



Stand: Januar 2021

| Rotorblatt-<br>Typ<br>Profiltyp =<br>Profiltiefe | Blattlänge<br>L<br>[mm] | Blattspitzen-<br>Geschwindigkeit<br>$V_{B \min} - V_{B \max}$<br>[m/s] | Anstellwinkel-<br>Bereich<br>$\alpha_{-max} \quad \alpha_{+max}$<br>[grad] | Null-<br>auftriebs-<br>Winkel<br>$\alpha_0$ [grad] | Blattgriff-<br>Dicke<br>D<br>[mm] | Blattgriff-<br>Bohrung<br>$\varnothing$<br>[mm] |
|--|-------------------------|--|--|--|-----------------------------------|---|
| S - 48   | 140 - 500               | 65 - 90  | - 5   + 10   | - 0,9  | 10   8*   6*   5*                 | 3   4*  |
| S - 49   | 160 - 700               | 65 - 90  | - 5   + 10   | - 0,9  | 10   8*   6*   5*                 | 3   4*  |
| S - 55   | 500 - 900               | 85 - 110   | - 5   + 10   | - 0,9  | 12   14*   10*                    | 4   3   5*                                      |
| S - 65   | 600 - 1150              | 90 - 120   | - 5   + 10   | - 0,9  | 14   12*                          | 4   5   6                                       |
| S - 75   | 700 - 1400              | 90 - 125   | - 5   + 10   | - 0,9  | 14   12*                          | 4   5   6                                       |
| S - 93   | 900 - 1600              | 90 - 130   | - 5   + 9  | - 0,9  | 14   22*                          | 8   6   5*                                      |
|  |                         |  |  |  |                                   |   |
| X - 32   | 85 - 450                | 90 - 130   | - 11   + 11  | 0  | 8   5                             | 3   4*  |
| X - 47   | 140 - 550               | 75 - 100   | - 10   + 10  | 0  | 10   8*   6*   5*                 | 3   4*  |
| X - 53   | 500 - 650               | 75 - 105   | - 10   + 10  | 0  | 12   14*   10*                    | 4   3   5*                                      |
| X - 63   | 600 - 1100              | 80 - 120   | - 10   + 10  | 0  | 14   12*                          | 4   5   6                                       |
| X - 71   | 800 - 1100              | 90 - 130   | - 10   + 10  | 0  | 14   12*                          | 4   5   6                                       |

S = S - Schlag - Profil

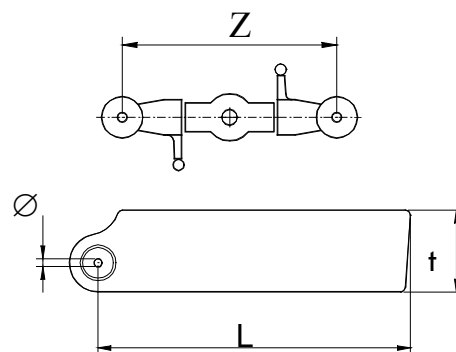
X = symmetrisches Profil

\* = auf Wunsch gegen Aufpreis erhältlich;

Andere Ausführungen auf Anfrage

$$V_B = \frac{\pi \cdot \left( L + \frac{Z}{2} \right)}{30000} \cdot n$$

$$n = \frac{30000}{\pi \cdot \left( L + \frac{Z}{2} \right)} \cdot V_B$$



$V_B$  Blattspitzengeschwindigkeit [m/s]

$n$  Drehzahl [ $\text{min}^{-1}$ ]

$L$  Blattlänge Nennmaß (von Bohrungsmittle bis Blattende) [mm]

$Z$  Blatthalterbohrungsabstand (von Bohrung zu Bohrung gegenüberliegend) [mm]

$D$  Blattgriffdicke [mm]

$\varnothing$  Bohrungsdurchmesser [mm]

$t$  Profiltiefe [mm]

