SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Installation, Operating & Maintenance Instruction Manual

Spirotech-SRD Group

Revolution Waste Compactor

Amendment Record

Date	Issue	Description	Raised	Comments
03/01/2017	0	First issue	Jonathan Burrows	
03/02/2017	1	Revisions Made	Jonathan Burrows	
12/06/2017	2	Washdown added	David Gadsby	
10/04/2019	3	Parts List added	David Gadsby	

Disclaimer:
Spirotech-SRD Group Limited do not accept liability for any injury, loss of limb, eye or life that may result from working on our equipment, this operational & maintenance manual has been written to assist the maintenance, operation or fault finding for our any current national or international safety standards or procedures. It has been assumed that any personnel working or proposing to work on this equipment has been trained and certified as competent the equipment has been mechanically and electrically isolated before anything is disconnected from it.

If in **DOUBT** do not attempt any maintenance at all.. Risk assessments and method statements **MUST** be in place that address national safety standards prior to any works taking place.

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

equipment. It does not replace

Table of Contents

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

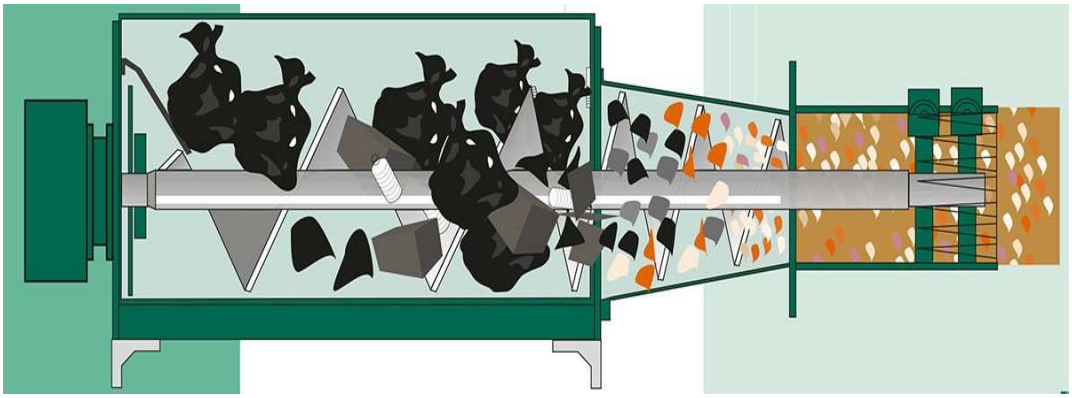
sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

1. General Introduction:

1.1. The Spirotech-SRD Revolution Waste Compactor is powered by an energy efficient drive incorporating a specially designed screw system. Material is squeezed and twisted past a cutter plate before entering a unique compaction chamber that progressively reduces the volume of waste. The waste is then extruded through a self-adjusting nozzle in the form of a dense plug and can be discharged into any type of bin or container. Since the plug will not re-expand, it can be extruded and sealed in polythene sausage wrap.

1.2. The **Revolution Waste Compactor** technology overcomes many of its competitor's weaknesses, typically achieving higher compaction ratios of 15:1 on mixed general waste and up to 60:1 on certain homogeneous waste streams.

1.3. Conventional ram compactors operate by forcing waste into and against the end of the bin, only beginning to compact the waste when the bin is around 80% full. This can result in material springing back to near its normal volume when the compaction pressure is released. Revolution destroys the memory of the product, reducing compaction loads on the bin or waste container and allowing easy emptying.



1.4. The Revolution Waste Compactor is fully programmable to suit varying waste streams and throughput to maximize efficiency and minimize time and costs. Data logging and modem communication allow simple and optimum management of the Revolution.

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

2. Revolution Waste Compactor – Applications

2.1. Dry Waste

Revolution is particularly effective in reducing the volume of hazardous and non-hazardous mixed general waste. The twisting and shearing action of Revolution destroys the waste materials' memory, preventing it from re-expanding. High compaction efficiency dramatically increases the weight achievable in waste bins and thus reduces waste transportation costs.

2.2. Wet Waste

Revolution technology is capable of removing liquid from various containers, including HDPE and PET bottles, tetrapaks ™, metal tins and drums. Unlike conventional compactors this liquid can easily be reclaimed from recycling or disposal. Liquid removal also reduces the weight of the material to be transported to landfill, eliminating the problems and the penalties associated with wet waste at landfill sites.

2.3. Waste to Energy

Revolution allows processing and extrusion directly into thermal recycling and energy plants. The patented design extrudes material without allowing ingress of air and can be fully sealed and integrated into the thermal plant.

2.4. Recycling

Revolution customers process and densify material to ease handling and transportation. Batch processing and segregation can also provide material in a form that is optimised for the recycler, further reducing costs to the customer.

2.5. Secure Product Destruction

Revolution can be used at the point of waste production to destroy confidential material and components, or contraband. Most businesses or agencies with a need to render material unusable or unrecognizable can use Revolution. The technology avoids the need for costly deep burial and ensures material does not reappear on the black market. The Revolution is therefore ideally suited to pharmaceutical, automotive and consumable markets

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

3. Revolution Waste Compactor – Benefits

3.1. Waste Processors Performance

Compacts almost any compressible material
Compaction performance up to 60:1 (dependent on waste)
Over six times greater compaction than standard machines

3.2. Liquid Extraction

Extracts typically 98% liquid content from most types of packaging
Option for all liquid to be diverted to suitable drain
Liquid reclamation option available

3.3. Secure Destruction

Revolution can be used at the point of waste production to destroy confidential material, sub-standard products and contraband. Most businesses or agencies with requirement to destroy material and products or render them completely unrecognizable can use Revolution.
The technology avoids the need for costly deep burial and ensures material does not reappear on the black market. Revolution is ideally suited to the secure destruction of products typically produced by pharmaceutical, automotive, food and consumable markets.

3.4. Site Environmental

Revolution is quiet in operation (below 65 decibels)
Fewer uplifts on site reduces problems associated with the collection of waste and vehicle movement Use of smaller containers greatly reduces noise pollution and other problems with waste uplifts
Visual appearance and tidiness of waste area improved
Revolution allows customers to comply more easily with new landfill legislation
Liquid reclamation option available
Weight and volume of material for landfill can be greatly reduced

3.5. Design

Revolution can be custom designed to suit specific requirements Patented hydraulic free system helps keep maintenance to a minimum

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide

UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

4. Revolution Waste Compactor – Cost savings

4.1. Cost savings : uplifts

Saves money via load optimization – volume is reduced and weight in waste containers is increased, often dramatically, resulting in greatly reduced uplifts. Waste collections are fewer and more efficient.

4.2. Cost savings: labour

Secondary handling of waste/material is eliminated – Revolution automatically processes, compacts and discharges into the container.
Staff are released to other tasks and the cost of labour required to handle material and clean waste handling is greatly reduced.

4.3. Cost savings: space and consumables

Reduced number of bins/storage required to store densified waste
Reduced number of bin rentals
Less cleaning and storage space is required
Smaller waste container systems can sometimes be used with Revolution e.g. 1100 Euro bins
No additional bags/sacks are required to hold compacted waste

4.4. Revolution Waste Compactor – Health and safety

Failsafe devices include automatic shutdown procedures and simple safety stray-up sequence
Mains isolator, hopper lid and start switch are all lockable
Revolution facilitates easy emptying of containers
Minimal contact with waste helps compliance with Health and Safety regulations
Automatic wash down and deodorizer options clean unit and can be programmed to suit shift patterns (this also reduces time required for cleaning)
Message display informs operator of machine status
Data logging facility provides operational history of machine
Clean, safe and easy to operate
Popular with staff, minimal training required.

4.5. Site hygiene

Once emptied into hopper, litter is eliminated
Revolution eliminates the need for stored/bagged waste. All compacted waste is either discharged directly into the waste container or into hygienic polythene sausage wrap The waste area remains clean and tidy
Pest/rodent problems are reduced or eliminated

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

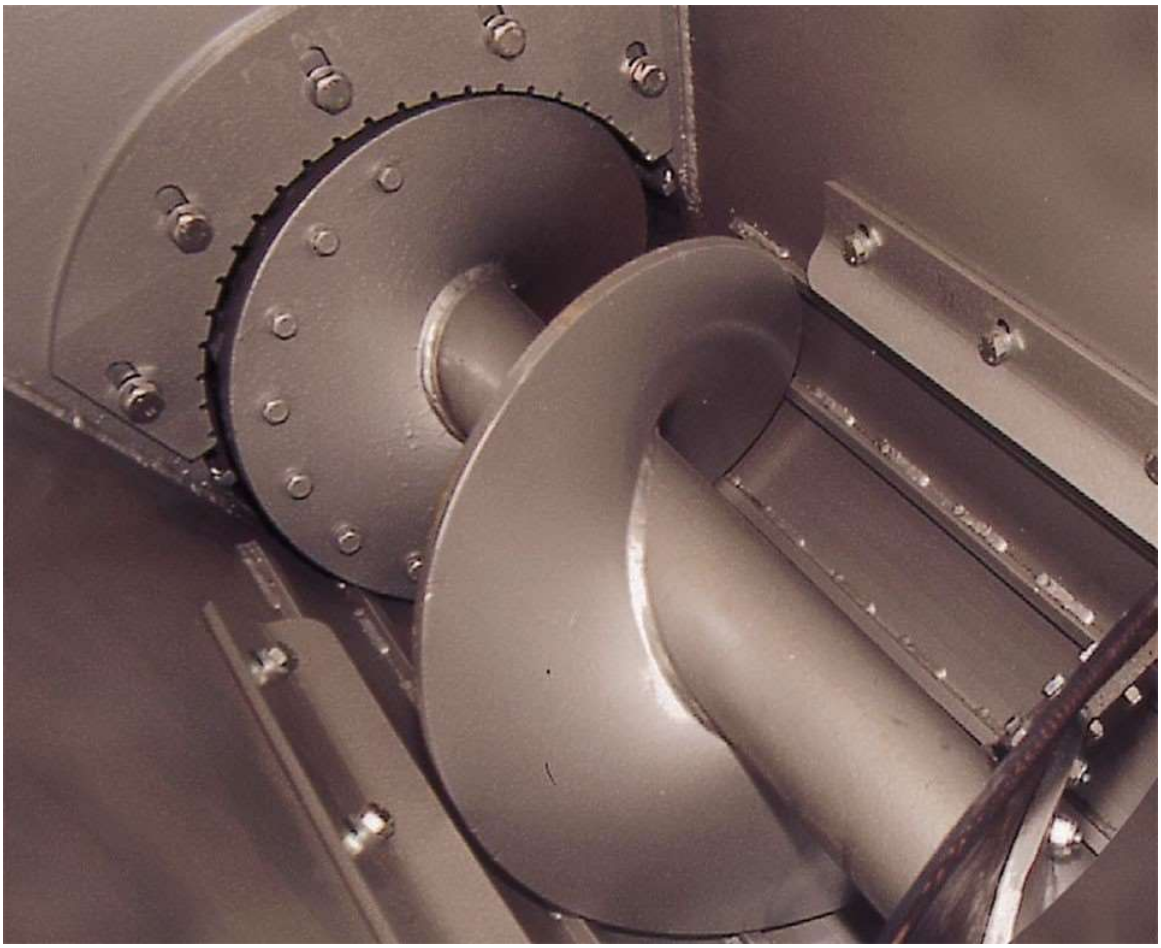
Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

