

Balcan MP6000 Information Pack

At Balcan we believe our recycling systems are the best in the world, offer the best return on investment, as well as user experience. We also believe that when making an investment in such equipment it is important to know how much things cost. The true cost of purchasing this type of equipment from other manufacturers can significantly increase with add-ons, which are not supplied as standard. Balcan lamp recycling systems process many different types of lamps, as well handling crushed lamps and drums of lamps, so we do not have these extra add-ons. Our simple pricing structure makes calculating your return on investment easy. We also offer a return on investment analysis, whereby we calculate the return on investment through our customized spreadsheet. If you would like to take advantage of this all we require is the typical price per lamp you charge as well as anticipated quantities.

Enclosed in this package is:

1. General Description of MP6000
2. MP6000 sections
3. Installation & Commissioning
4. Warranty
5. Assembly prior to shipment
6. Equipment for provision by client
7. Floor plan – also available electronically for use with Cad drawing packages for accurate scaling.
8. CE Certificate
9. Utility Requirements
10. Spares & Servicing
11. Output fraction details
12. Emissions



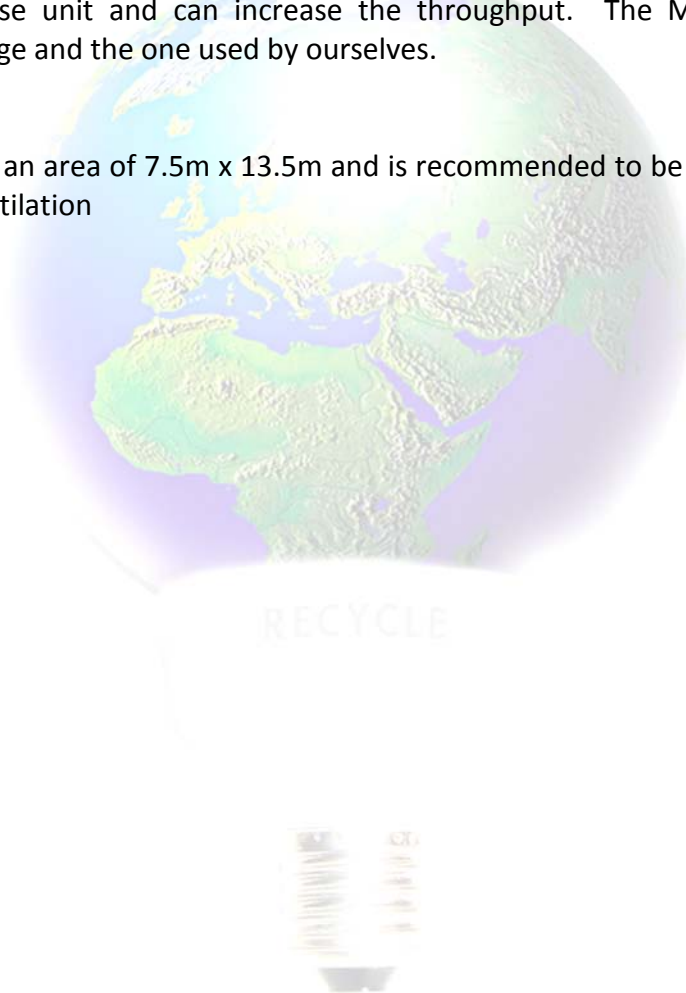
BALCAN GAINED MILLENNIUM PRODUCTS STATUS FOR THREE DESIGNS
HYPODERMIC NEEDLE AND SYRINGE DESTROYER
PNEUMATIC SPLITTER FOR EMPTYING PLASTIC VIALS
BELL-Q THROWING LINE FOR EMERGENCY WATER RESCUE
Directors J H T Rinfret, E M Rinfret, A J Rinfret, J P Rinfret & M A Rinfret
Company Registration N° 1037378



General Description for MP6000 Lamp Recycling Plant

The Balcan MP6000 Lamp Recycling Plant has a capacity to process in excess of 3,000 x 4ft fluorescent tubes per hour (between 6 and 8 million per annum) on the basis that whole lamps are readily available close to the feeding hopper to be fed into the crusher mounted onto it. Pre-crushed lamps in drums as well as whole smaller lamps can be loaded directly into the secondary multipurpose unit and can increase the throughput. The MP6000 is the most popular unit in the range and the one used by ourselves.

