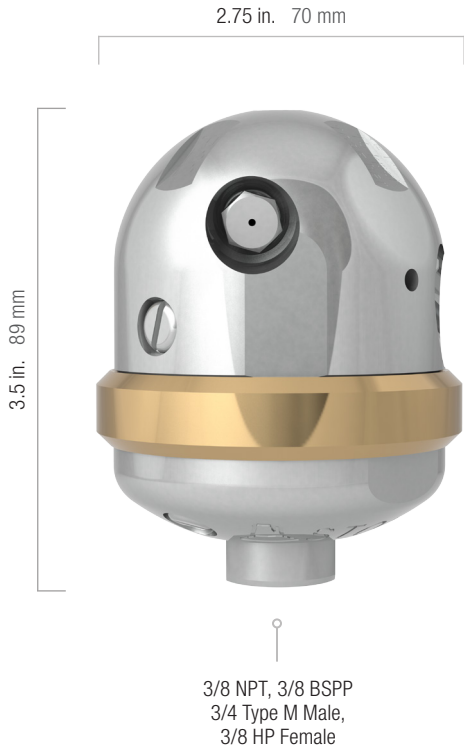


4" BADGER

Rotary Cleaning for Medium Pipes with Elbows



The 4" Badger self-rotary tool makes cleaning pipes with elbows easy, navigating 4 inch (102 mm) bends with controlled rotation which is important for efficiently cleaning larger pipes. The operator can choose between two rotation speeds by selecting fast or slow viscous fluid.

COMPETITIVE ADVANTAGES

- Navigates 90° elbows in pipes as small as 4 inches (102 mm) at up to 43.5k psi (3000 bar)
- Different jetting configurations allow for more or less pull and forward hitting power
- Easy to use and service
- Rotary tools remove the operator from the potential dangers of manually twisting high pressure hose and eliminate the need for expensive rotary hose devices (RHDs)
- Designed to easily pair with the AutoBox ABX-500 hose handling system for hands-free pipe cleaning

FEATURES	BENEFITS
<ul style="list-style-type: none"> • Self-rotary, speed controlled 	<ul style="list-style-type: none"> • Rotary tools provide complete internal coverage, while speed control provides optimum jet delivery
<ul style="list-style-type: none"> • Two speeds to choose from 	<ul style="list-style-type: none"> • Maximize cleaning by choosing slower speeds for hard to clean or plugged pipes, and faster speeds for polishing easy to clean pipes with a single tool
<ul style="list-style-type: none"> • Hardened steel wear ring 	<ul style="list-style-type: none"> • Protects tool and increases longevity
<ul style="list-style-type: none"> • Multiple jetting options 	<ul style="list-style-type: none"> • Optimize the tool for a variety of pumps pressures and flows • Unplug, polish, or run longer lines based on jetting • Saves time, money, and water

4" BADGER OVERVIEW

QUESTIONS TO ASK THE CUSTOMER

- What type of cleaning is required — hard scale, soft material flush or completely plugged?
- Are there any bends or vertical climbs in the pipe between access points?
- What size and length of hose are you using?
- What pressure and flow are you operating?
- Do you need an adapter?
- Do you need a backout preventer?
You should always use a backout preventer with high pressure pipe cleaning tools.
- Do you need a centralizer or stinger?

OTHER INFORMATION

- The 4" Badger can be used with the AutoBox ABX-500 for a complete hands-free pipe cleaning solution.
- A stinger or centering device is required when the ID of the pipe is 1.5 times larger the diameter of the tool being used, as described in the WJTA Recommended Guide.

