



PHOTOS MAY SHOW OPTIONAL OR CUSTOMISED EQUIPMENT.



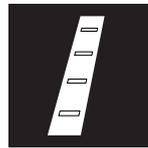
Double basic line



Double basic line



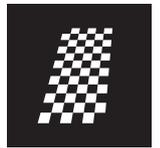
Longflex



Rib line



Edgeflex



Chess

THERMOPLASTIC SPRAY, EXTRUSION AND SCREED APPLICATION WITH RIB FUNCTION

The thermoplastic Borum extruder can apply flat and profiled lines of 5 – 50 cm width depending on the set-up.

The Borum spray plastic equipment can apply flat lines of up to 60 cm width, depending on the set-up.

Both the extruder and spray equipment can apply single and double lines of different widths, as well as for simultaneous application of continuous and interrupted lines.

The screed equipment with rib function can apply flat lines, long flex, and rib over the line in fixed prechosen line widths up to 30 cm.

KNOWING THE BM 5000

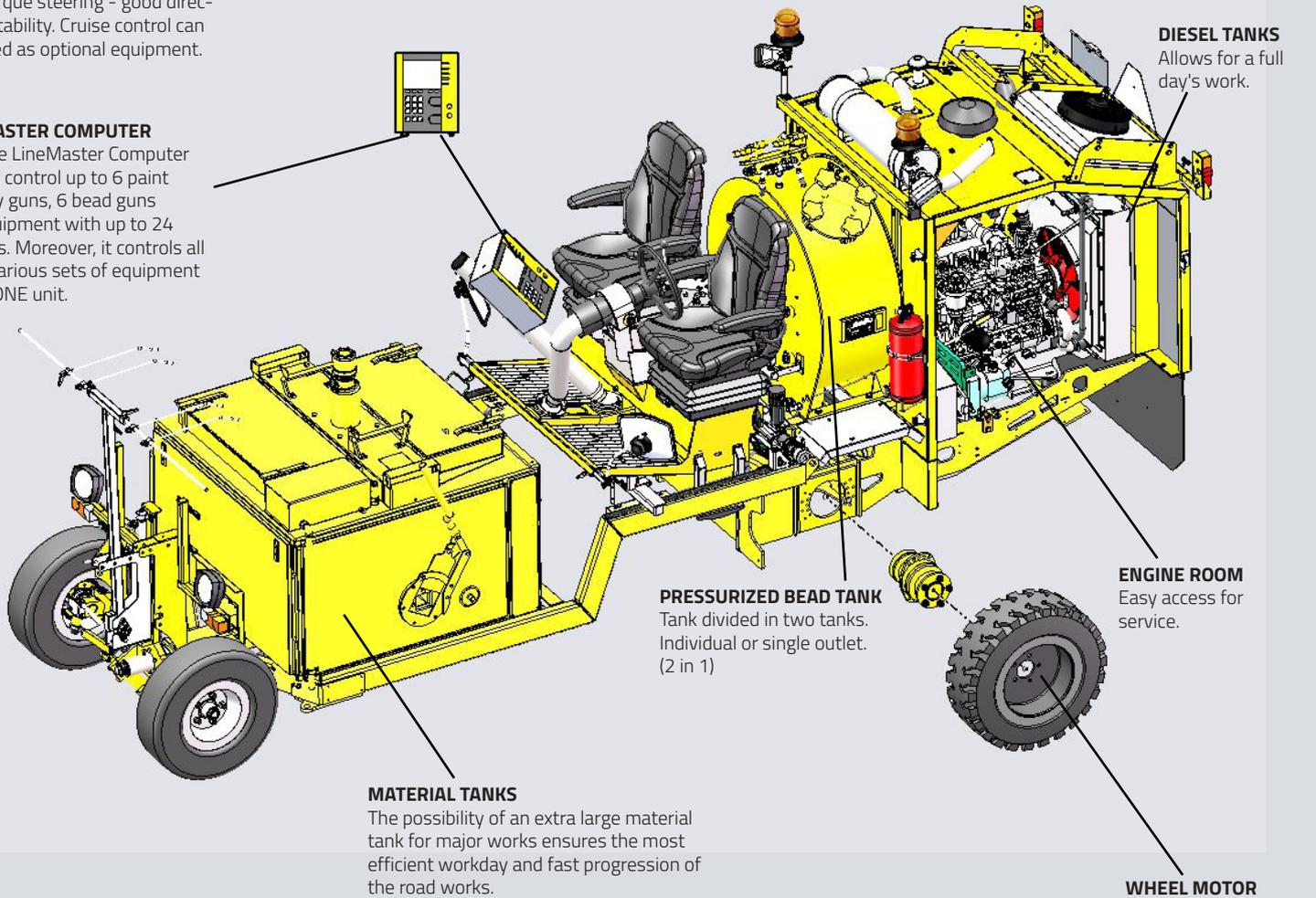
FULL REAR VIEW

OPERATOR SECTION

Quick and easy change from side to side for marking left and right. Dual torque steering - good directional stability. Cruise control can be added as optional equipment.

