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# ***OWNER'S MANUAL***

***Pipe cleaning tool***

***HOLLO-BLAST***

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# 1 Scope of manual

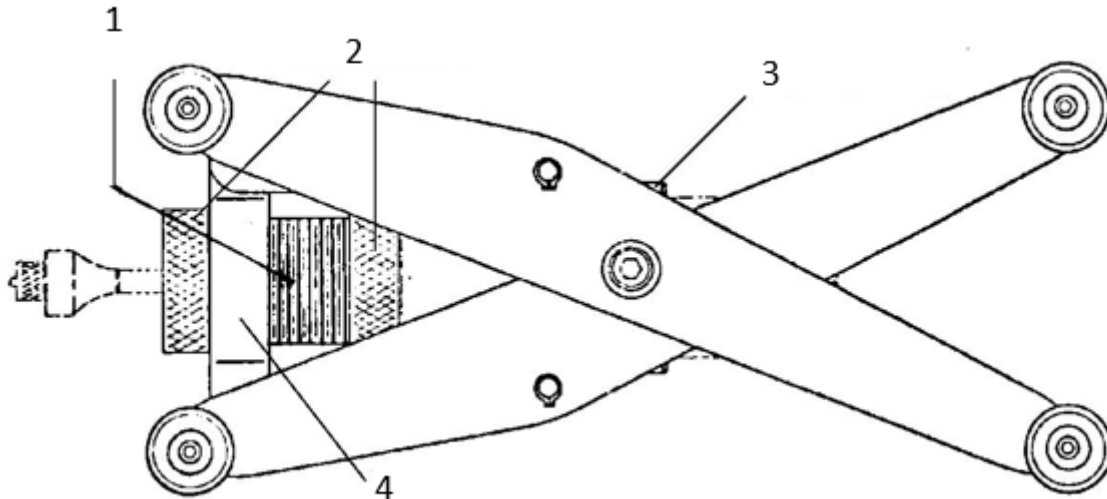
This owner's manual applies exclusively to the operation and maintenance of the HOLLO-BLAST pipe cleaning tool.

The owner's manual for the blast machine must also be observed.

# 2 Application and restrictions

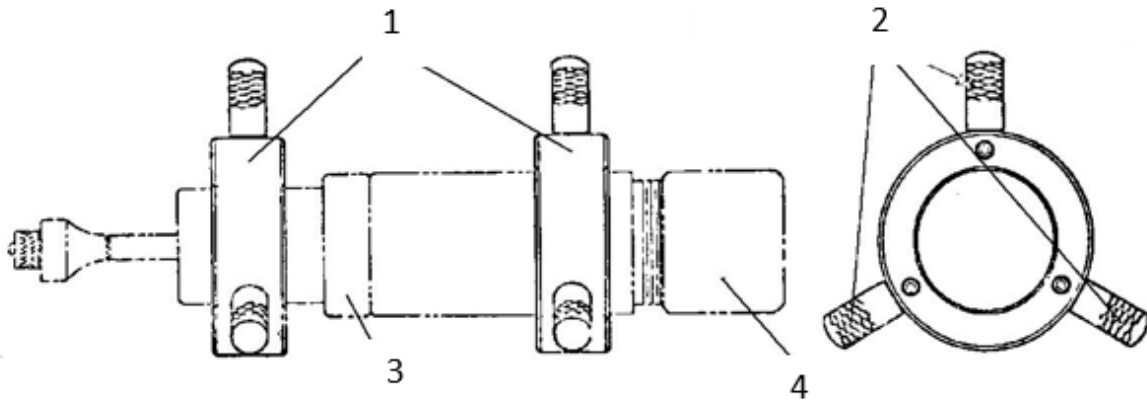
The HOLLO-BLAST pipe cleaning tool is designed to blast the inside of pipes with diameters between 65 mm and 300 mm. All standard blast media can be used. However, increased wear is to be expected when using aluminium oxide and silicon carbide. The blast media should be dry and free from contaminants. We recommend a grain size of max. 1 mm for HBN-8 nozzles and 1.0 - 1.4 mm for HBN-10 nozzles. If the grain size is too large or too much blast media is used, the tool will become blocked.

