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**TECHNICAL SPECIFICATION No. RD-MOD-320/0421-01
FOR 320 kW ELECTRIC DIESEL GENERATING SET IN CONTAINER**



**Note: Available power range for a 20' container: 50-520 kW
(depending on the selected options and the amount of equipment in the container)**

Generating set model	E400SCAK-N
Manufacturer	SIA "RĪGAS DĪZELIS DG"
Execution	In 20' container
Power ratings acc. ISO8528-1 (+40°C, 1000 m above sea level):	
Prime Power (PRP)	320 kW (400 kVA)
Standby Power (ESP)	352 kW (440 kVA)
Power ratings for conditions +40°C, 3000 m above sea level:	
Prime Power (PRP)	300 kW (375 kVA)
Standby Power (ESP)	330 kW (412 kVA)
Frequency	50 Hz
Voltage	3 phase, 400/230 V
Cos φ	0,8
Standards compliance	European Union directives: 2006/42 / EC, 2014/35 / EC, 2014/30 / EC, 2000/14 / EC, 97/68 / EC ISO 8528-1, ISO 8528-5, ISO 8528-13.4.3
Governing standards	G3
Operating environment	-30°C to +40 °C
Dimensions	6058x2438x2591 (H) mm
Weight (filled with all liquids)	~ 10080 kg
Engine	DC13072A SCANIA (Sweden)
Number of cylinders	L-6
Speed	1500 RPM
Cooling system	Radiator type, engine heater
Starting system	Electric starter with starting batteries, charging alternator on engine and static charging device
Fuel	According to EN590 and STANAG 7090 F-63
Consumption at 100% load	81,0 l/h

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Consumption at 75% load	60,8 l/h
Consumption at 50% load	39,0 l/h
Built in fuel tank	With double walls, integrated into the genset frame, of the 1200 l capacity
Alternator	Mecc Alte, Sincro (Italy), or EU analog
Execution	Single bearing, self-excited, brushless, with AVR
Protection class	IP23
Insulation class	H
Container (20')	20 ' one-piece container with a size of 6058x2438x2591 mm, type 1CC, made under ISO 668 standards, with lockable service doors; additional elements (including door handles, hinges, luminaires, etc.) that don't project beyond the mentioned dimensions.
Compliance with CSC requirements	Corresponds to International Convention on Safe Containers of the year 1972. CSC certificate-for an additional fee (see options below).
Noise level	65 dBA at 7 m from the container
Color outside Note: available RAL 6031, 6003 or other RAL at request of the customer	RAL 6031 Gloss level F9, with NATO industry standard coating against infrared reflection (TLA-0033).
Paintwork for all parts of the container	Oil and technical liquid resistant acc. to NATO standard AEP-65;
Doors	Built-in, lockable with sound insulation and rubber seal on each shorter and longer side of the container to provide unlimited access to the diesel generating set for easy and fast service.
Door in front of the control panel	With glass for reading digital and analog diesel generating set ratings and emergency indications from the outside of the container. The control panel is located behind the door. The glazing is transparent and is made of monolithic polycarbonate shockproof plexiglass with UV protection, density 1.20 g / cm ³ , light transmission 89%, expansion coefficient 0.07 mm / m / °C, maximum operating temp.115°C.
Floor	Covered with anti-slip ribbed carbon steel material, allowing safe movement when servicing the equipment. The service areas, which cannot be provided with steel, are provided with an anti-slip material with a degree of coarseness GRIT 20 and a hardness of MOH 8;
Walls and ceiling	Covered with sound-absorbing perforated 0.8 mm steel sheet acc. to EN 10143, EN 10346. Color: white.
Compliance of insulation materials of walls and ceilings with fire protection standards	Conforms to fire reaction Class A1 acc. to EN 13501-1
Automatic ventilation system	Motorized intake and exhaust louvers with automatic opening when generating set starts running and close when it stops. Louvers are protected from rodents by means of metal grid.

