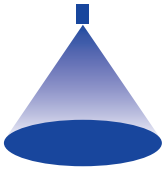
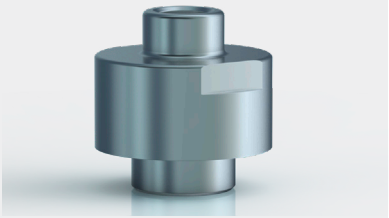
SMDmax full cone nozzles
Series 4HR



Lechler developed the new SMDmax full cone spray nozzle specifically for entrainment-sensitive spray applications. This nozzle produces significantly coarser droplets than traditional spray nozzles used in entrainment sensitive applications. Moreover, the state of the art Lechler SMDmax technology is also entirely machined, which helps achieve a high-tolerance surface finish inside and out, producing consistent performance every single time.

Applications:
- Vacuum Distillation Columns
- Packing Wash
- Distillation tray spray distributors

Features:
- Allows for significantly lower entrainment across a wider operating range
- Ideal for use in moderate to high C-factor columns
- Largest free passage among all axial full cone nozzle designs commercially available
- Axial orientation ensures the nozzle is self-draining
- High-tolerance machined surfaces inside and out
- Consistent performance due to a constant R-value of 0.5 at all pressures
- Currently available only in 317L Stainless Steel*



Series 4HR

G	Code
3/4 NPT male	**BK**
3/4 NPT female	**BL**
1 male	**BM**
1 female	**BN**

Spray angle	Type	Mat. no.*	Code				Orifice Size [in]	Free Passage [in]	V̇ Water [gpm] p [psi]								K	R
		C3	3/4 NPT male	3/4 NPT female	1 NPT male	1 NPT female			5	7	10	20	l/min @ 2 bar	40	60	80		
90°	**4HR.046**	●	**BK**	**BL**			**0.394**	**0.394**	4.39	5.2	6.21	8.78	**40**	12.42	15.21	17.56	1.96	0.5
	4HR.086	●	**BK**	**BL**			**0.441**	**0.433**	5.49	6.49	7.76	10.97	**50**	15.52	19.01	21.95	2.45	0.5
	4HR.126	●	**BK**	**BL**			**0.496**	**0.484**	6.91	8.17	9.77	13.82	**63**	19.54	23.93	27.63	3.09	0.5
	4HR.146	●	**BK**	**BL**	**BM**	**BN**	**0.539**	**0.512**	7.79	9.22	11.02	15.58	**71**	22.04	26.99	31.17	3.48	0.5
	4HR.176	●			**BM**	**BN**	**0.602**	**0.591**	9.33	11.04	13.19	18.65	**85**	26.38	32.31	37.31	4.17	0.5
	4HR.206	●			**BM**	**BN**	**0.622**	**0.622**	10.97	12.98	15.51	21.93	**100**	31.02	37.99	43.87	4.9	0.5
120°	**4HR.048**	●	**BK**	**BL**			**0.429**	**0.394**	4.39	5.2	6.21	8.78	**40**	12.42	15.21	17.56	1.96	0.5
	4HR.088	●	**BK**	**BL**			**0.461**	**0.453**	5.49	6.49	7.76	10.97	**50**	15.52	19.01	21.95	2.45	0.5
	4HR.128	●	**BK**	**BL**			**0.539**	**0.484**	6.91	8.17	9.77	13.82	**63**	19.54	23.93	27.63	3.09	0.5
	4HR.148	●	**BK**	**BL**	**BM**	**BN**	**0.579**	**0.516**	7.79	9.22	11.02	15.58	**71**	22.04	26.99	31.17	3.48	0.5
	4HR.178	●			**BM**	**BN**	**0.63**	**0.563**	9.33	11.04	13.19	18.65	**85**	26.38	32.31	37.31	4.17	0.5
	4HR.208	●			**BM**	**BN**	**0.681**	**0.626**	10.97	12.98	15.51	21.93	**100**	31.02	37.99	43.87	4.9	0.5

Additional sizes may be available upon request.
* Different metallurgies may be available upon request.

Ordering example: **Type** 4HR.086 + **Material no.** C3 + **Code** BK = **Ordering no.** 4HR.086.C3.BK

Flow rate as a function of the medium density

$\dot{V}_W = \frac{\dot{V}_{FI}}{X}$	$\dot{V}_W$ = flow rate of water [l/min, l/h]
$\dot{V}_{FI} = \dot{V}_W \sqrt{\frac{\rho_W}{\rho_{FI}}} = \dot{V}_W \cdot X$	$\dot{V}_{FI}$ = flow rate of the liquid whose density deviates from 1,000 [kg/m³]
$X = \sqrt{\frac{\rho_W}{\rho_{FI}}}$	X = multiplier ρ = density [kg/m³]

Conversion formula for this series: $\dot{V} = K \cdot p^R$

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