

OWNER'S MANUAL

CIRCLEBLAST

IMPORTANT WARNING FOR SAFER BLAST CLEANING

1. Use protective equipment: Abrasive-resistant clothing, safety shoes, leather gloves, ear protection, CE-approved air-fed helmet. Air for helmet must be supplied by a breathing air compressor or through a helmet air filter.
2. Check for possible silicosis hazards. Avoid dust.
3. Do not blast with damaged or worn equipment.
4. Point nozzle only at area being cleaned.
5. Use only proper dry and well-screened abrasives specifically intended for blasting.
6. Keep unprotected workers out of the blast area.
7. Before blasting:
 - Check fittings and hose for wear.
 - Safety-wire couplings together.
 - Check helmet filters and air supply.
 - Check pop-up valve for alignment.
 - Test remote controls.
 - Make sure blast machine is adequately grounded.
8. Do not weld on blast machine, this voids approval.
9. Do not substitute Airblast parts or modified equipment in any way.



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CIRCLEBLAST

1.0 INTRODUCTION

1.1 General description. The Circleblast Internal pipe cleaner is designed to blast clean pipe ranging in size from 3" to 12" (76 to 305 mm) I.D. The tool connects to an abrasive blast machine in place of a standard nozzle. In operation, the Circleblast nozzle directs the air/abrasive mixture at a deflection tip. This tip causes the blast pattern to fan out into a wide, circular pattern, which cleans the inside of the pipe as the tool is passed through. Two centering devices are available to hold the tool in position during passes.

The Circleblast tool is made from the finest materials available. However, some of its internal wear parts are of necessity rather brittle, due to their extreme hardness. The tool should therefore be handled carefully to avoid dropping it or giving it a sharp blow.

2.0 SET-UP

2.1 Basic equipment required. Use of the Circleblast tool requires the same equipment as any other abrasive blast cleaning operation, i.e. an air compressor and an abrasive blast machine. With the standard 1/2" (13 mm) Circleblast nozzle AHBN-8 (art.nr. 21120) a compressor which can supply 200 cfm (5.6 cbm³) at a pressure of 100 psi (6.8 bar) at the nozzle is required. Using the 5/8" (16 mm) nozzle AHBN-10 (art.nr. 21130) increases this requirement to 350 cfm. The blast machine should have 1" (25 mm) piping minimum; a machine with 1 1/4" (32 mm) piping is strongly recommended when the 5/8" (16 mm) nozzle is used.

2.2 Abrasives. The abrasives must be well screened and dry. With the 1/2" (13 mm) nozzle, use 25 mesh abrasive or finer; with 5/8" (16 mm) nozzle, use 16 mesh or finer. Any of the common blasting abrasives can be used, although soft sands give poor result because too much energy is lost in break-up on the deflection tip. Aluminum oxide and silicon carbide should be avoided unless required by job specifications, since these abrasives cause accelerated wear. Steel grit is the ideal medium to use if adequate recovery means are available.

2.3 Connectors and pipe lances. The Circleblast tool can be connected directly to the blast hose, using a Airblast Model CHE-2 nozzle holder, or a pipe lance can be used. A lance must be used if the conditions of

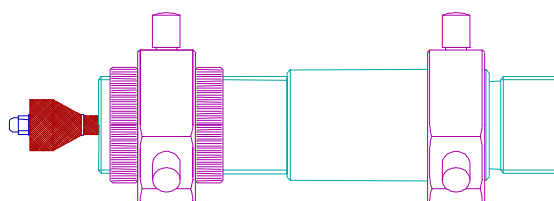
blasting will cause the hose to bend near the point of attachment to the tool. Such a bend disrupts the smooth flow of air to the deflection tip and leads to excessively rapid wear. A smooth flow of air into the tool is essential for top performance.

