

| MATERIAL GROUP | Vc (m/min) | |
|----------------|------------|-----------------|
| | HAND | MACHINE (6412F) |
| 1-5 | | 5~10 |
| 13-14 | | 5~10 |
| 16-19-20 | | 5~10 |



| MATERIAL GROUPS / GRUPPI MATERIALE WERKSTOFFEGRUPPE / GROUPES MATIÈRE | | | | | | | | 1-5 13 14 16 19 20 | | 1-5 13 14 16 19 20 | |
|--|--------|-------|-----|----|----|------|-------|-----------------------|---|-----------------------|--|
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Dxn | D(mm) | Ø | L | l | d | k | Stock | Stock | | | |
| G 1/8x28 | 9.728 | 8.75 | 63 | 20 | 7 | 5.5 | ● | ● | ● | | |
| 1/4x19 | 13.157 | 11.8 | 70 | 22 | 11 | 9 | ● | ● | ● | | |
| 3/8x19 | 16.662 | 15.25 | 70 | 22 | 12 | 9 | ● | ● | ● | | |
| 1/2x14 | 20.955 | 19 | 80 | 22 | 16 | 12 | ● | ● | ● | | |
| 5/8x14 | 22.911 | 21 | 80 | 22 | 18 | 14.5 | | | | | |
| 3/4x14 | 26.441 | 24.5 | 90 | 22 | 20 | 16 | ○ | ○ | ○ | | |
| 7/8x14 | 30.201 | 28.25 | 90 | 22 | 22 | 18 | | | | | |
| 1 x11 | 33.249 | 30.75 | 100 | 25 | 25 | 20 | ○ | ○ | ○ | | |
| 1 1/8x11 | 37.897 | 35.2 | 125 | 40 | 28 | 22 | | | | | |
| 1 1/4x11 | 41.910 | 39.2 | 125 | 40 | 32 | 24 | | | | | |
| 1 3/8x11 | 44.320 | 42 | 125 | 40 | 36 | 29 | | | | | |
| 1 1/2x11 | 47.803 | 45.2 | 140 | 40 | 36 | 29 | | | | | |
| 1 3/4x11 | 53.746 | 51.2 | 140 | 40 | 40 | 32 | | | | | |
| 2 x11 | 59.614 | 57.2 | 160 | 40 | 45 | 35 | | | | | |

*Tol. page 52

● stock standard ○ non-standard stock △ on request EX stock exhaustion



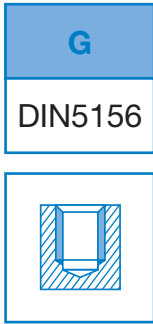
G 1/8 ~1 1/4
1 3/8 ~2

4

4

6

6



| MATERIAL GROUP | Vc (m/min) | |
|----------------|-------------|---------------|
| | BR-OX-NX-NI | TiN-TiCN PV15 |
| 1-5 | 5~20 | 10~25 |
| 6 | 5~10 | |
| 9-10 | 10~20 | 10~20 |
| 13-14 | 8~15 | 12~25 |
| 15-20 | 10~20 | 15~25 |



