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**OPERATING & MAINTENANCE**  
**INSTRUCTION MANUAL FOR THE**  
**ROTAFLEX** <sup>TM</sup>  
**V-15 (Yellow)**  
**CLEANING SYSTEM**  
**230V & 110V (patent pending)**

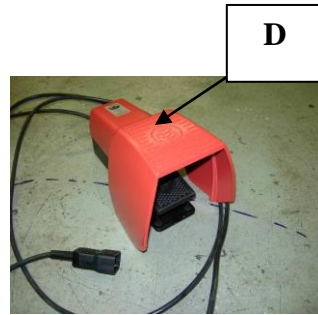
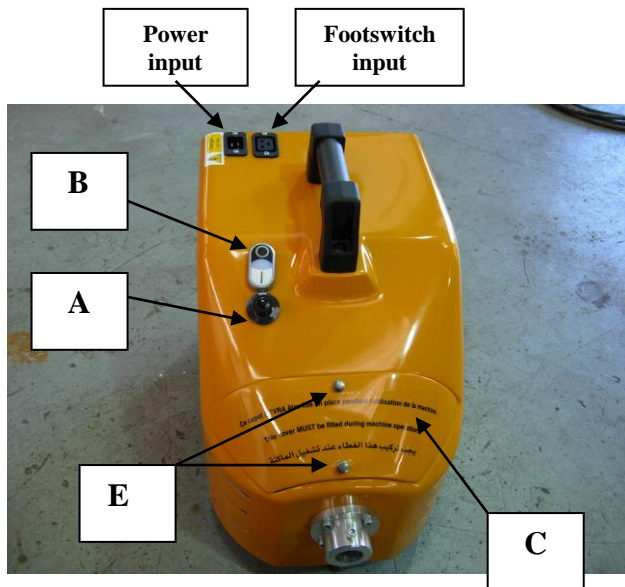
**Before carrying out the following procedures you should read this Instruction Manual on the safe use of the equipment and familiarise yourself with the equipment operation.**

**Respiratory equipment, goggles and personal protective equipment should be worn and any other precautions taken appropriate to the contaminant being removed. Also avoid wearing any loose clothing which could get caught in the machinery.**

**Should you wish to carry out any procedures other than those contained in this manual, or require assistance you should contact Tube Tech International Ltd.**

# Rotaflex V-15

## Designed for Internal use only



- A VARIABLE SPEED DIAL & L.E.D. POWER INDICATOR
- B ON/OFF SWITCH
- C ACCESS PANEL
- D FOOTSWITCH (START/STOP)
- E SCREWS FOR MAIN COVER
- F LOCKING BOLT - INNER
- G LOCKING BOLT – OUTER

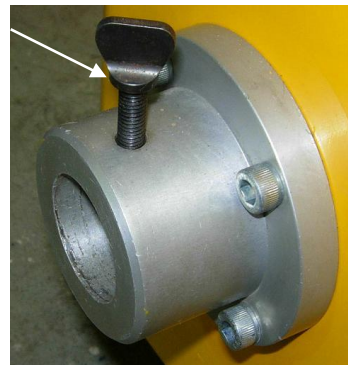
### Locking bolt for inner cable



F



### Locking bolt for outer sheath

G



Electrical rating for 230V machine  
(Located on back of machine)

Electrical rating for 110V machine  
(Located on back of machine)

<b>ROTAFLEX UNIT</b> MADE IN U.K. 		<b>TUBE TECH INT. LTD</b> Tel: +44 (0) 1268 786999 Fax: +44 (0) 1268 786998 www.tubetech.com	<b>ROTAFLEX UNIT</b> MADE IN U.K. 		
<b>MODEL NO.</b>	V-15		<b>MODEL NO.</b>	V-15	
<b>SERIAL NO.</b>			<b>SERIAL NO.</b>		
<b>VOLTS ±10%</b>	230V		<b>VOLTS ±10%</b>	110V	
<b>F.L. AMPS</b>	2.5		<b>F.L. AMPS</b>	1.8	
<b>FREQ</b>	50Hz		<b>FREQ</b>	60Hz	
<b>DATE</b>			<b>DATE</b>		
<b>WARNING-THIS APPLIANCE MUST BE EARTHED</b>			<b>WARNING-THIS APPLIANCE MUST BE EARTHED</b>		

**Remarks:**

**Trip Hazards:**

Please be aware of potential trip hazards associated with the Power and Foot Control leads and flexible drive.

