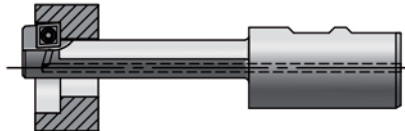


| | | | | |
|--------------------------|-------|--------------------------|----------------------------|---------|
| RBSM | RBSM | RBS+ | RBS+ für / for $d > 20$ | RFS |
| max. $1,9 \times d_1$ | TiAlN | max. $1,8 \times d_1$ | | |
| GG(G) | ALU | NE | NE | ST(AHL) |

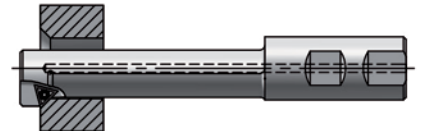
Rückwärtsbohrstange RBS-Micro RBSM Reverse boring bar RBS-Micro RBSM



Rückwärtsbohrstange RBS+ Reverse boring bar RBS+



Rückwärtsfasstange RFS Reverse chamfering bar RFS

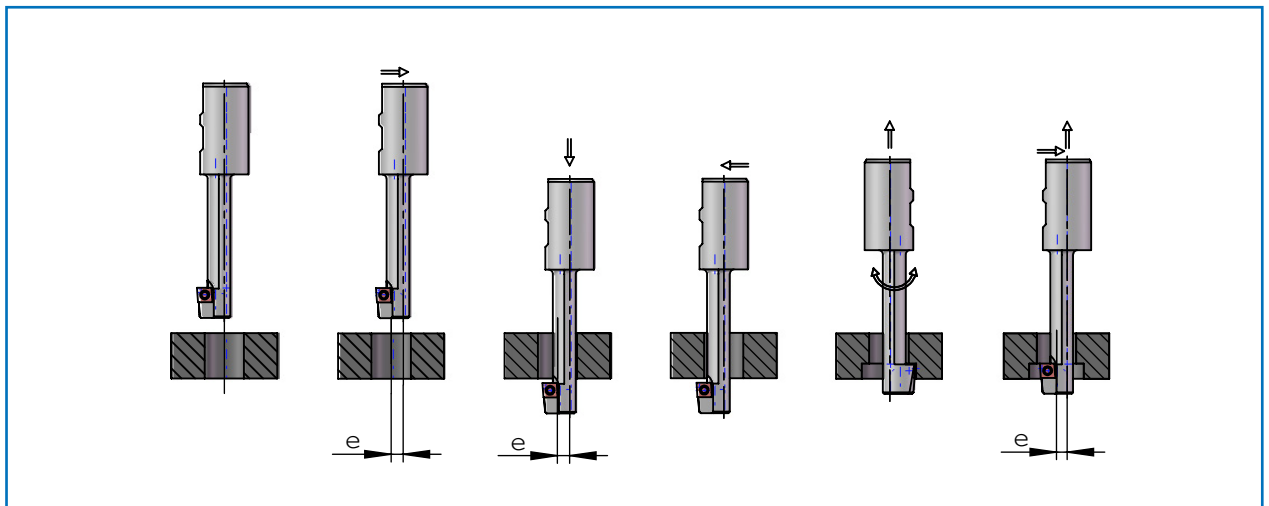


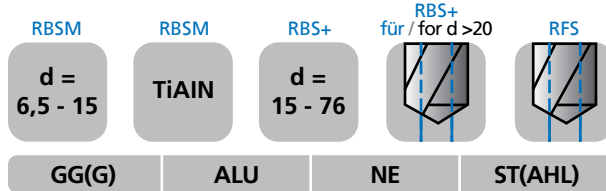
Vorteile:

- Plansenken, Aufbohren oder Anfasen schwer zugänglicher Stellen
- Für Senkungen für Zylinderkopfschrauben von M3 bis M48 in allen gängigen Werkstoffen
- Senkdurchmesser bis zum 1,9-fachen Bohrungsdurchmesser
- Hochfester, oberflächenbehandelter und FEM-optimierter RBS+- und RFS-Grundkörper
- RBS-Micro aus Vollhartmetall mit max. Steifigkeit durch hohes E-Modul
- Innenkühlung bei RFS und RBS+ ab $d=20$
- Große Auswahl verschiedener PKD-, HM- und HSS-Wendeschneidplatten
- Viele Sonderausführungen auch für größere Schnittbreiten in Schwermetall- oder VHM-Ausführung, verstellbar für enge Passungen und für Radien, Rillen und mehrstufig kurzfristig lieferbar; bitte Fragebogen auf S. 15 oder unter www.hermann-bilz.de verwenden

