

ROADSTAR 1500

TECHNICAL SPECIFICATION

120 TPH MOBILE ASPHALT PLANT

PLANT CAPACITY

120 TPH based on a temperature of 150 degrees C from mixer. Average moisture content of 3%, including 3% filler and 5% bitumen in the mix. Mixer capacity of 1500 Kg per batch and a 45 second weigh/mix cycle.

Assuming the following conditions : -

- 1) 100% Plant utilisation
- 2) Ambient temperature 15⁰C
- 3) Altitude up to 150 metres above sea level
- 4) Average moisture content is for surface moisture only
- 5) Free-flowing filler, density 1120 Kg/ m³
- 6) Single sized aggregate (max. lump 40mm), density 1600 Kg/ m³
- 7) Mix recipe with no excessive proportion of one size
- 8) Feed to contain a maximum of 35% 0 - 3mm fines
- 9) Fuel oil calorific value of 45.2 MJ/Kg
- 10) Gas calorific value of 34.9 MJ/m³
- 11) Capacities include filler and bitumen
- 12) Aggregate is non-porous and not excessively flaky

1 **MOBILE COLD FEED UNIT**

1.1 **HOPPERS**

Hoppers	-	One four (4) compartment
Capacity	-	7 m ³ trimmed/10 m ³ heaped (each hopper)
Loading width	-	3.0 m
Loading height	-	3.9 m approx
Material	-	6mm thick mild steel plate
Vibrator (s)	-	One (1) fitted to sand hopper

1.2 **BELT FEEDERS**

Feeders	-	Four (4) variable speed
Size	-	500mm wide x 1700mm centres
Feeder body	-	Flanged for bolting to feed hopper
Radial door	-	For manual calibration
Head drum	-	Shaft mounted running in plummer block bearings
Tail drum	-	Shaft mounted running in slide bearings for belt adjustment
Belt	-	500mm wide 3 ply with vulcanised joint
Idlers	-	Flat, bolted to steel section support frame
Drive	-	2.2 kw gear motor unit direct on head shaft
Turndown ratio	-	20:1
Feeder control	-	From remote operator's console. Variable speed is via AC inverter with gang control on console to vary feeder output

1.3 **COLLECTING CONVEYOR**

Collecting conveyer	-	Horizontal, mounted under feeders with "S" bend drive and inclined section to dryer inlet
Belt	-	500mm wide 3 ply with vulcanised joint
Idlers	-	Troughed bolted to steel section support frame
Drive	-	5.5 kw gear motor unit direct on head shaft
Belt tensioning	-	Tension bolts fitted to tail drum slide bearings

Belt scraper - Torsion arm type fitted under head drum

1.4 **RUNNING GEAR**

Running gear - Single axle pneumatic tyred running gear with rear bogie, brakes and fifth wheel attachment
Operational support legs provided

2 **MOBILE ROTARY DRYER**

2.1 **DRYER**

Diameter - 1.8 m
 Length - 7.0 m
 Thickness - 10mm welded steel plate
 Lifters - Replaceable folded steel plate
 Roller paths - Machined on all faces on heat expansion Z brackets
 Support rollers - Nylon, running on shafts mounted in plummer block bearings supported on dryer chassis
 Thrust rollers - Nylon, running on shafts mounted in plummer block bearings supported on dryer chassis
 Feed end box - Fabricated in 6mm mild steel plate with flanged connection for dust collection
 Discharge end box - Fabricated in 8mm mild steel plate with wear ladder chute to elevator and housing discharge paddle ring
 Drive - 30 kw via assisted start and gear motor unit to chain drive

2.2 **DRYER PYROMETER**

Temperature sensor - Pyrometer mounted in dryer discharge chute to record aggregate discharge temperature with indicating temperature on VDU and computer batch print out.

