

# SKALS

*- we'll sort it out!*

## INSTRUCTION MANUAL

### Brushing Machine Type BM



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## **1.0 Purpose and scope of operations**

Brushing Machine Type BM is designed for cleaning potatoes, onions and similar products.  
Normal operational temperature: -15°C to + 40°C

## **2. 0 Installation**

In order to ensure smooth and steady operation, it is imperative that the brushing machine stands upright on a flat surface, supported evenly on all four legs. Set the adjustable legs to achieve a level position.

Connect the electricity supply in accordance with local regulations. Connect the electricity supply through a motor protection relay which corresponds to the size of the motor.

Check the flow direction. If the direction of flow has to be altered, switch 2 phases in the power supply.

### **2.1 Installation of accessories**

Follow instructions for the installation of accessories.

#### **Support frame**

Place the frame on a level base.

Lift the brushing machine and lower on to the frame, the legs fitting over the four pegs on the frame.

Loosen the leg bolts, adjust the legs on the frame until the brushing machine is level. Tighten the bolts on the legs again.

#### **Upper brushes:**

If more vigorous brushing is required, adjustable brushes can be fitted.

## **3.0 Operation**

Check that the brushing machine is correctly placed in relation to other machines in the production sequence.

## **4.0 Pictograms**

**Danger!** Rotating rollers at the outlet end. Keep a safe distance.

## **5.0 Lubrication and maintenance**

All bearings are lubricated for life and need no further maintenance..

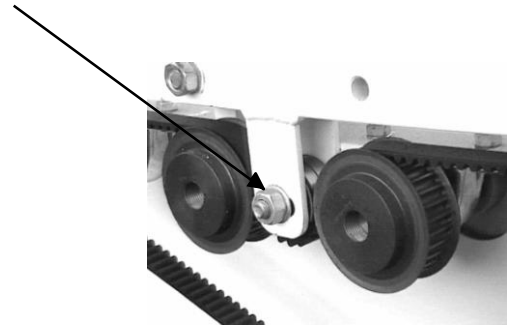
The toothed gear wheel is greased for life with synthetic grease for operation in a normal temperature range of -15°C to +40°C.

The gear is always supplied, filled with oil.

|        |                  |
|--------|------------------|
| Shell  | Macoma R220      |
| Exxon  | Spartan EP320    |
| Texaco | Meropa 220       |
| Mobil  | Mobilgear 630    |
| BP     | Energol GR-XP220 |

**Change the oil after 5,000 hours of operation, or each year, whichever comes first.**

Keep the toothed belt drive tight by adjusting the tension wheel.



To replace brush and rubber rollers, loosen the tension roller and remove the toothed belt drive. Remove the lock-nut and toothed drive gear. The bearings and rollers can now be removed. The rubber discs and nylon rings can be replaced after fitting a stop ring on the rubber roller.

Assembly of new rollers is the reverse of removal.

## 5.1 Cleaning

With reference to the Danish Plant Directorate's Order No. 965 of 13 December 1993 (p. 6).

- 2.3.3. Seed potato growers with contained propagation must clean and disinfect all sorting and ancillary equipment after each new variety. Disinfecting should be carried out using a product approved by The Danish Institute of Plant and Soil Science.
- 2.3.4. Companies authorized to sort potatoes and who also have the authorization to propagate potatoes, must clean and disinfect sorting machinery etc. which is under the control of The Danish Plant Directorate before the sorting of own propagation is commenced. Disinfecting should be carried out using a product approved by The Danish Institute of Plant and Soil Science.
- 2.3.5. Premises and machinery etc. must be cleaned and disinfected each year before 30 June. Disinfecting must be carried out using a product approved by The Danish Institute of Plant and Soil Science.

In other countries, customers must conform to relevant, local food and hygiene regulations..

## 6.0 Packing and transport information

Packing / packaging:

All types of brushing machines are shrink wrapped prior to dispatch.

0Number of units:

The brushing machine is packed as 1 complete unit.

**Weight:**

|        |         |
|--------|---------|
| BM608  | 165 kg. |
| BM908  | 200 kg. |
| BM1208 | 235 kg. |
| BM616  | 340 kg. |
| BM916  | 410 kg. |
| BM1216 | 480 kg. |

| <b>Dimensions:</b> | <b><u>Length</u></b> | <b><u>Width</u></b> | <b><u>Height</u></b> |
|--------------------|----------------------|---------------------|----------------------|
| BM608              | 1,200 mm.            | 850 mm              | 900 mm.              |
| BM908              | 1,200 mm.            | 1,150 mm.           | 900 mm.              |
| BM1208             | 1,200 mm.            | 1,450 mm.           | 900 mm.              |
| BM616              | 2,320 mm.            | 850 mm.             | 900 mm.              |
| BM916              | 2,320 mm.            | 1,150 mm.           | 900 mm.              |
| BM1216             | 2,320 mm.            | 1,450 mm.           | 900 mm.              |

## 7.0 Transport and lifting instructions

Should it be necessary to lift the brushing machine, this **must** be carried out by using the nylon straps fitted to the machine's four legs, as shown in the illustration below (fig. 1).



