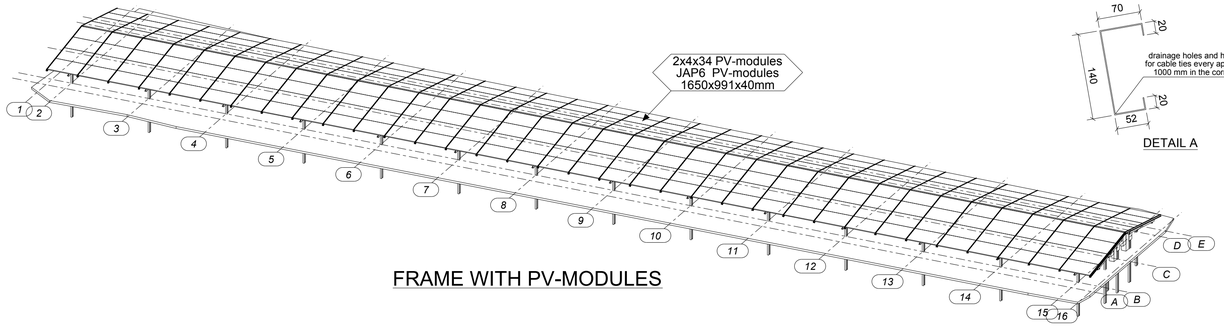
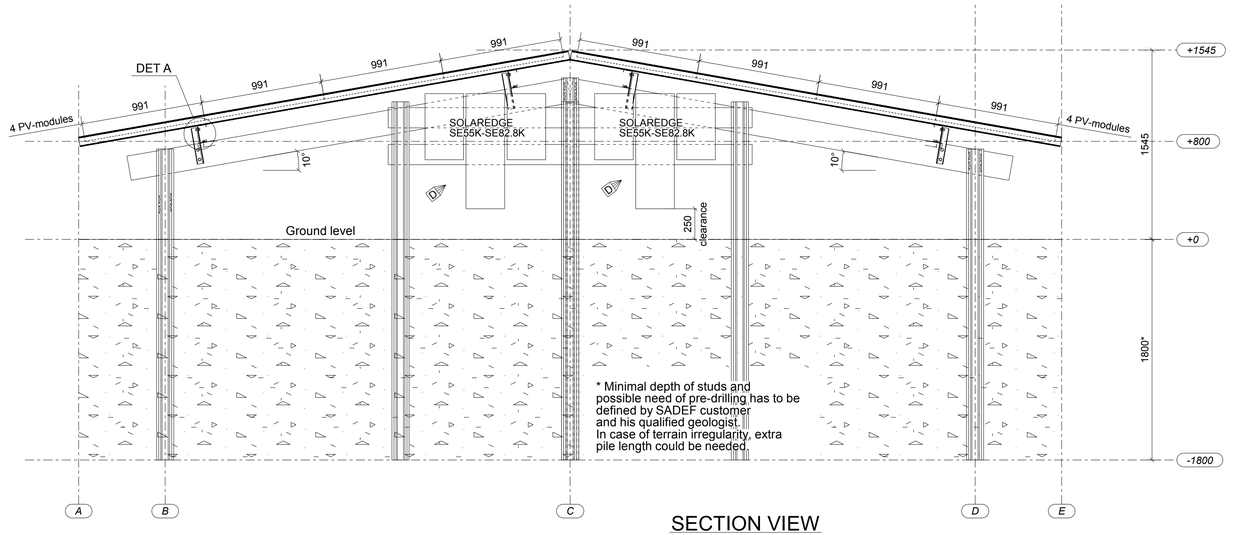


