

## INSTRUCTION MANUAL MOD. XB031-AAD\_BQ.03

SERIAL N°: XXXXXXXXX



**WARNING:** THIS MANUAL IS AN INTEGRAL PART OF THE MACHINE AND MUST BE READ AND KEPT FOR REFERENCE.

**Translation of the original instructions**

*XB031-AAD\_BQ.03-MANUAL Rev.01*

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## DECLARATION OF INCORPORATION OF INCOMPLETE MACHINES

The undersigned Bolondi Ivano in his role of Legal Representative of Officina meccanica Bolondi Ivano and Person authorised to constitute the technical folder, DECLARES under his own responsibility that the material supplied, indicated in this manual and to which this declaration refers, consists of a washing head that complies with:

- The applicable essential safety requirements (1.1.2 – 1.1.3 – 1.1.5 – 1.3.1 – 1.3.2 – 1.3.3 – 1.3.4 – 1.3.9 – 1.5.1 – 1.5.2 – 1.5.3 – 1.5.4 – 1.5.6 – 1.5.7 – 1.5.8 – 1.5.13 – 1.5.14 – 1.6 – 1.7) of appendix I of machinery directive 2006/42/EC
- The applicable essential safety requirements of directive 2014/68/UE (pressurised equipment classified in art. 4 cat. 3)

It also complies with the following harmonised European standards:

ISO TR 14121-2:2013 - Guidance document for risk assessment

UNI EN ISO 12100:2010 - Safety of machinery - General principles for design.

The undersigned also declares that the incomplete machine cannot be started-up until the machine on which it will be incorporated and of which it will become part has been identified and declared to be compliant with the provisions of directive 2006/42/EC; in other words until the incomplete machine to which this declaration refers has become an integral part of the end machine.

The pertinent technical documents have been drawn-up in compliance with appendix VII B. We shall forward the information concerning the incomplete machine by fax, e-mail or other means following a reasonable request from National authorities.

(00A-01CE-00-EN)

BOLONDI IVANO  
The legal representative  
Ivano Bolondi



## REFERENCE LEGISLATION

### AIRBORNE NOISE AND VIBRATIONS:

Sound intensity measurements relating to the noise produced by the machine were taken in compliance with DIR. 2006/42/CE.

The acoustic pressure was measured at the workstation, at 1 m from the machine surface and 1.6 m off the ground, in normal machine operating conditions.

Sound intensity measurements gave readings below 70 dB(A).

Measurement of vibrations was not made as these were considered clearly below risk levels.

The intensity of the sound produced by machine operation is normally below sound intensity caused by the impact of washing water against the walls to be washed.

*(00D-LdrCE-00-EN)*


## TERMS OF WARRANTY

- 1) The manufacturer guarantees the rotating head to be free of manufacturing or material defects.
- 2) Warranty: 2 years for EC countries, 1 year for countries outside the EC (valid from date of delivery).
- 3) The warranty excludes: all parts subject to normal wear, damage due to carelessness or improper use.
- 4) The validity of the warranty shall be decided indisputably by the manufacturer.
- 5) The warranty excludes labour and transport costs, which are always the responsibility of the purchaser.
- 6) All spare parts replaced under warranty must be returned to the manufacturer, carriage paid, within a maximum of 20 days.
- 7) The warranty on the finished product or its components shall be void if the product is tampered with, modified, or has parts manufactured by third parties installed on it without prior authorisation from Bolondi.
- 8) Competent court: Judicial Authority of the court of Reggio Emilia, Italy  
*(00C-Garanzia-00-IT)*

# 1) INTRODUCTION

Read this operating and maintenance manually carefully before using the head. Only by following the instructions herein and becoming familiar with the symbols used is it possible to obtain conditions of maximum efficiency and safety. The contents of this manual are in compliance with machine directive 2006/42/CE and subsequent amendments. The Manufacturer reserves the right to make any modifications without notice and without incurring any sanctions on condition that the main technical safety features are not affected. The Manufacturer is not responsible for personal injury or material damage resulting from the non-observance of the indications that accompany the symbol.



The symbol  represents a safety warning.  
Failure to follow the instructions given can cause serious personal injury.

## **N.B.:**

For accident prevention purposes the equipment must be fitted with suitable devices to prevent automatic re-starting when the equipment is powered after a shut-down. The head must not be used without these devices. The Manufacturer declines all responsibility in the case of improper use of the equipment.

## **N.B.:**

Please consult the chapter EXPLODED VIEW for all the numbers and references in the manual.

*(01-000-00-EN)*

## 2) RECEIVING AND UNPACKING

### 2.1) CHECKING AND UNPACKING

2.1.1) On receipt, make sure that the model and technical specifications correspond with the order.

2.1.2) Make sure that goods were not damaged during transport.

2.1.3) Any damage found when the goods are received must be documented and the sender informed within 3 days of receipt.

2.1.4) Disposal of packaging: the purchaser is responsible for following the correct procedure and applicable regulations in their country for disposing of the consumables and refuse created by unpacking the product.

#### ***INSTRUCTIONS FOR CORRECT WASTE MANAGEMENT.***

Material: Paper and cardboard (EWC code 15 01 01)

Plastic (EWC code 15 01 02)

Wood (EWC code 15 01 03)

### 2.2) DEMOLITION AND DISPOSAL

It is the purchaser's responsibility to follow the correct procedure and comply with the current laws in force in his country as regards to disposing of consumables and materials resulting from demolition.

Please remember that by waste is meant any substance or object under obligation of disposal.

According to their origin and pursuant to the above mentioned Decree, waste products are classified as urban or special waste and, depending on their dangerous characteristics, as hazardous or non-hazardous waste.

Waste resulting from the demolition of the machine is classified as special waste.

**WARNING! It is forbidden to mix together different categories of hazardous waste and hazardous waste with non-hazardous waste.**

#### ***INSTRUCTIONS FOR THE MOST APPROPRIATE HANDLING OF WASTE.***

##### **Ferrous materials (EWC code 17 04 05)**

As this is recyclable material (secondary raw materials), it should be taken to an authorised collection centre.

##### **Plastic materials (EWC code 16 02 16)**

Recycling permitted where landfill disposal is performed for urban-type waste.

Incineration permitted in plants equipped with post-combustion and fly-ash capture systems.

Follow applicable national legislation, as amended.

(02-000-00-EN)

### 3) CONDITIONS AND LIMITS OF USE

3.1) Never point the jet of water at people, animals or electrical parts.

3.2) Always check that the equipment and the safety features are in good working before using the machine. It is forbidden to use the equipment if it is not in perfect condition.

**3.3) Intended use: the head was designed exclusively for washing closed containers.**

3.4) Improper use: any other use that does not comply with the safety standards indicated in this manual is to be considered improper.

3.5) Declaration of the manufacturer: if the head is installed, as a component, on machines or systems, it is forbidden to use it before the latter have been declared to comply with the provisions of the Machine Directive.

