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Telecom Test Solutions

FIBRE OPTIC CABLE BLOWING MACHINE USER'S BOOK

- 1-) SELECTING AND LOCATING CABLE SEALS
- 2-) SETTING AXIS FOR CABLE DIAMETER
- 3-) PREPARING PULLEYS
- 4-) LOCATING PRE-INSTALLED DUCT AND CABLE
- 5-) MAKING AIR CONNECTIONS COMING FROM AIR COMPRESSOR
- 6-) PRESSURE GAUGES, PRESSURE VALUES AND SETTING PRESSURES
- 7-) USING SHOCK LUBRICANT
- 8-) USING DIRECTION CONTROL VALVE
- 9-) USING PALETTE CONTROL VALVE
- 10-) TD MAINTENANCE INSTRUCTIONS
- 11-) SAFETY RULES
- 12-) TRANSPORTING MACHINE
- 13-) CORRECTION OF FAULTS
- 14-) TOOLS GIVEN WITH MACHINE

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1) SELECTING AND LOCATING CABLE SEALS



Figure 1

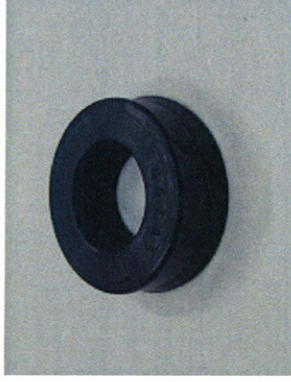


Figure 2



Figure 3



Figure 4

Firstly measure cable diameter with callipers (figure 1). The selected cable seal's inside diameter (figure 2) must be same with cable's outside diameter and it must work slippery on cable (figure 3) not to let air leak .Cut cable seals as you see on figure 4.

NOTE: You must inform us your cable diameter that you will install with your TD order.

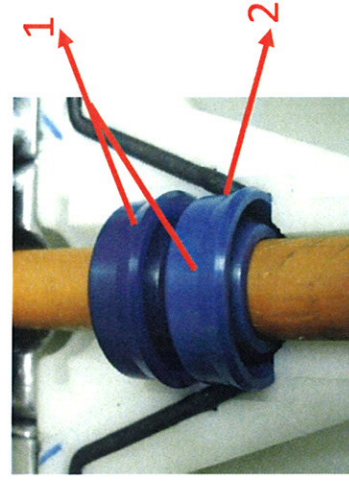


Figure 5

Canals of the selected cable seals must locate to install way of cable. If not , we can not use compressed air productive which comes from compressor(figure5-1).

Touch faces of black o-rings with cable seals must be cutted angular(figure5-2)

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2-) SETTING AXIS FOR CABLE DIAMETER

