THE GOOD FEELING OF GENERATING
ELECTRICITY AND HEAT
CHEAPLY AND ENVIRONMENTALLY-FRIENDLY
YOURSELF

YOUR OWN
PERSONAL ENERGY REVOLUTION

Rising energy prices, scarcer raw materials and environmental damage from air pollution make the pursuit of an alternative energy policy, often referred to as the ‘energy revolution’, one of the most important challenges facing politicians and society today. We are all called upon to do our bit to handle precious resources more sustainably.

With an XRGI®, you will not just make a valuable contribution to climate protection, you will also reduce your energy costs without missing out on anything! The highly efficient principle of combined heat and power makes this possible.
Conventional power stations utilise only about 40% of the fuel used, as they only generate electricity. The heat (waste heat) produced is unused and discharged into the environment with damaging consequences.

One reason for this waste is the fact that conventional power stations produce electricity remotely from their consumers. This large distance means that it is not economically viable to transport the waste heat to homes to be put to good use. There is a further disadvantage associated with this distance: the electricity generated in the power station has to be transported to the consumer, with transmission losses occurring on the many kilometre-long route.

The XRGI® is installed precisely where the electricity and heat are needed, reducing network costs and avoiding transmission losses.

A fuel is burned in an internal combustion engine. The kinetic energy released in this process drives a generator that produces electricity. The XRGI® captures the heat produced and feeds it into a circuit – thus enabling it to be used for space heating or producing hot water. Up to 96% of the primary energy used is therefore utilised. It is this excellent performance level that makes the XRGI® so efficient.
ANYONE CAN SWITCH WITH XRGI®

Regardless of whether you are planning a new building or modernising an existing one – the XRGI® is always the right choice. It improves the property’s carbon footprint, ensuring a good energy performance certificate and thereby enhancing the value of the property. The modular construction of the XRGI® makes it possible to switch to combined heat and power, also known as cogeneration, even in difficult structural situations. It can easily be integrated into an existing supply system.
SUPPLYING PROPERTIES, INDUSTRY AND DISTRICT HEATING NETWORKS

From apartment blocks to municipal buildings – an XRGI® supplies electricity and heat to any building with an annual heat requirement of 30,000 to 2,000,000 kWh – economically and eco-friendly. This is possible by operating XRGI® systems in parallel rather than just as single systems, the product range covering 3 to 80 kWel.

And the reliable and efficient supply is also ensured for buildings connected to a virtual power plant, where several XRGI® systems at different locations are connected to form a network.

FOR ALL PROPERTIES THAT NEED ELECTRICITY AND HEAT THE WHOLE YEAR ROUND
ALL PROPERTIES
THAT NEED ELECTRICITY AND HEAT
THE WHOLE YEAR ROUND

FOR

ENERGY REQUIREMENT IN KWH/YEAR

POWER IN KW

HEAT

ELECTRICITY

ENERGY REQUIREMENT IN KWH/YEAR

POWER IN KW

HEAT

ELECTRICITY

XRGI® IN PARALLEL OPERATION

XRGI® IN PARALLEL OPERATION
THE ENDURING MINIS: XRGI® 6 & XRGI® 9
A newly developed high-performance engine makes our “small systems” into real endurance runners with service intervals of 10,000 operating hours. The XRGI® 6 and the XRGI® 9 achieve an overall efficiency rate of 93%* – even higher with optional condenser. These two models are ideal for large detached houses and smaller apartment blocks, hotels or office buildings.

THE CLASSIC: XRGI® 15
The XRGI® 15 is perfect for larger buildings, such as hotels, farms or nursing homes. With an overall efficiency rate of 92%*, its efficiency and quality have already been proved in the form of thousands of satisfied customers. The XRGI® 15 has already received multiple awards.

THE POWER PACK: XRGI® 20
The XRGI® 20 achieves an overall efficiency rate of 96%*. It comes into its own in properties, such as hospitals or municipal utilities.

PARALLEL OPERATION
All XRGI® systems are designed to operate not just as individual systems. Their modular design enables them to be controlled flexibly, economically and efficiently in parallel, supplying electricity and heat tailored to all levels of demand. They can also be integrated into virtual power plants.

