



# SET<sup>o</sup>

SUSTAINABLE ENERGY TECHNOLOGIES

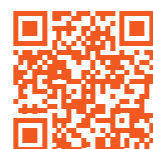
**SET IS A TECHNOLOGY COMPANY DEDICATED TO PRODUCING VARIABLE-SPEED DRIVE SYSTEMS.**

BASED ON INNOVATIVE ENGINEERING METHODS AND OVER 30 YEARS OF EXPERTISE IN DRIVE TECHNOLOGY, SET DEVELOPS AND MANUFACTURES ELECTRO-MECHANICAL DIFFERENTIAL DRIVES



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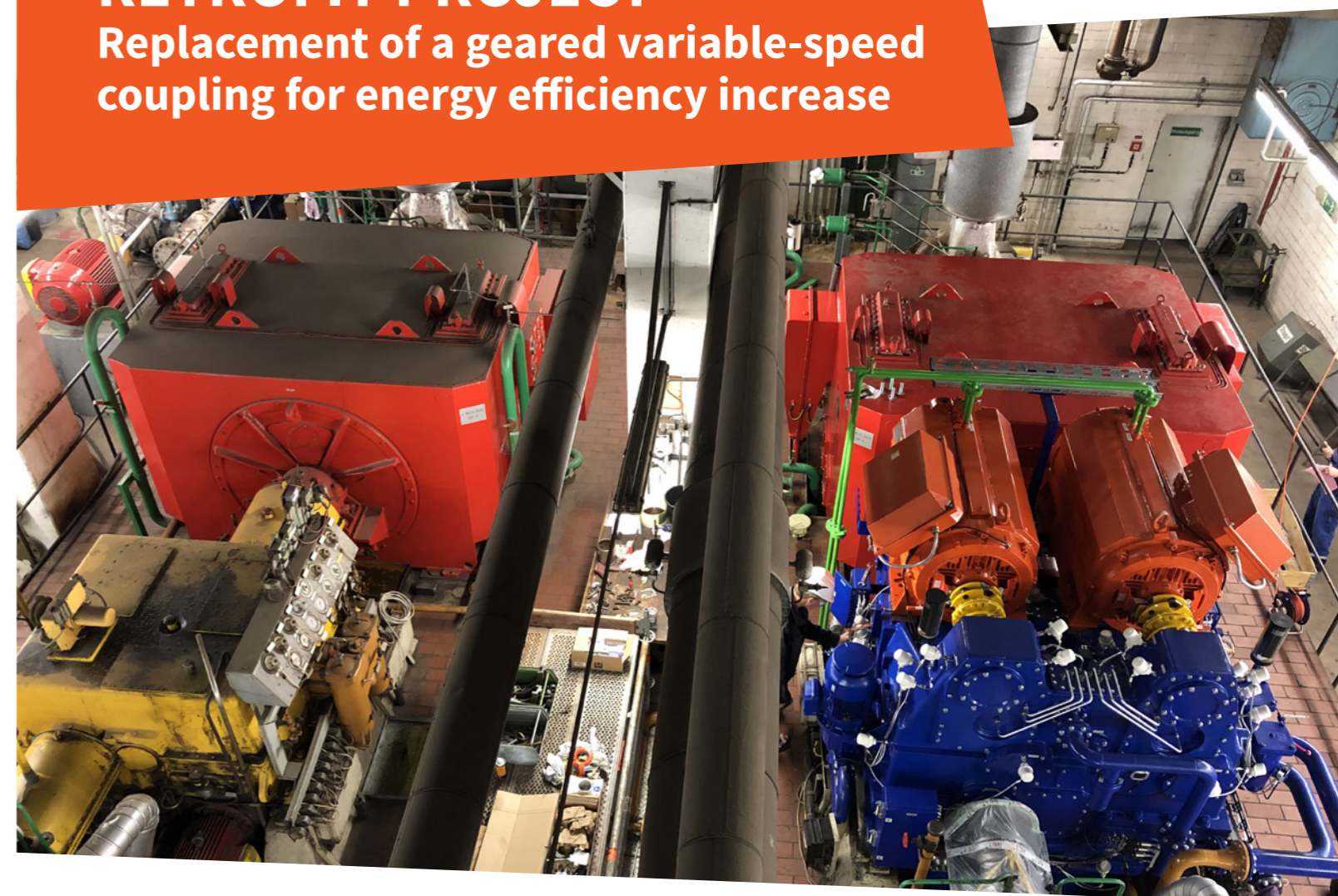
# SETCON<sup>®</sup>

*Driven by efficiency.*

Variable-Speed Gearbox for Industrial Applications.

