45 YEARS LUBRICATION Technologies, Inc.
AN UNCOMMON TECHNICAL RESOURCE
(413) 788-LUBE (5823)
www.LubeTechnologies.com
AUTHORIZED DISTRIBUTOR

MINIMAL LUBRICATION SYSTEMS

OPERATING INSTRUCTIONS

For design details and overall dimension see the catalogue.

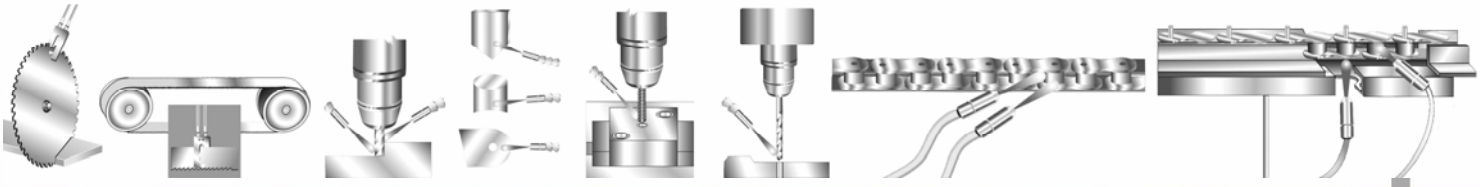
Attachment

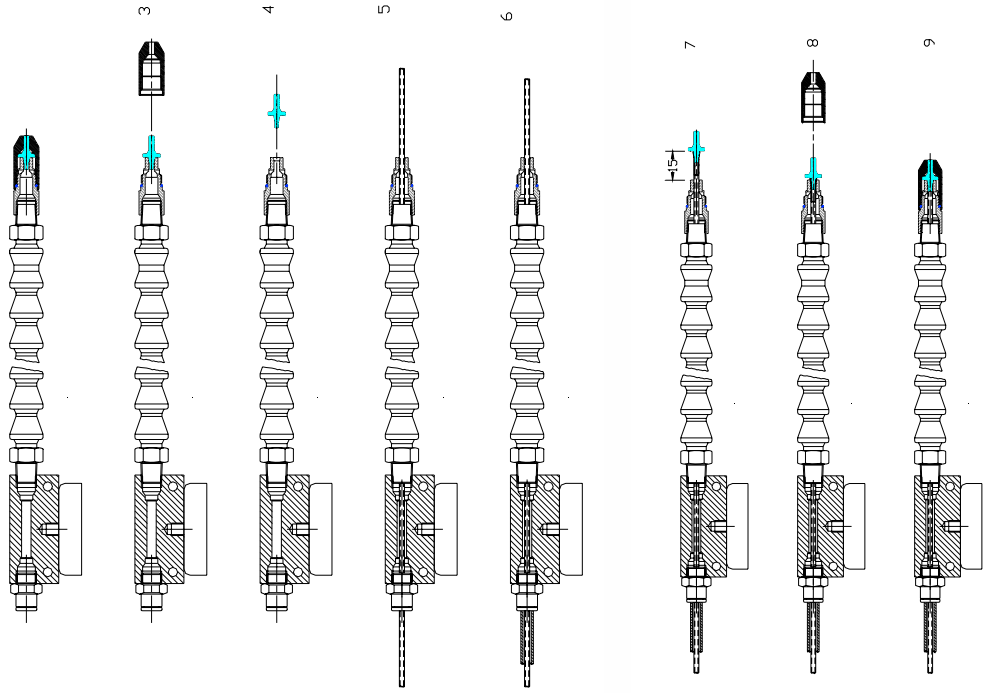
The dosing device may be fastened permanently to the machine by screws through the bores in the back panel of the device. When fastening the dosing device, please make sure that:
The lubricant container can be filled easily.
The dosing device is mounted as horizontally as possible.

The nozzle support should be fixed close to the point of application, to allow optimum nozzle alignment with the smallest possible distance to the lubrication point.

