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Dynamic progress with ScanDiesel – EU Stage V IWA and marinised NRE engines

Bremen-based ScanDiesel GmbH supplies innovative and globally recognized diesel engine technology for marine, industrial and power generation applications in Germany, Austria and Switzerland. Nanni Diesel, JCB Power Systems, AGCO Power, Scania and Mitsubishi belong to our portfolio. Our products combine all the advantages of cost-effective series production and the possibility of an individual drive solution for a wide range of applications and operating conditions. All of our engines meet the highest standards of precision, reliability and durability. Proximity to the customer is our top priority. Our team, consisting of technical sales in contact with application engineers as well as the well-rehearsed office staff is always ready to assist you with advice and support. You will receive individual and competent advice from us on all aspects of order processing, technical support, installation advice, spare parts sales, warehousing, right through to commissioning and a tailored service package.

Scania builds Stage V NRE engines without exhaust brakes with variable turbo. The exhaust aftertreatment system consists of individual components (DOC/DPF + evaporator/SCR) or a compact system consisting of DOC/DPF/evaporator/SCR, depending on the power output. A variable design including pipework according to Scania's installation specifications ensures flexible configuration to suit your application. The JCB, Mitsubishi and Nanni engines are available in designated power ratings based on their power output level without exhaust aftertreatment.

EU Stage V NRE marinised - Produktrange Scania Allspeed (Propulsion) - e-drive

Manufacturer	Engine type	Emission	Displacement Cylinder	Power kW	Drehmoment max. Nm	rpm max.	Exhaus aftertreatment	Application	Info	Available
Scania	DC09 310/311A	EU V	9,3l / 5	**202**	1.607	1800	Component system DOC-DPF-SCR	Propulsion and diesel-el. Propulsion	Data and technical information on request	Q4 2020
Scania	DC09 310/311A	EU V	9,3l / 5	**240**	1.846	1800				Q4 2020
Scania	DC09 312A	EU V	9,3l / 5	**202**	1.607	2100				Q4 2020
Scania	DC09 312A	EU V	9,3l / 5	**232**	1.653	2100				Q4 2020
Scania	DC09 313A	EU V	9,3l / 5	**257**	1.753	2100				Q4 2020
Scania	DC09 313A	EU V	9,3l / 5	**276**	1.876	2100				Q4 2020
Scania	DC09 313A	EU V	9,3l / 5	**294**	1.876	2100				Q4 2020
Scania	DC13 310/311A *	EU V	12,7l / 6	**257**	2.196	1800	Component system DOC-DPF-SCR	Propulsion and diesel-el. Propulsion	Data and technical information on request	Q3 2020
Scania	DC13 310/311A *	EU V	12,7l / 6	**294**	2.252	1800				Q3 2020
Scania	DC13 312A *	EU V	12,7 / 6	**294**	2.116	2100				Q3 2020
Scania	DC13 312A *	EU V	12,7l / 6	**331**	2.189	2100				Q3 2020
Scania	DC13 313A *	EU V	12,7l / 6	**368**	2.476	2100				Q3 2020
Scania	DC13 313A *	EU V	12,7l / 6	**405**	2.476	2100				Q3 2020
Scania	DC16 313A	EU V	16,4l / V8	**405**	2.865	2100	Component system DOC-DPF-SCR	Propulsion and diesel-el. Propulsion	Data and technical information on request	Q4 2020
Scania	DC16 313A	EU V	16,4l / V8	**450**	2.944	2100				Q4 2020
Scania	DC16 314A	EU V	16,4l / V8	**478**	3.104	1900	Compact system DOC-DPF-SCR			Q4 2020
Scania	DC16 314A	EU V	16,4l / V8	**522**	3.183	1900				Q4 2020

DOC=Diesel-Oxidation-Catalyst – DPF= Diesel particulate filter – Eveporator=AdBlue vaporizer – SCR= Selective catalytic reduction

nanni ENERGY IN BLUE · JCB POWER SYSTEMS · AGCO POWER · SCANIA · MITSUBISHI DIESEL ENGINE · GOVERNORS AMERICA CORP. · ComAp

