



SÖNMEZ TRAFÖ



**YOUR
RELIABLE,
INNOVATIVE,
DIVERSIFIED
PARTNER**



SÖNMEZ TRAFÖ

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Converter Transformers

CONVERTER/RECTIFIER TRANSFORMERS

General Information

Sönmez Transformer Company STS is designing and manufacturing special type transformers with over 35 years of experience and with its own know-how. STS transformers are working more than 65 countries all around the world. STS offers reliable converter and rectifier transformers for industrial and marine applications with short lead times and with excellent quality.

QUALITY IS ESSENTIAL FOR US.

Sönmez Transformer company is a ISO certified company. We apply following systems:

- Quality (ISO 9001)
- Environment (ISO 14001)
- Occupational Health and Safety (OHSAS 18001)



CONVERTER/RECTIFIER TRANSFORMERS

General Information

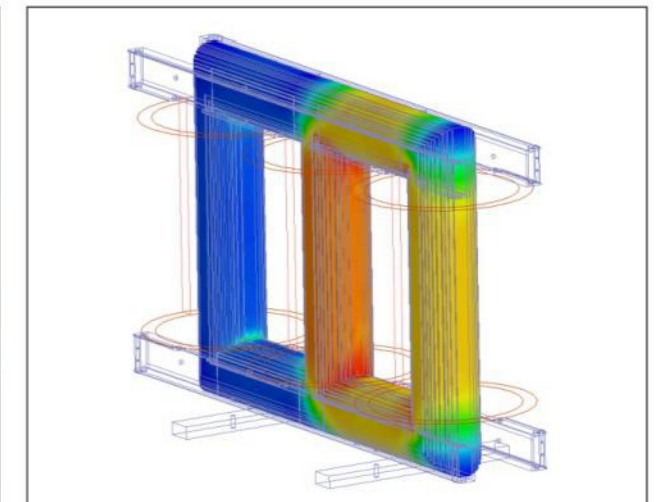
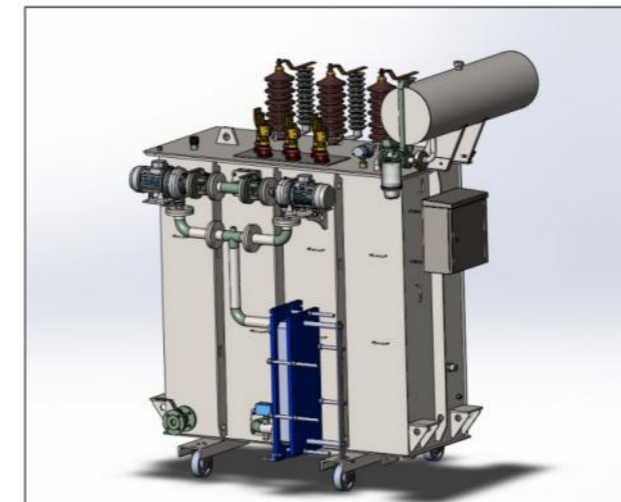
Know-How and Engineering: Sönmez Transformatör Sanayi (STS) use its own know-how with the experience of years. STS uses, 3D computer programs (Solidworks ®) to design transformers electrically and mechanically. Following influencing factors should be considered on converter transformers:

- HV and LV windings in two levels and wyne and delta connection to achieve 12-pulse reaction.
- Pulse numbers higher than 12: Requires additional phase shifting windings.
- LV winding arrangements: Adapted to minimize winding hotspots and the influence of harmonics

In addition to comply customer requests, we follow following related standards (IEC & ANSI) about converter transformers:

IEC 61378-1 : Converter transformers, Part 1, Transformers for Industrial Applications

IEEE C57.18.10: Practices for Semiconductor Power Rectifier Transformers



CONVERTER/RECTIFIER TRANSFORMERS

Technology

Converters causes a lot of harmonic frequencies. Therefore, standard distribution or power transformers , do not generally work satisfactorily in converter application.

Harmonic frequencies increase the mechanical and dielectrical stresses in transformer. Therefore converter transformers must be specially designed according to requirements of converters. Increasing power rating of a standard distribution transformer is not an adequate measure.

STS considers following factors during design:

Harmonic components from the converter side. (Equivalent power rating is calculated according to harmonics of converter. Our designers work hand in hand with converter manufacturers to define harmonic spectrum and consider it in design of transformer.

(K-factor)

Number of pulses: If higher converter pulse numbers then 12 pulse is needed, transformers are designed with special phase-shifting and/or several transformers with phase shifting running in parallel. (or with special connections according to customer requests.). We are able to design and manufacture transformers up to 96 pulse.

Overloading and Overvoltage conditions according to specifications of converter manufacturer.