XRGI® – OUTSTANDING CUTTING-EDGE TECHNOLOGY
EC POWER has redefined the state of the art for combined heat and power plants with the XRGI® 15 and the XRGI® 20. Predominantly larger properties, like hotels, hospitals and care homes, can now benefit from this. The XRGI® 6 and XRGI® 9 complete the sub-50 kW range. These systems also make combined heat and power plants of interest for larger detached houses, smaller apartment blocks and small hotels.

* Figure without condenser
STORAGE TANK
- Stores excess heat in the event of high demand for electricity
- Reserve in the event of high demand for heat

POWER UNIT
- Engine drives generator
- Generator produces electricity
- Heat exchanger transfers heat to the Q-Heat Distributor

Q-HEAT DISTRIBUTOR
- Absorbs heat from the Power Unit
- Distributes heat to the water circuit and/or Storage Tank

iQ-CONTROL PANEL
- Controls the system to meet requirements
- Analyses in real-time your consumption patterns and optimises operation fully automatically

THAT’S SYSTEMATIC EFFICIENCY

An XRGI® system consists of three main components – Power Unit, Q-Heat Distributor and iQ-Control Panel. You can also extend your XRGI® system with a Storage Tank with a capacity of 500, 800 or 1,000 litres.

The Power Unit is the heart of every system. Its engine was specially developed for EC POWER and is exceptionally durable and reliable. The heat generated from the engine is transferred via the Q-Heat Distributor to the property’s heating circuit, to which the Storage Tank is also connected. The iQ-Control Panel is the brain of the system and controls the Power Unit in line with your requirements – optimising its operation fully automatically.

Unlike what is usual in the industry, all individual components, including software, as well as their interaction have been tested and certified by an independent inspection body, ensuring that the XRGI® meets the highest safety standards. The German Technical and Scientific Association for Gas and Water E.v. (DVGW) also certified the special quality of XRGI® products.
SIMPLE INTEGRATION OF THE XRGI® INTO THE EXISTING SUPPLY SYSTEM

INSTALL, CONNECT, SAVE
In its class of 3 – 80 kWel the XRGI® is one of the most compact cogeneration plants on the market. The modular design of the XRGI® and a patented integration principle mean that it will fit with ease into any basement or plant room. The Power Unit needs less than a square metre of space and fits through all doors.
An improved carbon footprint and lower energy costs increase the value of your property.
EXCELLENT
EFFICIENCY
DOES NOT NEED TO
SHOUT ABOUT IT

THE XRGI® – A SILENT POWER HOUSE

The XRGI® is one of the quietest cogeneration systems on the market. With a noise level of just 49 dB(A) at full power, measured from a distance of 1 metre, it is quieter than a conventional boiler. Fitted with an additional exhaust gas silencer and vibration damper, the noise level can be reduced even further, with the result that there are virtually no limits to the possible uses of the XRGI®. Unlike other systems, the plant room does not require mechanical ventilation for the XRGI®, avoiding the additional noise generated by a ventilation system and thereby ensuring unsurpassed quiet operation.
I use the electricity I have produced myself

Calculations depend on your provider’s current electricity and gas charges.

BENEFIT FROM MAXIMUM POSSIBLE OWN USE

You can either sell your own-generated electricity or use it yourself. A simple calculation makes the benefits clear: the higher the amount of own-generated power in your overall electricity consumption, the higher the savings.

PRICE PER kWh |

PAYBACK IN 3-10 YEARS

SAVING

CALCULATIONS DEPEND ON YOUR PROVIDER’S CURRENT ELECTRICITY CHARGES.

BECOME SELF-SUFFICIENT!
IT’S WORTH YOUR WHILE
**CORRECTLY SIZED + OPTIMUM OPERATING STRATEGY = MAXIMUM PROFIT**

**Example: Real Usage in Wittensee, Germany**

- **Electricity Requirement:** 120,795 kWh per year
- **Heat Requirement:** 190,782 kWh per year

**XRGI® 6**
- Electricity production from cogeneration: 52,560 kWh
- Heat production from cogeneration: 72,790 kWh
- Heat production from boiler: 111,356 kWh
- Operating hours of CHP/year: 8,760 h
- Annual savings: €8,028

**XRGI® 15**
- Electricity production from cogeneration: 85,661 kWh
- Heat production from cogeneration: 79,426 kWh
- Heat production from boiler: 180,181 kWh
- Operating hours of CHP/year: 6,159 h
- Annual savings: €14,064

