

# HL-Düsentabelle für Geräte mit 2 Düsen / HL-Nozzle chart 2 nozzles

| Bar<br>l/min | Size   | 015  | 02   | 03   | 04   | 05   | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 14   | 15   | 16    | 18   | 20   | 25   | 30   | 35   | 40   | 50   |
|--------------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|
|              | Ø = mm | 0.72 | 0.90 | 1.10 | 1.20 | 1.35 | 1.45 | 1.55 | 1.70 | 1.80 | 1.90 | 2.00 | 2.10 | 2.20 | 2.30 | 2.40  | 2.60 | 2.80 | 3.00 | 3.30 | 3.60 | 3.90 | 4.30 |
| 1            |        |      | 0.9  | 1.4  | 1.8  | 2.2  | 2.8  | 3.2  | 3.6  | 4.0  | 4.6  | 5.0  | 5.3  | 5.9  | 6.2  | 6.4   | 6.8  | 7.3  | 8.6  | 9.6  | 10.5 | 11.6 | 13.0 |
| 2            |        |      | 1.3  | 1.9  | 2.6  | 3.2  | 3.8  | 4.6  | 5.2  | 5.8  | 6.4  | 7.0  | 7.2  | 8.3  | 8.6  | 8.9   | 9.6  | 10.4 | 12.3 | 13.7 | 15.1 | 16.5 | 18.6 |
| 3            |        |      | 1.6  | 2.4  | 3.2  | 4.0  | 4.8  | 5.6  | 6.4  | 7.0  | 7.8  | 8.6  | 9.0  | 10.3 | 10.7 | 11.0  | 11.7 | 13.0 | 15.0 | 16.8 | 18.4 | 20.0 | 23.0 |
| 4            |        |      | 1.8  | 2.8  | 3.6  | 4.6  | 5.4  | 6.2  | 7.2  | 8.0  | 9.2  | 10.2 | 10.8 | 11.7 | 12.3 | 12.7  | 13.6 | 14.5 | 17.3 | 19.5 | 21.3 | 23.3 | 26.7 |
| 5            |        |      | 2.0  | 3.0  | 4.0  | 5.0  | 6.2  | 7.2  | 8.2  | 9.2  | 10.2 | 11.2 | 11.7 | 13.2 | 13.8 | 14.1  | 15.1 | 16.3 | 19.3 | 21.7 | 23.6 | 25.6 | 29.0 |
| 6            |        |      | 2.2  | 3.4  | 4.4  | 5.6  | 6.6  | 7.8  | 9.0  | 10.0 | 11.2 | 12.4 | 13.0 | 14.7 | 15.2 | 15.5  | 16.6 | 17.9 | 21.0 | 23.7 | 25.8 | 28.2 | 32.0 |
| 7            |        |      | 2.4  | 3.6  | 4.8  | 6.0  | 7.2  | 8.4  | 9.6  | 10.8 | 12.0 | 13.2 | 13.8 | 15.6 | 16.3 | 16.7  | 17.9 | 19.4 | 23.0 | 25.7 | 28.1 | 30.7 | 34.8 |
| 10           |        |      | 2.8  | 4.4  | 5.8  | 7.2  | 8.6  | 10.2 | 11.6 | 13.0 | 14.4 | 15.8 | 16.5 | 18.7 | 19.6 | 20.0  | 21.6 | 23.0 | 27.0 | 31.2 | 34.2 | 37.0 | 39.0 |
| 12           |        |      | 3.0  | 4.8  | 6.2  | 7.8  | 9.4  | 11.0 | 12.6 | 14.0 | 15.6 | 17.0 | 18.0 | 19.5 | 21.0 | 22.0  | 24.0 | 26.0 | 29.0 | 33.0 | 36.0 | 40.0 | 45.0 |
| 15           |        |      | 3.4  | 5.3  | 7.0  | 8.6  | 10.4 | 12.1 | 14.0 | 15.6 | 17.4 | 19.2 | 20.0 | 22.7 | 23.7 | 24.2  | 25.9 | 27.5 | 33.0 | 37.6 | 41.0 | 45.0 | 50.0 |
| 20           |        |      | 4.0  | 6.2  | 8.2  | 10.2 | 12.2 | 14.2 | 16.4 | 18.4 | 20.4 | 22.6 | 24.0 | 26.0 | 28.0 | 30.0  | 33.0 | 36.0 | 39.0 | 44.0 | 48.0 | 52.0 | 59.0 |
| 25           |        |      | 4.4  | 6.8  | 9.2  | 11.2 | 13.6 | 15.6 | 18.0 | 20.4 | 22.6 | 25.0 | 26.0 | 29.4 | 30.6 | 31.3  | 33.5 | 35.6 | 42.0 | 48.0 | 53.0 | 58.0 | 65.0 |
| 30           |        |      | 4.9  | 7.4  | 10.0 | 12.2 | 14.8 | 17.2 | 19.8 | 22.1 | 24.8 | 27.4 | 28.4 | 32.0 | 33.5 | 34.3  | 36.8 | 39.5 | 46.0 | 52.0 | 58.0 | 64.0 | 72.0 |