| MATERIAL GROUPS / GRUPPI MATERIALE WERKSTOFFEGRUPPE / GROUPES MATIÈRE | | | | | | | | | 1-5 13 14 15-20 | 1-5 9 10 | 1-5 9 10 13 14 | 3-5 9-12 | 1-5 9 10 | 4 5 6 |
|--|--------|-------|-----|----|----|-----|----|------|--------------------|------------|-------------------|------------|------------|-------|
| | | | | | | | | | 40° | 40° | 40° | BLF45° | 45° | 40° |
| | | | | | | | | | HSSE | HSSE | HSSE | HSSE | HSSE | HSSE |
| | | | | | | | | | BR | OX | TiCN | OX | OX | OX |
| | | | | | | | | | Tol * | Tol * | Tol * | Tol * | Tol * | Tol * |
| | | | | | | | | | 2P-3P C | 2P-3P C | 2P-3P C | 2P-3P C | 2P-3P C | 3P |
| Dxn | D(mm) | Ø | L | l | ** | l2 | d | k | Stock | Stock | Stock | Stock | Stock | Stock |
| G 1/8x28 | 9.728 | 8.75 | 90 | 12 | 20 | 30 | 7 | 5.5 | ● | ● | ● | ● | ● | ● |
| 1/4x19 | 13.157 | 11.8 | 100 | 14 | 22 | 40 | 11 | 9 | ● | ● | ● | ● | ● | ● |
| 3/8x19 | 16.662 | 15.25 | 100 | 14 | 22 | 50 | 12 | 9 | ● | ● | ● | ● | ● | ● |
| 1/2x14 | 20.955 | 19 | 125 | 18 | 25 | 63 | 16 | 12 | ● | ● | ● | ● | ● | ● |
| 5/8x14 | 22.911 | 21 | 125 | 18 | | 63 | 18 | 14.5 | ● | ○ | | | | |
| 3/4x14 | 26.441 | 24.5 | 140 | 20 | 28 | 71 | 20 | 16 | ● | ● | ○ | ● | ● | |
| 7/8x14 | 30.201 | 28.25 | 150 | 20 | | 80 | 22 | 18 | | | | | | |
| 1 x11 | 33.249 | 30.75 | 160 | 20 | | 90 | 25 | 20 | ● | ● | ○ | | | |
| 1 1/4x11 | 41.910 | 39.2 | 170 | 20 | | 95 | 32 | 24 | | ● | | | | |
| 1 1/2x11 | 47.803 | 45.2 | 190 | 25 | | 106 | 36 | 29 | | ● | | | | |

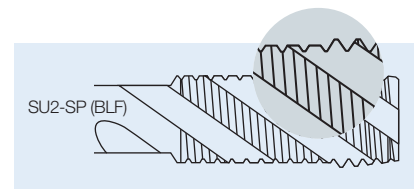
*Tol. page 52

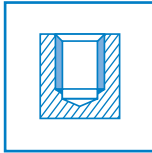
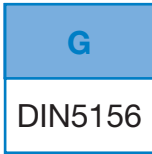
**I-99440X

● stock standard ○ non-standard stock △ on request EX stock exhaustion



| | | | | | |
|-------------|---|---|---|---|---|
| G 1/8 | 3 | 3 | 3 | 3 | 3 |
| 1/4 ~ 3/8 | 3 | 3 | 3 | 3 | 4 |
| 1/2 ~ 5/8 | 4 | 4 | 4 | 4 | 4 |
| 3/4-1 | 4 | 4 | 4 | 4 | 5 |
| 1 1/4-1 1/2 | | 4 | | | |





| MATERIAL GROUP | Vc (m/min) | |
|----------------|-------------|---------------|
| | BR-OX-NX-NI | TiN-TiCN PV15 |
| 1-5 | 5~15 | 10~20 |
| 13-14 | 10~15 | 15~25 |
| 15-20 | 10~20 | 15~25 |



| GRUPPI MATERIALE / MATERIAL GROUPS WERKSTOFFEGRUPPE / GROUPES MATIÈRE | | | | | | | | 1-5 13 14 15-20 | 1-5 | 1-5 13 14 15 16 18-20 |
|--|--------|-------|-----|----|----|-----|-------|--------------------|--------------|--------------------------|
| | | | | | | | | 20° ** | 20° ** | 20° ** |
| | | | | | | | | HSSE BR | HSSE OX | HSSE TiCN |
| | | | | | | | | Tol * | Tol * | Tol * |
| | | | | | | | | 3.5P-5P D | 3.5P-5P D | 3.5P-5P D |
| Dxn | D(mm) | Ø | L | l | d | k | Stock | Stock | Stock | |
| G 1/8x28 | 9.728 | 8.75 | 90 | 20 | 7 | 5.5 | ● | ● | ● | |
| 1/4x19 | 13.157 | 11.8 | 100 | 22 | 11 | 9 | ● | ● | ● | |
| 3/8x19 | 16.662 | 15.25 | 100 | 22 | 12 | 9 | ○ | ● | ○ | |
| 1/2x14 | 20.955 | 19 | 125 | 25 | 16 | 12 | ○ | ● | ○ | |
| 3/4x14 | 26.441 | 24.5 | 140 | 28 | 20 | 16 | | ○ | | |
| 1 x11 | 33.249 | 30.75 | 160 | 30 | 25 | 20 | | ○ | | |