HOW TO ASSEMBLE THE END TUBE WITH NOZZLE

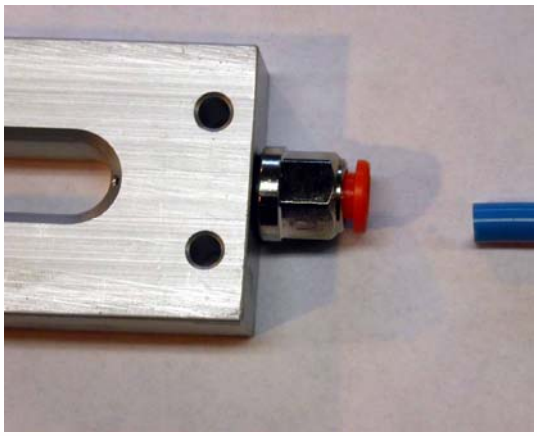
Fix the exact length of the coaxial hoses and, if it is less than the length supplied, cut the not necessary part making attention to have the inside tube more longer of 500 mm than the outside tube
Remove the hexagonal head from the loc-line or steel tube Remove the nozzle
Insert the inside hose from the base plate until the end of the loc-line or the steel tube
Join the outside hose to the base
Cut the inside hose
Join the nozzle
Connect the hexagonal head

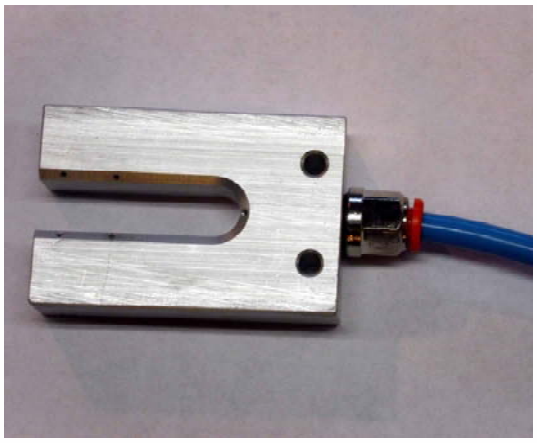


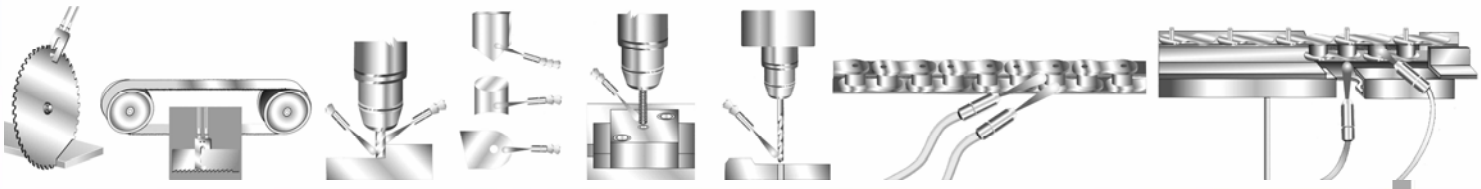


HOW TO ASSEMBLE THE SADDLE NOZZLE

Fix the exact length of the coaxial hoses and, if it is less than the length supplied, cut the not necessary part making attention to have the inside tube more longer of 5 mm than the outside tube







10. *The nozzle support should be fixed close to the point of application to allow optimum alignment with the correct distance to the lubrication point. Magnetic base plates are provided to spot at different places.*

11. *The compressed air supply is connected via a push-in fitting. The air must be completely oil-free, dry and clean by mean of a standard particle filter of 5 micron, with a working pressure between 4 bars (60 psi) and 8 bars (120 psi). This condition will be the same when the air has to be supplied with two separate lines.*

12. *The solenoid valve is supplied with a pg-9 connector for electrical connection. When the coil is energized the air can go to the frequency generator and to the nozzle. The solenoid valve has to be energized before the tool will start to machine and until he will finish. For all the lubetool that have not the solenoid valve has to be used a solution of this kind.*

