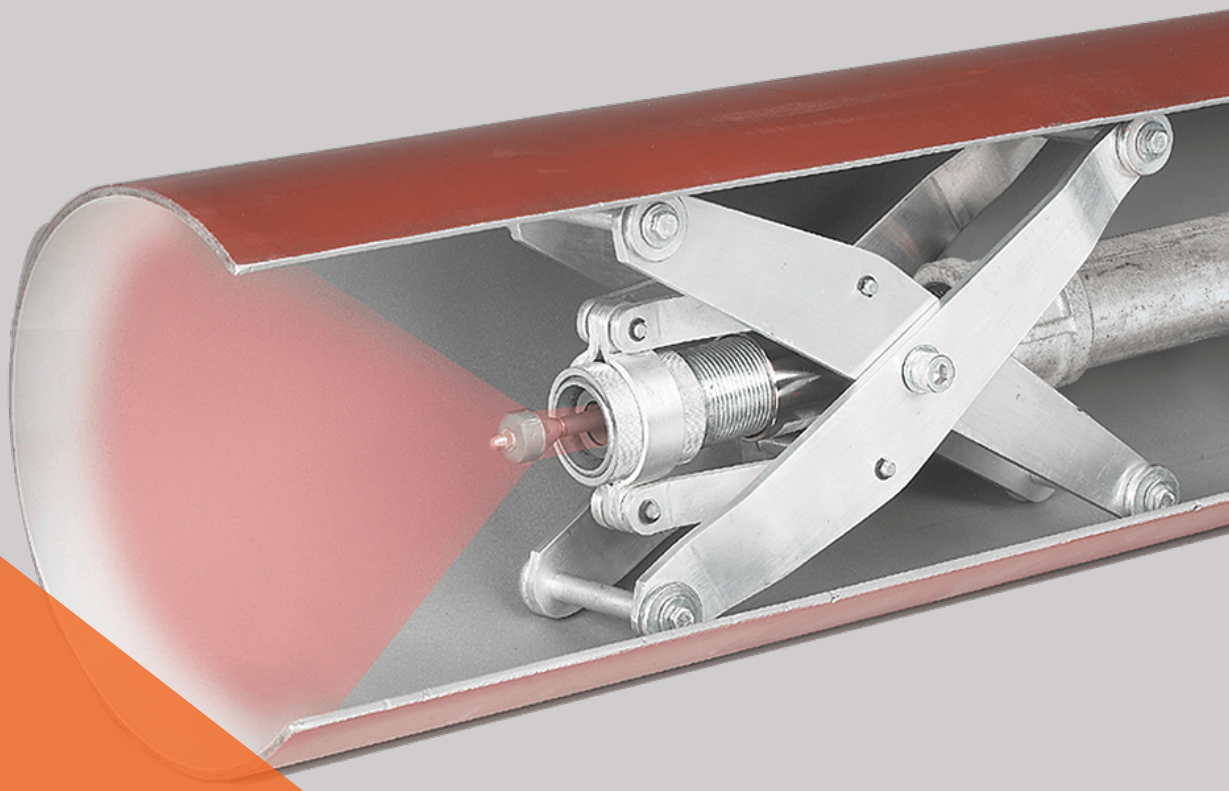
BLASTONE
SUPERIOR PERFORMANCE

INSTALLATION, OPERATION & MAINTENANCE MANUAL

ConeBlast™
Internal Pipe Blasting Tool



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MANUAL CONTENTS

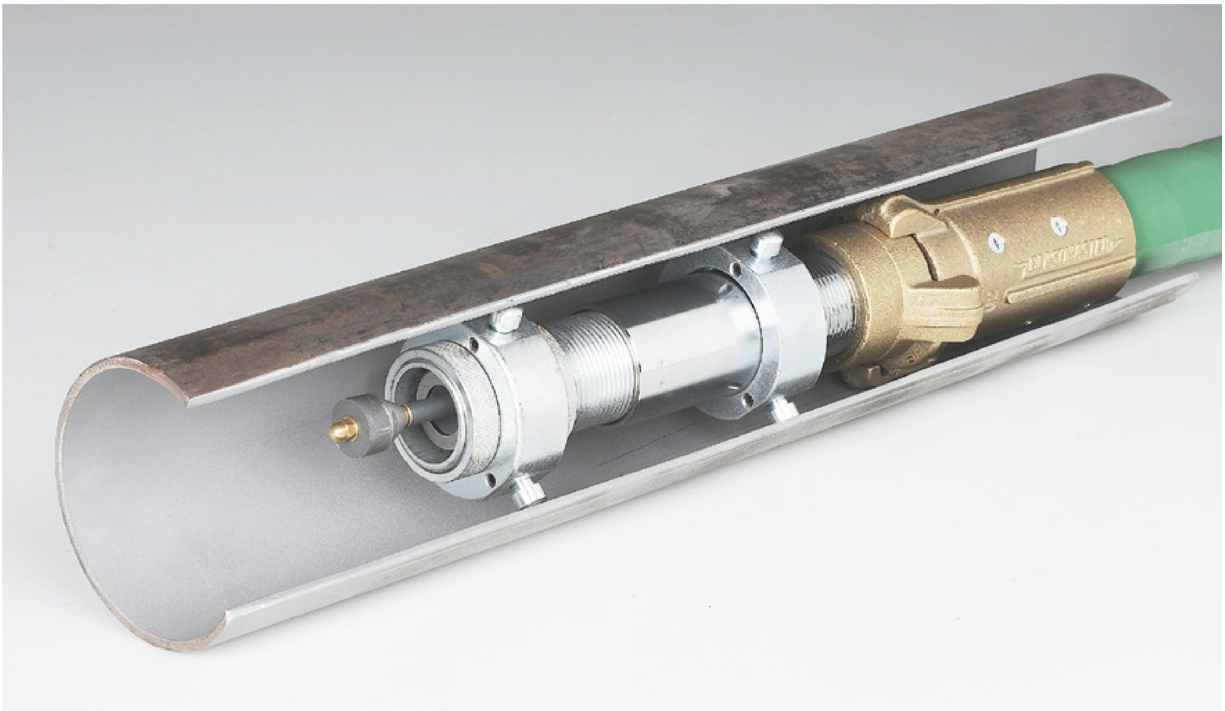
GENERAL DESCRIPTION

Internal pipe surface preparation is accomplished easier, faster and more economically by the use of BlastOne's® ConeBlast™ internal pipe blasting tool. The ConeBlast™ is specially designed to blast clean pipes ranging in size from 2" to 12" (50mmto 300mm) inside diameter *without the need to rotate the pipe*. Through highly powered abrasive impact, mill scale, rust, old paint and any other contaminants are removed from the inside surface better than any other method. Precise surface profiles can be obtained, ensuring proper adhesion for long-life coatings.

Standard abrasive blast machines are used in conjunction with the ConeBlast™, which simply replaces the conventional blast nozzle at the end of the blast hose. The tool, which has no moving parts, utilizes a built-in short venturi nozzle to propel abrasive at high velocity at the deflection tip. When the abrasive hits the tip, it fans out into a wide, circular 360° blast pattern, achieving uniform coverage. Two centering options are available to hold the tool in position during passes, and can be easily adjusted for various pipe diameters.

The ConeBlast™ tool is constructed from the finest materials available, and is engineered to provide many hours of productive work. Replaceable tips, stem sleeves and stem support extend wear life.The ConeBlast™ is complemented by the BlastOne® ConeSpray™ pipe coating tool.

The BlastOne® ConeBlast™: a highly efficient solution for a difficult job.



BASIC EQUIPMENT REQUIRED

Use of the ConeBlast™ tool requires the same equipment as any other blast cleaning operation (an air compressor and an abrasive blast machine). To use the ConeBlast™ with standard ½" nozzle (Part # IPC4000) a compressor that can supply 250cfm at 100psi pressure at the nozzle is required. This requirement is increased to 400cfm when using the ConeBlast™ with 5/8" nozzle (IPC4500). For best results, the blast machine should have 1¼" piping minimum; a blast machine with 1" piping is strongly recommended when the " nozzle is used.

