



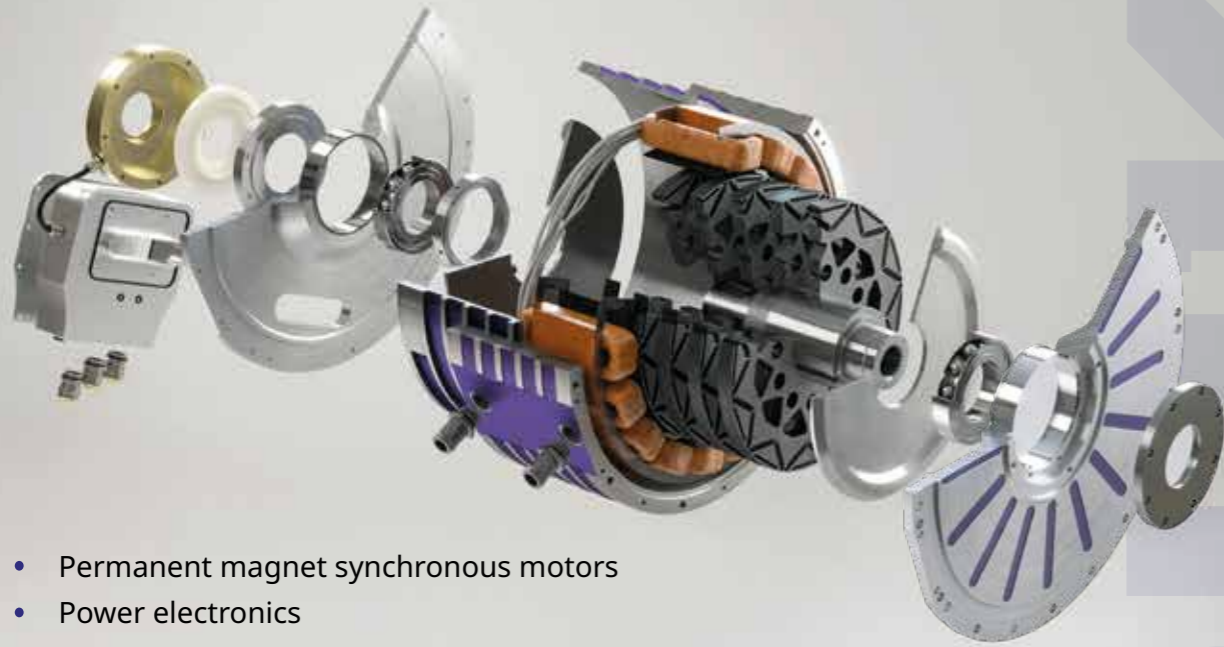
TRACTION E-DRIVE AND ONBOARD POWER SUPPLY EQUIPMENT

EV/HEV
transmissions



RUBRUKS

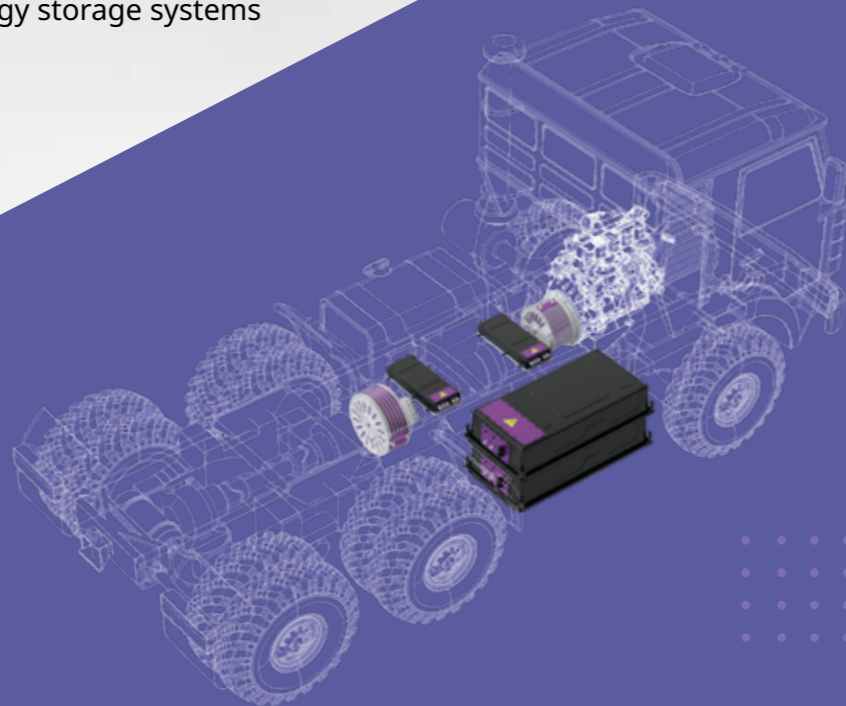
MANUFACTURING AND DEVELOPMENT OF EQUIPMENT



- Permanent magnet synchronous motors
- Power electronics
- Battery modules
- Electronic units
- Test benches

R&D

- Power supply and energy storage systems
- EV traction drive
- HEV traction drive



The photos presented are for informational purposes only.

POWER STEERING ELECTRIC PUMP WITH INVERTER RUBRUKS ESPI2-185-16

Electric power steering pump with inverter RUBRUKS ESPI2-185-16 is suitable for use as part of electric and hybrid agricultural and special equipment with a classic steering mechanism with a hydraulic booster.

The unified design of the unit and the possibility of optionally selecting basic parameters allows it to be used in steering control systems and auxiliary equipment drive systems for vehicles of various carrying capacities, including commercial vehicles, all-terrain vehicles, and water vehicles.

