

Elevator calculation acc. EN81-1

Item 1001

Elevator data

| | | | | |
|---------------------------|----------------|--------|-------|--------------------|
| Nominal load | Q | kg | 750 | |
| Car weight | F | kg | 950 | (876 - 1824kg) |
| Counterweight | G | kg | 1325 | (50%) |
| Travelling speed | v | (V_3=) | m/s | 1.00 |
| Travel distance | H | m | 30.0 | |
| Suspension / (roping) | is | | 2 | : 1 |
| Machine at the top, above | | | | |
| Shaft efficiency | etaS | % | 82 | |
| Number of pulleys | (ball bearing) | | 3 | |
| Type of rope | WOLF PAWO F7 | | | |
| Number of ropes | z | | 6 | |
| Rope diameter | ds | mm | 8 | |
| Rope weight | s | kg | 46 | (0.258 kg/m) |
| Compensation rope weight | su | kg | 0 | |
| Car cable weight | HK | kg | 15 | |
| Rope span weight | R | kg | 0 | |
| Min. rope breaking load | B | N | 40600 | |
| Traction sheave diameter | Dtr | mm | 320 | |
| Sheave width | | mm | 110 | (number of grooves |

6)

| | | | | |
|-----------------------|--------------------------|-----|------|----------|
| Groove distance | | mm | 17.0 | Standard |
| Angle of wrap minimum | min. | deg | 180 | |
| Undercutangle | | deg | 95 | |
| Undercutwidth | b | mm | 5.90 | |
| Groove angle | | deg | 30 | |
| Sheave profile: | circular undercut groove | | | |

Traction, rope pressure, rope safety

Traction empty, on top, accelerating (1.18)
1.7302 <= 1.8399
Traction 150% nominal load, below, not moving
1.6361 <= 1.8399
Rope pressure k < permissible rope pressure
6.35 < 9.00 N/mm²

Conditions according to EN81-1 or -20:
Load 125% 1.4946 <= 1.8582 (1)
Emergency stop 1.6323 <= 1.6759 (4)
with deceleration [m/s²]0.500
Blocked car 12.827 > 3.4528 (4)

Real safety factor > Minimum safety factor for ropes
27.70 > 12

Rope safety factor according to EN81-1 or -20:
NEQUIV = 09.7 NEQUIVT = 06.7 NEQUIVP = 03.0
Pulleys >= 320 mm, pulleys NPR = 0 NPS = 3
Rope safety nue = 27.7 > 18.5 (minSF)
Rope certification EN81

Traction conditions are fulfilled.
Rope safety conditions are fulfilled.

ZAlift - 20161219 - Machine dimensioning d3293882

Mechanical drive data

Machine manufactured by Ziehl-Abegg
Machine type SM 200.30C Gearless synchronous
Machine version ZAtop *

| | | |
|-------------------------|----|------------------|
| Traction sheave | mm | 320 |
| /110/17.0/6x8/U95 | | |
| Load output torque | Nm | 445 (max. 499) |
| Real statical axle load | kg | 1566 (max. 2440) |

Brake data

brake Mayr ROBA-stop-R 400, 2x500 Nm, EU-BD 766 (ABV766/2 + ESV766/1)
Dual circuit disk brake, DC supply necessary
(367 Nm, 0.51 m/s², 1 m, 8086 J, 184 W)
2 x 500 Nm 207 V brake, with hand release, microswitch

Machine load data in the installation

| | | |
|---|------------------------|-----------------------|
| Typical motor operating power | kW | 3.5 |
| Typ. operating current 15.9 A, Start. Current | 23.6 A at acceleration | 0.60 m/s ² |
| Start. Current | 24.9 A at acceleration | 0.7 m/s ² |
| Average power losses | 0.82 kW = 2950.38 kJ/h | |
| Output speed | rpm | 119 |
| Load torque | Nm | 445.2 (eff. 279.0) |
| Inertia of installation | kgm ² | 20.55 |
| 240 Starts per hour, 50 % required duty cycle at elevator operation | | |
| Max. static load pulleys 12999 N, pulley speed 1.00 m/s | | |

Selected ZIEHL-ABEGG motor

Motor type SM200.30C-20 - gearless

| | Nameplate data | (Operating |
|--|------------------|--------------|
| data) | | |
| Rated voltage | V | 360 |
| Rated frequency | Hz | 20 (19.9) |
| Rated torque | Nm | 475 (445.2) |
| Rated speed | rpm | 120 (119.4) |
| Rated output power | kW | 6 (5.6) |
| Rated current | A | 17 (15.9) |
| Maximum torque | Nm | 820 (820) |
| Current at maximum torque | A | 35 (35) |
| Inertia of motor | kgm ² | 0.240 |
| Possible acceleration | m/s ² | 1.44 |
| (MKmax=450.0 Nm) | | |
| Without cooling | (70) | |
| Dimension sheet A-M-6687, Motor construction type IMB3 | | |
| Motor with encoder ECN 1313-2048Endat | | |

Selected frequency inverter

Inverter ZAdyn 4CS017, Rated inverter current 17 A
mains current 12.3 A, 400 V, 8.1 kW, Max. 1.12 m/s²
Radio interference filter, integrated ; Line reactor, integrated

Brake resistance separate BR17-3 (or Recuperation: ZArec4C 013)

ASACOD.ir - 02144340048