**Technical Proposal** Date: 30.04.2019

**Proposal number:** AF_34064761
**Customer:** Bobcat
**Project:** S100 Skid Steer Loader

**Motor type:** **TSA170-120-236**

**Nominal data:**

| | | | | |
|---|---|---|---|---|
| **Battery voltage** | $U_{Batt}$ | = | 48 | V |
| **Motor voltage** | $U_{Mot}$ | = | 32 | $V_{3\sim}$ |
| **Power** | $P_2$ | = | 5,1 | kW |
| **Current** | I | = | 135 | $A_{eff}$ |
| **Speed** | n | = | 2880 | rpm |
| **Frequency** | f | = | 98 | Hz |
| **Protection class** | IP54 | | | |
| **Duty cycle** | S2-60min | | | |

**Operating points:**

| Duty type | P [kW] | M [Nm] | n [rpm] | I [A] | U [V] | f [Hz] | CosP [-] | Eta [%] | Grad. [%] | Vehicle Speed [km/h] | Vehicle Speed [m/sec] | Vehicle accel. [$m/s^2$] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Level unladen** | 1,64 | 3,6 | 4350 | 55 | 30 | 146,2 | 0,71 | 81,3 | - | 14 | 3,9 | - |
| **Level loaded** | 2,01 | 4,4 | 4354 | 61 | 30 | 146,6 | 0,76 | 83,6 | - | 14 | 3,9 | - |
| **Level unladen accel.** | 3,32 | 11,8 | 2686 | 97 | 30 | 91 | 0,75 | 87,7 | - | - | - | 0,9 |
| **Level loaded accel.** | 3,68 | 13,4 | 2622 | 105 | 30 | 89 | 0,77 | 88 | - | - | - | 0,8 |
| **Gradient unladen** | 9,55 | 26,8 | 3401 | 281 | 30 | 122,5 | 0,8 | 81,6 | 26,8 | 10,8 | 3 | - |
| **Gradient loaded** | 10,2 | 32,9 | 2969 | 293 | 30 | 107 | 0,82 | 81,7 | 26,8 | 9,7 | 2,7 | - |
| **Grad.+ accel. unladen** | 6,94 | 29,4 | 2255 | 183 | 30 | 78 | 0,84 | 87,2 | 26,8 | - | - | 0,3 |
| **Grad.+accel. loaded** | 7,9 | 35 | 2154 | 211 | 30 | 75 | 0,84 | 86,2 | 26,8 | - | - | 0,2 |

(calculated values +/-15%)

**Remarks / Additional Parts**

- Motor includes a pick-up speed sensor with 64 p/r.
- Motor includes a thermal sensor type PT1000

**Given / calculated vehicle data:**

| Data | Duty type | | | |
|---|---|---|---|---|
| | Given | | Calculated | |
| | Unladen | Loaded | Unladen | Loaded |
| **Vehicle data:** | | | | |
| Vehicle type | S100 Skid Steer Loader | | | |
| Vehicle weight [kg] | 2011 | 2472 | 2011 | 2472 |
| Wheel load [kg] | 2011 | 2472 | 2011 | 2472 |
| Drives per vehicle | 2 | | 2 | |
| Gearbox ratio | 37,8 | | 37,8 | |
| Wheel diameter [m] | 0,646 | | 0,646 | |
| **Movement on flat surface:** | | | | |
| Vehicle speed [m/s] | 3,9 | 3,9 | 3,9 | 3,9 |
| Acceleration [m/s$^2$] | 0,9 | 0,8 | 0,9 | 0,8 |
| **Movement on gradient:** | | | | |
| Maximum gradient [%] | 26,8 | 26,8 | 26,8 | 26,8 |
| Vehicle acceleration on grad. [m/s$^2$] | 0,3 | 0,2 | 0,3 | 0,2 |

Caclulations were made with rolling friction factor: 0,04

For more technical information please contact Mr. Reinhold Seger

Tel.: +49/(0)8462-204-260
Fax: +49/(0)8462-204-117
E-Mail: Reinhold.Seger@schabmueller.de
Website: www.schabmueller.de