The development was supported by: Europäische Union – Investition in Bremens Zukunft – Europäischer Fonds für regionale Entwicklung

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Version 08/2020 © ScanDiesel GmbH
Valid from 2020-08-01

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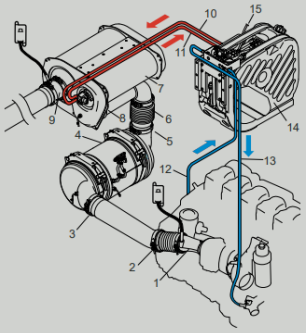
EU Stage V Produktrange Singlespeed (Auxiliary) - e-drive										
Manufacturer	**Engine type**	**Emission**	**Displacement Cylinder**	**Power kW/Nm**	**kVA**	**rpm**	**Exhaust aftertreatment**	**Application**	**Info**	**Available**
Scania	DC09 320A	EU V - NRE marinised	9,3l / R5	**223/1.420**	**250**	1500 / 50 Hz	Component system DOC-DPF-SCR	Auxiliary + diesel-el.	Data and technical information on request	Q4 2020
Scania	DC09 320A	EU V - NRE marinised	9,3l / R5	**265/1.687**	**300**	1500 / 50 Hz				
Scania	DC13 320A *	EU V - NRE marinised	12,7l / R6	**311/1.980**	**350**	1500 / 50 Hz	Component system DOC-DPF-SCR	Auxiliary + diesel-el.	Data and technical information on request	Q3 2020
Scania	DC13 320A *	EU V - NRE marinised	12,7l / R6	**354/2.254**	**400**	1500 / 50 Hz				
Scania	DC13 320A *	EU V - NRE marinised	12,7l / R6	**397/2.527**	**450**	1500 / 50 Hz				
Scania	DC16 320A	EU V - NRE marinised	16,4l / V8	**439/2.795**	**500**	1500 / 50 Hz	Compact system DOC-DPF-SCR	Auxiliary + diesel-el.	Data and technical information on request	Q4 2020
Scania	DC16 320A	EU V - NRE marinised	16,4l / V8	**481/3.062**	**550**	1500 / 50 Hz				
JCB	448 TGWA 60 *	EU Stage V IWA	4,8l / R4	**56**	**64**	1500 / 50 Hz	Without	Auxiliary	Data and technical information on request	Q2 2020
JCB	448 TGWA 72 *	EU Stage V IWA	4,8l / R4	**68,5**	**78**	1500 / 50 Hz	Without			
Nanni	QLS 70T KC	EU Stage V IWA	4,5l / 4R	**61**	**X**	1500 / 50 Hz	Without	Auxiliary	Data and technical information on request	Q2 2020
Nanni	QLS 135T KC	EU Stage V IWA	6,8l / 6R	**117**	**X**	1500 / 50 Hz	Without			
Mitsubishi	S3L2-Z562SD	EU V - NRE marinised	1,3l / 4R	**9,9**	**X**	1485	Without	Auxiliary	Data and technical information on request	Q2 2020
Mitsubishi	S4L2-Z562SD	EU V - NRE marinised	1,8l / 4R	**14,6**	**X**	1485	Without			
Mitsubishi	S4L2-Z5T61SD	EU V - NRE marinised	1,8l / 4R	**18,4**	**20**	1500 / 50 Hz	Without			

DOC=Diesel-Oxidation-Catalyst – DPF= Diesel particulate filter – Eveporator=AdBlue vaporizer – SCR= Selective catalytic reduction

Scania:

