

Effectieve Strijklengte

| | | u max | | | | | |
|--------------------------------------|--------------|--------------|-----------|------|--------------|--------------|--|
| Locatie: Almere Pampus | | | | | | | |
| Wind: West, 270° t.o.v. Noord | | | | | | | |
| in graden | cos (O) | cos^2 (O) | geen dijk | | met dijk | | |
| | | | R(O) | R(O) | R(O)cos^2(O) | R(O)cos^2(O) | |
| -42 | 0.743 | 0.552 | 5768 | 5768 | 3185 | 3185 | |
| -36 | 0.809 | 0.655 | 5752 | 5752 | 3765 | 3765 | |
| -30 | 0.866 | 0.750 | 6455 | 6455 | 4841 | 4841 | |
| -24 | 0.914 | 0.835 | 6518 | 6518 | 5440 | 5440 | |
| -18 | 0.951 | 0.905 | 6779 | 6779 | 6132 | 6132 | |
| -12 | 0.978 | 0.957 | 7317 | 7317 | 7001 | 7001 | |
| -6 | 0.995 | 0.989 | 7944 | 7944 | 7857 | 7857 | |
| 0 | 1.000 | 1.000 | 7986 | 7986 | 7986 | 7986 | |
| 6 | 0.995 | 0.989 | 8442 | 8442 | 8350 | 8350 | |
| 12 | 0.978 | 0.957 | 9343 | 9343 | 8939 | 8939 | |
| 18 | 0.951 | 0.905 | 9732 | 9732 | 8803 | 8803 | |
| 24 | 0.914 | 0.835 | 9034 | 9034 | 7539 | 7539 | |
| 30 | 0.866 | 0.750 | 8432 | 8432 | 6324 | 6324 | |
| 36 | 0.809 | 0.655 | 9062 | 9062 | 5931 | 5931 | |
| 42 | 0.743 | 0.552 | 8496 | 8496 | 4692 | 4692 | |
| | <u>0.743</u> | <u>0.552</u> | | | <u>4692</u> | <u>4692</u> | |
| | 13.511 | | | | 96785 | 96785 | |

| | | |
|-------|------|-----|
| Fe1 = | 7163 | [m] |
| Fe2 = | 7163 | [m] |

Effectieve Strijklengte

| Locatie: IJburg | | u max | | | | | | | |
|-----------------|---------------|------------------|------|-----------------|--------------|------------------|--------------|-----------------|--|
| Wind: - | | <i>geen dijk</i> | | <i>met dijk</i> | | <i>geen dijk</i> | | <i>met dijk</i> | |
| in graden | cos (O) | cos^2 (O) | R(O) | R(O) | R(O)cos^2(O) | R(O)cos^2(O) | R(O)cos^2(O) | R(O)cos^2(O) | |
| -42 | 0.743 | 0.552 | 0 | 0 | 0 | 0 | 0 | 0 | |
| -36 | 0.809 | 0.655 | 0 | 0 | 0 | 0 | 0 | 0 | |
| -30 | 0.866 | 0.750 | 0 | 0 | 0 | 0 | 0 | 0 | |
| -24 | 0.914 | 0.835 | 0 | 0 | 0 | 0 | 0 | 0 | |
| -18 | 0.951 | 0.905 | 0 | 0 | 0 | 0 | 0 | 0 | |
| -12 | 0.978 | 0.957 | 0 | 0 | 0 | 0 | 0 | 0 | |
| -6 | 0.995 | 0.989 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 1.000 | 1.000 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 6 | 0.995 | 0.989 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 12 | 0.978 | 0.957 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18 | 0.951 | 0.905 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 24 | 0.914 | 0.835 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 30 | 0.866 | 0.750 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 36 | 0.809 | 0.655 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 42 | 0.743 | 0.552 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | <u>13.511</u> | | | | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | |

Fe1 = 0 [m]
 Fe2= 0 [m]

Effectieve Strijklengte

| Locatie: De Leek | | u max | | | | | |
|------------------|---------------|-----------|------------------|-----------------|------------------|-----------------|--|
| Wind: - | | | | | | | |
| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> | |
| | | | R(O) | R(O) | R(O)cos^2(O) | R(O)cos^2(O) | |
| -42 | 0.743 | 0.552 | 0 | 0 | 0 | 0 | |
| -36 | 0.809 | 0.655 | 0 | 0 | 0 | 0 | |
| -30 | 0.866 | 0.750 | 0 | 0 | 0 | 0 | |
| -24 | 0.914 | 0.835 | 0 | 0 | 0 | 0 | |
| -18 | 0.951 | 0.905 | 0 | 0 | 0 | 0 | |
| -12 | 0.978 | 0.957 | 0 | 0 | 0 | 0 | |
| -6 | 0.995 | 0.989 | 0 | 0 | 0 | 0 | |
| 0 | 1.000 | 1.000 | 0 | 0 | 0 | 0 | |
| 6 | 0.995 | 0.989 | 0 | 0 | 0 | 0 | |
| 12 | 0.978 | 0.957 | 0 | 0 | 0 | 0 | |
| 18 | 0.951 | 0.905 | 0 | 0 | 0 | 0 | |
| 24 | 0.914 | 0.835 | 0 | 0 | 0 | 0 | |
| 30 | 0.866 | 0.750 | 0 | 0 | 0 | 0 | |
| 36 | 0.809 | 0.655 | 0 | 0 | 0 | 0 | |
| 42 | 0.743 | 0.552 | 0 | 0 | 0 | 0 | |
| | <u>13.511</u> | | | | <u>0</u> | <u>0</u> | |

Fe1 = 0 [m]

Fe2 = 0 [m]

Effectieve Strijklengte

| | | u max | | | | |
|------------------------------------------------|---------|---------------|------------------|-----------------|------------------|-----------------|
| Locatie: Muiden | | | | | | |
| Wind: Noordnoordwest, 344° t.o.v. Noord | | | | | | |
| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> |
| | | | R(O) | R(O) | R(O)cos^2(O) | R(O)cos^2(O) |
| -42 | 0.743 | 0.552 | 1231 | 1231 | 680 | 680 |
| -36 | 0.809 | 0.655 | 2447 | 2447 | 1602 | 1602 |
| -30 | 0.866 | 0.750 | 4680 | 4680 | 3510 | 3510 |
| -24 | 0.914 | 0.835 | 5214 | 5214 | 4351 | 4351 |
| -18 | 0.951 | 0.905 | 5843 | 5843 | 5285 | 5285 |
| -12 | 0.978 | 0.957 | 5967 | 5967 | 5709 | 5709 |
| -6 | 0.995 | 0.989 | 6080 | 6080 | 6014 | 6014 |
| 0 | 1.000 | 1.000 | 7176 | 7176 | 7176 | 7176 |
| 6 | 0.995 | 0.989 | 7574 | 7574 | 7491 | 7491 |
| 12 | 0.978 | 0.957 | 8004 | 8004 | 7658 | 7658 |
| 18 | 0.951 | 0.905 | 8462 | 8462 | 7654 | 7654 |
| 24 | 0.914 | 0.835 | 10746 | 10746 | 8968 | 8968 |
| 30 | 0.866 | 0.750 | 13710 | 9454 | 10283 | 7091 |
| 36 | 0.809 | 0.655 | 42073 | 9660 | 27537 | 6323 |
| 42 | 0.743 | 0.552 | 42127 | 9660 | 23265 | 5335 |
| | | <u>13.511</u> | | | <u>127183</u> | <u>84846</u> |
| Fe1 = | | 9413 | [m] | | | |
| Fe2= | | 6280 | [m] | | | |