**Payback in 3 - 10 Years**

**Electricity to Supplier**
- XRGI® 6
  - Payback: €8,028
- XRGI® 15
  - Payback: €14,064

**Including: Cost of GAS, Tax, Funding, Repayment, Full Maintenance Costs**

**Become Self-Sufficient! It's Worth Your While**

**Become Self-Sufficient! It's Worth Your While**

**Note:**
- **40 - 80 kW el:** 20
- **20 - 40 kW el:** 15
- **12 - 20 kW el:** 9
- **6 - 15 kW el:** 6
- **2.5 - 6 kW el:** 4

**BECOME SELF-SUFFICIENT! IT'S WORTH YOUR WHILE**
A mastermind hides behind every business success. As with the XRGI®: The intelligent IQ-Control Panel regulates the operation of the XRGI® components fully automatically – focusing on electricity, heat or tariff, depending on the operating strategy.

The IQ-Control Panel learns the consumption patterns in the property and produces intelligent user profiles. It then creates forecasts for expected consumption based on these user profiles. It continuously compares the projected consumption with the actual consumption and optimises the user profile in real time.

A combined heat and power plant produces electricity for as long as the heat produced can either be consumed or stored. With the help of its forecasts, the IQ-Control Panel then practises intelligent storage management. It makes predictions about when demand for electricity will be particularly high and compares this with the anticipated heat requirement. The IQ-Control Panel also ensures that the Storage Tank always has the maximum possible capacity free to absorb the heat produced during electricity generation.

The XRGI® achieves maximum efficiency thanks to its real-time modulation. You will be exploiting 100% of the potential of your combined heat and power plant due to the fact that it can vary its output by up to 50%.

With this unique energy management system, you will always be able to meet the changing conditions on the energy market quickly and flexibly – even with new future legislative regulations.

That makes the XRGI® incomparably efficient.

IQ analyses your consumption and adapts the operation of your XRGI® in real time.

Thanks to patented real-time modulation, the XRGI® can be set up based on actual demand, thereby achieving much higher efficiency.

The IQ-Control Panel prevents unnecessary feed-in of electricity, improving efficiency.

Without modulation only 30–50% of the cogeneration potential is utilised.
Wind energy is unrestrictedly available and can be converted into environmentally friendly electricity. However, the wind is variable and therefore difficult to calculate. If the wind speed is too low, insufficient electricity is produced; if the wind speed is too high, it can overload the mains grid. Furthermore, wind turbines generate noise.

Solar energy could meet the electricity requirements of the entire world population but the duration and intensity of the sun fluctuate greatly at our latitudes. At times of minimal sun, production is insufficient to meet actual demand.

The future belongs to green energy. Green energy is the only way to replace polluting coal-fired, gas-fired and nuclear power stations. The XRGI® is joining the ranks of environmentally friendly sources of energy. It utilizes the fuel used extremely efficiently so that emissions of harmful greenhouse gases are reduced to a minimum.

In doing so, the XRGI® operates independently of wind and sun – the volume of electricity and heat produced is determined by your needs and not by the weather. This makes the XRGI® both an ideal addition to wind power and photovoltaic systems, as well as a useful alternative.

An XRGI® allows you to generate energy at any time on site – planned, demand-controlled and independent of the weather.
WHAT MAKES THE XRGI® SO SPECIAL?

Overall efficiency rate of up to 96%, service intervals of up to 10,000 operating hours, certified and award-winning technology and, above all, its unique energy management technology for maximum efficiency speak for themselves. And most importantly: many years of satisfied customers.

Since it was established in 1996, EC POWER has grown to become the technologically leading European producer of combined heat and power plants ranging from 3 to 80 kWel. More than 20 patents are testament to the outstanding innovative strength of EC POWER. Over 8,500 XRGI® systems have already been sold in 27 European countries.
NOW YOU CAN FINALLY COMPARE:

Refrigerators, televisions and washing machines have carried an energy efficiency label for several years now – appliances that we can’t imagine being without. This now also includes the XRGI®.

This label has been mandatory on space heaters since 26 September 2015. The individual components of a heating system carry a product label. The XRGI® carries the highest efficiency class label: A++. 

The new labelling of heating systems with efficiency labels is based on European Union (EU) guidelines and regulations. This means that the labelling is standardised throughout Europe and the calculation is based on procedures defined by the EU Commission. This offers you a basis for comparison and thus helps when making a decision about an initial purchase or modernisation of a heating system.

