

## Line strength verification 2-3 liners

|                   |                 |      |     |
|-------------------|-----------------|------|-----|
| Manufacturer      | Papesh GmbH PHI |      |     |
| Type              | SONATA 2 18-26  |      |     |
| Max. weight       |                 | 145  | Kg  |
| Required strength | 14g             | 1991 | daN |

### Reference:

for solo paragliders min. 1.400 daN  
for biplace min. 2.000 daN

|                                  |          |          |          |          |          |           |           |           |           |           |
|----------------------------------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| Type of line                     | 8001U50  | 8001U70  | 8001U90  | 8001U130 | 8001U135 | 8001U190  | DSL70     | PPSLs260  | PPSLs180  | PPSLs125  |
| Line manufacturer                | Edelrid  | Edelrid  | Edelrid  | Edelrid  | Edelrid  | Edelrid   | Liros     | Liros     | Liros     | Liros     |
| Test number of line bending test | DHV      | DHV      | DHV      | DHV      | DHV      | DHV       | DHV       | DHV       | DHV       | DHV       |
| Diameter                         | 0,5 mm   | 0,7 mm   | 0,8 mm   | 1,0 mm   | 1,1 mm   | 1,2 mm    | 1,0 mm    | 1,6 mm    | 1,3 mm    | 1,1mm     |
| Material core                    | Technora | Technora | Technora | Technora | Technora | Technora  | Dyneema   | Dyneema   | Dyneema   | Dyneema   |
| Material cladding                |          |          |          |          |          |           | Polyester | Polyester | Polyester | Polyester |
| Line strength bended             | 31,6 daN | 41,0 daN | 58,9 daN | 76,2 daN | 92,2 daN | 133,0 daN | 73,0 daN  | 259,4 daN | 194,4 daN | 107,2 daN |

### Strength verification

#### Verification of lower line strength after bending test

|                        | type of line | quantity  | strength bended daN | Min. load       |                    |
|------------------------|--------------|-----------|---------------------|-----------------|--------------------|
| Level A                | PPSLs180     | 6         | 194,4               |                 | 1166,4 daN         |
| Level A 2nd line value | TSL140       | 2         | 79,0                |                 | 158,0 daN          |
| Level A 3rd line value |              |           |                     |                 | 0,0 daN            |
| Level B                | PPSLs180     | 6         | 194,4               |                 | 1166,4 daN         |
| Level B 2nd line value |              |           |                     |                 | 0,0 daN            |
| Level B 3rd line value |              |           |                     |                 | 0,0 daN            |
| Level C                | TSL190       | 6         | 97,0                |                 | 582,0 daN          |
| Level C 2nd line value |              |           |                     |                 | 0,0 daN            |
| Level C 3rd line value |              |           |                     |                 | 0,0 daN            |
| Level D                |              |           |                     |                 | 0,0 daN            |
| Level 2nd line value   |              |           |                     |                 | 0,0 daN            |
| Level 3rd line value   |              |           |                     |                 | 0,0 daN            |
| Level E                |              |           |                     |                 | 0,0 daN            |
| Level E 2nd line value |              |           |                     |                 | 0,0 daN            |
| Level E 3rd line value |              |           |                     |                 | 0,0 daN            |
| <b>Total</b>           |              | <b>20</b> |                     | <b>1991 daN</b> | <b>3072,80 daN</b> |

### Terms

lower line

1. gallery

2. gallery

3. gallery

#### Verification of steering lines strength

|             | type of line | quantity | strength bended daN | Min. load | Steering line x line strength > 75 daN each side |
|-------------|--------------|----------|---------------------|-----------|--------------------------------------------------|
| Lower Level | A-10/N-200   | 1        | 150,0               | 150 daN   | 150,0 daN                                        |
| 1. Gallery  | TSL140       | 2        | 79,0                | 150 daN   | 158,0 daN                                        |
| 2. Gallery  | 7343-075     | 5        | 28,7                | 150 daN   | 143,5 daN                                        |
| 3. Gallery  | 7343-075     | 10       | 28,7                | 150 daN   | 287,0 daN                                        |