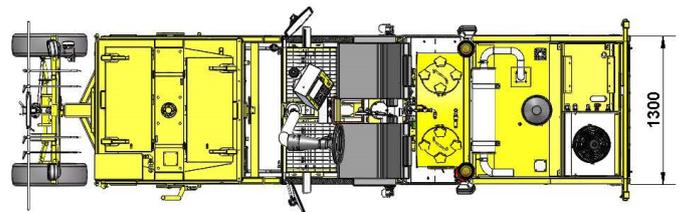
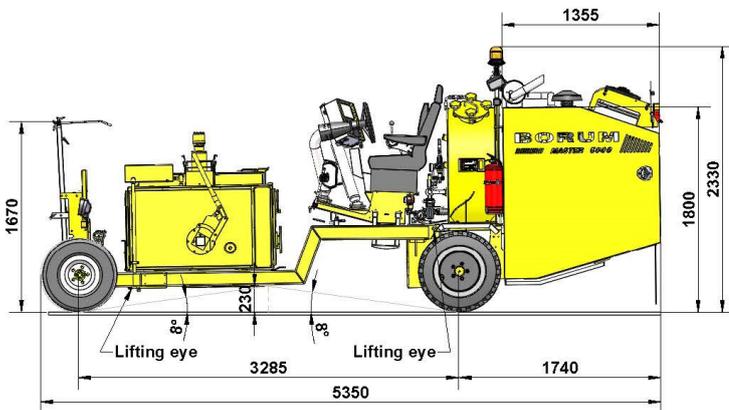
LINEMASTER COMPUTER

With the LineMaster Computer you can control up to 6 paint or spray guns, 6 bead guns and equipment with up to 24 shutters. Moreover, it controls all these various sets of equipment in this ONE unit.



CHASSIS

Solid double-frame construction



TECHNICAL SPECIFICATIONS

ENGINE	
Manufacturer	Kubota
Type	Turbo (Diesel)
Cooling	Water
Cylinder	4 stroke 3800 cm ³
RatedPower	74 KW
Approval	EU Stage IIIA resp. TIER 3
COMPRESSOR	
Compressor Capacity	Choice of 1-2 compressors can give 1800 - 3600 L/min @ 10 bar. Integrated oil-cooling system. Air-cooler incl. water separator
FILLING CAPACITIES	
Fuel tank capacity	180 L (2 x 90 L) - Diesel
Hydraulic tank size	93 L
Bead capacity	330 L (2 x 165 L). Pressurized (max 3 bars)
MATERIAL TANK	
Material Tank	450 L, 630 L, or 780 L
DRIVING PROPERTIES	
Drive angle	12.5 degrees / 22% (low gear 7200 kg)
Turning radius	4.90 m.
Steering	Dual torque steering
TRANSMISSION	
Hydrostatic transmission	For variable speed
Speed	Low gear 0-12 km/h, high gear 0-24 km/h
ELECTRICAL SYSTEM	
Electrical system	12 V / 150 Amp
CONTROL UNIT	
Borum LineMaster	Program up to 99 different line types. Organise lines in up to 30 marking programs. 8" display. Transfer of daily marking reports. Data about road marking jobs can be accessed online (optional).
COLOUR	
Colour	RAL 1007 (Other colours available on request)
DIMENSIONS	
Width	1300 mm
Height	2250 mm (Without Beacon)
Length	5910 mm

THERMOPLASTIC SPRAY APPLICATION (PRESS. TANK)

The thermoplastic spray application equipment works via a pressure tank. The amount of material that is put on the road is set by the pressure of the tank and the air pressure of spraying. This offers you an easy to use the system.



Sliding retainer frame, upon which 1-3 spray guns and 1-3 bead guns can be attached. Easy slidable from side to side for an optimal working position. Ground distance is maintained by retainer wheels hereby ensuring a constant road marking width.

Lifting of retainer from operators seat is done using a hydraulic cylinder.

All material pipes are oil-jacketed and insulated to maintain an ideal material temperature.

Effective heating of the complete unit using a centrifugal pump, 42 L/min, hydraulically driven.

