

ENVIRONMENTALLY FRIENDLY AND ECONOMICAL COGENERATION TECHNOLOGY SINCE 1987

Energiewerkstatt™ is a medium-sized, owner-managed company with innovative and engineered solutions for decentralized energy supply based on the principle of cogeneration. Since 1987 Energiewerkstatt™ cogeneration plants have become the recognized benchmark for technology and they continue to prove their worth every day in municipal facilities, hotels, hospitals, retirement homes - wherever heat and electricity is required and must be produced economically.

Postberg+Co. founded in 2003 to reduce and manage compressed air costs using patented technical measurements. Using proprietary measuring technology, the complete package consists of a measuring point interface, sensor unit, service and advice. Postberg+Co. reduces costs and ensures efficiency improvements and a high availability of compressed air systems.

As a result of cooperation between the two companies PB+Compressor HWV 20 was created in 2015. HWV 20 is an innovative product that

can reduce the costs of compressed air production by 60 percent. The operator benefits from Energiewerkstatt's decades of experience in the development and production of high-efficiency cogeneration machines, as well as the specific pneumatic metering expertise of Postberg+Co.

The HWV 20 is constructed at Energiewerkstatt™ in Hannover-Linden, Germany. The project consultation, care and distribution is by Postberg+Co. in Kassel, Germany. The principle of cogeneration, intelligently implemented in a compact system, self-testing and regulating patented measurement technology installed, benefitting the customer and environment - this is our mission and vision.

ALWAYS ONE STEP AHEAD

*Compressed air production with
the high-efficiency heat compressor*



highly efficient



economic

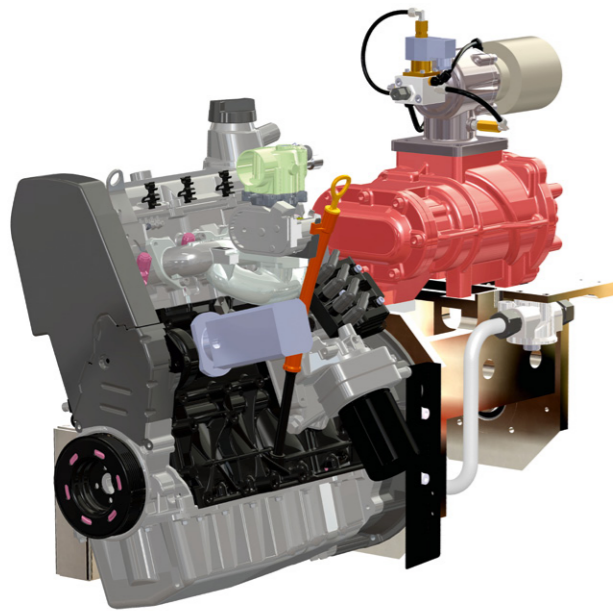


compact

DRUCKLUFT-KWK ANLAGE HWV 20

- Druckluftherzeugung mit gasmotorischem statt elektromotorischem Antrieb
- Vorteile der Kraft-Wärme-Kopplung bei der Druckluftherzeugung
- Amortisationszeiten von 2 bis 3 J.
- 15 % Effizienzvorteil gegenüber BHKW und Kompressor
- CO₂-Einsparungen von bis zu 5 t/a

Druckluft-KWK-Anlage HWV 20



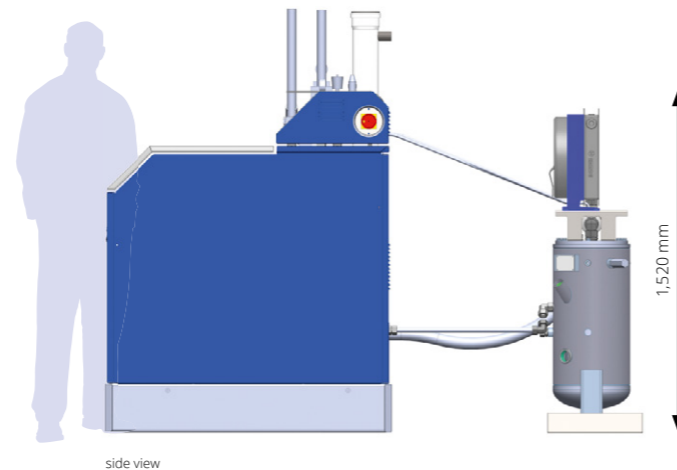
PB+Compressor HWV 20 THE SOLUTION FOR ECO- NOMICAL PRODUCTION OF COMPRESSED AIR

Compressed air production is one of the most expensive energy carriers of our time, because only about 10 percent of the energy can be converted to compressed air. As efficiency specialists, Energiewerkstatt™ and Postberg+Co. adopted this challenge and present the PB+Compressor HWV 20 – an innovative and ecological solution for reducing the costs of compressed air production by up to 60 percent. Using a gas driven engine enables an economic and eco-friendly production of compressed air. By using the heat loss of this process, this approach is highly efficient.

