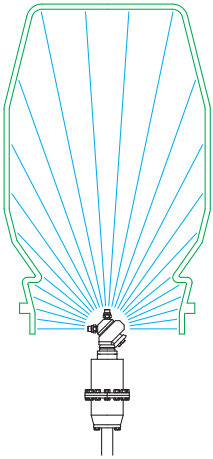
Bolondi
Cleaning Heads

CE



INSTRUCTION MANUAL
HEADS MOD. XC031_180°FR-AAM.02

SERIAL N°: XXXXXXXX

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

Translation of the original instructions

XC031_180°FR-AAM.02-MANUAL Rev.00
Last update 20.02.2020

INTRODUCTION

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.

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.

1.1) SAFETY WARNING SYMBOLS

Below are the symbols used in this manual to warn the user of possible risks, which may arise during handling, positioning and use.
(01-000-01-EN)

	**WARNING**	**Safety warning sign. Failure to comply can cause serious personal injuries or damage to the equipment**
	**PROHIBITION**	**Operations or manoeuvres not permitted**
	**WARNING**	**Moving parts may harm people**
	**HAZARD**	**Ground**
	**PRECAUTION**	**Suggestions and legislation on the subject of protection against explosions**
	**READ**	**Read the instructions given**

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".**

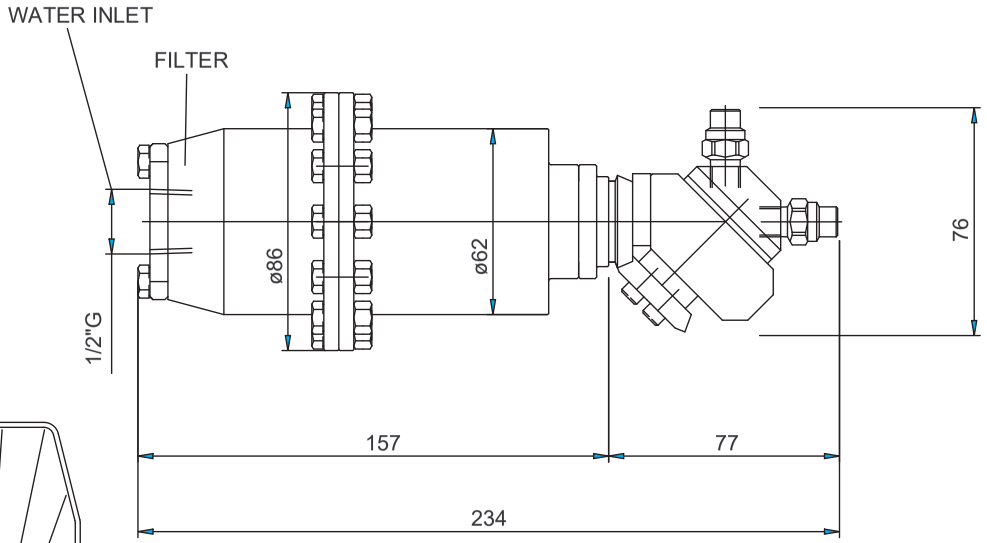
4.12) The symbol  marked on the head draws the operator's attention to situations that could jeopardise workers' safety.

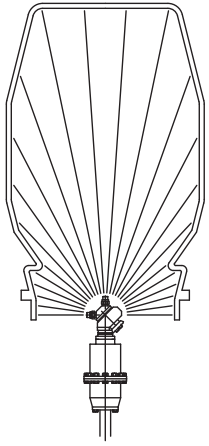
4.13) The general safety and accident prevention regulations laid down by law must be observed, as well as the warnings given in the operating instructions.