*(03-000-00-EN)*






## 4) GENERAL SAFETY INSTRUCTIONS

- 4.1) The equipment must be started only by personnel in charge of the plant and only after it has been validated.
- 4.2) Ensure that the device is securely blocked by the flanging.
- 4.3) When the equipment is inside the container or plant, check that it does not collide with any of the moving parts.
- 4.4) Before start-up, check that all the openings, valves, etc., are closed and allow no pressurised jets escape.
- 4.5) Make sure the supply pipes and connection fittings are suitable for the working pressures/flow rates and for the type of fluids used.
- 4.6) Ensure that the screwed coupling of the connecting hoses is airtight.
- 4.7) Make sure the supply motor pump is fitted with a relief valve and its setting is compatible with the head.
- 4.8) Make sure the quantity and diameter of the nozzles are suitable for the characteristics of the plant (pump pressure and flow).
- 4.9) The high pressure hose must be perfectly intact (to avoid the risk of bursting). If the high pressure hose is damaged, it must be replaced immediately.
- 4.10) Do not inspect the container or plant when the head is working or in the presence of considerable quantities of vapour.
- 4.11) Each time before using and after each use, make sure the screws are perfectly tight. **See table B “tightening torques”.**

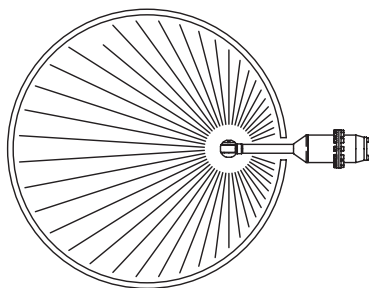
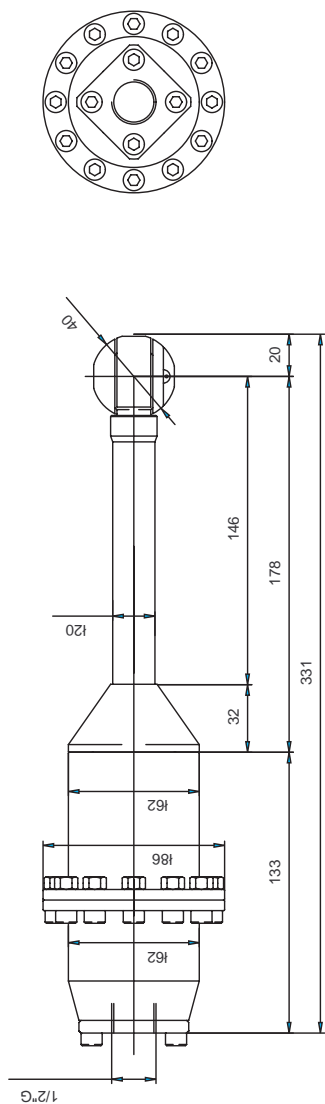


- 4.12) The symbol  marked on the head draws the operator's attention to situations that could jeopardise workers' safety.
- 4.13) The general safety and accident prevention regulations laid down by law must be observed, as well as the warnings given in the operating instructions.

(04-000-00-EN)

## 5) TECHNICAL SPECIFICATION

MAX FLOW	30 L/MIN
MAX PRESSURE	150 BAR
MAX OPERATING TEMPERATURE	90 °C
NUMBER OF NOZZLES	2 - 4
NOZZLES	SPECIAL XB030
O.RING	EPDM
SEALS	PTFE + CARBON FIBRE
MATERIAL	AISI 316
MODULE	1
GEARS	FIXED Z=23 ROTATING Z=25
ROTATION SPEED	24 RPM
FULL CYCLE	25 ROTATIONS
FULL CYCLE TIME	1.1 MIN.
WEIGHT	KG. 4,6

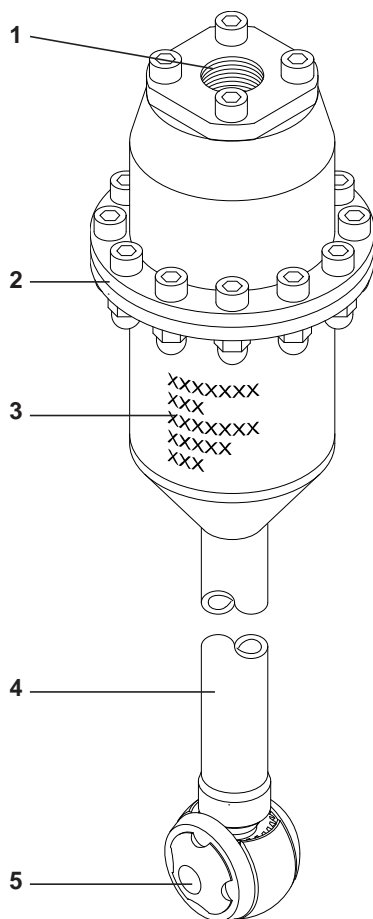


RUGOSITÀ (UNI 4600)		MODIFICA	12	3	45
Foglio		FOGLIO	XXXX		
GREZZO		DATA	XX.XX.XX		
SGROSS.		TOLLERANZE GENERALI classe in UNEN 22768/1			
		0-6	6-30	30-120	120-400
		±0.1	±0.3	±0.5	±0.8
		±0.2	±0.3	±0.5	±1.2
FINITURA		NOTE:			
RETTIFICA		DESCRIZIONE: APPLICATION DRAWING			
		XB 031 AAD 02			
		SCALA			
		1:2			
		MOD.			
		A4			
		CONTR.			
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		DISEGN.			
		GR			
		DATE: 19.12.08			
		MONTECCHIO E. (RE) - ITALY			
		CLEANING HEADS			
		Boroni			
		CODICE			
		XB 031-AAD_BQ 02			

## 6) DIAGRAM OF THE ASSEMBLY

- 1) Water inlet
- 2) Acquamotor
- 3) Identification plate
- 4) Stem
- 5) Nozzle-holder

(06-XB015AAA-00-EN)





## 7) INSTALLATION AND COMMISSIONING (WARNINGS)



During installation and commissioning, comply with the indications in Chapter 04 of the General Safety Standards in this Manual. If the aforesaid indications are not complied with, the Manufacturer shall not be held liable.



See the Technical Data Chapter in the Manual for the pump/head connection and fastening.



Before switching on, it is advisable to flush the system to get rid of any waste or impurities.

Any breakage or problem due to waste and/or impurities is not covered by the warranty.



It is advisable to install a 60 micron filter between the head and the pump assembly.



Install a safety valve on the head delivery, set at the maximum pressure indicated on the rotating head or in the Technical Data Chapter in this Manual.



N.B. Do not turn the nozzle holder by hand

**IMPORTANT:** The head is calibrated with the specifications required in the order.

If there are any changes to these parameters, please contact the Manufacturer.

Any breakages or problems due to parameters that do not conform with specifications, shall not be covered by the warranty.

(07-AQM-00-EN)

8) INDICATIVE CHOICE OF THE DIFFUSER AND NOZZLE BASED ON THE FLOW RATE

Upon consignment, the head is built as requested in the order placed.

If the flow rate and pressure vary, replace the diffuser (pos.33) and the nozzle (pos.91) to ensure optimum operation.

From table “A”, choose the most suitable diffuser pos.33 for the new parameters.

From table “B” and “C” choose the suitable nozzle

Before you make any changes you are recommended to contact the manufacturer.

Follow the procedure given in the maintenance manual to replace the internal diffuser.