2.3 **BURNER**

Type - TJ02 gas oil fired with flame failure detection and radial blade control. Suitable for light and pre-heated heavy oil
 Fuel capacity - 954 Litres max per hour
 Turn down ratio - 4:1
 Control - Remote control from operators console
 Ignition - Spark ignition electrodes

- Fuel piping - Between fuel pump and burner and including pressure relief valve and filter
- Fuel pump motor - 7.5 kw
- Blower motor - 11 kw

2.4 PRIMARY DUST

- Primary dust - Multi cyclone box at feed end of dryer with eighteen (18) cast manganese steel cyclones
- Cross screw - 3 kw cross screw in base of cyclone hopper transferring dust to transfer screws
- Transfer screws - Two (2) 4 kw transfer screws transferring dust from cyclone hopper to the hot stone elevator

2.5 RUNNING GEAR

- Running gear - Single axle pneumatic tyred rear bogie with brakes, front fifth wheel attachment and operational support jacks

3 MOBILE SCREENING AND MIXING SECTION

3.1 HOT STONE ELEVATOR

- Elevator - Totally enclosed. Pivots down for transportation
- Capacity - 130 tph
- Bucket width - 370mm replaceable steel buckets
- Chain - 6.8 m centres
- Drive - 7.5 kw gear motor unit direct on head shaft with backstop
- Casing - Fabricated in 3mm and 6mm mild steel plate with inspection doors at head and tail
- Discharge - Chute to screen
- Tensioning - Spring tensioning on tail shaft

3.2 SCREEN

- Capacity - 130 tph
- Size - 1.5 m wide x 4 m long 2 deck to give four (4) sizes plus rejects
- Drive - 7.5 kw high torque motor

- Dust sealing - Totally enclosed in a fabricated steel enclosure with removable panels
- Screen meshes - Access gained via hinged discharge chute and doors in dust enclosure

3.3 STORAGE HOPPER

- Hot stone bins - Four (4) compartment, 12 tonne capacity
- Plate thickness - 6mm steel plate
- Outlet doors - Pneumatically operated radial type
- Overflow/rejects - Chutes provided down to ground level

3.4 AGGREGATE WEIGH HOPPER

- Capacity - 1500 Kg from any one storage hopper mounted on load cells
- Load cells - Four (4)
- Plate thickness - 6mm steel plate
- Discharge door - Semi-rotary, pneumatically operated
- Dust sealing - Enclosed within a dust sealed weigh hopper housing above the batch elevator

3.5 FILLER WEIGH HOPPER

- Capacity - 320 Kg load cell mounted
- Load cells - Three (3)
- Plate thickness - 3mm steel plate
- Discharge door - Pneumatically operated butterfly valve
- Dust sealing - Via high temperature resistant rubber

3.6 BITUMEN WEIGH HOPPER

- Capacity - 290 Kg load cell mounted
- Load cells - Three (3)
- Plate thickness - 3mm steel plate
- Heating - Hopper fully insulated and electrically heated

- Discharge - Gravity discharge through a pneumatically operated discharge valve

3.7 BATCH ELEVATOR

- Elevator - Totally enclosed inclined continuous bucket elevator
- Capacity - 130 tph
- Bucket width - 750mm replaceable fabricated steel buckets
- Chain - Twin chain with intermediate support rollers
- Drive - 7.5 kw gear motor unit direct on head shaft with backstop
- Casing - Fabricated in 3mm and 6mm mild steel plate with inspection doors at head and tail
- Discharge - Direct to mixer
- Tensioning - Spring tensioning on tail shaft

3.8 PADDLE MIXER

- Mixer body - Fabricated from 10mm thick steel plate
- Paddle shafts - Twin contra-rotating shafts in plummer block bearings
- Capacity - 1500 Kg
- Body liners - Abrasion resistant, segmented for ease of replacement and full utilisation
- Discharge door - Semi rotary, pneumatically operated by two heavy-duty cylinders, wear resistant liners bolted to door
- Paddle arms - Manufactured from cast steel with replaceable paddle tips made from alloy steel
- Drive - Two (2) x 18.5 kw shaft mounted gear motor units with timing shaft

3.9 PNEUMATICS

- Compressor - 5.5 kw to give 6.5 bar
- Pneumatics - Solenoid valves, nylon pipework and fittings

3.10 PLATFORMS

- Platforms - Maintenance platforms at mixer, screen and hot material elevator head levels, with hand railing and access ladders

