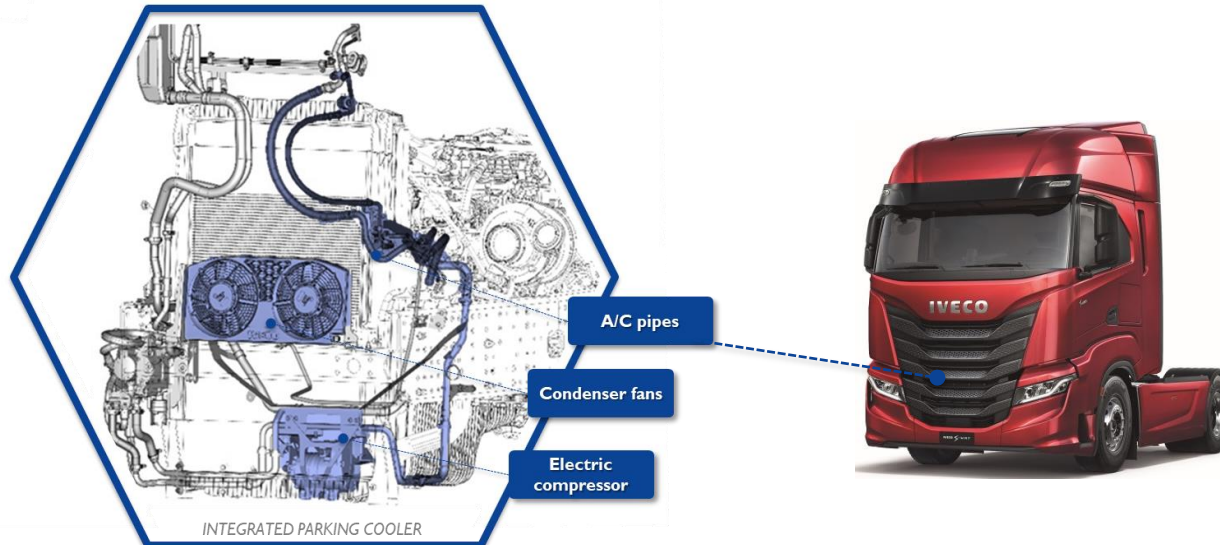
4x2 CNG SZM for Amazon

Option 72579 stationary air conditioner makes it possible to lower the temperature in the driver's cab to a comfortable level during break and downtimes, when the ignition is off.

The system is fully integrated into the long distance driver's cab, and offers an unchanged CW value without exterior changes, thereby ensuring the best fuel efficiency

The following indicate the maximum possible performance at an exterior temperature of 32 to 40° C:

- During the day: 90 min. of acceptable temperature, reaching 26° in 10' (max power output)
- During the night: 8h of constant temperature, reaching 25° in 4h



# Eco-Switch and Only-Auto Mode

4x2 CNG SZM for Amazon



## AVAILABLE SETTINGS

Option Code	DESCRIPTION	Limitation at speed
72255	Limitation via cruise control (*)	85 km/h
72256	Limitation via speed limiter (**)	85 km/h

(\*) Higher speed possible using the accelerator pedal. Programmable.

(\*\*) Higher speed is not possible. Programmable.

	Without Eco-Switch	Eco-Switch	Eco Mode Plus (limited to CC)	Eco Mode Plus (limited to SL)
	4079	14982	14991	14990
72255	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
72256		<input type="checkbox"/>		<input type="checkbox"/>

## ECO-SWITCH FUNCTIONS

	with Eco-Switch active:
HI-TRONIX SWITCHING STRATEGY:	FUEL EFFICIENCY
MOTOR TORQUE LIMIT:	ACTIVATED
LIMITED ACCELERATION:	ACTIVATED
KICK-DOWN FUNCTION:	DEACTIVATED <sup>(1)</sup>

<sup>(1)</sup> Not active for a downshift to increase power (only to exit from low-adherence).

	Impact on other functions (if available):
ONLY AUTO MODE:	ACTIVATED
HI-CRUISE:	DEACTIVATION POSSIBLE
ECO-ROLL:	DEACTIVATION POSSIBLE

<sup>(2)</sup> Temporary suspension via D button. Programmable durations: 30 / 60 / 90 / 120 s.

<sup>(2)</sup> <sup>(3)</sup>

<sup>(2)</sup>

# Hi-Cruise (GPS Predictive Driving)

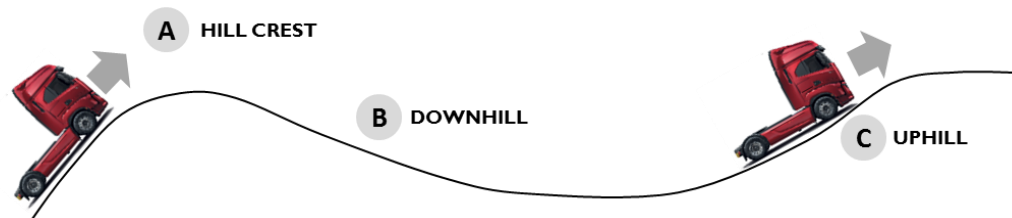
4x2 CNG SZM for Amazon

HI-CRUISE is a GPS-based predictive driving system that integrates the cruise control and functions of the HI-TRONIX automatic transmission, and combines these to ensure the best possible fuel efficiency via speed regulation, gear selection, and Eco-Roll.