Locatie: Almere Pampus

β 0

Wind: Westnoordwest, 300° t.o.v. Noord

| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> |
|-----------|---------------|-----------|------------------|-----------------|------------------|-----------------|
| | | | R(O) | R(O) | (O)cos^2(O) | (O)cos^2(O) |
| -42 | 0.743 | 0.552 | 33567 | 2526 | 18538 | 1395 |
| -36 | 0.809 | 0.655 | 28021 | 2842 | 18340 | 1860 |
| -30 | 0.866 | 0.750 | 8265 | 2947 | 6199 | 2210 |
| -24 | 0.914 | 0.835 | 7909 | 3052 | 6601 | 2547 |
| -18 | 0.951 | 0.905 | 7734 | 3263 | 6995 | 2951 |
| -12 | 0.978 | 0.957 | 7518 | 3473 | 7193 | 3323 |
| -6 | 0.995 | 0.989 | 6817 | 3789 | 6743 | 3748 |
| 0 | 1.000 | 1.000 | 6460 | 4739 | 6460 | 4739 |
| 6 | 0.995 | 0.989 | 6253 | 5789 | 6185 | 5726 |
| 12 | 0.978 | 0.957 | 5386 | 5386 | 5153 | 5153 |
| 18 | 0.951 | 0.905 | 5806 | 5806 | 5252 | 5252 |
| 24 | 0.914 | 0.835 | 5713 | 5713 | 4768 | 4768 |
| 30 | 0.866 | 0.750 | 6400 | 6400 | 4800 | 4800 |
| 36 | 0.809 | 0.655 | 6533 | 6533 | 4276 | 4276 |
| 42 | 0.743 | 0.552 | 7046 | 7046 | 3891 | 3891 |
| | <u>13.511</u> | | | | <u>111393</u> | <u>56639</u> |

Fe1 = 8245 [m]

Fe2= 4192 [m]

Locatie: IJburg

β 0

Wind: Noordnoordoost, 40° t.o.v. Noord

| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> |
|-----------|---------|---------------|------------------|-----------------|------------------|-----------------|
| | | | R(O) | R(O) | (O)cos^2(O) | (O)cos^2(O) |
| -42 | 0.743 | 0.552 | 1305 | 1305 | 721 | 721 |
| -36 | 0.809 | 0.655 | 1305 | 1305 | 854 | 854 |
| -30 | 0.866 | 0.750 | 1300 | 1300 | 975 | 975 |
| -24 | 0.914 | 0.835 | 3791 | 3791 | 3164 | 3164 |
| -18 | 0.951 | 0.905 | 6095 | 6095 | 5513 | 5513 |
| -12 | 0.978 | 0.957 | 7597 | 7597 | 7269 | 7269 |
| -6 | 0.995 | 0.989 | 14107 | 9473 | 13953 | 9369 |
| 0 | 1.000 | 1.000 | 42438 | 9789 | 42438 | 9789 |
| 6 | 0.995 | 0.989 | 41276 | 10105 | 40825 | 9995 |
| 12 | 0.978 | 0.957 | 37183 | 10736 | 35576 | 10272 |
| 18 | 0.951 | 0.905 | 32213 | 11368 | 29137 | 10282 |
| 24 | 0.914 | 0.835 | 11467 | 11467 | 9570 | 9570 |
| 30 | 0.866 | 0.750 | 8343 | 8343 | 6257 | 6257 |
| 36 | 0.809 | 0.655 | 8367 | 8367 | 5476 | 5476 |
| 42 | 0.743 | 0.552 | 8650 | 8650 | 4777 | 4777 |
| | | <u>13.511</u> | | | <u>206504</u> | <u>94283</u> |

Fe1 = 15284 [m]

Fe2= 6978 [m]

Locatie: De Leek

β 0

Wind: Oostzuidoost, 131° t.o.v. Noord

| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> |
|-----------|---------------|-----------|------------------|-----------------|------------------|-----------------|
| | | | R(O) | R(O) | (O)cos^2(O) | (O)cos^2(O) |
| -42 | 0.743 | 0.552 | 9386 | 9386 | 5184 | 5184 |
| -36 | 0.809 | 0.655 | 8481 | 8481 | 5551 | 5551 |
| -30 | 0.866 | 0.750 | 7670 | 7670 | 5753 | 5753 |
| -24 | 0.914 | 0.835 | 6861 | 6861 | 5726 | 5726 |
| -18 | 0.951 | 0.905 | 6583 | 6583 | 5954 | 5954 |
| -12 | 0.978 | 0.957 | 7296 | 7296 | 6981 | 6981 |
| -6 | 0.995 | 0.989 | 8217 | 8217 | 8127 | 8127 |
| 0 | 1.000 | 1.000 | 8964 | 8964 | 8964 | 8964 |
| 6 | 0.995 | 0.989 | 9513 | 9513 | 9409 | 9409 |
| 12 | 0.978 | 0.957 | 7470 | 7470 | 7147 | 7147 |
| 18 | 0.951 | 0.905 | 7081 | 7081 | 6405 | 6405 |
| 24 | 0.914 | 0.835 | 7561 | 7561 | 6310 | 6310 |
| 30 | 0.866 | 0.750 | 7356 | 7356 | 5517 | 5517 |
| 36 | 0.809 | 0.655 | 7346 | 7346 | 4808 | 4808 |
| 42 | 0.743 | 0.552 | 7390 | 7390 | 4081 | 4081 |
| | <u>13.511</u> | | | | <u>95916</u> | <u>95916</u> |

Fe1 = 7099 [m]

Fe2= 7099 [m]

Locatie: Muiden

β 0

Wind: Noord, 16° t.o.v. Noord

| in graden | cos (O) | cos^2 (O) | geen dijk | met dijk | geen dijk | met dijk |
|-----------|---------------|-----------|-----------|----------|---------------|---------------|
| | | | R(O) | R(O) | (O)cos^2(O) | (O)cos^2(O) |
| -42 | 0.743 | 0.552 | 5967 | 5967 | 3295 | 3295 |
| -36 | 0.809 | 0.655 | 6080 | 6080 | 3979 | 3979 |
| -30 | 0.866 | 0.750 | 7176 | 7176 | 5382 | 5382 |
| -24 | 0.914 | 0.835 | 7574 | 7574 | 6321 | 6321 |
| -18 | 0.951 | 0.905 | 8004 | 8004 | 7240 | 7240 |
| -12 | 0.978 | 0.957 | 8462 | 8462 | 8096 | 8096 |
| -6 | 0.995 | 0.989 | 10746 | 10746 | 10629 | 10629 |
| 0 | 1.000 | 1.000 | 13710 | 9454 | 13710 | 9454 |
| 6 | 0.995 | 0.989 | 42073 | 9660 | 41613 | 9554 |
| 12 | 0.978 | 0.957 | 42127 | 9660 | 40306 | 9242 |
| 18 | 0.951 | 0.905 | 40670 | 9870 | 36786 | 8927 |
| 24 | 0.914 | 0.835 | 39266 | 9975 | 32770 | 8325 |
| 30 | 0.866 | 0.750 | 5950 | 5950 | 4463 | 4463 |
| 36 | 0.809 | 0.655 | 5805 | 5805 | 3799 | 3799 |
| 42 | 0.743 | 0.552 | 5701 | 5701 | 3148 | 3148 |
| | <u>13.511</u> | | | | <u>221538</u> | <u>101856</u> |

Fe1 = 16397 [m]

Fe2= 7539 [m]

