

CARBIDE

HSS

CBN  
END MILLSi-Xmill  
END MILLSi-HS mill  
END MILLSX5070  
END MILLS4G MILL  
END MILLSX-SPEED  
ROUGHER  
END MILLSX-POWER  
END MILLSJET-POWER  
END MILLSTN MILL  
END MILLSV7 Mill  
END MILLSALU-POWER  
END MILLSCRX S  
END MILLSD-POWER  
GRAPHITE  
END MILLSD-POWER  
CFRP  
END MILLS

ROUTERS

K-2 CARBIDE  
END MILLSGENERAL  
CARBIDE  
END MILLSTANK-POWER  
END MILLSGENERAL  
HSS  
END MILLSMILLING  
CUTTERSTECHNICAL  
DATA

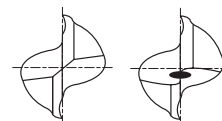
**TANK-POWER  
END MILLS**
**E9936** SERIESFLAT SHANK  
SEITLICHE MITNAHMEFLÄCHEN**GA936** SERIESFLAT SHANK  
SEITLICHE MITNAHMEFLÄCHEN

## PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH

### PREMIUM HSS-PM, 2 SCHNEIDEN KURZ

- Designed to machine carbon steels, alloyed steels, stainless steels.
- 2 Flute design for slotting.
- Suitable for high speed cutting of difficult - to - cut materials.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- 2 Schneiden, Geeignet für Nutenfräsen.
- Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø3mm over Ø3mm



P.1150, 1151

Unit : mm

| EDP No.  |                   | Mill Diameter<br>e8 | Shank Diameter<br>h6 | Length of Cut | Overall Length |
|----------|-------------------|---------------------|----------------------|---------------|----------------|
| UNCOATED | TANK-POWER COATED |                     |                      |               |                |
| E9936010 | GA936010          | 1.0                 | 6                    | 2.5           | 47             |
| E9936020 | GA936020          | 2.0                 | 6                    | 4             | 48             |
| E9936030 | GA936030          | 3.0                 | 6                    | 5             | 49             |
| E9936040 | GA936040          | 4.0                 | 6                    | 7             | 51             |
| E9936050 | GA936050          | 5.0                 | 6                    | 8             | 52             |
| E9936060 | GA936060          | 6.0                 | 6                    | 8             | 52             |
| E9936070 | GA936070          | 7.0                 | 10                   | 10            | 60             |
| E9936080 | GA936080          | 8.0                 | 10                   | 11            | 61             |
| E9936090 | GA936090          | 9.0                 | 10                   | 11            | 61             |
| E9936100 | GA936100          | 10.0                | 10                   | 13            | 63             |
| E9936120 | GA936120          | 12.0                | 12                   | 16            | 73             |
| E9936140 | GA936140          | 14.0                | 12                   | 16            | 73             |
| E9936160 | GA936160          | 16.0                | 16                   | 19            | 79             |
| E9936180 | GA936180          | 18.0                | 16                   | 19            | 79             |
| E9936200 | GA936200          | 20.0                | 20                   | 22            | 88             |
| E9936220 | GA936220          | 22.0                | 20                   | 22            | 88             |
| E9936250 | GA936250          | 25.0                | 25                   | 26            | 102            |

#### Tolerances according to DIN 7160 & 7161

#### Toleranzen nach DIN 7160 & 7161

| Tolerance range in $\mu\text{m}$ / Toleranzwerte in $\mu\text{m}$ |                            |                             |                               |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-------------------------------|---------------------------------|---------------------------------|
| Nominal-Diameter in mm / Nennmaßbereich in mm                     |                            |                             |                               |                                 |                                 |
|                                                                   | from 1 to 3<br>von 1 bis 3 | over 3 to 6<br>über 3 bis 6 | over 6 to 10<br>über 6 bis 10 | over 10 to 18<br>über 10 bis 18 | over 18 to 30<br>über 18 bis 30 |
| e8                                                                | — 14<br>— 28               | — 20<br>— 38                | — 25<br>— 47                  | — 32<br>— 59                    | — 40<br>— 73                    |
| h6                                                                | 0<br>— 6                   | 0<br>— 8                    | 0<br>— 9                      | 0<br>— 11                       | 0<br>— 13                       |

◎ : Excellent ○ : Good

| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |          | High Hardened Steels | Copper | Graphite | Cast Iron | Aluminum | Stainless Steels | Titanium | Inconel | Acrylic | CFRP |
|---------------|--------------|--------------------|-----------------|----------|----------------------|--------|----------|-----------|----------|------------------|----------|---------|---------|------|
| ~HB225        | HB225~325    | HRC30~40           | HRc40~45        | HRc45~55 | HRc55~70             |        |          |           |          |                  |          |         |         |      |
| ◎             | ◎            | ○                  |                 |          |                      | ○      |          | ◎         |          | ◎                |          |         |         |      |

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YG-1 CO., LTD.