4.6. General environment

The densely-extruded material format is ideal for the recycler
Liquid reclamation and recycling options are available
Weight and/or volume of material for landfill can be greatly reduced
Energy efficient motors enable enhanced capital allowances to be claimed

5. Revolution Waste Compactor – Performance



SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Figure 1 – Compaction Screw & main body

5.1. Compaction performance up to 60:1 (depending upon waste type)

5.2. Compacts almost any compressible material
5.3. High throughput – 2000 model can process 210 cu. Meters of material per hour
5.4. 2500 pallet model processes over 100 empty pallets per hour
5.5. Extracts typically over 98% liquid content from most types of packaging

6. Oversized Waste or Foreign Bodies

6.1. A unique feature of the compactor is a section within the discharge chute arrangement allowing for continued external pressure to be applied to the waste stream during operation.
6.2. Spring loaded tension straps encircle a tapered flexible pressure tube or finger cone.
6.3. This unique arrangement allows for larger or rogue items to be discharged freely reducing the risk of damage to the compactor.

6.4 Waste Size (see also section 13)

6.5 The waste must be capable of conveying by the auger into the compaction zone, requiring that it either falls completely between the flights of the auger, or that it part falls between the flights and is gripped sufficiently for it to be pulled into the compaction zone.

6.6 Waste may be placed in the compactor loose or within light containers such as sacks or bags.

6.7 Small incompressible objects within the waste will be processed and discharged within the compacted waste if they are capable of passing through the final flight of the auger – e.g. they fit within a volume of approx. 100mm x 100mm x 150mm (4.0” x 4.0” x 6.0”). Larger incompressible objects, or compressible objects that cannot be compressed down to fit within a cross sectional area of 100mm x 100mm (4.0” x 4.0”) may stop the compactor, as will be appreciated when the design and operation of the compactor are understood.

6.8 Waste that cannot be compacted should not be put in the compactor. This includes solid objects, bundles of paper and smaller items packaged up to produce dense packages larger than described under 2.3 (e.g. solid metal items, bundles of telephone directories, newspaper etc.) Such items should be placed directly into the waste skip. The compactor

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

is unable to compact incompressible objects and such operation will cause damage or breakage.

6.9 relates to a combination of earlier clauses. The compactor will process waste as Defined within the guidelines, but it must be appreciated that the form of certain types of waste is relevant. Paper is a specific example – loose bulky general office paper waste is processed easily, but dense wads of paper, or bundles of telephone directories have to be broken up by the compactor to allow conveying into the compaction zone for 'recompaction'. Such use falls outside these guidelines and will significantly reduce compactor performance. Items such as these should be placed direct into the skip, as they cannot be compacted – a telephone directory is in effect a dense solid mass.

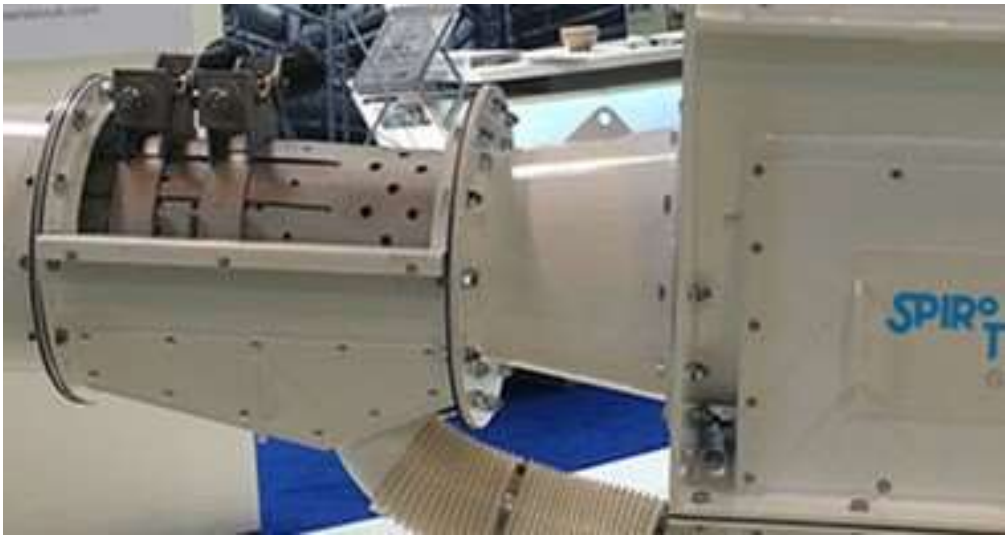


Figure 2 – Compaction Cone and Spring Adjustment

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

The spring length and tension is preset at our factory to suit each application and should only be adjusted by trained works engineers only.

7. Revolution Waste Compactor – Special applications

7.1. Secure product destruction is guaranteed
7.2. Stainless Steel (CIP) model for food and drinks industries
7.3. Waste to energy model allows processing and extrusion directly into thermal plant

8. Revolution Waste Compactor – Waste stream evaluation

8.1. Spirotech-SRD offers potential customers a range of services including evaluation of current waste handling regimes, on-site surveys and product specific trials. Trial results are analysed in order to demonstrate the financial savings you will achieve with Revolution
8.2. After providing a CAD generated drawing of your application for your approval Spirotech-SRD will install, commission and train your operators.

9. Revolution Waste Compactor – Waste Compactor Hire

9.1. Spirotech-SRD Group also offer long/short term hire on range Revolution machines. Hire includes delivery, installation and training. For further information and hire rate please don't hesitate to contact us by calling +44 (0)1487 832 053 or by email to sales@spirotechgroup.co.uk.

10. Supplied Components

10.1. Drive Motor, see separate supplier's manual

10.2. Motor Gearbox mounted to the drive motor, see separate supplier's manual in Appendix A.

11. Definition of Permitted Use

Revolution400 TM will process, compact, convey and discharge various wastes and materials. Although initially developed for the type of waste produced by fast food restaurants, it will satisfactorily compact a wider range of wastes and materials (referred to as 'Waste'). Typically, the application of the processor to fast food restaurants' waste will result in a compaction ratio between 20:1 and 40:1. Most waste is likely to include a mix of material content and particle size and by its very nature is difficult to accurately or consistently define. The following guidelines relate to the AVERAGE SPECIFICATION OF THE WASTE to be compacted by our standard processors. In some cases, the equipment may tolerate exceptions to the guidelines by processing other materials, but only if it represents a minor proportion of the overall waste stream.

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide

UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

12. Waste Suitability

12.1. For normal operation of the processor, the waste placed in the trough/hopper should have a density that does not exceed 10lbs per cubic foot, and must be capable of compaction to reduce its volume by a factor of at least 6 times (e.g. 6 cubic feet down to 1 cubic foot).

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

12.2. Compaction is not possible with waste that flows (e.g. liquids, slurries or high density granules).

12.3. A practical 'yardstick' is the result of a person standing on a small sample of the waste – if it visibly compacts without significantly squeezing away from under the person's feet, it will probably suit the compactor. Suitable waste also includes items that may not compress under the weight of a person, due to their rigidity, but that are hollow and will compress or implode within the compactor (e.g. tins, cans, bottles, plastic containers, boxes).

12.4. Fast food restaurant and similar waste often contains food, packaging and plastic, which the compactor mixes to provide excellent compaction. Such mixing will often allow unsuitable waste to be combined with other waste to allow compaction (e.g. fluids can be soaked up by other dry waste).

12.5. Very wet waste, or waste containing a high proportion of containers of fluid, may result in surplus fluid building up within the compactor due to the inability of the dry waste to soak up the fluids. In such cases, fluid-handling equipment may be required, and if the fluid is water, consideration should be given to prevent freezing in exposed locations.

12.6. Abrasive waste, or waste that becomes abrasive when compacted, will greatly accelerate wear of the compactor.

12.7. Minor proportions of other unsuitable materials in the waste will be acceptable, including dense incompressible objects, if the item or particle size complies with clause 13.3 13.3

13. Waste Size

13.1. The waste must be capable of conveying by the auger into the compaction zone, requiring that it either falls completely between the flights of the auger, or that it part falls between the flights and is gripped sufficiently for it to be pulled into the compaction zone.

13.2. Waste may be placed in the compactor loose or within light containers such as sacks or bags.

13.3. Small incompressible objects within the waste will be processed and discharged within the compacted waste if they are capable of passing through the final flight of the auger – e.g. they fit within a volume of approx 100mm x 100mm x 150mm (4.0" x 4.0" x 6.0"). Larger incompressible objects, or compressible objects that cannot be compressed down to fit within a cross sectional area of 100mm x

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

100mm (4.0” x 4.0”) may stop the compactor, as will be appreciated when the design and operation of the compactor are understood.