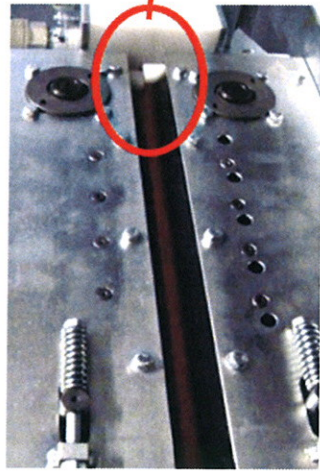


Figure 6-a

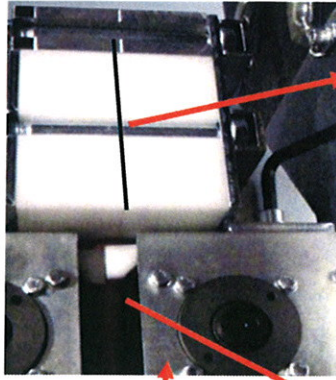


Figure 6-b

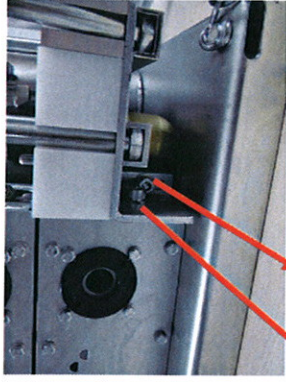


Figure 6-c

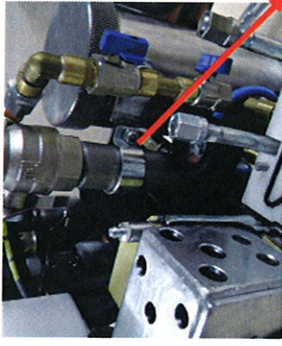


Figure 6-d

Axis of the machine must be set, when the cable diameter is changed to make productive blowing. Locate the cable you will blow into machine as seen on figure 6-a to set axis. Loosen bolts (Number 3,4 and 5) and set on same level cable axis in machine (no:1) with touch face (No:2) between up and down exit box parts. Then setting axis press bolts (3, 4, 5, numbers on figure 6-c / 6-d) to fix axis for your cable.

NOTE: If you inform our company about your cable diameter before you buy machine, machine axis will be set by our company. When you will blow different cablediameter, you will have to set axis as we explained up wrench set will be given with machine.

3-) PREPARING PULLEYS

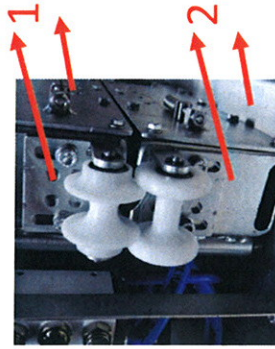


Figure 7

Pulleys on figure enable the cable to go into the machine on axis easily. Pulleys' distance is set by bolts (No:1,2 on Figure 7) for cable diameter. Pulleys' distance must be closed, if not, cable can get out from sides and break.

4-) LOCATING PRE-INSTALLED DUCT AND CABLE

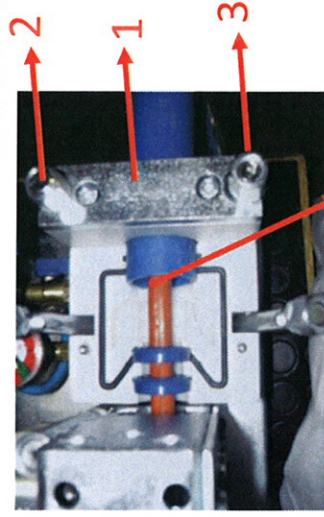


Figure 8

Loosen bolts (No:2,3 on figure 8) firstly to assemble Duct to machine and then leave the upper part (No:1) . Drive duct until the face number 4. Then put the upper part (No:1) on cable and press bolts (no:2,3) to finish duct assemble. Locate cable into machine as shown on figure 8.

NOTE: Selecting cables, setting cable axis, preparing pulleys are done when the cable diameter is changed.

5-) MAKING AIR CONNECTIONS COMING FROM AIR COMPRESSOR

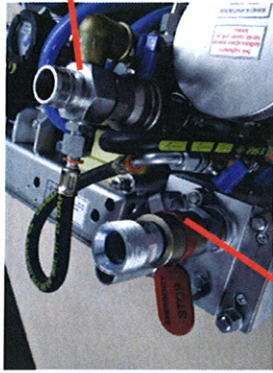


Figure 9-a

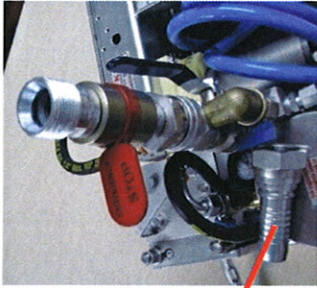


Figure 9-b

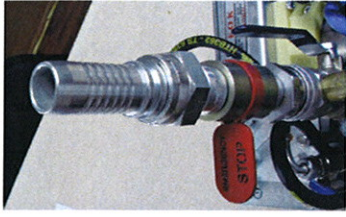


Figure 9-c

Connect 1" air hose to machine with quick connection which comes from air compressor. Quick connection main body is assembled on machine as you see in figure on 9-a-1. Quick connection moving part is given with machine as you see in figure 9-a-2. Assemble quick connection moving part to the machine as you see in figure 9-b. Connect air hose to the part 3 in figure 9-b. Then assemble parts as you see in figure 9-c.