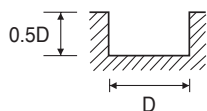
## RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN

### PREMIUM HSS-PM, 2 FLUTE - SLOTTING PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

#### GA936, GAA29 SERIES

| MATERIAL | STRUCTURAL STEELS<br>CARBON STEELS |      |    |       | STRUCTURAL STEELS<br>CARBON STEELS<br>CAST IRONS |      |    |       | CARBON STEELS<br>ALLOY STEELS<br>TOOL STEELS |      |    |       |
|----------|------------------------------------|------|----|-------|--------------------------------------------------|------|----|-------|----------------------------------------------|------|----|-------|
| HARDNESS |                                    |      |    |       | ~ HRc20                                          |      |    |       | HRc20 ~ HRc30                                |      |    |       |
| STRENGTH | ~ 500N/mm <sup>2</sup>             |      |    |       | 500 ~ 800N/mm <sup>2</sup>                       |      |    |       | 800 ~ 1000N/mm <sup>2</sup>                  |      |    |       |
| DIAMETER | RPM                                | FEED | Vc | fz    | RPM                                              | FEED | Vc | fz    | RPM                                          | FEED | Vc | fz    |
| 2.0      | 7000                               | 115  | 45 | 0.008 | 5900                                             | 90   | 35 | 0.008 | 4900                                         | 80   | 30 | 0.008 |
| 3.0      | 5000                               | 160  | 45 | 0.016 | 4100                                             | 135  | 40 | 0.016 | 3350                                         | 115  | 30 | 0.017 |
| 4.0      | 4300                               | 230  | 55 | 0.027 | 3600                                             | 175  | 45 | 0.024 | 3150                                         | 160  | 40 | 0.025 |
| 5.0      | 3900                               | 255  | 60 | 0.033 | 3250                                             | 200  | 50 | 0.031 | 2600                                         | 185  | 40 | 0.036 |
| 6.0      | 3500                               | 265  | 65 | 0.038 | 2900                                             | 210  | 55 | 0.036 | 2300                                         | 190  | 45 | 0.041 |
| 8.0      | 2600                               | 275  | 65 | 0.053 | 2200                                             | 240  | 55 | 0.055 | 1800                                         | 200  | 45 | 0.056 |
| 10.0     | 2100                               | 300  | 65 | 0.071 | 1800                                             | 265  | 55 | 0.074 | 1450                                         | 230  | 45 | 0.079 |
| 12.0     | 1800                               | 275  | 70 | 0.076 | 1450                                             | 240  | 55 | 0.083 | 1150                                         | 210  | 45 | 0.091 |
| 14.0     | 1600                               | 265  | 70 | 0.083 | 1250                                             | 210  | 55 | 0.084 | 1000                                         | 195  | 45 | 0.098 |
| 16.0     | 1350                               | 265  | 70 | 0.098 | 1150                                             | 195  | 60 | 0.085 | 890                                          | 180  | 45 | 0.101 |
| 18.0     | 1150                               | 240  | 65 | 0.104 | 950                                              | 195  | 55 | 0.103 | 790                                          | 160  | 45 | 0.101 |
| 20.0     | 950                                | 220  | 60 | 0.116 | 780                                              | 165  | 50 | 0.106 | 700                                          | 150  | 45 | 0.107 |
| 22.0     | 840                                | 185  | 60 | 0.110 | 710                                              | 150  | 50 | 0.106 | 600                                          | 125  | 40 | 0.104 |
| 25.0     | 750                                | 155  | 60 | 0.103 | 630                                              | 140  | 50 | 0.111 | 490                                          | 115  | 40 | 0.117 |