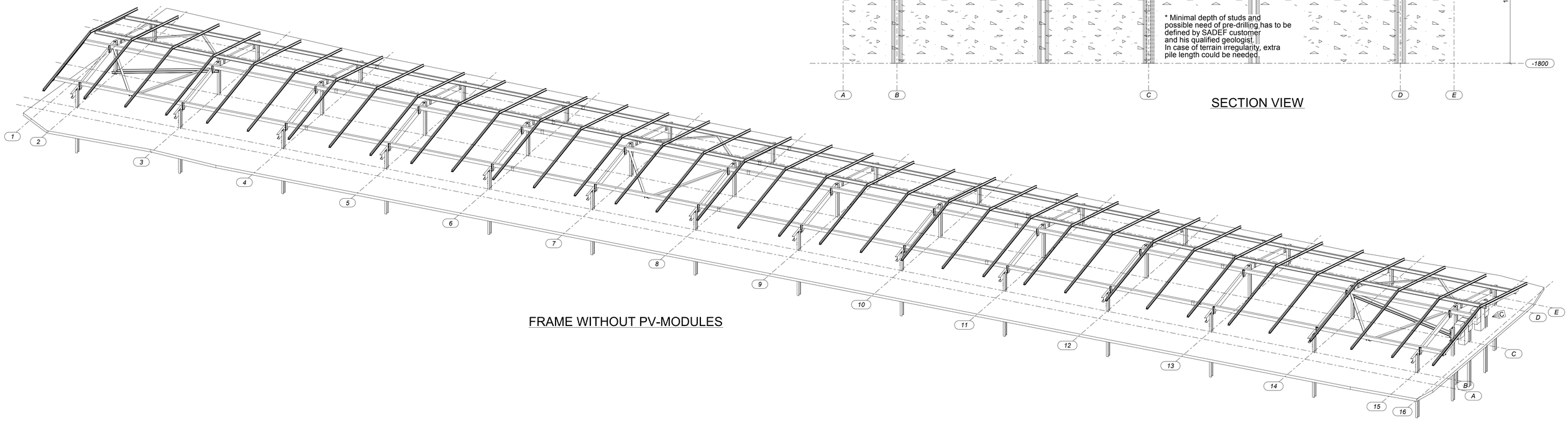
FRAME WITH PV-MODULES

DETAIL A

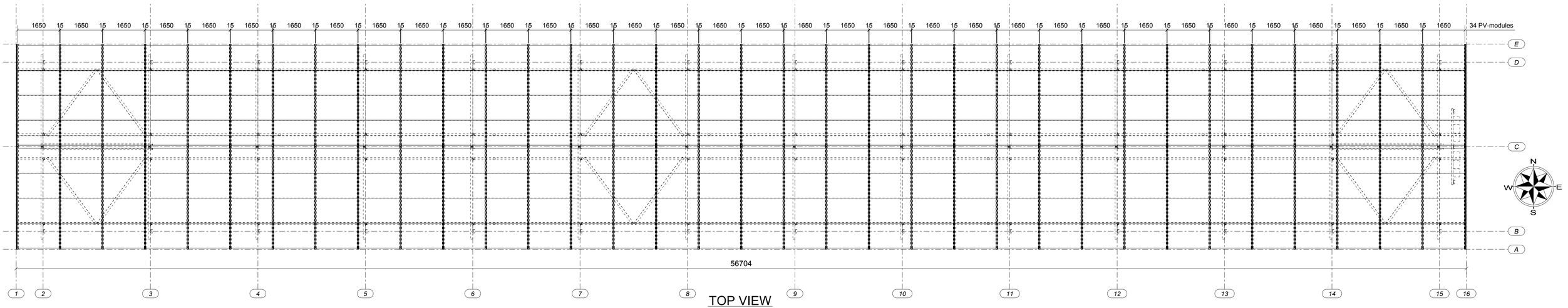


* Minimal depth of studs and possible need of pre-drilling has to be defined by SADEF customer and his qualified geologist. In case of terrain irregularity, extra pile length could be needed.

SECTION VIEW



FRAME WITHOUT PV-MODULES



TOP VIEW

This plan cannot be used for the final building site layout of piles, frames or tables. Only the specific SADEF "Structural drawing" may be used to prepare or realize the montage of the SADEF-frame.

It is the entire responsability of the SADEF customer to verify the validity and the completeness of the attached data sheet relating to the applied solar panel.
It is also the entire responsability of the SADEF customer to verify the compatibility, the panel spacing and the loading capacity of the used solar panels and its fixing to the corresponding SADEF steel frame.
Production of the SADEF steel frame will only be launched after approval by the SADEF customer on the content of these plans and attachted documents.

The layout of the solar tables on the terrain should be done in such a way, that there is always a minimal distance of 10 cm between the steel structures of adjacent tables.
In case of a terrain with more than 10% slope, the minimal distance (in cm) should be equal to the slope of the terrain (in %).
E.g. 20% terrain slope --> 20cm minimal distance between tables.
Standard irregularity in flatness in East-West direction is +/-5cm. If irregularity (between the 2 ends of table) is more than 5cm, the SADEF customer clearly has to specify the maximum irregularity before approval of the global drawings.