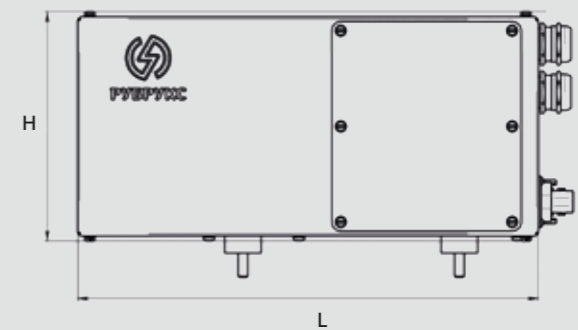
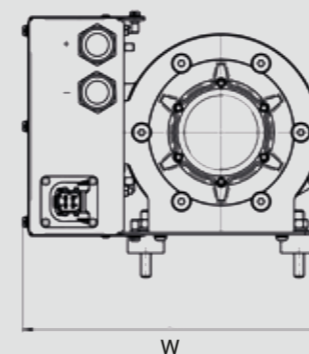


Features:

- brushless motor
- smooth start
- warm-up mode (operation at low speed)
- control via CAN bus or discrete signal
- overheating, overload protection

Specifications	ESPI2-185-16	ESPI-HV-185-16
Flow, l/min	16	16
Minimum pressure, bar	4	4
Maximum pressure, bar	185	185
Rated voltage, V	24	600
Maximum current, A	400	18
Dimensions (LxWxH), mm	379x247x188	379x247x188
Weight, kg	27	27

CUSTOMIZABLE



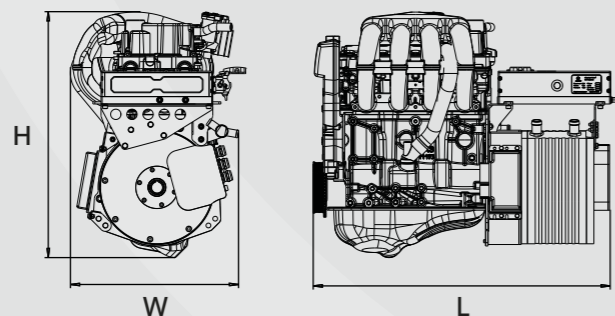
RANGE EXTENDER RUBRUKS REX-35-360

RUBRUKS REX-35-360 can be used as a Range Extender in EV and as a main propulsion system in HEV.



Specifications	REX-35-360
Motor type	RUBRUKS MVM-PM1-60
Traction inverter type	RUBRUKS NTPI-600-50
Engine type	VAZ 21124
Rated power output, kW	35
Maximum power output, kW	45
Output voltage, V	200...750
Current output max, A	150
Interface	CAN 2.0A/B
Dimensions (LxWxH)	804x456x667

CUSTOMIZABLE



GEARED MOTOR RUBRUKS GMV-55-360-WG24

A kit solution for electric drive of special equipment without installing additional transmission units.

Drive type options:

- final drive (for motor-wheel)
- central drive (for cardan shaft).

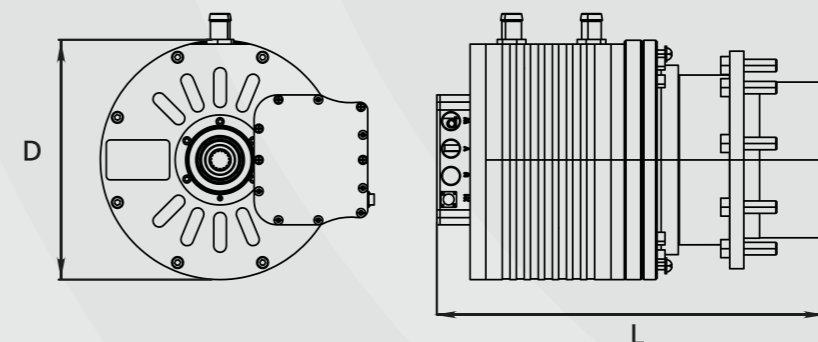
Drive parameters options:

- speed
- output torque
- gear ratio



Specifications	GMV-55-360-WG24
Motor type	RUBRUKS MVM-PM1-60
Gear ratio	24
Maximum output speed, rpm	200
Maximum torque output, N·m	5760
Dimensions (DxL), mm	300x455
Weight, kg	108

CUSTOMIZABLE



SINGLE TRACTION DRIVE UNITS RUBRUKS STDU

5-in-1 block with a unified design and customizable core parameters, it can be used in passenger electric vehicles, medium-duty commercial EVs, off-road passenger vehicles, watercraft, etc.

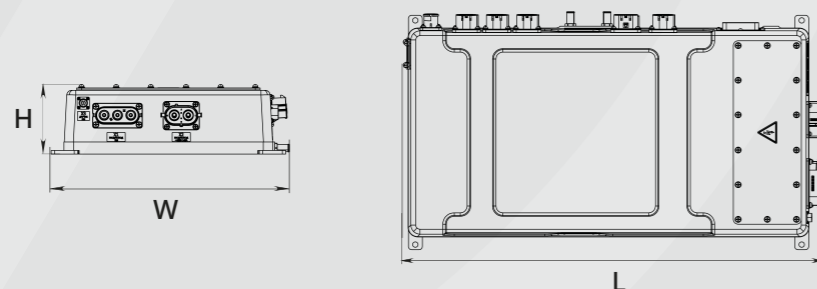


Combines the functions:

- traction inverter,
- onboard charger,
- DC-DC converter,
- main control unit,
- high-voltage power distribution unit.

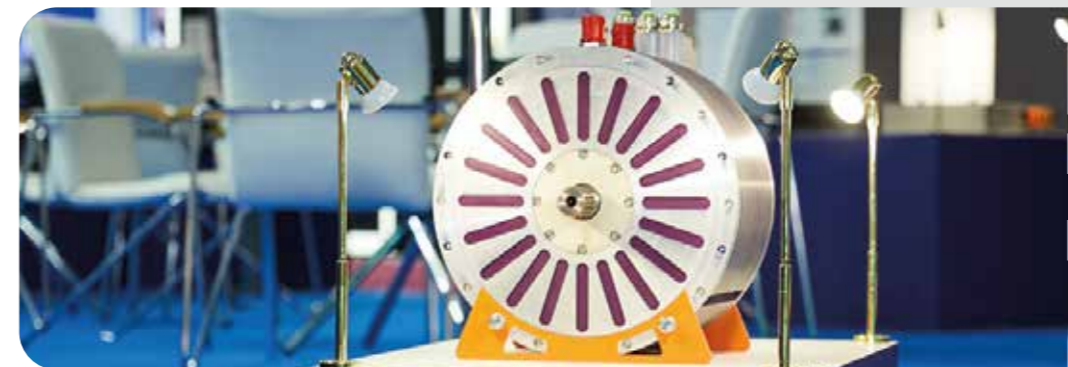
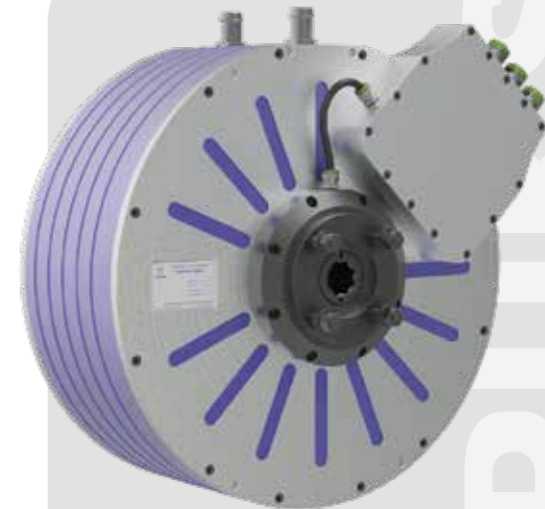
Specifications	STDU-360	STDU-600
Voltage HV rated, V	360	600
Voltage LV rated, V	12	24
Nominal phase current, Arms	100	100
Maximum phase current, Arms	200	200
Power of charger, kW	6,6	6,6
DC-DC power, kW	2,5	4
Dimensions (LxWxH), mm	660x344x109	660x344x109
Weight, kg	35	35
Interface	CAN 2.0A/B	CAN 2.0A/B
Cooling system	liquid	liquid

