

|                  |      |  |
|------------------|------|--|
| <b>Customer</b>  | :    | <b>Behran Asanbar</b>                              |
| <b>Reference</b> | :    | <b>Selection HW134, 480Kg - 1 m/s (VVVF - 9HP)</b> |
| <b>Offer</b>     | N° : | <b>TEST</b>  |
|                  | Date | <b>17/01/2017</b>                                  |

**TECHNICAL SECTION**

| PLANT   |                        | GEARBOX                  |         | GEARBOX SELECTION CHECK  |            |          |        |
|---|------------------------|--------------------------|---------|--|------------|----------|--------|
| Position  | ↑                      | Gearbox type             | HW134   | Item   | Required   | Selected | Test   |
| Roping  | 1:1                    | Traction sheave position | ↑T (L)  | Car rated speed  | 1,00 m/s   | 1,03 m/s | +2,8%  |
| Balance   | 50 %                   | Ratio                    | 42/1    | Output torque  | 960 Nm     | 1.080 Nm | +12,5% |
| Duty load   | 480 Kg                 | Traction sheave diam.    | 550 mm  | Static load  | 1.822 Kg   | 2.300 Kg | +26,3% |
| Car weight  | 550 Kg                 | Ropes number             | 4       | Grooves edges  | min 2,0 mm | 5,3 mm   | OK !!  |
| Counterweight   | 790 Kg                 | Ropes diameter           | 10      | Tr.Sh. Sides   | min 3,4 mm | 4,1 mm   | OK !!  |
| Shaft efficiency                                      | 0,80                   | Groove type              | Y       | Motor power  | 5,3 kW     | 6,1 kW   | +15,1% |
| Car travel  | 30,0 m                 | V-Angle                  | 35 °    | <b>Ropes safety according to EN81/1:1985</b>                           |            |          |        |
| Ropes compensation                                    | 0 %                    | Undercut angle           | 105 °   | Safety factor  | 12,0       | 20,7     | OK !!  |
| Rope comp. weight                                     | 0,0 Kg                 | Wrap angle               | 155 °   | <b>Ropes safety according to EN81/1:1998</b>                           |            |          |        |
| Ropes distance  | 700 mm                 | Pitch of grooves         | 17,0 mm | Safety factor  | 14,4       | 20,7     | OK !!  |
| Car rated speed                                       | 1,00 m/s               | Undercut                 | 7,93 mm | <b>Traction and spec.press. according to EN81/1:1985</b>               |            |          |        |
| Mass of tension device                                | 0 Kg                   | Tract. ropes weight      | 44,8 Kg | T <sub>1</sub> /T <sub>2</sub> * c <sub>1</sub> * c <sub>2</sub> (a) = | max 2,247  | 2,178    | OK !!  |
| Weight/m of traveling cable                           | 0 Kg/m                 | <b>MOTOR</b>             |         | T <sub>1</sub> /T <sub>2</sub> * c <sub>1</sub> * c <sub>2</sub> (b) = | max 2,247  | 2,186    | OK !!  |
| Ropes strength class                                  | 1770 N/mm <sup>2</sup> | Drive system             | VVVF    | Specific pressure  | max 8,190  | 7,164    | OK !!  |
| <b>Plant data for</b>                                 |                        | Poles                    | 4       | <b>Traction calculations according to EN81/1:1998</b>                  |            |          |        |
| <b>Traction calculations according to EN81/1:1998</b> |                        | Power                    | 6,1 kW  | <b>Car loading condition</b>   |            |          |        |
| Øaverage defl.pulley carside                          | 0 mm                   | Drive system frequency   | 50 Hz   | Car empty low  | 1,919      | 1,328    | OK !!  |
| Øaverage defl.pulley count.side                       | 0 mm                   | Motor nom.frequency      | 50 Hz   | Car empty up   | 1,919      | 1,518    | OK !!  |
| Ø pulley for tension device                           | 0 mm                   | Voltage                  | 380     | Car full low   | 1,919      | 1,512    | OK !!  |
| Main defl.pulley (1=yes;0=no)                         | 1                      | St/h                     | 240     | Car full up  | 1,919      | 1,378    | OK !!  |
| Pos.defl.pulley (1=car;0=count.)                      | 0                      | RPM                      | 1500    | <b>Emergency braking condition (a=0.5 m/s<sup>2</sup>)</b>             |            |          |        |
| Ø main defl. pulley                                   | 400 mm                 | Power                    | 9,0 Hp  | Car empty low in up direction  | 1,810      | 1,474    | OK !!  |
| N° defl.pulleys with simple defl.                     | 0                      | <b>FLYWHEEL TYPE</b>     |         | Car empty up in up direction   | 1,810      | 1,684    | OK !!  |
| N° defl.pulleys with reverse defl.                    | 0                      | Flywheel type            | 134E    | Car full low in down direction   | 1,810      | 1,508    | OK !!  |
| Friction in the shaft carside                         | 0,0 N                  | Stg.accel.fl.up          |         | Car full up in down direction  | 1,810      | 1,368    | OK !!  |
| Friction in the shaft count.side                      | 0,0 N                  | Stg.accel.fl.down        |         | <b>Stalled condition</b>   |            |          |        |
| <b>Wrap angle calculation</b>                         |                        | Retardat.fl.up           |         | Car stalled low in low direction                                       | 6,045      | 17,217   | OK !!  |
| Vert.dist.pulley axis                                 | 800 mm                 | Retardat.fl.down         |         | Car stalled up in low direction  | 6,045      | 350,182  | OK !!  |
| Wrap angle  | 169,5 °                | Torque of mech. brake    |         | Count. stalled up in low dir.  | 6,045      | 249,645  | OK !!  |
|   |                        | Theor.lev.accuracy       |         | Count. stalled low in low dir.   | 6,045      | 11,995   | OK !!  |
|   |                        | Total mom.of iner.       |         |  |            |          |        |

