



WARTHOG
SEWER NOZZLES BY **STONEAGE®**

THE INDUSTRY'S MOST
POWERFUL
& DURABLE
SEWER TOOLS

2016/17
CATALOG



SMALL LINES 2-8" (51-152 MM)

4-5 WV-1/4 2-4" LINES

For cart and trailer jetters. New, high-speed rotation technology for small lines with light to moderate blockages.

6-7 WT-3/8-C 3-6" LINES

For cart and trailer jetters. Now standard with carbide buttons for longer head life.

8-9 WS-1/2 4-8" LINES

For trailer jetters. Sold with a 2 ft. whip hose standard. Also jointed and rigid models, plus inlet options.

MEDIUM LINES 4-18" (102-457 MM)

10-11 WHR MAGNUM 6-18" LINES

Designed for mid-size pipes and lines.

12-13 WH-1/2 6-18" LINES

For trailer jetters with 1/2" and 3/4" inlet options, both inlets available in NPT or BSPP.

14-15 WHP-3/4 6-18" LINES

Maximum Puller WHP-3/4. Designed for more pulling power.

LARGE LINES 8-36" (203-914 MM)

16-17 WGR MAGNUM 8-36" LINES

Built from the ground up. Effectively handles recycled water.

18-19 NEW! WGR SWITCHER

Switch between pulling or descaling without removing the nozzle from the pipe.

20-23 WG-1 & WGP-1 (PULLER) 8-36" LINES

WG-1 Classic and the Maximum Puller WGP-1. Designed for more pulling power.

24-25 WGR 1-1/4 MAGNUM 8-36" LINES

Built from the ground up. Effectively handles recycled water.

26-27 WD 1-1/4 8-36" LINES

For Municipal jetters. This is a high flow model with up to 120 gpm (450 lpm) flows.

NEW! HYDRO EXCAVATION**28-29 HYDRO-X**

Hydro-Excavation provides safe access to buried utilities by potholing or trenching with high pressure water.

ACCESSORIES

30 CENTRALIZERS

Several different styles available including multi-wheeled models for cleaning extra large pipes.

30 MANHOLE CLEANER

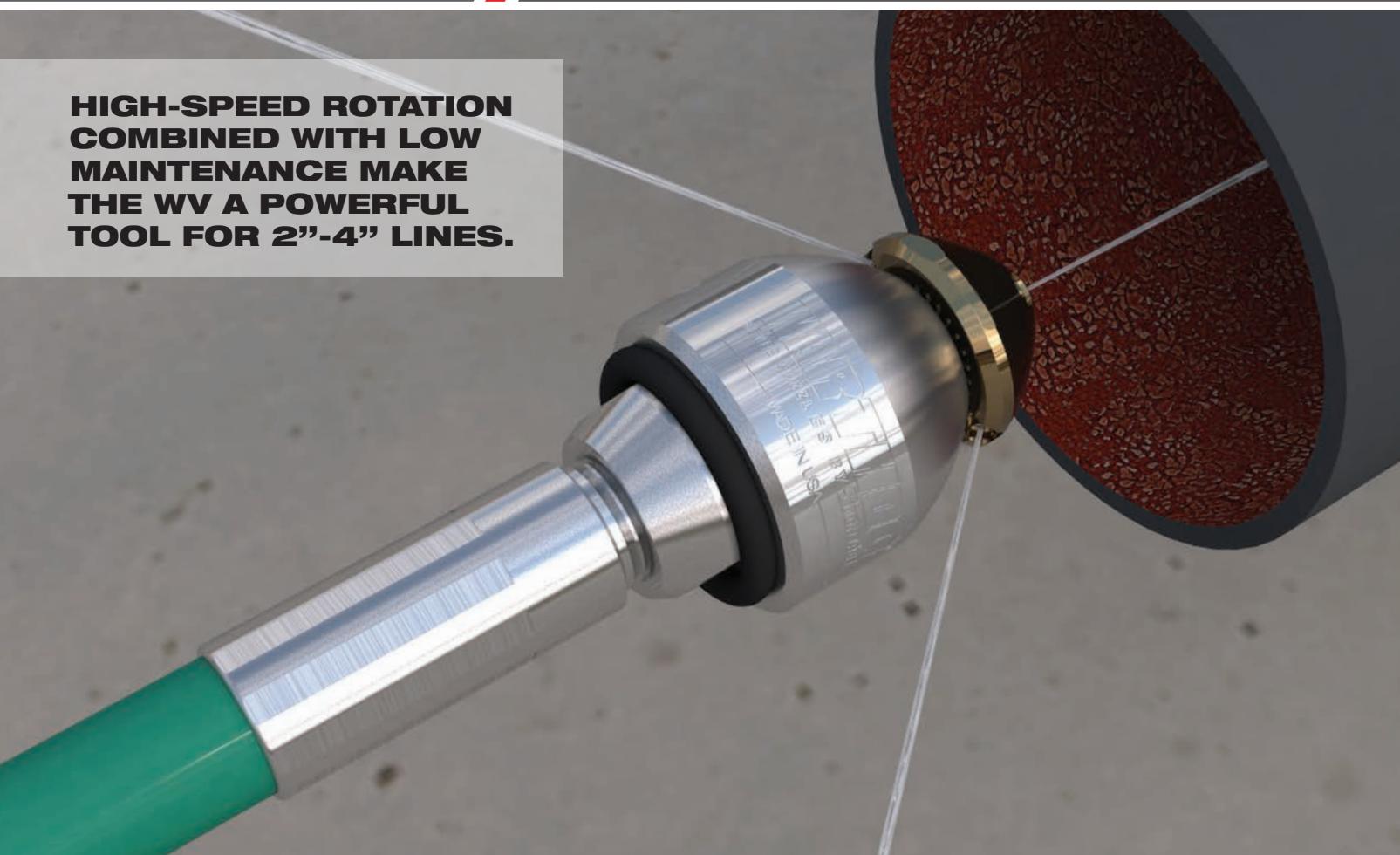
Our latest modification kit to convert your Warthog into an effective Manhole Cleaner.

31 WARNING INFORMATION**32 CUSTOMER SERVICE****33 TERMS & CONDITIONS****34-35 STONEAGE STAFF**

THE INDUSTRY'S MOST POWERFUL & DURABLE SEWER TOOLS



**HIGH-SPEED ROTATION
COMBINED WITH LOW
MAINTENANCE MAKE
THE WV A POWERFUL
TOOL FOR 2"-4" LINES.**



WV-1/4 CLASSIC

2"-4" (51-102 mm) Lines with Elbows

The WV-1/4 uses StoneAge's flow-through technology and features a revolutionary high-speed rotating design with no high pressure seals or bearings to service. It cleans lines as small as 2" (51 mm) with long sweeping elbows. The head design also features permanent, pre-drilled orifices rather than threaded nozzles.

The tool operates from 2-5k psi (140-350 bar) and 3-8 gpm (11-30 l/min). It has a 1/4" NPT pipe thread inlet and can pass through long radius elbows in lines 2" (51 mm) and larger if a 1/4" NPT hose fitting is used.

WV-1/4 Tool Head Options

PART #	FRONT JET	BACK JETS	FLOW
WV-1/4-A	0.024 in. 0.6 mm	2 x .052 in. 1.3 mm	7-8 gpm 26-30 l/min
WV-1/4-B	0.020 in. 0.5 mm	2 x .039 in. 1.0 mm	5-6 gpm 15-23 l/min
WV-1/4-C	0.018 in. 0.45 mm	2 x .032 in. 0.8 mm	4-4.5 gpm 15-17 l/min
WV-1/4-D	0.018 in. 0.45 mm	2 x .028 in. 0.7 mm	3-3.5 gpm 11-13 l/min

WV-1/4

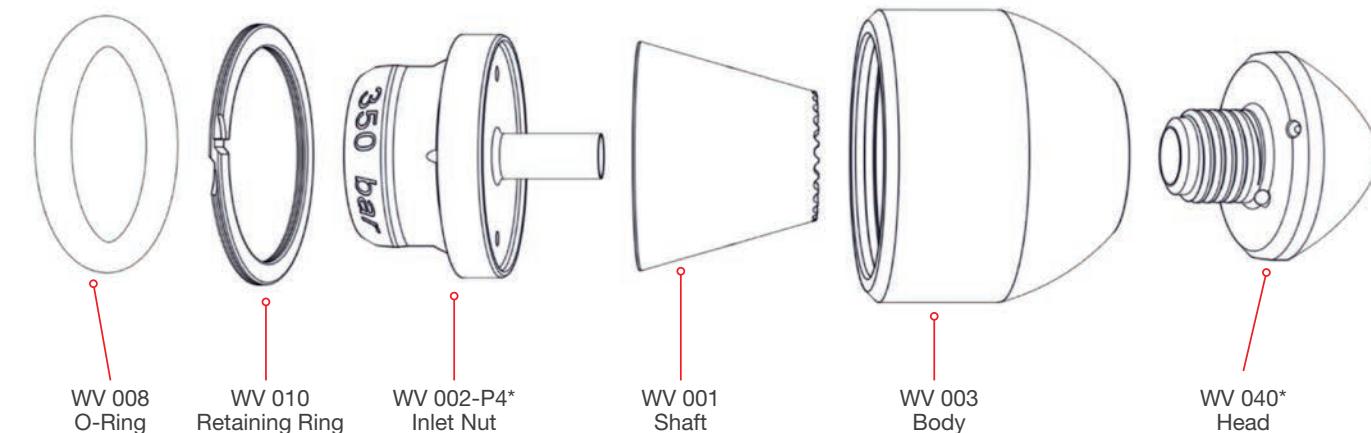
Up to 5k psi (350 bar)
3-8 gpm Flows (11-30 l/min)
High-Speed Rotation

WV-1/4 Specifications

MAXIMUM PRESSURE	5k psi 350 bar
OPERATING PRESSURE	2-5k psi 140-350 bar
FLOW	3-8 gpm 11.4-30.3 l/min
FLOW RATING	0.8 Cv
PULLING FORCE	4-9 lb 40 N
INLET CONNECTION	1/4 NPT or BSPP
TOOL DIAMETER	1.3 in. 33 mm
LENGTH	2.0 in. 51 mm
NOZZLE PORTS	3 Drilled
WEIGHT COMPLETE	0.45 lb 0.20 kg

WV-1/4

Exploded View - Part Names and Numbers



*See charts on the opposite page for inlet nut and head options.

This is a low-maintenance tool. There are no maintenance or overhaul kits. However, the **WV 612** tool kit is available for easy tool disassembly.

POTENTIAL HAZARD!

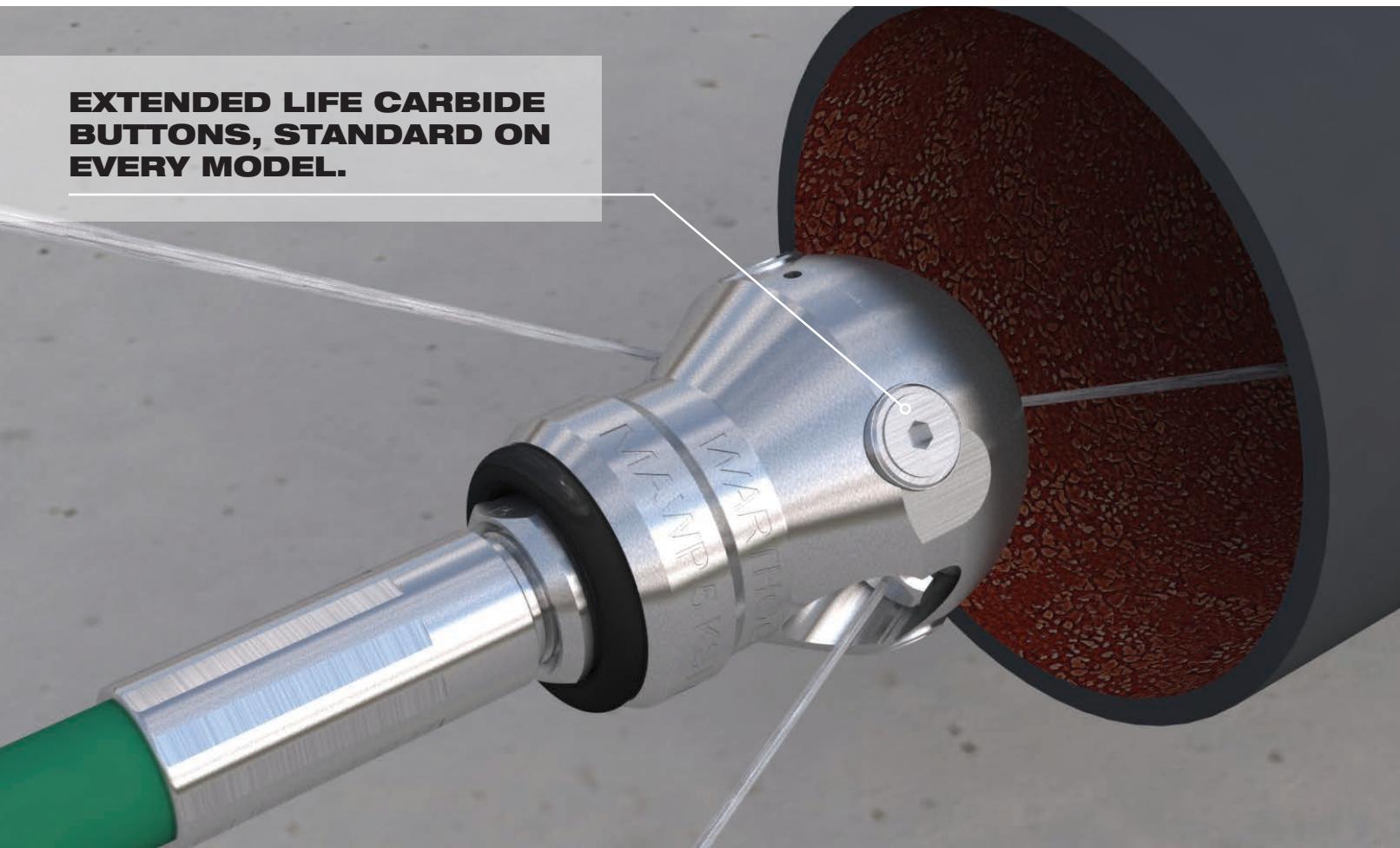
If any Warthog is being used in pipes larger than the recommended diameter, a rigid stinger with a minimum length of 1.5 times the diameter of the pipe I.D. should be installed between the tool inlet and the hose end. Otherwise the tool can turn around inside the line (as shown here) and come back toward the operator, causing serious injury or death.



CORRECT

This is an example of **WV-1/4** set up for correct usage in pipes larger than 4" in diameter. A rigid stinger should be installed between the tool inlet and the hose end. This helps to prevent the tool from turning around inside of the pipe and coming back toward the operator.

**EXTENDED LIFE CARBIDE
BUTTONS, STANDARD ON
EVERY MODEL.**



WT-3/8-C CLASSIC

3"-6" (76-152 mm) Lines with Elbows

Our smaller Classic series models can negotiate elbows and clean-outs commonly found in laterals at homes, buildings, restaurants and other light commercial facilities. This tool is most commonly used on small capacity pumps and cart jetters. Also an excellent choice for cutting roots, clearing ice and removing blockages.

Pipes made of cast iron and those that have sand or silt can act as abrasive agents that can aggressively wear out the tool. We've added permanent carbide buttons to the WT-3/8-C to increase head life. Our carbide buttons are available in all offsets and add up to 5 times the life compared to previous WT-3/8 models. It also features replaceable AP2 nozzles.