**Bitte beachten Sie die Sicherheitshinweise!**

# Datenblatt Rotorblätter M-Blades Manufaktur

Maximale Drehzahl am Rotorkopf in Abhängigkeit vom Rotorkreis:

| Blatt-Typ                               |                        |                         | S 93   | S 75 | S 65 | S 55 | S 49 | S 48 | X 71 | X 63 | X 53 | X 47 | X 32  |
|---|------------------------|-------------------------|--|------|------|------|------|------|------|------|------|------|-------|
| Max. Blattspitzen-Geschwindigkeit [m/s] |                        |                         | 130  | 125  | 120  | 110  | 90   | 90   | 130  | 120  | 105  | 100  | 130   |
| Rotorkreis-Durchmesser [mm]             | Rotorkreis-Radius [mm] | Rotorkreis-Fläche [cm²] | Maximale Drehzahl am Rotorkopf [1/min] [rpm] |      |      |      |      |      |      |      |      |      |       |
| 4000                                    | 2000                   | 125663,6                | 621  |      |      |      |      |      |      |      |      |      |       |
| 3900                                    | 1950                   | 119459,0                | 637  |      |      |      |      |      |      |      |      |      |       |
| 3800                                    | 1900                   | 113411,4                | 653  |      |      |      |      |      |      |      |      |      |       |
| 3700                                    | 1850                   | 107520,9                | 671  |      |      |      |      |      |      |      |      |      |       |
| 3600                                    | 1800                   | 101787,5                | 690  |      |      |      |      |      |      |      |      |      |       |
| 3500                                    | 1750                   | 96211,2                 | 709  |      |      |      |      |      |      |      |      |      |       |
| 3400                                    | 1700                   | 90792,0                 | 730  |      |      |      |      |      |      |      |      |      |       |
| 3300                                    | 1650                   | 85529,8                 | 752  | 723  |      |      |      |      |      |      |      |      |       |
| 3200                                    | 1600                   | 80424,7                 | 776  | 746  |      |      |      |      |      |      |      |      |       |
| 3100                                    | 1550                   | 75476,7                 | 801  | 770  |      |      |      |      |      |      |      |      |       |
| 3000                                    | 1500                   | 70685,8                 | 828  | 796  |      |      |      |      |      |      |      |      |       |
| 2900                                    | 1450                   | 66051,9                 | 856  | 823  |      |      |      |      | 856  |      |      |      |       |
| 2800                                    | 1400                   | 61575,2                 | 887  | 853  |      |      |      |      | 887  |      |      |      |       |
| 2700                                    | 1350                   | 57255,5                 | 920  | 884  | 849  |      |      |      | 920  | 849  |      |      |       |
| 2600                                    | 1300                   | 53092,9                 | 955  | 918  | 881  |      |      |      | 955  | 881  |      |      |       |
| 2500                                    | 1250                   | 49087,3                 | 993  | 955  | 917  |      |      |      | 993  | 917  |      |      |       |
| 2400                                    | 1200                   | 45238,9                 | 1035   | 995  | 955  |      |      |      | 1035 | 955  |      |      |       |
| 2300                                    | 1150                   | 41547,5                 | 1079   | 1038 | 996  |      |      |      | 1079 | 996  |      |      |       |
| 2200                                    | 1100                   | 38013,2                 | 1129   | 1085 | 1042 |      |      |      | 1129 | 1042 |      |      |       |
| 2100                                    | 1050                   | 34636,0                 | 1182   | 1137 | 1091 | 1000 |      |      | 1182 | 1091 |      |      |       |
| 2000                                    | 1000                   | 31415,9                 | 1241   | 1194 | 1146 | 1050 |      |      | 1241 | 1146 |      |      |       |
| 1900                                    | 950                    | 28352,8                 | 1307   | 1256 | 1206 | 1106 |      |      | 1307 | 1206 |      |      |       |
| 1800                                    | 900                    | 25446,9                 | 1379   | 1326 | 1273 | 1167 |      |      | 1379 | 1273 |      |      |       |
