



**GRITEC**

BRAND OF BETONBAU



**STAINLESS STEEL AND HYBRID COMPACT STATIONS**



# CONTENTS

COMPANY	04
55 YEARS BETONBAU	06
RANGE OF PRODUCTS	08
METAL MEETS CONCRETE	10
PERSONAL PROTECTION CONCEPT	12
COMPLIANCE WITH STANDARDS	14
GRITEC STATIONS	16
COMPACT SWITCHGEAR	18
TRANSFORMER COMPACT STATIONS	20
BETONBAU GROUP	22

# COMPANY

INDIVIDUALLY EQUIPPED.  
FULL OF INNOVATIONS. IDEALLY PACKED.



## YOUR POWER SUPPLY IS ENSURED WITH OUR PRODUCTS AND SOLUTIONS

### EXPERIENCE

Betonbau GmbH & Co. KG is an expert in the development, production and distribution of technical buildings consisting of modules made of reinforced concrete that are used in many sectors of public and industrial infrastructure. The product range is from small, non-walk-in compact stations up to large walk-in buildings, consisting of several modules, available in different structural and technical expansion levels.

### CUSTOMIZED PRODUCTS

By establishing the company e<sup>4</sup>you, Betonbau has prepared itself for the future of mobility, setting the course for the implementation of an intelligent overall concept for a charging infrastructure for electrical buses and other municipal vehicles.

### INDIVIDUAL SOLUTIONS

Gritec compact stations were developed especially for use on an international stage and meet not only market specific, but also customized requirements.

### COMPETENCE AND NETWORKING

The core competencies in energy and utilities solutions from Betonbau are combined with new, innovative technologies and product solutions, guaranteeing additional milestones for future growth.

Since 2006, Betonbau has been a part of the Schwenk Group located in Ulm.

SCHWENK ZEMENT KG

BETONBAU VERWALTUNGS-GMBH

  
BETONBAU

SPECIALIST FOR  
SUBSTATIONS, SYSTEM  
INTEGRATION AND  
TECHNICAL BUILDINGS

  
GRITEC

TRANSFORMER  
COMPACT STATIONS  
MADE OF STAINLESS  
STEEL

e<sup>4</sup>-you

DELIVERY OF PRE-  
ASSEMBLED SOLUTIONS  
FOR CHARGING  
INFRASTRUCTURE OF  
ELECTRIC BUSES

## OVER 55 YEARS OF EXPERIENCE IN CONCRETE



### FROM A SIMPLE STRUCTURE TO A CUSTOM BUILDING

Betonbau products meet the high requirements in terms of the safety and quality of technical buildings for utilities. They are based on more than 55 years of practical experience and provide many advantages to our customers.



## BENEFITS AT A GLANCE

### CUSTOMIZED PRODUCTS

In our factories, we produce and assemble technical buildings with more than 50 standard floor plan dimensions as well as numerous solutions tailored to our customers' needs. The units are fitted out in the factory with the technology according to customer's specifications.

### ECONOMIC VIABILITY

- + High quality and meticulous craftsmanship ensure long service life.
- + Configuration options as a result of the modular design of the products
- + Time saving thanks to competent consultation and sound industry competence

### COMPLIANCE WITH REGULATIONS AND STANDARDS

All the technical buildings and components from Betonbau meet the requirements of relevant technical rules and regulations.



Monolithic design, i.e. made without joints and therefore extremely robust and highly durable.

## RANGE OF PRODUCTS

WE DELIVER TECHNICAL BUILDINGS TAILORED EXACTLY TO YOUR SPECIFICATIONS IN ANY REQUESTED CONFIGURATION LEVEL.



## PRODUCT PROGRAM

Here is an overview of the applications and products with their most important characteristics.