13.4. Waste that cannot be compacted should not be put in the compactor. This includes solid objects, bundles of paper and smaller items packaged up to produce dense packages larger than described under 13.3 (e.g. solid metal items, bundles of telephone directories, newspaper etc.) Such items should be placed directly into the waste skip. The compactor is unable to compact incompressible objects and such operation will cause damage or breakage.

13.5. Clause 13.4 relates to a combination of earlier clauses. The compactor will process waste as defined within the

13.6. guidelines, but it must be appreciated that the form of certain types of waste is relevant. Paper is a specific example – loose bulky general office paper waste is processed easily, but dense wads of paper, or bundles of telephone directories have to be broken up by the compactor to allow conveying into the compaction zone for ‘re-compaction’. Such use falls outside these guidelines and will significantly reduce compactor performance. Items such as these should be placed direct into the skip, as they cannot be compacted – a telephone directory is in effect a dense solid mass.

14. Waste Discharge

14.1. Waste that compacts and binds together to hold its form after discharge from the compactor (e.g. in extruded ‘sausage’ format) can be pushed up or along a short discharge tube into a container. A simple ‘yardstick’ is that if the extruded compacted waste holds its shape and retains a hole in the middle, then it is suitable for discharge through an extended discharge tube.

14.2. Waste that compacts but does not then bind together to hold its form after discharge from the compactor, and does not retain a hole down the middle, should be discharged direct into a container or through a special chute designed in conjunction with Spirotech-SRD Group Limited. Note that unless the compacted extruded waste is handled carefully, or wrapped in PVC ‘sausage skin’, it may tend to break up or fall apart.

14.3. In all cases, horizontal discharge direct into a waste container provides optimum performance

14.4. General

Spirotech-SRD Group Limited is available to help. For any waste stream or application that does not fall clearly within these guidelines, please consult us by calling 01487 832053 This may result in approval of such use without modification, or a change in settings or specification of the standard compactor to provide satisfactory performance.

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.ukwww.spirotechgroup.co.uk

15. Installation Check List:

This list is intended as a guide only, you must ensure that adequate safety measures have been taken that meet national & site standards. This list is not exhaustive.

15.1. Machine aligned, levelled and plumbed for correct alignment.

15.2. Assembly and mounted bolts checked for tightness.

15.3. Connections to other items of process machinery checked for fit prior to tightness of bolts (bad fits can lead to distortion of Compactor body causing twisting and possible interference between screw and casing).

15.4. Machine checked internally for foreign bodies.

15.5. All gaskets and seals fitted.

15.6. Motor & gearbox references checked against drawing.

15.7. Gearbox filled with oil to the correct level.

15.8. End bearings greased.

15.9. Inlet & outlets safe (chutes in place etc). no loose fixings or protrusions

15.10. Rotation sensor installed

15.11. Any Erection damage made good.

15.12. All bolting up completed to the correct torque settings.

15.13. Safe access to and from machine.

Never hammer, bang or force any part of the Compactor during Install, operation or maintenance. This can lead to damage that may cause the machine to block or malfunction, warranty may be void.

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

15.14. ELECTRICAL / CONTROL

Spirotech SRD Group limited do provide electrical equipment to control the Compactors, In the case of you providing your own electrical control equipment to be used with any Compactor installation, the purchaser must use equipment conforming to the 17th edition Wiring Regulation (BS 7671:2008) and other local or national codes.

Consideration MUST be given to some or all of the following devices and to others which may be appropriate. this list is not exhaustive.

15.15. OVERLOAD PROTECTION: Devices such as shear pins, torque limiters, etc., to shut off power whenever operation of the Compactor is stopped as a result of excessive material, foreign objects, excessively large lumps, etc.

15.16. NO-SPEED PROTECTION: Devices such as zero speed switches to shut off power if any incident which might cause a Compactor to cease operating.

15.17. Safety shut-off switch with power lockout provision at Compactor drive
15.18. Emergency stop switches readily accessible wherever required.
15.19. Electrical interlocking to shut down feeding Compactors whenever a receiving Compactor stops
15.20. Signal devices to warn personnel of imminent start up of Compactor, especially if started from a remote location.
15.21. Special limit enclosures for motors and controls for hazardous atmospheric conditions and surroundings.

Disclaimer:
Spirotech SRD Limited including any subsidiaries & Holding Companies and company officers do not accept any liability for failure of any components, assemblies or complete screw Compactors that may result in any injuries, loss of limbs or death as a result of any part of any component or complete assembly failing due to lack of safety devices incorporated. It is the full responsibility of the buyer to ensure that adequate safety devices or control equipment limit and/or shutoff electrical power during a blockage, overload etc.
We will not accept any repair costs for this and other damaged machinery and/or liquidated damages for loss of production, product and production c

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.ukwww.spirotechgroup.co.uk

16. Commissioning Check List:

With Power Off

16.1. Cable installation is completed and fully tested as compliant to national & Site standards.
16.2. Cables tested for insulation and continuity according to National Standards.
16.3. Emergency stop checked back to MCC and tested.
16.4. Fuses, overload ratings checked against motor settings.

With Power On (No load)

16.5. Direction of drive motor checked.
16.6. Machine first run.
16.7. Checks should be made for the following.
16.8. Bearings and Seals – Overheating
16.9. Compactor – Unusual noises emanating there from
16.10. Drive – Alignment
16.11. Geared Motor Unit – Overheating

If any point in section 16.7 above are observed, the following checks should be made.

16.12. Bearings - Grease level in end bearings. Insufficient or excess lubricant can lead to high operating temperature and subsequent break up of bearings
16.13. Compactor - Alignment of the machine and mounting of supports and interface joints with other items of plant machinery
16.14. Drive - Assembly and mounting bolts - tighten if necessary
16.15. Geared Motor Unit - Alignment
16.16. Screw rotation is correct for feed direction
16.17. Screw rotational speed correct to drawing.
16.18. Current reading noted and is within tolerance of shutdown set point.
16.19. Operation of rotation sensor (if fitted) is proven.

Refer to Third party instructions located in the rear of the manual for specific recommendations, i.e. Bearing manufacturer grease grade recommendation etc etc.

With Electrical Power On (With load)

16.20. Current reading noted and is within the motor manufacturers recommended range.
16.21. Screw loading checked. (Please refer to your supplied drawing for machine capacity). 16.22. Screw speed checked. (rotation sensor or other means)
16.23. Bearing temperature normal.
16.24. Noise and vibration levels acceptable.
16.25. Machine is ready for service.

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

17. Spirotech SRD Group Compactor Control Philosophy. (functional Description)

Description:

The compactor is used for the removal of moisture and food residues from plastics that have previously been de-packaged with the Haarslev Waste food de-packer.

The compactor is controlled by a site specific, PLC system, with upstream and downstream interlocks.

The interlocks are site specific and may include but not limited to:

- Waste food de-packer running.
- Plastic waste reception tanks functioning (i.e. not full or being changed)
- E stop connectivity within system
- Sequenced as part of an automatic start and shutdown of whole system
- Manual override of compactor functions
- Automatic reverse function
- Compactor blockages detected by high level probe
- Inspection light on side (optional)
- Part of automatic shut down in the event of a downstream failure

Safety

The compactor is wired to a central control panel and is fitted with a local, lockable isolator.

The compactor is controlled from the PLC by means of a HMI by DOL, with a simple contactor to actuate forward or reverse modes.

The reverse function is controlled via the HMI by setting a run timer, eg every 400 seconds reverse for 5. This helps to prevent blockages occurring at the discharge point of the Compactor.

This Functional description does not override the manufacturers instructions which are adhered to when designing the complete system.

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.ukwww.spirotechgroup.co.uk

18. Operating Instructions:

18.1. SAFETY PRECAUTIONS

These guidelines are not meant to replace or override any site procedures or the relevant safety national/international standards for machinery and electrical equipment, they are offered as a general guide only.

Spirotech-SRD Group Limited accept no liability from any injury or death associated with the Revolution or additional machinery whatsoever.

18.2. **Obey** all warning decals and labels/ Signs at all times

18.3. **Never** allow anyone to enter the hopper or any other equipment

18.4. **Make** sure all safety Guards/devices and interlocks are working correctly before operating all equipment.

18.5. **Never** operate the Revolution400 or additional equipment that you know is defective.

18.6. **Never** enter the Revolution400 without following YOUR site specific Revolution400 lockout procedure.

18.7. **Be** aware of those persons who may be working in the vicinity of the Revolution400.

18.8. **Know** the Safety Shutdown Procedure

18.9. **Know** the location and function of all emergency stop buttons, control/isolator switches, displays and protective devices.

18.10. **NEVER** attempt to operate, perform maintenance on the Revolution400 or any additional machinery without proper training.

18.11. **NEVER** attempt to get in to the machine or put any parts of your body within the machine,

18.12. **DO NOT** try and unblock the machine whilst it is running

18.13. **NEVER** operate the Revolution400 whilst wearing jewelry or loose clothing, this may catch moving parts or snag.

18.14. **NEVER** operate the Revolution whilst under the influence of drugs or alcohol.

18.15. **ALWAYS** wear the PPE as specified by your employers.

18.16. **Only trained personnel are to operate the revolution**.

Failure to follow these and any other relevant safety procedures can result in ***SERIOUS*** *Injury or* ***DEATH****.*

DO NOT TAKE A CHANCE WITH YOUR OR ANYONE ELSES SAFETY

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

18.17. Standard Operation

18.18. Prior to starting the revolution please ensure that you read the “definition of permitted use” document and that the machine and its intended use comply with these terms. Failure to do so or any deviation from this defined use will invalid the warranty and could damage the machinery.

18.19. Check that the Bin lift gate is shut and the bin lift attachment is located at the base of the lifter (if fitted).