ABRASIVES

The abrasive must be well screened and dry. Any of the common blasting abrasives can be used, although softer abrasives give poor results as too much energy is lost in break-up on the deflection tip. Aluminum oxide should be avoided unless required by job specifications, since this abrasive causes accelerated wear. Steel grit can be used if adequate recovery means are available. Garnet is a good general purpose media due to its relatively low cost and high blasting efficiency.

CONNECTORS AND PIPE LANCES

The ConeBlast™ can be connected directly to the blast hose with a BlastOne® coupling (HFSTCBSP), or a pipe lance can be used. **A lance must be used if the conditions of blasting will cause the hose to bend near the point of attachment to the tool.** Such a bend will disrupt the smooth flow of air to the deflection tip and lead to excessively rapid wear. A smooth flow of air to the ConeBlast™ is essential for maximum performance.

Ideally, the first two to three feet of a lance should be made from schedule 160 (¼" NPS) steel pipe. The extra-thick walls of this pipe guarantees that abrasive entering the ConeBlast™ will not hit its inside edge. If standard 1¼" pipe is used, the ends must be cut square, and a rubber washer must be placed inside the coupling between the lance and the ConeBlast™ to protect the tool's inside edge from abrasive.

Any significant lance-to-ConeBlast™ gap will create turbulence, leading to extremely rapid wear and loss of blast cleaning efficiency.

CENTERING DEVICES

Two centering devices are available for the ConeBlast™. The tool without any centering device will fit into 2" pipe. The 'Collar and Button' system (a) will adapt the ConeBlast™ for 3" to 5" pipe at ½" increments and the 'Scissor Type' Centering Carriage (b) is adjustable to fit diameters between 5" and 12". See Figure 1.

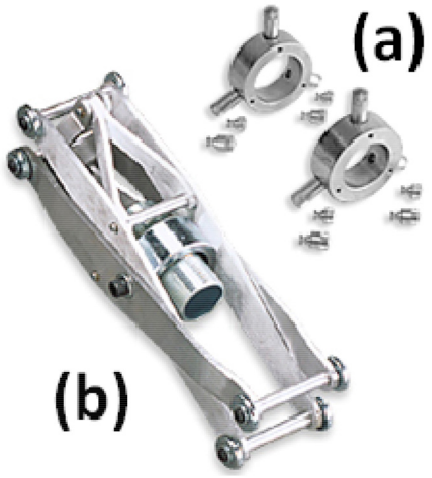


Figure 1

(a) *Collar and Button System* (Part No. IPC4100). This system has two collars. The collar with the larger I.D. mounts over the groove in the tool holder; the other mounts over the groove in the tip protection sleeve (see Figure 2). The collars are held in place by socket head set screws which tighten into the grooves. The allen wrench for these screws is provided with the ConeBlast™.

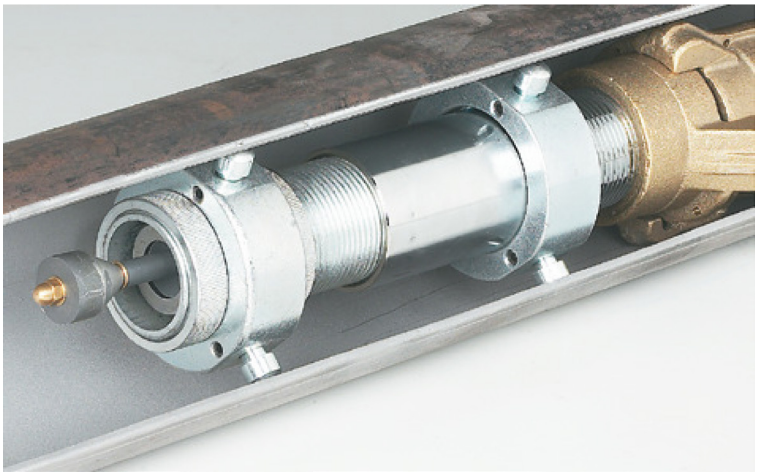


Figure 2

There are four sets of snap-in buttons, as indicated by the chart below:

BUTTON SIZE	FOR PIPE SIZE
5/16"	3 ½"
9/16"	4"
13/16"	4 ½"
1 1/16"	5"

*Use collar without buttons for 3" I.D. pipe.

