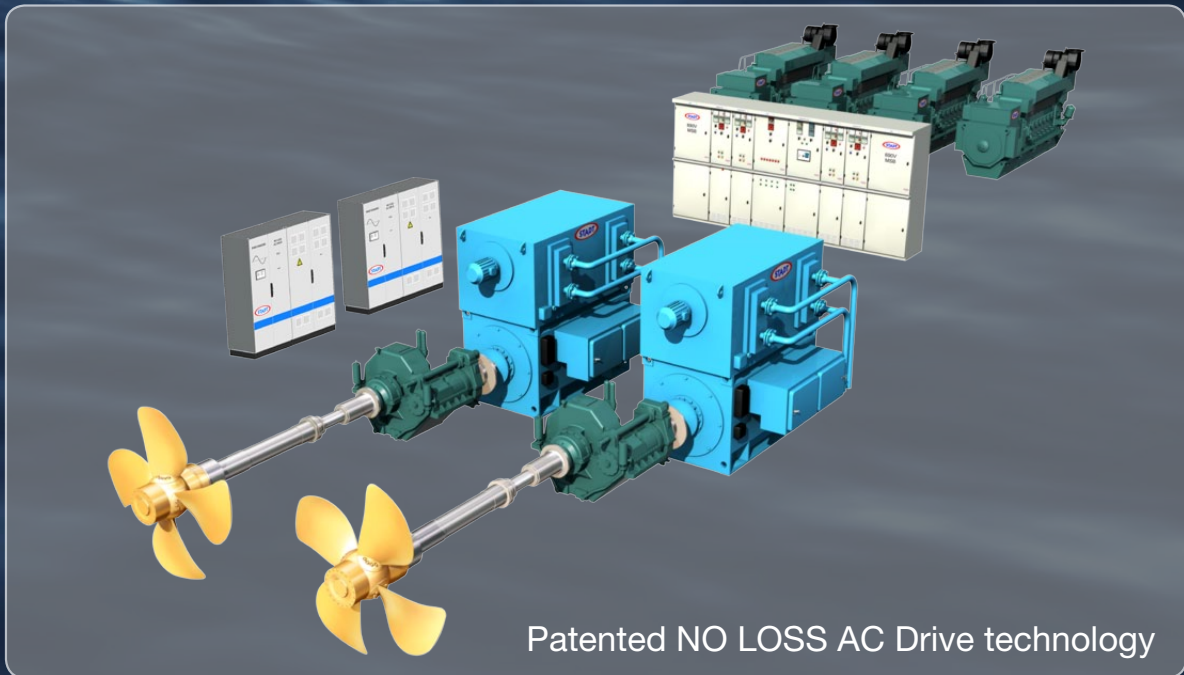




POWER TECHNOLOGY



Patented NO LOSS AC Drive technology

Integrated Electric Propulsion Systems

The history of STADT



The picture shows founder, Hallvard L. Slettevoll, back in 1986 when he started the business in Gjerdsvika. Four years ahead of this, he worked as an engineer for Philips. He got the idea to start up a business based on the research work carried out by Philips in the field of frequency converters. With the Philips knowhow and some new ideas he returned to his home village, and founded the STADT company.

With a location in the middle of the maritime cluster on the west coast of Norway, the aim has always been to develop power inverters for ship applications. In 1997, after several years of intensive developments, an innovative and very modern inverter series was launched. A major advantage of these inverters, was the very compact design due to effective direct water cooling. The first STADT delivery went to the Norwegian coastguard K/V Tromsø.

STADT - Technology leaders in AC Drives

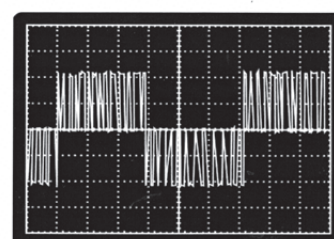
Long experience from development of motordrives has resulted in the patented STADT technology. This has huge advantages compared to traditional PWM-technology, since it is free from electric disturbances. The STADT STASCHO is also a very efficient power drive system with only 6 % electric system losses, including the losses in generator and electric propulsion motor.



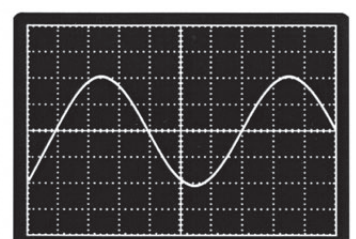
This was a breakthrough, and the business improved rapidly. The main business area for the new inverters, made in powers up to 3500 kW 690 V, was for diesel-electric main propulsion of ships, as well as offshore applications on oil rigs and for industrial use. Companies like TFDS - Hurtigruten, Geo Shipping, PGS, Sanco Shipping, Aker, Statoil, Hydro, BP and Bayer AG became regular customers.

In 2001 the watercooled STADT IGBT-converter business, based on PWM technology, was sold to ABB, which incorporated them into their marine product range.

After 2001 - STADT has been working with development of the 5. generation AC drives, the STADT STASCHO. This new no loss technology, based on sinus control, was patented in 2008, and launched to the first ship applications the same year.



PWM



Sine wave

-The difference in drive technology-

STADT STASCHO

Patented NO LOSS AC Drive Technology



Integrated solutions

Superior technology

Sinusoidal voltage and current to the electric motor and back to the main switchboard. This gives very low harmonic disturbances in main switchboard and motor.

A sustainable solution, because:

- Reduced fuel consumption, by up to 70 %**
- Reduced electric losses in systems, only 6 %**
- Reduced NOx, SOx and CO2 emission**
- Reduced maintenance and high redundancy**
- Reduced noise and no EMC problems**
- Highly reliable, compact system, no transformers needed**
- Estimated lifetime : >25 years**

MTBF : 7 Years
MTTR : 2 Hours

The STADT STASCHO can be delivered up to 100 MW in voltages up to 15 kV. The STADT STASCHO combined with CP propellers, assures the highest manoeuvrability for the ship.



STADT Systems

STADT STASCHO



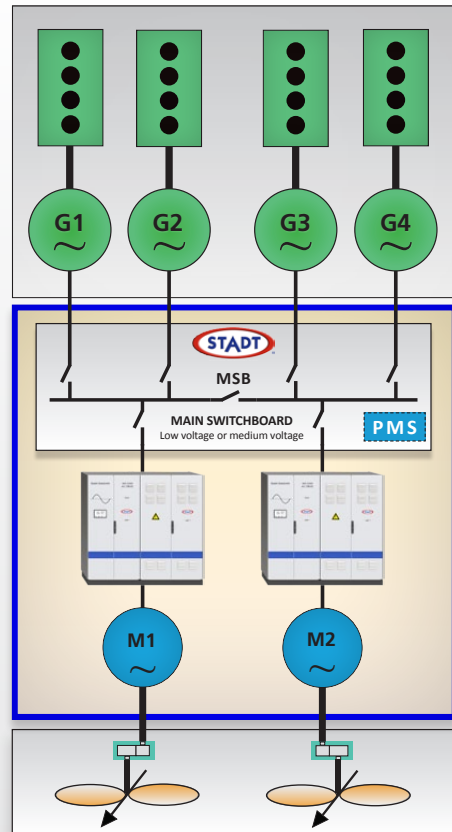
STADT AC MOTORS



STADT MSB MV



Power Management System



STADT Provides:

- Engineering
- Manufacturing
- Commissioning
- Global Services

Solutions:

- LNG - electric
- Diesel - electric
- Hybrid - electric





POWER TECHNOLOGY



STADT AS

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