

BEETLE

Rotary Cleaning for Curved Pipes/Tubes

OVERVIEW

The Beetle product family is the only set of tools in the industry to deliver high pressure rotary jets in a form factor under 2 inches (51 mm) in length. The BT9.5 has the smallest diameter of any nozzle in the Beetle product line making it the perfect solution when cleaning tubes as small as 12 mm.

Beetle tools leverage the same patented technology that has made Banshee nozzles the most successful tube cleaning tools in the industry. Beetle nozzles are engineered to provide the same powerful cleaning features, but in a compact size that is ideal for navigating tubes and small pipes with curves and elbows. All Beetles tools are rebuildable; the shaft head can be easily replaced when needed to extend the life of the tool.

The small diameter and short length of Beetle tools make them perfect for use with the StoneAge Navigator, AutoBox ABX-PRO, ABX-2L/3L, or Boiler Tube Cleaner for cleaning process piping, drain lines, u-tube bundles and other small ID conduit with bends that may have been inaccessible in the past.

FEATURES	BENEFITS
<ul style="list-style-type: none"> Smallest high-pressure rotary nozzles in the industry 	<ul style="list-style-type: none"> Successfully clean small tubes that are inaccessible with other tools — especially deformed tubes, twisted tubes, and u-tubes Rotary heads deliver better ID coverage for more consistent cleaning and are superior to fixed jets for cutting/clearing blockages
<ul style="list-style-type: none"> Recessed inlet design 	<ul style="list-style-type: none"> Minimizes rigid length when hose is attached
<ul style="list-style-type: none"> Low cost, low maintenance, rebuildable 	<ul style="list-style-type: none"> Unlike fixed tips, Beetle tools are engineered for long term use – shaft head can be easily replaced to keep the tool in service Patented “liquid bearing” technology, no bearings, seals, or lubricants
<ul style="list-style-type: none"> Complete range of tools available up to 22k psi (1500 bar) 	<ul style="list-style-type: none"> Contractors will benefit from owning the entire line of Beetle tools – 9.5, 12, 18, 25 – perfectly sized for all small tube applications
<ul style="list-style-type: none"> Compatible with StoneAge automated equipment 	<ul style="list-style-type: none"> Pair with a Navigator, ABX-PRO, ABX-2L/3L, or Boiler Tube Cleaner for cleaning process piping, drain lines, u-tube bundles, or any small ID tube with bends



BEETLE TOOL OVERVIEW

QUESTIONS TO ASK THE CUSTOMER

- What size and length of hose are you using?
- What pressure and flow are you operating?
- What are the length and diameter of the tubes?
- What is the curve radius of the tubes?
- What type of cleaning is required? Are the tubes plugged?
- Do you need a backout preventer?
You should always use a backout preventer with high pressure tube cleaning tools.

TOOL SPECIFICATIONS

PART ID	BT9.5	BT12	BT18	BT25
Pipe/Tube ID Range	0.47–.63 in. 12–16 mm	0.6–1.0 in. 15–25 mm	0.9–1.3 in. 22–33 mm	1.2–3.0 in. 30–76 mm
Pressure Range	8–22k psi 550–1500 bar	10–22k psi 700–1500 bar	10–22k psi 700–1500 bar	8–22k psi 550–1500 bar
Flow Range	5–7 gpm 19–23 l/min	6.5–8.5 gpm 25–32 l/min	8.5–11 gpm 32–42 l/min	8–20 gpm 30–76 l/min
Inlet Connections	P1, M7	P1, M7, MP4L, MP4R	P1, P2, BSPP2, MP6L, MP6R, MP4L, MP4R	1/8 NPT, 1/4 NPT, 1/4 BSPP, 3/8-28 LH/RH, 9/16-18 LH/RH
Diameter	0.37 in. 9.5 mm	0.5 in. 13 mm	0.7 in. 18 mm	1.0 in. 26 mm
Length	1.4 in. 33 mm	1.3 in. 32 mm	1.5 in. 39 mm	1.9 in. 48 mm
Maximum Water Temperature	250 °F 120 °C	250 °F 120 °C	250 °F 120 °C	250 °F 120 °C

