

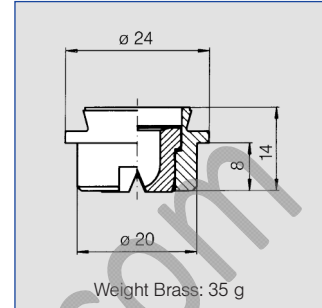


## Flat fan nozzles with dove-tail guide Series 664 / 665

**Assembly with retaining nut. Automatic jet alignment due to dove-tail guide. Stable spray angle. Uniform, parabolic distribution of liquid. Spray pipes with these nozzles show an extremely uniform total liquid distribution.**

Applications:

Cleaning installations, cooling headers, spray pipes, roll cooling, cooling of rolled stock.



| ∠<br>Spray angle | Ordering no. |              |                          |       | A<br>∅ [mm] | E<br>∅ [mm] | ṽ [l/min] |       |       |       |       |       | Spray width<br>B<br>at p = 2 bar |        |     |
|------------------|--------------|--------------|--------------------------|-------|-------------|-------------|-----------|-------|-------|-------|-------|-------|----------------------------------|--------|-----|
|                  | Type         | Material-no. |                          |       |             |             | p [bar]   |       |       |       |       |       | H =                              |        |     |
|                  |              | 16           | 17 <sup>1)</sup>         | 30    |             |             | 0.5       | 1.0   | 2.0   | 3.0   | 5.0   | 10.0  | 250 mm                           | 500 mm |     |
|                  |              | AISI 303     | AISI 316Ti/<br>AISI 316L | Brass |             |             |           |       |       |       |       |       |                                  |        |     |
| 20°              | 664. 721     | ○            | ○                        | ○     | 3.00        | 2.50        | 3.15      | 4.45  | 6.30  | 1.95  | 7.72  | 9.96  | 14.09                            | 110    | 205 |
|                  | 664. 801     | ○            | ○                        | ○     | 4.00        | 3.20        | 5.00      | 7.07  | 10.00 | 3.10  | 12.25 | 15.81 | 22.36                            | 110    | 205 |
|                  | 664. 881     | ○            | ○                        | ○     | 5.00        | 4.00        | 8.00      | 11.31 | 16.00 | 4.96  | 19.60 | 25.30 | 35.78                            | 110    | 205 |
|                  | 664. 921     | ○            | ○                        | ○     | 5.50        | 4.40        | 10.00     | 14.14 | 20.00 | 6.20  | 24.49 | 31.62 | 44.72                            | 110    | 205 |
|                  | 664. 961     | ○            | ○                        | ○     | 6.00        | 5.10        | 12.50     | 17.68 | 25.00 | 7.75  | 30.62 | 39.53 | 55.90                            | 100    | 205 |
| 30°              | 664. 722     | ○            | ○                        | ○     | 3.00        | 2.40        | 3.15      | 4.45  | 6.30  | 1.95  | 7.72  | 9.96  | 14.09                            | 150    | 280 |
|                  | 664. 762     | ○            | ○                        | ○     | 3.50        | 2.70        | 4.00      | 5.66  | 8.00  | 2.48  | 9.80  | 12.65 | 17.89                            | 150    | 280 |
|                  | 664. 802     | ○            | ○                        | ○     | 4.00        | 3.10        | 5.00      | 7.07  | 10.00 | 3.10  | 12.25 | 15.81 | 22.36                            | 150    | 280 |
|                  | 664. 882     | ○            | ○                        | ○     | 5.00        | 4.00        | 8.00      | 11.31 | 16.00 | 4.96  | 19.60 | 25.30 | 35.78                            | 150    | 280 |
|                  | 664. 922     | ○            | ○                        | ○     | 5.50        | 4.40        | 10.00     | 14.14 | 20.00 | 6.20  | 24.49 | 31.62 | 44.72                            | 150    | 280 |
|                  | 664. 962     | ○            | ○                        | ○     | 6.00        | 5.00        | 12.50     | 17.68 | 25.00 | 7.75  | 30.62 | 39.53 | 55.90                            | 150    | 280 |
|                  | 665. 042     | ○            | -                        | ○     | 8.00        | 6.40        | 20.00     | 28.28 | 40.00 | 12.41 | 48.99 | 63.25 | 89.44                            | 150    | 280 |
