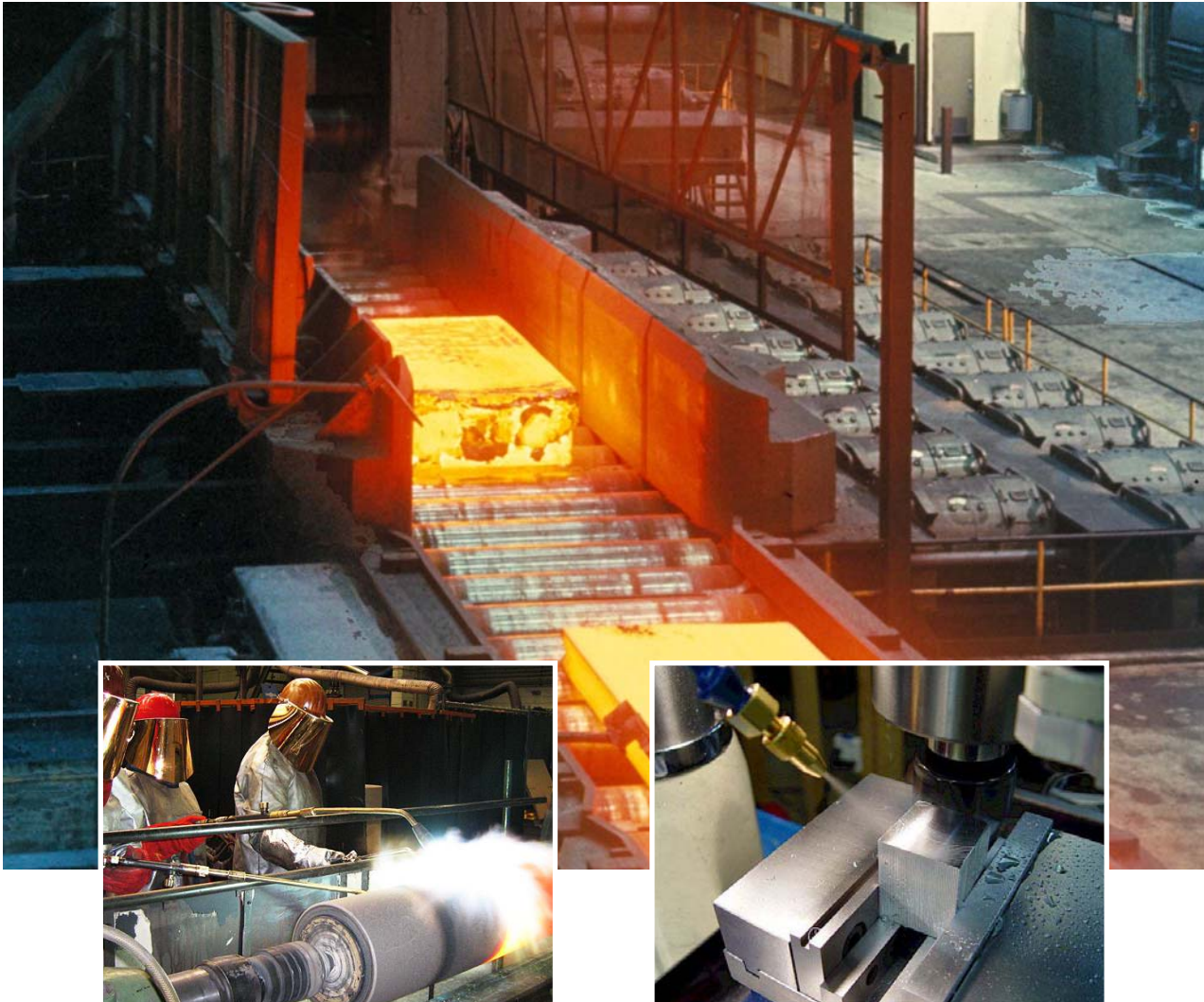


# Steel Mill Spray Nozzles Spray Header, Lance & Engineering Systems



# Billet Caster Spray Nozzle

## FULL CONE DB SERIES NOZZLE

**Application :** Continuous Casting Machine for Secondary Cooling

### Spray Characteristics

- Produces a full cone pattern
- Sprayed volume is evenly distributed across spray pattern
- Available with a range of spray angle