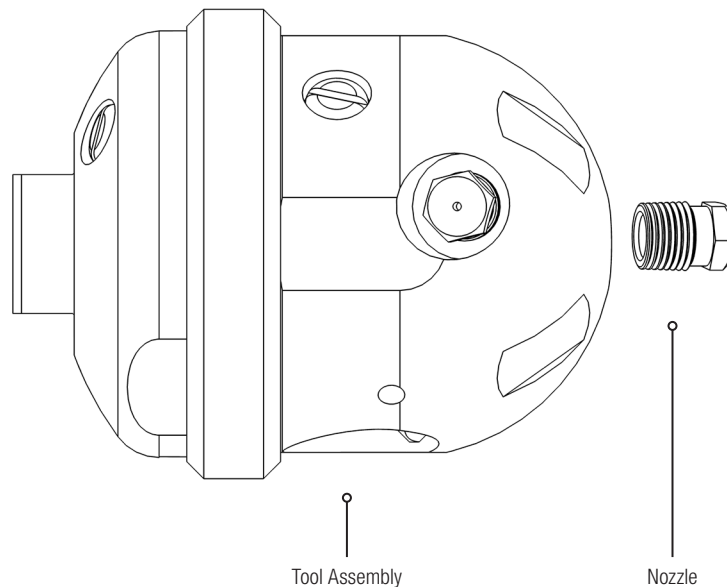
TOOL SPECIFICATIONS

MODEL	BA-P6/BA-BSPP6	BA-TM12	BA-H6
Pressure Range	2–15k psi 140–1000 bar	12–22k psi 830–1500 bar	22–43.5k psi 1500–3000 bar
Flow Range	13–30 gpm 49–114 l/min	12–25 gpm 45–95 l/min	4.5–12 gpm 17–45 l/min
Flow Coefficient	1.6 Cv	0.8 Cv	0.4 Cv
Rotation Speed	20–100 rpm (Slow Fluid) 75–250 rpm (Fast Fluid)	20–100 rpm (Slow Fluid) 75–250 rpm (Fast Fluid)	100–400 rpm (Fast Fluid)
Inlet Connection	3/8 NPT, 3/8 BSPP	3/4 Type M Male	3/8 HP Female
Port Size	1/8 NPT (P2)	1/8 NPT (P2)	3/8-24 (S6)
Nozzle Type	AP2	AP2	OS6
Port Plug	GP 025-P2SS	GP 025-P2SS	OS6 002
Diameter	2.75 in. 70 mm	2.75 in. 70 mm	2.95 in. 75 mm
Length	3.5 in. 89 mm	3.5 in. 89 mm	3.9 in. 99 mm
Weight	3.0 lb 1.4 kg	3.0 lb 1.4 kg	4.0 lb 1.8 kg
Maximum Water Temperature	160 °F 70 °C	160 °F 70 °C	160 °F 70 °C

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

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4" BADGER TOOL CONFIGURATION



A complete 4" Badger tool configuration requires the following components:

1. Appropriate tool option for the working pressure, inlet connection and rotation speed
2. Nozzles/Plugs of appropriate number and size

The following items may also be required:

- Suitable hose/lance adapter
- Backout preventer

To configure a 4" Badger tool, the following information should be obtained:

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

4" BADGER TOOL CONFIGURATION

ORDERING A STANDARD PACKAGE

StoneAge offers standardized 4" Badger tool packages for the most commonly used configurations. All 4" Badger tool packages come fully assembled and include: 1. Tool, 2. Nozzles specified to jetting.

PLEASE NOTE: Hose adapters are not included in these packages. If an adapter is required for your configuration, it must be ordered separately. See Fittings and Adapters for options.

The following table shows the configurations of standard 4" Badger tool packages:

MAXIMUM PRESSURE	INLET CONNECTION	FLOW	PACKAGE CONTENTS	PACKAGE PART ID
15k psi 1000 bar	3/8 NPT Female	3–30 gpm 11–114 l/min	1 x 4" Badger tool assembly 5 x AP2 nozzles/plugs	BA-P6-PKG
	3/8 BSPP Female	3–30 gpm 11–114 l/min	1 x 4" Badger tool assembly 5 x AP2 nozzles/plugs	BA-BSPP6-PKG
22k psi 1500 bar	3/4 Type M Male	13–25 gpm 11–114 l/min	1 x 4" Badger tool assembly 5 x AP2 nozzles/plugs	BA-TM12-PKG
43.5k psi 3000 bar	3/8 HP Female	5–7 gpm 19–26 l/min	1 x 4" Badger tool assembly 5 x OS6 nozzles/plugs	BA-H6-R50-PKG
		7–9.5 gpm 26–36 l/min	1 x 4" Badger tool assembly 5 x OS6 nozzles/plugs	BA-H6-R35-PKG
		9.5–12 gpm 36–45 l/min	1 x 4" Badger tool assembly 5 x OS6 nozzles/plugs	BA-H6-R25-PKG

When ordering a 4" Badger package, you should specify:

1. Package Part ID
2. Fast or Slow rotation speed
3. Pump pressure and flow
4. Jetting configuration with nozzle/plug locations
5. Hose length and ID
6. Hose end fitting

FOR EXAMPLE:

QTY	PART ID	DESCRIPTION
1	BA-P6-PKG	15,000 psi 15 gpm 100 ft 3/8" ID hose FAST speed

ORDERING BY LINE ITEM

Complete tools can be configured by following the steps outlined below.
Contact StoneAge Customer Service for questions about specific applications.