CUSTOMIZABLE



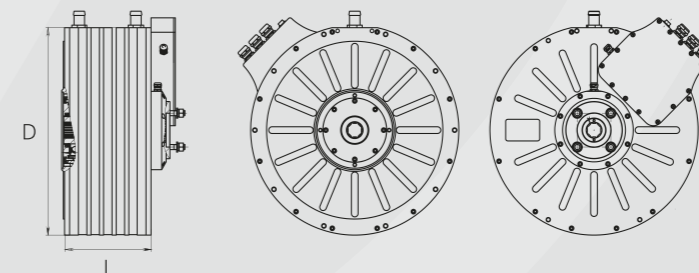
GENERATORS RUBRUKS HVM

RUBRUKS HVM AC generators are designed to generate electricity to supply on-board consumers. Suitable for hybrid vehicles, special equipment and agricultural machinery.



Specifications	HVM-PM1-65				HVM-PM1-110				HVM-PM1-150			
Nominal speed, rpm	1500	1800	2500	2800	1500	1800	2500	2800	1500	1800	2500	2800
Rated power s1, kW	21	26	36	40	52	63	86	95	61	72	92	99
cos phi	1	1	1	1	1	1	1	1	1	1	1	1
Efficiency, %	87,1	89,2	91,5	92,2	92,6	93,5	94,7	95	95,3	95,6	95,9	95,9
Frequency, Hz	125	150	208,3	233,3	125	150	208,3	233,3	150	180	250	280
Rated current, A	124	123	122	122	185	185	178	175	135	132	120	115
Dimensions (DxL), mm	306x240				383x259				490x213			
Weight, kg	65				108				140			
Cooling system	liquid				liquid				liquid			

CUSTOMIZABLE

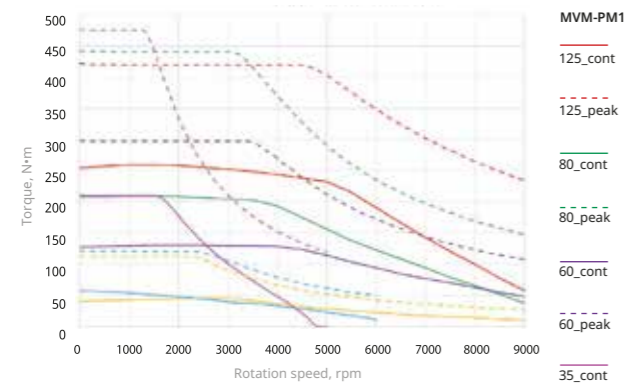


E-MOTORS RUBRUKS MVM

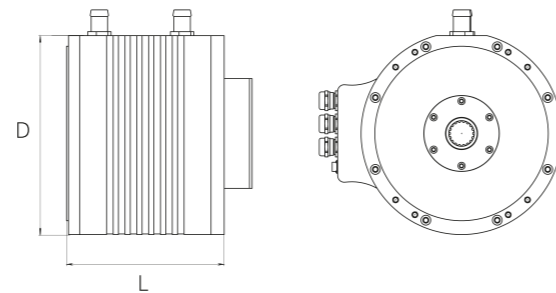
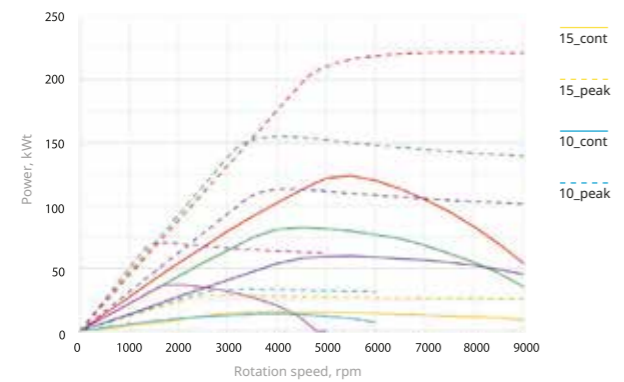
AC motors RUBRUKS MVM are designed to operate at 360V. Suitable for passenger cars and medium weight commercial vehicles.



Torque curves



Power curves



Specifications	MVM-PM1-10	MVM-PM1-15	MVM-PM1-35	MVM-PM1-60	MVM-PM1-80	MVM-PM1-125
Peak power s2 30 sec, kW	32	28	70	113	154	220
Rated power s1, kW	10	15	35	60	80	125
Rated voltage, V	360	360	360	360	360	360
Maximum speed, rpm	6000	9000	5000	9000	9000	9000
Peak torque s2 30 sec	120	112	475	296	440	419
Nominal torque s1, N·m	32	40	210	130	206	250
Efficiency, %	95	94	92	96	96	97
Maximum current, A	30	100	220	350	450	550
Dimensions (DxL), mm	272x152	300x150	300x265	300x220	300x260	380x220
Weight, kg	26	35	75	63	80	95
Cooling system	air	liquid	liquid	liquid	liquid	liquid