| MATERIAL | PREHARDENED STEELS<br>ALLOY STEELS<br>TOOL STEELS |      |    |       | ALLOY STEELS<br>TOOL STEELS<br>AUSTENITIC STAINLESS STEELS |      |    |       |
|----------|---------------------------------------------------|------|----|-------|------------------------------------------------------------|------|----|-------|
| HARDNESS | HRc30 ~ HRc35                                     |      |    |       | HRc35 ~ HRc40                                              |      |    |       |
| STRENGTH | 1000 ~ 1100N/mm <sup>2</sup>                      |      |    |       | 1100 ~ 1300N/mm <sup>2</sup>                               |      |    |       |
| DIAMETER | RPM                                               | FEED | Vc | fz    | RPM                                                        | FEED | Vc | fz    |
| 2.0      | 3150                                              | 65   | 20 | 0.010 | 2000                                                       | 40   | 15 | 0.010 |
| 3.0      | 2300                                              | 80   | 20 | 0.017 | 1800                                                       | 62   | 15 | 0.017 |
| 4.0      | 2000                                              | 92   | 25 | 0.023 | 1600                                                       | 75   | 20 | 0.023 |
| 5.0      | 1700                                              | 102  | 25 | 0.030 | 1350                                                       | 75   | 20 | 0.028 |
| 6.0      | 1450                                              | 110  | 25 | 0.038 | 1150                                                       | 85   | 20 | 0.037 |
| 8.0      | 1150                                              | 115  | 30 | 0.050 | 890                                                        | 85   | 20 | 0.048 |
| 10.0     | 900                                               | 125  | 30 | 0.069 | 700                                                        | 102  | 20 | 0.073 |
| 12.0     | 740                                               | 115  | 30 | 0.078 | 580                                                        | 85   | 20 | 0.073 |
| 14.0     | 630                                               | 110  | 30 | 0.087 | 500                                                        | 80   | 20 | 0.080 |
| 16.0     | 560                                               | 102  | 30 | 0.091 | 440                                                        | 80   | 20 | 0.091 |
| 18.0     | 500                                               | 100  | 30 | 0.100 | 400                                                        | 75   | 25 | 0.094 |
| 20.0     | 440                                               | 92   | 30 | 0.105 | 360                                                        | 70   | 25 | 0.097 |
| 22.0     | 400                                               | 80   | 30 | 0.100 | 320                                                        | 55   | 20 | 0.086 |
| 25.0     | 360                                               | 75   | 30 | 0.104 | 250                                                        | 52   | 20 | 0.104 |



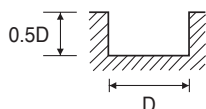
※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.  
FEED = mm/min.  
Vc = m/min.  
fz = mm/t

**PREMIUM HSS-PM, 2 FLUTE - SLOTTING**  
**PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN**
**E9936, E9A29 SERIES**