Ideally, the first two to three feet of a lance should be made from schedule 160 (I.D. 1.160") seamless steel pipe. The extra-thick I.D. of this pipe guarantees that abrasive entering the tool will not hit the tool's inside edge. If standard 1 1/4" (32 mm) pipe is used, the ends must be square cut and a rubber washer must be placed inside the coupling between the lance and the tool to protect the tool's inside edge from abrasive. Any significant lance-tool gap will create turbulence, leading to extremely rapid wear and loss of cleaning efficiency. When several lengths of pipe are coupled to make a long lance, the ends should be square-cut and threaded extra length to allow them to butt together. This will reduce wear on the lance. (Standard 1 1/4" (32 mm) threaded pipe will butt together when coupled with Airblast CFT cast iron quick coupling art.nr. 21630).

2.4 Center device. There are two centering devices, a "collar and button" system for 3" to 5" (76 to 127 mm) I.D. pipe and an adjustable centering carriage for 5" to 12" (127 to 305 mm) I.D. pipe.

a. Collar and button system, (modelCBC-1). This system has two collars. The one with the larger I.D. mount over the groove in the tool holder; the other mounts over the groove in the tip protection sleeve. The collars are held in place by socket head set screws which tighten into the grooves. There are four sets of snap-in buttons, as indicated by the chart below.

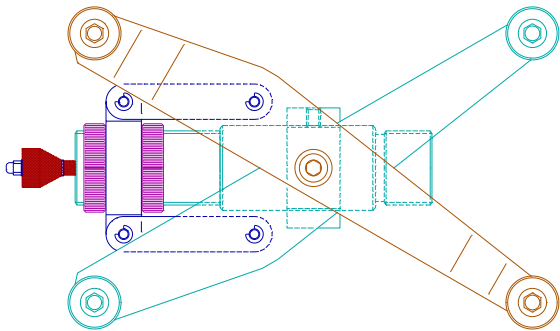
BUTTON SIZE *	PIPE SIZE
5/16" (8 mm)	3 1/2" (89 mm) I.D.
9/16" (15 mm)	4" (102 mm) I.D.
13/16" (20 mm)	4 1/2" (115 mm) I.D.
1-1/16" (28 mm)	5" (127 mm) I.D.
• Use collar without button for 3" (76 mm) I.D. pipe	



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b. Adjustable centering carriage, (model CBC-2). The adjustable centering carriage makes use of a special threaded tip protection sleeve, which is furnished with the unit. To mount the Circleblast in the carriage:

1. Loosen the curled lock nut, unscrew the standard tip protection sleeve and replace it with the threaded tip protection sleeve.
2. Screw the curled lock nut back onto the threaded tip protection sleeve.
3. Mount the Circleblast shown in drawing below. 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 required size and use the two lock rings to hold it at that adjustment.



3.0 OPERATION

3.1 General instructions. To blast clean the interior of a pipe, mount the Circleblast tool in the appropriate centering device. Put the tool into the pipe, hold the tool firmly and pressurize the blast machine. **BE CAREFUL NOT TO HIT THE DEFLECTION TIP AGAINST THE PIPE.** Push the tool through the pipe. Abrasive and blasted material will be blown out the other end. On pipes which require extensive cleaning, push the tool through the pipe and then start blasting, pulling the tool back. Otherwise, abrasive will build up inside the pipe and hamper blasting.

3.2 Proper abrasive feed. Too much abrasive seriously hampers the efficiency of the Circleblast tool and results in heavier wear on the parts, with lower production. When blasting at 80 to 100 psi (5.4 to 6.8 bar) with the standard 1/2" (13 mm) nozzle, a 100-pound bag of sand should last 4 to 5

minutes and 100 pounds of steel grit should last 1.5 to 2 minutes. Adjust abrasive feed if your rates differ significantly from these.

4.0 MAINTENANCE

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

4.2 Deflection tip and sleeve replacement. The deflection tip should be replaced when the head is 75% worn away. The stem extension, 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. 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 (paragraph 2.3) or the tip was not properly aligned. Do not use great force when tightening the tip holding nut. Hand tightening is preferable.