Fig.1

## 8.0 Accessories

The following optional accessories are available for Brushing Machine Type BM.

| <b>Type BM608</b>                       | <b>Part no.</b> |
|---|-----------------|
| Conveyor for bypass type TPGR 4/500x775 | 4 45 40 000     |
| Upper brushes                           | 4 15 11 000     |
| Rear legs with fittings                 | 4 15 99 970     |
| Extra sub-frame                         | 4 15 99 700     |
| Outlet                                  | 4 15 99 880     |

| <b>Type BM908</b>                       |             |
|---|-------------|
| Conveyor for bypass type TPGR 7/800x775 | 4 45 40 200 |
| Upper brushes                           | 4 15 36 000 |
| Rear legs with fittings                 | 4 15 99 940 |
| Extra sub-frame                         | 4 15 99 670 |
| Outlet                                  | 4 15 99 850 |

| <b>Type BM1208</b>                        |             |
|---|-------------|
| Conveyor for bypass type TPGR 10/1100x775 | 4 45 40 400 |
| Upper brushes                             | 4 15 46 000 |
| Rear legs with fittings                   | 4 15 99 910 |
| Extra sub-frame                           | 4 15 99 610 |
| Outlet                                    | 4 15 99 820 |

| <b>Type BM616</b>                        |             |
|--|-------------|
| Conveyor for bypass type TPGR 4/500x1775 | 4 45 40 600 |
| Upper brushes                            | 4 15 16 000 |
| Rear legs with fittings                  | 4 15 99 970 |
| Extra sub-frame                          | 4 15 99 690 |
| Outlet                                   | 4 15 99 790 |

| <b>Type BM916</b>                        |             |
|--|-------------|
| Conveyor for bypass type TPGR 7/800x1775 | 4 45 40 800 |
| Upper brushes                            | 4 15 41 000 |
| Rear legs with fittings                  | 4 15 99 940 |
| Extra sub-frame                          | 4 15 99 640 |
| Outlet                                   | 4 15 99 760 |

| <b>Type BM1216</b>                         |             |
|--|-------------|
| Conveyor for bypass type TPGR 10/1100x1775 | 4 45 41 000 |
| Upper brushes                              | 4 15 51 000 |
| Rear legs with fittings                    | 4 15 99 910 |
| Extra sub-frame                            | 4 15 99 580 |
| Outlet                                     | 4 15 99 730 |

## 9.0 Spare parts

When ordering spare parts, state machine type, serial no. and, if possible, position no.

