

Axial-flow full cone nozzles

Series 490

Series 490

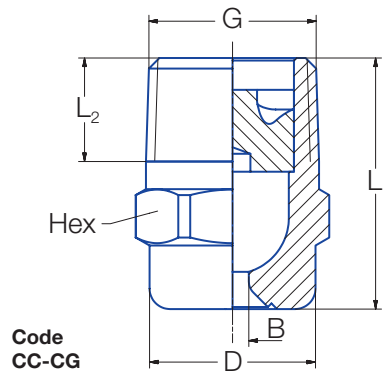
Non-clogging nozzle design. Stable spray angle. Particularly even liquid distribution.

Applications:

Strand cooling in billet casters, strand narrow side cooling in slab casters, spray cooling of billet moulds, spray cooling of EAF electrodes after use.

Remark:

Material combination **T8** brass for the nozzle housing and AISI 316L for the vane, or completely made from AISI 316L **1Y** is recommended if the nozzles will be exposed to high temperatures for longer periods of time.



| Code | Dimensions [mm] | | | | | Weight Brass |
|-----------|-----------------|----------------|----------------|------|-----------|--------------|
| | G | L ₁ | L ₂ | D | Hex/Flats | |
| CA | 1/8 BSPT | 18.0 | 6.5 | 10.0 | 11 | 13 g |
| CC | 1/4 BSPT | 22.0 | 10.0 | 13.0 | 14 | 16 g |
| CE | 3/8 BSPT | 24.5 | 10.0 | 16.0 | 17 | 30 g |
| CE | 3/8 BSPT | 30.0 | 10.0 | 16.0 | 17 | 50 g |
| CG | 1/2 BSPT | 32.5 | 13.0 | 21.0 | 22 | 60 g |
| CG | 1/2 BSPT | 43.5 | 13.0 | 21.0 | 22 | 85 g |

Subject to technical modification.
In a critical installation situation, please ask for the exact dimensions.

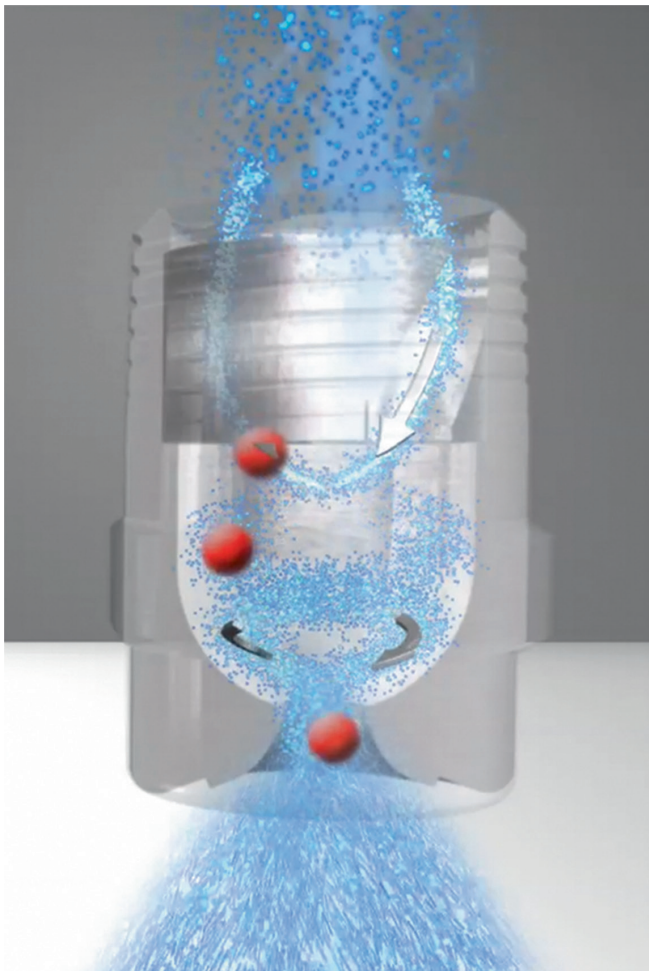
New nozzle generation with an innovative internal design providing the nozzle with:

30% to 40% larger compared to conventional axial full cone nozzles
Non clogging characteristics due to larger free cross sections