Line thickness is typically between 0.75 mm to 1.5 mm.

Marking speed up to 15 km/h depending on the work conditions, operator, etc.

GUN FOR SPRAY-PLASTIC APPLICATION

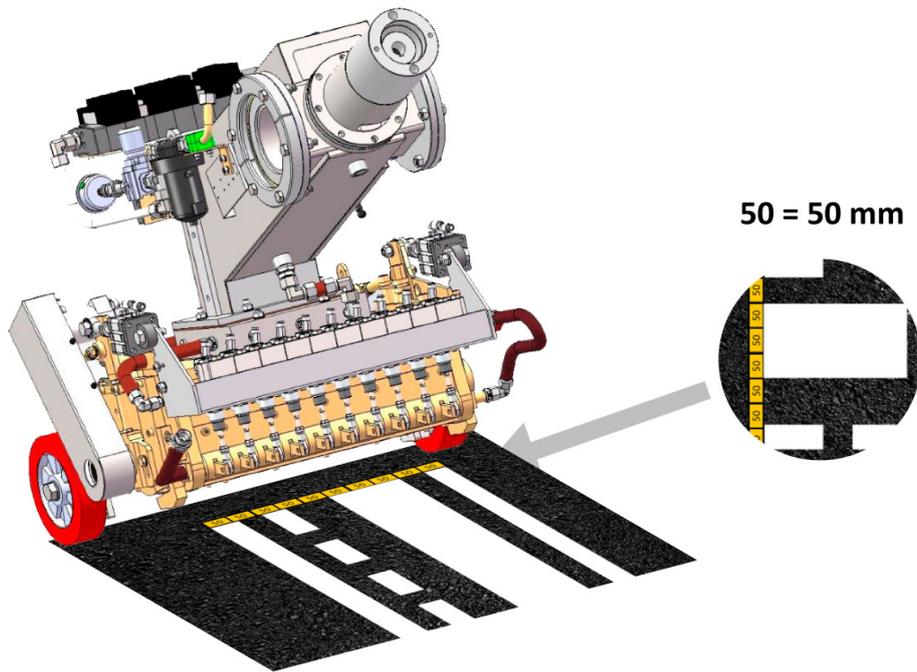
Automatic high-capacity spray plastic gun. Consists of an oil jacketed gun body and a pneumatic cylinder. Possibility to apply line widths ranging from 10 - 20 cm depending on line thickness, work conditions, application speed and layer thickness. As an alternative, we offer a narrow nozzle, which can spray 5-15 cm with one gun.

Optional narrow nozzle size of 3 mm or wide nozzle size of 7 mm.

The guns are mounted on a sliding retainer frame, on which 1-3 spray guns and 1-3 bead guns are attached. Easily slidable from side to side for an optimal working position. Ground distance is maintained by retainer wheels to ensure a constant road marking width. All material pipes are oil-jacketed and insulated to maintain an ideal material temperature. Lifting of retainer from operators seat using a hydraulic cylinder.

THERMOPLASTIC EXTRUDER

The working principle of the extruder lies in the extrusion of the hot thermoplastic material through the extruder shutters onto the road surface. This allows to switch between line types in seconds with a push of a button. No need for mechanical adjustment.



The thickness of the line is controlled by the slot gap and the speed of the machine, coupled to the thermoplastic feed rate. Glass beads can be pre-mixed and/or automatically applied with glass bead guns.

You can choose between thermoplastic extruder of 30, 40, or 50 cm in total line width, built-up with 5 cm standard shutters (alternative shutter dimensions in the range of 4-10 cm for alternative line widths).

Effective heating of the complete unit using a centrifugal pump, 42 L/min, hydraulically driven. This ensures optimal performance and that the material does not stiffen and set inside the equipment.

Pneumatic lifting cylinder for up/down function, operation controlled from operator's seat.

Pneumatically controlled quick cleaning system for removal of solids left in the extrusion slot. It can be activated while extrusion is in process and is only slightly detectable on the line in the form of a moderate thickening of the layer.

The application speed varies according to the material, line type and width. Usual working speed is 3-6km/h but can go up to 8 km/h for some lines. Speed-dependent settings are possible.