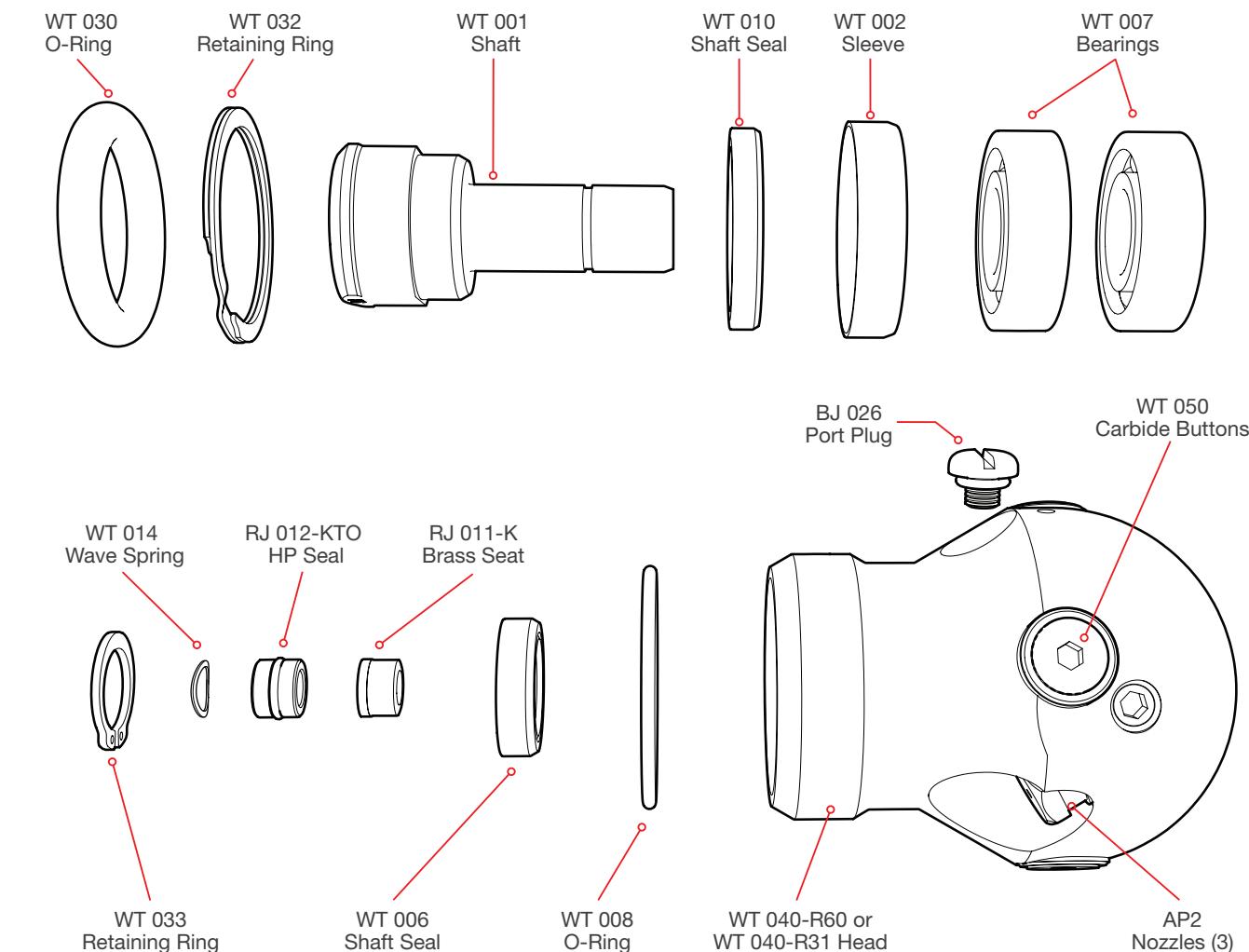
WT-3/8-C	Up to 5k psi (350 bar)
3"-6" Lines (76-152 mm)	5-12 gpm Flows (20-45 l/min)
	Classic Workhorse Model

WT-3/8-C Specifications

MAXIMUM PRESSURE	5k psi 350 bar
OPERATING PRESSURE	1500-5k psi 100-350 bar
ROTATION SPEED	300-500 rpm
FLOW	5-12 gpm 20-45 l/min
FLOW RATING	0.75 Cv
PULLING FORCE	5-20 lb 22-90 N
INLET CONNECTION	3/8 NPT or BSPP
TOOL DIAMETER	1.9 in. 48 mm
LENGTH	3.0 in. 76 mm
NOZZLE PORTS	3 x 1/8 NPT
WEIGHT COMPLETE	1.2 lb .54 kg

WT-3/8-C

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WT 600 • SERVICE KIT

(1) BC 410	Syringe Assembly
(1) BJ 026	Port Plug
(1) BJ 048-S	Visc. Fluid, 6oz.
(1) BJ 062-S	Antiseize, 2g
(1) GP 025-P2	Hex Socket Plug
(1) RJ 011-K	Brass Seat
(1) RJ 012-KTO	HP Seal & O-Ring
(1) WT 014	Wave Spring

WT 602 • SEAL KIT

(1) RJ 011-K	Brass Seat
(1) RJ 012-KTO	HP Seal & O-Ring
(1) WT 014	Wave Spring

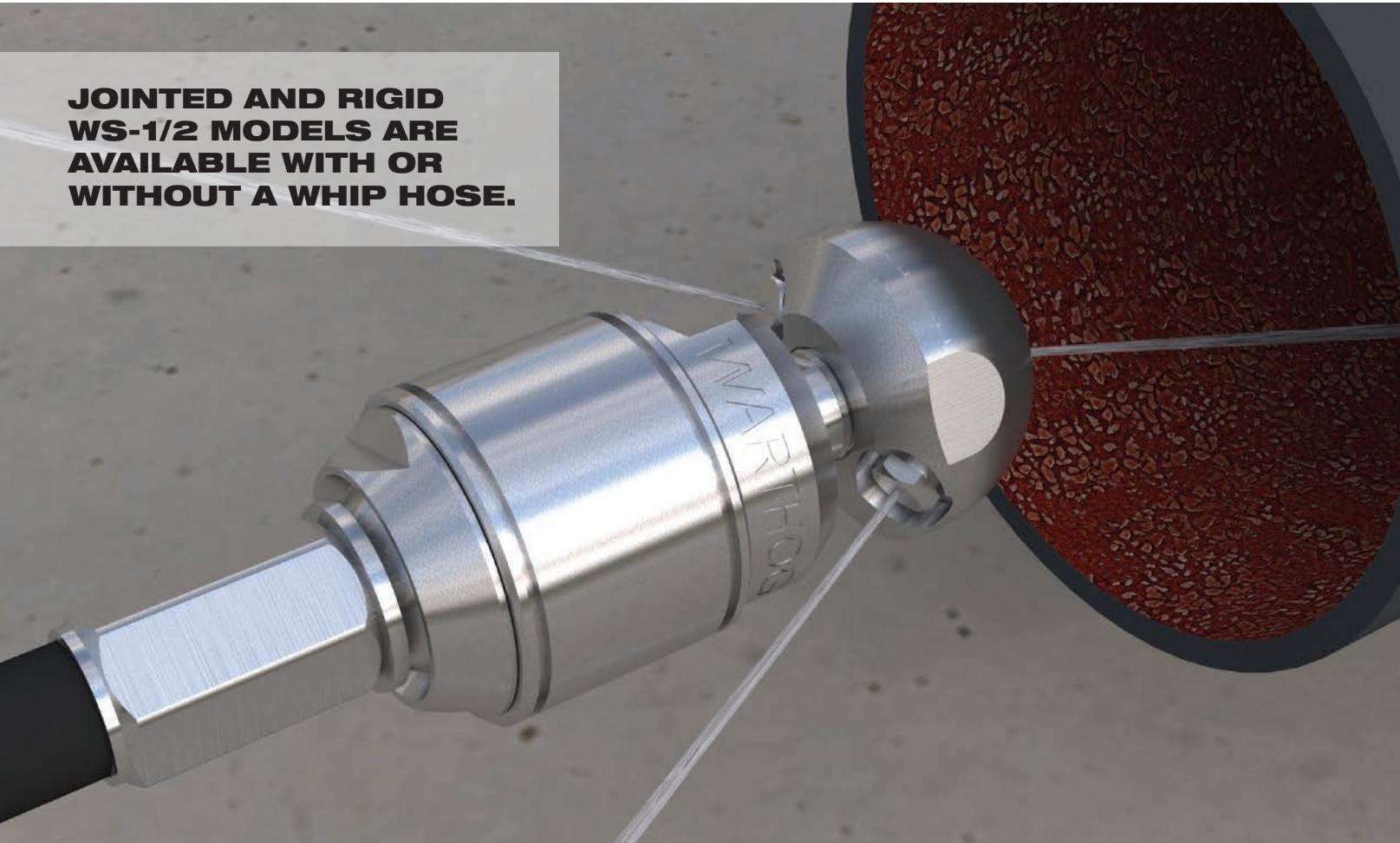
WT 610 • OVERHAUL KIT

(1) BJ 026	Port Plug
(1) BJ 048-S	Visc. Fluid, 6oz.
(1) RJ 011-K	Brass Seat
(1) RJ 012-KTO	HP Seal & O-Ring
(1) WT 006	Shaft Seal
(2) WT 007	Bearing, Ball
(1) WT 008	O-Ring
(1) WT 010	Seal
(1) WT 014	Wave Spring
(1) WT 032	Retaining Ring
(1) WT 030	O-Ring

WT 612 • TOOL KIT

(1) BA 100	Retaining Ring Pliers
(1) WT 105	Tool

**JOINTED AND RIGID
WS-1/2 MODELS ARE
AVAILABLE WITH OR
WITHOUT A WHIP HOSE.**



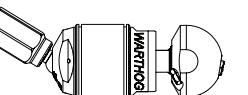
WS-1/2 CLASSIC

4"-8" (102-204 mm) Lines

The WS-1/2 is designed to handle 4"-8" (102-204 mm) lines and is most commonly used with trailer jetters. It is used to clean lines in restaurants, hospitals, multi-story apartment buildings, residential, and other applications. Easily removes grease, cuts roots, and clears ice and soil blockages.

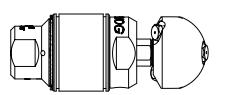
WS-J JOINTED INLET MODELS

This model allows the inlet hose to bend to the side, shortening the rigid length of the tool and allowing limited access applications to be cleaned much easier. 1/2" NPT or BSPP inlet ports available.



WS-P8 OPTIONAL RIGID INLETS

The WS-P8 is excellent for straight pipes. The whip hose is removed, allowing the hose to connect directly to the tool. Available with a female 1/2" NPT or BSPP connection.



NOTE: 4" (102 mm) 90° bends are no longer negotiable in this configuration.

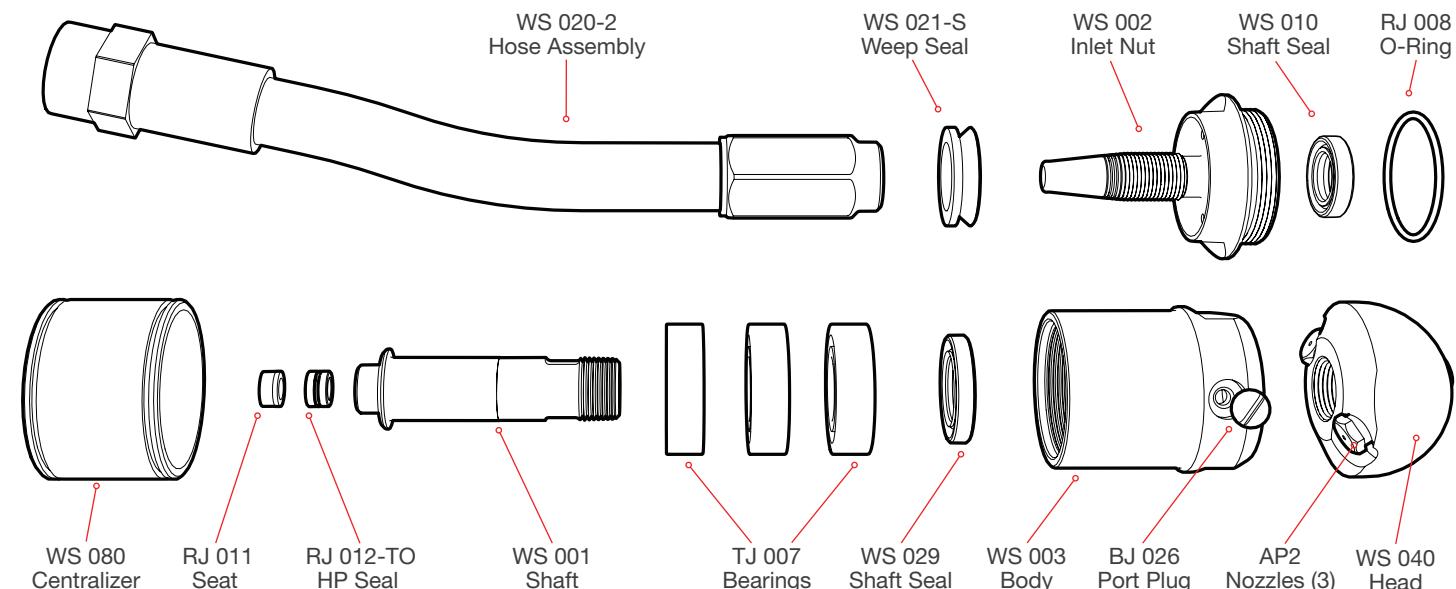
WS-1/2	Up to 5k psi (350 bar)
4"-8" Lines (102-204 mm)	8-20 gpm Flows (30-76 l/min)
	Three Models Available

WS-1/2 Specifications

MAXIMUM PRESSURE	5k psi (350 bar)
OPERATING PRESSURE	1500-5k psi (100-350 bar)
ROTATION SPEED	200-500 rpm
FLOW	8-20 gpm (30-76 l/min)
FLOW RATING	1.3 Cv
PULLING FORCE	9-27 lb (40-120 N)
INLET CONNECTION	1/2 NPT & BSPP
TOOL DIAMETER	1.9 in. (48 mm)
LENGTH	4.4 in. (112 mm)
NOZZLE PORTS	3 x 1/8 NPT
WEIGHT COMPLETE	2.95 lb (1.33 kg)

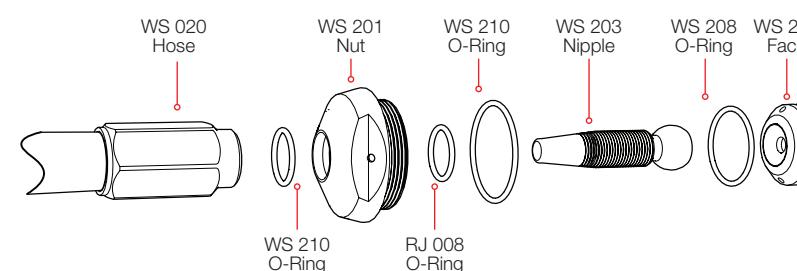
WS-1/2

Exploded View - Part Names and Numbers



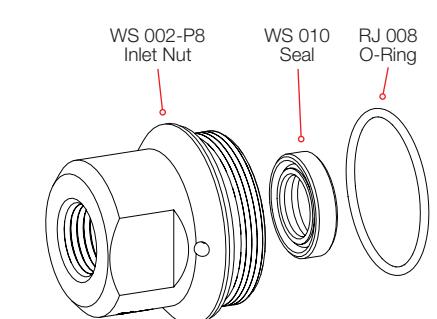
WS-1/2-J

Inlet Area Parts



WS-P8

Inlet Area Parts



Maintenance & Overhaul Kits

WS 600 • SERVICE KIT

(1) BC 410	Syringe Assembly
(1) BJ 048-S	Visc. Fluid, 6oz.
(1) BJ 062-S	Antiseize, 2g
(1) GP 025-P2	Hex Socket Plug
(1) RJ 011	Brass Seat
(1) RJ 012-TO	HP Seal & O-Ring

WS 610 • OVERHAUL KIT

(1) BJ 026	Port Plug
(1) BJ 048-S	Visc. Fluid, 6oz.
(1) BJ 062-S	Antiseize, 2g
(1) RJ 008	O-Ring
(1) RJ 011	Brass Seat
(1) RJ 012-TO	HP Seal & O-Ring
(3) TJ 007	Ball Bearings
(1) WS 010	Small Seal
(1) WS 021-S	Weep Seal
(1) WS 029	Large Seal

WS 610-J • OVERHAUL KIT

(1) BJ 026	Port Plug
(1) BJ 048-S	Visc. Fluid, 6oz.
(1) BJ 062-S	Antiseize, 2g
(1) RJ 008	O-Ring
(1) RJ 011	Brass Seat
(1) RJ 012-TO	HP Seal & O-Ring
(3) TJ 007	Ball Bearings
(1) WS 010	Small Seal
(1) WS 021-S	Weep Seal
(1) WS 029	Large Seal
(1) WS 208	O-Ring
(2) WS 210	O-Rings

WS 612 • TOOL KIT

(1) TJ 064	Fill Tube
(1) WS 105	Tool

WS 602 • SEAL KIT

(1) RJ 011	Brass Seal
(1) RJ 012-TO	HP Seal & O-Ring

**THE TOOL OF CHOICE
FOR SMALLER MUNICIPAL
LINES & LARGER
RESIDENTIAL LINES**



WHR MAGNUM

6"-18" (152-457 mm) Lines

The Warthog WHR Magnum is designed for mid-size pipes and lines, with the proven power and durability of the Magnum line of sewer tools.

- Optimized speed control mechanism extends maintenance intervals
- Latest seal technology effectively handles dirty or recycled water
- Flush style head protects front shaft seals for longer fluid life
- Carbide nozzles generate higher quality jets
- Streamlined design improves forward and reverse movement through pipe
- Hardened steel centralizer with 4x longer life
- New jet angles increase cleaning performance while maintaining pulling force
- Independently replaceable fins can be easily replaced as wear occurs without opening tool body

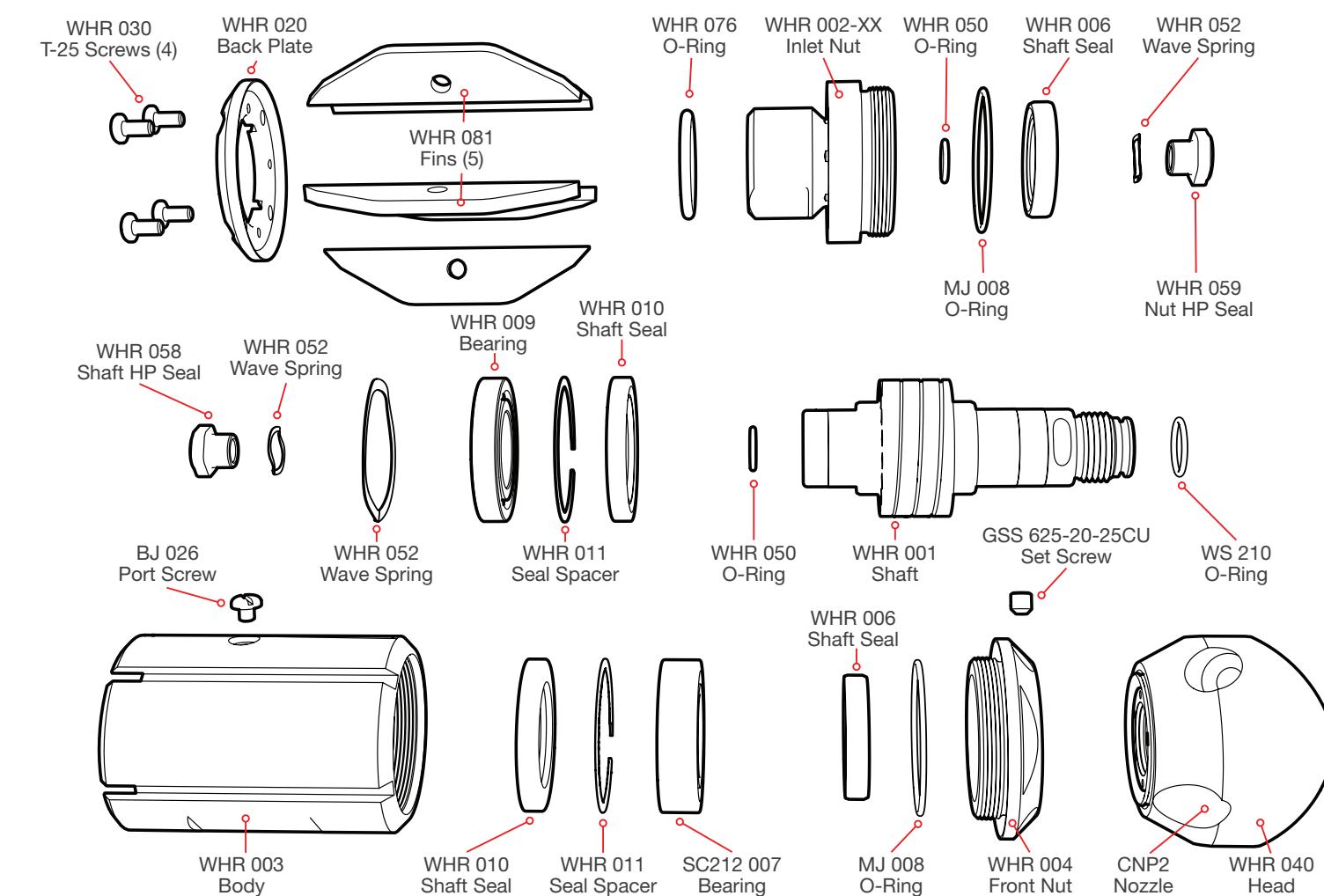
WHR Magnum Specifications

MAXIMUM PRESSURE	8k psi 550 bar
OPERATING PRESSURE	1500-8k psi 100-550 bar
ROTATION SPEED	150-400 rpm
FLOW	14-50 gpm 60-190 l/min
FLOW RATING	2.6 Cv
PULLING FORCE	30-90 lb 13-41 kg
INLET CONNECTION	1/2 NPT or BSPP, 3/4 NPT or BSPP
NOZZLE PORTS	5 x 1/8 NPT
TOOL DIAMETER	1.9 in. 48 mm
LENGTH	7.25 in. 184 mm
WEIGHT COMPLETE	6.75 lb 3 kg