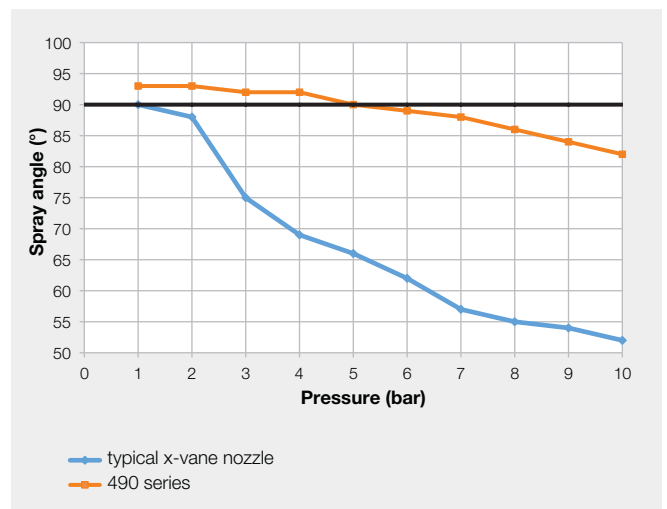
Extended machine availability and reduced maintenance costs

Stable spray angle over pressure range

No over- or undercooling of strand corners and centre section means quality improvements



For a feature video, please refer to www.lechler.de/videos/series490



Spray angle of 490 series compared to typical x-vane nozzle for various water pressures