(b) *Scissor Type Adjustable Carriage* (Part No. IPC4200). The adjustable centering carriage makes use of a special threaded tip protection sleeve, which is furnished with the unit. To mount the ConeBlast™ in the carriage:

1) Loosen the knurled lock nut, unscrew the standard tip protection sleeve, and replace it with the threaded tip protection sleeve.
2) Screw the knurled lock nut back onto the threaded tip protection sleeve.
3) Mount the ConeBlast™ in the centering carriage as shown in Figure 3. Take care not to install it backwards. The socket head set screw in the collar tightens into the groove in the tool holder.
4) Screw on the second lock ring (supplied with the carriage).
5) Adjust the carriage to the required size and use the two lock rings to hold it at that adjustment.

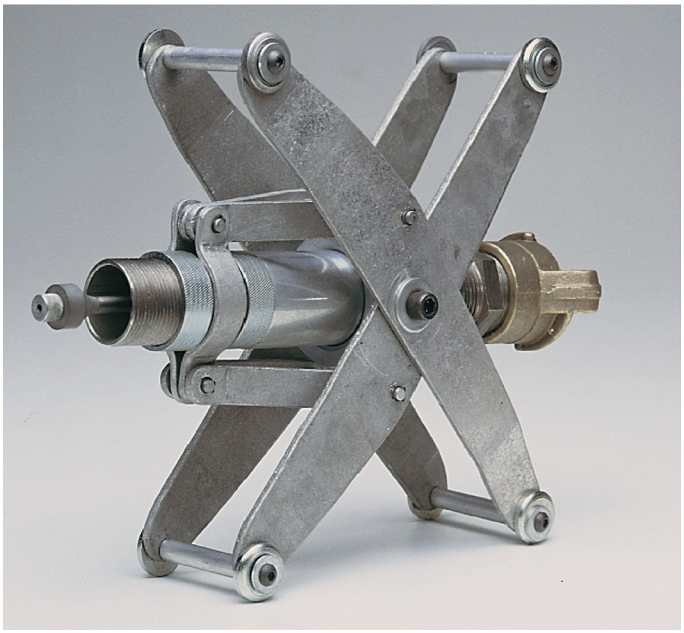


Figure 3

GENERAL INSTRUCTIONS

The ConeBlast™ is designed for manual travel through pipe.

To blast clean the interior of a pipe:

1) Mount the ConeBlast™ in the appropriate centering device.
2) Push the ConeBlast™ through the pipe to the opposite end. BE CAREFUL NOT TO HIT THE DEFLECTION TIP AGAINST THE PIPE. Hold the tool firmly and pressurise the blast machine.
3) Begin blasting, pulling the tool through the pipe at a speed necessary to obtain the desired degree of cleaning. Abrasive and blasted material will be blown out the other end.

PROPER ABRASIVE FEED

Too much abrasive seriously hampers the efficiency of the ConeBlast™ and results in heavier wear on the parts with lower production. When blasting at 80 to 100psi with the standard ½" nozzle, 200 lbs. of garnet should last 14 to 20 minutes and 200 lbs. of steel grit should last 3 to 6 minutes. Adjust the abrasive feed if your rates differ significantly from these.

GENERAL INSTRUCTIONS

Always take care not to drop the ConeBlast™ or any of its internal wear parts. They are quite brittle due to their extreme hardness and break easily. When inspecting or replacing parts, keep the ConeBlast™ clean and brush abrasive out of cracks, threads, etc. Always replace the rubber wear gaskets before they wear through. These gaskets are the ConeBlast's™ only protection against the stream of abrasive.