(04-00CE-00-EN)

5) TECHNICAL SPECIFICATIONS

MAX FLOW	60 LT/MIN
MAX PRESSURE	150 BAR
HYDROSTATIC TEST PRESSURE	255 BAR
TEMPERATURA MAX	90°C
WATER INLET	1/2"
FILTER	700 MICRON
NUMBER OF NOZZLES	2 - 4
O.RING	EPDM - NBR - VITON
SEALS	PTFE + CARBON FIBRE
MATERIAL	INOX AISI 316
DIFFUSER	SEE CHART "A"
ROTATION SPEED	10 ÷ 45 RPM
FULL CYCLE	31 RMP
WEIGHT	~3,050 KG





VERSIONE	01	02	03	04	05
FOGLIO		0025			
DATA	30.06.09	01.01.17			
VERSIONE	06	07	08	09	10
FOGLIO					
DATA					

NOTE:

DESCRIZIONE: APPLICATION DRAWING
XC031_180°FR-AAM.02

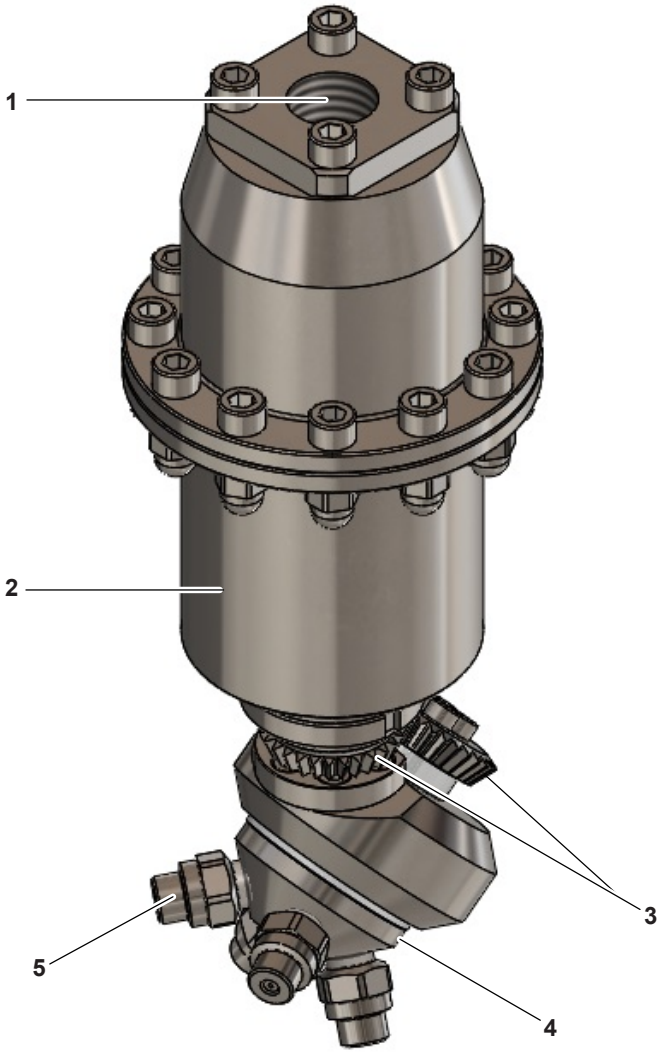
Bolondi
CLEANING HEADS
MONTECCHIO E. (RE) - ITALY

DISEGN.: CR | CONTR.: DM
DATA: 01.01.17 | VERSIONE
SCALA 1:1 | A3 | 02
CODICE: XC031_180°FR-AAM

6) DIAGRAM OF THE ASSEMBLY

1) Water inlet
2) Identification plate
3) Conical gears
4) Nozzle-holder
5) Nozzle

(06-XC031_180°-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) CHOICE OF DIFFUSER ACCORDING TO FLOW RATE

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

If the flow rate is varied, for best use replace the diffuser pos. 33.

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

It is understood that in the event of variations, the nozzles pos. 55 must also be replaced.

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

To replace the internal diffuser, follow the procedure described in the maintenance chapter.

TABLE “A”						
FLOW LT/MIN	15 - 20	25	30	35	40 - 45	50 - 55 - 60
DIFFUSER CODE	DF1403	DF1405	DF1406	DF1408	DF1419	DF1420
PARAMETERS: 100BAR - T=20°C						

(08-CA0350-01-EN)

9) MAINTENANCE

WARNING:
Disconnect the head from the system before starting any routine or extraordinary maintenance.