TABLE “A”				
FLOW LT/MIN	15 - 20	25	30	35
DIFFUSER CODE	DF1403	DF1405	DF1406	DF1408
PARAMETERS: 100BAR - T=20°C				

(08-XB031AAD-01-EN)

TABLE "B"

NOZZLE CHART XB031 2 sprays ( lt / min )																	
FLOW NOZZLE ( lt / min )	Marking	Spray hole diam. mm	PRESSURE ( Bar )														
			10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	0902	0,90					6	6,5	6,75	7	7,5	7,75	8	8,25	8,75	9	9,25
	1002	1,00			6	6,5	7	7,5	7,8	8,25	8,75	9	9,5	10	10,25	10,75	11
	1102	1,10		6,25	7	7,5	8,5	9,25	9,75	10,5	10,75	11,5	11,75	12	12,5	13	13,5
	1202	1,20		6,75	7,75	9	9,75	10,5	11,25	12	12,75	13,25	13,75	14,25	15	15,5	15,75
	1302	1,30	6,5	7,5	9	10	11	12	13	13,75	14,5	15,25	16	16,5	17	17,5	18
	1402	1,40	6,75	8,75	10,5	11,5	12,75	13,75	14,75	15,75	16,5	17,5	18	18,75	19,5	20,25	21
	1502	1,50	8	10	12,75	13,25	14,5	15,75	17	18	19	20	20,75	21,5	22,5	23	23,75
	1602	1,60	9,25	12	14	16	17,5	19	20,25	21,5	22,5	23,5	24,75	25,75	27	27,75	28,5
	1702	1,70	9,5	13	15	17	18,5	20	21,5	22,75	24	25	26,5	27,5	28,5	29,25	30,25
	1802	1,80	12	15,5	18	20,5	22,5	24,25	26	27,75	29	30,5					
1902	1,90	12,5	16	19	21,5	23,75	26	27,5	29,5								
2002	2,00	13,5	17,5	21	23,5	26,5	28,5	30,25									

TABLE "C"

NOZZLE CHART XB031 4 sprays ( lt / min )																	
FLOW NOZZLE ( lt / min )	Marking	Spray hole diam. mm	PRESSURE ( Bar )														
			10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	0954	0,95		7	8,5	10	11	12	13	13,5	14,5	15	16	16,5	17	18	18,5
	1004	1,00	6	8	9,5	11	12	13	14	15	16	17	17,5	18	19	20	20,5
	1054	1,05	6,5	8,5	11	12	13,5	14,5	16	17	18	18,5	19,5	20,5	20	21	22,5
	1104	1,10	7	10,5	12	13,5	15,5	16,5	17,5	18,5	19,5	20,5	21,5	22,5	23,5	24	25
	1154	1,15	7,5	11,5	12,5	14,5	16	18	19	20	21	22	23	24	25	26	27
	1204	1,20	8,5	12	14	16	18	19	20,5	22	23	24,5	25,5	27	28	29	30
	1254	1,25	9	12,5	15	17	19	20,5	22	23,5	25	26,5	27,5	28,5	30		
	1304	1,30	10	13,5	16,25	18,5	20,5	24	26	27,5	28,5	30					
	1354	1,35	11	14	17,5	20	22,5	24,5	26,5	28,5	30						
	1404	1,40	11,25	14,5	17,5	20	22,5	24,5	26,5	27	28,5						
1454	1,45	11,5	15	17,5	21	23,5	25,5	27,5	28,5	30							

Marking 1004

Spray hole dia.

Number sprays

Marking 1004

Spray hole dia. \_\_\_\_\_

Number sprays \_\_\_\_\_



## 9) MAINTENANCE

### WARNING:

Disconnect the head from the system before starting any routine or special maintenance.

(N.B. For all the numbers and references included, see the chapter Exploded Drawing)

(N.B. For all tightening jobs using a torque wrench, please consult table "D")

Lubricant recommended for maintenance: KLUBER PARALIQ ® GTE 703

### 9.1) Cleaning the inlet filter pos. 63.

#### Disassembly

9.1.01) Loosen and remove the screws pos. 57, disassemble the filter holder flange pos. 62, and remove the cartridge pos. 63 (Fig.9.00).

9.1.02) Clean the cartridge pos. 63 thoroughly, make sure there is no breakage, and fit back in place (pay attention as shown in fig.9.01)

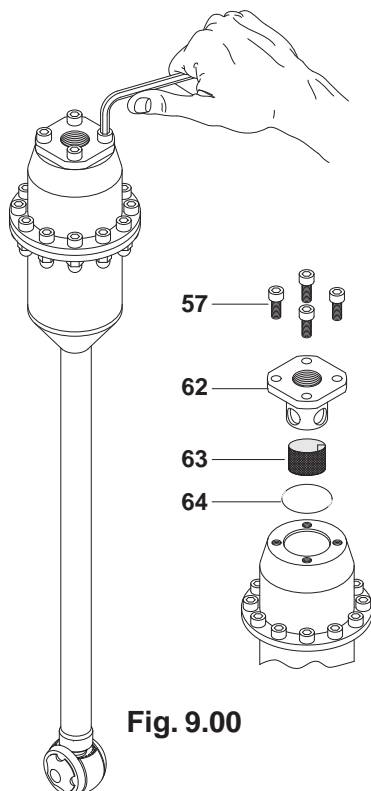


Fig. 9.00

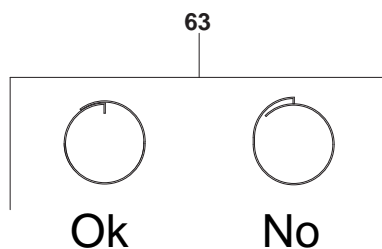


Fig. 9.01



## Assembly

9.1.03) Grease the filter holder flange pos. 62 by the O-ring pos. 64.

9.1.04) Put the filter holder flange pos. 62 back in its seat.

9.1.05) Tighten the screws pos. 57 using a torque wrench.

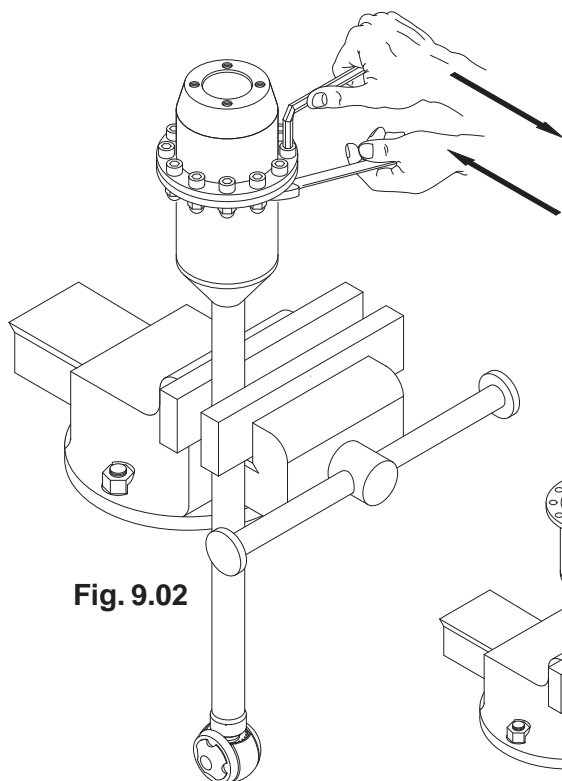
## 9.2) Replacing the diffuser pos.33.