| 1700                                    | 850                    | 22698,0                 | 1460   | 1404 | 1348 | 1236 |      |      | 1460 | 1348 |      |      |       |
| 1600                                    | 800                    | 20106,2                 | 1552   | 1492 | 1432 | 1313 |      |      | 1552 | 1432 | 1253 |      |       |
| 1500                                    | 750                    | 17671,4                 |  | 1592 | 1528 | 1401 | 1146 |      | 1655 | 1528 | 1337 |      |       |
| 1400                                    | 700                    | 15393,8                 |  | 1705 | 1637 | 1501 | 1228 |      | 1773 | 1637 | 1432 | 1364 |       |
| 1300                                    | 650                    | 13273,2                 |  | 1836 | 1763 | 1616 | 1322 |      | 1910 | 1763 | 1543 | 1469 |       |
| 1200                                    | 600                    | 11309,7                 |  |      | 1910 | 1751 | 1432 | 1432 |      | 1910 | 1671 | 1592 |       |
| 1100                                    | 550                    | 9503,3                  |  |      |      | 1910 | 1563 | 1563 |      |      | 1823 | 1736 | 2257  |
| 1000                                    | 500                    | 7854,0                  |  |      |      | 2101 | 1719 | 1719 |      |      | 2005 | 1910 | 2483  |
| 950                                     | 475                    | 7088,2                  |  |      |      | 2211 | 1809 | 1809 |      |      | 2111 | 2010 | 2613  |
| 900                                     | 450                    | 6361,7                  |  |      |      | 2334 | 1910 | 1910 |      |      | 2228 | 2122 | 2759  |
| 850                                     | 425                    | 5674,5                  |  |      |      | 2472 | 2022 | 2022 |      |      | 2359 | 2247 | 2921  |
| 800                                     | 400                    | 5026,5                  |  |      |      | 2626 | 2149 | 2149 |      |      | 2507 | 2387 | 3104  |
| 750                                     | 375                    | 4417,9                  |  |      |      | 2801 | 2292 | 2292 |      |      | 2674 | 2546 | 3310  |
| 700                                     | 350                    | 3848,4                  |  |      |      | 3001 | 2456 | 2456 |      |      | 2865 | 2728 | 3547  |
| 650                                     | 325                    | 3318,3                  |  |      |      | 3232 | 2644 | 2644 |      |      | 3085 | 2938 | 3820  |
| 600                                     | 300                    | 2827,4                  |  |      |      | 3501 | 2865 | 2865 |      |      | 3342 | 3183 | 4138  |
| 550                                     | 275                    | 2375,8                  |  |      |      | 3820 | 3125 | 3125 |      |      | 3646 | 3472 | 4514  |
| 500                                     | 250                    | 1963,5                  |  |      |      | 4202 | 3438 | 3438 |      |      | 4011 | 3820 | 4966  |
| 475                                     | 237,5                  | 1772,1                  |  |      |      | 4423 | 3619 | 3619 |      |      |      | 4021 | 5227  |
| 450                                     | 225                    | 1590,4                  |  |      |      | 4669 | 3820 | 3820 |      |      |      | 4244 | 5517  |
| 425                                     | 212,5                  | 1418,6                  |  |      |      | 4943 | 4044 | 4044 |      |      |      | 4494 | 5842  |
| 400                                     | 200                    | 1256,6                  |  |      |      | 5252 | 4297 | 4297 |      |      |      | 4775 | 6207  |
| 375                                     | 187,5                  | 1104,5                  |  |      |      |      | 4584 | 4584 |      |      |      | 5093 | 6621  |
| 350                                     | 175                    | 962,1                   |  |      |      |      | 4911 | 4911 |      |      |      | 5457 | 7094  |
| 325                                     | 162,5                  | 829,6                   |  |      |      |      |      |      |      |      |      | 5876 | 7639  |
| 300                                     | 150                    | 706,9                   |  |      |      |      |      |      |      |      |      |      | 8276  |
| 275                                     | 137,5                  | 594,0                   |  |      |      |      |      |      |      |      |      |      | 9028  |
| 250                                     | 125                    | 490,9                   |  |      |      |      |      |      |      |      |      |      | 9931  |
| 225                                     | 112,5                  | 397,6                   |  |      |      |      |      |      |      |      |      |      | 11035 |