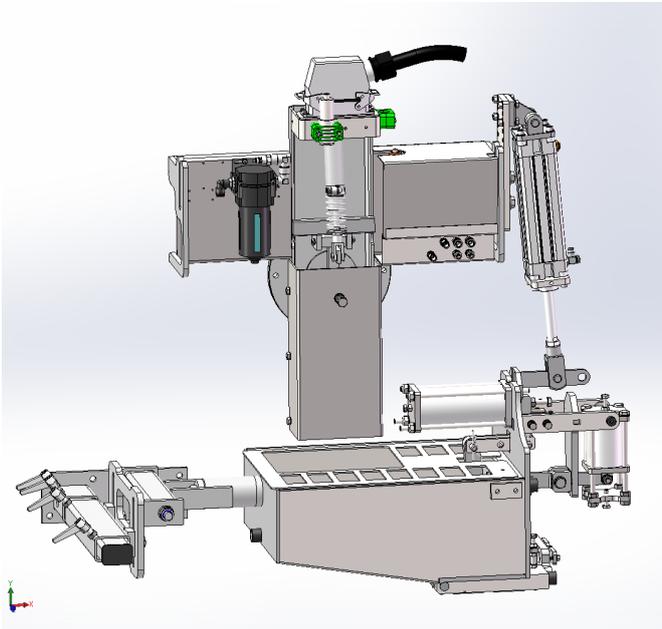
AUGER SCREW PUMP WITH CONTINUOUS RECIRCULATION SYSTEM

The transport of material from tank to extruder head is done by a hydraulically driven auger screw pump, which is electronically controlled. The screw pump has a permanent thermoplastic recirculation system which ensures a constant flow past the inactive extrusion shutters, keeping these clean and ready for opening. This avoids settling and catching of solid parts and prevents unnecessary wear of mechanical parts.

Build-in pressure regulating system ensures that line width and thickness does not change no matter the number of shutters involved in the current marking assignment.

THERMOPLASTIC SCREED BOX WITH RIB FUNCTION

The screed box can apply flat lines, long flex, and ribs over a line in one pass. The Borum thermoplastic screed box is available in the following widths: 10, 12, 15, 20, 24, 25, 30 cm.



LINE TYPES



Flat line



Interrupted flat line



Long flex



Ribs over line

With this type of screed application, the box is dragged with constant contact to the surface. The contact points determine the line width. The material pressure is by gravity only and this is how the material is poured in the marking box. The material coming out of the box will fill up any holes, pores, or other types of road imperfections. This means that material consumption will depend on the road surface.

The screed box equipment is mounted directly on the side of the material tank.

The Borum thermoplastic screed box is available in the following widths: 10, 12, 15, 20, 24, 25, 30 cm. Other sizes are available upon request. The equipment is constructed with one main application box covering a range of line widths, either 0 - 20 cm or 20 - 30cm.

If you do not need to switch the line widths often, you have the option to only change the application opening based on your width requirements instead of changing the whole box! This makes the application equipment more cost-efficient!

The thickness for the application of flat lines is usually between 2 - 4 mm. The usual application speed for applying ribs over a flat line is 1-3 km/h, while for screed application of flat lines it is up to 5 km/h.

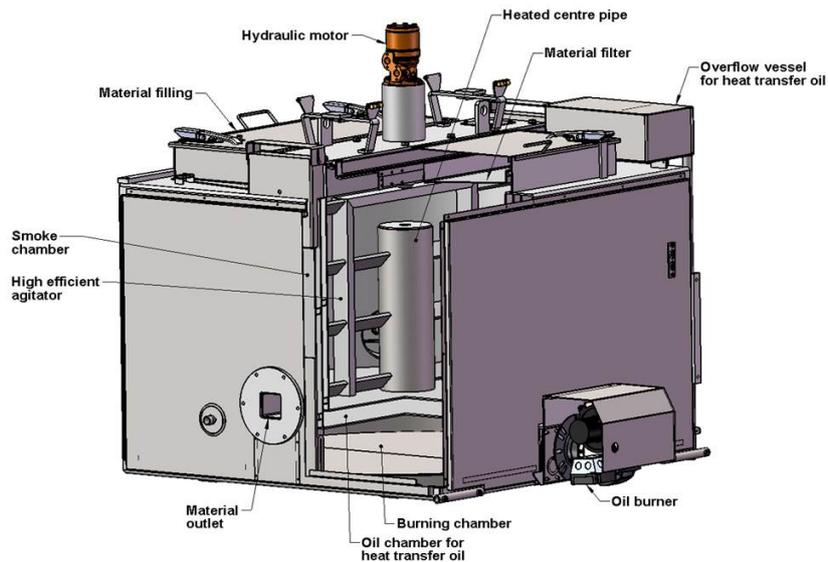
RIB LINE FUNCTION

The screed box is also equipped with a rib function. This allows you to apply ribs over a line in one pass. The total height of line with rib is usually between 8 to 15 mm depending on the material. The base line is recommended to be as thin as possible when combined with ribs (approx. 1,5 - 2 mm).

