

Variable transmission for electric cars SVT301

IN DESIGN PHASE

1 Specifications

A variable automatic transmission providing all climbing and acceleration requirements plus a top speed defined by the motor power, suitable for front wheel driven electric cars. Includes differential

AUTOMATIC VARIABLE TRANSMISSION: FEATURES

Compact transmission offering variable ratios

Fast & accurate control of speed ratio by electronic control unit

Control unit manages continuously the optimal speed of the driving motor

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 motor

Including output gear reduction with differential. Input and output rotate in same direction.

- Optional: deliverable without output gear reduction. Input and output shafts are in line, output rotates in opposite direction relative to input

Hydraulic actuation (not shown yet) placed next to transmission

Optional: parking brake

TECHNICAL SPECIFICATIONS (PRELIMINARY)

Model name	SVT301
Design application	Driving electric front wheel driven cars
Transmission length (incl. – excl. reduction gear & diff)	369 (incl.) – 273 (excl.)
Transmission outer diameter	287 mm
Transmission weight (incl. – excl. reduction gear & diff)	xx (incl.) - 38 (excl.) kg
Highest speed ratio <u>without</u> reduction gear	1.172 (torque ratio 0.853)
Lowest speed ratio <u>without</u> reduction gear	0.330 (torque ratio 3.030)
Highest speed ratio <u>with</u> reduction gear	0.286 (torque ratio 3.498)
Lowest speed ratio <u>with</u> reduction gear	0.080 (torque ratio 12.424)
Ratio spread	3.548
Max output torque before gear reduction	731 Nm

Max output torque after gear reduction	2997 Nm
Design input torque	276 Nm
Design power level	90 kW
Overall efficiency: max – weighed over driving cycle	98.1 – 96.5 % without reduction gear
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 E-car, sporty driving	308 000 km

2 Dimensions

Preliminary design

