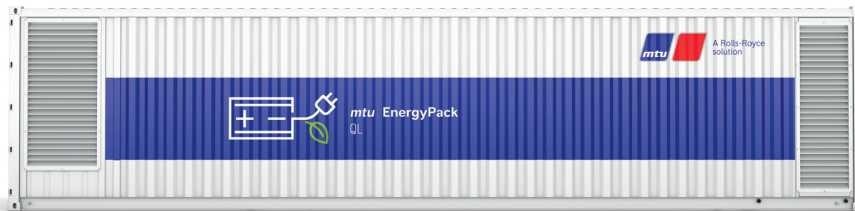




Battery Energy Storage System

mtu ENERGYPACK QL



Optional equipment shown. Standard equipment may vary.

Product highlights

Benefits

- Factory tested plug-and-play design
- Optimized system integration ability
- Highest power density
- Complete system within 40ft HC container
- High safety & reliability
 - Floodable with extinguishing water
 - Aeration in case of gas detection
- Black start capability
- Grid-supporting & grid-forming mode
- Controlled switching between modes
- Supervision of the point of common coupling
 - Control of the external mains switch
 - Detection of power outages
 - Re-synchronization after grid recovery
- Various applications in combination with **mtu** Microgrid Controller
- Easy integration into Rolls-Royce Microgrid Solutions

Support

- Global product support offered

Standards

- Battery storage is designed and manufactured in facilities certified to standards ISO 2015:14001, ISO 2015:9001 and ISO 2018:45001
- AS/NSZ on request

System configurations

- Power and capacity can be widely adjusted according to customer and project needs. Please see graph below and consult your local distributor for your individual configuration.

Options

- 50°C ambient temperature*
- Fire suppression system
- 50% overload capacity*
- Redundant cooling*
- Internal* or external transformer
- Customer branding
- ...and many more

* for selected configurations

Certifications

- CE conformity certification

Battery energy storage systems

mtu - a Rolls-Royce solution - offers a wide portfolio of battery energy storage systems. As integral part of flexible energy systems, energy from various distributed electricity sources can be stored in our battery energy storage systems. The **mtu** EnergyPacks are designed to improve reliability, quality and profitability of your individual energy system. For more information and solution consulting please contact your local distributor.

Technical data - **mtu** EnergyPack QL

Sections	Value	Sign	mtu EnergyPack QL
Battery	Cell chemistry		NCM
	Nominal capacity QL		up to 2,084 kWh
Cooling	Max. ambient temperature	T_{max}	40 °C (50 °C)
	Min. ambient temperature	T_{min}	-20 °C
Electrical	Nominal apparent power QL	S_{nom}	up to 2,000 kVA
	AC short circuit capability		50 kA
	Grid frequency	f	50 Hz (60 Hz)
	Max apparent power (1 min)	S_{peak}	110 % (150 %) of S_{nom}
	Nominal voltage	U_{nom}	450 V (400 V with internal transformer) ¹
	Power factor range	$\cos \phi$	0 ind. ...1 ... 0 cap
	Black start capability		yes
Housing	Corrosion protection		C3 (C5)
	Height	H	2,896 mm
	Length	L	12,192 mm
	Width	W	2,438 mm
	Protection class battery room		IP56
Interface	Supported communication protocol		Modbus-IP (Modbus-RTU, IEC 60870-5-104, IEC 61850, DNP3)
	Supported communication channels		3G / 4G 100MB/s CAT 5
System	Humidity	ϕ_{rel}	< 95 %, non-condensing
	Max. operation altitude	H_{max}	2,000 m
	Nominal round trip efficiency ² (w/o HVAC)		up to 90 %
	Weight	m	up to 38,000 kg

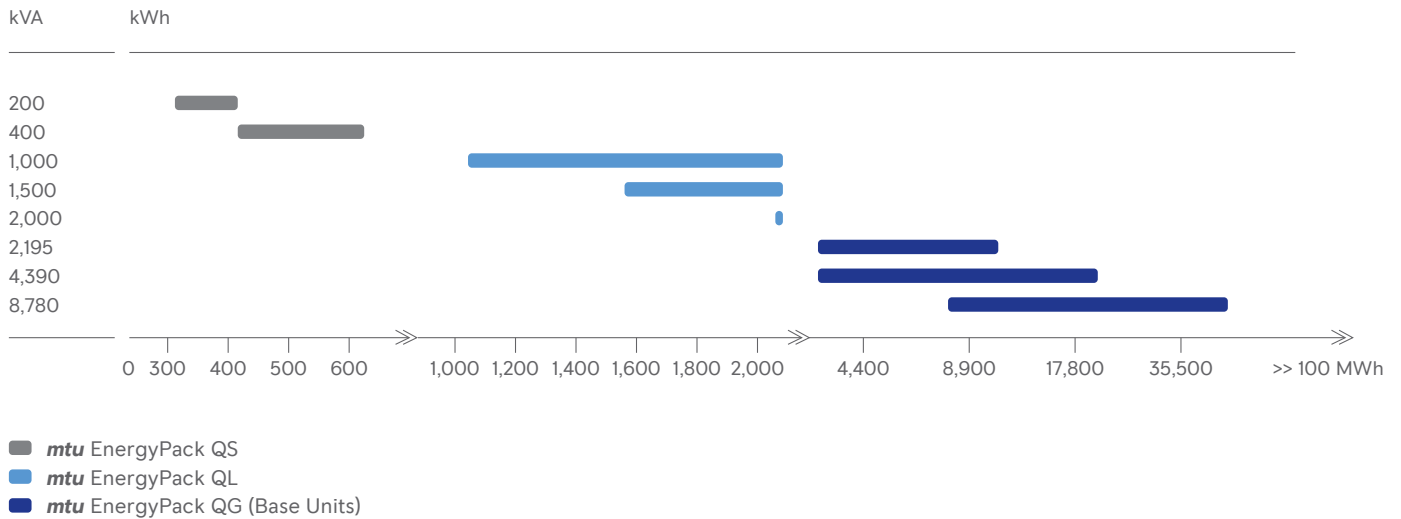
Note: Values in parentheses () are optional and might have an impact on derating.

1) Other voltage levels available on request

2) At nominal power, excluding losses of transformer and external cabling. Depending on configuration and C-Rate.

Power capacities

The **mtu** EnergyPack is available in different sizes: The QS and the QL, ranging from 200 kVA to 2,000 kVA, and from 312 kWh to 2,084 kWh, and the QG for grid scale storage needs, ranging from 4,400 kVA and 8,900 kWh to virtually any size.



Sound data

– Consult your local distributor for sound data.

Warranty and performance guarantee

– Consult your local distributor for information about warranty and performance guarantee.

Materials and specifications are subject to change without notice. Please consult your local distributor for further product information.