18.20. Check that the discharge cone is free of obstructions visually only (external).

18.21. Turn on the isolator switch located on the control panel. (*Revolution400* will now be in standby (subject to hopper level switches being free from waste if fitted).

At this point the WHITE power light will be illuminated. (If not ensure that the machinery panel is electrically connected to a power supply and that this supply is switched on).

18.22. Press **F1** to Access the Home Screen

18.23. Press **RESET** Button on the front of the Pane Please press reset will be showing on the Screen.

18.24. Starting Revolution

SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.ukwww.spirotechgroup.co.uk

All Control are located on th HDMI an located on the control panel along with the panel isolator switch.

18.25. Press the **START** Button located on the control panel. "Please Press Start will be showing on the Screen" Machine will now start.

SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.ukwww.spirotechgroup.co.uk

18.26. "Compactor Running" will show on the screen with a "Normal Running Forwards" message The machine will now run its preset cycle times (Timers are variable and will be set by the commissioning engineer).

18.27. Operator can now proceed to open the bin lift gate fully (if fitted), wheel in a full bin and attached to the lifting arm. Once securely located within the arm, exit the bin lift cage and shut the cage door. The door interlock will now be engaged.

18.28. Turn key to on (see separate operating manual) Press & Hold the GREEN Start Button located on the side of the Bin Lifter. The bin lift will now operate and lift and tip the bin contents into the hopper, after a pause of approx 2-3 sec the bin lift will lower the bin back to its start position.

- Note if the bin lifter cage is opened during the compactor run cycle the compactor will stop and will only restart once the cage door has been shut and the safety switch re engaged. indicated hopper empty to allow contents to be forward compacted)

18.29. The *Revolution* will automatically start after a slight delay, it will run in the forward / reverse compaction mode for a 2.5 minutes or until the hopper level switch (if fitted otherwise it will run its timed cycle) has indicates the hopper is empty (Revolution400 will run for **2.5 minutes after the switch has

- ** Variable times that will be preset by the commissioning engineer

After this time out Revolution400 will move to standby mode

For processing additional or continual waste repeat steps 18.22 to 18.29 above. All timed sequences are set during commissioning, these can only be changed by a service engineer only and should not be tampered with.
MACHINE RUNNING FORWARD (Stopping Machine before timed cycle)

UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Press F1 to access this Screen

Press Stop Button on Panel door or leave to run for cycle.

PASSWORD LOG ON

SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide

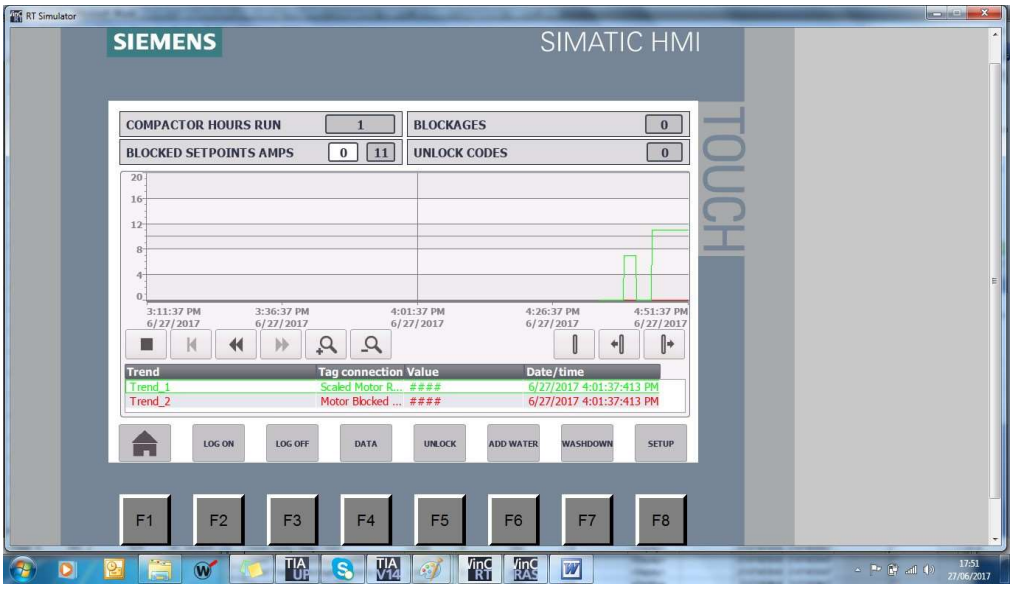
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Press F2 to access this Screen
Enter User and Password to Log On to change setpoints (Service Engineer only)
Press F3 to Log OFF

DATA SCREEN



Press F4 to access this Screen (all machine set points MUSt not be changed by operator at all- warranty invalidated)

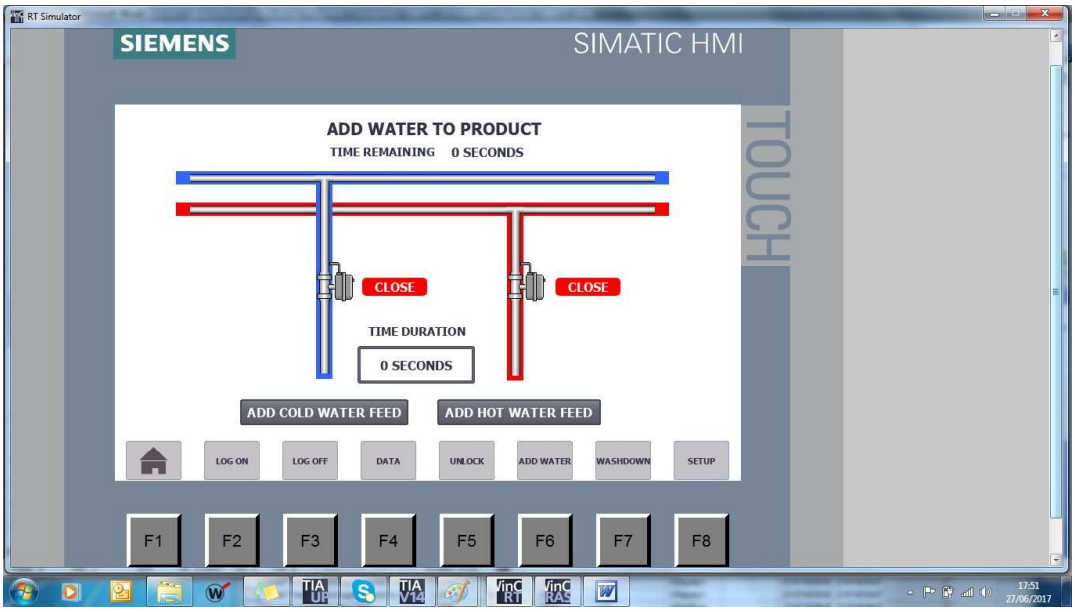
SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

ADD WATER TO PRODUCT



Press F6 to access this Scree
Touch the box labelled Time duration and a keypad will appear to adjust the time
Press either ADD Cold or Hot Water Feed to add water for the duration of the time.
Press the ADD Water Feed again to stop prior to the timer runnirtg ou

WASHDOWN SCREEN

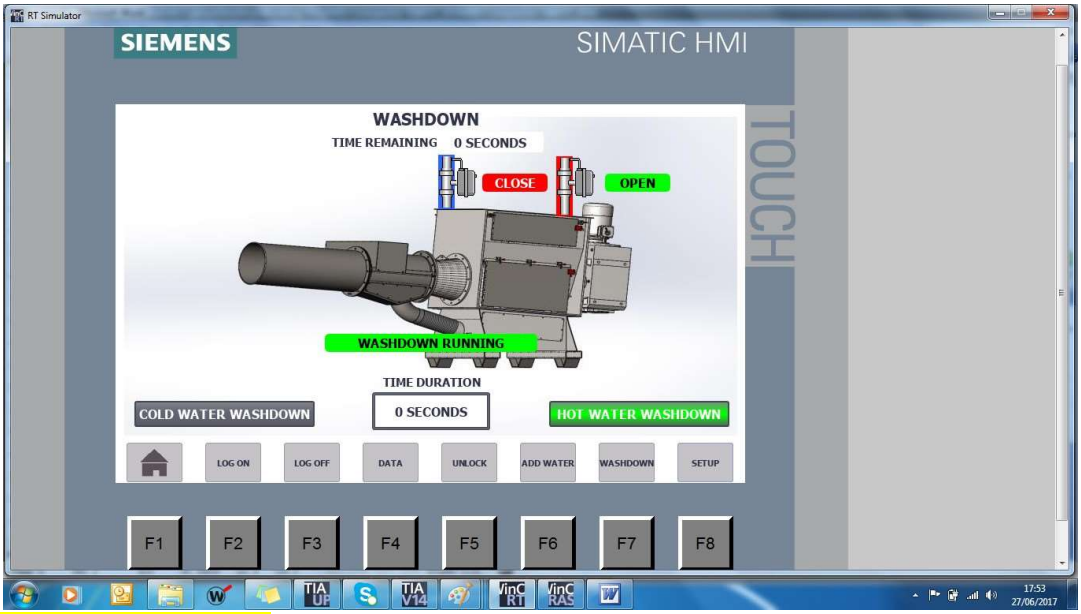
SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide

UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk



Press F7 to access this Screen

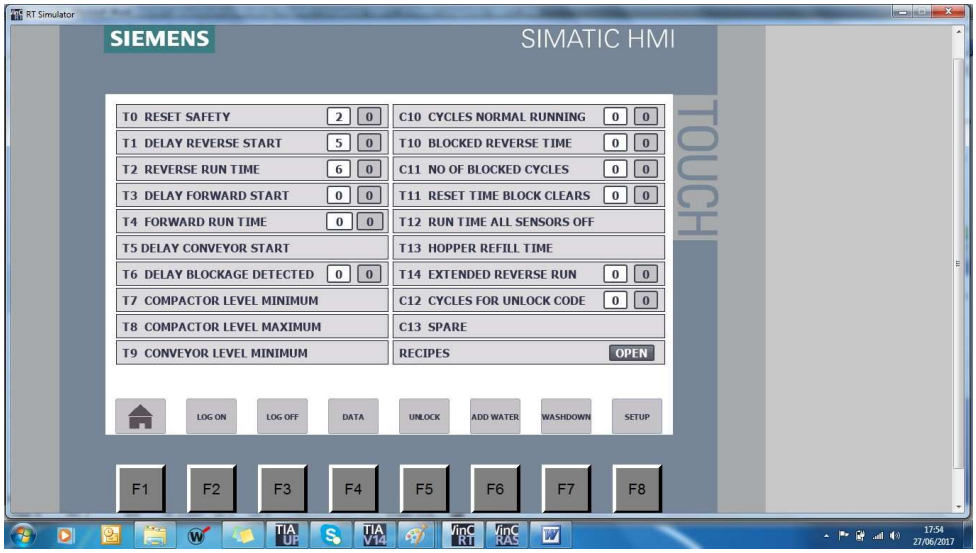
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Touch the box labelled Time duration and a keypad will appear to adjust the time.
Press either Cold or Hot Water Washdown to select water for the duration of the time.
Press the Reset Button and then Start Button on panel door

SETUP SCREEN



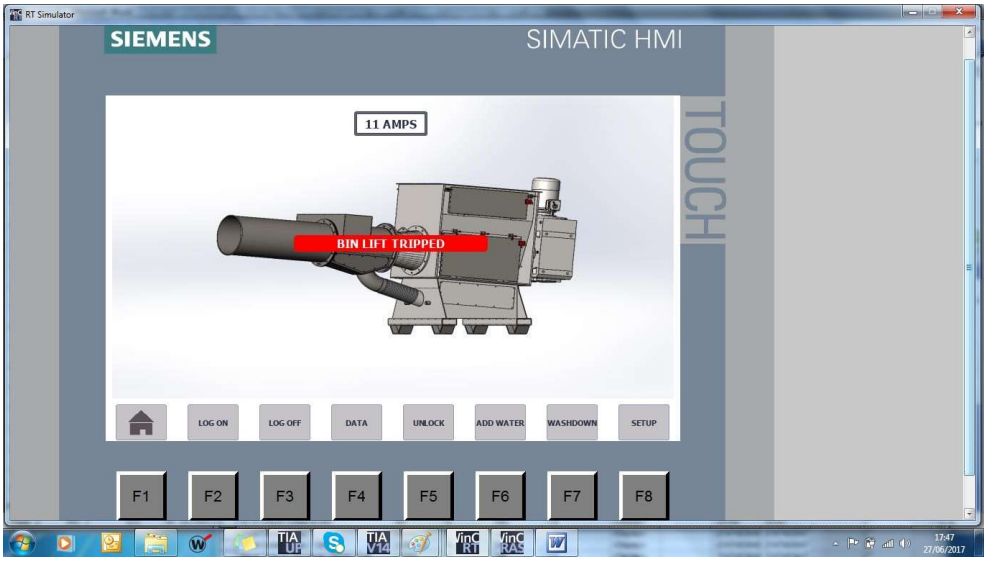
Press F8 to access this Screen
Touch the relevant box and a keypad will appear to adjust the time. (adjust the times may invalidate your warranty), times are set up by the commissioning engineer

MACHINE TRIPPED (Bin Lifter Tripped)

Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

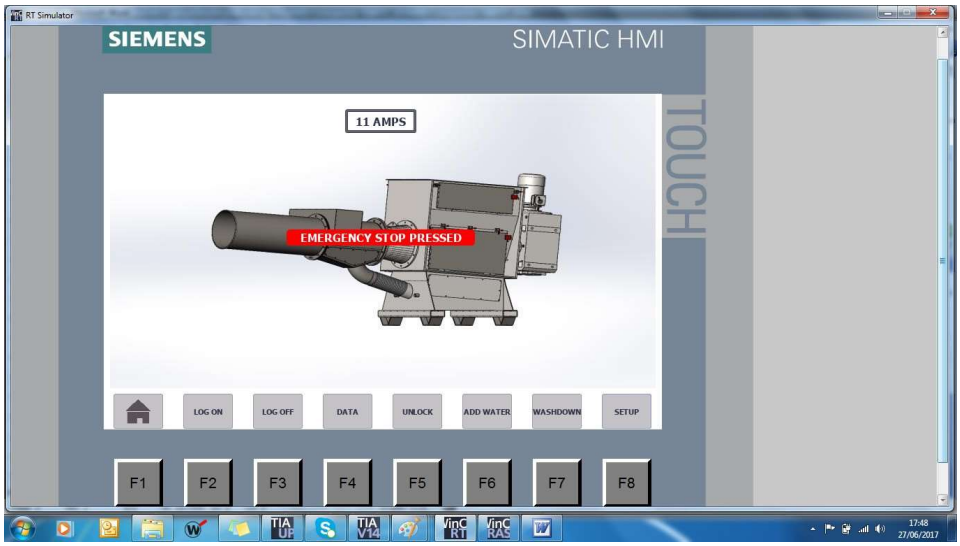
Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk



Press F1 to access this Screen (reset Bin lifter by opening and closing cage)

Rectify fault and press Reset Button on Panel door MACHINE TRIPPED (Emergency Stop Pressed)



Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

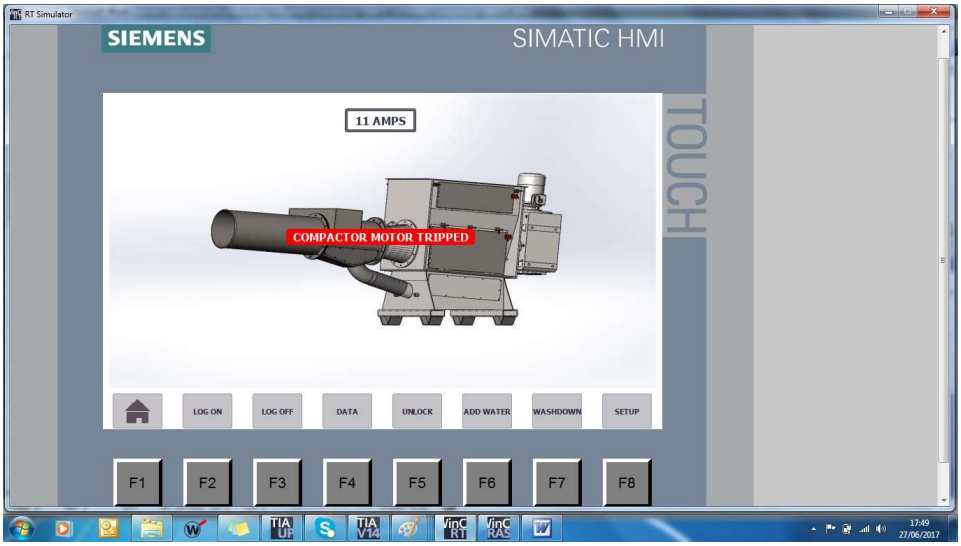
Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Press F1 to access this Screen (Unlock Emergency stop button)

Rectify fault and press Reset Button on Panel door

MACHINE TRIPPED (Compactor Motor tripped)



Press F1 to access this Screen (check for machine block) Ensure machine is electrical isolated & locked out before checking.

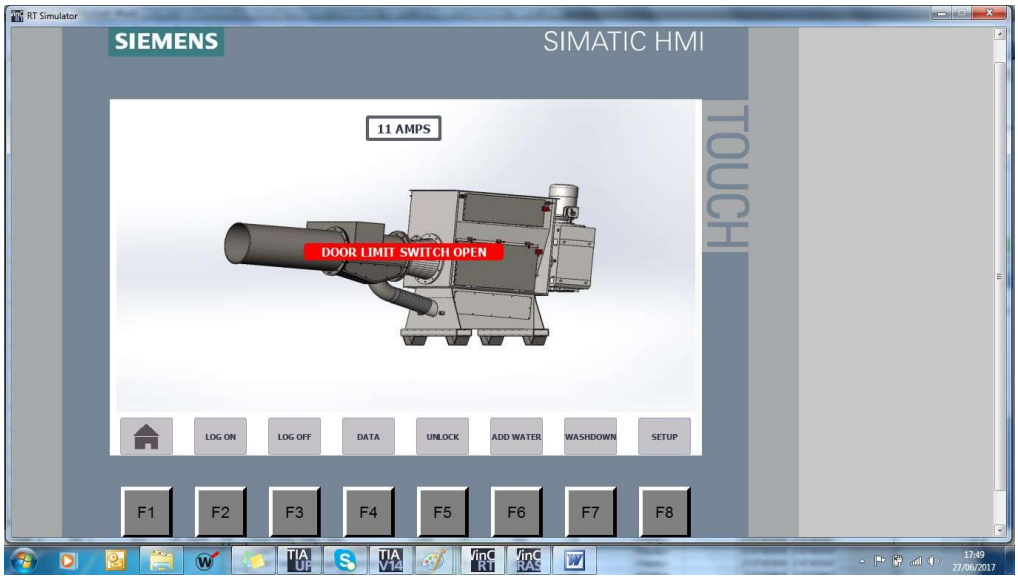
Rectify fault and press Reset Button on Panel door Remove blockage and reset.

Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

MACHINE TRIPPED



Press F1 to access this Screen

(Close limit switch)

Rectify fault and press Reset Button on Panel door

19. Bin Lifter (Separate Operation)

The bin lifter operation is an seperate of the ***revolution***™ operation and as such has its own operating Instructions

20. Recommended Maintenance Programme:

CAUTION

Injury to persons

Danger of cuts from exterior edges of attachment adapters, flanges and covers. Contact freezing with metallic components in case of low temperatures. In addition to personal protective equipment, wear suitable protective gloves and suitable goggles during assembly, commissioning, inspection and maintenance, in order to prevent injuries.

