

TNT Motion

CNC TOOLING CATALOGUE

Precision Tooling.

Collets · Pull Studs · Clamping Nuts · Toolholders · Tapping Collets · Bussole

Referenced Standards

DIN 6499 · ISO 15488 · JIS B6339 · MAS 403 · DIN 69872 · DIN 69893

HP Precision Grade

Runout ≤ 0.005 mm at 4×D — every batch with inspection report

Complete Range

ER8–ER50 · BT/CAT/HSK/ISO · GT12 · Bussole & Floating Holders

Find the right product

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Choose your system

Identify the machine interface first, then select the clamping or tapping system.

Toolholders

BT · CAT · ISO · HSK



Match taper, form and gauge length.

ER / ERC

Collets & coolant collets



Select series, bore and precision grade.

EOC / OZ

ISO 10897 · DIN 6388



EOC25 · d10 mm

A separate system: never substitute ER.

Tapping

GT12 · B / B-GR



Match tap shank and square drive.

Pull studs

Machine-specific retention



Confirm against the machine drawing.

Nuts & accessories

ER · MN · BN

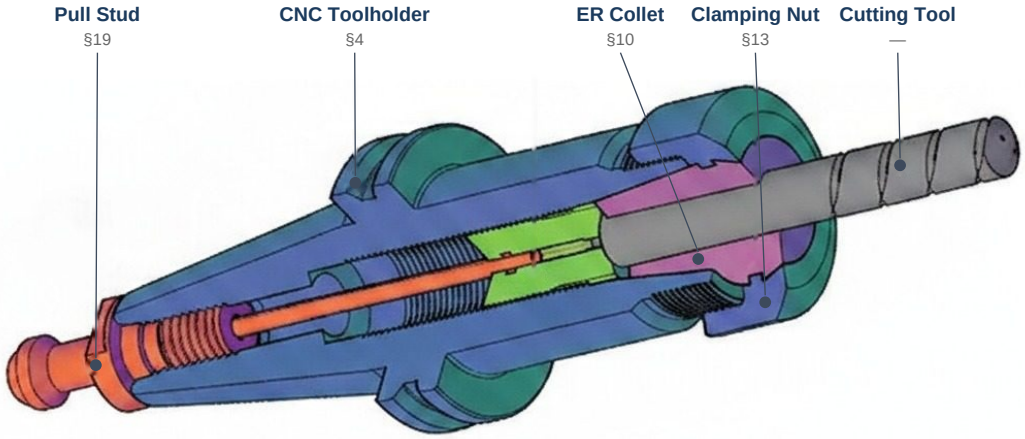


Match the nut type and wrench profile.

Click a card to open its section. EOC25: supplied product render.

1 How the Tool Assembly Fits Together

Six precision components connect the machine spindle to the cutting edge. The four highlighted — pull stud, collet chuck, ER collet, and clamping nut — are supplied by TNT Motion.



MACHINE SPINDLE

Machine Spindle
BT / CAT / HSK / ISO taper. Supplied with your machine.



Pull Stud
Anchors the toolholder inside the spindle drawbar.



CNC Toolholder
Precision-ground taper seats flush in the spindle bore.



ER Collet
Spring collet grips the tool shank. 1 mm clamping range.



Clamping Nut
Pulls the collet into the taper and sets the clamping force.

CUTTING TOOL

Cutting Tool
End mill, drill, or tap. Supplied by you.

TNT Motion supplies all four interface components · §19 · §4 · §10 · §13

2 Tooling Selection Guide

Step 1 — Identify your machine spindle taper

If your machine has…	Choose this taper
Japanese or Asian machining centre (Fanuc, Mazak, Okuma, Doosan)	BT30, BT40, or BT50
North American machining centre (Haas, Cincinnati, Fadal)	CAT40 or CAT50
European machining centre (DMG, Hermle, Mikron)	ISO40/50 or HSK-A63
High-speed spindle > 20,000 RPM or 5-axis machining	HSK-A
Conventional knee mill (Bridgeport type)	R8 collet or R8 adapter
Drill press or lathe tailstock	Morse taper adapter (MT2–MT4)

Step 2 — Choose the right collet and clamping nut

Requirement	Recommended product
General milling, drilling, reaming (runout < 0.01 mm)	ER Standard + standard nut
Precision finishing (runout < 0.005 mm)	ER HP + bearing nut
High-speed > 15,000 RPM (balance critical)	ER HP + dynamically balanced nut
Through-spindle coolant delivery	ER Sealed + coolant nut
Tight bore / low clearance setup	ER Standard + Mini-Nut (MN)
Tapping on CNC with rigid tapping G-code	GT12 rigid tapping collet
Tapping on pneumatic arm or non-rigid CNC	GT12 + torque clutch
Tapping with axial float compensation needed	Floating holder (bussola con compensazione)

Step 3 — Select your toolholder type

Operation	Toolholder type	Reason
General milling / drilling	ER Collet Chuck	Universal — accepts full round-shank range
Heavy interrupted milling	Weldon End Mill Holder	Set-screw side-lock for high torque
Precision boring, fine finishing	Hydraulic Chuck	Runout ≤ 0.003 mm, vibration-damped
High-speed / 5-axis	Shrink Fit Holder	Highest rigidity, 0.003 mm runout
Face milling, shell milling	Shell Mill Arbor	Direct face-mill body mounting

Need help selecting the right tooling?

Send us your machine model (brand + spindle type) and the operations you perform. Our engineering team will confirm the correct taper, pull stud head form, collet grade, and clamping nut type. We reply within 24 hours on business days.

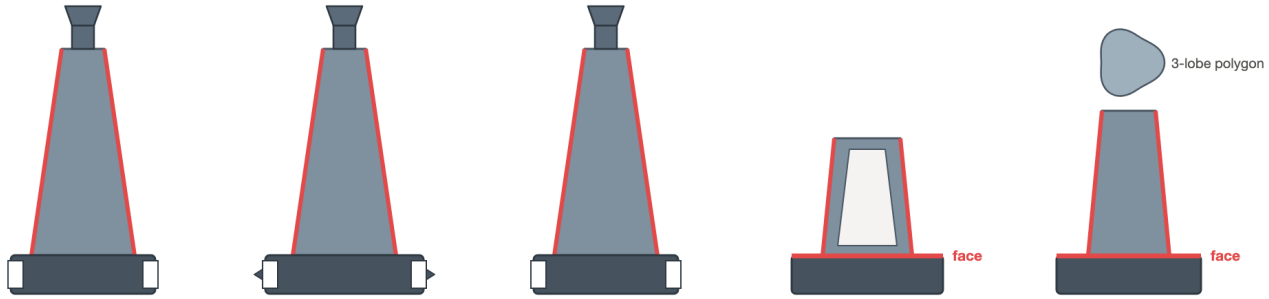
3 Toolholding — A Buyer's Guide

BT · CAT · ISO · HSK · Capto — what actually differs between spindle interfaces

The spindle interface is fixed by your machine — but understanding what each system does explains which toolholders, pull studs, and accessories you need, and why high-speed machines specify HSK. Red marks the contact surfaces: steep tapers touch on the cone only; HSK and Capto add face contact for axial rigidity at speed.

Spindle Interfaces — Where the Toolholder Meets the Machine

Red = contact surfaces. Steep tapers (7:24) contact on the cone only; HSK and Capto add face contact for axial rigidity at speed.



BT (JIS B6339 / MAS 403)
7:24 steep taper · symmetric
Japanese/Asian machines
BT30 · BT40 · BT50
dual-contact (taper+face)
available as BT "Big Plus"

CAT (ANSI B5.50)
7:24 steep taper · V-flange
North American machines
CAT40 · CAT50
imperial pull stud thread
5/8″-11 UNC (CAT40)

ISO / SK (ISO 7388, DIN 2080)
7:24 steep taper
European machines
ISO30 · ISO40 · ISO50
M16 (ISO40) · M24 (ISO50)
pull stud DIN 69872

HSK (ISO 12164 / DIN 69893)
1:10 HOLLOW taper — short & light
taper + face contact together
axial repeatability ±0.001 mm
clamps from inside — no pull stud
up to 60,000 RPM (HSK-E)

Capto (ISO 26623-1)
tapered 3-lobe POLYGON
torque without drive keys
face + taper contact
repeatability ≤ 0.002 mm
turning + milling + modular

Steep taper (BT/CAT/ISO): taper-only contact — proven, economical; above ~15,000 RPM centrifugal force makes the spindle bore grow faster than the solid shank, reducing grip. HSK's hollow shank expands WITH the bore and its face contact fixes the axial position — this is why high-speed and 5-axis machines specify HSK. Capto's polygon transmits torque without keys and repeats to 2 µm, making it the standard for multi-task turning centres and modular boring systems.

