

GENSETS



Products Catalogue

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UMEB gensets are the modern way to ensure a continuous supply of power to any objective, regardless of time, place or weather.

A genset is made up of an electrical generator driven by an internal combustion engine, the whole set being protected by a soundproof canopy (enclosure). Complete measurement and protection functions, as well as power distribution are ensured via a specially designed electrical panel.

The internal combustion engine



It provides the mechanical energy needed to drive the synchronous electrical generator.

Special purpose Diesel engines running at constant speed (1500 rpm) are being used in the vast majority of cases.

The engines are fully equipped: they are fitted with air filters, fuel filters, oil filters, exhaust mufflers, oil pump, fuel pump, fuel injection pump with speed governor, radiator, fan, preheater, starter motor, alternator, static battery charger, acid-lead batteries.

The UMEB synchronous electrical generator

The synchronous generator converts the engine's mechanical energy into electrical energy, which is then delivered to the load. The generators are brushless, self excited and self regulated machines via their own automatic voltage regulator (AVR); the AVR ensures constant voltage output regardless of load value and fluctuations.



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The engine-generator set



The engine and generator are coupled together by means of standardized SAE coupling system and are mounted on the metal base-frame of the genset by the use of special rubber dampers designed to absorb most of the vibrations produced during the genset's operation.



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Three-phase genset classification

As a supplier of integrated and personalized power supply solutions, UMEB can provide a wide variety of gensets, with different operating modes and builds.

☒ Operating mode - wise, gensets are divided into two categories:

① **with automatic operation** - they monitor the mains parameters and they start-up automatically upon power outage, take over the load (ensuring the required power), they retransfer the load back to mains when the power outage is over and then they stop.

② **with manual operation** - they are handled by a human operator: genset start-up, load take-over and genset stop are ensured manually, by the operator.



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Construction form - wise, gensets can be divided into two categories:

- ❶ **soundproof canopied** - designed for outdoor use.
- the canopy protects the genset from the elements and reduces the noise level produced by the genset during operation.
- ❷ **container type gensets** - the genset is placed inside a special container.
- ❸ **open-type** - the engine-generator set and electrical panel are not protected by the soundproof canopy, as these gensets are intended to be installed indoors.





Mobility-wise, the gensets are divided into 4 categories:

- ❶ **stationary type** - they are placed in a well defined location and shall not be moved after commissioning (they supply a building or a production facility, and so on).
- ❷ **mobile/towable type** - they can be towed on public roads by means of a suitable vehicle, delivering power to an objective / a location where the mains is unavailable.
- ❸ **self-propelled type** - they are mounted on trucks and they can also be unloaded if necessary on the location that needs power.
- ❹ **portable type** - gensets of very low output, fitted in a steel tube cradle, with or without wheels and handles; they are relatively easy to transport (for example, with a car) and to move around; they are intended for short operation duty, in places where a large genset would be too cumbersome.



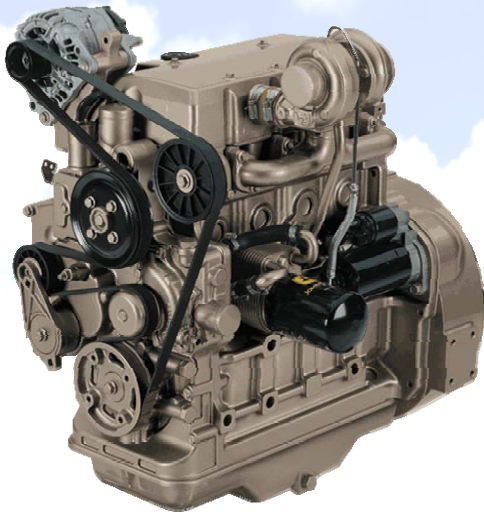


As far as the fuel used by the engine is concerned, the gensets can be:

- ❶ **Diesel powered** - they are powered by compression-ignition engines (Diesel engines).
- ❷ **gasoline powered** - they are powered by spark-ignition engine (petrol engines).
- ❸ **natural gas powered** - they are powered by spark-ignition engines running on natural gas.



Engine cooling type - wise, the gensets can be divided into two categories:



- ❶ **water-cooled engine** - the cooling agent is a mix of water and antifreeze solution; the cooling is done by the engine's radiator and cooling fan.
- ❷ **air-cooled engine** - the cooling agent is air; forced air circulation is done by a cooling fan driven by the engine.