## RETROFIT PROJECT

Replacement of a geared variable-speed coupling for energy efficiency increase



Geared Variable-Speed Coupling

SETCON<sup>®</sup>

SET<sup>o</sup>  
SUSTAINABLE ENERGY TECHNOLOGIES

swb

ING<sup>o</sup>VER  
INNOVATIVE GASVERWERTUNG GMBH

## Project data:

**Customer:** swb Erzeugung AG & Co. KG

**Location:** Power Plant Mittelsbüren  
(240 MVA), Bremen, Germany

**Task:** Replacement of geared variable-speed coupling (Voith R18K600) for energy efficiency increase

## Technical data:

- Max. Pump Power: 6.5 MW
- Max. Pump Speed: 4 500 rpm
- Speed range required: 20% – 100%
- Pump type: Boiler feed Pump
- DBSE = 2 200 mm (1 850 mm)
- Center-line offset = 600 mm

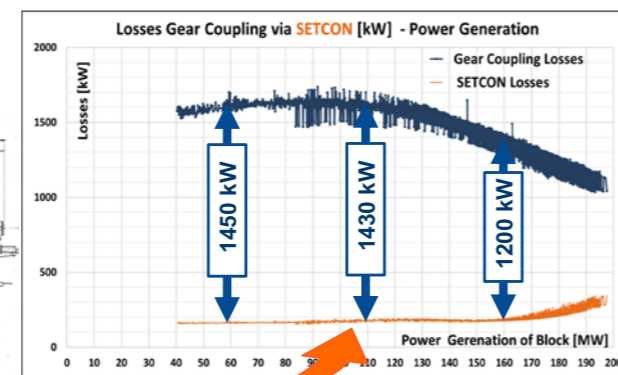
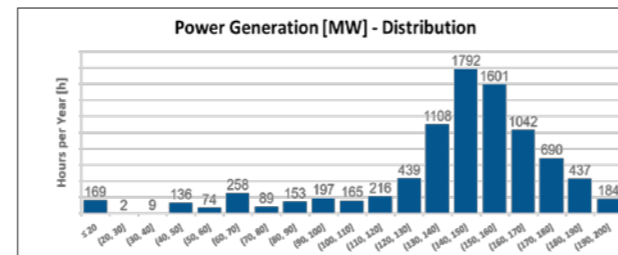
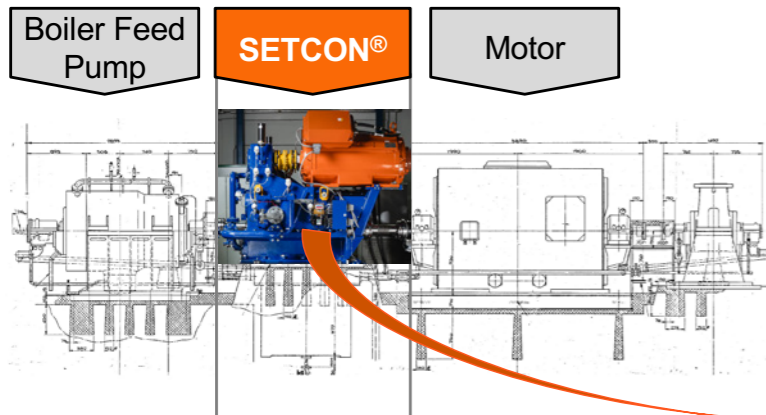


## Project highlights:

- Efficiency increase of up to 55% in partial load
- No shifting of remaining units as Main drive, Main and Booster Pump was necessary
- The existing installation space and anchoring points of the coupling have been used
- Continued use of existing lubrication oil cooler (shutdown of working oil cooler)
- **Installation in less than 14 days during periodical power plant revision**



**Boiler Feed Pump with SETCON® SE6**  
**P<sub>max</sub> = 6 500 kW**



## Profitability analysis



**Boiler Feed Pump with SETCON® SE6 – P<sub>max</sub> = 6 500 kW**

Criteria for Boiler Feed Pump	SETCON®	Gear Coupling
Efficiency	85% – 95%	30% – 86%
Increased Electricity Production	<b>12 815 MWh / year</b>	∅
Net Profit based on CoE (45 € / MWh)	<b>576 675 € / year</b>	∅
Increase of Total Efficiency of entire power plant block	<b>up to 1,04 %</b>	∅
Reduction of CO2 Emission [furnace and converter gases]	32 400 t / year [€ acc. CO2 costs]	∅
ROI	< 2.5 years	∅

## Impressions from the on-site drive exchange

REMOVAL OF GEARED VARIABLE-SPEED COUPLING



IMPLEMENTATION OF SETCON®

