

# BOEHLERIT

## Drehschälen Bar peeling



**Mehr Überblick, mehr Wirtschaftlichkeit und kontrollierte Späne:  
A better overview, more economic efficiency and controlled chips:**

in alliance with



|  |   |    |
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Technische Änderungen und Druckfehler vorbehalten.  
Subject to changes from technical development and printing errors.

Boehlerit zählt zu den bedeutendsten Hartmetallherstellern in Europa. Seit 1932 werden bei Boehlerit mit großer Expertise Hartmetalle und hochspezialisierte Werkzeuge für die Hüttentechnik hergestellt.

Das umfassende Engagement von Boehlerit steht einerseits für Innovation, permanente qualitative Weiterentwicklung und Know-how und andererseits für die lange Tradition in der Hüttentechnik. Mit der Eingliederung von Boehlerit im Jahr 1991 in den Leitz Firmenverband etablierte sich Boehlerit als das Schneidstoff-Kompetenzzentrum. Jetzt konnten die gewonnenen Synergien von neuen Dienstleistungen sowie neuen Produktionstechnologien voll genutzt werden.

Diese reichen Erfahrungen und das geballte Know-how stehen im Mittelpunkt der Dienstleistungen und Produkte. Als einen wesentlichen Schwerpunkt in der Hüttentechnik hat Boehlerit das Werkzeugprogramm für das Drehschälen mit Schälkopf, Kassetten, Wendeschneidplatten und Engineeringleistung ausgebaut.

Über das Standardprogramm hinaus punktet Boehlerit vor allem mit der Flexibilität eines mittelständischen Privatunternehmens. Damit können für die Kunden spezifische Sonderlösungen schnell und wirtschaftlich realisiert werden.

Boehlerit is one of Europe's major carbide producers. It has been producing carbides and very special tools for the steel mill industry with great expertise since 1932.

Boehlerit's total commitment stands on the one hand for innovation, permanent qualitative development and know-how, and on the other hand for its long tradition in steel industry mill.

Following its incorporation in the Leitz Group in 1991, Boehlerit has established itself as the cutting materials competence centre. By now the company has been able to take full advantage of the resulting synergies of new services and new production technologies.

This extensive experience and concentrated know-how is the core of services and products. As a main focus in steel mill industry Boehlerit has extended the tool programme for bar peeling with bar peeling heads, cartridges, indexable inserts and engineering performance.

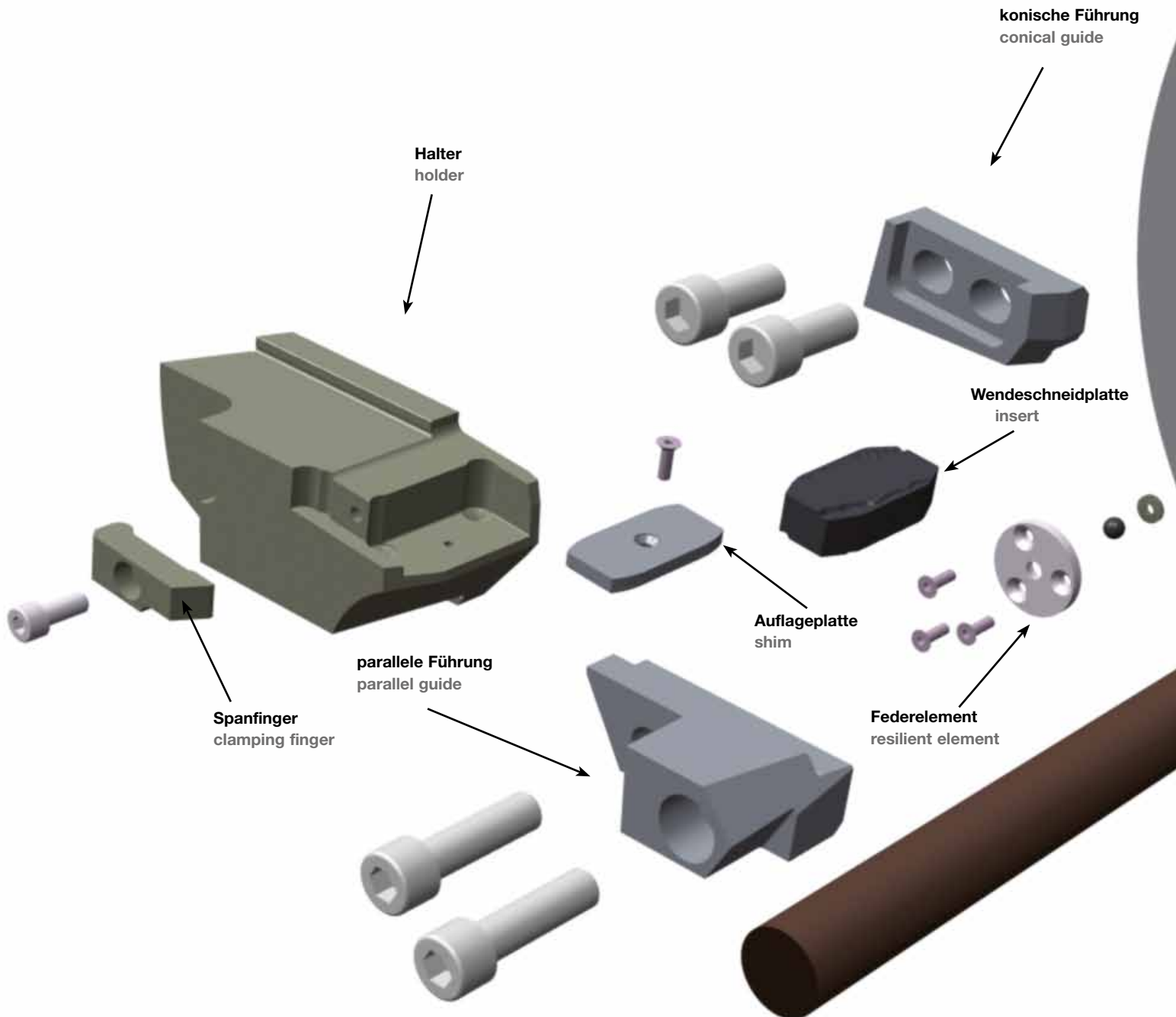
In addition to its standard programme Boehlerit has the extra advantage of having the flexibility that comes from a medium-sized company. As a result specific special solutions can be realized for the customer quickly and economically.

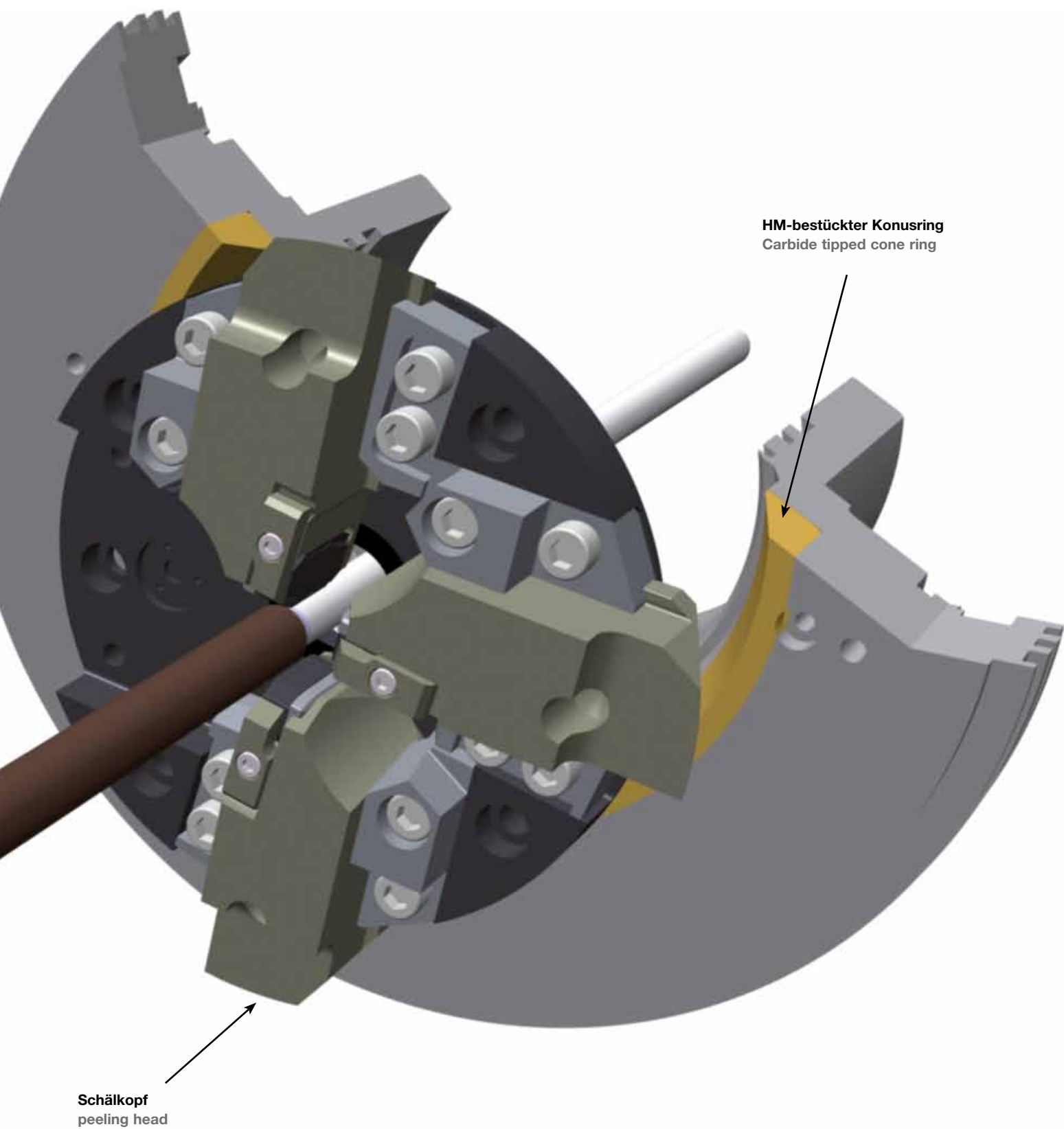
**Technologievorteile**  
**Technological advantage**

**Kundennutzen**  
**Customer benefits**

|  |   |  |
|--|---|--|
| <p>Speziell für Rostfrei und Superlegierungen.<br/>Nanolock Anbindungsschicht - verzahnte Gestaltung des Schichtübergangs<br/>Specially for stainless materials and superalloys.<br/>Nanolock adhesion layer-interlocked design of cross-over between layers</p> |  | <p>Bessere Schichthaftung sowie extrem glatte Oberflächenbeschaffenheit gewährleisten einen verbesserten Spanabfluss (geringere Klebeneigung) und somit eine Erhöhung der Standzeit.<br/>Optimised adhesion of layers as well as extreme smooth surface condition guarantees a better chip flow (lower sticking tendency) and increased tool life.</p> |
| <p>P10 - P45 Substrate für unterschiedliche Einsatzgebiete<br/>P10 - P45 substrates for different applications areas</p>   |  | <p>Stabile Grundsubstrate gewährleisten höchste Bearbeitungssicherheit bei unterschiedlichen Stahlqualitäten.<br/>Stable substrates ensure highest machining security with different steel qualities.</p>  |
| <p>Optimale Span- und Wärmeabfuhr mit speziellen Wendeschneidplattenausführungen<br/>Optimal chip- and heat flow with special insert designs</p>   |  | <p>Unterschiedliche Geometrien ermöglichen eine optimale Bearbeitung verschiedenster Stahlqualitäten.<br/>Different geometries enable an optimal machining of different types of steel qualities.</p>  |
| <p>Spezielle Schicht für die Bearbeitung von niedrig und hochlegierten Kohlenstoff Stählen (gelb)<br/>Special layer for machining low and high alloyed carbon steels (yellow)</p>  |  | <p>Besonders dicke CVD-Schicht für hohe Schnittgeschwindigkeiten und harten Werkstoffen LCP15P<br/>LCP15P with especially thick CVD layer for high cutting speeds and hard materials</p>   |

**Hinweis:** Andere Ausführungen ebenfalls möglich !  
**Hint:** Other designs are also possible

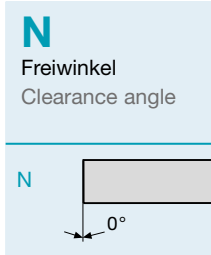




**Bezeichnungssystem für Wendeschneidplatten  
zum Schälen (Boehlerit-Norm)**  
Designation system for indexable inserts for bar peeling  
(Boehlerit standard)

**L**  
Grundform  
Ground form

|   |  |     |
|---|--|-----|
| I |  | --  |
| J |  | --  |
| L |  | 90° |
| R |  | --  |
| S |  | --  |
| T |  | 60° |
| U |  | --  |
| W |  | 75° |
| X |  | 85° |



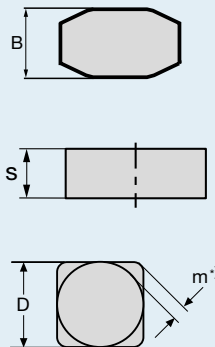
**G**  
Toleranzklasse  
Tolerance class

Zulässige Abweichung für  
Tolerances

|   | m                    | s      | d             |
|---|----------------------|--------|---------------|
| A | ±0,005 <sup>1)</sup> | ±0,025 | ±0,025        |
| C | ±0,013               | ±0,025 | ±0,025        |
| E | ±0,025               | ±0,025 | ±0,025        |
| F | ±0,005 <sup>1)</sup> | ±0,025 | ±0,013        |
| G | ±0,025               | ±0,13  | ±0,025        |
| H | ±0,013               | ±0,025 | ±0,013        |
| J | ±0,005 <sup>1)</sup> | ±0,025 | ±0,05 – ±0,15 |
| K | ±0,013 <sup>1)</sup> | ±0,025 | ±0,05 – ±0,15 |
| L | ±0,025               | ±0,025 | ±0,05 – ±0,15 |
| M | ±0,08 – ±0,20        | ±0,13  | ±0,05 – ±0,15 |
| U | ±0,13 – ±0,38        | ±0,13  | ±0,08 – ±0,25 |

|   | D     | m     | d     |
|---|-------|-------|-------|
| M | 6,35  | ±0,08 | ±0,05 |
|   | 9,52  | ±0,08 | ±0,05 |
|   | 12,7  | ±0,13 | ±0,08 |
|   | 15,88 | ±0,15 | ±0,10 |
|   | 19,05 | ±0,15 | ±0,10 |
| U | 6,35  | ±0,13 | ±0,08 |
|   | 9,52  | ±0,13 | ±0,08 |
|   | 12,7  | ±0,20 | ±0,13 |
|   | 15,88 | ±0,27 | ±0,18 |
|   | 19,05 | ±0,27 | ±0,18 |
|   | 25,4  | ±0,38 | ±0,25 |



Wendeschneidplatte mit gerader Seitenanzahl  
Indexable insert with equal number of sides

- 1) gelten in der Regel für Wendeschneidplatten mit geschliffenen Planschneiden.  
\*) Der Berechnung der „m“- Maße liegt der genaue Zoll-Radius zugrunde.  
1) generally used for ground indexable inserts.  
\*) The calculation for the “m” measurement is based on the precise radius in inches.

**F**  
Plattentypen  
Insert type

|   |  |   |
|---|--|---|
| C |  | Ohne Spanformrinne, mit Kegelloch beidseitig<br>Without chip breaker, with cone hole double-sided     |
| F |  | Mit Spanformrinne beidseitig,<br>With chip breaker double-sided,                                      |
| H |  | Kegelloch 90° einseitig und Spanformrinne<br>With cone hole one-sided and chip breaker                |
| J |  | Kegelloch 70° - 90° und Spanformrinne beidseitig<br>Cone hole 70° - 90° and chip breaker double-sided |
| N |  | Ohne Spanformrinne, ohne Kegelloch<br>Without chip breaker, without cone hole                         |
| R |  | Mit Spanformrinne, ohne Kegelloch<br>With chip breaker, without cone hole                             |
| U |  | Kegelloch 40° - 60° und Spanformrinne beidseitig<br>Cone hole 40° - 60° and chip breaker double-sided |
| X |  | Mit Besonderheiten nach Zeichnung.<br>With special features according drawing.                        |

## Bezeichnungssystem für Wendeschneidplatten zum Schälen (Boehlerit-Norm)

Designation system for indexable inserts for bar peeling (Boehlerit standard)

### 20

Schneidkantenlänge  
Length of cutting edge

Als Schneidkantenlänge wird die Länge der Nebenschneide in mm angegeben, wobei die Stellen nach dem Komma nicht angeführt werden.

Bei runden Wendeschneidplatten wird der Durchmesser in mm angegeben.

The length of the secondary cutting edge is indicated in mm, figures behind the comma not shown.

For round carbide inserts the diameter in mm is given.

$l_n = 09 \text{ mm}$   
 $l_n = 10 \text{ mm}$   
 $l_n = 13 \text{ mm}$   
 $l_n = 14 \text{ mm}$   
 $l_n = 15 \text{ mm}$   
 $l_n = 17 \text{ mm}$   
 $l_n = 20 \text{ mm}$   
 $l_n = 28 \text{ mm}$   
 $l_n = 38 \text{ mm}$   
 $l_n = 50 \text{ mm}$

### 10

Dicke  
Thickness

Als Kennzahl wird die Dicke der Wendeschneidplatte in mm angegeben, Ziffern hinter dem Komma bleiben unberücksichtigt. Ergibt sich eine einstellige Kennzahl, so wird eine 0 (Null) vorangestellt.

The thickness of the indexable insert in mm is given as the identification code. Figures after the comma are not included. If a single-figure identification code is calculated, a zero is placed in front.

05  $s = 05,94 \text{ mm}$   
06  $s = 06,35 \text{ mm}$   
07  $s = 07,14 \text{ mm}$   
07  $s = 07,45 \text{ mm}$   
07  $s = 07,54 \text{ mm}$   
07  $s = 07,94 \text{ mm}$   
08  $s = 08,00 \text{ mm}$   
09  $s = 09,52 \text{ mm}$   
10  $s = 10,00 \text{ mm}$   
10  $s = 10,20 \text{ mm}$   
10  $s = 10,54 \text{ mm}$   
11  $s = 11,25 \text{ mm}$   
12  $s = 12,00 \text{ mm}$   
12  $s = 12,20 \text{ mm}$   
12  $s = 12,70 \text{ mm}$   
13  $s = 13,00 \text{ mm}$   
14  $s = 14,00 \text{ mm}$   
17  $s = 17,96 \text{ mm}$   
18  $s = 18,00 \text{ mm}$

### BML

Spanformstufe  
Chip groove

Spanformstufen entsprechend den Boehlerit Spanformstufengeometrien.