APPLICATIONS

High-efficiency heat compressors are applicable wherever compressed air and heat are required and have to be generated economically. Examples of this can be seen in the following industries:

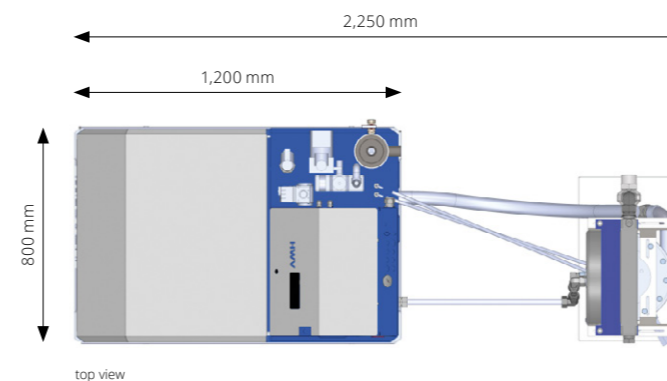
- **GALVANIK (GALVANIZING PROCESS):** Heat demand for electrolytic processes and high compressed air requirements for metal processing.
- **PLASTICS PROCESSING:** Heat demand for injection molds and general high demand for compressed air, which add up to 10 percent of the overall operating costs.
- **FOOD INDUSTRY:** Washing and rinsing valves and vessels (e. g. bottles and milking systems) and compressed air requirements for handling and manipulation technology.



CALCULATION MODELS

| Plastic processing company | |
|------------------------------|--------------------------|
| Minimum daily heat output | 80 kW |
| Annual compressed air demand | 6,953,000 m ³ |
| Number HWV 20 plants | 1 |
| Annual duration HWV 20 | 7,000 hours |
| Heat distribution | 385,000 kWh |
| Compressed air produced | 1,344,000 m ³ |
| Payback time | 2.9 years |

| Electroplating companies | |
|------------------------------|---------------------------|
| Minimum daily heat output | 140 kW |
| Annual compressed air demand | 17,142,000 m ³ |
| Number HWV 20 plants | 2 |
| Annual duration HWV 20 | 8,000 hours |
| Heat distribution | 880,000 kWh |
| Compressed air produced | 3,072,000 m ³ |
| Payback time | 2.5 years |



YOUR ADVANTAGES

- Up to 60 percent lower production costs of compressed air and heat by using a gas powered engine
- Electricity price independent of production of compressed air
- High-efficiency machine – compressor-efficiency < 4 kW / (m³/min)
- Verifiable production due to patented Postberg+Co. metrology
- Eco-friendly – up to 45 percent lower CO2 emission than electric compressors
- Cogeneration technology – tried and tested in Energiewerkstatt™ cogeneration units (CHP)
- Footprint only 1 m² *
- Data encrypted remote query with intelligent report system
- Low-maintenance and service friendly with automatic oil change
- Made in Germany

| PB+Compressor HWV 20 | |
|----------------------|----------------------------------------------------------------------|
| Engine | gas-powered engine by Volkswagen |
| Fuel | natural gas, liquid gas |
| Gas intake | 65 kW (LHV) |
| Compressor | rotary screw compressor with oil injection, power intake: max. 22 kW |
| Nominal pressure | up to 10 bar |
| Nominal capacities | from 2.4 up to 3.2 m ³ /min ** |
| Heating capacity | 55 kW |
| Thermal efficiency | 85 percent |
| Dimensions | L x B x H: 1,200 x 800 x 1,520 mm* |
| Weight | 700 kg / 1,540 lbs |

Specifications and information are subject to change without notice.
* Compact machine – without oil separator and compressed air radiator ** dependent on nominal pressure



HIGHLY EFFICIENT



COMPACT



ECONOMIC



LOW-MAINTENANCE



TRIED AND TESTED
CHP-TECHNOLOGY



DATA ENCRYPTED
REMOTE QUERY



INNOVATIVE



MADE IN GERMANY