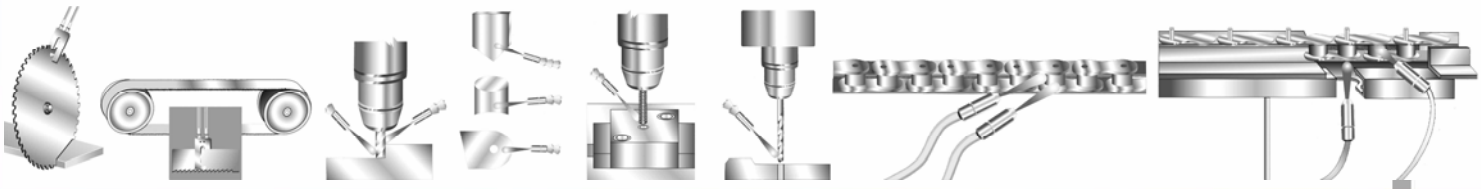
13. *The reservoir can have a low level switch with a pg-9 connector for electrical supply. The contact is open when the reservoir is full and will close when empty. It is possible to use this contact to signal a fault.*

Fill the reservoir with NATURE 707 EP and the unit is ready for use.

Important note:
If lubricants of other brands are used, there is a risk of decomposition or residue formation. For this reason, the correct functioning of the Unit can only be guaranteed when NATURE 707 EP is used.

Priming the Lubetools

The minimal Lubrication System is delivered in the fully tested condition. Prior to the initial start-up and after any maintenance work on the coaxial line or nozzles, the system must be primed. As long as the lubricant level in the reservoir does not fall too low, no further priming of the system should be required. An accessory level-monitoring device to prevent inadvertent over-emptying is available.



Priming is carried out as follows:

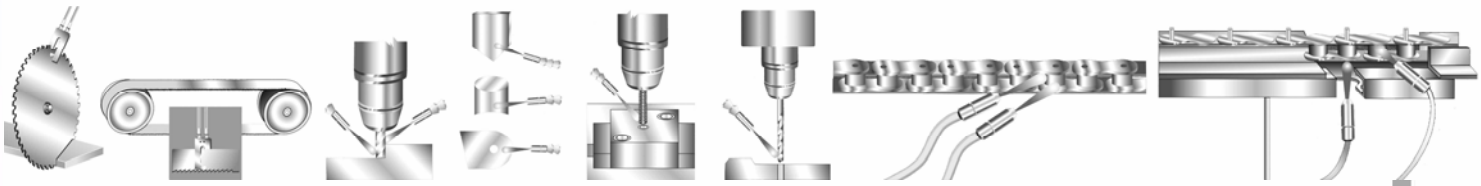
1. *Fill the reservoir with clean lubricant*
2. *Slightly loose the drain plug with an Allen key 5 mm and drain off some lubricant until it emerges without any bubbles*
3. *Increase the frequency of the pulse generator to maximum (approx. 66 impulses per minute). See page 6*
4. *Increase the piston stroke of the metering pump to maximum supply rate. See page 5*
5. *Connect the compressed air and fill the capillary tube until the pipe is completely free from bubbles along its entire length. The time depends on the line length*
6. *When the priming process has been completed, reset the pulse frequency and the piston stroke to their operating values. See page 5 and 6*

Adjustment of the Lubetool

1. *Pulse generator adjustment: The pneumatic time relay controls the metering pump. The pulse frequency is continuously variable between 0 and about 66 impulses per minute (page 6)*
2. *Metering pumps adjustment: The lubricant is metered precisely and at high pressure by the piston pump, whose delivery can be varied rotating the hand operated ratchet adjuster.*
3. *Atomizing air adjustment: The atomizing air forms a micro fine lubricating film from droplets of the lubricant, so influencing the degree of atomization, cooling and chip formation. The air for the nozzle can be adjusted by means of the adjustment screw.*
4. *The flow rate is set correctly if no mist develops when air is supplied*
5. *IMPORTANT: the oil have to arrive on the tool before he will begin to machine*

