# Python


ONS EQUIPMENT PRIVATE LIMITED

S T A T E - O F - T H E - A R T

POTHOLE PATCHING EQUIPMENT

**PYTHON 5000**

# POTHOLES ON ROADS ARE UNIVERSAL

Potholes pose major problems for the roads and repair is often more complex than the original road laying due to logistic issues

# EXISTING PROCESS TO REPAIR POTHOLES

- Present method is Manual, Highly Time Consuming, and Cumbersome.
- Difficult to carry out repair work within stipulated time.
- Difficult to ensure quality of the patch as the temperature, maintenance of the asphalt poses challenge.
- Manual process exposes the workers to traffic hazards.
- Weather also poses big challenge and affects the productivity.

# Python


**Safe. Fast. Easy.**

**PRESERVES OUR ROADS, CONSERVES OUR ENVIRONMENT**

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# ABOUT PYTHON MFG. COMPANY

- Python Manufacturing Inc. is based in Canada
- The Company has been building highly efficient Industrial and Farm equipments for more than 40 years.
- The people at Python have been designing and manufacturing trend-setting equipments to meet the needs of farmers, contractors, cities and communities in the world.

PLANT FRONT

ASPHALT LOADING

PYTHON 5000

# VALUE PROPOSITION

- Best of the available technology from Canada
  i.e., fully automatic, ALL-IN-ONE equipment
- Road Maintenance crew of one person makes potholes repairs.
- Each Pothole is filled in less than 3 minutes.
- The new equipment will repair potholes more effectively than traditional methods, saving time, timely completion of the job.
- Improving safety of maintenance crews and the users.
- Easy to fill the potholes using the self-propelled pothole patcher.
- No hold up of the traffic.
- Enhances the life of the road, Long Lasting repair.
- Provides a new driving experience to the users.

# FOUR STEPS PROCESS FOR POTHOLE FILLING

**1** The hole is cleaned. A high volume blower provides a blast of the air to remove loose rocks and debris.

**2** A tack coat of hot emulsion is applied to the area to be patched.

**3** Asphalt maintained at the desired temperature between 90-100 centigrade is filled into the pot.

**4** A roller with hydraulic pressure is used for compacting the patch

**Traffic can flow immediately**

# A WIN WIN

Potholes can cause damage to vehicles or even result in a motorist losing control of a vehicle and crashing. Road maintenance crews are in danger when repairing potholes on busy roadways.

The automated pothole patcher allows fewer workers to make longer-lasting, more immediate potholes repairs in the coldest weather.
Highway maintenance departments save money and improved safety is beneficial situation for everyone.

# COMPARISON BETWEEN MANUAL AND PYTHON

| SR.NO | PRESENT METHOD | PROPOSED METHOD USING PYTHON 5000 |
|---|---|---|
| 1 | Manual by using hand tools | Equipment is comprehensive and single operator can complete the job |
| 2 | Material required for the operation like asphalt or aggregate Bitumen, Tack oil is handled manually. | The equipment can carry sufficient stock of asphalt at the desired temperature and also Tack oil. |
| 3 | Asphalt prepared in batches is transported without any mechanism to maintain the desired temperature of 90-100 degree centigrade | Equipment's Hopper temperature is maintained at desired level 90-100 degree centigrade by using Engine exhaust. The temperature maintenance is ensured when the equipment also has external heating facility using electrical power during night halts in case it is necessary. |

# COMPARISON BETWEEN MANUAL AND PYTHON

| SR.NO | PRESENT METHOD | PROPOSED METHOD USING PYTHON 5000 |
|---|---|---|
| 4 | Temperature of asphalt around 90-100C is most important factor for achieving the desired strength after compacting. Therefore, in the present method, the asphalt is heated using dry material available around the area which is very cumbersome and often ignored as it is difficult to monitor the process. | The equipment incorporated the asphalt heating and temperature maintenance feature. When the asphalt is dispensed into the pothole the loss of temperature is negligible as the travel time of the material from the hopper of the equipment to the pothole is few seconds. |
| 5 | Asphalt filled in the pothole is compacted mostly by hand pounding which will not give proper strength all round | The equipment incorporates a compaction roller which is also hydraulically pressurised to get the required uniform compacting strength. |