Locatie: Almere Pampus
 Wind: Noord, 4° t.o.v. Noord

Fmax

| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> |
|-----------|---------------|-----------|------------------|-----------------|------------------|-----------------|
| | | | R(O) | R(O) | (O)cos^2(O) | (O)cos^2(O) |
| -42 | 0.743 | 0.552 | 31263 | 2737 | 17265 | 1512 |
| -36 | 0.809 | 0.655 | 32476 | 2632 | 21256 | 1723 |
| -30 | 0.866 | 0.750 | 34189 | 2632 | 25642 | 1974 |
| -24 | 0.914 | 0.835 | 35401 | 2632 | 29544 | 2197 |
| -18 | 0.951 | 0.905 | 35471 | 2632 | 32084 | 2381 |
| -12 | 0.978 | 0.957 | 34377 | 2632 | 32891 | 2518 |
| -6 | 0.995 | 0.989 | 28159 | 2632 | 27851 | 2603 |
| 0 | 1.000 | 1.000 | 26473 | 2842 | 26473 | 2842 |
| 6 | 0.995 | 0.989 | 8075 | 3263 | 7987 | 3227 |
| 12 | 0.978 | 0.957 | 7811 | 3474 | 7473 | 3324 |
| 18 | 0.951 | 0.905 | 7506 | 3684 | 6789 | 3332 |
| 24 | 0.914 | 0.835 | 7358 | 4105 | 6141 | 3426 |
| 30 | 0.866 | 0.750 | 6567 | 4632 | 4925 | 3474 |
| 36 | 0.809 | 0.655 | 6267 | 5579 | 4102 | 3652 |
| 42 | 0.743 | 0.552 | 6078 | 6078 | 3357 | 3357 |
| | <u>13.511</u> | | | | <u>253780</u> | <u>41540</u> |

Fe1 = 18783 [m]

Fe2= 3075 [m]

Locatie: IJburg

Fmax

Wind: Noord, 56° t.o.v. Noord

| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> |
|-----------|---------------|-----------|------------------|-----------------|------------------|-----------------|
| | | | R(O) | R(O) | (O)cos^2(O) | (O)cos^2(O) |
| -42 | 0.743 | 0.552 | 3791 | 3791 | 2094 | 2094 |
| -36 | 0.809 | 0.655 | 6095 | 6095 | 3989 | 3989 |
| -30 | 0.866 | 0.750 | 7597 | 7597 | 5698 | 5698 |
| -24 | 0.914 | 0.835 | 14107 | 9473 | 11773 | 7906 |
| -18 | 0.951 | 0.905 | 42438 | 9789 | 38386 | 8854 |
| -12 | 0.978 | 0.957 | 41276 | 10105 | 39492 | 9668 |
| -6 | 0.995 | 0.989 | 37183 | 10736 | 36777 | 10619 |
| 0 | 1.000 | 1.000 | 32213 | 11368 | 32213 | 11368 |
| 6 | 0.995 | 0.989 | 11467 | 11467 | 11342 | 11342 |
| 12 | 0.978 | 0.957 | 8343 | 8343 | 7982 | 7982 |
| 18 | 0.951 | 0.905 | 8367 | 8367 | 7568 | 7568 |
| 24 | 0.914 | 0.835 | 8650 | 8650 | 7219 | 7219 |
| 30 | 0.866 | 0.750 | 8916 | 8916 | 6687 | 6687 |
| 36 | 0.809 | 0.655 | 8976 | 8976 | 5875 | 5875 |
| 42 | 0.743 | 0.552 | 5722 | 5722 | 3160 | 3160 |
| | <u>13.511</u> | | | | <u>220254</u> | <u>110029</u> |

Fe1 = 16302 [m]

Fe2= 8144 [m]

Locatie: De Leek

Fmax

Wind: Oost, 92° t.o.v. Noord

| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> |
|-----------|---------|---------------|------------------|-----------------|----------------------|-----------------|
| | | | R(O) | R(O) | (O)cos^2((O)cos^2(O) | |
| -42 | 0.743 | 0.552 | 3791 | 3791 | 2421 | 2421 |
| -36 | 0.809 | 0.655 | 6095 | 6095 | 2526 | 2526 |
| -30 | 0.866 | 0.750 | 7597 | 7597 | 31216 | 4947 |
| -24 | 0.914 | 0.835 | 14107 | 9473 | 30269 | 5368 |
| -18 | 0.951 | 0.905 | 42438 | 9789 | 21074 | 6000 |
| -12 | 0.978 | 0.957 | 41276 | 10105 | 13750 | 6947 |
| -6 | 0.995 | 0.989 | 37183 | 10736 | 10957 | 6947 |
| 0 | 1.000 | 1.000 | 9386 | 9386 | 9386 | 9386 |
| 6 | 0.995 | 0.989 | 8481 | 8481 | 8388 | 8388 |
| 12 | 0.978 | 0.957 | 7670 | 7670 | 7338 | 7338 |
| 18 | 0.951 | 0.905 | 6861 | 6861 | 6206 | 6206 |
| 24 | 0.914 | 0.835 | 6583 | 6583 | 5494 | 5494 |
| 30 | 0.866 | 0.750 | 7296 | 7296 | 5472 | 5472 |
| 36 | 0.809 | 0.655 | 8217 | 8217 | 5378 | 5378 |
| 42 | 0.743 | 0.552 | 8946 | 8946 | 4941 | 4941 |
| | | <u>13.511</u> | | | <u>164817</u> | <u>87761</u> |

Fe1 = 12199 [m]

Fe2= 6496 [m]

| Locatie: Muiden | | | Fmax | | | |
|----------------------------------------|---------------|-----------|------------------|-----------------|------------------|-----------------|
| Wind: Noordnoordoost, 40° t.o.v. Noord | | | | | | |
| in graden | cos (O) | cos^2 (O) | <i>geen dijk</i> | <i>met dijk</i> | <i>geen dijk</i> | <i>met dijk</i> |
| | | | R(O) | R(O) | (O)cos^2(O) | (O)cos^2(O) |
| -42 | 0.743 | 0.552 | 7176 | 7176 | 2421 | 2421 |
| -36 | 0.809 | 0.655 | 7574 | 7574 | 2526 | 2526 |
| -30 | 0.866 | 0.750 | 8004 | 8004 | 31216 | 4947 |
| -24 | 0.914 | 0.835 | 8462 | 8462 | 30269 | 5368 |
| -18 | 0.951 | 0.905 | 10746 | 10746 | 21074 | 6000 |
| -12 | 0.978 | 0.957 | 13710 | 9454 | 13750 | 6947 |
| -6 | 0.995 | 0.989 | 42073 | 9660 | 10957 | 6947 |
| 0 | 1.000 | 1.000 | 42127 | 9660 | 42073 | 9660 |
| 6 | 0.995 | 0.989 | 40670 | 9870 | 41667 | 9762 |
| 12 | 0.978 | 0.957 | 39266 | 9975 | 38912 | 9544 |
| 18 | 0.951 | 0.905 | 5950 | 5950 | 35516 | 5382 |
| 24 | 0.914 | 0.835 | 5805 | 6583 | 4966 | 5494 |
| 30 | 0.866 | 0.750 | 5701 | 7296 | 4276 | 5472 |
| 36 | 0.809 | 0.655 | 500 | 500 | 327 | 327 |
| 42 | 0.743 | 0.552 | 500 | 500 | 276 | 276 |
| | <u>13.511</u> | | | | <u>280226</u> | <u>81075</u> |

Fe1 = 20741 [m]

Fe2= 6001 [m]