The whole plant fits in an area of 7.5m x 13.5m and is recommended to be sited in an enclosed building with good ventilation



The MP6000 Lamp Recycling Plant comprises:

- 1. One Crusher with Main Hopper and Separation Unit** for whole fluorescent tubes. The crushed debris is conveyed evenly to the Main Separator. This causes agitation of the debris and allows the resultant mercury bearing phosphor powder to be drawn off by two Air Extraction Filter Units. The debris discharges from the end of the Separation Unit over a Magnet that separates the glass from the metal components, which are conveyed to suitable collection bins. This Separator processes fluorescent tubes and all other types of lamp glass with magnetic metal components in one operation. However other types of lamps with non magnetic and plastic components need to be processed through our Secondary Separator as follows:
- 2. One Secondary Separator** to accept all types of both whole and crushed lamps (apart from Sodium SOX lamps). This unit separates the glass from the other components and acts as a “primary cleaner” for drums of indeterminate debris. The glass cullet is conveyed back to the Main Hopper for feeding and cleaning through the Main Separator whilst the mix of other materials is discharged into a collection bin at the end. The merit of this unit is that when lamps of one type of lamp be loaded, it will discharge one type of debris such as plastic from modern low energy CFL lamps. If however a mixture of lamps is loaded then a mixture of components will be discharged. None of these components are suitable for further treatment through the Recycling Plant.
- 3. A total of 4 conveyors are supplied: -**
 - One – between Main Hopper and Main Separator
 - One – for glass debris to collection container
 - One – for aluminium end caps to collection container
 - One – from Secondary Separator to Main Hopper
- 4. Air Extraction Filter Units** are used to draw off all mercury bearing phosphor powder and vapour from the contents of the lamps down to 5 micron size. These ensure the plant operates at negative pressure. All finer dusts and vapours that pass through the filters are ducted to our Main Filter Stack containing approximately 2 cubic metres of Sulphur based Activated Carbon, with which the mercury reacts and allows the exhausted air to be mercury free and ducted to atmosphere.

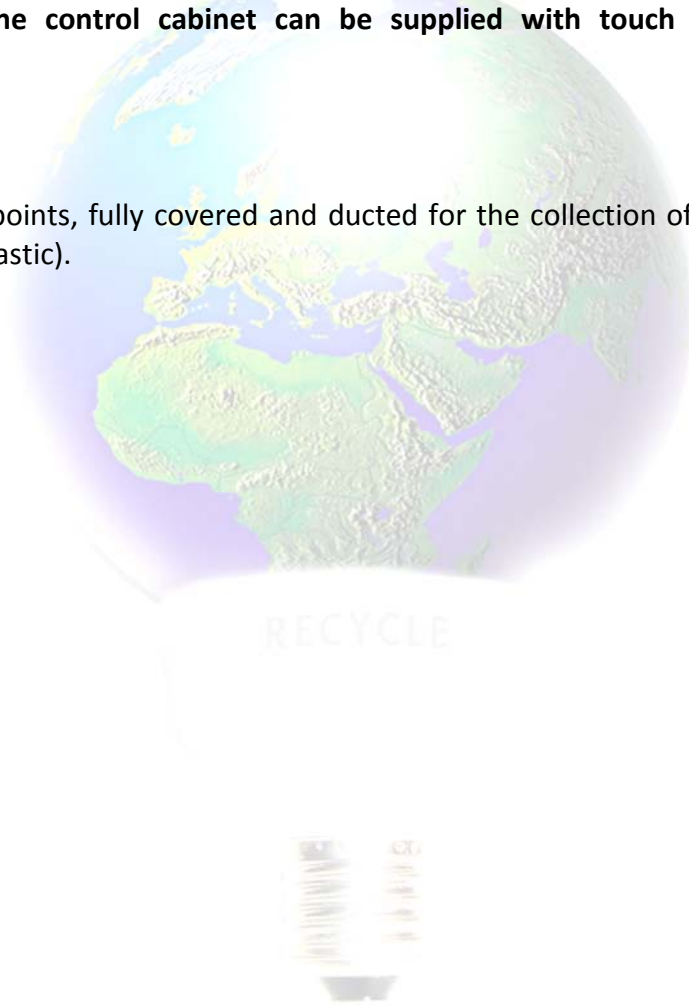
Maximum permissible emissions from exhaust 0.025mg/m³