6-) PRESSURE GAUGES, PRESSURE VALUES AND SETTING PRESSURES

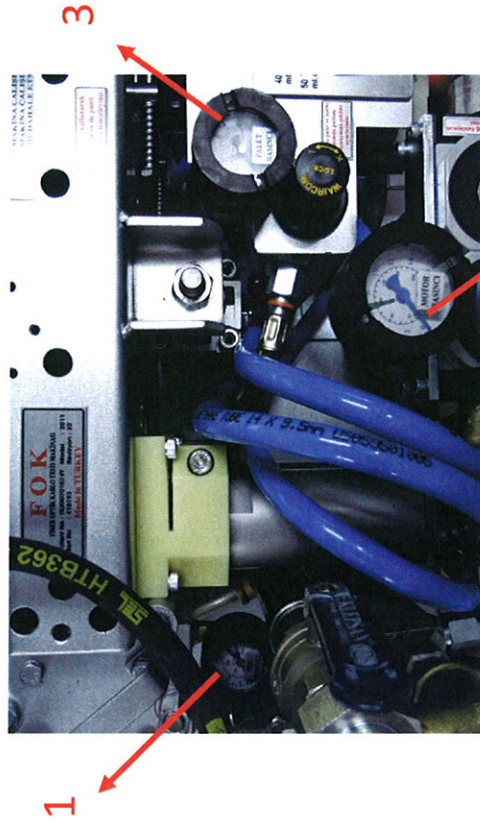


Figure 10

1-) Duct Pressure Value; Duct blown in world standards must have minimum 10,5 bar (You must see this value on gauge shown in figure 10-1) to blow your cable. If not, you can't blow your cable.

2-) Air Motor Pressure; You must see 6.5-7 bar on gauge (figure 10-2) when you are blowing. If you work on higher values this will cause your motor pulleys to be damaged and your air motors will break down.

3-) Pallettes Pressure Value; Pneumatic piston supplies pallette pressure. This system prevents the wear on your cable between pallettes. You must set this pressure value with checking weather conditions. Your cable mustn't skid between pallettes in normal conditions this value range must be between 2-4 bars.

NOTE: Setting air engine pressure and pallette pressure is explained on the next page. There is no pressure setting for DUCT

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6-a) SETTING PALETTE PRESSURE

You can set piston pressure (figure 11-1) on palettes with using regulator (figure 12-2) and you can control pressure on gauge (figure 12-3). Do not increase pressure value too much if you increase it you can damage your cable and air motors.