### ELECTRICITY SUPPLY

- Walk-in-type substations
- Compact stations (non-walk-in-type)
- Stations for slopes
- Substations, partially or completely below ground level
- Substation buildings
- Buildings for emergency power generators
- Complies with standard IEC 62271-202



### GAS SUPPLY

- Pressure regulation stations
- Large measuring stations
- Gas compressing plants
- Gas tank depot combination buildings
- Sound insulation value for concrete modules min. 47 dB
- Fire protection class F90 DIN EN13501



### WATER SUPPLY

- Pump stations
- Water meter shafts
- Wellhead buildings
- Operational buildings
- Water treatment stations
- Pressure booster stations
- Pump stations below ground level



### SPECIAL & LARGE BUILDINGS

- Multi-storey building
- Modular units – can be arranged in rows on any side
- Building block principle
- Turnkey concepts
- Variable building designs
- Planning and consultation with specialists
- Pre-construction drawings
- Static calculations



### TELECOMMUNICATION

- Security against break-ins
- Fire protection class F90 DIN EN13501
- Ventilation and air conditioning tested
- Electrical fittings on request
- Pre-construction drawings
- Sound insulation value for concrete modules min. 47 dB
- Facade designs on request



### RAILWAY TECHNOLOGY BUILDINGS

- Wireless and signal technology
- Security against break-ins
- Fire protection class F90 DIN EN13501
- Ventilation and air conditioning on request
- Electrical fittings on request
- Pre-construction drawings
- Facade designs on request

## METAL MEETS CONCRETE

### DOORS AND VENTILATION ELEMENTS MADE BY BETONBAU

Sure, your building needs an entrance. Or several. Whether single- or double-winged, according to standard size or custom-made – the door to success is an eye for detail. That's why we manufacture all metal components such as doors and ventilation elements ourselves.



- + Ventilation elements and doors made of aluminum, high-strength and weather-resistant material; surface silver anodized E6 EV1
- + Ventilation elements and doors with sound insulation according to technical instructions for protection against noise on request
- + Doors with internal hinges; possible resistance classes RC2 or RC3 according to DIN EN 1627:2011
- + Mechanical or electronic multi-point lock with emergency exit function according to DIN EN 179
- + Innovative access systems (card reading unit, finger sensor, electronic combination lock)
- + Of course, we supply and install all conventional standard doors and ventilation systems (steel, stainless steel, plastic).



OPTIONALLY WITH  
POWDER COATING  
OR LACQUER FIN-  
ISH IN A RAL COLOR  
OF YOUR CHOICE



All doors and ventilation openings are manufactured in-house and made to measure

# PERSONAL PROTECTION CONCEPT

MAXIMUM SAFETY FOR THE PUBLIC AND FOR THE OPERATING STAFF



Internal arc fault test arrangement according to IAC-A 20 kA 1s for protection of operating staff

Especially if your substation is located in public areas, it is mandatory to follow a reliable personal protection concept. This concept must ensure the safety of passers-by and the operating staff alike.

Betonbau's specially developed personal protection concept provides protection against all eventualities and compliance with all safety-related standards. This means that your substation can be operated easily and safely in any location.

The safety-related requirements that our products meet include i. a.:

- + Internal arc fault resistance
- + Protection against electric shock (IEC 60529)
- + Electromagnetic compatibility (EMC)
- + For more details on compliance with standards, please refer to page 14



Compact Substation in public area for supplying electricity to a charging point



Internal arc fault test arrangement according to IAC-B 20 kA 1s for protection of the public