Chip groove according to Boehlerit geometries of chip grooves

**BS** = Boehlerit Special  
**BSF** = Boehlerit Small Finishing  
**BF** = Boehlerit Finishing  
**BFM** = Boehlerit Finishing Medium  
**BM** = Boehlerit Medium  
**BML** = Boehlerit Medium Large  
**BL** = Boehlerit Large  
**BU** = Boehlerit Universal  
**BX** = Boehlerit Extra











### H1/M1/W1

Fasenausführung  
Edge preparation










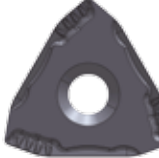





Fasenausführung nach Boehlerit Werksnorm

Edge preparation according to Boehlerit standard

H1 = hart / hard  
M1 = mittel / medium  
W1 = weich / soft

| <p><b>Geometrie Geometry -BS</b><br/>BS = Boehlerit Special</p> <p>Für Schnittiefen von 0,8 - 4 mm</p> <p>For cutting depths of 0.8 - 4 mm</p> | <p><b>Geometrie Geometry -BSF</b><br/>BSF = Boehlerit Small Finishing</p> <p>Für Schnittiefen von 0,2 - 0,8 mm</p> <p>For cutting depths of 0.2 - 0.8 mm</p> | <p><b>Geometrie Geometry -BF</b><br/>BF = Boehlerit Finishing</p> <p>Für Schnittiefen von 0,8 - 2 mm</p> <p>For cutting depths of 0.8 - 2 mm</p> | <p><b>Geometrie Geometry -BFM</b><br/>BFM = Boehlerit Finishing Medium</p> <p>Für Schnittiefen von 0,4 - 0,8 mm</p> <p>For cutting depths of 0.4 - 0.8 mm</p> |
|--|--|--|---|
| <p><b>LNGF-....-BS</b></p>                                    | <p><b>JNGF-....-BSF</b></p>   | <p><b>JNGF-....-BF</b></p>                                     | <p><b>JNGF-....-BFM</b></p>    |
| <p><b>UNMF-....-BS</b></p>                                    |  | <p><b>LNGF-....-BF</b></p>                                     | <p><b>SNGJ-....-BFM</b></p>    |
|  |  | <p><b>UNGF-....-BF</b></p>                                    |   |
|  |  | <p><b>XNGF-....-BF</b></p>                                   |   |
|  |  | <p><b>XNGJ-....-BF</b></p>                                   |   |
|  |  |  |   |
|  |  |  |   |



| <p><b>Geometrie Geometry -BM</b><br/>BM = Boehlerit Medium</p> <p>Für Schnitttiefen von 0,8 - 5 mm</p> <p>For cutting depths of 0,8 - 5 mm</p> | <p><b>Geometrie Geometry -BML</b><br/>BML = Boehlerit Medium Large</p> <p>Für Schnitttiefen von 1 - 9 mm</p> <p>For cutting depths of 1 - 9 mm</p> | <p><b>Geometrie Geometry -BL</b><br/>BL = Boehlerit Large</p> <p>Für Schnitttiefen von 2 - 10 mm</p> <p>For cutting depths of 2 - 10 mm</p> | <p><b>Geometrie Geometry</b></p> |
|--|--|---|----------------------------------|
| <p><b>TNGJ-....-BM</b></p>                                    | <p><b>JNGF-....-BML</b></p>                                       | <p><b>RNGH-....-BL</b></p>                                |                                  |
| <p><b>UNMF-....-BM</b></p>                                    | <p><b>LNGF-....-BML</b></p>                                       | <p><b>XNGJ-....-BL</b></p>                                |                                  |
| <p><b>WNGF-....-BM</b></p>                                   | <p><b>RNMH-....-BML</b></p>                                      |   |                                  |
| <p><b>WNGU-....-BM</b></p>                                  | <p><b>TNGJ-....-BML</b></p>                                     |   |                                  |
| <p><b>XNGF-....-BM</b></p>                                  | <p><b>UNGF-....-BML</b></p>                                     |   |                                  |
| <p><b>XNGU-....-BM</b></p>                                  | <p><b>XNMF-....-BML</b></p>                                     |   |                                  |
|  | <p><b>XNMU-....-BML</b></p>                                     |   |                                  |

| JNGF<br>             | Bestellbezeichnung<br>Ordering code | Abmessungen [mm]<br>Dimensions [mm] |       |    |      |     |     | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|----------------------|-------------------------------------|-------------------------------------|-------|----|------|-----|-----|------------------|--------|--------|--------|------|------|--------|------|------|------|
|                      |                                     | l <sub>n</sub>                      | l     | B  | s    | a   | κ   | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|                      | <b>JNGF-2008-BF-H1</b>              | 20                                  | 30,12 | 12 | 7,54 | 1,8 | 20° | ●                |        |        | ▲      | ●    |      |        |      |      |      |
|                      | * JNGF-2008-BF-S1-05                |                                     |       |    |      |     |     |                  |        |        | ●      |      |      |        |      |      |      |
|                      | <b>JNGF-2008-BF-M1</b>              | 20                                  | 30,12 | 12 | 7,54 | 1,8 | 20° |                  | ●      |        | ▲      |      | ●    |        |      |      |      |
|                      | * JNGF-2008-BF-S2-07                |                                     |       |    |      |     |     |                  |        |        |        |      | ●    |        |      |      |      |
|                      | <b>JNGF-2008-BF-M3</b>              | 20                                  | 30,12 | 12 | 7,54 | 1,8 | 20° |                  |        |        |        |      | ●    |        |      |      |      |
| * JNGF-2008-BF-S3-04 |                                     |                                     |       |    |      |     |     |                  |        |        |        | ●    |      |        |      |      |      |
|                      | <b>JNGF-2008-BFM-M1</b>             | 20                                  | 30,12 | 12 | 7,54 | 1,5 | 20° |                  | ●      |        |        |      |      |        |      |      |      |
|                      | <b>JNGF-2008-BFM-M2</b>             | 20                                  | 30,12 | 12 | 7,54 | 1,5 | 20° | ●                |        |        | ○      |      |      |        |      |      |      |
|                      | * JNGF-2008-BFM-S3-06               |                                     |       |    |      |     |     | ●                |        |        |        |      |      |        |      |      |      |
|                      | <b>JNGF-2008-BSF-H1</b>             | 20                                  | 30,12 | 12 | 7,54 | 1,5 | 20° | ○                |        |        |        |      |      |        |      |      |      |
|                      | <b>JNGF-1712-BML-H1</b>             | 17                                  | 36,5  | 18 | 12   | 2   | 15° | ●                |        |        |        | ○    |      |        |      |      |      |
|                      | <b>JNGF-1712-BML-M1</b>             | 17                                  | 36,5  | 18 | 12   | 2   | 15° |                  | ●      |        |        |      |      |        |      |      |      |
|                      | <b>JNGF-1712-BML-W1</b>             | 17                                  | 36,5  | 18 | 12   | 2   | 15° |                  |        | ●      |        |      |      |        |      |      |      |
|                      | <b>JNGF-2012-BML-H1</b>             | 20                                  | 36,5  | 18 | 12   | 2   | 20° |                  |        |        | ○      | ○    |      |        |      |      |      |
|                      | <b>JNGF-2012-BML-M1</b>             | 20                                  | 36,5  | 18 | 12   | 2   | 20° |                  |        | ●      | ○      | ○    |      |        |      |      |      |
|                      | <b>JNGF-2012-BML-W1</b>             | 20                                  | 36,5  | 18 | 12   | 2   | 20° |                  |        | ○      | ○      | ▲    |      |        |      |      |      |

| LNGF<br>                | Bestellbezeichnung<br>Ordering code | Abmessungen [mm]<br>Dimensions [mm] |    |      |      |     |     | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|-------------------------|-------------------------------------|-------------------------------------|----|------|------|-----|-----|------------------|--------|--------|--------|------|------|--------|------|------|------|
|                         |                                     | l <sub>n</sub>                      | l  | B    | s    | a   | κ   | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|                         | <b>LNGF-2010-BF-H1</b>              | 20                                  | 40 | 20   | 10,2 | 3   | 25° |                  |        |        | ○      | ●    |      |        |      |      |      |
|                         | * LNGF-2010-BF-S1-08                |                                     |    |      |      |     |     |                  |        |        |        | ●    |      |        |      |      |      |
|                         | <b>LNGF-2012-BF-H1</b>              | 20                                  | 40 | 20   | 12,2 | 3   | 25° |                  |        |        |        |      |      |        |      |      | ●    |
| * LNGF-2012-BF-S1-08    |                                     |                                     |    |      |      |     |     |                  |        |        |        |      |      |        |      |      | ●    |
|                         | <b>LNGF-2010-BML-H1</b>             | 20                                  | 40 | 20   | 10,2 | 3   | 25° | ●                |        |        | ▲      | ●    |      |        |      |      |      |
|                         | * LNGF-2010-BML-S1-08               |                                     |    |      |      |     |     |                  |        |        |        | ●    |      |        |      |      |      |
|                         | <b>LNGF-2010-BML-M1</b>             | 20                                  | 40 | 20   | 10,2 | 3   | 25° |                  | ●      |        | ●      | ○    |      |        |      |      |      |
|                         | <b>LNGF-2010-BML-W1</b>             | 20                                  | 40 | 20   | 10,2 | 3   | 25° |                  |        | ●      |        |      | ●    |        |      |      |      |
|                         | * LNGF-2010-BML-S2-12               |                                     |    |      |      |     |     |                  |        |        |        |      | ●    |        |      |      |      |
|                         | <b>LNGF-2012-BML-H1</b>             | 20                                  | 40 | 20   | 12,2 | 3   | 25° | ●                |        |        |        |      |      |        |      |      |      |
|                         | <b>LNGF-2012-BML-M1</b>             | 20                                  | 40 | 20   | 12,2 | 3   | 25° |                  | ●      |        |        |      |      |        |      |      |      |
| <b>LNGF-2012-BML-W1</b> | 20                                  | 40                                  | 20 | 12,2 | 3    | 25° |     |                  | ●      |        |        |      |      |        |      |      |      |
|                         | <b>LNGF-2012-BS-M1</b>              | 20                                  | 40 | 20   | 12,2 | 3   | 25° |                  |        |        |        |      |      |        |      |      | ●    |
|                         | * LNGF-2012-BS-S1-10                |                                     |    |      |      |     |     |                  |        |        |        |      |      |        |      |      | ●    |
|                         | <b>LNGF-2012-BS-W1</b>              | 20                                  | 40 | 20   | 12,2 | 3   | 25° |                  |        |        |        |      |      |        |      | ●    | ●    |
| * LNGF-2012-BS-S2-06    |                                     |                                     |    |      |      |     |     |                  |        |        |        |      |      |        | ●    |      |      |

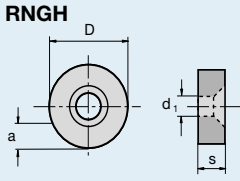

Bestellbeispiel Order example: 10 Stück pieces JNGF-2008-BF-H1 LC218E

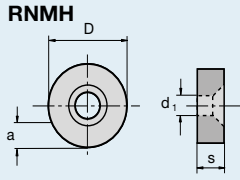

\* alte Bestellbezeichnung old ordering code

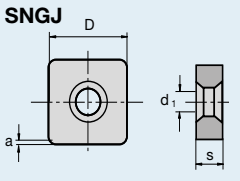

● Verfügbar ab Lager Available from stock

○ Auf Anfrage On request

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Available from stock, from January 2013

| <br>RNGH  | Abmessungen [mm]<br>Dimensions [mm] | Abmessungen [mm]<br>Dimensions [mm] |      |                |   | Sorten<br>Grades |        |        |        |      |      |        |      |      |
|--|-------------------------------------|-------------------------------------|------|----------------|---|------------------|--------|--------|--------|------|------|--------|------|------|
|  |                                     | D                                   | s    | d <sub>1</sub> | a | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 |
| <br><b>RNGH-5018-BL</b><br>* RNGH-5018-BL-M1<br>* RNGH-5018-BL-W1 | 50                                  | 18                                  | 12,7 | 9              |   | ●                | ○      |        |        |      | ▲    |        |      |      |
|  |                                     |                                     |      |                |   |                  | ●      |        |        |      | ●    |        |      |      |

| <br>RNMH   | Abmessungen [mm]<br>Dimensions [mm] | Abmessungen [mm]<br>Dimensions [mm] |      |                |   | Sorten<br>Grades |        |        |        |      |      |        |      |      |
|---|-------------------------------------|-------------------------------------|------|----------------|---|------------------|--------|--------|--------|------|------|--------|------|------|
|   |                                     | D                                   | s    | d <sub>1</sub> | a | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 |
| <br><b>RNMH-2008-BML</b><br>* RNMH-2008-BML-H1<br>* RNMH-2008-BML-M1<br>* RNMH-2008-BML-S1-08<br><b>RNMH-2810-BML</b><br>* RNMH-2810-BML-H1<br>* RNMH-2810-BML-M1<br><b>RNMH-3812-BML</b><br>* RNMH-3812-BML-M1<br>* RNMH-3812-BML-W1<br>* RNMH-3812-BML-S1-07<br><b>RNMH-5018-BML</b><br>* RNMH-5018-BML-M1<br>* RNMH-5018-BML-W1<br>* RNMH-5018-BML-S1-13 | 20                                  | 8                                   | 7    | 3              |   | ○                | ●      |        |        | ●    |      |        |      |      |
|   |                                     |                                     |      |                |   |                  | ●      |        |        |      |      |        |      |      |
|   | 28,57                               | 10,54                               | 8,8  | 5              |   | ●                | ●      |        |        |      |      |        |      |      |
|   |                                     |                                     |      |                |   |                  | ○      |        |        |      |      |        |      |      |
|   | 38,1                                | 12,7                                | 12,7 | 7              |   |                  | ●      | ○      |        |      |      | ▲      | ●    |      |
|   |                                     |                                     |      |                |   |                  | ○      |        |        |      |      | ●      |      |      |
|   | 50                                  | 18                                  | 12,7 | 9              |   |                  | ●      | ●      |        |      |      | ○      |      | ●    |
|   |                                     |                                     |      |                |   |                  | ○      |        |        |      |      | ●      |      |      |
|   |                                     |                                     |      |                |   |                  |        |        |        |      |      |        |      | ●    |
|   |                                     |                                     |      |                |   |                  |        |        |        |      |      |        |      | ○    |
|   |                                     |                                     |      |                |   |                  |        |        |        |      |      |        |      | ○    |

| <br>SNGJ   | Abmessungen [mm]<br>Dimensions [mm] | Abmessungen [mm]<br>Dimensions [mm] |     |                |     |     |   | Sorten<br>Grades |        |        |        |      |      |        |      |      |
|---|-------------------------------------|-------------------------------------|-----|----------------|-----|-----|---|------------------|--------|--------|--------|------|------|--------|------|------|
|   |                                     | I <sub>n</sub>                      | D   | d <sub>1</sub> | s   | a   | k | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 |
| <br><b>SNGJ-1708-BFM-H1</b><br>* SNGJ-1708-BFM-S1-05<br><b>SNGJ-1708-BFM-M1</b><br><b>SNGJ-1708-BFM-W1</b> | 17                                  | 25                                  | 7,5 | 8              | 0,8 | 20° |   |                  |        |        |        |      |      |        |      |      |
|   |                                     |                                     |     |                |     |     |   |                  |        |        |        |      |      |        |      |      |
|   |                                     |                                     |     |                |     |     |   |                  |        |        |        |      |      |        |      |      |

Bestellbeispiel Order example: 10 Stück pieces RNGH-5018-BL LC228E

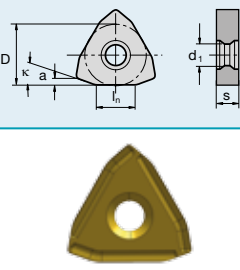
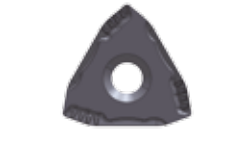