The chosen surface treatment of the steel frame is supposing no significant water accumulation on the terrain surface. It is considered that the ground will absorb all rain water.
Eventual consequences on the steel structure due to water accumulation or underground waterstream will be the full responsibility of the SADEF customer.

Grounding of the installation is the responsibility of the SADEF customer.

The content of the documents "Design data", and "Special conditions for components in solar frames (encl. A)" in enclosure is to be fully taken into account !

Tekla Structures

EigenEnergie East-West Table 2x4x34

This structure is valid for the following tolerances of the modules JAP6 :
- tolerances on the length and width are ± 2mm
- tolerance on the thickness is ± 0.5mm

This structure is valid for maximal terrain slope in E-W / N-S direction: 2% / flat

In case of higher terrain slope, the customer has to do necessary earth movement in order to respect the given slope limits

Eigenenergie East-West v02 plotted 21.09.2017

Preliminary drawing
CONCEPT DRAWING

This drawing must be printed on paper size not less than A3.

REV. NO.	REV.	REVISION DESCRIPTION	REV. DATE
4	D	Concept drawing - updated inverters	21.09.2017
3	C	Concept drawing - added inverters	21.09.2017
2	B	Concept drawing - changed angle	15.09.2017
1	A	Concept drawing	15.09.2017

SteelGrade: S390Gd+Z Unless different mentioned | Welding: 5▵ 4 . Unless different mentioned
BoltGrade: 8.8. Unless different mentioned | Projection:

Project Reference: EigenEnergie Ease-West		Project Start Date: 2017.01.26	
Subject: G[02] Table 2x4x34		Scale: 1:5	
Client: EigenEnergie		Drawn by: PDB	
Order: SOLAR STRUCTURES		Checked by:	

Phone +32 (0)51.261.211 Telefax +32 (0)51.261.301
voestalpine Sadef nv
E-Mail: project@sadef.be Internet: www.sadef.be

PROJECT NUMBER:

DRAWING NO. + REVISION NO.: G[02] - D

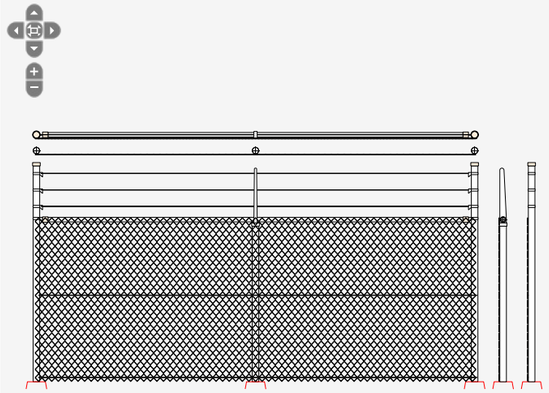
BouwConnect Bibliotheek

Gaashekwerk ABC Hekwerk - gaashekwerk BRB

Eigenschappen

gaas	afrasteringsgaas ABC Hekwerk - Gaashekwerk 1500mm
staander	ronde baluster ABC Hekwerk - gaashekwerk 60,3mm
bovenregel	ronde regel ABC Hekwerk - gaashekwerk
toebehoren	prikkeldraad ABC Hekwerk - Gaashekwerk 3 draads
afwerking	verzinkt
hoogte (mm)	2000
kleur	RAL 6009
lengte (mm)	4000
NL-SfB tabel 1	90.32
type	BRB
uitvoering	BRB 153
IFCClass	IFCRAILING
kenmerkende grondstof	staal
merk	ABC Hekwerk
serie	gaashekwerk
STABU2	32.57.32

CAD-tekening



Foto's

Vrije bestektekst

gaashekwerk ABC Hekwerk - gaashekwerk BRB

afwerking: verzinkt
gebruikers code:
gebruikers opmerking:
hoogte: 2000 mm
kenmerkende grondstof: staal
kleur:
lengte: mm
merk: ABC Hekwerk
serie: gaashekwerk
STABU2: 32.57.32
type: BRB
uitvoering: BRB 153

Productbeschrijving

Gaashekwerk met bovenbuis met puntdraad
Met ons gaashekwerk met puntdraad slaat u drie vliegen in één klap. Op de eerste plaats geeft u een duidelijk signaal af dat het ongeautoriseerd betreden van het terrein niet wordt getolereerd. Daarnaast schrikt de extra puntdraad overklimmers af. Tenslotte heeft het hekwerk een vriendelijke uitstraling en oogt niet agressief. Het hekwerk houdt zijn stevigheid dankzij forse staanders van Ø 60,3 mm en het op sterke spandraden strak gespannen geplastificeerd harmonicagaas. Waar nodig kunnen de staanders worden voorzien van een ondergrondse schetsplaat voor extra stabiliteit. Speciaal voor zware toepassingen kan ook worden gekozen voor een vervangende staander met een extra sterk IPE-80 profiel.