PRODUCTS TESTED AND MANUFACTURED IN COMPLIANCE WITH RELEVANT STANDARDS IS OUR BENCHMARK



# COMPLIANCE WITH STANDARDS

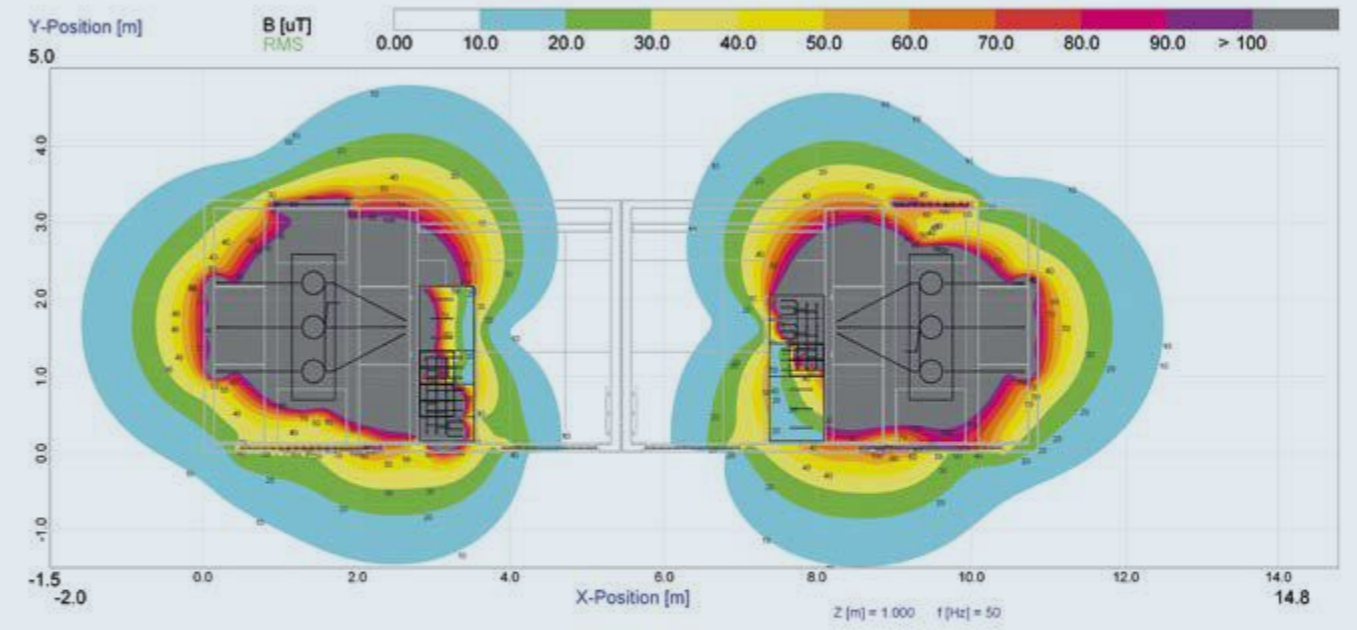


In addition to avoiding personal injury, a basic factor in preserving the value of your installed technology is the generally standard-compliant design and testing of your transformer substation.

Betonbau manufactures according to the relevant German, European and international standards, directives and legal regulations. Our certified quality management system guarantees full compliance with all mentioned regulations.

## COMPLIANCE ACCORDING TO IEC62271-202

- + Minimum degree of protection IP 23 D optionally: IP 34 D or IP 44 D according to IEC 60529
- + Internal Arc Classification IAC-AB 20 kA 1s
- + Temperature rise tests and temperature classes according to IEC 62271-202
- + Electromagnetic capability (EMC) according to DIN CLC/TR 62271-208
- + Further tests according to national requirements are available upon request



Magnetic field lines of an EMC calculation

## PRODUCTS TESTED AND MANUFACTURED IN COMPLIANCE WITH RELEVANT STANDARDS IS OUR BENCHMARK



Conducting an EMC measurement





# GRITEC STATIONS

IN STAINLESS STEEL AND HYBRID DESIGN

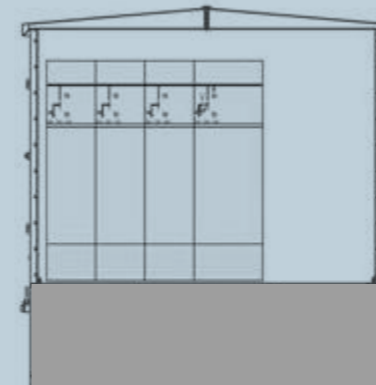


**DUE TO THE MODULAR DESIGN OF THE GRITEC SUBSTATIONS WE ARE ABLE TO RESPOND TO YOUR NEEDS - EXACTLY TO YOUR SPECIFICATIONS AND ACCOUNTING FOR THE CONDITIONS ON SITE.**

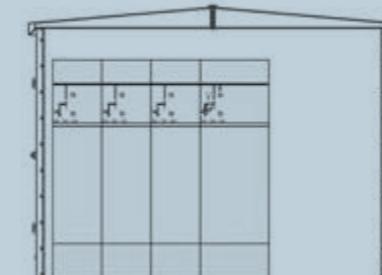
- + Patented, modular design
- + Efficient room climatic characteristics
- + Climate proof under year round conditions
- + Enclosure maintenance-friendly
- + Low transport weight and low transport volume reduce the freight costs
- + Delivery incl. electrical fittings according to IEC62271-202 or as assembly kit optionally
- + Degree of protection IP 34D acc. to IEC 60529 optionally IP44D