OTHER INFORMATION

- The Beetle BT9.5 has the smallest diameter of any nozzle in the Beetle product line making it the perfect solution when cleaning tubes as small as 12 mm. Because of the fitting/crimp lengths of currently available 20K hoses, the tool is currently only offered with P1 or M7 inlets and a universal head that accommodates 5–7 gpm (“B” head) as it provides optimal utility based on testing, analysis, and pressure loss limitations.
- We recommend that the entire system be flushed out before installing the Beetle on the end of the hose or stinger. The swivels require a clean water supply for reliable operation; filtration to 25 micron particulates or smaller is recommended.
- When using rotating nozzles in plugged tubes, do not jam the head into the deposit because this may stop the rotation of the tool and impede the cutting ability. When the tool contacts the deposit, allow it to cut away the material and advance at its own rate. If it stops advancing, pull back slightly on the hose to move the head away from the deposit. This action also allows the jets to cut the deposit at different angles.
- Water must be blown out of the Beetle after each use to avoid corrosion damage. It is also important to soak or bathe the tool in a very light oil such as WD-40® between applications.
- The use of pipe wrenches and or pliers with “teeth” will void all tool warranty. All Banshee tube cleaning tools require the use of a correctly sized open-end wrench to fit the flats provided on the inlet nut when attaching the tool to the lance. Incorrect tools can crush or crack the hardened steel body, leading to failure or breakage during operation.

APPLICATION SPECIFICATIONS

It is important to consider the length of your hose crimp and avoid couplings and adapters when configuring the Beetle to take advantage of the small profile when cleaning tubes with bends or elbows.

PLEASE NOTE: Achieving the lowest possible bend radius may necessitate using hose/fitting combinations that are rated for lower pressures than the Beetle tool rating.

The following table illustrates minimum tube size and bend radius specifications for common applications:

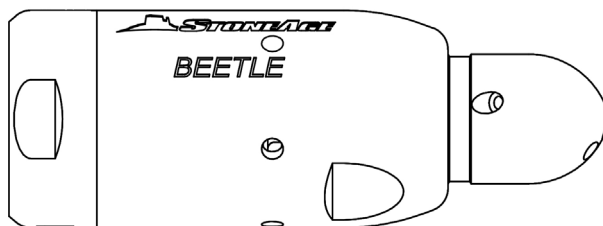
MODEL	APPLICATION				MINIMUM HOSE BEND	TUBE ID	MINIMUM TUBE RADIUS
	PRESSURE	HOSE	FITTING	OVERALL LENGTH			
BT9.5	15k psi 1034 bar	3/2	P1	2.54 in. 65 mm	2.36 in. 60 mm	0.47 in. 12 mm	6.50 in. 166 mm
						0.63 in. 16 mm	3.60 in. 92 mm
	17.4k psi 1200 bar	4/2	M7	3.16 in. 80 mm	2.95 in. 75 mm	0.47 in. 12 mm	14.00 in. 356 mm
	20.3k psi 1400 bar	4/2H	M7			0.63 in. 16 mm	5.60 in. 143 mm
BT12	15k psi 1034 bar	3/2	P1	2.26 in. 57 mm	2.36 in. 60 mm	0.60 in. 15 mm	3.75 in. 96 mm
						1.00 in. 25 mm	2.36 in. 60 mm
	17.4k psi 1200 bar	4/2	M7	3.00 in. 76 mm	2.95 in. 75 mm	0.60 in. 15 mm	8.70 in. 221 mm
						1.00 in. 25 mm	4.85 in. 124 mm
	20k psi 1379 bar	3/4	MP4L	3.40 in. 87 mm	4.33 in. 110 mm	0.60 in. 15 mm	8.70 in. 221 mm
			MP4R			1.00 in. 25 mm	4.85 in. 124 mm
	20.3k psi 1400 bar	4/2H	M7	3.01 in. 76 mm	2.95 in. 75 mm	0.60 in. 15 mm	5.75 in. 147 mm
						1.00 in. 25 mm	3.40 in. 87 mm
BT18	15k psi 1034 bar	3/2	P1	2.46 in. 63 mm	2.36 in. 60 mm	0.90 in. 22 mm	3.05 in. 78 mm
						1.30 in. 33 mm	2.13 in. 54 mm
		4/2	P2	2.80 in. 71 mm	2.95 in. 75 mm	0.90 in. 22 mm	3.90 in. 100 mm
						1.30 in. 33 mm	2.80 in. 72 mm
		5/2	P2	2.88 in. 73 mm	3.74 in. 95 mm	0.90 in. 22 mm	4.53 in. 116 mm
			BSPP2	3.50 in. 89 mm		1.30 in. 33 mm	3.47 in. 89 mm
		6/2	P2	3.52 in. 89 mm	4.33 in. 110 mm	0.90 in. 22 mm	6.10 in. 155 mm
						1.30 in. 33 mm	4.48 in. 114 mm
	20k psi 1379 bar	3/4	MP4L	3.58 in. 91 mm	4.33 in. 110 mm	0.90 in. 22 mm	5.80 in. 148 mm
			MP4R			1.30 in. 33 mm	4.45 in. 113 mm
		5/4	MP6L	2.86 in. 73 mm	5.91 in. 150 mm	0.90 in. 22 mm	6.10 in. 155 mm
			MP6R			1.30 in. 33 mm	5.15 in. 131 mm
	22k psi 1517 bar	6/4	MP6L	2.99 in. 76 mm	7.09 in. 180 mm	0.90 in. 22 mm	6.40 in. 163 mm
			MP6R			1.30 in. 33 mm	5.30 in. 135 mm