Het hekwerk wordt standaard verzinkt en kan worden uitgevoerd met een duurzame groene coating. Ook andere kleuren zijn op aanvraag mogelijk. Het hekwerk kan ook worden geleverd in een uitvoering met extra bovenbuis of puntdraadhouders met 2 of 3 puntdraden.

MV POWER STATION
2200 / 2475 / 2500 / 2750 / 3000

MVPS 2200-20 / MVPS 2475-20 / MVPS 2500-20 / MVPS 2750-20 / MVPS 3000-20

Robust
- Station and all individual components type-tested
- Optimally suited to extreme ambient conditions

Easy to Use
- Plug and play concept
- Completely pre-assembled for easy set-up and commissioning

Cost-Effective
- Easy planning and installation
- Low transport costs due to 20-foot container

Flexible
- Global solution for international markets
- Numerous options
- Compatible with MVPS 4400 – MVPS 6000

MV POWER STATION 2200 / 2475 / 2500 / 2750 / 3000

Turnkey Solution for PV Power Plants

With the power of the new robust central inverters, the Sunny Central or Sunny Central Storage, and with perfectly adapted medium-voltage components, the new MV Power Station offers even more power density and is a turnkey solution available worldwide. The solution is the ideal choice for new generation PV power plants operating at 1500 V_{DC}. Delivered pre-configured in a 20-foot container, the solution is easy to transport and quick to assemble and commission. The MVPS and all components are type-tested. The MV Power Station combines rigorous plant safety with maximum energy yield and minimized deployment and operating risk.

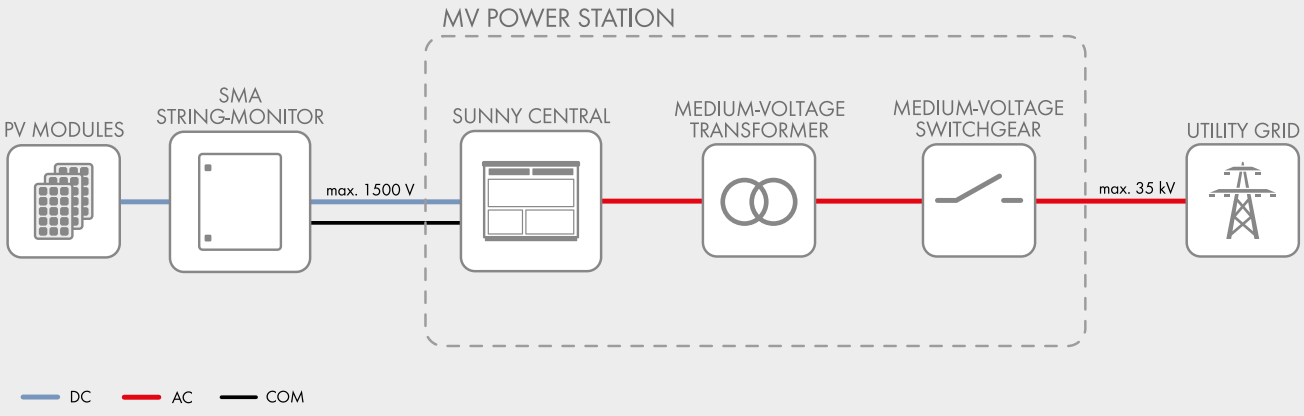
MV POWER STATION
2200 / 2475 / 2500 / 2750 / 3000