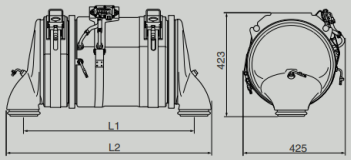
Mechanical system

	Standard	Optional
1 Exhaust bend	20° bend	90° bend, exhaust brake
2 Exhaust bellows	-	√
3 Exhaust flange	-	Ø114, 130, 155 mm
4 Particulate filter unit	with 90° outlet	with straight outlet
5 Exhaust flange	-	Ø114, 130, 155 mm
6 Exhaust bellows SCR	-	√
7 SCR unit	without outlet bend	with 90° outlet bend
8 Exhaust flange	-	Ø114, 130, 155 mm
9 NOx flange from SCR unit	Ø127 mm, V-clamp	Ø114, 130, 155 mm
10 Reductant pressure hose	2.5 m	4.0 m, 5.0 m, 6.5 m
11 Reductant return hose	2.5 m	4.0 m, 5.0 m, 6.5 m
12 Coolant hose for heating of tank and pump	-	-
13 Coolant return hose	-	-
14 Reductant tank	38 l	45 l, 60 l, 63 l, 70 l
15 Reductant tank bleed hose	0.8 m	3.3 m



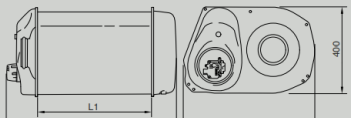
Particulate filter unit

Engine	L1	L2
DC09	603 mm	747 mm
DC13	679 mm	823 mm



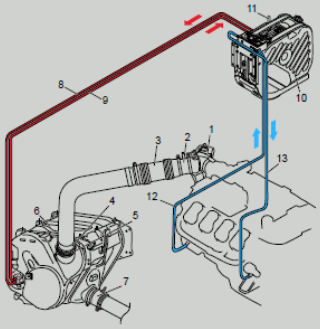
SCR unit

Engine	L1	L2
DC09 and DC13 310/311/312A	518 mm	764 mm
DC13 313/320A	595 mm	841 mm



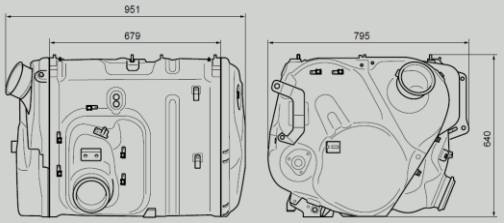
Mechanical system

	Standard	Optional
1 Exhaust brake	√	-
2 NOx flange upstream	√	-
3 Exhaust bellows	-	√
4 Exhaust flange	-	Ø130 mm, 155 mm
5 Exhaust bellows SCR	-	√
6 Compact aftertreatment system	√	-
7 NOx flange downstream	Ø127 mm, V-clamp	Ø130 mm, 155 mm
8 Reductant pressure hose	2.5 m	4 m, 5 m, 6.5 m
9 Reductant return hose	2.5 m	4 m, 5 m, 6.5 m
10 Reductant tank	38 l	45 l, 60 l, 63 l, 70 l
11 Reductant tank bleed hose	0.8 m	3.3 m
12 Coolant hose for heating of tank and pump	-	-
13 Coolant return hose	-	-



Compact aftertreatment system

Weight: 175 kg



Scania component overview of the Stage V exhaust aftertreatment system

- AdBlue day tank in "CatchTank" design incl. external filling pump and 20m pump cable
- Evaporator
- SCR module
- DOC / DPF Module
- Exhaust flanges for system construction (welding flanges for piping)
- Exhaust compensators for system construction
- Sensor cabling for system design

SCANIA emission control system

Die Investition in Bremens Zukunft: Europäische Union, Investition in Bremens Zukunft, Europäischer Fonds für regionale Entwicklung

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Explanation of Stage V "Inland Waterway Solution

With the introduction of EU Stage V for non-road mobile machinery, the engine categories for inland waterway vessels IWP/IWA were also included in Directive 2016/1628. Unlike previous directives, Directive 2016/1628 is valid upon adoption by the EU and does not need to be transposed into national law.

Due to the low volumes in the inland waterway segment, leading manufacturers for industrial and marine engines have decided not to certify IWP/IWA engines according to 2016/1628.

In cooperation with associations and the Federal Ministry of Transport and Digital Infrastructure a solution for inland navigation could be developed, which is regulated in the announcement of 14.12.2018 of the BMVI.

With reference to this regulation ScanDiesel GmbH in cooperation with Scania Germany and the SCANIA plant in Sweden carries out the marinisation of NRE engines for inland navigation.