**Noise:**

A-weighted sound pressure level Lpa does not exceed 70 dB(A).

**Vibration:**

Vibration total values (triaxial vector sum) determined according to EN 60745:	
No-load work condition, with brush at 45 °.	Vibration emission value ah = 10,1 m/s <sup>2</sup>
Speed setting position: 4 (worst case)	Uncertainty K = 1,5 m/s <sup>2</sup>

- The declared vibration total value has been measured in accordance with a standard test method and may be used for comparing one tool with another;
- The declared vibration total value may also be used in a preliminary assessment of exposure.

**Warning**

- The vibration emission during actual use of the power tool can differ from the declared total value depending on the ways in which the tool is used;
- Identify safety measures to protect the operator that are based on an estimation of exposure in the actual conditions of use (taking account of all parts of the operating cycle such as the times when the tool is switched off and when it is running idle in addition to the trigger time).

**Potential Hazard:**

Potential earth leakage of up to 10ma - additional earth points available on request.

**Internal Controller Protective Information:**

**A) AC supply specification**

The drive is suitable for use in a circuit capable of delivering not more than 100,000 RMS symmetrical Amperes at 264 Vac RMS maximum (200 V drives), 528 Vac RMS maximum (400 V drives) or 132 Vac RMS (110 V drives)

**B) Motor overload protection**

**The drive provides motor overload protection. The overload protection level is 150% of full-load current.**

**C) Overspeed protection**

**The drive provides overspeed protection. However, it does not provide the level of protection afforded by an independent high integrity overspeed protection device.**

**Work Area Safety**

- A) Keep work area clean and well lit. Cluttered or dark areas invite accidents.
- B) Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Power tools create sparks which may ignite the dust or fumes.
- C) Keep children and bystanders away while operating a power tool. Distractions can cause you to lose control.
- D) Warning: Potential trip hazard when using the flexible drive.

**Electrical Safety**

- A) Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock
- B) Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.
- C) Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock
- D) Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
- E) Blow out vents in outer cover prior to use.
- F) **Warning:** Potential trip hazard associated with the power and foot control leads

**Personal Safety**

- A) Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.
- B) Use safety equipment. Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- C) Avoid accidental starting. Ensure the switch is in the off-position before plugging in. Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.
- D) Remove any adjusting key or wrench before turning the power tool on. A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- E) Do not overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.
- F) Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewellery or long hair can be caught in moving parts.
- G) If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of these devices can reduce dust-related hazards.

## Assembly of Motor Unit and Flexible drive

1. Place the Rotaflex on the floor near to the place of work.
2. Attach a suitable plug with an Earth connection to the electric cable and plug in to a suitable wall socket.  
(You will need an extension cable with an Earth wire to comfortably reach the working areas).  
Note: Building wire should contain a suitable, connected Earth wire.
3. Turn the ON/OFF switch to the ON position. (Fig. B)
4. Turn variable speed knob and set to No.6 (50%). (Fig.A)
5. Plug in foot pedal (D) and press pedal to test that machine rotates.
6. SWITCH MACHINE OFF BEFORE ATTACHING FLEXIBLE DRIVE.
7. Select appropriate flexible drive for task required:
  - i) Blue coated for standard Flour Mill applications.
  - ii) Steel flexible for harder applications.
8. Inspect outer casing of flexible for kinks or damage.
9. Insert flexible drive (square end) through collar into motor drive and secure into motor shaft by small wingscrew (hand tight). (Fig.F)
10. Tighten locking wingscrew on external collar hand tight (Fig G). This stops flexible drive sliding out of collar.
11. Lay out flexible drive in a large single coil on the ground. **The flexible drive MUST be kept free from tight loops or twists. This is especially critical nearest the motor, otherwise damage to the flexible drive may occur.**
12. Carry out rotation test again with flexible drive attached (do not attach brush yet).
13. Select correct size of brush/descaler and tightly thread onto the end of the flexible drive.
14. Hold flexible drive near brush at arms length, away from other people, press foot switch and by using speed control dial, test the speed of machine to suit the deposit and pipe diameter to be cleaned.