Which taper does my machine use?

If your machine is…	Your interface is most likely…
Japanese or Asian machining centre (Fanuc, Mazak, Okuma, Doosan)	BT30 / BT40 / BT50
North American machining centre (Haas, Cincinnati, Fadal)	CAT40 / CAT50
European machining centre (DMG, Hermle, Mikron)	ISO40 / ISO50 or HSK-A63
High-speed spindle > 20,000 RPM or 5-axis machining	HSK-A (any size)
Multi-task turning centre / modular boring system	Capto C4–C8
Heavy portal mill or boring machine > 15 kW	ISO 50 / BT50

4 CNC Toolholders

BT · CAT · HSK · ISO · Balanced G2.5 at 25,000 RPM · Runout ≤ 0.003 mm

The toolholder is the mechanical backbone of every machining operation. It interfaces the machine spindle with the cutting tool and must deliver rigidity, balance, and low runout simultaneously.

TNT Motion supplies a complete range for all major CNC spindle standards. All toolholders are balanced to G2.5 at 25,000 RPM as standard. MOQ: 5 pcs per type.



- BT (JIS B6339) — 7:24 steep taper; BT30, BT40, BT50
- CAT (ANSI B5.50) — V-flange design; CAT40, CAT50
- HSK (ISO 12164) — hollow taper, simultaneous flange contact; HSK-A32 to A100
- ISO (7388-1) — steep taper; ISO30, ISO40, ISO50 (also called SK / DIN 2080)
- Precision-ground taper · Radial runout ≤ 0.003 mm at gauge length

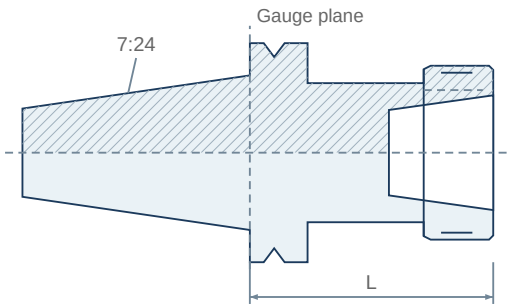
Clamping Method Selection Guide

Clamping Method	Runout	Torque Capacity	Best Application
ER Collet Chuck	0.008 mm	Medium–High	General milling, drilling, reaming
Weldon End Mill Holder	0.010 mm	Very High	Heavy interrupted milling, side-lock
Hydraulic Chuck	0.003 mm	High	Finishing, boring, precision reaming
Shrink Fit	0.003 mm	Very High	High-speed machining, 5-axis, HSM
Shell Mill Arbor	N/A	Very High	Face milling, shell mill bodies
Morse Taper Adapter	0.015 mm	Medium	Drills, reamers, older machines

Standard Configurations by Taper

Taper	Type	L (mm)	Runout	Balance	Standard
BT40	ER Collet Chuck	63–100	≤ 0.003 mm	G2.5 / 25k	JIS B6339
BT40	End Mill Holder	63–150	≤ 0.005 mm	G2.5 / 25k	JIS B6339
BT50	ER Collet Chuck	80–125	≤ 0.003 mm	G2.5 / 20k	JIS B6339
CAT40	ER Collet Chuck	63–100	≤ 0.003 mm	G2.5 / 25k	ANSI B5.50
HSK-A63	ER Collet Chuck	50–100	≤ 0.003 mm	G2.5 / 30k	DIN 69893
HSK-A63	Hydraulic Chuck	50–100	≤ 0.002 mm	G2.5 / 30k	DIN 69893
ISO40	ER Collet Chuck	63–100	≤ 0.003 mm	G2.5 / 25k	ISO 7388

Toolholder — taper, flange and gauge length

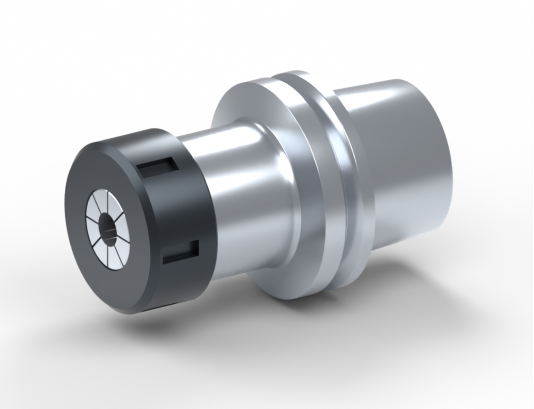


L: gauge plane to tool end. 7:24: spindle taper. Internal details are schematic.

5 HSK Toolholder Technology

ISO 12164 / DIN 69893

The HSK (Hohlschaftkegel — hollow shank taper) system, standardised as ISO 12164, represents the most advanced toolholder interface for high-speed and high-precision CNC machining. Unlike steep-taper systems (BT/CAT/ISO) which contact only the taper surface, HSK achieves simultaneous taper and face contact, eliminating the axial float that degrades positional accuracy at high spindle speeds.



HSK-A63 · ER32 / illustrative

Advantages over steep-taper systems

- Simultaneous 2-point contact (taper + face) → zero axial runout under load
- Centrifugal force increases — not decreases — clamping as speed rises
- Repeatable positioning to ±0.001 mm axially and radially
- Suitable for spindle speeds up to 60,000 RPM
- Shorter projection, higher stiffness → better surface finish at depth

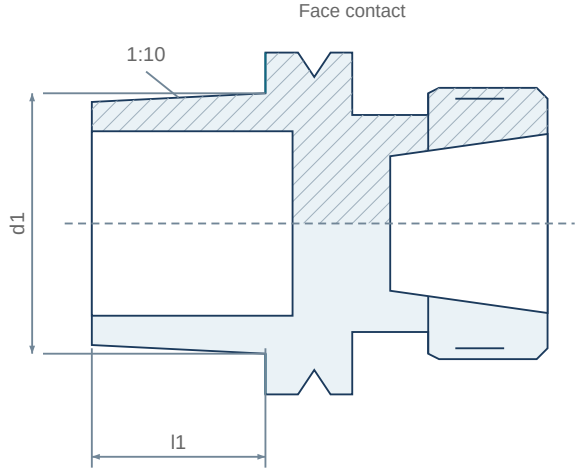
HSK Types Available

HSK Type	Drive	Keyway	Best For
HSK-A	Drive keys	Yes	General purpose — turning, milling, drilling
HSK-E	Friction	No	High-speed, rotationally symmetric tools
HSK-F	Friction	No	High-speed, enlarged flange

Machine-side reference — HSK-A63 only

Interface example	d1 (mm)	l1 (mm)	Flange Ø (mm)
HSK-A63	48	32	63

HSK-A63 — hollow taper and face contact



d1: taper reference diameter. l1: taper length to the contact face. The HSK-A63/ER32 view illustrates this interface. Nose details are indicative. E and F forms require their own drawings.

6 Capto — ISO 26623-1 Modular Toolholding

Sandvik Capto · Polygon taper ISO 26623-1 · Sizes C3–C10 · Repeatability ≤ 0.002 mm

Polygonal hollow-taper interfaces combine taper and face contact.
Select the coupling size, tool-side connection and assembly length as a complete system.



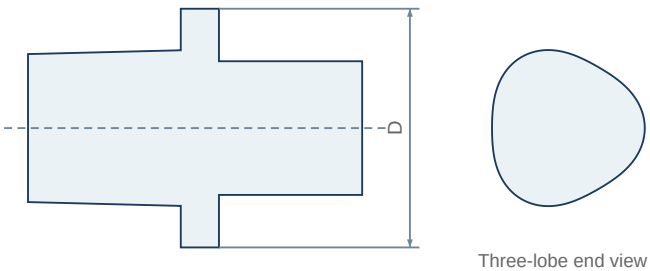
Technical illustration

Nominal coupling flange diameter D

Coupling	D (mm)	Selection
C3	32	Confirm tool side and length
C4	40	Confirm tool side and length
C5	50	Confirm tool side and length
C6	63	Confirm tool side and length
C8	80	Confirm tool side and length
C10	100	Confirm tool side and length

D identifies the coupling flange; it is not the diameter across the polygonal lobes. Torque and speed depend on the selected component and clamping unit.

