Quirepace House
6 Pennant Park, Fareham
Hampshire PO16 8XU UK

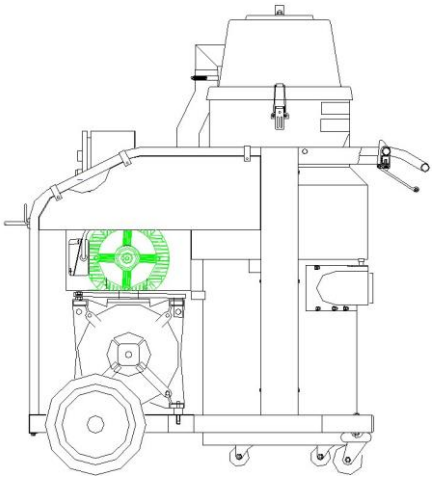
Tel: +44 (0) 2392 603700
Fax: +44 (0) 2392 504648
www.bvc.co.uk

INSTRUCTION MANUAL

(Retain for future reference)

For

Industrial Vacuum Cleaner



Part Number	Model Description
55 64334 00	TI60DCFA 2.2kW/400/3/50 ATEX
55 64315 00	TI60DCFA 4kW/400/3/50 ATEX

All the above Models carry this ATEX Certification Code

CE II 3 D c Ex tD A22 IP6X T135ºC

READ THIS INSTRUCTION MANUAL BEFORE USING THE APPLIANCE

We reserve the right to change the design without notice

01 64006 00 Issue 6

UNIT DESCRIPTION

This appliance is a heavy-duty industrial dry pick-up Vacuum Cleaner consisting of: -

A multistage centrifugal exhauster to create the vacuum and airflow driven by a three phase induction motor which in turn is controlled by its own starter.

A filter separator made up of a multiplicity of fabric filter sleeves with a manual shaker to enable filter cleaning.

A collection bin, which, by means of a manual lifting mechanism be raised into the collection position or lowered to the ground for removal and emptying.

A HEPA filter which is fitted between the centrifugal exhauster and the clean side of the filter separator to provide a secondary level of protection to prevent ingress of product into the centrifugal exhauster.

All of the above is mounted on a wheeled frame, to enable the appliance to be manually moved.

A selection of accessories (some optional) consisting of a collection hopper (to increase the collection volume) hoses, extension arms and collection tools etc.

The appliance is designed for the applications described below.

APPLICATION

1. To pick up inert dust and debris in an atmosphere where inflammable dust, gases or vapours are never present.

2. To pick up inert dust and debris in a Dust Zone 22, where the dust in the potentially explosive atmosphere may be conductive.

3. To pick up dust or debris that may ignite or explode in a Dust Zone 22, where the dust in the potentially explosive atmosphere may be conductive.

4. To pick up conductive dust or debris that may ignite or explode in a Dust Zone 22, where the dust in the potentially explosive atmosphere may be conductive.

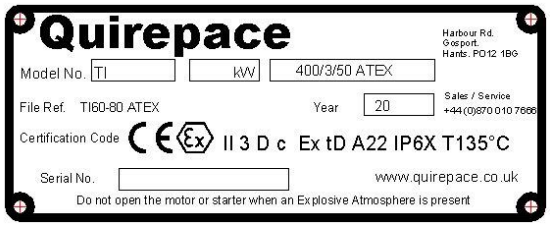
RISK ASSESSMENT

If this vacuum cleaner is used for collecting flammable/explosive materials or within a zoned area classified under the ATEX 137 Directive 1999/92/EC) then a risk assessment must be carried out by a competent person to verify the suitability of the application.

The risk assessment will be the responsibility of the customer/end user and should take into account (but not be limited to) the characteristics of the material being collected such as: -

1. Spark ignition sensitivity
2. Hot surface ignition sensitivity (cloud)
3. Hot surface ignition sensitivity (layer)
4. Explosion severity
5. Flammable gas generation
6. Burning behaviour
7. Thermal instability
8. Chemical instability
9. Static electricity generation
10. Impact of collected material
11. The chemical compatibility of the materials being collected, with the materials of construction of the appliance and its accessories being used. Materials of construction are given under the ATEX equipment list in this document.

And the ATEX certification code as marked on the rating plate of the appliance.