As far as the ATS panel is concerned, the gensets are divided into two categories:

- ❶ **contactor-type ATS** - load change-over is done by means of two contactors.
- ❷ **motorized circuit breakers** - load change-over is performed by two motorized circuit breakers. Two different types of motorized circuit breaker change-over devices are available.



Duty-wise, the gensets are divided into:

- ❶ **Stand-by operation** - these are gensets with automatic operation, intended only for short power outage situations; the principle of automatic operation has been described earlier in this catalogue.
- ❷ **Main power supply** - these are gensets with manual operation, being used in places where there is no mains; the gensets are the sole power supply and thus are operating in continuous duty (round-the-clock operation).

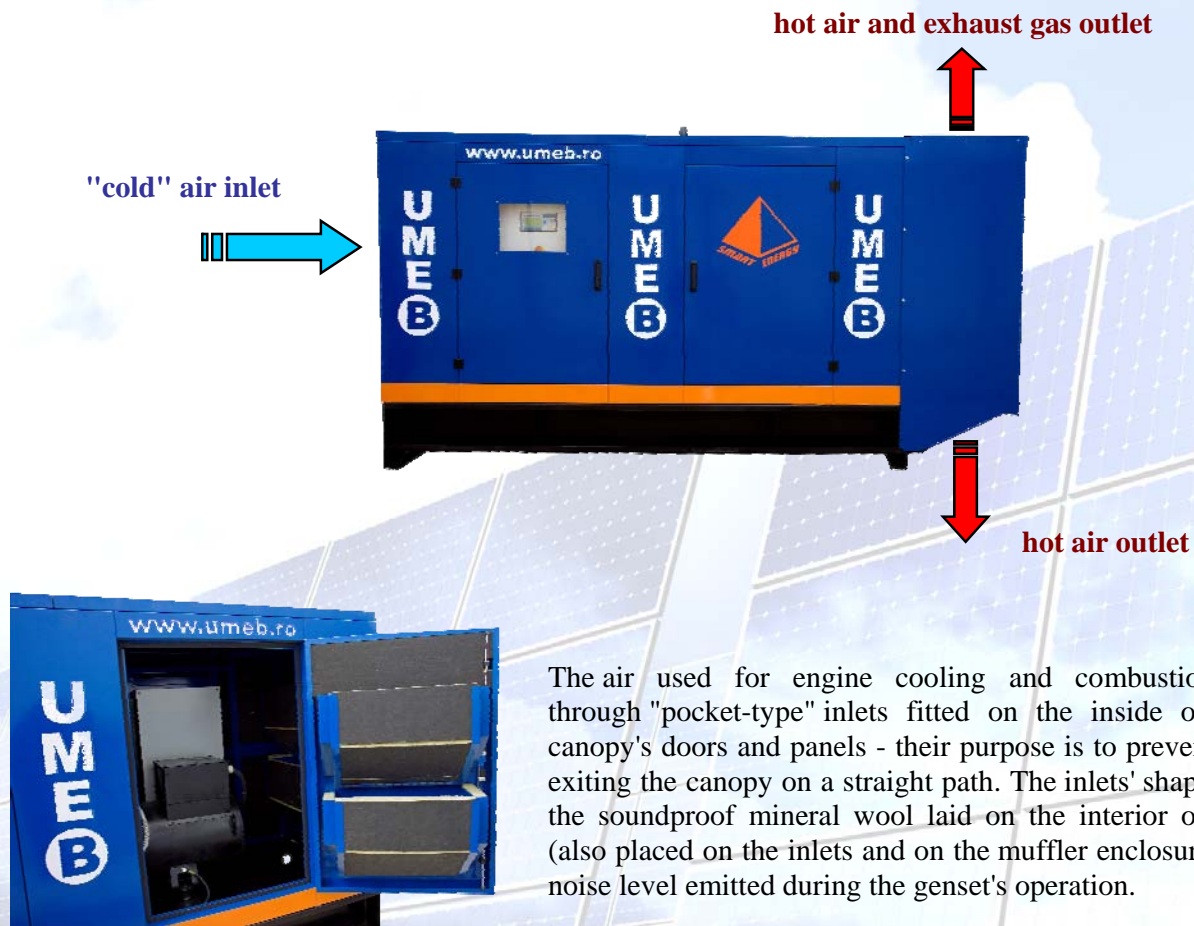




Soundproof canopied gensets

The vast majority of gensets are placed outdoors. In order to protect the engine-generator set, the electrical panel and the metal base-frame from the weather elements and unauthorized access, as well as for noise reduction reasons, the genset is placed in a purpose-built enclosure - the so-called soundproof canopy. The canopy is made from electrostatic spray-painted steel sheet, which greatly reduces the impact of weather factors; the inside of the canopy is covered with fire-retardant soundproof material. The soundproof canopy is actually made up of two sections: the main part of the canopy (which houses the genset) and the muffler enclosure (the suspended part of the canopy, which houses the muffler and splits the hot airflow). The genset's metal base-frame (skid) houses the fuel tank and the engine's batteries. Some skids come equipped with a rugged lifting bracket which allows the genset to be lifted with a crane in order to be placed easily on the site. Other skids (especially those of smaller gensets) are also fitted with forklift pockets so that they can be picked up from underneath and moved around with a suitable forklift.