C5 — interface principle / indicative profile



Three-lobe end view

ISO 26623-1 defines the interface. Confirm the machine builder’s exact connection before ordering.

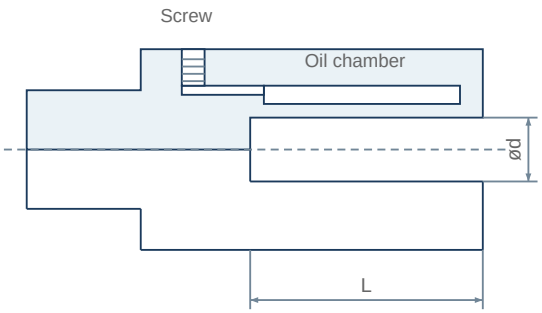
7 Hydraulic & Shrink-fit Holders

Two clamping principles. Match the tool shank, bore d and effective engagement L to the selected holder. The BT40 product views illustrate the families; unquoted details are indicative.

01 / Hydraulic pressure sleeve



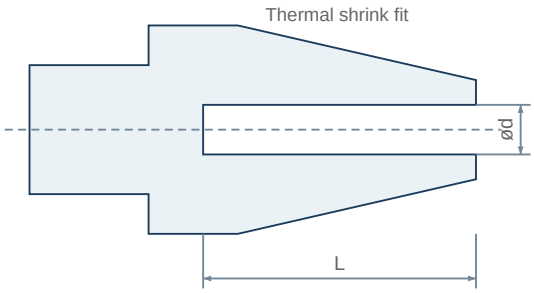
Technical illustration



02 / Thermal shrink fit



Technical illustration



Selection dimensions — shared drawing key

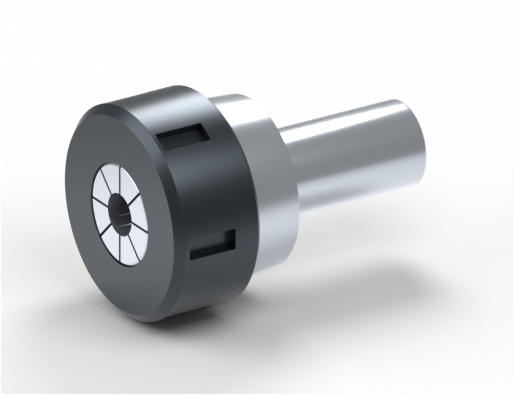
System	d (mm)	L (mm)	Tool shank
Hydraulic	6 / 8 / 10 / 12 / 16 / 20 / 25 / 32	Confirm model	Per holder drawing
Shrink fit	6 / 8 / 10 / 12 / 16 / 20 / 25 / 32	Confirm model	h6

d: tool bore. L: effective clamping engagement. Confirm actual engagement, torque, speed and runout against the selected holder specification.

8 Collet Chuck Adapters — Bussole

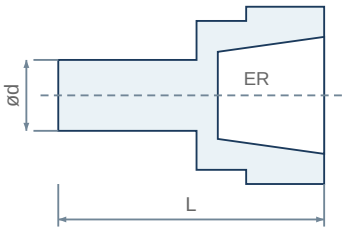
Straight Shank · Morse Taper · ER16–ER40 · TIR < 0.01 mm

Straight shank and Morse taper collet chuck adapters allow ER collets to be mounted directly in drill presses, conventional milling machines, lathes, and any equipment with a straight bore or Morse taper spindle.



Technical illustration

Straight shank — d / L



Straight Shank Adapters — Clamped by set screw (Weldon flat) or friction fit

d (mm)	ER	Tool bore range (mm)	L (mm)
8	ER16	0.5–10	60
10	ER16	0.5–10	60
12	ER20	1–13	65
12.5	ER20	1–13	65
16	ER25	1–16	70
20	ER32	2–20	75
25	ER32	2–20	80
32	ER40	3–26	90

Morse Taper Adapters — Seated in spindle taper, drift or drawbar removal

Morse taper	ER	Tool bore range (mm)	L (mm)
MT1	ER16	0.5–10	80
MT2	ER16	0.5–10	85
MT2	ER20	1–13	90
MT3	ER25	1–16	95
MT3	ER32	2–20	100
MT4	ER32	2–20	110
MT4	ER40	3–26	115

d: cylindrical mounting shank. L: overall length. The drawing illustrates d20/L75. A Morse taper replaces the straight shank; confirm its exact machine-side execution.

9 Collet Types — A Buyer's Guide

ER · ER HP · ERC · ER Square · EOC · GT12 — which to choose and why

Spring collets are the precision interface between toolholder and cutting tool. The type determines run-out, clamping range, rigidity under axial load, and compatibility with through-coolant delivery. Choosing the wrong type costs precision, tool life, and — in tapping applications — broken taps.

Type	Standard	Cone angle	Range / collet	Run-out	Primary application
ER Standard	DIN 6499/B	8°	1 mm	≤ 8 µm	General milling, drilling, reaming
ER High-Prec.	DIN 6499/B	8°	1 mm	≤ 5 µm	Finish milling, small-diameter tools
ERC Coolant	DIN 6499/B	8°	1 mm	≤ 8 µm	Through-coolant direct to cutting edge
ER Square Bore	DIN 6499/B	8°	Fixed sq.	—	Tap holders — grips square tap shank
EOC	ISO 10897	1:10	Full series	—	High-rigidity milling, heavy axial loads
GT12	JIS B4302	—	Fixed	—	Floating tap holders, tap breakage protection

When to choose EOC over ER:

→ Heavy axial loads: face milling, deep slot milling
→ Long overhang — shallower taper reduces deflection
→ One collet covers the full diameter range of the series

When to choose ER HP over ER Standard:

→ Tool diameter < 6 mm where run-out breaks the tool
→ Surface finish requirement finer than Ra 0.4 µm
→ High-speed spindle operation above 15 000 rpm



ER32 · d10 mm — render



EOC25 · d10 mm

EOC25 / OZ25

10 Precision Collets

ER8 – ER50 · Standard and HP grades · DIN 6499 / ISO 15488

Choose the ER series to fit the holder, then select the nominal tool diameter and precision grade. ERC coolant variants and EOC25 have their own order-code blocks.

- Standard: ≤ 0.008 mm; HP: ≤ 0.005 mm at 4×D.
- Published HP range: ER11–ER40.
- Order by full code and nominal bore.



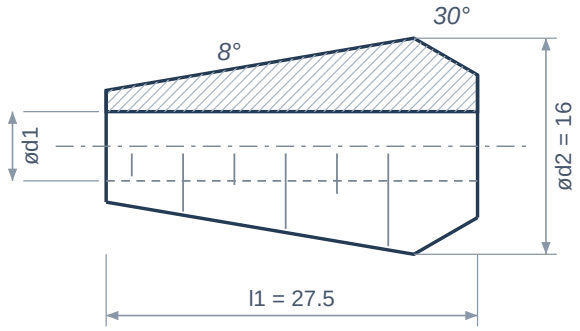
ER32 · d10 mm

Stocked nominal bores / DIN ISO 15488 dimensions

Series	d1 (mm)	d2 (mm)	l1 max (mm)	HP
ER8	1–5	—	—	—
ER11	1–8	11	18	HP
ER16	1–12	16	27.5	HP
ER20	1–14	20	31.5	HP
ER25	1–20	25	34	HP
ER32	2–25	32	40	HP
ER40	5–32	40	46	HP
ER50	8–35	—	—	—

d1: bore diameter. Bores are the range present in the code list, not the collapse range of one collet. d2 = taper reference diameter; l1 = maximum overall length. A dash means the held DIN table does not cover that series.