The ATEX certification code is made up as follows: -

CE	The **CE** mark
Ex	The community mark showing a product is suitable for use in an explosive dust atmosphere.
II	equipment group II (surface industries)
3	Category 3 product
D	explosive dust atmosphere
c	Constructional safety concept (Applies to the mechanical parts of the Vacuum Cleaner)
Ex	Assessed against European Harmonised standards
tD	Protection by preventing dust ingress
A22	Indicates the appliance can be used in a zone 22 with conductive dusts
IP6X	Dust tight with no ingress of dust (Electrical compartments)
T135°C	Surface temperature for dust evaluation is less than 135°C

WARNINGS

1. This appliance must not be stored or used in wet conditions ie outside in the rain.

2. Only use accessories and spare parts approved by the manufacturer.

3. When collecting dust or debris that may ignite or explode, empty the cleaner after every use.

4. Do not open the motor terminal box or starter enclosure when an explosive atmosphere is present

5. Do not attempt to repair or modify the appliance. Repairs or modifications undertaken by unauthorised or inexperienced persons may cause injury and/or serious malfunctioning.

6. This appliance must only be repaired by SUITABLY TRAINED and authorised personnel, and only genuine BVC spare parts are to be used.

Special Conditions for Safe Use

1. The equipment must be inspected and maintained in accordance with the manufacturer's recommended schedule.

2. The equipment shall be cleaned in accordance with the manufacturers recommended schedule.

3. The deflector plates shall be inspected for signs of deposited rust and deformation in accordance with the manufacturers recommended schedule.

4. The equipment must be wired to the electrical supply in accordance with the manufacturers instructions.

5. Earth continuity between the hose end and the equipment earthing point shall be checked at regular intervals in accordance with the manufacturer's instructions.

1. PREPARATION FOR USE

Unpack and identify each item of equipment against the packing note.
Check that the details given on the rating plate are in accordance with the electricity supply to which it is to be connected and the Zones in which it is to be used.

REQUIREMENT FOR THE FIXED WIRING that this appliance is connected to.
If the Appliance is connected to a fixed wiring system of the TN type it must be of the TN-S type where the protective earth and neutral conductor shall remain separated in the hazardous area.

If the Appliance is connected to a fixed wiring system of the TT type where no earth terminal is provided with the incoming supply but is provided by locally (e.g. rods or mats) then the circuits shall be protected by a residual current device in the non-hazardous area.

THREE PHASE APPLIANCES (THIS APPLIANCE MUST BE EARTHED)

A competent electrician must carry out the electrical connections of this machine.

The machine is fitted with a 4-core cable, 3 cores (one for each phase) and 1 core for earth.
Green/Yellow for 'E' earth lead.

When connected to the electrical supply, but before use, the rotation of the exhauster must be checked. Switch on momentarily and check that rotation is anticlockwise looking through the window. If the direction of rotation is incorrect, interchange any two of the phase connections at the free end of the cable.

HOSES AND ACCESSORIES

ATEX 38mm EQUIPMENT LIST

SS = Stainless Steel **AS = Antistatic**

DESCRIPTION	Illustrations not to scale	PART NUMBER	Material of Construction
ATEX HOSE 38 SD M/M PE BK AS 7.5M		54 64150 02	Anti static polyethylene hose Stainless steel 304 coupling.
ATEX HOSE 38 SD M/M PE BK AS 3.75M		54 64150 01	Anti static polyethylene hose Stainless steel 304 coupling.
ATEX 38 EXTENSION ARM SS x470		29 03803 00	Stainless steel 304
ATEX 38 BEND 30º SS		29 03802 00	Stainless steel 304
ATEX 38 CREVICE TOOL SS x 445		29 03807 00	Stainless steel 304
ATEX 38 DUSTING BRUSH A/S 140 DIA		29 03806 10	Conductive polyethylene body conductive bristle with brass wire.
ATEX 38 CREVICE TOOL AS 300		29 03808 10	Conductive polypropylene
ATEX 38 FLOOR BRUSH AS x 375 HD		29 03817 00	Conductive polypropylene body conductive bristle with brass wire.
ATEX 38 FLOOR TOOL x410 DRY SS		55 64130 03	Stainless steel body & wheels 316. Anti static nylon brush mild steel. Zinc plated brush retainers and wheel carrier
ATEX 38 FLOOR TOOL x410 WET SS		55 64130 04	Stainless steel body & wheels 316. Anti static nylon brush mild steel. Zinc plated brush retainers and wheel carrier

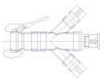
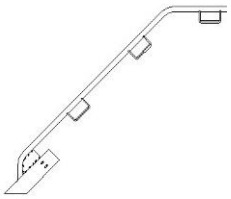
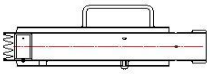
HOSES AND ACCESSORIES
(Optional)