## BASIC TYPES AND THEIR APPLICATIONS

**ENCLOSURE MADE OF STAINLESS STEEL WITHOUT CELLAR**



**HYBRID STATION ENCLOSURE MADE OF STAINLESS STEEL CABLE CELLAR CONCRETE**



**ENCLOSURE MADE OF STAINLESS STEEL CELLAR MADE OF STAINLESS STEEL**



HYBRID CELLAR CONCRETE

CELLAR STEEL / STEEL SHEET

Application	Application	Application
Installation above ground	Cable cellar semi-underground	Cable cellar semi-underground
Transformer substation for use in industrial areas and for temporary use	Transformer substation for use in local networks and industrial areas	Transformer substation for use in local networks and industrial areas
For use on rocky ground and at high groundwater level	For use on normal and solid ground / non-contaminated soil	For use on normal and solid ground / non-contaminated soil
Empty weight type 1000 kVA approx. 1400 kg	Empty weight type 1000 kVA approx. 5000 kg	Empty weight type 1000 kVA approx. 1400 kg
Foundation concrete strip Foundation or concrete slab	Foundation Bed of sand or gravel	Foundation Bed of sand or gravel



## COMPACT SWITCHGEAR ENCLOSURE

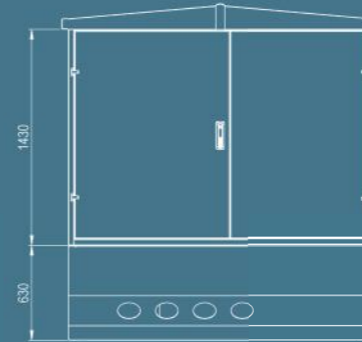
FOR THE SAFE SWITCHING OF MEDIUM VOLTAGE



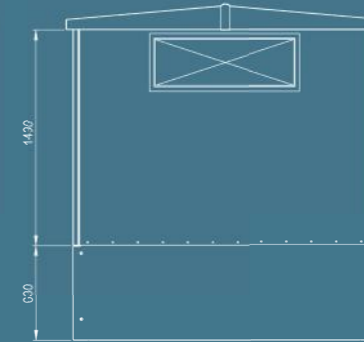
FRONT VIEW  
MCS1211-24S



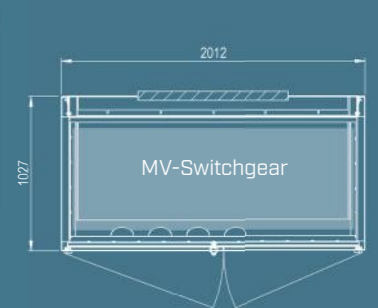
FRONT VIEW  
MCS2111-24S



REAR VIEW



TOP VIEW

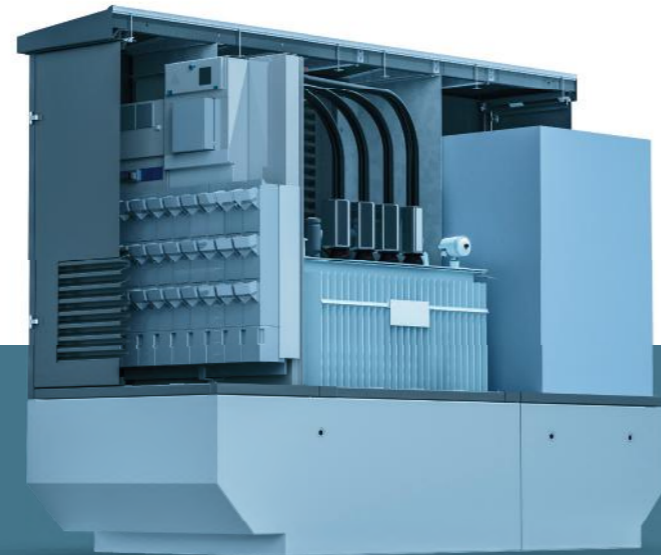


TYPE	MAXIMUM MV SWITCHGEAR CONFIGURATION	MAXIMUM TRANSFORMER OUTPUT	MAXIMUM LV SWITCHGEAR DIMENSIONS	TEMPERATURE CLASS	IAC CLASSIFICATION
MCS1211-24S	3 panels W=1000 mm H=1400 mm				IAC-AB20kA-1s
MCS2111-24S	5 panels W=1900 mm H=1400 mm				IAC-AB20kA-1s