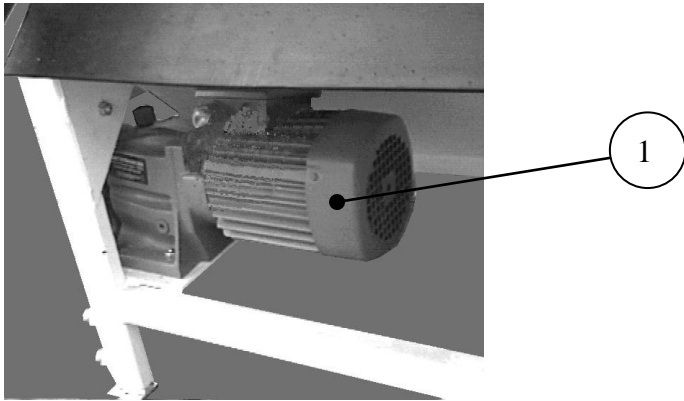


Fig.2

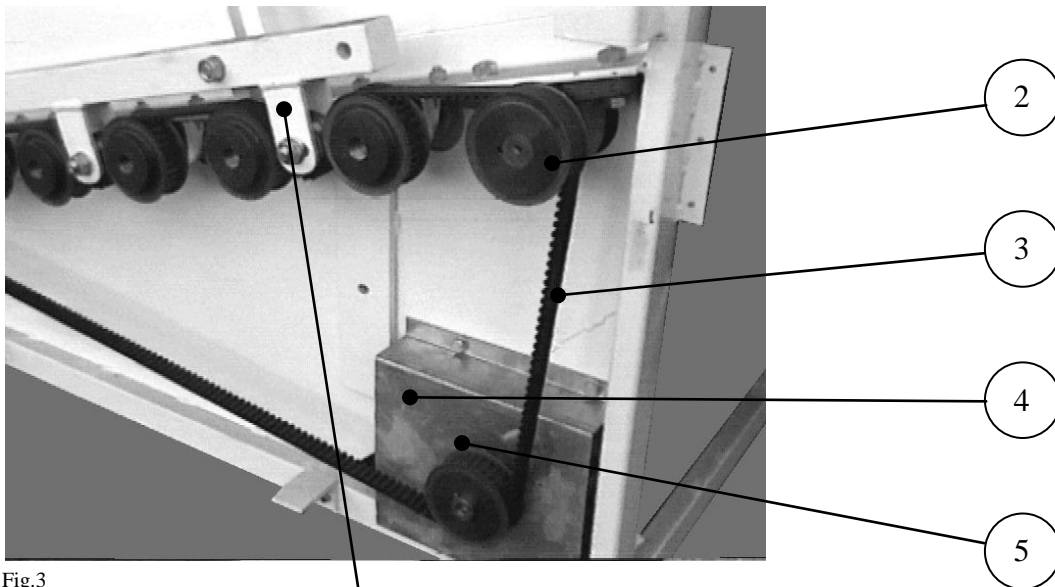


Fig.3