PERFECTLY GEARED TO EACH OTHER:

As a heating system consists of several components and all components affect the efficiency of the overall system, package labels are now being added to product labels. In a package system with an EC POWER Flow Master (temperature regulator, class II = 2%), the XRGI® achieves the best possible seasonal space heating efficiency class of A+++. 

Example: Product label for the XRGI® 20

Example: Package label for the XRGI® 20 with Flow Master

In addition to transparency for consumers, the EU aims to give manufacturers an incentive to develop more modern and better products. This is why space heaters will be given new labels with the classes A+++ to D starting in 2019. What is more: our XRGI® systems are already state-of-the-art and will be awarded the best efficiency class A+++ in 2019.

More principle circuit diagrams and information can be found in the EC POWER "Hydraulic Solutions".
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<th>XRGI® system</th>
<th>Modules</th>
<th>Without condensing technology</th>
<th>With condensing technology^1</th>
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<tr>
<td>XRGI® 6</td>
<td>Power Unit, IQ10-Control Panel, Q20-Heat Distributor</td>
<td>+ Condensing and exhaust gas heat exchanger kit</td>
<td></td>
</tr>
<tr>
<td>Seasonal space heating energy efficiency class^2</td>
<td>170 %</td>
<td>180 %</td>
<td></td>
</tr>
<tr>
<td>Seasonal space heating energy efficiency; HCV^3,^4</td>
<td>50 %</td>
<td>75 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Power modulation*</td>
<td>50 %</td>
<td>75 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Electrical output, modulating^5</td>
<td>kW</td>
<td>3.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Thermal output, modulating^5</td>
<td>kW</td>
<td>8.1</td>
<td>10.1</td>
</tr>
<tr>
<td>Electrical efficiency in accordance with LCV^4</td>
<td>%</td>
<td>24.8</td>
<td>28.3</td>
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<tr>
<td>Thermal efficiency in accordance with LCV^4</td>
<td>%</td>
<td>67.6</td>
<td>64.5</td>
</tr>
<tr>
<td>Total efficiency in accordance with LCV^4</td>
<td>%</td>
<td>92.1</td>
<td>83.0</td>
</tr>
<tr>
<td>Flow temperature, constant °C</td>
<td>-80</td>
<td>-80</td>
<td>-80</td>
</tr>
<tr>
<td>Return temperature, variable °C</td>
<td>5-70</td>
<td>5-70</td>
<td>5-70</td>
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<tr>
<td>Sound pressure level (based on surroundings) dB(A)</td>
<td>49</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Fuels</td>
<td>gas</td>
<td>natural gas (all qualities), propane, butane</td>
<td>natural gas (all qualities), propane, butane</td>
</tr>
<tr>
<td>Emissions (test data at full load)</td>
<td>CO = 150 mg/Nm³, NOx, pond, HCV = 25 mg/Nm³, &lt; 240 mg/kWh</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Dimensions, W x H x D mm</td>
<td>640 x 960 x 930</td>
<td>640 x 960 x 930</td>
<td>640 x 960 x 930</td>
</tr>
<tr>
<td>Footprint m²</td>
<td>0.59</td>
<td>0.59</td>
<td>0.59</td>
</tr>
<tr>
<td>Weight kg</td>
<td>440</td>
<td>440</td>
<td>440</td>
</tr>
<tr>
<td>Service interval (operating hours) hours</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