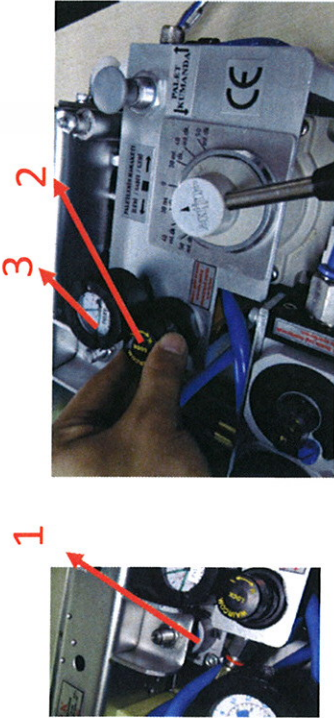


Figure 11

Figure 12

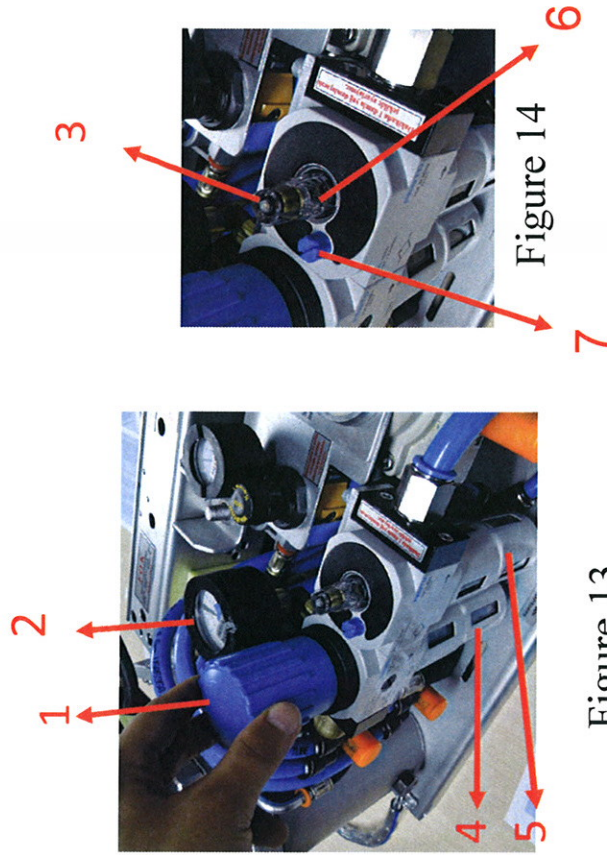


Figure 13

Use screwdriver (figure 14-3) to set the amount of oil for air motors.

Current amount of oil is one drop in one minute. You can see drop in (figure 14-6).

6-b) SETTING AIR MOTOR PRESSURE LUBRICATION STYLE

Use the mechanism (figure 13-1) to set pressure of air motors and control on gauge (figure 13-2). Air motors must work between 6.5-7 bar.

The reservoir (figure 13-4) takes moisture of pressurized air which comes from compressor. Use tap (figure 15-1) to discharge collected moisture. You must do this operation not to let rust the parts of air motors.

Put oil for air motors to reservoir (figure 13-5). And use screw (figure 15-2) to re-fill it. This is necessary to lubricate bearings of air motors.

When the blue stopper opened (figure 14-7) lubrication for air motors will be closed



Figure 15

NOTE: Our TD is ready to install cable after making the configurations we stated as number 1,2,3,4,5,6 in earlier pages. We can start to install our cable by using direction control valve.

7) USING SHOCK LUBRICANT

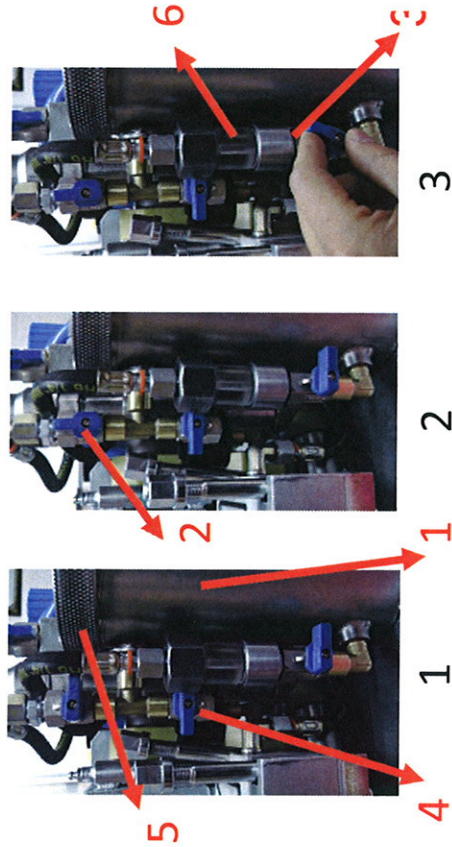


Figure 16

To reduce friction between cable and duct put special oil (lubricant) into reservoir (Figure 16-1-1). You may see the closed position for lubricant valves on figure 16-2. To let oil into duct open valve (figure 16-2-2) then open-close valve in a short time (figure 16-3-3) This quick open-close move will let oil into duct.