# 3 Description of the equipment



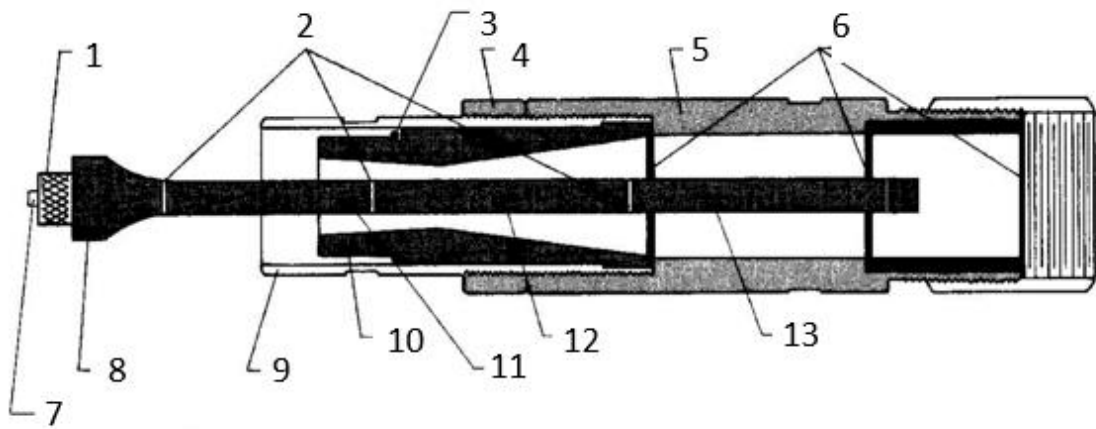
**Figure 1:** HOLLO-BLAST pipe cleaning tool with centering carriage (HBC-2)

1	Threaded pipe
2	Lock nut
3	Central mounting ring
4	Front mounting ring



**Figure 2:** HOLLO-BLAST with centering pins (HBC-1)

1	Guided rings
2	Central pins (various sizes)
3	Lock nut
4	Holder HEP 1 or 2



**Figure 3:** Individual housing components

1	Nut
2	Cone
3	Threaded rod
4	Brass washers
5	Nozzle
6	Threaded pipe

7	O-Ring
8	Lock nut
9	Housing
10	Rubber seals
11	Tube
12	Tube
13	Holder

Figures 1, 2 and 3 show the main components of the pipe cleaning tool:

- *Centering device which can be adjusted to different pipe diameters with*
  - *Centering pins for pipe diameters between DN 75 and DN 125 (HBC-1, see Figure 2) or*
  - *Centering carriage for pipe diameters between DN 125 and DN 300 (HBC-2, see Figure 1).*
- *Housing with*
  - *Nozzle*
  - *Cone for blast media deflection*
  - *2 tubes made from boron carbide or cemented carbide to protect the threaded rod*
  - *Threaded rod*
  - *Connection thread for nozzle holder (HEP 1 or 2) or lance (blast media hose)*

The HOLLO-BLAST pipe cleaning tool is connected to the blast machine in place of the nozzle and is intended for one-man operation. It directs the blast media/air mixture to the cone. The cone deflects the blast media so that the pipe to be cleaned is blasted evenly across its internal diameter as the pipe cleaning tool is pulled slowly through the pipe. The centering device ensures that the tool is centered in the pipe.

## 4 Operation

### 4.1 Requirements

#### 4.1.1 Blast equipment

Blasting with the HOLLO-BLAST pipe cleaning tool requires the same blast equipment as the blasting process with a nozzle.

- Blast machine
- Compressor for the air supply
- Blast hose (32 x 8 mm recommended)
- Protective equipment for the operator
  - Air-fed helmet
  - Resistant clothing
  - Breathing air supply (air filter)

#### 4.1.2 Air and blast media consumption

There must be a sufficient supply of compressed air and blast media (see table 1).

Nozzle size [mm]	Air consumption [m <sup>3</sup> /min.] at pressure [bar]			Blast media consumption [l/h] at pressure [bar]		
	<u>6</u>	<u>9</u>	<u>12</u>	<u>6</u>	<u>9</u>	<u>12</u>
	12.5	5	7	9	290	410
16	10	15	19	630	930	1200