The system continuously analyses the following in real time:

- The road profile in front of the vehicle using GPS and 3D maps
- The real usage conditions (GCW, total drag coefficient)
- And uses these parameters and the driver's settings to determine the optimal speed and optimal gear (including idling), in order to save fuel like an experienced driver.

The following is a brief explanation of the logic of the system in key situations.



## DRIVING OVER HILL

The main way that HI-CRUISE helps to save fuel is by stopping the fuel injection in the engine before the top of the hill and using A inertia of the vehicle to reach the hilltop at an appropriate speed. The predictive algorithm triggers the Eco-Roll before a normal cruise control and selects the right gear when the speed increases again on the downhill side.

The vehicle reduces its speed earlier and only starts to accelerate when this is necessary once again to reach the set speed. The more inertia is used, the more fuel is saved. The reduction in average speed is truly limited, and almost never exceeds a speed reduction of 1%, while HI-CRUISE facilitates fuel savings of up to 4%.

It prevents unnecessary down-shifting.

The GAP cruise control defines the minimum speed (target speed minus GAP) when the vehicle nears the crest of the hill, and therefore the inertia that the HI-CRUISE can utilise.

### B DRIVING DOWNHILL - DOWNWARD SLOPE

HI-CRUISE maintains a constant speed by controlling continuous braking. In order to utilise the kinetic energy of the vehicle when driving downhill, the cruise control permits a speed higher than the set speed before the engine brake and retarder (if the vehicle is equipped with these) are activated - based on the required braking power. The maximum speed permitted by the system is the set speed plus the cruise control GAP+.

**DRIVING TIP:** The setting for the cruise control GAP+ determines how much of the vehicle's inertia is utilised. A value below 5 km/h can reduce the potential fuel savings.

When the vehicle approaches the downhill section/slope, the system triggers Eco-Roll earlier in order to fully utilise the inertia and remaining potential energy.

### C DRIVING UPHILL - UPWARD SLOPE

The system does not switch to a lower gear prematurely or accelerate the vehicle in order to be "prepared" to drive up the slope, in order to achieve a higher speed, while also generating higher fuel savings. Shifting to a lower gear increases the engine speed and results directly in a higher specific fuel consumption.

With knowledge regarding the length and tilt of the upcoming upward slope:

- The system prevents the vehicle from downshifting unnecessarily, as long as the current gear can handle the slope;
- The system makes it possible to upshift if necessary at a lower engine speed;
- The system reduces the number of gear shifts with successive slopes.

### ACC (Adaptive Cruise Control) and Hi-Cruise

The ACC radar sensor measures the distance and relative speed of vehicle's driving in front of the vehicle in question in the same lane, reduces the engine torque if necessary, and activates the engine brake, retarder (if available) and service brake, depending on the need for deceleration.

**DRIVING TIP:** Leave the ACC active in moderate traffic, in order to maintain the safety distance. In heavier traffic, in contrast, the ACC can drastically increase fuel consumption.

# Hi-Cruise (GPS Predictive Driving)

4x2 CNG SZM for Amazon

## HI-CRUISE and CRUISE CONTROL GAP

The Cruise Control GAP can be used within a range of 2km/h to 10 km/h, and defines:

**GAP** - the lowest speed with HI-CRUISE permitted when driving over the crest of a hill to utilise the kinetic energy. The higher the set overshoot or undershoot, the higher the fuel savings will be.

**GAP+** the maximum speed when driving downhill. The vehicle speed cannot exceed 95km/h in any case.

The default values are:

Vehicles without ECO-SWITCH

Maximum speed over CC Set – km/h								
+2	+3	+4	+5 <b>DEFAULT</b>	+6	+7	+8	+9	+10
Associated minimum speed under CC Set (HI-CRUISE) – km/h								
-2	-3	-4	-5 <b>DEFAULT</b>	-4	-3	-3	-3	-3

Vehicles with ECO MODE PLUS CCP 14990 / 14991

Maximum speed over CC Set – km/h								
+2	+3	+4	+5 <b>DEFAULT</b>	+6	+7	+8	+9	+10
Associated minimum speed under CC Set (HI-CRUISE) – km/h								
-5	-5	-6	-7 <b>DEFAULT</b>	-7	-7	-7	-7	-7

**EXAMPLE:** If a speed of 85km/h is set on the cruise control of a vehicle with ECO-SWITCH active, and the GAP is set at 5km/h (associated speed for undershoot -5 km/h according to the table above):