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Built-in LED lighting (24 V, DC) on the outside of the container above the service areas	200x100 mm luminaires (5 W and 100 lm/W each, IP65, 4500 K, light neutral white, with protection visor) placed in service areas: doors, control panel door, external electrical distribution panel (where access to staff is required). The luminaires are built-in and do not exceed the dimensions of the container.
Emergency lighting	5 hours operation (powered by battery that is charged from the mains and the unit)
Internal lighting	4 LED daylight lamps, arranged lengthwise on the ceiling above the equipment service areas provide the necessary level of illumination for technical rooms. The switch is located inside 0.3 m from the door.
Internal heating system	Electrical air heaters (2 pcs. x 1000 W, 230 V) with the integrated thermostat and automatic overheating protection;
Internal equipment switchboard	Switching of the internal container wiring is provided through the switchboard, placed into the container, which is equipped with a 3-phase current leakage breaker, 3-phase automatic switch, individual automatic switches of each contact group for all electrical consumers (self-consumption of the container);
Exhaust system	Upward exhaust system with flexible compensator and silencer (integrated inside the container in special department with door)
Rain protection for exhaust system	+
Grounding equipment	All electrical equipment grounded in a common grounding network that is connected to the central container grounding bus by means of M12 screw. Container is equipped with two special portable kits: galvanized steel earthing rods (Ø20mm x 1500 mm) with hammers and 15 m long connecting cable.
Special compartment with separate entrance for additional equipment accommodation	Reels with cables, additional mobile electrical distribution switchboards, grounding equipment and other options acc. to the specification are placed in separate compartment with the entrance from the end of the container
Control panel	Based on microprocessor type controller with history error registry (100 entries); language selection; RS232, RS485, Ethernet, GPRS; 3 analog inputs, 7 digital inputs, 7 digital outputs; 4 operating modes: Off, Automatic, Manual, Test; the operation is not affected by a supply voltage rupture during 50 ms;
Extra heating included	Control panel heating system for operation under low temperatures

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	(operation range -30°C + 50°C)
The control panel records and measures:	<ul style="list-style-type: none"> - operation hours; - fuel level; - generator frequency; - generator voltage; - generator voltage asymmetry; - (public electricity) network frequency; - (public electricity) network voltage; - power factor $\cos \phi$;
The control panel is equipped with an analogue control measuring instrument panel that records and measures:	<ul style="list-style-type: none"> - voltage; - current; - frequency; - coolant temperature; - oil pressure; - oil temperature; - fuel level;
Alarms and protections	Low oil pressure, high oil /liquid temperature, over speed, overload, short circuit
Control panel electrical protection	IP65
AMF & ATS function	including parallel operation with other generating sets and / or mains
Motorized load switching circuit breaker	630 A motorized load switching circuit breaker provides automatic start and load switching of the diesel generator in the absence of mains (urban) voltage automatic switching of the voltage supply and stopping of the diesel generator at the restoration of normal operation of the grid.
Emergency stop button	Placed outside of container beside the door of the control panel.
Electrical distribution panel with sockets (the quantity is specified in the specification); The panel is recessed into the body of the container and has a cover, that in an open and fixed position protects against precipitation	<ul style="list-style-type: none"> - 400V 3P+N+E 125A sockets – 4 pcs.; - 400V 3P+N+E 63A sockets – 4 pcs.; - 400V 3P+N+E 32A sockets – 6 pcs.; - 230V 2P+E 32A sockets – 6 pcs.; - 230V 2P+E 16A sockets – 4 pcs.; - 230V 2P+E 16A sockets (SCHUKO) – 4 pcs.; - All sockets and plugs protection class– IP67; - All sockets are equipped with the automatic fuses that meets at least following standards: IEC/EN 60947-2, IEC/ EN 60898-1; - Sockets are executed with a $45^\circ \pm 3^\circ$ tilt angle to the horizon, other angle is not allowed; - Sockets and plugs are made of green plastic corresponding to NATO GREEN color RAL6003, painted sockets and plugs are not used; - Sockets and plugs correspond to standards EN 60309-2, EN 60309-1; - 400V 3p+N + E 125 A socket is equipped with a contact that ensures the disconnection of the voltage in the socket before disconnecting the plug.
Included options	
Manual oil pump for pumping oil from the crankcase	+