Technical Data	MV Power Station 2200
Input (DC)	
Available inverters	1 x SC 2200 or 1 x SCS 2200
Max. input voltage	1100 V
Max. input current	3960 A
Number of DC inputs	24 double pole fused (32 single pole fused)
Integrated zone monitoring	○
Available DC fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A
Output (AC) on the medium-voltage side	
Standard power at 1000 m and cos φ = 1 (at 35 °C / at 40 °C / at 45 °C)[1]	2200 kVA / 2000 kVA / 0 kVA
Optionale power at 1000 m and cos φ = 1 (at 35 °C / at 50 °C / at 55 °C)[1]	2200 kVA / 2000 kVA / 0 kVA
Typical nominal AC voltages	6.6 kV to 35 kV
AC power frequency	50 Hz / 60 Hz
Transformer vector group Dy11 / YNd11	● / ○
Transformer cooling methods ONAN[2] / KNAN[2]	● / ○
Max. output current at 33 kV	39 A
Transformer no-load losses Standard / Ecodesign at 33 kV	2.3 kW / 1.74 kW
Transformer short-circuit losses Standard / Ecodesign at 33 kV	21.0 kW / 20.7 kW
Max. total harmonic distortion	< 3%
Reactive power feed-in	○ up to 60% of AC power
Power factor at rated power / displacement power factor adjustable	1 / 0.8 overexcited to 0.8 underexcited
Inverter efficiency	
Max. efficiency[3]	98.6%
European efficiency[3]	98.4%
CEC weighted efficiency[4]	98.0%
Protective devices	
Input-side disconnection point	DC load-break switch
Output-side disconnection point	Medium-voltage vacuum circuit breaker
DC overvoltage protection	Surge arrester type I
Galvanic isolation	●
Internal arc classification medium-voltage control room (according to IEC 62271-202)	IAC A 20 kA 1 s
General Data	
Dimensions of the 20-foot container without integrated oil containment (W / H / D)[5]	6058 mm / 2591 mm / 2438 mm
Dimensions of the 20-foot container with integrated oil containment (W / H / D)[5]	6058 mm / 2896 mm / 2438 mm
Weight	< 16 t
Self-consumption (max. / partial load / average)[1]	< 8.1 kW / < 1.8 kW / < 2.0 kW
Self-consumption (stand-by)[1]	< 300 W
Degree of protection according to IEC 60529	Control rooms IP23D, inverter electronics IP65
Environment: standard / chemically active / dusty	● / ○ / ○
Degree of protection according to IEC 60721-3-4 (4C1, 4S2 / 4C2, 4S2 / 4C2, 4S4)	● / ○ / ○
Maximum permissible value for relative humidity	15% to 95%
Max. operating altitude above mean sea level 1000 m / 2000 m / 3000 m / 4000	● / ○ / ○ / ○ (earlier temperature-dependent de-rating)
Fresh air consumption of inverter and transformer	6500 m³/h
Features	
DC terminal	Terminal lug
AC connection	Outer-cone angle plug
Tap changer for MV-transformer: without / with	● / ○
Shield winding for MV-Transformer: without / with	● / ○
Communication package	○
Station enclosure color	RAL 7004
Transformer for external loads: without / 20 kVA / 30 kVA	● / ○ / ○
Medium-voltage switchgear: without / 2 feeders / 3 feeders 1 or 2 cable feeders with load-break switch, 1 transformer feeder with circuit breaker, internal arc classification IAC A FL 20 kA 1 s according to IEC 62271-200	● / ○ / ○
Accessories for medium-voltage switchgear: without / auxiliary contacts / motor for transformer feeder / cascade control / monitoring	● / ○ / ○ / ○ / ○
Oil containment: without / with (integrated)	● / ○
Industry standards (for other standards see the inverter datasheet)	IEC 62271-202, IEC 62271-200, IEC 60076 , CSC certificate, EN 50588-1
● Standard features ○ Optional features – Not available	
Type designation	MVPS-2200-20

1) Data based on inverter
2) ONAN = Mineral oil with natural air cooling; KNAN = Organic oil with natural air cooling
3) Efficiency measured at inverter without internal power supply
4) Efficiency measured at inverter with internal power supply
5) Transport dimensions