Typical emissions 0.0001-0.002mg/m³

5. **Electrical Control Cabinet:** for the sequential operation of the plant. This ensures all electrical equipment is switched on and off in the correct sequence and also allows for complete shutdown of the plant in an emergency (Emergency Stop switches are fitted around the plant) . In the case of a fault overloads and proximity switches are fitted to all components to provide controlled shutdown. Safety interlocks prevent the machine operating in an unsafe manner. For maintenance purposes it allows each component to be individually operated when necessary.

Option: The control cabinet can be supplied with touch screen interface if required.

6. Collection points, fully covered and ducted for the collection of glass and end caps (metal & plastic).



INSTALLATION & COMMISSIONING

Balcan automatically offers a customizing install service for the equipment.

We are able to change and tailor the layout of the plant, depending on the building it is to be installed in.

After an order is placed Balcan will contact you to discuss a potential site visit, or ask for photographs, and/or a layout of the building.

Each recycling plant is unique and being the designer and manufacturer this service allows us to make modifications during the assembly process and provide the correct sizes and quantities of ductwork for the air is supply.

When the unit has shipped and the delivery date is confirmed, we arrange for our team of engineers to attend site. Balcan will unpack the containers and assemble the plant.

When the system is operational balcan will conduct the necessary commissioning tests. Balcan engineers will remain on site for a number of days to train the operatives in the use of the equipment, discuss daily checks, preventative maintenance actions as well as servicing and fault findings.

Balcan normally allows up to 10 working days for a full install with comprehensive hands on commissioning.

RECYCLE



WARRANTY

Balcan warrants that the goods supplied under a contract are new, unused, of the most recent or current models, and they incorporate all recent improvements in design and materials unless provided otherwise in the contract. Balcan further warrants that all goods supplied under a contract shall have no defect arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of Balcan, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

This warranty would remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract. The purchaser shall promptly notify Balcan in writing of any claims arising under this warranty.

Upon receipt of such notice Balcan shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser other than, where applicable, the cost of inland delivery of the repaired or replaced goods or parts from ex works or the port or place of entry to the final destination.

If Balcan, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take such remedial action as may be necessary, at Balcan's risk and expense and without prejudice to any other rights which the purchaser may have against Balcan under the contract.

ASSEMBLY PRIOR TO SHIPMENT

The plant will be assembled and run at the premises of Balcan prior to being shipped. It is recommended that clients visit us during this period to ascertain that the plant operates to their satisfaction. Once delivered to the site of client, Balcan will provide engineers to assemble and supervise operation of the plant. The opportunity will also be available for potential operators of the plant to be given full training not only about the operation of the plant but also about any maintenance that may be required. A stay of five days is envisaged for this purpose with the last two being for final training purposes. Balcan expects to pay for their own engineers, but where possible, to be taken to and from the site.