# COMPARISON BETWEEN MANUAL AND PYTHON

| SR.NO | PRESENT METHOD | PROPOSED METHOD USING PYTHON 5000 |
|---|---|---|
| 6 | The operation being in open air, the work gets affected by rain and also during peak summer heat. | The equipment has an air-conditioned cabin. So, the operation can be carried on during all weather including rain and hot temperature days. |
| 7 | Safety standards are difficult to achieve and workers are exposed to traffic hazards | |

# COMPARISON BETWEEN MANUAL AND PYTHON

| SR.NO | PRESENT METHOD | PROPOSED METHOD USING PYTHON 5000 |
|---|---|---|
| 8 | The operation is from Dawn to Dusk. Night work is avoided due to safety of workmen and also poor visibility. | The operation can be through day and night. The equipment features powerful focus lights different operators may be employed for each shift and accordingly the work can be carried out for 24 hours. The equipment incorporates, hazard warning lights, beacons to deviate or warn the traffic. |
| 9 | In many cases, traffic may have to be stopped to carry out the work and also may need the assistance of traffic police. | the equipment is compact and takes less time to fill a pothole. Therefore no need to disturb the traffic. Also may need any assistance from Traffic Police. |
| 10 | Logistics of material and men from site to site is quite cumbersome therefore time is required for execution is long. This affects timely completion of the jobs. | The equipment is a vehicle designed to travel 95 KMPH of max. speed. Therefore moving the resources from site to site is easy and less time consuming. This facilitates timely execution of jobs. |

# Python

## Python 5000 Specifications

**DIMENSIONS**
GVWR - 25,950 lbs
Total empty weight: 14,000 lbs.
(5818 kg)
Wheel base: 114 in. (290 cm)
Overall width: 100 in. (254 cm)
Overall Height: 120 in. (305 cm)
Overall Length: 256 in. (650 cm)

**CAPACITY**
Asphalt: 5 tons
Tack Oil: 35 Gallons (158 litres)

**COOLING SYSTEM**
Liquid Cooled Permanent Anti-freeze
Radiator Front Area: 650 Sq. in. (4194 cu. cm)
Radiator Thickness: 3 in. (76 mm)
Fan Diameter: 20 in. (508 mm)

**AIR FILTER**
2 Stage Dry Type

**ASPHALT TEMPERATURE CONTROL SYSTEM**
Adjustable from ambient temperature to 200°F (93°C)

**OPTIONAL AUXILIARY ASPHALT HEAT SYSTEMS**
240 volt electrical system
OR
240 volt electric with 10,000 watt generator

**WHEELS**
Front wheels: 22.5 x 8.25 in. (572 mm x 210 mm)
Rear wheels: 22.5 x 8.25 in. (572 mm x 210 mm)

**TIRES**
Front Tire Size: 295/75R22.5
Rear Tire Size: 295/75R22.5
Load Range: H, 16 P.R

**ELECTRICAL**
Alternator: DC 12V 130A
Battery: DC 12V 3 x 750 CCA
Horn: Standard

**ENGINE**
Manufacturer: John Deere EPA Tier 3, 4045 HF
Power Rating: 173 BHP (129 kW)
Rated Speed: 2400 rpm
Peak Torque (1500 rpm): 476 lb.ft. @ 1500 rpm
Displacement: 275 cu. in. (4.5 L)
Optional: 2010 On-Road Certified Engine

**TRANSMISSION**
Hydrostatic Drive System, Capable of 55 mph (90 km/hr)

**FUEL TANK CAPACITY**
55 Gallons (209 Litres)

**INSTRUMENTATION**
Fuel Gauge, Voltmeter, Tachometer W/Hour Meter,
Speedometer W/Odometer, Water Temperature
Gauge, Engine Oil Pressure Gauge, Auger
Pressure Gauge, Hydraulic Oil Pressure Light