WHR MAGNUM	Up to 8k psi (550 bar)
6"-18" Lines (152-457 mm)	14-50 gpm Flows (60-190 l/min)
	Two Inlet Options Available

WHR MAGNUM

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WHR 600 • SERVICE KIT

- | | |
|---------------------|------------------|
| (1) BJ 048-M | Visc Fluid, 6oz |
| (1) BJ 062-S | Antiseize, 2g |
| (1) GP 049 | Grease Syringe |
| (2) GSS 625-20-25CU | Set Screw |
| (2) MJ 008 | Nut O-Ring |
| (1) SC212 007 | Front Bearing |
| (2) WHR 006 | Outer Shaft Seal |
| (1) WHR 009 | Rear Bearing |
| (2) WHR 010 | Inner Shaft Seal |
| (2) WHR 011 | Seal Spacer |
| (2) WHR 050 | O-Ring |
| (1) WHR 058 | Weep Seal O-Ring |
| (1) GP 049 | Grease Syringe |
| (2) GSS 625-20-25CU | Set Screw |
| (4) WHR 030 | Torx Screws |
| (1) WS 210 | O-Ring |

WHR 602 • HP SEAL KIT

- | | |
|--------------|----------------|
| (1) BJ 062-S | Antiseize, 2g |
| (2) WHR 050 | O-Ring |
| (2) WHR 052 | HP Wave Spring |
| (1) WHR 058 | HP Shaft Seal |
| (1) WHR 059 | HP Nut Seal |

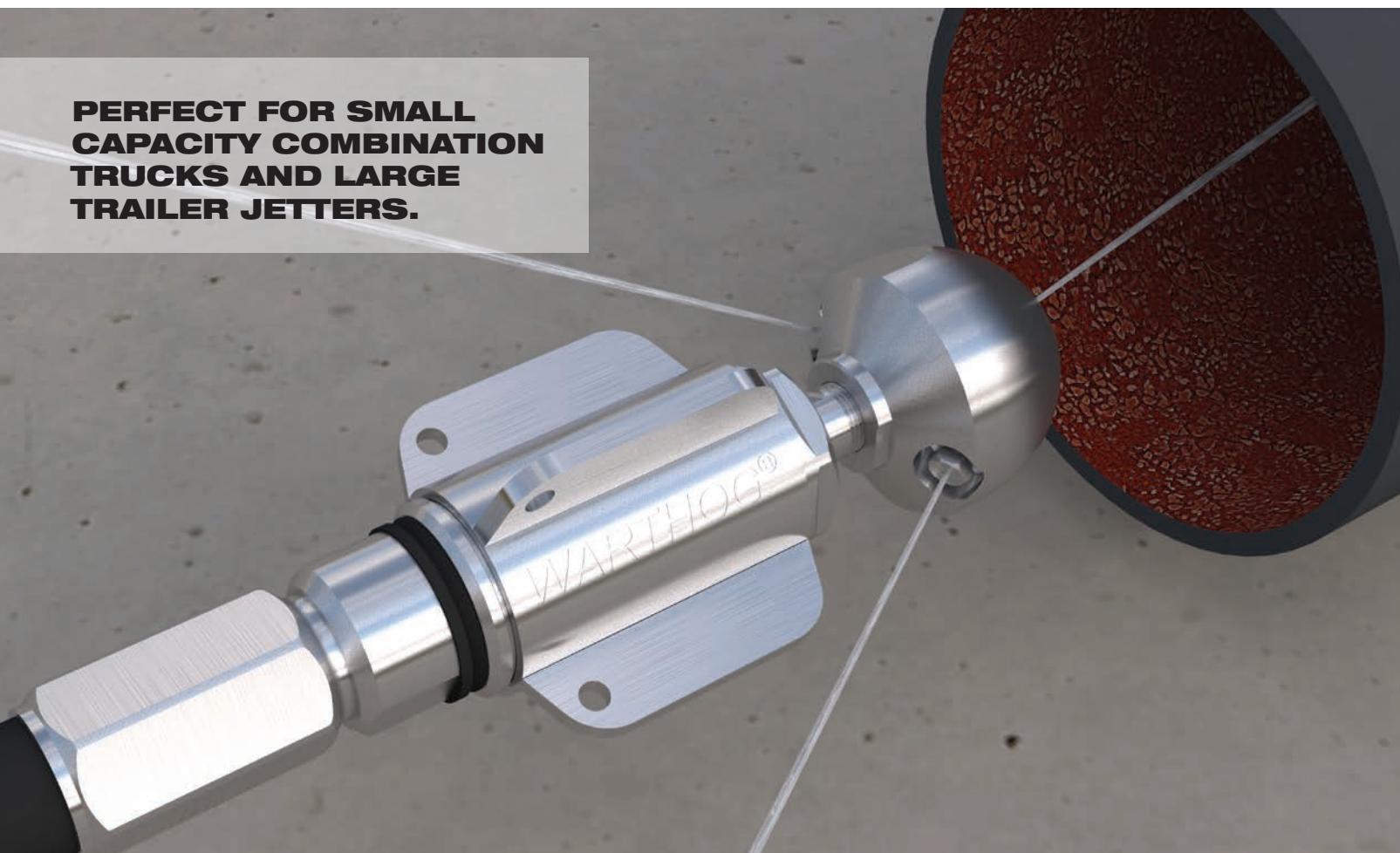
WHR 610 • OVERHAUL KIT

- | | |
|--------------|------------------|
| (2) BJ 026 | Port Plug |
| (1) BJ 048-M | Visc Fluid, 6oz |
| (1) BJ 062-S | Antiseize, 2g |
| (1) WHR 058 | HP Shaft Seal |
| (1) WHR 059 | HP Nut Seal |
| (1) WHR 076 | Weep Seal O-Ring |
| (1) WS 210 | O-Ring |
| (1) WGRA 180 | Torx L-Wrench |

WHR 612 • TOOL KIT

- | | |
|-------------|----------------------|
| (1) BA 481 | Bearing Removal Tool |
| (1) WGR 180 | Torx L-Wrench |
| (1) WHR 181 | Removal Press Tube |
| (1) WHR 182 | Install Press Tube |
| (1) WHR 183 | Hex Tool |
| (1) WHR 184 | HP Seal Install Tool |
| (1) WGR 186 | HP Seal Puller |
| (1) WHR 187 | HP Seal Puller Pin |

**PERFECT FOR SMALL
CAPACITY COMBINATION
TRUCKS AND LARGE
TRAILER JETTERS.**



WH-1/2 & WH-3/4 CLASSIC

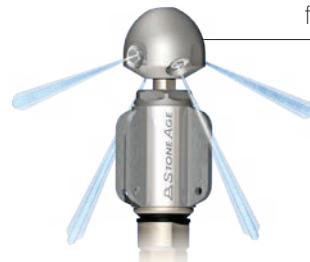
6"-18" (152-457 mm) Lines

The WH-1/2 and the WH-3/4 are the same tool offered with different inlet ports, either 1/2" or 3/4" NPT or BSPP. The WH models are best for 6"-18" (152-457 mm) lines.

These tools are most commonly used with small capacity combination trucks and large trailer jetters. Descaling Heads are available for both models.

Optional Descaling Head
for the WH-1/2 & WH-3/4

WH 040-DS



WH-1/2 & 3/4

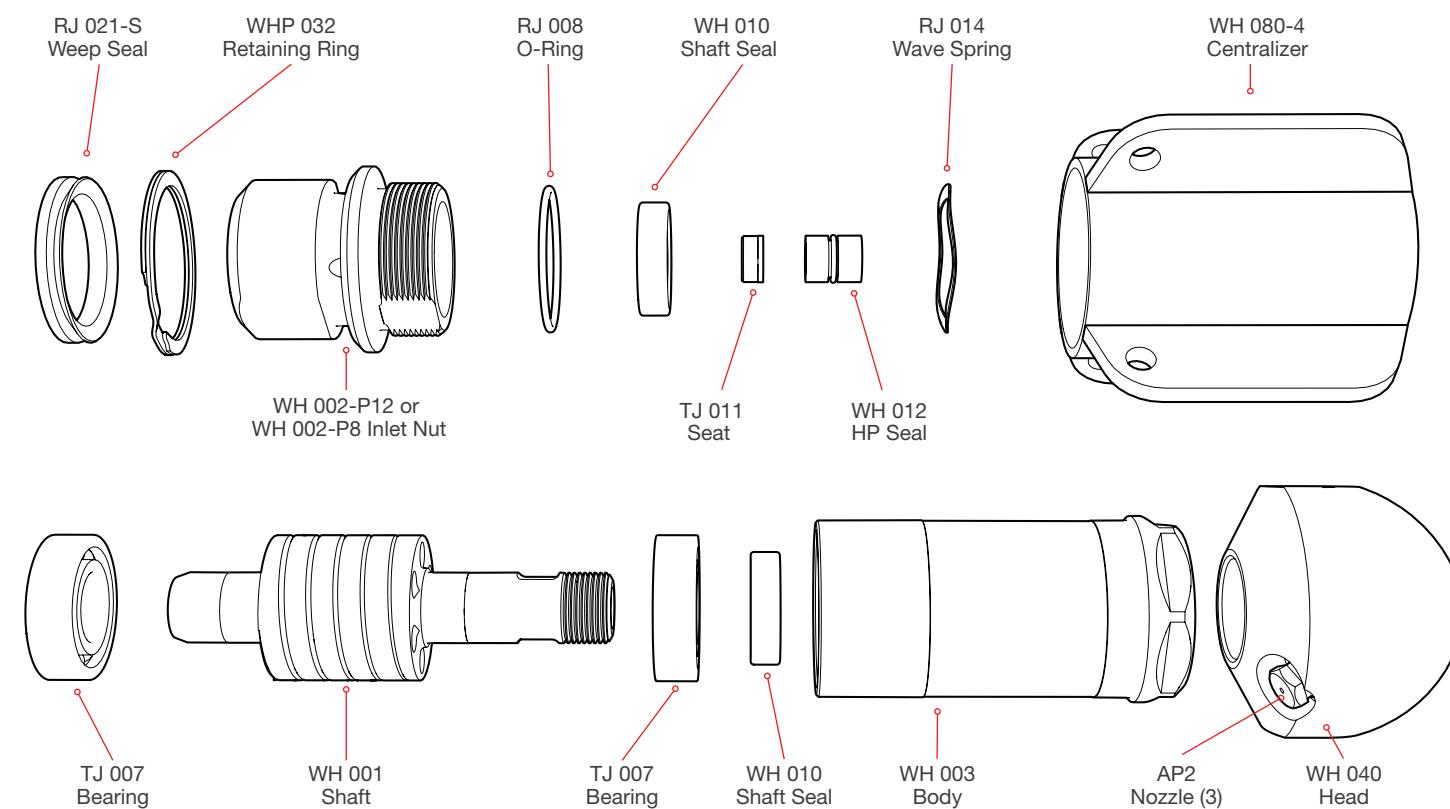
Up to 8k psi (550 bar)
10-45 gpm Flows (40-170 l/min)
6"-18" Lines (152-457 mm)
Two Inlet Options Available

WH-1/2 & WH-3/4 Specifications

MAXIMUM PRESSURE	8k psi (550 bar)
OPERATING PRESSURE	1500-8k psi (100-550 bar)
ROTATION SPEED	(150-300 rpm)
FLOW	10-50 gpm (40-170 l/min)
FLOW RATING	2.6 Cv
PULLING FORCE	18-50 lb (80-220 N)
INLET CONNECTION	1/2 NPT or BSPP & 3/4 NPT or BSPP
LENGTH	7.5 in. (191 mm)
DIAMETER INCL. CENT.	3.4 in. (86 mm)
NOZZLE PORTS	3 x 1/8 NPT
WEIGHT COMPLETE	4.7 lb 2.1 kg

WH-1/2 & WH-3/4

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WH 600 • SERVICE KIT

- (1) BJ 048-F Viscous Fluid, 6oz.
- (1) BJ 062-S Antiseize, 2g
- (1) GP 025-P2 Hex Socket Plug
- (1) TJ 011 Brass Seat
- (1) WH 012-0 HP Seal & O-Ring

WH 602 • SEAL KIT

- (1) TJ 011 Brass Seat
- (1) WH 012-0 HP Seal & O-Ring

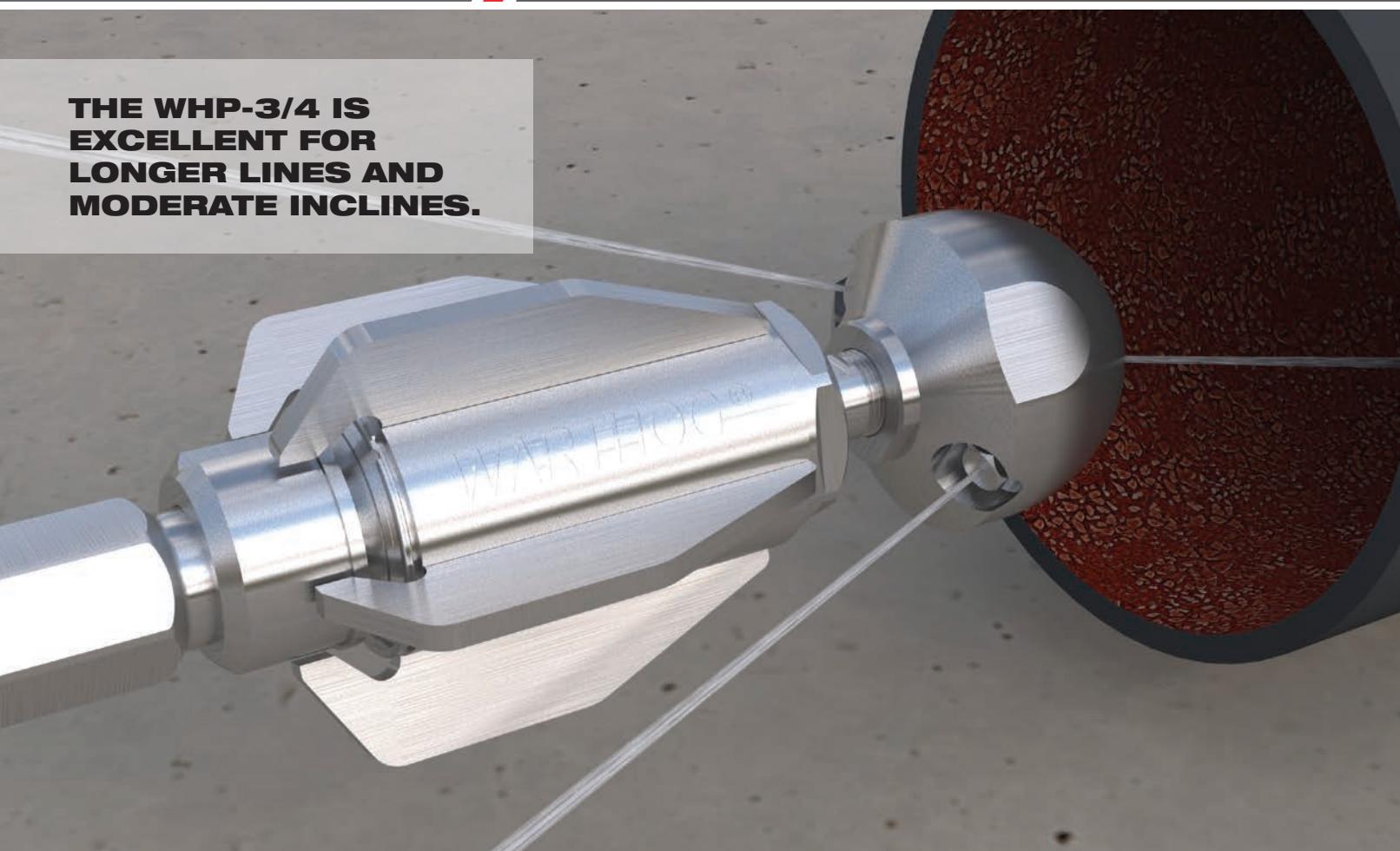
WH 610 • OVERHAUL KIT

- (1) BJ 048-F Viscous Fluid, 6oz.
- (1) BJ 062-S Antiseize, 2g
- (1) RJ 008 O-Ring
- (1) TJ 011 Brass Seat
- (1) WH 012-0 HP Seal & O-Ring
- (2) TJ 007 Ball Bearing
- (2) WH 010 Shaft Seal
- (1) RJ 021-S Weep Seal
- (1) RJ 014 Wave Spring

WH 612 • TOOL KIT

- (1) TJ 064 Fill Tube
- (1) WH 105 Tool

**THE WHP-3/4 IS
EXCELLENT FOR
LONGER LINES AND
MODERATE INCLINES.**



WHP-3/4 CLASSIC

6"-18" (152-457 mm) Lines with Elbows

The WHP-3/4 has been designed to produce more pulling power than other tools available on the market. The centralizer fins are streamlined to allow the rear facing jets to be angled more sharply, giving the tool more forward thrust. The result is more pulling power to handle longer lines and moderate inclines.