You may check duct lubricant from indicator (figure 16-3-6) to re-fill reservoir, open valve (figure 16-1-4) and discharge pressurized air. Then this discharge close valve. Then open reservoir lid. (figure 16-1-5) and put lubricant oil and close lid again tightly until there is no air leak



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8) USING DIRECTION CONTROL VALVE

You can regulate fibre optic cable direction and speed (0-60m/min) by moving direction control valve to right or left.

NOTE: You must use stop position when you are changing the direction. If you pass the opposite direction directly and don't stop on stop position this will damage the gears of air motors.

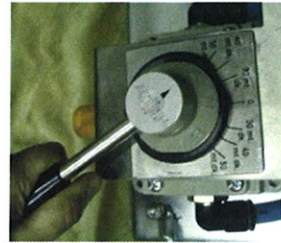


Figure 17

9) USING PALETTE CONTROL VALVE



Figure 18

Palettes can join or leave with buttons on figure 18-1 and figure 18/2. Push or pull button on figure 18-2 while pushing button 18-1. You can set movement velocity of upper palettes by using valves on figure 18-3.

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10) TD MAINTENANCE INSTRUCTIONS

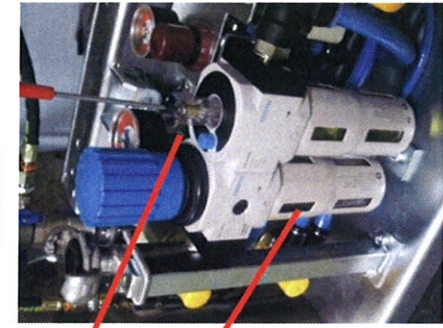


Figure 18

To maintain air motors, open oil set screw until end (Figure 18-1) and run motors 30-35 secs on this position. This operation supplies bearing lubrication for air motors and parts.

This operation must be repeated in every evening after the work ends, if not the moisture collected in motors will cause the bearings to rust.

The foreign objects entering into reservoir (figure 18-2) causes to the filter be blocked. This changes its colour and its shape. You must change this filter before this case occurs, if not air pressure yield will be less and you will have problems about the machine.

You can see the demontaging of air filter on figure 19. Firstly open reservoir (figure 19-1) and nut (figure 19-2) then you can take air filter (figure 19-3)

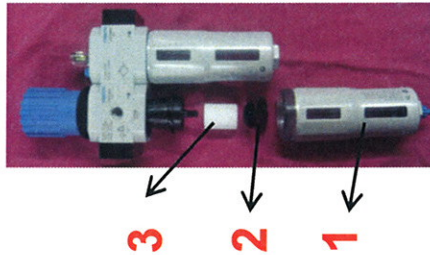


Figure 19

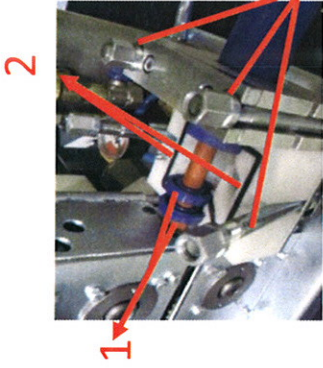


Figure 20

Put out cable seals (figure 20-1) and o-rings (figure 20-2) to make care of exit box (figure 20). Clean their slots with diesel oil and brush. If cable seals and orings are beaten, change them otherwise there will be air leak.