*Tol. page 52

**G 1/8 ~ G 5/8 LOSP = 20°

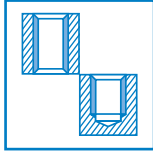
**G 3/4 ~ LOSP = 15°

● stock standard ○ non-standard stock △ on request EX stock exhaustion



| G | 1/8 ~ 3/8 | 3 | 3 | 3 |
|---|-----------|---|---|---|
| | 1/2 ~1 | 4 | 4 | 4 |

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DIN5156



| MATERIAL GROUP | Vc (m/min) | |
|----------------|-------------|---------------|
| | BR-OX-NX-NI | TiN-TiCN PV15 |
| 1-5 | 5~10 | |
| 6-7 | 3~8 | |
| 13-14 | 10~20 | 15~30 |
| 16-19-20 | 10~20 | 15~30 |
| 21 | 3~5 | |



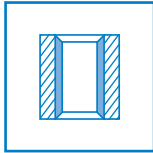
| MATERIAL GROUPS / GRUPPI MATERIALE WERKSTOFFEGRUPPE / GROUPES MATIÈRE | | | | | | | | 5 6 7 | 1-5 13 14 16 19 20 | 13 14 16 19 20 21 | 13 14 16 19 20 |
|--|--------|-------|-----|----|----|-----|-------|--------------|-----------------------|----------------------|-------------------|
| | | | | | | | | STR | STR | STR | STR |
| | | | | | | | | HSS/Co BR | HSSE BR | HSSE NI | HSSE TiCN |
| | | | | | | | | Tol * | Tol * | Tol * | Tol * |
| | | | | | | | | 2P-3P C | 2P-3P C | 2P-3P C | 2P-3P C |
| Dxn | D(mm) | Ø | L | l | d | k | Stock | Stock | Stock | Stock | |
| G 1/8x28 | 9.728 | 8.75 | 90 | 20 | 7 | 5.5 | ● | ○ | ● | ● | |
| 1/4x19 | 13.157 | 11.8 | 100 | 22 | 11 | 9 | ● | ○ | ● | ● | |
| 3/8x19 | 16.662 | 15.25 | 100 | 22 | 12 | 9 | ● | ○ | ● | ● | |
| 1/2x14 | 20.955 | 19 | 125 | 25 | 16 | 12 | ● | ○ | ● | ● | |
| 3/4x14 | 26.441 | 24.5 | 140 | 28 | 20 | 16 | | | ● | ○ | |
| 1 x11 | 33.249 | 30.75 | 160 | 30 | 25 | 20 | | | ● | ○ | |

*Tol. page 52

● stock standard ○ non-standard stock △ on request EX stock exhaustion



| | | | | |
|-------------|---|---|---|---|
| G 1/8 ~ 1/2 | 4 | 3 | 4 | 4 |
| 3/4 ~ 1 | 4 | 4 | 4 | 4 |



| MATERIAL GROUP | Vc (m/min) | |
|----------------|-------------|---------------|
| | BR-OX-NX-NI | TiN-TiCN PV15 |
| 1-5 | 5~15 | 10~25 |
| 9-10 | 3~7 | 5~10 |
| 13-14 | 8~15 | 12~25 |
| 15-20 | 10~20 | 15~25 |