### Operation:

The following information may be of help. However use common sense when choosing the correct tool head and speed:

Condition of Spout	Tool	Rotaflex Speed
Light scale	Soft nylon brush	40-80%
Hard thick scale or heavy crusty scale	Flare descaler	40%
Thick soft condensation	Nylon rod tool	60-100%
Blocked/choked	Small descaler	30-40%
In general start at the lower speed and increase if necessary. (If choked, go from <b>below</b> the blockage and clean <b>up</b> the spout, <b>not</b> from the top.)		

15. Begin from upper floor and feed flexible drive down through pipe to floor below (**do not yet rotate brush**). Get an assistant on the floor below to clearly indicate that you have gone far enough.

16. Press foot switch to rotate brush and withdraw flexible drive slowly (hand over hand) from the pipe. **Do not force flexible drive up or down the pipe – allow the brush and machine to do the work**

**N.B. If resistance is felt then move flexible drive backwards and forwards a few centimetres as you briefly tap the foot switch on and off. Try again, or wait for your assistant to advise you if the flexible drive is free from obstruction. If it gets stuck, do not pull hard on the flexible drive, wait for assistant to help.**

It is advisable to have a colleague assist in the cleaning on the floor below to communicate when and where the brush has come out of the pipe and when to start rotation back up the pipe.

17. The operator **MUST** keep an eye on the flexible drive behind him when withdrawing it from the pipe – has it twisted etc? If it has, uncoil in a large arc and start again.
18. If the flexible drive jams up, the motor and/or variable speed unit overload will trip out. Switch machine off, withdraw flexible drive from spout and allow the thermal overloads to cool down and reset.

If the overload protection trips out regularly, one of the following may be the cause:

- a) You are using a brush which is too large.
- b) The spout is heavily scaled or blocked.

If none of these is the cause contact Tube Tech International Ltd.

## 19. **Do's & Don'ts**

### **Do's**

- Blow out vents in outer cover prior to use.
- Use eye protection, face mask & gloves.
- Use an assistant where possible.
- Check the power light is on.
- Uncoil flexible drive in large arc and check for damage before starting.
- Connect flexible drive (square drive end) securely into the square recess on the motor spindle and tighten wing screw.
- Connect outer sheath collar by tightening wing screw into groove in collar.
- Use the correct size brush and speed depending on deposit and diameter of the spout. (Start at approx 40-50% and work up as required).
- Feed flexible drive down the pipe, **NON ROTATING** then pull back up slowly **ROTATING. Do not rotate on the way down.**

### **Don't's**

- Do not wear loose clothing which could get caught.
- Do not start on maximum (100%) speed.
- Do not remove machine cover whilst unit is switched on or power supply connected.
- Do not allow flexible drive to bend sharply at machine end.
- Do not walk or stand on the flexible drive.
- Do not use an incorrect brush size or type.
- Do not allow flexible drive to twist when operating. (If it does, take foot off the foot switch, remove brush from spout, untwist flex, using reduced speed slowly start again.
- Do not operate the descaler too fast as this may cause damage to the pipe. 25 – 50% max.speed advised.
- Do not force the flexible drive if the brush gets stuck, try to remove gently.

## **Maintenance of the Rotaflex cleaning system.**

- Storage Conditions: - When not in use the machine should be stored in a dry, dust free environment
- Blow out vents in outer cover prior to use.
- The interval for periodic maintenance will depend upon the frequency of use and the environment in which it operates.

- High voltage insulation tests should not be applied to the unit. Failure to follow these guidelines may result in damage to the electronic equipment.
- **Disconnect the mains supply to the unit before undertaking any maintenance.**
- Voltages remain present in the machine after the supply is removed – allow 5 minutes for voltages to discharge.
- Check the external electrical cables for signs of damage or abrasion and that the cable glands are secure.
- The footswitch is a sealed unit and should not require any maintenance.
- In order to reduce dust contamination in the motor unit periodically blow compressed air into the louvers to dislodge dust.

### **Removal of Access Panel cover**

- This is removed to gain access to the motor spindle for attachment of the flexible drive.
- The access panel is removed by turning the 2 (top & bottom) adjuster screws to release the catch.
- After attachment or removal of the flexible drive the access cover must be replaced.
- The unit should NOT be operated in the plant with this cover removed.

### **Motor unit**

- Blow out vents in outer cover prior to use.
- The motor is a sealed unit and does not require taking apart for maintenance purposes.
- Solvents and de-greasing agents should not be used.
- In the event of the unit becoming damp, it must be allowed to dry thoroughly in a warm atmosphere.
- When not in use the machine should be stored in a dry, dust free environment.