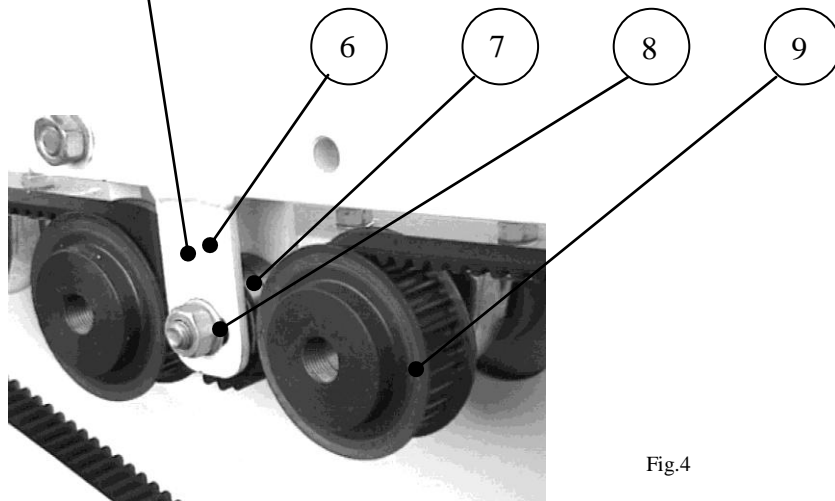


Fig.4

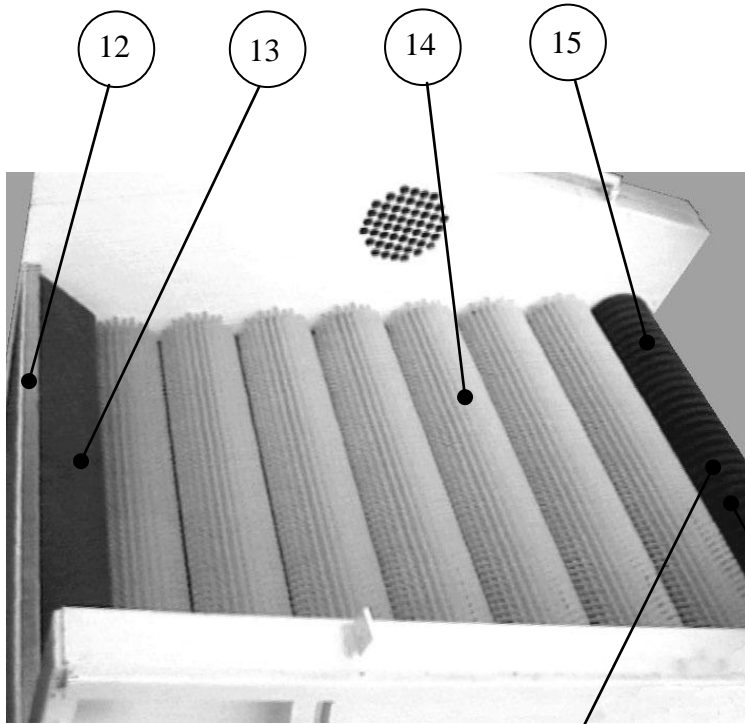
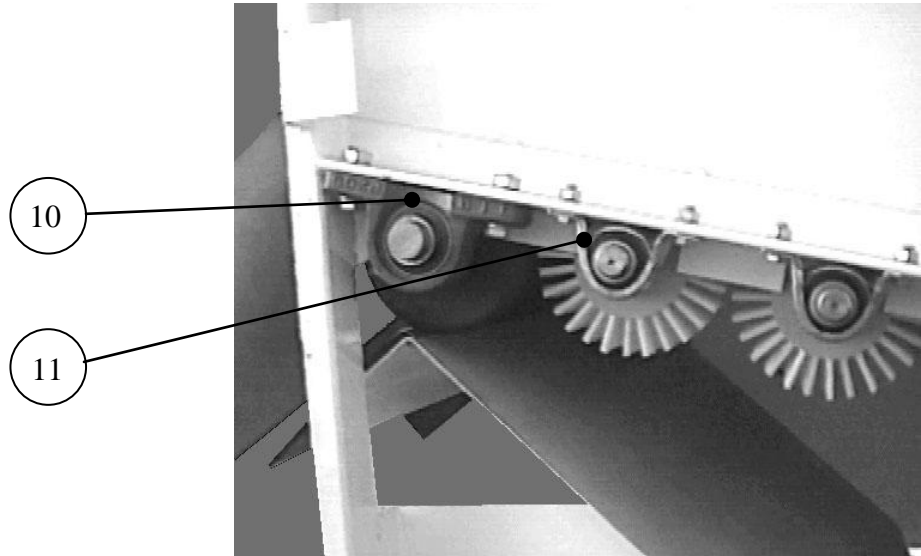