GOLFGROEI, methode Bretschneider

Locatie: Almere Pampus

Scenario: Huidige situatie

Invoer

| | | u max | $\beta 0$ | Fmax | |
|-------------------------------|----------|--------------|-----------------------------|-------------|---------------------|
| gravitatie constante | g | 9.81 | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | 32.6 | 32.0 | 23.5 | [m/s] |
| waterdiepte | d | 2.2 | 2.4 | 3.3 | [m] |
| strijklengte (effectief) | F | 7163 | 8245 | 18783 | [m] |
| hoek van golfinval | F | 45 | 0 | 30 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|--------------|-----------|--------------|-----------|--------------|-----------|
| significante golfhoogte | H_s | 0.87 [m] | H_s | 0.92 [m] | H_s | 1.00 [m] |
| significante golfperiode | T_s | 4.78 [s] | T_s | 5.05 [s] | T_s | 5.05 [s] |
| gemiddelde golfperiode | T_m | 4.16 [s] | T_m | 4.40 [s] | T_m | 4.40 [s] |
| golf lengte | L | 19.32 [m] | L | 21.33 [m] | L | 25.01 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | | d/L < 0,05 | |
| | Voldoet niet | | Voldoet niet | | Voldoet niet | |

| Diep water | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|--------------|-----------|--------------|-----------|--------------|-----------|
| significante golfhoogte | H_s | 2.22 [m] | H_s | 2.31 [m] | H_s | 2.27 [m] |
| significante golfperiode | T_s | 5.41 [s] | T_s | 5.55 [s] | T_s | 5.74 [s] |
| gemiddelde golfperiode | T_m | 4.71 [s] | T_m | 4.82 [s] | T_m | 4.99 [s] |
| golf lengte | L_0 | 34.59 [m] | L_0 | 36.32 [m] | L_0 | 38.84 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 | | d/L > 0,50 | |
| | Voldoet niet | | Voldoet niet | | Voldoet niet | |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|--------------|-----------|-----------|-----------|-------------|-----------|
| significante golfhoogte | H_s | 0.86 [m] | H_s | 0.91 [m] | H_s | 0.98 [m] |
| significante golfperiode | T_s | 3.91 [s] | T_s | 4.02 [s] | T_s | 4.18 [s] |
| gemiddelde golfperiode | T_m | 3.40 [s] | T_m | 3.49 [s] | T_m | 3.63 [s] |
| golf lengte | L | 18.04 [m] | L | 19.02 [m] | L | 20.57 [m] |

| | | | | | | |
|----------------------------|-------|----------|-------|----------|-------|----------|
| Hs gecorrigeerd voor cos B | H_s | 0.61 [m] | H_s | 0.91 [m] | H_s | 0.85 [m] |
|----------------------------|-------|----------|-------|----------|-------|----------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
Onderdeel: *Methode Bretschneider*

Ordernummer:
-

Blad : 1

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: IJburg

Scenario: Huidige situatie

Invoer

| | | u_{max} | β0 | F_{max} | |
|-------------------------------|----------|------------------------|-----------|------------------------|---------------------|
| gravitatie constante | g | - | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | - | 23.5 | 21.6 | [m/s] |
| waterdiepte | d | - | 2.6 | 2.8 | [m] |
| strijklengte (effectief) | F | - | 15284 | 16302 | [m] |
| hoek van golfinval | F | - | 0 | 12 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | nvt | β0 | F_{max} | |
|--------------------------|----------------|------------|---------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.84 [m] | H _s 0.85 [m] |
| significante golfperiode | T _s | - | [s] | T _s 4.65 [s] | T _s 4.65 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 4.05 [s] | T _m 4.05 [s] |
| golf lengte | L | - | [m] | L 20.43 [m] | L 21.21 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | d/L < 0,05 | |
| | | | Voldoet niet | Voldoet niet | |

| Diep water | u max | β0 | F_{max} | | |
|--------------------------|----------------|-----------|------------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 2.08 [m] | H _s 1.94 [m] |
| significante golfperiode | T _s | - | [s] | T _s 5.47 [s] | T _s 5.31 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 4.76 [s] | T _m 4.62 [s] |
| golf lengte | L ₀ | - | [m] | L ₀ 35.27 [m] | L ₀ 33.23 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 | d/L > 0,50 | |
| | | | Voldoet niet | Voldoet niet | |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | β0 | F_{max} | | |
|--------------------------|----------------|-----------|------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.83 [m] | H _s 0.83 [m] |
| significante golfperiode | T _s | - | [s] | T _s 3.89 [s] | T _s 3.85 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 3.38 [s] | T _m 3.35 [s] |
| golf lengte | L | - | [m] | L 17.87 [m] | L 17.51 [m] |

| | | | | | |
|----------------------------|----------------|---|-----|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s | - | [m] | H _s 0.83 [m] | H _s 0.82 [m] |
|----------------------------|----------------|---|-----|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
Onderdeel: *Methode Bretschneider*

Ordernummer:
-
Blad : 2

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: De Leek

Scenario: Huidige situatie

Invoer

| | | u_{max} | β₀ | F_{max} | |
|-------------------------------|----------|------------------------|----------------------|------------------------|---------------------|
| gravitatie constante | g | - | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | - | 21.0 | 20.9 | [m/s] |
| waterdiepte | d | - | 2.2 | 3.3 | [m] |
| strijklengte (effectief) | F | - | 7099 | 12199 | [m] |
| hoek van golfinval | F | - | 0 | 24 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | nvt | β₀ | F_{max} | |
|--------------------------|----------------|------------|----------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.70 [m] | H _s 0.95 [m] |
| significante golfperiode | T _s | - | [s] | T _s 4.88 [s] | T _s 4.88 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 4.25 [s] | T _m 4.25 [s] |
| golf lengte | L | - | [m] | L 19.73 [m] | L 24.16 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | d/L < 0,05 | |
| | | | Voldoet niet | Voldoet niet | |

| Diep water | u max | β₀ | F_{max} | | |
|--------------------------|----------------|----------------------|------------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 1.33 [m] | H _s 1.65 [m] |
| significante golfperiode | T _s | - | [s] | T _s 4.30 [s] | T _s 4.87 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 3.74 [s] | T _m 4.24 [s] |
| golf lengte | L ₀ | - | [m] | L ₀ 21.80 [m] | L ₀ 28.02 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 | d/L > 0,50 | |
| | | | Voldoet niet | Voldoet niet | |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | β₀ | F_{max} | | |
|--------------------------|----------------|----------------------|------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.67 [m] | H _s 0.89 [m] |
| significante golfperiode | T _s | - | [s] | T _s 3.30 [s] | T _s 3.78 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 2.87 [s] | T _m 3.29 [s] |
| golf lengte | L | - | [m] | L 12.81 [m] | L 16.86 [m] |

| | | | | | |
|----------------------------|----------------|---|-----|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s | - | [m] | H _s 0.67 [m] | H _s 0.82 [m] |
|----------------------------|----------------|---|-----|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
Onderdeel: *Methode Bretschneider*

Ordernummer:

-

Blad : 3

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: Muiden

Scenario: Huidige situatie

Invoer

| | | u max | $\beta 0$ | Fmax | |
|-------------------------------|---|-------|-----------|-------|---------------------|
| gravitatie constante | g | 9.81 | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | 28 | 25.0 | 23.5 | [m/s] |
| waterdiepte | d | 1.9 | 3.3 | 3.5 | [m] |
| strijklengte (effectief) | F | 9413 | 16397 | 20741 | [m] |
| hoek van golfinval | F | 30 | 0 | 24 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | $\beta 0$ | Fmax |
|--------------------------|-------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s 0.73 [m] | H _s 1.04 [m] | H _s 1.05 [m] |
| significante golfperiode | T _s 4.35 [s] | T _s 5.16 [s] | T _s 5.16 [s] |
| gemiddelde golfperiode | T _m 3.78 [s] | T _m 4.49 [s] | T _m 4.49 [s] |
| golf lengte | L 16.33 [m] | L 25.54 [m] | L 26.30 [m] |
| voorwaarde | d/L < 0,05 | d/L < 0,05 | d/L < 0,05 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

| Diep water | u max | $\beta 0$ | Fmax |
|--------------------------|--------------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s 2.09 [m] | H _s 2.31 [m] | H _s 2.36 [m] |
| significante golfperiode | T _s 5.34 [s] | T _s 5.74 [s] | T _s 5.87 [s] |
| gemiddelde golfperiode | T _m 4.65 [s] | T _m 5.00 [s] | T _m 5.11 [s] |
| golf lengte | L ₀ 33.70 [m] | L ₀ 38.93 [m] | L ₀ 40.67 [m] |
| voorwaarde | d/L > 0,50 | d/L > 0,50 | d/L > 0,50 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | $\beta 0$ | Fmax |
|--------------------------|-------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s 0.72 [m] | H _s 1.01 [m] | H _s 1.03 [m] |
| significante golfperiode | T _s 3.70 [s] | T _s 4.21 [s] | T _s 4.27 [s] |
| gemiddelde golfperiode | T _m 3.21 [s] | T _m 3.66 [s] | T _m 3.71 [s] |
| golf lengte | L 16.11 [m] | L 20.91 [m] | L 21.52 [m] |

| | | | |
|----------------------------|-------------------------|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s 0.62 [m] | H _s 1.01 [m] | H _s 0.94 [m] |
|----------------------------|-------------------------|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
Onderdeel: *Methode Bretschneider*

