MUNK
WE HAVE THE POWER!

VARIABLE RATIO TRANSFORMER AND THYRISTOR TECHNOLOGY

with synthetic coolant / Water-Cooled with synthetic coolant

THE ENDURING SOLUTION

REMOTE CONTROL
(HIGHER / LOWER):

REMOTE CONTROL
(WITH CONSTANT CURRENT OR VOLTAGE CONTROL):

GENERAL

This design is still a **strong** and **reliable** basis for applications under difficult industrial conditions. The adjustment of the rectifier can be carried out by means of a motor-driven variable ratio transformer or electronically by means of thyristors.

TECHNICAL DATA

Mains voltage:	3 x 400 V/50 Hz + N + PE (further voltages on request)
Adjustment:	stepless from 0 - 100 %
Ripple:	
Variable ratio transformer:	5 % full range
Thyristor technology:	approx. 5 - 7 % at full load
Duty factor:	100 % ED
Ambient temperature:	+ 35 °C
Water entry temperature: (only for type OWA)	+ 16 °C up to + 30 °C
synthetic coolant:	accord. to IEC Publication 2/96 or DIN 57370 part 1 or VDE 0370 part 1
Surface finish:	RAL 7035
Supervision:	coolant temperature, overcurrent relay
Protection grade:	IP 54 / IP 21

FURTHER OPTIONS

- Remote control (standard)
- Ah counter
- Special controls
- Constant current or voltage control
- Polarity inverter (electronical or mechanical)
- Profibus DP, ProfiNet etc.
- Silikagel air de-hydration
- Smoothing choke to reduce the ripple (for thyristor technology)

MEASURING INSTRUMENTS (STANDARD)

- Digital for current and voltage

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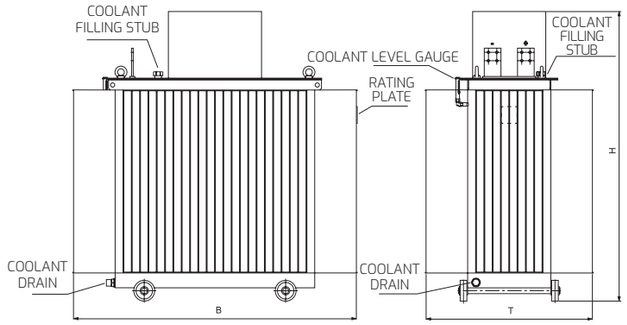
Status 06/2022

TYP OS

with synthetic coolant



The main components are built into a corrugated steel tank.
Due to the high protection grade (IP 54) the device can be located directly in an aggressive environment. The heat loss is convected by means of the corrugated surface.

OS RECTIFIER AVAILABLE TYPES (TANK/ WEIGHT EMPTY (KG))

I/A	6V	8V	10V	12V	15V	18V	20V	22V
100	F1/150	F1/165	F1/180	F1/190	F1/205	F1/215	F2/230	F2/240
200	F1/210	F1/225	F2/235	F2/245	F2/260	F2/270	F2/285	F2/295
300	F1/220	F2/235	F2/265	F2/295	F2/310	F3/330	F3/350	F3/370
400	F2/260	F2/280	F2/295	F2/315	F2/360	F3/380	F3/395	F3/370
500	F2/280	F2/305	F2/330	F2/360	F2/380	F3/390	F3/410	F3/430
600	F2/295	F2/315	F2/355	F2/370	F3/395	F4/415	F3/440	F4/460
800	F3/330	F3/360	F3/385	F3/410	F4/430	F5/460	F5/490	F5/515
1000	F3/380	F3/395	F3/415	F3/440	F4/470	F6/495	F6/530	F6/560
1200	F4/480	F4/510	F4/540	F4/660	F4/690	F8/710	F8/730	F8/760
1500	F4/610	F5/640	F6/680	F6/730	F6/770	F9/810	F9/850	F10/1070
2000	F6/690	F6/710	F7/750	F7/810	F9/850	F10/910	F10/1000	F11/1190
2500	F8/740	F8/760	F8/830	F9/940	F9 940	F11/1180	F11/1270	F12/1360
3000	F9/965	F9/1015	F9/1190	F9/1190	F10/1240	F12/1520	F12/1670	F12/1750
4000	F10/1270	F10/1290	F10/1390	F10/1510	F12/1730	F12/1760	F13/1970	F13/2100
5000	F11/1530	F12/1580	F12/1650	F12/1780	F12/1820	F13/1910	F13/2160	F13/2240
6000	F12/1550	F12/1590	F12/1780	F12/1870	F13/1950	F13/2080	F14/2250	F14/2400
7000	F12/1580	F13/1650	F13/1870	F13/1920	F14/2040	F14/2140	F14/2500	F14/2650
8000	F13/1640	F13/1790	F14/1940	F14/2370	F15/2550	F16/2990	F16/3400	F16/3650
9000	F13/1750	F14/1880	F15/2050	F16/2430	F16/3280	F17/3450	F17/3900	F17/4100
10000	F14/1830	F15/1910	F15/2300	F16/3000	F16/3690	F17/4100	F17/4700	F17/4900
12000	F15/1950	F16/2200	F17/3150	F17/4500	F17/4800	F18/5050	F18/5300	
15000	F16/3900	F17/4000	F17/4900	F17/5120	F18/5700			