Table continued on next page

BEETLE TOOL CONFIGURATION

APPLICATION SPECIFICATIONS (continued)

MODEL	APPLICATION				MINIMUM HOSE BEND	TUBE ID	MINIMUM TUBE RADIUS
	PRESSURE	HOSE	FITTING	OVERALL LENGTH			
BT25	15k psi 1034 bar	4/2	P2	2.64 in. 67 mm	2.95 in. 75 mm	1.20 in. 30 mm	3.29 in. 84 mm
						3.00 in 76 mm	2.00 in. 51 mm
		5/2	P2	2.72 in. 69 mm	3.74 in. 95 mm	1.20 in. 30 mm	3.95 in. 101 mm
						3.00 in 76 mm	2.00 in. 51 mm
			P4	3.53 in. 90 mm		1.20 in. 30 mm	4.80 in. 122 mm
						3.00 in 76 mm	2.31 in. 59 mm
		6/2	P2	3.36 in. 85 mm	4.33 in. 110 mm	1.20 in. 30 mm	5.05 in. 129 mm
						3.00 in 76 mm	2.60 in. 67 mm
			P4	2.82 in. 72 mm		1.20 in. 30 mm	4.50 in. 115 mm
						3.00 in 76 mm	2.28 in. 58 mm
			BSPP4	3.95 in. 100 mm		1.20 in. 30 mm	5.80 in. 148 mm
						3.00 in 76 mm	2.95 in. 75 mm
	20k psi 1379 bar	5/4	MP6L	2.79 in. 71 mm	5.91 in. 150 mm	1.2 in. 30 mm	5.70 in. 145 mm
			MP6R			3.0 in 76 mm	3.24 in. 83 mm
		8/4	MP9L	3.40 in. 86 mm	7.87 in. 200 mm	1.2 in. 30 mm	7.80 in. 199 mm
			MP9R			3.0 in 76 mm	5.10 in. 130 mm
	22k psi 1517 bar	6/4	MP6L	2.92 in. 74 mm	7.09 in. 180 mm	1.2 in. 30 mm	5.87 in. 149 mm
			MP6R			3.0 in 76 mm	3.35 in. 86 mm



Tool Assembly

A complete Beetle tool configuration requires the following components:

1. Tool for required working pressure and inlet connection

The following items may also be required:

- Backout preventer

To configure a Beetle tool, the following information should be obtained:

- Pump pressure and flow
- Hose length and ID
- Hose/lance end fitting

BEETLE TOOL CONFIGURATION

ORDERING A BEETLE

Complete tools can be configured by following the steps outlined below.

