

# Axial-flow full cone nozzles

## Series 490

### Series 490

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

#### Applications:

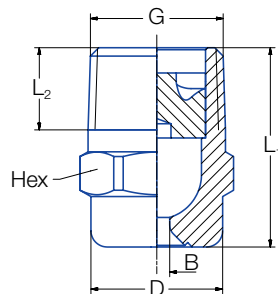
Strand cooling in billet casters, strand narrow side cooling in slab casters, spray cooling of billet molds, spray cooling of EAF electrodes after use.

#### Remark:

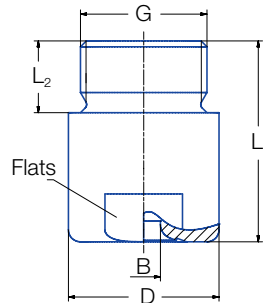
Material combination **T8** brass for the nozzle housing and AISI 316L for the vane, or completely made from AISI 316L **1Y** is recommended if the nozzles will be exposed to high temperatures for longer periods of time.



Series 490



Code  
BC-BG



Code  
BK-BM

Code	Dimensions (in.)					Weight Brass
	G	L <sub>1</sub>	L <sub>2</sub>	D	Hex/Flat	
<b>BC</b>	1/4 NPT	0.87	0.39	0.51	9/16	.04
<b>BE</b>	3/8 NPT	0.96	0.39	0.63	11/16	.07
<b>BE</b>	3/8 NPT	1.18	0.39	0.63	11/16	.11
<b>BG</b>	1/2 NPT	1.28	0.51	0.83	14/16	.13
<b>BG</b>	1/2 NPT	1.71	0.51	0.83	14/16	.19
<b>BK</b>	3/4 NPT	1.65	0.59	1.26	1-1/16	.42
<b>BK</b>	3/4 NPT	1.97	0.59	1.26	1-1/16	.44
<b>BM</b>	1 NPT	2.20	0.67	1.57	1-7/16	.77

Subject to technical modification.

In a critical installation situation, please ask for the exact dimensions.

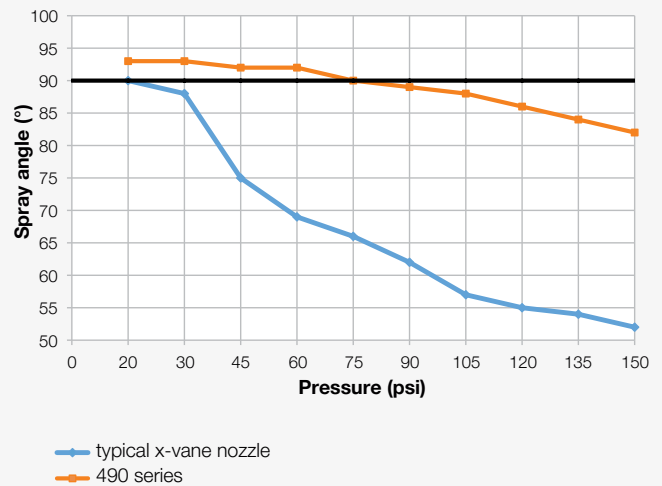
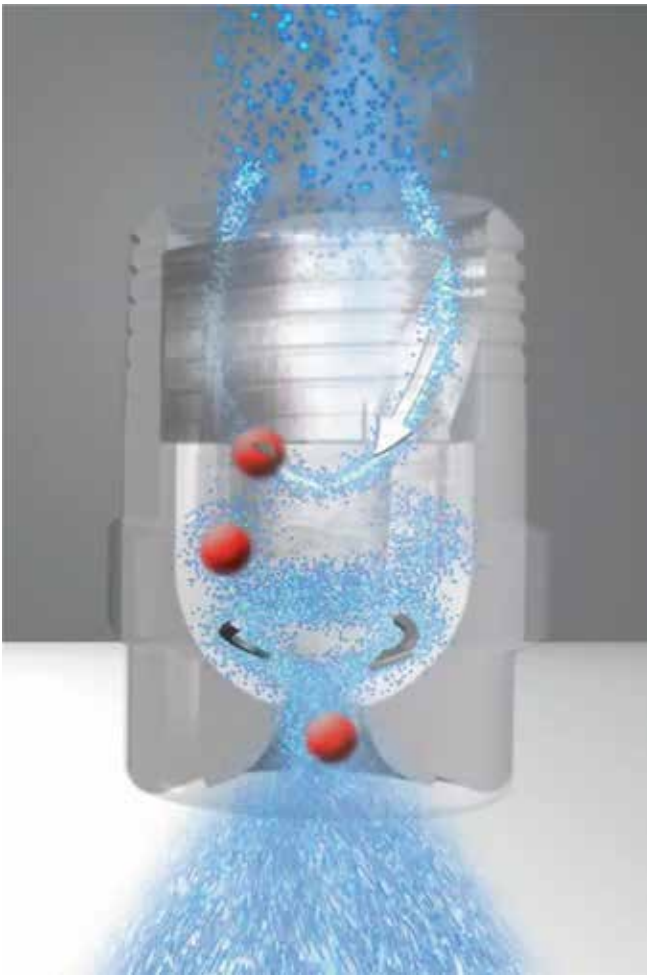
## New nozzle generation with an innovative internal design providing the nozzle with:

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 under cooling of strand corners and center section improves quality



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





Solid particle passing through 490 nozzle series





Solid particle passing through conventional axial full cone nozzle

# Axial-flow full cone nozzles

## Series 490

Spray angle 	Ordering no.								Orifice diam. (in.)	Free Passage (in.)	Flow Rate (Gallons Per Minute)							Spray Diam. D (in.) @ 30 psi 		
	Type	Mat. no.			Connection						10 psi	20 psi	liters per minute 2 bar	40 psi	80 psi	100 psi	150 psi	H=8"	H=20"	
		1Y	30	Brass/ AISI 316L T8	Male NPT															
					1/8"	1/4"	3/8"	1/2"												3/4"
45°	490. 403	○	○	○	BA	-	-	-	-	.049	.049	.17	.23	1.00	.30	.40	.43	.51	6	16
	490. 443	○	○	○	-	BC	-	-	-	.06	.06	.19	.25	1.25	.39	.48	.54	.63	6	16
	490. 523	○	○	○	BA	-	-	-	-	.067	.067	.35	.46	2.00	.60	.79	.87	1.02	6	16
	490. 563	○	○	○	-	BC	-	-	-	.07	.07	.38	.5	2.5	.78	.95	1.09	1.25	6	16
	490. 603	○	○	○	-	BC	BE	-	-	.079	.079	.54	.72	3.15	.95	1.25	1.37	1.61	6	16
	490. 643	-	○	○	-	-	BE	-	-	.096	.098	.69	.91	4.00	1.20	1.59	1.73	2.04	6	16
	490. 683	-	○	○	-	-	BE	-	-	.100	.100	.86	1.14	5.00	1.50	1.98	2.17	2.55	6	16
	490. 703	-	○	○	-	-	BE	-	-	.104	.104	.97	1.27	5.60	1.68	2.22	2.43	2.85	6	16
	490. 723	○	○	○	-	-	BE	-	-	.112	.112	1.09	1.43	6.30	1.89	2.50	2.73	3.21	6	16
	490. 783	-	○	○	-	-	-	BG	-	.136	.136	1.55	2.05	9.00	2.70	3.57	3.90	4.58	6	16
490. 843	-	○	○	-	-	-	BG	-	.150	.150	2.16	2.85	12.50	3.76	4.96	5.42	6.37	6	16	
60°	490. 404	○	○	○	BA	-	-	-	-	.045	.045	.17	0.23	1.00	.30	.40	.43	0.51	9	22
	490. 444	○	-	○	BA	-	-	-	-	.049	.049	.22	0.29	1.25	.38	.49	.54	0.64	9	22
	490. 484	○	○	○	BA	-	-	-	-	.057	.057	.28	0.36	1.60	.48	.63	.69	0.82	9	22
	490. 524	○	○	○	BA	-	-	-	-	.063	.063	.35	0.46	2.00	.60	.79	.87	1.02	9	22
	490. 564	○	○	○	BA	-	-	-	-	.071	.071	.43	0.57	2.50	.75	.99	1.08	1.27	9	22
	490. 604	○	○	○	BA	BC	BE	-	-	.081	.081	.54	0.72	3.15	.95	1.25	1.37	1.61	9	22
	490. 644	○	○	○	-	BC	BE	-	-	.091	.091	.69	0.91	4.00	1.20	1.59	1.73	2.04	9	22
	490. 684	○	○	○	-	BC	BE	-	-	.102	.102	.86	1.14	5.00	1.50	1.98	2.17	2.55	9	22
	490. 704	○	○	○	-	-	BE	-	-	.11	.11	.85	1.12	5.6	1.74	2.13	2.44	2.82	9	22
	490. 724	○	○	○	-	BC	BE	-	-	.112	.110	1.09	1.43	6.30	1.89	2.50	2.73	3.21	9	22
	490. 744	○	○	○	-	-	BE	-	-	.12	.12	1.08	1.42	7.10	2.21	2.71	3.1	3.57	9	22
	490. 764	○	○	○	-	-	BE	-	-	.128	.128	1.38	1.82	8.00	2.40	3.17	3.47	4.08	9	22
	490. 804	○	○	○	-	-	BE	-	-	.146	.146	1.72	2.28	10.00	3.00	3.97	4.34	5.10	9	22
	490. 844	○	○	○	-	-	-	BG	-	.159	.159	2.16	2.85	12.50	3.76	4.96	5.42	6.37	9	22
	490. 884	○	○	○	-	-	-	BG	-	.183	.183	2.76	3.64	16.00	4.81	6.34	6.94	8.16	9	22
	490. 924	○	○	○	-	-	-	BK	-	.205	.205	3.45	4.56	20.00	6.01	7.93	8.67	10.20	9	22

Continued on next page.