The WHP-3/4 features 3 nozzle ports, including a boring jet offset at 15 degrees, and 2 rear jets at 18 degrees. The inlet port comes in either 3/4" NPT or BSPP.

WHP-3/4

Up to 8k psi (550 bar)
15-50 gpm Flows (60-190 l/min)
Up to 40% More Thrust*

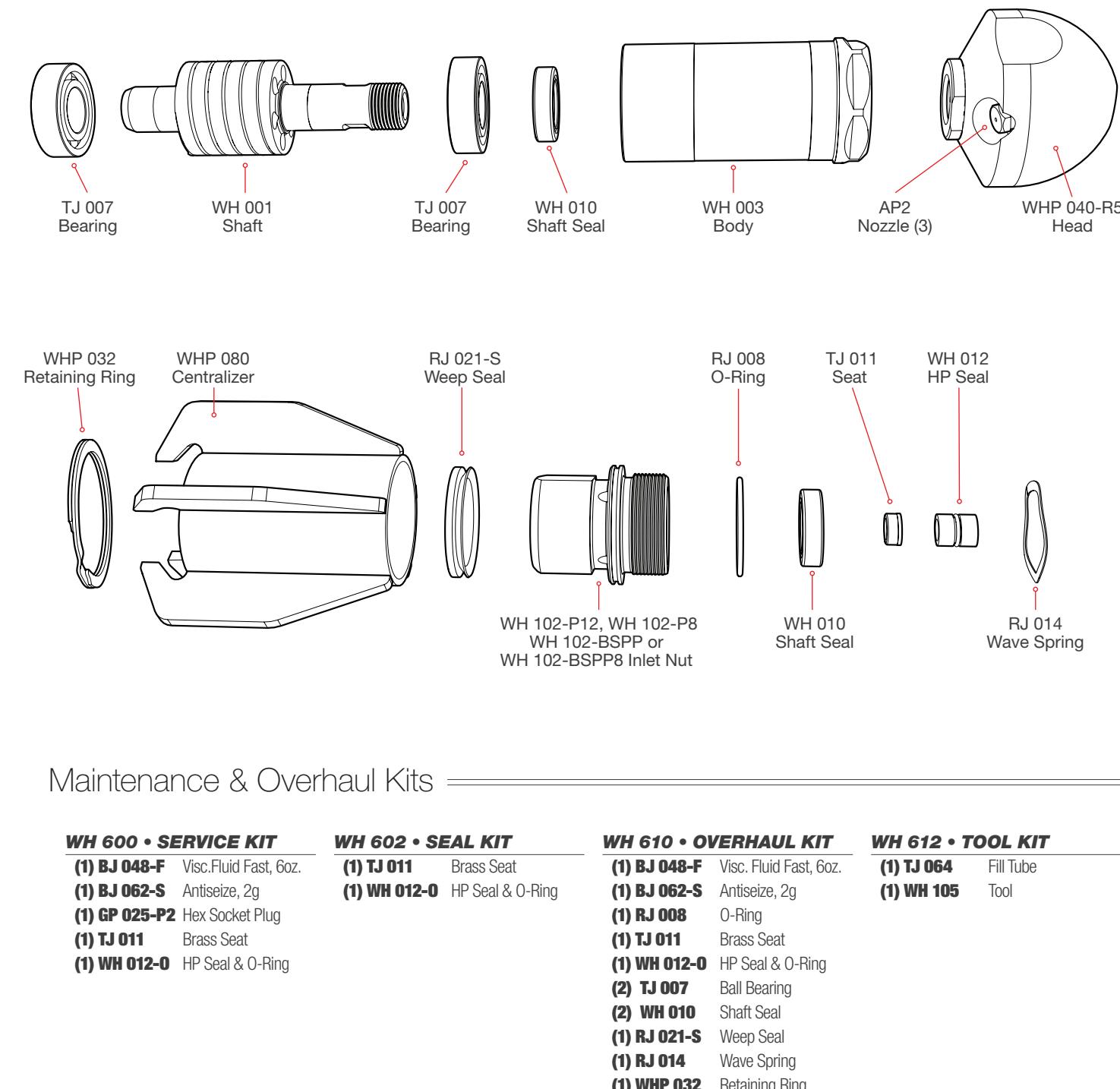
WHP-3/4 Specifications

MAXIMUM PRESSURE	8k psi 550 bar
OPERATING PRESSURE	1500-4k psi 00-275 bar
ROTATION SPEED	150-300 rpm
FLOW	15-50 gpm 60-190 l/min
FLOW RATING	3.0 Cv
PULLING FORCE	45-90 lb 00-400 Nm
INLET PORT	1/2 NPT, 1/2 BSPP, 3/4 NPT, 3/4 BSPP
DIA. INCLUDING CENTRALIZER	3.4 in. 86 mm
LENGTH	7.5 in. 190 mm
NOZZLE PORTS	3 x 1/8 NPT
WEIGHT COMPLETE	4.7 lb 2.1 kg

* With the front jet plugged.

WHP-3/4

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WH 600 • SERVICE KIT

(1) BJ 048-F	Visc. Fluid Fast, 6oz.
(1) BJ 062-S	Antiseize, 2g
(1) GP 025-P2	Hex Socket Plug
(1) TJ 011	Brass Seat
(1) WH 012-0	HP Seal & O-Ring

WH 602 • SEAL KIT

(1) TJ 011	Brass Seat
(1) WH 012-0	HP Seal & O-Ring

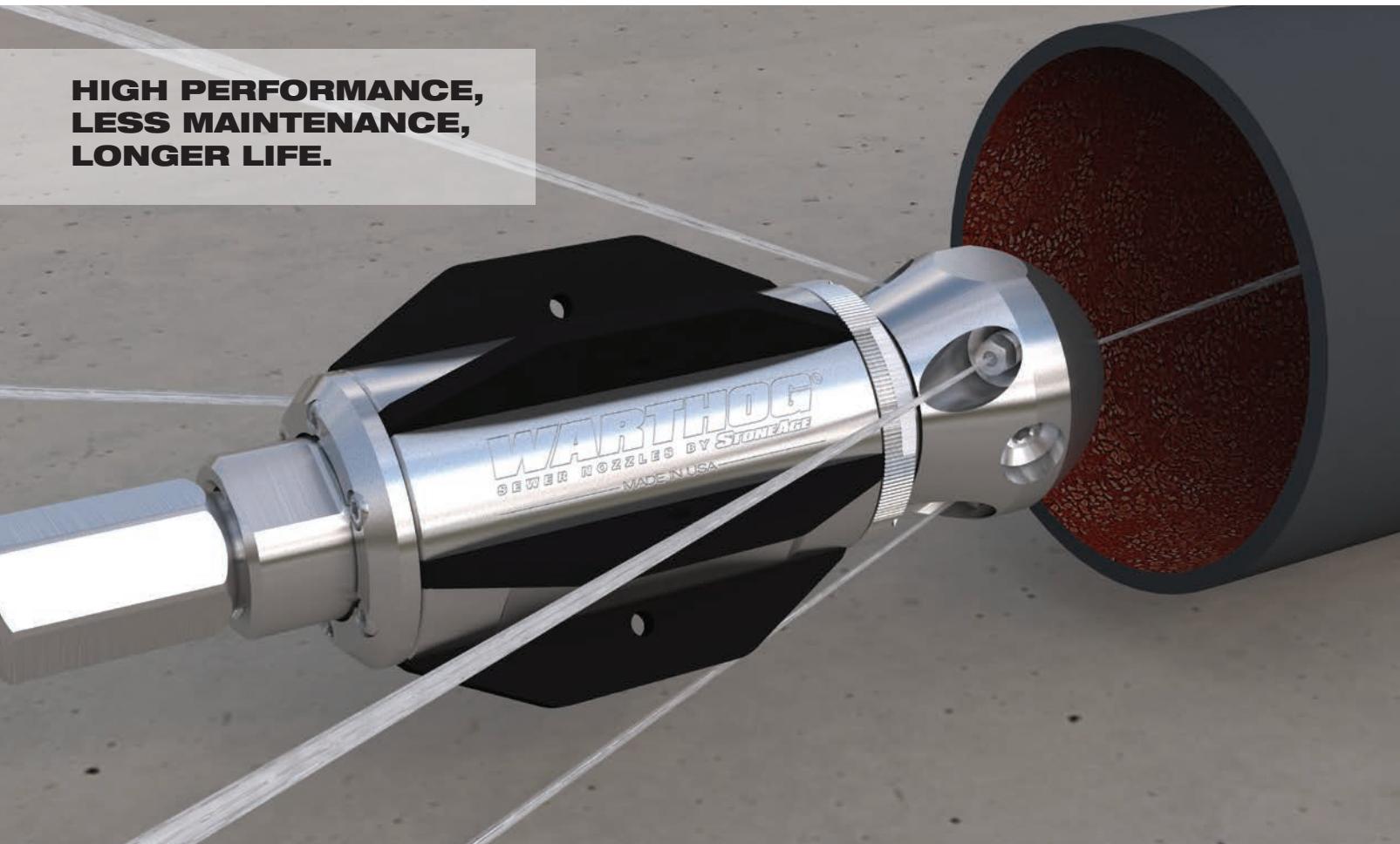
WH 610 • OVERHAUL KIT

(1) BJ 048-F	Visc. Fluid Fast, 6oz.
(1) BJ 062-S	Antiseize, 2g
(1) RJ 008	O-Ring
(1) TJ 011	Brass Seat
(1) WH 012-0	HP Seal & O-Ring
(2) TJ 007	Ball Bearing
(2) WH 010	Shaft Seal
(1) RJ 021-S	Weep Seal
(1) RJ 014	Wave Spring
(1) WHP 032	Retaining Ring

WH 612 • TOOL KIT

(1) TJ 064	Fill Tube
(1) WH 105	Tool

**HIGH PERFORMANCE,
LESS MAINTENANCE,
LONGER LIFE.**



WGR MAGNUM

8"-36" (20-90 cm) Lines

The **WGR MAGNUM** is the first tool in the Warthog Magnum series, specifically designed for extended tool durability and optimal handling of dirty or recycled water.

- Optimized speed control extends maintenance intervals
- Latest seal technology effectively handles dirty or recycled water for improved performance
- Flush style head protects front shaft seals for longer tool life
- Streamlined design keeps tool from catching inside pipe
- Carbide nozzles generate higher quality jets
- Descaling ports now come standard
- Hardened steel centralizer with 4x longer life
- Optional fin sizes for different pipe diameters
- Independently replaceable fins can be easily replaced as wear occurs without opening tool body
- Choose your rotation speed with 3 viscous fluid options

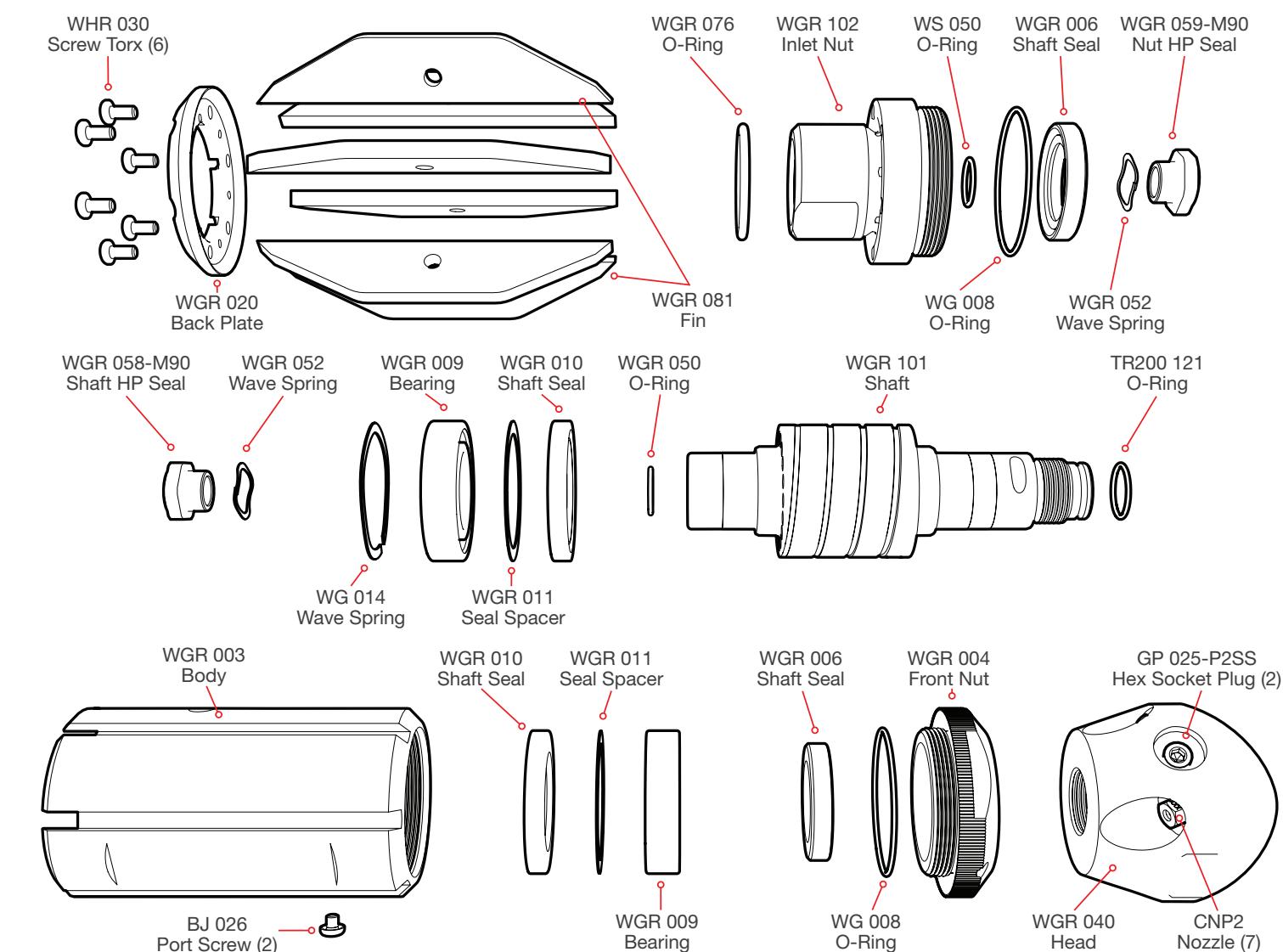
WGR	Up to 5k psi (350 bar)
8"-36" Lines (20-90 cm)	50-80 gpm Flows (190-300 l/min)
	9 Port Head Comes Standard with Descaling Jets

WGR Specifications

MAXIMUM PRESSURE	5k psi 350 bar
OPERATING PRESSURE	1500-5k psi 100-350 bar
ROTATION SPEED	150-300 rpm
FLOW	50-80 gpm 190-300 l/min
FLOW RATING	6 Cv
INLET CONNECTION	1 in. NPT or 1in. BSPP
NOZZLE PORTS	7 x 1/8 NPT
DIAMETER	4.5 in. 114 mm
LENGTH	10.25 in. 260 mm
WEIGHT COMPLETE	13 lb 5.9 kg

WGR MAGNUM

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WGR 601 • FLUID KIT

- (1) **WGR 601** Fluid Service Kit
- (1) **BC 410** Syringe
- (2) **BJ 026** Port Screw
- (1) **WGR 048** Visc Fluid, 6oz
- (3) **VISC. FLUID OPTIONS AVAIL.**

WGR 602 • HP SEAL KIT

- (1) **BJ 062-S** Antiseize, 2g
- (2) **WGR 052** HP Seal Wave Spring
- (1) **WGR 058** HP Seal - Shaft
- (1) **WGR 059** HP Seal - Nut
- (2) **WGR 050** HP Seal O-Ring

WGR 610 • OVERHAUL KIT

- (2) **BJ 026** Port Screw
- (1) **BJ 062-S** Antiseize, 2g
- (1) **GP 025-P** Front Jet Plug
- (1) **TR200 121** Head - Shaft O-Ring
- (1) **WG 008** Nut O-Ring
- (1) **WG 014** Bearing Wave Spring
- (2) **WGR 006** Shaft Seal - Outer
- (2) **WGR 009** Bearing
- (2) **WGR 010** Shaft Seal - Inner
- (2) **WGR 011** Seal Spacer
- (6) **WHR 030** Torx Screws
- (1) **WGR 048** Visc Fluid, 6oz

WGR 612 • TOOL KIT

- (1) **WGR 180** Torx L-Wrench
- (1) **WGR 181** Removal Press Tube
- (1) **WGR 182** Installation Press Tube
- (1) **WGR 183** Hex Tool
- (1) **WGR 184** HP Seal Install Tool

2 TOOLS IN 1

SAVE TIME – SAVE WATER

**NEW FOR 2016****WGR SWITCHER™**

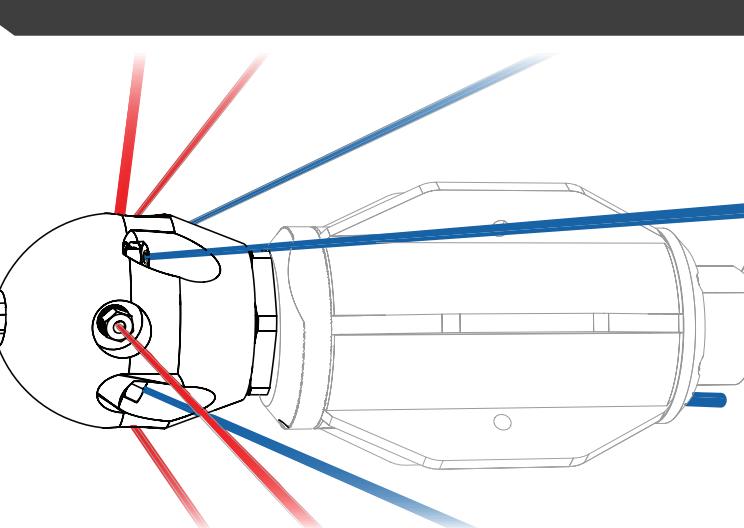
The new WGR Switcher is two tools in one. Switch between pulling or cleaning without removing the nozzle from the pipe. When the pump is idled down and brought back to pressure the tool will switch the water flow between two different sets of jets.