SS = Stainless Steel AS = Antistatic

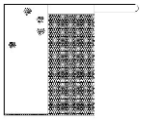
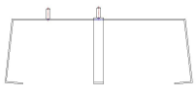
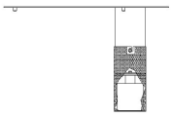
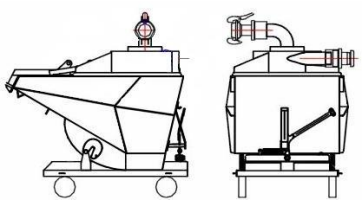
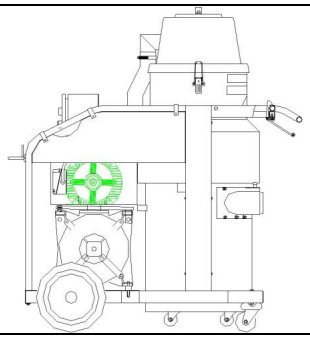
ATEX 51mm EQUIPMENT LIST

DESCRIPTION	Illustrations not to scale	PART NUMBER	Material of Construction
ATEX HOSE 51 SD M/M PE BK AS 7.5M		54 64160 02	Anti static polyethylene hose Stainless steel 304 couplings
ATEX HOSE 51 SD M/M PE BK AS 3.75M		54 64160 01	Anti static polyethylene hose Stainless steel 304 couplings
ATEX 51 BENT 50º EXTENSION SS		53 63367 00	Stainless steel 304
ATEX 51 EXTENSION ARM SS x900		53 63368 00	Stainless steel 304
ATEX 51 BEND 50º SS		53 63366 00	Stainless steel 304
ATEX 51 CREVICE TOOL SS		53 63340 01	Stainless steel 304
ATEX 51 FEMALE TO 38 MALE TOOL SS		53 62647 02	Stainless steel 304
ATEX 38 DUSTING BRUSH A/S 125 DIA		55 52666 07	Anti static rubber body Anti static nylon brush
ATEX 51 BENCH TOOL RBR X 500		53 63324 00	Neoprene rubber With anti static properties
ATEX 51 FLOOR TOOL x410 DRY SS		55 64130 01	Stainless steel body & wheels 316. Anti static nylon brush mild steel. Zinc plated brush retainers and wheel carrier.
ATEX 51 FLOOR TOOL x410 WET SS		55 64130 02	Stainless steel body & wheels 316. Anti static rubber strip mild steel. Zinc plated brush retainers and wheel carrier.

ATEX 76 mm EQUIPMENT LIST

DESCRIPTION	Illustrations not to scale	PART NUMBER	Material of Construction
ATEX HOSE 76 SD PL/FLL AS 3.75M		55 64744 03	Anti static polyethylene hose and stainless steel 304 Pin Lock
ATEX HOSE 76 SD PL/FLL AS 7.5M		55 64744 07	Anti static polyethylene hose and stainless steel 304 Pin Lock
ATEX HOSE 76 SD PL/FLL AS 15M		55 64744 15	Anti static polyethylene hose and stainless steel 304 Pin Lock
ATEX HOSE 76 SD PL/PE AS 3.75M		55 64745 03	Anti static polyethylene hose and stainless steel 304 Pin Lock
ATEX HOSE 76 SD PL/PE AS 7.5M		55 64745 07	Anti static polyethylene hose and stainless steel 304 Pin Lock
ATEX HOSE 76 SD PL/PE AS 15M		55 64745 15	Anti static polyethylene hose and stainless steel 304 Pin Lock
89Y LL MALE TO 2 X 51 FEMALE		55 63685 02	Aluminium LM25 body with chrome plated mazak hose connection points and stainless steel lever lock.
89Y LL MALE TO 3 X 51 FEMALE		54 64343 00	Stainless steel 304 fabrication with chrome plated hose connection points and stainless steel lever lock
76 DIA TOOL WITH HOSE SUPPORT		53 63443 02	Stainless steel 304
76 GULPER TOOL ATTACHMENT (fits on 53 63443 00)		53 63666 02	Stainless steel 304
76 DIA BULK TOOL SERRATED END		65 27715 04	Stainless steel 304
76 DIA TOOL WITH MESH		53 63667 02	Stainless steel 304

ATEX EQUIPMENT LIST

DESCRIPTION	Illustrations not to scale	PART NUMBER	Material of Construction
DRUM LIFTING/TIPPING EQUIPMENT See separate instruction leaflet supplied with this accessory		55 63068 00	Mild steel polyester powder coated.
SWARF BASKET		54 63401 00	Mild steel zinc plated
SWARF BASKET STAND		53 63354 00	Mild steel zinc plated
FLOAT VALVE		54 63399 00	Mild steel zinc plated plastic float
ATEX HOPPER 0.38m^3 See separate instruction leaflet supplied with this accessory		55 64339 00	Mild steel body painted. Stainless steel 304 inlet and deflector plate.
TI60DCFA 2.2kW/400/3/50 ATEX TI60DCFA 4kW/400/3/50 ATEX		55 64334 00 55 64315 00	Mild steel body and bucket painted with polyester powder paint. Stainless steel 304 deflector plate. Aluminium inlet casting. Filter sleeves in antistatic polyester needlefelt. Springs in zinc plated mild steel.