#### Verification of gallery lines strength

|                        | lower line        |           |                     | 1. gallery        |           |                     | 2. gallery        |          |                     | 3. gallery     |          |                     |
|------------------------|-------------------|-----------|---------------------|-------------------|-----------|---------------------|-------------------|----------|---------------------|----------------|----------|---------------------|
|                        | strength          | quantity  | strength bended daN | result            | quantity  | strength bended daN | result            | quantity | strength bended daN | result         | quantity | strength bended daN |
| Level A                | 1166,4 daN        | 12        | 79,0                | 948,0 daN         | 16        | 79,0                | 1264,0 daN        | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level A 2nd line value | 158,0 daN         | 4         | 28,7                | 114,8 daN         | 6         | 28,7                | 172,2 daN         | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level A 3rd line value | 0,0 daN           |           |                     | 0,0 daN           |           |                     | 0,0 daN           | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level A 4nd line value |                   |           |                     | 0,0 daN           |           |                     |                   |          |                     |                |          |                     |
| <b>Total A</b>         | <b>1324,4 daN</b> | <b>16</b> |                     | <b>1062,8 daN</b> | <b>22</b> |                     | <b>1436,2 daN</b> | <b>0</b> |                     | <b>0,0 daN</b> |          |                     |
| Level B                | 1166,4 daN        | 12        | 79,0                | 948,0 daN         | 16        | 79,0                | 1264,0 daN        | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level B 2nd line value | 0,0 daN           | 2         | 28,7                | 57,4 daN          | 6         | 28,7                | 172,2 daN         | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level B 3rd line value | 0,0 daN           |           |                     | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| <b>Total B</b>         | <b>1166,4 daN</b> | <b>14</b> |                     | <b>1005,4 daN</b> | <b>22</b> |                     | <b>1436,2 daN</b> | <b>0</b> |                     | <b>0,0 daN</b> |          |                     |
| Level C                | 582,0 daN         | 12        | 79,0                | 948,0 daN         | 12        | 79,0                | 948,0 daN         | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level C 2nd line value | 0,0 daN           | 2         | 28,7                | 57,4 daN          | 6         | 28,7                | 172,2 daN         | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level C 3rd line value | 0,0 daN           |           |                     | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| <b>Total C</b>         | <b>582,0 daN</b>  | <b>14</b> |                     | <b>1005,4 daN</b> | <b>18</b> |                     | <b>1120,2 daN</b> | <b>0</b> |                     | <b>0,0 daN</b> |          |                     |
| Level D                | 0,0 daN           | 8         | 28,7                | 229,6 daN         | 18        | 28,7                | 516,6 daN         | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level 2nd line value   | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level 3rd line value   | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| <b>Total D</b>         | <b>0,0 daN</b>    | <b>8</b>  |                     | <b>229,6 daN</b>  | <b>18</b> |                     | <b>516,6 daN</b>  | <b>0</b> |                     | <b>0,0 daN</b> |          |                     |
| Level E                | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level E 2nd line value | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| Level E 3rd line value | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0         | 0,0                 | 0,0 daN           | 0        | 0,0                 | 0,0 daN        | 0        | 0,0 daN             |
| <b>Total E</b>         | <b>0,0 daN</b>    | <b>0</b>  |                     | <b>0,0 daN</b>    | <b>0</b>  |                     | <b>0,0 daN</b>    | <b>0</b> |                     | <b>0,0 daN</b> |          |                     |
| <b>Total</b>           | <b>3072,8 daN</b> | <b>52</b> |                     | <b>3303,2 daN</b> | <b>80</b> |                     | <b>4509,2 daN</b> | <b>0</b> |                     | <b>0,0 daN</b> |          |                     |

Diese Berechnung wurde elektronisch erstellt und ist ohne Unterschrift gültig

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