|                  | 665. 122     | -            | -                        | ○     | 10.00       | 8.20        | 31.50     | 44.55 | 63.00 | 19.54 | 77.16 | 99.61 | 140.87                           | 150    | 280 |
| 45°              | 664. 723     | ○            | ○                        | ○     | 3.00        | 2.40        | 3.15      | 4.45  | 6.30  | 1.95  | 7.72  | 9.96  | 14.09                            | 260    | 490 |
|                  | 664. 763     | ○            | ○                        | ○     | 3.50        | 2.60        | 4.00      | 5.66  | 8.00  | 2.48  | 9.80  | 12.65 | 17.89                            | 260    | 490 |
|                  | 664. 803     | ○            | ○                        | ○     | 4.00        | 3.00        | 5.00      | 7.07  | 10.00 | 3.10  | 12.25 | 15.81 | 22.36                            | 265    | 495 |
|                  | 664. 843     | ○            | ○                        | ○     | 4.50        | 3.40        | 6.25      | 8.84  | 12.50 | 3.88  | 15.31 | 19.76 | 27.95                            | 265    | 495 |
|                  | 664. 883     | ○            | ○                        | ○     | 5.00        | 3.80        | 8.00      | 11.31 | 16.00 | 4.96  | 19.60 | 25.30 | 35.78                            | 265    | 500 |
|                  | 664. 923     | ○            | ○                        | ○     | 5.50        | 4.20        | 10.00     | 14.14 | 20.00 | 6.20  | 24.49 | 31.62 | 44.72                            | 270    | 505 |
|                  | 664. 963     | ○            | ○                        | ○     | 6.00        | 4.40        | 12.50     | 17.68 | 25.00 | 7.75  | 30.62 | 39.53 | 55.90                            | 270    | 510 |
|                  | 665. 043     | -            | -                        | ○     | 8.00        | 5.90        | 20.00     | 28.28 | 40.00 | 12.41 | 48.99 | 63.25 | 89.44                            | 275    | 520 |
| 60°              | 664. 724     | ○            | ○                        | ○     | 3.00        | 2.10        | 3.15      | 4.45  | 6.30  | 1.95  | 7.72  | 9.96  | 14.09                            | 300    | 560 |
|                  | 664. 764     | ○            | ○                        | ○     | 3.50        | 2.30        | 4.00      | 5.66  | 8.00  | 2.48  | 9.80  | 12.65 | 17.89                            | 300    | 565 |
|                  | 664. 804     | ○            | ○                        | ○     | 4.00        | 2.60        | 5.00      | 7.07  | 10.00 | 3.10  | 12.25 | 15.81 | 22.36                            | 300    | 565 |
|                  | 664. 844     | ○            | ○                        | ○     | 4.50        | 3.00        | 6.25      | 8.84  | 12.50 | 3.88  | 15.31 | 19.76 | 27.95                            | 300    | 570 |
|                  | 664. 884     | ○            | ○                        | ○     | 5.00        | 3.40        | 8.00      | 11.31 | 16.00 | 4.96  | 19.60 | 25.30 | 35.78                            | 305    | 570 |
|                  | 664. 924     | ○            | ○                        | ○     | 5.50        | 4.10        | 10.00     | 14.14 | 20.00 | 6.20  | 24.49 | 31.62 | 44.72                            | 305    | 575 |
|                  | 664. 964     | ○            | ○                        | ○     | 6.00        | 4.20        | 12.50     | 17.68 | 25.00 | 7.75  | 30.62 | 39.53 | 55.90                            | 310    | 580 |
|                  | 665. 044     | ○            | ○                        | ○     | 8.00        | 5.50        | 20.00     | 28.28 | 40.00 | 12.41 | 48.99 | 63.25 | 89.44                            | 315    | 585 |
|                  | 665. 084     | -            | ○                        | ○     | 9.00        | 6.20        | 25.00     | 35.36 | 50.00 | 15.51 | 61.24 | 79.06 | 111.80                           | 320    | 590 |
|                  | 665. 124     | -            | -                        | ○     | 10.00       | 7.40        | 31.50     | 44.55 | 63.00 | 19.54 | 77.16 | 99.61 | 140.87                           | 325    | 600 |

<sup>1)</sup> We reserve the right to deliver AISI 316Ti or AISI 316L under the material no. 17.  
 A = Equivalent bore diameter · E = narrowest free cross section  
 Subject to technical modifications.