**Table 1:** Blast media and air consumption

### 4.2 Set-up

<p>(1) Mount the centering device and adjust for the pipe diameter to be blasted.</p>	<ul style="list-style-type: none"> <li>– For pipe diameters from 3" to 5", use centering pins (HBC-1, see Figure 2)           <ul style="list-style-type: none"> <li>⇒ Select the right centering pin length (tool centered in the middle of the pipe).</li> <li>⇒ Insert the centering pins into the holes in the guide rings and secure with the hexagon socket screws.</li> <li>⇒ Fasten the guide ring with the larger internal diameter in place over the groove on the housing using a hexagon socket screw.</li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>⇒ Secure the second guide ring on the front of the threaded pipe with both lock nuts.</li> <li>– For pipe diameters from 5" to 12", use a centering carriage (HBC-2, see Figure 1) <ul style="list-style-type: none"> <li>⇒ Push the housing through the central mounting ring of the centering carriage and screw the first lock nut onto the threaded pipe.</li> <li>⇒ Keep pushing the housing through the front mounting ring of the centering carriage and screw the second lock nut onto the threaded pipe.</li> <li>⇒ Fasten the housing in place over the groove on the central mounting ring using a hexagon socket screw.</li> <li>⇒ Adjust the centering carriage and then secure the front mounting ring with both lock nuts.</li> </ul> </li> </ul>
(2) <i>Connect the blast hose.</i>	<ul style="list-style-type: none"> <li>– Nozzle holder.</li> <li>– Lance (if blast hose kinks at the connection ⇒ uneven blast flow ⇒ heavy wear on the pipe cleaning tool).</li> </ul>

### 4.3 Startup and operation

**When using tubes and a cone made from boron carbide, the pipe cleaning tool must not be subjected to any impact loads as the material is very brittle and can be damaged easily. Blasting with damaged tubes will destroy the pipe cleaning tool extremely quickly!**

(1) <i>Push the pipe cleaning tool through the pipe to be cleaned all the way to the end.</i>	<b>Attention! The tip with the cone must not hit any part of the pipe or it will be damaged!</b>
(2) <i>Activate the blast air.</i>	Hold on to the pipe cleaning tool/blast hose.
(3) <i>Blast.</i>	<ul style="list-style-type: none"> <li>– Slowly pull the pipe cleaning tool back towards the operator (the used blast material will be blown forwards out of the pipe).</li> <li>– The speed depends on the desired degree of cleaning.</li> </ul>
(4) <i>Disable the blast air.</i>	Remove the pipe cleaning tool from the pipe.
(5) <i>Check the tubes and cone for damage and rotate the cone if necessary (to</i>	After 2 - 3 blasting operations.

ensure even wear across the circumference).

## 5 Maintenance

Check the wear parts regularly for wear/damage and replace if necessary.

Never drop the pipe cleaning tool or wear parts (tubes, cone) as they are very brittle and will break easily.

### 5.1 Replacing the cone, tubes, threaded rod

The cone must be replaced when the cylindrical part of the cone (original length: 10 mm) has worn to 1 mm. The tubes and the threaded rod should be replaced at the same time.

The steps below describe the dismantling/mounting process (see also Figure 3).

<p>(1) Clean the HOLLO-BLAST pipe cleaning tool.</p>	<ul style="list-style-type: none"> <li>- Unscrew the blast hose with nozzle holder/lance.</li> <li>- Remove the blast media from cracks and threads (blow off with compressed air).</li> </ul>
<p>(2) Dismantling the cone, tubes and threaded rod.</p>	<ul style="list-style-type: none"> <li>- Open the nut on the head.</li> <li>- Carefully remove the cone, tubes and copper washers from the threaded rod.</li> <li>- Pull the threaded rod out of the holder from the nozzle holder connection thread side.</li> </ul>
<p>(3) Mounting the cone, tubes and threaded rod.</p>	<p>Follow the steps in reverse order.</p> <ul style="list-style-type: none"> <li>- Threaded rod.</li> <li>- First copper washer (attenuator function!).</li> <li>- 2 tubes.</li> <li>- Second copper washer (attenuator function!).</li> <li>- Cone.</li> <li>- Screw on the nut and tighten <b>by hand</b>.</li> </ul> <p><b>During the mounting process, make sure that there is no blast media or dirt between the tubes, cone and copper washers.</b></p>



## 5.2 Replacing the nozzle and seals

The nozzle of the pipe cleaning tool must be replaced when the

- HBN-8 nozzle (d = 12.5 mm) has worn to a diameter of **15 mm**
- HBN-10 nozzle (d = 16 mm) has worn to a diameter of **18 mm**.

When replacing the nozzle, all seals should be replaced at the same time.

The steps below describe the dismantling/mounting process.

