

# 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 without reduction gear 1.172 (torque ratio 0.853)
Lowest speed ratio without 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

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Max output torque after gear reduction2997 NmDesign input torque276 NmDesign power level90 kW

Overall efficiency: max – weighed over driving cycle 98.1 – 96.5 % without reduction gear

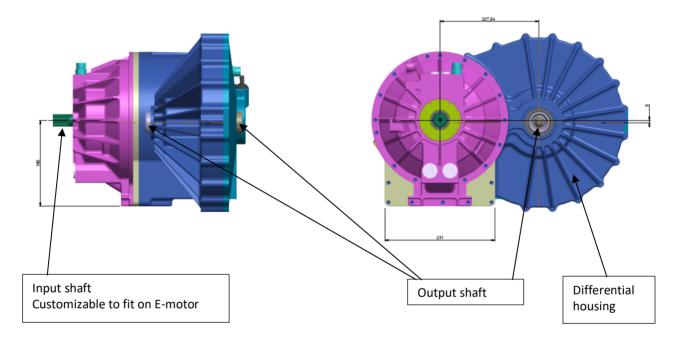
Reaction time on ratio change request 57 ms

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



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