The airflow thru the genset's canopy



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Open-type gensets



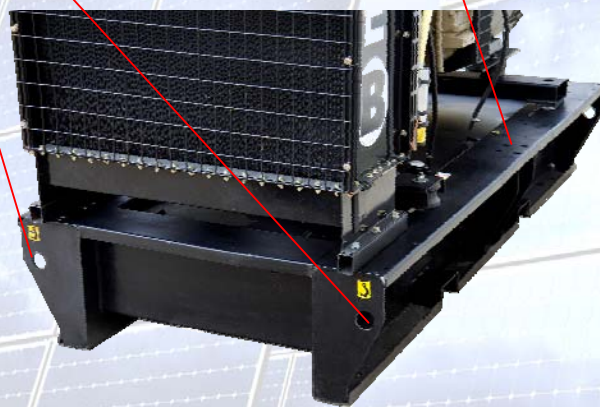
forklift pockets

batteries

rubber dampers

lifting holes

holes for the lifting bracket



The control system





The automatic control panels that equip UMEB's gensets are manufactured according to the most recent standards' specifications.

The standard "dual type" control panel is made up of two enclosures: the command and control panel (fitted on the genset's skid, which is visible through the polycarbonate window of one of the canopy's doors) and the change-over panel (which is placed near the main utility enclosure).

The command and control panel (the TCGE)



The change-over panel (the ATS)



In certain cases, it's necessary that the elements of both panels be fitted in the same enclosure (the so-called "normal type" panel):

controller

the fuses for the control system

battery charger

auxiliary relay

MCBs

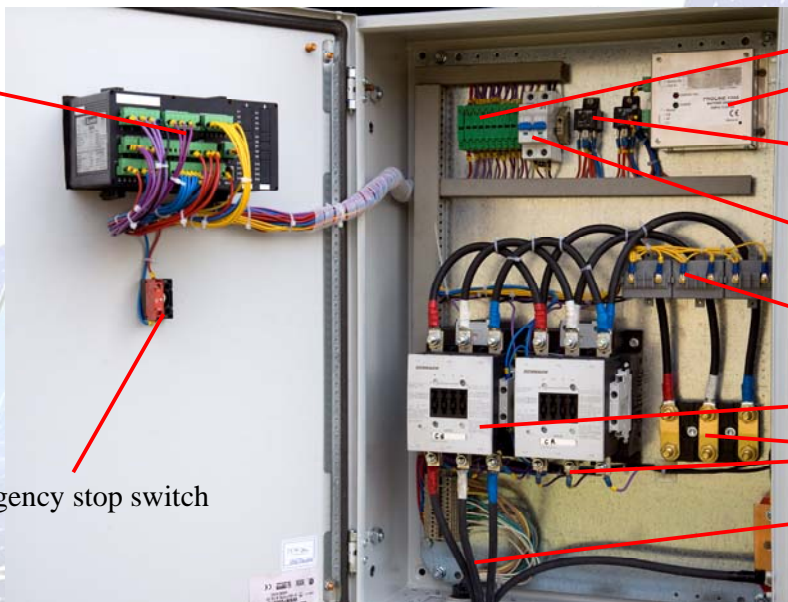
current transformers

the ATS contactors

power terminals

power cables

emergency stop switch





The automatic control panels ensure the following standard functions:

4.1. THE "AUTOMATIC" MODE OF OPERATION:

- Mains failure detection (by continuously monitoring the mains electrical parameters);
- Automatic genset start-up in the event of mains failure (abnormal voltage value on one, two or on all three phases and/or incorrect frequency value);
- Load change-over from mains to genset;
- Validating the mains parameters upon its return;
- Load change-over from genset to mains (if the mains parameters are within normal values);
- Automatic genset stop (after engine cooling is over) and placing the genset in stand-by mode, awaiting the next power outage.