### Disassembly

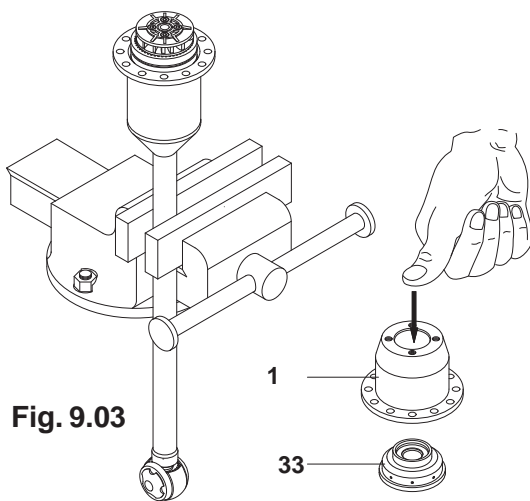
9.2.01) Remove the inlet filter as explained in section 9.1.01.

9.2.02) Use a 5-mm allen wrench and 10-mm ring spanner to loosen the twelve screws and the twelve nuts pos. 57 and pos. 58, see fig. 9.02.

9.2.03) Remove the top casing pos. 1 and push out the diffuser kit pos. 33 (Fig.9.03), then replace it after having selected the desired diffuser as per table "A" chapter 8.



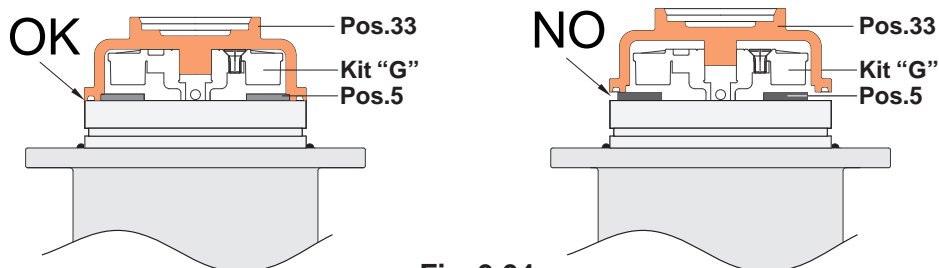
**Fig. 9.02**



**Fig. 9.03**

## Assembly

9.2.04) Fit the diffuser kit on the impeller kit "G", making sure to position the washer pos. 5 correctly (see fig. 9.04).



**Fig. 9.04**

9.2.05) Position the top casing and secure it with the twelve screws pos. 57 and the nuts pos. 58. Use a torque wrench to tighten.

9.2.06) Re-fit the inlet filter as specified in section 9.1.03 to 9.1.05.

## 9.3) Replacing the nozzle pos. 89

### Disassembly

9.3.01) Using the dedicated spanner DZ0001, unscrew and remove the nozzle pos. 89 and the O-ring pos. 76.

### Assembly

9.3.02) From table "B" or "C", select the nozzle to be fitted.

9.3.03) Position the O-ring in its seat on the pin pos. 83

9.3.04) Fit the selected nozzle and tighten using the dedicated spanner DZ0001.

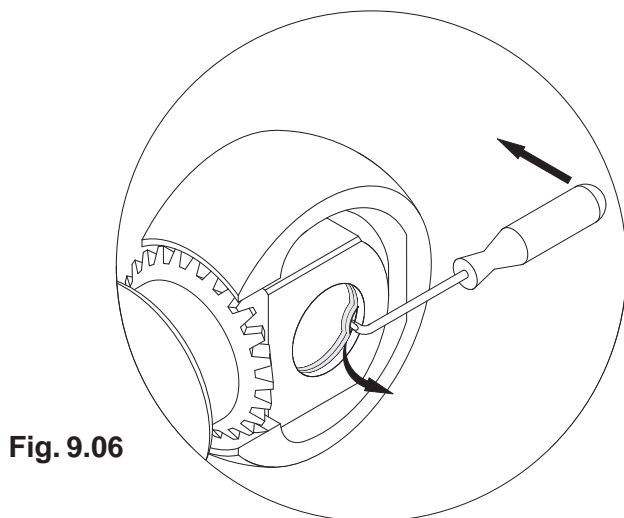
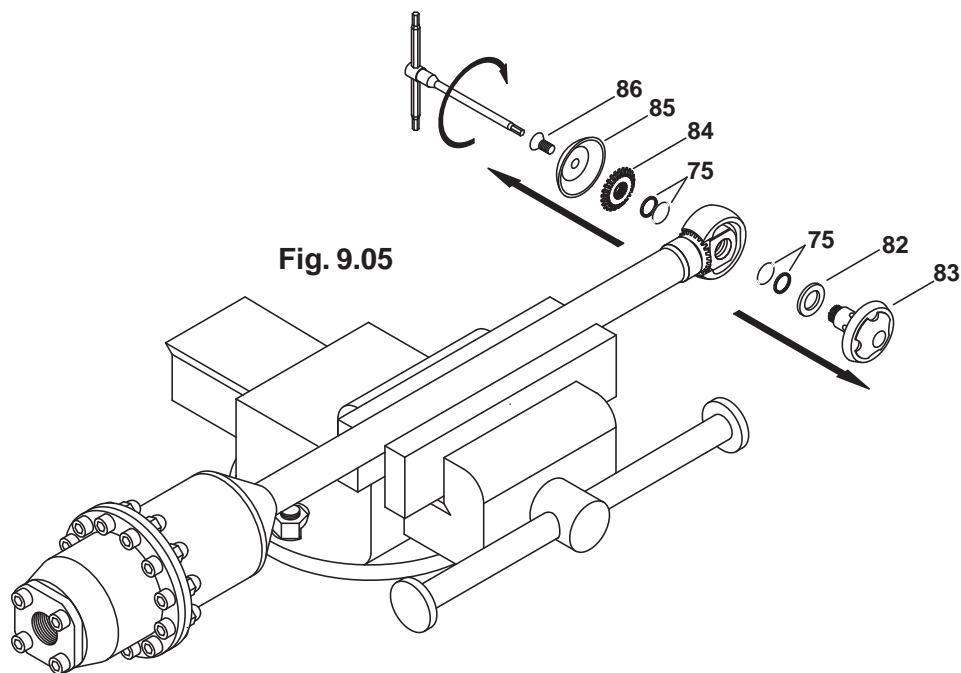
## 9.4) Replacing the seals in the end part of the nozzle holder pos. 75.

### Disassembly

9.4.01) Clamp the head in a bench vice and use a 3-mm allen wrench to unscrew and remove the screw pos. 86 on the part pos. 85.

9.4.02) Remove the protection pos. 85, the crown pos. 84, and slide out the nozzle holder pin pos. 83 with the washer pos. 82 (Fig. 9.05).

9.4.03) Using the dedicated tool, remove the seals and the O-rings pos. 75 from their seats (Fig. 9.06).