3.11 UNDER FRAME

- Under frame - Fabricated steel chassis constructed from heavy "I" beams and box/channel cross beams
- Support jacks - Fixed supports under mixer
- Loading height - 3.05 m clearance under mixer

3.12 RUNNING GEAR

- Running gear - Tandem axle pneumatic tyred running gear with rear bogie, brakes and fifth wheel attachment
Operational support legs provided

4 SECONDARY DUST COLLECTION TC 240

4.1 CAPACITY	-	Dryer	41,885 m ³ /hr	(24,650 cfm)
		Nuisance	7,850 m ³ /hr	(4,620 cfm)
		Silo vent	1,700 m ³ /hr	(1,000 cfm)
		Total	<u>51,435 m³/hr</u>	<u>(30,270 cfm)</u>

4.2 SECOND STAGE

- Second stage - Reverse air cleaning type bag filter
- Filter medium - Aramid 400g/sq m (240 double bags)
- Filter area - 588 sq m
- Filtration velocity - 1.46 m/min
- Emission level - Less than 20mg/cu m provided the filter is maintained in accordance with our operating instructions

4.3 FILTER CABINET

- Filter cabinet - Top section fabricated from 3mm and 5mm mild steel plate mounted on mid-section
- Plenum plate - 5mm thick with laser cut holes for positive bag sealing

- | | | |
|--------------------|---|--|
| Filter mid section | - | Mid-section fabricated from 3mm and 5mm mild steel plate mounted on pyramid hopper |
| Insulation | - | 30mm high density mineral wool with plastic coated angular profile sheeting |
- 4.4 CLEANING**
- | | | |
|--------------------|---|---|
| Cleaning mechanism | - | Induced reverse air type.
During cleaning sequence, the mechanism opens a small number of bags to atmosphere for a short duration, to allow the exhaust fan to induce a reverse flow of air for bag cleaning.
Operated by one (1) 0.75 kw geared motor. |
|--------------------|---|---|
- 4.5 PYRAMID HOPPER**
- | | | |
|-----------------|---|---|
| Pyramid hopper | - | Fabricated in 3mm steel plate with single dust outlet |
| Insulation | - | 30mm mineral wool with galvanised steel cladding |
| Level indicator | - | High and low level fitted in pyramid hopper |
- 4.6 DUST TRANSFER**
- | | | |
|----------------|---|---|
| Screw conveyor | - | Screw conveyor with 7.5 kw motor delivering collected dust from filter to filler weigh hopper |
| Discharge | - | 200mm dia. pneumatically operated butterfly valve |
- 4.7 FAN UNIT**
- | | | |
|---------------|---|---|
| Fan unit | - | Backward inclined centrifugal |
| Drive | - | 75 kw motor via vee ropes |
| Exhaust stack | - | Fabricated in 6mm thick mild steel plate with flanged sections to a height of 12 metres |
- 4.8 DUCTING**
- | | | |
|-----------------------|---|---|
| Ducting | - | All interconnecting ducting included, also incorporating connection to dust nuisance points on the mixing section |
| Dryer to filter | - | 3mm straight, 5mm bends |
| Filter to exhaust fan | - | 3mm straight, 3mm bends |
| Nuisance ducting | - | 3mm straight, 3mm bends |

4.9 AIR VOLUME CONTROL

- Inverter - Adjusting air volume from plant, controlled by a transducer monitoring dryer pressure.
- Indication - Inverter speed indicator mounted on remote operator's panel.

4.10 BAG PROTECTION

- Bag protection - Two temperature probes fitted in duct prior to filter to protect bags from high gas temperatures.
- Indication - Vacuum gauge provided to indicate pressure drop across the bag filter and control the filter cleaning system.