(IMPORTANT: See the chapter entitled Exploded Drawing for the numbering and references used)
(IMPORTANT: See Table "B" for the torque values of components tightened with a torque wrench)

Lubricant recommended for maintenance: Molykote G-5032 or similar

9.1) Cleaning the inlet filter pos.63.

Disassembly
9.1.01) Unscrew 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 are no breakages and fit back in place (be careful, follow Fig.9.01)

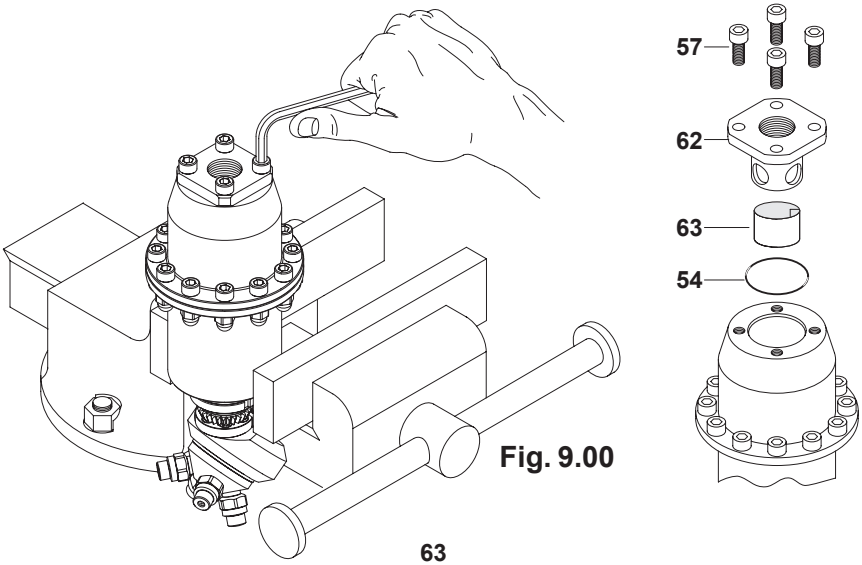


Fig. 9.00

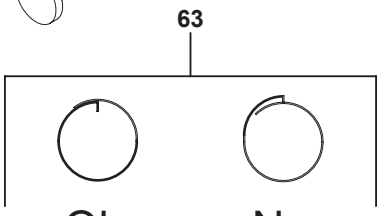


Fig. 9.01

Assembly
9.1.03) Check and replace the o-ring pos. 64 if necessary. Lubricate the flange pos. 62 with grease around the O-ring.
9.1.04) Fit the filter holder flange back into its seat pos.62.
9.1.05) Tighten the screws pos.57. Use a torque wrench.

9.2) Replacing the diffuser pos.33.

Disassembly
9.2.01) Disassemble the inlet filter, as explained in paragraph 9.1.01.
9.2.02) Using a 5-mm Allen key and a 10-mm ring spanner, 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 the diffuser pos.33 out (Fig.9.03); proceed to the replacement after selecting the desired diffuser from table “A” chapter 8.