Solid particle passing through 490 nozzle serie





Solid particle passing through conventional axial full cone nozzle

Axial-flow full cone nozzles

Series 490

| Spray angle  | Ordering no. | | | | | | | | B Ø [mm] | E Ø [mm] | V̇ [l/min] | | | | | | | Spray diameter D at p=2 bar  | |
|--|--------------|---------------|-------------|---------------------|----------|----------|----------|----------|----------------|----------------|------------|-------|-------|-------|-------|-------|-------|--|------------------|
| | Type | Mat. no. | | | Code | | | | | | p [bar] | | | | | | | H = 200 mm | H = 500 mm |
| | | 1Y 316L SS | 30 Brass | T8 Brass/316L SS | 1/8 BSPT | 1/4 BSPT | 3/8 BSPT | 1/2 BSPT | | | 0.5 | 1.0 | 2.0 | 3.0 | 5.0 | 7.0 | 10.0 | | |
| 45° | 490.403 | ○ | ○ | ○ | CA | - | - | - | 1.25 | 1.25 | 0.57 | 0.76 | 1.00 | 1.18 | 1.44 | 1.65 | 1.90 | 160 | 400 |
| | 490.443 | ○ | ○ | ○ | CA | CC | - | - | 1.40 | 1.40 | 0.72 | 0.95 | 1.25 | 1.47 | 1.80 | 2.06 | 2.38 | 160 | 400 |
| | 490.523 | ○ | ○ | ○ | CA | CC | - | - | 1.70 | 1.70 | 1.15 | 1.52 | 2.00 | 2.35 | 2.89 | 3.30 | 3.81 | 160 | 400 |
| | 490.563 | ○ | ○ | ○ | - | CC | - | - | 1.80 | 1.80 | 1.44 | 1.89 | 2.50 | 2.94 | 3.61 | 4.13 | 4.76 | 160 | 400 |
| | 490.603 | ○ | ○ | ○ | - | CC | CE | - | 2.00 | 2.00 | 1.81 | 2.39 | 3.15 | 3.70 | 4.54 | 5.20 | 6.00 | 160 | 400 |
| | 490.643 | ○ | ○ | ○ | - | CC | CE | - | 2.45 | 2.45 | 2.30 | 3.03 | 4.00 | 4.70 | 5.77 | 6.60 | 7.61 | 160 | 400 |
| | 490.683 | ○ | ○ | ○ | - | CC | CE | - | 2.55 | 5.55 | 2.87 | 3.79 | 5.00 | 5.88 | 7.21 | 8.25 | 9.52 | 160 | 400 |
| | 490.703 | ○ | ○ | ○ | - | - | CE | - | 2.65 | 2.65 | 3.22 | 4.24 | 5.60 | 6.59 | 8.08 | 9.24 | 10.66 | 160 | 400 |
| | 490.723 | ○ | ○ | ○ | - | - | CE | - | 2.85 | 2.85 | 3.62 | 4.77 | 6.30 | 7.41 | 9.09 | 10.40 | 11.99 | 160 | 400 |
| | 490.783 | ○ | ○ | ○ | - | - | - | CG | 3.45 | 3.45 | 5.17 | 6.82 | 9.00 | 10.58 | 12.98 | 14.85 | 17.12 | 160 | 400 |
| 490.843 | ○ | ○ | ○ | - | - | - | CG | 3.80 | 3.80 | 7.18 | 9.47 | 12.50 | 14.70 | 18.03 | 20.63 | 23.80 | 160 | 400 | |
| 60° | 490.404 | ○ | ○ | ○ | CA | - | - | - | 1.15 | 1.15 | 0.57 | 0.76 | 1.00 | 1.18 | 1.44 | 1.65 | 1.90 | 220 | 560 |
| | 490.444 | ○ | ○ | ○ | CA | - | - | - | 1.25 | 1.25 | 0.72 | 0.95 | 1.25 | 1.47 | 1.80 | 2.06 | 2.38 | 220 | 560 |
| | 490.484 | ○ | ○ | ○ | CA | - | - | - | 1.45 | 1.45 | 0.92 | 1.21 | 1.60 | 1.88 | 2.31 | 2.64 | 3.05 | 220 | 560 |
| | 490.524 | ○ | ○ | ○ | CA | CC | CE | - | 1.60 | 1.60 | 1.15 | 1.52 | 2.00 | 2.35 | 2.89 | 3.30 | 3.81 | 220 | 560 |
| | 490.564 | ○ | ○ | ○ | CA | CC | CE | - | 1.80 | 1.80 | 1.44 | 1.89 | 2.50 | 2.94 | 3.61 | 4.13 | 4.76 | 220 | 560 |
| | 490.604 | ○ | ○ | ○ | CA | CC | CE | - | 2.05 | 2.05 | 1.81 | 2.39 | 3.15 | 3.70 | 4.54 | 5.20 | 6.00 | 220 | 560 |
| | 490.644 | ○ | ○ | ○ | - | CC | CE | - | 2.30 | 2.30 | 2.30 | 3.03 | 4.00 | 4.70 | 5.77 | 6.60 | 7.61 | 220 | 560 |
| | 490.684 | ○ | ○ | ○ | - | CC | CE | - | 2.60 | 2.60 | 2.87 | 3.79 | 5.00 | 5.88 | 7.21 | 8.25 | 9.52 | 220 | 560 |
| | 490.704 | ○ | ○ | ○ | - | - | CE | - | 2.75 | 2.75 | 3.22 | 4.24 | 5.60 | 6.59 | 8.08 | 9.24 | 10.66 | 220 | 560 |
| | 490.724 | ○ | ○ | ○ | - | CC | CE | - | 2.95 | 2.80 | 3.62 | 4.77 | 6.30 | 7.41 | 9.09 | 10.40 | 11.99 | 220 | 560 |
| | 490.744 | ○ | ○ | ○ | - | - | CE | - | 3.05 | 3.05 | 4.08 | 5.38 | 7.10 | 8.35 | 10.24 | 11.72 | 13.52 | 220 | 560 |
| | 490.764 | ○ | ○ | ○ | - | - | CE | - | 3.25 | 3.25 | 4.59 | 6.06 | 8.00 | 9.41 | 11.54 | 13.20 | 15.22 | 220 | 560 |
| | 490.784 | ○ | ○ | ○ | - | - | CE | - | 3.50 | 3.50 | 5.17 | 6.82 | 9.00 | 10.58 | 12.98 | 14.85 | 17.12 | 220 | 560 |
| | 490.804 | ○ | ○ | ○ | - | - | CE | - | 3.70 | 3.70 | 5.74 | 7.58 | 10.00 | 11.76 | 14.43 | 16.51 | 19.04 | 220 | 560 |
| | 490.844 | ○ | ○ | ○ | - | - | - | CG | 4.05 | 4.05 | 7.18 | 9.47 | 12.50 | 14.70 | 18.03 | 20.63 | 23.80 | 220 | 560 |
| | 490.884 | ○ | ○ | ○ | - | - | - | CG | 4.65 | 4.65 | 9.19 | 12.13 | 16.00 | 18.82 | 23.08 | 26.41 | 30.46 | 220 | 560 |