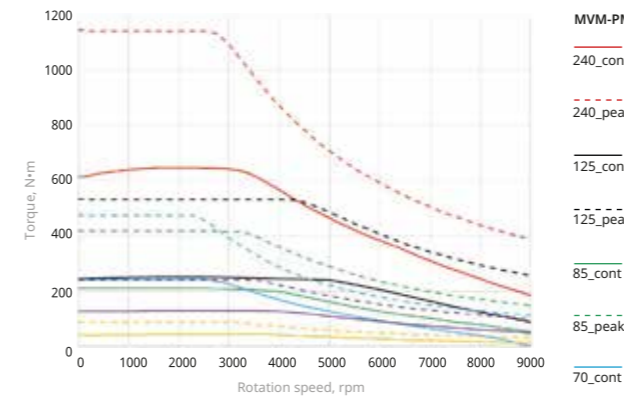
CUSTOMIZABLE

E-MOTORS RUBRUKS HVM

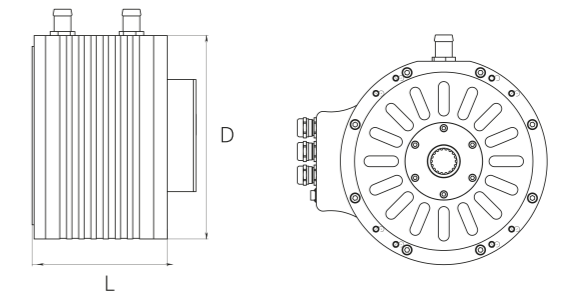
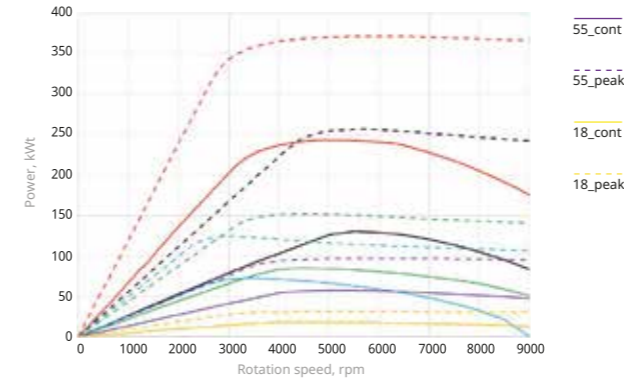
AC motors RUBRUKS HVM are designed to operate at 600V. Suitable for electric vehicles, hybrid vehicles and special equipment.



Torque curves



Power curves



Specifications	HVM-PM1-18	HVM-PM1-55	HVM-PM1-70	HVM-PM1-85	HVM-PM1-125	HVM-PM1-240
Peak power s2 30 sec, kW	30	95	120	150	250	370
Rated power s1, kW	18	55	70	85	125	240
Rated voltage, V	600	600	600	600	600	600
Maximum speed, rpm	9000	9000	9000	9000	9000	9000
Peak torque s2 30, N·m	85	240	470	415	530	1140
Nominal torque s1, N·m	40	125	240	210	245	640
Efficiency, %	94	96	94	96	97	97
Maximum current, A	50	150	220	250	450	450
Dimensions (DxL), mm	300x150	300x220	300x260	300x260	380x220	500x370
Weight, kg	35	63	76	80	95	360
Cooling system	liquid	liquid	liquid	liquid	liquid	liquid

CUSTOMIZABLE

TRACTION INVERTERS RUBUKS NTPI

Traction inverters RUBUKS NTPI - AC motor controllers. Designed to operate at voltages up to 800V. Suitable for electric vehicles, hybrid vehicles and special equipment.

Features:

- vector drive control of e-motors
- multi-channel e-motor temperature control
- temperature control of power modules
- control via CAN bus or analog signal
- fine tuning for the electric machine



DC-DC VOLTAGE CONVERTERS RUBUKS VCGI

Designed to convert the HV to LV (onboard electrical supply system) in power supply systems for special equipment.

The wide range of input voltage allows the converter to be used in 360V and 600V systems.

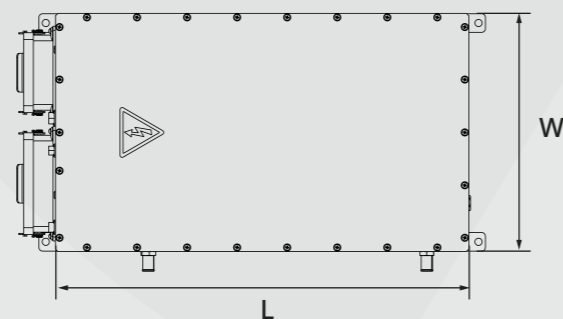
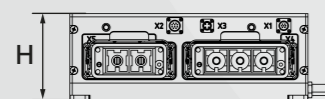
Features:

- setting output voltage/current via CAN bus
- work in CC-CV mode
- control via CAN bus or discrete signal
- automatic continuation of work after removing the causes of protection activation
- protection systems:
 - overheating
 - input/output overvoltage
 - output short circuit



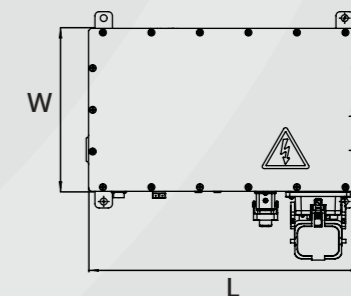
Specifications	NTPI-600-20	NTPI-600-50	EXTPI-600-500
Maximum power, kW	20	50	375
Rated power, kW	10	35	100
Maximum phase current, A	27	67	500
Rated phase current, A	13	47	135
Input voltage, V	150...800	150...800	50...800
Dimensions (LxWxH), mm	303x325x89	303x325x89	512x295x107
Weight, kg	7	23	30
Interface	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B
Cooling system	liquid/air	liquid	liquid

CUSTOMIZABLE



Specifications	VCGI-600-14-3	VCGI-600-24-4	VCGI-600-24-8	VCGI-600-24-12	VCGI-600-24.12-7 (two-channel)	VCGI-600-85-10
Maximum power, kW	3	4,2	8,4	12	7	10
Rated power, kW	2,8	3,6	7,2	8	6	7
Input voltage, V	250...750	250...750	250...750	250...750	250...750	250...750
Output voltage, V	10...15	22...28	22...28	24...28	22...28	80...100
Output voltage #2, V	-	-	-	-	11...14	-
Dimensions (LxWxH), mm	385x285x85	577x427x126	361x215x84	600x342x91	540x332x85	480x325x85
Weight, kg	15	15	22,5	30,2	26,5	17
Cooling system	liquid	liquid/air	liquid	liquid	liquid	liquid
Interface	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B

CUSTOMIZABLE



ON-BOARD CHARGERS RUBRUKS RBC

Designed to charge energy storage devices from a single- or three-phase grid or from a charging terminal.