DEFLECTION TIP AND SLEEVE REPLACEMENT

The deflection tip should be replaced before the head becomes 75% worn away. The stem extension and throat sleeves and the stem support assembly should be replaced before they wear through. To remove these parts, unscrew the tip holding nut and remove the tip. Then unscrew the tip protection sleeve. The nozzle will come out with it.

Note that the tungsten carbide sleeves of the stem assembly are not identical. When replacing the tungsten carbide sleeves, make sure that no abrasive gets in between them to cause misalignment of the tip.

Do not neglect the brass washers, as they act as important shock absorbers. Make sure no abrasive or dirt particles get between the sleeves and the washers. Check worn-out tips for symmetrical wear before discarding them. Uneven wear means either the flow of air/abrasive was not smooth (see Connectors and Pipe Lances) or the tip was not properly aligned. Do not use great force when tightening the tip holding nut (hand tightening is preferable).

NOZZLE REPLACEMENT

The ½" nozzle should be replaced when the throat is worn to ⅝" I.D. The ⅝" nozzle should be replaced at 1 1/16" I.D. These are maximum wear figures. As the throat size increases, so do air and abrasive requirements. With a small compressor it may be necessary to replace the nozzle sooner in order to maintain proper air pressure at the nozzle.

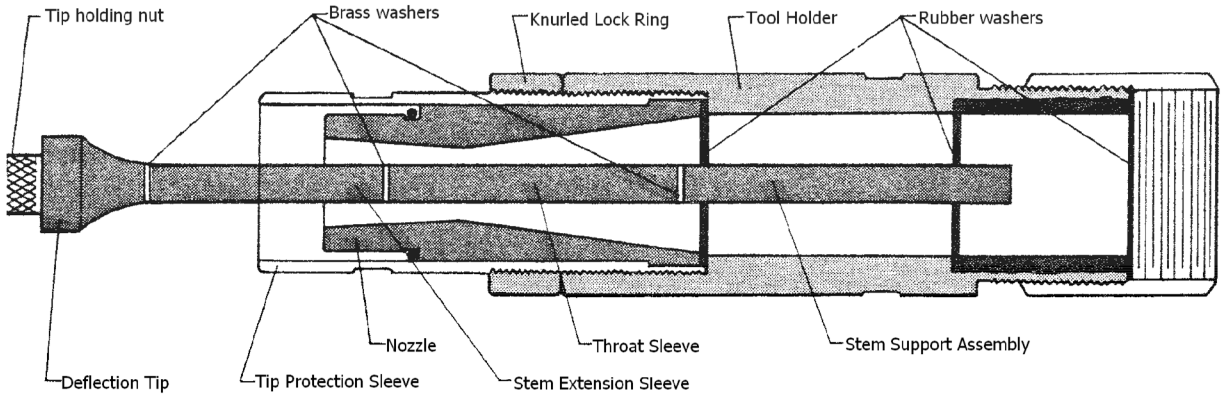
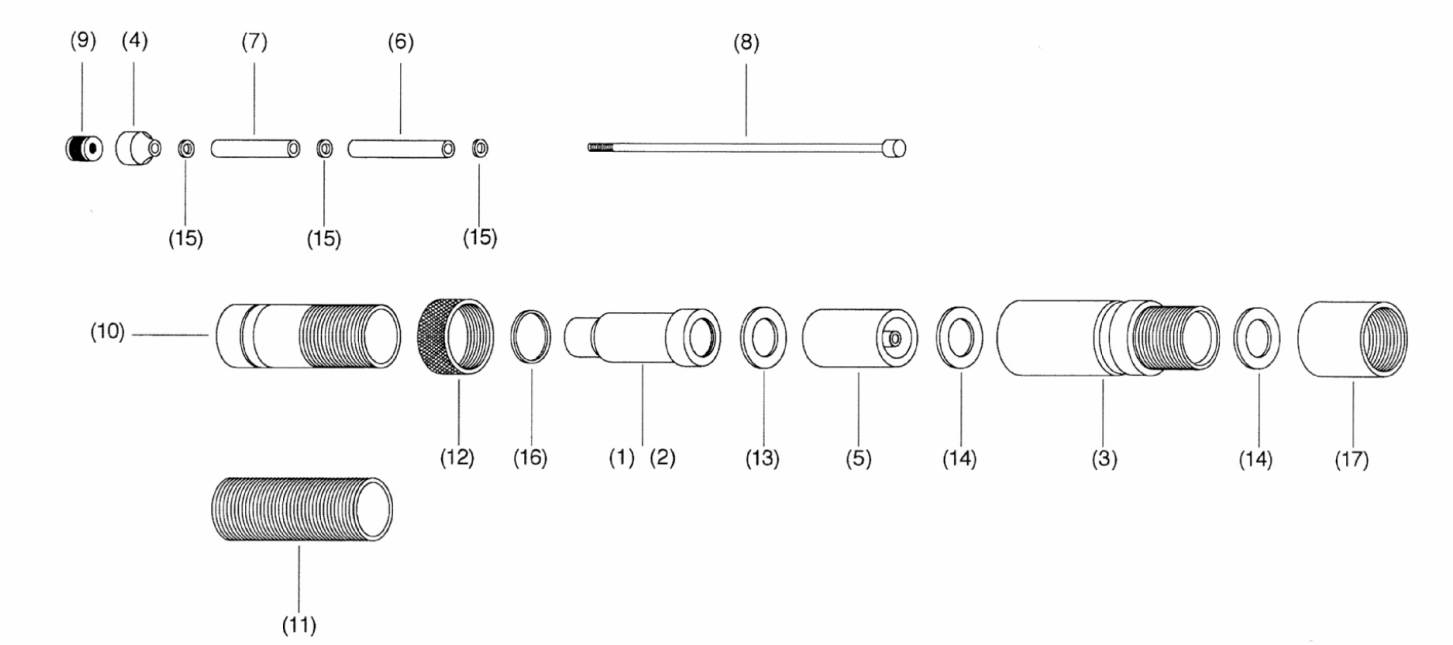