4.2. "MANUAL" MODE OF OPERATION:

- This mode of operation is usually used for genset testing during maintenance procedures that require engine start-up, checks and specific set-up operations.
- This operating mode can also be used for continuous or prime duty type operation according to genset ratings.

4.3. "TEST" MODE OF OPERATION:

- This mode of operation is intended for testing purposes during the genset's regular service period and to ensure that the genset is ready for stand-by operation.
- Each genset controller comes with autotesting feature as standard. The user can activate the autotest feature, set the desired time of day and week when he wants the testing procedure to take place and the control system performs the testing procedure - when the desired time is reached, the genset is started, allowed to run and then stopped - the procedure is seamless and automatic.
- The genset operator can also perform the test procedure manually - by pushing the "Test" button, a power outage is simulated, the genset starts and runs off-load until the operator stops it.
- Should a mains failure occur during the test procedure, the load is automatically switched to the genset ensuring that it is powered for as long as there is no mains available. When the mains returns, the load is transferred back to the mains and the genset continues to run until the operators issues the stop command or selects the automatic mode of operation.
- Testing is normally done off-load, that is, the load is not transferred to the genset if the mains is within limits (note that some controllers only allow on-load testing). The user can however transfer the load on the genset if desired, thus making sure that the genset is ready to take over the load should a mains failure occur in the near future.

4.4 "OFF" MODE:

- This mode disables all genset functions, the load is removed from the generator and switched to mains (if available) and the engine is turned off (if it was running at the time). Thus, maintenance operation can be carried-out during stop mode without the risk of an inadvertent engine start.

Comunerea standard a tabloului

- Metal enclosures with IP54 protection degree;
- MCBs for the battery charger and preheater single-phase supply circuits;
- Red, mushroom type, emergency stop button;
- Three pole contactors (Mains/Genset) for the change-over ATS device, with mechanical and electrical interlock for improved safety of change-over operation;
- SMPS automatic battery charger (used to keep the engine's batteries charged during stand-by periods);
- Dedicated genset controller, with the following configuration (note that the following specification may vary according to each type of controller used):





❑ **Status LEDs:**

Mains status, genset status, mains contactor status, genset contactor status, alarm indication, maintenance request indication, 2 bar graphs for engine water temperature and engine oil pressure respectively;

❑ **Tactile buttons with or without status LEDs** with the following designations: operating mode selection , manual control of the change-over contactors/motorized circuit breakers, controller set-up operations, display scrolling, glow plugs, alarm mute;

❑ **Digital displays / LCD display and status LEDs:**

Engine, generator and mains parameters:

- Phase and line voltage values - mains / generator;
- Active power, apparent power - generator;
- Engine battery voltage;
- Phase current - generator;
- Engine water temperature;
- Failed start attempts.
- Voltage frequency - mains / generator;
- Power factor - generator;
- Fuel level;
- Engine oil pressure;
- Engine hour counter;

Genset alarms and common faults, including indicator LEDs for each alarm/fault:

- Low fuel level;
- High battery voltage;
- Low oil pressure;
- Overspeed;
- Overvoltage respectively undervoltage - mains / generator;
- Over frequency respectively under frequency - mains / generator;
- Overload;
- Configurable alarm;
- Fail to stop;
- Maintenance request;
- Controller failure.
- Low battery voltage;
- Battery charging alternator failure;
- High water temperature;
- Underspeed;

Other items (current transformers, auxiliary relays, fuses, terminals and so on).

The gensets can also be equipped with different types of controllers and auxiliary equipment, providing extended functionality according to specific application requirements.

The vast majority of genset controllers can be connected to a personal computer for set-up purpose as well as for providing remote monitoring and control capability.

These controllers can be equipped with wireless or cable Ethernet communication extension cards or GSM communication card that can send status and alarm SMSs directly to the genset operator's cell phone.