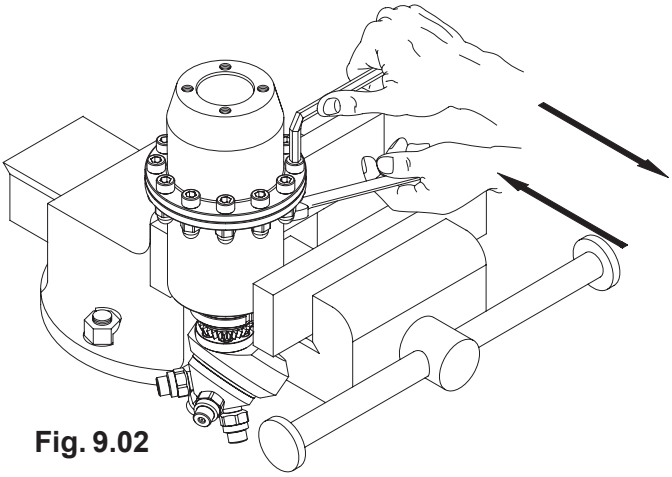


Fig. 9.02

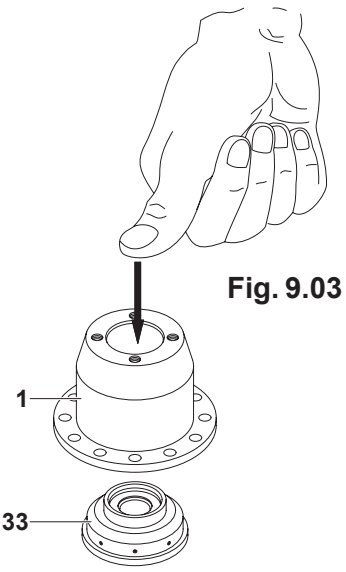


Fig. 9.03

Assembly

9.2.04) Fit the diffuser on the impeller kit “G” making sure to position the washer pos.5 (see Fig.9.04) correctly.

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) Put the inlet filter back in place, as explained in paragraphs 9.1.03 to 9.1.05.

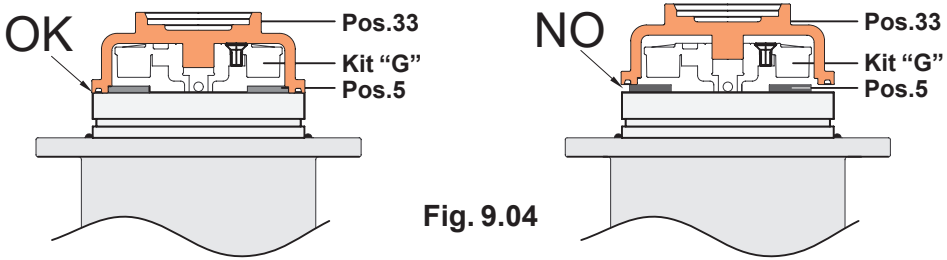


Fig. 9.04

9.3) Replacing the seals on the nozzle holder square pos.80.

Disassembly

9.3.01) Clamp the head in a bench vice and using a 3-mm hex spanner, undo and remove the 4 screws pos.86 on part pos.83.

9.3.02) Remove the crown pos.84, the spacer pos.75 and slide the nozzle holder pin pos.83 out with the washer pos.85 (Fig.9.05).

9.3.03) Using the dedicated tool, remove the seals and the o-rings pos.82 from their seats (Fig.9.06).

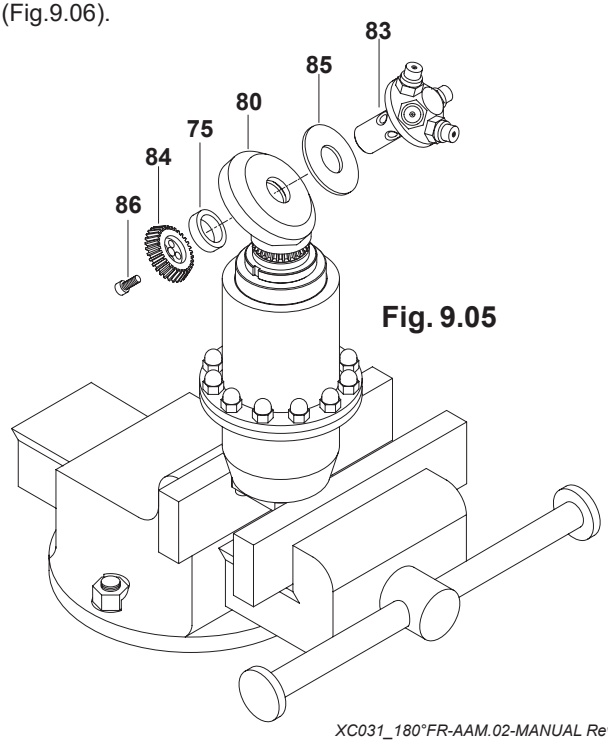


Fig. 9.05

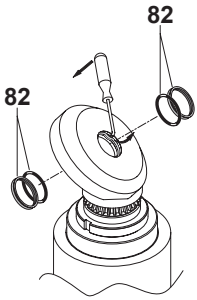


Fig. 9.06

Assembly

9.3.04) Replace the O-ring in its seat and then the sealing ring pos.82 making them adhere perfectly to the O-ring using a blunt tool.
To make it easier to insert the ring, follow the instructions in fig.9.07.