| XRGI® 9     | Power Unit, IQ10-Control Panel, Q20-Heat Distributor + Condensing and exhaust gas heat exchanger kit |
| Seasonal space heating energy efficiency class^2 | 181 % | 206 % |
| Seasonal space heating energy efficiency; HCV^3,^4 | 50 % | 75 % | 100 % | 50 % | 75 % | 100 % |
| Power modulation* | 50 % | 75 % | 100 % | 50 % | 75 % | 100 % |
| Electrical output, modulating^5 | kW | 4.5 | 6.8 | 9.0 | 12.0 | 15.4 | 19.2 |
| Thermal output, modulating^5 | kW | 25.9 | 29.3 | 30.4 | 69.6 | 68.1 | 64.9 |
| Electrical efficiency in accordance with LCV^4 | % | 69.6 | 68.1 | 64.9 | 95.4 | 95.4 | 95.3 |
| Thermal efficiency in accordance with LCV^4 | % | 62.3 | 64.9 | 78.5 | 93.3 | 98.7 | 98.7 |
| Total efficiency in accordance with LCV^4 | % | 95.6 | 95.3 | 95.3 | 114.3 | 110.7 | 103.3 |
| Flow temperature, constant °C | -80 | -80 | -80 | -80 | -80 | -80 |
| Return temperature, variable °C | 5-70 | 5-70 | 5-70 | 5-70 | 5-70 | 5-70 |
| Sound pressure level (based on surroundings) dB(A) | 49 | 49 | 49 | 49 |
| Fuels | gas | natural gas (all qualities), propane, butane | natural gas (all qualities), propane, butane |
| Emissions (test data at full load) | CO = 70 mg/Nm³, NOx, pond, HCV = 25 mg/Nm³, < 240 mg/kWh | 52 | 55 | 52 | 55 |
| Dimensions, W x H x D mm | 640 x 960 x 930 | 640 x 960 x 930 | 640 x 960 x 930 |
| Footprint m² | 0.59 | 0.59 | 0.59 |
| Weight kg | 440 | 440 | 440 |
| Service interval (operating hours) hours | 10,000 | 10,000 | 10,000 |

*Continuous modulation in power-controlled mode | NOX = 150 mg/Nm³, CO = < 150 mg/Nm³, NOx, pond, HCV < 250 mg/kWh, LCV = Lower Calorific Value |
| Return temperatures as per EN 50465 2015 7.6.1: Without condensing technology 47 °C, with condensing technology 30 °C. |
| This values are based on independent, certified and authorised inspection bodies. Test reports are available upon request. |
| The values were rounded in accordance with the requirements governing product data sheets by Regulation (EU) No. 811/2013; 813/2013 |
| HCV = higher calorific value, LCV = lower calorific value |

Deviations in values depend on the ambient and operating conditions, tolerance +/- 5 %. Subject to technical modifications, deviations from design and errors.
**XRGI® system**

** Modules**

- **XRGI® 15**
  - with condensing technology:
    - Power Unit: iQ15-Control Panel, Q80-Heat Distributor
    - + Condensing and exhaust gas heat exchanger
  - Seasonal space heating energy efficiency class:
    - A++
  - Electrical output, modulating:
    - 50 % 75 % 100 %
  - Electrical efficiency in accordance with LCV:
    - 163 % 192 %
  - Flow temperature, constant °C:
    - ~ 85
  - Return temperature, variable °C:
    - 5-75
  - Sound pressure level (based on surroundings) dB(A):
    - 93
  - Emissions (test data at full load):
    - CO = 150 mg/Nm³
    - NOx, pond, HCV = 240 mg/kWh
  - Dimensions, W x H x D mm:
    - 750 x 1,170 x 1,120
  - Footprint m²:
    - 0.84
  - Weight kg:
    - 750
  - Service interval (operating hours) hours:
    - 8,500

- **XRGI® 20**
  - with condensing technology:
    - Power Unit: iQ20-Control Panel, Q80-Heat Distributor
    - + Condensing and exhaust gas heat exchanger kit
  - Seasonal space heating energy efficiency class:
    - A++
  - Electrical output, modulating:
    - 50 % 75 % 100 %
  - Electrical efficiency in accordance with LCV:
    - 213 % 238 %
  - Flow temperature, constant °C:
    - ~ 85
  - Return temperature, variable °C:
    - 5-75
  - Sound pressure level (based on surroundings) dB(A):
    - 49
  - Emissions (test data at full load):
    - CO = 50 mg/Nm³
    - NOx, pond, HCV = 240 mg/kWh
  - Dimensions, W x H x D mm:
    - 750 x 1,170 x 1,120
  - Footprint m²:
    - 0.84
  - Weight kg:
    - 750
  - Service interval (operating hours) hours:
    - 6,000

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1. Return temperatures as per EN 50465 2015 7.6.1: Without condensing technology 47 °C, with condensing technology 30 °C.
2. This values are based on independent, certified and authorised inspection bodies. Test reports are available upon request.
3. The values were rounded in accordance with the requirements governing product data sheets by Regulation (EU) No. 811/2013; 813/2013
4. HCV = higher calorific value, LCV = lower calorific value

Deviations in values depend on the ambient and operating conditions, tolerance +/- 5 %. Subject to technical modifications, deviations from design and errors.