\* alte Bestellbezeichnung old ordering code

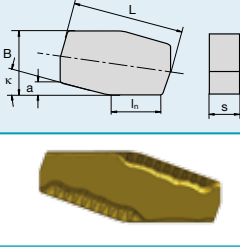

● Verfügbar ab Lager Available from stock

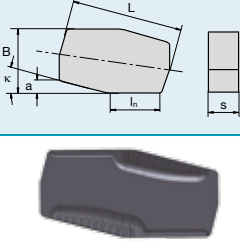

○ Auf Anfrage On request

▲ ab Januar 2013, ab Lager verfügbar

Available from stock, from January 2013

| TNGJ  | Abmessungen [mm]<br>Dimensions [mm]               | Abmessungen [mm]<br>Dimensions [mm] |       |       |      |     |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|---|---|-------------------------------------|-------|-------|------|-----|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|   |   | $l_n$                               | D     | $d_i$ | s    | a   | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|  | <b>Bestellbezeichnung</b><br><b>Ordering code</b> |                                     |       |       |      |     |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>TNGJ-1407-BM-H1</b>                            | 14                                  | 21,96 | 7     | 7,94 | 2   | 20°      |                  |        |        |        | ●    |      |        |      |      |      |
|   | * TNGJ-1407-BM-S1-08                              |                                     |       |       |      |     |          |                  |        |        |        | ●    |      |        |      |      |      |
|   | <b>TNGJ-2010-BM-H1</b>                            | 20                                  | 28,5  | 7     | 10   | 2,5 | 20°      |                  |        |        | ●      |      |      |        | ●    |      |      |
| * TNGJ-2010-BM-S1-07  |   |                                     |       |       |      |     |          |                  |        |        | ●      |      |      | ●      |      |      |      |
| <b>TNGJ-2010-BM-M1</b>  | 20  | 28,5                                | 7     | 10    | 2,5  | 20  |          |                  |        | ●      |        |      |      |        |      |      |      |
|  | <b>Bestellbezeichnung</b><br><b>Ordering code</b> |                                     |       |       |      |     |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>TNGJ-1407-BML-H1</b>                           | 14                                  | 21,96 | 7     | 7,94 | 2   | 20°      | ●                |        |        |        |      |      |        |      |      |      |
|   | <b>TNGJ-1407-BML-M1</b>                           | 14                                  | 21,96 | 7     | 7,94 | 2   | 20°      |                  | ●      |        |        |      |      |        |      |      |      |
|   | <b>TNGJ-1407-BML-W1</b>                           | 14                                  | 21,96 | 7     | 7,94 | 2   | 20°      |                  |        | ○      |        |      |      |        |      |      |      |
|   | <b>TNGJ-2010-BML-H1</b>                           | 20                                  | 28,5  | 7     | 10   | 2,5 | 20°      | ●                |        |        |        |      |      |        |      |      |      |
|   | <b>TNGJ-2010-BML-M1</b>                           | 20                                  | 28,5  | 7     | 10   | 2,5 | 20°      |                  | ●      |        |        |      |      |        |      |      |      |
| <b>TNGJ-2010-BML-W1</b>   | 20  | 28,5                                | 7     | 10    | 2,5  | 20° |          |                  | ○      |        |        |      |      |        |      |      |      |
|  | <b>Bestellbezeichnung</b><br><b>Ordering code</b> |                                     |       |       |      |     |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>TNGJ-2208-BML-H4</b>                           | 22                                  | 15,88 | -     | 6,4  | 1,5 | 15°      | ●                |        |        | ○      |      |      |        |      |      |      |
| * TNGJ-2208-BML-H1  |   |                                     |       |       |      |     | ●        |                  |        |        |        |      |      |        |      |      |      |

| UNGF  | Abmessungen [mm]<br>Dimensions [mm]               | Abmessungen [mm]<br>Dimensions [mm] |      |    |     |     |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|---|---|-------------------------------------|------|----|-----|-----|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|   |   | $l_n$                               | l    | B  | s   | a   | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|  | <b>Bestellbezeichnung</b><br><b>Ordering code</b> |                                     |      |    |     |     |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>UNGF-1407-BML-W2</b>                           | 14                                  | 30,5 | 12 | 7,5 | 4,5 | 20°      | ○                |        |        | ○      | ●    |      |        |      |      |      |
| * UNGF-1407-BML-S2-06   |   |                                     |      |    |     |     |          |                  |        |        | ●      |      |      |        |      |      |      |
|  | <b>Bestellbezeichnung</b><br><b>Ordering code</b> |                                     |      |    |     |     |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>UNGF-1712-BF-H1</b>                            | 17                                  | 36,5 | 18 | 12  | 4   | 15°      | ●                |        |        | ▲      | ●    | ●    |        | ○    |      |      |
|   | * UNGF-1712-BF-S1-07                              |                                     |      |    |     |     |          |                  |        |        |        | ●    | ●    |        |      |      |      |
| <b>UNGF-1712-BF-M1</b>  | 17  | 36,5                                | 18   | 12 | 4   | 15° |          | ●                |        | ○      |        |      |      |        |      |      |      |

| UNMF  | Abmessungen [mm]<br>Dimensions [mm]               | Abmessungen [mm]<br>Dimensions [mm] |      |    |    |     |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|---|---|-------------------------------------|------|----|----|-----|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|   |   | $l_n$                               | l    | B  | s  | a   | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|  | <b>Bestellbezeichnung</b><br><b>Ordering code</b> |                                     |      |    |    |     |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>UNMF-1712-BM-H1</b>                            | 17                                  | 36,5 | 18 | 12 | 4   | 15°      | ●                |        |        |        | ●    |      |        |      |      |      |
|   | * UNMF-1712-BM-S1-06                              |                                     |      |    |    |     |          |                  |        |        |        | ●    |      |        |      |      |      |
| <b>UNMF-1712-BM-M1</b>  | 17  | 36,5                                | 18   | 12 | 4  | 15° |          | ●                |        |        |        |      |      |        |      |      |      |
|  | <b>Bestellbezeichnung</b><br><b>Ordering code</b> |                                     |      |    |    |     |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>UNMF-1712-BS-M1</b>                            | 17                                  | 36,5 | 18 | 12 | 4   | 15°      |                  | ●      |        |        |      |      |        |      |      |      |
| <b>UNMF-1712-BS-W1</b>  | 17  | 36,5                                | 18   | 12 | 4  | 15° |          |                  | ●      |        |        |      |      |        |      |      |      |

Bestellbeispiel Order example: 10 Stück pieces TNGJ-1407-BM-H1 R421

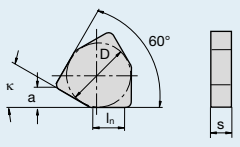
\* alte Bestellbezeichnung old ordering code

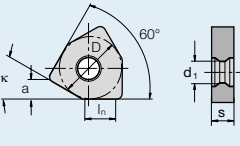
● Verfügbar ab Lager Available from stock

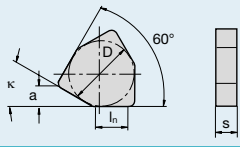
○ Auf Anfrage On request

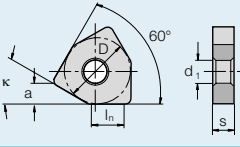
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Available from stock, from January 2013

| WNGF |                 | Abmessungen [mm]<br>Dimensions [mm] |       |       |     |     |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|------|--|-------------------------------------|-------|-------|-----|-----|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|      |  | $l_n$                               | D     | $d_1$ | s   | a   | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|      | <b>Bestellbezeichnung</b><br><b>Ordering code</b><br><b>WNGF-0906-BM-W3</b><br>* WNGF-0906-BM-H1 | 9                                   | 15,88 | -     | 6,4 | 2,5 | 15°      | ●                |        |        |        |      |      |        |      |      |      |

| WNGU |                 | Abmessungen [mm]<br>Dimensions [mm] |       |       |      |     |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|------|--|-------------------------------------|-------|-------|------|-----|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|      |  | $l_n$                               | D     | $d_1$ | s    | a   | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|      | <b>Bestellbezeichnung</b><br><b>Ordering code</b><br><b>WNGU-0906-BM-W3</b><br>* WNGU-0906-BM-H1 | 9                                   | 15,88 | 5,5   | 6,4  | 2,5 | 15°      | ●                |        |        |        |      |      |        |      |      |      |
|      | <b>WNGU-1309-BM-H3</b><br>* WNGU-1309-BM-H1  | 13                                  | 22,23 | 6,5   | 9,52 | 3,5 | 15°      | ●                | ●      |        | ○      | ○    |      |        |      |      |      |
|      | <b>WNGX-1309-BM-H3</b><br>* WNGU-1309-BX-H1  | 13                                  | 22,23 | 7,93  | 9,52 | 3,5 | 15°      | ●                |        |        | ○      | ○    |      |        |      |      |      |

| XNGF |                                       | Abmessungen [mm]<br>Dimensions [mm] |       |       |    |   |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|------|--|-------------------------------------|-------|-------|----|---|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|      |  | $l_n$                               | D     | $d_1$ | s  | a | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|      | <b>Bestellbezeichnung</b><br><b>Ordering code</b><br><b>XNGF-1010-BF-W2</b><br>* XNGF-1010-BF-H1<br>* XNGF-1010-BF-S1-06 | 10                                  | 22,23 | -     | 10 | 6 | 25°      | ●                |        |        |        | ●    |      |        |      |      |      |
|      | <b>XNGF-1513-BM-H2</b><br>* XNGF-1513-BM-S1-13   | 15                                  | 31,75 | -     | 13 | 8 | 25°      | ○                |        |        | ●      | ○    | ○    | ●      |      |      |      |

| XNGJ |                  | Abmessungen [mm]<br>Dimensions [mm] |       |       |    |   |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|------|---|-------------------------------------|-------|-------|----|---|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|      |   | $l_n$                               | D     | $d_1$ | s  | a | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|      | <b>Bestellbezeichnung</b><br><b>Ordering code</b><br><b>XNGJ-1010-BF-W2</b><br>* XNGJ-1010-BF-S1-06 | 10                                  | 22,23 | 6     | 10 | 6 | 25°      |                  |        |        |        | ●    |      |        |      |      |      |

Bestellbeispiel Order example: 10 Stück pieces WNGF-0906-BM-W3 LC218E

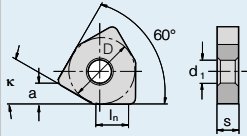

\* alte Bestellbezeichnung old ordering code

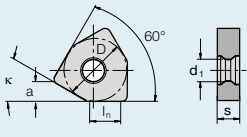

● Verfügbar ab Lager Available from stock

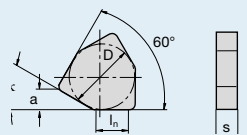

○ Auf Anfrage On request

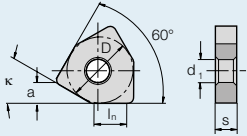

▲ ab Januar 2013, ab Lager verfügbar

Available from stock, from January 2013

| XNGJ  |  | Abmessungen [mm]<br>Dimensions [mm] |       |       |    |   |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|---|---|-------------------------------------|-------|-------|----|---|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|   |   | $l_n$                               | D     | $d_i$ | s  | a | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|  | <b>Bestellbezeichnung</b><br>Ordering code  |                                     |       |       |    |   |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>XNGJ-1010-BL-H3</b>  | 10                                  | 22,23 | 6     | 10 | 6 | 25°      | ●                |        |        |        |      |      |        |      |      |      |
|   | * XNGJ-1010-BL-H1   |                                     |       |       |    |   |          | ●                |        |        |        |      |      |        |      |      |      |
|   | <b>XNGJ-1010-BL-M1</b>  | 10                                  | 22,23 | 6     | 10 | 6 | 25°      |                  | ●      |        |        |      |      |        |      |      |      |

| XNGU  |  | Abmessungen [mm]<br>Dimensions [mm] |       |       |    |   |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|---|---|-------------------------------------|-------|-------|----|---|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|   |   | $l_n$                               | D     | $d_i$ | s  | a | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|  | <b>Bestellbezeichnung</b><br>Ordering code  |                                     |       |       |    |   |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>XNGU-1513-BM-H2</b>  | 15                                  | 31,75 | -     | 13 | 8 | 25°      |                  |        |        | ○      |      |      |        | ●    |      |      |
|   | * XNGU-1513-S1-10   |                                     |       |       |    |   |          |                  |        |        |        |      |      |        | ●    |      |      |

| XNMF  |  | Abmessungen [mm]<br>Dimensions [mm] |       |       |     |   |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|---|---|-------------------------------------|-------|-------|-----|---|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|   |   | $l_n$                               | D     | $d_i$ | s   | a | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|  | <b>Bestellbezeichnung</b><br>Ordering code  |                                     |       |       |     |   |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>XNMF-1513-BML-H2</b>   | 15                                  | 31,75 | -     | 13  | 8 | 25°      | ●                | ●      |        |        |      |      |        | ●    |      |      |
|   | * XNMF-1513-BML-M1  |                                     |       |       |     |   |          |                  | ●      |        |        |      |      |        |      |      |      |
|   | * XNMF-1513-BML-S1-10   | 15                                  | 31,75 | -     | 13  | 8 | 25°      |                  |        |        |        |      |      |        | ●    |      |      |
|   | <b>XNMF-1513-BML-W1</b>   | 15                                  | 31,75 | -     | 13  | 8 | 25°      |                  |        | ●      |        |      |      | ●      |      |      |      |
|   | <b>XNMF-1609-BML-W1</b>   | 16                                  | 28,58 | -     | 9,5 | 6 | 30°      | ●                | ●      |        | ○      |      |      | ○      |      |      |      |

| XNMU  |  | Abmessungen [mm]<br>Dimensions [mm] |       |       |    |   |          | Sorten<br>Grades |        |        |        |      |      |        |      |      |      |
|---|---|-------------------------------------|-------|-------|----|---|----------|------------------|--------|--------|--------|------|------|--------|------|------|------|
|   |   | $l_n$                               | D     | $d_i$ | s  | a | $\kappa$ | LC218E           | LC228E | LC238E | LCP15P | R421 | R635 | LCM35P | R440 | R441 | R645 |
|  | <b>Bestellbezeichnung</b><br>Ordering code  |                                     |       |       |    |   |          |                  |        |        |        |      |      |        |      |      |      |
|   | <b>XNMU-1513-BML-H2</b>   | 15                                  | 31,75 | 9     | 13 | 8 | 25°      | ●                | ●      |        |        |      |      |        |      |      |      |
|   | * XNMU-1513-BML-M1  | 15                                  | 31,75 | 9     | 13 | 8 | 25°      |                  | ●      |        |        |      |      |        |      |      |      |

Bestellbeispiel Order example: 10 Stück pieces XNGJ-1010-BL-H3 LC228E

\* alte Bestellbezeichnung old ordering code

● Verfügbar ab Lager Available from stock

○ Auf Anfrage On request

▲ ab Januar 2013, ab Lager verfügbar  
Available from stock, from January 2013



# Werkzeuge zum Drehschälen

## Bar Peeling Tools



Schälkopf

Peeling head

Wendeschneidplattenschlitten

Insert slide



Kassetenschlitten

Cartridge slide



Einzelhälskassette

Cartridge



Tandemhälskassette

Tandem cartridge



Dreifachhälskassette

Tripple cartridge



Jede Schälmaschine verwendet ihr eigenes Werkzeugsystem. Aus diesem Grund gibt es keine Standardhalter oder Kassetten. Boehlerit bietet spezielle Halter und Kassetten an, bei denen die üblichen Einstellarbeiten entfallen können.

Die Rüstzeiten und die damit verbundenen Kosten reduzieren sich erheblich. Damit können bessere Oberflächengüten und engere Toleranzen erreicht werden. Wendeschneidplattenhalter, Kassettenhalter und Verschleißteile werden für alle Schälmaschinentypen nach Auftrag gefertigt und geliefert.

Nach Bestandsaufnahme, Beratung und Abstimmung mit den Kunden konstruieren wir auch neue Werkzeugsysteme auf modernsten CAD Anlagen.

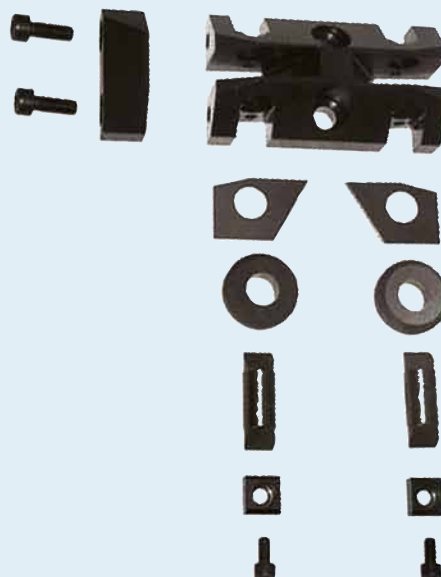
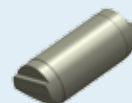
Individual tooling systems are in use on bar peeling machines. Therefore no standard holders and cartridges are on the market. Boehlerit offers special holders and cartridges with better accuracy to avoid continuous adjustment. Set-up times and costs can be minimised. With Boehlerit bar peeling tooling systems you also enjoy the advantage for better results in surface and tolerances quality. Any customer design carbide holders, cartridge holders and wear parts are produced and delivered to order. Design of new tooling systems considering customers present situation including advice in application to optimize production processes.

Rollen und Achsen für Einlauf und Auslaufsystem  
Rolls and Axles for Entry- and Exit guide system

BM48863




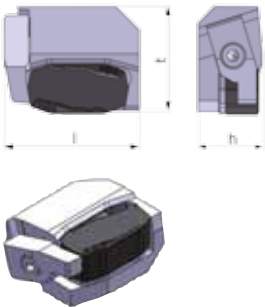
BM45087

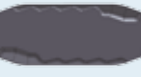
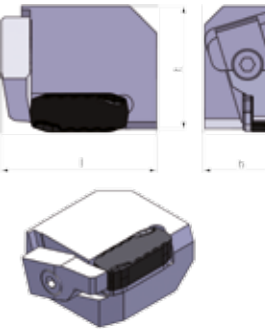


Einlaufrollenhalter


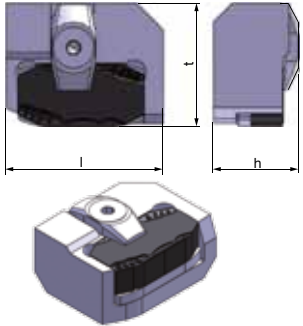
Lead in roller holder


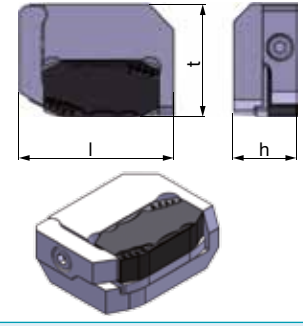


| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm                                    |  |                                   | Sizes mm   |   |  | Seite<br>Page |
|---|-------------------------------------|---|--|-----------------------------------|--|---|---|---------------|
|   |                                     | l   | h  | t                                 |  |   |   |               |
| <b>BM44040</b><br> | <b>BM44040</b>                      | 49,6  | 22   | 39                                |  |   | JNGF-1712-BML   | 10            |
|   |                                     |   |  |                                   |  |   | JNGF-2012-BML   | 10            |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
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|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
| Ersatzteile Spare parts   |                                     | Bestellbezeichnung Ordering codes                 |  |                                   |  |   |   |               |
| Für Kassette<br>For Cartridge   | HM-Unterlage<br>Carbide shim        | Schraube zu<br>Kassette<br>Screw for<br>cartridge | Sechskantschlüssel<br>zu Kassette<br>Hexagon wrench for<br>cartridge | Spannfinger<br>Clamping<br>finger | Schraube zu<br>Spannfinger<br>Screw for<br>clamping finger | Sechskantschlüssel<br>zu Spannfinger<br>Hexagon wrench for<br>clamping finger |   |               |
| BM44040   | BM44046                             | M3x8 DIN 7991                                     | V01-A0020 SW 2   | BM42991                           | M5x12 DIN 912  | V01-A0040 SW 4  |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |


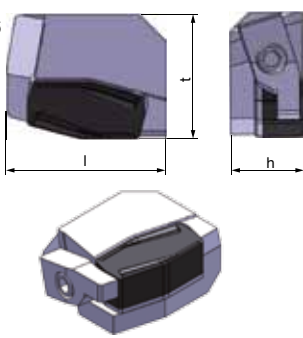
| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm                                    |  |                                   | Sizes mm   |   |  | Seite<br>Page |
|---|-------------------------------------|---|--|-----------------------------------|--|---|---|---------------|
|   |                                     | l   | h  | t                                 |  |   |   |               |
| <b>BM44373</b><br> | <b>BM44373</b>                      | 48,3  | 22   | 39                                |  |   | JNGF-2008-BF  | 10            |
|   |                                     |   |  |                                   |  |   | JNGF-2008-BSF   | 10            |
|   |                                     |   |  |                                   |  |   | JNGF-2008-BFM   | 10            |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
| Ersatzteile Spare parts   |                                     | Bestellbezeichnung Ordering codes                 |  |                                   |  |   |   |               |
| Kassette<br>Cartridge   | HM-Unterlage<br>Carbide shim        | Schraube zu<br>Kassette<br>Screw for<br>cartridge | Sechskantschlüssel<br>zu Kassette<br>Hexagon wrench for<br>cartridge | Spannfinger<br>Clamping<br>finger | Schraube zu<br>Spannfinger<br>Screw for<br>clamping finger | Sechskantschlüssel<br>zu Spannfinger<br>Hexagon wrench for<br>clamping finger |   |               |
| BM44373   | BM44351                             | M3x10 DIN 7991                                    | V01-A0020 SW 2   | BM42991                           | M5x12 DIN 912  | V01-A0040 SW 4  |   |               |
|   |                                     |   |  |                                   |  |   |   |               |
|   |                                     |   |  |                                   |  |   |   |               |


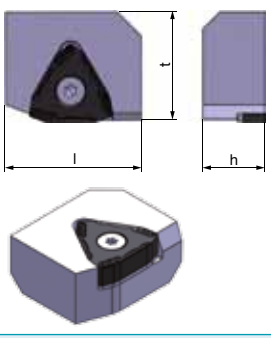
Verfügbar ab Lager. Sonderanfertigungen entsprechend der Kundenanforderungen möglich.  
Available from stock. Special designs can be supplied by customer request.

