

BENEFIT STATEMENT



Productivity Analysis

MARKET SECTOR

Multiple Industries

APPLICATION

In-situ & Layerworks

PROJECT PHASE

Construction Phase

assessing impact compaction production rates

OPERATING SPEED AND GRADIENT

The impact compactors are towed by tractors with sufficient power and torque to allow easy takeoff, the maintenance of the required compacting speed, and the ability to maintain a high level of traction on all material types.

The minimum power requirements are as follows

- 3 sided 25 kJ: 250-300kW (340-410 HP)
- 5 sided 22 kJ: 250-300kW (340-410 HP)
- 5 sided 15 kJ: 200-250kW (270-340 HP)
- 5 sided 10kJ: 160-200kW (210-270 HP)

The required compacting speed should be between 12 and 15kph (7.5 and 9.0 mph).

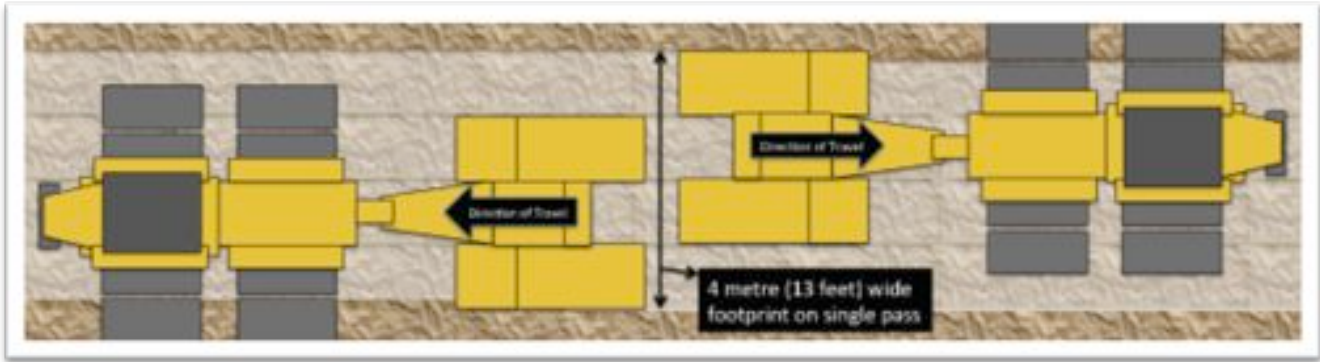
Maximum operating gradient for the impact compactors: 5%.

ROLLER PASS AND EFFICIENCY

A "pass" for the dual drum impact compactor is defined as two runs of the compactor over a 4 metre (13 ft) wide lane such that one drum of the compactor during its second run travels in the middle of the inter-drum space created by the first run of the compactor. Overlapping of drum paths in two consecutive runs (i.e. in one pass) is not permitted.

Because, in essence, it is a "dual run", efficiencies are low in productivity calculations. Efficiency is also negatively affected by the fact that an impact compactor has to turn for the return run.





Impact Compaction Pass

IMPACT COMPACTION PRODUCTIVITY CALCULATION

Description	1m Layer	0.75m Layer	0.50m Layer	Unit
Width of a single roller pass	4 (13)	4 (13)	4 (13)	metres (feet)
Operating Speed (min)	12 (7.5)	12 (7.5)	12 (7.5)	km/h (miles/hour)
Layer Thickness	1 (3.2)	0.75 (2.4)	0.5 (1.6)	metres (feet)
Number of Passes (max)	25	20	15	passes
Efficiency (*)	75	75	75	%
Volume Compacted	720 (940)	675 (882)	600 (784)	m ³ /hour (yd ³ /hour)

CONVENTIONAL SMOOTH DRUM COMPACTION CALCULATION

Description	150mm Layer	Unit
Width of a single roller pass	1.6 (5.2)	metres (feet)
Operating Speed (min)	6 (3.7)	km/h (miles/hour)
Layer Thickness	0.15 (6)	metres (inches)
Number of Passes (max)	8	passes
Efficiency (*)	80	%
Volume Compacted	144 (190)	m ³ /hour (yd ³ /hour)



SUMMARY

- Increased speed of compaction.
- Greater depth of influence.
- Increased layer thicknesses.
- Increased productivity – greater volumes.
- Less compaction and support plant (compactors, graders, water trucks, etc) required
- Construction time savings.
- Substantial cost savings.