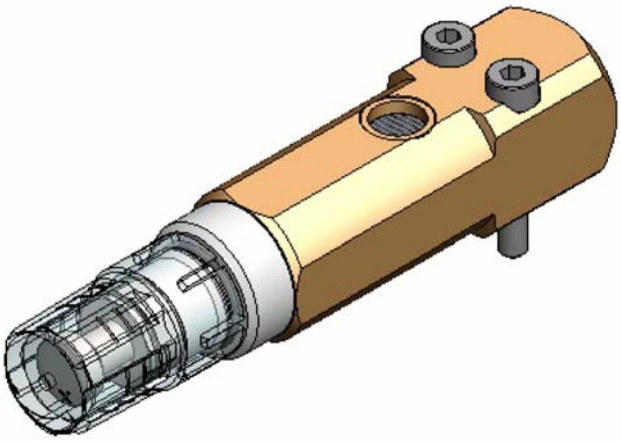
LUBETOOL ADJUSTMENT WHEN USING END TUBES WITH NOZZLE

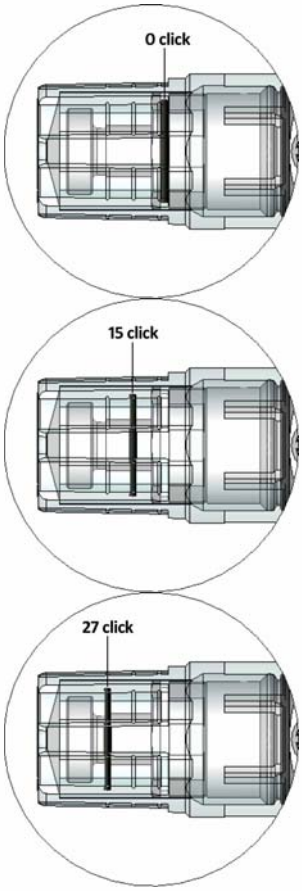
FREQUENCY GENERATOR: 12 STROKES/MINUTE
METERING PUMP: 5 MM³
The above settings serve as guideline values for many applications. However, each individual case requires optimization in accordance with the relevant operating conditions. Past experience has shown that the tolerances are often quite narrow. Normally the settings can be reduced for the most processes.



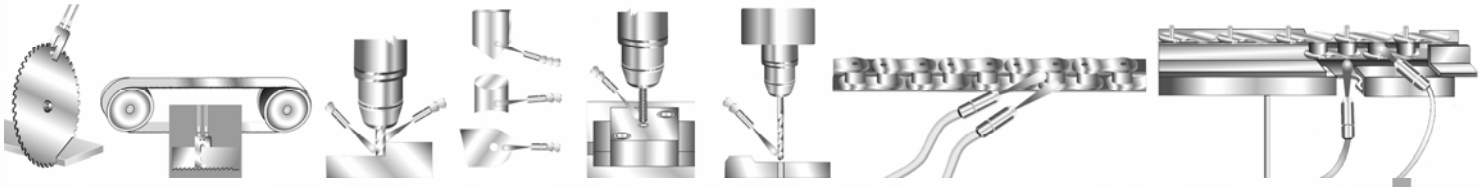
HOW TO AD JUST THE DISCHARGE PER STROKE

TURNING THE ADJUSTER CLOCKWISE WILL DECREASE THE PUMP DISCHARGE AND TURNING THE ADJUSTER ANTI-CLOCKWISE WILL INCREASE THE PUMP DISCHARGE.