Suitable for electric vehicles, hybrid vehicles and special equipment.

Features:

- CAN bus control
- compatible with charging terminal (J1772)
- setting output voltage/current via CAN bus
- work in CC-CV mode
- option of working with a resistive load (warm-up mode)
- protection systems



DC-AC VOLTAGE CONVERTERS "PURE SINE" RUBRUKS NPI

Designed to convert DC into AC 220V / 380V "pure sine" for powering onboard consumers. Suitable for electric vehicles, hybrid vehicles and special equipment.

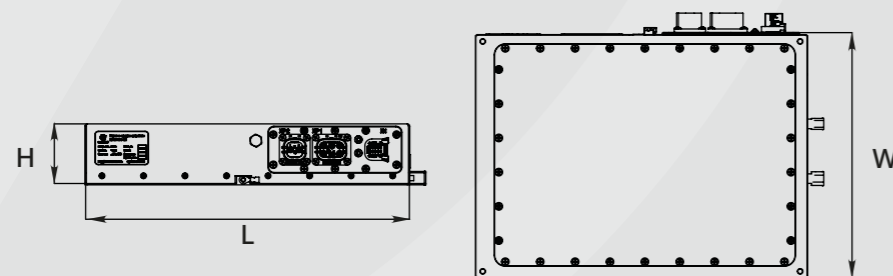
Features:

- "pure sine" - for powering any consumers of a household/industrial network
- output current and voltage control
- CAN interface
- overload protection
- overheat protection
- automatic continuation of work after removing the causes of protection activation
- soft start (optional)
- phase-by-phase unbalanced load compensation



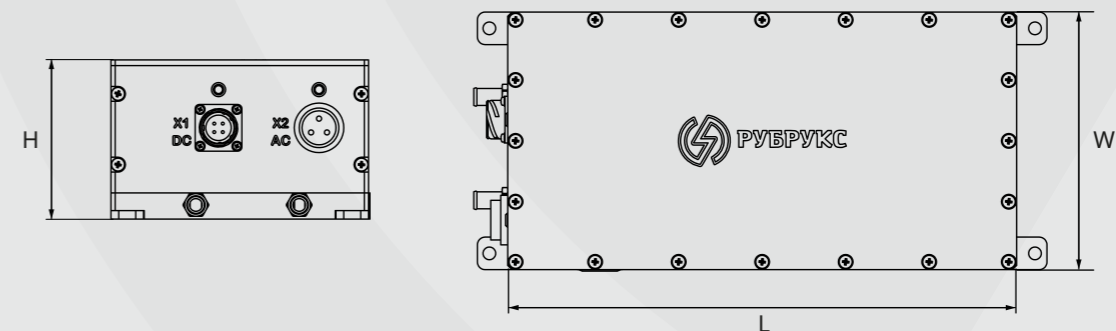
Specifications	RBC-600-7	RBC-600-22	RBC2-600-22	RBC-360-7	RBC-360-22	RBC2-360-22
Maximum power, kW	7	22	22	7	22	22
Rated power, kW	600	600	600	360	360	360
Input voltage, V	210...250	210...250	210...250	210...250	210...250	210...250
Output voltage, V	400...750	410...750	410...750	250...450	210...420	210...420
Maximum input current, A	32	32	32	32	32	32
Maximum output current, A	12	45	45	20	60	60
Dimensions (LxWxH), mm	215x358x94	660x345x110	485x356x91	215x358x94	660x345x110	485x356x91
Weight, kg	12	32	28	12	32	28
Interface	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B
Cooling system	liquid	liquid	liquid	liquid	liquid	liquid

CUSTOMIZABLE



Specifications	NPI-360-220-7	NPI-600-380-40
Maximum power, kW	7	40
Rated power, kW	6	30
Input voltage, V	320...420	550...750
Output voltage, V	220	220/380
Dimensions (LxWxH), mm	342x290x91	700x290x91
Weight, kg	14	35
Interface	CAN 2.0A/B	CAN 2.0A/B
Cooling system	liquid	liquid

CUSTOMIZABLE



BATTERY MODULES RUBRUKS HVB

RUBRUKS HVB battery modules are based on LiFePO4 and NMC cells produced in Russia and China. Suitable as part of vehicle energy storage devices, power supply systems, backup energy storage, and buffer storage devices of hybrid systems.

Features:

- unified design of the battery module allows the use of serial, multi-level parallel and combined connections
- operating mode is configured by the BMS own software



THERMAL CONTROL UNITS RUBRUKS TCU

Designed to maintain battery modules, power converters, inverters and other units of hybrid and electric vehicles in the optimal operating temperature range.

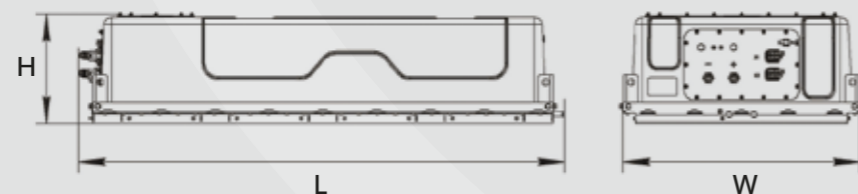
Features:

- passive cooling
- active cooling (chiller)
- heating
- automatic connection depending on operating conditions



Specifications	HVB-307-72	HVB-307-100	HVB-310-50	HVB-310-62	HVB-360-50	HVB-360-62
Rated voltage, V	307	307	310	310	355	360
Capacity, Ah	72	100	50	62	50	62
Energy, kWh	22	30	15	20	17,5	22
Cell type	LiFePO4 (Russia)	LiFePO4 (Russia)	NMC	NMC	NMC	NMC
Dimensions (LxWxH), mm	1284x660x299	1284x660x299	1272x642x214	1272x642x214	1272x642x214	1272x642x214
Weight, kg	245	280	115	127	128	140
Interface	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B	CAN 2.0A/B
Cooling system	liquid	liquid	liquid	liquid	liquid	liquid

CUSTOMIZABLE



Specifications	TCU-6-4-10	TCU-6-4
Cooling power, kW	4...6	4...6
Heating power, kW	6	-
Voltage in the high-voltage circuit, V	450...750	450...750
Voltage in the low-voltage circuit, V	24	24
Dimensions (LxWxH), mm	684x563x328	684x563x328
Weight, kg	35	35
Interface	CAN 2.0A/B	CAN 2.0A/B
Heating system	PTC	-
Cooling system	combined	combined

CUSTOMIZABLE



CONTROL UNITS RUBRUKS EMU

This device is commonly used in modern power supply systems, electric and hybrid vehicle transmission systems as a main unit or I/O module.