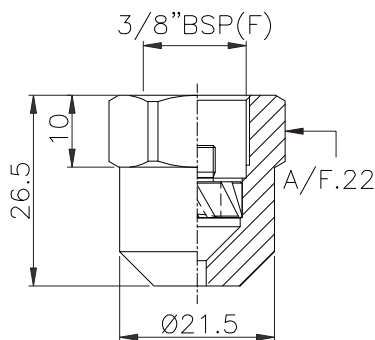
### Materials and Construction

- Standard materials are Brass and Stainless Steel
- Male and female thread available
- 3/8" or 1/4" BSP / NPT threaded connections available
- Specially designed internal core ensures a good resistance to clogging
- Standard spray angle 45°, 65°, 80°, 90°, and other spray angle on request.

### Stainless steel



### Brass



Flow Rate (l/min) @ Different Pressure Value (Bar)									
Sr. No.	Model No.	Angle	1.0 Bar	2.0 Bar	2.8 Bar	4.0 Bar	5.0 Bar	6.0 Bar	7.0 Bar
1	DB 2045	45°	1.20	1.69	2.00	2.39	2.67	2.93	3.16
2	DB 2545	45°	1.99	2.11	2.50	2.98	3.34	3.65	3.95
3	DB 3045	45°	1.80	2.50	3.00	3.60	4.00	4.40	4.75
4	DB 3545	45°	2.10	2.95	3.50	4.20	4.70	5.10	5.55
5	DB 4045	45°	2.40	3.40	4.00	4.80	5.30	5.85	6.30
6	DB 4745	45°	2.80	4.00	4.70	5.60	6.30	6.90	7.40
7	DB 5045	45°	3.00	4.20	5.00	6.00	6.70	7.30	7.90
8	DB 6045	45°	3.60	5.10	6.00	7.20	8.00	8.80	9.50
9	DB 7045	45°	4.50	5.90	7.00	8.35	9.35	10.25	11.05
10	DB 8045	45°	4.80	6.80	8.00	9.60	10.70	11.70	12.65

Flow Rate (l/min) @ Different Pressure Value (Bar)									
Sr. No.	Model No.	Angle	1.0 Bar	2.0 Bar	2.8 Bar	4.0 Bar	5.0 Bar	6.0 Bar	7.0 Bar
1	DB 1565	65°	0.90	1.25	1.50	1.80	2.00	2.20	2.35
2	DB 2065	65°	1.20	1.70	2.00	2.40	2.70	2.90	3.15
3	DB 2465	65°	1.40	2.00	2.40	2.80	3.20	3.50	3.80
4	DB 2565	65°	1.49	2.11	2.50	2.98	3.34	3.65	3.95
5	DB 3065	65°	1.80	2.50	3.00	3.60	4.00	4.40	4.75
6	DB 3565	65°	2.10	2.95	3.50	4.20	4.70	5.10	5.55
7	DB 4065	65°	2.40	3.40	4.00	4.80	5.30	5.85	6.30
8	DB 4565	65°	2.69	3.80	4.50	5.38	6.01	6.59	7.12
9	DB 5065	65°	3.00	4.20	5.00	6.00	6.70	7.30	7.90
10	DB 5565	65°	3.28	4.64	5.50	6.57	7.34	8.05	8.69
11	DB 5965	65°	3.50	5.00	5.90	7.00	7.90	8.60	9.30
12	DB 6065	65°	3.60	5.10	6.00	7.20	8.00	8.80	9.50
13	DB 7065	65°	4.20	5.90	7.00	8.35	9.35	10.25	11.05
14	DB 7565	65°	4.50	6.35	7.50	8.95	10.00	10.95	11.85
15	DB 8065	65°	4.80	6.80	8.00	9.60	10.70	11.70	12.65
16	DB 9065	65°	5.40	7.60	9.00	10.75	12.00	13.15	14.25
17	DB 10065	65°	6.00	8.45	10.00	11.95	13.40	14.60	15.80
18	DB 12065	65°	7.20	10.10	12.00	14.30	16.00	17.60	18.95
19	DB 13065	65°	7.77	10.99	13.00	15.54	17.37	19.03	20.55
20	DB 15065	65°	8.96	12.68	15.00	17.93	20.04	22.96	23.72
21	DB 16065	65°	9.55	13.50	16.00	19.10	21.40	23.40	25.30