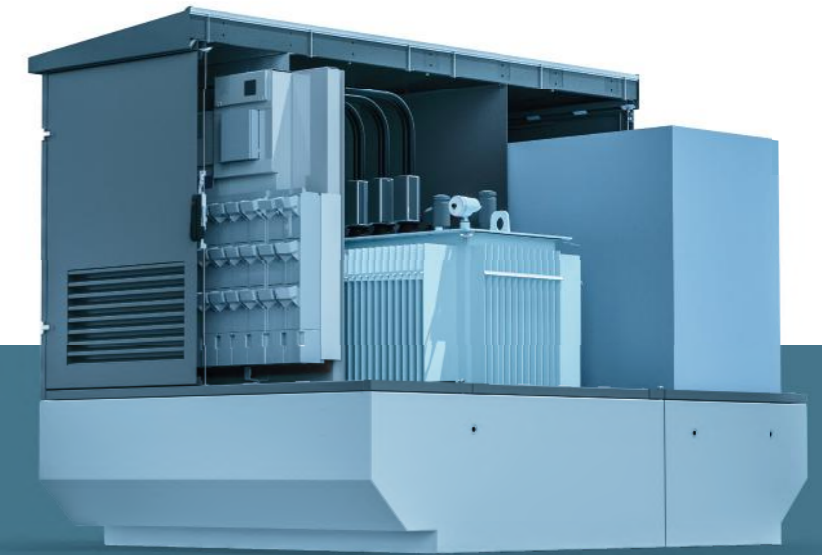
## TRANSFORMER COMPACT STATION 630 KVA

FOR THE SAFE  
POWER DISTRIBUTION  
OF LOW OUTPUT

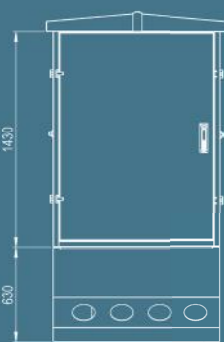


## TRANSFORMER COMPACT STATION 1000 KVA

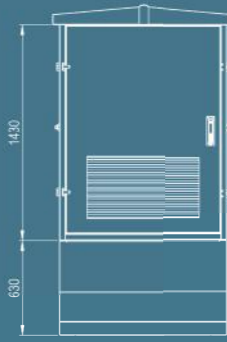
FOR THE SAFE  
POWER DISTRIBUTION  
OF HIGH OUTPUT



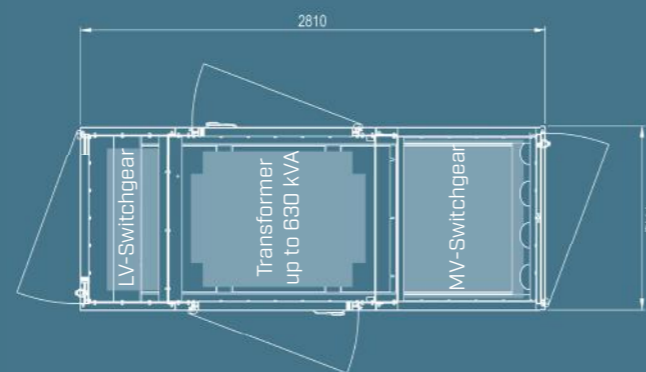
VIEW MV SIDE



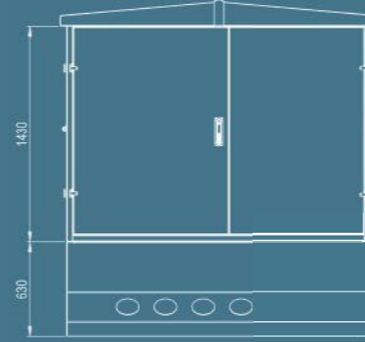
VIEW LV SIDE



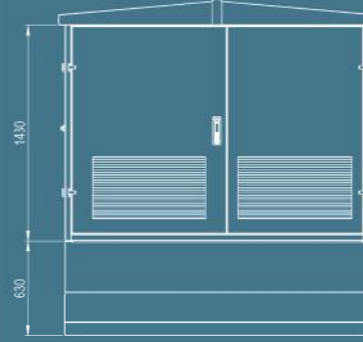
TOP VIEW



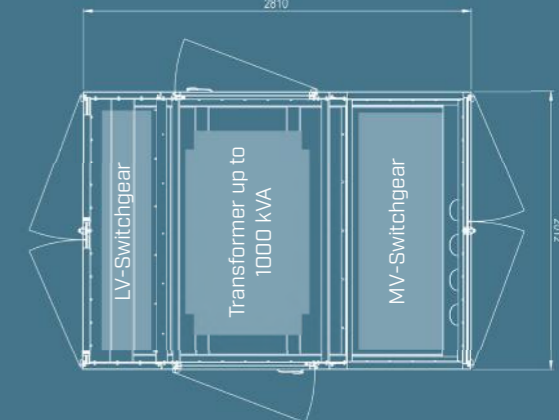
VIEW MV SIDE



VIEW LV SIDE



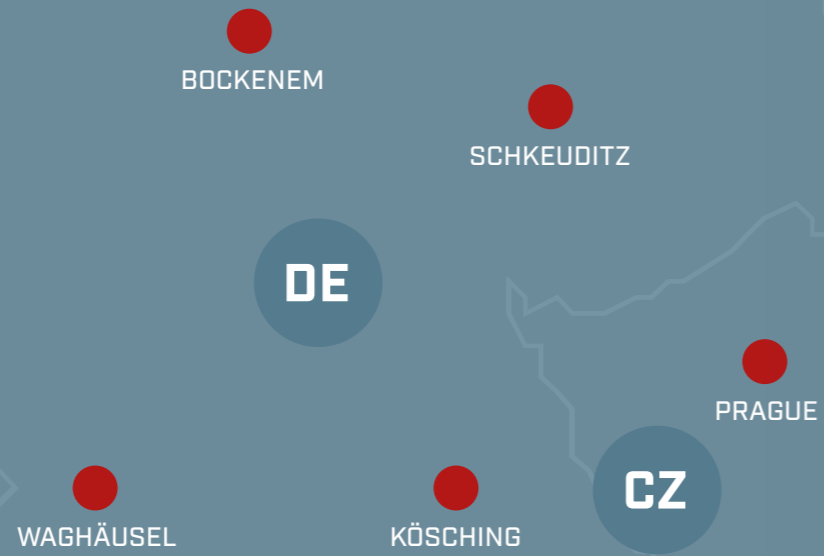
TOP VIEW



TYPE	MAXIMUM MV SWITCHGEAR CONFIGURATION	MAXIMUM TRANSFORMER OUTPUT	MAXIMUM LV SWITCHGEAR DIMENSIONS	TEMPERATURE CLASS	IAC CLASSIFICATION
MCS1229-24S	3 panels W=1000 mm H=1400 mm	630 kVA	W=1000 mm D=475 mm H=1400 mm	20	IAC-AB20kA-1s

TYPE	MAXIMUM MV SWITCHGEAR CONFIGURATION	MAXIMUM TRANSFORMER OUTPUT	MAXIMUM LV SWITCHGEAR DIMENSIONS	TEMPERATURE CLASS	IAC CLASSIFICATION
MCS2129-24S	5 panels W=1900 mm H=1400 mm	1000 kVA	W=1900 mm D=475 mm H=1400 mm	20	IAC-AB20kA-1s

# BETONBAU GROUP



## OVER 55 YEARS OF EXPERIENCE IN CONCRETE

The company betonbau was founded in 1963 in Waghäusel, Germany. Thanks to continuous growth of the business, four additional plants were built in Germany plus one in Prague (Czech Republic).

These facilities form the Betonbau Group, producing more than 8,000 individual concrete modules per year with a staff of approx. 750 employees and using state-of-the-art production equipment.



WAGHÄUSEL



KÖSCHING



BOCKENEM



SCHKEUDITZ



PRAGUE