Figure 4

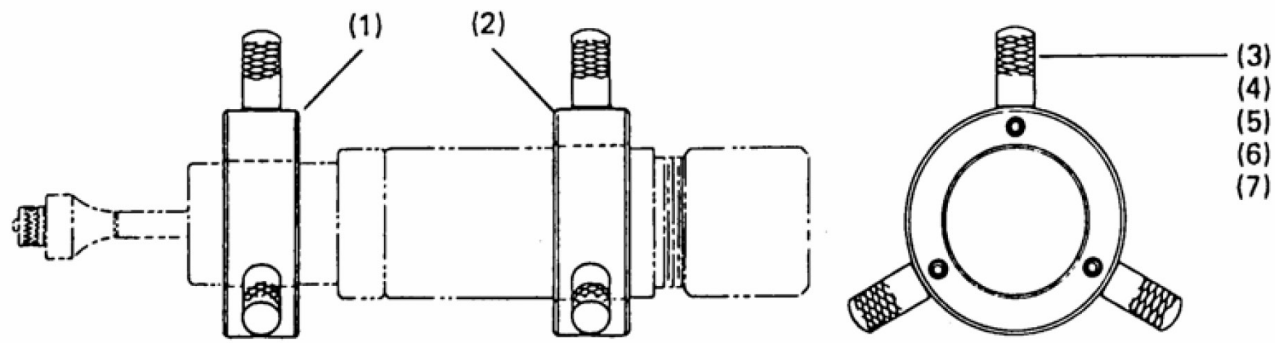
CONEBLAST™

NO.	PART NO.	DESCRIPTION
-	IP C4000	ConeBlast™ with ½" nozzle (does not include centering carriages)
-	IP C4500	ConeBlast™ with ⅝" nozzle (does not include centering carriages)
1	BN AFR8	Nozzle ½" (tungsten carbide)
2	BN AFR10	Nozzle ⅝" (tungsten carbide)
3	IP C4001	Tool holder (chrome plate
4	IP C4002	Deflection tip (tungsten carbide)
4	IPC 4002H	Extended life Boron Carbide Deflection Tip
5	P C4003	Stem support assembly (includes item 8)
6	IP C4004	Throat sleeve - short 2¼" (tungsten carbide)
6a	IP C4004C	Throat sleeve – long 2½" (tungsten carbide)
7	IP C4005	Stem extension sleeve – short 1⅞" (tungsten carbide)
7a	IP C4005C	Stem extension sleeve – long 2" (tungsten carbide)
8	IP C4006	Throat rod and tip – short 5¼"
8a	IP C4006C	Throat rod and tip – long 6 1/16"
9	IP C4007	Tip holding nut
9a	IP C4007C	Knurled nut
10	IP C4008	Tip protection sleeve
11	IP C4009	Threaded tip protection sleeve
12	IP C4010	Knurled lock nut
13	IP C4011	Stem support front gasket
14	IP C4012	Stem support rear gasket
15	IP C4013	Brass washer
16	IP C4014	O-ring

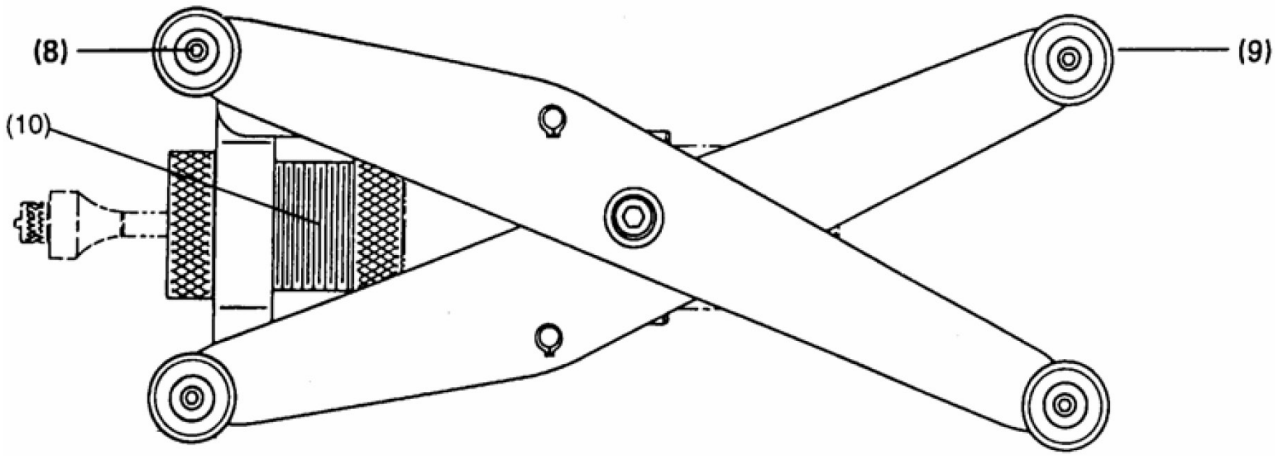


CONEBLAST™ CENTERING

NO.	PART NO.	DESCRIPTION
-	IP C4100	Collar and Button Centering Carriage 3" – 5" I.D. (includes collars & four button sets)
-	IP C4200	Scissor Type Centering Carriage 5' – 12" I.D. (includes threaded tip protection sleeve & adjusting nut)
1	IP C4101	Front collar (cad. plate)
2	IP C4102	Rear collar (cad. plate)
3	IP C4103	Centring button set: (4) six button sets
4	IP C4104	Long button set: 5/16" for 3 ½" I.D. pipe
5	IP C4105	Long button set: 9/16" for 4" I.D. pipe
6	IP C4106	Long button set: 13/16" for 4 ½" I.D. pipe
7	IP C4107	Long button set: 1 1/16" for 5" I.D. pipe
8	IP C4201	Wheel bushing with washer
9	IP C4202	Steel wheel 1 " diameter
10	IP C4009	Threaded tip protection sleeve



Collar and Button Centering Carriage (IP C4100)



Scissor Type Adjustable Carriage (IP C4200)

NOTES

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