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Always practice good housekeeping

20.1. Establish routine periodic inspections of the entire Compactor to ensure continuous maximum operating performance, and trouble free service

.

20.2. Keep the area around the ***Revolution™*** clean and free of obstacles to provide easy access and to avoid interference with the function of the ***Revolution™*** and drive.

20.3. Establish routine periodic inspections of the entire ***Revolution™*** to ensure maximum operating performance and trouble free service

Precautions:

20.4. Routine cleaning of the trough & hopper is advisable, especially when handling materials that are corrosive, moist or have a tendency to set. By trained personnel only. You Must adhere to the isolation procedure for the machine.

20.5. The side panels can be removed for jet washing from the side. By trained personnel only. You Must adhere to the isolation procedure for the machine before removing the side panels.

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Figure 3 – Machine GA

20.6. Nozzles may be removed on the bottom bin section to allow for the flushing of the bottom chamber

Figure 4 – Liquid Collection Sump

20.7. The top covers covering the compactor cones can be unbolted and removed to clean and inspect the compactor cone assembly

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

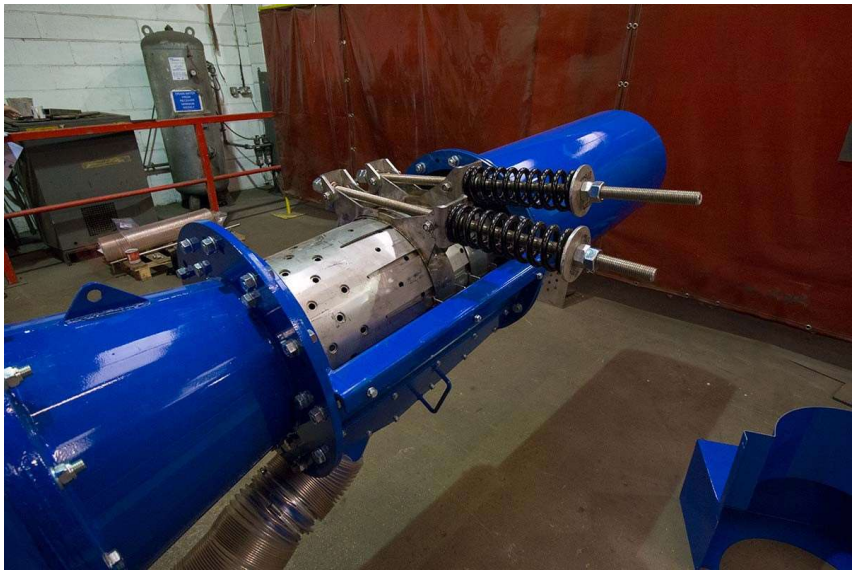


Figure 5 – Finger Cone Spring Adjusters

20.8. Frequent lubrication of moving parts will ensure reduced wear and tear.

20.9. The Inner deflector rubber may be removed and replaced by undoing the M8 retaining bolts on the upper saddle

Figure 6 – Main Body waste Inlet

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

20.10. During the operation in 20.9 above, investigation as to the condition and replacement of the inner gland pack on the motor side should be considered.

20.10.1. The pack can be accessed by removing all the rubber deflection flight and installed doubler plates.

20.10.2. The inner follower should be unbolted

20.10.3. The single 12mm packing ring can be carefully extracted

20.10.4. The replacement 12mm graphite gland pack (check to your specific type) should be cut to size and inserted and the inner follower bolted back into position

20.10.5. The doubler plates can be reinstalled

20.10.6. The rubber flighting should be reinstalled or replaced if found worn or faulty

Figure 7 – Rubber flight

20.11. During the operation in 20.9 above, investigation as to the condition and replacement of the inner trough liner should be considered.

20.11.1. The liner can be extracted by the removal of the line of upper retaining bolts and straps at each side

20.11.2. Once replaced the upper retaining straps should be reinstated and the bolts secured

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Geared motor units are supplied pre-charged with oil or EP semi fluid grease, and will require an oil change after 500hrs and there after every 6,000 to 8,000 hours of use.

Periodic checks on the gearbox should include the following:

20.11.3. Check breather plug is in the uppermost position.
20.11.4. Check breather plug air hole is clear.
20.11.5. Check motor fan air holes are clear.

20.12. Maintain a safety training and safety equipment operation / maintenance programme for all employees.

20.13. Screw Compactors shall not be operated unless the Compactor housing completely encloses the moving elements of the Compactor and that power transmission guards are in place.

20.14. IF THE COMPACTOR IS TO BE OPENED FOR INSPECTION, CLEANING OUT OR OBSERVATION THE MOTOR DRIVE UNIT SHOULD BE LOCKED OUT ELECTRICALLY IN SUCH A MANNER THAT IT CANNOT BE RESTARTED BY ANYONE; WHERE WORK DICTATES STOPPING AND STARTING OF THE MACHINE FOR THE PURPOSES OF CHECKING THE SCREW ROTATION, DURING THE COMMISSIONING OF THE MACHINE FOR SERVICE, TWO PEOPLE MUST BE IN ATTENDANCE AT ALL TIMES SO THAT THE MACHINE CAN BE STOPPED FROM RUNNING AS QUICKLY AS POSSIBLE IN THE EVENT OF MALFUNCTION OR ENDANGERMENT TO ANY INDIVIDUAL.

Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

ALL WORK UNDERTAKEN BY MAINTENANCE STAFF WILL BE SUBJECT TO ACTUAL SITE CONDITIONS AND THE REQUIREMENTS OF THE HEALTH & SAFETY DIRECTIVE.

20.15. Keep all operating personnel advised of the location and operation of all emergency controls and devices. Clear access to these controls and devices must be maintained.

20.16. Frequent inspections of these controls and devices, also covers, guards and equipment to ensure proper working order and correct positioning must be performed.

20.17. Do not walk on Compactors, guards, or motors.

20.18. Do not poke or prod material into the Compactor, never use a pole or stick to force material in.

20.19. Do not place hands, feet or allow any item of loose clothing i.e. tie, into the Compactor openings.

20.20. Do not overload the Compactor or attempt to use it for other than its intended purpose.

20.21. Inlet and discharge ports shall be securely connected to other equipment to completely enclose the Compactor.

20.22. Prior to connecting power to the drive a pre-start check should be performed to ensure the equipment and area are safe for operation and all guards are in place and made secure.

Electric Motors:

20.23. Remove the cover and the fan (which is keyed, clamped, pinned, knurled or star tolerance ring located to the shaft extension). Slacken and remove bearing cover screws and end shield bolts/studs. The end shields should then be eased off their spigots.

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

20.24. The rotor can now be withdrawn carefully from the stator.

20.25. Having dismantled the motor, maintenance can be carried out to remove all dirt. Dry compressed air under comparatively low pressure is best as a high velocity stream can force dirt into the spaces between windings etc. Grease removing solvents should only be used very sparingly so as not to damage impregnating varnish or insulation.

20.26. Motors should be re-assembled in the reverse order from dismantling taking care not to damage the windings on insertion of rotor, remembering to ease end shields on bearings and spigots.

!!!!!!! ON NO ACCOUNT USE FORCE !!!!!!!!
you may damage the motor.

20.27. Before starting, check that the rotor revolves freely. Ensure that the electrical connections are correct and terminal nuts tight. alignment with the driven part, as misalignment will only lead ultimately to bearing trouble and shaft breakage.

20.28. Refit the coupling which has been removed, being particularly careful to ensure correct, If in doubt refer to the motor manufacturers instructions or Spirotech SRD GroupSRD Group Ltd.

20.29.
Flights:

20.30. All flights should be inspected every twelve months for signs of damage caused by foreign bodies.

If for any reason the gearbox is opened, care should be taken to ensure complete cleanliness. It is advisable to only allow qualified personnel to carry out this task.
Spirotech-SRD Group Limited offer various service plans for each machine, please contact 01487 832053 for a quotation

21. Major Components List revolution™ series 400

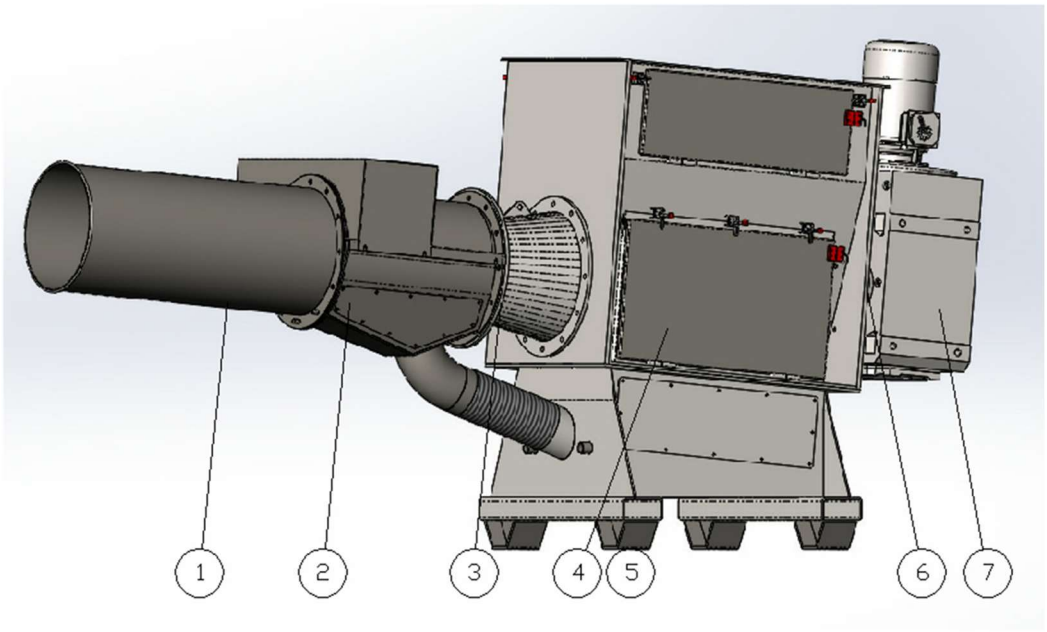
Component	
1:	Tension assembly
2:	Finger cone assembly
3:	Compaction cone
4:	Screw assembly
5:	Revolution Trough

Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

6: Shaft seal housing
7: Motor gearbox Assembly



The above ***revolution™ series 400*** shows the major mechanical components that make up the assembly. These item numbers should be used in any correspondence with Spirotech SRD Group Limited

21.2. FAULT FINDING CHEKCLIST

STOP BUTTON> BEACON

	Possible Cause	Action
○ RED Hard Illuminated -	Bin Lift interlocks not engaged	Shut bin lift door *
	- Emergency Stop engaged. -	disengage E/Stop
	- Panel Safety Switches not engaged- -	Shut access side & low panels

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

A flashing beacon located on the control panel top indicates the same light sequence as the panel illuminated push buttons, except amber which is as follows:-

	Possible Cause	Action
AMBER ○ flashing	- Bin Lift motor Tripped - *Revolution400* motor tripped -	Reset trip / Bin too heavy /electrical fault* Reset trip/ slight blockage/
○ AMBER hard illuminated	–Compactor blocked	Engineer reset call ***01487 832053***

IF Bin Lifted Fitted *

IN ALL CASES AFTER THE FAULTY HAS BEEN RECTIFIED THE GREEN RESET BUTTON ON THE CONTROL PANEL MUST BE PUSHED.