FEATURES:

- Eliminates extra runs needed to swap nozzles – saving water and time
- Run more jobs with one tank of water
- Switch to pulling jets for maximum thrust
- Switch to cleaning jets maximize power for clearing debris and cutting roots

Switcher Head Specifications

MAX PRESSURE	5k psi 345 bar
MAX FLOW (WGR 1")	80 gpm 303 l/min
MAX FLOW (WGR 1.25")	100 gpm 378 l/min
DIAMETER	4.5 in. 114 mm
LENGTH	10.25 in. 260 mm
WEIGHT	13 lb 5.9 kg

**1) START IN PULLING/FLUSHING MODE**

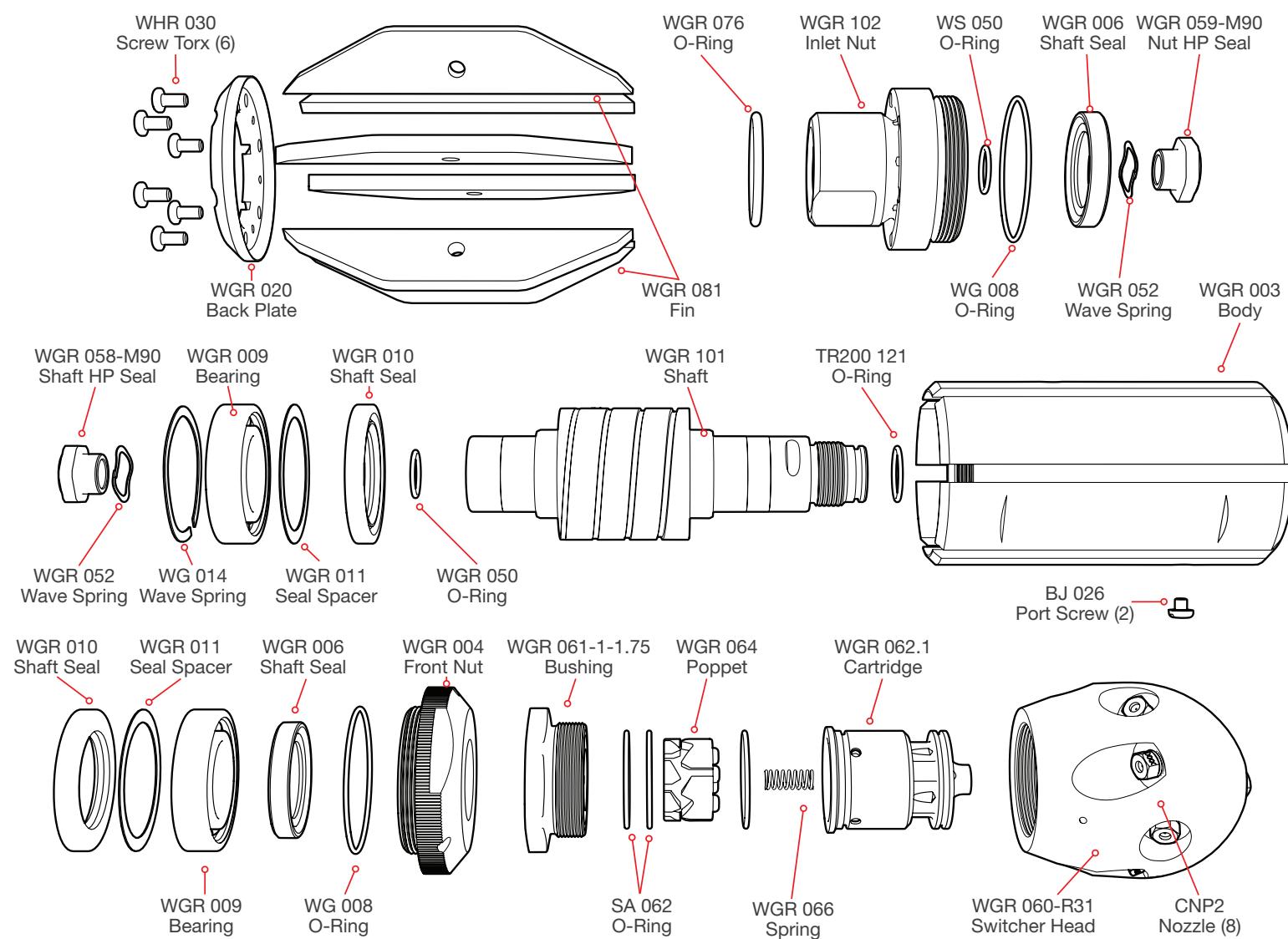
All flow is directed to four 155°

2) POWER DOWN PUMP TO SWITCH TO CLEANING MODE

All flow is directed to two 100° jets and two 125° jets

3) SWITCH BACK TO PULLING/FLUSHING MODE**WGR MAGNUM**

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WGR 601 • FLUID KIT

- (1) **WGR 601** Fluid Service Kit
 (1) **BC 410** Syringe
 (2) **BJ 026** Port Screw
 (1) **WGR 048** Visc Fluid, 6oz
 (3) **VISC. FLUID OPTIONS AVAIL.**

WGR 602 • HP SEAL KIT

- (1) **BJ 062-S** Antiseize, 2g
 (2) **WGR 052** HP Seal Wave Spring
 (1) **WGR 058** HP Seal - Shaft
 (1) **WGR 059** HP Seal - Nut
 (2) **WGR 050** HP Seal O-Ring

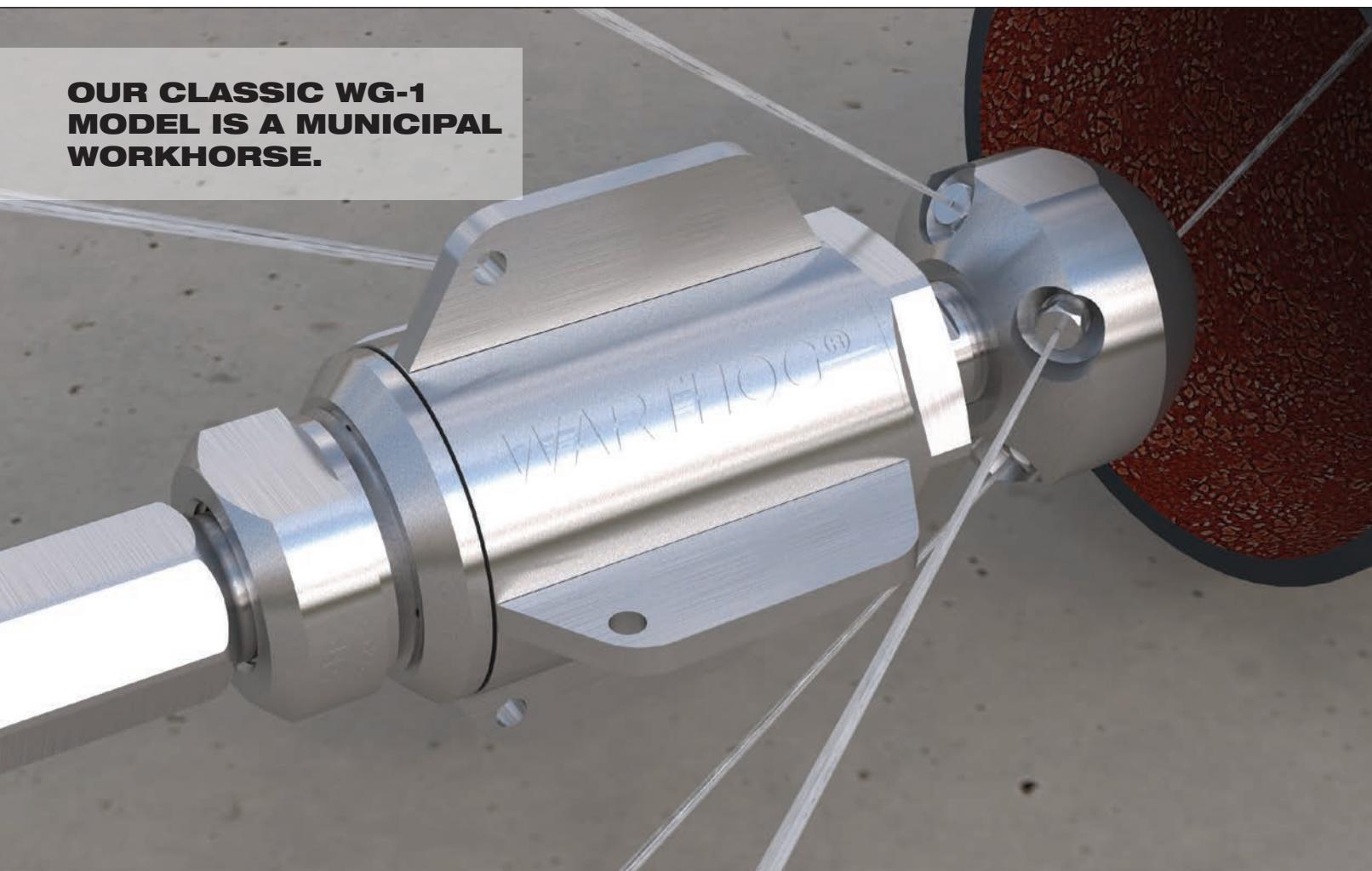
WGR 610 • OVERHAUL KIT

- (2) **BJ 026** Port Screw
 (1) **BJ 062-S** Antiseize, 2g
 (1) **GP 025-P** Front Jet Plug
 (1) **TR200 121** Head - Shaft O-Ring
 (1) **WG 008** Nut O-Ring
 (1) **WG 014** Bearing Wave Spring
 (2) **WGR 006** Shaft Seal - Outer
 (2) **WGR 009** Bearing
 (2) **WGR 010** Shaft Seal - Inner
 (2) **WGR 011** Seal Spacer
 (6) **WHR 030** Torx Screws
 (1) **WGR 048** Visc Fluid, 6oz

WGR 612 • TOOL KIT

- (1) **WGR 180** Torx L-Wrench
 (1) **WGR 181** Removal Press Tube
 (1) **WGR 182** Installation Press Tube
 (1) **WGR 183** Hex Tool
 (1) **WGR 184** HP Seal Install Tool

**OUR CLASSIC WG-1
MODEL IS A MUNICIPAL
WORKHORSE.**



WG-1 CLASSIC

8"-36" (203-914 mm) Lines

The WG-1 is the proven choice for municipal, industrial and commercial drain cleaning applications. Predominately used in large combination trucks with 1" (25 mm) hose, the WG-1 is field-maintainable for low cost of ownership and can be fitted with replaceable AP2 nozzle tips sized to maximize pump efficiency and effectiveness.

- CONTROLLED ROTATION**
Slower dwell time allows jets to penetrate deeper through deposits
- MULTIPLE HEAD OPTIONS**
Customize tool for unplugging, descaling or manhole cleaning
- HIGHEST QUALITY JETS**
Hardened stainless steel orifices resist cracking and scratching

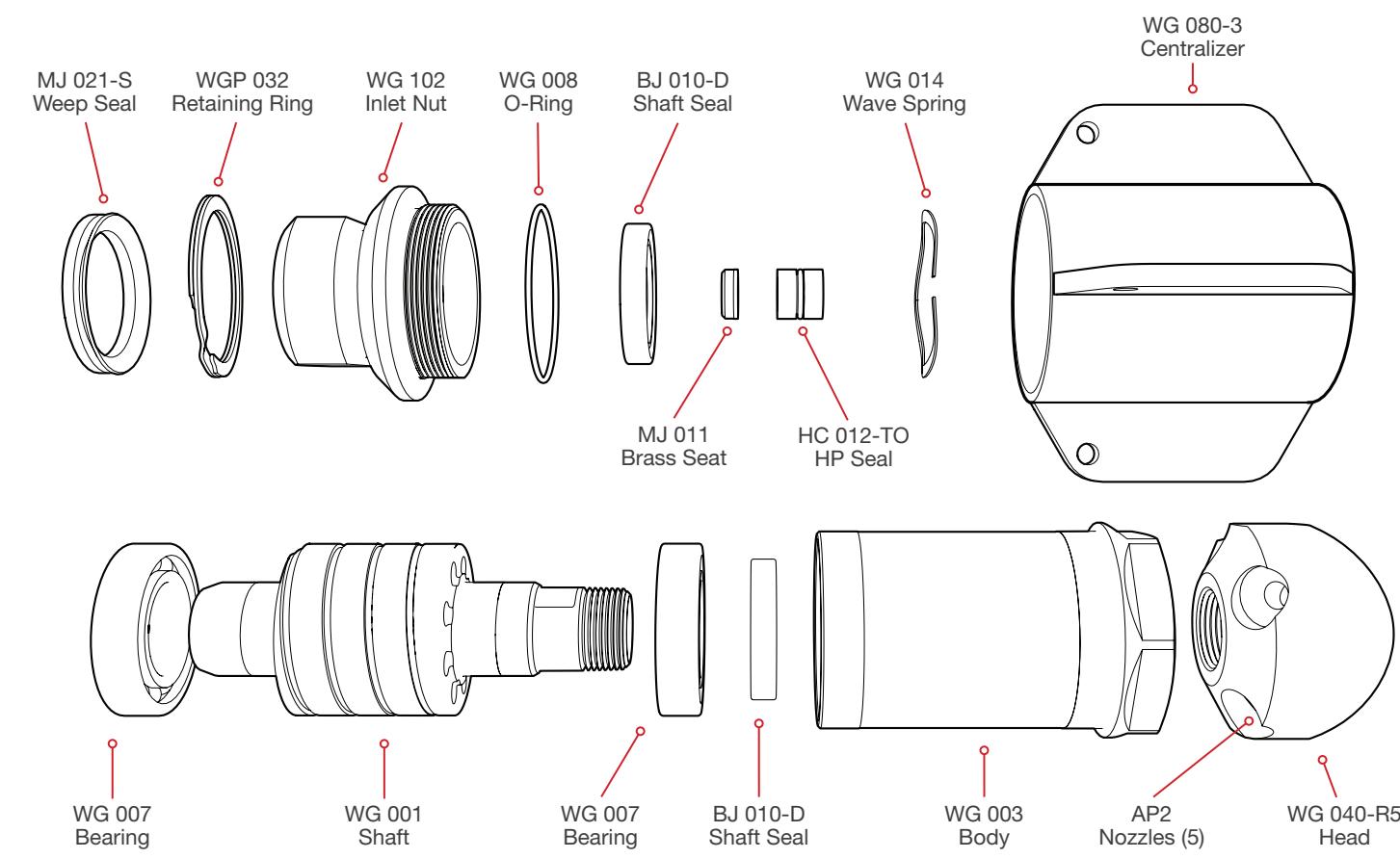
WG-1 Specifications

MAXIMUM PRESSURE	5k psi 350 bar
OPERATING PRESSURE	1500-5k psi 100-350 bar
ROTATION SPEED	150-300 rpm
FLOW	50-80 gpm 190-300 l/min
FLOW RATING	4.6 Cv
PULLING FORCE	70-100 lb 310-450 Nm
INLET CONNECTION	1 NPT or BSPP
NOZZLE PORTS	5 x 1/8 NPT (P2)
LENGTH	9.1 in. 231 mm
DIAMETER	4.8 in. 122 mm
WEIGHT COMPLETE	10.9 lb 4.9 kg

WG-1 CLASSIC	Up to 5k psi (350 bar)
8"-36" Lines (203-914 mm)	50-80 gpm Flows (190-300 l/min)
Classic WG-1 Model	

WG-1 CLASSIC

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WG 600 • SERVICE KIT

(1) BJ 048-F	Visc. Fluid, 6oz.
(1) BJ 062-S	Antiseize, 2g
(1) GP 025-P2	Hex Socket Plug
(1) MJ 011	Brass Seat
(1) HC 012-T0	HP Seal & O-Ring

WG 610 • OVERHAUL KIT

(2) BJ 010-D	Shaft Seals
(1) BJ 048-F	Visc. Fluid, 6oz.
(1) BJ 062-S	Antiseize, 2g
(1) MJ 011	Brass Seat
(1) HC 012-T0	HP Seal & O-Ring
(2) WG 007	Ball Bearings
(1) WG 008	O-Ring
(1) WG 014	Wave Spring
(1) MJ 021-S	Weep Seal
(1) WGP 032	Retaining Ring