ER16 — dimensioned half-section / DIN ISO 15488

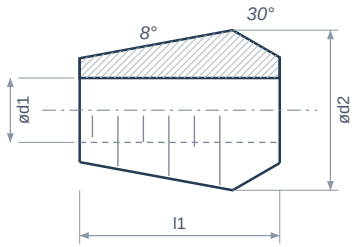


DIN ISO 15488
ER collets

11 Collets — Order Codes

Stocked sizes · standard and HP grades · DIN ISO 15488 where applicable

Every stocked size with its order code. Clamping range per DIN ISO 15488 Table 1: each collet closes 1 mm below its nominal diameter. Runout is quoted to Klasse 1, measured at the gauge length l12 the standard sets for that diameter.



d2 (ER32 / mm)	l1 (ER32 / mm)
32	40

ER8 · 9 stocked sizes

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER8D01	—	1	—	—
ER8D01,5	—	1.5	—	—
ER8D02	—	2	—	—
ER8D02,5	—	2.5	—	—
ER8D03	—	3	—	—
ER8D03,5	—	3.5	—	—
ER8D04	—	4	—	—
ER8D04,5	—	4.5	—	—
ER8D05	—	5	—	—

ER11 · 14 stocked sizes · ød2 11 · l1 18

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER11D01	—	1	0.010	6
ER11D01.5	—	1.5	0.010	6
ER11D02	—	2	0.010	10
ER11D02.5	—	2.5	0.010	10
ER11D03	—	3	0.010	10
ER11D03.5	—	3.5	0.010	16
ER11D04	—	4	0.010	16
ER11D04.5	—	4.5	0.010	16
ER11D05	—	5	0.010	16
ER11D05.5	—	5.5	0.010	16
ER11D06	—	6	0.010	16
ER11D06.5	—	6.5	0.010	25
ER11D07	—	7	0.010	25
ER11D08	—	8	0.010	25

ER16 · 21 stocked sizes · ød2 16 · l1 27.5

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER16D01	0.5–1	1	0.010	6
ER16D01,5	1–1.5	1.5	0.010	6
ER16D02	1–2	2	0.010	10
ER16D02,5	1.5–2.5	2.5	0.010	10
ER16D03	2–3	3	0.010	10
ER16D03.5	2.5–3.5	3.5	0.010	16

ER16 (continued)

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER16D04	3–4	4	0.010	16
ER16D04.5	3.5–4.5	4.5	0.010	16
ER16D05	4–5	5	0.010	16
ER16D05.5	4.5–5.5	5.5	0.010	16
ER16D06	5–6	6	0.010	16
ER16D06,5	5.5–6.5	6.5	0.010	25
ER16D07	6–7	7	0.010	25
ER16D07,5	6.5–7.5	7.5	0.010	25
ER16D08	7–8	8	0.010	25
ER16D08,5	7.5–8.5	8.5	0.010	25
ER16D09	8–9	9	0.010	25
ER16D09,5	8.5–9.5	9.5	0.010	25
ER16D10	9–10	10	0.010	25
ER16D11	10–11	11	0.015	40
ER16D12	11–12	12	0.015	40

ER20 · 19 stocked sizes · ød2 20 · l1 31.5

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER20D01	0.5–1	1	0.010	6
ER20D01,5	1–1.5	1.5	0.010	6
ER20D02	1–2	2	0.010	10
ER20D02,5	1.5–2.5	2.5	0.010	10
ER20D03	2–3	3	0.010	10
ER20D03,5	2.5–3.5	3.5	0.010	16
ER20D04	3–4	4	0.010	16
ER20D04.5	3.5–4.5	4.5	0.010	16
ER20D05	4–5	5	0.010	16
ER20D06	5–6	6	0.010	16
ER20D07	6–7	7	0.010	25
ER20D08	7–8	8	0.010	25
ER20D09	8–9	9	0.010	25
ER20D10	9–10	10	0.010	25

— = the series is outside DIN ISO 15488 Table 1; ask the sales office for clamping range and runout.
DIN K1: standard reference limit (mm), not the product-grade specification; HP target ≤ 0.005 mm at 4×d1.
l12: test-mandrel diagram, section 20.

DIN ISO 15488
ER collets

11 Collets — Order Codes (continued)

Stocked sizes · standard and HP grades · DIN ISO 15488 where applicable

ER20 (continued)

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER20D11	10–11	11	0.015	40
ER20D12	11–12	12	0.015	40
ER20D12,5	11.5–12.5	12.5	0.015	40
ER20D13	12–13	13	0.015	40
ER20D14	13–14	14	0.015	40

ER25 (continued)

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER25D16	15–16	16	0.015	40
ER25D17	16–17	17	0.015	40
ER25D18	17–18	18	0.015	40
ER25D19	18–19	19	0.015	50
ER25D20	19–20	20	0.015	50

ER25 · 28 stocked sizes · ød2 25 · l1 34

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER25D01	0.5–1	1	0.010	6
ER25D01,5	1–1.5	1.5	0.010	6
ER25D02,5	1.5–2.5	2.5	0.010	10
ER25D03	2–3	3	0.010	10
ER25D03,5	2.5–3.5	3.5	0.010	16
ER25D04	3–4	4	0.010	16
ER25D04,5	3.5–4.5	4.5	0.010	16
ER25D05	4–5	5	0.010	16
ER25D05,5	4.5–5.5	5.5	0.010	16
ER25D06	5–6	6	0.010	16
ER25D06,5	5.5–6.5	6.5	0.010	25
ER25D07	6–7	7	0.010	25
ER25D07,5	6.5–7.5	7.5	0.010	25
ER25D08	7–8	8	0.010	25
ER25D08,5	7.5–8.5	8.5	0.010	25
ER25D09	8–9	9	0.010	25
ER25D10	9–10	10	0.010	25
ER25D11	10–11	11	0.015	40
ER25D12	11–12	12	0.015	40
ER25D13	12–13	13	0.015	40
ER25D14	13–14	14	0.015	40
ER25D14,5	13.5–14.5	14.5	0.015	40
ER25D15	14–15	15	0.015	40

ER32 · 38 stocked sizes · ød2 32 · l1 40

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER32D02	1.5–2	2	0.010	10
ER32D02,5	2–2.5	2.5	0.010	10
ER32D03	2–3	3	0.010	10
ER32D03.5	2.5–3.5	3.5	0.010	16
ER32D04	3–4	4	0.010	16
ER32D05	4–5	5	0.010	16
ER32D05.5	4.5–5.5	5.5	0.010	16
ER32D06	5–6	6	0.010	16
ER32D06.5	5.5–6.5	6.5	0.010	25
ER32D07	6–7	7	0.010	25
ER32D08	7–8	8	0.010	25
ER32D08.5	7.5–8.5	8.5	0.010	25
ER32D09	8–9	9	0.010	25
ER32D09.5	8.5–9.5	9.5	0.010	25
ER32D10	9–10	10	0.010	25
ER32D10,5	9.5–10.5	10.5	0.015	40
ER32D11	10–11	11	0.015	40
ER32D11.5	10.5–11.5	11.5	0.015	40
ER32D12	11–12	12	0.015	40
ER32D12.5	11.5–12.5	12.5	0.015	40
ER32D13	12–13	13	0.015	40
ER32D13.5	12.5–13.5	13.5	0.015	40
ER32D14	13–14	14	0.015	40
ER32D15	14–15	15	0.015	40
ER32D15.5	14.5–15.5	15.5	0.015	40
ER32D16	15–16	16	0.015	40
ER32D16.5	15.5–16.5	16.5	0.015	40

— = the series is outside DIN ISO 15488 Table 1; ask the sales office for clamping range and runout.
DIN K1: standard reference limit (mm), not the product-grade specification; HP target ≤ 0.005 mm at 4×d1.
l12: test-mandrel diagram, section 20.