Continued on next page.

|                      |                 |          |                     |          |                     |
|----------------------|-----------------|----------|---------------------|----------|---------------------|
| <b>Example</b>       | <b>Type</b>     | <b>+</b> | <b>Material-no.</b> | <b>=</b> | <b>Ordering no.</b> |
| <b>for Ordering:</b> | <b>664. 721</b> | <b>+</b> | <b>16</b>           | <b>=</b> | <b>664. 721. 16</b> |

Conversion formula for the above series:  $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$



**Flat fan nozzles  
 with dove-tail guide  
 Series 664 / 665**

| ★<br>Spray angle | Ordering no. |              |                      | A<br>Ø<br>[mm] | E<br>Ø<br>[mm] | V̇ [l/min] |       |       |       |                         |       |       |        | Spray width<br>B<br>at p = 2 bar |            |            |
|------------------|--------------|--------------|----------------------|----------------|----------------|------------|-------|-------|-------|-------------------------|-------|-------|--------|----------------------------------|------------|------------|
|                  | Type         | Material-no. |                      |                |                | p [bar]    |       |       |       |                         |       |       |        |                                  |            |            |
|                  |              | 16           | 17 <sup>1)</sup>     |                |                | 30         |       |       |       |                         |       |       |        |                                  |            |            |
|                  |              | AISI 303     | AISI 316Ti/AISI 316L |                |                | Brass      | 0.5   | 1.0   | 2.0   | [US gal./min] at 40 psi |       | 3.0   | 5.0    | 10.0                             | H = 250 mm | H = 500 mm |
| 90°              | 664. 726     | ○            | ○                    | ○              | 3.00           | 1.70       | 3.15  | 4.45  | 6.30  | 1.95                    | 7.72  | 9.96  | 14.09  | 420                              | 800        |            |
|                  | 664. 766     | ○            | ○                    | ○              | 3.50           | 1.90       | 4.00  | 5.66  | 8.00  | 2.48                    | 9.80  | 12.65 | 17.89  | 420                              | 800        |            |
|                  | 664. 806     | ○            | ○                    | ○              | 4.00           | 2.40       | 5.00  | 7.07  | 10.00 | 3.10                    | 12.25 | 15.81 | 22.36  | 420                              | 800        |            |
|                  | 664. 846     | ○            | ○                    | ○              | 4.50           | 2.40       | 6.25  | 8.84  | 12.50 | 3.88                    | 15.31 | 19.76 | 27.95  | 420                              | 800        |            |
|                  | 664. 886     | ○            | ○                    | ○              | 5.00           | 3.10       | 8.00  | 11.31 | 16.00 | 4.96                    | 19.60 | 25.30 | 35.78  | 420                              | 800        |            |
|                  | 664. 926     | ○            | ○                    | ○              | 5.50           | 3.60       | 10.00 | 14.14 | 20.00 | 6.20                    | 24.49 | 31.62 | 44.72  | 420                              | 800        |            |
|                  | 664. 966     | ○            | ○                    | ○              | 6.00           | 3.90       | 12.50 | 17.68 | 25.00 | 7.75                    | 30.62 | 39.53 | 55.90  | 420                              | 800        |            |
|                  | 665. 046     | -            | -                    | ○              | 8.00           | 4.90       | 20.00 | 28.28 | 40.00 | 12.41                   | 48.99 | 63.25 | 89.44  | 420                              | 800        |            |
|                  | 665. 126     | -            | -                    | ○              | 10.00          | 6.40       | 31.50 | 44.55 | 63.00 | 19.54                   | 77.16 | 99.61 | 140.87 | 420                              | 800        |            |
| 120°             | 664. 727     | ○            | ○                    | ○              | 3.00           | 1.60       | 3.15  | 4.45  | 6.30  | 1.95                    | 7.72  | 9.96  | 14.09  | 1240                             | 2150       |            |
|                  | 664. 767     | ○            | ○                    | ○              | 3.50           | 1.70       | 4.00  | 5.66  | 8.00  | 2.48                    | 9.80  | 12.65 | 17.89  | 1240                             | 2150       |            |
|                  | 664. 807     | ○            | ○                    | ○              | 4.00           | 2.00       | 5.00  | 7.07  | 10.00 | 3.10                    | 12.25 | 15.81 | 22.36  | 1240                             | 2150       |            |
|                  | 664. 887     | ○            | ○                    | ○              | 5.00           | 2.60       | 8.00  | 11.31 | 16.00 | 4.96                    | 19.60 | 25.30 | 35.78  | 1240                             | 2150       |            |
|                  | 664. 927     | ○            | ○                    | ○              | 5.50           | 2.90       | 10.00 | 14.14 | 20.00 | 6.20                    | 24.49 | 31.62 | 44.72  | 1240                             | 2150       |            |
|                  | 664. 967     | -            | -                    | ○              | 6.00           | 3.20       | 12.50 | 17.68 | 25.00 | 7.75                    | 30.62 | 39.53 | 55.90  | 1240                             | 2150       |            |
|                  | 665. 047     | -            | -                    | ○              | 8.00           | 4.40       | 20.00 | 28.28 | 40.00 | 12.41                   | 48.99 | 63.25 | 89.44  | 1240                             | 2150       |            |