B = Bore diameter · E = narrowest free cross section

| Spray angle  | Ordering no. | | | | | | | | B Ø [mm] | E Ø [mm] | V̇ [l/min] | | | | | | | Spray diameter D at p=2 bar  | |
|--|--------------|---------------|-------------|---------------------|----------|----------|----------|----------|----------|----------|------------|-------|-------|-------|-------|-------|-------|--|------------|
| | Type | Mat. no. | | | Code | | | | | | p [bar] | | | | | | | H = 200 mm | H = 500 mm |
| | | 1Y 316L SS | 30 Brass | T8 Brass/316L SS | 1/8 BSPT | 1/4 BSPT | 3/8 BSPT | 1/2 BSPT | | | 0.5 | 1.0 | 2.0 | 3.0 | 5.0 | 7.0 | 10.0 | | |
| 90° | 490.406 | ○ | ○ | ○ | CA | - | - | - | 1.20 | 1.20 | 0.57 | 0.76 | 1.00 | 1.18 | 1.44 | 1.65 | 1.90 | 380 | 860 |
| | 490.446 | ○ | ○ | ○ | CA | - | - | - | 1.30 | 1.30 | 0.72 | 0.95 | 1.25 | 1.47 | 1.80 | 2.06 | 2.38 | 380 | 860 |
| | 490.486 | ○ | ○ | ○ | CA | - | - | - | 1.45 | 1.45 | 0.92 | 1.21 | 1.60 | 1.88 | 2.31 | 2.64 | 3.05 | 380 | 860 |
| | 490.506 | ○ | ○ | ○ | - | CC | - | - | 1.65 | 1.65 | 1.03 | 1.36 | 1.80 | 2.12 | 2.60 | 2.97 | 3.43 | 380 | 860 |
| | 490.526 | ○ | ○ | ○ | CA | - | - | - | 1.70 | 1.55 | 1.15 | 1.52 | 2.00 | 2.35 | 2.89 | 3.30 | 3.81 | 380 | 860 |
| | 490.566 | ○ | ○ | ○ | CA | - | - | - | 1.90 | 1.90 | 1.44 | 1.89 | 2.50 | 2.94 | 3.61 | 4.13 | 4.76 | 380 | 860 |
| | 490.606 | ○ | ○ | ○ | CA | CC | CE | - | 2.10 | 2.05 | 1.81 | 2.39 | 3.15 | 3.70 | 4.54 | 5.20 | 6.00 | 380 | 860 |
| | 490.646 | ○ | ○ | ○ | - | CC | CE | - | 2.40 | 2.40 | 2.30 | 3.03 | 4.00 | 4.70 | 5.77 | 6.60 | 7.61 | 390 | 960 |
| | 490.686 | ○ | ○ | ○ | - | CC | CE | - | 2.70 | 2.70 | 2.87 | 3.79 | 5.00 | 5.88 | 7.21 | 8.25 | 9.52 | 390 | 960 |
| | 490.706 | ○ | ○ | ○ | - | - | CE | - | 2.75 | 2.75 | 3.22 | 4.24 | 5.60 | 6.59 | 8.08 | 9.24 | 10.66 | 390 | 960 |
| | 490.726 | ○ | ○ | ○ | - | CC | CE | - | 3.20 | 2.80 | 3.62 | 4.77 | 6.30 | 7.41 | 9.09 | 10.40 | 11.99 | 390 | 960 |
| | 490.746 | ○ | ○ | ○ | - | - | CE | - | 3.15 | 3.15 | 4.08 | 5.38 | 7.10 | 8.35 | 10.24 | 11.72 | 13.52 | 390 | 960 |
| | 490.766 | ○ | ○ | ○ | - | - | CE | - | 3.40 | 3.40 | 4.59 | 6.06 | 8.00 | 9.41 | 11.54 | 13.20 | 15.22 | 390 | 960 |
| | 490.806 | ○ | ○ | ○ | - | - | CE | - | 3.90 | 3.90 | 5.74 | 7.58 | 10.00 | 11.76 | 14.43 | 16.51 | 19.04 | 390 | 960 |
| | 490.846 | ○ | ○ | ○ | - | - | CE | - | 4.65 | 4.00 | 7.18 | 9.47 | 12.50 | 14.70 | 18.03 | 20.63 | 23.80 | 390 | 960 |
| 490.886 | ○ | ○ | ○ | - | - | - | CG | 5.45 | 4.50 | 9.19 | 12.13 | 16.00 | 18.82 | 23.08 | 26.41 | 30.46 | 390 | 960 | |
