



Abrasive Blast Nozzles



**Setting the Standard
in Nozzle Technology**

Kennametal Delivers Value with Abrasive Blast Nozzles

Kennametal is a leading manufacturer of blast nozzles and related flow control devices for contractor abrasive blasting in the construction industry. Offering aluminum oxide, tungsten carbide, BP200, SiAlON, boron carbide, ROCTEC™ nozzles and inserts in hundreds of styles and sizes, Kennametal can provide a solution to meet your every need.



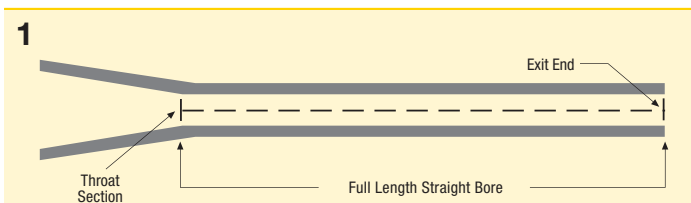
MISSION Kennametal delivers productivity to customers seeking peak performance in demanding environments by providing innovative custom and standard wear-resistant solutions, enabled through our advanced materials sciences, application knowledge, and commitment to a sustainable environment.



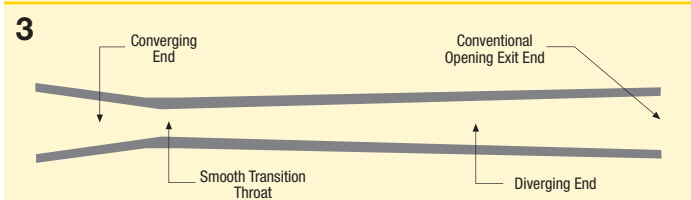
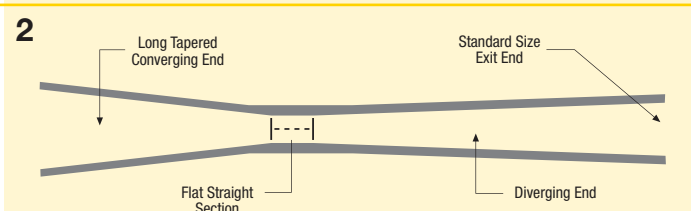
A Guide To Blasting Nozzle Selection

What Is The Desired Blast Pattern?

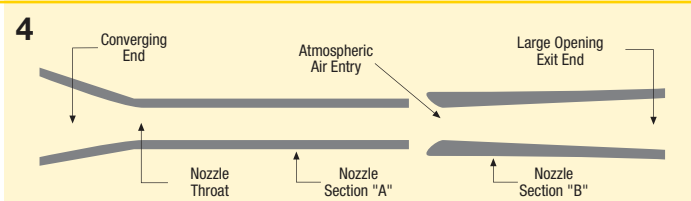
Straight Bore Nozzles



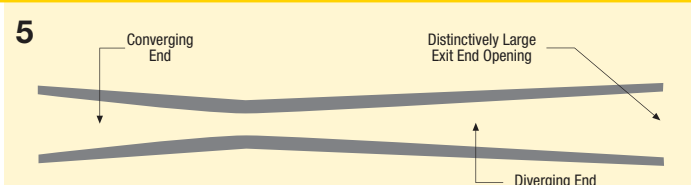
Venturi Bore Nozzles



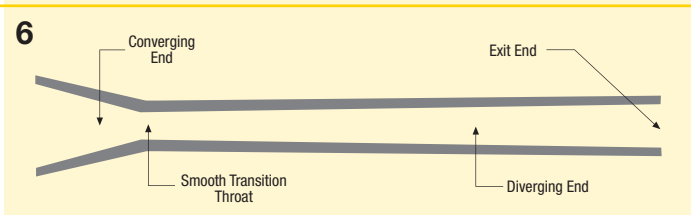
Double Venturi



Wide Throat Nozzles



XL Performance



What Are the Various Nozzle Material Choices?

Nozzle material selection depends on the abrasive you choose, how often you blast, the size of the job, and the rigors of the job site. Here are general application guidelines for various materials.

Service Life Comparisons

Approximate Service Life in Hours

Nozzle Material	Description	Steel Shot/Grit	Slag	Aluminum Oxide
Aluminum Oxide "Alumina"	Ceramic, offers good service life at a lower price	20 – 40	10 – 30	1 – 4
Tungsten Carbide	Provides economy and long life with rough abrasives	500 – 800	300 – 400	20 – 40
BP200 SiAlON	Has half the weight of tungsten carbide and all the durability	500 – 800*	300 – 400	50 – 100
Boron Carbide	Features 10x service life of tungsten carbide with aggressive abrasives	1500 – 2500	750 – 1500	200 – 1000
ROCTEC®	Has even longer life than boron carbide, stands up to the most aggressive abrasives	2500 – 5000+	1500 – 3000+	1000 – 2000+

Estimated values for comparison. Actual service life will vary depending on blast pressure, media size, and particle shape.

* Not recommended for 'H' hardness steel shot/grit.