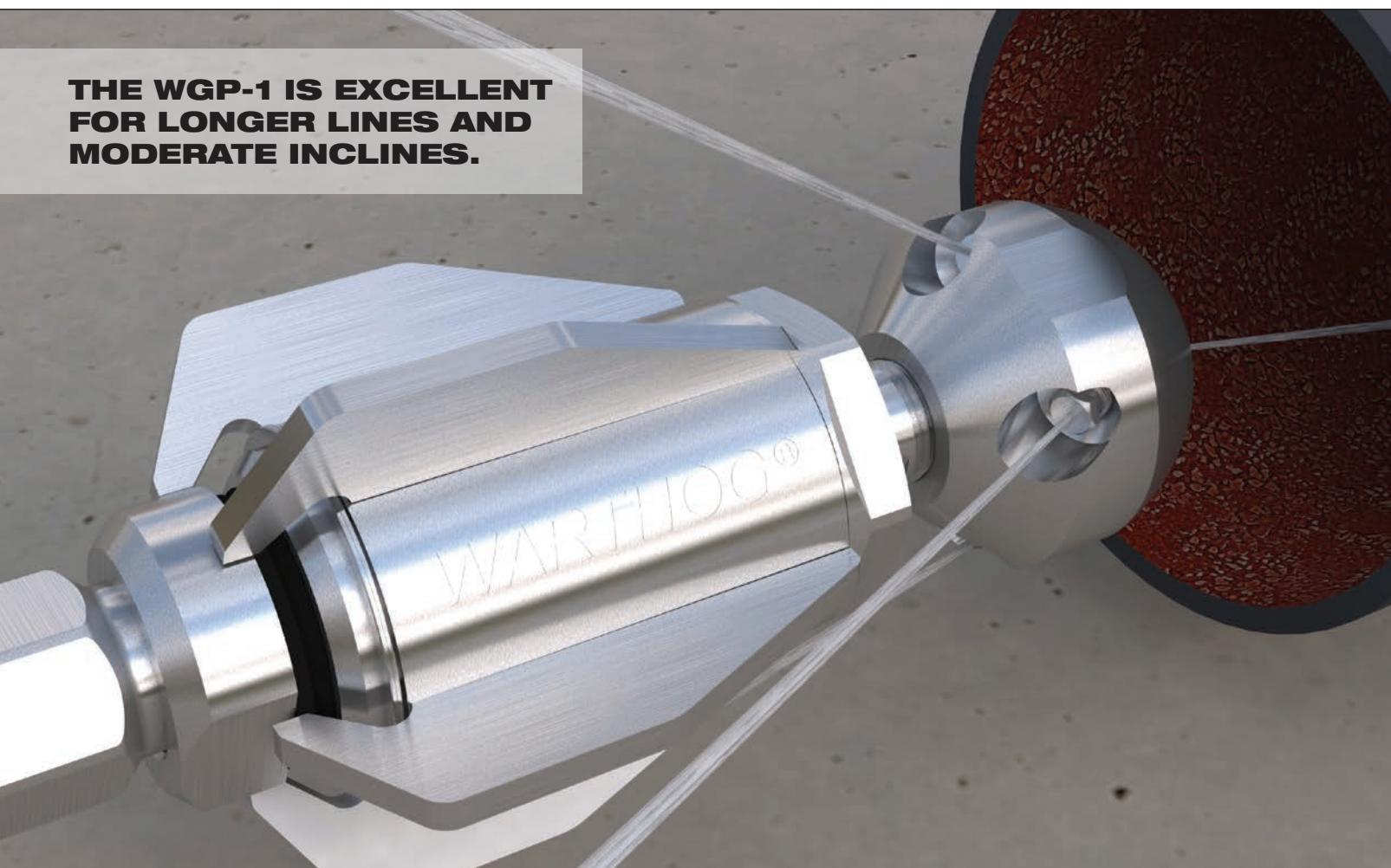
WG 612 • TOOL KIT

(1) HC 064	Fill Tube
(1) BJ 105	Tool

WG 602 • SEAL KIT

(1) MJ 011	Brass Seat
(1) HC 012-T0	HP Seal & O-Ring

**THE WGP-1 IS EXCELLENT
FOR LONGER LINES AND
MODERATE INCLINES.**



WGP-1 CLASSIC

8"-36" (203-914 mm) Lines

Our WGP-1 is designed to produce up to 40% more pulling power* than our WG-1. The rear facing jets are angled more sharply and the centralizer fins have been streamlined. The result is more pulling power to navigate longer lines and moderate inclines, plus makes retrieval of the tool easier.

WGP-1 CLASSIC	Up to 5k psi (350 bar)
8"-36" Lines (152-457 mm)	50-80 gpm Flows (190-300 l/min)
	Up to 20% More Thrust*

Optional Descaling Head
for the WGP-1

WGP 040-R8-DS

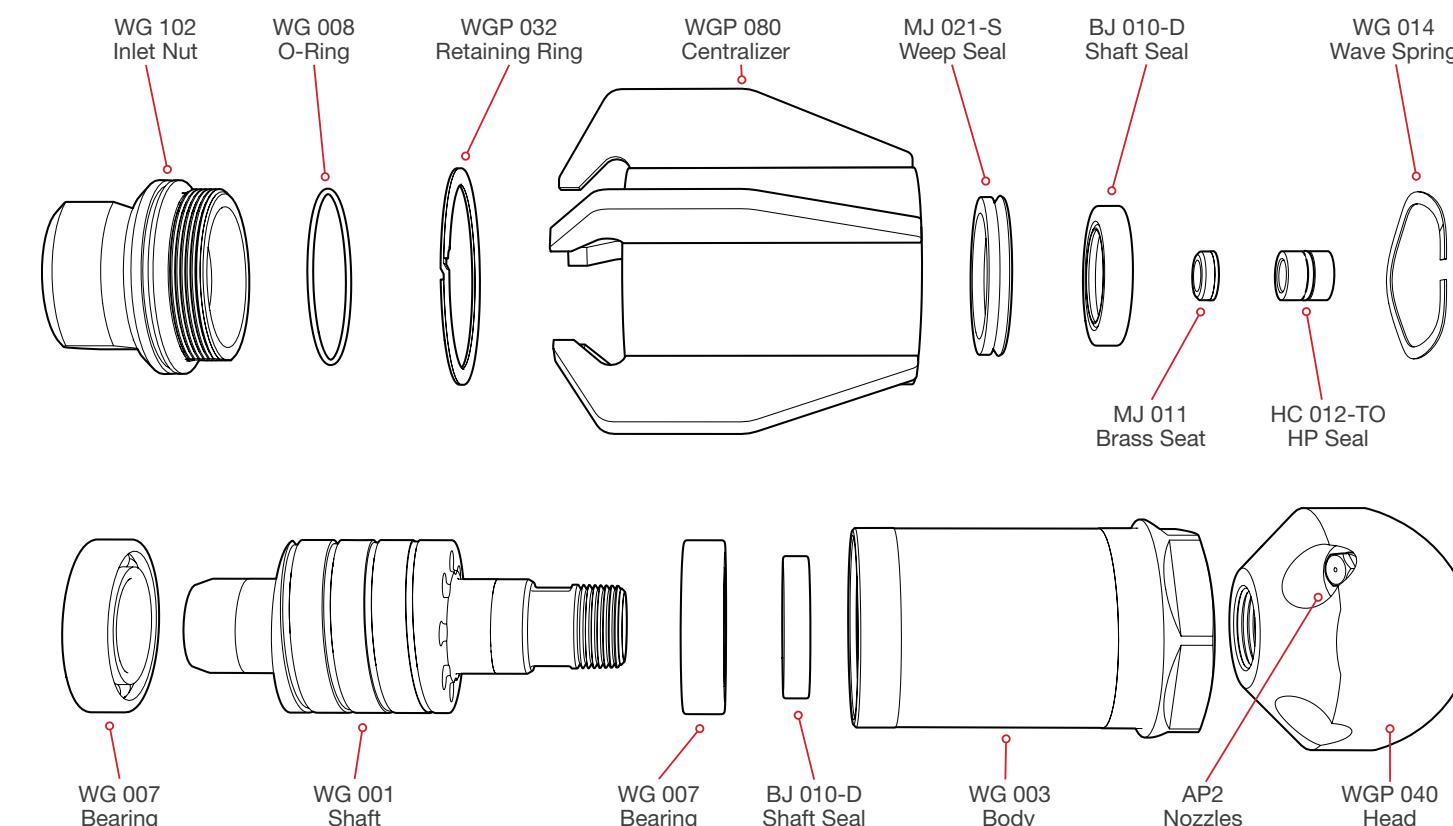
WGP-1 Specifications

MAXIMUM PRESSURE	5k psi 350 bar
OPERATING PRESSURE	1500-5k psi 100-350 bar
ROTATION SPEED	150-300 rpm
FLOW	50-80 gpm 190-300 l/min
FLOW RATING	4.6 Cv
PULLING FORCE	100-140 lb 450-623 N
INLET CONNECTION	1 NPT or BSPP
LENGTH	9.1 in. 231 mm
DIAMETER WITH CENT.	4.8 in. 122 mm
PORTS	5 x 1/8 NPT
WEIGHT COMPLETE	10.9 lb 4.9 kg

* With the front jet plugged.

WGP-1 CLASSIC

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WG 600 • SERVICE KIT

- (1) **BJ 048-F** Visc. Fluid, 6oz.
- (1) **BJ 062-S** Antiseize, 2g
- (1) **GP 025-P2** Hex Socket Plug
- (1) **MJ 011** Brass Seat
- (1) **HC 012-T0** HP Seal & O-Ring

WG 610 • OVERHAUL KIT

- (2) **BJ 010-D** Shaft Seals
- (1) **BJ 048-F** Visc. Fluid, 6oz.
- (1) **BJ 062-S** Antiseize, 2g
- (1) **MJ 011** Brass Seat
- (1) **HC 012-T0** HP Seal & O-Ring
- (2) **WG 007** Ball Bearings
- (1) **WG 008** O-Ring
- (1) **WG 014** Wave Spring
- (1) **MJ 021-S** Weep Seal
- (1) **WGP 032** Retaining Ring

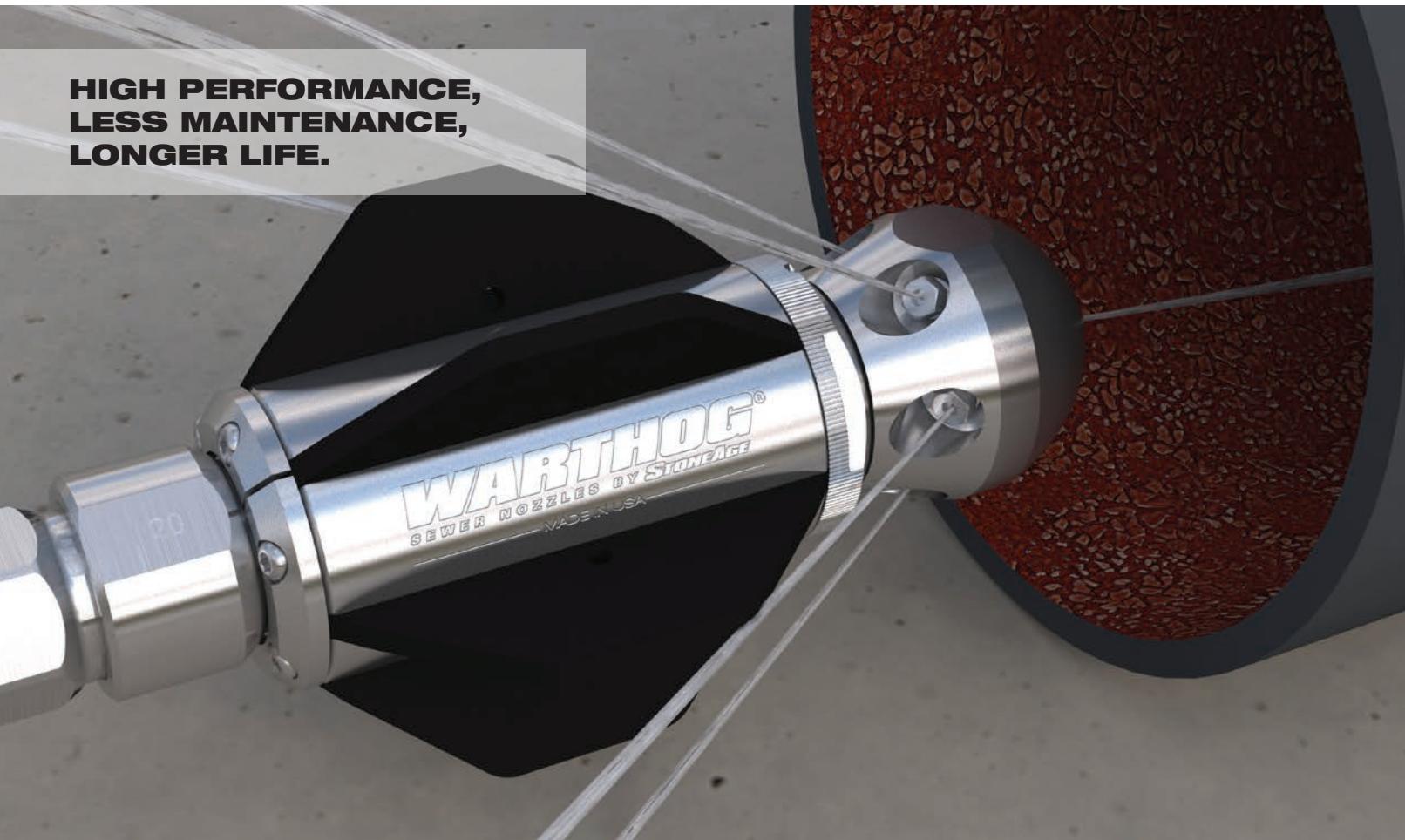
WG 612 • TOOL KIT

- (1) **HC 064** Fill Tube
- (1) **BJ 105** Tool

WG 602 • SEAL KIT

- (1) **MJ 011** Brass Seat
- (1) **HC 012-T0** HP Seal & O-Ring

**HIGH PERFORMANCE,
LESS MAINTENANCE,
LONGER LIFE.**



WGR-1-1/4 MAGNUM

High-flow Pipe Cleaning

The WGR-1-1/4 Magnum is specifically designed for higher water flow, extended tool durability, and optimal handling of dirty or recycled water.

- Optimized speed control extends maintenance intervals
- Latest seal technology effectively handles dirty or recycled water for improved performance
- Flush style head protects front shaft seals for longer tool life
- Streamlined design keeps tool from catching inside pipe
- Carbide nozzles generate higher quality jets
- Descaling ports now come standard
- Hardened steel centralizer with 4x longer life
- Optional fin sizes for different pipe diameters
- Independently replaceable fins can be easily replaced as wear occurs without opening tool body
- Choose your rotation speed with 3 viscous fluid options

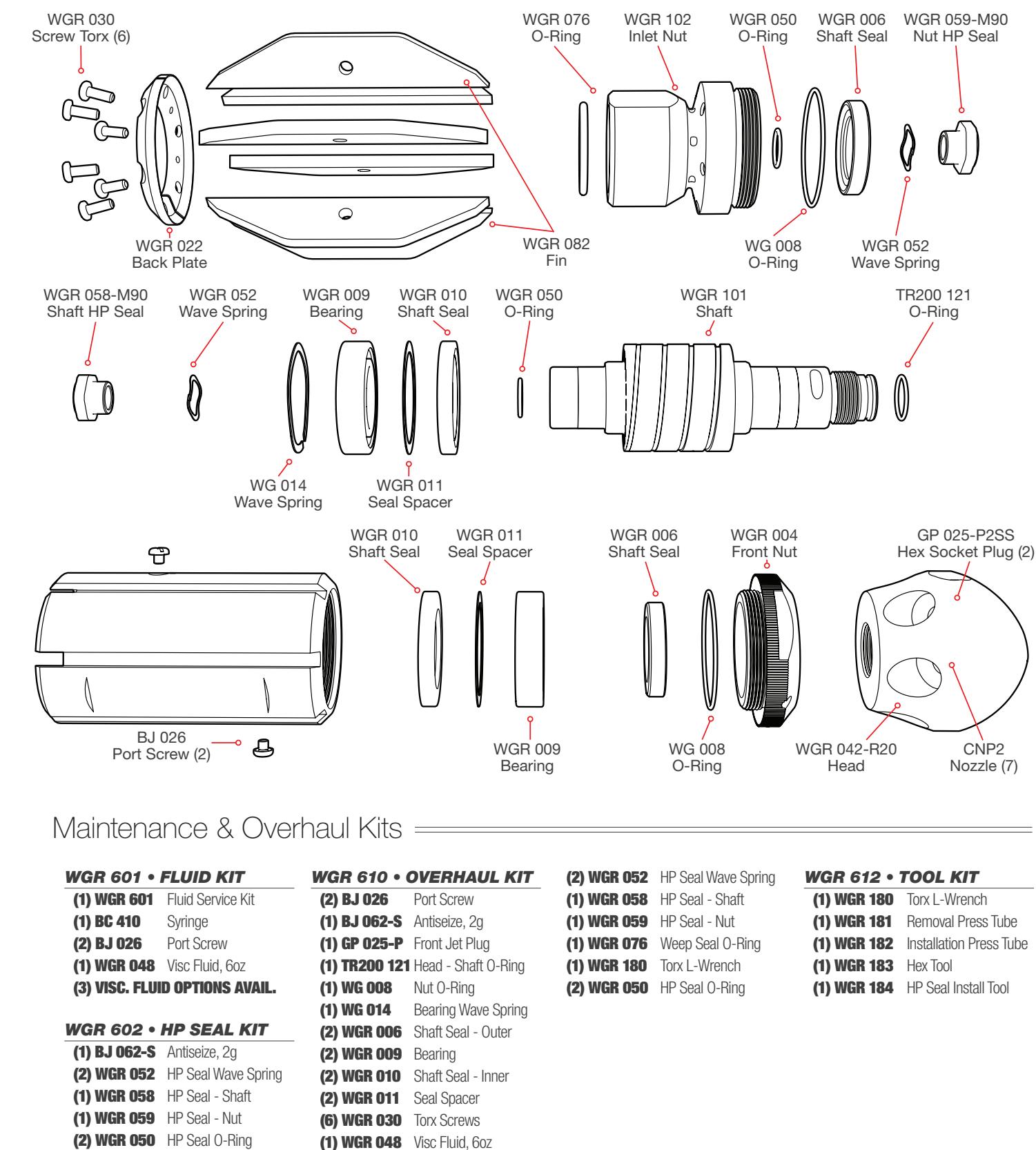
WGR-1-1/4 MAGNUM
8"-36" Lines (200-900 mm)
Up to 5k psi (350 bar)
80-120 gpm Flows (300-455 l/min)
Standard Descaler or Puller Descaler

WGR Specifications

MAXIMUM PRESSURE	5k psi 350 bar
OPERATING PRESSURE	1500-5k psi 100-350 bar
ROTATION SPEED	150-300 rpm
FLOW	80-120 gpm (300-455 l/min)
FLOW RATING	6 Cv
INLET CONNECTION	1.25 in NPT / BSPP
NOZZLE PORTS	9 x 1/8 NPT
DIAMETER	4.5 in. 114 mm
LENGTH	10.25 in. 260 mm
WEIGHT COMPLETE	13 lb 5.9 kg

WGR-1-1/4 MAGNUM

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WGR 601 • FLUID KIT

- (1) WGR 601 Fluid Service Kit
(1) BC 410 Syringe
(2) BJ 026 Port Screw
(1) WGR 048 Visc Fluid, 6oz
(3) VISC. FLUID OPTIONS AVAIL.