CONVERTER/RECTIFIER TRANSFORMERS

Partnership

Sönmez Transformatör Sanayi (STS) is committed to give technical assistance to customers. STS assists customers to analyze individual needs and assist to find correct solution for the requirements. One of our main advantage is to give quick responses to technical questions/requests by our flexible organization.

Being a Reliable Manufacturer of Converter transformers we are also long-term partners for Converter Manufacturers.

After-Sales Services:

Sönmez Transformatör Sanayi (STS) gives top importance to reliability of manufactured products. In case of a service request from customers, STS reacts immediately and gives the necessary assistance to the customers. In addition to experienced service team of STS in Turkey. STS has authorized service partner in USA for that region.

CONVERTER/RECTIFIER TRANSFORMERS

Application

Sönmez Trafo Manufactures converter transformers for:

Drives
Induction Furnaces
Rolling Mills
Paper Mills
Pumps
Propulsion Systems



CONVERTER/RECTIFIER TRANSFORMERS

Properties

Number of Pulses:

STS is able to manufacture converter/rectifier transformers for

- 6 Pulse
- 12 Pulse
- 18 Pulse
- 24 Pulse
- 36 Pulse
- 48 Pulse
- 96 Pulse Converters and Rectifiers.



Type:

STS is able to manufacture oil filled (Mineral, Midel, FR3, Silicone, etc.) or dry type (cast-resin or varnish impregnated.)

Oil Filled Converter and Rectifier Transformers:

STS is able to manufacture transformers with different cooling types and different tank constructions according to customer needs.

Tank Constructions:

- Breathing Type with Conservator
- Hermetically Sealed Type with corrugated tank
- Hermetically Sealed Type with Nitrogen Blanket

We are able to use Special Fluids for Fire Resistance and Environment-Friendly

Solutions:

- Midel Fluid ®
- Envirotemp FR3 ®
- BETA Fluid ®
- Silicone Fluid



CONVERTER/RECTIFIER TRANSFORMERS

Oil Filled Converter and Rectifier Transformers:

STS is able to offer solutions for room limitations with compact designs:

Cooling Types:

- ONAN or KNAN: Oil Natural – Air Natural
- ONAF or KNAF: Oil Natural – Air Forced
- OFAF or KFAF: Oil Forced- Air Forced
- OFWF or KFWF : Oil Forced – Water Forced

Water Cooled Transformers:

STS is able to manufacture transformers with water cooling. STS is able to use both tube type and plate type heat exchangers, in any case, solution will be double wall.

Surface Treatment:

STS is able to manufacture transformers for all around the world, that means, we consider the surface treatment requirements of different climates. We are able to manufacture transformers with surface treatment, C3 (Standard), C4 and C5.

We are ready to apply your paint color request for the converter transformers.
(Our Standard: RAL 7033)



CONVERTER/RECTIFIER TRANSFORMERS

Dry Type Converter and Rectifier Transformers:

STS is able to manufacture cast resin and varnish impregnated transformers:

Insulation Classes:

- F Class
- H Class
- C Class

Protection Classes:

STS could manufacture dry type transformers in enclosures according to customer needs, STS is able to up to IP44 class protection for natural cooled transformers and IP55 for water cooled enclosures. (AFWF)



CONVERTER/RECTIFIER TRANSFORMERS

References :

With best quality and long years of experience, STS is an approved supplier for many well-known converter /rectifier manufactures . STS transformers are working more than 65 countries all around the world. Points on below map showing the locations where our products are working:



CONVERTER/RECTIFIER TRANSFORMERS

References :



Application: 24 Pulse Converter Transformer
(Inductotherm Induction Furnace)

Power: 2x6500 kVA
Voltage: 13,8 / 2x0,575 kV
Customer: Inductotherm Corp.
Country: USA



Application: 12 Pulse Converter Transformer
(Inductotherm Induction Furnace)

Power: 2x4350 kVA
Voltage: 12,47 / 2x0,575 kV
Customer: Inductotherm Corp.
Country: USA

CONVERTER/RECTIFIER TRANSFORMERS

References :

STS is an approved supplier for ARU Transformers of ABB's patented ACS 6000 drives:

18 PULSE CONVERTER TRANSFORMER
Application: 18 Pulse Converter (ABB ACS 6000 Drive)
Power: 3x5500 kVA
Voltage: 13,8 /3x3,16 kV
Country: Saudi Arabia



12 PULSE MV DRIVE TRANSFORMERS
Application: 12 Pulse Converter (ABB ACS 6000 Drive)
Power: 2x4500 kVA
Voltage: 33 /2x3,16 kV
Country: India



12 PULSE CONVERTER TRANSFORMER
Application: 12 Pulse Rectifier (12 Pulse Drive System)
Type: Cast-Resin
Power: 1350 kVA
Voltage: 34,5 / 2x0,69 kV
Country: Turkey