<sup>1)</sup> We reserve the right to deliver AISI 316Ti or AISI 316L under the material no. 17.  
 A = Equivalent bore diameter · E = narrowest free cross section  
 Subject to technical modifications.



Accessories see next page.

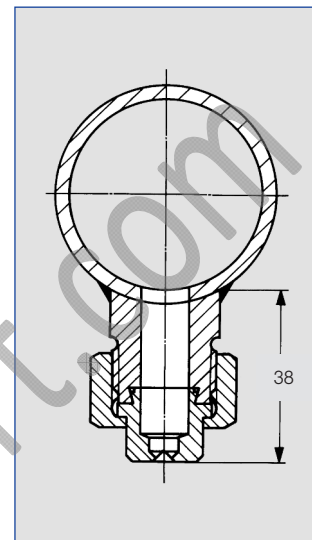
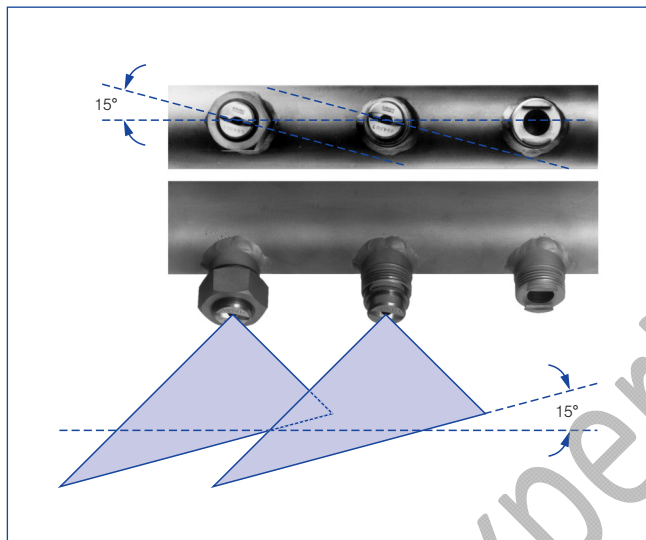
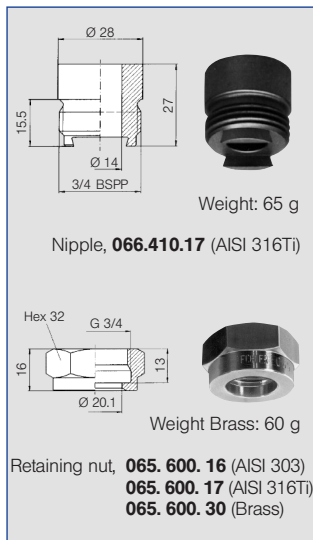
|                      |                 |          |                     |          |                     |
|----------------------|-----------------|----------|---------------------|----------|---------------------|
| <b>Example</b>       | <b>Type</b>     | <b>+</b> | <b>Material-no.</b> | <b>=</b> | <b>Ordering no.</b> |
| <b>for ordering:</b> | <b>664. 726</b> | <b>+</b> | <b>16</b>           | <b>=</b> | <b>664. 726. 16</b> |

Conversion formula for the above series:  $\dot{V}_2 = \dot{V}_1 * \sqrt{\frac{p_2}{p_1}}$



**Flat fan nozzles  
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Series 664 / 665**

**Accessories**



Pretreatment in a pickling line

Conversion formula for the above series:  $\dot{V}_2 = \dot{V}_1 * \sqrt{\frac{p_2}{p_1}}$