STEP 1 TOOL SELECTION

There are twenty-seven 4" Badger tool options available. The correct tool is selected based on the inlet connection, maximum working pressure, and required rotation speed.

INLET CONNECTION	MAXIMUM PRESSURE	FLOW	PART ID BASED ON ROTATION SPEED	
			SLOW (20-100 RPM)	FAST (75-250 RPM)
3/8 NPT Female	10k psi 700 bar	3–21 gpm 11–80 l/min	BA-P6-R22-S	BA-P6-R22-F
		23–30 gpm 87–114 l/min	BA-P6-R16-S	BA-P6-R16-F
	15k psi 1000 bar	13–17 gpm 49–64 l/min	BA-P6-R22-S	BA-P6-R22-F
		18–30 gpm 68–114 l/min	BA-P6-R16-S	BA-P6-R16-F
3/8 BSPP Female	10k psi 700 bar	3–21 gpm 11–80 l/min	BA-BSPP6-R22-S	BA-BSPP6-R22-F
		23–30 gpm 87–113 l/min	BA-BSPP6-R16-S	BA-BSPP6-R16-F
	15k psi 1000 bar	13–17 gpm 49–64 l/min	BA-BSPP6-R22-S	BA-BSPP6-R22-F
		18–30 gpm 68–114 l/min	BA-BSPP6-R16-S	BA-BSPP6-R16-F
3/4 Type M Male	15k psi 1000 bar	13–17 gpm 49–64 l/min	BA-TM12-R22-S	BA-TM12-R22-F
		18–25 gpm 18–95 l/min	BA-TM12-R16-S	BA-TM12-R16-F
	22k psi 1500 bar	12–18 gpm 45–68 l/min	BA-TM12-R22-S	BA-TM12-R22-F
		15–25 gpm 57–95 l/min	BA-TM12-R16-S	BA-TM12-R16-F
3/8 HP Female	43.5k psi 3000 bar	5–7 gpm 19–26 l/min	N/A	BA-H6-R50
	43.5k psi 3000 bar	7–9.5 gpm 26–36 l/min	N/A	BA-H6-R35
	43.5k psi 3000 bar	9.5–12 gpm 36–45 l/min	N/A	BA-H6-R25

STEP 2 HOSE ADAPTER

A hose adapter may be required. See *Fittings and Adapters* for options depending on the inlet connection.

4" BADGER TOOL CONFIGURATION

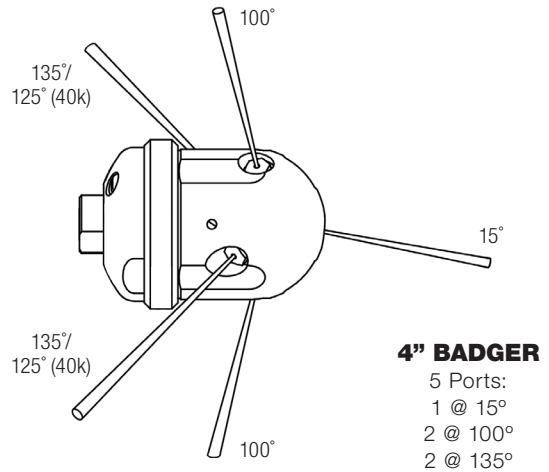
STEP 3 NOZZLES AND PLUGS

The 4" Badger can be jetted in different configurations depending on the application. The table below shows commonly used nozzle/plug configurations for the 4" Badger tool.

15° PORT	100° PORTS	135°/125° PORTS
1 x Nozzle	2 x Nozzle	2 x Nozzle
1 x Plug	2 x Nozzle	2 x Nozzle
1 x Nozzle	2 x Plug	2 x Nozzle
1 x Plug	2 x Plug	2 x Nozzle

Once you have confirmed the required jetting configuration, use the StoneAge Jetting App to determine nozzle sizes:

JETTING.STONEAGETOOLS.COM

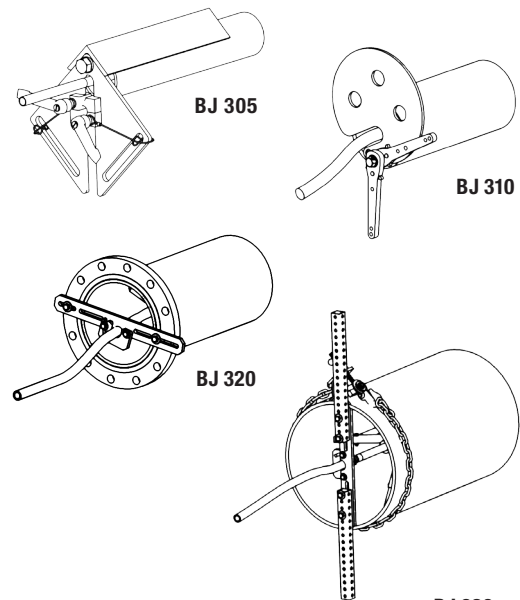


STEP 4 BACKOUT PREVENTER

Backout preventers increase operator safety by keeping the tool from backing out of the pipe. Several options are available including fixtures for small diameter pipes, pipes with various flange bolt circle diameters, and adapters for pipes with no-flange entry.