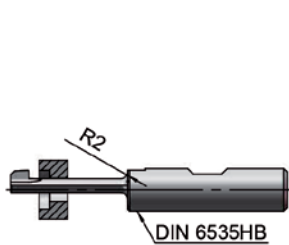
Advantages:

- For spotfacing, chamfering and deep counterboring of areas with difficult access
- For screw head counterbores M3 to M48 in all common materials
- For counterboring up to 1.9 times the bore diameter
- RBS+ and RFS are very stable and rigid with surface treatment and FEM-optimized geometry
- Large E-modulus of solid-carbide RBS-Micro ensure max. stability
- Internal coolant for RFS and RBS+ starting from $d=20$
- Wide choice of different PCD-, carbide- and HSS-indexable inserts
- For requests of specials e. g. for larger cutting width, in solid carbide or heavy metal, adjustable, for radiuses, grooves and chamfers please use the Technical Questionnaire on page 15 or at www.hermann-bilz.de

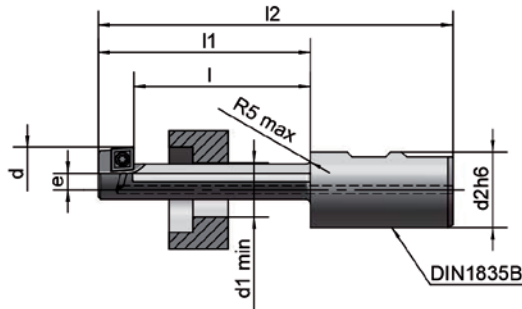




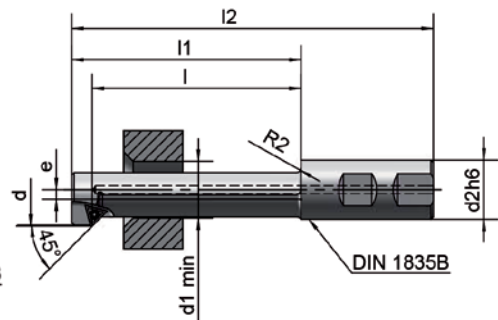
**Rückwärtsbohrstange
RBS-Micro RBSM
Reverse boring bar
RBS-Micro RBSM**



**Rückwärtsbohrstange RBS+
Reverse boring bar RBS+**



**Rückwärtsfasstange RFS
Reverse chamfering bar RFS**



RBSM/RBS+/RFS

| d | d _{1min} | l | d ₂ | e | l ₁ | l ₂ | Best.-Nr.* Ord.-No |
|---|-------------------|----|----------------|------|----------------|----------------|-----------------------|
| RBS-Micro RBSM (Vollhartmetall, links drehend) RBS-Micro RBSM (solid carbide, counter clockwise) | | | | | | | |
| 6,5 | 3,4 | 12 | 8 | 1,65 | 15,4 | 51,4 | RBSM 34065 |
| 8 | 4,5 | 19 | 10 | 1,85 | 23 | 63 | RBSM 45080 |
| 10 | 5,5 | 23 | 12 | 2,4 | 28 | 73 | RBSM 55100 |
| 11 | 6,6 | 28 | 12 | 2,4 | 33 | 78 | RBSM 66110 |
| 15 | 9,0 | 35 | 16 | 3,2 | 42 | 90 | RBSM 90150 |









