NEW

Ingersoll Cutting Tools

GOLDsLOT™
CUTTING WIDTH-ADJUSTABLE SLOT MILLS

SLOT MILL SERIES 4VJ5V
For flat slot bases in cutting width range of 11 - 17 mm
- Sturdy design
- High chip removal capacity
- High process reliability
- High axial runout accuracy

CUTTING WIDTH-ADJUSTABLE SLOT MILLS

No. 145E / 12-2016
Product Overview

The adjustable slot mills presented here supplement the GoldSlot slot mill series with fixed insert pockets in the diameter range 100 - 315 mm, which have already been successfully placed in the market. The new cutting width range is 11 - 17 mm and thus follows the existing series with 3 - 10 mm cutting widths.

The so-called bridge-style insert, developed especially for this series of milling cutters, got its name from the pressed recess, which provides enough depth of engagement for the screw thread, even for narrow widths of cut, as shown in the following illustration.

Application Range

In addition to the known advantages of the tangential design (stability, high chip removal capacity, high process reliability), this new tool series also makes it possible to generate a flat slot base, without V-shape. This is made possible by a special grinding angle on the insert, which compensates the angular error that is caused by the lateral release of the insert in the main body.

The corner radii in the standard range are R0.4 / R0.8 / R1.6 and R3.2 mm, depending on the respective insert type and the cutting width of the tool.

The cutting width range 11 - 17 mm is covered by just 2 insert types.

Advantages

- High economic efficiency thanks to 4 cutting edges with double-positive geometry.
- Different corner radii are available.
- Large selection of carbide qualities for machining all kinds of materials.
- The same insert can be used in right and left insert pockets.
- Flat slot base.
- High process reliability thanks to the tangential mounting position of the cutting edge.
- Precise axial runout and cutting width adjustment.

This series offers an economic and competitive slot-milling concept in conjunction with inserts with the latest coating technology.
Technical Features

1. Stable insert clamping with bridge-style design
2. Positive insert design for a smooth cut
3. Insert contact surfaces
4. Insert contact surface

- 4 cutting edges for high economic efficiency
- Ground insert for precise machining results
ADAPTION ACC. TO DIN 8030

Designation | D | d | d1 | L | b | Z | Zeff
---|---|---|---|---|---|---|---
4VJ5V100011F2R00 | 100 | 27 | 47 | 45 | 11-13 | 6 | 3 | 0,67
4VJ5V125011E9R00 | 125 | 32 | 58 | 45 | 11-13 | 8 | 4 | 1,14
4VJ5V160011ESR00 | 160 | 40 | 70 | 45 | 11-13 | 12 | 6 | 1,76
4VJ5V200011ESR00 | 200 | 40 | 90 | 45 | 11-13 | 14 | 7 | 3,24
4VJ5V250011F6R00 | 250 | 60 | 130 | 45 | 11-13 | 18 | 9 | 5,31
4VJ5V315011F6R00 | 315 | 60 | 130 | 45 | 11-13 | 20 | 10 | 7,41

IXH415-G01

Designation | fz(min/max) | Design | Gold | IN05S | IN4005 | IN4030 | IN4035
---|---|---|---|---|---|---|---
IXH415-G01 | 0,08/0,25 | positive geometry R0,4 | | | | | |
IXH415-G02 | 0,08/0,25 | positive geometry R0,8 | | | | | |
IXH415-G03 | 0,08/0,25 | positive geometry R1,6 | | | | | |
IXH415-G04 | 0,08/0,25 | positive geometry R3,2 | | | | | |
IXH415-G01-P | 0,05/0,20 | positive geometry R0,4, polished | | | | | |

SPARE PARTS

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert screw</td>
<td>Screw driver</td>
<td>Cartridge RH</td>
<td>Cartridge LH</td>
<td>Adjusting screw</td>
<td>Differential screw</td>
<td>Wedge</td>
</tr>
</tbody>
</table>

SM40-D90-02 (4,5Nm) 05-1155 4VW101100 4VW101100 SC080-01 SB040-07 2K0410-02
ADAPTION ACC. TO DIN 8030

<table>
<thead>
<tr>
<th>Designation</th>
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<th>d</th>
<th>d1</th>
<th>L</th>
<th>b</th>
<th>Z</th>
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<tr>
<td>4VJ5V100013F2R00</td>
<td>100</td>
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<td>47</td>
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<td>13-17</td>
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<td>3</td>
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<td>4VJ5V125013E9R00</td>
<td>125</td>
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<td>58</td>
<td>45</td>
<td>13-17</td>
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<tr>
<td>4VJ5V160013E5R00</td>
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<td>70</td>
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<td>13-17</td>
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<td>6</td>
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<tr>
<td>4VJ5V200013F5R00</td>
<td>200</td>
<td>40</td>
<td>90</td>
<td>45</td>
<td>13-17</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>4VJ5V250013F6R00</td>
<td>250</td>
<td>60</td>
<td>130</td>
<td>45</td>
<td>13-17</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>4VJ5V315013F6R00</td>
<td>315</td>
<td>60</td>
<td>130</td>
<td>45</td>
<td>13-17</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