	Symptom		**Check**
1:	Motor Fails to Start	1:	All isolators and switches
		2:	Overloads and Reset Switches
		3:	Electrical Supply is Available
		4:	Revolution is not jammed – Overfeeding
		5:	Blockage indicators not jammed / faulty
2:	Motor functions, no material Compacted	1:	Material is being fed into the revolution
		2:	Screw is rotating in correct direction
		3:	No blockages inside (follow safety procedure)
		4:	Tail shaft is rotating
		5:	Tail shaft does not rotate, check drive shaft is r rotating
3:	Revolution produces excessive Noise	1:	No foreign bodies inside revolution
		2:	Alignment of drive units and transmission
		3:	Gearbox worn or breaking down
		4:	Screw rubbing on casing
4:	Revolution produces excessive Vibration	1:	Alignment of drive units and transmission
		2:	Loose or faulty components
		3:	Mounts / Frame insecurely fitted
5:	Inadequate	1:	Bridging of materials at inlet /outlets
		2:	Inadequate feed of material to revolution

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

22. Shutdown

22.1. If the Compactor is to be inoperative for a prolonged period of time, run & operate the machine until cleared of all material. It should be noted, however, that there is a clearance between the screw and the trough casing, which means that a small amount of material will remain. Therefore, the Compactor should be completely cleaned down after shutdown, and with the power locked off.

22.2. For lock off follow you specific site safety procedure.

22.3. The Compactor must be turned over once a week to stop the bearings from fretting. * Never under any circumstances, jog start the Compactor with direct on line starters. In the event of a blockage, manually un-block the machine before restarting (follow your own site safety & work procedures) before restarting.

If the event that you cannot identify any faults please call **01487 832053** for an engineer to assess your problem, never attempt to rectify a problem that you do not fully understand or that you are not trained or qualified to do.

Please visit our online website for spares, sales etc.

Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

23. Drawing

SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide

UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

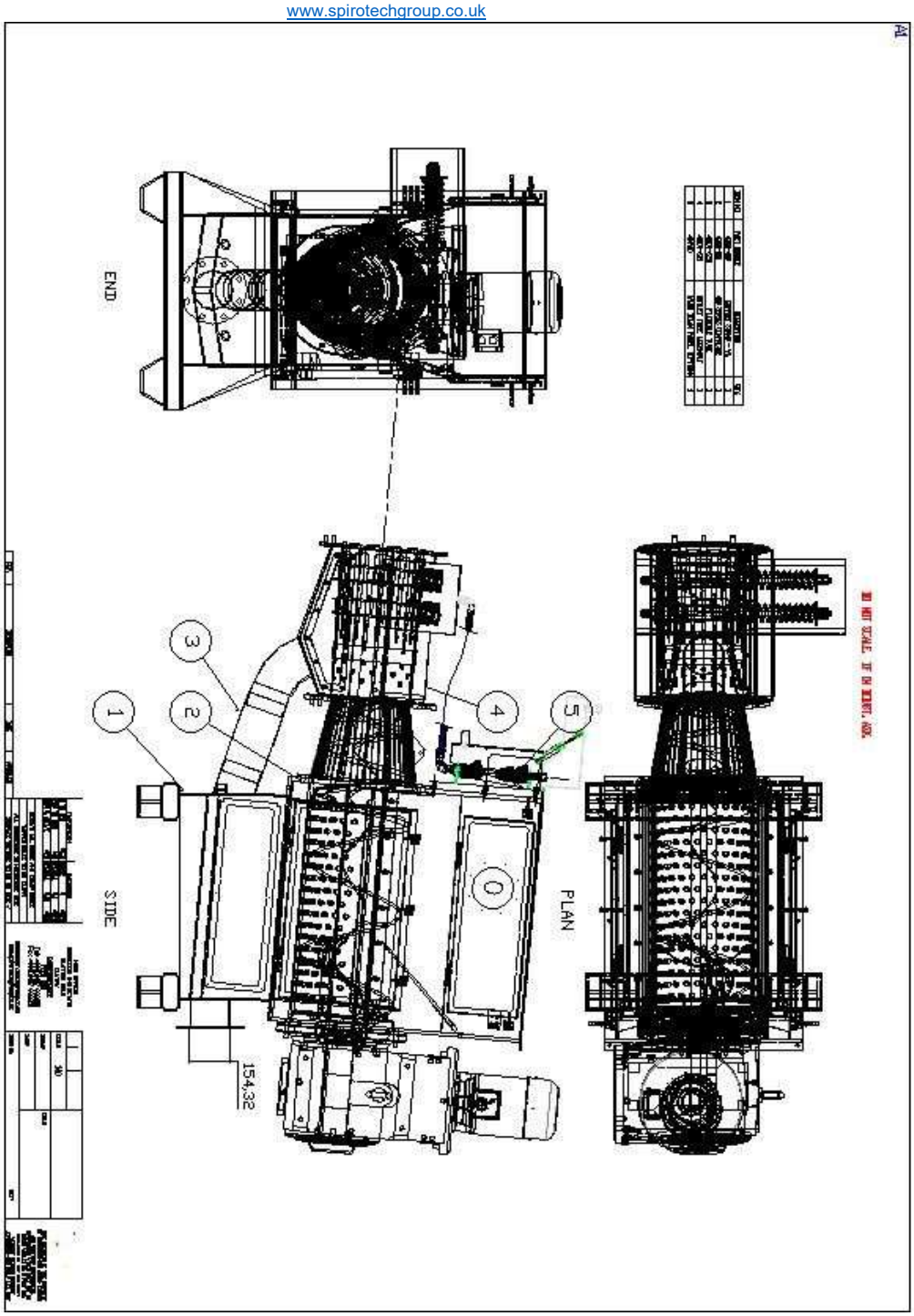


Figure 8 – Typical Layout Drawing

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

24. Declaration of Conformity

EC DECLARATION OF CONFORMITY
Revolution ™ WASTE PROCESSOR

DESCRIPTION	MODEL / VARIANT	SERIAL NUMBER
revolution ™ Waste Processor	400 series	No:

Certified that the above machine complies with the essential Health and Safety requirements of the Machinery Directive 89/393/EEC, 91/368/EEC 93/44/EEC and 93/68/EEC enacted in the UK by the Supply of Machinery (Safety) Regulations 1992 and entitles the CE marking to be affixed.

Signed: ……

MANAGING DIRECTOR
For and on behalf of Spirotech SRD Group Limited

Date: ……

Certified that the whole of the supplies detailed hereon have been inspected, tested and - unless otherwise stated above - conform in all respects with the requirement of the contract or order.

Signed: ……

WORKS MANAGER
For and on behalf of Spirotech SRD Group Limited

Date: ……

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

25. Advised Operator Record (Machine Training)

Each person signing this form does so only after receiving and understanding the training you have had in the safe operation and or maintenance of the unit. Existing site risk assessments and existing national safety standard MUST be adhered to.

It is the person(s) signing and receiving the training responsibility to ensure that all safety standards and procedures have been met.

Safety

Safety lockout procedure before carrying out maintenance of the ***revolution*™** or any associated equipment (i.e. bin lift etc). Starting and stopping the ***revolution*™** or associated equipment using the control panel and emergency stops. General safety points when operating the ***revolution*™** and associated equipment.

Operating Instructions

Control panel operations.
Feeding the ***revolution*™** with waste material.
Bin Lift operation (if fitted)
Wash down procedure (If fitted)

Maintenance

Daily checks and general observations of the ***revolution*™** and associated equipment. Fault finding and reporting.
The following individual has been advised on the above points concerning the ***revolution*™** 400 series compactor and associated equipment.

Trained Person(s)Name……
Signature……...
Date……..
Company……..

Training Adviser…….
Signature……...

Handover: - By signing this form you accept the final handover of the 400 Series Plant to your Companies responsibility, quality, installation, operation and commissioning are deemed to have been acceptable. The liability of operation, maintenance, cleaning & operation records are now your responsibility. Failure to carry out these correctly can void your warranty.

Copy: 1 off to the customer (signed) 1 off to be retained for the clients file (signed)

All advice given by Spirotech SRD Group Limited is secondary to the customers own safety procedures. Spirotech SRD GroupGroup Limited recommends that the customer carry's out their own risk assessment before the revolution™ or any associated equipment are used. Spirotech SRD GroupGroup Limited accept no responsibility for any consequences resulting in the use, maintenance or operation of this plant.

Appendix I

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

26. Warranty

The Licensed Manufacturer will warrant that the Plant will remain free of defects arising from faulty materials or workmanship for 12 months from the date on which it is delivered to you. We confirm that it shall conform, in all material respects, with the description in our technical specification.