These part numbers are easy to use and identify, example:

Brass or Stainless steel 3/8" Female - DB 2045 / DB2065 = 2.00 litre/min @ 2.8 bar with a 45° & 65° angle

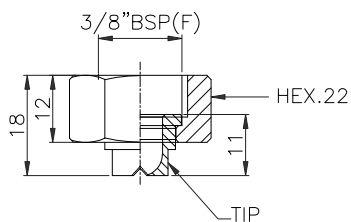
Flow Rate (l/min) @ Different Pressure Value (Bar)									
Sr. No.	Model No.	Angle	1.0 Bar	2.0 Bar	2.8 Bar	4.0 Bar	5.0 Bar	6.0 Bar	7.0 Bar
1	DB 1580	80°	0.90	1.25	1.50	1.80	2.00	2.20	2.35
2	DB 2080	80°	1.20	1.70	2.00	2.40	2.65	2.90	3.15
3	DB 3080	80°	1.80	2.50	3.00	3.60	4.00	4.40	4.75
4	DB 3580	80°	1.80	2.50	3.50	3.60	4.00	4.40	4.75
5	DB 4080	80°	2.40	3.40	4.00	4.80	5.30	5.85	6.30
6	DB 5080	80°	3.00	4.20	5.00	6.00	6.70	7.30	7.90
7	DB 6080	80°	3.60	5.10	6.00	7.20	8.00	8.80	9.50

Flow Rate (l/min) @ Different Pressure Value (Bar)									
Sr. No.	Model No.	Angle	1.0 Bar	2.0 Bar	2.8 Bar	4.0 Bar	5.0 Bar	6.0 Bar	7.0 Bar
1	DB 1590	90°	0.90	1.25	1.50	1.80	2.00	2.20	2.35
2	DB 2090	90°	1.20	1.70	2.00	2.40	2.65	2.90	3.15
3	DB 3090	90°	1.80	2.50	3.00	3.60	4.00	4.40	4.75
4	DB 3590	90°	1.80	2.50	3.50	3.60	4.00	4.40	4.75
5	DB 4090	90°	2.40	3.40	4.00	4.80	5.30	5.85	6.30
6	DB 5090	90°	3.00	4.20	5.00	6.00	6.70	7.30	7.90
7	DB 6090	90°	3.60	5.10	6.00	7.20	8.00	8.80	9.50

These part numbers are easy to use and identify, example:

Brass or Stainless steel 3/8" Female - DB 2080 / DB 2090 = 2.00 litre/min @ 2.8 bar with a 80° & 90° angle

## Flat Tip in Billet Caster













Flat nozzle tips are usually mounted onto a pipe using a welded 3/8" nipple or a clamp and secured in place with a retaining nut. The precision machined orifices can be protected against the risk of clogging by using a filter which fits neatly into the nipples and clamps, specifically designed for this purpose.







Flow Rate (l/min) @ Different Pressure Value (Bar)									
Sr. No.	Model No.	Angle	1.0 Bar	2.0 Bar	2.8 Bar	4.0 Bar	5.0 Bar	6.0 Bar	7.0 Bar
1	CC 2065	65°	1.20	1.70	2.00	2.40	2.70	2.90	3.15
2	CC 2565	65°	1.49	2.11	2.50	2.98	3.34	3.65	3.95
3	CC 3065	65°	1.80	2.50	3.00	3.60	4.00	4.40	4.75
4	CC 3565	65°	2.10	2.95	3.50	4.20	4.70	5.10	5.55
5	CC 4065	65°	2.40	3.40	4.00	4.80	5.30	5.85	6.30
6	CC 5065	65°	3.00	4.20	5.00	6.00	6.70	7.30	7.90
7	CC 5765	65°	3.28	4.64	5.70	6.57	7.34	8.05	8.69
8	CC 6065	65°	3.60	5.10	6.00	7.20	8.00	8.80	9.50
9	CC 8065	65°	4.80	6.80	8.00	9.60	10.70	11.70	12.65