DIN ISO 15488
ER collets

11 Collets — Order Codes (continued)

Stocked sizes · standard and HP grades · DIN ISO 15488 where applicable

ER32 (continued)

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER32D17	16–17	17	0.015	40
ER32D17.5	16.5–17.5	17.5	0.015	40
ER32D18	17–18	18	0.015	40
ER32D18.5	17.5–18.5	18.5	0.015	50
ER32D19	18–19	19	0.015	50
ER32D20	19–20	20	0.015	50
ER32D21	20–21	21	0.015	50
ER32D22	21–22	22	0.015	50
ER32D23	22–23	23	0.015	50
ER32D24	23–24	24	0.015	50
ER32D25	24–25	25	0.015	50

ER40 · 27 stocked sizes · ød2 40 · l1 46

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER40D05	4–5	5	0.010	16
ER40D06	5–6	6	0.010	16
ER40D07	6–7	7	0.010	25
ER40D08	7–8	8	0.010	25
ER40D09	8–9	9	0.010	25
ER40D10	9–10	10	0.010	25
ER40D11	10–11	11	0.015	40
ER40D12	11–12	12	0.015	40
ER40D13	12–13	13	0.015	40
ER40D14	13–14	14	0.015	40
ER40D15	14–15	15	0.015	40
ER40D17	16–17	17	0.015	40
ER40D18	17–18	18	0.015	40
ER40D19	18–19	19	0.015	50
ER40D20	19–20	20	0.015	50
ER40D21	20–21	21	0.015	50
ER40D22	21–22	22	0.015	50
ER40D23	22–23	23	0.015	50
ER40D24	23–24	24	0.015	50
ER40D25	24–25	25	0.015	50
ER40D26	25–26	26	0.015	50

ER40 (continued)

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER40D27	26–27	27	—	—
ER40D28	27–28	28	—	—
ER40D29	28–29	29	—	—
ER40D30	29–30	30	—	—
ER40D31	30–31	31	—	—
ER40D32	31–32	32	—	—

ER50 · 22 stocked sizes

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER50D08	—	8	—	—
ER50D09	—	9	—	—
ER50D10	—	10	—	—
ER50D12	—	12	—	—
ER50D14	—	14	—	—
ER50D16	—	16	—	—
ER50D18	—	18	—	—
ER50D19	—	19	—	—
ER50D20	—	20	—	—
ER50D21	—	21	—	—
ER50D23	—	23	—	—
ER50D24	—	24	—	—
ER50D25	—	25	—	—
ER50D26	—	26	—	—
ER50D27	—	27	—	—
ER50D28	—	28	—	—
ER50D29	—	29	—	—
ER50D31	—	31	—	—
ER50D32	—	32	—	—
ER50D33	—	33	—	—
ER50D34	—	34	—	—
ER50D35	—	35	—	—

— = the series is outside DIN ISO 15488 Table 1; ask the sales office for clamping range and runout.
DIN K1: standard reference limit (mm), not the product-grade specification; HP target ≤ 0.005 mm at 4×d1.
l12: test-mandrel diagram, section 20.

DIN ISO 15488
ER collets

11 Collets — Order Codes (continued)

Stocked sizes · standard and HP grades · DIN ISO 15488 where applicable

ERC16 · 7 stocked sizes

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ERC16D03	—	3	—	—
ERC16D04	—	4	—	—
ERC16D05	—	5	—	—
ERC16D06	—	6	—	—
ERC16HPD06	—	6	—	—
ERC16D08	—	8	—	—
ERC16D10	—	10	—	—

ERC25 · 9 stocked sizes

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ERC25D03	—	3	—	—
ERC25D04	—	4	—	—
ERC25D06	—	6	—	—
ERC25HPD06	—	6	—	—
ERC25D08	—	8	—	—
ERC25D10	—	10	—	—
ERC25D12	—	12	—	—
ERC25D14	—	14	—	—
ERC25D16	—	16	—	—

ERC32 · 13 stocked sizes

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ERC32D03	—	3	—	—
ERC32D04	—	4	—	—
ERC32D05	—	5	—	—
ERC32D06	—	6	—	—
ERC32D08	—	8	—	—
ERC32D10	—	10	—	—
ERC32HPD10	—	10	—	—
ERC32D12	—	12	—	—
ERC32D14	—	14	—	—
ERC32D16	—	16	—	—
ERC32D18	—	18	—	—
ERC32D20	—	20	—	—
ERC32HPD20	—	20	—	—

ERC40 · 3 stocked sizes

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ERC40D20	—	20	—	—
ERC40HPD21	—	21	—	—
ERC40HPD25	—	25	—	—

EOC25 · 7 stocked sizes

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
EOC25D03.5	—	3.5	—	—
EOC25D05	—	5	—	—
EOC25D08.5	—	8.5	—	—
EOC25D14	—	14	—	—
EOC25D14.5	—	14.5	—	—
EOC25D24	—	24	—	—
EOC25D25	—	25	—	—

ER11 HP · 3 stocked sizes · ød2 11 · l1 18

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER11HPD03	—	3	0.010	10
ER11HPD04	—	4	0.010	16
ER11HPD06	—	6	0.010	16

ER16 HP · 12 stocked sizes · ød2 16 · l1 27.5

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER16HPD01	0.5–1	1	0.010	6
ER16HPD01,5	1–1.5	1.5	0.010	6
ER16HPD02	1–2	2	0.010	10
ER16HPD03	2–3	3	0.010	10
ER16HPD04	3–4	4	0.010	16
ER16HPD05	4–5	5	0.010	16
ER16HPD06	5–6	6	0.010	16
ER16HPD07	6–7	7	0.010	25
ER16HPD08	7–8	8	0.010	25
ER16HPD09	8–9	9	0.010	25
ER16HPD10	9–10	10	0.010	25
ER16HPD12	11–12	12	0.015	40

— = the series is outside DIN ISO 15488 Table 1; ask the sales office for clamping range and runout.
DIN K1: standard reference limit (mm), not the product-grade specification; HP target ≤ 0.005 mm at 4×d1.
l12: test-mandrel diagram, section 20.

DIN ISO 15488
ER collets

11 Collets — Order Codes (continued)

Stocked sizes · standard and HP grades · DIN ISO 15488 where applicable

ER20 HP · 5 stocked sizes · ød2 20 · l1 31.5

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER20HPD07	6–7	7	0.010	25
ER20HPD08	7–8	8	0.010	25
ER20HPD10	9–10	10	0.010	25
ER20HPD12	11–12	12	0.015	40
ER20HPD13	12–13	13	0.015	40

ER25 HP · 16 stocked sizes · ød2 25 · l1 34

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER25HPD01	0.5–1	1	0.010	6
ER25HPD02	1–2	2	0.010	10
ER25HPD03	2–3	3	0.010	10
ER25HPD04	3–4	4	0.010	16
ER25HPD05	4–5	5	0.010	16
ER25HPD06	5–6	6	0.010	16
ER25HPD07	6–7	7	0.010	25
ER25HPD08	7–8	8	0.010	25
ER25HPD09	8–9	9	0.010	25
ER25HPD10	9–10	10	0.010	25
ER25HPD11	10–11	11	0.015	40
ER25HPD12	11–12	12	0.015	40
ER25HPD13	12–13	13	0.015	40
ER25HPD14	13–14	14	0.015	40
ER25HPD15	14–15	15	0.015	40
ER25HPD16	15–16	16	0.015	40

ER32 HP · 19 stocked sizes · ød2 32 · l1 40

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER32HPD02	1.5–2	2	0.010	10
ER32HPD02,5	2–2.5	2.5	0.010	10
ER32HPD03	2–3	3	0.010	10
ER32HPD04	3–4	4	0.010	16
ER32HPD05	4–5	5	0.010	16
ER32HPD06	5–6	6	0.010	16
ER32HPD07	6–7	7	0.010	25
ER32HPD08	7–8	8	0.010	25

ER32 HP (continued)

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER32HPD09	8–9	9	0.010	25
ER32HPD10	9–10	10	0.010	25
ER32HPD11	10–11	11	0.015	40
ER32HPD12	11–12	12	0.015	40
ER32HPD13	12–13	13	0.015	40
ER32HPD14	13–14	14	0.015	40
ER32HPD15	14–15	15	0.015	40
ER32HPD16	15–16	16	0.015	40
ER32HPD17	16–17	17	0.015	40
ER32HPD18	17–18	18	0.015	40
ER32HPD20	19–20	20	0.015	50