We do not warrant that the plant will be fit for any particular use or purpose, which you have or had in mind for it unless we have so agreed in writing. Warranty will be deemed null and void if the compaction cone settings (as shown to operators during commissioning) has been tampered with and set outside of the parameters demonstrated. If, during the warranty period, you find any defects in the Plant, which you consider is covered by this warranty, you must notify us as soon as possible, We will arrange for the Plant to be inspected by our engineers. If a defect for which the Licensed Manufacturer is responsible is found, we will repair, or (at our option) replace the Plant at our expense. If we find that the defect has been caused by abuse, misuse or neglect or by your failure to follow our instructions for the use and routine maintenance and cleaning of the Plant, this warranty will not apply.

Except as stated above, we specifically exclude all conditions or warranties that are or can be implied by law. You agree that except as stated we do not make and have not made any warranty or representation concerning the Plant.

You also agree that our exclusion of implied conditions and warranties is reasonable because of the warranties we have provided. You confirm that you will use the Plant in the course of a trade, ***revolution***™ 400 operating, safety and maintenance manual and or in the absence or one or the other as demonstrated during commissioning / training.

SPIROTECH YORK LIMITED
Engineering Worldwide

SPIROTECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053
sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

SPIROTECH ABERDEEN LIMITED
Engineering Worldwide

27. 400 series Waste Compactor Spare & Replacement Parts

All spares are subject to availability and also additional carriage costs. Current 1st Quarter 2024

	Description	Part No:	Qty Per Machine	Cost each
Drive End				
1:	Drive Unit C/W Electric Motor	90010-1253	1	£7,873.00
2:	Helical Compactor Screw	41100-500-M 1		£8965.00
3:	Wiper Flight	18643-13	1	£339.00
4:	Gearbox Oil	68010-0019	5 litres	£297.00
5:	Spacer Plate	CO411S	1	£149.28
6:	Gland Packing	TBA	1	£49.90
7:	Retaining Plate	CO415	1	£356.00
Main Trough/Body				
8:	Tivar Body Liner	31021-0025	1	£811.00
9:	Liner Clamp	400-02-M	4	£22.50
10:	* Spray Nozzles	91112-0035	4	£64.01
11:	* Inlet Solenoid valve	91110-0930	2	£89.92
12:	Access Door safety Switch	90010-1334	2	£93.10
13:	* Level Switch collection tank	91110-0755	1	£88.25
Compaction Cone				
14:	Compaction Spring	91110-0023	1	£195.25
15:	Fixings for Spring	400-03-M	2	£26.12
16:	Compaction Cone	400-04-M	1	£993.00
17:	Reducing Cone fingers T304	400-05-SS	1	£964.00
Electrical Control Panel				
18:	Replacement Control Panel	400-06-E	1	£4,980.00

We offer a full service and preventative maintenance plan for each Compactor, this are available from as little as £650 ex Vat per visit + parts, It is recommended that each Compactor is serviced twice annually. Please call 01487 832053 for an comprehensive and competitive quotation.

For all parts please quote your compactor serial number or purchase order number, you may also quote the job number, this will be on your order acknowledgement or your drawing that was issued to you.

Items marked * are an option and may not be fitted to your actual machine. Prices current at Jan 2024 for a 3 month period only

SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide
UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053
sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

SPIRO TECH ABERDEEN LIMITED
Engineering Worldwide

28. 400 series Wash Down Panel (optional)

If your compactor has been fitted with the optional wash down panel, it will be fitted in the typical General arrangement drawing (as shown in Figure 8 – Section 23).

The wash down panel allows you to connect 2 options of either cold or hot water. The inlet valve to each line must be manually opened by the operator for this option work correctly.

Add Water

Selection of either Hot or cold water is then selected via the touch screen control panel by pressing add Water (hot) or add Water (cold), this will open the solenoid valve allow water to be sprayed into the compaction chamber and body for a (variable) of amount of time.

Wash down

The unit must be empty and free of any waste material etc for a wash down (if a level sensor is fitted to the body it will not allow wash down whilst full. This will utilize hot and or cold water (site depending). The unit will start the compactor in forward for a set period of time whilst opening the solenoid valve and allowing waster through to the spray nozzles, the screw will then stop after a (set period of time) and go into reverse whilst keeping the spray nozzle valves opened.

Add Water Instructions:-

- Ensure Ball valves (item 4) to the solenoid valves within the wash down panel are manually open.
- Ensure that the water supply is connected to the brass hose tails (item 1).
- Select Add Water on the touchscreen panel
- Press Add Water Hot or Add Water Cold to select the desired water temperature (non variable).
- The water will be added for the duration of the machine cycle or until Stop is pressed in the add water screen.
- After completion the Flashing beacon will stay green and the touchscreen will revert back to a standby mode.

Washdown Instruction:-

- Ensure Ball valves (item 4) to the solenoid valves within the wash down panel are manually open.
- Ensure that the water supply is connected to the brass hose tails (item 1).

SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide

SPIRO TECH ABERDEEN LIMITED
Engineering Worldwide

UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053
sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

- Select Wash down on the touchscreen panel
- Press Wash down (hot) or Wash down (cold) to select the desired water temperature (non variable).
- After completion the Flashing beacon will stay green and the touchscreen will revert back to a standby mode.

Waste water is drained into the lower collection tank and must be either manually drained or pumped away.

SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide

SPIRO TECH ABERDEEN LIMITED
Engineering Worldwide

UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053

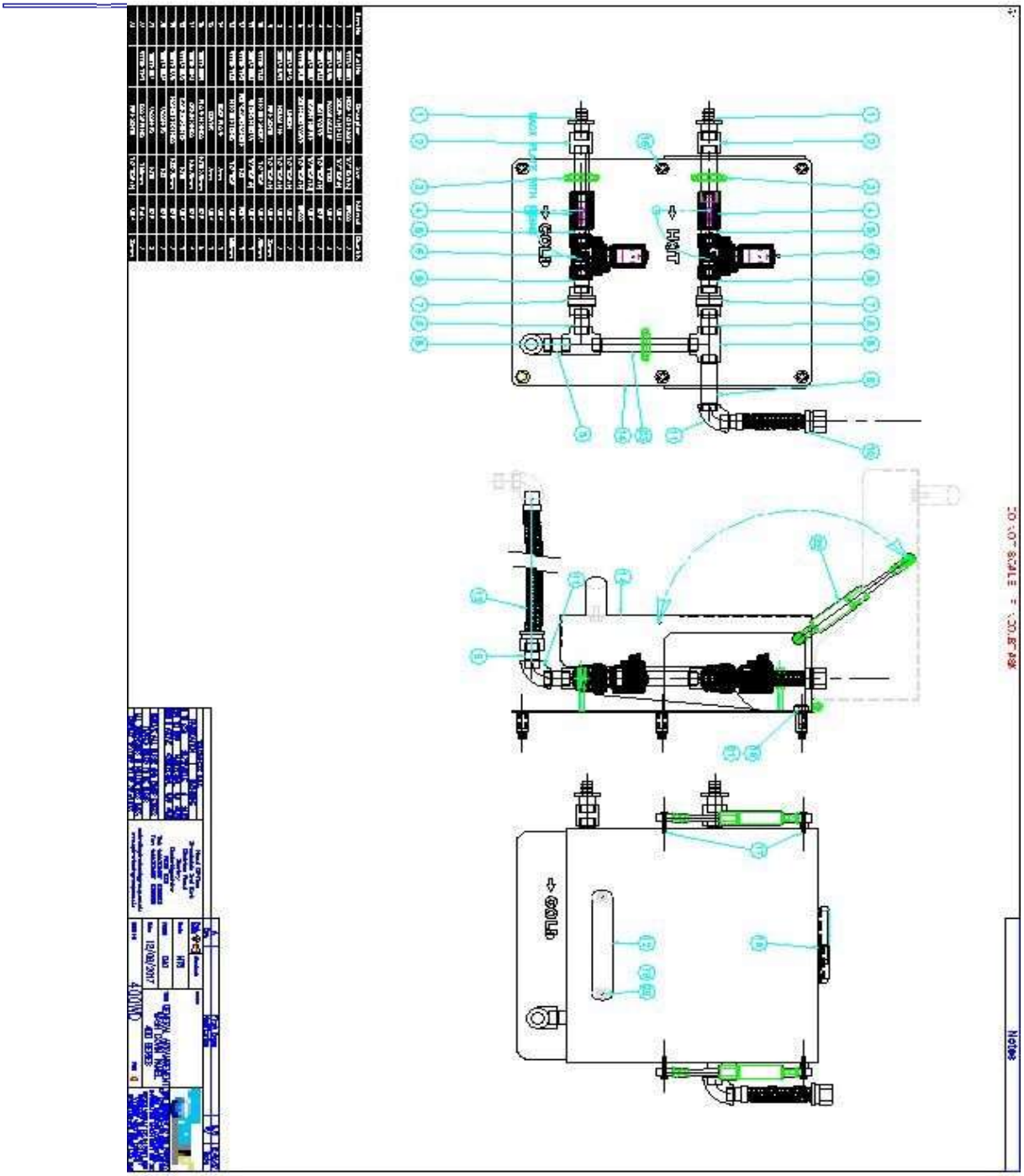


Figure 9.

SPIRO TECH YORK LIMITED
Engineering Worldwide

SPIRO TECH-SRD GROUP LIMITED
Engineering Worldwide

SPIRO TECH ABERDEEN LIMITED
Engineering Worldwide

UK Head Office:
Brookside Industrial Estate,
Glatton Road, Sawtry,
Cambridgeshire, PE28 5SB

Tel: +44(0)1487 832053
sales@spirotechgroup.co.uk
www.spirotechgroup.co.uk

Appendix A:-

Motor /Gearbox drive assembly Manual.

NORD DRIVESYSTEMS

B 1000
Gear units
Operating and Assembly Instructions As enclosed.