

Interlock Paver Cost Breakdown

How much would it cost to make 1 interlock in India, give breakdown on material cost, profit

Absolutely! Let's break down the **cost of manufacturing 1 concrete interlock paver block** (standard size 200 mm x 100 mm x 60 mm) in India as of 2024-2025, considering **raw material cost, labor, overhead, and profit**.

Interlock Paver Block Cost Breakdown (Per Piece)

Raw Material Cost (Per Piece)

Approximate quantities and rates (2024 prices):

Material	Quantity (kg) per piece	Rate per kg (₹)	Cost per piece (₹)
Cement	0.60	8.00	4.80
Stone dust (fines)	0.40	1.00	0.40
Coarse aggregates	1.00	1.00	1.00
Color pigment	0.02	250.00	5.00
Admixture (optional)	0.005	100.00	0.50
Total Material Cost	-	-	₹11.70

Manufacturing Overheads (Per Piece)

Overhead Category	Rate (₹)
Electricity & machine wear	₹1.00
Labor cost	₹1.50
Water & miscellaneous	₹0.30

Overhead Category	Rate (₹)
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Total Overheads	₹2.80
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3 Total Cost Before Profit (₹)

Item	Cost per piece
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Raw Material + Overhead	₹14.50
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4 Profit Margin (20% typical in market)

Category	Cost per piece (₹)
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Profit (20% on cost)	₹2.90
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Final Selling Price	₹17.40 per piece
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Final Cost & Profit Summary

Component	Amount (₹)
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Raw Material + Overhead	₹14.50
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Profit (20%)	₹2.90
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Final Selling Price	₹17.40 per piece
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Notes:

- ✓ This estimate is for **M30-grade** interlocks using **manual vibration machines**.
- ✓ Rates may vary by location and quality of raw materials.
- ✓ For **M40 or M50 interlocks**, pigment and cement content are higher, so costs will increase.
- ✓ **Bulk production reduces per-piece cost** due to economies of scale.

Would you like a **detailed Excel sheet** for different grades and bulk orders? Let me know! 🚀

With 20 rupees per piece, how much would it cost to make a square meter?

Great question! Let's calculate the **cost per square meter** based on a **₹20 per piece** price for standard interlock pavers.



Interlock Paver Square Meter Calculation



Standard Paver Size:

- 200 mm x 100 mm x 60 mm
- Area per piece = **0.02 m²** (since 0.2 m x 0.1 m = 0.02 m²)



Pieces per Square Meter:

$$\text{No. of pieces} = \frac{1}{0.02} = 50 \text{ pieces per square meter}$$



Cost per Square Meter (at ₹20 per piece):

$$\text{Cost per square meter} = 50 \times 20 = ₹1000$$



Final Answer:

Item	Value
Pieces per Square Meter	50 pieces
Cost per Piece	₹20
Cost per Square Meter	₹1000

Let me know if you'd like a **calculator** or **spreadsheet** for different sizes and rates! 🚀

Can we make it cost per piece 10 rupees

Absolutely! Let's explore how to **reduce the cost per interlock to ₹10 per piece** while ensuring it's **feasible and realistic**.

🌱 Target: ₹10 per Interlock (200x100x60 mm)

🔍 Strategies to Reduce Cost:

🔧 Action Item	Impact	Adjusted Costing (approximate)
1 Reduce Cement Content	Use lower-grade (M20-M25)	Reduce by ₹2-3 per piece
2 Use Low-Cost Aggregates	Local quarry fines	Reduce by ₹1-2 per piece
3 Minimize Pigment or Skip It	Natural grey color	Save ₹4-5 per piece
4 Bulk Production	Economy of scale	Reduce machine & labor cost
5 Use Manual Molds	Lower equipment cost	Reduce fixed overhead
6 Less Vibration/Compaction	Accept lower strength	Reduce power & time
7 Reduce Profit Margin	Focus on volume sales	Reduce ₹2-3 profit per piece

💰 Estimated Breakdown for ₹10 Interlock:

Component	₹ per Piece (Approx.)
Cement (lower %)	₹3.00
Stone Dust & Aggregates	₹1.50
Water & Admixture	₹0.30
Pigment (Minimal or None)	₹0.50
Labor, Machine, Power	₹2.00
Miscellaneous	₹0.20
Profit (10-15%)	₹1.50
Total Cost	₹9.50 - ₹10.00



Cost per Square Meter at ₹10 per Piece:

Item	Value
Pieces per Square Meter (0.02 m ² each)	50
Cost per Piece	₹10
Cost per Square Meter	₹500



Trade-offs for ₹10 Interlock:

- ✓ Lower strength (M20-M25 grade).
- ✓ Less color/durability (may fade faster).
- ✓ Suitable for **low-traffic areas** (footpaths, garden).
- ✗ Not ideal for heavy-load applications like industrial driveways.

If you'd like, I can **draft an optimized material mix** for ₹10 interlocks based on your **local rates**—just provide them! 📊

Can we reduce the height and reduce it further?

Excellent thinking! Lowering the **height (thickness)** of the interlock paver is a **smart way** to cut down on costs **per piece** and **per square meter**—let's break it down!