Its wide temperature range and shell protection enable it to be used directly at the application site without additional housing protection.

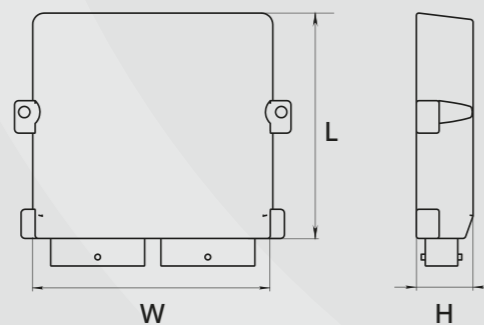


Features:

- two-stage moisture protection
- power outputs
- programmable indicators on the case

Specifications	EMU2-2C
Maximum voltage, V	18
Minimum voltage, V	36
Interface	2 x CAN 2.0A/B, RS485, Ethernet (optional)
Number of analog inputs/outputs, pcs	6/2
Number of discrete inputs/outputs, pcs	12/8
Dimensions (LxWxH), mm	170x160x34
Weight, kg	1,5

CUSTOMIZABLE



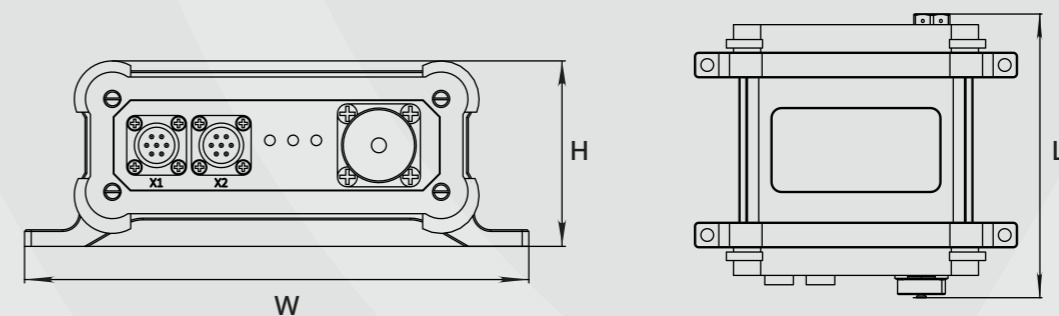
CAN LOGGERS RUBRUKS CL

Designed for use as part of transport and stationary systems with digital control. The module provides high-speed data recording from one or two CAN buses without filtering and processing, which allows to save maximum information about the operation of the system for further analysis, solving emergency situations, and processing statistical data. The design and software of the module provides independent adjustment of the CAN bus speed. Own custom software allows you to convert LOG files into various formats (including CVS, XLS).



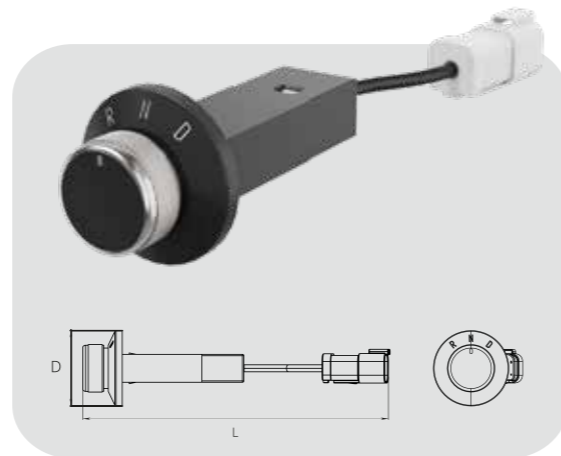
Specifications	CL3-2C
Maximum voltage, V	36
Minimum voltage, V	9
Built-in memory, GB	32
Interface	2xCAN 2.0A/B
Dimensions (LxWxH), mm	129x113x36
Weight, kg	0,5

CUSTOMIZABLE



DRIVE MODE SELECTOR WITH CAN MODULE RUBRUKS DMS-3L-CAN

The CAN selector is suitable for use on electric vehicles, hybrids and vehicles with automatic transmission. The communication protocol is identical to the ZF GEAR SELECTOR SC 1755718.



Specifications	DMS-3L-CAN
Maximum voltage	36
Minimum voltage	9
Interface	CAN 2.0B
Protocol	J1939
Dimensions (DxL), mm	55x115
Weight, kg	0,1
LED backlight	Yes

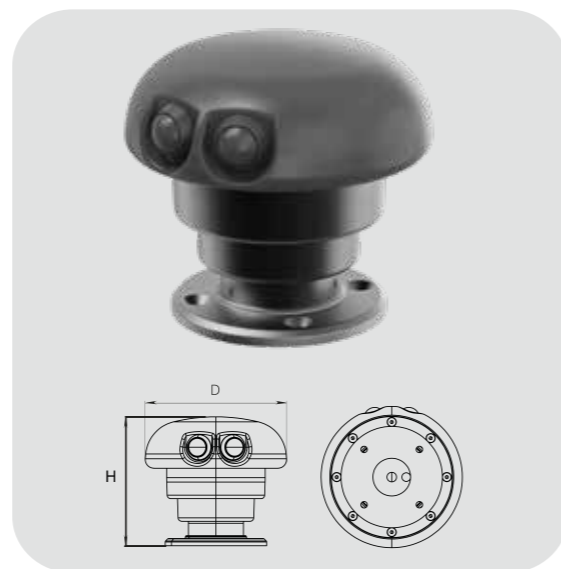
CUSTOMIZABLE

OMNIDIRECTIONAL JOYSTICK

Proportional joystick based on the Hall sensor. Suitable for use on special equipment, automated workstations for controlling robotic equipment and UAVs.