Ordernummer:

-

Blad : 4

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: Almere Pampus

Scenario: Dijk aangelegd

Invoer

| | | u max | $\beta 0$ | Fmax | |
|-------------------------------|----------|--------------|-----------------------------|-------------|---------------------|
| gravitatie constante | g | 9.81 | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | 32.6 | 32.0 | 23.5 | [m/s] |
| waterdiepte | d | 2.2 | 2.4 | 2.5 | [m] |
| strijklengte (effectief) | F | 7163 | 4192 | 3075 | [m] |
| hoek van golfval | F | 45 | 0 | 30 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | $\beta 0$ | Fmax |
|--------------------------|-------------------------|-----------------------------|-------------------------|
| significante golfhoogte | H _s 0.87 [m] | H _s 0.92 [m] | H _s 0.82 [m] |
| significante golfperiode | T _s 4.78 [s] | T _s 4.58 [s] | T _s 4.58 [s] |
| gemiddelde golfperiode | T _m 4.16 [s] | T _m 3.98 [s] | T _m 3.98 [s] |
| golflengte | L 19.32 [m] | L 19.31 [m] | L 19.71 [m] |
| voorwaarde | d/L < 0,05 | d/L < 0,05 | d/L < 0,05 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

| Diep water | u max | $\beta 0$ | Fmax |
|--------------------------|--------------------------|-----------------------------|--------------------------|
| significante golfhoogte | H _s 2.22 [m] | H _s 1.74 [m] | H _s 1.07 [m] |
| significante golfperiode | T _s 5.41 [s] | T _s 4.71 [s] | T _s 3.73 [s] |
| gemiddelde golfperiode | T _m 4.71 [s] | T _m 4.09 [s] | T _m 3.24 [s] |
| golflengte | L ₀ 34.59 [m] | L ₀ 26.15 [m] | L ₀ 16.38 [m] |
| voorwaarde | d/L > 0,50 | d/L > 0,50 | d/L > 0,50 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | $\beta 0$ | Fmax |
|--------------------------|-------------------------|-----------------------------|-------------------------|
| significante golfhoogte | H _s 0.86 [m] | H _s 0.88 [m] | H _s 0.71 [m] |
| significante golfperiode | T _s 3.91 [s] | T _s 3.68 [s] | T _s 3.10 [s] |
| gemiddelde golfperiode | T _m 3.40 [s] | T _m 3.20 [s] | T _m 2.70 [s] |
| golflengte | L 18.04 [m] | L 15.96 [m] | L 11.37 [m] |

| | | | |
|----------------------------|-------------------------|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s 0.61 [m] | H _s 0.88 [m] | H _s 0.61 [m] |
|----------------------------|-------------------------|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
Onderdeel: *Methode Bretschneider*

Ordernummer:

-

Blad : 5

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: IJburg
 Scenario: Dijk aangelegd

Invoer

| | | umax | $\beta 0$ | Fmax | |
|-------------------------------|---|------|-----------|------|---------------------|
| gravitatie constante | g | - | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | - | 23.5 | 21.6 | [m/s] |
| waterdiepte | d | - | 2.2 | 2.4 | [m] |
| strijklengte (effectief) | F | - | 6978 | 8144 | [m] |
| hoek van golfval | F | - | 0 | 12 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | nvt | $\beta 0$ | Fmax | |
|--------------------------|----------------|-----|---------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.74 [m] | H _s 0.76 [m] |
| significante golfperiode | T _s | - | [s] | T _s 4.40 [s] | T _s 4.40 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 3.83 [s] | T _m 3.83 [s] |
| golf lengte | L | - | [m] | L 17.79 [m] | L 18.58 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | d/L < 0,05 | |
| | | | Voldoet niet | Voldoet niet | |

| Diep water | u max | $\beta 0$ | Fmax | | |
|--------------------------|----------------|-----------|---------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 1.50 [m] | H _s 1.45 [m] |
| significante golfperiode | T _s | - | [s] | T _s 4.54 [s] | T _s 4.51 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 3.95 [s] | T _m 3.92 [s] |
| golf lengte | L ₀ | - | [m] | L ₀ 24.32 [m] | L ₀ 23.97 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 | d/L > 0,50 | |
| | | | Voldoet niet | Voldoet niet | |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | $\beta 0$ | Fmax | | |
|--------------------------|----------------|-----------|------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.72 [m] | H _s 0.73 [m] |
| significante golfperiode | T _s | - | [s] | T _s 3.44 [s] | T _s 3.44 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 2.99 [s] | T _m 2.99 [s] |
| golf lengte | L | - | [m] | L 13.94 [m] | L 13.98 [m] |

| | | | | | |
|----------------------------|----------------|---|-----|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s | - | [m] | H _s 0.72 [m] | H _s 0.71 [m] |
|----------------------------|----------------|---|-----|-------------------------|-------------------------|



Afdeling :
 Waterbouw
 Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
 Onderdeel: *Methode Bretschneider*

Ordernummer:

-

Blad : 6

Opsteller: *W. Weeink*

Par :

Datum *4/dec/2007*

GOLFGROEI, methode Bretschneider

Locatie: De Leek
 Scenario: Dijk aangelegd

Invoer

| | | u _{max} | β0 | F _{max} | |
|-------------------------------|---|------------------|------|------------------|---------------------|
| gravitatie constante | g | - | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | - | 21.0 | 20.9 | [m/s] |
| waterdiepte | d | - | 2.2 | 2.5 | [m] |
| strijklengte (effectief) | F | - | 7099 | 6496 | [m] |
| hoek van golfval | F | - | 0 | 24 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | nvt | β0 | Fmax |
|--------------------------|----------------|-------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - [m] | H _s 0.70 [m] | H _s 0.77 [m] |
| significante golfperiode | T _s | - [s] | T _s 4.43 [s] | T _s 4.43 [s] |
| gemiddelde golfperiode | T _m | - [s] | T _m 3.85 [s] | T _m 3.85 [s] |
| golf lengte | L | - [m] | L 17.88 [m] | L 19.06 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | d/L < 0,05 |
| | | | Voldoet niet | Voldoet niet |

| Diep water | u max | β0 | Fmax |
|--------------------------|----------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s - [m] | H _s 1.33 [m] | H _s 1.27 [m] |
| significante golfperiode | T _s - [s] | T _s 4.30 [s] | T _s 4.20 [s] |
| gemiddelde golfperiode | T _m - [s] | T _m 3.74 [s] | T _m 3.65 [s] |
| golf lengte | L ₀ - [m] | L ₀ 21.80 [m] | L ₀ 20.80 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 |
| | | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | β0 | Fmax |
|--------------------------|----------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s - [m] | H _s 0.67 [m] | H _s 0.72 [m] |
| significante golfperiode | T _s - [s] | T _s 3.30 [s] | T _s 3.32 [s] |
| gemiddelde golfperiode | T _m - [s] | T _m 2.87 [s] | T _m 2.88 [s] |
| golf lengte | L - [m] | L 12.81 [m] | L 12.97 [m] |

| | | | |
|----------------------------|----------------------|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s - [m] | H _s 0.67 [m] | H _s 0.65 [m] |
|----------------------------|----------------------|-------------------------|-------------------------|



Afdeling :
 Waterbouw
 Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
 Onderdeel: *Methode Bretschneider*

Ordernummer:

-

Blad : 7

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: Muiden
 Scenario: Dijk aangelegd