## Assembly

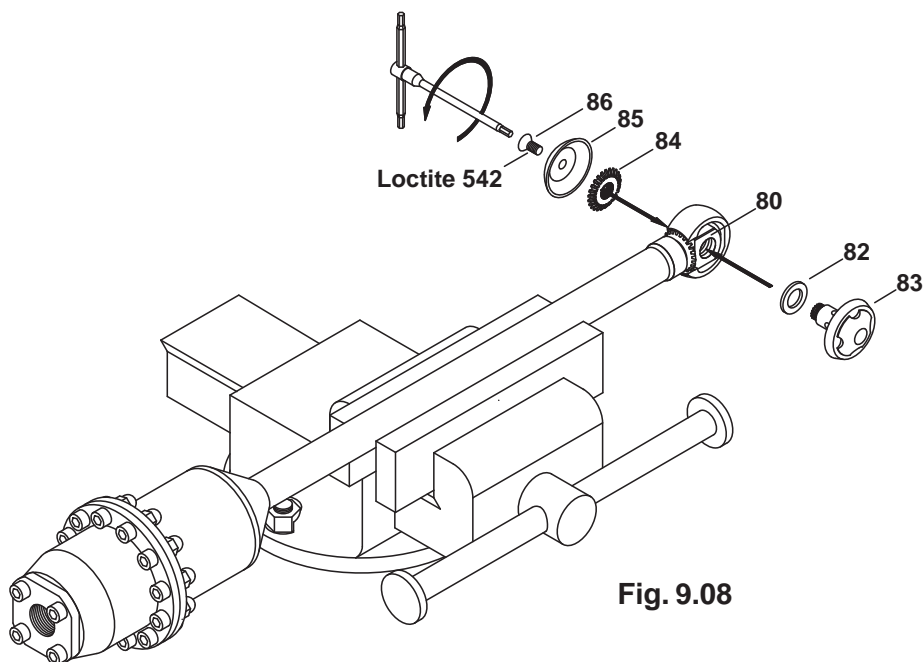
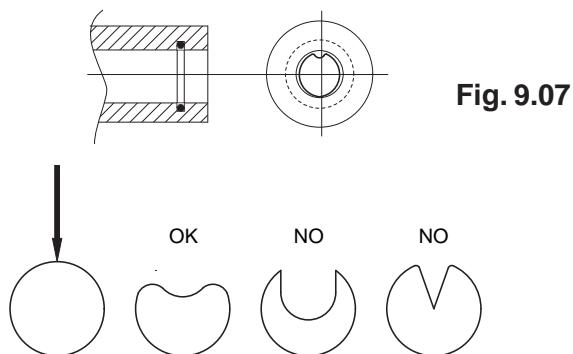
9.4.04) First put the O-ring back in its seat and then the seal ring pos. 75, making the O-ring adhere perfectly using a blunt tool. To make it easier to insert the ring, follow the instructions in fig. 9.07.

9.4.05) Make sure all components are fitted correctly in their seats and lubricate with grease.

9.4.06) Fit the washer pos. 82 on the pin pos. 83, insert the pin in the pipe pos. 80.

9.4.07) Fit the crown pos. 84 on the spline of the pin pos. 83 (check correct coupling of tooting between the pinion pos. 73 and the crown pos. 84).

9.4.08) Fit the protection pos. 85 back in place and fasten it with the screw pos. 86 (apply two drops of Loctite 542 on the screw thread) fig. 9.08.

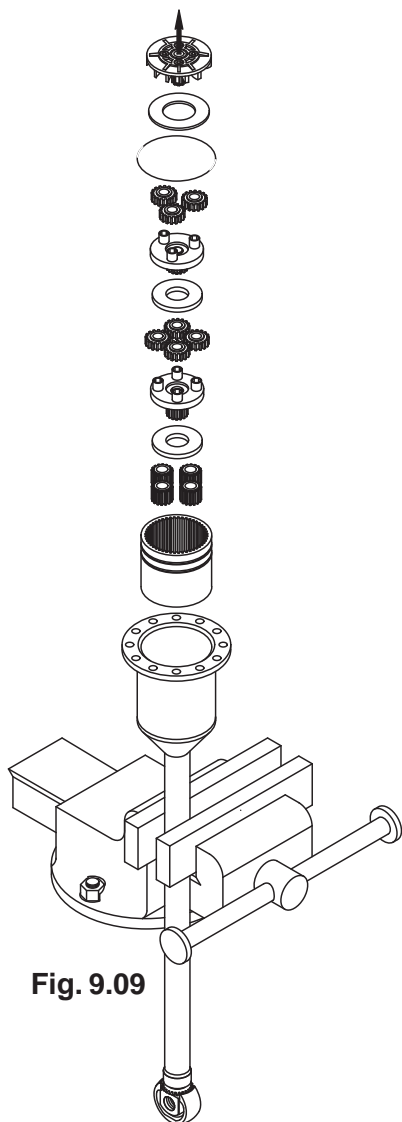


## 9.5) Replacing the seals pos. 72 on the pinion pos. 73.

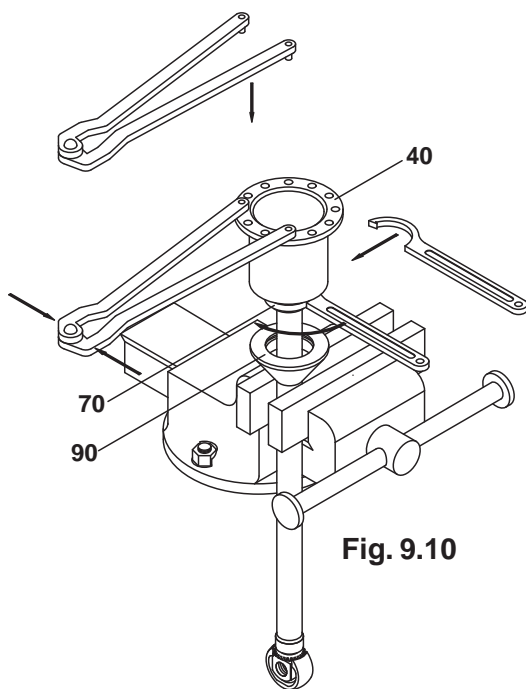
### Disassembly

9.5.01) Once you have disassembled the head as explained in sections 9.2.01 to 9.2.03 and sections 9.4.01 to 9.4.02, take out all the parts as shown in fig. 9.09.

9.5.02) Lower the cone pos. 90 and use the special half-moon spanner to loosen the ring nut pos. 70 and tighten the bottom casing pos. 40 slightly (Fig. 9.10).