| 490.926 | ○ | ○ | ○ | - | - | - | CG | 5.90 | 4.50 | 11.49 | 15.16 | 20.00 | 23.52 | 28.85 | 33.01 | 38.07 | 390 | 960 | |
| 120° | 490.368 | ○ | ○ | ○ | CA | - | - | - | 0.85 | 0.65 | 0.36 | 0.48 | 0.63 | 0.74 | 0.91 | 1.04 | 1.20 | 680 | 1220 |
| | 490.408 | ○ | ○ | ○ | CA | - | - | - | 1.20 | 1.20 | 0.57 | 0.76 | 1.00 | 1.18 | 1.44 | 1.65 | 1.90 | 680 | 1220 |
| | 490.448 | ○ | ○ | ○ | CA | - | - | - | 1.30 | 1.30 | 0.72 | 0.95 | 1.25 | 1.47 | 1.80 | 2.06 | 2.38 | 680 | 1220 |
| | 490.488 | ○ | ○ | ○ | CA | - | - | - | 1.45 | 1.45 | 0.92 | 1.21 | 1.60 | 1.88 | 2.31 | 2.64 | 3.05 | 680 | 1220 |
| | 490.528 | ○ | ○ | ○ | CA | - | - | - | 1.70 | 1.70 | 1.15 | 1.52 | 2.00 | 2.35 | 2.89 | 3.30 | 3.81 | 680 | 1220 |
| | 490.568 | ○ | ○ | ○ | CA | - | - | - | 1.90 | 1.90 | 1.44 | 1.89 | 2.50 | 2.94 | 3.61 | 4.13 | 4.76 | 680 | 1220 |
| | 490.608 | ○ | ○ | ○ | CA | CC | - | - | 2.10 | 2.05 | 1.81 | 2.39 | 3.15 | 3.70 | 4.54 | 5.20 | 6.00 | 680 | 1220 |
| | 490.648 | ○ | ○ | ○ | - | CC | CE | - | 2.40 | 2.40 | 2.30 | 3.03 | 4.00 | 4.70 | 5.77 | 6.60 | 7.61 | 680 | 1330 |
| | 490.688 | ○ | ○ | ○ | - | CC | CE | - | 2.75 | 2.75 | 2.87 | 3.79 | 5.00 | 5.88 | 7.21 | 8.25 | 9.52 | 680 | 1330 |
| | 490.708 | ○ | ○ | ○ | - | - | CE | - | 2.75 | 2.75 | 3.22 | 4.24 | 5.60 | 6.59 | 8.08 | 9.24 | 10.66 | 680 | 1330 |
| | 490.728 | ○ | ○ | ○ | - | CC | CE | - | 3.20 | 2.80 | 3.62 | 4.77 | 6.30 | 7.41 | 9.09 | 10.40 | 11.99 | 680 | 1330 |
| | 490.748 | ○ | ○ | ○ | - | - | CE | - | 3.20 | 3.20 | 4.08 | 5.38 | 7.10 | 8.35 | 10.24 | 11.72 | 13.52 | 680 | 1330 |
| | 490.768 | ○ | ○ | ○ | - | - | CE | - | 3.45 | 3.45 | 4.59 | 6.44 | 8.00 | 9.41 | 11.54 | 13.20 | 15.22 | 680 | 1330 |
| | 490.808 | ○ | ○ | ○ | - | - | CE | - | 3.90 | 3.90 | 5.74 | 7.58 | 10.00 | 11.76 | 14.43 | 16.51 | 19.04 | 680 | 1330 |
| | 490.848 | ○ | ○ | ○ | - | - | CE | - | 4.70 | 4.00 | 7.18 | 9.47 | 12.50 | 14.70 | 18.03 | 20.63 | 23.80 | 680 | 1330 |
| 490.888 | ○ | ○ | ○ | - | - | - | CG | 5.10 | 4.50 | 9.19 | 12.13 | 16.00 | 18.82 | 23.08 | 26.41 | 30.46 | 680 | 1330 | |
| 490.928 | ○ | ○ | ○ | - | - | - | CG | 5.80 | 4.75 | 11.49 | 15.16 | 20.00 | 23.52 | 28.85 | 33.01 | 38.07 | 680 | 1330 | |

B = Bore diameter · E = narrowest free cross section

Example Type + Material no. + Code = Ordering no.
for ordering: 490.406 + 1Y + CA = 490.406.1Y.CA

Conversion formula for the above series: $\dot{V}_2 = \dot{V}_1 * \left(\frac{p_2}{p_1}\right)^{0.4}$
(≤ 10 bar)

