Fit Clearance or Interference from Hole and Shaft Limits

Maximum and minimum clearance or interference of a hole and shaft fit from their upper and lower limits, and the fit type (clearance, transition, interference).

Method: Limits and fits: C_max = H_max − S_min; C_min = H_min − S_max (ISO 286 terminology)

Input parameters

Unit system: SI

Parameter	Value	Unit
Hole upper limit	50.025	mm
Hole lower limit	50.000	mm
Shaft upper limit	49.975	mm
Shaft lower limit	49.950	mm

Calculated results

Parameter	Value	Unit
Maximum clearance H_max − S_min	75.000	µm
Minimum clearance H_min − S_max (negative: interference)	25.000	µm
Fit (1 clearance, 2 transition, 3 interference)	1.0000	

Notes for this case

- Take the limits from your drawing or ISO 286 table; the calculator does not hold the tables.

Formula and method

$$C_{max} = H_{max} - S_{min}, \quad C_{min} = H_{min} - S_{max}$$

Variables

H_{max}	Hole upper limit	m
H_{min}	Hole lower limit	m
S_{max}	Shaft upper limit	m
S_{min}	Shaft lower limit	m
C_{max}	Maximum clearance H_max − S_min	m
C_{min}	Minimum clearance H_min − S_max (negative: interference)	m
type	Fit (1 clearance, 2 transition, 3 interference)	-

Method and standards

Limits.

Assumptions and limits

- Measured at the same temperature.

References

- Limits and fits: C_max = H_max − S_min
- C_min = H_min − S_max (ISO 286 terminology)

Report details

Report reference	FCC-0HS8-6T4D (the same inputs always give the same reference)
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Software release	FireCAD Calc, release of 17 November 2026
Release checks	3 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/fit-clearance-limits

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.