IXH416-G01
- Designation: IXH416-G01
- Design: IN05S IN4005 IN4030 IN4035
- Grade: P, M, K, N, S, H

IXH416-G02
- Designation: IXH416-G02
- Design: IN05S IN4005 IN4030 IN4035
- Grade: P, M, K, N, S, H

IXH416-G03
- Designation: IXH416-G03
- Design: IN05S IN4005 IN4030 IN4035
- Grade: P, M, K, N, S, H

IXH416-G04
- Designation: IXH416-G04
- Design: IN05S IN4005 IN4030 IN4035
- Grade: P, M, K, N, S, H

IXH416-G01-P
- Designation: IXH416-G01-P
- Design: IN05S IN4005 IN4030 IN4035
- Grade: P, M, K, N, S, H

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<table>
<thead>
<tr>
<th>Part</th>
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<td>Wedge</td>
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</tbody>
</table>

Ingersoll Cutting Tools
Adjustment Instructions

5. Repeat steps 1 - 4 for the opposite cartridge and proceed diagonally until all cutter slots are mounted with cartridges.
7. After the exact cutting edge position has been reached, please tighten the differential screw [2] with a torque wrench adjusted 2.5 Nm.
8. Repeat steps 6 - 7 for all cartridges, until the exact cutting width is adjusted and an axial run-out of 0,02 - 0,03 mm has been reached.
## Tips and Parameters

**Insert:** IXH415 / IXH416

**Average chip thickness:**
- **HM = 0.15 mm**

### Recommended Cutting Data:

<table>
<thead>
<tr>
<th>Material</th>
<th>Cutting Speed</th>
<th>Vc [m/min]</th>
<th>Average Chip Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unalloyed Steel</td>
<td>IN4005</td>
<td>150 – 250</td>
<td>IN4030 120 – 200</td>
</tr>
<tr>
<td>Alloyed Steel 800 N/mm²</td>
<td>IN4005</td>
<td>120 – 180</td>
<td>IN4030 100 – 160</td>
</tr>
<tr>
<td>Alloyed Steel 1100 N/mm²</td>
<td>IN4005</td>
<td>100 – 180</td>
<td>IN4030 80 – 160</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>IN4005</td>
<td>80 – 160</td>
<td>IN4035 80 – 160</td>
</tr>
<tr>
<td>Gray Cast Iron</td>
<td>IN4035</td>
<td>160 – 250</td>
<td>IN4030 140 – 200</td>
</tr>
<tr>
<td>Nodular Cast Iron</td>
<td>IN4030</td>
<td>120 – 200</td>
<td>IN4030 100 – 180</td>
</tr>
<tr>
<td>Aluminum</td>
<td>IN055</td>
<td>500 – 1200</td>
<td>IN055 400 – 800</td>
</tr>
<tr>
<td>High Temperature Alloys</td>
<td>IN4005</td>
<td>50 – 80</td>
<td>IN4030 40 – 70</td>
</tr>
<tr>
<td>Titanium Alloys</td>
<td>–</td>
<td>–</td>
<td>IN4005 30 – 40</td>
</tr>
<tr>
<td>Hard Machining &lt; 54 HRC</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Hard Machining &lt; 63 HRC</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

### Tips:
- The worse the material machinability, the smaller the tool engagement should be chosen.
- The smaller the cutting tool diameter, the higher the cutting speed can be.
- If tool engagement is less than 1/3 of cutting tool diameter, the feed per tooth should be calculated with the following formula:

\[ f_z = hm \times \sqrt{\frac{D}{ae}} \]

### General Information:

- **Insert Screw Size 415:** SM40-090-00
  - **Torque:** 4.5 Nm
  - **Torque Wrench:** DT-40-01 with bit DS-T15B

- **Insert Screw Size 416:** SM40-110-00
  - **Torque:** 4.5 Nm
  - **Torque Wrench:** DT-40-01 with bit DS-T15B

Successful machining results depend on many factors, so cutting data recommendations can only be a rough guideline. Therefore, in any case of doubt, do not hesitate to contact your Ingersoll partner.