⇒ Gensets that can operate synchronized with the mains and/or with other gensets.

The control panels for gensets with manual operation have a relatively similar configuration to their automatic counterparts, except for the lack of ATS contactors. The load is switched on and off via the manual circuit breaker.





Standard range of GEBAS type gensets with Diesel engines

Model	Apparent Power [kVA]								
	Prime	Stand-by	Number of cylinders / build / induction system	Cubic capacity [l]	Engine power [kW]	Fuel tank capacity [l] / consumption [l/h]	Overall dimensions - canopied genset LxWxH [mm]	Dry weight - canopied/open-type [Kg]	Noise level dB(A) - acoustic power
GEBAS-A 20 PW-C	18	20	4/in-linie/N	2,771	27	130 / 6	2000 x 950 x 1400	520 / 830	≤ 96
GEBAS-A 25 PW-C	23	25	4/in-linie/N	2,771	27	130 / 8	2000 x 950 x 1400	525 / 835	≤ 96
GEBAS-A 30 PW-C	28	30	4/in-linie/T	2,771	32	130 / 9	2000 x 950 x 1400	550 / 880	≤ 96,1
GEBAS-A 35 PW-C	31	35	4/in-linie/T	2,771	32	130 / 10	2000 x 950 x 1400	560 / 890	≤ 96,1
GEBAS-A 44 PW-C	40	44	4/in-linie/N	3,99	44	270 / 11	2500 x 1000 x 1700	855 / 1200	≤ 96,3
GEBAS-A 55 PW-C	50	55	4/in-linie/T	3,99	72,3	270 / 12,5	2500 x 1000 x 1700	895 / 1245	≤ 96,4
GEBAS-A 70 PW-C	60	70	4/in-linie/T	3,99	72,3	340 / 15,5	2600 x 1100 x 1935	925 / 1270	≤ 96,5
GEBAS-A 80 PW-C	70	80	4/in-linie/T	3,99	72,3	340 / 18	3400 x 1100 x 1935	935 / 1285	≤ 96,5
GEBAS-A 100 PW-C	85	100	6/in-linie/T	5,99	92,7	340 / 25	3400 x 1100 x 1935	960 / 1315	≤ 96,7
GEBAS-A 130 PW-C	120	130	6/in-linie/T	5,99	134	340 / 27	3400 x 1100 x 1935	1240 / 1715	≤ 96,8
GEBAS-A 150 PW-C	135	150	6/in-linie/T	5,99	134	340 / 30	3400 x 1100 x 1935	1320 / 1830	≤ 96,8
GEBAS-A 175 PW-C	160	175	6/in-linie/T	8,071	164	340 / 32	3400 x 1100 x 1935	1530 / 2040	≤ 96,9
GEBAS-A 190 PW-C	170	190	6/in-linie/T	8,071	164	340 / 36	3400 x 1100 x 1935	1600 / 2120	≤ 96,9
GEBAS-A 220 PW-C	205	220	6/in-linie/T	8,071	199	650 / 40	4300 x 1600 x 2360	1840 / 2465	≤ 97
GEBAS-A 250 PW-C	225	250	6/in-linie/T	11,051	272	650 / 46	4300 x 1600 x 2360	2045 / 2740	≤ 97
GEBAS-A 275 PW-C	250	275	6/in-linie/T	11,051	272	650 / 52	4300 x 1600 x 2360	2100 / 2805	≤ 97
GEBAS-A 315 PW-C	280	315	6/in-linie/T	11,051	272	650 / 61	4300 x 1600 x 2360	2215 / 2930	≤ 97,1
GEBAS-A 350 PW-C	340	355	8/Vee/T	14,618	321	650 / 70	4300 x 1600 x 2360	2750 / 3800	≤ 97,2
GEBAS-A 415 PW-C	380	415	8/Vee/T	14,618	362	650 / 79	4300 x 1600 x 2360	2915 / 3865	≤ 97,3
GEBAS-A 485 PW-C	425	485	8/Vee/T	14,618	414	650 / 89	4300 x 1600 x 2360	3010 / 4100	≤ 97,3
GEBAS-A 550 PW-C	500	550	10/Vee/T	18,273	496	1000 / 100	4700 x 1600 x 2360	3500 / 4650	≤ 97,4
GEBAS-A 600 PW-C	500	600	12/Vee/T	21,927	574	1000 / 112	4700 x 1600 x 2360	3950 / 5095	≤ 97,4
GEBAS-A 660 PW-C	630	660	12/Vee/T	21,927	574	1000 / 134	4700 x 1600 x 2360	4005 / 5150	≤ 97,5
GEBAS-A 700 PW-C	640	700	12/Vee/T	21,927	603	1000 / 130	4700 x 1600 x 2360	4120 / 5245	≤ 97,5





☐ Gensets with different specs and/or different ratings (including gensets above 800 and up to 1200 kVA) can also be configured upon request.