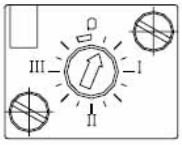




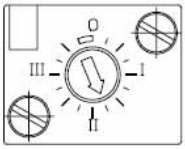
SCATTI *INCREMENTS*	PORTATA / CICLO *DISCHARGE / CYCLE*
CLICK 0	39,00
CLICK 1	37,23
CLICK 2	35,47
CLICK 3	33,70
CLICK 4	31,93
CLICK 5	30,16
CLICK 6	28,40
CLICK 7	26,63
CLICK 8	24,86
CLICK 9	23,10
CLICK 10	21,33
CLICK 11	19,56
CLICK 12	17,79
CLICK 13	16,03
CLICK 14	14,26
CLICK 15	12,49
CLICK 16	10,73
CLICK 17	8,96
CLICK 18	7,19
CLICK 19	5,42
CLICK 20	3,66
CLICK 21	1,89
CLICK 22	0,12
CLICK 23	0,00
CLICK 24	0,00
CLICK 25	0,00
CLICK 26	0,00
CLICK 27	0,00



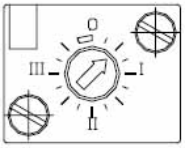
HOW TO ADJUST THE FREQUENCY GENERATOR WITH AIR AT 6 BAR (90 PSI)