STEP 1		TOOL SELECTION							
TUBE SIZE		MAXIMUM PRESSURE		FLOW RANGE		INLET CONNECTION		TOOL PART ID	
0.47–.63 in. 12–16 mm		15k psi 1000 bar		5-6 gpm 19-23 l/min		1/16 NPT (P1)		BT9.5-P1-B	
		22k psi 1500 bar		6–7 gpm 23–26 l/min		M7-1.0		BT9.5-M7-B	
0.6–1.0 in. 15–25 mm		15k psi 1000 bar		6.5–8.5 gpm 25–32 l/min		1/16 NPT		BT12-P1-B	
		22k psi 1500 bar		6.5–8.5 gpm 25–32 l/min		M7-1.0		BT12-M7-B	
				6.5–8.5 gpm 25–32 l/min		1/4-28 LH		BT12-MP4L-B	
				6.5–8.5 gpm 25–32 l/min		1/4-28 RH		BT12-MP4R-B	
0.9–1.3 in. 22–33 mm		15k psi 1000 bar		8.5–11 gpm 32–42 l/min		1/16 NPT		BT18-P1-A	
				8.5–11 gpm 32–42 l/min		1/8 NPT		BT18-P2-A	
		18k psi 1250 bar		8.5–11 gpm 32–42 l/min		1/8 BSPP		BT18-BSPP2-A	
		22k psi 1500 bar		8.5–11 gpm 32–42 l/min		1/4-28 LH		BT18-MP4L-A	
				8.5–11 gpm 32–42 l/min		1/4-28 RH		BT18-MP4R-A	
				8.5–11 gpm 32–42 l/min		3/8-24 LH		BT18-MP6L-A	
				8.5–11 gpm 32–42 l/min		3/8-24 RH		BT18-MP6R-A	
1.2–3.0 in. 30–76 mm		15k psi 1000 bar		12–16 gpm 45–60 l/min		1/8 NPT		BT25-P2-A	
				12–16 gpm 45–60 l/min		1/4 NPT		BT25-P4-A	
		20.3k psi 1400 bar		16–20 gpm 60–76 l/min		1/4 BSPP		BT25-BSPP4-A	
		22k psi 1500 bar		16–20 gpm 60–76 l/min		3/8-24 Left Hand		BT25-MP6L-A	
				16–20 gpm 60–76 l/min		3/8-24 Right Hand		BT25-MP6R-A	
				16–20 gpm 60–76 l/min		9/16-18 Left Hand		BT25-MP9L-A	
				16–20 gpm 60–76 l/min		9/16-18 Right Hand		BT25-MP9R-A	
		15k psi 1000 bar		8–11 gpm 30–41 l/min		1/8 NPT		BT25-P2-C	
				8–11 gpm 30–41 l/min		1/4 NPT		BT25-P4-C	
		20.3k psi 1400 bar		11–13 gpm 41–49 l/min		1/4 BSPP		BT25-BSPP4-C	
		22k psi 1500 bar		11–13 gpm 41–49 l/min		3/8-24 Left Hand		BT25-MP6L-C	
				11–13 gpm 41–49 l/min		3/8-24 Right Hand		BT25-MP6R-C	
				11–13 gpm 41–49 l/min		9/16-18 Left Hand		BT25-MP9L-C	
				11–13 gpm 41–49 l/min		9/16-18 Right Hand		BT25-MP9R-C	

STEP 2 MAINTENANCE RESOURCES

TOOL MODEL	MANUAL
BT9.5	PL 601
BT12	PL 601
BT18	PL 601
BT25	PL 601

Tool maintenance/assembly videos are available on our website:

WWW.STONEAGETOOLS.COM

When ordering a Beetle tool, you should specify:

1. Tool Part ID
2. Part IDs of maintenance items, if required

FOR EXAMPLE:

Beetle for cleaning 1-inch diameter tube at 22k psi with a 1/4" right hand inlet

QTY	PART ID	DESCRIPTION
1	BT18-MP4R-A	Beetle Tube Spinner, 22k psi (8.5-11gpm)

*Visit our website for tool resources including
operation and maintenance videos:*

WWW.STONEAGETOOLS.COM