9.3.05) Make sure everything is assembled correctly, in place in its housing and properly greased.

9.3.06) Fit the washer pos.85 on the pin pos.83, insert the pin in the square pos.80.

9.3.07) Insert the spacer pos.75 on the pin pos.83, install the crown pos.84 and fix it in place with the screws previously removed by applying a few drops of Loctite 222 (check for proper tooth engagement between pinion pos.72 and crown pos.84).

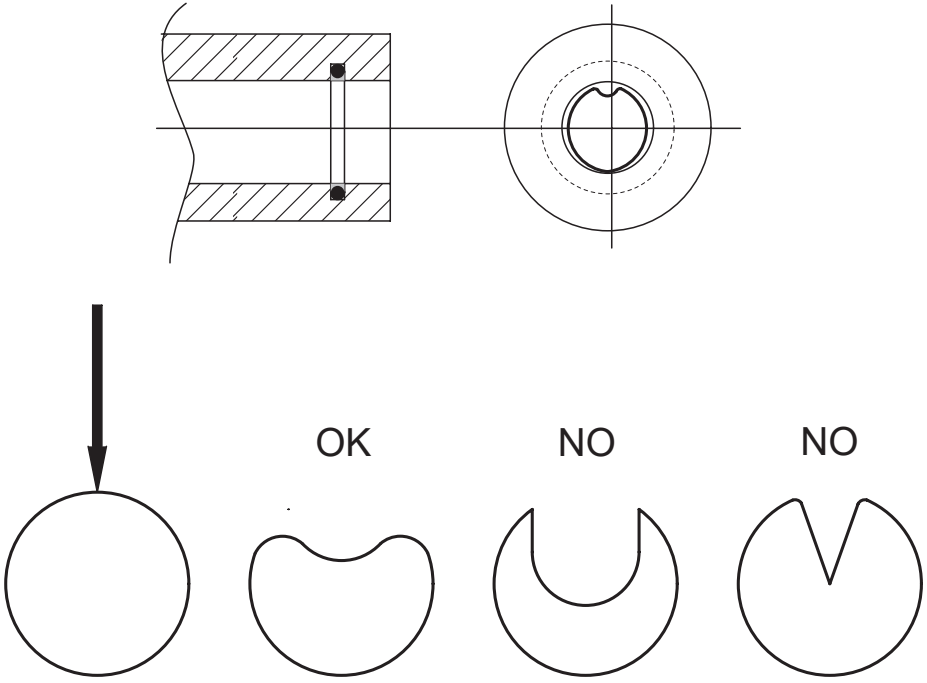


Fig. 9.07

9.4) Replacing the seals pos.52 on the pinion pos.72.

Disassembly

9.4.01) After removing the head as described from par.9.2.01 to par.9.2.03 and from par.9.3.01 to par.9.3.02, extract all the parts as shown in fig.9.08.