MV Power Station 2475	MV Power Station 2500	MV Power Station 2750	MV Power Station 3000
1 x SC 2475 or 1 x SCS 2475	1 x SC 2500-EV or 1 x SCS 2500-EV	1 x SC 2750-EV or 1 x SCS 2750-EV	1 x SC 3000-EV or 1 x SCS 3000-EV
1100 V	1500 V	1500 V	1500 V
3960 A	3200 A	3200 A	3200 A
24 double pole fused (32 single pole fused)			
○	○	○	○
200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A			
2475 kVA / 2250 kVA / 0 kVA	2500 kVA / 2250 kVA / 0 kVA	2750 kVA / 2500 kVA / 0 kVA	3000 kVA / 2700 kVA / 0 kVA
2475 kVA / 2250 kVA / 0 kVA	2500 kVA / 2250 kVA / 0 kVA	2750 kVA / 2500 kVA / 0 kVA	3000 kVA / 2700 kVA / 0 kVA
6.6 kV to 35 kV	6.6 kV to 35 kV	6.6 kV to 35 kV	6.6 kV to 35 kV
50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz
● / ○	● / ○	● / ○	● / ○
● / ○	● / ○	● / ○	● / ○
43 A	44 A	49 A	53 A
2.5 kW / 1.92 kW	2.5 kW / 1.92 kW	2.8 kW / 2.1 kW	3.0 kW / 2.3 kW
23.2 kW / 23.0 kW	23.2 kW / 23.0 kW	25.5 kW / 25.3 kW	27.4 kW / 27.3 kW
< 3%	< 3%	< 3%	< 3%
○ up to 60% of AC power	○ up to 60% of AC power	○ up to 60% of AC power	○ up to 60% of AC power
1 / 0.8 overexcited to 0.8 underexcited	1 / 0.8 overexcited to 0.8 underexcited	1 / 0.8 overexcited to 0.8 underexcited	1 / 0.8 overexcited to 0.8 underexcited
98.6%	98.6%	98.7%	98.8%
98.4%	98.3%	98.6%	98.6%
98.0%	98.0%	98.5%	98.5%
DC load-break switch	DC load-break switch	DC load-break switch	DC load-break switch
Medium-voltage vacuum circuit breaker	Medium-voltage vacuum circuit breaker	Medium-voltage vacuum circuit breaker	Medium-voltage vacuum circuit breaker
Surge arrester type I	Surge arrester type I	Surge arrester type I	Surge arrester type I
●	●	●	●
IAC A 20kA 1s	IAC A 20kA 1s	IAC A 20kA 1s	IAC A 20kA 1s
6058 mm / 2591 mm / 2438 mm	6058 mm / 2591 mm / 2438 mm	6058 mm / 2591 mm / 2438 mm	6058 mm / 2591 mm / 2438 mm
6058 mm / 2896 mm / 2438 mm	6058 mm / 2896 mm / 2438 mm	6058 mm / 2896 mm / 2438 mm	6058 mm / 2896 mm / 2438 mm
< 16 t	< 16 t	< 16 t	< 16 t
< 8.1 kW / < 1.8 kW / < 2.0 kW	< 8.1 kW / < 1.8 kW / < 2.0 kW	< 8.1 kW / < 1.8 kW / < 2.0 kW	< 8.1 kW / < 1.8 kW / < 2.0 kW
< 300 W	< 370 W	< 370 W	< 370 W
Control rooms IP23D, inverter electronics IP65			
● / ○ / ○	● / ○ / ○	● / ○ / ○	● / ○ / ○
● / ○ / ○	● / ○ / ○	● / ○ / ○	● / ○ / ○
15% to 95%	15% to 95%	15% to 95%	15% to 95%
● / ○ / ○ / ○ (earlier temperature-dependent de-rating	● / ○ / ○ / – (earlier temperature-dependent de-rating		
6500 m³/h	6500 m³/h	6500 m³/h	6500 m³/h
Terminal lug	Terminal lug	Terminal lug	Terminal lug
Outer-cone angle plug	Outer-cone angle plug	Outer-cone angle plug	Outer-cone angle plug
● / ○	● / ○	● / ○	● / ○
● / ○	● / ○	● / ○	● / ○
○	○	○	○
RAL 7004	RAL 7004	RAL 7004	RAL 7004
● / ○ / ○	● / ○ / ○	● / ○ / ○	● / ○ / ○
● / ○ / ○	● / ○ / ○	● / ○ / ○	● / ○ / ○
● / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○
● / ○	● / ○	● / ○	● / ○
IEC 62271-202, IEC 62271-200, IEC 60076 , CSC certificate, EN 50588-1			
MVPS-2475-20	MVPS-2500-20	MVPS-2750-20	MVPS-3000-20

System diagram with Sunny Central



System diagram with Sunny Central Storage