Thread Pitch Diameter by the Three-Wire Method (60° Threads)

Pitch diameter of a 60° screw thread from the measurement over three wires, the pitch and wire diameter, with the best wire size.

Method: E = M − 3W + 0.86603P for 60° threads; best wire 0.57735P (Machinery's Handbook)

Input parameters

Unit system: SI

Parameter	Value	Unit
Measurement over wires	10.311	mm
Pitch	1.5000	mm
Wire diameter	0.86600	mm

Calculated results

Parameter	Value	Unit
Pitch diameter M + 0.86603P − 3W	9.0120	mm
Best wire size 0.57735P	0.86603	mm

Notes for this case

- Simplified formula for 60° threads ignoring lead angle; precise work adds the lead-angle correction.

Formula and method

$$E = M + 0.86603P - 3W, \quad W_b = 0.57735P$$

Variables

M	Measurement over wires	m
P	Pitch	m
W	Wire diameter	m
E	Pitch diameter M + 0.86603P − 3W	m
W_b	Best wire size 0.57735P	m

Method and standards

Thread geometry.

Assumptions and limits

- The wire must touch the thread flanks: usable diameters are about 0.505P to 1.01P for 60° threads, and the page warns outside that range. The best size 0.57735P touches at the pitch line.
- 60° symmetrical threads.

References

- E = M − 3W + 0.86603P for 60° threads; best wire 0.57735P (Machinery's Handbook)

Report details

Report reference	FCC-P2Y5-MYHA (the same inputs always give the same reference)
Generated	17 November 2026, 19:48 UTC
Calculator	Thread Pitch Diameter by the Three-Wire Method (60° Threads)
Method last reviewed	12 November 2026
Software release	FireCAD Calc, release of 17 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/mechanical/manufacturing/three-wire-pitch-diameter

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.