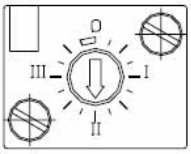
66 CICLI / MINUTO
66 STROKES / MINUTE



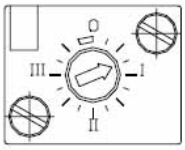
5 CICLI / MINUTO
5 STROKES / MINUTE



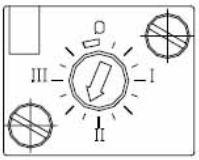
37 CICLI / MINUTO
37 STROKES / MINUTE



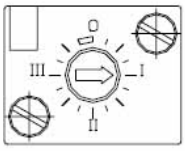
4 CICLI / MINUTO
4 STROKES / MINUTE



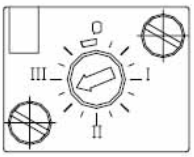
21 CICLI / MINUTO
21 STROKES / MINUTE



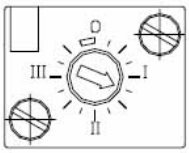
3 CILCI / MINUTO
3 STROKES / MINUTE



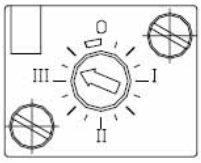
13 CICLI / MINUTO
13 STROKES / MINUTE



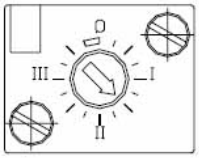
2 CILCI / MINUTO
2 STROKES / MINUTE



10 CICLI / MINUTO
10 STROKES / MINUTE

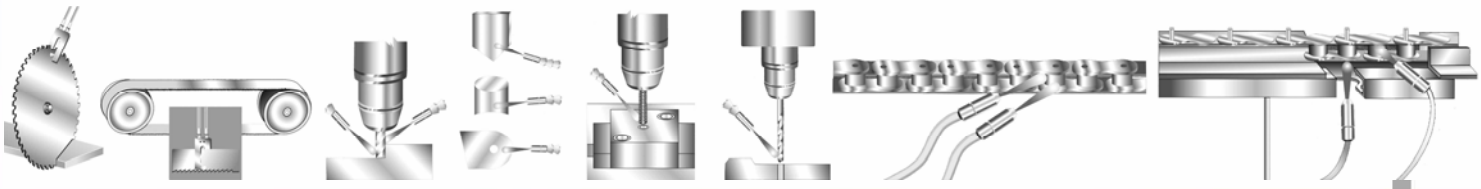


1 CICLO / MINUTO
1 STROKE / MINUTE

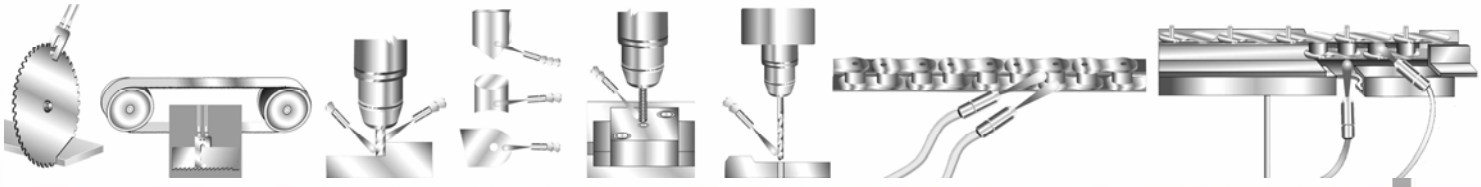


6 CICLI / MINUTO
6 STROKES / MINUTE

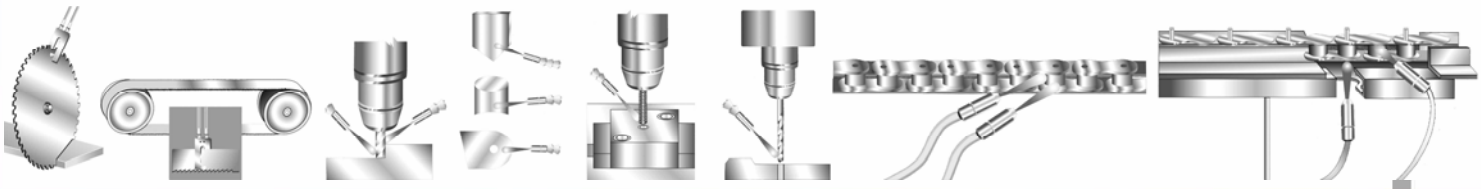
WITH THE AIR PRESSURE 5 BAR (75 PSI) THE VALUES HAVE TO BE INCREASED OF ABOUT 7%
WITH THE AIR PRESSURE 7 BAR (105 PSI) THE VALUES HAVE TO BE DECREASED OF ABOUT 4%
WITH THE AIR PRESSURE 8 BAR (120 PSI) THE VALUES HAVE TO BE DECREASED OF ABOUT 8%