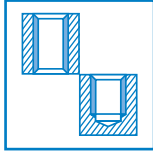
| MATERIAL GROUPS / GRUPPI MATERIALE WERKSTOFFEGRUPPE / GROUPES MATIÈRE | | | | | | | | 1-5 13 14 15-20 | 1-5 9 10 | 1-5 9 10 13 14 15 16 18-20 |
|--|--------|-------|-----|----|----|------|-------|--------------------|----------|----------------------------------|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Dxn | D(mm) | Ø | L | l | d | k | Stock | Stock | Stock | |
| G 1/8x28 | 9.728 | 8.75 | 90 | 20 | 7 | 5.5 | ● | ● | ● | |
| 1/4x19 | 13.157 | 11.8 | 100 | 22 | 11 | 9 | ● | ● | ● | |
| 3/8x19 | 16.662 | 15.25 | 100 | 22 | 12 | 9 | ● | ● | ● | |
| 1/2x14 | 20.955 | 19 | 125 | 25 | 16 | 12 | ● | ● | ● | |
| 5/8x14 | 22.911 | 21 | 125 | 25 | 18 | 14.5 | ○ | | | |
| 3/4x14 | 26.441 | 24.5 | 140 | 28 | 20 | 16 | ● | ● | ○ | |
| 7/8x14 | 30.201 | 28.25 | 150 | 28 | 22 | 18 | | | | |
| 1 x11 | 33.249 | 30.75 | 160 | 30 | 25 | 20 | ● | ● | ○ | |
| 1 1/4x11 | 41.910 | 39.2 | 170 | 30 | 32 | 24 | ● | | | |
| 1 1/2x11 | 47.803 | 45.2 | 190 | 32 | 36 | 29 | ● | | | |

*Tol. page 52

● stock standard ○ non-standard stock △ on request EX stock exhaustion



| | | | |
|-------------|---|---|---|
| G 1/8 ~ 5/8 | 3 | 3 | 3 |
| 3/4 ~ 1 1/2 | 4 | 4 | 4 |



| MATERIAL GROUP | Vc (m/min) | |
|----------------|-------------|---------------|
| | BR-OX-NX-NI | TiN-TiCN PV15 |
| 1-5 | 5~10 | |
| 13-14 | 8~12 | |
| 16-19-20 | 10~20 | |



MATERIAL GROUPS / GRUPPI MATERIALE
WERKSTOFFEGRUPPE / GROUPES MATIÈRE

1-5 13 14
16 19 20

STR
HSSE
BR
Tol *
3P

| Dxn | D(mm) | \emptyset | L | l | d | k | Stock |
|----------|--------|-------------|-----|----|----|----|-------|
| G1/8 x28 | 9.147 | 8.75 | 150 | 19 | 8 | 6 | ● |
| 1/4 x19 | 12.301 | 11.8 | 150 | 28 | 11 | 9 | ● |
| 3/8 x19 | 15.806 | 15.25 | 150 | 28 | 14 | 11 | ○ |
| 1/2 x14 | 19.793 | 19 | 150 | 35 | 18 | 14 | ○ |

*Tol. page 52

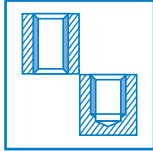
● stock standard ○ non-standard stock △ on request EX stock exhaustion



G 1/8 ~ 1/2

4

G
DIN5156



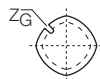
| MATERIAL GROUP | Vc (m/min) | |
|----------------|-------------|---------------|
| | BR-OX-NX-NI | TiN-TiCN PV15 |
| 1-4 | 10~20 | 15~30 |
| 15-20 | 10~20 | 15~30 |



| MATERIAL GROUPS / GRUPPI MATERIALE WERKSTOFFEGRUPPE / GROUPES MATIÈRE | | | | | | | | 1 2 15-20 | 1-4 15-20 |
|--|--------|------|-----|----|----|-----|-------|-----------|-----------|
| | | | | | | | | | |
| | | | | | | | | HSSE | HSSE |
| | | | | | | | | BR | TiN |
| | | | | | | | | Tol * | Tol * |
| | | | | | | | | 2P-3P C | 2P-3P C |
| Dxn | D(mm) | Ø | L | l | d | k | Stock | Stock | |
| G 1/8x28 | 9.728 | 9.25 | 90 | 20 | 7 | 5.5 | ● | ● | |
| 1/4x19 | 13.157 | 12.5 | 100 | 22 | 11 | 9 | ● | ● | |
| 3/8x19 | 16.662 | 16.0 | 100 | 22 | 12 | 9 | ● | ● | |

*Tol. page 52

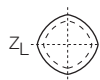
● stock standard ○ non-standard stock △ on request EX stock exhaustion



G 1/8 ~ 3/8

4

4



G 1/8 ~ 3/8

8

8

G - Rp