**FRONT AXLE**
Gross Axle Rating (GAWR) 12,000 lbs (5455 kg)
Steerable Drive Axle, Leaf Spring Suspension with air bags

**REAR AXLE**
Gross Axle Rating (GAWR) 18,000 Lbs. (8182 kg)
Leaf Spring Suspension

**LIGHTING**
Headlights with Hi/Low Beam & Integrated Signal Lights
Combination Turn/Tail/Brake Lights, Back-up Lights
Side Marker Lights, Rear ID Lights
Front & Rear Strobe Lights, Cab Mounted Work Lights

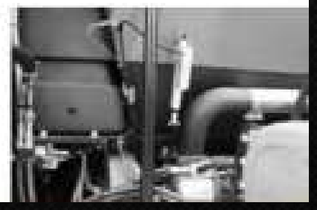
**OPERATOR CAB**
Pressurized - Low Noise Level
Heater and Air Conditioner

**STEERING**
Tilt Telescopic Power Steering

**BRAKES**
4 Wheel Disc Brakes, Hydraulic Assist Power Brakes
with Electric Operated Fail-Safe System

>The Python 5000 is environmentally-friendly, saving energy by capturing engine exhaust to heat the asphalt. The standard John Deere engine meets EPA Tier 3 standards and the optional engine is 2010 On-Road Certified.

<The large arrow board clearly alerts traffic to the presence of the Python 5000 when it's on the job.



# Python

## PYTHON 5000 SPECIFICATIONS

### 10 Reasons to Own a Python 5000

**1 Produces Consistent, High-Quality Patches**

The Python 5000 produces long-lasting patches, equal to the original surface quality. It also excels at repairing longitudinal cracks in the pavement.

**2 Safe Work Environment**

The operator never leaves the comfort of the climate-controlled cab. It's safer for other drivers on the road too!

**3 Uses Readily-Available Materials**

The Python 5000 uses all standard hot or cold asphalt mixes and keeps them at the desired temperature.

**4 Fast!**

The average pothole can be patched in about two minutes.

**5 All-Weather Operation**

The Python 5000 produces excellent patches in both hot and sub-zero weather.

Python

## PRESERVE YOUR ROADS, CONSERVE YOUR RESOURCES

The Python 5000 represents a unique solution for your road repair problems while at the same time helping out with your budget. With road maintenance costs increasing faster than your budget can accommodate, the Python 5000 may be the cost savings solution you have been looking for.

This one-person operated, self-contained unit travels quickly to the job - and then quickly and efficiently repairs potholes and longitudinal cracks. It takes the Python 5000 approximately two minutes to prepare a pothole, fill it and compact it into a patch that will last as long as the surrounding pavement.

So those small potholes - ones that are usually are left unrepaired because it's simply not economical to send a crew out to repair them - can now be repaired early in the spring before they get to be big problems. And by doing this, you'll preserve the life of your roads for years!

### SAFETY FIRST

The Python 5000 cab is extremely comfortable and offers a high level of visibility. But even more importantly, it's safe for the driver-operator. All functions are carried out from the safety of the cab. No longer is the operator exposed to traffic, and no longer is the operator required to perform labour-intensive tasks, or work directly with the asphalt.

### HOW THE PYTHON 5000 WORKS

The operator fills the hopper with the asphalt mix of choice - either hot or cold. The hopper keeps the asphalt at the desired temperature by capturing heat from the engine exhaust.

The operator drives the Python 5000 up to the pothole and, using in-cab controls, positions the multi-axis working arm over the top of the hole. All work is clearly visible to the operator. An air jet nozzle blasts water, dust, gravel and other debris from the pothole, providing a clean contact area for the patching material. Depending on the conditions, the operator may decide to spray the area with an emulsive tack oil.

The auger system carries the required amount of asphalt mix from the hopper and delivers it to the pothole. The multi-axis working arm provides the finishing touches, creating a compacted, finished patch in an average of two minutes.