12 PULSE MV DRIVE TRANSFORMERS
(In Our Test Laboratory)
Application: 12 Pulse Converter (ABB ACS 6000 Drive)
Power: 2 sets each 2x6500 kVA
Voltage: 11 /2x3,16 kV



CONVERTER/RECTIFIER TRANSFORMERS

References :

6 PULSE MV DRIVE TRANSFORMERS

Application: 6 Pulse Converter

(ABB ACS 6000 Drive)

Power: 7250 kVA

Voltage: 13,8 /3,16 kV

Country: Kingdom of Saudi Arabia



CONVERTER/RECTIFIER TRANSFORMERS

References :

Application: 24 Pulse Converter
Transformer
(Inductotherm Induction Furnace)

Power: 2x6500 kVA

Voltage: 13,8 / 2x0,575 kV

Customer: Inductotherm Corp.

Country: USA



6 PULSE MV DRIVE TRANSFORMERS

Application: 6 Pulse Converter

(ABB ACS 6000 Drive)

Power: 7250 kVA

Voltage: 13,8 /3,16 kV

Country: Kingdom of Saudi Arabia



12 PULSE DRIVE TRANSFORMER

Application: 12 Pulse Converter

Power: 4000 kVA

Voltage: 11 /2x0,69 kV

Country: Syria

CONVERTER/RECTIFIER TRANSFORMERS

References :

Application: 24 Pulse Converter
(ABB ACS 2000 Drive)
Power: 2653 kVA
Voltage: 10,5 /4x1,93 kV
Country: Hungary



CONVERTER/RECTIFIER TRANSFORMERS

References :

24 PULSE CONVERTER
TRANSFORMERS
Application: 24 Pulse Rectifier
(Induction Furnace System)
Quantity: 5 Unit
Power: 4565 kVA
Voltage: 20 /4x1,15 kV
Cooling: OFWF
Country: Poland



Application: 24 Pulse Converter
Power: 2x4350 kVA
Voltage: 12,47 / 2x0,575 kV
Customer: Inductotherm Corp.
Country: USA



24 PULSE CONVERTER
TRANSFORMERS
Application: 24 Pulse Rectifier
(Induction Furnace System)
Power: 2x8438 kVA
Voltage: 13,8/ 4x1,15 kV
Cooling: OFWF.
Country: Kingdom of Saudi Arabia
Country: India

CONVERTER/RECTIFIER TRANSFORMERS

References :

24 PULSE RECTIFIER TRANSFORMERS
(In same tank)
Application: 24 Pulse Rectifier
(Induction Furnace)
Power: 9400 kVA
Voltage: 6 /4 x 0,6 kV
Cooling: OFWF
End User: Foundry
Country: Bulgaria



24 PULSE RECTIFIER TRANSFORMERS
(In separate tanks)
Application: 24 Pulse Rectifier
(Induction Furnace)
Power: 17400 kVA
Voltage: 13,8 /4 x 1,15 kV
Cooling: OFWF
Country: USA

CONVERTER/RECTIFIER TRANSFORMERS

References :

STS is able to manufacture rectifier/converter transformers up to 72 kV

24 PULSE CONVERTER TRANSFORMERS
Application: 24 Pulse Converter
(Induction Furnace)
Power: 2x8700 kVA
Voltage: 46 /4x 1,15 kV
Country: USA



6 Pulse Converter Transformer
Application: Medium Voltage Active Filter
Coupling Transformer
Power: 5000 kVA
Voltage: 34,5 / 1,1 kV
Customer: TUBITAK
Country: Turkey

CONVERTER/RECTIFIER TRANSFORMERS

References :

STS is able to manufacture Dry Type (Cast-Resin or Varnish Impregnated) rectifier/converter transformers.

Application: 6 Pulse Converter Transformer for Statcom
 Power: 2100 kVA
 Voltage: 11 / 0,35 kV
 Protection class: IP54
 Customer: ABB
 Country: United Kingdom



CONVERTER/RECTIFIER TRANSFORMERS

References :

STS manufactures products for off-shore / marine applications. Below converter transformers are manufacture for SIEMENS Marine for ship propulsion systems.



12 PULSE CONVERTER TRANSFORMER
 Application: 12 Pulse Rectifier, Ship Electrical Propulsion System (Siemens Drives)
 Quantity: 10 unit
 Power: 630 kVA
 Voltage: 400 / 2x400 V
 Cooling: AN
 Protection Class: IP23
 Class: Türk Loydu
 End User : IDO (Istanbul Ferry Lines)

CONVERTER/RECTIFIER TRANSFORMERS

Packing & Logistics :



With the experience of exporting transformers all around the world, we know the importance of proper packing and logistics. STS offers suitable packing and logistics solutions to customer according to requirements of shipment method and shipment region.

Some of Our Customers