5 CONTAINERISED CONTROL CABIN

5.1 CABIN

- Size - 4 m long x 2.4 m wide
- Construction - Corrugated sheet steel clad container style
- Base frame - Constructed from rolled steel section
- Roof - Sheet steel. Roof void fully insulated with 50mm mineral wool
- Floor - Wooden floor with steel bracings, covered with heavy-duty floor tiles
- Walls - Clad internally with decorative boarding. Walls fully insulated with 50mm mineral wool
- Windows - Three sides double-glazed
- Lighting - Overhead fluorescent lights fitted
- Heating - Air conditioning unit with wall mounted heater
- Door - 800mm wide access door
- Power - Three double socket outlets

6 PLANT CONTROL SYSTEM (Located in Cabin)

7 COMPONENT PARTS FOR IMPORTED FILLER STORAGE SILO

7.1 IMPORTED SILO

- Silo - **Of customers supply
Parker Plant Ltd to supply the following component parts: -**
- Level indicator - High level
- Aeration - At outlet cone
- Vent - Automatic reverse air vent filter
- Discharge - Butterfly valve and 7.5 kw inclined feed screw to filler weigh hopper
- Fill pipe - Tanker fill pipe

8 COMPONENT PARTS FOR BITUMEN STORAGE SYSTEM

8.1 BITUMEN TANK

- Tank - **Of customers supply one (1) 40,000 litres capacity
horizontal insulated & clad tank.
Parker Plant Ltd to supply the following component parts: -**
- Heating elements - Electric, 48 kw
- Accessories - Thermometer, contents gauge and all controls and safety devices

8.2 BITUMEN PUMP

- Pump - One (1) external, rotary gear type with electric heating element
- Capacity - 22,300 Litres per hour
- Drive - 7.5 kw motor direct coupled to pump

8.3 BITUMEN PIPEWORK

- Pipework - One (1) single electric trace heated bitumen feed pipe to plant weigh hopper with temperature control thermostat. Insulated and clad.

9 WIRING

Each section of the plant is pre-wired for quick electrical installation on site.

10 **UK VISIT**

A Parker asphalt plant training programme in the UK for two (2) of customers officers/personnel covering a seven (7) day period has been allowed for.

Customer is responsible for airline tickets and all local expenses in the UK covering hotel accommodation, meals and transportation.

GUARDS

Safety guards are provided over all V rope drives, chain drives and spur gears.

STEELWORK

All welds to be cleaned as necessary, steelwork to be wire brushed and generally cleaned of all mill scale etc before painting.

PAINTING

All external surfaces are painted with one-coat single pack zinc phosphate primer, followed by a high build semi-gloss topcoat enamel finish.

All ducting, stack and parts subject to heat are painted with heat resistant paint

Any plastic coated PVC will be self-coloured.

VOLTAGE

400 Volt, 3 phase, 50 Hz

MANUALS

We include for two complete sets of operators and maintenance instruction manuals and illustrated spare parts manuals with electrical circuit drawings.

RoadStar 1500 Asphalt Plant Motor List

<i>Item</i>	<i>Quantity</i>	<i>Motor</i>	<i>Starter</i>	<i>kW</i>	<i>Total kW</i>
1.	4	Feeder motors	Inverter	2.2	8.8
2.	1	Vibrator	DOL	0.3	0.3
3.	1	Collecting conveyor	DOL	5.5	5.5
4.	1	Dryer	Soft start	30	30
5.	1	Fuel pump	DOL	7.5	7.5
6.	1	Burner blower	Soft start	11	11
7.	1	Cross screw	DOL	3	3
8.	2	Transfer screws	DOL	4	8
9.	1	Hot elevator	DOL	7.5	7.5
10.	1	Screen	DOL	7.5	7.5
11.	1	Batch elevator	DOL	7.5	7.5
12.	2	Mixer	Soft start	18.5	37
13.	1	Compressor	DOL	5.5	5.5
14.	1	Cleaning mechanism	Inverter	0.75	0.75
15.	1	Filter dust screw	DOL	7.5	7.5
16.	1	Exhaust fan	Inverter	75	75
17.	1	Filler feed screw	DOL	7.5	7.5
18.	1	Bitumen pump	Fwd/rev	7.5	7.5

Total 237.35 kW

HEATING/OTHER SUPPLIES

19.	1	Bitumen weigh scale	1 ph + N	1	1
20.	1	Bitumen tank	3 ph + N	48	48
21.	1	Cabin supply	1 ph + N	10	10

Total 59 kW