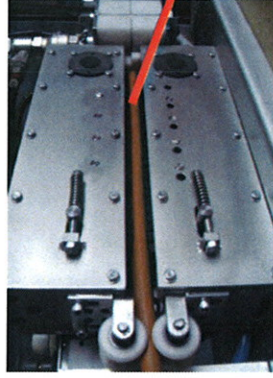


Figure 21

Locate your cable in to machine as shown in figure 22. Palletes must press to cable and palletes mustn't touch each other. If they touch, this means your palletes are worn away. Palletes must be changed.



Figure 22

If the blowing area is muddy, mud can go into the palletes of the machine, you may clean mud with pressured water and using holes as you may see on figure 22 and 23.

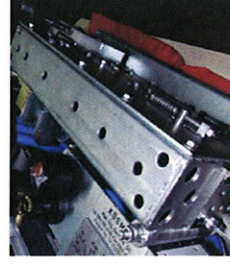
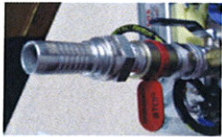


Figure 23

11) SAFETY RULES



If there is something happens unusual on machine push emergency button to get out pressurised air from machine then close compressor quickly.



Work machine with only bright places
Do not touch working parts on machine.
Use gloves and ear plugs while working with machine



Do not open cover before evacuating air on box.



Do not open water tap and oil jar before evacuating air on machine



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Close nuts correctly before giving air on machine. If nuts and bolts are beaten change them with new ones.



You must check quick connection before giving air to machine. Take up quick connection part as you see in figure 24 to check it. Do not use if it is coming up.



Figure 24

12) TRANSPORTING MACHINE



After taking out in box. carry cable blowing machine as on figure 24.



Carry cable blowing machine as on figure 25.

IMPORTANT NOTE=TAKE OUT AIR ON MACHINE BEFORE CARRING MACHINE.

Figure 25

Figure 26



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13) CORRECTION OF FAULTS

<p>If your machine can not catch cable and palettes skids on cable ,it means that your palettes are damaged and needs to change or palette pressure is low. (Look 6/6-A)</p>
<p>If cable exit box squeeze cable it means that cable seals are false chose correct cable seals. (Look 1)</p>
<p>If there is oil or air leaking on exit box palettes side it means that your cable seals are false or montaged false direction. (Look 1)</p>
<p>If there is air leaking on exit box ,clean surfaces of exit box and change o-rings. (Look 10)</p>
<p>If your machine is working hardly while you are blowing cable ,it means that your ducts air pressure can be less, you need to increase your air pressure which is coming from compressor.It must be minimum 12 bar/10.5metercup/minute. (Look 6)</p>
<p>If your cable blowing machine is working but you can not blow cable in ducts it means that your ducts can be plugged.You need to solve the problems in ducts. (Look 15-1)</p>
<p>If palettes of cable blowing machine is not turning it means that bearings are damaged because of slogging or bearings are rusted because of being in wet situation.You must send machine for maintenance.</p>
<p>If your air motor is not turning it means that bearings of air motor are damaged you need to send machine to maintenance. (Look 6-b)</p>
<p>If your air motor is not turning it means that gears are damaged you need to change gears. You must send machine for maintenance.</p>
<p>If your air pressure on motors are reducing while you are cable blowing it means that your air filter is plugged or damaged you need to change it. (Look 10)</p>

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14) TOOLS GIVEN WITH TD MACHINE

USE OF MACHINE TOOLS

- | | |
|---|-------|
| 1) Socket wrench arm set ("T" arm) | 1 Qty |
| 2) Socket wrench arm set mid part (Long: 25 cm) | 1 Qty |
| 3) Socket wrench (16-13) | 1 Qty |
| 4) Open-End wrenchs (8-9 / 10-11) | 1 Qty |
| 5) Allen wrench (5mm, 6mm) | 1 Qty |
| 6) Screw driver (3x80) | 1 Qty |
| 7) Stationery knife | 1 Qty |
| 8) Special air lubricant oil | 1 Qty |
| 9) O-Ring (Ø95x5) | 1 Qty |
| 10) Ø 3,5 O-Ring 50cm | 1 Qty |
| 11) Ø 4 O-Ring 50cm | 1 Qty |
| 12) Ø 8 Air pipe 100cm | 1 Qty |
| 13) Ø14 Air pipe 2mt | 1 Qty |
| 14) Ø 16 Air pipe 50cm | 1 Qty |