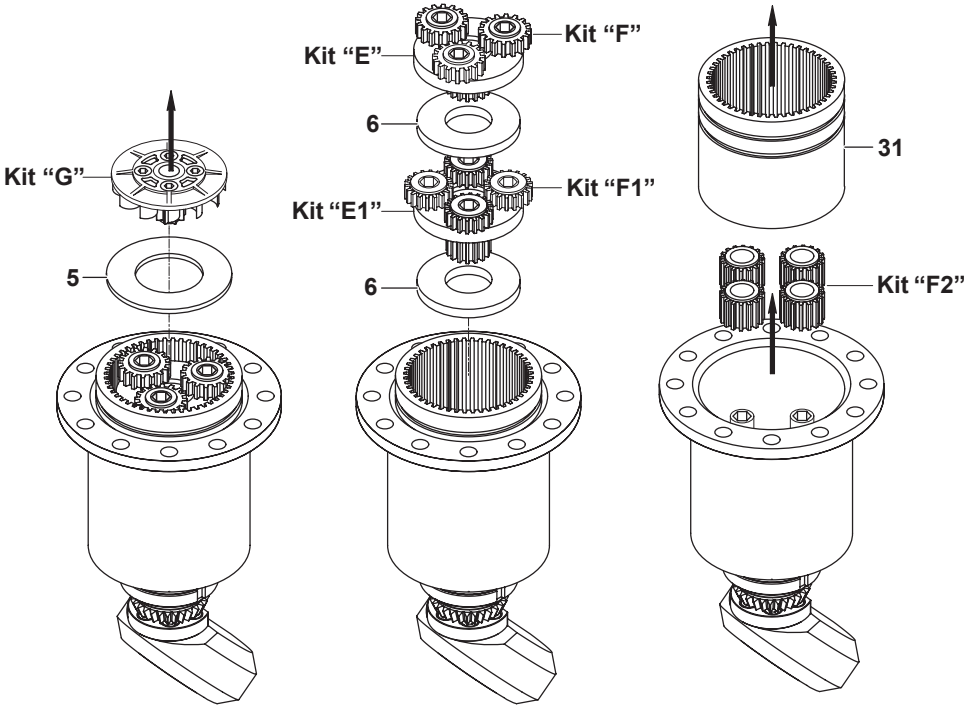


Fig. 9.08

9.4.02) Using the dedicated spanner, unscrew and disassemble the output shaft (Kit “D”), the bearing unit pos.43-44-45 (Fig.9.09 – 9.10).
9.4.03) Slide out the complete pin/square unit pos.47-80, fig.9.11.
9.4.04) Using the special tool, remove the ring and o-ring pos.52 from the pinion pos.72 (Fig.9.12).