These part numbers are easy to use and identify, example:

Brass or Stainless steel 3/8" Female - CC 2065 = 2.00 litre/min @ 2.8 bar with a 65° angle

# Spray Nozzles for Secondary Cooling in Continuous Casting Machines

Type of Nozzles	Spray pattern	Spray angle	V water [l/min] min/max			Turn down ratio (1 bar/7 bar water)	Material		End Connection	Applications	Features
			at p [bar]				Brass	SS 304 / 316			
			1.0	2.0	7.0						
	Full cone circular pattern	 45° 60° 90° 120°	min. max.	0.76 7.58	1.0 10.0	1.65 16.51	1:2.2 up to 1:2.5	✓ ✓	1/8 BSPT/NPT 1/4 BSPT/NPT 3/4 BSPT/NPT	Billet, Bloom (Rounds): as well as Slabcaster for narrow side or footroller area	■ Stable spray angle
	Full cone circular pattern	 45° 60° 90° 120°	min. max.	0.76 7.58	1.0 10.0	1.65 16.51	1:2.2 up to 1:2.5	✓ ✓	Retaining nut 3/8 BSPT/NPT	Billet, Bloom (Rounds): as well as Slabcaster for narrow side or footroller area	■ Stable spray angle
	Full cone square pattern	 60° 75° 85° 115°	min. max.	0.95 7.58	1.25 10.0	2.06 16.51	1:2.2	✓ ✓	1/4 BSPT/NPT 3/8 BSPT/NPT 1/8 BSPT/NPT 1/4 BSPT/NPT	Thin slab, Slab (footroller area)	■ Stable spray angle
	Oval Full cone	 90°	min. max.	3.37 5.1	4.45 6.85	7.34 11.31	1:2.2	✓ ✓	1/4 BSPT/NPT 1/4 BSPT/NPT 1/8 BSPT/NPT	Thin slab, Slab (e.g. footroller area)	■ Stable spray angle
	Vanless Full cone circular	 60° 90° 120°	min. max.	0.71 11.31	1.0 16.0	1.87 29.9	1:2.6	✓ ✓	1/4 BSPT/NPT 3/8 BSPT/NPT	Billet, Bloom (Rounds):	■ Vanless full cone nonclogging type

Type of Nozzles	Spray pattern	Spray angle	Nozzles Size from -up to	Vwater [l/min] min/max						Turn down ratio @ 2 bar air	Material		End Connection		Applications	Features
				1 Bar Water		2 Bar Water		7 Bar Water			Brass	SS 304 / 316	Water	Air		
				Water	Air	Water	Air	Water	Air							
	Full cone circular	 30° 60° 90°	min. max.	0.45 0.95	14 25.2	2.0 4.2	10 18	6.5 13.6	4 72	1:15	✓ ✓	Console	Console	Billet, Bloom	<ul style="list-style-type: none"> <li>■ Finest droplet spectrum</li> <li>■ Wide turn down ratio to flow rate</li> <li>■ Large, free cross sections</li> <li>■ Strong flow impuls</li> </ul>	
	Flat parabolic	 30° 60° 90° 120° 140°	min. max.	0.5 0.95	19 70	1.6 8.5	18 50	4 28	16.5 28	1:35	✓ ✓	1/4 NPT 1/4 BSPP Console	3/8 NPT 3/8 BSPP Console	Billet, Bloom, Slab	<ul style="list-style-type: none"> <li>■ Quick and easy cleaning</li> <li>■ Patented mixing insert</li> <li>■ Self aligning tip</li> </ul>	
	Flat parabolic	 80° 90° 100° 120° 130° or to suit	min. max.	2.25 8	9.8 60	3.6 18	9.5 55	8.6 50	6.8 23.5	1:5 (1:8*)	✓ ✓	3/8 BSPP 1/2 BSPP	3/8 BSPP 1/2 BSPP	Billet, Bloom, Slab, thin slab	<ul style="list-style-type: none"> <li>■ Uniform water distribution</li> <li>■ Stable spray angle at all pressures and flows</li> </ul>	