Features:

- handle deflection force adjustment
- additional mounted elements: discrete and proportional switches with/without latching
- any-hand control



Specifications	
Maximum voltage	36
Minimum voltage	9
Bounding Path Shape	circle/square/star
Handle deflection angle	20°, in any direction
Connection interface	USB/CAN
Degree of protection	IP54
Vibration resistance	provided
Dimensions (DxH), mm	98x90
Weight, kg	0,5

CUSTOMIZABLE

HIGH-VOLTAGE POWER DISTRIBUTION UNITS RUBRUKS HPDU

Designed for power distribution of high-voltage consumers.

Features:

- up to 1000V
- built-in insulation monitoring device for plus and minus buses
- shielded cable glands
- HVIL

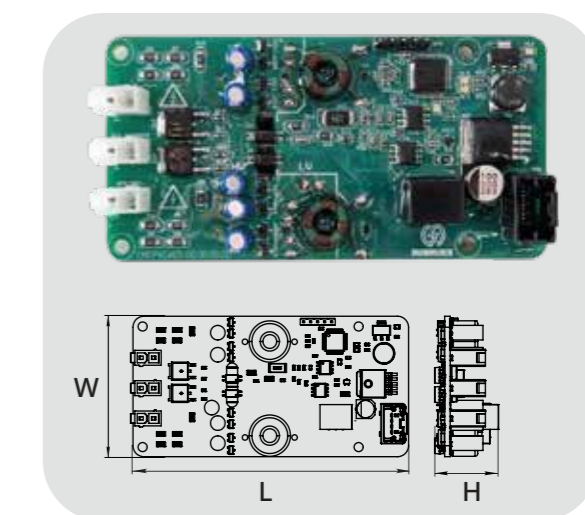


Specifications	HPDU-600-iso	HPDU2-600-iso
Maximum voltage, V	1000	1000
Number of power connections, pcs	2	5
Number of low-current connections, pcs	2	3
Insulation monitoring system	yes	yes
Dimensions (LxWxH), mm	255x227x55	500x230x118
Weight, kg	3,8	12
Interface	CAN 2.0A/B	CAN 2.0A/B

CUSTOMIZABLE

INSULATION MONITORING DEVICE RUBRUKS ISO-1000R

The device is designed to monitor the insulation resistance of high-voltage circuits. A proprietary algorithm allows to detect symmetrical and asymmetrical insulation faults between "plus" and "chassis", "minus" and "chassis". Communication is carried out via an isolated CAN 2.0B interface in accordance with the J1939 protocol or custom protocol.



Specifications	ISO-1000R
Maximum voltage	36
Minimum voltage	9
Interface	CAN 2.0B (J1939)
HV range, V	100...900
Maximum measured voltage, V	1000
Insulation measurement range, MOhm	3,5
Dimensions (LxWxH), mm	100x51x20

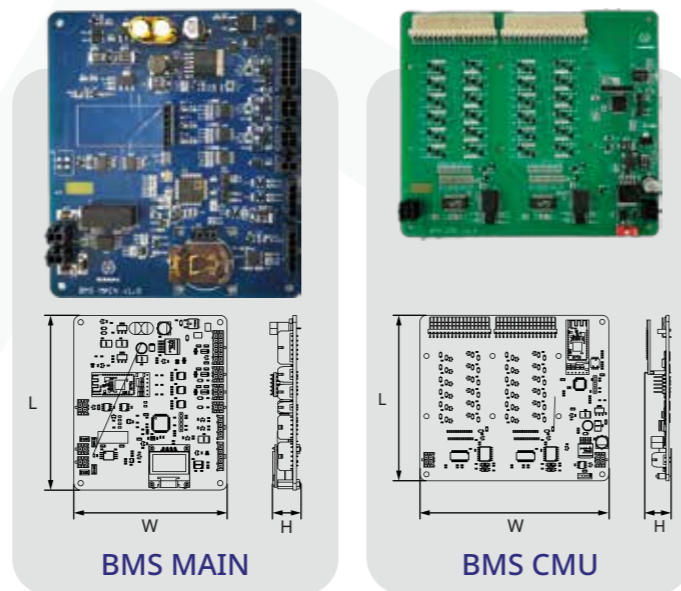
CUSTOMIZABLE

BATTERY MANAGEMENT SYSTEM RUBRUKS BMS

Modular battery management system RUBRUKS BMS is designed to monitor, balance and protect battery modules based on NMC, LiFePO4 and LTO cells.

The system consists of two types of boards:

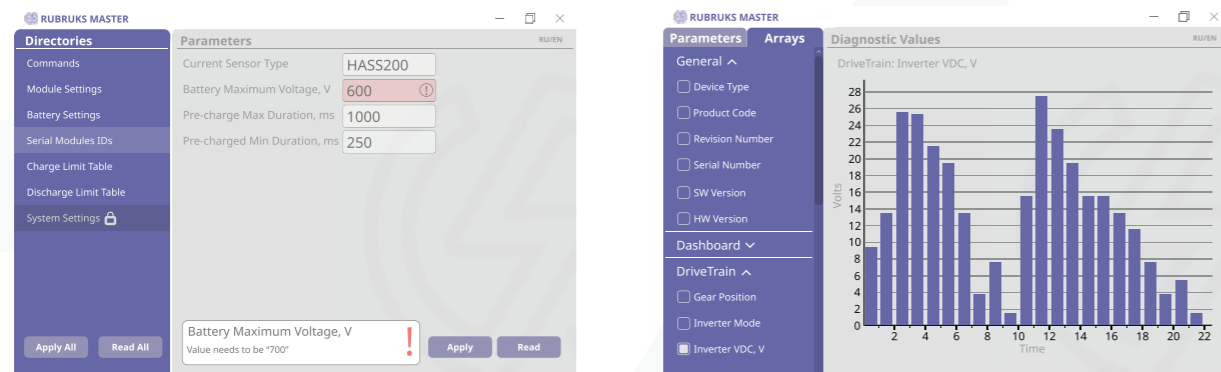
- Measuring board RUBRUKS BMS CMU - from 1 to 12 pcs as part of a battery module.
- Main board RUBRUKS BMS MAIN - 1 piece as part of a battery module.



Ключевые характеристики	BMS MAIN	BMS CMU
Supply voltage, V	9...32	24
Dimensions (LxWxH), mm	100x114x18	130x114x13
Weight, kg	0,1	0,2
Interface	CAN 2.0A/B	CAN 2.0A/B

CUSTOMIZABLE

RUBRUKS MASTER SERVICE SOFTWARE



Unified service software RUBRUKS MASTER allows to diagnose, configure and parameterize all RUBRUKS electronic units.