**COMMERCIAL SECTION**

| OPTIONALS               | OFFER   |
|-------------------------|---|
| Packing                 | MESSRS. Behran Asanbar  |
| Bed plate               | HEREBELOW PLEASE FIND SUMMARY OF TECHNICAL DATA AND OFFER :   |
| Brake electrom.voltage  | - GEARBOX HW134 ; Traction sheave position (L) ; Ratio 42/1   |
| Rope guard              | complete in delivery with syntethic oil and use&maintenance manual                                      |
| Tropicalization         | - TRACTION SHEAVE Ø 550 mm ; 4 x ø10 ; Groove type Y ; V-Angle 35 ° ;                                   |
| Kit encoder             | Undercut angle 105 ° ; Undercut 7,93 mm ; Pitch of grooves 17 mm  |
| Rope clamp              | - MOTOR ; Drive system VVVF ; 4 Poles ; 6,1 kWasy ( 9 Hp ) ; 380 V ;                                    |
| Personal/customer Plate | 50 Hz ; 240 St/h ;  |
| Special painting        | - FLYWHEEL TYPE 134E  |
|                         | - BRAKE ELECTROMAGNET 200V  |
|                         | - PACKING Wooden box : HW134  |
|                         | - ROPE GUARD  |
|                         | <br>  |
|                         | Note / assumed data: The following data have been assumed for EN-81 calculation:                        |
|                         | Considered traction sheave diameter 550mm, ropes 4x10mm, pitch of grooves 17mm                          |
|                         | Cabin total weight 550kg, travel till 30 mts (10/11 stops), 50% lift balancing                          |
|                         | (if more than 11 stops, compensation for ropes weight is required)                                      |
|                         | Motor power : 6.1Kw (9Hp) VVVF  |
|                         | <b>NET UNIT PRICE</b>   |
|                         |   |
|                         | <b>DELIVERY TERMS</b>   |
|                         |   |
|                         | <b>PAYMENT CONDITIONS</b>   |
|                         |   |
|                         | <b>NOTES :</b>  |
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|                         |   |
|                         | We remain at your disposal for any information you may need, and awaiting your kind order confirmation. |
|                         | Thanks & Best Regards,  |
|                         |   |
|                         | GEM S.r.l.  |
|                         | Sales Dept.   |