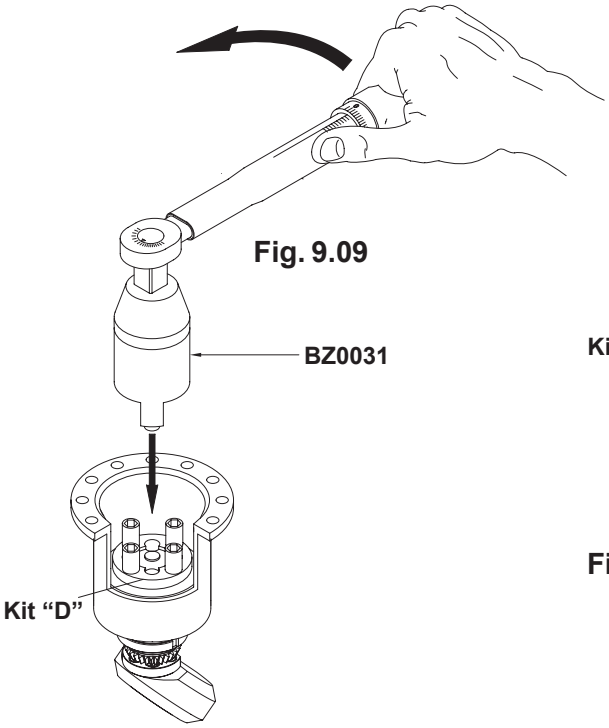


Fig. 9.09

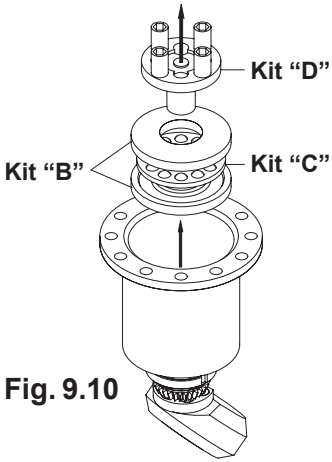


Fig. 9.10

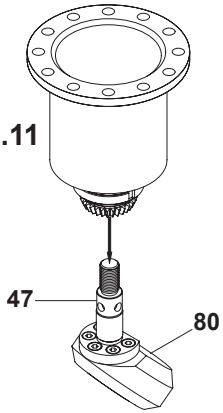


Fig. 9.11

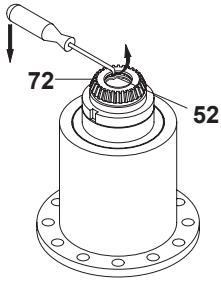


Fig. 9.12

Assembly

9.4.05) Replace the O-ring in its seat and then the sealing ring pos.52 making them adhere perfectly to the O-ring using a blunt tool.
To make it easier to insert the ring, follow the instructions in fig. 9.07.
9.4.08) Make sure everything is assembled correctly, in place in its housing and properly greased.
9.4.09) Fit the bearing unit pos.43-44-45 in the bottom casing pos.40.
9.4.10) Insert the complete pin/square unit in the pinion pos.72.
9.4.11) Apply a few drops of Loctite 222 to the threading on the output driveshaft pos.18 (Kit ”D”), screw it on the pin pos.47 and tighten it using the specific wrench.
9.4.12) Fit the ring pos.31 into the bottom casing pos.40.
9.4.13) Fit the four gears pos.10 (Kit “F2”) on the output driveshaft pos.18 (Kit “D”).
9.4.14) Insert in the following order the washer pos.8, the satellite carrier pos.15 (Kit “E1”) and the four satellites pos.32 (Kit “F1”); repeat the sequence for the next stage by inserting the second washer pos.8, the satellite carrier pos.13 (Kit “E”) and the three satellites pos.29 (Kit “F”) fig. 9.16.
9.4.15) Rest the washer pos.5 on the ring pos.31, check assembly is correct, and ensure there is no friction between the part pos.5 and the gears pos.29 (see Fig. 9.13).
9.4.16) Fit the O-ring pos.24 and the complete impeller unit (kit “G”), as per (Fig.9.13).
9.4.17) Follow the instructions from par.9.2.04 to par.9.2.07.

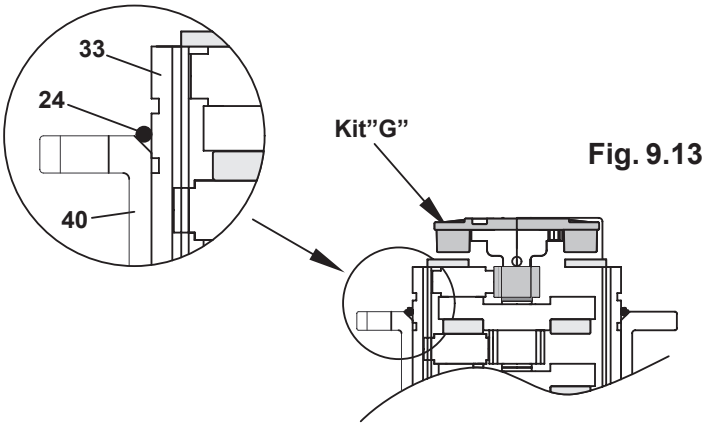


Fig. 9.13

9.5) Adjusting the bevel gear pos.72-pos.84.

9.5.01) Using the special half-moon spanner, loosen the ring nut pos.67 and tighten the bottom casing slightly pos.40.
9.5.02) Unscrew the bottom casing pos.40 until the semi-spherical end part and output shaft are unable to turn.
9.5.03) Slowly screw down the casing pos.40 so that between the teeth of the pinion pos.73 and the pin pos.80 there is a play of approx. ~ 0.1mm (check with feeler gauge).
9.5.04) Slightly tighten the ring nut pos.70, check the rotation of the end semi-spherical part to ensure there is no friction.
9.5.05) Once adjusted as required, tighten the ring nut pos.70 against the bottom casing pos.40.