| 35           |        |      | 5.4  | 8.0  | 10.8 | 13.4 | 16.2 | 18.8 | 21.6 | 24.2 | 27.0 | 29.6 | 30.9 | 34.8 | 36.4 | 37.2  | 40.2 | 43.2 | 50.0 | 57.0 | 63.0 | 69.0 |      |
| 40           |        |      | 5.9  | 8.4  | 11.6 | 14.6 | 17.2 | 20.0 | 22.8 | 25.6 | 28.6 | 31.4 | 33.6 | 38.0 | 39.0 | 40.5  | 42.5 | 45.6 | 53.0 | 62.0 | 68.0 | 75.0 |      |
| 50           | 4.6    | 6.4  | 9.4  | 12.6 | 15.8 | 19.0 | 22.2 | 25.2 | 28.4 | 31.6 | 34.8 | 36.5 | 41.0 | 43.0 | 44.0 | 47.0  | 51.0 | 59.0 | 66.0 | 73.0 | 81.0 |      |      |
| 60           | 5.0    | 6.9  | 10.2 | 13.6 | 17.2 | 20.6 | 24.2 | 27.4 | 31.0 | 34.4 | 37.8 | 39.7 | 44.6 | 47.0 | 48.0 | 51.5  | 55.0 | 64.0 | 73.0 | 80.0 |      |      |      |
| 70           | 5.4    | 7.4  | 11.2 | 14.8 | 18.6 | 22.4 | 26.2 | 29.6 | 33.4 | 37.2 | 40.8 | 42.8 | 47.0 | 50.8 | 52.0 | 55.6  | 59.5 | 70.0 | 79.0 |      |      |      |      |
| 80           | 5.8    | 8.0  | 12.0 | 16.0 | 20.0 | 24.0 | 28.0 | 32.0 | 36.0 | 40.0 | 44.0 | 46.0 | 52.0 | 55.0 | 57.0 | 60.0  | 65.0 | 76.0 | 85.0 |      |      |      |      |
| 90           | 6.1    | 8.5  | 12.7 | 16.8 | 21.2 | 25.4 | 29.6 | 33.8 | 38.0 | 42.4 | 46.6 | 49.0 | 55.0 | 58.0 | 60.0 | 63.0  | 68.0 | 80.0 |      |      |      |      |      |
| 100          | 6.4    | 9.0  | 13.4 | 17.8 | 22.4 | 26.8 | 31.4 | 35.8 | 40.2 | 44.8 | 49.2 | 51.0 | 58.0 | 61.0 | 63.0 | 67.0  | 71.0 | 84.0 |      |      |      |      |      |
| 110          | 6.7    | 9.4  | 14.0 | 18.6 | 23.4 | 28.0 | 32.8 | 37.4 | 42.0 | 46.8 | 51.4 | 53.0 | 61.0 | 63.0 | 65.0 | 70.0  | 75.0 | 89.0 |      |      |      |      |      |
| 120          | 7.0    | 9.8  | 14.6 | 19.6 | 24.4 | 29.4 | 34.2 | 39.2 | 44.0 | 49.0 | 53.9 | 56.0 | 63.0 | 67.0 | 69.0 | 73.0  | 78.0 | 86.0 |      |      |      |      |      |
| 130          | 7.3    | 10.2 | 15.2 | 20.4 | 25.4 | 30.6 | 35.6 | 40.8 | 45.8 | 51.0 | 56.0 | 58.0 | 66.0 | 69.0 | 71.0 | 76.0  | 81.0 |      |      |      |      |      |      |
| 140          | 7.6    | 10.6 | 15.8 | 21.2 | 26.4 | 31.8 | 37.0 | 42.4 | 47.6 | 53.0 | 58.1 | 61.0 | 69.0 | 72.0 | 74.0 | 79.0  | 84.0 |      |      |      |      |      |      |
| 150          | 7.8    | 11.0 | 16.4 | 22.0 | 27.4 | 32.8 | 38.4 | 43.8 | 49.2 | 54.8 | 60.2 | 63.0 | 71.0 | 74.0 | 76.0 | 82.0  | 87.0 |      |      |      |      |      |      |
| 160          | 8.2    | 11.4 | 17.0 | 22.6 | 28.2 | 34.0 | 39.6 | 45.2 | 51.0 | 56.6 | 62.2 | 65.0 | 73.0 | 77.0 | 79.0 | 84.0  | 90.0 |      |      |      |      |      |      |
| 170          | 8.3    | 11.7 | 17.5 | 23.2 | 29.0 | 35.0 | 40.8 | 46.6 | 52.4 | 58.2 | 64.0 | 67.0 | 76.0 | 80.0 | 82.0 | 86.0  | 93.0 |      |      |      |      |      |      |
| 180          | 8.4    | 12.0 | 18.0 | 24.0 | 30.0 | 36.0 | 42.0 | 48.0 | 54.0 | 60.0 | 66.0 | 69.0 | 78.0 | 82.0 | 84.0 | 90.0  | 96.0 |      |      |      |      |      |      |