ER40 HP · 7 stocked sizes · ød2 40 · l1 46

COD.	Clamping (mm)	d1 (mm)	DIN K1	l12
ER40HPD03	2.5–3	3	0.010	10
ER40HPD10	9–10	10	0.010	25
ER40HPD12	11–12	12	0.015	40
ER40HPD16	15–16	16	0.015	40
ER40HPD17	16–17	17	0.015	40
ER40HPD21	20–21	21	0.015	50
ER40HPD25	24–25	25	0.015	50

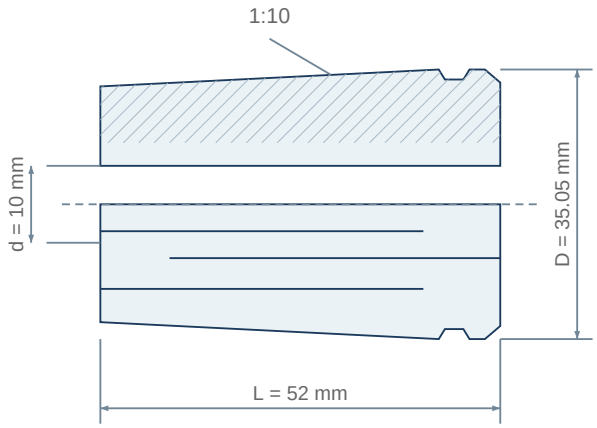
— = the series is outside DIN ISO 15488 Table 1; ask the sales office for clamping range and runout.
DIN K1: standard reference limit (mm), not the product-grade specification; HP target ≤ 0.005 mm at 4×d1.
l12: test-mandrel diagram, section 20.

12 EOC Collets

DIN 6388 / ISO 10897 · 1:10

EOC / OZ is a different collet system from ER. Its shallow 1:10 taper, extraction groove and matching nut must be selected as one compatible system. Confirm the form as well as the size.

EOC25 / OZ25 — half-section



Unquoted details illustrative



EOC25 · d10 mm

Family dimensions / mm

Series	Ref.	d (mm)	D (mm)	L (mm)	Type ref.
EOC 6	0578	1–6	11.50	21.0	400E
EOC 8	0624	1–8	14.50	26.0	401E
EOC 10	0633	1–10	17.20	30.0	404E
EOC 12	0645	1–12	19.80	34.0	407E
EOC 16	0768	2–16	25.50	40.0	415E
EOC 20	0783	2–20	29.80	45.0	4541E
EOC 25	0769	2–25	35.05	52.0	462E
EOC 32	0770	3–32	43.70	60.0	467E
EOC 40	0802	8–40	52.20	68.0	468E

Family ranges describe the size series, not the collapse range of a single collet. Reference numbers are not TNT order codes. Published TNT EOC25 codes are listed in the order-code section.

Before ordering

Confirm EOC / OZ form, nominal bore, mating holder and nut.
ER and EOC are not interchangeable.

13 Clamping Nuts

Standard, mini, bearing and sealed executions

Match the nut to the holder thread, ER series and nut execution. Mini, bearing and sealed nuts can have different envelopes and wrench interfaces. The dimensions below are the held DIN reference, not a universal table for every execution.

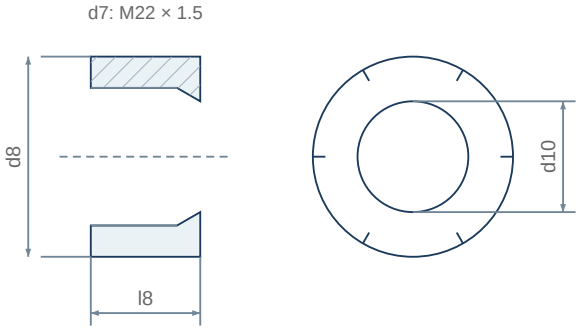


DIN ISO 15488 / Table 3 — nut reference dimensions

Series	d7	d8 (mm)	l8 (mm)	d10 (mm)
ER11	M14 × 0.75	19	11.3	12.1
ER16	M22 × 1.5	32	17.5	17.71
ER20	M25 × 1.5	35	19	21.76
ER25	M32 × 1.5	42	20	26.84
ER32	M40 × 1.5	50	22.5	33.57
ER40	M50 × 1.5	63	25.5	41.86

d7 = mating thread; d8 = external reference size; l8 = overall length; d10 = front aperture. Confirm the actual nut drawing, permissible speed and tightening torque for the selected product.

ER16 — longitudinal section and end view



d8 and l8 refer to the DIN table above. The end view identifies the front opening and wrench access. Unquoted internal details are illustrative.

14 ER Clamping Nuts & Wrenches

All ER series · Mini / Hex / Standard / Precision / High-speed

Clamping nuts (ghiere) secure the ER collet inside the toolholder. Choosing the correct nut type affects clamping force, run-out, tool pull-out resistance, and suitability for high-speed spindles.

Torque wrenches ensure consistent, repeatable clamping to specification and prevent over-tightening which can reduce collet life.



Type	ER Range	Notes
Mini nut	ER 8–25	Low-profile, for compact toolholders
Hex nut	ER 11–40	Most common; fixed-key tightening
Standard nut	ER 16–50	Right-hand & left-hand thread
High-precision nut	ER 11–32	Run-out ≤ 3 µm
Ball-bearing nut (GA)	ER 16–40	Reduces tool pull-out effect
GA-E high-speed nut	ER 11–40	Balanced for high-speed spindles
Mini wrench (CH Mini)	ER 8–25	Open-end, for mini nuts — 5 sizes
Hex-nut wrench (CE)	ER 11–20	Open-end, for hex-type nuts
Standard wrench (ST)	ER 16–50	Hook-end, for standard nuts
Side-grip wrench (GOC)	ER 11–40	Hook with lateral grip
Precision ring wrench	ER 16–32	Ring-type, for high-precision nuts
Mini torque wrench	ER 8–25	8 – 40 Nm, click-type
Torque wrench (CE)	ER 11–20	20 – 70 Nm, for hex nuts

Nut sets available. Torque wrenches recommended for repeatable clamping accuracy.

Fit the wrench to the nut

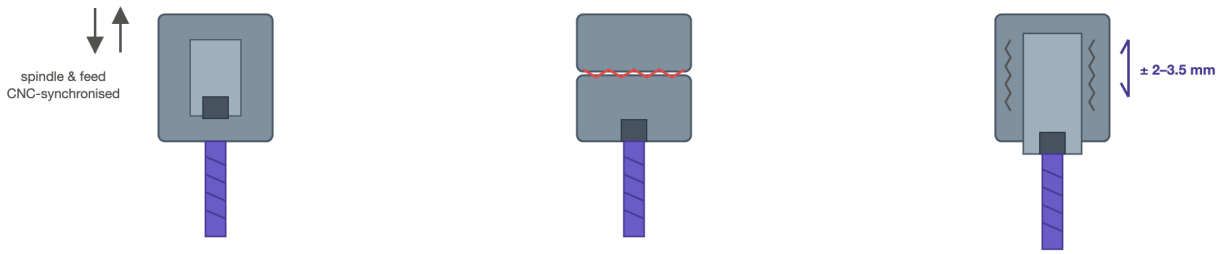
Match the exact nut style and size; ER series alone does not identify the wrench.
Use the specified tightening torque for the actual nut and tool diameter.

15 Tapping — A Buyer's Guide

Rigid GT12 · torque-limiting clutch · floating compensation — matched to your machine

Tapping breaks more tools than any other operation, because a tap must screw itself into the hole at exactly its own pitch. The tap holder — not the tap — decides whether a feed/pitch mismatch snaps the tool. Match the system to the machine:

Tapping Systems — Rigid, Torque-Clutch, Floating



RIGID (GT12, no clutch)

Machine has rigid-tapping G-code: spindle angle and Z-feed locked to thread pitch. Zero float = best thread position accuracy. Simplest and longest-lived.

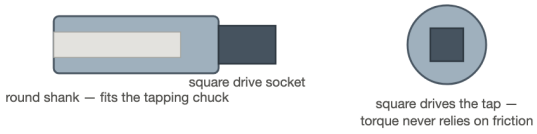
TORQUE-LIMITING CLUTCH

Clutch slips at a preset torque: tap bottoms in a blind hole or hits hard material → holder keeps turning, tap doesn't snap. For pneumatic arms and older CNCs.