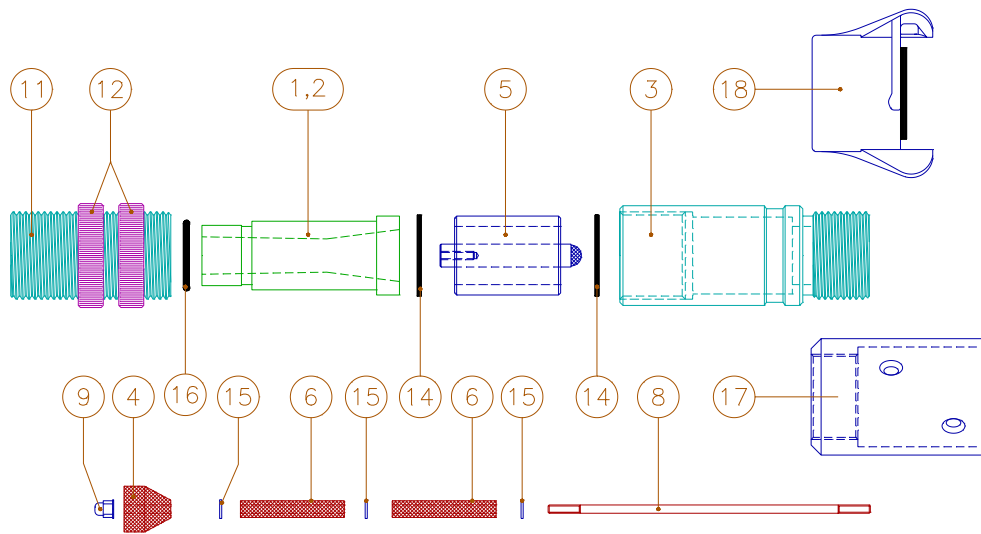
4.3 Nozzle replacement. The 1/2" (13 mm) nozzle should be replaced when the throat is worn to 5/8" (16 mm) I.D. The 5/8" (16 mm) nozzle should be replaced at 11/16" (18 mm) I.D. These are the maximum wear figures. As the throat size increases, so do air and abrasive requirements. With a small compressor, it may be necessary to replace sooner in order to maintain proper air pressure at the nozzle.

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5.0 SPARE PARTS

ART.NR.	MODEL	DESCRIPTION	
01)	21120	AHBN - 8	1/2" (13 mm) nozzle Tungsten Carbide
02)	21130	AHBN - 10	5/8" (16 mm) nozzle Tungsten Carbide
03)	30150	CB - 111	Tool holder
04)	30160	CB - 110 / 1	*Deflection tip Tungsten Carbide (1)
05)	30180	CB - 112 / 1	*Stem support assembly Tungsten Carbide (1)
06)	30200	CB - 113 / 1	*Throat sleeve Tungsten Carbide (2)
08)	30230	CB - 115	*Throat rod (1)
09)	30240	CB - 116	*Tip holding nut (1)
11)	30250	CB - 117	Protection sleeve threaded
12)	30260	CB - 118	Curled lock nut
14)	30270	CB - 119	*Stem support gasket (2)
15)	30280	CB - 122	*Washer brass (2)
16)	30290	CB - 123	*O-ring (1)
17)	21350	CHE - 2	CHE-2 nozzle holder, aluminum
18)	21630	CFT	CFT cast iron quick coupling

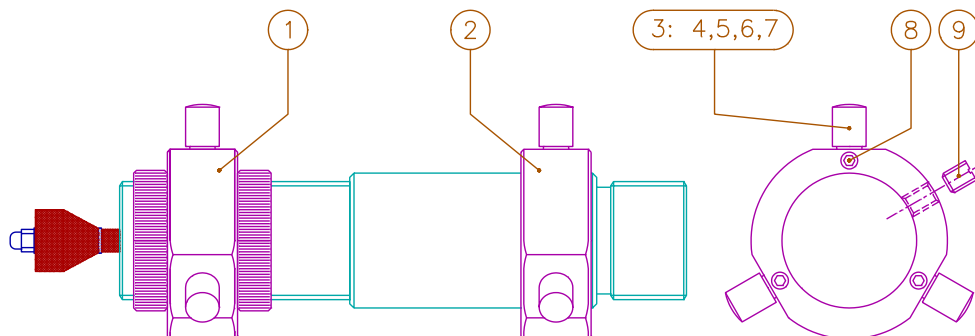
All (*)-marked items are included in Circleblast Spare Parts kit (art.nr. 30220) in quantities shown ().