| 190          | 8.7    | 12.3 | 18.5 | 24.6 | 30.8 | 37.0 | 43.0 | 49.2 | 55.4 | 61.6 | 67.8 | 71.0 | 80.0 | 84.0 | 86.0 | 91.0  |      |      |      |      |      |      |      |
| 200          | 9.0    | 12.6 | 19.0 | 25.2 | 31.6 | 38.0 | 44.2 | 50.6 | 57.0 | 63.2 | 69.6 | 73.0 | 82.0 | 86.0 | 89.0 | 94.0  |      |      |      |      |      |      |      |
| 210          | 9.2    | 12.9 | 19.4 | 25.8 | 32.4 | 38.8 | 45.2 | 51.8 | 58.2 | 64.8 | 71.2 | 74.0 | 84.0 | 88.0 | 90.0 | 96.0  |      |      |      |      |      |      |      |
| 220          | 9.4    | 13.2 | 19.8 | 26.6 | 33.2 | 39.8 | 46.4 | 53.0 | 59.6 | 66.4 | 73.0 | 76.0 | 86.0 | 90.0 | 93.0 | 99.0  |      |      |      |      |      |      |      |
| 230          | 9.6    | 13.5 | 20.3 | 27.2 | 33.8 | 40.8 | 47.4 | 54.2 | 61.0 | 67.8 | 75.0 | 78.0 | 88.0 | 92.0 | 94.0 | 101.0 |      |      |      |      |      |      |      |
| 240          | 9.8    | 13.8 | 20.8 | 27.8 | 34.6 | 41.6 | 48.4 | 55.4 | 62.4 | 69.2 | 76.2 | 80.0 | 90.0 | 94.0 | 97.0 |       |      |      |      |      |      |      |      |
| 250          | 10.0   | 14.1 | 21.2 | 28.2 | 35.4 | 42.4 | 49.4 | 56.4 | 63.6 | 70.6 | 77.8 | 81.0 | 92.0 | 96.0 | 99.0 |       |      |      |      |      |      |      |      |

# HL-Düsentabelle für Geräte mit 4 Düsen / HL-Nozzle chart 4 nozzles

| Bar<br>l/min | Size   | 015  | 02   | 03   | 04   | 05   | 06   | 07   | 08    | 09    | 10    | 11    | 12    | 14    | 15    | 16    | 18    | 20    | 25    | 30    | 35    | 40    | 50    |
|--------------|--------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|              | Ø = mm | 0.72 | 0.90 | 1.10 | 1.20 | 1.35 | 1.45 | 1.55 | 1.70  | 1.80  | 1.90  | 2.00  | 2.10  | 2.20  | 2.30  | 2.40  | 2.60  | 2.80  | 3.00  | 3.30  | 3.60  | 3.90  | 4.30  |
| 1            |        |      | 1.84 | 2.7  | 3.6  | 4.4  | 5.6  | 6.4  | 7.2   | 8.0   | 9.2   | 10.0  | 11.2  | 12.8  | 13.6  | 14.4  | 16.4  | 18.4  | 22.8  | 27.2  | 31.6  | 36.4  | 45.6  |
| 2            |        |      | 2.56 | 3.9  | 5.2  | 6.4  | 7.6  | 9.2  | 10.4  | 11.6  | 12.8  | 14.0  | 15.2  | 18.0  | 19.2  | 20.4  | 23.2  | 26.0  | 32.4  | 38.8  | 45.2  | 51.6  | 64.4  |
| 3            |        |      | 3.16 | 4.8  | 6.4  | 8.0  | 9.6  | 11.2 | 12.8  | 14.0  | 15.6  | 17.2  | 18.8  | 22.0  | 23.6  | 25.2  | 28.4  | 31.6  | 39.2  | 47.2  | 55.2  | 63.2  | 78.8  |
| 4            |        |      | 3.64 | 5.6  | 7.2  | 9.2  | 10.8 | 12.4 | 14.4  | 16.0  | 18.4  | 20.4  | 22.0  | 25.2  | 27.2  | 29.2  | 32.8  | 36.4  | 45.6  | 54.8  | 63.6  | 72.8  | 92.0  |
| 5            |        |      | 4.0  | 6.0  | 8.0  | 10.0 | 12.4 | 14.4 | 16.4  | 18.4  | 20.4  | 22.4  | 24.4  | 28.4  | 30.4  | 32.4  | 36.4  | 40.8  | 50.8  | 61.2  | 70.4  | 80.0  | 100.0 |