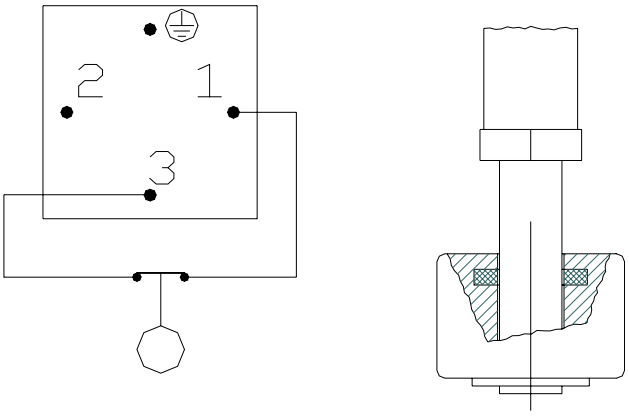
MANUTENZIONE		***MAINTENANCE***	
L'UNITA' NON EROGA LUBRIFICANTE IN NESSUNA MANDATA		*THE UNIT DOES NOT DELIVER LUBRICANT IN ALL THE OUTLETS*	
CAUSE	RIMEDI	*FAULT*	*REMEDY*
Mancanza lubrificante nel serbatoio	Introdurre lubrificante Rimuovere l'aria dal circuito	*Lack of lubricant in the reservoir*	*Fill reservoir with lubricant* *Purge again the system*
Mancanza d'aria nel circuito d'alimentazione	Verificare il circuito e ripristinare il valore di pressione minimo	*Air lack in the main line*	*Check the system and restore the air in the main line*
Malfunzionamento dell'elettrovalvola	Verificare il collegamento elettrico e pneumatico d'alimentazione Verificare il funzionamento dell'elettrovalvola e, se necessario, sostituirla.	*The solenoid valve does not operate*	*Check the electrical and pneumatic connections* *Check the operation of the solenoid valve and, if necessary, change*
Malfunzionamento del generatore di frequenza	Verificare il collegamento pneumatico d'alimentazione Verificare il funzionamento del generatore di frequenza e, se necessario, sostituirla	*The frequency generator does not operate*	*Check the pneumatic connection* *Check the operation of the frequency generator and, if necessary, change*
Tubazione di collegamento serbatoio - sottobasi danneggiata o scollegata	Verificare l'ancoraggio della tubazione Sostituire la tubazione Sostituire il raccordo	*Hose from reservoir to the base damaged or back off*	*Check if the hose is connected to the fittings* *Install a new hose* *Install a new fitting*
Presenza d'aria nel circuito	Aprire il grano di spurgo aria Lasciar defluire il lubrificante fino alla scomparsa dell'aria Richiudere il grano	*Air in the oil lines*	*Open the air purge plug* *Drain lubricant until will be free of air* *Close the air purge plug*
Tubazione di collegamento generatore di frequenza pompe danneggiata o scollegata	Verificare l'ancoraggio della tubazione Sostituire la tubazione Sostituire il raccordo	*Hose from frequency generator to the pump damaged or back off*	*Check if the hose is connected to the fittings* *Install a new hose* *Install a new fitting*
PRESENZA DI LUBRIFICANTE NELLA TUBAZIONE COASSIALE DELL'ARIA		*LUBRICANT IS GOING IN THE AIR SIDE OF THE COAXIAL HOSE*	
CAUSE	RIMEDI	*FAULT*	*REMEDY*
Mancanza di tenuta nel collegamento di partenza della tubazione capillare	Rimuovere il tubo esterno della tubazione coassiale Rimuovere il raccordo inferiore di fissaggio Verificare se il tubo capillare e' calzato sull'ugello fino alla battuta Verificare se vi sono impurità sul piano dell'ugello Riposizionare le tubazioni	*There is not seal for the capillary hose in the pump outlet*	*Remove the external hose of the coaxial hose* *Remove the fitting of the external coaxial hoses* *Check the seal between the capillary hose and the nozzle* *Check the impurity presence on the flat nozzle area* *Install again the fitting and the hoses*