| RBS+ (WSP-Ausführung, links drehend) RBS+ (indexable insert version, counter clockwise) | | | | | | | | | ** | ** |
|--|------|-----|----|------|-----|-----|---------------|----------|-----------|----|
| 15 | 9,0 | 35 | 20 | 3,2 | 45 | 95 | RBS 081509020 | 100264 | TX 206 | 04 |
| 18 | 10,5 | 40 | 25 | 4,0 | 52 | 108 | RBS 101810525 | TX 25050 | TX 108-25 | 06 |
| 20 | 13,0 | 45 | 25 | 3,7 | 57 | 113 | RBS 122013025 | TX 25050 | TX 108-25 | 06 |
| 24 | 15,0 | 55 | 25 | 4,7 | 67 | 123 | RBS 142415025 | TX 25050 | TX 108-25 | 06 |
| 26 | 17,0 | 55 | 25 | 4,7 | 67 | 123 | RBS 162617025 | TX 25050 | TX 108-25 | 06 |
| 30 | 19,0 | 65 | 25 | 6,0 | 77 | 133 | RBS 183019025 | TX 25050 | TX 108-25 | 06 |
| 33 | 21,0 | 70 | 25 | 6,5 | 85 | 141 | RBS 203321025 | TX 35075 | TX 115-35 | 09 |
| 36 | 23,0 | 75 | 32 | 7,0 | 90 | 150 | RBS 223623032 | TX 35075 | TX 115-35 | 09 |
| 40 | 25,0 | 85 | 32 | 8,0 | 100 | 160 | RBS 244025032 | TX 35075 | TX 115-35 | 09 |
| 43 | 30,0 | 90 | 32 | 7,0 | 105 | 165 | RBS 274330032 | TX 35075 | TX 115-35 | 09 |
| 46 | 30,0 | 90 | 32 | 8,5 | 105 | 165 | RBS 274630032 | TX 35075 | TX 115-35 | 09 |
| 48 | 33,0 | 105 | 32 | 8,0 | 120 | 180 | RBS 304833032 | TX 35075 | TX 115-35 | 09 |
| 50 | 33,0 | 105 | 32 | 9,0 | 125 | 185 | RBS 305033032 | TX 45115 | TX 115-45 | 12 |
| 53 | 36,0 | 110 | 40 | 9,0 | 130 | 200 | RBS 335336040 | TX 45115 | TX 115-45 | 12 |
| 54 | 36,0 | 110 | 40 | 9,5 | 130 | 200 | RBS 335436040 | TX 45115 | TX 115-45 | 12 |
| 57 | 39,0 | 120 | 40 | 9,5 | 140 | 210 | RBS 365739040 | TX 45115 | TX 115-45 | 12 |
| 58 | 39,0 | 120 | 40 | 10,0 | 140 | 210 | RBS 365839040 | TX 45115 | TX 115-45 | 12 |
| 66 | 45,0 | 135 | 50 | 11,0 | 155 | 235 | RBS 426645050 | TX 45115 | TX 115-45 | 12 |
| 76 | 52,0 | 155 | 50 | 12,5 | 180 | 260 | RBS 487652050 | TX 45135 | TX 115-45 | 16 |

| RFS (WSP-Ausführung, rechts drehend) RFS (indexable insert version, clockwise) | | | | | | | | | ** | ** |
|---|------|----|----|-----|----|-----|-------------|----------|--------|----|
| 15 | 10,0 | 42 | 16 | 2,7 | 48 | 96 | RFS 01 1015 | TX 20048 | TX 206 | 06 |
| 20 | 14,0 | 48 | 20 | 3,2 | 53 | 103 | RFS 01 1420 | TX 20048 | TX 206 | 06 |
| 23 | 17,5 | 57 | 25 | 3,0 | 67 | 123 | RFS 01 1723 | TX 22060 | TX 207 | 09 |
| 27 | 21,0 | 78 | 25 | 3,5 | 87 | 143 | RFS 01 2127 | TX 22060 | TX 207 | 09 |
| 31 | 24,0 | 88 | 25 | 4,0 | 97 | 153 | RFS 01 2431 | TX 22060 | TX 207 | 09 |

* inkl. / incl.