NOTE : We set axis line of TD with the information of cable diameter before sending the machine. We send 10 pieces cable seals, 1 piece cable seal slot and 3 pieces of felts with machine for your cable diameter. You can see cable diameter groups under, but if you inform us your cable diameter this will be better.

A) CABLE FOR 4 FOY-6 FOY-12 FOY-24 FOY;

- | | |
|-----------------------------|--------|
| a- Exit box cable seal slot | 1 Qty |
| b- Cable seal 17x32x10 | 10 Qty |
| c- Oil felt | 3 Qty |

B) CABLE FOR 36 FOY-48 FOY-60 FOY ;

- | | |
|-----------------------------|--------|
| a- Exit box cable seal slot | 1 Qty |
| b-Cable seal 18x30x8,5 | 10 Qty |
| c- Cable seal 20x30x8 | 10 Qty |
| d- Oil felt | 3 Qty |

C) CABLE FOR 96 FOY;

- | | |
|-----------------------------|--------|
| a- Exit box cable seal slot | 1 Qty |
| b- Cable seal 22x32x8 | 10 Qty |
| c- Oil felt | 3 Qty |

D) CABLE FOR 144 FOY-192 FOY ;

- | | |
|-----------------------------|--------|
| a- Exit box cable seal slot | 1 Qty |
| b- Cable seal 28x40x10 | 10 Qty |
| c- Oil felt | 3 Qty |



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15) WORKING LAND TERMS

CONDITIONS FOR FIBRE OPTIC CABLE BLOWING MACHINE PRODUCED. THAT YOU HAVE TO CHECK ON WORKING AREA BEFORE YOU START TO WORK.

1) DUCT CONTROL

USE NATURAL GAS PIPE (DIA:25MM,LENGTH:1.5m) BOTH SIDE CLOSED TO CONTROL DUCT.THIS PIPE MUST PAS ALL ALONG IN YOUR DUCT.

2)MACHINE CONTROL.

MONTAGE THE MACHINE TO PIPE AND LET PRESSURIZED AIR IN,AFTER YOU CHECKED THE SUITABILITY OF YOUR DUCT. WHEN PRESSURIZED AIR WENT OUT FROM THE END OF DUCT, YOU MUST SEE THESE VALUES:

AIR MOTOR PRESSURE:6 BAR /// PISTON PRESSURE:2-4 BAR /// DUCT PRESSURE :10.5 BAR.

(MACHINE AXIS MUST BE SET TO RUN)

3)WORKING CONTROL

YOU MUST TRY TO STAY IN SAME LEVEL AS FAR AS POSSIBLE DUCT,MACHINE AND FIBRE OPTIC CABLE

YOU MUST HAVE THESE VALUES WHEN YOU ARE RUNNING MACHINE:

AIR MOTOR PRESSURE:6 BAR /// PISTON PRESSURE:2-4 BAR

DUCT PRESSURE:10-11 BAR.

CHECK OIL DROP VALUE THAT YOU NEED FOR AIR MOTORS ON AIR LUBRICANT(2-3 DROPS/MIN)

YOU MUST DO SHOCK LUBRICATION IN EVERY 150 METRES YOU INSTALLED.

YOU MUST LEAVE INSIDE OF AIR MOTORS OILY AFTER YOU USE THE MACHINE .TO DO THIS:LOOSEN THE OIL SET SCREW

ON PREPERATION AIR LUBRICANT AND INCREASE THE SPEED OF OIL FLOW AND RUN MACHINE 3-4 MINS IN THIS POSITION.

CONTACTS FOR MAINTNEANCE

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