**Bitte beachten Sie die Sicherheitshinweise!**

# Technical Data of M-BLADES



update: januar 2021

| blades - type<br>profil-type =<br>profil-width | length of blade<br>L<br>[mm] | speed of the blades-tip<br>$V_{B \min} - V_{B \max}$<br>[m/s] | angle of attack<br>$\alpha_{-max} \quad \alpha_{+max}$<br>[grad] | angle zero lift<br>$\alpha_0$<br>[grad] | root adapter thickness<br>D<br>[mm] | adapter hole<br>$\varnothing$<br>[mm] |
|--|------------------------------|---|--|---|-------------------------------------|---------------------------------------|
| S - 48   | 140 - 500                    | 65 - 90   | - 5   + 10   | - 0,9                                   | 10   8*   6*   5*                   | 3   4*                                |
| S - 49   | 160 - 700                    | 65 - 90   | - 5   + 10   | - 0,9                                   | 10   8*   6*   5*                   | 3   4*                                |
| S - 55   | 500 - 900                    | 85 - 110  | - 5   + 10   | - 0,9                                   | 12   14*   10*                      | 4   3   5*                            |
| S - 65   | 600 - 1150                   | 90 - 120  | - 5   + 10   | - 0,9                                   | 14   12*                            | 4   5   6                             |
| S - 75   | 700 - 1400                   | 90 - 125  | - 5   + 10   | - 0,9                                   | 14   12*                            | 4   5   6                             |
| S - 93   | 900 - 1600                   | 90 - 130  | - 5   + 9  | - 0,9                                   | 14   22*                            | 8   6   5*                            |
| X - 32   | 85 - 450                     | 90 - 130  | - 11   + 11  | 0                                       | 8   5                               | 3   4*                                |
| X - 47   | 140 - 550                    | 75 - 100  | - 10   + 10  | 0                                       | 10   8*   6*   5*                   | 3   4*                                |
| X - 53   | 500 - 650                    | 75 - 105  | - 10   + 10  | 0                                       | 12   14*   10*                      | 4   3   5*                            |
| X - 63   | 600 - 1100                   | 80 - 120  | - 10   + 10  | 0                                       | 14   12*                            | 4   5   6                             |
| X - 71   | 800 - 1100                   | 90 - 130  | - 10   + 10  | 0                                       | 14   12*                            | 4   5   6                             |

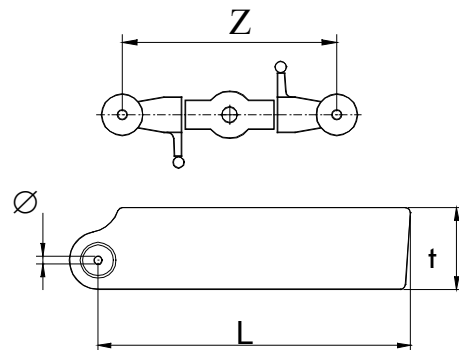
S = S - profil

X = symmetrical profil

\* = available on request at an additional cost

$$V_B = \frac{\pi \cdot \left( L + \frac{Z}{2} \right)}{30000} \cdot n$$

$$n = \frac{30000}{\pi \cdot \left( L + \frac{Z}{2} \right)} \cdot V_B$$



- $V_B$  speed of the blades-tip [m/s]
- n rpm [ $\text{min}^{-1}$ ]
- L length [mm]
- Z distance [mm]
- D root thickness [mm]
- $\varnothing$  hole [mm]
- t profil-width [mm]

**Please observe the safety instructions !**

# Technical Data of M-BLADES

maximum rotation speed at the rotor head depending on rotor diameter:

| blades-type         | S 93   | S 75 | S 65 | S 55 | S 49 | S 48 | X 71 | X 63 | X 53 | X 47 | X 32  |
|---------------------|--|------|------|------|------|------|------|------|------|------|-------|
| rotor-diameter [mm] | maximum rotation speed at the rotor head [1/min] [rpm] |      |      |      |      |      |      |      |      |      |       |
| 4000                | 621  |      |      |      |      |      |      |      |      |      |       |
| 3900                | 637  |      |      |      |      |      |      |      |      |      |       |
| 3800                | 653  |      |      |      |      |      |      |      |      |      |       |
| 3700                | 671  |      |      |      |      |      |      |      |      |      |       |
| 3600                | 690  |      |      |      |      |      |      |      |      |      |       |
| 3500                | 709  |      |      |      |      |      |      |      |      |      |       |
| 3400                | 730  |      |      |      |      |      |      |      |      |      |       |
| 3300                | 752  | 723  |      |      |      |      |      |      |      |      |       |
| 3200                | 776  | 746  |      |      |      |      |      |      |      |      |       |
| 3100                | 801  | 770  |      |      |      |      |      |      |      |      |       |
| 3000                | 828  | 796  |      |      |      |      |      |      |      |      |       |
| 2900                | 856  | 823  |      |      |      |      | 856  |      |      |      |       |
| 2800                | 887  | 853  |      |      |      |      | 887  |      |      |      |       |
| 2700                | 920  | 884  | 849  |      |      |      | 920  | 849  |      |      |       |
| 2600                | 955  | 918  | 881  |      |      |      | 955  | 881  |      |      |       |
| 2500                | 993  | 955  | 917  |      |      |      | 993  | 917  |      |      |       |
| 2400                | 1035   | 995  | 955  |      |      |      | 1035 | 955  |      |      |       |
| 2300                | 1079   | 1038 | 996  |      |      |      | 1079 | 996  |      |      |       |
| 2200                | 1129   | 1085 | 1042 |      |      |      | 1129 | 1042 |      |      |       |
| 2100                | 1182   | 1137 | 1091 | 1000 |      |      | 1182 | 1091 |      |      |       |
| 2000                | 1241   | 1194 | 1146 | 1050 |      |      | 1241 | 1146 |      |      |       |
| 1900                | 1307   | 1256 | 1206 | 1106 |      |      | 1307 | 1206 |      |      |       |
| 1800                | 1379   | 1326 | 1273 | 1167 |      |      | 1379 | 1273 |      |      |       |
| 1700                | 1460   | 1404 | 1348 | 1236 |      |      | 1460 | 1348 |      |      |       |
| 1600                | 1552   | 1492 | 1432 | 1313 |      |      | 1552 | 1432 | 1253 |      |       |
| 1500                |  | 1592 | 1528 | 1401 | 1146 |      | 1655 | 1528 | 1337 |      |       |
| 1400                |  | 1705 | 1637 | 1501 | 1228 |      | 1773 | 1637 | 1432 | 1364 |       |
| 1300                |  | 1836 | 1763 | 1616 | 1322 |      | 1910 | 1763 | 1543 | 1469 |       |
| 1200                |  |      | 1910 | 1751 | 1432 | 1432 |      | 1910 | 1671 | 1592 |       |
| 1100                |  |      |      | 1910 | 1563 | 1563 |      |      | 1823 | 1736 | 2257  |
| 1000                |  |      |      | 2101 | 1719 | 1719 |      |      | 2005 | 1910 | 2483  |
| 950                 |  |      |      | 2211 | 1809 | 1809 |      |      | 2111 | 2010 | 2613  |
| 900                 |  |      |      | 2334 | 1910 | 1910 |      |      | 2228 | 2122 | 2759  |
| 850                 |  |      |      | 2472 | 2022 | 2022 |      |      | 2359 | 2247 | 2921  |
| 800                 |  |      |      | 2626 | 2149 | 2149 |      |      | 2507 | 2387 | 3104  |
| 750                 |  |      |      | 2801 | 2292 | 2292 |      |      | 2674 | 2546 | 3310  |
| 700                 |  |      |      | 3001 | 2456 | 2456 |      |      | 2865 | 2728 | 3547  |
| 650                 |  |      |      | 3232 | 2644 | 2644 |      |      | 3085 | 2938 | 3820  |
| 600                 |  |      |      | 3501 | 2865 | 2865 |      |      | 3342 | 3183 | 4138  |
| 550                 |  |      |      | 3820 | 3125 | 3125 |      |      | 3646 | 3472 | 4514  |
| 500                 |  |      |      | 4202 | 3438 | 3438 |      |      | 4011 | 3820 | 4966  |
| 475                 |  |      |      | 4423 | 3619 | 3619 |      |      |      | 4021 | 5227  |
| 450                 |  |      |      | 4669 | 3820 | 3820 |      |      |      | 4244 | 5517  |
| 425                 |  |      |      | 4943 | 4044 | 4044 |      |      |      | 4494 | 5842  |
| 400                 |  |      |      | 5252 | 4297 | 4297 |      |      |      | 4775 | 6207  |
| 375                 |  |      |      |      | 4584 | 4584 |      |      |      | 5093 | 6621  |
| 350                 |  |      |      |      | 4911 | 4911 |      |      |      | 5457 | 7094  |
| 325                 |  |      |      |      |      |      |      |      |      | 5876 | 7639  |
| 300                 |  |      |      |      |      |      |      |      |      |      | 8276  |
| 275                 |  |      |      |      |      |      |      |      |      |      | 9028  |
| 250                 |  |      |      |      |      |      |      |      |      |      | 9931  |
| 225                 |  |      |      |      |      |      |      |      |      |      | 11035 |

**Please observe the safety instructions !**