WGR 602 • HP SEAL KIT

- (1) BJ 062-S Antiseize, 2g
(2) WGR 052 HP Seal Wave Spring
(1) WGR 058 HP Seal - Shaft
(1) WGR 059 HP Seal - Nut
(2) WGR 050 HP Seal O-Ring

WGR 610 • OVERHAUL KIT

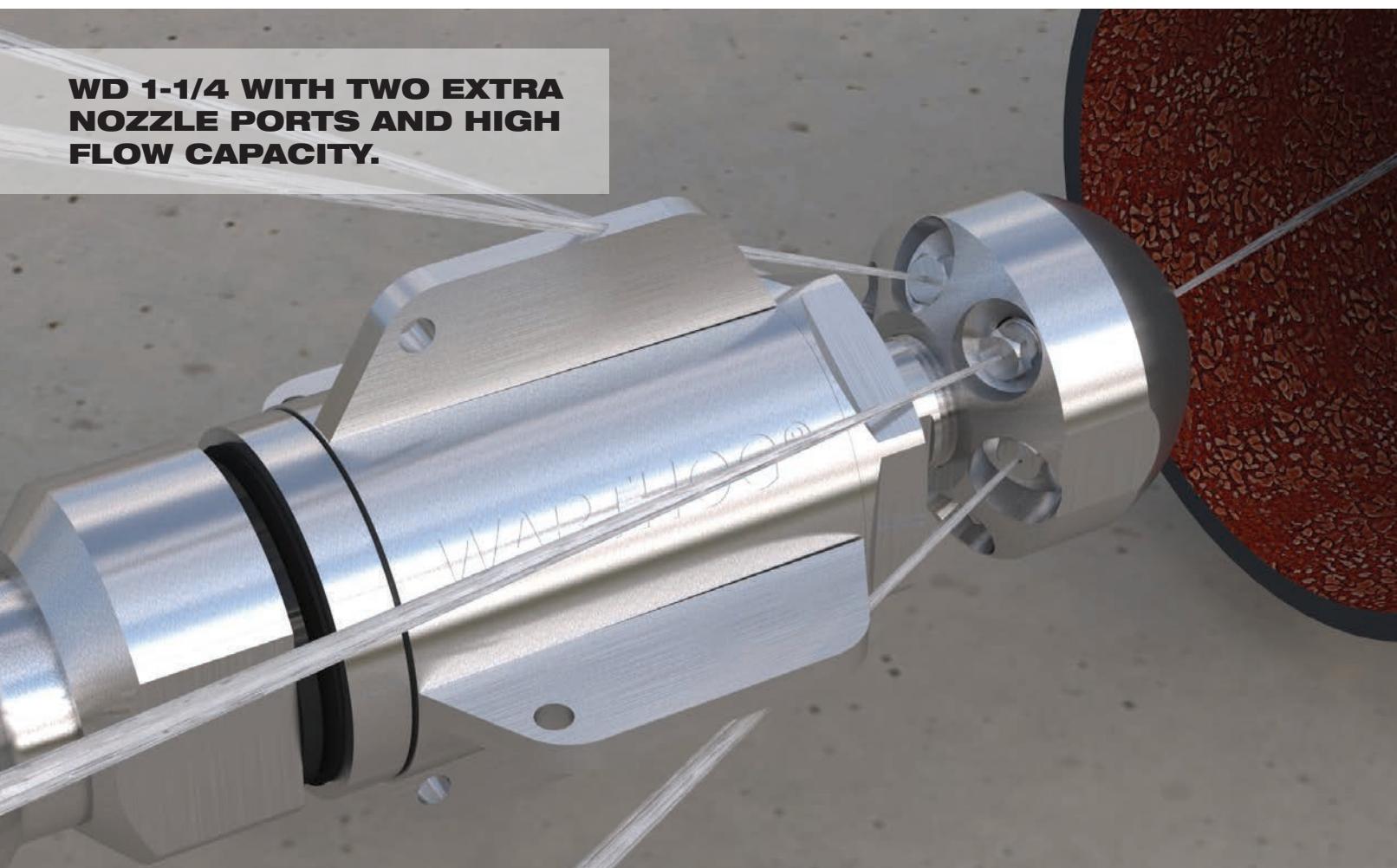
- (2) BJ 026 Port Screw
(1) BJ 062-S Antiseize, 2g
(1) GP 025-P Front Jet Plug
(1) TR200 121 Head - Shaft O-Ring
(1) WG 008 Nut O-Ring
(1) WG 014 Bearing Wave Spring
(2) WGR 006 Shaft Seal - Outer
(2) WGR 009 Bearing
(2) WGR 010 Shaft Seal - Inner
(2) WGR 011 Seal Spacer
(6) WGR 030 Torx Screws
(1) WGR 048 Visc Fluid, 6oz

WGR 612 • TOOL KIT

- (2) WGR 052 HP Seal Wave Spring
(1) WGR 058 HP Seal - Shaft
(1) WGR 059 HP Seal - Nut
(1) WGR 076 Weep Seal O-Ring
(1) WGR 180 Torx L-Wrench
(2) WGR 050 HP Seal O-Ring

- (1) WGR 180 Torx L-Wrench
(1) WGR 181 Removal Press Tube
(1) WGR 182 Installation Press Tube
(1) WGR 183 Hex Tool
(1) WGR 184 HP Seal Install Tool

**WD 1-1/4 WITH TWO EXTRA
NOZZLE PORTS AND HIGH
FLOW CAPACITY.**



**WD 1-1/4
CLASSIC**

High-flow For 8"-36" (152-457 mm) Lines

The WD 1-1/4 is designed to handle the same applications as the WG-1 but at higher flows. The 1-1/4" inlet combined with seven ports effectively distribute more water.

Descaling heads are not available for this model.

**WD 1-1/4
CLASSIC**

Up to 5k psi (350 bar)
80-120 gpm Flows (300-450 l/min)
8"-36" Lines (152-457 mm)

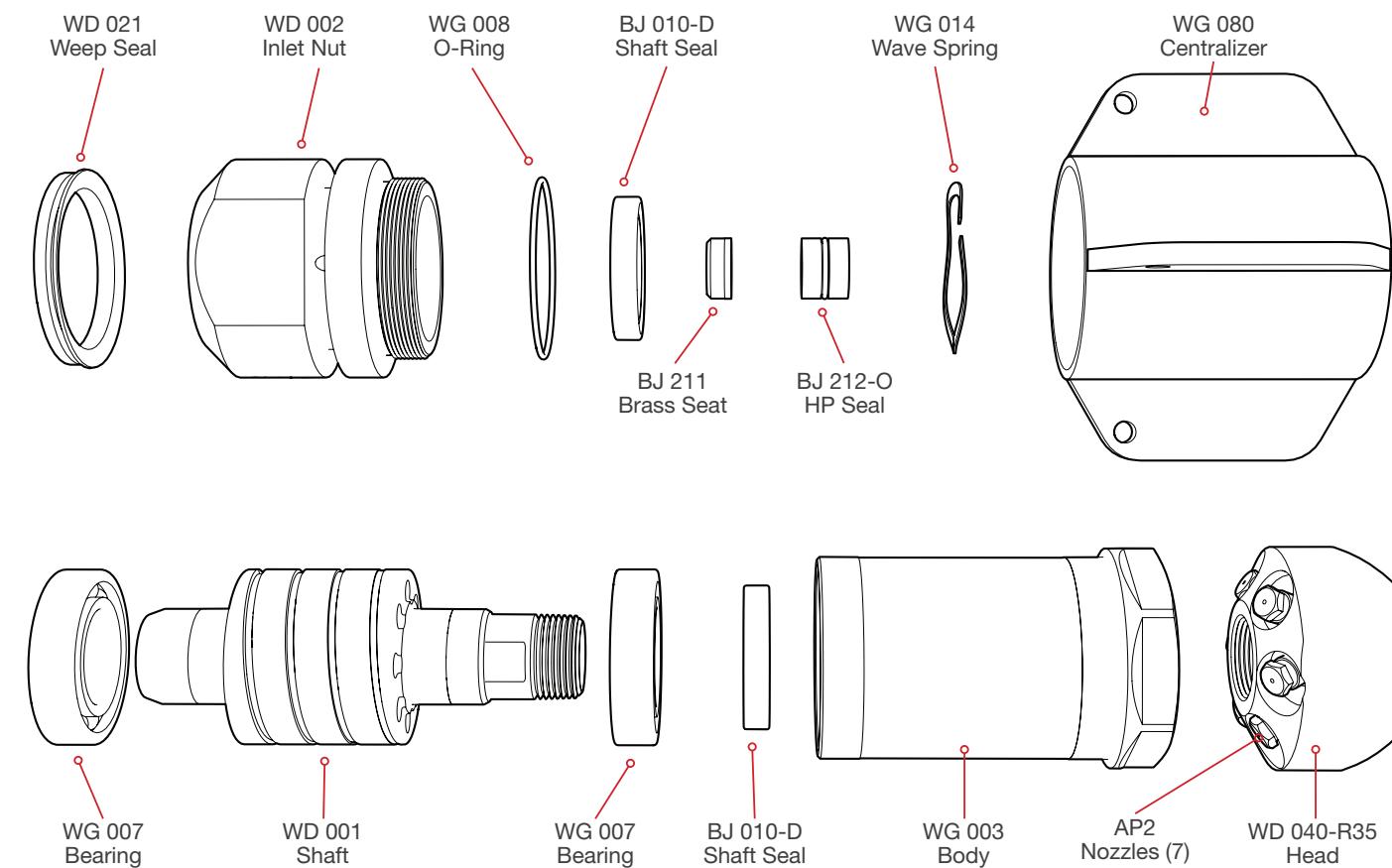
High Flow Model

WD 1-1/4 Classic Specifications

MAXIMUM PRESSURE	5k psi 350 bar
OPERATING PRESSURE	1500-5k psi 100-350 bar
ROTATION SPEED	150-300 rpm
FLOW	80-120 gpm 300-450 l/min
FLOW RATING	7.6 Cv
PULLING FORCE	130-190 lb 600-850 Nm
INLET CONNECTION	1-1/4 NPT or BSPP
LENGTH	9.1 in. 231 mm
DIAMETER WITH CENT.	4.8 in. 122 mm
NOZZLE PORTS	7 x 1/8 NPT
WEIGHT COMPLETE	11 lb 5.0 kg

WD 1-1/4 CLASSIC

Exploded View - Part Names and Numbers



Maintenance & Overhaul Kits

WD 600 • SERVICE KIT

- (1) **BJ 048-F** Visc.Fluid, 6oz.
- (1) **BJ 062-S** Antiseize, 2g
- (1) **GP 025-P2** Hex Socket Plug
- (1) **BJ 211** Brass Seat
- (1) **BJ 212-O** HP Seal & O-Ring

WD 602 • SEAL KIT

- (1) **BJ 211** Brass Seat
- (1) **BJ 012-O** HP Seal & O-Ring

WD 610 • OVERHAUL KIT

- (1) **BJ 048-F** Visc. Fluid, 6oz.
- (2) **BJ 010-D** Shaft Seals
- (1) **BJ 062-S** Antiseize, 2g
- (1) **BJ 211** Brass Seat
- (1) **BJ 012-O** HP Seal & O-Ring
- (2) **WG 007** Ball Bearings
- (1) **WD 021** Seal
- (1) **WG 008** O-Ring
- (1) **WG 014** Wave Spring

WG 612 • TOOL KIT

- (1) **HC 064** Fill Tube
- (1) **BJ 105** Tool

SAFELY ACCESS BURIED UTILITIES WITH HIGH PRESSURE WATER.



NEW COMING IN 2016

HYDRO-X

Rotary Hydro Excavation Tools

Hydro Excavation is a safe alternative to access buried utilities by potholing or trenching with high pressure water. StoneAge now has four options available for different applications.

FEATURES:

- Angled rotating jet pattern removes more material and safely cleans around utilities (rotary model only)
- Save labor hours and expensive heavy equipment costs
- Avoid risks of costly and dangerous damage to existing utilities
- Replaceable shroud made from UHMW (rotary only)
- Rebuild kits available

HYDRO-X

Up to 5k psi (350 bar)
3–15 gpm Flows (9–58 l/min)
Rotary and Static Version Available

Hydro-X Specifications

PRESSURE RANGE	Up to 5k psi 340 bar
FLOW RANGE	3–15 gpm 9–58 l/min
CONE SPRAY ANGLE	18°
INLET CONNECTION	0.5–14 NPT
WEIGHT	1.1 lb 0.5 kg
DIAMETER	1.75 in. 44 mm
LENGTH	4.2 in. 107 mm



COMING 2016
ROTARY HYDRO EXCAVATION TOOLS

ANGLED ROTATING JET PATTERN

Removes more material and safely cleans around utilities

NON-ROTARY - AVAILABLE NOW

HYDRO EXCAVATION TOOLS



HX-101
Single Head Assembly
• OCH Carbide (1)

HX-102
Double Head Assembly
• AP2 Attack Tips (2)

HX-103S
Triple Head Assembly
• AP2 Attack Tips (3)

Maximum Pressure*	Maximum Flow*	Inlet	Weight
5k psi (350 bar)	12 gpm (45 l/min)	1/2 NPT	1.0 lb (0.5 kg)

Maximize the cleaning effectiveness of Warthog sewer nozzles. Ask your Account Representatives about configuration options and extensions.



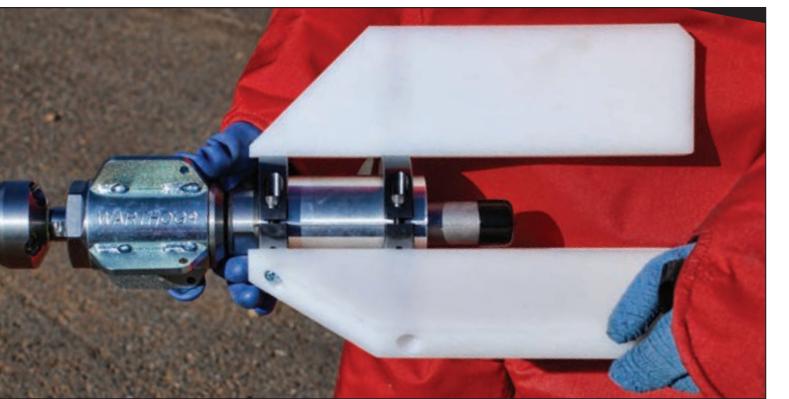
6 OR 8-WHEEL ADJUSTABLE CENTRALIZERS

WG 286-M-P16 - STRAIGHT PIPES

13"-36" diameters (330-915 mm)

WG 288-S-P16 - PIPES W/BENDS

16.5"-22" diameters (420-560 mm)



POLY-FIN CENTRALIZERS

WG-070

Available in 6", 8", 10" & 12" interchangeable skid sizes.
(152 mm, 203 mm, 254 mm & 305 mm)



SUPER CENTRALIZERS

WG-085 - 6.85" DIAMETER

For 7" (178 mm) minimum pipe ID



MANHOLE CLEANERS

Turn your Warthog pipe cleaning tool into an effective Manhole Cleaner

The benefit of using this design is that the jets are directed at the manhole walls at all times which makes it much more effective and safer than 3D tools. The conversion is simple and requires exchanging the standard WG 040 head with our Manhole Cleaner head kits. The head conversion kits include a head with 1/2" extension arms and nozzles. Call our Customer Service team for kit options. We recommend the use of manhole cover plates for increased safety.

⚠ WARNING ⚠

Operations with waterblast equipment can be potentially hazardous. Caution MUST be exercised prior to and during machine and water jet tool use.

Please read and follow all of these instructions, in addition to the guidelines in the WJTA Recommended Practices handbook, available online at www.wjta.org. Deviating from safety instructions and recommended practices can lead to severe injury and/or death.

- Do not exceed the maximum operating pressure specified for any component in a system.
- The immediate work area MUST be marked off to keep out untrained persons.
- Inspect the equipment for visible signs of deterioration, damage, and improper assembly. Do not operate if damaged, until repaired.
- Make sure all threaded connections are tight and free of leaks.
- Always de-energize the system before opening a door to service or replace any parts. Failure to do so can result in severe injury and/or death.

Pre-Run Safety Check

Install mechanical stops, stingers and back out preventers as appropriate when doing any tube, pipe or vessel cleaning. See the WJTA-IMCA's Recommended Practices for the use of high-pressure water jetting equipment and/or the water jetting association's, WJA Code of Practice for additional safety information.

- Complete a job specific risk assessment and act on the resulting actions.
- Adhere to all site specific safety procedures.
- Ensure the waterblasting zone is properly barricaded and that warning signs are posted.
- Ensure the work place is free of unnecessary objects (e.g. loose parts, hoses, tools).
- Ensure all Operators are using the correct Personal Protective Equipment (PPE).
- Check that the air hoses are properly connected and tight.
- Check all hoses and accessories for damage prior to use. Do not use damaged items. Only high quality hoses intended for waterblast applications should be used as high-pressure hoses.
- Check all high-pressure threaded connections for tightness.
- Operate the high-pressure water at full pressure and use the Pneumatic Foot Pedal Dump Control to verify that the dump valve is working properly.
- Ensure that Operators never connect, disconnect, or tighten hoses, adapters, or accessories with the high-pressure water pump unit running.
- Ensure no personnel are in the hydroblasting zone.