| MATERIAL | STRUCTURAL STEELS<br>CARBON STEELS |      |    |       | STRUCTURAL STEELS<br>CARBON STEELS<br>CAST IRONS |      |    |       | CARBON STEELS<br>ALLOY STEELS<br>TOOL STEELS |      |    |       |
|----------|------------------------------------|------|----|-------|--------------------------------------------------|------|----|-------|----------------------------------------------|------|----|-------|
| HARDNESS |                                    |      |    |       | ~ HRc20                                          |      |    |       | HRc20 ~ HRc30                                |      |    |       |
| STRENGTH | ~ 500N/mm <sup>2</sup>             |      |    |       | 500 ~ 800N/mm <sup>2</sup>                       |      |    |       | 800 ~ 1000N/mm <sup>2</sup>                  |      |    |       |
| DIAMETER | RPM                                | FEED | Vc | fz    | RPM                                              | FEED | Vc | fz    | RPM                                          | FEED | Vc | fz    |
| 2.0      | 4800                               | 70   | 30 | 0.007 | 4000                                             | 55   | 25 | 0.007 | 3300                                         | 50   | 20 | 0.008 |
| 3.0      | 3300                               | 100  | 30 | 0.015 | 2800                                             | 85   | 25 | 0.015 | 2200                                         | 75   | 20 | 0.017 |
| 4.0      | 2900                               | 140  | 35 | 0.024 | 2400                                             | 110  | 30 | 0.023 | 2100                                         | 100  | 25 | 0.024 |
| 5.0      | 2600                               | 160  | 40 | 0.031 | 2200                                             | 125  | 35 | 0.028 | 1800                                         | 115  | 30 | 0.032 |
| 6.0      | 2300                               | 160  | 45 | 0.035 | 2000                                             | 135  | 40 | 0.034 | 1600                                         | 120  | 30 | 0.038 |
| 8.0      | 1800                               | 170  | 45 | 0.047 | 1500                                             | 150  | 40 | 0.050 | 1200                                         | 125  | 30 | 0.052 |
| 10.0     | 1400                               | 180  | 45 | 0.064 | 1200                                             | 165  | 40 | 0.069 | 1000                                         | 140  | 30 | 0.070 |
| 12.0     | 1200                               | 170  | 45 | 0.071 | 1000                                             | 150  | 40 | 0.075 | 800                                          | 130  | 30 | 0.081 |
| 14.0     | 1100                               | 160  | 50 | 0.073 | 850                                              | 140  | 35 | 0.082 | 680                                          | 120  | 30 | 0.088 |
| 16.0     | 900                                | 160  | 45 | 0.089 | 750                                              | 135  | 40 | 0.090 | 600                                          | 110  | 30 | 0.092 |
| 18.0     | 800                                | 150  | 45 | 0.094 | 640                                              | 120  | 35 | 0.094 | 530                                          | 100  | 30 | 0.094 |
| 20.0     | 640                                | 130  | 40 | 0.102 | 540                                              | 100  | 35 | 0.093 | 480                                          | 95   | 30 | 0.099 |
| 22.0     | 570                                | 110  | 40 | 0.096 | 480                                              | 90   | 35 | 0.094 | 400                                          | 75   | 30 | 0.094 |
| 25.0     | 510                                | 95   | 40 | 0.093 | 430                                              | 85   | 35 | 0.099 | 340                                          | 70   | 25 | 0.103 |

| MATERIAL | PREHARDENED STEELS<br>ALLOY STEELS<br>TOOL STEELS |      |    |       | ALLOY STEELS<br>TOOL STEELS<br>AUSTENITIC STAINLESS STEELS |      |    |       |
|----------|---------------------------------------------------|------|----|-------|------------------------------------------------------------|------|----|-------|
| HARDNESS | HRc30 ~ HRc35                                     |      |    |       | HRc35 ~ HRc40                                              |      |    |       |
| STRENGTH | 1000 ~ 1100N/mm <sup>2</sup>                      |      |    |       | 1100 ~ 1300N/mm <sup>2</sup>                               |      |    |       |
| DIAMETER | RPM                                               | FEED | Vc | fz    | RPM                                                        | FEED | Vc | fz    |
| 2.0      | 2100                                              | 40   | 15 | 0.010 | 1300                                                       | 25   | 10 | 0.010 |
| 3.0      | 1600                                              | 50   | 15 | 0.016 | 1200                                                       | 40   | 10 | 0.017 |
| 4.0      | 1300                                              | 60   | 15 | 0.023 | 1050                                                       | 45   | 15 | 0.021 |
| 5.0      | 1100                                              | 65   | 15 | 0.030 | 900                                                        | 45   | 15 | 0.025 |
| 6.0      | 1000                                              | 65   | 20 | 0.033 | 750                                                        | 55   | 15 | 0.037 |
| 8.0      | 750                                               | 70   | 20 | 0.047 | 600                                                        | 55   | 15 | 0.046 |
| 10.0     | 600                                               | 80   | 20 | 0.067 | 480                                                        | 65   | 15 | 0.068 |
| 12.0     | 500                                               | 70   | 20 | 0.070 | 400                                                        | 55   | 15 | 0.069 |
| 14.0     | 430                                               | 65   | 20 | 0.076 | 340                                                        | 50   | 15 | 0.074 |
| 16.0     | 380                                               | 65   | 20 | 0.086 | 300                                                        | 50   | 15 | 0.083 |
| 18.0     | 340                                               | 55   | 20 | 0.081 | 270                                                        | 45   | 15 | 0.083 |
| 20.0     | 300                                               | 55   | 20 | 0.092 | 240                                                        | 40   | 15 | 0.083 |
| 22.0     | 270                                               | 50   | 20 | 0.093 | 210                                                        | 35   | 15 | 0.083 |
| 25.0     | 240                                               | 45   | 20 | 0.094 | 175                                                        | 30   | 15 | 0.086 |



RPM = rev./min.  
FEED = mm/min.  
Vc = m/min.  
fz = mm/t