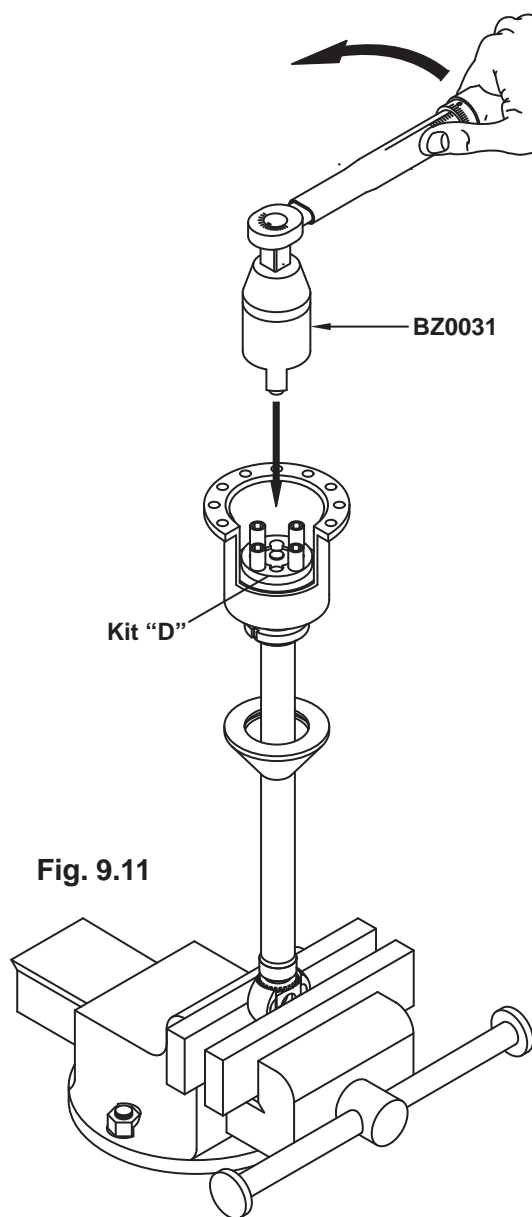


**Fig. 9.09**

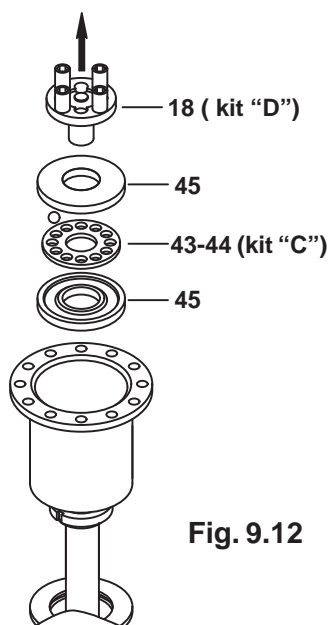


**Fig. 9.10**

9.5.03) Using the supplied spanner BZ0031, unscrew and disassemble the output shaft (Kit "D") and the bearing unit pos. 43-44-45 (Fig. 9.11 – 9.12).



**Fig. 9.11**



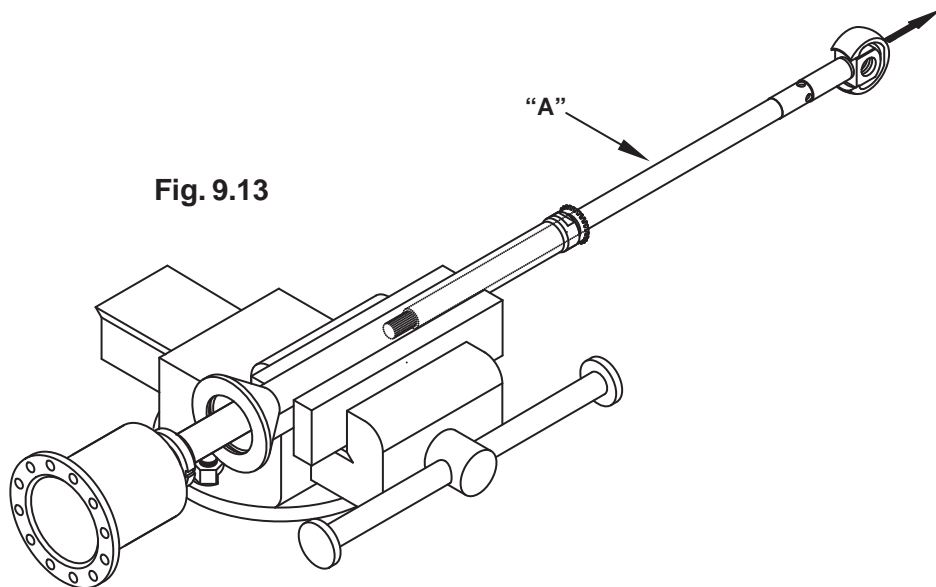
**Fig. 9.12**

9.5.04) Slide out the complete internal rod "A" (Fig. 9.13).

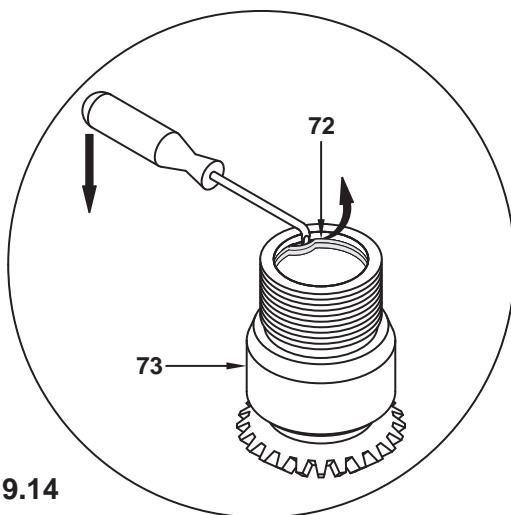
9.5.05) Using a 19-mm fixed-jaw spanner, unscrew the pinion pos. 73 from the external tube pos. 71.

PAY ATTENTION TO THE DIRECTION OF ROTATION, AS IT IS A LEFT-HANDED THREAD (Fig. 9.14).

9.5.06) Use a suitable tool to remove the sealing ring and O-ring pos. 72 from the pinion (Fig. 9.14).



**Fig. 9.13**



**Fig. 9.14**

## Assembly

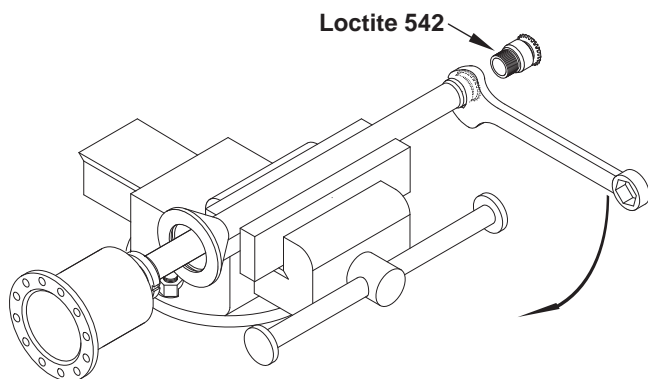
9.5.07) First put the O-ring back in position and then the sealing ring pos. 72, making the O-ring adhere perfectly using a blunt tool. To make it easier to insert the ring, follow the instructions in fig. 9.07.

9.5.08) Make sure all components are fitted correctly in their seats and lubricate with grease.

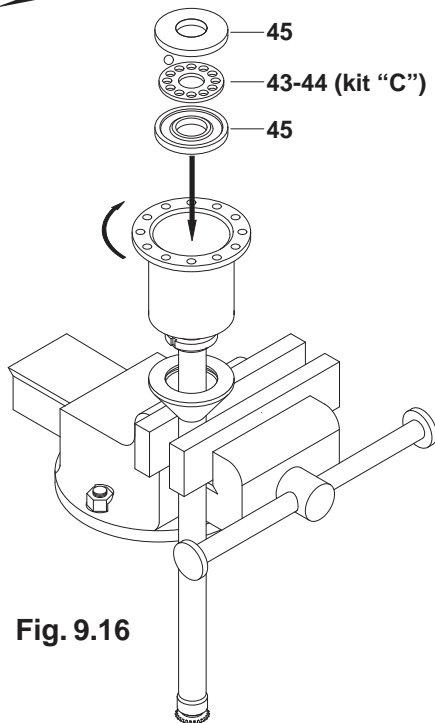
9.5.09) Apply some Loctite 572 on the pinion thread pos. 73, screw onto the external tube pos. 71 and tighten using a 22-mm fixed-jaw spanner.