Personal Protective Equipment

Use of Personal Protective Equipment (PPE) is dependent on the working pressure of water and the cleaning application. Managers, Supervisors, and Operators MUST carry out a job specific risk assessment to define the exact requirements for PPE. See Protective Equipment for Personnel (Section 6) of WJTA-IMCA's Recommended Practices For The Use Of High-pressure Water jetting Equipment for additional information.

- Hygiene—Operators are advised to wash thoroughly after all waterjetting operations to remove any waterblast residue which may contain traces of harmful substances.
- First aid provision—users MUST be provided with suitable first aid facilities at the operation site.

PPE MAY INCLUDE:

- Eye protection: Full face visor
- Foot protection: Kevlar® brand or steel toe capped, waterproof, non-slip safety boots
- Hand protection: Waterproof gloves
- Ear protection: Ear protection for a minimum of 85 dBA
- Head protection: Hard hat that accepts a full face visor and ear protection
- Body protection: Multi-layer waterproof clothing approved for water jetting
- Hose protection: Hose shroud
- Respiratory protection: May be required; refer to job specific risk assessment

StoneAge has designed and manufactured this equipment considering all hazards associated with its operation. StoneAge assessed these risks and incorporated safety features in the design. StoneAge WILL NOT accept responsibility for the results of misuse.

- IT IS THE RESPONSIBILITY OF THE INSTALLER/OPERATOR to conduct a job specific risk assessment prior to use. Job specific risk assessment MUST be repeated for each different set up, material, and location.
- The risk assessment MUST conform to the Health and Safety at Work Act 1974 and other relevant Health and Safety legislation.
- The risk assessment MUST consider potential material or substance hazards including: Aerosols, Biological and microbiological (viral or bacterial) agents, Combustible materials, Dusts, Explosion, Fibers, Flammable substances, Fluids, Fumes, Gases, Mists, Oxidizing Agents.

1-866-795-1586 (TOLL FREE IN THE U.S.)**OUTSIDE THE US: 970-259-2869 • SALES@STONEAGETOOLS.COM****HOURS: 8:00 AM - 5:00 PM MONDAY - FRIDAY (USA MOUNTAIN TIME)****TECHNICAL SUPPORT**

For Technical Support in North America, please contact StoneAge. Outside of North America, please visit our website at www.stoneagetoools.com.

MANUALS

Operator's manuals and repair videos for all equipment are available online. They illustrate tools, identify parts, and detail maintenance and overhaul procedures.

REPAIRS

Repair & Maintenance Service is available by the same technicians who build and test our tools. We try to complete repairs and test every tool within three days of receipt. You must call StoneAge for an RMA number prior to sending your tool in for repair.

Send tool to:

StoneAge Inc. Attention Repairs, 466 S. Skylane Dr., Durango CO 81303, USA

LEAD TIME

Serial Number Database is maintained on all equipment sold. If a serial number is provided when ordering parts, we can verify that the right parts are specified.

Parts and Service Kits are available to ship same day as ordered. Standard tools can usually be shipped the next day. Custom porting of heads usually requires 3-4 days to schedule through the factory. More complicated systems like Lancing Machines are built when ordered, which can take several weeks depending on factory backlog. Check availability and place orders early enough to avoid scheduling conflicts.

ORDERING

Call or email your order to StoneAge or an authorized dealer with purchase order number, shipping and billing addresses, and delivery date. Check datasheet to ensure specifications are complete. Advise whether we should hold shipment until all items are available.

SHIPPING

Shipping is pre-paid and invoiced with order but may be charged directly to the customer's account with selected courier by special instruction. Most orders are shipped via UPS or Fed Ex couriers; specify a preference if you wish. Larger equipment will be shipped by truck or air freight. Either party may make the arrangements. Airline counter-to-counter delivery is not reliable from our mountain location.

PAYMENT

Major credit cards or bank transfers are accepted. Pre-payment is required to ship custom equipment.

RETURNS

Any parts returned for credit or warranty must be accompanied by a StoneAge RMA number. Please contact a Customer Service Specialist or Authorized Dealer to obtain an RMA number. A minimum restocking fee of 15% applies to standard items returned unused. Returns will only be accepted on unused items returned 6 months or less from invoice date. All returns and restocking fees are subject to StoneAge final decision. Returns of custom products and obsolete items are not accepted.

PRODUCTS SOLD BY SELLER ARE DESIGNED AND INTENDED TO BE USED AT HIGH PRESSURES AND SPEEDS, AND MAY BE DANGEROUS IF OPERATED IMPROPERLY OR WITHOUT THE USE OF APPROPRIATE SAFETY DEVICES AND GUARDS. BUYER IS CAUTIONED TO CAREFULLY READ AND UNDERSTAND THESE TERMS AND CONDITIONS, AS THEY HAVE IMPORTANT LEGAL CONSEQUENCES.

1. Purchase Orders. Buyer shall order products in accordance with these Terms and Conditions. Orders for the purchase of products ("Purchase Order(s)") must be submitted to Seller by an authorized representative of Buyer by email. Each Purchase Order shall specify (i) the quantity of products being ordered, (ii) product prices, (iii) payment terms granted by Seller, and (iv) a requested receipt date. Requested receipt dates must be during the term of the Waterblast Tool Reseller Agreement, except, in its sole discretion, Seller may elect to accept a Purchase Order with a requested receipt date after the expiration or termination of Waterblast Tool Reseller Agreement, in which case these Terms and Conditions shall apply to such shipment, but under no circumstances should such shipment be deemed to be or construed as being a renewal, amendment or extension of the Waterblast Tool Reseller Agreement. The Parties agree that these Terms and Conditions shall prevail over any conflicting terms and conditions in any Purchase Order, acknowledgment form, or other instrument. Any additional or different terms or conditions in any Purchase Order, acknowledgment form, or other instrument or response from Buyer shall be deemed rejected by Seller without need of any further or additional notice of rejection, and such additional or different term shall be of no effect or in any way binding upon Seller. Seller assumes and shall have no liability for any delay in filling or shipping any Purchase Orders.

2. Acceptance of Purchase Order by Seller. Purchase Orders are subject to written acceptance by an authorized representative of Seller and such acceptance is made expressly conditional on assent by an authorized representative of Buyer to the Terms and Conditions. Seller reserves the unconditional right to reject any Purchase Order, in whole or in part. Purchase Orders submitted by Buyer shall not be binding on Seller until the earlier of written acceptance by Seller or shipment, and acceptance by shipment shall only be binding as to the portion of the Purchase Order actually shipped by Seller. Any automatic or computer generated response to a Purchase Order by Seller's internal electronic data exchange system or otherwise shall not be deemed acceptance of a Purchase Order. Notwithstanding the foregoing, Seller reserves the right to refuse, cancel, modify or delay any Purchase Order placed by Buyer and accepted by Seller when Buyer is delinquent in payments or when Buyer has failed to perform any of its obligations under the Waterblast Tool Reseller Agreement.

3. Payment/Prices. Unless other arrangements have been made in writing between Seller and Buyer, payment for product delivered shall be made upon receipt of invoice. The prices shown on the face hereof are those currently in effect. Prices invoiced shall be per pricelist in effect at the time of shipment. Prices are subject to increase for inclusion of any and all taxes which are applicable and which arise from the sale, delivery or use of Seller's products or services and for the collection of which Seller is or may be responsible to any governmental authority unless acceptable exemption certificates are provided by Buyer in accordance with law. Buyer shall pay all charges for transportation and delivery and all excise, order, occupation, use or similar taxes, duties, levies, charges or surcharges applicable to the equipment or services being purchased, whether now in effect or hereafter imposed by any governmental authority, foreign or domestic.

4. Warranty. Subject to the limitations and conditions hereinafter set forth, Seller warrants to the original Buyer that its products are free from defects in workmanship and material for a period of six (6) months from shipment. Seller's obligation under this warranty shall be limited to repairing, replacing or issuing a credit for, at Seller's option, any products or services it finds to be defective in material or workmanship. In no event shall Seller be liable for any incidental, consequential or indirect damages of any kind. THIS WARRANTY SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY FOR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. No statement or recommendation made by Seller or its representative to Buyer or User shall constitute a warranty by Seller or a waiver or modification to any of the provisions hereof or create any liability for Seller. All warranty claims are subject to the exclusions and limitations set forth below:

a. The warranty shall not apply if the product or service (1) has been subject to misuse, negligence or accident; (2) has not been installed or operated in accordance with Seller's recommendations; (3) has been operated under more severe conditions than those specified for the particular product or service; (4) has been operated beyond the rated capacity of the product; or (5) has been repaired or altered outside Seller's facilities or in any way so as, in Seller's judgment, to affect its stability or reliability.

b. Products that Seller furnishes, but does not manufacture, carry only the warranty of the manufacturer of such products. Where other manufacturers' or suppliers' products used in Seller's products or services prove defective, Seller's liability shall exist only to the extent that Seller is able to recover from such manufacturers or suppliers for such defects.

c. Any warranty granted by Seller to the Buyer shall be deemed void if any goods covered by such warranty are for any purpose not recommended or permitted. In addition, the Buyer shall indemnify Seller and hold Seller harmless from and against any and all claims, damages, losses, costs, expenses and other liability of whatever nature that Seller suffers or incurs by reason of any such unintended use.

d. Notice of defective product or service must be given in writing to Seller by Buyer or User within fifteen (15) business days following receipt of goods. Buyer or User shall keep such products or services in an unaltered condition for examination by Seller's representative. No goods may be returned for credit or adjustment without prior written permission from Seller.

5. Product Liability. Buyer specifically acknowledges that the products being purchased may be operated at high speeds and/or pressures, and that as such they may be inherently dangerous if not used correctly. Buyer shall be solely responsible for the safe operation of the products at all times and for determining the safety devices and guards that may be required for the safe operation of the products. Buyer shall undertake to specify and order all safety devices and guards necessary for the safe operation of the equipment covered. All safety devices and guards offered in Seller's quotations are recommended for purchase. Seller may provide necessary safety devices and guards not offered in this quotation at an extra price in accordance with the specifications of Buyer. Buyer shall at all times use and require its employees to use all necessary and appropriate safety devices, guards and proper safe operating procedures. Buyer shall not remove or modify any such devices, guards or warning signs and shall insist on safe operating practices on the part of its personnel. In no event shall Seller be responsible for any injuries to persons or property caused by defects in any equipment, including by way of illustration and not limitation, any pumps, compressors, fittings, connections, components,

piping or hoses up to the point that same are connected to the product. Buyer agrees to indemnify and to save Seller harmless from any and all liability or obligation incurred by or against Seller, including costs and attorneys' fees, to or by any persons injured directly or indirectly in the operation of the equipment furnished under the following conditions:

- a) if Buyer fails to purchase and use necessary and appropriate safety devices and guards as determined by Buyer and/or as recommended by Seller.
- b) if Buyer fails to maintain in good working order such safety devices and guards as are purchased from Seller;
- c. if Buyer adds, omits, repairs, modified, replaces or substitutes any components on the equipment without permission from Seller;
- d. if Buyer exceeds at any time the maximum safe loads, pressures or speeds recommended by Seller for the equipment furnished hereunder without the specific written consent of Seller; or
- e. if Buyer otherwise fails to operate the product or equipment in accordance with Seller's printed instructions or otherwise negligently operates the equipment.

6. Delivery. Shipment of products shall be F.O.B. the Seller's warehouse. Title and risk of loss will pass F.O.B. Seller's shipping point. Buyer will be responsible for and pay all freight, shipment, and insurance charges associated with shipment of the products, even if the order is rejected upon delivery. Seller, in its sole discretion, will determine and arrange the means and manner of transportation of the products.

Seller shall use commercially reasonable effort to ship products to Buyer on or before the requested receipt date designated in a Purchase Order. The Parties agree, however, that shipment of any products ordered from Seller under these Terms and Conditions may be delayed for a period of time sufficient to allow Seller to manufacture and assemble or otherwise acquire the products for Buyer. The Parties further agree that Seller shall not be held liable to Buyer or any other party for any delay in shipment of any Purchase Order.

Order errors must be reported by Buyer within fifteen (15) business days from receipt of shipment to secure adjustment. No merchandise may be returned without securing written approval from Seller.

7. Seller's Right to Delay, Cancel, or Allocate. Notwithstanding the Seller's obligations under the Waterblast Tool Reseller Agreement, Seller reserves the right to refuse, cancel, modify or delay any shipment to Buyer when Buyer is delinquent in payments, when payment for shipment has not been arranged to Seller's reasonable satisfaction, or when Buyer has failed to perform any of its obligations under the Waterblast Tool Reseller Agreement. Should any Buyer Purchase Order for products exceed Seller's available inventory, Seller shall in its sole discretion determine how to allocate its current and anticipated inventory without liability to Buyer on account of the method of allocation determined or its implementation.

8. Technical Advice. All technical advice, recommendations and services of Seller are intended for use by persons having adequate skill, at their own risk, and Seller assumes no responsibility, and Buyer hereby waives all claims against Seller, for results obtained or damages incurred from the use of Seller's advice, recommendations and services.

9. Modification. These Terms and Conditions are intended by Seller and Buyer to constitute a final, complete and exclusive expression of agreement and cannot be supplemented or amended without Seller's prior written approval. Seller's waiver of any breach or failure to enforce any of the Terms and Conditions at any time, shall not in any way affect, limit or waive Seller's right thereafter to enforce and compel strict compliance with every Term and Condition thereof. If any provisions of these Terms and Conditions are held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the other portions hereof.

10. Disputes. Buyer and Seller shall attempt in good faith promptly to resolve any dispute arising under these Terms and Conditions by negotiations between representatives who have authority to settle the controversy. If unsuccessful, Buyer and Seller shall further attempt in good faith to settle the dispute by nonbinding third-party mediation, with fees and expenses of such mediation apportioned equally to each side. Any dispute not so resolved by negotiation or mediation may then be submitted to a court of competent jurisdiction in accordance with the terms hereof. These procedures are the exclusive procedures for the resolution of all such disputes between the parties.

All sales, agreements for sale, offers to sell, proposals, acknowledgments and contracts of sale, including, but not limited to, Purchase Orders accepted by Seller, shall be considered a contract under the laws of the State of Colorado and the rights and duties of all persons, and the construction and effect of all provisions hereof shall be governed by and construed according to the laws of such state. A state or federal court located within the State of Colorado shall have sole and exclusive jurisdiction over any litigation concerning any such matters as well as any alleged defects of any products or equipment covered thereby or damages sustained as a result of such alleged defects.

If any litigation is commenced between Seller and Buyer, or their personal representatives, concerning any provision hereof, the party prevailing in the litigation shall be entitled, in addition to such other relief that is granted, to a reasonable sum as and for their attorneys' fees and costs in such litigation or arbitration.

STONEAGE TRADEMARK LIST

View the list of StoneAge's trademarks and service marks and learn how the trademarks should be used. Use of StoneAge trademarks may be prohibited, unless expressly authorized.

<http://www.stoneagetoools.com/trademark-list>

STONEAGE PATENT DATA

View the list of StoneAge's current U.S. patent numbers and descriptions.

<http://www.sapatents.com>

EXECUTIVES

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CUSTOMER SERVICE

Janet Kevin Erin Jeff



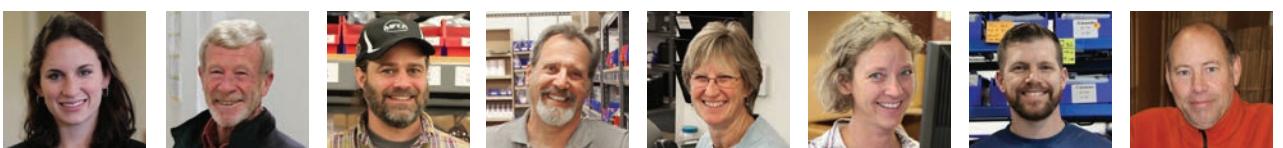
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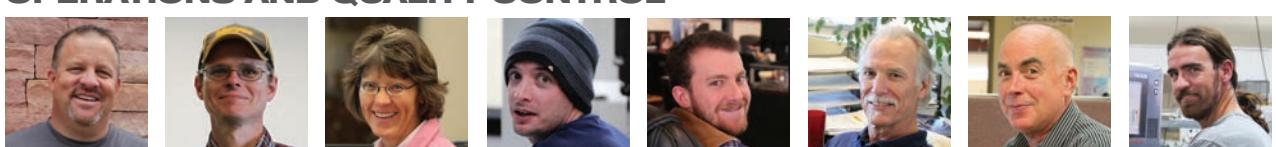
Kenny Robbie Patrick Erick Virgil Eric Lee Jim



Robert Tanner Tom Eric Kevin Lynn Greg Jeff



Dwain John

OPERATIONS AND QUALITY CONTROL

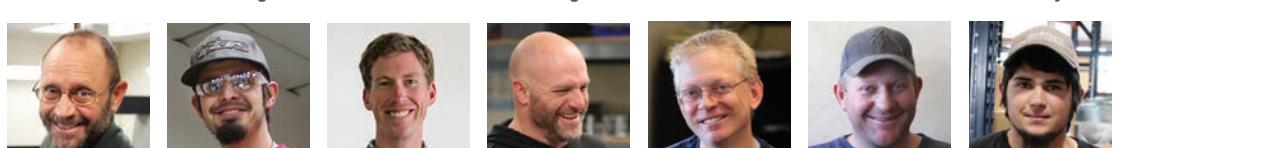
Michael Charlie Teri Dan Will Ed David Kevin



Jim Natalie LeighAnn Tom Chrissi Luca Ted Valoree

ENGINEERING

Matt Stirling Colton Doug Rick John Corey Joe



Hugh Cody Tim Rawlin Steve Jeff Travis

► **LOOKING FOR A DEALER?**

All Warthog sewer tools are sold through
StoneAge authorized dealers only.

Go to www.sewernozzles.com to view a list of
dealers near you.

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- Colorado
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- Delaware
- Florida
- Georgia
- Idaho
- Illinois
- Indiana
- Iowa
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- Louisiana
- Maryland
- Mass
- Michigan
- Minnesota
- Mississippi
- Missouri
- Nebraska
- New Jersey
- New York

North Carolina

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- Texas
- Utah
- Virginia
- Washington
- Wisconsin

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- Sweden
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