🏗️ Impact of Reducing Thickness on Interlock Cost

📏 Standard Interlock:

- 200 mm x 100 mm x 60 mm (6 cm thick)
- Each piece covers 0.02 m²
- Volume per piece = 0.02 m² x 0.06 m = 0.0012 m³

📈 Let's Reduce the Thickness to 40 mm (4 cm):

- Volume per piece = 0.02 m² x 0.04 m = 0.0008 m³
- That's a **33% reduction** in material per piece!

So, if the **original material cost** was ₹10 per piece, reducing thickness should cut material cost by ~₹3-4 per piece.

📊 Estimated Cost for 40mm Interlock (₹7-8 per piece)

Component	₹ per Piece (Approx.)
Cement	₹2.00
Stone Dust & Aggregates	₹1.00
Water & Admixture	₹0.20

Component	₹ per Piece (Approx.)
Pigment (Optional)	₹0.50
Labor, Machine, Power	₹2.00
Miscellaneous	₹0.20
Profit (10-15%)	₹1.00
Total Cost	₹7-8 per piece



Cost per Square Meter for 40mm Interlock

Factor	Value
Pieces per Square Meter (0.02 m ² each)	50
Cost per Piece	₹7-8
Cost per Square Meter	₹350-400

✓ Advantages of 40mm Interlocks

- ✓ Cheaper (₹7-8 per piece)
- ✓ Ideal for footpaths, walkways, gardens
- ✓ Lower material requirement

✗ Limitations

- Not suitable for heavy-load areas (e.g., driveways, parking).
- Lower load-bearing strength (M15-M20 grade typical).

☀️ Final Takeaways:

- ✓ Reducing thickness is **the best way** to lower cost **below ₹10 per piece**.
- ✓ 40mm interlocks = ₹7-8 per piece = ₹350-400 per square meter.

Would you like me to **simulate an exact material mix** for 40mm interlocks based on your **local raw material prices**? Let me know! 🚀

Do we have a material that hardens the block, maybe adding chemicals to the mixture thereby reducing the cost at the same time maintaining the strength

Fantastic question! Yes, there are **admixtures and additives** that **improve strength and reduce cement usage**, allowing you to **reduce costs while maintaining (or even enhancing) the strength** of your interlock blocks.

Let me break this down for you 🙌

☀️ Additives and Chemicals to Enhance Strength & Reduce Cost

1 Fly Ash (Pozzolana Material)

- ✓ Industrial byproduct (from thermal plants)
- ✓ Partially replaces cement (up to 30-40%)
- ✓ Improves **long-term strength & workability**
- ✓ Cost: ₹2-3 per kg (much cheaper than cement)
- ✓ Commonly used in M20-M30 pavers
- ✓ Can save ₹1-2 per block

2 Ground Granulated Blast Furnace Slag (GGBS)

- ✓ Byproduct of steel production
- ✓ Can replace cement by **30-50%**
- ✓ Enhances durability, reduces heat of hydration

✓ Cheaper than cement (~₹4-5 per kg)

✓ Saves ₹1-2 per block

3 Silica Fume (Micro Silica)

✓ Byproduct of silicon/ferrosilicon

✓ Very fine, highly reactive

✓ Improves **early & ultimate strength**

✓ Used in small amounts (5-10%)

✓ Slightly costly (~₹15-20 per kg), so not always preferred for low-cost pavers unless strength is critical

4 Superplasticizers (Water Reducers)

✓ Reduces water requirement by **20-30%**

✓ Improves **workability & compaction**

✓ Helps in achieving **higher strength at lower cement content**

✓ Cost: ₹50-100 per kg, but **very small quantity used (0.3-1% of cement weight)**, so per block cost increase is minimal (~₹0.20-0.50)

✓ Typical types:

- **PCE-based** (Polycarboxylate Ether) – best for high performance
 - **SNF-based** (Sulphonated Naphthalene Formaldehyde) – cheaper option
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5 Lime (Hydrated Lime or Quick Lime)

✓ Partially replaces cement (up to 10-15%)

✓ Improves **workability, durability**

✓ Cheaper (~₹3-4 per kg)

✓ Suitable for **non-structural pavers** like walkways

6 Rice Husk Ash / Metakaolin

- ✓ Locally available, low-cost alternatives
- ✓ Pozzolan properties (similar to fly ash)
- ✓ Can replace 10-15% cement
- ✓ Helps **reduce costs** and **increase strength** (slow gain)

Recommended Mix for Cost-Effective, High-Strength Paver

Material	Without Additives (₹10 block)	With Additives (₹7-8 block)
Cement (OPC 53)	0.60 kg	0.40 kg (reduce by 30-40%)
Fly Ash / GGBS	0 kg	0.20 kg (as replacement)
Aggregates + Dust	1.40 kg	1.40 kg
Superplasticizer	0.005 kg	0.005 kg
Water	0.30 L	0.30 L
Pigment (optional)	0.02 kg	0.02 kg
Estimated Cost	₹10 per block	₹7-8 per block

Key Points:

- ✓ Use fly ash/GGBS + superplasticizer combo:
 - Saves cement
 - Increases strength
 - Reduces shrinkage & cracks
- ✓ Maintain **M20-M25 strength** suitable for footpaths, gardens, and light vehicles.
- ✓ Target price **₹7-8 per block** is realistic.

Next Step:

Would you like a **mix design recipe** (by weight/volume) and a **cost calculator** for this optimized mix? Let me know! I'll prepare it for you.