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm                        |  |                                | Sizes mm   |   |  | Seite<br>Page |
|---|-------------------------------------|---------------------------------------|--|--------------------------------|--|---|---|---------------|
|   |                                     | l                                     | h  | t                              |  |   |   |               |
| <b>BM48274</b><br> | <b>BM48274</b>                      | 50                                    | 22   | 39                             |  |   | LNGF-2010-BML   | 10            |
|   |                                     |                                       |  |                                |  |   | LNGF-2010-BU  | 10            |
|   |                                     |                                       |  |                                |  |   | LNGF-2010-BF  | 10            |
|   |                                     |                                       |  |                                |  |   | LNGF-2010-BM  | 10            |
|   |                                     |                                       |  |                                |  |   | LNGF-2010-BS  | 10            |
|   |                                     |                                       |  |                                |  |   |   |               |
| Für Kassette<br>For cartridge   | HM-Unterlage<br>Carbide shim        | Schraube zu Kassette<br>Screw for pad | Sechskantschlüssel zu Kassette<br>Hexagon wrench for cartridge | Spannfinger<br>Clamping finger | Schraube zu Spannfinger<br>Screw for clamping finger | Sechskantschlüssel zu Spannfinger<br>Hexagon wrench for clamping finger |   |               |
| BM48274   | BM48278                             | M3x10 DIN 7991                        | V01-A0020 SW2  | BM39093/5                      | M6x12 DIN 7991                                       | V01-A0040 SW4   |   |               |


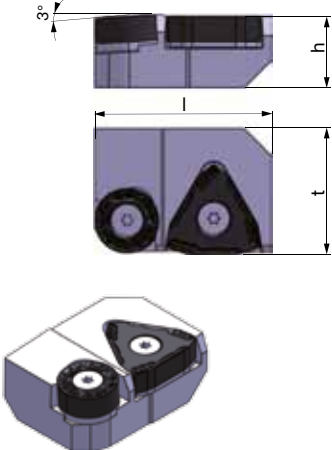

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm                              |  |                                | Sizes mm   |   |  | Seite<br>Page |  |
|---|-------------------------------------|---|--|--------------------------------|--|---|---|---------------|--|
|   |                                     | l   | h  | t                              |  |   |   |               |  |
| <b>BM48275</b><br> | <b>BM48275</b>                      | 53,5  | 22   | 39                             |  |   | LNGF-2010-BML   | 10            |  |
|   |                                     |   |  |                                |  |   | LNGF-2010-BU  | 10            |  |
|   |                                     |   |  |                                |  |   | LNGF-2010-BF  | 10            |  |
|   |                                     |   |  |                                |  |   | LNGF-2010-BM  | 10            |  |
|   |                                     |   |  |                                |  |   | LNGF-2010-BS  | 10            |  |
|   |                                     |   |  |                                |  |   |   |               |  |
| <b>Ersatzteile Spare parts</b>  |                                     | <b>Bestellbezeichnung Ordering codes</b>    |  |                                |  |   |   |               |  |
| Kassette<br>Cartridge   | HM-Unterlage<br>Carbide shim        | Schraube zu Kassette<br>Screw for cartridge | Sechskantschlüssel zu Kassette<br>Hexagon wrench for cartridge | Spannfinger<br>Clamping finger | Schraube zu Spannfinger<br>Screw for clamping finger | Sechskantschlüssel zu Spannfinger<br>Hexagon wrench for clamping finger |   |               |  |
| BM48275   | BM48278                             | M3x10 DIN 7991                              | V01-A0020 SW2  | BM53481                        | M5x12 DIN 912  | V01-A0040 SW4   |   |               |  |

Verfügbar ab Lager. Sonderanfertigungen entsprechend der Kundenanforderungen möglich.  
Available from stock. Special designs can be supplied by customer request.


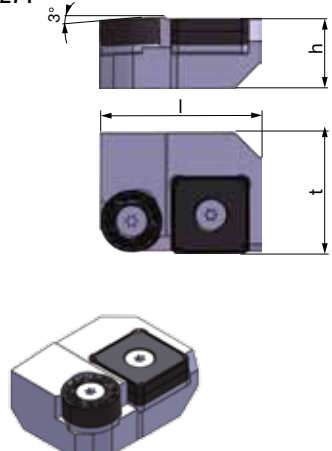

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm                              |  |                                | Sizes mm   |   |  | Seite<br>Page |
|---|-------------------------------------|---|--|--------------------------------|--|---|---|---------------|
|   |                                     | l   | h  | t                              |  |   |   |               |
| <b>BM44106</b><br> | <b>BM44106</b>                      | 50  | 22   | 39                             |  |   | UNGF-1712-BF  | 12            |
|   |                                     |   |  |                                |  |   | UNMF-1712-BM  | 12            |
|   |                                     |   |  |                                |  |   | UNMF-1712-BS  | 12            |
|   |                                     |   |  |                                |  |   |   |               |
| <b>Ersatzteile Spare parts</b>  |                                     |   |  |                                |  |   |   |               |
| Für Kassette<br>For Cartridge   | HM-Unterlage<br>Carbide shim        | Schraube zu Kassette<br>Screw for cartridge | Sechskantschlüssel zu Kassette<br>Hexagon wrench for cartridge | Spannfinger<br>Clamping finger | Schraube zu Spannfinger<br>Screw for clamping finger | Sechskantschlüssel zu Spannfinger<br>Hexagon wrench for clamping finger |   |               |
| BM44106   | BM44107                             | M3x10 DIN 7991                              | V01-A0020 SW2  | BM42991                        | M5x12 DIN 912  | V01-A0040 SW4   |   |               |

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm                  |                       |    | Sizes mm |  |  | Seite<br>Page |
|---|-------------------------------------|---------------------------------|-----------------------|----|----------|--|---|---------------|
|   |                                     | l                               | h                     | t  |          |  |   |               |
| <b>BM46263</b><br> | <b>BM46263</b>                      | 48                              | 22                    | 39 |          |  | TNGJ-1407-BML   | 11            |
|   |                                     |                                 |                       |    |          |  | TNGJ-1407-BM  | 11            |
|   |                                     |                                 |                       |    |          |  |   |               |
|   |                                     |                                 |                       |    |          |  |   |               |
| <b>Ersatzteile Spare parts</b>  |                                     |                                 |                       |    |          |  |   |               |
| Für Kassette<br>For Cartridge   | HM-Unterlage<br>Carbide shim        | Spannschraube<br>Fixation screw | Schlüssel<br>Torx key |    |          |  |   |               |
| BM46263   | BM41449                             | A07-60108                       | V04-T2000 (Tx 20)     |    |          |  |   |               |

Verfügbar ab Lager. Sonderanfertigungen entsprechend der Kundenanforderungen möglich.  
Available from stock. Special designs can be supplied by customer request.


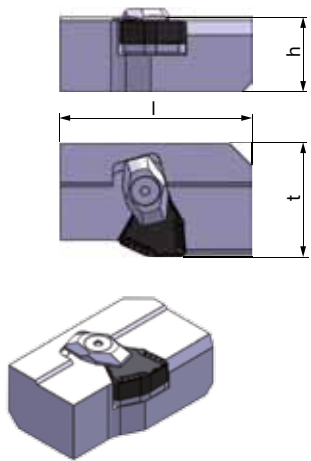
| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm |    |    | Sizes mm |  |  |  | Seite<br>Page |
|---|-------------------------------------|----------------|----|----|----------|--|--|---|---------------|
|   |                                     | l              | h  | t  |          |  |  |   |               |
|  | BM44996                             | 55             | 22 | 39 |          |  |  | RNMH-2008-BML   | 11            |
|   |                                     |                |    |    |          |  |  |  |               |
|   |                                     |                |    |    |          |  |  | TNGJ-1407-BM  | 11            |
|   |                                     |                |    |    |          |  |  | TNGJ-1407-BML   | 11            |

| Ersatzteile Spare parts |  | Bestellbezeichnung Ordering codes                        |                                  |                               |  |  |
|-------------------------|--|--|----------------------------------|-------------------------------|--|--|
| Kassette<br>Cartridge   | HM-Unterlage für TNGJ-1407<br>Carbide shim for TNGJ-1407 | HM-Unterlage für RNMH 2008<br>Carbide shim for RNMH-2008 | Spannschraube<br>Retaining screw | Torx-Schlüssel<br>Torx wrench |  |  |
| BM44996                 | BM41449  | BM45011  | A07-60180                        | V04-T2000 (T20)               |  |  |


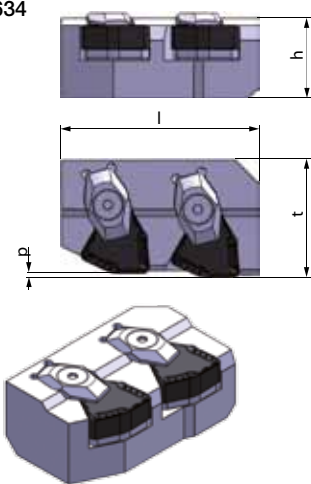

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm |    |    | Sizes mm |  |  |  | Seite<br>Page |
|---|-------------------------------------|----------------|----|----|----------|--|--|---|---------------|
|   |                                     | l              | h  | t  |          |  |  |   |               |
|  | BM46271                             | 52             | 22 | 39 |          |  |  | RNMH-2008-BML   | 11            |
|   |                                     |                |    |    |          |  |  |  |               |
|   |                                     |                |    |    |          |  |  | SNGJ-1708-BFM   | 11            |
|   |                                     |                |    |    |          |  |  |   |               |

| Ersatzteile Spare parts |  | Bestellbezeichnung Ordering codes                         |                                  |                               |  |  |
|-------------------------|--|---|----------------------------------|-------------------------------|--|--|
| Kassette<br>Cartridge   | HM-Unterlage für SNGJ-1708<br>Carbide shim for SNGJ-1708 | HM-Unterlage für RNMH 2008<br>Carbide shim, for RNMH-2008 | Spannschraube<br>Retaining screw | Torx-Schlüssel<br>Torx wrench |  |  |
| BM46271                 | BM46317  | BM45011   | A07-60180                        | V04-T2000 (Tx 20)             |  |  |

Verfügbar ab Lager. Sonderanfertigungen entsprechend der Kundenanforderungen möglich.  
Available from stock. Special designs can be supplied by customer request.

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm |    |    |  | Sizes mm |  |  | Seite<br>Page |
|---|-------------------------------------|----------------|----|----|--|----------|--|---|---------------|
|   |                                     | l              | h  | t  |  |          |  |   |               |
|  | BM51253                             | 110            | 42 | 65 |  |          |  | XNMF-1513-BML   | 14            |
|   |                                     |                |    |    |  |          |  | XNGF-1513-BM  | 13            |
|   |                                     |                |    |    |  |          |  |   |               |
|   |                                     |                |    |    |  |          |  |   |               |
|   |                                     |                |    |    |  |          |  |   |               |
|   |                                     |                |    |    |  |          |  |   |               |
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|   |                                     |                |    |    |  |          |  |   |               |
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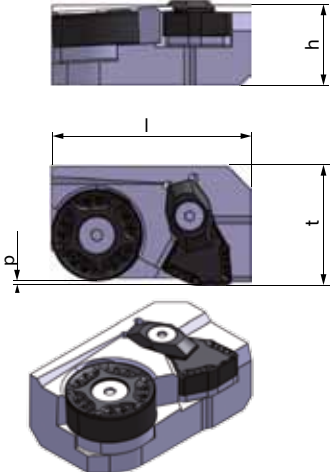


| Ersatzteile Spare parts |                              | Bestellbezeichnung Ordering codes                 |  |                                   |  |   |
|-------------------------|------------------------------|---|--|-----------------------------------|--|---|
| Kassette<br>Cartridge   | HM-Unterlage<br>Carbide shim | Schraube zu<br>Kassette<br>Screw for<br>cartridge | Sechskantschlüssel<br>zu Kassette<br>Hexagon wrench for<br>cartridge | Spannfinger<br>Clamping<br>finger | Schraube zu<br>Spannfinger<br>Screw for<br>clamping finger | Sechskantschlüssel<br>zu Spannfinger<br>Hexagon wrench for<br>clamping finger |
| BM51253                 | BM47736                      | M8x16 DIN7991                                     | V01-A0050 SW5  | BM38961-7                         | M8x12 DIN7991  | V01-A0050 SW5   |

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm |    |    |     | Sizes mm |  |  | Seite<br>Page |
|---|-------------------------------------|----------------|----|----|-----|----------|--|---|---------------|
|   |                                     | l              | h  | t  | p   |          |  |   |               |
|  | BM48634                             | 110            | 44 | 65 | 2,5 |          |  | XNMF-1513-BML   | 14            |
|   |                                     |                |    |    |     |          |  | XNGF-1513-BM  | 13            |
|   |                                     |                |    |    |     |          |  |  |               |
|   |                                     |                |    |    |     |          |  | XNMF-1513-BML   | 14            |
|   |                                     |                |    |    |     |          |  | XNGF-1513-BM  | 13            |
|   |                                     |                |    |    |     |          |  |   |               |
|   |                                     |                |    |    |     |          |  |   |               |
|   |                                     |                |    |    |     |          |  |   |               |
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|   |                                     |                |    |    |     |          |  |   |               |


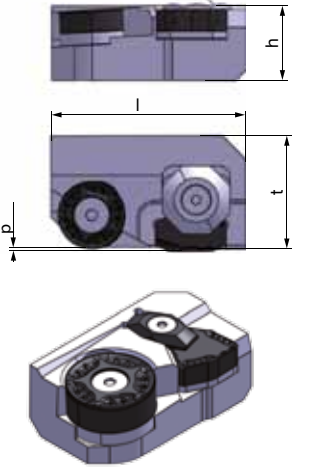


| Ersatzteile Spare parts |                              | Bestellbezeichnung Ordering codes                 |  |                                   |  |   |
|-------------------------|------------------------------|---|--|-----------------------------------|--|---|
| Kassette<br>Cartridge   | HM-Unterlage<br>Carbide shim | Schraube zu<br>Kassette<br>Screw for<br>cartridge | Sechskantschlüssel<br>zu Kassette<br>Hexagon wrench for<br>cartridge | Spannfinger<br>Clamping<br>finger | Schraube zu<br>Spannfinger<br>Screw for<br>clamping finger | Sechskantschlüssel<br>zu Spannfinger<br>Hexagon wrench for<br>clamping finger |
| BM48634                 | BM47736                      | M8x16 DIN7991                                     | V01-A0050 SW5  | BM38961-7                         | M8x12 DIN7991  | V01-A0050 SW5   |

Verfügbar ab Lager. Sonderanfertigungen entsprechend der Kundenanforderungen möglich.  
Available from stock. Special designs can be supplied by customer request.

