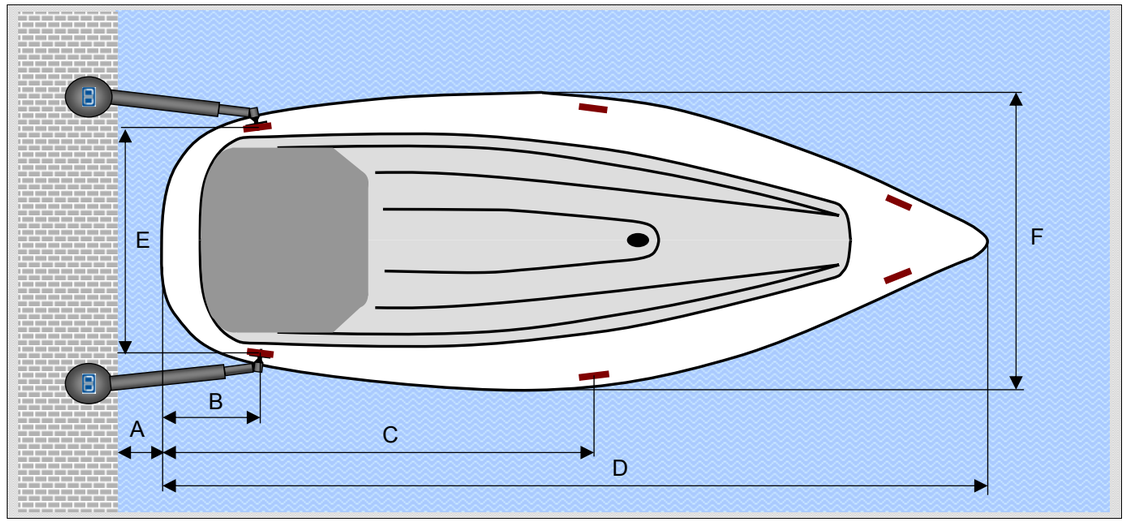
# DualDocker XL — YACHT DIMENSIONS




## 1.) Customer's demands & information:

| | Type and name of the yacht: | Motoryacht, Sunshine 60 | | IS |
|---|---|---|---|---|
| A | Desired distance pier ↔ stern | 70 | cm | 75 |
| B | Distance stern ↔ cleat | 163 | cm | ✓ |
| C | Distance stern ↔ midship cleat | 1.000 | cm | ✓ |
| D | Max. length (in total) | 1.960 | cm | ✓ |
| E | Distance cleat ↔ cleat | 480 | cm | ✓ |
| F | Max. width (in total) | 500 | cm | ✓ |
| G | Distance pier ↔ highest water level (high tide) | 65 | cm | ✓ |
| H | Distance pier ↔ lowest water level (low tide) | 100 | cm | ✓ |
| I | Distance cleat ↔ water level | 145 | cm | ✓ |
| J | Max. weight of the yacht | 30.000 | kg | ✓ |
| K | Max. local wind speed | 45 | kn | ✓ |
| L | Max. wave hight | 0,30 | m | ✓ |
| M | Max. current | 1,00 | kn | ✓ |
| N | max. surface area exposed to wind | 40,00 | m² | ✓ |
| O | Pier: Material | Concrete | | ✓ |
| P | Obstacle on pier or yacht? | NO | | ✓ |
| Q | Permission to use DD in marina? | YES | | ✓ |
| | Other valuable pieces of information & demands: | | | ✓ |

# DualDocker XL — CALCULATIONS

## 2.) INPUT:

| DD-Length: | 250 | cm |
|---|---|---|

| Identity - Number: | | | | | |
|---|---|---|---|---|---|
| Wind direction: | 100% | Lee: | 100% | | |

## 3.) RESULTS:

| L:B | 4,1 | A-B | 2,0 | A-S | 1,02 | L-gravity | 980 | cm | L-C1-C2 | 965 | cm |
|---|---|---|---|---|---|---|---|---|---|---|---|

| F Wind | 1.460 | daN=kg | Wind forces based on maximal local wind speed. |
|---|---|---|---|

### Resulting forces "WITHOUT" use of diagonal stern lines and spring lines:

| 1 daN ~ 1 kg | Pull / Push | | | Beam forces | | | DD-distance | | Space fac |
|---|---|---|---|---|---|---|---|---|---|
| ideal angle: | 3.069 | daN | 61% | 20 | daN | 2% | 599 | cm | 1,25 |
| medium angle: | 3.048 | daN | 61% | 365 | daN | 35% | 541 | cm | 1,13 |
| parallel: | 2.981 | daN | 60% | 730 | daN | 69% | 480 | cm | 1,01 |

### Resulting forces "WITH" use of diagonal stern lines and spring lines:

| 1 daN ~ 1 kg | Pull / Push | | | Beam forces | | | theor. Cleat forces: longit. | lateral | [ ] |
|---|---|---|---|---|---|---|---|---|---|
| ideal angle: | 1.483 | daN | 30% | 20 | daN | 2% | 1.483 | 20 | daN |
| medium angle: | 1.483 | daN | 30% | 262 | daN | 25% | 1.483 | 365 | daN |
| parallel: | 1.483 | daN | 36% | 419 | daN | 40% | 1.483 | 730 | daN |

### Resulting force per anchor screw "WITH" use of securing lines:

| 1 daN ~ 1 kg | Lateral shear | | | Pull or Push load | | | DD - horizontal angle: | |
|---|---|---|---|---|---|---|---|---|
| ideal angle: | 204 | daN | 14% | 141 | daN | 13% | max. angle ° | 17,74 |
| medium angle: | 426 | daN | 28% | 373 | daN | 36% | min. angle ° | 10,20 |
| parallel: | 607 | daN | 40% | 547 | daN | 52% | IST max. "A" | 75 |

| Info regarding tolerable water levels ( relating tu turning point of arm ) : | | | | | | | | tolerable horiz. angle | | |
|---|---|---|---|---|---|---|---|---|---|---|
| + ° | 45 | water level | 21 | cm | Distance to pier: | 14 | cm | 49,31 | 0 | Coll. |
| - ° | 45 | water level | -293 | cm | Distance to pier: | 14 | cm | 44,60 | 15 | Saft. |

| Calculation lines lengths: | | | Recommended | | pay attention to the securing instructions | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Spring line: | 1.270 | cm | 1.300 | cm | Ø | 16 | mm | single | Yachtgröße: |
| Diagonal stern line: | 741 | cm | 750 | cm | Ø | 16 | mm | single | MEGA |

| LIMITS: | Pull / Push | | | Beam forces | | | max. wind speed | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ideal angle: | 3.094 | daN | 62% | 43 | daN | 4% | 65 | kn | 120 | kmh |
| medium angle: | 2.637 | daN | 53% | 384 | daN | 36% | 60 | kn | 111 | kmh |
| parallel: | 2.215 | daN | 44% | 573 | daN | 54% | 55 | kn | 102 | kmh |