- The maximum speed when driving downhill, therefore, is:  $85 + 5 = 90$  km/h
- The minimum speed when driving over the crest of a hill, therefore, is:  $85 - 5 = 80$  km/h

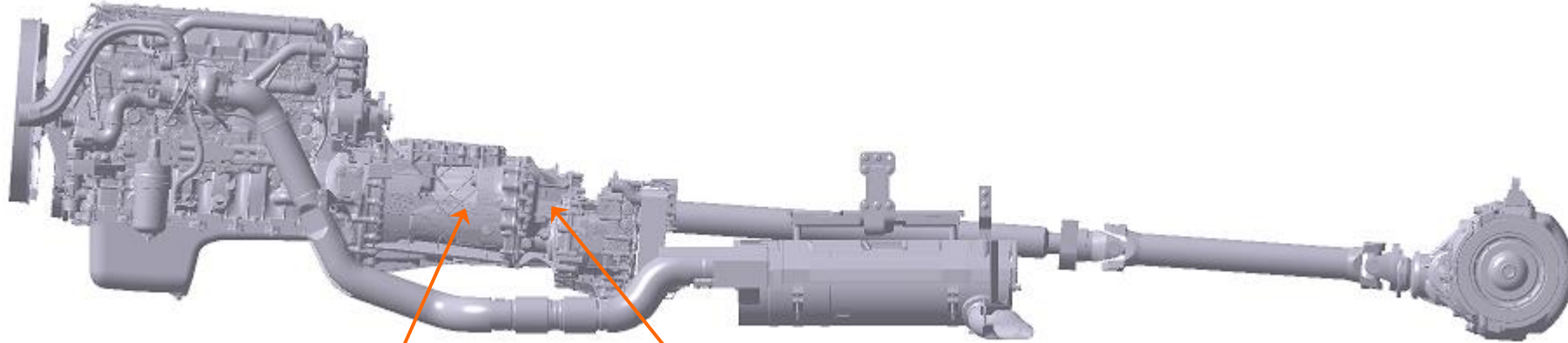
# Driveline

4x2 CNG artics for Amazon

NEW

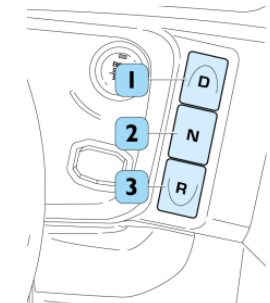
VIDEO  
AUXILIARY BRAKES

VIDEO  
DAS-DSE

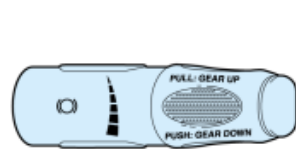


AUTOMATED MANUAL TRANSMISSION

INTEGRATED HYDRAULIC RETARDER



Partially disabled by the ECO-SWITCH



- 0
- 1
- 2
- 3
- 4
- 5
- 6

Position on the lever	Retarder performance
0	-
1	16%
2	32%
3	49%
4	65%
5	82%
6	100%

rpm

Max vehicle speed (km/h)	Tire size	Gearbox ratio 12 <sup>th</sup> /11 <sup>th</sup> gear	Engine rpm (with rear axle ratio 3,36)
80			1.116
85		0,77 (12 <sup>th</sup> )	1.186
90	315/70R22,5	1 (11 <sup>th</sup> )	1.256
80			1.450
85			1.540
90			1.631

# Fuel quality

## 4x2 CNG SZM for Amazon

Motor gear unit	Approved fuel (Reference fuel)	Biomethane According to IVECO requirements
Cursor 9 NP	GR / G25	100 %
Cursor 13 NP	GR / G25	

No technical modifications or specific adjustments are required to use biomethane fuels in IVECO S-Way NP C9 and C13 engines.

The same warranty conditions and maintenance intervals apply as when using fossil-based LNG/CNG fuel.

IVECO requirements for the composition of fossil-based / renewable methane:

- CH<sub>4</sub> > 83% v/v
- NMHC < 13% v/v
- CO<sub>2</sub> < 14% v/v
- N<sub>2</sub> < 14% v/v
- H<sub>2</sub> < 5% v/v
- Water < 55 mg/Nm<sup>3</sup>
- MN (methane number) > 70 Kubesh, King e Liss:(AVL) method
- H<sub>2</sub>S < 10 ppm – total sulphur < 10 mg/Nm<sup>3</sup> according to ISO 6326-5
- Contaminants according to ISO TR 15403
- Siloxane < 5 mg/Nm<sup>3</sup>

Nm<sup>3</sup> applies in standard conditions: 293.2 K and 1 bar

Reference standard: EN 16723-2 del CEN “Natural gas and biomethane for use in transport and biomethane for injection in the natural gas network – Part 2:Automotive fuels specification”.

# Backup