| 6            |        |      | 4.4  | 6.8  | 8.8  | 11.2 | 13.2 | 15.6 | 18.0  | 20.0  | 22.4  | 24.8  | 27.2  | 31.6  | 33.6  | 35.6  | 40.0  | 44.8  | 55.6  | 66.8  | 77.2  | 88.0  | 112.0 |
| 7            |        |      | 4.8  | 7.2  | 9.6  | 12.0 | 14.4 | 16.8 | 19.2  | 21.6  | 24.0  | 26.4  | 28.8  | 33.6  | 36.0  | 38.4  | 43.2  | 48.4  | 60.4  | 72.4  | 84.0  | 96.0  | 120.0 |
| 10           |        |      | 5.6  | 8.8  | 11.6 | 14.4 | 17.2 | 20.4 | 23.2  | 26.0  | 28.8  | 31.6  | 34.4  | 40.4  | 43.2  | 46.0  | 52.0  | 57.6  | 72.8  | 88.0  | 102.0 | 116.0 |       |
| 12           |        |      | 6.0  | 9.6  | 12.4 | 15.6 | 18.8 | 22.0 | 25.2  | 28.0  | 31.2  | 34.0  | 37.2  | 43.6  | 46.8  | 49.6  | 56.0  | 62.0  | 78.4  | 95.2  | 108.0 | 125.0 |       |
| 15           |        |      | 6.8  | 10.6 | 14.0 | 17.2 | 20.8 | 24.4 | 28.0  | 31.2  | 34.8  | 38.4  | 41.6  | 48.8  | 52.0  | 55.6  | 62.4  | 68.8  | 87.2  | 106.0 | 122.0 |       |       |
| 20           |        |      | 8.0  | 12.4 | 16.4 | 20.4 | 24.4 | 28.4 | 32.8  | 36.8  | 40.8  | 45.2  | 49.2  | 57.2  | 61.2  | 65.2  | 72.8  | 80.0  | 102.0 | 124.0 |       |       |       |
| 25           |        |      | 8.8  | 13.6 | 18.4 | 22.4 | 27.2 | 31.2 | 36.0  | 40.8  | 45.2  | 50.0  | 54.0  | 63.2  | 67.2  | 72.0  | 80.8  | 89.2  | 112.0 |       |       |       |       |
| 30           |        |      | 9.8  | 14.8 | 20.0 | 24.4 | 29.6 | 34.4 | 39.6  | 44.4  | 49.6  | 54.8  | 59.2  | 68.8  | 73.6  | 78.8  | 88.8  | 98.8  | 123.0 |       |       |       |       |
| 35           |        |      | 10.8 | 16.0 | 21.6 | 26.8 | 32.4 | 37.6 | 43.2  | 48.4  | 54.0  | 59.2  | 64.4  | 74.8  | 80.0  | 85.6  | 96.8  | 108.0 |       |       |       |       |       |
| 40           |        |      | 11.8 | 16.8 | 23.2 | 29.2 | 34.4 | 40.0 | 45.6  | 51.2  | 57.2  | 62.9  | 70.0  | 81.6  | 84.8  | 93.2  | 102.0 | 114.0 |       |       |       |       |       |
| 50           |        | 9.2  | 12.8 | 18.8 | 25.2 | 31.6 | 38.0 | 44.4 | 50.4  | 56.8  | 63.2  | 69.6  | 76.0  | 88.4  | 94.8  | 101.0 | 114.0 | 126.0 |       |       |       |       |       |
| 60           |        | 10.0 | 13.8 | 20.4 | 27.2 | 34.4 | 41.2 | 48.4 | 54.8  | 62.0  | 68.8  | 75.6  | 82.8  | 96.0  | 103.0 | 110.0 | 124.0 |       |       |       |       |       |       |
| 70           |        | 10.8 | 14.8 | 22.4 | 29.6 | 37.2 | 44.8 | 52.4 | 59.2  | 66.8  | 74.4  | 81.6  | 89.2  | 104.0 | 111.0 | 120.0 |       |       |       |       |       |       |       |
| 80           |        | 11.6 | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | 56.0 | 64.0  | 72.0  | 80.0  | 88.0  | 96.0  | 112.0 | 120.0 |       |       |       |       |       |       |       |       |