NORMAL USE

Starting

Check the deflector plate(s) for signs of deposited rust or deformation, which should be rectified prior to use.
Ensure all hoses and collection hoppers are connected.
Operate the start button.

Use

Take care to keep clear of the hose end and the material being collected at the intake.
Do not attempt to lower or raise the collection drum with the vacuum unit running.
Do not attempt to open or close the lid on the collection hopper (if used) with the vacuum unit running.
The machine should be stopped if abnormal noise or vibrations are observed.

Stopping

Ensure the collection hose(s) are free from any product.

Press the stop button.

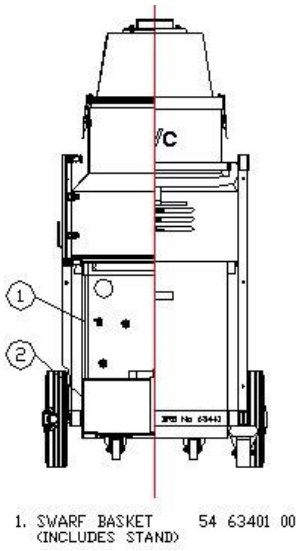
Emptying

Release the latch and gently lower the collection bin to the ground

Empty the collection bin using the optional lifting frame if required.

Replace the bin by holding the handle in the raised position and push the collection bin under the machine so that the hooks on the bin engage on the lifting pins.

Lift the bin using the handle and hold in place by engaging the latch.



SWARF BASKET AND STAND
(wet collection)

1) When fitting the basket stand ensure the two locating pins are positioned so that the stub pipe penetrates the swarf basket.
2) Do not fill the swarf basket so full that it overflows or is too heavy to lift.
3) If the material being collected is very wet or in liquid, a float valve assembly must be used

WET PICK UP ONLY

The float valve automatically closes when liquid reaches a predetermined level in the tank. This is indicated by a change in sound of the vacuum cleaner and cessation of pick-up. The cleaner should be turned off when the float valve operates.
Check the float valve is clean and free to operate prior to use for wet pick-up.

Noise Level

Model	**NOISE EMISSION @ 1m**
TI60DCFA 2.2kW/400/3/50 ATEX	**77 dB(A)**
TI60DCFA 4kW/400/3/50 ATEX	**80 dB(A**

CARE

Periodically clean the filter sleeves by using the filter manual shaker. This should be carried out with the exhauster off and the collection bucket fitted.

Ensure that the collection bucket is emptied regularly and is not allowed to become completely full. The collection bucket and contents may be very heavy and should be lifted carefully.

When using a separate collection hopper, emptying and moving the hopper must be carried out with the appropriate lifting equipment operated by a competent person.

Only use spare parts provided by BVC.

MAINTENANCE

Recommended Maintenance Schedule		
Item	Frequency of **Inspection** based on 4 hours use per day	Frequency of **Replacement** based on 4 hours use per day
Electrical supply cable	1 month	When required
Static discharge route	1 month	NA
Drive set (Belts & Pulleys)	3 months	36 months
Bearings Drive End	12 months	36 months
Bearings Non-Drive End	12 months	36 months
Motor	As per Motor Manufacturers instructions	As per Motor Manufacturers instructions
Internal impact plate	Prior to every use when collecting ferrous material. or I month when collecting non-ferrous material.	As required
Clearflow filters	6 months	24 Months
HEPA Filters	6 months	24 Months
External Cleaning	Daily	-

Empty the bin and clean the filters prior to carrying out any maintenance and do not carry out maintenance in a potentially explosive atmosphere.

Always disconnect the machine from electrical supply prior to carrying our maintenance.

Electrical supply cable

Inspect the electrical supply cable for splits, cracks and damage and the integrity of the fittings at each end of the cable.

Static discharge route

Check the static discharge route continuity between the pick-up nozzle and the electrical earth of the fixed electrical supply. Should be < 800 Meg ohm's

Drive set TI60DCFA 4kW/400/3/50 ATEX

Pulleys – Ensure the pulleys are clean and free from any dust build up.