<i>(1) Clean the HOLLO-BLAST pipe cleaning tool.</i>	<ul style="list-style-type: none"> <li>- Unscrew the blast hose with nozzle holder/lance.</li> <li>- Remove the blast media from cracks and threads (blow off with compressed air).</li> </ul>
<i>(2) Disconnect the centering device from the housing.</i>	<ul style="list-style-type: none"> <li>- Centering pins (HBC-1, see Figure 2) <ul style="list-style-type: none"> <li>⇒ Unscrew both guide rings from the housing.</li> </ul> </li> <li>- Centering carriage (HBC-2, see Figure 1) <ul style="list-style-type: none"> <li>⇒ Unscrew the front lock nut from the threaded pipe and loosen the hexagon socket screw holding the housing in place (central mounting ring).</li> <li>⇒ Pull the housing out of the front mounting ring.</li> <li>⇒ Unscrew the second lock nut and remove the housing from the centering carriage.</li> </ul> </li> </ul>
<i>(3) Dismantle the nozzle and holder for threaded rod.</i>	<ul style="list-style-type: none"> <li>- Open the nut and remove the cone, tubes, copper washers and threaded rod.</li> <li>- Unscrew the threaded pipe with nozzle out of the housing and pull the nozzle with O-ring out of the threaded pipe.</li> <li>- Remove the holder and seals.</li> </ul>
<i>(4) Mount the nozzle and holder.</i>	<ul style="list-style-type: none"> <li>- Fit <b>all</b> seals.</li> <li>- Follow the steps in (3) in reverse order.</li> </ul>

## 6 Spare parts

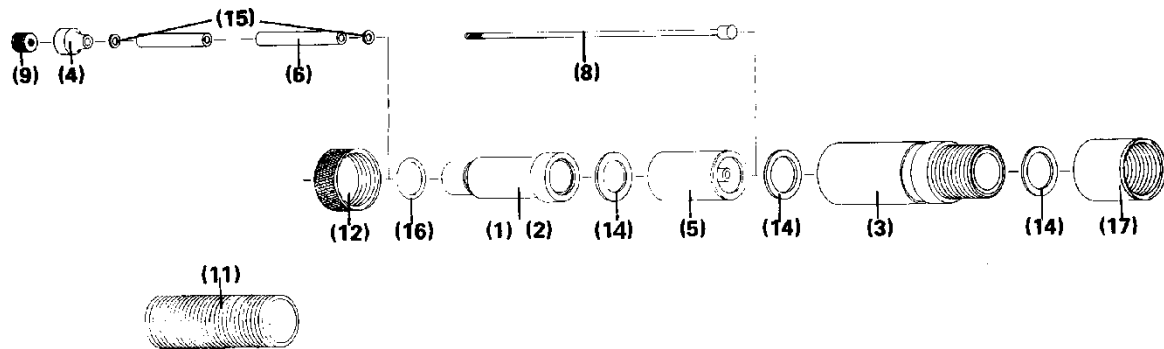


Figure 4: Spare parts

Item	Stock no.	Model	Description
(-)	94290D	HB-B	HOLLO-BLAST with HBN-8, without carriage, without box
(-)	08446D	HB-O-B	HOLLO-BLAST with HBN-10, without carriage, without box
(-)	90012D	HB-3	HOLLO-BLAST complete with nozzle, HBN-8, HBC-1, HBC-2, box
(-)	90013D	HB-4	HOLLO-BLAST complete with nozzle, HBN-10, HBC-1, HBC-2, box
(1)	01406D	HBN-8	Nozzle, 12.5 mm (cemented carbide)
(2)	01407D	HBN-10	Nozzle, 16 mm (cemented carbide)
(3)	01079D	HB-111	Housing
(4)	90014D	HB-110/B	X Boron carbide cone
	01078D	HB-110	Cemented carbide cone
(5)	01080I	HB-112	X Holder
(6)	90016D	HB-113/B	X Boron carbide tube (x2)
	01084D	HB-113	Cemented carbide tube (x2)
(8)	01086D	HB-115	X Threaded rod
(9)	01089D	HB-116	Nut
(11)	01091D	HB-117	Threaded pipe 1 1/4"
(12)	01092D	HB-118	Lock nut (x2)
(14)	01093D	HB-119	X Seal (x3)
(15)	01096D	HB-122	X Copper washer (x2)
(16)	01097I	HB-123	X O-ring
(-)	100681	HEA-2	Nozzle holder (fine thread) aluminium HEA-2
(-)	27191D	HEA-2	Seal for HEA-2
(-)	93059D		Spare part set = X