| 90           |        | 12.2 | 17.0 | 25.4 | 33.6 | 42.4 | 50.8 | 59.2 | 67.6  | 76.0  | 84.8  | 93.2  | 101.0 | 118.0 |       |       |       |       |       |       |       |       |       |
| 100          |        | 12.8 | 18.0 | 26.8 | 35.6 | 44.8 | 53.6 | 62.8 | 71.6  | 80.4  | 89.6  | 98.4  | 107.0 | 125.0 |       |       |       |       |       |       |       |       |       |
| 110          |        | 13.4 | 18.8 | 28.0 | 37.2 | 46.8 | 56.0 | 65.6 | 74.8  | 84.0  | 93.6  | 102.0 | 112.0 |       |       |       |       |       |       |       |       |       |       |
| 120          |        | 14.0 | 19.6 | 29.2 | 39.2 | 48.8 | 58.8 | 68.4 | 78.4  | 88.0  | 98.0  | 107.0 | 117.0 |       |       |       |       |       |       |       |       |       |       |
| 130          |        | 14.6 | 20.4 | 30.4 | 40.8 | 50.8 | 61.2 | 71.2 | 81.6  | 91.6  | 102.0 | 112.0 | 122.0 |       |       |       |       |       |       |       |       |       |       |
| 140          |        | 15.2 | 21.2 | 31.6 | 42.4 | 52.8 | 63.6 | 74.0 | 84.8  | 94.4  | 106.0 | 116.0 |       |       |       |       |       |       |       |       |       |       |       |
| 150          |        | 15.6 | 22.0 | 32.8 | 44.0 | 54.8 | 65.6 | 76.8 | 87.6  | 98.4  | 109.0 | 120.0 |       |       |       |       |       |       |       |       |       |       |       |
| 160          |        | 16.4 | 22.8 | 34.0 | 45.2 | 56.4 | 68.0 | 79.2 | 90.4  | 102.0 | 113.0 |       |       |       |       |       |       |       |       |       |       |       |       |
| 170          |        | 16.6 | 23.4 | 35.0 | 46.4 | 58.0 | 70.0 | 81.6 | 93.2  | 104.0 | 116.0 |       |       |       |       |       |       |       |       |       |       |       |       |
| 180          |        | 16.8 | 24.0 | 36.0 | 48.0 | 60.0 | 72.0 | 84.0 | 96.0  | 108.0 | 120.0 |       |       |       |       |       |       |       |       |       |       |       |       |
| 190          |        | 17.4 | 24.6 | 37.0 | 49.2 | 61.6 | 74.0 | 86.0 | 98.4  | 110.0 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 200          |        | 18.0 | 25.2 | 38.0 | 50.4 | 63.2 | 76.0 | 88.4 | 101.0 | 114.0 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 210          |        | 18.4 | 25.8 | 38.8 | 51.6 | 64.2 | 77.6 | 90.4 | 103.0 | 116.0 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 220          |        | 18.8 | 16.4 | 39.6 | 53.2 | 66.4 | 79.6 | 92.8 | 106.0 | 119.0 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 230          |        | 19.2 | 27.0 | 40.6 | 54.4 | 67.6 | 81.6 | 94.8 | 108.0 | 122.0 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 240          |        | 19.6 | 27.6 | 41.6 | 55.6 | 69.2 | 83.2 | 96.8 | 110.0 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 250          |        | 20.0 | 28.2 | 24.4 | 56.4 | 70.8 | 84.8 | 98.8 | 112.0 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |