

SOLID CARBIDE · SLITTING & GROOVING

Slitting & Grooving Disc Cutters

Engineered for thin, deep, clean cuts — Ø 10–200 mm, cutting width 0.1–5.0 mm. A parametric system of solid-carbide heads on matched shanks: every tool made to your task within the range.

**10–200**

MM CUTTING Ø

0.1–5.0

MM CUTTING WIDTH

A / S

TOOTH-FORM OPTIONS

**2 GRADES
3 COATINGS**

SELECTION PROGRAMME

Tooling from specialists

Ternado is an international tooling brand originating from Israel, built on a focused, practical and engineering-driven approach. We connect advanced, well-selected technologies and global niche expertise with real manufacturing needs.

Ternado tooling is our solid-carbide answer to slitting and grooving: a modular system of carbide cutting heads and matched shanks for narrow, deep and precise cuts — without a frontal interference contour.

WHERE IT FITS

Aerospace · automotive · medical · mould & die · electronics · general engineering — wherever a narrow kerf, a clean slot or a controlled groove decides the part.

SIX VALUES



Integrated niche expertise

We bring together the strengths of highly specialized toolmakers worldwide into a focused, effective portfolio.



Application-driven engineering

Every solution is selected around a defined machining task, material and production constraint.



Global mindset

International experience, technologies and best practices for modern, globally competitive manufacturing.



Practical efficiency

Focus on stable cutting, controlled dimensions and a practical tool configuration for the application.



Customer-oriented approach

We work closely with clients to understand process, needs and constraints — practical value, not catalog noise.



Variability

We continuously adapt the portfolio as production requirements and available technologies evolve.

OUR MISSION

Practical, application-driven tooling that connects global niche expertise with real manufacturing needs — focused on controlled processes, clear selection and application support.

Slitting & grooving — at a glance

Two cutting lines on one parametric system: pick the line by the cut, the size from the range, the holder by your machine.

TWO LINES, TWO JOBS

TSL

Slitting line



Slitting tooth form for thin kerfs and parting operations.

Ø 10–200 mm · width 0.1–5.0 mm

TGL

Grooving line



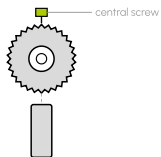
Grooving tooth form for dimensioned slots and grooves.

Ø 10–200 mm · same geometry, other tooth form

A / S

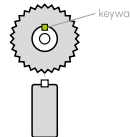
Each diameter has two standard tooth-count options. In the range table they are shown in **A / S** order — for example, D10 is available with Z12 or Z26, not every value between them.

TWO WAYS TO DRIVE THE HEAD



Screw drive

seat Ø 6 / 10 mm · S06 · S10
Cutters up to Ø 60 mm. The head seats on the shank and is clamped by a central countersunk screw — P-2 interface.

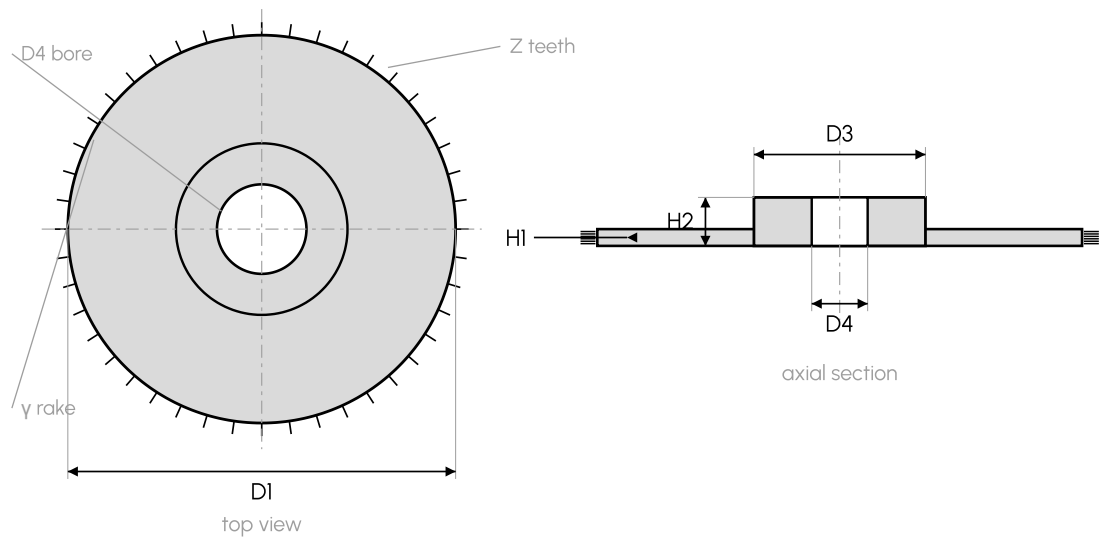


Keyway drive

seat Ø 13 mm · B13
Cutters from Ø 70 mm. The head is located on the shank seat and driven through a keyway for high torque.

Keyway is added from Ø 70 mm upwards, where torque is highest; below that the central screw drives the head alone. In the article it is the system letter: **S** = screw drive · **B** = with keyway.

One tool, one code



ARTICLE STRUCTURE · HEAD

TSL - 080 - 10 - 40 - B13 . TG20 - XC

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L coating (TAC / XC / SZR)

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L grade (**TG20** roughing / **TG25** finishing)

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L system: **S** screw drive / **B** with keyway · 13 = seat Ø D4

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L teeth (Z): A / S option

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L cutting width H1 × 10 (10 = 1.0 mm)

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L cutting diameter D1 (mm)

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L line: **TSL** = Slitting · **TGL** = Grooving

ARTICLE STRUCTURE · SHANK

TDH - B13 - 25 - 100 - IC

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L coolant: **IC** internal / **NC** none

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L overall length L (mm)

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L shank Ø into machine D2 (mm)

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L system — must match the head

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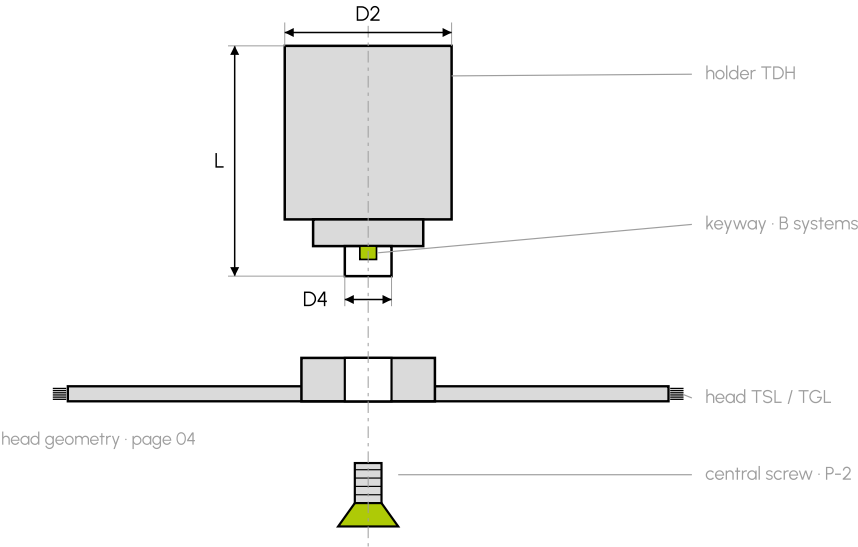
L TDH = Tornado disc holder

STANDARD TOLERANCES

Feature	Tolerance
Cutting diameter D1	± 0.10 mm
Cutting width H1	+0.10 / -0.02 mm
Mounting bore D4	H7
Run-out (radial / axial)	≤ 0.02 mm

Requirements beyond the standard tolerances are evaluated against the drawing. Manufacturing range: Ø 10–200 mm, cutting width from 0.1 mm. Extreme diameter / width combinations are confirmed per order.

Disc holders & shanks



D2 shank Ø into the machine
D3 head hub Ø — the holder seat flange matches it
D4 head seat Ø = system size
L overall length
Clamping: P-2 — countersunk screw straight into the head hub. Standard interface across the whole range.

SHANK PROGRAMME · THREE SEAT SIZES · P-2 INTERFACE ALL DIMENSIONS IN MM

System	Seat D4	For cutters	Hub D3	Shank D2	Length L	Drive	Coolant
S06	6	D10 – D15	8	8	60	screw	NC / IC
S06	6	D20 – D25	12	12	60	screw	NC / IC
S10	10	D30 – D55	16	16	60 / 80	screw	NC / IC
S10	10	D60	16	20	80	screw	NC / IC
B13	13	D70 – D200	25.4	25.4	80 / 100	screw + keyway	NC / IC

D3 is a dimension of the head (its hub Ø); the holder seat is ground to match it — full head geometry on page 04. **Keyway** — a keyway drive is added from D70 upwards, where cutting load and torque are highest; below that the central screw drives the head. **Extended lengths** available as a custom option. **Internal coolant (IC)** can be supplied on every system — recommended when flood coolant cannot reach the cutting zone.

HOW TO CHOOSE

1

System size
Match seat D4 to your cutter — it defines the system: S06, S10 or B13.

2

Machine Ø
Pick shank D2 for your collet or spindle; standard length, or extended as a custom option.

3

Options
Choose internal coolant (IC) or plain (NC). Keyway follows the cutter Ø — D70 and above.

One defined range

Every cutter is made to your task within the range below: pick the diameter from the grid, then specify cutting width and tooth count freely inside the listed limits. **Slitting (TSL) and grooving (TGL) share the same geometry** — the lines differ in tooth form, not in dimensions.

CUTTING RANGE · SOLID CARBIDE · P-2 INTERFACE

ALL DIMENSIONS IN MM

D1 cutting Ø	H1 cutting width	H2 body	Z A / S teeth	System	D4 seat	D3 flange	D2 shank	L holder	Drive
D10	0.1–4.0	4	12 / 26	S06	6	8	8	60	screw
D15	0.1–4.0	4	12 / 26	S06	6	8	8	60	screw
D20	0.1–4.0	4	12 / 26	S06	6	12	12	60	screw
D25	0.1–4.0	4	12 / 26	S06	6	12	12	60	screw
D30	0.1–4.0	4	20 / 40	S10	10	16	16	60	screw
D35	0.1–4.0	4	20 / 40	S10	10	16	16	60	screw
D40	0.1–4.0	4	20 / 40	S10	10	16	16	60	screw
D45	0.1–4.0	4	20 / 40	S10	10	16	16	60	screw
D50	0.1–4.0	4	20 / 40	S10	10	16	16	80	screw
D55	0.1–4.0	4	20 / 40	S10	10	16	16	80	screw
D60	0.1–4.0	4	20 / 40	S10	10	16	20	80	screw
D70	0.1–5.0	5	30 / 60	B13	13	25.4	25.4	80	screw + keyway
D80	0.1–5.0	5	40 / 80	B13	13	25.4	25.4	80	screw + keyway
D90	0.1–5.0	5	40 / 80	B13	13	25.4	25.4	80	screw + keyway
D100	0.1–5.0	5	50 / 100	B13	13	25.4	25.4	100	screw + keyway
D110	0.1–5.0	5	50 / 100	B13	13	25.4	25.4	100	screw + keyway
D120	0.1–5.0	5	50 / 100	B13	13	25.4	25.4	100	screw + keyway
D150	0.1–5.0	5	80 / 150	B13	13	25.4	25.4	100	screw + keyway
D200	0.1–5.0	5	100 / 200	B13	13	25.4	25.4	100	screw + keyway

1

Diameter

Choose D1 from the grid — D10 to D200.

2

Width & teeth

Set H1 inside the listed limits; choose one of the two Z values shown as A / S.

3

Grade & coating

TG20 roughing or TG25 finishing, plus the coating for your material.

4

Holder

Matching TDH shank — plain or with internal coolant.

Keyway from D70 upwards (system code B13); below that the central screw drives the head. Extreme diameter / width combinations are confirmed per order.

Grade by operation, coating by material

Two decisions, kept separate. The **grade** follows the operation — roughing or finishing. The **coating** follows the workpiece material. Final selection also considers cut width and depth, machine rigidity, coolant delivery and workpiece condition.

CARBIDE GRADES · BY OPERATION

TG20

Roughing

Co 10% · grain 0.6 μm · HRA 92.0 ± 0.4

TRS 4200 N/mm² · KIC 10.0 MPa·m^{1/2}. Higher fracture toughness supports roughing and resistance to edge chipping.

TG25

Finishing

Co 12% · grain 0.4 μm · HRA 92.6 ± 0.5

TRS 4200 N/mm² · KIC 8.5 MPa·m^{1/2}. Finer grain and higher hardness support finishing and thin cutting widths.

COATINGS · BY WORKPIECE MATERIAL

TAC

Non-ferrous materials

Aluminium and aluminium alloys, copper, brass, bronze and other non-ferrous materials.

XC

Steel · stainless · cast iron

Carbon and alloy steel, stainless steel and cast iron.

SZR

Heat-resistant & titanium

Heat-resistant alloys and titanium alloys.

A or S

Two **tooth forms** are available throughout the diameter range. Form A or S can be specified for the application.

Article notation. Grade and coating are written as a suffix: TSL-080-10-40-B13.TG20-XC. Substrate values above are based on the supplied material specifications.

From workpiece material to tool

Workpiece material	Coating	Tooth form	Grade
Aluminium & Al-alloys	TAC	A / S	TG20 / TG25
Copper, brass, bronze	TAC	A / S	TG20 / TG25
Carbon & alloy steel	XC	A / S	TG20 / TG25
Stainless steel	XC	A / S	TG20 / TG25
Cast iron	XC	A / S	TG20 / TG25
Heat-resistant / Ti alloys	SZR	A / S	TG20 / TG25

HOW THE CHOICE WORKS

- **Coating follows the workpiece material** — TAC for non-ferrous materials, XC for steel, stainless and cast iron, SZR for heat-resistant and titanium alloys.
- **Grade follows the operation** — TG20 for roughing and TG25 for finishing.
- **Tooth form** — A or S is specified for the application.

RULES OF THUMB

- Thinner cutter: begin with a lower feed per tooth to protect the body.
- Deep cut: use fewer teeth for chip space and ensure coolant reaches the cutting zone.
- Sticky materials: maintain reliable chip evacuation and coolant delivery.
- Difficult materials: use a stable setup and keep the feed consistent.

Speeds, feeds & coolant

FORMULAS

$$V_c = D1 \times \pi \times n / 1000$$

cutting speed [m/min]

$$n = V_c \times 1000 / (D1 \times \pi)$$

spindle speed [rpm]

$$V_f = f_z \times Z \times n$$

table feed [mm/min]

SETTING THE PARAMETERS

Cutting parameters are set per application. Cutting speed and feed per tooth depend on the workpiece material and condition, cut depth and width, clamping rigidity, machine and coolant supply — a single table cannot cover them responsibly.

Send us the material, the slot or kerf you need and your machine, and our application engineers will return a starting parameter set for your case — with the matching grade, coating and tooth form.

Coolant — flood or internal coolant is strongly recommended for slitting and deep grooving: it clears chips from the kerf and holds tooth temperature. Internal coolant (IC) is available on every holder.

Feed per tooth — scales with cutter width: the thinner the cutter, the lower f_z . Start low and increase to the chip load that keeps tooth temperature and finish stable.

Engineered to your process

Options beyond the standard programme are evaluated against the application and drawing — including geometry, coating and tolerances.



Tooth form

Form A or S is specified for the application and is available throughout the diameter range.



Coatings

TAC for non-ferrous materials, XC for steel and stainless steel, and SZR for heat-resistant alloys.



Tighter tolerances

Width, diameter and run-out requirements beyond the standard tolerances are evaluated against the drawing.



Re-grinding

Re-grinding can be evaluated where the remaining diameter, tooth geometry and required tolerances allow it.

TG20 · roughing

Higher fracture toughness.

TG25 · finishing

Finer grain and higher hardness.

Not listed? Send the required diameter, width, tooth count and profile for feasibility review.

Where Ternado cuts

Wherever a narrow kerf, a clean slot or a controlled groove decides the part — across six industries.



Aerospace

Slitting and grooving of aluminium and titanium structural components.



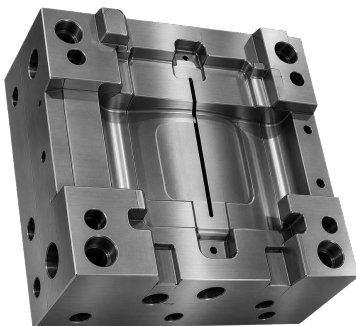
Automotive

Grooving and separation operations in series-production components.



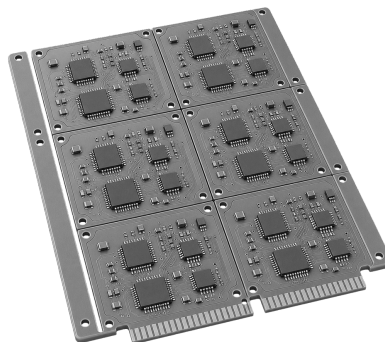
Medical

Fine slits and grooves in small and thin-walled components.



Mould & die

Slots and reliefs in mould, die and tool components.



Electronics

Thin separation and narrow-slot operations in non-ferrous components.



General engineering

Circlip grooves, oil grooves, slitting of bar and tube.

How to order

Cutter head

PATTERN

{TSL/TGL}-{D1}-{H1×I0}-{Z}-{system}.{grade}-{coating}

EXAMPLE

TGL-080-20-40-B13.TG20-XC

Grooving cutter, Ø 80 mm, 2.0 mm cutting width, 40 teeth, system B13 (seat Ø 13, **with keyway**), TG20 roughing grade, XC coating for steel.

Disc holder

PATTERN

TDH-{system}-{D2}-{L}-{IC/NC}

EXAMPLE

TDH-B13-25-100-IC

Holder for system B13, Ø 25.4 mm shank into the machine, 100 mm overall length, with internal coolant. Extended lengths on request.

TG20 / TG25

Roughing / finishing grade.

TAC · XC · SZR

Coating by workpiece material.

Any diameter from the grid, any width and tooth count inside the range — every cutter is made to your task.

SOLID CARBIDE SLITTING & GROOVING



Engineered Precision. Built for Results.

Practical, application-driven tooling developed around real machining requirements, controlled slitting and grooving operations, and application support.