▶ Specification subject to change without notice. The information provided herein is for informational purpose only.

Standard range of GEBS portable type gensets

Voltage type	Genset Model	Apparent power [kVA]		Voltage [V]	Engine Power [kW/HP]	Cubic capacity [cm ³]	Noise level [dB(A)]	Fuel consumption [L/h]
		Continuous duty	LTP					
Single-phase (cos φ = 1)	GEBS 4000-GM	3,5	4	230	5,9/8	305	85	1.5
	GEBS 5000-GM	4,5	5	230	8/11	391	88	2
	GEBS 8000-GM	7,5	8	230	11,8/16	480	90	3
Three-phase (cos φ = 0,8)	GEBS 5500-GT	5	5.5	400/230	7,35/10	305	85	1.5
	GEBS 7500-GT	7	7.5	400/230	9,56/13	391	88	2
	GEBS 10000-GT	9,5	10	400/230	11,8/16	480	90	3
	GEBS 12000-GT	11.5	12	400/230	13/18	570	90	3.5

Standard range of GESF portable welder type gensets

Genset Model	Welding current range [A]	Current [A] / Duty cycle [%]		Electrode diameter [mm]	Three-phase power [kVA]	Single-phase power [kVA]	Voltage [V]	Engine Power [kW/HP]
GESF 4/200	50-200	200 / 35%	170 / 60%	1,5 - 4	-	4	230	9.56/13
GESF 6,5/220	40-220	220 / 35%	170 / 60%	1,5 - 5	6,5	3,5	400/230	9.56/13





Complete solutions for genset design, installation and service

- UMEB is the first Romanian genset manufacturer - we've started in the '60s - thus, we are the obvious choice when it comes to quality, competitiveness, customer-oriented solutions, as well as gensets maintenance and service.



- The company has mobile service teams at its disposal as well as genset installation teams - the latter ensuring genset transport, installation and commissioning of pre-ordered gensets. The teams are available 24/7 upon customer request.

- UMEB also provides a generous package of solutions and services:
 - ✓ 24 months standard warranty;
 - ✓ free technical counseling for choosing the optimum genset for the application at hand;
 - ✓ national coverage through a dynamic sales agent team;
 - ✓ custom-built gensets tailored for a specific application (enlarged fuel tank or external/auxiliary fuel tank with automatic refueling, non-standard voltage, custom overall dimensions, duplex gensets fitted in custom containers, gensets with UPS, custom control panels and switchgear panels, gensets with Diesel/petrol engines and/or generators of a certain make - according to the customer's request).
 - ✓ R&D genset department dedicated to complex solution and special projects;
 - ✓ gensets for rent;
 - ✓ genuine spare parts;
 - ✓ after-sales support and spare parts for the entire service life of the genset;
 - ✓ delivery from stock and short delivery time for gensets that are not in stock;
 - ✓ genset transportation to the customer's site;
 - ✓ installation and technical assistance through our own specialized installation and service teams;
 - ✓ genset commissioning and training courses for the customer's designated genset operators

Custom-built gensets, not restricted to ones presented on-ward:

- custom overall dimensions and/or shape, according to the designated space available at the customer's site;
- certain customizations;
- high-rise exhaust chimney for gensets installed inside/near buildings;
- with integrated ATS panel;
- genset with UPS;
- genset(s) with mains synchronization;
- dual mutual stand-by gensets - two gensets taking turns according to a predefined criteria (usually, according to operating hours);
- gensets with communication capability to a certain type of terminal (personal computer, smartphone, SCADA terminal, and so on);
- start-stop remote commands via SMS.



Quality standards

UMEB gensets comply with the relevant standards including ISO 9001/2000, ISO 14001/2004, ISO 18001/1999 (certified by SGS).





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