LASER SENSOR FOR MEASURING AND REFILLING MATERIAL

The equipment is supplied with a laser that constantly measures the material level in the application box. If the material level becomes lower than 50%, the application box will be automatically refilled.

MATERIAL TANK



Pressurized tank indirectly heated via thermal oil. The thermal oil and thermoplastic material temperature is thermostatically controlled and regulated automatically.

BURNER SYSTEM

Diesel burner system for heating of the thermal oil (and thermoplastic). Propane burner available on demand.

VERTICAL AGITATOR (MIXER)

With hydraulic transmission. Heated center pipe for efficient uniform temperature control. Perfect melting and homogenization of the thermoplastic. Stable construction with foundation and bearings at the top of the material tank.

ADVANTAGES WHEN USING A PRESSURIZED TANK FOR SPRAY:

The line thickness is affected by the machine speed, this is useful for applying thicker lines in curves and areas with higher wear and tear levels. The maintenance for the pressure tank is minimal compared to the thermoplastic spray pump system.

LINEMASTER FEATURES

The Borum LineMaster control unit is an easy way of setting and controlling your line marking jobs. The LineMaster is attached to the operator's section of the machine and gives you full control of all your line marking tasks, from line application and pre-marking to reporting and invoicing.

It is possible to store up to 99 different line types, and to arrange these in up to 30 different marking programs. You are also able to pre-set line widths, line types and different combinations to have them ready for marking, and can instantly adjust them on the go.

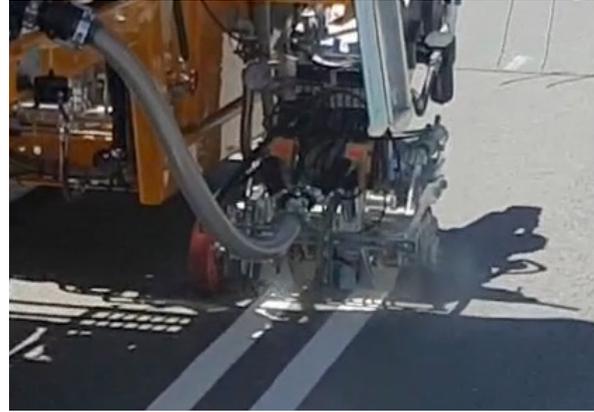


Furthermore, you are able to view the status of various parts of the machine (e.g. compressor) on the computer screen that will help with correctly maintaining the machine and avoiding break downs.

THERMOPLASTIC FEATURES

Thermoplastic is a durable material that cures quickly and adheres strongly to the road surface. It can be used for applications of both flat lines (also known as type 1 lines) or of thick profiled lines and markings (also known as type 2 lines).

This type of material is used on various types of roads, but you will often see it on highways or motorways as it can withstand high traffic density, it has a high visibility at night and during wet conditions and glass beads can be mixed in for enhancing visibility.



THERMOPLASTIC SPRAY ADVANTAGES

Due to the equipment working via a pressure vessel, it is very simple and easy to use as the pressure in the vessel is the same as the pressure in the application. Furthermore, the tank requires very little maintenance.

Thermoplastic spray markings are a cost-efficient solution as the applied lines do not require as much material as extruded profiled markings. Furthermore, this type of material forms a uniform application that is more durable and dries faster compared to cold paint applications.



TYPICAL USES:

Rib Line is typically used on the edge of roads in order to alert drivers running off course.



LEARN MORE

Find out more in the Borum Knowledge Lab.

ADDITIONAL EQUIPMENT

The additional equipment can be mounted on the machine according to your requirements. They are not necessary for the running of the machine but add to the comfort of the machine driver or to the functionality of the machine.



Quick shift



Pre-marking system with paint can



BM Online



Air drier for bead tank



Bead alarm mounted on bead gun



Pointer turning with steering
With hydraulic lifting system



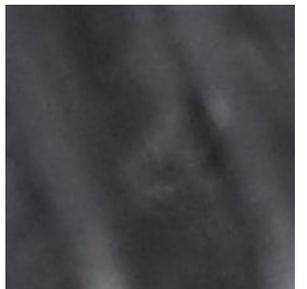
Bar with pneumatic lift for mounting warning lights
(Comes without lights)



Cone holder



Remote control for BM Lin-eMaster



Cruise control



Sunshade with 1 rotating light



Pre-marking system with paint gun



Airknife



Ejector filling of bead tank



Fixed pointer
With hydraulic lifting system