## Schälkassetten Bar peeling cartridges

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm<br>Sizes mm |    |    |     |  | Seite<br>Page   |    |
|---|-------------------------------------|----------------------------|----|----|-----|---|---|----|
|   |                                     | l                          | h  | t  | p   |   |   |    |
| <b>BM49134</b><br> | <b>BM49134</b>                      | 110                        | 44 | 65 | 2,5 |  | 11  |    |
|   |                                     |                            |    |    |     |   |   |    |
|   |                                     |                            |    |    |     |   |  | 11 |
|   |                                     |                            |    |    |     |   |   |    |
|   |                                     |                            |    |    |     |   |   |    |
|   |                                     |                            |    |    |     | <b>XNGF-1513-BM</b>   | 13  |    |
|   |                                     |                            |    |    |     | <b>XNMF-1513-BML</b>  | 14  |    |

| Ersatzteile Spare parts |  | Bestellbezeichnung Ordering codes                        |   |  |  |   |  |
|-------------------------|--|--|---|--|--|---|--|
| Kassette<br>Cartridge   | HM-Unterlage für RNMH-5018<br>Carbide shim for RNMH-5018 | HM-Unterlage für XNGF-1513<br>Carbide shim for XNGF-1513 | Senkschraube für RNMH-5018<br>Flat headed screw for RNMH-5018 | Schlüssel für Senkschraube<br>Wrench for flat headed screw | Spannfinger für XNGF-1513<br>Clamping finger for XNGF-1513 | Senkschraube für HM-Unterlage<br>Flat headed screw for carbide shim | Senkschr. für HM-Unterlage<br>Flat headed screw for carbide shim |
| BM49134                 | BM37158  | BM47736  | M10x35 DIN7991  | V01-A0060 / V01-A0050                                      | BM38961-7  | M8x12 DIN7991   | M8x16 DIN7991  |

| Kassette<br>Cartridge   | Bestellbezeichnung<br>Ordering code | Abmessungen mm<br>Sizes mm |    |    |     |  | Seite<br>Page   |    |
|---|-------------------------------------|----------------------------|----|----|-----|---|---|----|
|   |                                     | l                          | h  | t  | p   |   |   |    |
| <b>BM52803</b><br> | <b>BM52803</b>                      | 112                        | 42 | 65 | 1,5 |  | 11  |    |
|   |                                     |                            |    |    |     |   |   |    |
|   |                                     |                            |    |    |     |   |  | 11 |
|   |                                     |                            |    |    |     |   |   |    |
|   |                                     |                            |    |    |     |   |   |    |
|   |                                     |                            |    |    |     | <b>LNGF-2012-BML</b>  | 10  |    |
|   |                                     |                            |    |    |     | <b>LNGF-2012-BF</b>   | 10  |    |
|   |                                     |                            |    |    |     | <b>LNGF-2012-BS</b>   | 10  |    |

| Ersatzteile Spare parts |  | Bestellbezeichnung Ordering codes                        |   |  |   |  |  |
|-------------------------|--|--|---|--|---|--|--|
| Kassette<br>Cartridge   | HM-Unterlage für RNGH-3812<br>Carbide shim for RNGH-3812 | HM-Unterlage für LNGF-2012<br>Carbide shim for LNGF-2012 | Senkschraube für RNGH-3812<br>Flat headed screw for RNMH-5018 | Schlüssel für Senkschrauben<br>Wrench for flat headed screws | Spannscheibe für LNGF-2012<br>Clamping finger for LNGF-2012 | Senkschraube für Spannscheibe<br>Flat headed screw for clamping finger | Senkschr. für HM-Unterl.LNGF<br>Flat headed screw for carbide shim |
| BM52803                 | BM32589  | BM44088  | M10x35 DIN7991  | V01-A0060 / V01-A0050<br>V01-A0020                           | D04-0F388   | M8x20 DIN7991  | M3x10 DIN7991  |

Verfügbar ab Lager. Sonderanfertigungen entsprechend der Kundenanforderungen möglich.  
Available from stock. Special designs can be supplied by customer request.

| Sorte<br>Grade | ISO    | Anwendungsbereich<br>Range of applications | Werkstoffgruppe<br>Group of materials |                            |                                    |   |   |  | Beschichtung<br>Coating    |                    |                          |
|----------------|--------|--|---------------------------------------|----------------------------|------------------------------------|---|---|--|----------------------------|--------------------|--------------------------|
|                |        |  | P<br>Stahl<br>Steel                   | M<br>Rostfrei<br>Stainless | K<br>Grauguss<br>Grey cast<br>Iron | N<br>NE-Metalle<br>Non ferrous<br>materials | S<br>Hochwarmfest<br>High tempera-<br>ture alloys | H<br>Harte<br>Werkstoffe<br>Hard materials | Nano schwarz<br>Nano black | K-Alpha<br>K-Alpha | Multilayer<br>Multilayer |
| LC218E         | HC-P10 |  | ■                                     |                            |                                    |   |   |  | ●                          |                    |                          |
|                | HC-M10 |  |                                       | ■                          |                                    |   |   |  | ●                          |                    |                          |
|                | HC-S10 |  |                                       |                            |                                    |   | □   |  | ●                          |                    |                          |
|                | HC-K10 |  |                                       |                            | □                                  |   |   |  | ●                          |                    |                          |
| LC228E         | HC-P25 |  | ■                                     |                            |                                    |   |   |  | ●                          |                    |                          |
|                | HC-M25 |  |                                       | ■                          |                                    |   |   |  | ●                          |                    |                          |
|                | HC-S25 |  |                                       |                            |                                    |   | □   |  | ●                          |                    |                          |
| LC238E         | HC-P35 |  | ■                                     |                            |                                    |   |   |  | ●                          |                    |                          |
|                | HC-M35 |  |                                       | ■                          |                                    |   |   |  | ●                          |                    |                          |
| LCP15P         | HC-P15 |  | ■                                     |                            |                                    |   |   |  |                            | ●                  |                          |
|                | HC-M15 |  |                                       | ■                          |                                    |   |   |  |                            | ●                  |                          |
|                | HC-K15 |  |                                       |                            | □                                  |   |   |  |                            | ●                  |                          |
| LCM35P         | HC-M35 |  |                                       | ■                          |                                    |   |   |  |                            | ●                  |                          |
|                | HC-P35 |  | □                                     |                            |                                    |   |   |  |                            | ●                  |                          |
|                | HC-S35 |  |                                       |                            |                                    |   | □   |  |                            | ●                  |                          |
| R421           | HC-P15 |  | ■                                     |                            |                                    |   |   |  |                            |                    | ●                        |
| R440           | HC-P25 |  | □                                     |                            |                                    |   |   |  |                            |                    | ●                        |
|                | HC-M25 |  |                                       | ■                          |                                    |   |   |  |                            |                    | ●                        |
| R441           | HC-P35 |  | □                                     |                            |                                    |   |   |  |                            |                    | ●                        |
|                | HC-M35 |  |                                       | ■                          |                                    |   |   |  |                            |                    | ●                        |
| R635           | HC-P30 |  | ■                                     |                            |                                    |   |   |  |                            |                    | ●                        |
|                | HC-M30 |  |                                       |                            |                                    |   | □   |  |                            |                    | ●                        |
| R645           | HC-P35 |  | □                                     |                            |                                    |   |   |  |                            |                    | ●                        |
|                | HC-M35 |  |                                       | ■                          |                                    |   |   |  |                            |                    | ●                        |

Anwendungsschwerpunkt  
Application peak  
 Gesamtbereich nach ISO 513  
Full range to ISO 513

zunehmende Zähigkeit  
increasing toughness

zunehmende Verschleißfestigkeit  
increasing wear resistance

■ Hauptanwendung  
Main application  
 □ Weitere Anwendung  
Further applications

● Standard-  
beschichtung  
Standardcoating

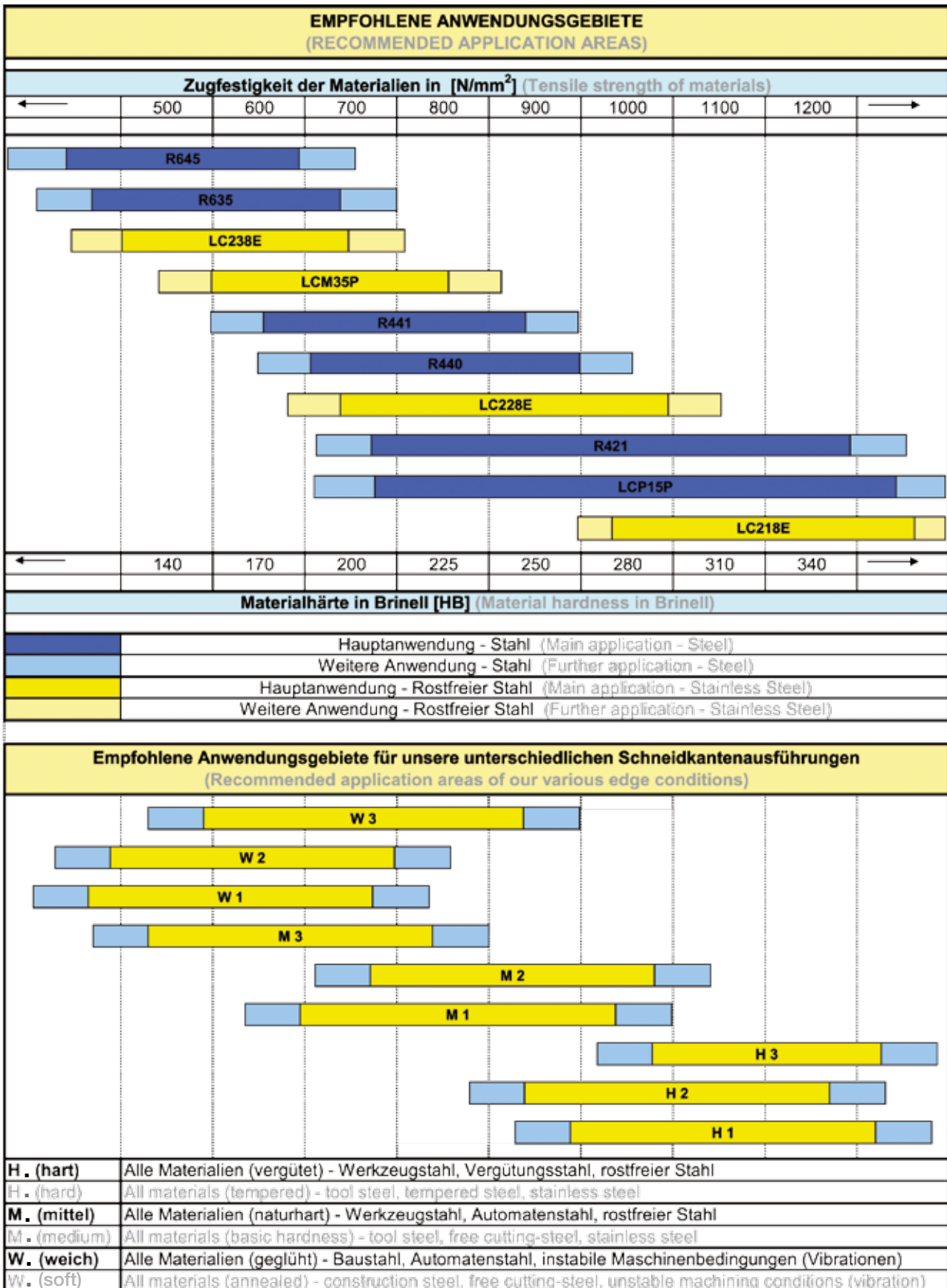
| Werkstoff-Gruppe | Gliederung der Werkstoff-Hauptgruppen und Kennbuchstaben |   |                 | Brinell Härte HB       | Sorte                              |
|------------------|--|---|-----------------|------------------------|------------------------------------|
|                  | Werkstück  |   |                 |                        |                                    |
| <b>P</b>         | Unlegierter Stahl  | geglüht   | 0,15% - 0,45% C | 140 - 155              | LC228E / LC238E<br>R635 / R440     |
|                  |  | vergütet  | 0,15% - 0,45% C | 290                    | LC218E<br>R421 / LCP15P            |
|                  | Niedrig legierter Stahl                                  | geglüht   | ≥ 0,45 % C      | 185                    | LC228E / LC238E<br>R635            |
|                  |  | vergütet  | ≥ 0,45 % C      | 290 - 340              | LC218E<br>R421 / LCP15P            |
|                  | Hochlegierter Stahl und hochlegierter Werkzeugstahl      | geglüht<br>gehärtet und angelassen                                  |                 | 180 - 210<br>290 - 325 | LC228E / LC238E<br>LC218E / LCP15P |
| <b>M</b>         | Nichtrostender Stahl                                     | ferritisch / martensitisch<br>geglüht,<br>martensitisch<br>vergütet |                 | 190 - 210<br>200 - 260 | LC228E<br>LCP15P/LC218E / LC228E   |
|                  | Nichtrostender Stahl                                     | austenitisch <sup>2)</sup> ,<br>abgeschreckt                        |                 | 170 - 190              | LC228E /LC238E / R440              |
| <b>N</b>         | Nichteisenmetalle<br>Aluminium, Kupfer                   |   |                 | 100 - 140              | LC218E / LCP15P                    |
| <b>S</b>         | Warmfeste Legierungen                                    | Ni-Basis, CO-Basis,<br>geglüht                                      |                 | 240 - 380              | LC218E / LC228E / R440             |
|                  | Titan und Titanlegierungen                               |   |                 | 250 - 340              | LC218E / VA273**                   |
| <b>H</b>         | Hitzebeständiger Stahl<br>Sphäroguss                     |   |                 | 170 - 220              | R421 / LCP15P                      |
| <b>K</b>         | Gusseisen<br>Al-Si-Legierungen                           |   |                 | 160 - 260              | LC218E / LCP15P                    |

\*\*VA 273 = Spezialsorte für Titanbearbeitung (auf Anfrage)

| Material group | Main workpiece material groups and their characteristic letters |   |                 | Brinell hardness HB    | Grade                              |
|----------------|---|---|-----------------|------------------------|------------------------------------|
|                | Material  |   |                 |                        |                                    |
| <b>P</b>       | Unalloyed steel   | annealed  | 0,15% - 0,45% C | 140 - 155              | LC228E / LC238E<br>R635 / R440     |
|                |   | hardened  | 0,15% - 0,45% C | 290                    | LC218E<br>R421 / LCP15P            |
|                | Low-alloy steel   | annealed  | ≥ 0,45 % C      | 185                    | LC228E / LC238E<br>R635            |
|                |   | hardened  | ≥ 0,45 % C      | 290 - 340              | LC218E<br>R421 / LCP15P            |
|                | High-alloy steel and high-alloy tool steel                      | annealed  |                 | 180 - 210<br>290 - 325 | LC228E / LC238E<br>LC218E / LCP15P |
| <b>M</b>       | Stainless steel   | ferritic / martensitic<br>annealed,<br>martensitic<br>hardened and tempered |                 | 190 - 210<br>200 - 260 | LC228E<br>LCP15P/LC218E / LC228E   |
|                |   | austenitic <sup>2)</sup> ,<br>quenched                                      |                 | 170 - 190              | LC228E /LC238E / R440              |
| <b>N</b>       | Nonmetallic materials<br>Aluminium, copper                      |   |                 | 100 - 140              | LC238E / R635                      |
| <b>S</b>       | Heat resistant alloys   | Ni-Basis, Co-Basis,<br>annealed   |                 | 240 - 380              | LC218E / LC228E / R440             |
|                | Titanium and Titanium alloys                                    |   |                 | 250 - 340              | LC218E / VA273**                   |
| <b>H</b>       | Heat resistant steel  |   |                 | 170 - 220              | R421 / LCP15P                      |
| <b>K</b>       | cast iron<br>Al-Si-Legierungen                                  |   |                 | 160 - 260              | LC218E / LCP15P                    |

\*\*VA273 = Special grade for Titan (on demand)





| Maße und Einheiten<br>Dimensions and units   | Anwendungs-Formeln<br>Application formulas   |
|--|--|
| $a_p$ = Schnitttiefe in mm<br>Depths of cut in mm  | Schnittgeschwindigkeit in [m/min] Cutting speed in [m/min]                                 |
| $Q$ = Zerspanungsvolumen in [cm <sup>3</sup> /min]<br>Chip removal rate [cm <sup>3</sup> /min] | $V_c = \frac{d_1 \times \pi \times n}{1000}$   |
| $V_c$ = Schnittgeschwindigkeit in [m/min]<br>Cutting speed in [m/min]                          | Drehzahl in [U/min] Revolutions of spindle [rev/min]                                       |
| $V_f$ = Vorschubgeschwindigkeit in [m/min]<br>Feed rate in [m/min]                             | $n = \frac{V_c \times 1000}{\pi \times d_1}$   |
| $f$ = Vorschub in [mm/u]<br>Feed in [mm/Rev.]  | Vorschubgeschwindigkeit $v_f$ [m/min] Feed rate $v_f$ [m/min]                              |
| $d_1$ = Äußerer Werkzeugdurchmesser [mm]<br>Outside tool diameter [mm]                         | $V_f = f \times n$   |
| $n$ = Drehzahl in [U/min]<br>Revolutions of spindle [rev/min]                                  | Vorschub pro Umdrehung $f$ [mm/U] Feed per revolution $f$ [mm/rev.]                        |
|  | $f = \frac{V_f}{n}$  |
|  | Zerspanungsvolumen $Q$ [cm <sup>3</sup> /min] Chip removal rate $Q$ [cm <sup>3</sup> /min] |
|  | $Q = a_p \times f \times V_c$  |

**Berechnungsbeispiele:**

**Calculation example:**

Wendeschnleplatte Insert :

**LNGF-2010-BML-H1 LC218E**

Durchmesser Bar diameter :

**Ø 48,6 - 46,2 mm**

Schnitttiefe Depth of cut ( $a_p$ ) Depth of cut ( $a_p$ ) :

**1,2 mm**

Gewählte Schnittgeschwindigkeit Chosen cutting speed ( $V_c$ ) :

**110 m/min**

Vorschub pro Umdrehung ( $f$ ) Feed per rev. ( $f$ ) :

**14 mm/U mm/rev**

Berechnung Drehzahl :

Calculation of rev. number :

$$n = \frac{v_c \times 1000}{\pi \times d_1}$$

$$n = \frac{110 \times 1000}{\pi \times 48,6} = 720,5 \text{ U/min rev/min}$$

Berechnung Vorschub :

Calculation of feed rate :

$$V_f = f \times n$$

$$V_f = 14 \times 720,5 = 10087 \text{ m/min} \sim 10,1 \text{ m/min}$$

Berechnung Zerspanungsvolumen :

Calculation of chip removal rate :

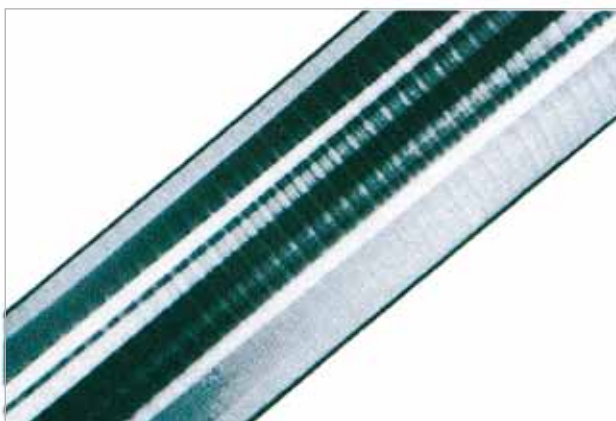
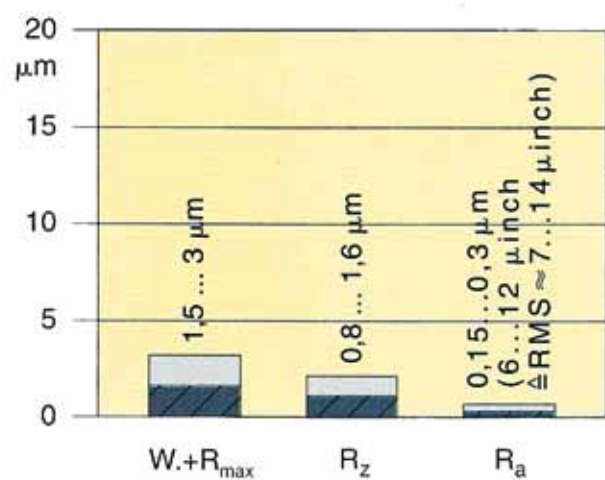
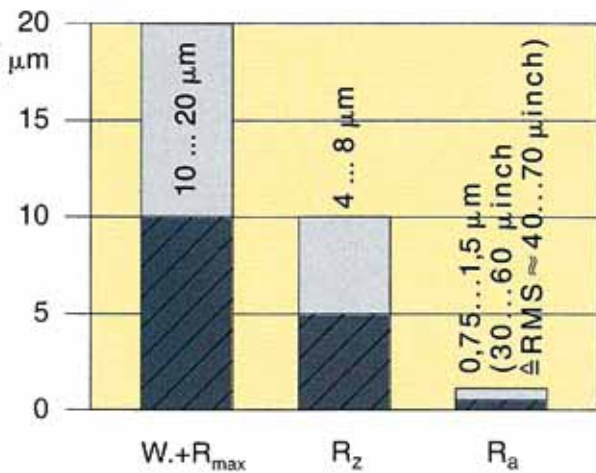
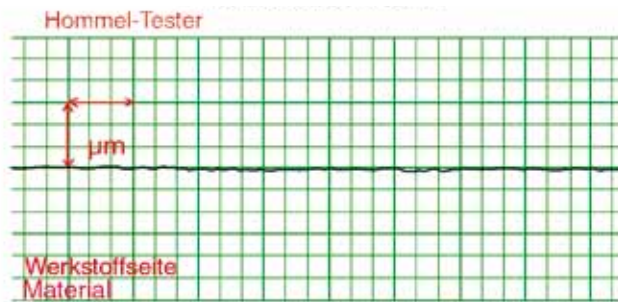
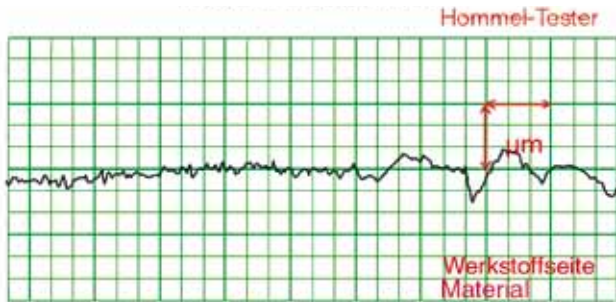
$$Q = a_p \times f \times v_c$$

$$Q = 1,2 \times 14 \times 110 \times 10^3 = 1.848 \text{ cm}^3/\text{min}$$

Messbeispiele:  
 Surface finish measurement examples:

Für geschälte Stangen  
 For peeled bars

Für geschälte und richtpolierte Stangen  
 For peeled, straightened and polished bars



R<sub>a</sub> = Arithmetischer Mittenrauwert  
 R<sub>z</sub> = Gemittelte Rautiefe  
 W.+R<sub>max</sub> = Wellen- + max. Rautiefe

R<sub>a</sub> = arithmetic medium value of roughness  
 R<sub>z</sub> = average depth of roughness  
 W.+R<sub>max</sub> = depth of peeling marks +  
 max. depth of roughness

| Werkstückfehler<br>Effect on the component  | Fehlerursache<br>Cause of defect  | Abhilfe<br>Solution  |
|---|---|--|
| Unrunde Stäbe<br>Out of round component   | Wendeplatten sitzen nicht auf dem gleichen Flugkreis<br>Incorrect insert setting  | Wendeplatten überprüfen, Kassettenschlitten oder Wendeplattenschlitten nachjustieren<br>Check insert, set cartridge slide or insert slide    |
|   | Stäbe werden nicht zentrisch zum Schälkopf eingeführt<br>Components are not positioned radially to the peeling head   | Position der Ein- und Auslaufführungsrolle überprüfen<br>Check position of the lead-in and lead-out roll                                     |
|   | Vormaterialmass ( $\varnothing$ ) stark streuend<br>Large raw material deviation ( $\varnothing$ )  | Abweichung überprüfen (unrundes Vormaterial = unrunde Fertigware)<br>Check deviation (out of round material = out of round finished product) |
| Rattermarken<br>Chatter marks   | Stützfase an den Wendeplatten zu gering<br>Too small edge preparation on inserts  | Grössere Stützfase anschleifen<br>Grind larger edge preparation  |
|   | Nebenschneide zu scharf - HACKEN<br>Secondary cutting edge too sharp - SNATCHING  | Grössere Verrundung anbringen<br>Larger edge hone required.  |
|   | Schneidkante liegt untermittig<br>Cutting edge below centre   | Schneidkantenhöhe überprüfen<br>Check cutting edge height  |
|   | Führungsrollen oder Lineale nicht richtig eingestellt<br>Incorrect position of the guide roll   | Einstellung überprüfen<br>Check setting  |
| Stufen in der Oberfläche (Sägezahnmuster)<br>Steps in the machined surface        | Die Nebenschneide einer oder mehrerer Wendeplatten liegt nicht parallel zum Stab<br>Secondary cutting edge of one or more inserts not positioned parallel to the bar          | Position der Nebenschneide(n) überprüfen<br>Check position of secondary cutting edge(s)  |
|   | Vorschub $f_n$ (mm/U) ist grösser als die Länge der Nebenschneide<br>Feed $f_n$ (mm/rev) is larger than the length of the secondary cutting edge                              | Vorschub reduzieren, Schnittgeschwindigkeit $V_c$ erhöhen<br>Reduce feed, increase cutting speed $V_c$                                       |
|   | Lage der Wendeplatte im Plattensitz nicht korrekt (verschmutzt, schlechte Klemmung, Verschleiß)<br>Incorrect position of the inserts in it's seat (dirt, poor fitting, wear)  | Plattensitz säubern, Klemmung überprüfen, Werkzeug erneuern<br>Clean insert seat, check position, renew tool                                 |
| <b>Werkzeugfehler</b><br>Effect on the tool                                       | <b>Fehlerursache</b><br>Cause of defect   | <b>Abhilfe</b><br>Solution   |
| Schlechter Spanbruch<br>Bad chip breakage   | Zu geringer Vorschub<br>Feed rate too low   | Vorschub erhöhen<br>Increase feed  |
|   | Falsche Spanleitstufe<br>Wrong chip breaker geometry  | Andere Spanleitstufe auswählen<br>Choose other geometry  |
|   | Zu wenig Kühlmittel<br>Less coolant   | Kühlmittelzufuhr erhöhen<br>Increase coolant supply  |
| Stark streuender Verschleiß<br>Heavy wear difference from one insert to the other | Werkzeuge nicht richtig eingestellt (Unterschiedliche Spantiefe zwischen den eingesetzten Wendeplatten)<br>Tool not adjusted correctly (different chip depth between inserts) | Einstellung überprüfen<br>Check adjustment   |
|   | Alte Werkzeuge (Plattensitz verschlissen)<br>Old tools (insert seat worn)   | Werkzeuge erneuern<br>Renew tool   |
| Schneidkantenausbrüche<br>Cutting edge breaking                                   | Zu grosser Vorschub<br>Feed too high  | Vorschub verringern<br>Reduce feed   |
|   | Falsche Schneidkanten-Schutzfase<br>Incorrect cutting edge chamfer  | Fasenbreite erhöhen, Fasenwinkel vergrössern (edge preparation)<br>Increase chamfer width, increase bevel angle                              |
|   | Verrundung zu klein<br>Edge hone too small  | Größere Verrundung anbringen<br>Larger honing  |
|   | Falsche Hartmetallsorte im Einsatz<br>Incorrect carbide grade used  | Zähere Sorte einsetzen<br>Use tougher grade  |

| Zugfestigkeit<br>Rm<br>Tensile<br>strength RM<br>N/mm <sup>2</sup> | Vickers-<br>härte<br>Vickers<br>hardness<br>HV | Brinell-<br>härte<br>Brinell<br>hardness<br>HB | Rockwell-<br>härte<br>Rockwell<br>hardness<br>HRC |
|--|--|--|---|
| 255  | 80   | 76   |   |
| 270  | 85   | 80,7   |   |
| 285  | 90   | 85,5   |   |
| 305  | 95   | 90,2   |   |
| 320  | 100  | 95   |   |
| 335  | 105  | 99,8   |   |
| 350  | 110  | 105  |   |
| 370  | 115  | 109  |   |
| 385  | 120  | 114  |   |
| 400  | 125  | 119  |   |
| 415  | 130  | 124  |   |
| 430  | 135  | 128  |   |
| 450  | 140  | 133  |   |
| 465  | 145  | 138  |   |
| 480  | 150  | 143  |   |
| 495  | 155  | 147  |   |
| 510  | 160  | 152  |   |
| 530  | 165  | 156  |   |
| 545  | 170  | 162  |   |
| 560  | 175  | 166  |   |
| 575  | 180  | 171  |   |
| 595  | 185  | 176  |   |
| 610  | 190  | 181  |   |
| 625  | 195  | 185  |   |
| 640  | 200  | 190  |   |
| 660  | 205  | 195  |   |
| 675  | 210  | 199  |   |
| 690  | 215  | 204  |   |
| 705  | 220  | 209  |   |
| 720  | 225  | 214  |   |
| 740  | 230  | 219  |   |
| 755  | 235  | 223  |   |
| 770  | 240  | 228  | 20,3  |
| 785  | 245  | 233  | 21,3  |
| 800  | 250  | 238  | 22,2  |
| 820  | 255  | 242  | 23,1  |
| 835  | 260  | 247  | 24  |
| 850  | 265  | 252  | 24,8  |
| 865  | 270  | 257  | 25,6  |
| 880  | 275  | 261  | 26,4  |
| 900  | 280  | 266  | 27,1  |
| 915  | 285  | 271  | 27,8  |
| 930  | 290  | 276  | 28,5  |
| 950  | 295  | 280  | 29,2  |
| 965  | 300  | 285  | 29,8  |
| 995  | 310  | 295  | 31  |
| 1030   | 320  | 304  | 32,2  |
| 1060   | 330  | 314  | 33,3  |
| 1095   | 340  | 323  | 34,4  |

| Zugfestigkeit<br>Rm<br>Tensile<br>strength RM<br>N/mm <sup>2</sup> | Vickers-<br>härte<br>Vickers<br>hardness<br>HV | Brinell-<br>härte<br>Brinell<br>hardness<br>HB | Rockwell-<br>härte<br>Rockwell<br>hardness<br>HRC |
|--|--|--|---|
| 1125   | 350  | 333  | 35,5  |
| 1155   | 360  | 342  | 36,6  |
| 1190   | 370  | 352  | 37,7  |
| 1220   | 380  | 361  | 38,8  |
| 1155   | 390  | 371  | 39,8  |
| 1290   | 400  | 380  | 40,8  |
| 1320   | 410  | 390  | 41,8  |
| 1350   | 420  | 399  | 42,7  |
| 1385   | 430  | 409  | 43,6  |
| 1420   | 440  | 418  | 44,5  |
| 1455   | 450  | 428  | 45,3  |
| 1485   | 460  | 437  | 46,1  |
| 1520   | 470  | 447  | 46,9  |
| 1555   | 480  | (456)  | 47,7  |
| 1595   | 490  | (466)  | 48,4  |
| 1630   | 500  | (475)  | 49,1  |
| 1665   | 510  | (485)  | 49,8  |
| 1700   | 520  | (494)  | 50,5  |
| 1740   | 530  | (504)  | 51,1  |
| 1775   | 540  | (513)  | 51,7  |
| 1810   | 550  | (523)  | 52,3  |
| 1845   | 560  | (532)  | 53,0  |
| 1880   | 570  | (542)  | 53,6  |
| 1920   | 580  | (551)  | 54,1  |
| 1955   | 590  | (561)  | 54,7  |
| 1995   | 600  | (570)  | 55,2  |
| 2030   | 610  | (580)  | 55,7  |
| 2070   | 620  | (589)  | 56,3  |
| 2105   | 630  | (599)  | 56,8  |
| 2145   | 640  | (608)  | 57,3  |
| 2180   | 650  | (618)  | 57,8  |
|  | 660  |  | 58,3  |
|  | 670  |  | 58,8  |
|  | 680  |  | 59,2  |
|  | 690  |  | 59,7  |
|  | 700  |  | 60,1  |
|  | 720  |  | 61  |
|  | 740  |  | 61,8  |
|  | 760  |  | 62,5  |
|  | 780  |  | 63,3  |
|  | 800  |  | 64  |
|  | 820  |  | 64,7  |
|  | 840  |  | 65,3  |
|  | 860  |  | 65,9  |
|  | 880  |  | 66,4  |
|  | 900  |  | 67  |
|  | 920  |  | 67,5  |
|  | 940  |  | 68  |

|   |                     |   |     |
|---|---------------------|---|-----|
| Zugfestigkeit   | Tensile strength    | N/mm <sup>2</sup>   | Rm  |
| Vickershärte  | Vickers hardness    | Diamantpyramide 1368, Prüfkraft F ≥ 98 N<br>Diamond pyramid 136°, Test force F ≥ 98 N       | HV  |
| Brinellhärte  | Brinell hardness    | 0,102 x F/D <sup>2</sup> = 30 N/mm <sup>2</sup>   | HB  |
| Kalkuliert mit: Calculated from: HB = 0,95 x HV F = Prüfkraft in N, D = Kegeldurchmesser in mm F = Test force in N, D = Ball diameter in mm |                     |   |     |
| Härte Rockwell C  | Rockwell hardness C | Diamantkegel 120°, Gesamtprüfkraft 1471±9 N<br>Diamond cone 120°, Total test force 1471±9 N | HRC |

| Werkstoffgruppe<br>Material Group | Deutschland<br>Germany                             |              | Großbritannien<br>Great Britain |         | Frankreich<br>France | Italien<br>Italy | Belgien<br>Belgium |  |
|-----------------------------------|--|--------------|---------------------------------|---------|----------------------|------------------|--------------------|--|
|                                   | W-Nr.  | DIN          | BS                              | EN      | AFNOR                | UNI              | NBN                |  |
| <b>P</b>                          | Baustahl und Konstruktionsstahl Construction steel |              |                                 |         |                      |                  |                    |  |
|                                   | 1.0401   | C15          | 080M15                          | -       | CC12                 | C15C16           | -                  |  |
|                                   | 1.0402   | C22          | 050A20                          | 2C      | CC20                 | C20C21           | C25-1              |  |
|                                   | 1.0501   | C35          | 060A35                          | -       | CC35                 | C35              | C35-1              |  |
|                                   | 1.0503   | C45          | 080M46                          | -       | CC45                 | C45              | C45-1              |  |
|                                   | 1.0535   | C55          | 070M55                          | -       | -                    | C55              | C55-1              |  |
|                                   | 1.0601   | C60          | 080A62                          | 43D     | CC55                 | C60              | C60-1              |  |
|                                   | 1.0715   | 9SMn28       | 230M07                          | -       | S250                 | CF9SMn28         | -                  |  |
|                                   | 1.0718   | 9SMnPb28     | -                               | -       | S250Pb               | CF9SMnPb28       | -                  |  |
|                                   | 1.0722   | 10SPb20      | -                               | -       | 10PbF2               | CF10SPb20        | -                  |  |
|                                   | 1.0726   | 35S20        | 212M36                          | 8M      | 35MF4                | -                | -                  |  |
|                                   | 1.0736   | 9SMn36       | 240M07                          | 1B      | S300                 | CF9SMn36         | -                  |  |
|                                   | 1.0737   | 9SMnPb36     | -                               | -       | S300Pb               | CF9SMnPb36       | -                  |  |
|                                   | 1.0904   | 55Si7        | 250A53                          | 45      | 55S7                 | 55Si8            | 55Si7              |  |
|                                   | 1.0961   | 60SiCr7      | -                               | -       | 60SC7                | 60SiCr8          | 60SiCr8            |  |
|                                   | 1.1141   | Ck15         | 080M15                          | 32C     | XC12                 | C16              | C16-2              |  |
|                                   | 1.1157   | 40Mn4        | 150M36                          | 15      | 35M5                 | -                | -                  |  |
|                                   | 1.1158   | Ck25         | -                               | -       | -                    | -                | C25-2              |  |
|                                   | 1.1167   | 36Mn5        | -                               | -       | 40M5                 | -                | -                  |  |
|                                   | 1.1170   | 28Mn6        | 150M28                          | 14A     | 20M5                 | C28Mn            | 28Mn6              |  |
|                                   | 1.1183   | Cf35         | 060A35                          | -       | XC38TS               | C36              | C36                |  |
|                                   | 1.1191   | Ck45         | 080M46                          | -       | XC42                 | C45              | C45-2              |  |
|                                   | 1.1203   | Ck55         | 070M55                          | -       | XC55                 | C50              | C55-2              |  |
|                                   | 1.1213   | Cf53         | 060A52                          | -       | XC48TS               | C53              | C53                |  |
|                                   | 1.1221   | Ck60         | 080A62                          | 43D     | XC60                 | C60              | C60-2              |  |
|                                   | 1.1274   | Ck101        | 060A96                          | -       | -                    | -                | -                  |  |
|                                   | 1.3401   | X120Mn12     | Z120M12                         | -       | Z120M12              | XG120Mn12        | -                  |  |
|                                   | 1.3505   | 100Cr6       | 534A99                          | 31      | 100C6                | 100Cr6           | -                  |  |
|                                   | 1.5415   | 15Mo3        | 1501-240                        | -       | 15D3                 | 16Mo3KW          | 16Mo3              |  |
|                                   | 1.5423   | 16Mo5        | 1503-245-4                      | 20 -    | -                    | 16Mo5            | 16Mo5              |  |
|                                   | 1.5622   | 14Ni6        | -                               | -       | 16N6                 | 14Ni6            | 18Ni6              |  |
|                                   | 1.5662   | X8Ni9        | 1501-509;510                    | -       | -                    | X10Ni9           | 10Ni36             |  |
|                                   | 1.5680   | 12Ni19       | -                               | -       | Z18N5                | -                | 12Ni20             |  |
|                                   | 1.5710   | 36NiCr6      | 640A35                          | 111A    | 35NC6                | -                | -                  |  |
|                                   | 1.5732   | 14NiCr10     | -                               | -       | 14NC11               | 16NiCr11         | -                  |  |
|                                   | 1.5752   | 14NiCr14     | 655M13;<br>655A12               | 36A     | 12NC15               | -                | 13NiCr12           |  |
| 1.6511                            | 36CrNiMo4  | 816M40       | 110                             | 40NCD3  | 38NiCrMo4(KB)        | -                |                    |  |
| 1.6523                            | 21NiCrMo2  | 805M20       | 362                             | 20NCD2  | 20NiCrMo2            | -                |                    |  |
| 1.6546                            | 40NiCrMo2  | 22311-Type 7 | -                               | -       | 40NiCrMo2(KB)        | 40NiCrMo2        |                    |  |
| 1.6582                            | 34CrNiMo6  | 817M40       | 24                              | 35NCD6  | 35NiCrMo6(KB)        | 35CrNiMo6        |                    |  |
| 1.6587                            | 17CrNiMo6  | 820A16       | -                               | 18NCD6  | -                    | 17CrNiMo7        |                    |  |
| 1.6657                            | 14NiCrMo13   | 832M13       | 36C                             | -       | 15NiCrMo13           | 14NiCrMo132      |                    |  |
| 1.7015                            | 15Cr3  | 523M15       | -                               | 12C3    | -                    | 15Cr2            |                    |  |
| 1.7033                            | 34Cr4  | 530A32       | 18B                             | 32C4    | 34Cr4(KB)            | 34Cr4            |                    |  |
| 1.7035                            | 41Cr4  | 530M40       | 18                              | 42C4    | 41Cr4                | 42Cr4            |                    |  |
| 1.7045                            | 42Cr4  | -            | -                               | -       | -                    | -                |                    |  |
| 1.7131                            | 16MnCr5  | (527M20)     | -                               | 16MC5   | 16MnCr5              | 16MnCr5          |                    |  |
| 1.7176                            | 55Cr3  | 527A60       | 48                              | 55C3    | -                    | 55Cr3            |                    |  |
| 1.7218                            | 25CrMo4  | 1717CDS110   | -                               | 25CD4   | 25CrMo4(KB)          | 25CrMo4          |                    |  |
| 1.7220                            | 34CrMo4  | 708A37       | 19B                             | 35CD4   | 35CrMo4              | 34CrMo4          |                    |  |
| 1.7223                            | 41CrMo4  | 708M40       | 19A                             | 42CD4TS | 41CrMo4              | 41CrMo4          |                    |  |
| 1.7225                            | 42CrMo4  | 708M40       | 19A                             | 42CD4   | 42CrMo4              | 42CrMo4          |                    |  |