Invoer

| | | u max | $\beta 0$ | Fmax | |
|-------------------------------|---|-------|-----------|------|---------------------|
| gravitatie constante | g | 9.81 | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | 28 | 25.0 | 23.5 | [m/s] |
| waterdiepte | d | 1.9 | 3.0 | 3.2 | [m] |
| strijklengte (effectief) | F | 6280 | 7539 | 6001 | [m] |
| hoek van golfval | F | 30 | 0 | 24 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer


| Ondiep water | u max | $\beta 0$ | Fmax |
|--------------------------|-------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s 0.73 [m] | H _s 0.97 [m] | H _s 0.98 [m] |
| significante golfperiode | T _s 4.35 [s] | T _s 5.00 [s] | T _s 5.00 [s] |
| gemiddelde golfperiode | T _m 3.78 [s] | T _m 4.35 [s] | T _m 4.35 [s] |
| golf lengte | L 16.33 [m] | L 23.58 [m] | L 24.36 [m] |
| voorwaarde | d/L < 0,05 | d/L < 0,05 | d/L < 0,05 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

| Diep water | u max | $\beta 0$ | Fmax |
|--------------------------|--------------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s 1.76 [m] | H _s 1.67 [m] | H _s 1.41 [m] |
| significante golfperiode | T _s 4.85 [s] | T _s 4.78 [s] | T _s 4.38 [s] |
| gemiddelde golfperiode | T _m 4.22 [s] | T _m 4.15 [s] | T _m 3.81 [s] |
| golf lengte | L ₀ 27.73 [m] | L ₀ 26.92 [m] | L ₀ 22.63 [m] |
| voorwaarde | d/L > 0,50 | d/L > 0,50 | d/L > 0,50 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | $\beta 0$ | Fmax |
|--------------------------|-------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s 0.71 [m] | H _s 0.91 [m] | H _s 0.88 [m] |
| significante golfperiode | T _s 3.53 [s] | T _s 3.75 [s] | T _s 3.57 [s] |
| gemiddelde golfperiode | T _m 3.07 [s] | T _m 3.26 [s] | T _m 3.10 [s] |
| golf lengte | L 14.73 [m] | L 16.57 [m] | L 15.00 [m] |

| | | | |
|----------------------------|-------------------------|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s 0.62 [m] | H _s 0.91 [m] | H _s 0.80 [m] |
|----------------------------|-------------------------|-------------------------|-------------------------|

| | | | |
|-------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------|-------------------------|
|  | Afdeling : Waterbouw | Werk: <i>Compartimenteren: meer toekomst?</i> | Ordernummer: - |
| | Ontwerp & advies | Onderdeel: <i>Methode Bretschneider</i> | Blad : 8 |
| | Opsteller: <i>W. Weeink</i> | Par : | Datum <i>4/dec/2007</i> |

GOLFGROEI, methode Bretschneider

Locatie: Almere Pampus

Scenario: Geen dijk + peilverhoging van 25 cm

Invoer

| | | u max | $\beta 0$ | Fmax | |
|-------------------------------|----------|--------------|-----------------------------|-------------|---------------------|
| gravitatie constante | g | 9.81 | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | 32.6 | 32.0 | 23.5 | [m/s] |
| waterdiepte | d | 2.45 | 2.65 | 3.55 | [m] |
| strijklengte (effectief) | F | 7163 | 8245 | 18783 | [m] |
| hoek van golfval | F | 45 | 0 | 30 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | <i>u max</i> | $\beta 0$ | <i>Fmax</i> |
|--------------------------|-------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s 0.95 [m] | H _s 1.00 [m] | H _s 1.06 [m] |
| significante golfperiode | T _s 4.97 [s] | T _s 5.19 [s] | T _s 5.19 [s] |
| gemiddelde golfperiode | T _m 4.32 [s] | T _m 4.51 [s] | T _m 4.51 [s] |
| golflengte | L 21.20 [m] | L 23.00 [m] | L 26.62 [m] |
| voorwaarde | d/L < 0,05 | d/L < 0,05 | d/L < 0,05 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

| Diep water | <i>u max</i> | $\beta 0$ | <i>Fmax</i> |
|--------------------------|--------------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s 2.22 [m] | H _s 2.31 [m] | H _s 2.27 [m] |
| significante golfperiode | T _s 5.41 [s] | T _s 5.55 [s] | T _s 5.74 [s] |
| gemiddelde golfperiode | T _m 4.71 [s] | T _m 4.82 [s] | T _m 4.99 [s] |
| golflengte | L ₀ 34.59 [m] | L ₀ 36.32 [m] | L ₀ 38.84 [m] |
| voorwaarde | d/L > 0,50 | d/L > 0,50 | d/L > 0,50 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | <i>u max</i> | $\beta 0$ | <i>Fmax</i> |
|--------------------------|-------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s 0.93 [m] | H _s 0.98 [m] | H _s 1.03 [m] |
| significante golfperiode | T _s 3.99 [s] | T _s 4.09 [s] | T _s 4.23 [s] |
| gemiddelde golfperiode | T _m 3.47 [s] | T _m 3.56 [s] | T _m 3.68 [s] |
| golflengte | L 18.80 [m] | L 19.75 [m] | L 21.15 [m] |

| | | | |
|----------------------------|-------------------------|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s 0.66 [m] | H _s 0.98 [m] | H _s 0.89 [m] |
|----------------------------|-------------------------|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: *Compartmenteren: meer toekomst?*
Onderdeel: *Methode Bretschneider*

Ordernummer:
-

Blad : 9

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: IJburg

Scenario: Geen dijk + peilverhoging van 25 cm

Invoer

| | | umax | $\beta 0$ | Fmax | |
|-------------------------------|---|------|-----------|-------|---------------------|
| gravitatie constante | g | - | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | - | 23.5 | 21.6 | [m/s] |
| waterdiepte | d | - | 2.85 | 3.05 | [m] |
| strijklengte (effectief) | F | - | 15284 | 16302 | [m] |
| hoek van golf inval | F | - | 0 | 12 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | nvt | $\beta 0$ | Fmax |
|--------------------------|----------------|-------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - [m] | H _s 0.90 [m] | H _s 0.91 [m] |
| significante golfperiode | T _s | - [s] | T _s 4.80 [s] | T _s 4.80 [s] |
| gemiddelde golfperiode | T _m | - [s] | T _m 4.17 [s] | T _m 4.17 [s] |
| golflengte | L | - [m] | L 22.05 [m] | L 22.81 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | d/L < 0,05 |
| | | | Voldoet niet | Voldoet niet |

| Diep water | u max | $\beta 0$ | Fmax |
|--------------------------|----------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s - [m] | H _s 2.08 [m] | H _s 1.94 [m] |
| significante golfperiode | T _s - [s] | T _s 5.47 [s] | T _s 5.31 [s] |
| gemiddelde golfperiode | T _m - [s] | T _m 4.76 [s] | T _m 4.62 [s] |
| golflengte | L ₀ - [m] | L ₀ 35.27 [m] | L ₀ 33.23 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 |
| | | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | $\beta 0$ | Fmax |
|--------------------------|----------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s - [m] | H _s 0.88 [m] | H _s 0.88 [m] |
| significante golfperiode | T _s - [s] | T _s 3.96 [s] | T _s 3.92 [s] |
| gemiddelde golfperiode | T _m - [s] | T _m 3.45 [s] | T _m 3.41 [s] |
| golflengte | L - [m] | L 18.54 [m] | L 18.10 [m] |

| | | | |
|----------------------------|--------------------|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s [m] | H _s 0.88 [m] | H _s 0.86 [m] |
|----------------------------|--------------------|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: Compartimenteren: meer toekomst?
Onderdeel: Methode Bretschneider

Ordernummer:

-

Blad : 10

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: De Leek

Scenario: Geen dijk + peilverhoging van 25 cm

Invoer

| | | umax | $\beta 0$ | Fmax | |
|-------------------------------|---|------|-----------|-------|---------------------|
| gravitatie constante | g | - | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | - | 21.0 | 20.9 | [m/s] |
| waterdiepte | d | - | 2.45 | 3.55 | [m] |
| strijklengte (effectief) | F | - | 7099 | 12199 | [m] |
| hoek van golf inval | F | - | 0 | 24 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | nvt | $\beta 0$ | Fmax |
|--------------------------|----------------|-------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - [m] | H _s 0.76 [m] | H _s 1.00 [m] |
| significante golfperiode | T _s | - [s] | T _s 5.01 [s] | T _s 5.01 [s] |
| gemiddelde golfperiode | T _m | - [s] | T _m 4.36 [s] | T _m 4.36 [s] |
| golflengte | L | - [m] | L 21.36 [m] | L 25.71 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | d/L < 0,05 |
| | | | Voldoet niet | Voldoet niet |

| Diep water | u max | $\beta 0$ | Fmax |
|--------------------------|----------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s - [m] | H _s 1.33 [m] | H _s 1.65 [m] |
| significante golfperiode | T _s - [s] | T _s 4.30 [s] | T _s 4.87 [s] |
| gemiddelde golfperiode | T _m - [s] | T _m 3.74 [s] | T _m 4.24 [s] |
| golflengte | L ₀ - [m] | L ₀ 21.80 [m] | L ₀ 28.02 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 |
| | | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | $\beta 0$ | Fmax |
|--------------------------|----------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s - [m] | H _s 0.72 [m] | H _s 0.93 [m] |
| significante golfperiode | T _s - [s] | T _s 3.35 [s] | T _s 3.82 [s] |
| gemiddelde golfperiode | T _m - [s] | T _m 2.92 [s] | T _m 3.33 [s] |
| golflengte | L - [m] | L 13.27 [m] | L 17.26 [m] |

| | | | |
|----------------------------|----------------------|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s - [m] | H _s 0.72 [m] | H _s 0.85 [m] |
|----------------------------|----------------------|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: Compartimenteren: meer toekomst?
Onderdeel: Methode Bretschneider

Ordernummer:

-

Blad : 11

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: Muiden

Scenario: Geen dijk + peilverhoging van 25 cm

Invoer

| | | u max | $\beta 0$ | Fmax | |
|-------------------------------|---|-------|-----------|-------|---------------------|
| gravitatie constante | g | 9.81 | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | 28 | 25.0 | 23.5 | [m/s] |
| waterdiepte | d | 2.15 | 3.55 | 3.75 | [m] |
| strijklengte (effectief) | F | 9413 | 16397 | 20741 | [m] |
| hoek van golfval | F | 30 | 0 | 24 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|----------------|-----------|----------------|-----------|----------------|-----------|
| significante golfhoogte | H _s | 0.80 [m] | H _s | 1.09 [m] | H _s | 1.11 [m] |
| significante golfperiode | T _s | 4.55 [s] | T _s | 5.29 [s] | T _s | 5.29 [s] |
| gemiddelde golfperiode | T _m | 3.96 [s] | T _m | 4.60 [s] | T _m | 4.60 [s] |
| golflengte | L | 18.17 [m] | L | 27.14 [m] | L | 27.89 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | | d/L < 0,05 | |
| | Voldoet niet | | Voldoet niet | | Voldoet niet | |

| Diep water | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|----------------|-----------|----------------|-----------|----------------|-----------|
| significante golfhoogte | H _s | 2.09 [m] | H _s | 2.31 [m] | H _s | 2.36 [m] |
| significante golfperiode | T _s | 5.34 [s] | T _s | 5.74 [s] | T _s | 5.87 [s] |
| gemiddelde golfperiode | T _m | 4.65 [s] | T _m | 5.00 [s] | T _m | 5.11 [s] |
| golflengte | L ₀ | 33.70 [m] | L ₀ | 38.93 [m] | L ₀ | 40.67 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 | | d/L > 0,50 | |
| | Voldoet niet | | Voldoet niet | | Voldoet niet | |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|----------------|-----------|----------------|-----------|----------------|-----------|
| significante golfhoogte | H _s | 0.79 [m] | H _s | 1.06 [m] | H _s | 1.08 [m] |
| significante golfperiode | T _s | 3.79 [s] | T _s | 4.27 [s] | T _s | 4.33 [s] |
| gemiddelde golfperiode | T _m | 3.30 [s] | T _m | 3.71 [s] | T _m | 3.76 [s] |
| golflengte | L | 16.97 [m] | L | 21.49 [m] | L | 22.10 [m] |

| | | | | | | |
|----------------------------|----------------|----------|----------------|----------|----------------|----------|
| Hs gecorrigeerd voor cos B | H _s | 0.68 [m] | H _s | 1.06 [m] | H _s | 0.98 [m] |
|----------------------------|----------------|----------|----------------|----------|----------------|----------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: Compartimenteren: meer toekomst?
Onderdeel: Methode Bretschneider

Ordernummer:

-

Blad : 12

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: Almere Pampus

Scenario: Geen dijk + peilverhoging van 50 cm

Invoer

| | | u max | $\beta 0$ | Fmax | |
|-------------------------------|---|-------|-----------|-------|---------------------|
| gravitatie constante | g | 9.81 | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | 32.6 | 32.0 | 23.5 | [m/s] |
| waterdiepte | d | 2.7 | 2.9 | 3.8 | [m] |
| strijklengte (effectief) | F | 7163 | 8245 | 18783 | [m] |
| hoek van golfval | F | 45 | 0 | 30 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | $\beta 0$ | Fmax |
|--------------------------|-------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s 1.02 [m] | H _s 1.06 [m] | H _s 1.12 [m] |
| significante golfperiode | T _s 5.15 [s] | T _s 5.31 [s] | T _s 5.31 [s] |
| gemiddelde golfperiode | T _m 4.48 [s] | T _m 4.62 [s] | T _m 4.62 [s] |
| golflengte | L 23.06 [m] | L 24.64 [m] | L 28.21 [m] |
| voorwaarde | d/L < 0,05 | d/L < 0,05 | d/L < 0,05 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

| Diep water | u max | $\beta 0$ | Fmax |
|--------------------------|--------------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s 2.22 [m] | H _s 2.31 [m] | H _s 2.27 [m] |
| significante golfperiode | T _s 5.41 [s] | T _s 5.55 [s] | T _s 5.74 [s] |
| gemiddelde golfperiode | T _m 4.71 [s] | T _m 4.82 [s] | T _m 4.99 [s] |
| golflengte | L ₀ 34.59 [m] | L ₀ 36.32 [m] | L ₀ 38.84 [m] |
| voorwaarde | d/L > 0,50 | d/L > 0,50 | d/L > 0,50 |
| | Voldoet niet | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | $\beta 0$ | Fmax |
|--------------------------|-------------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s 0.99 [m] | H _s 1.04 [m] | H _s 1.08 [m] |
| significante golfperiode | T _s 4.06 [s] | T _s 4.16 [s] | T _s 4.29 [s] |
| gemiddelde golfperiode | T _m 3.53 [s] | T _m 3.62 [s] | T _m 3.73 [s] |
| golflengte | L 19.48 [m] | L 20.41 [m] | L 21.69 [m] |

| | | | |
|----------------------------|-------------------------|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s 0.70 [m] | H _s 1.04 [m] | H _s 0.94 [m] |
|----------------------------|-------------------------|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
Onderdeel: *Methode Bretschneider*