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

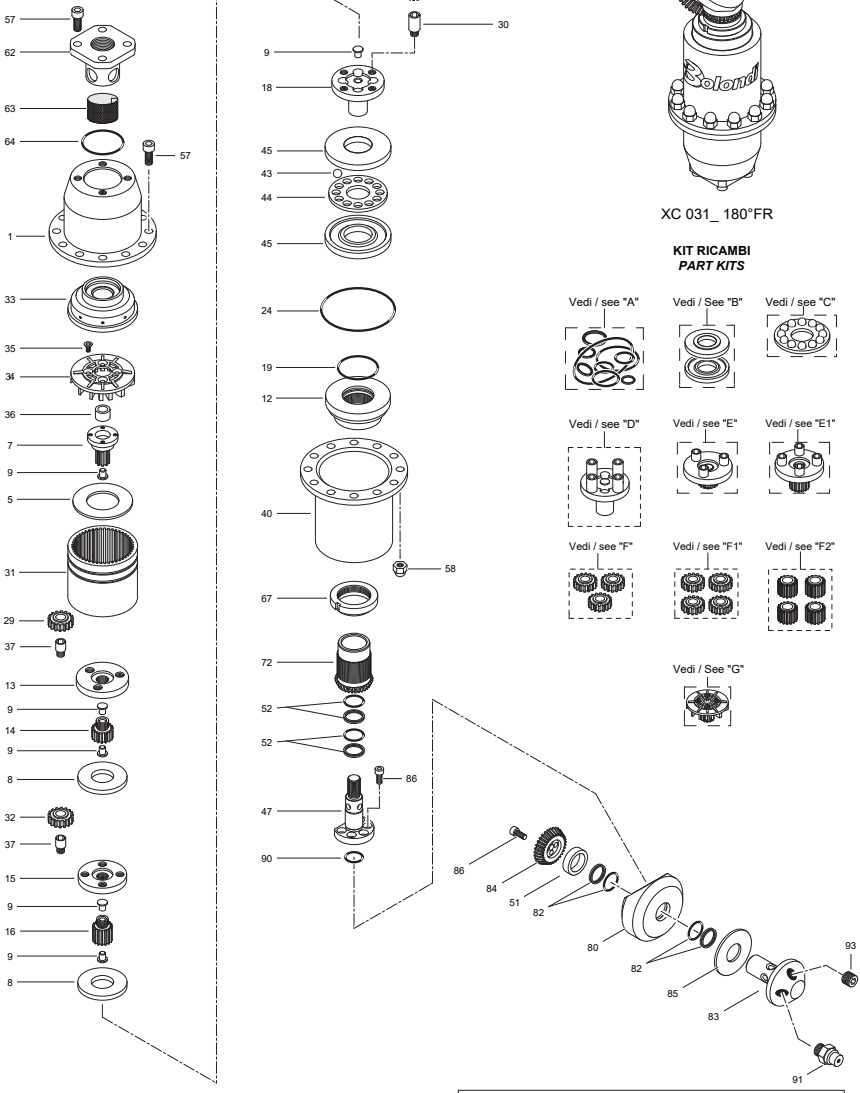
always indicate:
- the model and serial number of the head (see identification plate)
- the code and description of the part ordered (see table)
- the quantity required
- the preferred means of shipment

(11-000-00-EN)

TABLE “B” TORQUE WRENCH SETTINGS

TABLE TORQUE WRENCH SETTINGS		
Structural screws		
Pitch	Nm	
M5	7	All
M6	11	All
M10x1,00	20	All
M27x1,00	27	All
Nozzles		
1/8 npt	5	All

EXPLODED VIEW



Bolondi CLEANING HEADS	VIA A.VOLTA 4 MONTECCHIO E. (R.E.) ITALY				TEL. +39 522 864434 FAX. +39 522 865780 E-mail bolondi@bolondi.com		
MODIFICA	1	2	3	4	5		DISEG. P.L.
FOGLIO	XXXX	0025					DATA
DATA	30.06.2009	01.01.2017					01.01.2017
MODELLO: XC031_180°FR-AAM							VERSIONE
NOTE:							02

NOTES

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

E-mail: bolondi@bolondi.com
Web site: http://www.bolondi.com