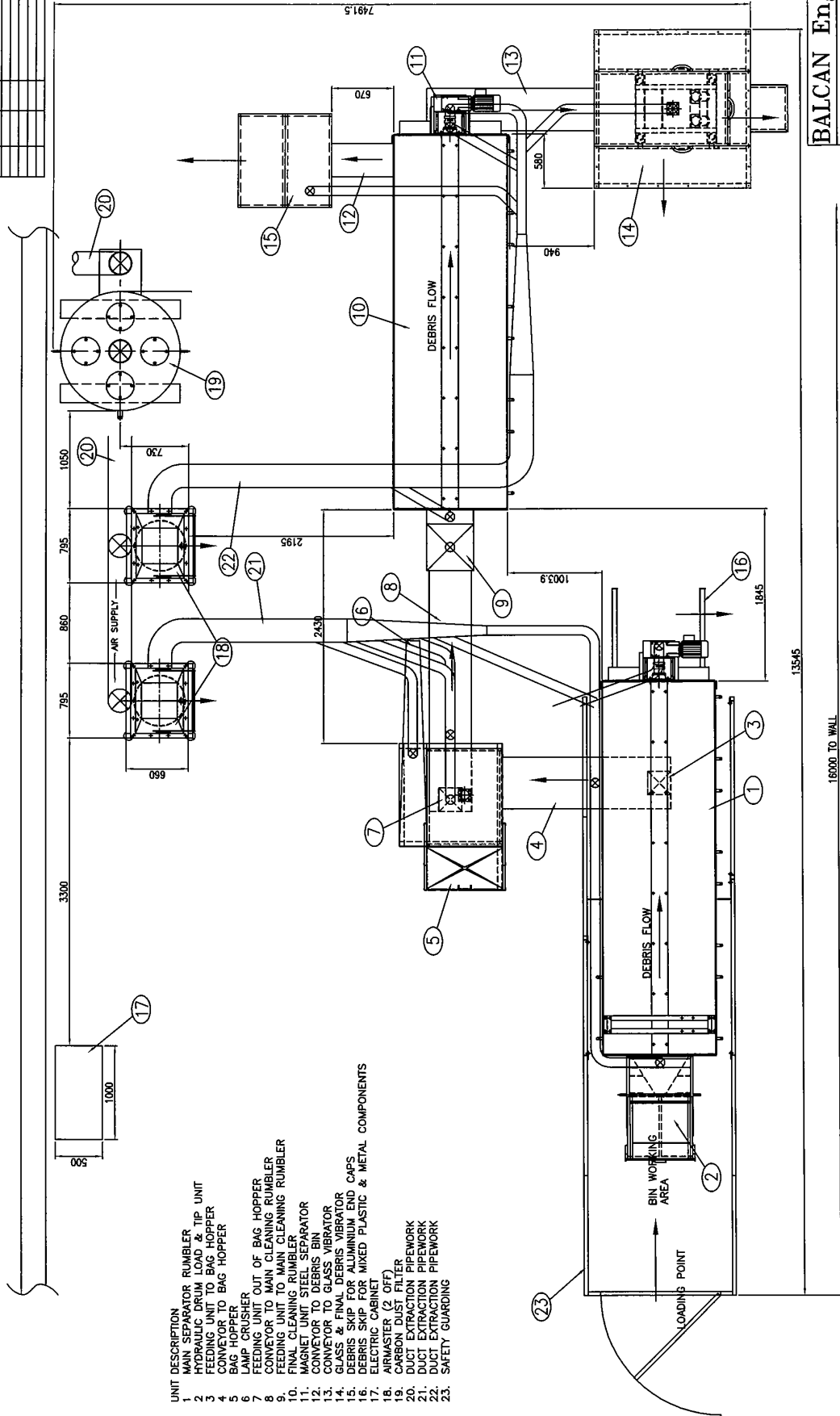


EQUIPMENT FOR PROVISION BY CLIENT

We supply a special ventilated steel cabinet that accepts 'dumpy /tote ' bags of one cubic metre for the collection of aluminum end caps. However it is for the client to provide a suitable container for the glass debris. For our own purpose we use self tipping mini skips. We request the client to supply measurements of the containers for glass as our framework and conveyor will be adjusted accordingly.



