Cutting Data Setup Sheet

Sample document with complete example values. It shows the report the purchased export produces for YOUR input - it is not itself a report for any part.

Project: Sample project | Part/Position: no real part | Prepared by: Sample, not released

Turning (longitudinal) · n = 1,459 rpm · vf = 437.7 mm/min · t_h = 0.283 min (17 s)

Method and tool

Method	Turning (longitudinal)
Material group	Structural steel (< 500 N/mm²) (ISO P), e.g. S235, E295
Cutting tool material	Carbide / coated solid carbide
Efficiency η	0.8

Inputs

Cutting speed vc (specified)	275 m/min
Workpiece diameter d	60 mm
Feed f	0.3 mm
Depth of cut ap	2.5 mm
Turning length l	120 mm
Approach / overrun	2 / 2 mm
Number of passes i	1

Results

Cutting speed vc	275 m/min
Spindle speed n	1,459 (step ≈ 1,600) rpm
Feed rate vf	437.7 mm/min
Material removal rate Q	206.3 cm³/min
Total feed path L	124 mm
Machining time t_h	0.283 min (17 s)

Cutting force and power per Kienzle (approximation)

Chip thickness h = f·sin κ	0.3 mm
Chip width b = ap/sin κ	2.5 mm
Chip cross-section A	0.75 mm²
Specific cutting force kc	2,184 N/mm²
Cutting force Fc = A·kc	1,638 N
Cutting power Pc	7.51 kW
Machine power P_M = Pc/η	9.39 kW
Torque M = Fc·d/2000	49.1 Nm

Checks

Criterion	Value	Limit	Status
vc within the recommended range	275 m/min	200 … 350 m/min	● OK
Chip thickness h within the Kienzle validity range	0.3 mm	0.06 … 1.6 mm	● OK

Reference source and note

Recommended range for group "Structural steel (< 500 N/mm²)": curated from [Q4] [Q7] [Q8]. The values apply to average conditions. Manufacturer data for the specific tool (grade, coating, geometry, cooling) takes precedence.

The Kienzle block is a design approximation for the straight main cutting edge without correction factors (rake angle, wear, chip compression). Real forces are typically 20 to 50 % higher due to wear; kc1.1 and mc vary by source and batch (±20 %).

About this sample

All values on these pages come from a freely chosen example calculation and belong to no real part. The purchased export contains the same sections with your input, your header data (project, part, prepared by) and as searchable text. Pricing and scope: maschinenbaurechner.de/en/pricing