Spray angle 	Ordering no.								Orifice diam. (in.)	Free Passage (in.)	Flow Rate (Gallons Per Minute)							Spray Diam. D (in.) @ 30 psi 		
	Type	Mat. no.			Connection						10 psi	20 psi	liters per minute 2 bar	40 psi	80 psi	100 psi	150 psi	H=8"	H=20"	
		1Y	30	T8	Male NPT															
					1/8"	1/4"	3/8"	1/2"												3/4"
90°	490.406	○	○	○	BA	-	-	-	-	.047	.047	.17	.23	1.00	.30	.40	.43	.51	15	34
	490.446	-	○	○	BA	-	-	-	-	.051	.051	.22	.29	1.25	.38	.49	.54	.64	15	34
	490.486	○	○	○	BA	-	-	-	-	.057	.057	.28	.36	1.60	.48	.63	.69	.82	15	34
	490.506	○	○	○	-	BC	-	-	-	.06	.06	.27	.36	1.80	.56	.69	.78	.91	15	34
	490.526	○	○	○	BA	-	-	-	-	.067	.067	.35	.46	2.00	.60	.79	.87	1.02	15	34
	490.566	○	○	○	BA	-	-	-	-	.075	.075	.43	.57	2.50	.75	.99	1.08	1.27	15	34
	490.606	○	○	○	BA	-	BE	-	-	.081	.081	.54	.72	3.15	.95	1.25	1.37	1.61	15	34
	490.646	○	○	○	-	BC	BE	-	-	.094	.094	.69	.91	4.00	1.20	1.59	1.73	2.04	15	38
	490.686	○	○	○	-	BC	BE	-	-	.106	.106	.86	1.14	5.00	1.50	1.98	2.17	2.55	15	38
	490.726	○	○	○	-	BC	BE	-	-	.126	.110	1.09	1.43	6.30	1.89	2.50	2.73	3.21	15	38
	490.746	○	○	○	-	-	BE	-	-	.124	.124	1.23	1.62	7.10	2.13	2.82	3.08	3.62	15	38
	490.766	○	○	○	-	-	BE	-	-	.134	.134	1.38	1.82	8.00	2.40	3.17	3.47	4.08	15	38
	490.806	○	○	○	-	-	BE	-	-	.154	.154	1.72	2.28	10.00	3.00	3.97	4.34	5.10	15	38
	490.846	○	○	○	-	-	BE	-	-	.183	.157	2.16	2.85	12.50	3.76	4.96	5.42	6.37	15	38
	490.886	○	○	○	-	-	-	BG	-	.215	.177	2.76	3.64	16.00	4.81	6.34	6.94	8.16	15	38
490.926	○	○	○	-	-	-	BG	-	.232	.177	3.45	4.56	20.00	6.01	7.93	8.67	10.20	15	38	
120°	490.368	○	○	○	BA	-	-	-	-	.033	.026	.11	.14	.63	.19	.25	.27	.32	27	48
	490.408	○	○	○	BA	-	-	-	-	.047	.047	.17	.23	1.00	.30	.40	.43	.51	27	48
	490.448	○	○	○	BA	-	-	-	-	.051	.051	.22	.29	1.25	.38	.49	.54	.64	27	48
	490.488	○	○	○	BA	-	-	-	-	.057	.057	.28	.36	1.60	.48	.63	.69	.82	27	48
	490.528	○	○	○	BA	-	-	-	-	.067	.067	.35	.46	2.00	.60	.79	.87	1.02	27	48
	490.568	○	○	○	BA	-	-	-	-	.075	.075	.43	.57	2.50	.75	.99	1.08	1.27	27	48
	490.608	○	○	○	-	-	-	-	-	.083	.081	.54	.72	3.15	.95	1.25	1.37	1.61	27	48
	490.648	○	○	○	-	BC	BE	-	-	.094	.094	.69	.91	4.00	1.20	1.59	1.73	2.04	27	52
	490.688	○	○	○	-	BC	BE	-	-	.108	.108	.86	1.14	5.00	1.50	1.98	2.17	2.55	27	52
	490.728	○	○	○	-	BC	BE	-	-	.126	.110	1.09	1.43	6.30	1.89	2.50	2.73	3.21	27	52
	490.748	○	○	○	-	-	BE	-	-	.126	.126	1.23	1.62	7.10	2.13	2.82	3.08	3.62	27	52
	490.768	○	○	○	-	-	BE	-	-	.136	.136	1.38	1.82	8.00	2.40	3.17	3.47	4.08	27	52
	490.808	○	○	○	-	-	BE	-	-	.154	.154	1.72	2.28	10.00	3.00	3.97	4.34	5.10	27	52
	490.848	○	○	○	-	-	BE	-	-	.185	.157	2.16	2.85	12.50	3.76	4.96	5.42	6.37	27	52
	490.888	○	○	○	-	-	-	BG	-	.201	.177	2.76	3.64	16.00	4.81	6.34	6.94	8.16	27	52
490.928	○	○	○	-	-	-	BG	-	.228	.228	3.45	4.56	20.00	6.01	7.93	8.67	10.20	27	52	

Example    Type    +    Material no.    +    Conn.    =    Ordering no.  
for ordering: 490.368    +    1Y                                    +    BA                                    =    490.368.1Y.BA