REMOVE ALL SHARPE EDGES AND CORNERS



- UNIT DESCRIPTION
1. MAIN SEPARATOR RUMBLER
 2. HYDRAULIC DRUM LOAD & TIP UNIT
 3. FEEDING UNIT TO BAG HOPPER
 4. CONVEYOR TO BAG HOPPER
 5. BAG HOPPER
 6. AIR CRUSHER
 7. FEEDING UNIT OF BAG HOPPER
 8. CONVEYOR TO MAIN CLEANING RUMBLER
 9. FEEDING UNIT TO MAIN CLEANING RUMBLER
 10. FINAL CLEANING RUMBLER
 11. MAGNET UNIT STEEL SEPARATOR
 12. CONVEYOR TO DEBRIS BIN
 13. CONVEYOR TO GLASS VIBRATOR
 14. GLASS & FINAL DEBRIS VIBRATOR
 15. DEBRIS SKIP FOR ALUMINIUM END CAPS
 16. DEBRIS SKIP FOR MIXED PLASTIC & METAL COMPONENTS
 17. ELECTRIC CABINET
 18. SAFETY GUARDING
 19. CARBON DUST FILTER
 20. DUCT EXTRACTION PIPEWORK
 21. DUCT EXTRACTION PIPEWORK
 22. DUCT EXTRACTION PIPEWORK
 23. SAFETY GUARDING

BALCAN Eng Ltd.
HORNCASTLE
LINCOLNSHIRE LN9 6JR

ALL DIMENSIONS UNLESS OTHERWISE STATED
 UNLESS OTHERWISE STATED UNLESS OTHERWISE STATED

TITLE: PLANT LAYOUT (BALCAN STD)
 BUT WITH 4m RUMBLERS

DRG NO: 0000-1401
 ISSUE: 1 OF 1

SCALE: 1/4" = 1'-0"
 DATE: 04.09.09
 DRAWN BY: PREPARED BY:

TOTAL AREA APPROX 13.5m x 7.5m EXCLUDING ACCESS
 BALCAN STANDARD MP6000 LAYOUT

16000 TO WALL

EC DECLARATION OF CONFORMITY

We hereby declare that the machinery listed below complies with the following directive:

Machinery Directive 98/37/EC
Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC

Machine/Product Description : Florescent tube and small lamp crusher

Make : Balcan FSL lamp crusher

Model No : FSL 110/240

Serial No : 3300>

Manufactured By : Balcan Engineering

The machine has been designed and manufactured in accordance with the following standards: BS EN 294, BS EN 626-1, BS EN 626-2, BS EN 811, BS EN 953, BS EN ISO13849-1(BS EN 954-1), BS 1050, BS EN 1088, BS EN 1093-1 and BS EN 1093-2.

The Technical Construction File for the above machine is retained at the following address:

Balcan Engineering
Banovallum court
Boston road Industrial estate
Horncastle,
Lincs
LN9 6JR

Signed :



12/02/08

Print : Alistair Rinfret

Position: Director

Being the responsible person appointed by the manufacturer (or nominated representative of the manufacturer established in the EC, and employed by (Balcan Engineering)