Fig.6

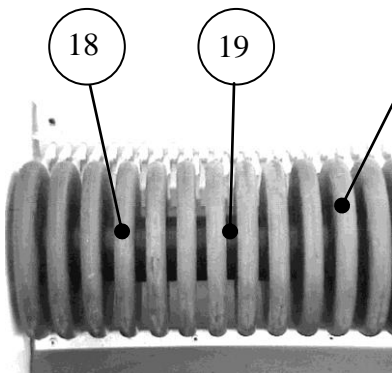


Fig.8

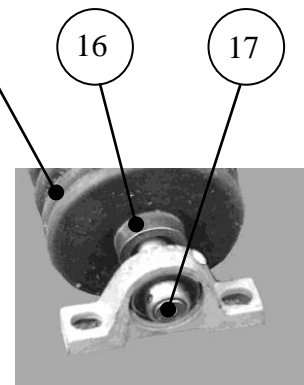


Fig.7



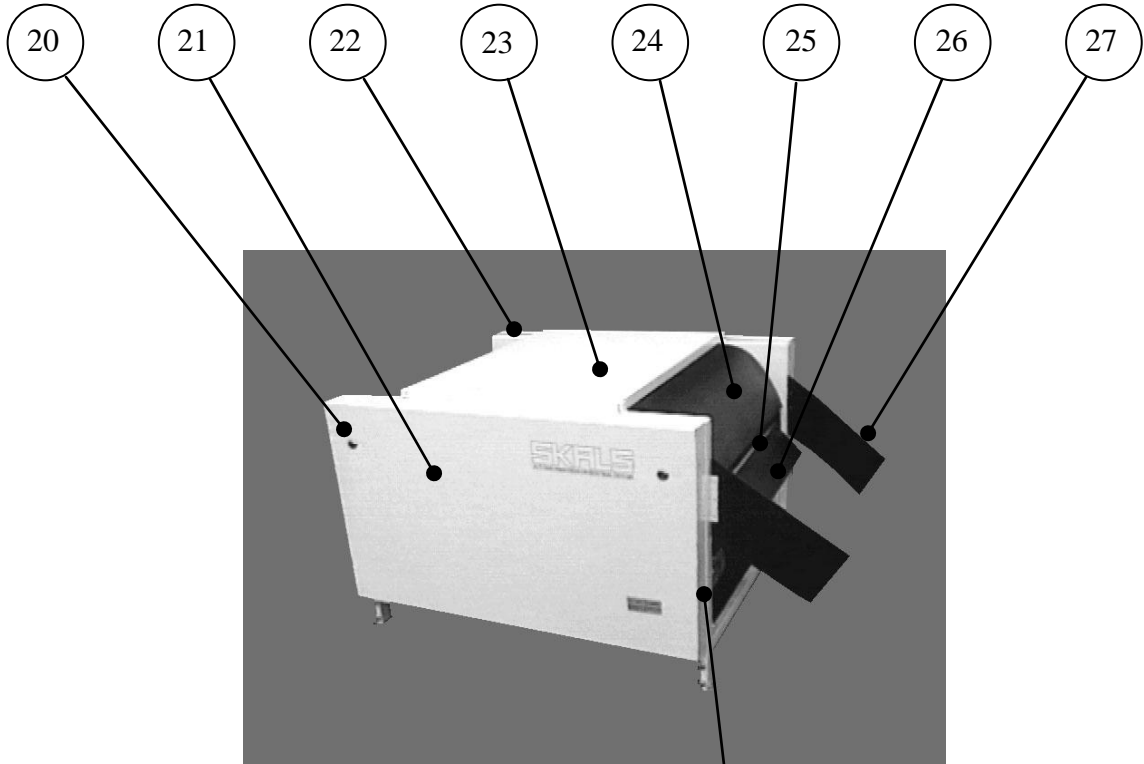


Fig.9

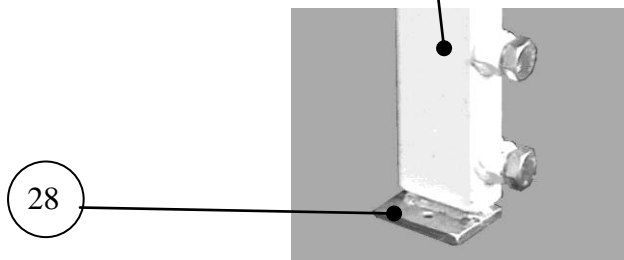


Fig.10

| <b>Page</b> | <b>Fig. no</b> | <b>Pos. no.</b> | <b>Description</b>                     |
|-------------|----------------|-----------------|--|
| 7           | 2              | 1               | Gear motor                             |
| 7           | 3              | 2               | Toothed gear wheel drive               |
| 7           | 3              | 3               | Toothed drive belt                     |
| 7           | 3              | 4               | Shield                                 |
| 7           | 3              | 5               | Toothed gear wheel - motor             |
| 7           | 4              | 6               | Belt tension element                   |
| 7           | 4              | 7               | Bearing                                |
| 7           | 4              | 8               | Bush                                   |
| 7           | 4              | 9               | Toothed gear wheel                     |
| 8           | 5              | 10              | Roller bearing                         |
| 8           | 5              | 11              | Brush roller bearing                   |
| 8           | 6              | 12              | Rubber flap retainer                   |
| 8           | 6              | 13              | Rubber inlet                           |
| 8           | 6              | 14              | Brush roller                           |
| 8           | 6              | 15              | Complete rubber roller                 |
| 8           | 7              | 16              | Stop ring                              |
| 8           | 7              | 17              | Roller axle                            |
| 8           | 8              | 18              | Rubber disc on axle                    |
| 8           | 8              | 19              | PVC distance ring                      |
| 9           | 9              | 20              | Lock                                   |
| 9           | 9              | 21              | Side panel                             |
| 9           | 9              | 22              | Side panel                             |
| 9           | 9              | 23              | Protective cover                       |
| 9           | 9              | 24              | Rubber flap - inlet and outlet         |
| 9           | 9              | 25              | Rubber retaining channel               |
| 9           | 9              | 26              | Rubber outlet                          |
| 9           | 9              | 27              | Rubber side shields                    |
| 9           | 10             | 28              | Adjustable legs with positioning bolts |

## 10.0 Declaration of conformity with EU.

|                     |                                      |
|---------------------|--------------------------------------|
| <b>Manufacturer</b> |                                      |
| Firm:               | A/S Skals Maskinfabrik               |
| Address:            | Hovedgaden 56<br>8832 Skals, Denmark |
| Telephone:          | 87 25 62 00                          |

declares herewith, that

|                         |                                 |
|-------------------------|---------------------------------|
| <b>Machine:</b>         | <b>Brushing Machine type BM</b> |
| Brand:                  |                                 |
| Type, serial no., year: |                                 |

Is manufactured in accordance with the decisions of the Councils Directives:

- 1 Machinery Safety – Directive 98/37/EC
- 2 Low Voltage Equipment Directive (LVD) 2006/95/EEC
- 3 Electromagnetic Compatibility (EMC) Directive 89/336/EEC and 93/68/EEC as amended.

|               |                        |
|---------------|------------------------|
| <b>Title:</b> | Productions Manager    |
| Name:         | Søren Lund Madsen      |
| Firm:         | A/S Skals Maskinfabrik |

Date: \_\_\_\_\_

Signed:  \_\_\_\_\_