PAY ATTENTION TO THE DIRECTION OF ROTATION, AS IT IS A LEFT-HANDED THREAD. (Fig. 9.15).

9.5.10) Fit the bearing unit pos. 43-44-45 in the bottom casing pos. 40 and screw it right up against the ring nut loosened previously in section 5.02 (Fig.9.16).



**Fig. 9.15**

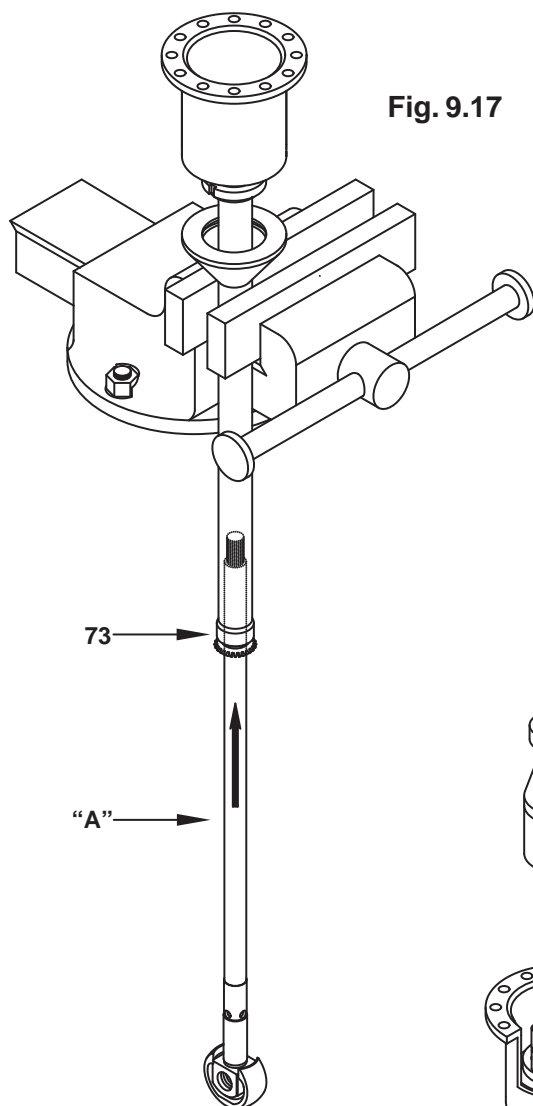


**Fig. 9.16**

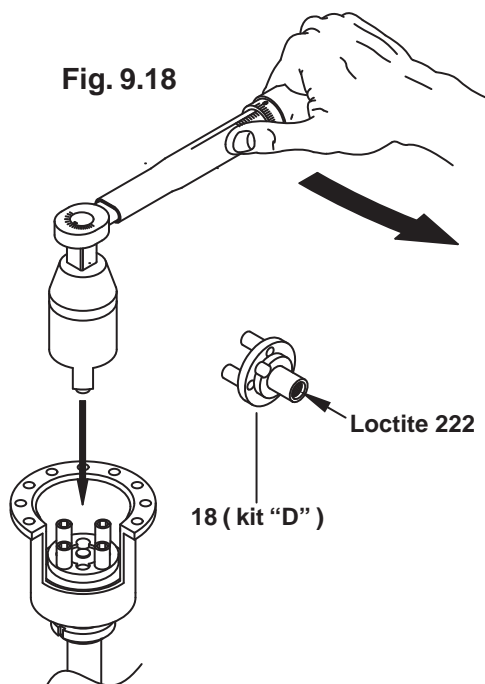


9.5.11) Insert the internal rod "A" in the pinion pos. 73 fitted previously on the external tube pos. 71 (Fig. 9.17).

9.5.12) Apply a few drops of Loctite 222 on the thread of the output shaft pos. 18 (Kit "D"), screw it onto the internal rod and tighten with the special spanner supplied (BZ0031) and the torque wrench (Fig. 9.18).



**Fig. 9.17**



**Fig. 9.18**

9.5.13) Re-fit as explained in section 9.4.06 to 9.4.08.

9.5.14) Adjust the bevel gear as follows:

a) Unscrew the bottom casing pos. 40 until the semi-spherical end part and the output shaft are unable to turn.

b) Slowly tighten the casing pos. 40 so that there is play of approx. 0.1 mm between the teeth of the pinion pos. 73 and the pin pos. 80 (check with gauge) fig. 9.19.

c) Block the ring nut pos. 70 slightly, make sure that the rotation of the semi-spherical end part has no points of friction.

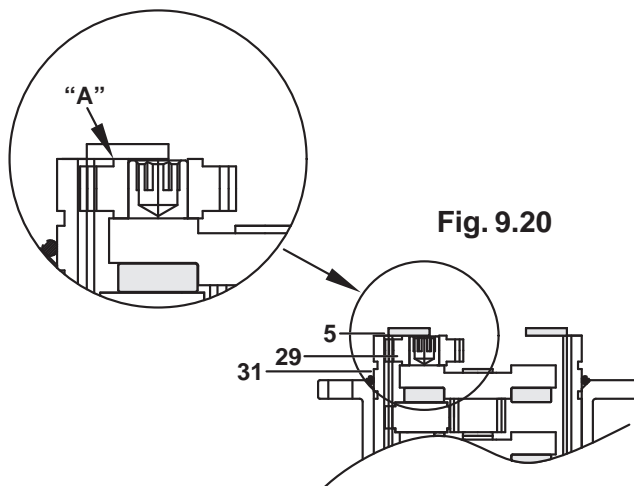
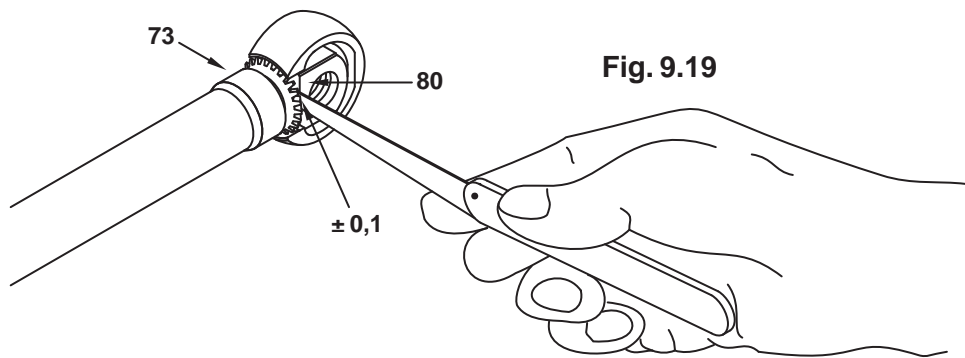
d) Once adjusted as required, screw the ring nut pos. 70 against the lower casing pos. 40.

9.5.15) Fit the crown pos. 31 in the lower casing pos. 40.

9.5.16) Fit the four gears pos. 10 (kit "F2") on the output shaft pos. 18 (kit "D").