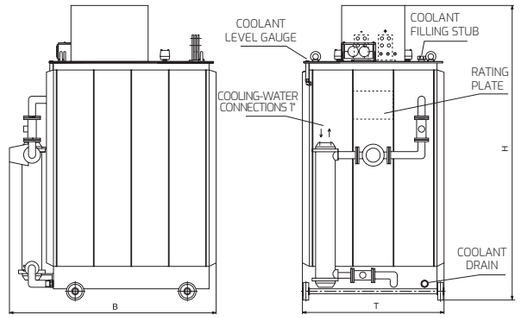
OS TANK TYPE (DIMENSIONS IN MM)

Typ	B	T	H	Oil requirement
F1	810	490	1120	160 kg
F2	950	540	1210	210 kg
F3	1150	580	1320	290 kg
F4	1270	610	1620	440 kg
F5	1330	670	1620	460 kg
F6	1370	710	1570	480 kg
F7	1430	770	1590	500 kg
F8	1540	800	1590	580 kg
F9	1580	880	1640	660 kg

Typ	B	T	H	Oil requirement
F10	1700	1000	1640	710 kg
F11	2050	1130	1740	930 kg
F12	2150	1180	1890	1150 kg
F13	1920	1610	2060	1850 kg
F14	2480	1480	2170	2750 kg
F15	2600	1600	2170	2900 kg
F16	2700	1700	2170	2960 kg
F17	2800	2100	2170	4100 kg
F18	2950	2100	2420	4830 kg

TYP OWA

Water-Cooled with synthetic coolant



This design allows a more compact integration of high power.
The smooth steel tank contains all power components and dissipates a low amount of the heat loss. By means of heat exchanger and circulation

OWA RECTIFIER-OVERVIEW OF MODEL (TANK/WEIGHT EMPTY (KG))

I/A	6V	8V	10V	12V	15V	18V	20V	22V
4000	GÖ1/1300	GÖ1/1380	GÖ1/1580	GÖ1/1660	GÖ1/1710	GÖ1/1810	GÖ1/1870	GÖ1/2000
5000	GÖ1/1360	GÖ1/1440	GÖ1/1660	GÖ1/1710	GÖ1/1760	GÖ1/1860	GÖ1/1920	GÖ2/2050
6000	GÖ1/1460	GÖ1/1540	GÖ1/1730	GÖ1/1820	GÖ1/1900	GÖ1/2030	GÖ1/2100	GÖ2/2350
7000	GÖ1/1530	GÖ1/1600	GÖ1/1820	GÖ1/1870	GÖ2/1990	GÖ2/2090	GÖ2/2250	GÖ3/2500
8000	GÖ1/1610	GÖ1/1740	GÖ2/1890	GÖ2/2020	GÖ2/2100	GÖ4/2250	GÖ4/2350	GÖ4/2600
9000	GÖ1/1750	GÖ2/1830	GÖ2/2000	GÖ3/2080	GÖ3/2230	GÖ5/2400	GÖ5/2500	GÖ5/2730
10000	GÖ1/1780	GÖ2/1860	GÖ2/2050	GÖ3/2130	GÖ3/2340	GÖ5/2550	GÖ5/2600	GÖ5/2850
12000	GÖ4/1900	GÖ4/2150	GÖ5/2300	GÖ5/2450	GÖ5/2750	GÖ5/3000	GÖ5/3250	auf Anfrage
15000	GÖ4/2450	GÖ5/2750	GÖ3/3000	GÖ5/3250	GÖ5/3650	auf Anfrage	auf Anfrage	auf Anfrage

DETERMINING THE COPPER CONNECTION CROSS-SECTIONS FOR **OS-** AND **OWA-** DEVICES (DIMENSIONS IN MM)

DC output bars		
DC-current [A]	Qty	CU-cross-section
200	1	30 x 10
400	1	30 x 10
600	1	30 x 10
800	1	40 x 10
900	1	60 x 10
1200	1	60 x 10
1500	1	80 x 10
2000	1	100 x 10
2500	1	120 x 10
3000	2	100 x 10

DC output bars		
DC-current [A]	Qty	CU-cross-section
4000	2	100 x 10
5000	2	120 x 10
6000	2	160 x 10
7000	4	100 x 10
8000	4	120 x 10
9000	4	120 x 10
10000	6	100 x 10
12000	6	100 x 10
14000	6	120 x 10
15000	6	120 x 10

OWA TANKT YPE (DIMENSIONS IN MM)

Typ	B	T	H	Oil requirement
GÖ1	1455	1000	2200	1400 kg
GÖ2	1480	1110	2230	1500 kg
GÖ3	1570	1150	2280	1800 kg
GÖ4	2000	1100	2200	1920 kg
GÖ5	2400	1450	2200	3240 kg

TECHNICAL CHANGES RESERVED.

RULE OF THUMB TO DETERMINE THE AMOUNT OF COOLING WATER FOR **OWA**

rated DC current [A] x 0,22 [$^{1}/_{A}$] at T=10K;
≙ Amount of water in litres per hour

e.g. current 10,000 A x 0,22 [$^{1}/_{A}$]
≙ 2,200 litres per hour