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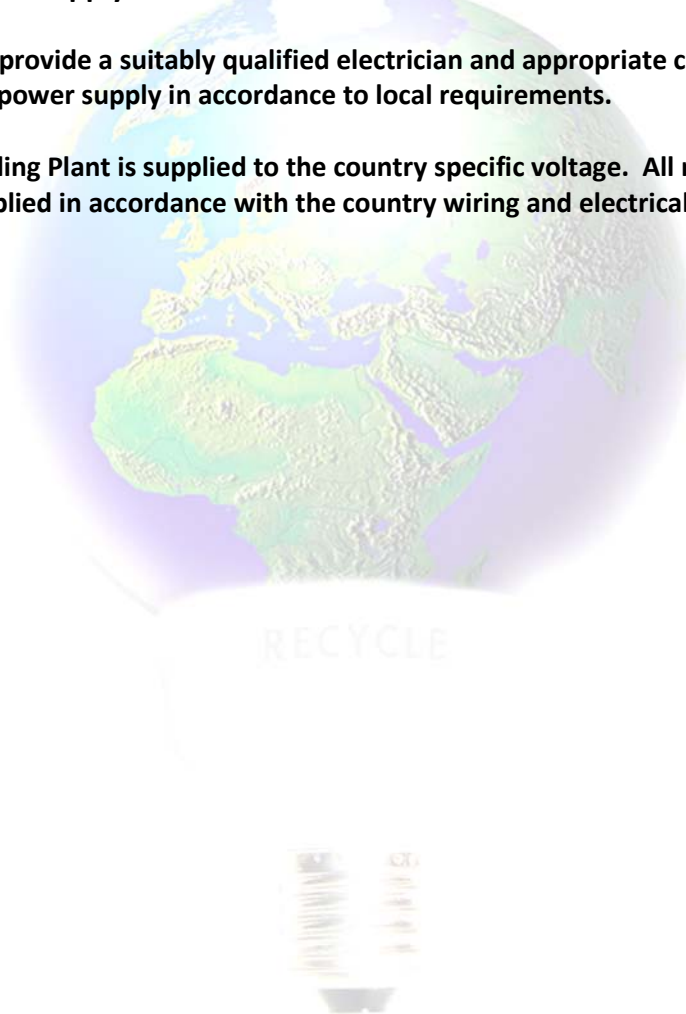
UTILITY REQUIREMENTS

Client to provide the following utilities for the MP6000 Lamp Recycling Plant

- 1. Compressed Air Supply required: 6.0 bar 7.2Nm³/h**
- 2. 3 Phase Electrical Supply for connection to Control Panel.**

The client is required to provide a suitably qualified electrician and appropriate cabling for wiring the control box to the main power supply in accordance to local requirements.

Each Balcan Lamp Recycling Plant is supplied to the country specific voltage. All motors and electrical components will be supplied in accordance with the country wiring and electrical requirements.



Spares and Servicing – MP6000

Balcan are one of the UK's largest lamp recyclers as well as being the designers and manufacturers of their range of lamp recycling plants. The advantage of this is the ability to design out faults from their systems and to understand how other lamp recyclers may work thus providing a very efficient, cost effective and low maintenance system.

Balcan is able to offer an annual service contract if requires for their systems, but it is not a requirement. Servicing and maintenance have been kept to a minimum and the systems designed to be easily serviced and maintained if required. The design of the Balcan equipment allows most aspects of servicing and maintenance to be carried out with the machine operating under negative pressure, thereby reducing the need for high levels of personnel protective equipment (PPE).

Typical Spares:

1. Set of Filters for air extraction units – these last between 9 – 24 months depending on usage.
2. Conveyor belts – Balcan recommends a set of spare conveyor belts be purchased with the machine. Whilst belts usually last for many years no one can foresee situations which may cause damage to these. As the conveyors are a major component of the recycling plant, for carrying the untreated glass as well as the cleaned outputs it is important to be able to obtain spares if required.

Other Spares:

Balcan's recording of spares supply over the years for their systems, has found that apart from the typical recommended spares, which should be readily available, all other components have proved extremely reliable. All other components are readily available from Balcan, however, the systems have been designed to be able to use readily available / universal parts which are available from the individual country, e.g.:

A system supplied to the USA will be fitted with a US brand and spec motor, usually imported. Therefore should that motor ever fail a motor should be immediately available from the US. This has the added advantage of saving on time & shipping costs. It also helps keep the costs of ownership down.

Servicing:

Servicing schedules are kept to a minimum with daily checks usually being all that are required. Weekly & monthly maintenance is dependent on throughput of lamp and usually involves simple cleaning and visual inspections.