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6.0 CENTERING COLLAR

ART.NR.	MODEL	DESCRIPTION
30030	CBC-1	Centering collars complete, for pipes 3" to 5" (76 to 127 mm) I.D., includes collars and four six-button sets.

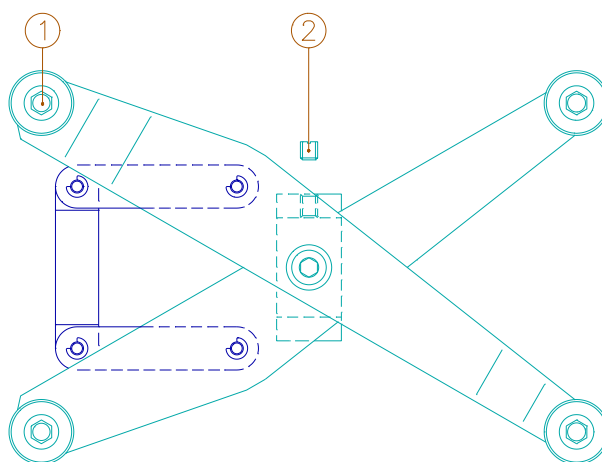


6.1 SPARE PARTS

01)	30040	Front collar, cad-plate
02)	30050	Rear collar, cad-plate
03)	30060	Centering button set: 4 six-button sets
04)	30070	5/16" (8 mm) long button for 3½" (89 mm) I.D. pipe
05)	30080	9/16" (15 mm) long button for 4" (102 mm) I.D. pipe
06)	30090	13/16" (20 mm) long button for 4½" (115 mm) I.D. pipe
07)	30100	18/16" (28 mm) long button for 5" (127 mm I.D. pipe)
08)	30101	Bolt
09)	30102	Collar locking bolt

6.2 ADJUSTABLE CENTERING CARRIAGE

30110	CBC-2	Adjustable centering carriage. For pipes 5" to 12" (127 to 305 mm) I.D.
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6.3 SPARE PARTS

01)	30120	Wheel complete
02)	30102	Locking bolt

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PIPEDIAMETER (mm)	TOOL	TOOL RANGE (mm)	CENTERING DEVICE	REQUIRED NOZZLE	AIR CONSUMPTION (cfm) (m ³ /min)	
1¼" - 3" (32 - 76 mm)	CB-0	1¼" - 3" (35 - 76 mm)	-	-	400	11.3
3" - 12" (76 - 305 mm)	CB-1 CB-2	3" - 5" (76 - 127 mm)	CBC-1	AHBN-8 AHBN-10	225 400	6.4 11.3
	CB-1 CB-2	5" - 12" (127 - 305 mm)	CBC-2	AHBN-8 AHBN-10	225 400	6.4 11.3
8" - 36" (204 - 915 mm)	SB-636-A	8" - 10" (204 - 254 mm)	SPB-19/12 Use 120 mm legs	2 x ASB-13 2 x ASB-14 2 x ASB-16	200 300 400	5.7 8.5 12.8
	SB-636-A	10" - 15" (254 - 381 mm)	SPB-19/19 Use 190 mm legs	2 x ASB-15	300	8.5
	SB-636-A	15" - 23" (381 - 584 mm)	SPB-19/29 Use 290 mm legs	2 x ASB-16	450	12.8
	SB-636-A	23" - 36" (584 - 915 mm)	SPB-19/46 Use 290 mm legs	2 x ASB-17	450	12.8

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