NRE engines represent the segment of industrially used engines for mobile and stationary equipment. Single speed (generator operation) and variable speed motors (propulsion) are offered by SCANIA with EU Stage V certification according to 2016/1628.

What does this mean for the exhaust aftertreatment:
Scania engines complying with EU Stage V are supplied with flexible exhaust gas components. This allows maximum flexibility for adaptation to application-specific space conditions.

The basic Scania engine comes from the well-known E2011 series and has a Scania component design. The engine comes from Scania's series production with high quality standards. Low maintenance costs, "one man service concept" and optimised fuel consumption are also standard Scania features.

The components of the exhaust system to EU Stage V are further developments of the components used in trucks with the introduction of the EURO 4 standard "onroad" in 2005.

Information on SCR

The Scania SCR system is self-sufficient and EMS-controlled. The system is maintenance-free, only the AdBlue filter needs to be changed during service intervals. The paper filter is mounted under a cover on the AdBlue tank. Maintenance access must be ensured.

Design after turbocharger

The exhaust system must be installed according to the Scania installation instructions. Our technical team will be pleased to advise and support the installation up to commissioning.

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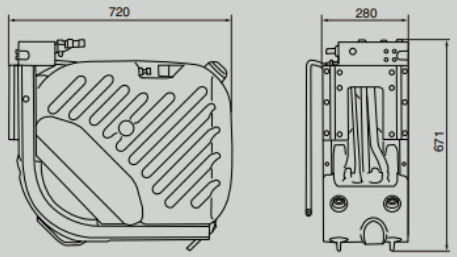
Scania AdBlue day tank in „CatchTank“ application / examples

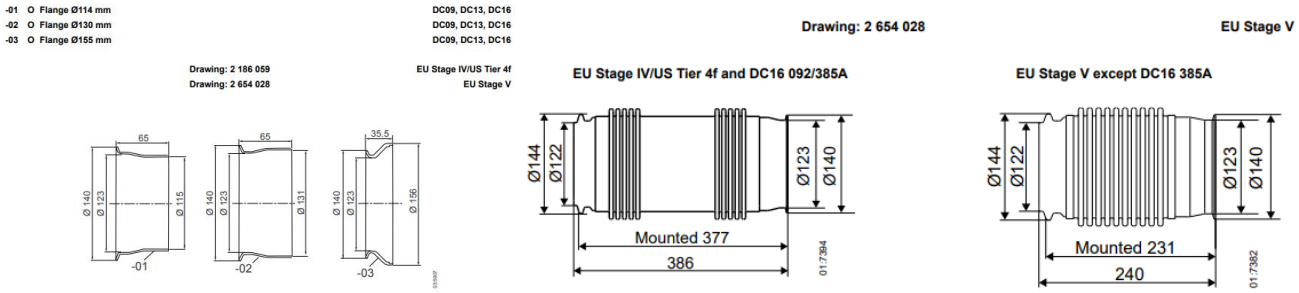
Reductant tank, 38 litres

Available sizes	Total volume	Filling volume
38 litres	50 litres	38 litres
45 litres	62 litres	45 litres
60 litres	75 litres	60 litres
63 litres	80 litres	63 litres
70 litres	88 litres	70 litres