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Electric (with manual mode) fuel pump for pumping fuel into the tank	+
Possibility to start the engine with 24V DC starter system through NATO STANAG 4074 (type 2) socket from the external power supply.	The socket is built into the distribution panel.
Fire safety equipment	Powder and Carbon dioxide (CO2) fire extinguishers are installed in the container near the doors at 1.6 m height from the floor.
Environmental package	Hydrophobic absorbent kit for emergency disposal and collection of petroleum products on water and land. Composition of the kit: hydrophobic absorbent sheets with absorbency not less than 8 liters, hydrophobic absorbent mini-booms with absorbency not less than 7 liters, nitrite coated protective gloves x 1 pc., used absorbent disposal bag, manual, zip-sealed replenishable packaging, located in a container near to the wall.
Grounding equipment set with 15 m cable (2 kits)	+
Set of tools for maintenance	+
Set of filters for the first maintenance	+
Documentation	
Operational manual for complete generating set	+ (English language, other languages on request)
Spare parts catalogs	+ (in English language)
Package of design documentation (drawings, diagrams, etc.)	+ (in English language)
CE certificate of conformity	+
Factory test report	+
Other	
Delivery	On request
Acceptance	Fuel for 30 min. test is included
Training	Customer's personal training is included (during generating set acceptance)
Warranty	24 months from delivery (but not more than 1000 operating hours)
Maintenance	On request

Excluded options (for additional cost):		
1	CSC certificate for Container	
2	Special autonomous diesel fuel powered preheating system that heats the engine coolant under low temperature conditions.	
3	Portable electrical distribution switchboards placed and fixed on special metal shelves inside the container (1-4 pcs. /container)	<p>Metal housing; 2 handles on the top; color RAL6031, F9 (or other customer requested); protection class IP65; dimensions 600 x 600 x 600 mm; height of support legs 150 mm; Equipped with:</p> <ul style="list-style-type: none"> -400V 3P+N+E 125A plug with cover - 1 pc.; -400V 3P+N+E 63A sockets – 1 pc.; -400V 3P+N+E 32A sockets – 4 pcs.; -400V 3P+N+E 16A sockets – 4 pcs.; -230V 2P+E 32A sockets – 4 pcs.; -230V 2P+E 16A sockets – 8 pcs.; -230V 2P+E 16A sockets (SCHUKO) – 4pcs.; -Sockets and plugs protection class – IP65 - Sockets are equipped with an automatic fuse that meets the standards of IEC/EN 60309-2, IEC

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		<p>/ EN 60898-1, fuses are built into the housing behind the transparent plastic cover;</p> <ul style="list-style-type: none"> - Sockets and are numbered with appropriate automatic switches; - Sockets and plugs are made of green plastic corresponding to NATO GREEN color RAL6003, painted sockets and plugs are not used; - Sockets and plugs correspond to standards EN 60309-2, EN 60309-1; - Three red 230 VAC LED indicators indicate the input voltage of the switchboard in each phase.
4	Reels with power cables built on special metal shelves inside container (1-4 pcs. /container):	
4.1	Reel with electric/manual drive with 50 m cable	Elastic rubber cable H07RN-F type (EN50525-2-21) 5x35 mm with 400V 125A CEE socket and 3P+N+E plug (RAL6031, F9). The socket and the plug are equipped with a contact that ensures the power disconnection of the socket before disconnecting the plug. Metal reels (RAL6031, F9) with bearings provide convenient cable winding, have a fixation for the socket and plug, and a brake.
4.2	Reel with manual drive with 50 m cable	
5	Adapter cable 10 m (1-8 pcs. /container):	Elastic rubber cable H07RN-F type (EN50525-2-21) 5x4 mm with 3 pcs. 230V 16A CEE (Schuko) sockets and CEE 3P+N+E plug (400V 32A).
6	Set of filters for maintenance during warranty period	for 500, 1000 or 2500 operating hours



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