Variable transmission for HD generator SVT3xx

In design phase

1 Specifications

A continuously variable automatic transmission to keep the generator at constant speed while the ships engine changes speed.

AUTOMATIC VARIABLE TRANSMISSION: FEATURES

Compact transmission offering continuously variable ratios

Fast & accurate control of transmission ratio by electronic control unit

Control unit continuously keeps the generator at constant speed within a narrow tolerance

Exceptionally high overall transmission efficiency

No torque or efficiency dip during ratio variation

Unnoticeable delay on request for ratio change

Very few components, robust construction

Nearly silent operation

Equally functioning in 4 quadrants: driving & braking, both rotation senses

Input shaft and input side customizable for a direct fit on the driving PTO

Hydraulic actuation (not shown yet) placed next to transmission

TECHNICAL SPECIFICATIONS (PRELIMINARY)

Model name	SVT3xx
Design application	Driving generator
Transmission length	780 mm
Transmission outer diameter	799 mm
Transmission weight	596 kg
Highest speed ratio (*)	1.250 (torque ratio 0.800)
Lowest speed ratio (*)	1.000 (torque ratio 1.000)
Ratio spread (*)	1.250
Max output torque	9 500 Nm
Max input torque	12 250 Nm
Design power level	1 500 kW
Overall efficiency: max – weighed over duty cycle	98.1 – 96.5 % (check with duty cycle)
Reaction time on ratio change request	57 ms
Typical inaccuracy on dynamic ratio request	0.15 % = 1.5 RPM output error on 1000 RPM input
Typical inaccuracy on static ratio request	0.00 to 0.05 %
Design life in xx driving cycle	10 years continuously running (24/7)

(*) Speed ratio = transmission output speed divided by its input speed
(*) The design can be changed easily to increase the ratio spread