|  | Schweden<br>Sweden | Spanien<br>Spain | USA<br>U.S.A. | Böhler<br>Böhler |  |
|--|--------------------|------------------|---------------|------------------|--|
|  | SIS                | UNE              | AISI/SAE      | Austria          |  |
|  | 1350               | F.111            | 1015          |                  |  |
|  | 1450               | F.112            | 1020          |                  |  |
|  | 1550               | F.113            | 1035          |                  |  |
|  | 1650               | F.114            | 1045          |                  |  |
|  | 1655               | -                | 1055          |                  |  |
|  | -                  | -                | 1060          |                  |  |
|  | 1912               | 11SMn28          | 1213          |                  |  |
|  | 1914               | 11SMnPb28        | 12L13         |                  |  |
|  | -                  | 10SPb20          | -             |                  |  |
|  | 1957               | F210G            | 1140          |                  |  |
|  | -                  | 12SMn35          | 1215          |                  |  |
|  | 1926               | 12SMn35          | 12L14         |                  |  |
|  | 2085               | 56Si7            | 9255          |                  |  |
|  | -                  | 60SiCr8          | 9262          |                  |  |
|  | 1370               | C15K             | 1015          |                  |  |
|  | -                  | -                | 1039          |                  |  |
|  | -                  | -                | 1025          |                  |  |
|  | 2120               | 36Mn5            | 1335          |                  |  |
|  | -                  | -                | 1330          |                  |  |
|  | 1572               | -                | 1035          |                  |  |
|  | 1672               | C45K             | 1045          |                  |  |
|  | -                  | C55K             | 1055          |                  |  |
|  | 1674               | -                | 1050          |                  |  |
|  | 1678               | -                | 1060          |                  |  |
|  | 1870               | -                | 1095          |                  |  |
|  | -                  | XG120Mn12        | -             | K700             |  |
|  | 2258               | F.131            | 52100         |                  |  |
|  | 2912               | 16Mo3            | ASTM A204Gr.A |                  |  |
|  | -                  | 16Mo5            | 4520          |                  |  |
|  | -                  | 15Ni6            | ASTM A350LF5  |                  |  |
|  | -                  | XBNi09           | ASTM A353     |                  |  |
|  | -                  | -                | 2515          |                  |  |
|  | -                  | -                | 3135          |                  |  |
|  | -                  | 15NiCr11         | 3415          |                  |  |
|  | -                  | -                | 3415;3310     | E200             |  |
|  | -                  | 35NiCrMo4        | 9840          |                  |  |
|  | 2506               | 20NiCrMo2        | 8620          |                  |  |
|  | -                  | 40NiCrMo2        | 8740          |                  |  |
|  | 2541               | -                | 4340          | V155             |  |
|  | -                  | 14NiCrMo13       | -             | E110             |  |
|  | -                  | 14NiCrMo131      | -             |                  |  |
|  | -                  | -                | 5015          |                  |  |
|  | -                  | 35Cr4            | 5132          |                  |  |
|  | -                  | 42Cr4            | 5140          |                  |  |
|  | 2245               | 42Cr4            | 5140          |                  |  |
|  | 2511               | 16MnCr5          | 5115          |                  |  |
|  | -                  | -                | 5155          |                  |  |
|  | 2225               | 55Cr3            | 4130          |                  |  |
|  |                    |                  | AM26CrMo4     |                  |  |
|  | 2234               | 34CrMo4          | 4137;4135     |                  |  |
|  | 2244               | 42CrMo4          | 4140;4142     | V320             |  |
|  | 2244               | 42CrMo4          | 4140          | V320             |  |

| Werkstoffgruppe<br>Material Group                                     | Deutschland<br>Germany                             |             | Großbritannien<br>Great Britain |                         | Frankreich<br>France          | Italien<br>Italy         | Belgien<br>Belgium |
|---|--|-------------|---------------------------------|-------------------------|-------------------------------|--------------------------|--------------------|
|   | W-Nr.  | DIN         | BS                              | EN                      | AFNOR                         | UNI                      | NBN                |
| <b>P</b>  | Baustahl und Konstruktionsstahl Construction steel |             |                                 |                         |                               |                          |                    |
|   | 1.7262   | 15CrMo5     | -                               | -                       | 12CD4                         | -                        | -                  |
|   | 1.7335   | 13CrMo4 4   | 1501-620Gr27                    | -                       | 15CD3.5<br>15CD4.5            | 14CrMo4 5                | 14CrMo45           |
|   | 1.7361   | 32CrMo12    | 722M24                          | 40B                     | 30CD12                        | 32CrMo12                 | 32CrMo12           |
|   | 1.7380   | 10CrMo9 10  | 1501-622                        | -                       | 12CD9,10                      | 12CrMo9,10               | -                  |
|   |  |             | Gr.31;45                        | -                       | -                             | -                        | -                  |
|   | 1.7715   | 14MoV6 3    | 1503-660-440                    | -                       | -                             | -                        | 13MoCrV6           |
|   | 1.8159   | 50CrV4      | 735A50                          | 47                      | 50CV4                         | 50CrV4                   | 50CrV4             |
|   | 1.8509   | 41CrAlMo7   | 905M39                          | 41B                     | 40CAD6,12                     | 41CrAlMo7                | 41CrAlMo7          |
|   | 1.8523   | 39CrMoV13 9 | 897M39                          | 40C                     | -                             | 36CrMoV12                | 39CrMoV13          |
|   | Werkzeugstähle Tool steels                         |             |                                 |                         |                               |                          |                    |
|   | 1.1545   | C105W1      | -                               | -                       | Y1 105                        | C98KU<br>C100KU          | -                  |
|   | 1.1663   | C125W       | -                               | -                       | Y2 120                        | C120KU                   | -                  |
|   | 1.2067   | 100Cr6      | BL3                             | -                       | Y100C6                        | -                        | -                  |
|   | 1.2080   | X210Cr12    | BD3                             | -                       | Z200C12                       | X210Cr13KU<br>X250Cr12KU | -                  |
| 1.2344  | X40CrMoV51   | BH13        | -                               | Z40CDV5                 | X35CrMoV05KU<br>X40CrMoV511KU | -                        |                    |
| 1.2363  | X100CrMoV51  | BA2         | -                               | Z100CDV5                | X100CrMoV51KU                 | -                        |                    |
| 1.2419  | 105WCr6  | -           | -                               | 105WC13<br>107WCr5KU    | 10WCr6                        | -                        |                    |
| 1.2436  | X210CrW12  | -           | -                               | -                       | X215CrW121KU                  | -                        |                    |
| 1.2542  | 45WCrV7  | BS1         | -                               | -                       | 45WCrV8KU                     | -                        |                    |
| 1.2581  | X30WCrV9 3   | BH21        | -                               | Z30WCV9                 | X28W09KU<br>X30WCrV9 3KU      | -                        |                    |
| 1.2601  | X165CrMoV12  | -           | -                               | -                       | X165CrMoW12KU                 | -                        |                    |
| 1.2713  | 55NiCrMoV6   | -           | -                               | 55NCDV7                 | -                             | -                        |                    |
| 1.2833  | 100V1  | BW2         | -                               | Y1 105V                 | -                             | C98KU<br>102V2KU         |                    |
| Schnellarbeitsstähle High speed steels                                |  |             |                                 |                         |                               |                          |                    |
| 1.3243  | S 6-5-2-5  | -           | -                               | Z85WDKCV<br>06-05-04-02 | HS 6-5-2-5                    | -                        |                    |
| 1.3247  | -  | BM 42       | HS 2-9-1-8                      | Z110DKCWV               | HS 2-9-1-8                    | -                        |                    |
| 1.3255  | S 18-1-2-5   | BT4         | -                               | Z80WKCV<br>18-05-04-01  | X78WCo1805KU                  | -                        |                    |
| 1.3325  | 81MoCrV42-16                                       | -           | HS 0-4-1                        | Y80DCV42-16             | X80MoCrV4-4                   | -                        |                    |
| 1.3326  | -  | -           | HS 1-4-2                        | -                       | -                             | -                        |                    |
| 1.3343  | S 6-5-2  | BM2         | -                               | Z85WDCV<br>06-05-04-02  | X82WMo0605KU                  | -                        |                    |
| 1.3344  | -  | BM 4        | HS 6-5-3                        | Z120WDCV06-05-04-03     | HS 6-5-3                      | -                        |                    |
| 1.3348  | S 2-9-2  | -           | -                               | Z100WCWV<br>09-04-02-02 | HS 2-9-2                      | -                        |                    |
| 1.3355  | S 18-0-1   | BT1         | -                               | Z80WCV<br>18-04-01      | X75W18KU                      | -                        |                    |
| Pulvermetallurgische Schnellarbeitsstähle Powder metallurgical steels |  |             |                                 |                         |                               |                          |                    |
| 1.3244  | -  | -           | HS 6-5-3-8                      | -                       | -                             | -                        |                    |
| 1.3345  | -  | -           | HS 6-5-3C                       | -                       | -                             | -                        |                    |
| 1.3351  | -  | BM 4        | HS 6-5-4                        | -                       | -                             | -                        |                    |



|  | Schweden<br>Sweden | Spanien<br>Spain | USA<br>U.S.A.        | Böhler<br>Böhler |  |
|--|--------------------|------------------|----------------------|------------------|--|
|  | SIS                | UNE              | AISI/SAE             | Austria          |  |
|  | 2216               | 12CrMo4          | -                    |                  |  |
|  | -                  | 14CrMo45         | ASTM A182<br>F11;F12 |                  |  |
|  | 2240               | F124.A           | -                    |                  |  |
|  | 2218               | TU.H             | ASTM A182<br>F.22    |                  |  |
|  | -                  | 13MoCrV6         | -                    |                  |  |
|  | 2230               | 51CrV4           | 6150                 |                  |  |
|  | 2940               | 41CrAlMo7        | -                    |                  |  |
|  | -                  | -                | -                    |                  |  |
|  | 1880               | F.515<br>F.516   | W.110                |                  |  |
|  | -                  | (C120)           | W.112                |                  |  |
|  | -                  | 100Cr6           | L3                   |                  |  |
|  | -                  | X210Cr12         | D3                   | K100             |  |
|  | 2242               | X40CrMoV5        | H13                  | W302             |  |
|  | 2260               | X100CrMoV5       | A2                   | K305             |  |
|  | 2140               | 105WCr5          | -                    |                  |  |
|  | 2312               | X210CrW12        | -                    | K107             |  |
|  | 2710               | 45WCrSi8         | S1                   |                  |  |
|  | -                  | X30WCrV9         | H21                  | W100             |  |
|  | 2310               | X160CrMoV12      | -                    | K105             |  |
|  | -                  | F.520.S          | L6                   |                  |  |
|  | -                  | -                | W210                 |                  |  |
|  | 2723               | HS 6-5-2-5       | -                    | S705             |  |
|  | 2716               | F5617            | M42                  | S500             |  |
|  | -                  | HS 18-1-1-5      | T4                   |                  |  |
|  | -                  | -                | M50                  | S405             |  |
|  | -                  | -                | M52                  | S404             |  |
|  | 2722               | HS 6-5-2         | M2                   | S600             |  |
|  | -                  | F5605            | M3 Cl. 2             | S607             |  |
|  | 2782               | HS 2-9-2         | M7                   | S400             |  |
|  | -                  | HS 18-0-1        | T1                   | S200             |  |
|  | -                  | -                | -                    | S590             |  |
|  | -                  | -                | M3 Cl. 2             | S790             |  |
|  | -                  | -                | M4                   | S690             |  |

| Werkstoffgruppe<br>Material Group | Deutschland<br>Germany                   |  | Großbritannien<br>Great Britain |        | Frankreich<br>France | Italien<br>Italy | Belgien<br>Belgium |   |
|-----------------------------------|--|--|---------------------------------|--------|----------------------|------------------|--------------------|---|
|                                   | W-Nr.                                    | DIN  | BS                              | EN     | AFNOR                | UNI              | NBN                |   |
| <b>P</b>                          | Kaltarbeitsstahl Cold work steel         |  |                                 |        |                      |                  |                    |   |
|                                   | 1.2210                                   | 115CrV3  | -                               | -      | 100C3                | 107CrV3          | KU                 | - |
|                                   | 1.2345                                   | X50CrVMo5-1  | -                               | -      | -                    | -                | -                  | - |
|                                   | 1.2379                                   | X153CrMoV12  | BD 2                            | -      | Z160DCDV12           | X155CrVMo12 1    | KU                 | - |
|                                   | 1.2510                                   | 100MnCrW4  | BO 1                            | -      | 90MWCV5              | 95MnWCr5         | KU                 | - |
|                                   | 1.2550                                   | 60WCrV7  | -                               | -      | 55WC20               | 58WCr9           | KU                 | - |
|                                   | 1.2721                                   | 50NiCr13   | -                               | -      | -                    | -                | -                  | - |
|                                   | 1.2842                                   | 90MnCrV8   | BO 2                            | -      | 90MV8                | 90MnCr8          | KU                 | - |
|                                   | Warmarbeitsstahl Hot work steels         |  |                                 |        |                      |                  |                    |   |
|                                   | 1.2343                                   | X38CrMoV5-1  | BH 11                           | -      | Z38CDV5              | X37CrMoV5-1      | KU                 | - |
|                                   | 1.2344                                   | X37CrMoV5-1  | BH 13                           | -      | Z40CDV5              | X40CrMoV5-1-1    | KU                 | - |
|                                   | 1.2365                                   | 32CrMoV12-28   | BH 10                           | -      | 32DCV28              | 30CrMoV12-27     | KU                 | - |
|                                   | 1.2367                                   | X38CrMoV5-3  | -                               | -      | -                    | -                | -                  | - |
|                                   | 1.2714                                   | 56NiCrMoV7   | 5                               | BS 224 | 55NCDV7              | 56NiCrMoV7       | KU                 | - |
|                                   | Kunststoffformstähle Plastic mold steels |  |                                 |        |                      |                  |                    |   |
|                                   | 1.2083                                   | X42Cr13  | -                               | -      | Z40C14               | X41Cr13          | KU                 | - |
|                                   | 1.2312                                   | 40CrMnMoS8-6   | -                               | -      | -                    | -                | -                  | - |
|                                   | 1.4028                                   | X30Cr13  | 420S45                          | -      | Z30C13               | X30Cr13          | -                  | - |
|                                   | <b>M</b>                                 | Nichtrostende und hitzebeständige Stähle Stainless and heat resisting steels |                                 |        |                      |                  |                    |   |
| 1.3544                            |  | X105CrMo17   | -                               | -      | Z100CD17             | X102CrMo17       | KU                 | - |
| 1.4000                            |  | X6Cr13   | 403S17                          | -      | Z6C13                | X6Cr13           | -                  | - |
| 1.4001                            |  | X7Cr14   | -                               | -      | -                    | -                | -                  | - |
| 1.4006                            |  | X10Cr13  | 410S21                          | 56A    | Z10C14               | X12Cr13          | -                  | - |
| 1.4014                            |  | X20Cr13  | 420S29                          | EN56B  | Z20C13               | X20Cr13          | KU                 | - |
| 1.4016                            |  | X6Cr17   | 430S15                          | 60     | Z8C17                | X8Cr17           | -                  | - |
| 1.4027                            |  | G-X200Cr14   | 420C29                          | 56B    | Z20C13M              | -                | -                  | - |
| 1.4034                            |  | X46Cr13  | 420S45                          | 56D    | Z40CM                | X40Cr14          | -                  | - |
|                                   |  |  |                                 |        | Z38C13M              |                  |                    |   |
| 1.4044                            |  | -  | 431S29                          | EN57   | Z15CN16-02           | -                | -                  | - |
| 1.4057                            |  | X17CrNi17  | S80                             | -      | Z15CN17-3            | X16CrNi16        | -                  | - |
| 1.4104                            |  | X12CrMoS17   | -                               | -      | Z10CF17              | X10CrS17         | -                  | - |
| 1.4112                            |  | X6CrMo171  | 434S17                          | -      | Z8CD17.01            | X8CrMo17         | -                  | - |
| 1.4301                            |  | X5CrNi1810   | 304S15                          | 58E    | Z6CN18.09            | X5CrNi1810       | -                  | - |
| 1.4305                            |  | X10CrNiS189  | 303S21                          | 58M    | Z10CNF 18.09         | X10CrNiS18.09    | -                  | - |
| 1.4306                            |  | X2CrNi1911   | 304S12                          | -      | Z2CN 18.10           | X2CrNi18.11      | -                  | - |
|                                   |  |  | 304C12                          | -      | Z3CN 19.10           |                  |                    |   |
| 1.4308                            |  | G-X6CrNi18 9   | 304C15                          | -      | Z6CN18.10M           | -                | -                  | - |
| 1.4310                            |  | X12CrNi177   | -                               | -      | Z12CN17.07           | X12CrNi1707      | -                  | - |
| 1.4311                            |  | X2CrNiN1810  | 304S26                          | -      | Z2CN18.10            | -                | -                  | - |
| 1.4313                            |  | X5CrNi134  | 425C11                          | -      | Z4CND13.4M           | -                | -                  | - |
| 1.4314                            |  | X5CrNi18-10  | 302S17                          | EN58E  | Z5CN18 09            | X5CrNi18 10      | -                  | - |
| 1.4401                            |  | X5CrNiMo17122  | 316S16                          | 58J    | Z6CND17.11           | X5CrNiMo1712     | -                  | - |
| 1.4404                            |  | X2CrNiMo17-12-2  | 316S11                          | -      | Z2CND17 12           | X2CrNiMo17 12    | -                  | - |
| 1.4408                            |  | G-X6CrNiMo1810   | 316C16                          | -      | -                    | -                | -                  | - |
| 1.4410                            |  | X2CrNiMoN25-7-4  | -                               | -      | -                    | -                | -                  | - |
| 1.4412                            |  | X90CrMoV18   | -                               | -      | -                    | -                | -                  | - |