FLOATING (compensazione)

Spring-loaded float, tension AND compression: the tap follows its own pitch when RPM and feed don't match. Manual machines, tappers, deep holes.

GT12 tapping collet anatomy



Taps transmit torque through their SQUARE — a round collet alone will slip and break the tap. GT12 (JIS B4302) collets hold the tap by both the round shank and the square drive end. Series: GT12 (M3–M16) · GR15 (M3–M20) · GR20 (M6–M30) — 65Mn spring steel, hardened. Tap-holder SLEEVES do the same job inside a standard ER square-bore system (Series B rigid, B-GR with built-in slip clutch).

The blind-hole rule

A tap that bottoms out in a blind hole stops dead — something must give. On a rigid holder that something is the tap. Use a torque-limiting clutch (GT12 clutch version or B-GR sleeve) for blind holes on any machine without perfectly calibrated depth control, and always program a dwell/reverse before the tap reaches the bottom.

16 Tapping Collets

Rigid and torque-limiting quick-change tap collets

Select the quick-change system to match the holder. Then match the actual tap shank diameter and driving square. The thread designation alone does not identify the correct collet.

- Rigid: for a machine with synchronised rigid tapping.
- Clutch: selected preset torque; verify the exact execution.
- GT12, GT24 and GT42 identify the holder-side family.



With torque-limiting clutch



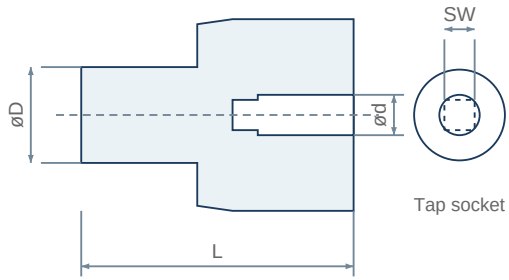
Rigid (without clutch)

Dimension selection — obtain the actual holder and tap drawing

System	D (mm)	d (mm)	SW (mm)	L (mm)
GT12 / GT24 / GT42	Confirm model	Measure tap	Measure tap	Confirm model

D: holder-side mounting shank; d: round tap-shank bore; SW: driving square across flats; L: overall adapter length. GT family alone does not specify these dimensions. Choose rigid or torque-limiting execution and confirm the torque setting.

Dimensional key — representative GT12 profile



øD: mounting shank. ød: tap shank bore. SW: tap square across flats. L: adapter length. Profile is illustrative; match the actual holder and tap.

17 ER-AM Tension Compensation

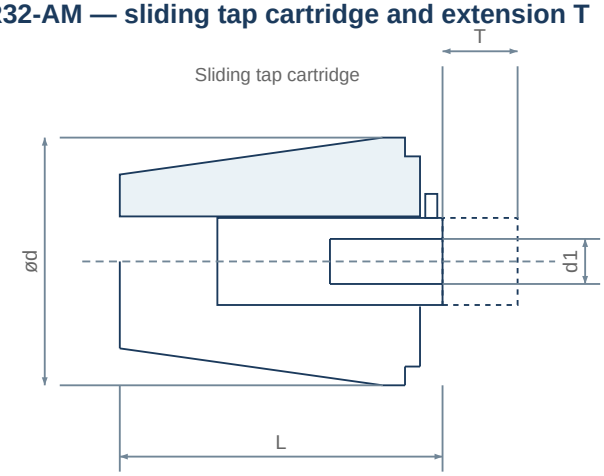
ER-AM compensating collets fit an ER holder and carry the tap in a sliding cartridge. The tap is secured by set screws in the moving element. The listed travel T is extension in tension, not a symmetric ± value.

ER-AM reference dimensions / mm

Series	d1 (mm)	d (mm)	L (mm)	T (mm)
ER16 AM	2.0–6.0	17	27	7
ER20 AM	2.5–7.0	21	31	7
ER25 AM	2.5–10.0	26	34	8
ER32 AM	4.5–12.5	33	43	10
ER40 AM	6.0–16.0	41	54	13

Dimensions and travel from the held supplier catalogue. Confirm the selected bore and stop ring when ordering.

ER32-AM — sliding tap cartridge and extension T



d1: tap-shank bore. ød, L and T correspond to the table. T is tension extension. Unquoted cartridge, groove and screw details are illustrative.

Keep these systems separate

ER-AM tension-compensating collets are not GT quick-change collets. A separate tension/compression tapping chuck has its own interface and travel specification.

18 Tap Holder Sleeves

For ER collet tap holders · Rigid & Slip-clutch versions

Tap holder sleeves fit inside ER collet holders to grip taps by their square drive. Series B is rigid (no clutch) for blind holes; Series B-GR includes an adjustable slip clutch to protect taps from breakage when breaking through.

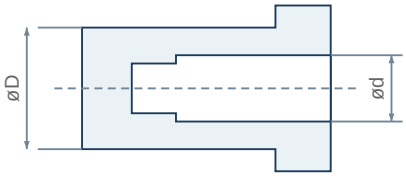
Grub-screw variants (B/B-GR-G) add radial locking for Weldon-flat tap shanks. Compatible with all ER-series toolholders. Complete assorted kits available in storage case.



Series	Tap thread	D (mm)	d (mm)	Type
B	M 1 – M 5	8 – 16	4 – 7	Rigid (no clutch)
B	M 5 – M 10	12 – 20	6 – 12	Rigid (no clutch)
B	M 10 – M 20	16 – 25	10 – 20	Rigid (no clutch)
B	M 20 – M 33	25 – 40	18 – 32	Rigid (no clutch)
B-GR	M 1 – M 5	8 – 16	4 – 7	Slip clutch
B-GR	M 5 – M 10	12 – 20	6 – 12	Slip clutch
B-GR	M 10 – M 20	16 – 25	10 – 20	Slip clutch
B-GR	M 20 – M 33	25 – 40	18 – 32	Slip clutch
B/B-GR	Complete kit	—	—	Assorted set in case

Also available: grub-screw variants (for Weldon-flat tap shanks) and sleeves with integrated ER collet.

Tap holder sleeve — outer øD, bore ød, square socket



øD: mounting diameter. ød: tap shank bore. Socket details depend on the chosen tap standard.

19 Pull Studs & Retention Knobs

BT · CAT · ISO · HSK · DIN 69872 · MAS 403 · JIS B6339 · ANSI B5.50

Pull studs (retention knobs) are the critical safety link between the toolholder and the machine spindle drawbar. The wrong thread standard or head form = uncontrolled tool release at cutting speed.

Material, heat treatment and coolant execution depend on the selected pull stud. Confirm the grade, head form and inspection requirements against the machine drawing before ordering.

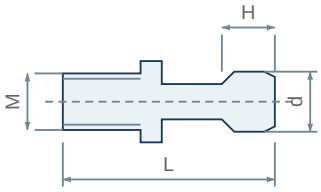


- BT30, BT40, BT50 — MAS 403 / JIS B6339 (MAS-I 45° and MAS-II 60° head forms)
- CAT40, CAT50 — ANSI B5.50 (V-flange, North American spindles)
- ISO40, ISO50 — ISO 7388-2B / DIN 69872 (European VMCs)
- HSK-A63, HSK-A100 — DIN 69893 (no pull stud — integral clamping)
- Through-coolant bore + O-ring sealed variants available
- MOQ: 50 pcs (single) or 10-pc sets (SET suffix)

Material & Quality Specifications

Property	Specification
Material	SCM435 (Cr-Mo) / S45C (carbon steel), by execution
Case hardening	0.4–0.5 mm depth (induction hardened), HRC 58 ± 2
Tensile strength	800–1,000 N/mm²
Thread runout	≤ 0.005 mm (ISO 7388-3)
Surface finish	Black oxidised, precision ground

Pull stud — thread M, head d, length L



DIN 69872 / ISO 7388-3 Configuration Types — Coolant & O-ring

Form	Coolant Bore	O-Ring Groove	Typical Application
Standard	No	No	Dry or external coolant — most common general purpose
Form A	Yes	No	Through-spindle coolant (TSC) — coolant bore through stud axis
Form F	No	Yes	Coolant-sealed spindle — O-ring prevents coolant entry into drawbar
Form A+F	Yes	Yes	TSC + sealed spindle — highest spec, used in HSC machining centres