### **Maintenance and proper use of flexible drives**

- **Warning:** Potential trip hazard when using the flexible drive.
- The flexible drives supplied by Tube Tech International Ltd are capable of taking considerable stress.
- However, like all precision made products, the flexible drives require care in use and periodic maintenance.
- The flexible drive will give long trouble-free service if the following suggestions are carefully followed:
  - o The flexible must be uncoiled before using.
  - o Keep the flexible free from tight loops and bends as this will increase internal friction in the drive caused by the individual wires rubbing together. This friction can accelerate fatiguing of the wires which can then become brittle.
  - o Do not overload the flexible drive by using a brush larger than recommended in the pipe.
  - o Keep watch on the flexible drive as it is being fed through the pipe. If the loops in the flexible drive begin to stiffen and twist, this is an indication that the drive is being overloaded – use a smaller brush or cleaning tool or feed the drive more slowly through the pipe.
  - o **Never force the flexible drive through the pipe.**
  - o Ensure the bore of the external aluminium machine collar on the front of the motor unit is kept clean and lightly lubricated at all times to ease fitting of the flexible drive.



- The flexible drive should be checked regularly for damage or kinks to avoid causing friction.

### **General Power Tool use and care:**

- A) **Warning:** Potential trip hazard associated with the power and foot control leads
- B) Do not force the power tool. Use the correct power tool for your application. The correct power tool will do the job better and safer at the rate for which it was designed.
- C) Do not use the power tool if the switch does not turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- D) Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventive safety measures reduce the risk of starting the power tool accidentally.
- E) Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.
- F) Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.
- G) Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- H) Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.

### **Service**

- A) Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.


Should you wish to carry out any procedures other than the above, or require assistance you should contact Tube Tech International Ltd. Unit 14 Rawreth Industrial Estate, Rawreth Lane, Rayleigh, Essex. SS6 9RL. United Kingdom. Phone: +44 (0) 1268 786999 Fax: +44 (0) 1268 786998


Failure to carry out the above procedures correctly may result in damage to the equipment or injury to the operator.

**PLEASE WORK SAFELY**




**ROTAFLEX PARTS LIST**  
**ALL THESE ITEMS ARE HELD IN STOCK**

ROTAFLEX MOTOR UNITS 110V & 230V		
Product Code	Description	
RF001	Rotaflex V-15 motor unit, 240V, 50Hz, variable speed 0-1500rpm.	
RF002	Rotaflex V-15 motor unit, 110V, 60Hz, variable speed 0-1500rpm.  All units are supplied with on/off Foot Pedal, Power Cable, User Instructions and Instructional DVD.	

ROTAFLEX FLEXI-DRIVES		
Product Code	Description	
FL001	Steel Flexi-Drive 8m length with Food-Grade coating.	
FL002	Steel Flexi-Drive 12m length with Food-Grade coating.  The flexible drives supplied by Tube Tech are capable of taking considerable stress.	

ROTAFLEX CLEANING ACCESORIES		
Product Code	Description	
BR110 BR130 BR165 BR210	<p><b>Brushes</b></p> <p>Standard black nylon brush for 100mm diameter pipe            Standard black nylon brush for 120mm diameter pipe            Standard black nylon brush for 150mm diameter pipe            Standard black nylon brush for 200mm diameter pipe</p> <p>A wide variety of <u>non-standard</u> sized brushes different colours are available on request.            Ideal for soft deposits/light scale (flour mill spouts). Brushes are supplied over-size for dry, thick and loose deposits which will not clog the brush.</p>	

<p><b>FD004</b></p> <p><b>FD004X</b></p> <p><b>FD004XX</b></p>	<p><b>Flared Descalers</b></p> <p>Flared Descaler for 50-100mm diameter pipe</p> <p>Flared Descaler for 100-150mm diameter pipe</p> <p>Flared Descaler for 150-200mm diameter pipe</p> <p><b>Ideal for hard/thick, heavy/crusty deposits before using a brush.</b></p> <p><b>Use small descalers for blocked or choked tubes.</b></p>	
<p><b>NR001</b></p>	<p><b>Standard nylon rod tool.</b></p> <p><b>Ideal for thick/soft deposits caused by condensation.</b></p> <p><b><u>Non-standard</u> sized Rod Tools of different lengths and thicknesses are available on request.</b></p>	