Ordernummer:
-

Blad : 13

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: IJburg

Scenario: Geen dijk + peilverhoging van 50 cm

Invoer

| | | umax | $\beta 0$ | Fmax | |
|-------------------------------|---|------|-----------|-------|---------------------|
| gravitatie constante | g | - | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | - | 23.5 | 21.6 | [m/s] |
| waterdiepte | d | - | 3.10 | 3.30 | [m] |
| strijklengte (effectief) | F | - | 15284 | 16302 | [m] |
| hoek van golfval | F | - | 0 | 12 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | nvt | $\beta 0$ | Fmax |
|--------------------------|----------------|-----|---------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.96 [m] |
| significante golfperiode | T _s | - | [s] | T _s 4.93 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 4.29 [s] |
| golf lengte | L | - | [m] | L 23.65 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | d/L < 0,05 |
| | | | Voldoet niet | Voldoet niet |

| Diep water | u max | $\beta 0$ | Fmax | |
|--------------------------|----------------|-----------|---------------------|--------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 2.08 [m] |
| significante golfperiode | T _s | - | [s] | T _s 5.47 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 4.76 [s] |
| golf lengte | L ₀ | - | [m] | L ₀ 35.27 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 | d/L > 0,50 |
| | | | Voldoet niet | Voldoet niet |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | $\beta 0$ | Fmax | |
|--------------------------|----------------|-----------|------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.93 [m] |
| significante golfperiode | T _s | - | [s] | T _s 4.03 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 3.50 [s] |
| golf lengte | L | - | [m] | L 19.15 [m] |

| | | | | |
|----------------------------|----------------|-----|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s | [m] | H _s 0.93 [m] | H _s 0.91 [m] |
|----------------------------|----------------|-----|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: Compartimenteren: meer toekomst?
Onderdeel: Methode Bretschneider

Ordernummer:

-

Blad : 14

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: De Leek

Scenario: Geen dijk + peilverhoging van 50 cm

Invoer

| | | umax | β0 | Fmax | |
|-------------------------------|----------|-------------|-----------|-------------|---------------------|
| gravitatie constante | g | - | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | - | 21.0 | 20.9 | [m/s] |
| waterdiepte | d | - | 2.70 | 3.80 | [m] |
| strijklengte (effectief) | F | - | 7099 | 12199 | [m] |
| hoek van golfval | F | - | 0 | 24 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | u max | nvt | β0 | Fmax | |
|--------------------------|----------------|------------|---------------------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.82 [m] | H _s 1.05 [m] |
| significante golfperiode | T _s | - | [s] | T _s 5.13 [s] | T _s 5.13 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 4.46 [s] | T _m 4.46 [s] |
| golf lengte | L | - | [m] | L 22.96 [m] | L 27.24 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | d/L < 0,05 | |
| | | | Voldoet niet | Voldoet niet | |

| Diep water | u max | β0 | Fmax | | |
|--------------------------|----------------|-----------|---------------------|--------------------------|--------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 1.33 [m] | H _s 1.65 [m] |
| significante golfperiode | T _s | - | [s] | T _s 4.30 [s] | T _s 4.87 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 3.74 [s] | T _m 4.24 [s] |
| golf lengte | L ₀ | - | [m] | L ₀ 21.80 [m] | L ₀ 28.02 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 | d/L > 0,50 | |
| | | | Voldoet niet | Voldoet niet | |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | u max | β0 | Fmax | | |
|--------------------------|----------------|-----------|-------------|-------------------------|-------------------------|
| significante golfhoogte | H _s | - | [m] | H _s 0.76 [m] | H _s 0.97 [m] |
| significante golfperiode | T _s | - | [s] | T _s 3.41 [s] | T _s 3.87 [s] |
| gemiddelde golfperiode | T _m | - | [s] | T _m 2.96 [s] | T _m 3.36 [s] |
| golf lengte | L | - | [m] | L 13.68 [m] | L 17.63 [m] |

| | | | | | |
|----------------------------|----------------|---|-----|-------------------------|-------------------------|
| Hs gecorrigeerd voor cos B | H _s | - | [m] | H _s 0.76 [m] | H _s 0.88 [m] |
|----------------------------|----------------|---|-----|-------------------------|-------------------------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: *Compartimenteren: meer toekomst?*
Onderdeel: *Methode Bretschneider*

Ordernummer:

-

Blad : 15

Opsteller: W. Weeink

Par :

Datum 4/dec/2007

GOLFGROEI, methode Bretschneider

Locatie: Muiden

Scenario: Geen dijk + peilverhoging van 50 cm

Invoer

| | | u max | $\beta 0$ | Fmax | |
|-------------------------------|---|-------|-----------|-------|---------------------|
| gravitatie constante | g | 9.81 | 9.81 | 9.81 | [m/s ²] |
| windsnelheid (op 10 m hoogte) | u | 28 | 25.0 | 23.5 | [m/s] |
| waterdiepte | d | 2.4 | 3.8 | 4.0 | [m] |
| strijklengte (effectief) | F | 9413 | 16397 | 20741 | [m] |
| hoek van golfval | F | 30 | 0 | 24 | [°] |

Gebruikte formules

Voor diep water geldt:

Voor ondiep water geldt:

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,0125 (gF/u^2)^{0,42})$$

$$H_{1/3} = 0,283 (u^2/g) \operatorname{tgh} (0,530 (gd/u^2)^{0,75})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,077 (gF/u^2)^{0,25})$$

$$T_{1/2} = 2,4\pi(u/g) \operatorname{tgh} (0,833 (gd/u^2)^{0,375})$$

$$L_0 = gT_m^2/2\pi$$

$$L = T_m \sqrt{gd}$$

Uitvoer

| Ondiep water | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|----------------|-----------|----------------|-----------|----------------|-----------|
| significante golfhoogte | H _s | 0.86 [m] | H _s | 1.15 [m] | H _s | 1.16 [m] |
| significante golfperiode | T _s | 4.74 [s] | T _s | 5.41 [s] | T _s | 5.41 [s] |
| gemiddelde golfperiode | T _m | 4.12 [s] | T _m | 4.70 [s] | T _m | 4.70 [s] |
| golf lengte | L | 19.98 [m] | L | 28.72 [m] | L | 29.47 [m] |
| voorwaarde | d/L < 0,05 | | d/L < 0,05 | | d/L < 0,05 | |
| | Voldoet niet | | Voldoet niet | | Voldoet niet | |

| Diep water | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|----------------|-----------|----------------|-----------|----------------|-----------|
| significante golfhoogte | H _s | 2.09 [m] | H _s | 2.31 [m] | H _s | 2.36 [m] |
| significante golfperiode | T _s | 5.34 [s] | T _s | 5.74 [s] | T _s | 5.87 [s] |
| gemiddelde golfperiode | T _m | 4.65 [s] | T _m | 5.00 [s] | T _m | 5.11 [s] |
| golf lengte | L ₀ | 33.70 [m] | L ₀ | 38.93 [m] | L ₀ | 40.67 [m] |
| voorwaarde | d/L > 0,50 | | d/L > 0,50 | | d/L > 0,50 | |
| | Voldoet niet | | Voldoet niet | | Voldoet niet | |

Voldoet geen van beiden dan geldt de combinatie formule:

| combinatie | <i>u max</i> | | $\beta 0$ | | <i>Fmax</i> | |
|--------------------------|----------------|-----------|----------------|-----------|----------------|-----------|
| significante golfhoogte | H _s | 0.85 [m] | H _s | 1.11 [m] | H _s | 1.12 [m] |
| significante golfperiode | T _s | 3.88 [s] | T _s | 4.32 [s] | T _s | 4.38 [s] |
| gemiddelde golfperiode | T _m | 3.37 [s] | T _m | 3.76 [s] | T _m | 3.81 [s] |
| golf lengte | L | 17.73 [m] | L | 22.03 [m] | L | 22.64 [m] |

| | | | | | | |
|----------------------------|----------------|----------|----------------|----------|----------------|----------|
| Hs gecorrigeerd voor cos B | H _s | 0.74 [m] | H _s | 1.11 [m] | H _s | 1.03 [m] |
|----------------------------|----------------|----------|----------------|----------|----------------|----------|



Afdeling :
Waterbouw
Ontwerp & advies

Werk: Compartimenteren: meer toekomst?
Onderdeel: Methode Bretschneider

Ordernummer:

-

Blad : 16

Opsteller: W. Weeink

Par :

Datum 4/dec/2007