** separat bestellen / order separately

Wendeschneidplatten für RBS+ und RFS / Indexable inserts for RBS+ und RFS

| RBS+ |  | Best.-Nr. ... Ord.-No. ... | Sorte / Grade | | | | | | | | |
|--|---|-------------------------------|------------------|-----|----|----|----|----|----|----|--|
| | | | AK1 | K1 | K9 | P5 | P9 | S6 | D1 | | |
| Präzisionsgeschliffene Wendeschneidplatten Precision ground Indexable Inserts |  | 06 | MCEX060204FRH... | AK1 | K1 | K9 | P5 | P9 | S6 | | |
| | | 09 | MCEX090304FRH... | AK1 | K1 | K9 | P5 | P9 | S6 | | |
| | | 12 | MCEX120404FRH... | AK1 | K1 | K9 | P5 | P9 | S6 | | |
| | | 16 | MCEX160604FRH... | AK1 | K1 | K9 | P5 | P9 | S6 | | |
| Präzisions-PKD Wechselplatten Precision PCD-Inserts |  | 06 | MCEW060204FR5... | | | | | | | D1 | |
| | | 09 | MCEW090304FR5... | | | | | | | D1 | |
| | | 12 | MCEW120404FR5... | | | | | | | D1 | |
| ISO Wendeschneidplatten ISO-Indexable Inserts |  | 04 | CPGT04T1043... | | | | P2 | P5 | P9 | | |
| | | 06 | MCMT060204EN... | | K1 | | P2 | P5 | P9 | | |
| | | 09 | MCMT090304EN... | | K1 | K9 | P2 | P5 | P9 | | |
| | | 12 | MCMT120404EN... | | K1 | K9 | P2 | P5 | P9 | | |
| | | 16 | MCMT160604EN... | | K1 | | P2 | | | | |
| RFS |  | | | | | | | | | | |
| Präzisionsgeschliffene Wendeschneidplatten Precision ground Indexable Inserts |  | 06 | TCEW060104FN... | | K1 | K9 | | | | | |
| | | 09 | TCEW090204FN... | | K1 | K9 | | | | | |
| Präzisionsgeschliffene Wendeschneidplatten Precision ground Indexable Inserts |  | 06 | TCEX060104FL... | AK1 | K1 | K9 | | | | | |
| | | 09 | TCEX090204FL... | AK1 | K1 | | | P9 | S6 | | |
| ISO Wendeschneidplatten ISO-Indexable Inserts |  | 09 | TCMT090204EN... | | | K9 | | | | | |

Schneidstoffsorten / Grades

| Sorte Grade | DIN ISO 513 | Schneidstoff Cutting material | Anwendungsbeispiel Application example |
|----------------|-------------|----------------------------------|---|
| D1 | DP-N20 | PKD / PCD | Aluminium |
| AK1 | HF-N20 | HM / carbide | Aluminium |
| K1 | HF-K20 | HM / carbide | Grauguss / Grey cast iron |
| K9 | HC-K10 | HM-TiAlN / carbide | Sphäroguss / Nodular cast iron |
| P2 | HF-P30 | HM / carbide | Stahl / Steel |
| P5 | HC-K40/P40 | HM-TiN / carbide | Sphäroguss / Nodular cast iron |
| P9 | HC-P10 | HM-TiAlN / carbide | Stahl hochfest / High alloy steel |
| S6 | - | HSSE-TiN / HSSE | Stahl / Steel |

Bestellbeispiel / Order example:

- 2 Stück / Pieces RFS 011015
- 10 Stück / Pieces TCEX 060104FL K9

Schnittdatenempfehlung / Cutting data recommendation

| Senk-Ø d Counterbore-Ø d mm | | Niedrig legierter Stahl Low alloy steel | Hoch legierter Stahl High alloy steel | Rostfreier Stahl Stainless steel | Grauguss Cast iron | Aluminium |
|-----------------------------------|----|---|---|-------------------------------------|----------------------------|-------------------------|
| | | z.B. / e.g. CK 45 | z.B. / e.g. 42CrMo4V | z.B. / e.g. X15Cr13 | z.B. / e.g. GG26, GGG50 | z.B. / e.g. G-AISI12 |
| HM / Carbide | Vc | 90 - 120 | 100 - 120 | 50 - 90 | 80 - 140 | 100 - 150 |
| HSS | Vc | 20 - 40 | 15 - 30 | 15 - 25 | | |
| 6,5 - 11,0 | f | 0,05 - 0,1 | 0,05 - 0,08 | 0,03 - 0,05 | 0,04 - 0,1 | 0,05 - 0,15 |
| 15,0 - 30,0 | f | 0,03 - 0,1 | 0,03 - 0,08 | 0,03 - 0,1 | 0,04 - 0,12 | 0,05 - 0,15 |
| 33,0 - 76,0 | f | 0,06 - 0,12 | 0,05 - 0,12 | 0,06 - 0,12 | 0,08 - 0,15 | 0,08 - 0,18 |

Schnittgeschwindigkeit
Cutting speed

Vc (m/min)

Vorschub
Infeed

f (mm/U) / (mm/rev)

Ausreichende Kühlschmierstoff-Zufuhr
erforderlich / Sufficient coolant supply needed