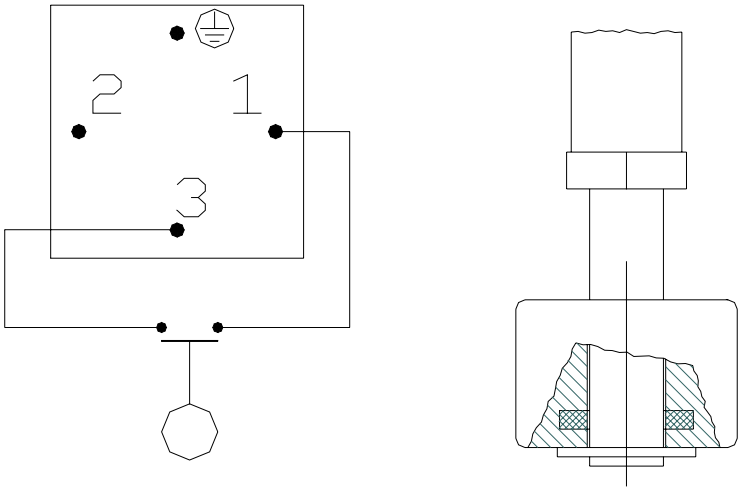
MANUTENZIONE		***MAINTENANCE***	
L'UNITA' EROGA LUBRIFICANTE SOLO IN ALCUNE MANDATE		*THE UNIT DOES NOT DELIVER LUBRICANT FROM SOME OUTLETS*	
CAUSE	RIMEDI	*FAULT*	*REMEDY*
Mancanza d'aria nel circuito d'alimentazione	Verificare il circuito e ripristinare il valore di pressione minimo	*Air lack in the main line*	*Check the system and restore the air in the main line*
Valvole di mandata sporche o danneggiate	Bloccare l'alimentazione del lubrificante e rimuovere le micropompe una alla volta Rimuovere il tappo della valvola di mandata e verificare la presenza d'impurità nella sede di lavoro e sulla guarnizione Pulire con detergenti non aggressivi e soffiare con aria compressa Rimontare la valvola e la micropompa	*Delivery valve damaged or dirty*	*Close the oil line to the pumps* *Remove the pump (one at a time)* *Remove the delivery valve plug* *Check impurity presence on the valve seat and on the "o"- ring* *Clean with non aggressive detergent and compressed air* *Install again the valve in the pump*
Rottura molla pistone micropompa	Sostituire la molla	*Pump piston spring broken*	*Change the spring*
Rottura guarnizione pistone micropompa	Sostituire la guarnizione	*Pump piston seal broken*	*Change the seal*
Rottura anello "o"-ring pistone micropompa	Sostituire l'anello "o"-ring	*Pump piston "o"-ring broken*	*Change the "o"-ring*
Pistone pneumatico bloccato	Sostituire la micropompa	*Pneumatic piston locked*	*Change the pump*
Pistone idraulico bloccato	Sostituire la micropompa	*Hydraulic piston locked*	*Change the pump*
DURANTE LE PAUSE SI SCARICANO UNA O PIU' TUBAZIONI CAPILLARI		*DURING THE PAUSE TIME SOME CAPILLARY HOSES DRAIN THE OIL AND ARE EMPTY*	
CAUSE	RIMEDI	*FAULT*	*REMEDY*
Mancanza di tenuta nel collegamento di partenza della tubazione capillare	Rimuovere il tubo esterno della tubazione coassiale Rimuovere il raccordo inferiore di fissaggio Verificare se il tubo capillare e' calzato sull'ugello fino alla battuta Verificare se vi sono impurità sul piano dell'ugello Riposizionare le tubazioni	*There is not seal for the capillary hose in the pump outlet*	*Remove the external hose of the coaxial hose* *Remove the fitting of the external coaxial hoses* *Check the seal between the capillary hose and the nozzle* *Check the impurity presence on the flat nozzle area* *Install again the fitting and the hoses*

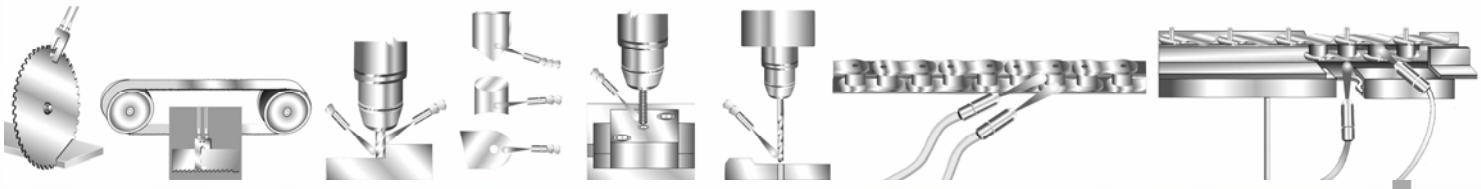


LOW LEVEL SWITCH CONNECTION



LOW LEVEL SWITCH CONNECTION
OPEN CONTACT WHEN RESERVOIR IS EMPTY





Ilc equipment 12 months guarantee

We guarantee, for a period of 12 months from the date of original purchase, that this equipment is free of defects in material and work man ship.

We agree to repair or replace, at our opinion, any part or parts, found to be defective, at no charge, provided said part or parts are returned, transportation prepaid, within guarantee period.

This agreement excludes evidence of defects caused by abnormal use.

All the parts of this unit have been carefully inspected before assembly and after assembly.

This unit has been carefully tested by the inspection department

CODICE ARTICOLO_____
CODE

NUMERO DI SERIE_____
SERIAL NUMBER

In the event of claims for shortage, this tag must accompany claim with date of original purchase.