Features:

- customization of components to the configuration of the final product for their efficient and reliable operation,
- setting limits on current, voltage, and operating temperature, ensuring the safety and durability of equipment,
- acking telemetry parameters and history of error codes to monitor and diagnose system operation.

The software operates in user assistance mode. This means that it is impossible to enter the value of parameters that will damage equipment.

OUR CUSTOMERS

OEMs for hybrid and electric vehicles

We supply components for EV/HEV systems



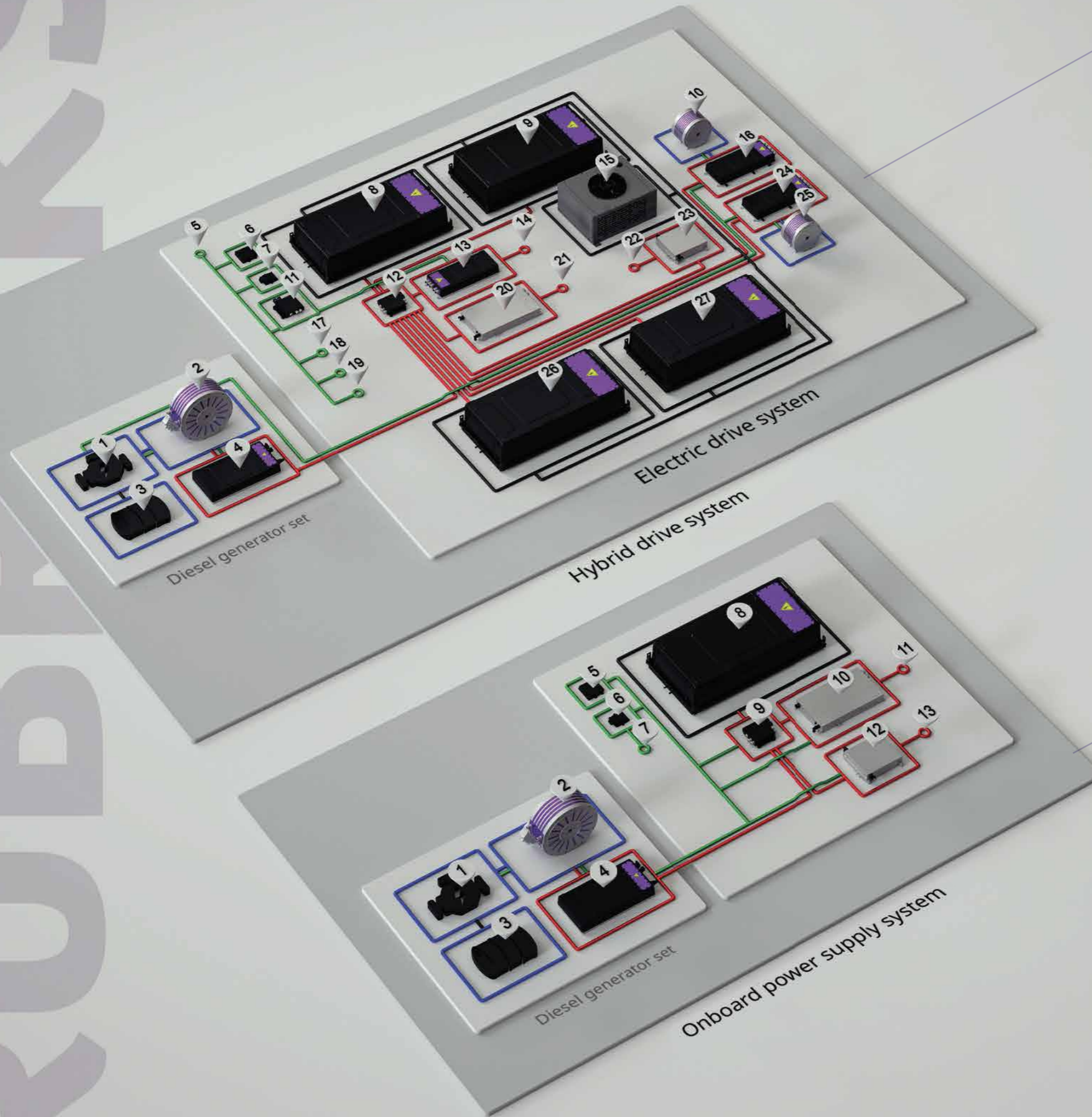
Manufacturers of special equipment and functional add-ons

We increase the power capacity of the chassis through the introduction of a hybrid power supply system



HOW IS WORK GOING

- 1 Technical specifications
- 2 3D models, documentation and software
- 3 Prototype production
- 4 Bench test
- 5 Debugging
- 6 Pilot batch
- 7 Mass production
- 8 Warranty support



- 1 Engine (ICE)
- 2 HVM Generator
- 3 Fuel tank
- 4 Traction inverter NTPI 16 24
- 5 Output to instrument cluster
- 6 Main control unit EMU
- 7 CAN logger CL
- 8 Energy storage HVB 9 26 27
- 10 Electric motor HVM 25
- 11 LV power distribution unit LPDU
- 12 HV power distribution unit HPDU
- 13 Onboard charger RBC
- 14 Input from charging port 380V 3P-N-PE 50Hz, 220V 1P-N-PE 50Hz
- 15 Thermal control unit TCU
- 16 Traction inverter NTPI 24
- 17 Input from controls
- 18 Input/output to on-board battery
- 19 Ignition switch input
- 20 DC-DC converter VCGI
- 21 Output to consumers 27V
- 22 Output to consumers 380V 50Hz 3P-N-PE, 220V 50Hz 1P-N-PE
- 23 DC-AC voltage converter NPI

- 1 Engine (ICE)
- 2 HVM Generator
- 3 Fuel tank
- 4 Traction inverter NTPI
- 5 Main control unit EMU
- 6 CAN logger CL
- 7 To display module
- 8 Energy storage HVB
- 9 HV power distribution unit HPDU
- 10 DC-DC converter VCGI
- 11 Output to consumers 27V
- 12 DC-AC voltage converter NPI
- 13 Output to consumers 380V 50Hz 3P-N-PE, 220V 50Hz 1P-N-PE

**Contact us
to receive
a commercial offer**

+7 (495) 132-74-07
info@rubruks.com
www.en.rubruks.com



Download PDF
08.2024



Rubruks LLC
ul. Burakova, d. 27, korp. 40, g.
Moskva, 105118, Russian Federation