Thread Size & Pull Force Reference (Generic)

Taper	Standard	M (thread)	Pull Force (ATC)	Typical Machines
BT30	MAS 403 / JIS B6339	M12 × 1.75	—	Compact VMC, CNC lathes
BT40	MAS 403 / JIS B6339	M16 × 2.0	—	Standard VMC/HMC (most common)
BT50	MAS 403 / JIS B6339	M24 × 3.0	—	Heavy-duty VMC/HMC
CAT40	ANSI B5.50	5/8-11 UNC	—	North American machining centres
ISO40	DIN 69872 / ISO 7388-2	M16 × 2.0	—	European VMC, Heckert, Deckel-Maho
ISO50	DIN 69872 / ISO 7388-2	M24 × 3.0	—	Large European VMC/HMC

Machine-specific dimensions

L (mm)	d (mm)	H (mm)
Per machine drawing	Per machine drawing	Per machine drawing

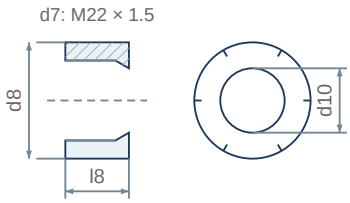
Critical: always confirm head form against your spindle drawbar

BT40 pull studs come in MAS-I (45°) and MAS-II (60°) variants — same M16 thread, different head geometry. Send us your machine model and we confirm the exact form required.

20 Standard — Dimension References

Clamping nut / DIN Table 3 — selected dimensions

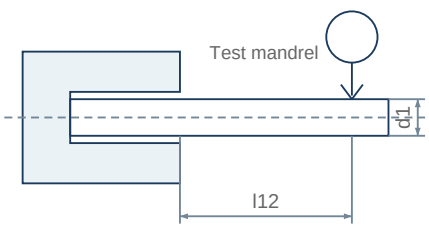
Series	d7 (thread)	d8 (mm)	d10 (mm)	l8 (mm)
ER11	M14 × 0.75	19	12.1	11.3
ER16	M22 × 1.5	32	17.71	17.5
ER20	M25 × 1.5	35	21.76	19
ER25	M32 × 1.5	42	26.84	20
ER32	M40 × 1.5	50	33.57	22.5
ER40	M50 × 1.5	63	41.86	25.5



d7: mating thread. d8: outside reference size. d10: front opening. l8: overall length. ER16 illustrated; details not dimensioned are indicative.

Radial runout — test at distance l12 from the nut face

d1 lower* (mm)	d1 ≤ (mm)	l12 (mm)	Klasse 1 (mm)	Klasse 2 (mm)
1	1.6	6	0.010	0.015
1.6	3	10	0.010	0.015
3	6	16	0.010	0.015
6	10	25	0.010	0.015
10	18	40	0.015	0.020
18	26	50	0.015	0.020



* Lower limit exclusive, except 1 mm inclusive. d1: test-mandrel diameter, equal to nominal collet bore. l12: nut face to indicator contact. Report total indicated runout at this distance. Test mandrel: h6, form limits 0.002 mm; Rz ≤ 4 µm; hardness 58 +3/0 HRC.

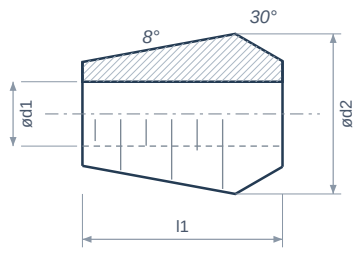
20 Collet Reference — Continued

DIN Table 1 — bore ranges and reference dimensions

Series	d1 / A (mm)	d1 / B (mm)	d2 (mm)	l1 max (mm)
ER11	1–<3 · 3–6	1–2.5 · 3–6	11	18
ER16	1–<5 · 5–10	1–4 · 5–10	16	27.5
ER20	1–<7 · 7–13	1–6 · 7–13	20	31.5
ER25	1–<8 · 8–16	2–7 · 8–16	25	34
ER32	2–<8 · 8–20	2–7 · 8–20	32	40
ER40	3–<9 · 9–26	4–8 · 9–26	40	46

d1 is the nominal bore: listed spans identify standard sizes by form, not one collet's collapse range. For series 16–40, the standard allows -0/-1 mm, or -0/-0.5 mm by agreement. Consult the complete standard for tolerances and manufacturing geometry.

ER32 — d1 bore; d2 taper reference; l1 overall length



The same symbols appear in the ER family table and order-code section. d2 and l1 are size references; d1 changes with the selected nominal bore.

Standard forms — identify the execution before ordering

Form	Number of slots	Reference
A	6–8	DIN ISO 15488
B	12–16	DIN ISO 15488

Selected reference dimensions reproduced as original linework and tables from the held DIN ISO 15488:2006-01. Product-specific drawings take precedence for non-standard executions.

21 Standards & Specifications Reference

Standards Referenced in This Catalogue

Standard	Scope	Applies to
DIN 6499 / ISO 15488	ER collet dimensions and tolerances	ER8–ER50
JIS B6339	BT toolholder tapers and pull stud threads	BT30, BT40, BT50
MAS 403	Pull stud geometry for BT spindles	BT (MAS-I · MAS-II)
ANSI B5.50 / MAS 404	CAT V-flange toolholders and pull studs	CAT40, CAT50
ISO 7388-1	ISO steep-taper toolholders (SK / DIN 2080)	ISO30, ISO40, ISO50
ISO 7388-2B	Pull stud geometry for ISO spindles	ISO pull studs
DIN 69872	Pull stud / retention knob dimensions	BT / ISO pull studs
ISO 12164 (HSK)	Hollow shank taper interface dimensions	HSK-A, E, F
ISO 1947 / ISO 1940	Toolholder balance grading (G6.3, G2.5)	Balanced toolholders
JIS B4302	Tapping collet shank geometry and sizing	GT12 tapping collets

Runout & Precision Grades — Quick Reference

Grade	Runout at 4×D	Typical Application
Standard ER collet	≤ 0.008 mm	General machining, drilling, rough milling
High Precision (HP) ER	≤ 0.005 mm	Finishing, reaming, precision boring
Hydraulic chuck	≤ 0.003 mm	Fine boring, carbide reaming, mirror finish
Shrink fit holder	≤ 0.003 mm	High-speed machining, 5-axis, HSM
Weldon end mill holder	≤ 0.010 mm	Heavy milling, high-torque roughing

Balance Grade Reference — ISO 1940 / ISO 1947

Balance Grade	Max Residual Imbalance	Typical Spindle Speed	Application
G6.3	6.3 mm/s	< 10,000 RPM	General-purpose toolholders
G2.5	2.5 mm/s	10,000–20,000 RPM	Standard high-speed toolholders (TNT default)
G1.0	1.0 mm/s	20,000–40,000 RPM	Precision high-speed toolholders

Concentricity reference — collet chuck adapters (DIN 6499)

TIR measured at 3× collet clamping diameter from nut face: 0.5–3 mm bore: max TIR 0.015–0.020 mm · 3–10 mm bore: max TIR 0.020 mm · 10–20 mm bore: max TIR 0.030 mm · 20–30 mm bore: max TIR 0.030 mm

22 Order the Right Configuration

TNT Motion

info@tntbearings.com · +39 347 619 0296

Send the full published code where available. For a configuration without a published code, include the details below so we can confirm the correct drawing and quotation.

Before requesting a quotation

Product family	Include with the enquiry
ER / ERC / EOC	Series, nominal bore, precision grade, coolant execution, quantity
Toolholders	Spindle interface and form, tool-side system, gauge length, speed
Tapping	Holder system, tap shank, driving square, rigid or clutch, torque
ER-AM	ER series, actual tap bore, required tension travel
Pull studs	Machine make/model, exact drawing, thread, head form, coolant path
Nuts & wrenches	ER series, holder thread, nut type, wrench engagement

What the tables cover

The order-code section lists identified ER, ERC, EOC25 and HP items. Other configurations require drawing and code confirmation.

A reference table or illustration is not a stock promise. Confirm dimensions, availability, inspection limits and delivery for the chosen item.

Request a drawing or quotation

tntbearings.com/quotation