Annual service visits or contracts are available if required. Please contact Balcan for more information.

MP6000 Lamp Recycling Plant - Output Fractions

Outputs consist of the following:

1. Glass
2. End Caps – Metal or Plastic when processed separately.
3. Mercury Bearing Phosphor Powder.

Balkan Lamp Recycling Systems produce some of the cleanest output fractions from this type of equipment.

Typical residual contaminations:

Glass – Residual
Contamination:

Typically 1-3 mg/Kg (1-3ppm) 'analyzed as bulk product'
Max 0.025 mg/l TCLP

End caps – Metal or plastic in processed separately (mixed if processed together)

Mercury Phosphor Powder – Typical mercury content <1Kg per 1000Kg



MP6000 Lamp Recycling Plant Emissions

Correctly designed lamp recycling plants should operate under negative pressure to reduce emissions of mercury vapour into the workplace. Whilst there should be zero emissions of mercury from a lamp recycling system this is not always the case and therefore these are required under laws to be kept to a minimum level.

Balcan lamp recycling systems use air extraction filter units to draw off all mercury bearing phosphor powder and vapour from the contents of the lamps down to less than 5 micron size. These ensure the plant operates at negative pressure. All mercury bearing vapours pass through the filters and are ducted to the Main Carbon Filter Stack. The vessel contains approximately 2 cubic metres of Sulphur based Activated Carbon, with which the mercury reacts and allows the exhausted air to be mercury free and ducted to atmosphere.

Balcan's philosophy is to work as close to zero emissions as possible and by using a single large carbon vessel we are able to achieve consistently low to zero results. We believe the advantage of a single vessel is in economies of scale with an improved lifetime expectancy of the carbon, over using smaller 'barrel' filters. Using one large high flow, annular carbon vessel, gives a much greater surface area with maximum throughput and removal of mercury from the vapour stream. Through years of regular monitoring you will also be able to see when the emissions start to increase, albeit very slowly, indicating the carbon is beginning to reach its capacity. Due to the size of the vessel this will give the ability of being able to schedule a carbon replacement service before permissible limits are reached. We believe that when using smaller filters the time between levels beginning to increase and saturation can happen quickly and can lead to unnecessary loss of production when not having the time to schedule carbon replacement.

Maximum permissible emissions from exhaust 0.025mg/m³

Typical emissions from Balcan MP6000 - 0.0001 - 0.002mg/m³

Estimated lifespan of carbon – 5 years based on throughput of 5-10 Million lamps per year.



Balcan Lamp Recycling Systems

MP6000 Specification



www.cfl-lamprecycling.com

GENUINELY KINDER TO THE ENVIRONMENT



Balcan MP6000 Specification

The MP6000 is the workhorse of the Balcan Lamp Recycler Range. Capable of handling between 5-8 million lamps per year on a one shift basis, this system outperforms its competitors in terms of power consumption, maintenance requirements and quality of outputs.

Capacity:

Whole lamps 2000-3000 / hour

Crushed lamps 4000-5000 / hour

Mix (crushed & whole) 4000 / hour

Weight equivalent 1000-1200Kg / hour

Electrical Requirements:

Each unit is supplied to customers available electrical supply and country requirements

Consumption: Max.10 kW 3Ph

Compressed air: 7.2Nm³/h (4.5CFM)

Supply pressure: 6 bar

Connection pipe: 0,75" thread

Mercury (Hg) Emissions from final exhaust:

Typically 0.001-0.002mg/m³

Max Permissible 0.025mg/m³

Estimated carbon filter life: 5 years

Output Fractions:

Glass, End Caps (metal or plastic depending on lamps processed. If lamps are mixed for processing then the end cap fraction will be mixed.) Mercury Bearing Phosphor Powder

Residual Contamination & Leachate Values

Analysed as water: Max 0.025mg/l

Analysed as Bulk Product: Typically 1-3mg/Kg

BALCAN

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