Belts - Remove outer belt guard, if belt is frayed, cracked or showing any signs of wear it should be replaced. If the belt needs tensioning, follow the procedure below: -
Slacken motor support, lightly tension the belt so that any sag is removed, ensuring the ribs are a snug fit in pulley groves; mark two lines on back of belt 200mm apart; tension the belt carefully rotating drive slowly until distance between two lines has increased by 1.0mm (i.e. 0.5% increase); ensure platform adjustment is fully locked: check belt frequently in first 24 hours' operation, re-adjust if necessary. If belt will not run true, the pulley shafts are either twisted in relation to one another or not parallel to one another. Ensure that the driving and driven shafts are parallel and that the pulleys are aligned, by using a straight edge, and adjusting the motor position accordingly. Always ensure that the motor is secured in position when adjustments are completed.

Bearings - The drive end bearing should be inspected for excessive play. Remove the belt and check for radial play on the drive shaft. If the radial play is greater than 0.25mm then the drive end bearing needs changing. As the exhauster will be stripped down, the non-drive end bearing should also be changed.

TI60DCFA 2.2kW/400/3/50 ATEX
Pulleys – Ensure the pulleys are clean and free from any dust build up.

Bearings -

The drive end bearing should be inspected for excessive play. Remove the belt and check for radial play on the drive shaft. If the radial play is greater than 0.25mm then the drive end bearing needs changing. As the exhauster, will be stripped down the non-drive end bearing should also be changed.

Belt - Remove outer belt guard, if belt is frayed, cracked or showing any signs of wear it should be replaced. If the belt needs tensioning, follow the procedure below.

Slacken the two locking nuts under the motor mounting support plate (by the starter cable glands). The worn belt can now be removed. Fit new belt, lightly tension the belt so that any play is removed, ensuring the ribs are a snug fit in pulley groves; mark two lines on back of belt 200mm apart; tension the belt until distance between two lines has increased by 1.0mm (i.e. 0.5% increase); Lock mounting plate in position. Rotate the drive by hand 10 times and check extension.

Ensure that the driving and driven shafts are parallel and that the pulleys are aligned by using a straight edge and adjusting the motor position accordingly. Always ensure that the motor is secured in position when adjustments are completed.
If belt will not run true, the pulley shafts are either twisted in relation to one another or not parallel to one another.
Check belt, frequently in first 24 hours of operation, re-adjust if necessary.

WARNING Over tightening the belts can give rise to premature bearing/belt failure

Internal impact plate

Lift the knob on the hose connection on the collection bin.

Remove the inlet assembly

Examine the impact plate to ensure there is no imbedded rust on the impact surface. If impacted rust cannot be removed, then the impact plate must be replaced

Replace the inlet assembly and collection bin.

Clear flow Filters

Release the 2 toggle clips and remove the filter cover

Inspect the top of the spigot plate, which holds the clear flow filter sleeves

If the top surface of the spigot plate is clean or is covered in a thin film of very fine dust the filter is working correctly.

If the top surface of the spigot plate or the inside of the cover is covered with significant amounts of dust it indicates that a clearflow filter sleeve(s) is allowing dust through and needs changing.

HEPA Filters

Disconnect the flexible hose at the elbow on the filter cover at the top of the machine.

Inspect the inside of the flexible hose, the inside of the hose should be dust free, the presence of dust indicates the HEPA filter is allowing dust through and needs changing.

External Cleaning

Clean the machine on a daily basis or when accumulated dust layers are 5mm

Motor

The motor should be maintained in accordance with the motor manufacturers instructions supplied with these instructions.

SPARES

We recommend that stocks be retained of the following:

Part Number	**Model Description**	
55 64334 00	**TI60DCFA 2.2kW/400/3/50 ATEX**	
Quantity	**Part Number**	**Description**
1	53 64148 00	Belts 8J 762
16	53 63154 01	Filter Sleeve 495mm Antistatic
1	54 64314 00	Inlet deflector tube assembly.

Part Number	**Model Description**	
55 64315 00	**TI60DCFA 4kW/400/3/50 ATEX**	
Quantity	**Part Number**	**Description**
1	53 64376 00	Belts 8J 965
16	53 63154 01	Filter Sleeve 495mm Antistatic
1	55 64314 00	Inlet deflector tube assembly.

REPAIR

Returning the machine to BVC for repair

Prior to return please contact the BVC Service Department.

Please empty and thoroughly clean the machine so that it is safe to work on without personal protection when it is returned to BVC.