The operator is then ready to move on to the next pothole, leaving behind a patch that's superior to those created by manual methods.

If desired, one of two optional systems can be used to keep the asphalt at the right temperature overnight.

### EASY TO USE, EASY TO MAINTAIN

The Python 5000 is easy to operate. The operator doesn't need a commercial driver's license, and minimal training is needed to operate the Python 5000.

To access the hopper, the operator simply climbs a short ladder to a secure platform.

The Python 5000 employs a hydrostatic transmission, and its powerful turbo diesel engine is highly accessible for ease of maintenance.

### 10 Reasons to Own a Python 5000

**6 Simple to Operate**

All functions controlled from inside the climate-controlled cab by a single joystick.

**7 Maneuverability, Visibility & Quiet Comfort**

The Python 5000 offers outstanding visibility and a comfortable ride for operators, so they can stay on the job and remain fresh and alert. The highly maneuverable, short wheelbase chassis makes even the tightest areas accessible.

**8 Large Hopper**

A 5 ton capacity hopper fills directly from the asphalt plant - and then keeps the material hot till it's ready to be used.

**9 Highly Mobile**

The Python 5000 travels from job to job at highway speeds. And when the operator arrives at the job, he never has to leave the safe, climate-controlled cab.

**10 Python 5000 Saves $$$ and Makes $$$**

Add years to the life of your roads and triple your maintenance productivity by moving from a truck and two- or three-person patching system to the Python 5000!

### 6 Basic Tools

1. Multi-Axis Working Arm
2. Air Jet
3. Auger & Conveyor Belt
4. Screed (rake)
5. Roller
6. Tack Oil Applicator

ONS EQUIPMENT PRIVATE LIMITED

# REVIEWS

American Road Technology & Solutions Private Limited

The Hindu, 17th November, 2013

## Ironing out bumpy roads

### Pothole-filling machine put on the job on city roads

Special Correspondent

BANGALORE: The Bruhat Bangalore Mahanagara Palike (BBMP) has embarked on another experiment to protect you from the usual back-breaking journey on the potholed roads of the city.

A pothole-filling machine, launched by Chief Minister Siddaramaiah, demonstrated its capability on Race Course Road on a rainy Saturday evening. The Python 5000 uses a 'hot process' to repair the damaged portions of the road. Nearly two years ago, the BBMP had experimented with another pothole-filling machine that relied on cold process.

About 1,940 km of arterial and sub-arterial roads are reported to be pothole-free in about two months, at a cost of Rs. 10.5 crore, thanks to the machine. Bangalore has about 11,000 km of roads, of which arterial and sub-arterial roads make up 1,940 km, and bear nearly 70 per cent of the city's traffic.

The Canadian machine has been brought by American Road Technology and Solutions Pvt. Ltd., which has won an annual maintenance contract to keep the arterial and sub-arterial stretch pothole-free for a year.

The machine, according to a company official, has the capability to fill potholes along a stretch of 5,000 km a month. A fully automatic machine, it has can fill a pot hole in 4 to 5 minutes and it can make 20 kms stretch of road pot hole free in 8 hours.

"It can be extended to roads maintained by the Public Works Department if it succeeds in Bangalore," said Mr Siddaramaiah.

PWD Minister H.C. Mahadevappa, Transport Minister Ramalinga Reddy, Mayor B.S. Sathyanarayana, company director M.G. Mohan Kumar and its chairman Om Prakash were among those present.

ANOTHER ATTEMPT: *Chief Minister Siddaramaiah watching the Python 5000 fill potholes during its launch in Bangalore on Saturday.*

**THE HINDU**

DNA of Bangalore, 17th November, 2013

**DNA BANGALORE**

American Road Technology & Solutions Private Limited

Deccan Herald, 17th November, 2013

### New technology

Python 5000, the advanced pothole-filling machine, at work on Race Course Road on Saturday.

**DECCAN HERALD**

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# Thank you!