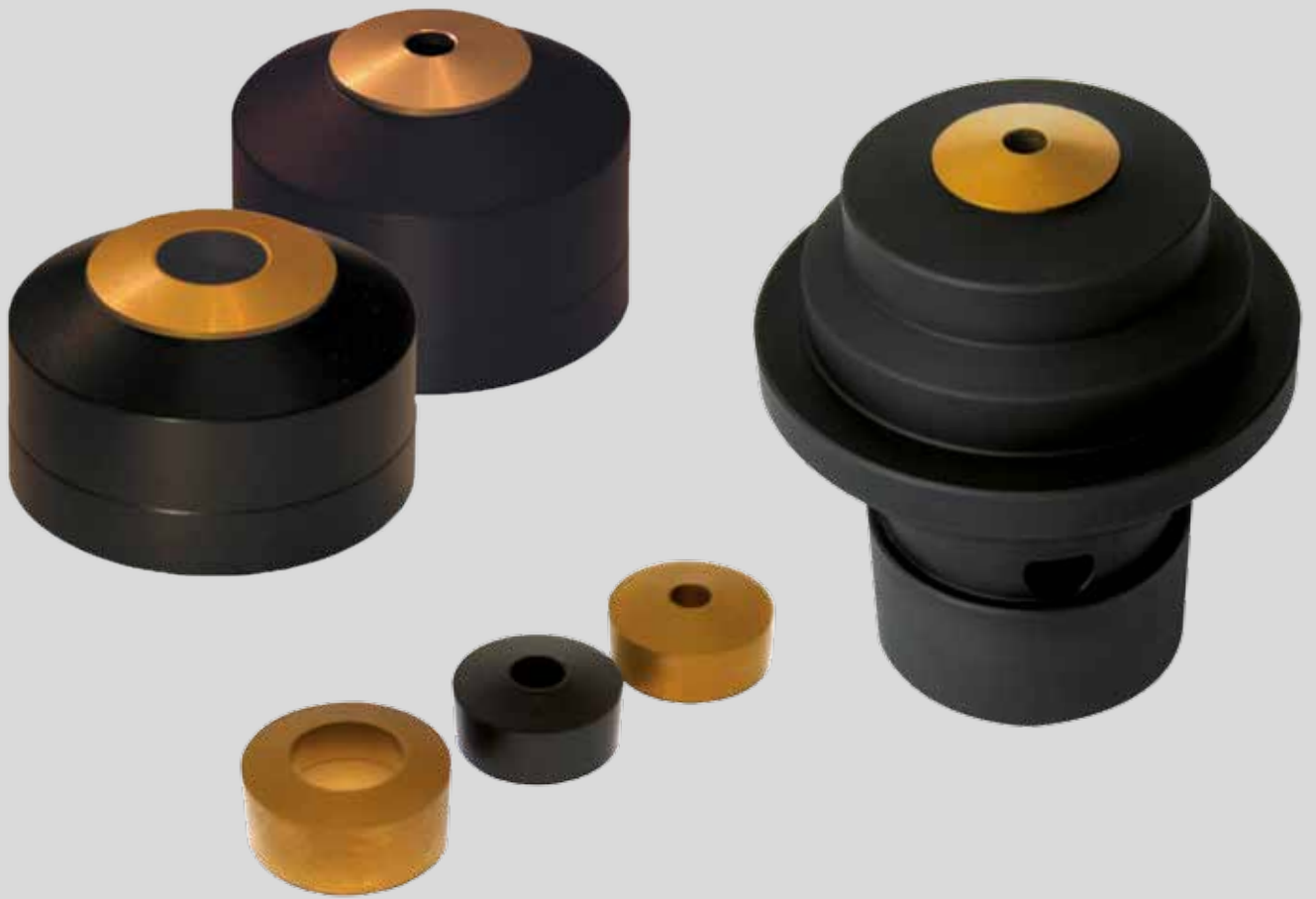
**Werkstoff - Vergleichstabelle**  
**Comparison table of materials to be machined**

|  | Schweden<br>Sweden | Spanien<br>Spain | USA<br>U.S.A. | Böhler<br>Böhler |  |
|--|--------------------|------------------|---------------|------------------|--|
|  | SIS                | UNE              | AISI/SAE      | Austria          |  |
|  | -                  | F5125            | -             | K510             |  |
|  | -                  | -                | -             | K306             |  |
|  | 2310               | F5211            | D2            | K110             |  |
|  | 2140               | F5220            | O1            | K460             |  |
|  | -                  | F5242            | S1            | K455             |  |
|  | 2550               | -                | -             | K605             |  |
|  | -                  | -                | O2            | K720             |  |
|  |                    |                  |               |                  |  |
|  |                    | F5317            | H11           | W300             |  |
|  | -                  | F5317            | H13           | W302             |  |
|  | -                  | F5313            | H10           | W320             |  |
|  | -                  | -                | -             | W303             |  |
|  | -                  | F5307            | L6            | W500             |  |
|  |                    |                  |               |                  |  |
|  | -                  | F5263            | 420           | M310             |  |
|  | -                  | -                | P20           | M200             |  |
|  | 2304               | F3403            | 420           | M330             |  |
|  |                    |                  |               |                  |  |
|  | -                  | -                | 440F          | N695             |  |
|  | 2301               | F3110            | 403           |                  |  |
|  |                    | F8401            |               |                  |  |
|  | 2302               | F3401            | 410           | N100             |  |
|  | 2303               | F3402            | 420           | N320             |  |
|  | 2320               | F3113            | 430           | N200             |  |
|  | -                  | -                | -             |                  |  |
|  | 2304               | F3405            | -             | N540             |  |
|  |                    |                  |               |                  |  |
|  | 2321               | -                | 431           | N352             |  |
|  | 2321               | F3427            | 431           | N350             |  |
|  | 2383               | F3117            | 430F          | N310             |  |
|  | 2325               | -                | 434           |                  |  |
|  | 2332               | F3551            | 304           | A607             |  |
|  |                    | F3541            |               | A500             |  |
|  |                    | F3504            |               |                  |  |
|  | 2346               | F3508            | 303           | A506             |  |
|  | 2352               | F3503            | 304L          | A600             |  |
|  | 2333               |                  |               |                  |  |
|  | -                  | -                | -             |                  |  |
|  | 2331               | F3517            | 301           |                  |  |
|  | 2371               | -                | 304LN         |                  |  |
|  | -                  | -                | -             | N403             |  |
|  | 2332               | F3504            | 304           | A500             |  |
|  | 2347               | F3543            | 316           | A120             |  |
|  | 2348               | F3533            | 316L          | A200             |  |
|  | -                  | F8414            | -             | -                |  |
|  | -                  | -                | F53           | A913             |  |
|  | -                  | -                | 440B          | N685             |  |

| Werkstoffgruppe<br>Material Group | Deutschland<br>Germany                |  | Großbritannien<br>Great Britain |         | Frankreich<br>France | Italien<br>Italy | Belgien<br>Belgium |   |  |
|-----------------------------------|---------------------------------------|--|---------------------------------|---------|----------------------|------------------|--------------------|---|--|
|                                   | W-Nr.                                 | DIN  | BS                              | EN      | AFNOR                | UNI              | NBN                |   |  |
| <b>M</b>                          | 1.4418                                | X4CrNiMo16-5-1                               | -                               | -       | Z6CND16-05-01        | -                | -                  |   |  |
|                                   | 1.4429                                | X2CrNiMoN17133                               | -                               | -       | Z2CND17.13           | -                | -                  |   |  |
|                                   | 1.4435                                | X2CrNiMo18143                                | 316S12                          | -       | Z2CND17.13           | X2CrNiMo1713     | -                  |   |  |
|                                   | 1.4438                                | X2CrNiMo17133                                | 317S12                          | -       | Z2CND1915            | X2CrNiMo1816     | -                  |   |  |
|                                   | 1.4460                                | X8CrNiMo275                                  | -                               | -       | -                    | -                | -                  |   |  |
|                                   | 1.4462                                | X2CrNiMoN22-5-3                              | -                               | -       | Z3CND22-05 Az        | -                | -                  |   |  |
|                                   | 1.4466                                | X1CrNiMoN25-22-2                             | -                               | -       | -                    | -                | -                  |   |  |
|                                   | 1.4501                                | X2CrNiMoCuWN25-7-4                           | -                               | -       | -                    | -                | -                  |   |  |
|                                   | 1.4534                                | X3CrNiMoAl13-8-2                             | -                               | -       | -                    | -                | -                  |   |  |
|                                   | 1.4541                                | X6CrNiTi1810                                 | 2337                            | 312S12  | Z6CNT18.10           | X6CrNiTi1811     | -                  |   |  |
|                                   | 1.4542                                | X5CrNiCuNb16-4                               | -                               | -       | Z6CNU17-04           | -                | -                  |   |  |
|                                   | 1.4544                                | X12CrNiTi18-9                                | 321S31                          | EN58B   | Z10CNT18 11          | X6CrNiTi18 11    | -                  |   |  |
|                                   | 1.4545                                | -  | -                               | -       | -                    | -                | -                  |   |  |
|                                   | 1.4546                                | X5CrNiNb18-10                                | 347S17                          | EN58F   | Z6CNNb18 10          | X6CrNiNb18 11    | -                  |   |  |
|                                   | 1.4550                                | X6CrNiNb1810                                 | 347S17                          | 58F     | Z6CNNb18.10          | X6CrNiNb1811     | -                  |   |  |
|                                   | 1.4571                                | X6CrNiMoTi17122                              | 320S17                          | 58J     | Z6NDT17.12           | X6CrNiMoTi1712   | -                  |   |  |
|                                   | 1.4581                                | G-X5CrNi<br>MoNb1810                         | 318C17                          | -       | Z4CNDNb<br>18 12M    | XG8CrNiMo1811    | -                  |   |  |
|                                   | 1.4583                                | X10CrNi<br>MoNb1812                          | -                               | -       | Z6CNDNb<br>17 13B    | X6CrNiMoNb1713   | -                  |   |  |
|                                   | 1.4718                                | X45CrSi93                                    | 401S45                          | 52      | Z45Cs9               | X45CrSi8         | -                  |   |  |
|                                   | 1.4724                                | X10CrAl13                                    | 403S17                          | -       | Z10C13               | X10CrA112        | -                  |   |  |
|                                   | 1.4742                                | X10CrAl18                                    | 430S15                          | 60      | Z10CAS18             | X8Cr17           | -                  |   |  |
|                                   | 1.4747                                | X80CrNiSi20                                  | 443S05                          | 59      | Z80CSN20.02          | X8CrSiNi20       | -                  |   |  |
|                                   | 1.4762                                | X10CrAl24                                    | -                               | -       | Z10CAS24             | X16Cr26          | -                  |   |  |
|                                   | 1.4828                                | X15CrNiSi2012                                | 309S24                          | -       | Z15CNS20.12          | -                | -                  |   |  |
|                                   | 1.4845                                | X12CrNi25 21                                 | 310S24                          | -       | Z12CN2520            | X6CrNi2520       | -                  |   |  |
|                                   | 1.4864                                | X12NiCrSi3616                                | -                               | -       | Z12NCS35.16          | -                | -                  |   |  |
|                                   | 1.4865                                | G-X40NiCrSi3818                              | 330C11                          | -       | -                    | XG50NiCr3919     | -                  |   |  |
|                                   | 1.4871                                | X53CrMnNiN219                                | 349S54                          | -       | Z52CMN21.09          | X53CrMnNiN219    | -                  |   |  |
|                                   |                                       |  | 321S12                          | 58B     |                      |                  |                    |   |  |
|                                   | 1.4878                                | X12CrNiTi189                                 | 321S20                          | 58C     | Z6CNT18.12B          | X6CrNiTi1811     | -                  |   |  |
|                                   | <b>S</b>                              | Hitzebeständige Stähle Heat resisting steels |                                 |         |                      |                  |                    |   |  |
|                                   |                                       | 1.2786                                       | X13NiCrSi36-16                  | -       | -                    | Z20NCS33-16      | -                  | - |  |
|                                   | 1.4841                                | X15CrNiSi25-20                               | 310S24                          | -       | Z10CNS25-20          | X16CrNiSi25-20   | -                  |   |  |
| <b>N</b>                          | Nickelbasislegierungen Ni-base alloys |  |                                 |         |                      |                  |                    |   |  |
|                                   | 2.4662                                | NiCr13Mo6Ti3                                 | HR53                            | -       | Z8NCDT42             | -                | -                  |   |  |
|                                   | 2.4668                                | NiCr19NbMo                                   | -                               | -       | NC19FeNb             | -                | -                  |   |  |
|                                   | 2.4856                                | NiCr22Mo9Nb                                  | NA21                            | -       | NC22DNb              | -                | -                  |   |  |
|                                   | 2.4952                                | NiCr20TiAl                                   | HR1                             | EN10090 | NC20TA               | -                | -                  |   |  |

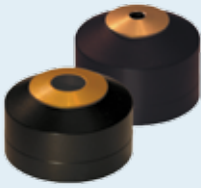
**Werkstoff - Vergleichstabelle**  
**Comparison table of materials to be machined**

|  | Schweden<br>Sweden | Spanien<br>Spain | USA<br>U.S.A. | Böhler<br>Böhler |  |
|--|--------------------|------------------|---------------|------------------|--|
|  | SIS                | UNE              | AISI/SAE      | Austria          |  |
|  | -                  | -                | -             | N404             |  |
|  | 2375               | -                | 316LN         |                  |  |
|  | 2353               | -                | 316L          | A220             |  |
|  | 2367               | -                | 317L          |                  |  |
|  | 2324               | -                | 329           |                  |  |
|  | -                  | -                | F51           | A903             |  |
|  | -                  | -                | 310MoLN       | A405             |  |
|  | -                  | -                | F55           | A911SA           |  |
|  | -                  | -                | XM13          | N709             |  |
|  | 58B                | F3553, F3523     | 321           | A700             |  |
|  | -                  | -                | 630           | N700             |  |
|  | 2337               | F3523            | 321           | A700             |  |
|  | -                  | -                | XM12          | N701             |  |
|  | 2338               | F3524            | 347           | A750             |  |
|  | 2338               | F3552, F3524     | 347           |                  |  |
|  | 2350               | F3535            | 316Ti         | A300             |  |
|  | -                  | -                | -             |                  |  |
|  | -                  | -                | 318           |                  |  |
|  | -                  | F322             | HW3           | H700             |  |
|  | -                  | F311             | 405           |                  |  |
|  | -                  | F3113            | 430           |                  |  |
|  | -                  | F320B            | HNV6          |                  |  |
|  | 2322               | -                | 446           |                  |  |
|  | -                  | -                | 309           | H550             |  |
|  | 2361               | F331             | 310S          |                  |  |
|  | -                  | -                | 330           | H520             |  |
|  | -                  | -                | -             |                  |  |
|  | -                  | -                | EV8           | H850             |  |
|  | -                  | F3523            | 321           | A700             |  |
|  | -                  | -                | 30330         | H520             |  |
|  | -                  | -                | 314           | H525             |  |
|  | -                  | N0991            | 5660          | L901             |  |
|  | -                  | N07718           | -             | L718             |  |
|  | -                  | N06625           | -             | L625             |  |
|  | -                  | N07080           | -             | L080A            |  |



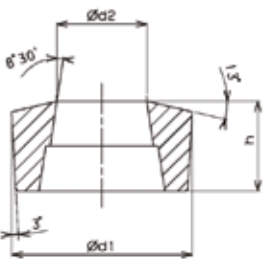
# Ziehschälringe und Fassungen

## Shaving nibs and casings



Die wirtschaftliche Methode zur Herstellung von geschältem Stahl und Nichteisenmetallen vom Ring zum Ring bei Durchmessern von ca. 3 bis 15 mm. Auf das zu bearbeitende Material bzw. die Ziehmaschine speziell abgestimmte Ziehschälmatrizen auf Anfrage.

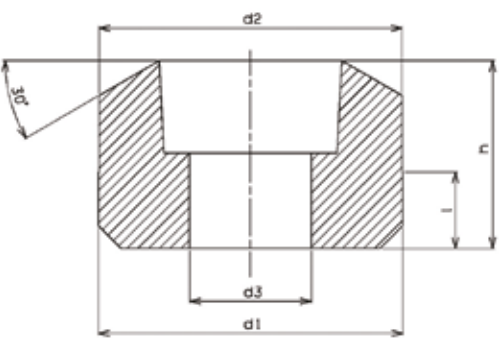
The economic method to produce peeled steel and non ferrous metals from coil to coil for diameters from about 3 to 15 mm. Shaving dies designed to the requirements of material and machine on request.

| <b>Schälring Shaving nibs</b><br><br><b>BM38173</b>                                | <b>Bestellbezeichnung</b><br><b>Ordering Code</b> | Abmessungen in mm<br>Sizes in mm |      |                              |  |  |
|--|---|----------------------------------|------|------------------------------|--|--|
|  |   | d <sub>1</sub>                   | h    | d <sub>2</sub> <sup>*)</sup> |  |  |
|  | <b>BM38173-3-d<sub>2</sub></b>                    | 20,0                             | 10,0 | ≤10,0                        |  |  |
|  | <b>BM38173-4-d<sub>2</sub></b>                    | 24,0                             | 12,0 | >10,0                        |  |  |

Bestellbeispiele: 1 Stück BM38173-3-6,5  
1 Stück BM38173-4-14,0

Order examples: 1 off BM38173-3-6,5  
1 off BM38173-4-14,0

<sup>\*)</sup> Sorten und Toleranzen für den Durchmesser d<sub>2</sub> nach Vereinbarung.  
<sup>\*)</sup> Grades and tolerances on diameter d<sub>2</sub> upon agreement.

| <b>Fassung Casing</b><br><br><b>BM38173</b>   | <b>Bestellbezeichnung</b><br><b>Ordering Code</b> | Abmessungen in mm<br>Sizes in mm |                |                |                |      |      |
|---|---|----------------------------------|----------------|----------------|----------------|------|------|
|   |   | Kernø                            | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | h    | l    |
|  | <b>BM38173-1</b>                                  | 20,0                             | 40,0           | 39,8           | 14,0           | 28,8 | 10,0 |
|   | <b>BM38173-2</b>                                  | 24,0                             | 40,0           | 39,8           | 16,0           | 24,6 | 10,0 |

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info.fr@lmt-tools.com

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Telefax +91 44 244 05 205  
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