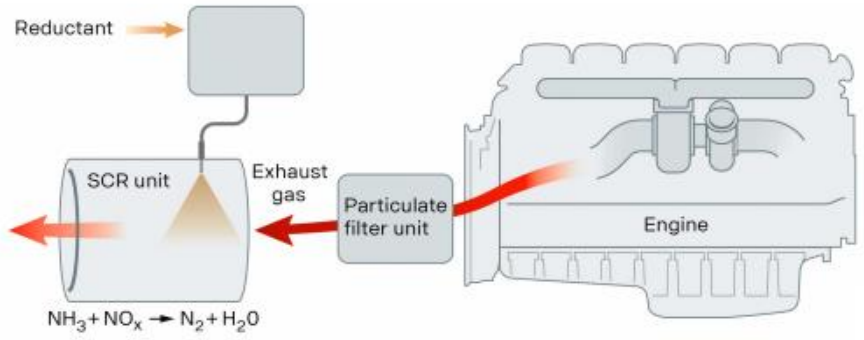


Application Plastic tank
to fit in steel box

Flanges, compensators, sensors, wiring: the Scania Stage V exhaust system design includes all necessary flanges and connecting parts. The pipework is to be carried out independently according to the shipyard's installation instructions in stainless steel quality. During the design phase, additional flanges, compensators, cable lengths in various designs and diameters can be added to the scope of supply at extra cost. Installation advice is provided together with the shipyard carrying out the work.



Scania exhaust aftertreatment



A chemical process is started when reductant, a urea and water mixture, is injected into the exhaust gas stream. During injection, the water evaporates and the urea breaks down to form ammonia. The ammonia then reacts with the nitrogen oxide gases in the catalytic converter and forms harmless products such as nitrogen gas and water.

The emissions of particulate matter are filtered through a ceramic structure, that only allows particles smaller than a defined size to pass. When the filter is filled with soot particles to a specific amount, it is regenerated automatically.

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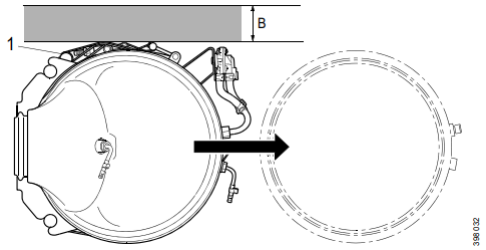
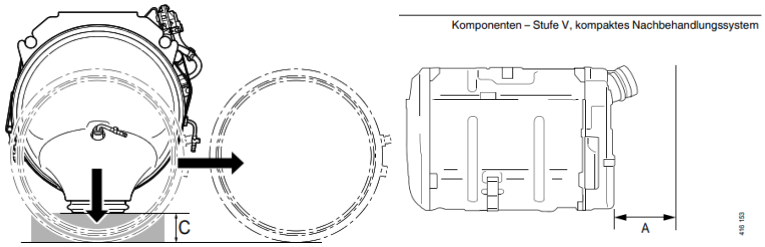
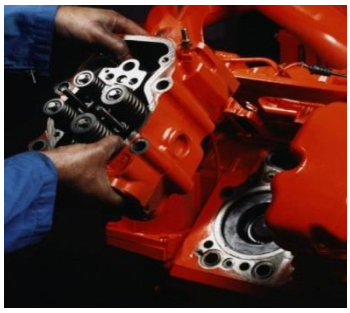
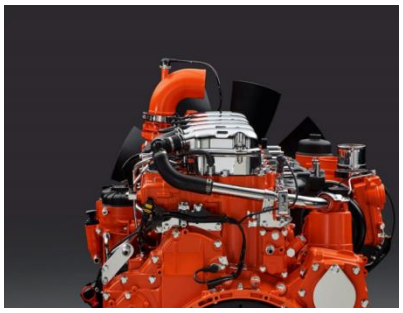
Maintenance

The filter cartridge "DPF" of the EU Stage V emission control system must be checked after 4,500 operating hours and, if necessary, replaced according to Scania operating instructions.
The particulate filter unit is replaced in the exchange system, the service installation dimensions must be adhered to according to the installation instructions.









Advantages Self Servicing Business Concept

- Single cylinder heads
- Long maintenance intervals
- Reduced maintenance costs
- Reduced downtimes
- Increased efficiency
- Centrifuge ensures simple condition monitoring
- 1 man maintenance concept reduces personnel costs
- Customer works to Scania service information
- Tailored service concepts
- Supported by Scania Global and Local
- Standard through SCANIA certification (DOS)
- Scania Assistance (helpdesk in German language)
- Repair and maintenance
- Central warranty processing
- Easy communication with the respective national headquarters

Installation example exhaust system EU stage V component system

The full range of Scania engines can also be found here: https://www.scania.com/de/de/home/products-and-services/engines.html

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