PIPE SIZE	HOSE OD	BACKOUT PREVENTER	DESCRIPTION	WEIGHT
2–6 in. 51–150 mm	0.3–0.7 in. 8–18 mm	BJ 305*	Backout preventer for small pipes	5.6 lb 2.5 kg
4–8 in. 100–200 mm	0.3–1.5 in. 8–38 mm	BJ 310	Backout preventer for small to medium pipes	7.6 lb 3.4 kg
5–17 in. 130–430 mm	0.3–1.5 in. 8–38 mm	BJ 320	Backout preventer for medium to large pipes	6.3 lb 2.9 kg
15–36 in. 380–910 mm	N/A	BJ 325	Extension kit for BJ 320 backout preventer	8.5 lb 3.6 kg
8–36 in. 130–910 mm	N/A	BJ 340	No-flange kit for BJ 320 backout preventer	17 lb 7.7 kg

*Securing device not supplied

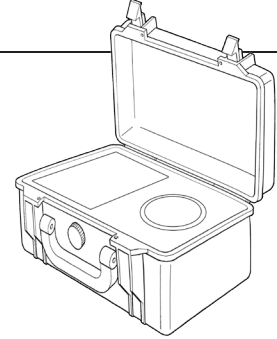


BJ 320 shown with **BJ 325** extension kit and **BJ 340** No-flange attachment kit

STEP 5 ACCESSORIES

A Pelican™ brand protection/carrying case with custom cut foam insert is available for 4" Badger tool models.

EXTERIOR DIMENSIONS (L X W X D)	INTERIOR DIMENSIONS (L X W X D)	COLOR	CASE PART ID
10.6 x 9.7 x 6.9 in. 27 x 24.6 x 17.4 cm	9.9 x 7.0 x 6.1 in. 25.1 x 17.8 x 15.5 cm	Black	BA 080



STEP 6 MAINTENANCE RESOURCES

TOOL	ROTATION SPEED	SEAL KIT	SERVICE KIT	OVERHAUL KIT	DISK KIT	TOOL KIT	LUBRICANT	MANUAL
BA-P6/ BA-BSPP6	Slow	BA 602	BA 600-S	BA 610-S	BA 604	BA 612	BJ 048-S	PL 501
	Fast	BA 602	BA 600-F	BA 610-F	BA 604	BA 612	BJ 048-F	PL 501
BA-TM12	Slow	BA 602-TM12	BA 600-TM12-S	BA 610-TM12-S	BA 604	BA 612	BJ 048-S	PL 501
	Fast	BA 602-TM12	BA 600-TM12-F	BA 610-TM12-S	BA 604	BA 612	BJ 048-F	PL 501
BA-H6	Fast		BA 600-H6	BA 610-H6		BA 612-H6	BJ 048-F	PL-600

Kit components and tool maintenance/assembly videos are available on our website:

WWW.STONEAGETOOLS.COM

For questions or help with a specific application, configuration or tool repairs, please contact StoneAge Customer Service.

When ordering a 4" Badger tool by line item, you should specify:

1. Tool Part ID
2. Nozzle/plug Part IDs
3. Part ID of hose adapter, if required
4. Part IDs of any accessories or maintenance items

FOR EXAMPLE:

4" Badger tool for 1000 bar 55 l/min, 31 m 1/2 in. ID hose. Plugged 15° port, nozzles for 100° and 135° ports. Fast rotation speed. Adapter for M24 hose and seal kit.

QTY	PART ID	DESCRIPTION
1	BA-BSPP6-R22-F	Badger swivel 3/8 BSPP inlet FAST
1	GP 255-BSPP6M24C	Adapter 3/8 BSPP Male - M24 Male
1	GP 025-P2	Plug 1/8 NPT
2	AP2 038	Attack tip 1/8 NPT
2	AP2 032	Attack tip 1/8 NPT 0.032
1	BA 602	Seal Kit