9.5.17) In the following sequence, fit the washer pos. 8, the planetary holder pos. 15 (kit "E1"), and the four planetary gears pos. 32 (kit "F1"); repeat the sequence for the next stage, inserting the second washer pos. 8, the planetary holder pos. 13 (kit "E"), and the three planetary gears pos. 29 (kit "F").

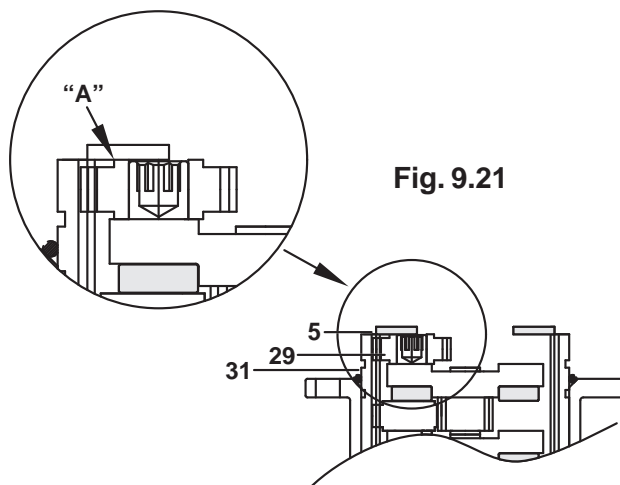
9.5.18) Place the washer pos. 5 on the crown pos. 31, and check that the assembly has been done correctly, making sure there is no friction between the part pos. 5 and the gears pos. 29, see Fig. 9.20.



9.5.19) Fit the O-ring pos. 24 and the complete impeller unit (kit "G"), as per Fig. 9.21.

9.5.20) Complete the assembly as explained in section 9.2.05 to 9.2.07.

(00M-XB031AAD-01-EN)



## 10) SPARE PARTS

Always refer to the spare parts tables when choosing spare parts. Spare parts should be requested by fax to following address:

Bolondi

Via A. Volta, 4 - 42027 MONTECCHIO (RE) - ITALY

Tel. +39 0522 864434 Fax +39 0522 865780

e-mail: [bolondi@bolondi.com](mailto:bolondi@bolondi.com)

always indicate:

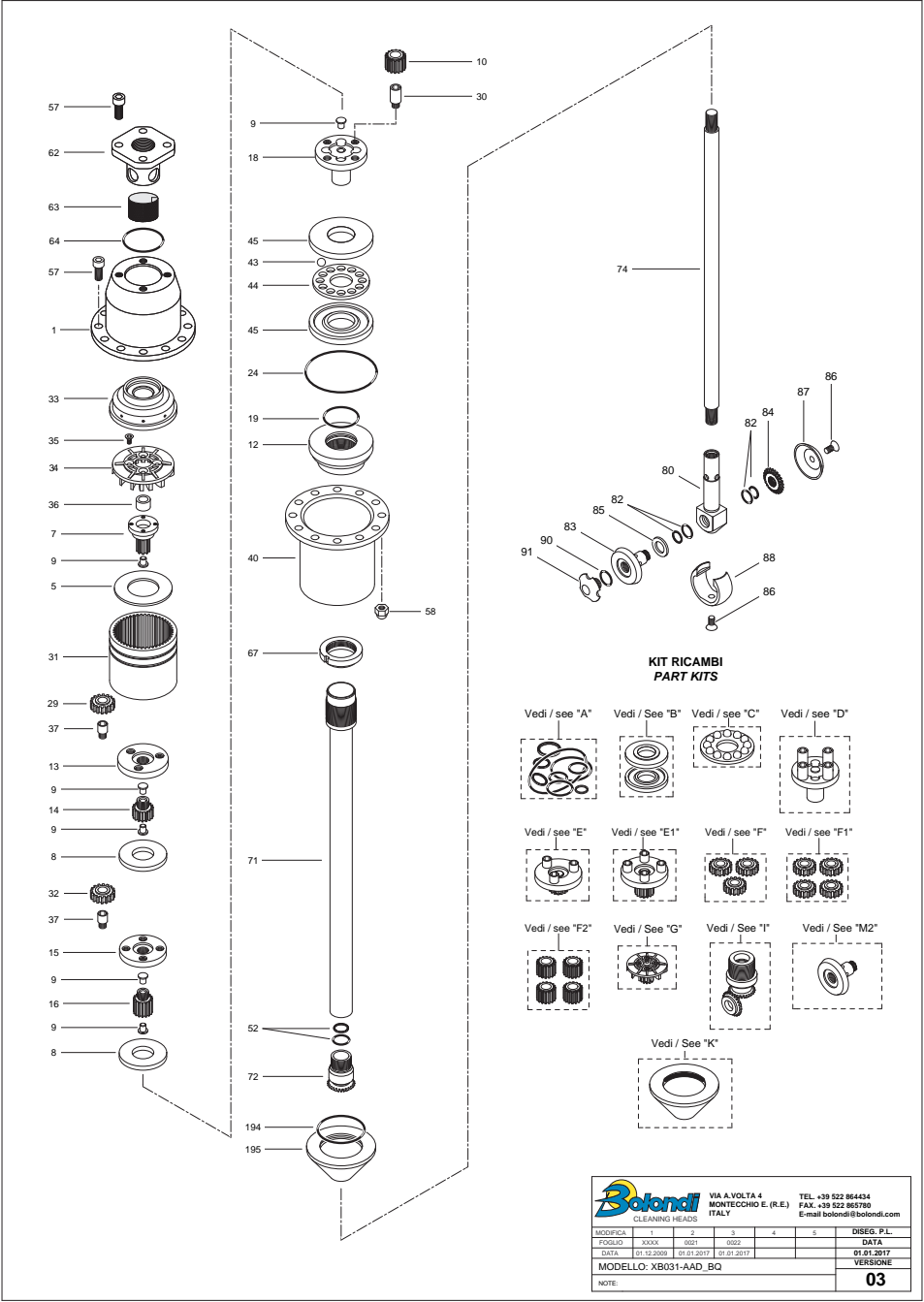
- the model and serial number of the head (see identification plate)
- the code and description of the part ordered (see table)
- the quantity required
- the preferred means of shipment


*(11-000-00-EN)*

## TABLE “D” TORQUE WRENCH SETTINGS

TABLE “D” TORQUE WRENCH SETTINGS		
Structural screws		
Pitch	Nm	
M5	7	All
M6	11	All
M10 x 1,00	20	All
M24 x 1,00 sx	20	All
M27 x 1,00	27	All
1/8	5	All

EXPLODED VIEW



					VIA A. VOLTÀ 4 MONTECCHIO E. (R.E.) ITALY		TEL. +39 022 864434 FAX. +39 022 865780 E-mail bolondi@bolondi.com
MODIFICA	1	2	3	4	5	DISEG. P.L.	
FOGLIO	XXXX	0001	0002			DATA	
DATA	01.12.2009	01.01.2017	02.01.2017			01.01.2017	
MODELLO: XB031-AAD_BQ						VERSIONE	
NOTE:						03	

[illegible]



Via A. Volta, 4  
Tel. (0522) 864434 - Fax 865780  
42027 MONTECCHIO E. (Reggio E.) Italy

E-mail: [bolondi@bolondi.com](mailto:bolondi@bolondi.com)  
Web site: <http://www.bolondi.com>