Nozzle Air and Pressure Requirements Chart

Nozzle Pressure – PSI (Bar)

Industry Standard Sizing Nozzle Orifice mm (in)	Air Requirements: cu. m/min. (cu ft./min.)						
	50 psi (3.45 bar)	60 psi (4.14 bar)	70 psi (4.83 bar)	80 psi (5.52 bar)	90 psi (6.21 bar)	100 psi (6.89 bar)	125 psi (8.62 bar)
#2 3.2 (1/8)	0.34 (12)	0.37 (13)	0.42 (15)	0.51 (18)	0.54 (19)	0.59 (21)	0.74 (26)
#3 4.8 (3/16)	0.71 (25)	0.85 (30)	0.99 (35)	1.13 (40)	1.22 (43)	1.27 (45)	1.70 (60)
#4 6.35 (1/4)	1.42 (50)	1.56 (55)	1.70 (60)	1.98 (70)	2.12 (75)	2.27 (80)	2.69 (95)
#5 8 (5/16)	2.27 (80)	2.55 (90)	2.83 (100)	3.26 (115)	3.54 (125)	3.96 (140)	5.38 (190)
#6 9.5 (3/8)	3.12 (110)	3.54 (125)	4.11 (145)	4.53 (160)	4.96 (175)	5.66 (200)	7.79 (275)
#7 11 (7/16)	4.25 (150)	4.81 (170)	5.66 (200)	6.09 (215)	6.80 (240)	7.22 (255)	8.92 (315)
#8 12.7 (1/2)	5.66 (200)	6.37 (225)	7.08 (250)	7.79 (275)	8.50 (300)	9.63 (340)	12.18 (430)
#10 16 (5/8)	8.50 (300)	9.91 (350)	11.33 (400)	12.74 (450)	14.16 (500)	15.58 (550)	19.82 (700)
#12 19 (3/4)	12.18 (430)	14.16 (500)	16.28 (575)	18.41 (650)	19.82 (700)	22.66 (800)	31.15 (1100)

This table is to be used as reference only. Actual results may vary depending on specific abrasive medium used.
This table is based on abrasive with a bulk density of 100 pounds per cubic foot.

Nozzle Pressure, Abrasive Velocity, and Efficiency

blast nozzle pressure	estimated abrasive velocity	estimated efficiency factor
140 psi	588 mph	160%
125 psi	525 mph	138%
110 psi	462 mph	115%
100 psi	420 mph	100%
95 psi	400 mph	93%
90 psi	365 mph	85%
85 psi	330 mph	78%
80 psi	270 mph	70%
75 psi	210 mph	63%
70 psi	190 mph	55%

Nozzle Types

LONG VENTURI

Long venturi style nozzles yield about a 40% greater production rate than straight bore nozzles. The internally tapered design of the venturi nozzle accelerates and evenly distributes the abrasive over the entire blast pattern.

SHORT VENTURI

Short venturi nozzles offer the widest possible pattern at close range. Use these nozzles when blasting 12" or less from the surface.

XL PERFORMANCE

The XL Performance nozzles increase abrasive particle velocity, resulting in improved production rates and efficiencies. The XL Performance nozzles will utilize the same air (CFM) requirements as our standard long venturi products for the same given bore size, resulting in lower compressed air operating costs per square foot / meter.



LOWER DECIBEL

Kennametal's patented Blast Ninja™ technology offers reduction in sound allowing you to work safely for longer. Normal nozzles can produce up to 120 dB of dangerous noise. At this volume hearing damage can occur in under an hour and OSHA requires noise breaks after just 15 minutes. Blast Ninja can reduce noise levels to a more reasonable 103 dB or below, allowing you to blast for multiple hours. This means more productivity for your time - helping you complete projects faster and at a lower cost. The new technology also maintains abrasive velocity – reducing noises while keeping efficiency.



DOUBLE VENTURI

The double venturi offers a 35% larger blast pattern than a standard long venturi with only a slight loss in abrasive velocity. Designed to be used on jobs where medium cutting action is required with a more even dispersion of abrasive throughout the larger blast pattern. Excellent for plastic or agricultural abrasives.



Nozzle Types

ANGLE

These nozzles are excellent for getting inside tight places like bridge lattice, behind flanges, or inside pipe. Many operators waste abrasive and time waiting for ricochet to get the job done. No nozzle tool chest should be without an angle nozzle. These nozzles are available in tungsten carbide, boron carbide, and ROCTEC® featuring long life blast outputs between 0° and 125° relative to the input openings. Available with single, double, triple, or quadruple outlets. **We have the capability to manufacture additional angle nozzle designs. Please contact us to discuss your requirements.**



WIN™ (WATER INDUCTION NOZZLE)

The WIN™ (Water Induction Nozzle) System is a simple, proprietary solution for high-production, wet abrasive blasting that can be used with your existing pressure blast equipment. The system can be used with water from a tap or with rust inhibitors introduced through any simple pump. No special equipment is required. The WIN System offers the highest performance possible in wet abrasive blasting technology.

We offer the most popular sizes in both tungsten carbide and our lightweight BP200 SiAlON. Water consumption with these nozzles is much less than with other wet blast systems, only 3/4 to 6 quarts per minute depending on the level of dust suppression desired.



MISCELLANEOUS / SPECIAL USE CASES

BAZOOKA™ NOZZLES: Provide high-pressure blasting that yields up to 60% larger blast patterns compared to conventional long-length venturi nozzles, with only a slight loss in abrasive velocity.

STRAIGHT BORE NOZZLES: Straight bore nozzles are made for close-range spot blasting. With small blast patterns and little overblast, they are good for cleaning small areas: weldments, grillwork, and railings. If your equipment calls for a non-standard nozzle, we can produce it for you. **For special needs, contact us.**



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